



Product Catalog 2017-2018

# Automation Devices and Computing

## Enabling Industrial IoT with Intelligent Automation

- WebAccess+ Software and Solutions
- Intelligent Motion Control and Machine Vision
- Power & Energy Automation
- Intelligent HMI, Monitors and Panel Computers
- Control IPCs
- Remote DA&C Systems
- Wireless IoT Sensing Devices
- Ethernet I/O Modules
- RS-485 I/O Modules
- Industrial Ethernet Solutions
- IP Gateway and Serial Device Servers
- iNetworking Solutions

**ADVANTECH**

*Enabling an Intelligent Planet*

[www.advantech.com](http://www.advantech.com)

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# About Advantech

## Advantech: Partnering for Smart City & IoT Solutions

Founded in 1983, Advantech is a leader in providing trusted innovative embedded and automation products and solutions. Advantech offers comprehensive system integration, hardware, software, customer-centric design services, and global logistics support; all backed by industry-leading front and back office e-business solutions. Advantech has always been an innovator in the development and manufacture of high-quality, high-performance computing platforms. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. To realize our corporate vision of Enabling an Intelligent Planet, Advantech will continue collaborating and partnering for smart city and IoT solutions.

## Advantech's Good-to-Great 3-Circle Principle

The Advantech 3-Circle Principle is based on the book "Good to Great," by Jim Collins. According to the book, a company looking for long-term success should clearly address these three fundamental principles, and commit to their continuing, solid execution. Advantech is fully committed to this approach and has defined the Advantech "Good to Great 3-Circle Principle" as a means of adhering to it.



## World-Class Recognition

Advantech is an authorized alliance partner of both Intel® and Microsoft®. Our customers find the technologies we use inside our products to be widely compatible with other products in the global marketplace. Interbrand, the world renowned brand consulting firm, recognized Advantech as one of the Top 20 Taiwanese Global Brands for many years. Advantech appreciates this recognition of our efforts to build a trusted, global brand; it also symbolizes a promise we give to our business partners, which is to keep building a trustworthy brand that is recognized everywhere and improves the lives of all.

## Quality and Environmental Compliance

As a member of the global village, Advantech understands the importance of preserving the environment. Our environmental programs focus on reducing, reusing, and recycling materials used in our manufacturing operations. Advantech's quality and environmental compliance efforts include the following:

- ISO 9001 Certification
- ISO 14001 Certification
- ISO 13485 Certification
- OHSAS 18001 Certification
- TL9000 Certification
- ISO 17025 Certification
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized Sony Green Partner
- REACH SVHC Directive Compliance
- EICC Conflict Minerals Declaration

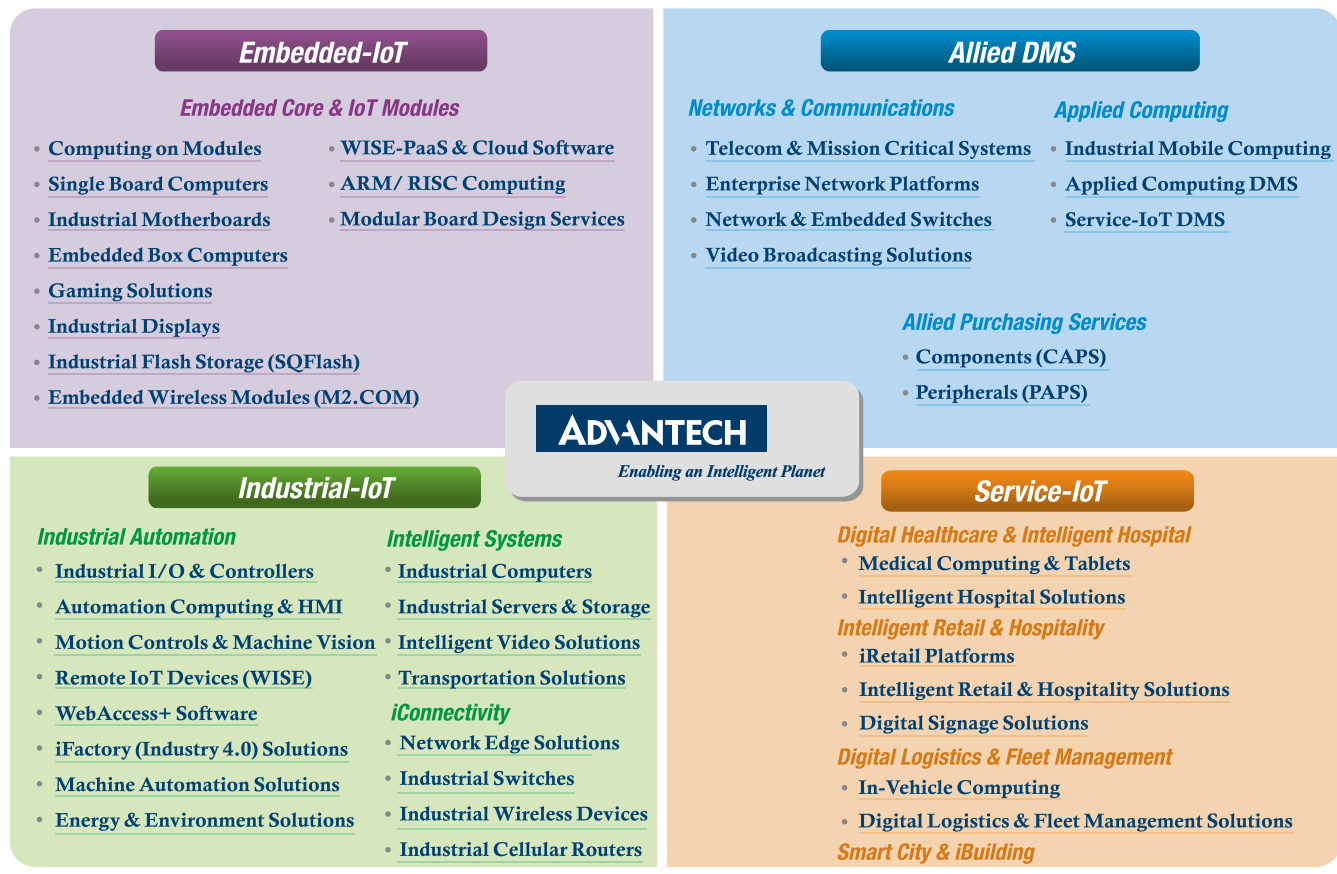


## Timely Support at Your Convenience

Advantech has over 20 regional hotlines and offices throughout 94 cities, in 23 countries with over 8,000 employees to provide efficient, professional services for customer care, product selection, technical support, and order handling. Through our call centers and online stores, customers worldwide enjoy the convenience of Advantech's multi-service channels to reduce business turnaround time. Together with the four customer service centers in Taiwan, China, Europe and the United States, our global service network offers an extensive spectrum of services that includes warehousing, logistics, peripheral certification, sourcing & purchasing, and RMA & value-added services, and technical support & training.



## Advantech Corporate Structure and Growth Engines



In response to Smart City and Industry 4.0 trends, Advantech has established three business groups, namely Embedded Design-In, Industrial-IoT, and Smart City Solutions. These three are aligned to three target markets: Embedded Design-In serves Industrial Equipment Manufacturers (IEMs), and is equivalent to Advantech's central kitchen. Industrial-IoT serves Industry 4.0 and IoT-related industries, and Smart City Solutions serves smart city solution providers in various fields.

In order to cater to market trends, Advantech has undergone significant transformations, from products to solutions, from regional to global consolidation, and has also implemented vertical-market oriented (sector-lead) concepts in an effort to optimize operations and enhance resource-integration benefits.



# The Industrial Internet of Things (IIoT)

## Advancing Key Growth Areas in Industry 4.0, Energy & Environment and Transportation



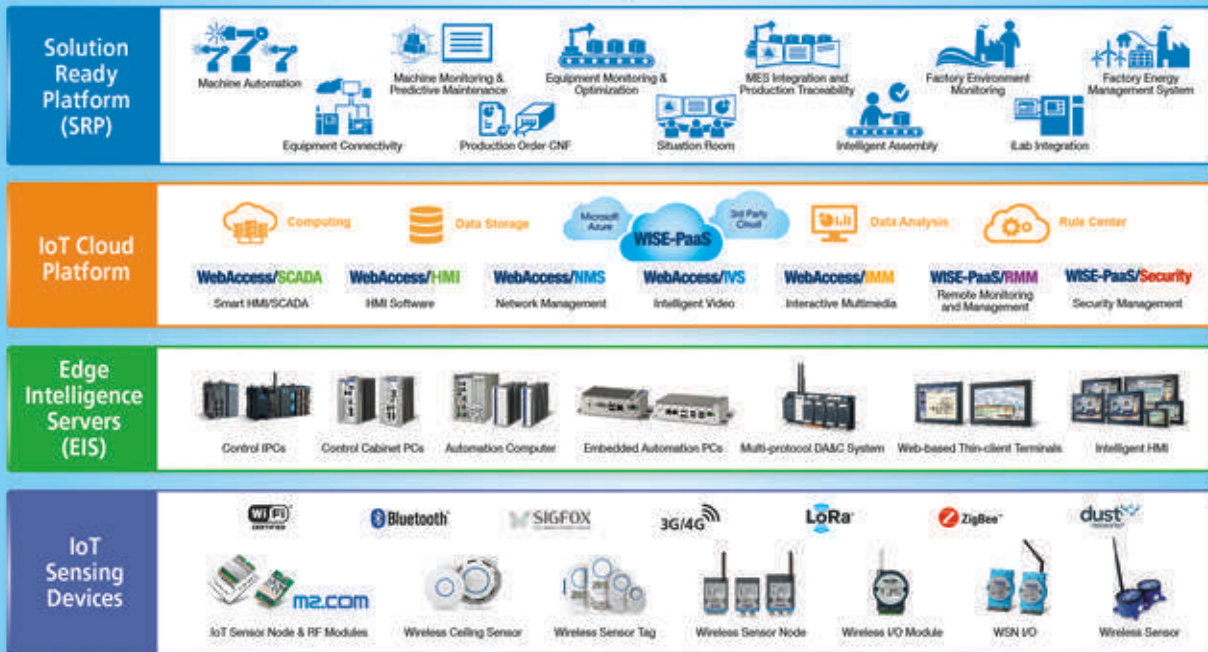
The Industrial Internet of Things (IIoT) is set to open up a new era of industrial applications, booming opportunities and economic growth. The IIoT is a matrix of networks that connects people with data and intelligent machines in order to optimize industrial operations, productivity and efficiency. To support the growth of IIoT, Advantech provides products and services that build the IIoT infrastructure and strengthen their offerings with four layers including, IoT Sensing Devices, Edge Intelligence Servers (EIS), IoT Cloud Platforms, and Solution Ready Platform (SRP). Advantech is devoted to leveraging its computing, data acquisition and networking competence to provide customer-centric products and solutions for key growth areas in Industry 4.0, Energy & Environment, and Transportation. The following are our highlights for these three key areas.

## Demystifying Industry 4.0: Making iFactory and iMachinery Accessible

To realize Industry 4.0, Advantech has initiated three strategic phases. The first phase is the implementation of equipment connectivity: devices, machines, production lines and factories are all connected and therefore data acquisition, as well as process visualization can be fulfilled. In the second phase, data integration and valued-added products and services are introduced for integrated manufacturing. The final phase is to accelerate intelligent innovation and big data analysis which ultimately leads to a business model revolution. With Industry 4.0, Advantech enables network-connected iFactory and iMachinery to boost the transformation of smart manufacturing.

In the realm of intelligent machines, Advantech focuses on Ethernet based solutions as well as integrated motion control and machine vision for machine automation applications. Advantech develops products for ARM/DSP/FPGA processors for specific industries, and also provides Solution Ready Platforms (SRP) to help system integrator partners quickly develop different applications for end customers. Through various platforms integrated with motion and machine vision solution modules, Advantech fulfills demands in new machine automation projects and positions itself as a leading PC-based MA solution provider.

## Advantech Industry 4.0 Architecture



## Energy & Environment

As the development of sensing, data acquisition, and wireless communication technology evolves, more and more Industrial IoT practices become reality. In the near future, there will be billions of connected devices and wireless sensors in our living environment, collecting data, monitoring facilities and executing remote control in indoor and outdoor environments in vertical markets such as, Urban Environments and Infrastructure, Energy, Agriculture, Water, and Factory Environments; all of which can be referred to "Energy and Environment" applications.

Advantech, as an enabler of an intelligent planet, is devoted to offering our excellent computing and data acquisition development capabilities to the Energy and Environment market with all kinds of IoT solutions. Besides highly compatible I/O devices in different form factors and mountings, and power charging products, Advantech's intelligent sensing devices support major wireless communication protocols such as, Wi-Fi, LoRa, Bluetooth, and Cellular to enable seamless data transmission from end devices to the cloud within wide area environments. Also, Advantech offers comprehensive industrial communication devices and Edge Intelligence Servers (EIS) to help our customers build reliable solutions and cloud management systems. With the collaboration of our WebAccess+ Alliance partners on developing Solution Ready Packages (SRPs) for specific domains, we are accelerating progress in "Energy and Environment" applications and opening up new opportunities and business in the IIoT.



## Intelligent Transportation Solutions



Advantech is working in cooperation with its partners to provide reliable platform solutions that pave the way for intelligent transportation in cities around the globe. With a decade of successful experience, Advantech has dedicated resources to designing and developing new products for the transportation industry. These products support railway automatic fare collection, wayside sensors, rolling stock, traffic management and more. Our mission is to enable intelligent transportation systems, which also helps us fulfill our vision of creating and delivering smart city technologies.

Whether it's AFC, CTC, ETC or any number of other transportation system applications, Advantech is dedicated in its

efforts to provide the most stable, intelligent transportation systems for cities around the world. We are specialized in the technical know-how to build all kinds of transportation systems. Today we have an impressive portfolio of successful case studies that we are proud to share with you. Advantech is and will always be by your side, continuously delivering total solution packages to our partners and customers around the world.



# Enabling Industry 4.0 & IIoT with Intelligent Automation



Factory Automation

Machine Automation

Food & Beverage

Automotive

## WISE-PaaS & WebAccess+ :

### Cloud Platform Services

Microsoft Azure  
Bluemix

Business Intelligence  
Machine Learning  
Visualization

3<sup>rd</sup> Party Service  
(AWS, Google, Ali, Baidu...)

Remote  
Monitoring and  
Management

WISE-PaaS/RMM

Security  
Management

WISE-PaaS/Security

Human Machine  
Interface

WebAccess/HMI

IT Protocol : MQTT, AMQP, CoAP

## Intelligent Automation Systems

### Industrial Computer and Server



IPC/ACP/AGS Series

### Intelligent HMI



TPC/ IPPC/ FPM/ WOP Series

### Industrial IoT Gateways



UNO Series

## iConnectivity

### Industrial Communication

WebAccess/NMS



EKI Series

### Application Ready Package

WebAccess/SCADA

WebAccess/HMI



### Intelligent Video System

WebAccess/IVS



WA-ST/WA-SU Series



WA-HT Series



WA-HU Series



WA-CT/WA-CU Series  
CDS-APAX/ADAM Series



IVS series

### Industrial Networking



IE Multiway, Wizzard, SL 30x Series

# Industrial IoT Vertical Markets



Power & Energy

Transportation

## The Integrated IoT Software & Solution

<p><b>Industrial Automation</b></p> <p>WebAccess/SCADA</p>	<p><b>Intelligent Video</b></p> <p>WebAccess/IVS</p>	<p><b>Network Management</b></p> <p>WebAccess/NMS</p>	<p><b>Interactive Multimedia</b></p> <p>WebAccess/IMM</p>
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### Integrated Development Environment

Dashboard builder    Node-RED

Dashboard Design  
Application Logic Editor  
3<sup>rd</sup> Party Integration

**IA Protocol :** Modbus/TCP, OPC UA, PROFIBUS

## Industrial IoT Platforms & Devices

<p><b>iSensing Devices</b></p> <p>TagLink-enabled IIoT Data Gateway    Control IPCs</p> <p>ADAM-3600/ECU-1100 Series    APAX-5000 Series</p>	<p><b>Machine Automation</b></p> <p>Machine Vision Solutions</p> <p>AHS/Frame Grabber Series</p>	<p><b>Power &amp; Energy</b></p> <p>P&amp;E Automation Computer</p> <p>ECU-4000 Series</p>	<p><b>iTransportation</b></p> <p>Station Self-Service Controller</p> <p>ITA-1000 Series</p>
<p>IoT Wireless I/O    Remote I/O</p> <p>WISE-4000 Series    ADAM-4000/6000 Series</p>	<p>EtherCAT Solutions    Motion Control</p> <p>EtherCAT Series    Motion Cards</p>	<p>P&amp;E Automation Gateway</p> <p>ECU-1000 Series</p>	<p>Rolling Stock Solutions</p> <p>EN 50155    EN 50121-4</p> <p>ITA-5000/2000 Series</p>



# Global Certified Partner Network

Since 1983, Advantech has formed strong and lasting partnerships with many well-established channel partners and solution partners to deliver prompt and reliable local services for our customers. Currently, Advantech has over 600 partners in more than 70 countries worldwide to provide certified services and products anytime, anywhere.

## Certified Professionals Guarantee Outstanding Quality Services

Through rigorous training and validation, our partners are certified annually, guaranteeing a high standard of quality & service. With these dedicated and well-trained sales and technical support teams, Advantech customers can enjoy outstanding quality services and early access to latest industrial computing solutions.

- Value-added services: Many of our partners are distributors, value-added resellers, focused channels, system integrators, or independent software vendors specialized in specific industry segments or applications with years of experience in developing application ready platforms. Their profound knowledge in integrating Advantech's hardware platforms with peripherals and software can speed up your time-to-market.
- Quality technical support: All the partners have dedicated application engineers to provide pre-sales and post-sales technical support. Within Advantech, there's a group of hotline and field application engineers to back up our partners, ensuring the service level.
- Fast delivery with flexible global supply chain: With over 600 partners and 4 regional service centers worldwide, Advantech offers fast delivery and after-sales support to our customers.



## Strategic Focus Makes the Difference

As industrial and embedded computing applications become more diversified, customers are demanding to get solutions tailored for vertical applications and high-quality local support.

To fulfill such needs, Advantech strives to develop its global partner network with a strategic focus. We only partner with distributors, VARs, and system integrators who value quality services as we do and pride themselves with profound industry know-how and technical competency. Through our comprehensive training and certification programs, Advantech partners are expert consultants in our rich portfolio of product offerings and applications for various vertical segments.

Currently, Advantech has partners in the following categories:

### Channel Partners



Advantech Industrial IoT Channel Partners (CPs) are focus on industrial automation, embedded systems and general computing platform markets. With local inventory, logistic services, technical support and other add-on value services, our partners can provide professional services and prompt delivery of system components for system integrators' control and automation applications. Aligned with our regional sales offices and service centers, Advantech CPs have formed a strong service network to offer professional pre-sales and post-sales worldwide.

Advantech also identified the channel partners, focus on specific vertical segments, to provide local value-added services for our customers, such as application development, technical consultation, design service, integration & installation, on-site services, technical training and project management. These CPs are certified value-added resellers with expertise in application development and system integration for each segment.

### Solution Partners

Solution Partners are 3rd parties who integrate Advantech products and value-added software and peripherals to provide turn-key solutions. Advantech's Solution Partners offer our customers a full range of field proven integrated solutions in Medical, Telecom, Transportation, Gaming, Power & Energy, Building & Home Automation, Factory & Machine Automation, Environmental Monitoring & Facility Management, Retail, Hospitality & Self-service, and many more. Their solutions are validated with Advantech products for compatibility, quality, and service.



### Business Alliance Partners

Advantech is the global premier partner of Intel Embedded Alliance and gold distributor and global IoT partner of Microsoft. All the business alliance partners have been carefully selected and closely cooperated to improve the service Advantech provide to customers, helping them add value whilst meeting stringent requirements in a wide array of industries. These partnerships aim to enable an intelligent planet by offering hardware or software that empower the connected eWorld.

# Advantech Online Sales Force

## Enabling an Intelligent Planet

To provide fast and convenient services to our customers and users, Advantech provides several easily-accessible web portals including: the Advantech.com website, Buy.Advantech.com, and an Online Support Portal to serve different requirements. To supplement our electronic contacts, we've also built up regional call centers to take care of customers who prefer human contact. These methods allow us to deliver our services by live chat, phone line and email anytime and anywhere.

## 40 Teams in 27 Cities Serve Global Inquiries



Milpitas



Cincinnati



Düsseldorf



Beijing



Taipei



Tokyo



Victoria

## Advantech.com Website

Through [www.advantech.com](http://www.advantech.com), we not only offer comprehensive products, but also real-time updated information to our customers. In addition to product information, you also can find case studies of proven applications from diverse sectors. Furthermore, registered MyAdvantech members, can access the RMA service center, updated price lists, and various promotion programs.



## Online Store



### Buy.Advantech.com

To extend Advantech's services, we launched the Buy.Advantech online store which offers one-stop shopping for Human Machine Interfaces, Industrial Ethernet networking, Controller & I/O products, plus computing platforms. This eStore offers comprehensive product information to build systems easily, with live expert support to solve problems, online configuration providing easy system customization options, instant quotations, an extensive library of FAQs and all the latest up-to-date downloads and firmware.

## Online Support

Providing superior self-support mechanisms is one of the most essential parts of being a top-tier automation company, and we take pride in the outstanding level of service that we offer. To best support our customers, we've created a suite of useful interactive online tools, including:

- Technical Documents: Manuals, datasheets, updated drivers and utilities-all available for download through the support portal.
- 3D Product Models: Simulated products in 3D format to provide detailed visualizations for evaluation.
- Online Training: Self-training documents and videos to provide trainees with integrated information.
- Online Catalog: A comprehensive online catalog with extensive product information.



## 24/7 Online Service



To effectively respond to customers' questions, our regional call centers support inquiries about: purchasing, shipping, technical, RMA issues and more. Contact your regional call center to get the support you need today.

### Global Hotlines

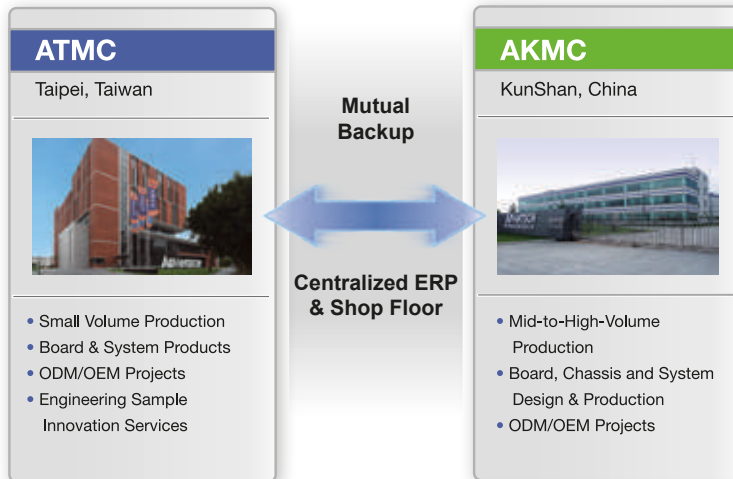
US / Canada	1-888-576-9668	China	800-810-0345/8389	Russia	8-800-555-01-50 (Moscow) 8-800-555-81-20 (St. Petersburg)
Mexico	52-01-800-467-2415	Taiwan	0800-777-111	India	1-800-425-5070/71
Colombia	57-1381-2858	Japan	0800-500-1055	Thailand	66-2-248-3140
Brazil	0800-770-5355	Korea	080-363-9494/9495	Indonesia	62-21-7511939
Europe	00800-2426-8080/8081	Singapore	65-6442-1000	Malaysia (KL)	60-3-7725-4188
		Australia/ New Zealand	1300-308-531	Malaysia (Penang)	60-4-537-9188



# Advantech iPlanet Care

## Manufacturing

Our dual, world-class manufacturing centers in Taiwan and China maintain precise quality control, and offer a full range of production in a timely and cost-effective manner. To maximize the efficiency of operational procedures, we have implemented a cluster manufacturing system within our segmented manufacturing service units. This unique approach enables a direct, simplified, and highly streamlined design-to-manufacturing process.



- In-house board, chassis, and system production
- Dual world-class manufacturing centers minimize business risks
- Advanced production capabilities and customizable processes
- Rigid quality assurance system
- Most complete ISO standard coverage

## Configure To Order Services

Advantech's Configure To Order Services (CTOS) makes industrial computing solutions more accessible by offering web-based configuration tools, comprehensive, complex assembly services with high-mix, low-volume box build and customized assembly, modification, system integration and functional testing services.

- Online intelligent configuration
- Comprehensive approach to complex configuration solutions
- Local customized configuration services
- 2 year global warranty covering system & peripherals integrated



## Certified Quality Assurance System

Advantech has been designing and manufacturing industrial PCs according to our 3C Quality Statement:

- Always strive for overall customer satisfaction
- Continuous improvement
- Apply closed-loop mechanisms to resolve problems

At Advantech, quality is our main priority. A complete line of safety, EMC and reliability measures such as ESD, vibration, drop testing, temperature, humidity and HALT chambers are available to ensure our products meet the strictest standards. All facilities are at least ISO 9001 and 14001 certified while others hold additional certifications such as ISO 13485, 17025, TL9000 and OHSAS18001. An environmental program that focuses on reducing, reusing and recycling of materials throughout the manufacturing process is also applied at Advantech. All our products are 100% RoHS compliant and hazardous substance management system are applied to meet worldwide environmental requests. Advantech's efforts towards environmental protection have been recognized by Sony since 2004 (Sony Green Partner).

- Complete ISO coverage
- Green policies
- Constant quality and reliability monitoring
- Ease of access to quality contacts





# One-Stop Global Services

Advantech iPlanet Care combines exceptional business expertise, powerful design capacities, and a thorough global service network to provide one-stop global services and total solutions. Our broad range of global support packages adds maximum flexibility and efficiency to your projects.



## Global Logistics Services

With strong integrated ERP and SAP supply chain solutions, our worldwide logistics network offers a wide range of options for different delivery models including local and global solutions that meet your unique needs and budget requirements.

Advantech's Logistics Service gives you the flexibility to simplify your logistical networks, bring your products to market on time, and enjoy a timely return on your investment.

- Optimized and flexible shipping solutions
- Integrated ERP and SAP supply chain solution with global distribution network
- Centralized plants with local delivery

## Global Peripheral Procurement Services

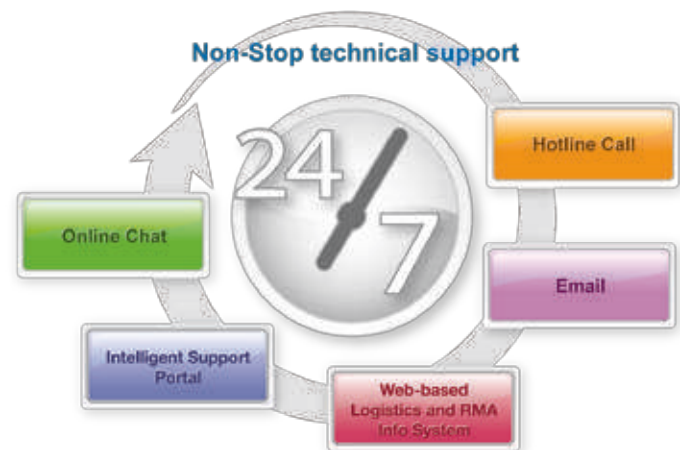
Advantech global peripheral procurement network consists of local teams that leverage strong, worldwide supplier relationships and strict vendor and product management to offer quality-guaranteed, compatible peripherals with short lead times and competitive prices.

- Localized procurement with worldwide network support
- Global standardization management; 100% compatible peripherals
- Trusted quality with revision control
- Short lead time and competitive price

## Global Customer Support Services

Our global presence provides localized reliable customer support services. We can create an optimized maintenance and support plan, leveraging the full power of our service portfolio to help reduce costs and proactively mitigate business risks to best meet your needs. In addition to our complete technical and repair support, we provide a variety of customizable after-sales services, including extended warranty, advance replacement, upgrade, fast repair, etc. With our knowledgeable local support groups, we enable a consistent support experience around the world and help keep your investment at peak performance and within your budget.

- 24/7 technical support: hotline AE & online chat support
- Global deployment with local full-line repair capability
- Easy-to-use web-based repair and tracking system (eRMA)
- Various value-added, after-sales service packages



# Advantech WebAccess

## The IIoT Application Platform

The WebAccess family provides different software solutions to cater to different application environments. For the control level, we provide WebAccess/HMI: a standalone HMI software with more than 450 drivers to communicate with various devices, such as PLCs, meters etc.,. For the plant level, we provide WebAccess/SCADA: a web-based SCADA software with private cloud software architecture which integrates with WebAccess/IVS, WebAccess/NMS and WISE-PaaS/RMM and provides an open interface for vertical market applications. For the enterprise level, we provide Cloud-based WebAccess as a application platform to collect data in the cloud, through HTML5 Dashboard to display the data, and help users to extend enterprise applications with cloud services.



## Advantech WebAccess Software



### Advantech Cloud-based WebAccess

#### Cloud-based Application Platform

- Easily connects with Intelligent Devices to Cloud Platforms via MQTT, a lightweight publish/subscribe messaging protocol
- Integration with Node-RED as a visual tool for IoT to write to other devices, APIs and online services together
- Predefined nodes for easy integration with external and internal data
- Predefined nodes for data to be displayed on Cloud Dashboard and Microsoft PowerBI
- Plug and play IoT devices ensure there's no need to configure projects in the cloud
- Allows multiple SCADA Nodes to be run on the same computer simultaneously. These SCADA nodes can belong to different project nodes
- Provides an open interface to extend application combining with cloud service, such as Big Data Analysis, Business Intelligence, Machine Learning, Predictive Maintenance, etc

### Advantech WebAccess/SCADA

#### Web-based HMI/SCADA Software

- 100% web-based engineering, monitoring and control
- Cross browser HTML5 Intelligent Dashboard
- Supports ample drivers including Advantech I/O modules, controllers and major PLCs
- Easy integration with MES & ERP, via open interfaces
- Integration with WebAccess/IVS, WebAccess/NMS and WISE-PaaS/RMM
- Google Maps and GPS location tracking integration
- Redundant SCADA, ports and devices for high availability

#### Web-based HMI/SCADA Software for CNC

- Provides I/O sensor & CNC monitoring and control
- Auto explore CNC controllers
- Supports major CNC controllers
- Provides CNC operating status monitoring
- Provides CNC availability inquiry
- Provides CNC historical alarm inquiry
- Supports NC program upload/download
- Provides CNC maintenance management



WebAccess/SCADA

### Advantech WebAccess/HMI

#### HMI Runtime Development Software

- Low cost Windows based HMI runtime
- More than 50 screen objects can fulfill almost all types of HMI operating and viewing needs for machine automation
- Supports up to 16 communication links for different applications
- Over 100 field proven communication drivers are provided for free
- Supports data collection, alarm monitoring, recipe handling, and operation logging
- Provides a complete set of useful macro commands. Macro programs can be embedded in objects, screens, and the global process



WebAccess/HMI

# Intelligent HMI

## Leading the HMI Innovation for Smart Factory

As we stand on the edge of the new era of Industry 4.0, Advantech, as a leading enabler of intelligent factories, will continue to advance the new generation of HMI products and solutions for different industries in the IoT world.

Advantech provide an integrated and comprehensive range of HMI products with iDoor Technology including High Performance Control Panels, Web-based Thin-client Terminals (TPC/SPC/PPC/WebOP), Industrial Monitors (FPM) for process automation, on-site operation. For vertical markets such as food & beverage, oil & gas and railway transportation, we also offer reliable domain-focused HMI which meets the required certification of IP69K, C1D2 and EN50155.



### Web-based Thin-client Terminals



#### TPC-651T

5.7"/ 6.5" VGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer

- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- -20 ~ 60°C Wide Operating Temperature
- IP66 Front Protection and More Durable 5-wire Resistive Touch Screen with True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)



#### TPC-1251T/ 1551T

12.1"/ 15" XGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer

- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- -20 ~ 60°C Wide Operating Temperature
- IP66 Front Protection and More Durable 5-wire Resistive Touch Screen with True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)



#### TPC-1751T

17" SXGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer

- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM (Optional: Intel® Celeron™ Quad-core J1900)
- -20 ~ 60°C Wide Operating Temperature
- IP66 Front Protection and More Durable 5-wire Resistive Touch Screen with True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)



#### TPC-1051WP

10.1" XGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer

- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- -20 ~ 55°C Wide Operating Temperature
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design, operable with water.
- Supports iDoor Technology (TPC-1251T-EHKE required)



#### TPC-1551WP

15.6" WXGA TFT LED LCD Intel® Atom™ Dual-core Thin Client Panel Computer

- Intel® Atom™ Dual-core E3827 1.75 GHz processor with 4GB DDR3L SDRAM
- 7H Hardness Glass Surface 16:9 Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design
- Supports iDoor Technology (TPC-1251T-EHKE required)



#### TPC-2150T/ 2210W

15"/ 21.5" XGA/ FHD TFT LED LCD Intel® Atom™ Quad-core Thin Client Panel Computer

- Intel® latest Atom™ processor with 4GB DDR3L SDRAM
- Modular design for flexibility in development and maintenance
- Supports iDoor Technology
- Supports SSD & M.2 storage options
- Rugged with isolation power design



#### WebOP-3070T

7" WVGA Cortex™-A8 Operator Panel

- Microsoft Windows Embedded CE 6.0
- Backup memory FRAM in 128KB (64 words) without battery
- Power & Terminal I/O ports isolation protection
- -20 ~ 60°C Wide Operating Temperature
- Front panel flat-sealed with IP66 compliance



#### WebOP-3100T

10.1" WSVGA Cortex™-A8 Operator Panel

- Microsoft Windows Embedded CE 6.0
- Backup memory FRAM in 128KB (64 words) without battery
- Power & Terminal I/O ports isolation protection
- -20 ~ 60°C Wide Operating Temperature
- Front panel flat-sealed with IP66 compliance



#### WebOP-3120T

12" XGA Cortex™-A8 Operator Panel

- Microsoft Windows Embedded CE 6.0
- Backup memory FRAM in 128KB (64 words) without battery
- Power & Terminal I/O ports isolation protection
- -20 ~ 60°C Wide Operating Temperature
- Front panel flat-sealed with IP66 compliance



## High Performance Control Panels



### TPC-1581WP/ 1881WP

15.6/ 18.5" WXGA TFT LED LCD

Intel® Core™ i7/ i3 with PCT Multi-Touch Panel Computer

- Intel® Core™ i7-4650U/ i3-4010U with 4GB DDR3L SDRAM (i7 only in 18.5")
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, IP66 Front Protection and True-flat Touch Design
- Expandable System IO, Isolated Digital IO, Fieldbus and Communication by iDoor Technology
- Built-in ikey and Home-key for an intuitive UI
- Supports USB 3.0 and HDMI for independent display



### TPC-1282T

12" XGA TFT LED LCD

Intel® Core™ i3 Touch Panel Computer

- Intel® Core™ i3-5010U 2.10GHz with 4GB DDR3L SDRAM
- More Durable 5-wire Resistive Touch Screen with IP66 Front Protection and True-Flat Touch design
- Expandable System I/O, Isolated Digital I/O, Fieldbus and Communication by iDoor Technology
- PCIe and mini PCIe expansion support
- Supports two USB 3.0 and HDMI ports for independent display



### TPC-5151T/ 5171T

15"/17" XGA/SXGA TFT LED LCD

Intel® Core™ i3 Touch Panel Computer

- Intel® Core™ i3-6010U 2.30GHz with 8GB DDR3L SDRAM
- Modularised design for flexibility in development and maintenance
- TPM for cyber security
- Rugged with isolation power design
- PCIe, mini PCIe expansion and iDoor support
- Supports SSD & M.2 storage options
- Supports four USB 3.0/2.0 and Display Port for independent display
- Independent 3 Ethernet ports for IT/ OT integration

## Fanless Panel PCs



### PPC-3060S/ 3100S/ 3120S

6.5" VGA/10.4" SVGA/12.1" XGA/ Intel Atom Dual/Quad core Fanless Panel PC

- Intel® Atom™ N2807 Dual-core 1.58GHz processor with Max.4GB DDR3L SDRAM/N2930 Quad-core 1.83GHz processor with Max.8GB DDR3L SDRAM
- Entirely flat panel with Touch Screen
- Compact Fanless Design with solid Al Alloy enclosure
- ELO 5-wire Resistive Touch Screen
- Supports 15 – 24V<sub>DC</sub> Wide Voltage



### PPC-3100/ 3120

10.4" SVGA/ 12.1" XGA/ Intel® Atom™

Dual-core Fanless Panel PC

- Intel® Atom™ Dual-core D2550 1.86GHz Processor with Max 4GB DDR3 SDRAM
- Fanless Design and Low Power Consumption
- 5-wire Resistive Touch Screen
- Optional PCI x 1/ PCIe x 1 Expansion Kit
- Automatic data flow control over RS-485



### PPC-3150/ 3170/ 3190

15" XGA/ 17" / 19" SXGA Intel® Atom™

Quad-core Fanless Panel PC

- Intel® Atom™ Quad-core E3845 1.91GHz Processor with Max 8GB DDR3L SDRAM
- -20 ~ 60°C Wide Operating Temperature
- 5-wire Resistive Touch Screen
- Built-in PCI x 1/ PCIe x 1 Expansion Slot
- Built-in Isolated RS-422/485 with Autoflow
- Optional CF and CFast module



### PPC-3151

15" XGA Intel® 6th Generation Core™ i5 Fanless Panel PC

- Intel® Core™ i5-6300U 2.4GHZ/Core™ i3-6100U 2.3GHZ Processor with 16GB DDR4 SDRAM Entirely flat panel with Touch Screen
- Supports one PCIe x 4/ PCI x 1 Bus Expansion
- Built-in isolated RS-422/485 with Autoflow
- Supports 9 – 32V<sub>DC</sub> Wide Voltage



### PPC-4151W/ 4211W

15.6" WXGA/ 21.5" FHD Intel® Core™ i5/ Celeron® with PCT Multi-Touch Wide Screen Fanless Panel PC

- Intel® Core™ i5-4300U 2.9GHz/ Celeron® 2980U 1.6GHz Processor with Max 8GB DDR3L SDRAM
- Entirely flat panel with PCT touch screen
- Supports one PCIe x 4/ PCI x 1 Bus Expansion
- Built-in isolated RS-422/485 with Autoflow



### PPC-6151C

15" XGA Intel® 6th Gen. Core i Panel PC with selectable Mini-ITX Motherboard

- Intel® 6th Gen. Core i processor up to 45W TDP (socket type)
- True-flat IP65 front bezel, optional Resistive or P-cap touch screen
- Optional selectable mini-ITX M/B for different features and prices
- Optional AC power supply or 24 V<sub>DC</sub> input
- Supports dual expansion slots (one PCIe x 4 or two PCI)

## Multi-functional Panel PCs



### PPC-6120

12.1" XGA Intel® Core™ i5/ i3/ Celeron® Panel PC

- Intel® 4th Generation Core™ i7/ i5/ i3/ Celeron® Processor with 2 x 204-pin SODIMM DDR3/DDR3L SDRAM (Max 16G)
- Built-in Isolated RS-422/485 with Autoflow, Dual IntelR GbE
- Optional PCI x 1/ PCIe x 1 Expansion Kit
- 5-wire Resistive Touch Screen



### PPC-6150/ 6170

15" XGA/ 17" SXGA Intel® Core™ i5/ i3/ Celeron® Panel PC

- Intel® Core™ i5-3610ME/ i3-3120ME/ Celeron® 1020E with Max 8GB DDR3/ DDR3L SDRAM
- Dual HDD support Intel RAID 0/1, and Optional second HDD or ODD
- Multiple Bus Expansion Slots, one PCIe x 4, one PCI + Optional one PCIe x 1, two PCI, Optional two PCIe x 1
- Built-in Isolated RS-422/485 with Autoflow, Dual Intel® GbE



### PPC-8150/ 8170

15" XGA/ 17" SXGA Intel® Core™ i5/ i3/ Celeron® Panel PC

- Intel® Core™ i5-3550S/ i3-3220 with 2 x 204-pin DDR3 SDRAM (Max 8GB)
- One PCIe x 4 or PCI slot
- Supports 6 x USB, 6 x COMs, 8 bit GPIO
- Supports iManager, SUSIAccess and Embedded Software APIs

## Domain-focused HMIs



### SPC-1881WP

All around IP65 18.5" Stationary Panel with Intel® i5 Processor

- Intel® Core™ i5-4300U 1.9GHz with 4GB DDR3L SDRAM
- All around IP65 protection with waterproof M12 connector
- Built-in ikey and home-key for an intuitive UI
- 7H Hardness Glass Surface with PCT Multi-touch
- 1 x RS-232/ 1 x USB/ 2 x LAN/ 24V<sub>DC</sub>-in with Waterproof M12 connector



### SPC-1840WP

All around IP65 18.5" Stationary Panel with AMD® Dual-core Processor

- All around IP65 18.5" Stationary Panels with AMDR Dual-core Processor
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, True-flat Touch Design
- Built-in ikey and Home-key for an Intuitive UI
- Robust design with All Around IP65 design, VESA support
- 1 x RS-232/ 1 x USB/ 2 x LAN/ 24V<sub>DC</sub>-in with Waterproof M12 connector



### SPC-2140WP

All around IP65 21.5" Stationary Panel with AMD® Dual-core Processor

- All around IP65 21.5" Stationary Panels with AMDR Dual-core Processor
- 7H Hardness Glass Surface Widescreen with PCT Multi-touch, True-flat Touch Design
- Built-in ikey and Home-key for an Intuitive UI
- Robust design with All Around IP65 design, VESA support
- 1 x RS-232/ 1 x USB/ 2 x LAN/ 24V<sub>DC</sub>-in with Waterproof M12 connector



### IPPC-5211WS

All Around IP69K 21.5" TFT LED LCD with PCT Touch Panel

- Intel® Celeron® Quad-core J1900 2 GHz
- All-round IP69K protection with corrosion-proof stainless steel
- The detachable product portfolio with accessories for various applications



### FPM-8151H

15" XGA TFT LED LCD with Corrosion-proof Stainless Steel Front Panel for Hazardous location

- Corrosion-proof 316L Stainless Steel Front Panel
- IP65 Certified Front Panel Protection
- -20 ~ 60°C Wide Operating Temperature
- More Durable 5-wire Resistive Touch Screen with Anti-glare and Tempered Glass



### TPC-8100TR

10.4" EN50155 Railway Panel Computer

- Intel® Atom N2600 Dual core processor 1.6G GHz processor
- All around IP65 with waterproof M12 connector
- Wide operating temperature: -30 ~ 70°C
- EN50155 & EN45545 Compliance for railway application

## Industrial Monitors



### FPM-7151W

15.6" WXGA Industrial Monitor with PCT, Direct VGA+DVI ports

- 16:9 WXGA LED backlight LCD with True-flat Seamless Design
- 7H Hardness Glass Surface with PCT Multi-touch and IP66 Front Protection
- Supports multi-touch via USB interface in Windows 7/ 8
- Robust design with SECC chassis and Magnesium alloy front panel



### FPM-7181W

18.5" WXGA Industrial Monitor with PCT, Direct VGA+DVI ports

- 16:9 WXGA LED backlight LCD with True-flat Seamless Design
- 7H Hardness Glass Surface with PCT Multi-touch and IP66 Front Protection
- Supports multi-touch via USB interface in Windows 7/ 8
- Robust design with SECC chassis and Magnesium alloy front panel



### FPM-7211W

21.5" Full HD Industrial Monitor with PCT, Direct VGA+DVI ports

- 16:9 FHD LED backlight LCD with True-flat Seamless Design
- 7H Hardness Glass Surface with PCT Multi-touch and IP66 Front Protection
- Supports multi-touch via USB interface in Windows 7/ 8
- Robust design with SECC chassis and Magnesium alloy front panel



### FPM-7061T

6.5" VGA Industrial Monitor with Resistive Touchscreen, Direct-VGA/DP

- 6.5" XGA 50K Lifetime LED Backlight LCD with Anti-glare Screen and Tempered Glass
- IP66 Certified Front Panel Protection with True-flat Seamless Design
- -20 ~ 60°C Wide Operating Temperature
- Robust Design with SECC Chassis and Aluminum Front Panel
- Combination RS-232 & USB Interface for Touchscreen Function



### FPM-7121T

12.1" XGA Industrial Monitor with Resistive Touchscreen, Direct-VGA/DP

- 12.1" XGA 50K Lifetime LED Backlight LCD with Anti-glare Screen and Tempered Glass
- IP66 Certified Front Panel Protection with True-flat Seamless Design
- -20 ~ 60°C Wide Operating Temperature
- Robust Design with SECC Chassis and Aluminum Front Panel
- Combination RS-232 & USB Interface for Touchscreen Function



### FPM-7151T

15" XGA Industrial Monitor with Resistive Touchscreen, Direct-VGA/DP

- 15" XGA 50K Lifetime LED Backlight LCD with Anti-glare Screen and Tempered Glass
- IP66 Certified Front Panel Protection with True-flat Seamless Design
- -20 ~ 60°C Wide Operating Temperature
- Robust Design with SECC Chassis and Aluminum Front Panel
- Combination RS-232 & USB Interface for Touchscreen Function



# Industrial IoT Gateway

## Seamless Connection, Aggregation and Transmission to the Cloud for Smart Factory

To stay at the leading edge of Industry 4.0, Advantech's UNO Series is more than just an embedded automation computer. With their advanced communication capabilities they easily connect to the cloud as intelligent IoT gateways in smart factories.

The cloud-enabled embedded IoT Gateway, coming with iDoor technology, not only provides scalable computing power for field site control but also fully supports different PLCs running divergent protocols by integrating with IoT Software WebAccess/HMI for remote management.

With seamless connection, aggregation, data filtering and transmission to the cloud, the micro size and different mounting way of embedded IIoT gateway also fit in any control cabinets or equipment without space limitations.



### Control Cabinet PCs



NEW

#### UNO-1252G/ 1251G

Micro Size DIN-Rail Industrial IoT Gateway

- Intel® Quark / TI Coretex A8 processor with 256MB memory
- 2 x LAN, 2 x USB, 2 x mPCIe, 2 x COM, 8 x DI/O, 1 x microSD, 1 x SIM, 1 x iDoor (UNO-1252G)
- 2 x LAN, 1 x USB, 1 x mPCIe, 3 x COM, 1 x CAN, 2 x microSD, 1 x microSIM (UNO-1251G)
- Programmable OLED display for indicating system status (UNO-1252G)



NEW

#### UNO-1372G

Intel® Atom Quad-Core Small-Size DIN-Rail Controller

- Intel® Atom E3845 1.91GHz processor with 4GB DDR3L memory
- 3 x GbE, 3 x mPCIe, 2 x USB2.0, 1 x USB3.0, 1 x RS-232, 1 x RS-422/485, 1 x VGA, 1 x HDMI, 8 x DI/O, 1 x Line-out, 1 x iDoor
- Exchangeable RTC battery with easily access at top side



NEW

#### UNO-1483G

Intel® Core™ i3 Regular-Size DIN-Rail Controller

- Intel® 4th Gen Core™ i3 processor up to 1.7GHz with 8GB DDR3L memory
- 4 x GbE, 3 x mPCIe, 1 x PCIe, 2 x USB 2.0, 2 x USB3.0, 1 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x DP, 8 x DI/O, 1 x Line-out, 1 x iDoor
- Dual power input and remote power button for reducing power down time



NEW

#### UNO-3282G/ 3273G

Intel® Core™ i7/ Atom™ Wall Mount Automation Computer

- Intel® 6th Gen. Quad Core Processors with 8GB DDR4 Memory/ Intel® Apollo-Lake Processors with 4GB DDR3L Memory
- 2 x GbE, 6 x USB3.0, 2 x RS-232/422/485, 1 x DVI-I, 1 x HDMI, 1 x PCIe x 16, 1 x PCI, 2 x mPCIe, 1 x CFast, 1 x iDoor (UNO-3283G)
- Dual hot-swappable HDD/SSD slots with thumb screws for easy maintenance



NEW

#### UNO-3382G/3384G

Intel® Core™ i7/ Celeron Book Mount Automation Computer

- Intel® 4th Generation Core™ i7/ Celeron processors with 4GB/8GB DDR3L memory
- 2 x GbE, 2 x USB2.0, 2 x USB3.0, 1 x RS-232/422/485, 1 x DP, 1 x HDMI, 2 x mPCIe, 1 x CFast, 2 x iDoor, (UNO-3384: 2 x PCI/PCIe)
- Dual hot-swappable HDD/SSD slots with thumb screws for easy maintenance
- Supports DIN-rail, stand, wall and book mounting



NEW



#### UNO-3483G

Intel® Core™ i7 Enclosure Mount Automation Computer

- Intel® 3rd Gen Quad Core processor, up to 2.1 GHz with 8GB DDR3L memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232 (pin header), 1 x RS-422/485 (pin header), 1 x VGA, 1 x HDMI, 1 x PCIe x 4, 3 x mPCIe, 2 x iDoor
- Dual hot-swappable HDD/SSD slots with thumb screws for easy maintenance

### Embedded Automation PCs



NEW

#### UNO-2272G

Intel® Atom™/Celeron Palm-Size Automation Computer

- Intel® Atom™ N2800/ Celeron J1900 Processors up to 2.41 GHz with 2GB DDR3/ DDR3L Memory
- 1 x GbE, 3 x USB 2.0/3.0, 1 x RS-232, 1 x VGA or HDMI, Audio
- Compact fanless design



NEW



#### UNO-2362G/ 2372G

AMD® Dual Core T40E Small-Size Automation Computer

- AMD® Dual Core T40E 1.0GHz processor with 2GB DDR3 SO-DIMM built-in memory
- 1 x GbE, 4 x USB 2.0, 1 x RS-232, 1 x RS-485, 1 x mPCIe, 1 x DP, 1 x HDMI
- Daisy-chain for Ethernet with auto-bypass protection enabled



NEW

#### UNO-2483G/2473G

Intel® Core™ i7/ i3/ Celeron/ Atom™ Regular-Size Automation Computer

- Intel® 4th Gen Core™ i7/i3/Celeron J1900/ Atom™ processors up to 1.9GHz with 4GB/8GB DDR3L built-in memory
- 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 3 x mPCIe, 1 x VGA, 1 x HDMI, audio (UNO-2483G)
- Chassis grounding protection

## Communication iDoor Modules



### PCM-24R1TP

Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1

- 1 port GbE LAN
- IEEE 1588 precision time protocol ready



### PCM-24R2GL

Intel i350 mPCIe, GbE, IEEE 802.3ab, RJ45 x 2

- 2 port GbE LAN
- Intel i350



### PCM-24R2PE

Intel i350, GbE, PoE IEEE 802.3af, PD, RJ45 x 2

- 2 port PoE (Power Over Ethernet)
- Max. 15.4 DC power output per port



### PCM-24U2U3

USB 3.0 mPCIe card, USB-A type x 2

- 2 port USB 3.0
- USB A type



### PCM-24S2WF

Atheros AR9462, 802.11 a/b/g/n 2T2R w/ BT4.0, SMA x 2

- Atheros AR9462
- 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0



### PCM-24S33G

6-band HSPA Cellular Module, GPS, SIM Holder, SMA x 2

- 3.75G HSPA+GPS
- Dual-SIM card holder with switch for redundancy

## Smart I/O & Comm. iDoor Modules



### PCM-24D2R2/ PCM-24D2R4

OXPCIe952 UART, Isolated RS-232, RS-422/485, DB9 x 2

- 2,000 V<sub>DC</sub> isolation protection
- RTS/CTS/Xon/Xo flow control



### PCM-24D4R2/ PCM-24D4R4

OXPCIe954 UART, Non-isolated RS-232, RS-422/485, DB37 x 1

- Non-isolation 4 COM ports with expansion cable
- 50 bps ~ 921.6 kbps serial speed (RS-422/485)



### PCM-27D24DI

Digital I/O, Isolated 16DI/8DO, DB37 x 1

- 16DI, 8DO
- 2,500 V<sub>DC</sub> isolation protection

## Industrial Fieldbus iDoor Modules



EtherCAT

### PCM-26R2EC

Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45 x 2

- Real-time fieldbus EtherCAT protocol
- Supports Master/Slave



EtherNet/IP

### PCM-26R2EI

Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45 x 2

- Real-time fieldbus EtherNet/IP protocol
- Supports Master/Slave



PROFINET

### PCM-26R2PN

Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45 x 2

- Real-time fieldbus PROFINET protocol
- Supports Master/Slave



CANopen

### PCM-26D2CA

SJA1000 CANBus, CANOpen, DB9 x 2

- CAN 2.0 A/B
- 1Mbps, 16MHz



PROFIBUS

### PCM-26D1DB

Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9 x 1

- Fieldbus PROFIBUS protocol
- Supports Master/Slave



ETHERNET POWERLINK

### PCM-26R2PL

Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45 x 2

- Real-time fieldbus POWERLINK protocol
- Supports Slave

## Multiple I/O & Peripheral iDoor Modules



### PCM-2300MR

MR4A16B, MRAM, 2MByte

- 2MB MRAM Storage
- Speed 6 MB/Sec



### PCM-27J3AU

Audio with Mic-in, Line-in/out

- 3-Port Audio Stereo
- mPCIe, 3.5 mm Jack



### PCM-23U1DG

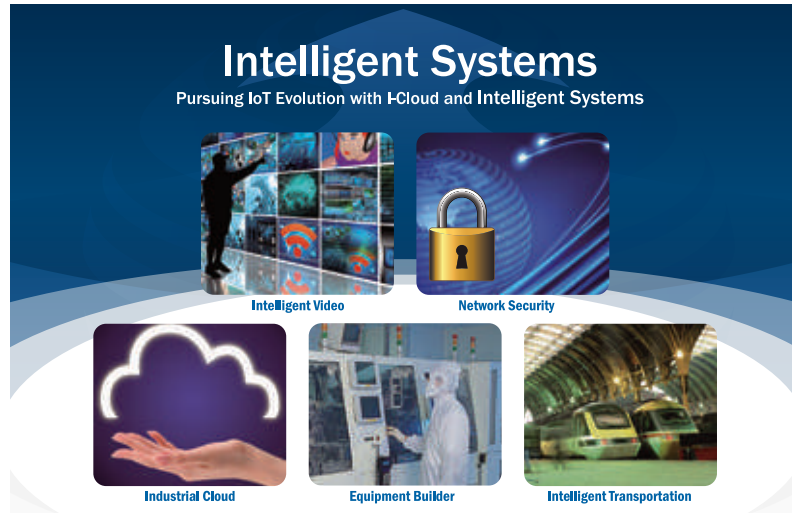
Internal Locked USB 2.0 Port for Dongle, USB x 1

- 1 port internal USB 2.0 for security key
- USB A type w/ lock

# Intelligent Systems and Platforms

## Infrastructure of IoT Era

With diverse innovative technologies ranging from cloud computing (industrial servers, video servers), edge computing (fanless, slim, and portable devices), to high-performance embedded systems, Advantech's Industrial Cloud Services and System Design-to-Order Services (System DTOS) transform embedded systems into intelligent systems equipped with smart, secure, energy-saving features. Advantech's intelligent systems are designed to satisfy vertical markets in the intelligent transportation, factory automation/machine automation, cloud infrastructure, and intelligent video application sectors.



## Industrial Computers



### ACP-4020

4U Rackmount Chassis for Half-Size SBCs or ATX Motherboards

- Compact 4U rackmount chassis (348 mm depth)
- Supports 14-slot BP for half-size SBC or ATX/MicroATX motherboard
- Shock-resistant disk drive bay holds 1 internal 2.5" and 2 front-accessible 3.5" drives, and 1 slim optical disk drive
- 2 front-accessible USB 3.0 ports
- Front-accessible system fan
- Built-in intelligent system module for fan control and remote management



### ACP-4340

4U Rackmount Chassis with 4 Hot-Swappable Drive Trays for Full-Size SHBs/SBCs or ATX/MicroATX Motherboards

- Supports PICMG backplane with up to 14 slots or ATX/Micro-ATX motherboard
- Shock-resistant disk drive bay holds four hot-swappable 3.5" and 2.5" SAS/SATA disk trays, 1 slim optical disk drive, and 1 2.5" internal drive
- 2 front-accessible USB 3.0 ports
- Front-accessible system fan
- LED indicators and alarms for system fault detection
- Built-in intelligent system module for fan control and remote management



### HPC-7442

4U Rackmount Chassis with up to 8 SAS/SATA HDD Trays for EATX/ATX Motherboards

- Shock-resistant disk drive bay holds 4 hot-swappable 3.5" and 2.5" SAS/SATA disk trays, 1 slim optical disk drive, and one 3.5" internal drive
- Supports 80 PLUS-certified single/redundant power supply
- Front-accessible system fan
- LED indicators and alarms for system fault detection
- Optional storage upgrade kit with 8 hot-swappable HDD trays

## Server-Grade IPCs



### ASMB-823

Intel® Xeon® E5 ATX Server Board

- LGA2011 ATX server board with Intel® Xeon® E5-2600 v3 dual processor
- DDR4 2133 MHz RDIMM, up to 192 GB
- 4 PCIe x 16 (Gen 3), 2 PCIe x 8 (Gen 3), and 1 PCIe x 4 (Gen 2) slots
- 9 SATA III and 6 USB 3.0 ports



### ASMB-923

Intel® Xeon® E5 EATX Server Board

- LGA 2011 EATX server board with Intel® Xeon® E5-2600 v3 dual processor
- DDR4 2133 MHz RDIMM, up to 256 GB
- 4 PCIe x 16 (Gen 3), 2 PCIe x 8 (Gen 3) and 1 PCIe x 4 (Gen 2) slots
- 10 SATA III and 4 USB 3.0 ports

## GPU Server



### AGS-923

2U GPU Server with Dual Intel® Xeon® E5 Processors

- Supports NVIDIA Tesla, GRID, Quadro, AMD FirePro, and Advantech DSP cards
- 8 DIMM sockets for DDR4 (ECC) at 2133 MHz, up to 256 GB
- Supports 4 FH/FL double-depth PCIe x 16 expansion cards and 1 FH/HL single-depth PCIe x 8 expansion card
- 8 hot-swappable SATA/SAS HDD bays
- Quad GbE LAN (1 sharing IPMI function) ports



## Machine Vision Systems



### AIIS-1200P/U

Fanless Vision System with Intel® Celeron® SoC CPU and 2-Channel GigE PoE or 2-Channel USB 3.0 Camera Interface

- Intel® Celeron® SoC CPU
- IEEE 802.3af-compliant 2-channel GbE PoE for GigE camera/2-channel controller for USB 3.0 camera
- Compact and lightweight (less than 0.9)



### AIIS-5410P

Fanless Vision System with Intel® Core™ i7/i5/i3 CPU, 4-Channel GigE PoE Camera Interface, and PCI or PCIe Expansion Slot

- 6<sup>th</sup> Generation Intel® Core™ i7/5/i3 BGA1440 processor
- 4-channel GbE PoE
- Powered device auto detection and classification

## Modular Industrial Computer



### MIC-7500 + i-Module

Compact Fanless System with 6<sup>th</sup> Generation Intel® Core™ i Processor

- 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3 BGA type CPU with QM170 chipset
- Supports MIC-75 series i-Modules, isolation COM modules, and 32-bit GPIO modules

## Transportation Systems



### ITA-1711

Fanless AFC System with Intel® Celeron™ J1900 Processor, Dual GbE, and Dual Display Ports

- Wide 9 ~ 36 V<sub>DC</sub> input range
- 2 GbE, 6 USB 2.0, and 10 COM ports
- Supports RS-232/422/485 with serial port automatic flow control
- Up to 4 GB of DDR3 memory, with optional NVRAM
- Supports one 2.5" HDD



Fully compliant with  
EN 50121-4

### ITA-2230

EN50121-4-Compliant 2U Fanless System with 3<sup>rd</sup> Gen Intel® Core™ i Processor

- Intel® Core™ i7 processor with 4 GB of DDR3 memory
- Compliant with EN 50121-4 railway EMC standards
- Supports 3 ITAM modules, 1 PCI104, and 1 miniPCIe slot for expansion
- Wide operating temperature range (-25 ~ 60°C)
- Supports single/dual power module



Fully compliant with  
EN 50155

### ITA-5831

EN 50155-Certified Compact Fanless System with 6<sup>th</sup> Generation Intel® Core™ i Processor

- Intel® Quad-Core™ i7 processor with 8 GB of DDR4 memory
- Satisfies EN 50155 Tx (-40 ~ 70°C) and IEC 61373 body mount Class B standards
- Compliant with EN 50121-3-2 rolling stock EMC standard
- Ruggedized communication and power port connectors (M12)
- Supports easy-swap storage and I/O modules

## Industrial Motherboards



### AIMB-705

LGA1151 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3/Pentium ATX with DVI/VGA, DDR4, SATA III, USB 3.0, and 6 COMs

- Intel® 6<sup>th</sup> Generation Core™ i7/i5/i3/Pentium® processor
- Dual-channel (non-ECC) DDR4 at 1866/2133 MHz, up to 32GB
- Supports VGA and DVI outputs



### AIMB-785

LGA1151 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3/Celeron/Pentium ATX with Triple Display, DDR4, and SATA III

- Intel® Core™ i7/i5/i3/Celeron®/Pentium® processor with Q170 chipset
- 4 DIMM sockets support DDR4 at 1866/2133 MHz, up to 64 GB
- Supports triple displays (VGA/2 DVI-D) and dual GbE LANs



### ASMB-585

LGA 1151 Intel® Xeon® E3 v5/6<sup>th</sup> Generation Core™ Micro ATX Server Board with 4 DDR4, 1 PCIe x 16, 3 PCIe x 4, Quad LANs, and USB 3.0

- Micro ATX Server Board with Intel® Xeon® E3-1200 v5/Core™ i5/i7 processor
- 4 DIMM sockets support DDR4 (ECC/non-ECC) at 2133/1866/1600 MHz, up to 64 GB

## Single Slot Board Computers



### PCE-3029

LGA 1151 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3 Half-Size SHB with PCIe 3.0, Dual Independent Displays, Dual GbE LANs, SATA III, m-SATA, and USB 3.0

- Compliant with PICMG 1.3
- Intel® Core™ i7/i5/i3/Celeron®/Pentium® processor with H110 chipset
- Dual-channel (non-ECC) DDR4 at 1866/2133 MHz, up to 32 GB



### PCE-5029

LGA 1151 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3 PICMG 1.3 SHB with DDR4, Dual LANs, and USB 3.0

- Intel® 6<sup>th</sup> Core™ i7/i5/i3 processor with H110 chipset
- Dual-channel (non-ECC) DDR4 at 1866/2133 MHz, up to 32 GB
- Supports PCIe 3.0, USB 3.0, and SATA 3.0



### PCE-5129

LGA 1151 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3 PICMG 1.3 SHB with DDR4, Dual LANs, USB 3.0, M.2, Triple Displays, and AMT

- Intel® Core™ i7/i5/i3 LGA1151 processor with Q170 chipset
- Dual-channel (non-ECC) DDR4 at 1866/2133 MHz, up to 32 GB
- Supports PCIe 3.0, M.2, USB 3.0, SATA3.0, and SW Raid 0/1/ 5/10

# Industrial Communication

## Simplify the Way You Connect

Advantech's Industrial Communication products draw on over 20 years of experience to provide reliable wired and wireless communication (3G, GPRS, and WLAN) for mission critical applications. These products include: Industrial Ethernet Switches, Industrial Wireless AP/Client, Media Converters, Serial Device Servers, Cellular IP Gateways, and Modbus Gateways. They are also capable of securely transmitting critical and sensitive information, remotely monitoring and controlling networked devices and emphasizing high communication capabilities for industrial applications.



### Software

#### WebAccess/NMS

##### Network Management System

- Cross Web Browser Compatible
- Online Google map and offline OpenStreetMap support
- Supports all Advantech Ethernet-based products
- Automatically generated topology
- PoE, ring, wireless, cellular connection indication



### Industrial Routers

#### EKI-1331/ 1334

##### Industrial HSPA+ Gateway/Router

- Universal five-band UMTS/HSPA+ 850/900/1800/1900/2100 MHz
- Protocols converting between serial and Ethernet: Modbus RTU & TCP
- Provides NAT and VPN
- EMC Level III for industrial standards



### Industrial Wireless AP/ Clients



NEW

#### EKI-6331AN/ 6332GN

##### 802.11N WiFi AP/ Bridge/ Client

- Compliant with IEEE 802.11 a/n and 802.11 b/g/n
- High output power
- Fast roaming
- IP55 waterproof

### Serial Device Servers



#### EKI-1521/ 1522/ 1524/CI/I

##### 1-port/ 2-port/ 4-port RS-232/ 422/ 485 Serial Device Server

- 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- VCOM, TCP server, TCP Client, UDP and RFC2217 operating modes
- I models support a wide operating temperature; CI models support isolation and wide operating temperature



NEW

#### EKI-1528I/CI-DR

##### 8-port RS-232/ 422/ 485 Din Rail Serial Device Server

- 2 x 10/100 Mbps Ethernet port for LAN redundancy
- VCOM, TCP server, TCP Client, UDP and RFC2217 operating mode
- I models support a wide operating temperature; CI models support isolation and wide operating temperature

### Serial Device Servers



#### EKI-1526/ 1528 Series

##### 16/8-port RS-232/ 422/ 485 Rackmount Serial Device Server

- Connect up to 8 or 16 port series RS-232/422/485 devices directly to TCP/IP networks
- High speed baud rates from 50bps to 921.6Kbps ensure high volume transmission needs
- VCOM, TCP server, TCP Client ,UDP and RFC2217 operating modes

### WLAN Device Servers



#### EKI-1361/ 1362 / EKI-1361-MB/ 1362-MB

##### 1/ 2-port RS232/ 422/ 485 to 802.11b/ g/ n WLAN Serial/ Mobus Device Servers

- Links any serial device to an IEEE 802.11b/ g/ n network
- Provides 1/2 x RS-232/ 422/ 485 port
- Secures data access with WEP, WPA, and WPA2
- Supports WLAN Ad-Hoc and Infrastructure modes
- MB version supports Modbus TCP and Modbus RTU

### Modbus Gateways



#### EKI-1221/ 1222/ 1224/CI/I

##### 1-port/ 2-port/ 4-port Modbus Gateway

- 2 x 10/100 Mbps Ethernet port for LAN redundancy
- Surge protection for D.C. power ports with line to line 2KV and line to earth 4KV for signal port with 4KV
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- I models support a wide operating temperature
- CI models support isolation and wide operating temperature



## Industrial Ethernet Managed Switches



NEW

### EKI-7428G-4CI

24G+4G Combo ports Industrial Rackmount Managed Switch

- IXM for Fast Deployment
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- -40 ~ 70°C wide-range operating temperature
- Dual 12-48 V<sub>DC</sub> power input
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP



NEW

### EKI-7710E/G-2C EKI-7712E/G-4F

8FE / 8G +2G Combo Ports / 8FE / 8G + 4G SFP Ports Industrial Managed Switch

- 8 Gigabit ports + 2 Gigabit Copper/SFP combo ports (EKI-7710G)
- 8 Fast Ethernet / Gigabit ports + 4 Gigabit SFP ports (EKI-7712G)
- IXM function enables fast deployment
- IP30
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB



NEW

### EKI-7720E/G-4F

16FE / 16G + 4G SFP Ports Industrial Managed Switch

- 16 Fast Ethernet / Gigabit ports + 4 Gigabit SFP ports
- Redundancy: X-Ring Pro (recovery time < 20 ms)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLs/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB

## PROFINET or EtherNet/IP supporting Industrial Ethernet Switches



EtherNet/IP

NEW

### EKI-5500/5600-EI

Entry-Level Managed Switch Support EtherNet/IP Protocol

- EtherNet/IP protocol
- EDS files /AOI available
- FactoryTalk<sup>®</sup> compliant Faceplate
- Dual 12 ~ 48 V<sub>DC</sub> power input and P-Fail relay
- EMS level 3 protection



PROFINET

NEW

### EKI-5500/5600-PN

Entry-Level Managed Switch Support PROFINET Protocol

- Real-time PROFINET protocol
- Media Redundancy(MRP)Master/Slave
- GSD files available
- -40 ~ 70°C wide-range operating temperature
- IEEE 802.3az Energy Efficient Ethernet (EEE)

## Viewable Unmanaged Ethernet Switches



TAIWAN  
EXCELLENCE 2016

### EKI-5000 Series

Viewable Unmanaged Switch

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS via SNMP
- Port-based QoS for deterministic data transmission
- Loop detection
- Dual Power input

## Industrial PoE Switches



NEW

### EKI-7428G-4CPI

24G PoE ports +4G Combo ports Industrial Rackmount Managed Switch

- 24 x IEEE 802.3 af/at PoE Gigabit ports + 4 x Gigabit Copper/SFP combo ports
- IXM for Fast Deployment
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- -40 ~ 70°C wide-range operating temperature
- Dual 48 V<sub>DC</sub> power input



NEW

### EKI-7710E/G-2CP

8FE / 8G PoE ports +2G Combo Ports Industrial Managed Switch

- 8 x IEEE 802.3 af/at PoE ports + 2 Gigabit Copper/SFP combo ports
- IXM function enables fast deployment
- IP30
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB



NEW

### EKI-7712E/G-4FP

8FE / 8G PoE ports + 4G SFP Ports Industrial Managed Switch

- 8 x IEEE 802.3 af/at PoE ports + 4 Gigabit SFP ports
- Redundancy: X-Ring Pro (recovery time < 20 ms)
- IXM function enables fast deployment
- IP30
- -40 ~ 75°C wide-range operating temperature (Wide temp model)

## EN50155 Railway Switches



NEW

### EKI-9512/P 9516/P

EN-50155 M12 Managed Switch Ethernet Switch

- Complies with EN50155 and EN45545-2
- All Gigabit connections support dual ring protection and non-blocking traffic forwarding
- M12 connector with IP67 protection
- IEEE 802.3af/802.3at per port with system PoE power management (PoE models)
- Supports wide operating temperatures from -40 to 75°C

## eMark In-Vehicle Switches



NEW

### EKI-5728/5729P/5624P

In-Vehicle Viewable Unmanaged Switch

- eMark certified
- Port-based QoS for deterministic data transmission
- Dual power input
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- -40~75°C operating temperature range
- Dual Power input
- Communicates with SCADA software via Modbus/TCP

## IEC61850-3 Power & Energy Switch



NEW

### EKI-9228G

IEC-61850 Industrial Rackmount Managed Switch

- 16 x Gigabit RJ-45 ports + 4 Gigabit x SFP ports + 8 x Gigabit Combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP
- Dual wide range AC/DC power input

# Industrial Networking

## Seamless Data Connectivity from the Network Edge to the Network Core

The Advantech B+B SmartWorx line of industrial networking products provides robust, reliable, sophisticated connectivity all the way from the network edge to the network core. They transfer data between copper, fiber and wireless connection and translate multiple generations of data networking protocols, whether the data comes from legacy serial and Modbus devices or the latest Industrial Internet of Things equipment. Where wired connections are threatened by harsh environments, Advantech B+B SmartWorx provides ruggedized devices that will keep your data flowing and isolated devices that will stop electrical transients (surges) cold. When wired connectivity is impractical, we provide a host of industrial grade wireless solutions to ensure data can still be transmitted and received wherever it's needed. Whatever your data networking challenges may be, we can provide the answers.



### Fiber Media Conversion



**NEW**

#### MiniMc series

##### Miniature Ethernet Fiber Media Converters

- Compact, simple and flexible
- 10/100 or 10/100/1000 Mbps
- Fixed fiber (MM850 SC, SM1310 SC) and SFP
- Link Fault Pass Through for remote troubleshooting
- Powering options: DC jack, terminal block or USB/PoE
- -40 to 80°C wide operating temperature ("IE" models)



**NEW**



#### PoE/PoE+ Giga MiniMc

##### PoE Switching Media Converter

- Rugged, standalone, compact enclosure
- IEEE 802.3af PoE (15.4W) / IEEE 802.3at PoE+ (25.5W)
- 10/100/1000 Mbps
- Fixed fiber and SFP
- PoE Reset on Fiber LOS (configurable)
- Link Fault Pass Through for remote troubleshooting



**NEW**

#### IE Multiway

##### Optical Gigabit Ethernet Demarcation

- Multi-function (Gigabit switch, 1+1 protection, dual copper to fiber media/mode converter)
- OAM, Vlans, Q-in-Q and SNMP management
- Extended temperature rating (-40 to +80°C)
- 5-24V<sub>DC</sub> or 48V<sub>DC</sub> (terminal block)

### Wireless Sensing



**NEW**



#### Wzzard series

##### Wireless Networking I/O & Sensors – Intelligent Sensing Platform

- Ultra low power 802.15.4e SmartMesh IP technology
- Rugged, IP66, fiber reinforced polyester PBT enclosure
- MQTT and JSON IoT protocol to application platform
- UL Class 1/Division 2 for hazardous locations

### USB Conversion



**NEW**

#### 485USBTB-2W & 485USB9F-2W

##### In-line USB to RS-485 Converters

- High retention USB connectors
- Perfect for field service applications
- Small – fits easily into any laptop bag
- USB port powered



**NEW**

#### UH104 & UH401

##### 4-port USB 2.0 Hub & 1-port 4KV Isolator

- High retention USB connectors
- Ultra-compact
- -40 to 80°C wide operating temperature
- 15 kV ESD protection

### Serial Conversion



**NEW**



#### 485DRCI, 485OPDRI & 232OPDRI

##### Triple Isolated Serial Converter & Repeaters

- Three-way 2KV optical isolation (input, output, power)
- Wide -40 to +80°C temperature range
- UL Class 1/Division 2 for hazardous locations
- 10–48 V<sub>DC</sub> input power range

### LTE Routers & Gateways



**NEW**



#### SL 30x series

##### SmartSTART Routers & Gateways

- LTE/UMTS/HSPA+/UMTS/HSDPA/GPRS/EDGE
- Wi-Fi (optional)
- Two SIM card holders
- VPN and Python support
- Low-power mode
- UL Class 1/Division 2 for hazardous locations



**NEW**



#### SR 3xx series

##### SmartFLEX Routers & Gateway

- LTE/UMTS/HSPA+/UMTS/HSDPA/GPRS/EDGE
- Wi-Fi (optional); GPS receiver (wired version not included)
- Two SIM card holders + MicroSD card holder
- PoE PD/PSE (optional)
- VPN and Python support
- Low-power mode
- UL Class 1/Division 2 for hazardous locations

# Control IPCs

## Scalable PC-based Automation Controllers for Smart Factory

Advantech's APAX series is designed for industry 4.0, which leverages embedded computing technology and modular system design. It features flexible I/O expansion, real-time I/O control and Fieldbus, network capability through various interfaces.

The APAX series can bridge Operational Technology (OT) and Information Technology (IT) together by providing an integrated control system and open environment that users can add their knowledge and software, such as database or MES interface to it.



### Control IPCs



**NEW**



#### APAX-5580

##### Embedded Control IPC

- Intel® Haswell Core i7/i3/Celeron processors upto 1.7GHz with 4GB DDR3L memory
- 2 x mPCIe interfaces for telecommunication
- One key operating system recovery
- Supports up to 8 local and 32 remote COM ports
- 2 x LAN, 2 x USB3.0, 1 x VGA, 1 x SD slot, 1 x COM port and 2 x mPCIe slots



#### APAX-5580CDS

##### CODESYS-ready Control Platform

- Supports CODESYS V3.5 RTE
- Onboard Fieldbus support: EtherCAT, PROFINET, Ethernet/IP
- PLC-graded RTC battery for 10 years
- Supports up to 8 local and 32 remote COM port
- Supports max 32 APAX I/O expansion, up to 768 digital I/O, 192 analog input

### Couplers



#### APAX-5070/ 5071/ 5072

##### Fieldbus Communication Coupler

- APAX-5070 supports 1ms Modbus response time
- Flexible Modbus mapping table
- Supports UDP data streaming and event alarms

### PCIe Modules for APAX-5580



#### APAX-5435

##### iDoor Interface Module

- Supports Fieldbus and telecommunication by Advantech iDoor Technology
- Supports mSATA for data storage



#### APAX-5490

##### RS-232/422/485 Module

- Change RS-232/422/485 mode by hardware switch
- Auto flow control in RS-485 mode
- Isolation protection



#### APAX-5430

##### SATA HDD Module

- SATA I/II/III 2.5" HDD/SDD
- Supports RAID 0/1

### APAX I/O Modules



**NEW**

#### APAX-5090

##### Communication Module by Local Bus

- 4 x RS-232/422/485 ports
- Up to 32 visual COM port with APAX-5580
- Supports distributed topology with APAX bus



#### APAX-5017H

##### 12-ch High Speed Analog Input Module

- Voltage and current inputs including  $\pm 10V$  and 4 ~ 20mA
- Each channel can be configured with different input types and ranges
- 100/1000 sampling rate per channel



#### APAX-5080

##### 4/8-ch High Speed Counter Module

- 5 counter mode: Up, Up/Down, Pulse/Direction, A/B phase, Frequency from 0.1Hz~1MHz
- 4 x DI channels for counter gate inputs
- 4 x DO channels for alarm outputs

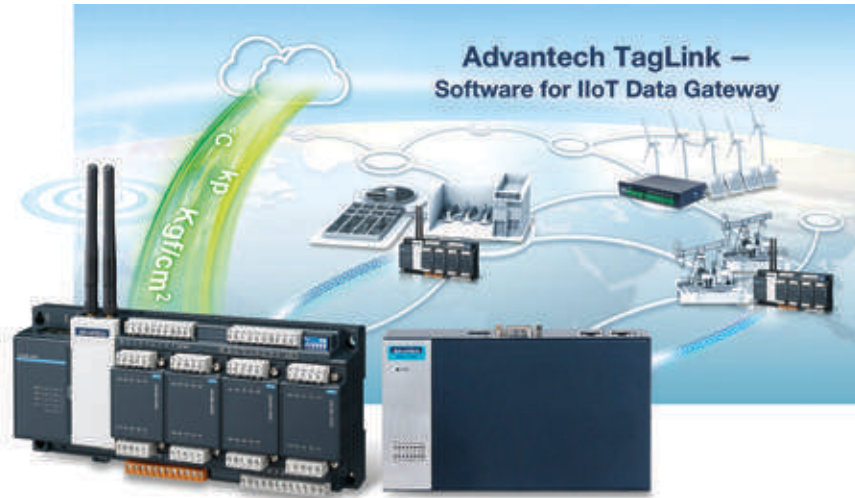


# TagLink-enabled IIoT Data Gateway

## Powering Smarter and Safer Data Acquisition Tasks

TagLink is software dedicated to Industrial IoT applications. The name represents the two key features necessary for making data transition easier. 'Tags' are for users to make customized and advanced settings changes, while 'Link' means the software makes the data link between edge devices and the cloud become smarter and safer.

With integrated applications for protocols and software, and the open SDK/API, TagLink is dedicated technology for future IIoT Data Gateway applications. Currently Advantech has two IIoT Data Gateways with TagLink: the ADAM-3600 series with 20~50 local I/O points for Oil, Gas and Water industries, and the small but robust ECU-1152 for Power and Energy applications.



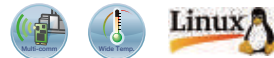
### Multi-protocol DA&C System



#### ADAM-3600-C2G

8 AI / 8 DI / 4 DO / 4-Slot Expansion, 2 x LAN, 3 x COM and Dual Wireless

- Supports Industrial Protocols: DNP3, IEC-60870-5-104, Modbus
- Supports IT Protocols OpenVPN / HTTP/HTTPS (RESTful) / WASCADA
- TI Cortex A8 600MHz CPU with DDR3L 256MB RAM
- RT-Linux OS with TagLink realtime database
- Onboard IO- 8AI / 8DI / 4DO with 4-Slot I/O expansion flexibility
- Internal 2 x Mini-PCIe Interface for Dual Wireless Networking
- Certified Wireless Solution Zigbee/ Wi-Fi/ 3G/ 4G/ GPRS/ GPS
- IEC61131-3 & C programming language SDK support
- Wide operation temperature -40~70°C
- Supports iCDManager for remote connectivity diagnosis
- TagLink Studio for off-line configuration and remote deployment and on-line monitoring
- SQLite database for data logger on SD card



### Expansion I/O Modules



#### ADAM-3600 Series I/O Expansion Modules

ADAM-3600 is with 20 points on-board IO, and 4-slot for IO expansion modules. It provides versatile IO combination without occupying extra space in the cabinet.

- ADAM-3617 4-ch Analog Input Module
- ADAM-3618 4-ch Thermocouple Module
- ADAM-3624 4-ch Analog Output Module
- ADAM-3651 8-ch Digital Input Module
- ADAM-3656 8-ch Digital Output (Sink type) Module

### Power & Energy Automation Gateway



#### ECU-1152

4 DI / 4 DO, 2 x LAN, 6 x COM, and Wireless

- Supports Industrial Protocols DNP3, IEC-60870-5-104, Modbus
- Supports IT Protocols OpenVPN / HTTP/HTTPS (RESTful) / WASCADA
- TI Cortex A8 800MHz Processor with DDR3L 512MB RAM
- 2 x 10/100MB LAN, 6 x RS-232/485 COM, 4 x DI, 4 x DO
- 1 x Mini-PCIe for 3G/GPRS/GPS
- Supports RT-Linux OS, with TagLink realtime database
- Wide operation temperature -40~70°C
- TagLink Studio for off-line configuration and remote deployment and on-line monitoring
- SQLite database for data logger on SD card





# Wireless IoT Sensing Devices

## Providing IoT Wireless Smart Devices from I/O to Sensor

As wireless applications become a more common and preferred solution, Advantech has introduced a variety of wireless remote I/O devices to the market to become an important IoT enabler. With the Wi-Fi-based WISE-4000 series, users are free from worrying about a wired layout and extra associated costs, for a more flexible deployment. Furthermore, the WISE-4000 series brings an authentic IoT experience to the market. By realizing an "Anytime, Anywhere" solution, users can retrieve data via mobile devices and can now configure modules and troubleshoot from mobile devices to save time. And, the WISE-2000 series provides Wi-Fi and Bluetooth-based sensor tags and gateways to fulfill Location-Based Services, also including the environment sensor to reach variety smart city IoT applications.



### IoT Wireless I/O Modules

#### WISE-4050 / WISE-4060

4-ch Digital Input and 4-ch Digital Output /  
4-ch Digital Input and 4-ch Relay Output  
IoT Wireless I/O Module

- 2.4 GHz IEEE 802.11b/g/n WLAN
- Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, HTTP
- RESTful web API in JSON format for IoT integration
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports file-based cloud storage and local logging
- Supports mobile device web configuration with HTML5
- 10~30V<sub>DC</sub> power with reverse protection



NEW



#### WISE-4051

8-ch Digital Input IoT Wireless I/O Module  
with 1-port RS-485 for Modbus/RTU

- 2.4 GHz IEEE 802.11b/g/n WLAN
- Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, HTTP
- RESTful web API in JSON format for IoT integration
- Supports both wireless client and server modes
- Supports data log function, RESTful API, and cloud connectivity for Modbus/RTU devices
- Supports mobile device web configuration with HTML5
- 10~30V<sub>DC</sub> power with reverse protection



NEW

#### WISE-4012

4-ch Universal Input and 2-ch Digital Output  
IoT Wireless I/O Module

- 2.4 GHz IEEE 802.11b/g/n WLAN
- 4-ch UI: 0~10V, 0~20mA, 4~20mA, digital input
- RESTful web API in JSON format for IoT integration
- Web Services: REST, HTML5, JavaScript, JSON
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports file-based cloud storage and local logging
- Supports mobile device web configuration with HTML5



NEW



#### WISE-4012E - IoT Developer Kit

6-ch Universal Input/Output IoT Wireless  
I/O Module for IoT Developer

- 2.4 GHz IEEE 802.11b/g/n WLAN
- 2-ch 0~10V Input, 2-ch DI, and 2-ch Relay Output
- Includes WebAccess with demo project for developer
- Includes extension board for simulating sensor status
- Includes micro USB cable for power input
- Supports both wireless client and server modes that can be accessed directly without AP or router
- Supports mobile device web configuration



WebAccess

### IoT Wireless Tags and Sensor Gateways



#### WISE-2200W

802.11 b/g/n Wi-Fi Low Energy Tag

- Compliant with standard IEEE 802.11b/g/n
- Supports G sensor and Tamper Switch for motion detection
- Small size fits on small and odd-shaped assets
- Supports push button / dual LED to set and modify tag behaviors
- Supports power saving function
- Supports Over-the-air remote setting to modify tag behavior
- Rechargeable battery for easy maintenance
- Asset/Object location tracking and management



#### WISE-2200B

Bluetooth 4.1 Low Energy Tag

- Compliant with standard 2.4-GHz Bluetooth 4.1 low energy
- Supports G sensor and Tamper Switch for motion detection
- Small size fits on small and odd-shaped assets
- Supports push button / dual LED to set and modify tag behaviors
- Supports power saving function
- Supports Over-the-air remote setting to modify tag behavior
- Asset/object location tracking and management



#### WISE-2400

BLE/ Wi-Fi Intelligent Sensor Gateway

- Compliant with standard IEEE 802.11b/g/n and Bluetooth 4.1 low energy
- Centralized monitoring of multiple BLE tags / sensors
- Multiple BLE/ Wi-Fi Gateway can be accessed/ controlled from server and smart devices
- Supports SmartConfig™ Technology, AP Mode, and WPS2 for Easy and Flexible Wi-Fi Provisioning
- Supports fast scan BLE devices up to over 40 devices
- Supports over-the-air programming
- Supports sensors function (temperature / humidity)

# Remote I/O Modules

## Providing Remote I/O Connectivity with RS-485 and Ethernet, with More Options

When "Internet of things" is no longer just a slogan, Advantech's versatile products boost clients' production performance by meeting different application needs. With a typical automation network using RS-485 to transmit serial signals the ADAM-4000 & robust ADAM-4100 series, and the designed for harsh environments. Robust RS-485 based ADAM-4100 series, Ethernet based ADAM-6000 series and Daisy-chain Ethernet based ADAM-6200 series, managing field devices becomes easier and the field site status can be identified, tracked and altered remotely. There are over 1 million ADAMs in the world, in various industries such as industrial automation, environmental and facility management, intelligent transportation system, and so on and their record of being highly efficient devices is well proven.



### Daisy-chain Ethernet I/O Modules



#### ADAM-6200 Series

- Daisy chain connection with auto-bypass protection
- Auto-calibration without providing any input
- Web language support: HTML5, JavaScript, XML
- Support GCL and Peer-to-Peer
- Group configuration capability to set up multiple modules at one time
- DI/O LED Indication
- Safe value settings for DO or Relay failure

#### Module Selection

##### Isolated Analog I/O Modbus TCP Module

- ADAM-6217: 8-ch AI
- ADAM-6224: 4-ch AO & 4-ch DI

##### Isolated Digital I/O Modbus TCP Module

- ADAM-6250: 8-ch DI & 7-ch DO
- ADAM-6251: 16-ch DI
- ADAM-6256: 16-ch DO

##### Relay Output Modbus TCP Module (with DI)

- ADAM-6260: 6-ch RL
- ADAM-6266: 4-ch RL & 4-ch DI

### Real-time Ethernet I/O Modules



#### ADAM-6100 Series

- Daisy chain connection functionality
- Supports PROFINET or Ethernet/IP protocol
- Coupler-free design
- GSD, L5K and EDS file ready for network commissioning
- 2,500 V<sub>DC</sub> isolation protection

#### Module Selection

##### (PROFINET:PN, EtherNet/IP:EI)

##### Isolated Analog I/O Module

- ADAM-6117E/1PN: 8-ch AI

##### Relay Output Module

- ADAM-6160E/1PN: 6-ch RL

##### Isolated Digital I/O Module

- ADAM-6150E/1PN: 8-ch DI & 7-ch DO
- ADAM-6151E/1PN: 16-ch DI
- ADAM-6156E/1PN: 16-ch DO

### Smart Ethernet I/O Modules



#### ADAM-6000 Series

- Modbus TCP/IP, UDP and HTTP protocol
- Embedded web server
- Data stream and event trigger
- GCL and Peer-to-Peer
- Support C#.NET, VB.NET

#### Module Selection

##### Isolated Analog I/O Modbus TCP Module

- ADAM-6017: 8-ch AI & 2-ch DO

##### Isolated Digital I/O Modbus TCP Module

- ADAM-6050: 12-ch DI & 6-ch DO

##### Relay Output Modbus TCP Module

- ADAM-6060: 6-ch DI & 6-ch Relay
- ADAM-6066: 6-ch DI & 6-ch Power Relay

### RS-485 I/O Modules



#### ADAM-4000/4100 Series

##### ADAM-4000

- Supports Modbus RTU protocol
- Over Voltage Protection: ±35V<sub>DC</sub>
- Isolation Voltage: 3000 V<sub>DC</sub>

##### ADAM-4100

- Wide operating temperature -40 ~ 85°C (-40 ~ 185 °F)
- 1KV surge, 3KV EFT, 8KV ESD Protection
- High common mode voltage: 200V<sub>DC</sub>
- Burn-out Detection

#### Module Selection

##### Isolated Analog I/O Module

- ADAM-4117: Robust 8-ch AI
- ADAM-4024: 4-ch AO & 4-ch DI

##### Isolated Thermocouple/RTD Input Module

- ADAM-4118: Robust 8-ch T/C
- ADAM-4015: 6-ch RTD module

##### Isolated Digital I/O Module

- ADAM-4051: 16-ch DI
- ADAM-4055: 8-ch DI & 8-ch DO

# Power & Energy Automation

## Ensure Reliable P&E Automation with IEC 61850-3 Compliant Products

Advantech's new product line for the power and energy market features a range of devices developed to provide the best solutions in this modern marketplace. Advantech's IEC 61850-3 compliant computers, extension cards and gateway products are specifically designed to meet the critical requirements of power and energy applications. The powerful ECU-4000 and UNO-4600 series automation computers are primarily designed for use in smart substations. The ECU-1152 and 4552, designed for renewable energy situations, have built-in TagLink software which enables them to act as intelligent power automation gateways.



### P&E Automation Computer



#### ECU-4784

TUV IEC-61850-3 Certified Power Automation Computer with Intel Haswell Core i7 Processor and I/O Expansion Slots

- More processor for selection: Intel® Haswell Core i7 4650U/ Core i3 4010U/ Celeron 2980U/ Ivy Bridge i7 3612QE
- 8 x 10/100/1000MB LAN, 2 x RS-232 and 8 x RS-232/422/485 COM
- 2 x IO Expansion Slots
- Supports iCDManager/ VT-D/ AMT/ TPM



#### ECU-4674

IEC-61850-3 Compliant Power Automation Computer with Intel Atom N2600 Processor and PCI-104 Expansion Slot

- Intel® Atom™ N2600 1.6GHz Processor
- 2 x 10/100/1000MB, 6 x 10/100MB LAN, 2 x RS-232, 16 x RS-232/485 COM
- 8 x Isolated DI, 8 x Isolated DO, 1 x IRIG-B, 1 x PCI-104 Expansion Slot
- Supports iCDManager function



#### UNO-4673A/ 4683

IEC-61850-3 Certified Power Automation Computer with Intel® Atom™ D510/ Core i7 Processor and I/O Expansion Slots

- Intel® Atom™ D510 1.66 GHz Processor (UNO-4673A)/ Intel® Core i7 2.0 GHz Processor (UNO-4683)
- 2 x 10/100/1000MB, 4 x 10/100MB LAN, 2 x RS-232/422/485 COM
- 3 x I/O Expansion Slots

### P&E Automation Extension Cards



#### ECU-P1524PE

Gigabit Base Ethernet Card with HSR/PRP Protocol for ECU-4784

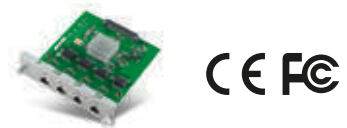
- 2xSFP(1000Mbps Base-X)Ethernet Port
- 2xSFP(HSR/PRP Protocol, Jumper for selection)
- Operating Temperature: -25~ 70°C



#### ECU-P1761

4 x DI, 4 x Relay Output and 1 x IRIG-B Card for ECU-4784

- 4 x Isolated Digital Input(Wet contact)
- 4 x Isolated Relay Output(Form C)
- 1 x IRIG-B(BNC)
- Operating Temperature: -25~ 70 °C



#### UNOP-1514C/RE/PE

4 x Fiber Optic/RJ-45/SFP Ethernet Card for ECU-4784/UNO-4673A/4683

- 100MB Base-FX, Up to 2km, 4 x SC type Fiber (1514C)
- 10/100/1000MB RJ-45 type (1514RE)
- 1000Mbps SFP type (1514PE)
- Operating Temperature: -20~ 70°C

### P&E Automation Gateways

#### ECU-1152

Power Automation Gateway with Cortex A8 Processor, 2xLAN, 6xCOM, and Wireless Communication on-board DI/DO and Wireless

- TI Cortex A8 800MHz Processor
- 2x10/100MB LAN, 6xRS-232/485 COM
- 1x Mini-PCle for 3G/GPRS/4G/Wifi Wireless
- Modbus, DNP3, IEC-60870 Protocol
- Support RT-Linux OS, TagLink Software



#### ECU-4552

Power Automation Gateway with Cortex A8 Processor, 4xLAN, 10xCOM and on-board DI/DO

- TI Cortex A8 800MHz Processor
- 4x10/100MB LAN, 10xRS-232/485 COM, 24DI, 4DO
- 1x Mini-PCle(Reserved)
- Modbus, DNP3, IEC-60870 Protocol
- Support RT-Linux OS, TagLink Software





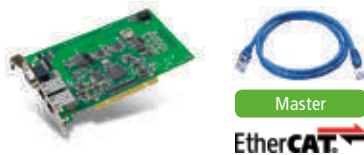
# Machine Automation

## Integrated Soft Computing to Enable Intelligent Machines

Advantech developed its own SoftMotion control and GoE (GigE Vision offload engine) and uses the FPGA (Field Programmable Gate Array) and DSP (Digital Signal Processing) as the core-computing hardware platform. Advantech's motion control card and frame grabber series use Ethernet-based EtherCAT and GigE Vision technologies to provide the best performance PC-based solutions in machine automation. Meanwhile, our team not only develop cards, but also provide SRPs (Solution Ready Package) based on computing platforms to fulfill the demands from SI partners and end customers.



### EtherCAT Solutions



#### PCI-1203

##### EtherCAT Master PCI Card

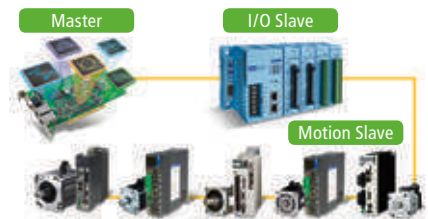
- Supports up to 32 axis and huge I/O points by cycle time = 500us
- Integrated Advantech Common Motion SDK for user programming
- Diagnostics for fast error handling



#### ADAM-5000/ECAT

##### 4-slot Distributed High Speed I/O System for EtherCAT

- Complete DI/O, AI/O and Encoder modules support
- Supports EtherCAT Distributed Clock (DC) mode and SyncManager mode
- Compatible with Advantech Common Motion SDK



#### Features

- Ready-to-use Softmotion functions for EtherCAT high axis and huge I/O applications
- Real-Time & No Packet Loss on any computing platform

### Motion Control PCI Cards

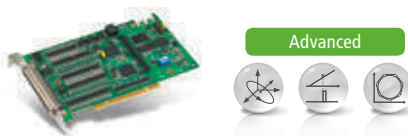


#### Basic / Economic

#### PCI-1245L/ 1245LIO/ 1245E/ 1285E

##### Basic/Economic 4/8-axis Stepping and Servo Motor Control PCI Card

- P2P/Linear interpolation/Homing
- Extra 16 x DI / 16 x DO extension (PCI-1245LIO) **(NEW)**
- Path table & Path DO (PCI-1245E/85E) **(NEW)**

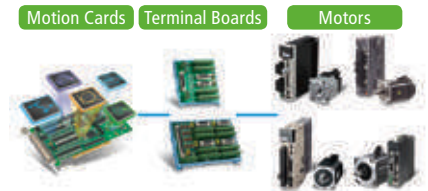


#### Advanced

#### PCI-1245/ 1265/ 1285

##### Standard SoftMotion 4/6/8-axis Stepping and Servo Motor Control PCI Card

- Precise multi-axis synchronization
- 2/3-axis Arc move **(NEW)**
- High speed 2D compare trigger **(NEW)**
- Tangential following
- 8 x DI / 8 x DO / 2 x AI (PCI-1265)
- Functions supported by Economic version



#### Features

- Softmotion functions for vertical application
- Guarantee deterministic control
- Ready-to-use cables for brand motors

### GigE Vision Solutions



#### PCI-1672E/ 1674E

##### Dual/Quad Channel, PoE Interface Card

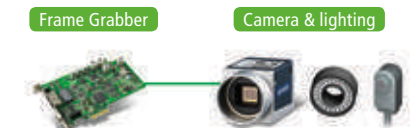
- Intel® server-grade GbE Mac Controller
- PCI ExpressR x 4 compliant
- PoE power from PCIe slot (Total Max. 18W)
- Powered Device (PD) auto detection and classification
- Supports IEEE 802.3u Auto-Negotiation
- Supports Jumbo frame (9,500 byte) and link aggregation



#### PCI-1172/ 1174

##### Dual/Quad Channel, Intelligent GigE Vision Frame Grabber with GoE

- GoE (GigE Vision Offload Engine), FPGA image reconstruction, No packet loss, No CPU workload
- GigE Vision, GENICAM and GENTL Compliant
- AD Hoc, automatic IP configuration
- Direct power from PCIe slot (Total Max. 18W)
- ToE (Trigger over Ethernet)



#### Features

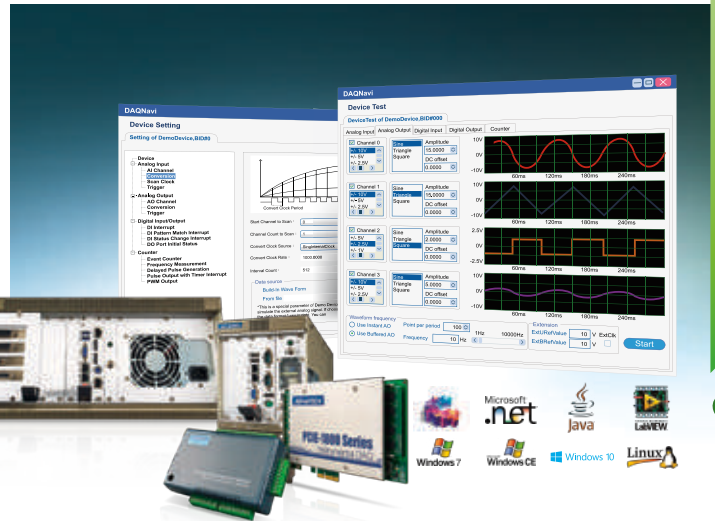
- IEEE 802.3af, PoE compliant
- PoE power from PCIe slot (Total Max. 18W)
- Free SDK to develop and deploy



# Data Acquisition and Control

## Diverse Form Factors to Satisfy All DAQ Requirements

Advantech offers a wide range of industrial data acquisition and control devices with various interfaces and functions. Based on PC technology, from ISA to PCI Express, and signal conditioning to graphical software tools, Advantech's industrial I/O products are reliable, accurate, affordable, and suitable for diverse industrial automation applications, such as testing and measurement, laboratory operations, machine automation, and production testing. Moreover, Advantech's latest DAQNav I/O driver supports Windows 7, 8, 10, and Linux OS, enabling customers to seamlessly integrate Advantech's data acquisition cards with the latest platforms for improved performance and reduced development time.



### PCI Express DAQ Cards



#### PCIE-1730

32-Channel TTL and 32-Channel Isolated DI/O PCI Express Card

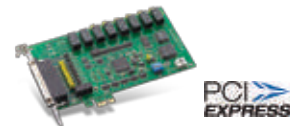
- 16-channel TTL DI and 16-channel TTL DO with 5 V compatibility
- 16-channel isolated DI and 16-channel isolated DO with 24 V compatibility
- High-voltage isolation on all isolated DI/O channels (2,500 V<sub>oc</sub>)



#### PCIE-1752/1754/1756

64-Channel Isolated DI/O PCI Express Card

- PCIE-1752: 64-channel isolated DO
- PCIE-1754: 64-channel isolated DI
- PCIE-1756: 32-channel IDI, 32-channel IDO
- High-voltage isolation on all channels (2,500 V<sub>oc</sub>)
- Retains output settings and values after system hot resets
- Interrupt handling capacity



#### PCIE-1760

8-Channel Relay and 8-Channel Isolated DI PCI Express Card

- 8-channel isolated DI with programmable digital filter
- High-voltage isolation on input channels (2,500 V<sub>oc</sub>)
- 2-channel Form C and 6-channel Form A relay output
- 2-channel counter input (PWM output available)



#### PCIE-1810/1816/1816H

12/16-Bit 16-Channel AI Multi-Function PCI Express Card

- PCIE-1810 & PCIE-1816: 500 KS/s
- PCIE-1816H: 1 MS/s
- Analog and digital triggers
- Waveform generator for AO
- 24 programmable digital I/O lines
- Two 32-bit programmable counters/timers



#### PCIE-1802

8-Channel, 24-Bit, 216 kS/s Dynamic Signal Acquisition PCI Express Card

- 8 simultaneously sampled analog inputs, up to 216 KS/s
- 24-bit resolution ADCs with 115 dB dynamic range
- Wide  $\pm 0.2 \sim 10$  V input range
- Built-in anti-aliasing filter
- Software-configurable 4/10 mA IEPE accelerometer



#### PCIE-1840

125MS/s, 16-Bit, 4-Channel Digitizer PCI Express Card

- 4 analog inputs, up to 125 MHz, 16-bit resolution
- 500-MHz time-interleaved sampling
- Supports non-stop data streaming
- 2 GB of onboard memory
- Tunable anti-aliasing filter, AC/DC coupled

### PCI DAQ Cards



#### PCI-1714U/1714UL

Simultaneous 4-Channel Analog Input PCI Card

- A/D converter for each channel
- PCI-1714U: 12-bit, 30 MS/s, 4-channel single-ended AI
- PCI-1714UL: 12-bit, 10 MS/s, 4-channel single-ended AI
- 30 V<sub>oc</sub> over-voltage protection



#### PCI-1716/L

250KS/s, 16-Bit, 16-Channel Multi-Function PCI Card

- 16 single-ended/8 differential/combo analog inputs
- 16-bit A/D converter, up to 250 kHz sampling rate
- Auto-calibration
- 16-channel digital input and 16-channel digital output
- 2 analog output channels (PCI-1716 only)



#### PCI-1730U/1756

32/64-Channel Isolated DI/O Universal PCI Card

- High-voltage isolation on output channels (2,500 V<sub>oc</sub>)
- Wide 5 ~ 40 V<sub>oc</sub> output range
- High-sink current for isolated output channels (200 mA max./channel)
- Current protection for each port

## USB DAQ Modules



### USB-4711/4716

150 kS/s, 12-Bit/200 kS/s, 16-Bit  
16-Channel Multi-Function USB Module

- 2 analog output channels
- 5V/TTL-compatible DI/O (8 inputs, 8 outputs)
- 1 counter for event counting, frequency measurement, and PWM output
- Lockable USB cable for connection security



### USB-4750

32-Channel Isolated DI/O USB Module

- 16 isolated DI and 16 isolated DO channels
- 2 isolated counters for event counting and frequency measurement
- Retains last output value after system hot resets
- 2,500 V<sub>DC</sub> isolation protection



### USB-4761

8-Channel Relay and 8-Channel Isolated DI  
USB Module

- 8-channel Form C (SPDT) relay channels
- Relay contact rating 0.25 A @ 250 V<sub>AC</sub>, 2 A @ 30 V<sub>DC</sub>
- LED indicators show activated relay
- 2,500 V<sub>DC</sub> isolation protection

## PCI/PCIE Communication Cards



### PCI-1610/1612

4-Port PCI Serial Communication Card with  
Surge/Isolation Protection

- PCI-1610: RS-232 port
- PCI-1612: RS-232/422/485 ports
- Optional surge/isolation protection
- Fast data transmission speed, up to 921.6 kbps
- 256-byte FIFOs with advanced management



### PCI-1620/1622

8-Port PCI Serial Communication Card with  
Surge/Isolation Protection

- PCI-1620: RS-232 port
- PCI-1622: RS-232/422/485 ports
- Optional surge/isolation protection
- Fast data transmission speed, up to 921.6 kbps
- 256-byte FIFOs with advanced management



NEW

### PCIE-1620/1622

8-Port PCI Express Serial Communication  
Card with Surge/Isolation Protection

- PCIE-1620: RS-232 port
- PCIE-1622: RS-232/422/485 ports
- Optional surge/isolation protection
- 256-byte FIFOs with advanced management



NEW

### PCIE-1602/1604

2-Port RS-232/422/485 PCI Express/PCI  
Communication Card with Isolation

- PCIE-1602: 2 RS-232/422/485 ports
- PCIE-1604: 2 RS-232 ports
- Optional surge protection
- Optional isolation protection for RS-232/422/485
- 256-byte FIFOs with advanced management



NEW

### PCIE-1610/1612

4-Port RS-232/422/485 PCI Express/PCI  
Communication Card with Isolation

- PCIE-1610: 4 RS-232 ports
- PCIE-1612: 4 RS-232/422/485 ports
- Optional surge protection
- Optional isolation protection for RS-232/422/485
- 256-byte FIFOs with advanced management



NEW

### PCIE-1680

2-Port CAN-bus Universal PCI  
Communication Card with  
CANopen Support

- Supports two simultaneous CAN networks
- Fast data transmission speed, up to 1 Mbps
- 16 MHz CAN controller frequency
- Isolation protection of 2,500 V<sub>DC</sub>
- I/O addresses automatically assigned by PCI PnP

## CompactPCI Systems

### MIC-3106/3111/3121

4U CompactPCI System with  
2/7 Peripheral Slots

- 2G operational anti-vibration protection
- 2G shipping anti-vibration protection
- Air-tight seal connector for corrosive environments
- Modular design supports hot-swappable components
- Easily exchanged peripheral cards reduce maintenance costs
- Low-noise cooling fan for quiet operation



NEW



MIC-3106

NEW



MIC-3111

NEW



MIC-3121

# Rugged Portable HMI Tablets



## For Intelligent Onsite Management and Inspections

Advantech's portable HMI products are designed to assist mobile workers with managing onsite factory inspections. Equipped with the latest Intel® chipset and RF technology (WLAN, WWAN, and GPS), Advantech's rugged tablets enable seamless reliable data transmissions, ensuring workers have constant access to relevant information. The PWS-870 tablet and application-oriented peripherals are built for rough handling in extreme environments and the tablet has been drop-tested at 4ft, and certified to military standard MIL-STD-810G. An extension module with MSR and UHF RFID capabilities can be customized according to requirements. For extended operations, the PWS-870 can be easily removed from the wall docking station with just one hand. Additionally, the universal cover features a handle, stand, bag, and hand strap for hands-free carrying options.



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Star Product Highlights

### Fully Rugged Tablet



#### PWS-870

10" 16:9 Fully Rugged Tablet with Fourth Generation Intel® Core™ i Processor

- MIL-STD-810G and IP65 certified, can withstand drops of up to 4 ft.
- 10.1" HD high-brightness, multi-touch, Gorilla Glass panel with digitizer
- Fourth generation Intel® Core™ i processor supports Windows 8
- Built-in 4G LTE, WLAN (802.11 a/b/g/n/ac), BT4.0, and GPS modules with Beidou/GLONASS support
- Hot-swappable battery offers up to 11 hours operation
- Built-in dual cameras, a 1D/2D barcode scanner, and NFC RFID
- Wide array of peripherals including a vehicle docking station, desk docking station, and customizable extension modules

### Accessories



#### Wall Docking Station

- Anti-theft locking mechanism
- Rapid device docking and removal (1 second)
- Equipped with 1 x DC-in, expansion I/O, 2 x USB 3.0, 1 x LAN, and 1 x GNSS port



#### Desk Docking Station

- Equipped with 1 x DC-in, 2 x USB 3.0, 1 x LAN, 1 x RS-232, and 1 x VGA port
- Secondary battery charger



#### External Battery

- Capacity: 14.8V 4080mAh
- IP rating: IP65 with PWS-870
- Dimensions: 141.2 x 106.2 x 17 mm
- Weight: 385g



#### Multiple Battery Charger

- Stores and charges up to 4 PWS-870 external batteries
- LEDs indicate charge status
- Easy table fixing
- Power input: 19.5V/7.7A



#### Multi I/O Extension

- Interfaces: USB 3.0 (type A, 5V/0.9A) x 1, RS-232 (D-Sub 9) x 2, 10/100/1000 Ethernet (RJ45) x 1
- Dimensions: 192.2 x 45.2 x 25 mm
- Weight: 140g



#### UHF RFID Extension

- Interfaces: USB 3.0 (type A, 5V/0.9A) x 1, RS-232 (D-Sub 9) x 2, 10/100/1000 Ethernet (RJ45) x 1
- Dimensions: 192.2 x 45.2 x 25 mm
- Weight: 140g



#### MSR & Smart Card Reader Extension

- ISO 7816 PC/SC
- EMV 4.0 Level 1
- Supports I2C memory card, SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041 card

- MSR (Magnetic Card Reader)
  - MagneSafe IntelliHead
  - Supports US 7810 & ISO 7811/AAMVA
  - Card speed: 6 to 60 ips (15.4 to 12.4 cm/s)
  - Triple DES encryption
  - DUKPT key management



#### Universal Cover Package

- Material: Plastic, PVC
- Color: Black
- Dimensions: 305 x 254.2 x 88.4 mm
- Weight: 500g (universal cover, hand strap and shoulder belt)
- Package content: universal cover, hand strap, shoulder belt



# Enabling an Industrial IoT Evolution

Advancements in technology have paved the way for modern civilization; allowing us to interconnect human lives in a way never before thought possible. Advantech, a global industrial computing and automation manufacturer, continues to explore what technology can bring into our lives. With over three decades of proven experience, we combine information, automation and communication technology with efficiency, energy conservation, minimized risk, cost-effectiveness, and environmental protection to create solutions to enable an intelligent planet.





## Smart Manufacturing



Facility Automation



Factory Energy Management



Equipment Automation



Production Automation

## Intelligent Motion Control and Machine Vision



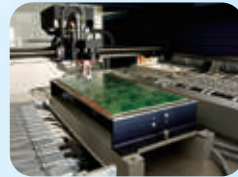
CNC Solution



Semiconductor System



Machine Automation



PCB Production Solution

## Power and Energy



Smart Substation



Solar Power Management



Wind Power Management



Energy Management System

## Oil and Gas



Oil Well Monitoring



Pipeline Monitoring



Storage Tank Monitoring



Outdoor Generator Monitoring

## Water Treatment



Pump Station Management



Water Treatment Plant System



Sewage Treatment



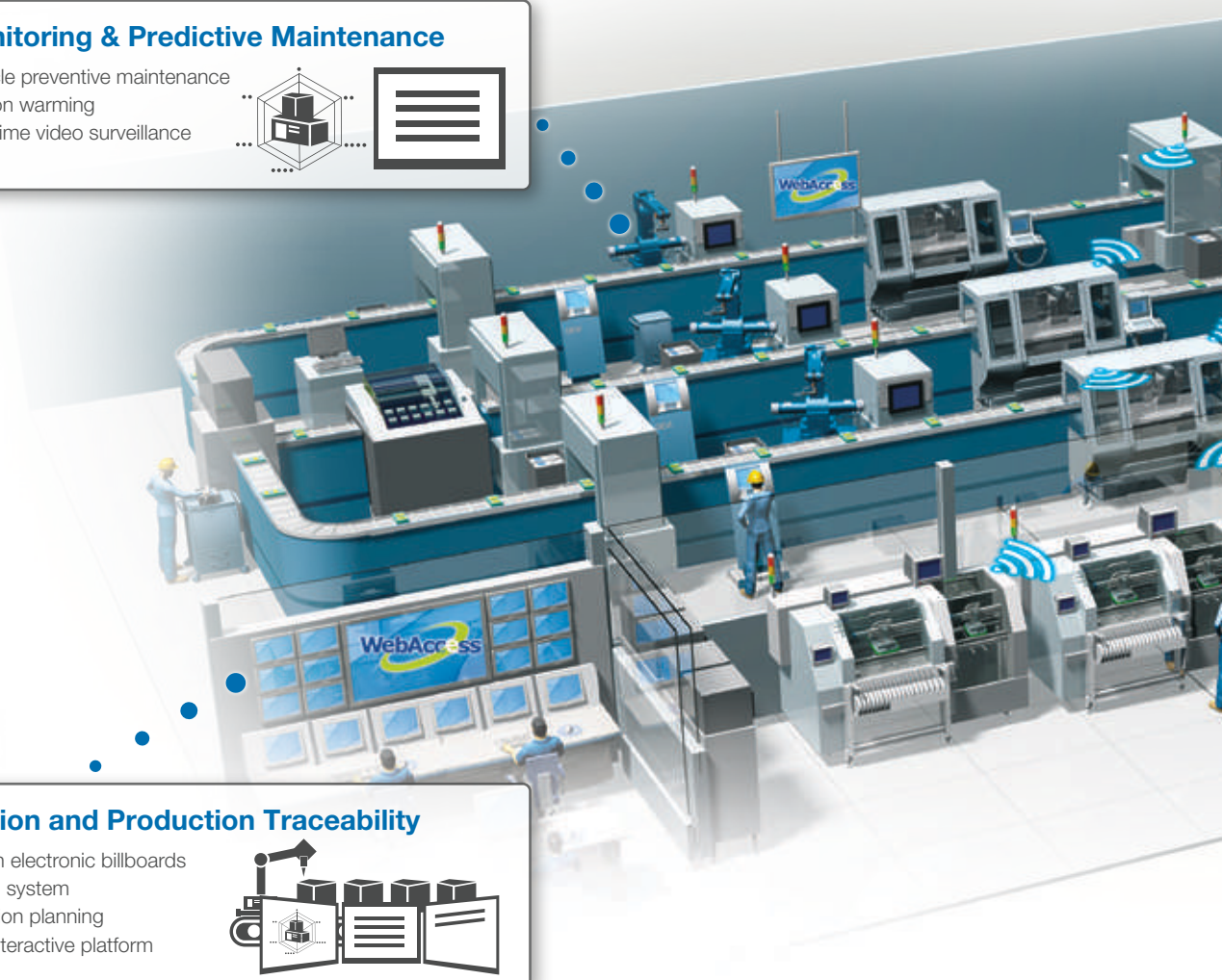
Pipeline Monitoring

# Smart Manufacturing

To realize Industry 4.0, Advantech has initiated three strategic phases. In the first phase of the implementation of equipment connectivity: devices, machines, production lines and factories are connected to the system, and therefore, data transparency and information visualization can be fulfilled. In the second phase, data collection and integration, as well as valued-added products and services are introduced for smart manufacturing services. The final phase of intelligent innovative services is the enabling of intelligent machinery and big data analysis. To reach these goals, Advantech enables network-connected iFactories and iMachinery to boost the transformation of smart manufacturing. Furthermore, six solutions of smart factory have been developed with integrated automation and cloud innovation for industry 4.0!

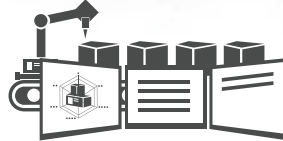
## Machine Monitoring & Predictive Maintenance

- Equipment life cycle preventive maintenance
- Abnormal operation warning
- Remote and real-time video surveillance



## MES Integration and Production Traceability

- On-site production electronic billboards
- Abnormal warning system
- Intelligent production planning
- Field operations interactive platform



## Product Solutions

### Software

WebAccess



**WebAccess/SCADA**  
Web-based HMI/  
SCADA Software

WebAccess/HMI



**WebAccess/HMI**  
HMI Runtime  
Software

### Application Ready Packages

WebAccess/SCADA



**WA-ST/WA-SU Series**  
WebAccess SCADA  
Solutions

WebAccess/HMI



**WA-HT/WA-HU Series**  
WebAccess HMI  
Solutions



**WT-CT/WA-CU/  
CDS-APAX/ADAM Series**  
CODESYS Control  
Solutions

### Intelligent HMI



**TPC/ IPPC/ FPM/  
PPC/ WOP Series**  
Thin-client Terminals  
& Control Panels

### IIoT Gateways

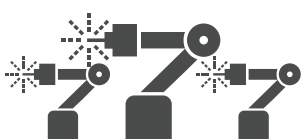


**ADAM-3600/ECU-1100  
& UNO-2000 Series**  
Industrial IoT  
Gateways



### Machine Automation

- Various robotics solutions
- Robot cell, Vision-guided robotics (VGR)
- Vision alignment system
- Automatic optical inspection (AOI), Automated test equipment (ATE)



### Factory Energy Management System

- Energy management system
- Air compressor equipment system
- Heat recovery ventilation system



### Factory Environment Monitoring

- Environmental quality monitoring
- Dust and combustible gas monitoring
- Waste water monitoring



### Equipment Monitoring & Optimization

- Real-time monitoring
- Equipment availability management
- Intelligent production platform
- Stamping press equipment management




#### iConnectivity



**EKI Series, Wzzard™ & IE Multiway**  
Industrial Communication

#### Controllers



**UNO-1000/3000 & APAX-5000 Series**  
Automation Controllers & Control Cabinet PC

#### iSensing I/O Modules



**WISE-4000 Series**  
IoT Wireless I/O Modules



**ADAM-4000/6000 Series**  
RS-485 & IoT Ethernet I/O Modules

#### Power Meters



**WISE-M500 Series**  
Multifunction Power Meter

#### Machine Automation



**Machine Vision Solutions**  
AIIS/ Frame Grabber Series



**EtherCAT Solutions**  
Master/IO Slave Series

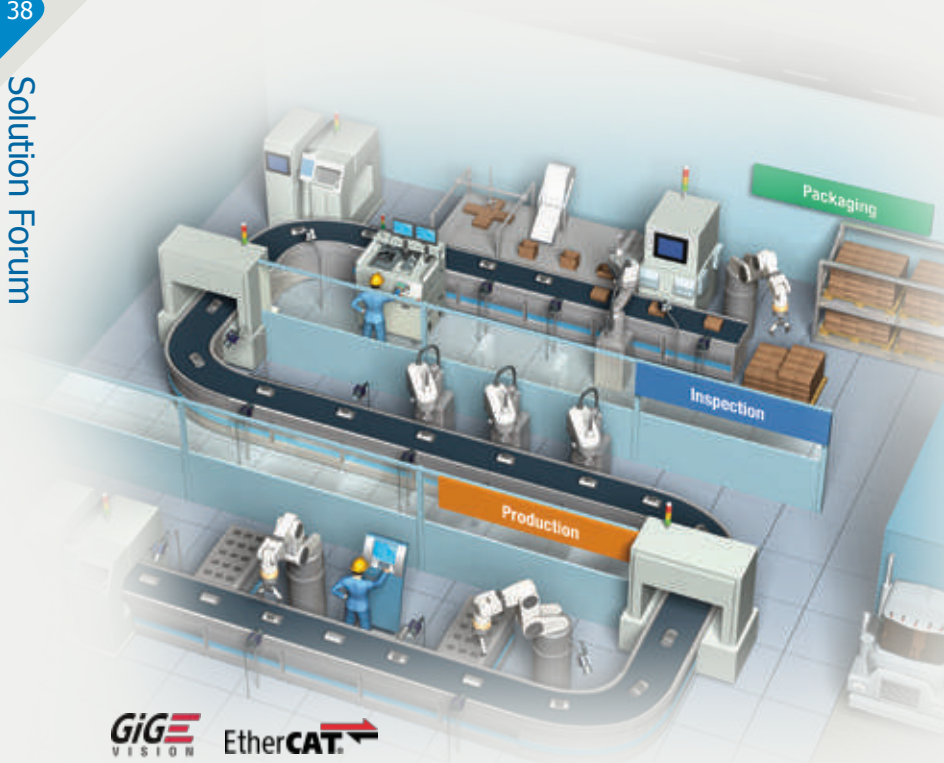
# Machine Automation

## Intelligent Motion Control and Machine Vision

In the realm of intelligent machines, Advantech focuses on Ethernet based solutions as well as integrated motion control and machine vision for machine automation applications. Advantech develops products for ARM/DSP/FPGA processors for specific industries, and also provides Solution Ready Package (SRP) to help system integrator partners quickly develop different applications for end customers. Through various platforms integrated with motion and machine vision solution modules, Advantech fulfills demands in new machine automation projects and positions itself as a leading PC-based MA solution provider.

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Solution Forum





**Co-processor**

- Highly efficient coprocessor extends the capabilities, flexibility and adaptability
- Accurate and reliable communications and computations to optimize performance



**Easy to Maintenance**

- Smart wiring over distance
- Easy to set-up



**Easy to Use**

- User-friendly programming interface to decrease programming load
- Application-oriented software functions for rapid development



**Well Integration**

- Effective integration on a wide range of platform to ease system workload
- Complete solution targets sector-lead applications

## Product Solutions

**Motion Cards**




**PCI-1245/1265/1285 series**  
4/6/8-axis Stepping and Servo Motor Control Universal PCI Cards

**EtherCAT Solutions**



**PCI-1203**  
EtherCAT Universal PCI Master Card

**Frame Grabber Series**



**PCIe-1172/1174/1672E/1674E**  
PCI Express Intelligent GigE Vision Frame Grabbers

**Industrial Cameras**



**Quartz**  
0.3 - 10.0 Mega Pixel PoE Industrial Cameras



# Power and Energy

## Building Reliable Power Automation Solutions with Trusted System Components

Power supply and demand is becoming more and more critical. Substation automation, renewable energy, power generation & transmissions, energy management systems and maintenance-free power backup systems with IEC 61850-3 compliance are the big trends in today's applications. Power Automation improves energy efficiency and intelligence while also implementing important environment protection and green powered features. Advantech is proud to develop reliable power automation computers, gateways, energy management software and intelligent power meter components to serve this market.



**Smart Substation**

- IEC-61850-3 computing platforms with robust design
- Reliable redundant Ethernet communication(HSR/PRP)
- Intelligent functions with iCDManager, VT-D, AMT and TPM



**Solar Power Management**

- Intelligent ARM-based gateway platform
- Integration of acquisition, wireless communication and protocol conversion



**Wind Power Management**

- Reliable industrial gateway
- Powerful SCADA software support






**Energy Management System**

- Seamless integration with WebAccess
- Cost-effective power meter for energy monitoring and control




## Product Solutions

### Power Automation Computers

 <b>ECU-4784</b> Intel Haswell Core i7 computer with 8LAN, 10COM, 2 expansion slots	 <b>ECU-4674</b> Intel Atom N2600 computer with 8LAN, 18COM, 8DI, 8DO, 1 PCI-104 slot	 <b>ECU-4574</b> Intel Atom N2600 computer with 8LAN, 10COM
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### Power Automation Gateways

 <b>ECU-1152</b> TI Cortex A8 gateway platform with 2LAN, 6COM, 1 Mini-PCIe	 <b>ECU-4552</b> TI Cortex A8 gateway platform with 4LAN, 10COM, 24DI, 4DO
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### Multifunction Smart Power Meters

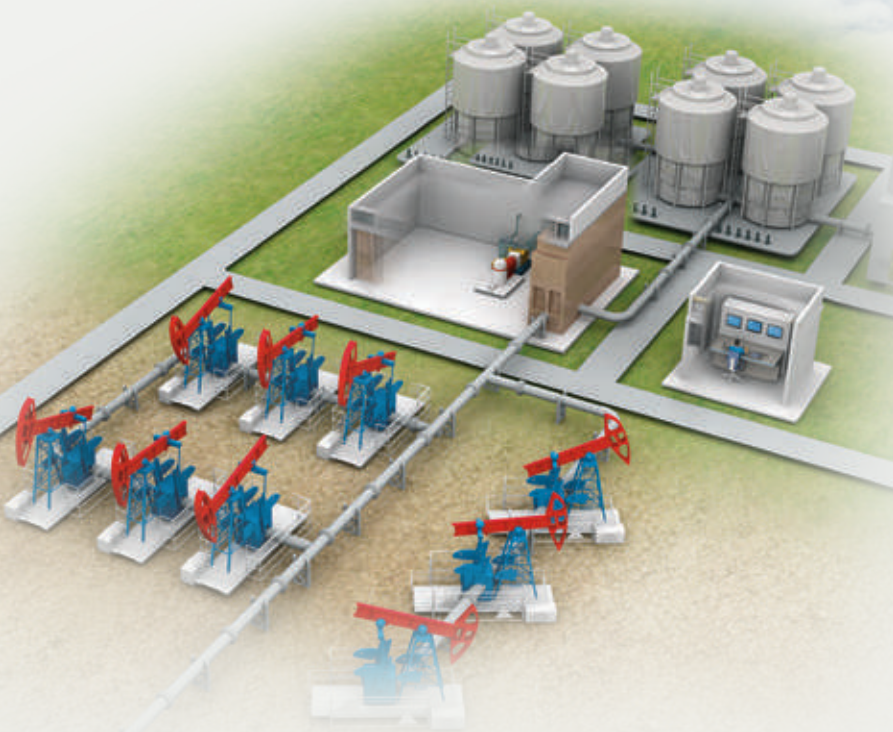
 <b>WISE-M501</b> Panel Mount power meter with carbon detection	 <b>WISE-M502</b> DIN-Rail power meter with 5 loops max
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# Oil and Gas

## Building Digital Oilfields via the IoT

Take advantage of science and technology innovation to promote industrialization and informatization integration in the oil and gas industry.

Currently in the intense competition of the international and domestic energy markets, methods of improving the management level and improving the production and economic efficiency to decrease costs is essential. To achieve this, improving the application level will strengthen management information and aid further integration.



### Oil Well Monitoring

- Intelligent RTU
- Web-based HMI/SCADA software
- Industrial automation computer
- LED backlit LCD display screen



### Pipeline Monitoring

- Intelligent pipeline RTU
- Powerful IEC-61131-3 softlogic
- Remote I/O monitoring
- GPRS telecommunication
- Leakage detection solution



### Gas Pump Station Monitoring

- C1D2 certified automation control platform
- EN50155 certified industrial switch
- Web-based HMI/SCADA software



### Outdoor Generator Monitoring

- Intelligent RTU with 3G/GPRS/GPS connectivity
- Wide operation temperature remote I/O system
- Web-based HMI/SCADA software

## Product Solutions

### Software



**Advantech WebAccess**  
Web-based HMI/SCADA Software

### Communication



**EKI-1524**  
4-port RS-232/422/485 Serial Device Server



**EKI-5000**  
Viewable Unmanaged ProView Ethernet Switch

### Controller



**APAX-5580**  
Intel® Core™ i7/i3/Celeron Control IPC

### Computer Platform



**TPC-8151WX**  
15.6" HD TFT LED LCD Industrial multi-touch panel PC for hazardous area and oil & gas market with ATEX certified

### RTU



**ADAM-3600**  
8AI/ 8DI/ 4DO/ 4-Slot Expansion Wireless Intelligent RTU

### I/O



**ADAM-4000/6000**  
Remote I/O Modules



# Water Treatment

## Water Conservation and Water Treatment Solutions

Equipment that integrates the monitoring and control, data analysis, real-time video, mass data records, database exchange mechanism and cloud technology based system, allows water conservation experts to construct various modes of control and management analysis.

From water sources, to sewage treatment, reclaimed water and drinking water, Advantech provides system devices, intelligent terminals, redundancy controllers, various communication devices and cloud monitoring software, and adopts an open framework for dams, water treatment, water distribution and transmission applications to maximize the benefits and efficiency of water resource monitoring and management experts.



### Pump Station Management

- Intelligent RTU controllers
- Flow/Pressure PID control
- Fiber optic switches
- Professional WebAccess HMI/SCADA software



### Water Treatment Plant System

- User friendly touch panel computers
- IP-based video surveillance
- Redundant network architecture



### Sewage Treatment

- Redundant automation controller architecture
- Redundant network architecture
- Professional WebAccess HMI/SCADA software



### Pipeline Monitoring

- Intelligent pipeline RTU
- Remote I/O monitoring
- GPRS telecommunication
- Excellent pipeline leak detection



## Product Solutions

### Software



**Advantech WebAccess**  
Web-based HMI/SCADA Software

### HMI



**FPM-7211W**  
21.5" Full HD Industrial Monitor with PCT Touch, Direct-VGA and DVI Ports

### Intelligent RTU



**ADAM-3600**  
8AI/ 8DI/ 4DO/ 4-Slot Expansion Wireless Intelligent RTU

### Communication



**EKI-7710E-2CI**  
8FE+2G Port Gigabit Managed Redundant Industrial Switch

**EKI-1322**  
2-port RS-232/422/485 to GPRS IP Gateway

### Controllers



**APAX-5580**  
Intel® Core™ i7/i3/ Celeron Control IPC with 2 x GbE, 2 x mPCIe, VGA

### I/O



**APAX-5000 I/Os**  
Full Range Analog I/O, Digital I/O, and Counter



# Enabling Your Business Success with WebAccess+ IoT Solution Alliance

Advantech's WebAccess+ IoT Solution Alliance is a market-oriented cooperation model using WebAccess, the industrial IoT software framework as its core – to link solutions, partners' strengths and strategic co-marketing to get into focused vertical markets, including water, oil & gas, intelligent agriculture, intelligent buildings, factory automation, and renewable energy. It aims to offer complete IoT solutions for a wide array of markets and applications, also achieving win-win partnerships in the blooming IoT industries.



waplus.advantech.com

## Marketing Collaboration

Advantech WebAccess+ partners can get professional co-marketing supports such as co-exhibition, co-event, co-seminar, roadshows, WebAccess+ website, video and co-marketing campaigns to increase company branding and awareness.



## Professional Training & Support

Advantech provides a full range of WebAccess training courses and professional certification to empower partners' technical capacities. Also, technical support provided by regional WebAccess Solution Center (WSC) helps partners increase their technical expertise.



## WISE Point

An online store with a variety of Advantech's software and services is offered to simplify the procurement process by using WISE Points, Advantech's non-expiring virtual points. Partners can get a price advantage on software purchases when redeeming WISE Points.



# WebAccess+ Software and Solutions

<b>WebAccess Software</b>		<b>1-2</b>
<b>Advantech WebAccess</b>	Browser-Based HMI/SCADA Software	<b>1-4</b>
<b>WebAccess/HMI</b>	HMI Software	<b>1-7</b>
<b>WebAccess Solutions</b>		<b>1-9</b>
<b>WA-ST SCADA Series</b>	12.1 ~ 21.5" TFT LCD SCADA Panel PC with WebAccess/SCADA	<b>1-10</b>
<b>WA-SU SCADA Series</b>	Embedded SCADA Box PC with WebAccess/SCADA	<b>1-12</b>
<b>WA-HT HMI Series</b>	6.5 ~ 21.5" TFT LCD Windows-Based Thin Client Terminal with WebAccess/HMI Runtime	<b>1-14</b>
<b>WA-HU HMI Series</b>	Visualized Box HMI and Communication Gateway with WebAccess/HMI Runtime	<b>1-16</b>
<b>WA-CT Control Series</b>	PC-Based Panel Controller with CODESYS Control Runtime and Visualization	<b>1-18</b>
<b>WA-CU Control Series</b>	PC-Based Cabinet Controller with CODESYS Control Runtime and Visualization	<b>1-20</b>

To view all of Advantech's WebAccess+ solutions, visit <http://webaccess.advantech.com/>



# WebAccess Software

## Introduction

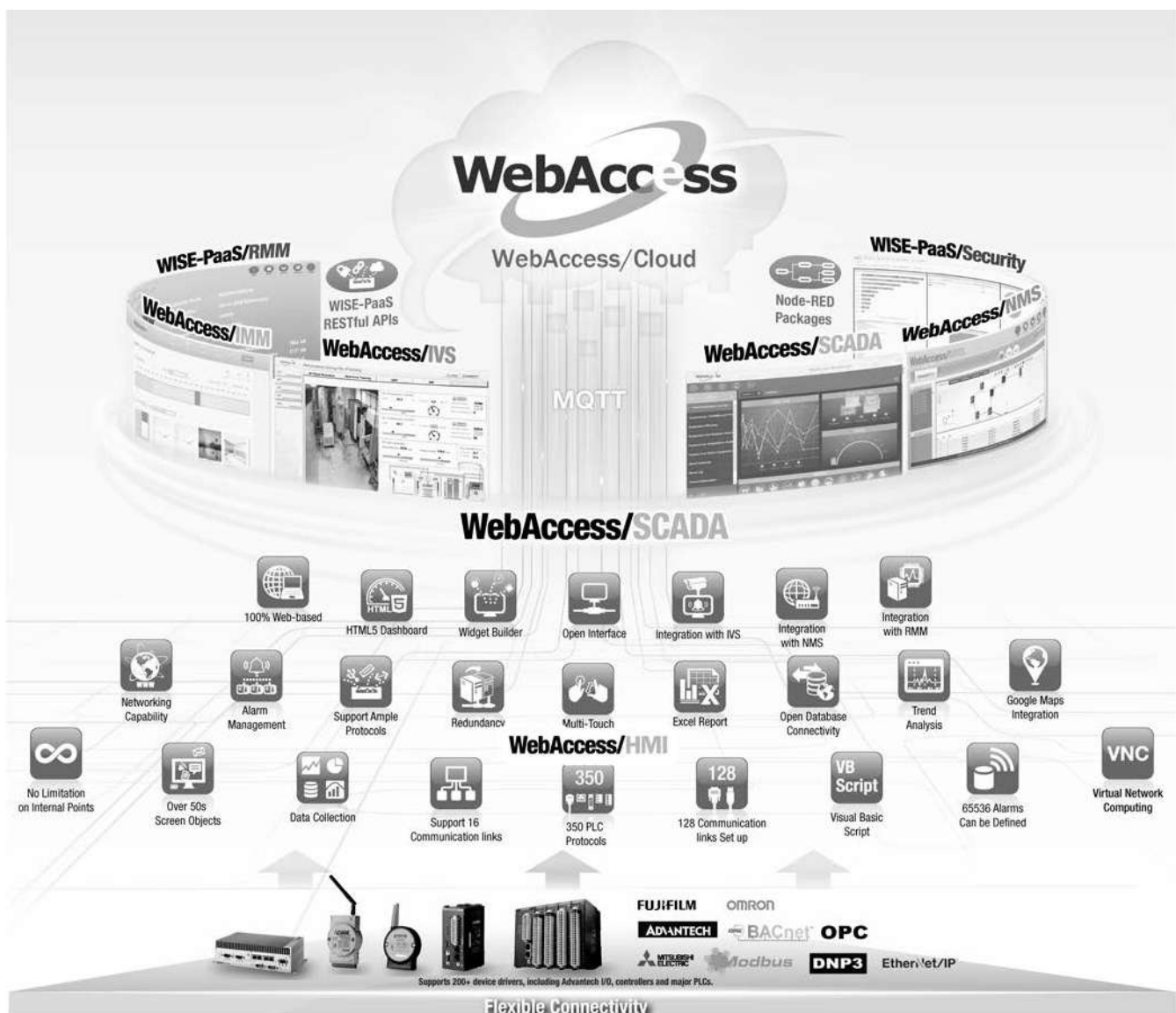
The recent emergence of the Internet of the Things (IoT) and its surround technology eco-system promises significant future business opportunities until the year 2025. With more and more investment going into developing integrated IoT applications and cloud services, software has become the crucial factor for success in the IoT era.

As one of its core IoT solutions, Advantech's WebAccess offers not only a human-machine interface (HMI) and supervisory control and data acquisition (SCADA) software solution, but also an IoT software framework that serves as a software platform for IoT and cloud applications.

With Advantech WebAccess, a comprehensive browser-based IoT application software, users can easily monitor and manage projects via a web browser. For the IoT device layer, Advantech WebAccess supports multiple protocols and drivers for connecting up to 350 controllers and devices, making WebAccess a flexible and suitable software platform for all I-IoT applications and projects. Additionally, WebAccess provides a foundation for IoT data collection and management with its open architecture and open interfaces, which facilitate the development of various vertical applications.

To satisfy demands for industrial IoT (IIoT) and Industry 4.0 services, a variety of cloud-specific features, such as plug-and-play device configuration, cloud-based dashboards, and big data connectivity, are included in the WebAccess Cloud software package in an effort to provide an easy tool for connecting IoT devices and conducting big data analysis and predictive maintenance.

## WebAccess Architecture



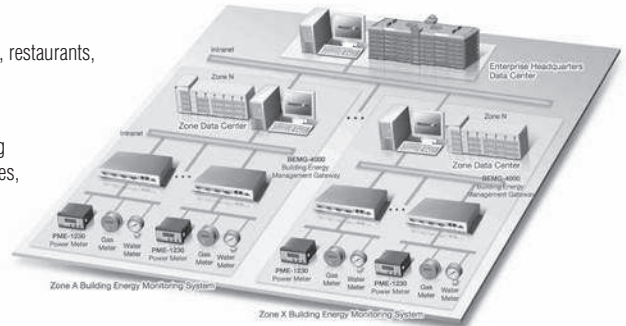


## WebAccess Focused Solutions

### Building Energy Management Solution



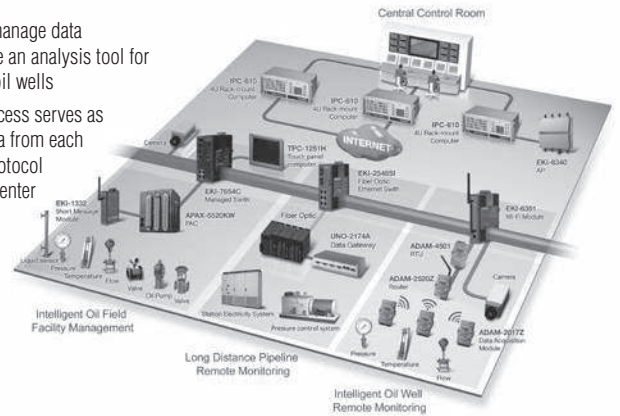
- Stand-alone buildings
  - Commercial buildings, hospitals, restaurants, and office buildings
- Building complexes
  - Franchised restaurants, shopping malls, furniture stores, shoe stores, supermarkets, book stores, and convenience stores
  - Financial groups, shopping centers, campuses, and telecommunication stations



### Oil & Gas Solution



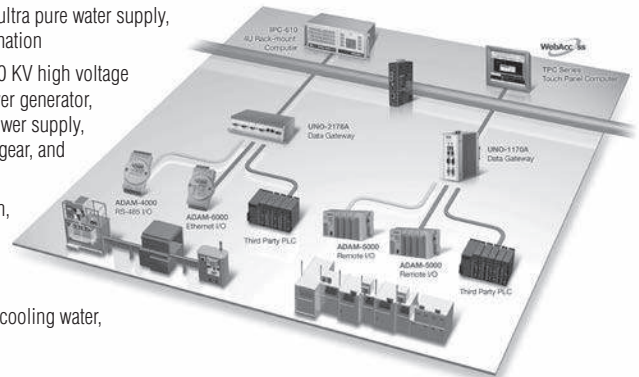
- WebAccess is used to collect and manage data transmissions from RTUs to provide an analysis tool for monitoring the operating status of oil wells
- For oil pipeline monitoring, WebAccess serves as gateway software for converting data from each gateway device into the standard protocol before transmission to the control center
- Communicating with intelligent devices, WebAccess acts as remote control software for monitoring and controlling devices in the field



### Factory Automation Solution



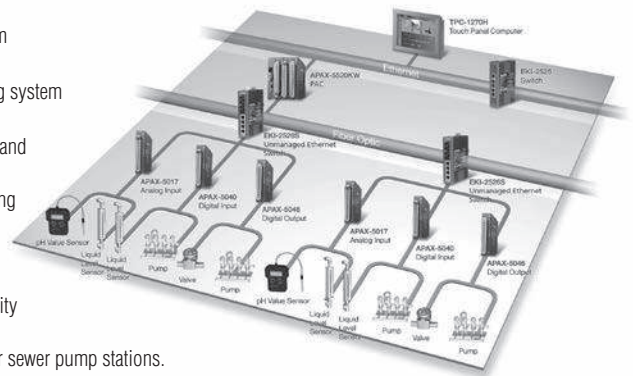
- Water system: raw water supply, ultra pure water supply, waste water treatment, and reclamation
- Electricity power system: 220/110 KV high voltage power monitoring, emergent power generator, dynamic/static uninterruptible power supply, electric bus, high voltage switch gear, and low voltage power meter
- Gas system: toxic gases detection, gas cabinet operation, valve box operation, and general gases
- HVAC system: clean room operation, acid exhaust, process cooling water, and general air-conditioning



### Water Treatment Solution



- Water resource distribution system
- Raw water distribution system
- Large-scale water supply pumping system
- SCADA system for tap water
- Booster pump station monitoring and control system
- Urban tap water pipeline monitoring control system
- City pipeline distribution optimization system
- Remote management system for city sewage pipelines
- Monitoring and control system for sewer pump stations.
- SCADA system for large sewage plant
- Performance management for large sewage plan



- 1 WebAccess Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# Advantech WebAccess

Browser-Based  
HMI/SCADA Software



## Features

- Enables 100% web-based remote engineering, monitoring, and control
- HTML5 Intelligent Dashboard provides a HTML5-based user interface for cross-browser, cross-platform data analysis as well as Widget Builder for creating custom widgets
- Open interface web services (RESTful API and SignalR), widget interface and WebAccess APIs
- Supports diverse drivers including Advantech's I/O modules, controllers, and major PLCs, as well as standard protocols including Modbus, OPC UA, OPC DA, and BACnet
- Easily integrated with third-party software, such as MES and ERP, via open interfaces
- HTTPS-enabled for web security
- Integration with WebAccess/IVS, WebAccess/NMS, and WISE-PaaS/RMM
- Integrated Google Maps and GPS location tracking technology
- Redundant SCADA systems, ports, and devices for high availability

## Introduction

Advantech WebAccess is a 100% web-based SCADA software solution that also serves as an IIoT platform by providing open interfaces for developing IoT applications aimed at various vertical markets. In addition to traditional SCADA functions, WebAccess features an intelligent dashboard to facilitate cross-platform, cross-browser data analysis and provide a user interface based on HTML5 technology. Furthermore, in addition to built-in widgets, WebAccess is also equipped with Widget Builder, which enables system integrators to design unique widgets and applications.

The basic components of WebAccess are as follows:

1. **Project Node:** This is the project development platform of WebAccess and serves as a web server for all clients to connect to development projects as well as remotely monitor and control the system. All system configuration settings, project database files, and graphics are stored in the project node.
2. **SCADA Node:** This node enables real-time communication with automation equipment and equipment control via serial, Ethernet, or proprietary communication using the various built-in device drivers. The SCADA node not only manages local controls and monitoring, but also provides real-time data to all remote clients.
3. **ViewDAQ Client:** Through Microsoft Internet Explorer's ActiveX control, ViewDAQ Client monitors and controls the SCADA node. The client first connects to the project node to obtain the address of the SCADA node, then communicates directly with the SCADA node using proprietary communications over a TCP/IP connection. Data is displayed in real-time as dynamically animated graphics and presented along with real-time historical trends and alarm information. The ViewDAQ Client can be used to acknowledge alarms and change set-point and status data, as well as other information.
4. **Dashboard Client:** This enables users to access the dashboard server through any browser on any platform, such as a computer, pad, or smartphones equipped with iOS, Android, or Windows.

## Feature Details

### Supports Private/Hybrid Cloud Architecture

WebAccess is a 100% web-based HMI and SCADA software with private/hybrid cloud software architecture. WebAccess offers large equipment vendors, SIs, and enterprises the ability to access and manipulate centralized data and to configure, change/update, or monitor equipment, projects, and systems all over the world using a standard web browser. With cloud-based WebAccess, large amounts of device data are uploaded to the cloud via the MQTT web socket protocol. Predefined nodes can be integrated with Node-RED to provide a visual IIoT tool, enabling data to be displayed on the cloud dashboard and Microsoft PowerBI. WebAccess also offers plug-and-play functionality for synchronizing data configuration between local and cloud devices, thereby enabling online maintenance and modification.

### Business Intelligence Dashboard

WebAccess provides an HTML5-based dashboard as the next generation of WebAccess HMI. SIs can use the dashboard editor to create a customized information page featuring analysis charts and diagram widgets. The built-in widget library contains numerous widgets, such as trends, bars, alarm summary, map widgets, etc., and the included Widget Builder can be used to create unique widgets. After dashboard screens have been created, end users can access the data using the dashboard viewer via various platforms, such as Explorer, Safari, Chrome, and Firefox, and on various devices, including PCs, Macs, tablets, and smartphones, for a truly convenient viewing experience.

### Widget Builder

Widget Builder is a widget development tool based on HTML5 and featuring an intuitive UI. Users can edit widgets remotely from any location using any browser and at any time. Widget Builder provides users with various design tools for creating widget components and drawing shapes and objects with a wide range of animations. Additionally, all widgets can be easily imported and exported for reuse.

### Open Interface

WebAccess opens three types of interfaces, including RESTful API and SignalR, for various uses. First, WebAccess provides a web service interface for partners to integrate WebAccess data into apps or application systems. Second, a pluggable widget interface is opened for programmers to develop widgets and run WebAccess Dashboard. Finally, WebAccess opens WebAccess API, which is a DLL interface for programmers to access the WebAccess platform and develop Windows applications. By supporting these interfaces, WebAccess serves as an IIoT platform for developing IIoT applications in various vertical markets.

### Integrated with WebAccess/IVS

WebAccess is tightly integrated with WebAccess/IVS to provide a comprehensive video management solution that supports real-time monitoring and video playback. With this intelligent video surveillance system, events can be displayed as alarms and video playback performed accordingly.

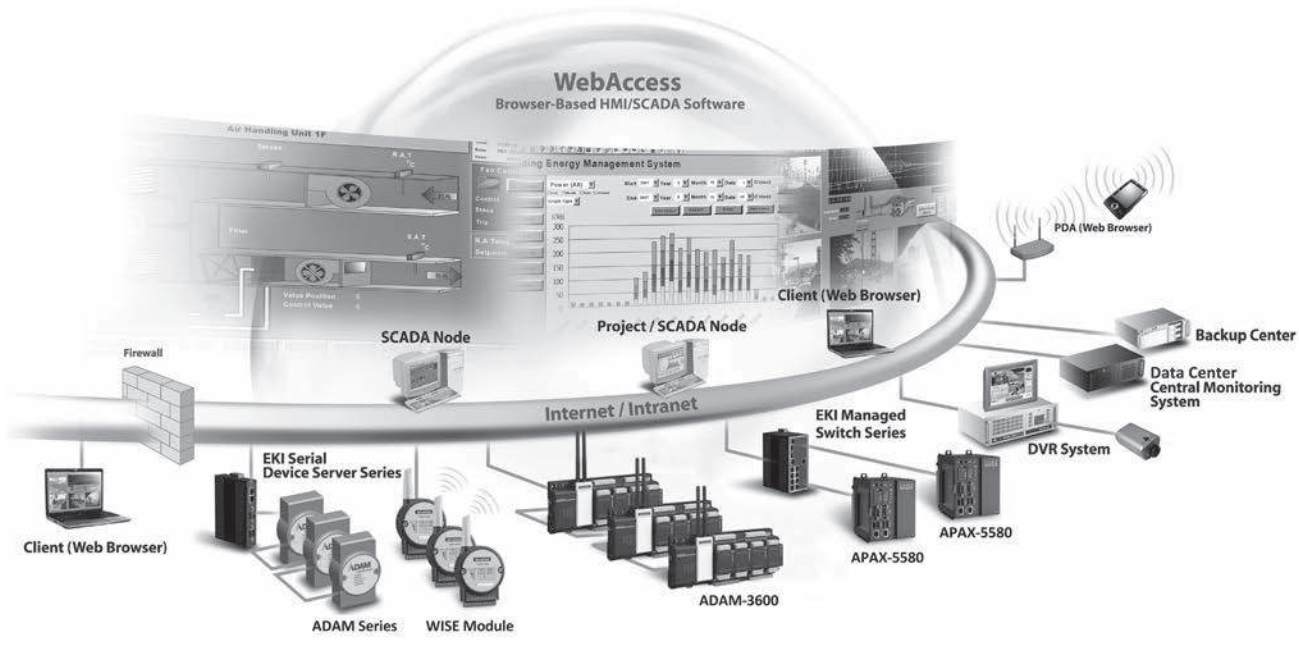
### Integrated with WebAccess/NMS

WebAccess/NMS is a network device management system based on HTML5. WebAccess can be easily integrated with a web interface. Additionally, with WebAccess graphics, users can monitor the real-time status of network devices via the network topology and search the event logs.

### Integrated with WISE-PaaS/RMM

Previously, WebAccess only supported sensor and device monitoring. Now, with the integration of WISE-PaaS/RMM, WebAccess supports monitoring of the equipment and platform status, such as the CPU temperature, CPU usage, and board temperature, thereby enabling remote equipment monitoring.

1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
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13	Remote DA&C System
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16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking



## Integrates Google Maps and GPS Tracking

WebAccess integrates real-time data of each geographical site with Google Maps and GPS location tracking. Regarding remote monitoring, users can remotely view the building energy consumption, field production rate, and highway traffic flow as well as the relevant alarm status. By right clicking on Google Maps or entering the coordinates of the target location, users can create a marker for the target and associate the real-time data of three sites with a display label. Furthermore, this function can be integrated with GPS modules to track the marker location in Google Maps, enabling the data to be shared with relevant vehicle systems.

## WebAccess Express - The Auto-Configuration Tool

Advantech's WebAccess Express is an automated graphical remote control application program for making device information available online with a single click. WebAccess Express automatically discovers the ADAM and EKI modules on the network and serial ports, generates a database, and makes real-time data available online with pre-built monitoring graphics. WebAccess Express also support remote monitoring functions by allowing users to communicate and exchange data with SNMP, DiagAnywhere Server, or SUSI 4.0 APIs and check the CPU health, memory, temperature, and voltage of target machines. By integrating SNMP, DiagAnywhere, or SUSI API drivers, users can configure WebAccess to emit an alarm if any abnormal or suspicious data is detected.

## Multiple Driver Support

WebAccess can support hundreds of devices. In addition to Advantech I/Os and controllers, WebAccess supports all major PLCs, controllers, and I/Os, such as those by Allen Bradley, Siemens, LonWorks, Mitsubishi, Beckhoff, and Yokogawa. For vertical market applications, WebAccess supports the DNP 3.0 protocol developed for the power and energy industry. WebAccess also supports standard protocols such as Modbus, OPC DA, and OPC UA, and can be easily integrated with other SCADA software. All of these device drivers are integrated into WebAccess and provided free of charge. For a complete list of WebAccess drivers, refer to [webaccess.advantech.com](http://webaccess.advantech.com).

## Automated Excel Reports

WebAccess provides Excel reports to fulfil demands for self-defined reporting capabilities. Users can build self-defined Excel templates and generate on-demand or daily/weekly/monthly/yearly Microsoft Excel reports automatically. Additionally, the Excel report function is web-based, which means Excel reports can be generated and accessed via a web browser from any location.

## Open Data Connectivity

Advantech WebAccess supports OPC UA/DA, DDE, Modbus, and BACnet Server/Client for real-time online data exchanges with third-party software, as well as MS SQL, Oracle, MySQL, and MS Access for offline data sharing.

## Real-Time Database

WebAccess Real-Time Database (RTDB) is designed to meet industrial-level demands for high speeds and large quantity data access. The RTDB's fully integrated design means users do not need to learn how to operate this database. Just by enabling RTDB use on the WebAccess configuration page, the WebAccess SCADA node can conduct data processing (simultaneous collection and retrieval) at a rate of millions of records per second. Moreover, the RTDB maintenance feature automatically archives and deletes obsolete data.

## Multi-Touch Gesture Support

WebAccess supports multi-touch operation and various pre-set gestures, such as flick to turn page and zoom in/out, as well as two-handed operation. This more intuitive handling style maximizes operating safety, increases usability, and reduces training time. Furthermore, WebAccess also supports the use of multi-point tap/grab/spread gestures to initiate pre-defined actions.

## Redundant SCADA, COM Ports, and Devices

Advantech's WebAccess ensures continuous reliable communication to automation equipment. The WebAccess backup node activates when the primary node is down. WebAccess device drivers communicate with backup ports and devices if the primary connection is lost and automatically restore to the primary item when it becomes available.



### Software Specifications

#### Advantech WebAccess Professional

- I/O Tag Number 75/150/300/600/1500/5000/20K/64K
- Internal Tag Number 75/150/300/600/1500/5000/20K/64K
- Web Client 1024
- Alarm Logs 5000
- Action Logs 5000

#### Graphics

- Number of Graphics Pages Unlimited (limited by H/D size)
- Variables Per Graphics Page 4000
- Tag Source Global
- Multi-Touch Gesture Yes

#### Dashboard

- Cross Browser and Platform Yes
- Built-In Widgets Yes
- Open Widget Interface Yes
- Widget Builder Yes

#### Group Trend Log

- Amount of Data Logged 2 x I/O tag license number
- Alarm Groups Per SCADA 9999

#### Recipe

- Recipes Per Project Unlimited (limited by H/D size)
- Units Per Recipe 999
- Item Per Unit 999

#### Scheduler

- Holiday Configuration Group 9999
- Time Zone Group 9999
- Device Loop Group 9999
- Equipment Group 9999
- Scheduler Reservation Group 9999

#### Web-Enabled Integration

- Video Yes
- Google Maps and GPS Location Tracking Yes

#### Open Connectivity

- Modbus Server Yes
- BACnet Server Yes
- ODBC and SQL Query Yes
- OPC DA/UA Server Yes
- DDE Server Yes

#### Others

- Centralized Logs on Project Yes node via ODBC
- SCADA Redundancy Yes
- Script Language TclScript/VBScript/JScript
- Data Transfer Yes
- ODBC and SQL Query Yes
- Reporting/Excel Reporting Yes
- Device Redundancy Yes
- Supports IPv6 Yes
- WebAccess Express Yes

### Ordering Information

#### Professional Versions

- **WA-P81-U075E** WebAccess V8.1 Professional Software with 75 tags
- **WA-P81-U150E** WebAccess V8.1 Professional Software with 150 tags
- **WA-P81-U300E** WebAccess V8.1 Professional Software with 300 tags
- **WA-P81-U600E** WebAccess V8.1 Professional Software with 600 tags
- **WA-P81-U15HE** WebAccess V8.1 Professional Software with 1,500 tags
- **WA-P81-U50HE** WebAccess V8.1 Professional Software with 5,000 tags
- **WA-P81-U20KE** WebAccess V8.1 Professional Software with 20,000 tags
- **WA-P81-U64KE** WebAccess V8.1 Professional Software with Unlimited tags

#### Version Upgrade\*

- **WA-X80-U000E** WebAccess Upgrade to Version 8.1
- \*Upgrade the WebAccess Version from 7.x to 8.1.

#### Upgrade\*

- **WA-X80-U075E** WebAccess software license, 75 Tags upgrade
- **WA-X80-U300E** WebAccess software license, 300 Tags upgrade
- **WA-X80-U600E** WebAccess software license, 600 Tags upgrade
- **WA-X80-U15HE** WebAccess software license, 1,500 Tags upgrade
- **WA-X80-U50HE** WebAccess software license, 5,000 Tags upgrade

\* Original serial number from WebAccess Professional version is required to purchase WebAccess upgrade. The serial number can be found on the USB dongle.

### Minimum Requirements

#### Project Node/SCADA Node

- **Operating System** Windows XP (SCADA Node Only), Windows 7 SP1, Windows 8 Professional, Windows Server 2008 R2 or later
- **Hardware** Intel Atom or Celeron. Dual Core processors or higher recommended  
2GB RAM minimum, more recommended  
30GB or more free disk space
- **Display Resolution** 1024 x 768 or higher (recommended)  
Lower resolutions also supported
- **USB Port** USB port for License Hardkey on SCADA node
- **Software** .Net Framework 4.5 or later version

#### Dashboard Viewer

- **Hardware** **PC:** Intel Core I3 or higher; 4GB RAM or higher  
**iPhone:** iPhone 5 or later version  
**Android:** 1.5GHz Quad Core or higher; 2GB RAM or higher  
**Windows Phone:** 1.5GHz Quad Core or higher; 2GB RAM or higher
- **Browser** **Internet Explorer:** IE 11 or later  
**Chrome:** Version 37 or later  
**Firefox:** Version 31 or later  
**Safari:** Version 7 or later



### Features

- Allows users to manage multiple HMI applications in one project
- Allows users to dynamically switch language, with Unicode and multilingual screen text supported
- Offers password protection for designs, macros, and upload/download operations
- Supports the running of various open platform applications with various OS, such as RTOS/WinCE and Windows
- Automation controller can be linked and controlled from the platform directly
- Provides index registers for modifying device addresses at runtime
- Collects data from multiple devices using various methods
- Supports diverse data acquisition and trend presentation techniques
- Operation log facilitates event review and investigation
- Flexible runtime download through serial/Ethernet and memory cards
- Allows application updates from USB memory sticks
- Supports numerous drivers and over 350 industrial communication protocols, such as SIMATIC S7-1200, BACNet MSTP, and BACNet IP

### Introduction

WebAccess/HMI Designer is a powerful and intuitive software program for creating comprehensive human machine interface solutions. WebAccess/HMI Designer is an easily integrated development tool with proven value in many application fields. The features include solution-oriented screen objects, high-end vector graphics, Windows fonts for multi-language applications, receipts, alarm functions, as well as data and operation logging capabilities. WebAccess/HMI Designer also supports online/offline simulation and utility programs such as Data Transfer Helper (DTH), recipe editor, and text editor.

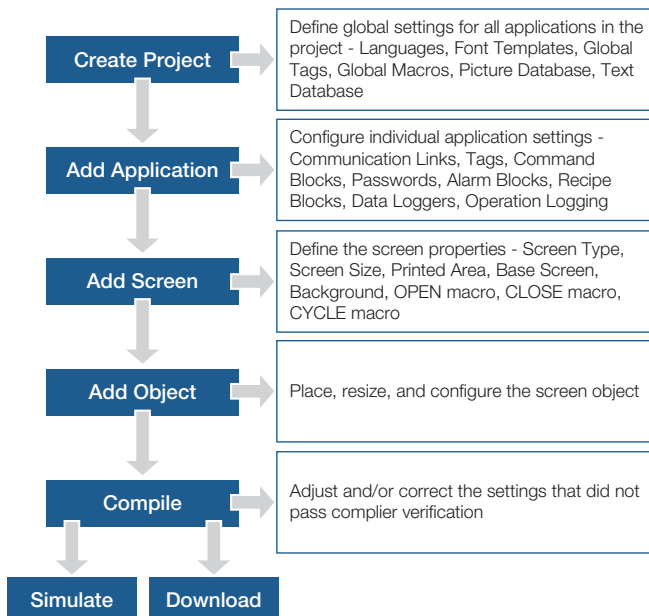
WebAccess/HMI Runtime, a component of WebAccess/HMI, guarantees the reliability and performance of Open Platform because of the minimum system overhead, high data communication rates, sub-second screen switching, and 24/7 operation. Additionally, Advantech's fast response software team is continually adding new functions, communication drivers, and solutions to the software to meet dynamic needs.

### System Requirements

#### Minimum OS Requirements

- Windows XP SP2 (for all flavors of XP such as Home, Media Center, Tablet PC)
- Windows Server 2003
- Windows Vista
- Windows 7

### Project Development Steps



### Feature Details

#### Global Settings and Resources Sharable to All Project Applications

- Multiple languages (up to 10 languages)
- Font templates (up to 20 fonts for each language, TrueType fonts supported)
- Picture database (+PNG and SVG), sound database (WAV), and text database
- Global tags
- Global macros

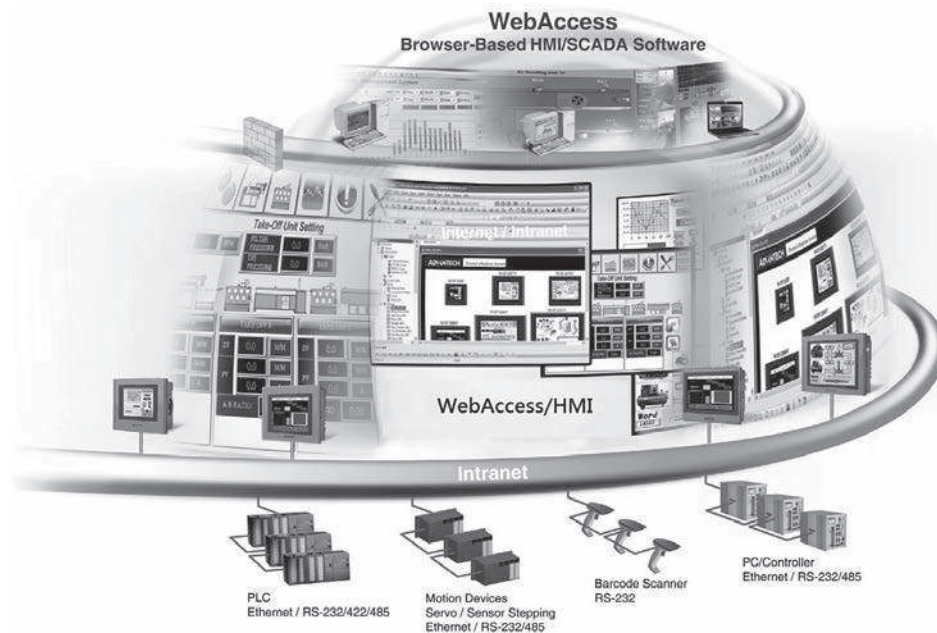
#### Numerous Solution-Oriented Screen Objects

- For common HMI needs  
Buttons, lamps, message displays, numeric displays, numeric entries, character displays, character entries, time displays, date displays, bar graphs, meters, etc.
- For animations  
Picture displays, GIF displays, animated graphics, dynamic rectangles, dynamic circles, pipelines, circular bar graphs, etc. Customizable basic graphic object colors (text, lines, rectangles, circles, etc.), as well as button and lamp shapes.
- For advanced functions  
Line charts, scatter charts, recipe selector, recipe table, alarm history display, active alarm display, alarm count display, historic trend graphs, historic data table, historic event table, historic line charts, operation log display, sub-link table, etc.

#### Communication Links

HMI products can have up to four built-in communication ports. WebAccess/HMI Designer software allows users to create up to four links and 255 sub-links for a single application. The inclusion of more than 400 communication drivers enables 1-to-N (one panel to a wide variety of industrial devices) or N-to-1 (multiple panels to one device) connections. WebAccess/HMI Runtime supports up to 16 built-in communication ports and allows users to create up to 16 links for 255 sub-links with serial ports, as well as 128 sub-links with Ethernet ports for a single application.

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 IDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



## One Design for All Models

WebAccess/HMI Designer software features an automatic resizing function for resizing all objects to fit the screen size if the HMI model is changed. Thus, HMI model changes can be rapidly implemented.

## Easy to Accumulate/Reuse Design Achievements

- Import/Export Function  
WebAccess/HMI Designer provides a simple method for importing and exporting data between applications and projects. This data can include language settings, font templates, pictures, sounds, text, tags, macros, applications, screens, alarm messages, control blocks, and status word settings.
- Object Library  
The object library enables convenient configuring, managing, and sharing of user-defined objects. The object library contains default objects, common objects, object groups, and global objects.

## Enhanced Intellectual Property Protection

WebAccess/HMI Designer offers enhanced IP protection with up to 9 password levels for securing operations and restricting object access. Users can set passwords to protect projects, tables, and global macros, and also prohibit the uploading and copying of panel applications stored in the HMI unit.

## Recipes

WebAccess/HMI Designer provides comprehensive solutions for recipes.

- Supports up to 16 recipe blocks
- Provides a recipe selector for selecting recipes and a recipe table for displaying and modifying recipe data at runtime
- Provides Recipe Editor, an independent executable program, for viewing and editing recipe data saved in binary files
- Supports bit notification when recipe operations are performed successfully to prevent data loss

## Supports Data Saving to CSV/TXT Files

Supports the saving and loading of collected data to/from CSV or TXT files. These two standard file formats ensure easy manipulation of data on a PC.

## Alarms

WebAccess/HMI Designer supports up to 16 discrete alarm blocks and up to 16 analog alarm blocks. The software also offers alarm history display, active alarm display, alarm count display, and alarm marquee for displaying the application alarms.

## Macros Offer an Easy-to-Learn Language with Simple Syntax

Application developers can program their own solutions using macro commands for the following:

- Operations not supported by a standard object or feature of WebAccess/HMI Designer sequential, interactive, conditional and file operations
- Non-linear data conversions
- Data exchanges between two controllers
- Simple communication drivers
- Difficult-to-implement tasks in controllers
- Reducing controller load to boost performance

## Simplified Architecture

- Real-time WYSIWYG screen editor, eight toolbars, and a screen manager
- Screen overview showing the relationship between the application screens
- Link overview showing the relationship between application links of the current application
- Object list showing the screen objects and associated I/O address of the current screen
- I/O list showing all I/O addresses of the project and their owners
- Compiler for building, verifying, and optimizing designs
- Online/offline simulation for design verification
- Data Transfer Helper (DTH), an independent executable program, for obtaining and updating application data via a serial or Ethernet port
- Text Editor for editing all screen texts in multiple languages

## Ordering Information

- |                |   |
|----------------|---|
| ▪ 968WH021P0   | WebAccess/HMI V2.1 150 tags S/W license     |
| ▪ 968WH021P1   | WebAccess/HMI V2.1 300 tags S/W license     |
| ▪ 968WH021P2   | WebAccess/HMI V2.1 1500 tags S/W license    |
| ▪ 968WH021P3   | WebAccess/HMI V2.1 5000 tags S/W license    |
| ▪ WA-H21-U99HE | WebAccess/HMI V2.1 S/W USB dongle 9990 tags |



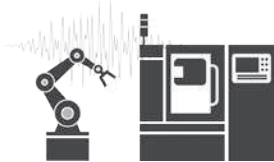
# WebAccess Solutions

## Smart Factories - Flexible and Accessible Value-Added Manufacturing

Machine automation is the key to increasing efficiency and cost saves in manufacturing. With Industry 3.0, machines were designed to work autonomously. However, with the combination of IoT and Industry 4.0, the aim is to connect machines, work pieces, and systems in a network that allows them to communicate and become an intelligent system, where individual units can influence each other to automatically maximize throughput and quality. In the past, connecting and establishing communication between industrial automation devices and equipment was difficult. IMS research estimates that 85% of legacy devices still lack this ability. The primary reason is the lack of compatibility between equipment produced by different manufacturers. While manufacturers competed to have factories use only their equipment, factory owners faced the challenge of connecting multiple devices together and enabling cross-device communication. This lack of compatible standards and programming languages meant that gathering all data into a single program was extremely difficult and expensive. However, now, because of technological advancements and reduced price points, cross-device communication can finally be realized.

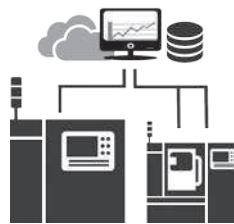
### Key elements of innovative smart manufacturing

#### Connect



All industrial devices are connected in an open network architecture via standard protocols.

#### Integrate



All machinery data from across the factory is integrated in the cloud and accessible from any location at any time.

#### Analyze



By integrating information between operation technologies (OT) and information technologies (IT), factory data is transformed into valuable information that enables enterprises to make superior data-driven decisions.

## Our Mission

For many years, Advantech has been a leading developer of industrial automation hardware and maintenance solutions. To address the future demands of the industrial automation market, Advantech has emphasized the development of system integrator solutions to provide the optimum service and problem solving for vertical markets.

As a total solutions provider, we produce application-ready packages that include powerful automation software and a wide selection of reliable hardware. Through partnerships we share our vision for Industry 4.0, and through technical consulting we assist our partners in designing solutions with complete ARP development.

Advantech has also established the WebAccess+ IoT Solution Alliance, which is based on using the integrated IoT software suite WebAccess+ to link solutions, partner strengths, and strategic co-marketing in order to enter the vertical markets of water, oil and gas, intelligent buildings, factory automation, and renewable energy. Advantech offers complete IoT solutions for a wide array of applications and markets, and has established several win-win partnerships in blossoming IoT industries.

## Why Choose Us



#### Total solution for factories

From machine control (CODESYS, WebAccess/HMI), production monitoring (WebAccess/HMI, WebAccess/SCADA) to factory management (WebAccess/SCADA cloud, 3rd MES partner)



#### True integration

Integration is achieved through unique software/hardware integration solutions for equipment connectivity, process visualization, facility and environment management and dispatch and logistic management.



#### Technical consultations

Provides professional sales/field application engineering consultation services.



#### Reliable partnership

Working together to lead your company to future opportunities.

- 1 WebAccess+ Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# WA-ST SCADA Series

## 12.1 ~ 21.5" TFT LCD SCADA Panel PC with WebAccess/SCADA

NEW



WebAccess/SCADA



### Features

#### Open SCADA Application-Ready-Package with SCADA Panel PC

- Industrial 12.1"~21.5" TFT LCD Panel with 50K Lifetime LED backlight
- Durable 5-wire resistive / capacitive touch screen
- True-flat IP66 certified front panel protection
- 1 TB Hard disk drive installed
- Microsoft Windows Embedded 7 Pro 64-bit installed
- Supports iDoor technology for diverse applications

#### WebAccess/SCADA

- Preinstalled WebAccess/SCADA 1500 tags
- 100 % Web-based SCADA software architecture as key player connects all devices between OT/IT level
- Remote SCADA monitoring by HTML5-based dashboard on iOS, Android mobile devices
- Supports Open Data Protocols: OPC UA/DA, DDE, and Modbus
- Supports Open Database: SQL, Oracle, MySQL and Acces

### Introduction

The WA-ST SCADA series is a complete application-ready-package offering that includes a SCADA panel PC with a 12.1 ~ 21.5" TFT LCD, 1 TB HDD, Microsoft Windows Embedded 7 Pro, and WebAccess/SCADA. This provides users with an integrated SCADA solution and web-based real-time production information system that correlates production data for intelligent factory management.

The built-in WebAccess/SCADA software plays a key role in integrating data from various field sources, centric network stations, cloud-based data servers, and mobile thin-client devices. The open web interface supports multiple data protocols and APIs, while HTML5 enables the development of cloud-based cross-system IoT applications for various vertical markets.

#### Contents of the Open SCADA Application-Ready-Package Solution for Industry 4.0

- 12.1 ~ 21.5" TFT LCD SCADA panel PC
- 1TB Hard disk drive
- Microsoft Windows Embedded 7 Pro (64 bit)
- WebAccess/SCADA Professional 1500 tags

### Open SCADA Solution Specifications

#### Real-Time Factory Monitoring via Mobile Devices

- HTML5-based dashboard displays real-time information on IE 11, Safari, Chrome and Firefox across Android, iOS and Windows mobile devices
- Includes ample widget library and builder for customized data, trend, alarm analysis page
- Supports open RESTful/SignalR APIs allowing user to withdraw SCADA data showing on APPs
- Supports maximum 1,024 client terminal without further license

#### Production Information Stored in the Cloud

- Empower the efficiency of all engineering works such as database configuration, system management by 100 % Web-based SCADA software architecture
- Supports SQL, Oracle, MySQL and MS Access for cloud-based database management
- Exports self-defined/daily/weekly/monthly/yearly Excel reports
- Integrated with WISE-PaaS/RMM that users can monitor remote device status such as CPU loading, fan speed and restore all the history on cloud server
- Broadcasts alarm message via email, SMS when abnormal or suspicious production data is detected

#### Integrates Data from Sensors, HMI, and Controllers

- Supports OPC-UA/DA, DDE, Modbus and BACnet Server/Client to communicate with WebAccess/HMI or other 3rd party software.
- WebAccess/SCADA and WebAccess/HMI, supporting more than 500 industrial protocols, enables the manufacturing data integration from remote sensors, operational HMI, facilities controllers – e.g. The WA-ST/SU SCADA PCs are able to simultaneously communicate with WA-HT/HU HMI PCs to get the machinery data and upload the real-time processing information to cloud data server where broadcasts factory production message on thin client terminal such as mobile devices

#### Reliable Distributed SCADA System Design for Field Operations

- Supports WA-ST/SU SCADA system redundancy: The WA-ST/SU platforms communicates with backup ports or devices if the primary connection is lost and automatically restores to the primary unit when the connection becomes available
- Rugged fanless panel PC with a backlight life of up to 50,000 hours
- Touch screen passed 36 million touches test at single point
- True-flat touch screen designed with IP66 front protection
- Easy installation by panel mounting
- Approved Certification: BSMI, CCC, CE, FCC Class A, UL
- Wide operating temperature

## Configuration Options

Series	SCADA Panel PC			
Part Number	WA-ST1251T-E15H4AE	WA-ST1551T-E15H4AE	WA-ST1751T-E15H4AE	WA-ST2140W-G15H4AE
SCADA Panel PC	TPC-1251T-E3AE	TPC-1551T-E3AE	TPC-1751T-E3AE	TPC-2140WP-T3AE
Operating System	Microsoft Windows Embedded 7 Pro (64 bit)			
SCADA Software	WebAccess/SCADA Professional 1500 tags			
CPU	Intel® Atom™ E3827 1.75 GHz			AMD G-series T56E 1.65GHz
Memory	4 GB of DDR3L			
Aspect Ratio	4:3			16:9
Display (Size, Type)	12.1" XGA TFT LED LCD	15" XGA TFT LED LCD	17" SXGA TFT LED LCD	21.5" Full HD TFT LED LCD
Max. Resolution/Colors	1024 x 768 / 16.2 M	1024 x 768 / 16.7M	1280 x 1024 / 16.7M	1920 x 1080 / 16.7M
Backlight MTBF	50,000 hrs			
Touchscreen	5-wire resistive			Projected capacitive
Storage	1TB HDD			
Expansion Slots	1 x Full-size Mini PCIe			
Mounting	Desktop, wall, or panel mount			Panel mount
Network (LAN)	2 x 10/100/1000 Base-T			
I/O	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	3 x RS-232, 1 x RS-422/485, 2 x USB 2.0, 1 x HDMI, 1 x Mic In, 1 x Line Out
iDoor Expansion	1 x iDoor			N/A
DC Power Input (Voltage)	24 V <sub>DC</sub> ± 20%			18 ~ 32 V <sub>DC</sub>
Power Consumption	45.6W	40.8W	43.2W	35 W
Ingress Protection	IP66-rated front panel			
Operating Temperature	-20 ~ 60°C			0 ~ 55°C
Certification	CE, FCC, BSMI, CCC, UL			

## Ordering Information

- **WA-ST2140W-G15H4AE** TPC-2140WP-T3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P
- **WA-ST1751T-E15H4AE** TPC-1751T-E3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P
- **WA-ST1551T-E15H4AE** TPC-1551T-E3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P
- **WA-ST1251T-E15H4AE** TPC-1251T-E3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P

## Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Adapter
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

## Selected iDoor Modules

- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D4R2-AE** OXPcie-954 UART, Non-Isolated RS-232, DB37 x 1
- **PCM-24D4R4-AE** OXPcie-954 UART, Non-Isolated RS-422/485, DB37 x 1
- **PCM-27D24DI-AE** Isolated Digital I/O, 16DI/8DO, mPCIe, DB37 x 1
- **PCM-27J3AU-AE** 3-Port Audio Stereo, mPCIe, 3.5 mm Jack
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe
- **PCM-24R1TP-AE** Intel® 82574L, GbE, RJ45 x 1

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C Systems
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking



# WA-SU SCADA Series

## Embedded SCADA Box PC with WebAccess/SCADA

NEW



### Features

#### Open SCADA Application-Ready-Package with Embedded SCADA Box PC

- Industrial fanless compact design with palm and regular form factor
- Flexible stand, wall, VESA, Din-rail mounting options
- Powerful Intel Celeron/Core i3 processor performance
- 128 GB SSD installed
- Microsoft Windows Embedded 7 Pro 64-bit installed
- Supports iDoor technology for flexible I/O expansion and wireless communication options

#### WebAccess/SCADA

- Preinstalled WebAccess/SCADA 1500 tags
- 100 % Web-based SCADA software architecture as key player connects all devices between OT/IT level
- Remote SCADA monitoring by HTML5-based dashboard on iOS, Android mobile devices
- Supports Open Data Protocols: OPC UA/DA, DDE, and Modbus
- Supports Open Database: SQL, Oracle, MySQL and Acces

### Introduction

The WA-SU SCADA series is a complete application-ready-package offering that includes an Embedded SCADA box PC with a fanless and compact form factor, 128G SSD, Microsoft Windows Embedded 7 Pro, and WebAccess/SCADA. This provides users with an integrated SCADA solution and web-based real-time production information system that correlates production data for intelligent factory management.

The built-in WebAccess/SCADA software plays a key role in integrating data from various field sources, centric network stations, cloud-based data servers, and mobile thin-client devices. The open web interface supports multiple data protocols and APIs, while HTML5 enables the development of cloud-based cross-system IoT applications for various vertical markets.

#### Contents of the Open SCADA Application-Ready-Package Solution for Industry 4.0

- Embedded SCADA box PC
- 128G SSD
- Microsoft Windows Embedded 7 Pro (64 bit)
- WebAccess/SCADA Professional 1500 tags

### Open SCADA Solution Specifications

#### Real-Time Factory Monitoring via Mobile Devices

- HTML5-based dashboard displays real-time information on IE 11, Safari, Chrome and Firefox across Android, iOS and Windows mobile devices
- Includes ample widget library and builder for customized data, trend, alarm analysis page
- Supports open RESTful/SignalR APIs allowing user to withdraw SCADA data showing on APPs
- Supports maximum 1,024 client terminal without further license

#### Production Information Stored in the Cloud

- Empower the efficiency of all engineering works such as database configuration, system management by 100 % Web-based SCADA software architecture
- Supports SQL, Oracle, MySQL and MS Access for cloud-based database management
- Exports self-defined/daily/weekly/monthly/yearly Excel reports
- Integrated with WISE-PaaS/RMM that users can monitor remote device status such as CPU loading, fan speed and restore all the history on cloud server
- Broadcasts alarm message via email, SMS when abnormal or suspicious production data is detected

#### Integrates Data from Sensors, HMI, and Controllers

- Supports OPC-UA/DA, DDE, Modbus and BACnet Server/Client to communicate with WebAccess/HMI or other 3rd party software.
- WebAccess/SCADA and WebAccess/HMI, supporting more than 500 industrial protocols, enables the manufacturing data integration from remote sensors, operational HMI, facilities controllers – e.g. The WA-SU/SU SCADA PCs are able to simultaneously communicate with WA-HT/HU HMI PCs to get the machinery data and upload the real-time processing information to cloud data server where broadcasts factory production message on thin client terminal such as mobile devices

#### Reliable Distributed SCADA System Design for Field Operations

- Supports WA-ST/SU SCADA system redundancy: The WA-ST/SU platforms communicates with backup ports or devices if the primary connection is lost and automatically restores to the primary unit when the connection becomes available
- Rugged fanless panel PC with a backlight life of up to 50,000 hours
- Touch screen passed 36 million touches test at single point
- True-flat touch screen designed with IP66 front protection
- Easy installation by panel mounting
- Approved Certification: BSMI, CCC, CE, FCC Class A, UL
- Wide operating temperature

## Configuration Options

Series	Embedded SCADA Box PC	
Part Number	WA-SU2473G-J15H5AE	WA-SU2483G-315H5AE
Embedded Automation PC	UNO-2473G-J3AE	UNO-2483G-434AE
Operating System	Microsoft WES 7 Pro (64 bit)	
SCADA Software	WebAccess/SCADA Professional 1500 tags	
Form Factor	Regular	
CPU	Intel® Celeron® J1900 2.4 GHz	Intel® Core™ i3-4010U 1.7 GHz
Memory	4G of DDR3L SDRAM	8G of DDR3L SDRAM
Display Type	HDMI: 1920 x 1080 @ 60Hz VGA: 2560 x 1600 @ 60Hz	HDMI: 3200 x 2000 @ 60Hz VGA: 1920 x 1200 @ 60Hz
Storage	128G SSD	
Expansion Slots	1 x Full-size Mini PCIe	2 x Full-size Mini PCIe
Mounting	Stand, wall, DIN rail, VESA (with optional kit)	
Network (LAN)	2 x 10/100/1000 Base-T	4 x 10/100/1000 Base-T
I/O Port	2 x RS-232, 2 x RS-422/485, 4 x USB 2.0, 1 x USB 3.0, 1 x Line In/Out	2 x RS-232, 2 x RS-422/485, 2 x USB 2.0, 2 x USB 3.0, 1 x Line In/Out
iDoor Expansion	1 x iDoor	
DC Power Input (Voltage)	10 ~ 36 V <sub>DC</sub>	24 V <sub>DC</sub> ± 20%
Power Consumption	24W	28 W
Operating Temperature	-10 ~ 55°C	-20 ~ 60°C
Dimensions	252 x 149 x 62 mm	
Certification	CE, FCC, UL, CCC, BSMI	

## Ordering Information

- **WA-SU2473G-J15H5AE** UNO-2473G-J3AE, SCADA Runtime 1500 tags, 128G SSD, WES7P
- **WA-SU2483G-315H5AE** UNO-2483G-434AE, SCADA Runtime 1500 tags, 128G SSD, WES7P

## Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Adapter for WASU2473G
- **96PSA-A150W24T2** 100-240V 150W 24V Power Adapter for WA-SU2483G
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **UNO-2000G-DMKAE** Din-rail kit for WA-SU2473G/ WA-SU2483G
- **UNO-2000G-VMKAE** VESA Mount kit for WA-SU2473G/ WA-SU2483G

## Selected iDoor Modules

- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D4R2-AE** OXPcie-954 UART, Non-Isolated RS-232, DB37 x 1
- **PCM-24D4R4-AE** OXPcie-954 UART, Non-Isolated RS-422/485, DB37 x 1
- **PCM-24U2U3-AE** USB 3.0, mPCIe, USB-A type x 2
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, half-size mPCIe
- **PCM-24R1TP-AE** Intel® 82574L, GbE, RJ45 x 1

1

WebAccess® Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

5

Thin-Client Terminals

6

High-Performance Control Panels

7

Control Cabinet PCs

8

Industrial IoT Gateways

9

Industrial monitors

10

iDoor Technology Modules

11

Panel PCs

12

Control IPCs

13

Remote DA&C System

14

Wireless IoT Sensing Devices

15

Ethernet I/O Modules

16

RS-485 I/O Modules

17

Industrial Ethernet Solutions

18

IP Gateway and Serial Device Servers

19

Networking

# WA-HT HMI Series

## 6.5 ~ 21.5" TFT LCD Windows-Based Thin-Client Terminal with WebAccess/HMI Runtime

NEW



### Features

#### Open HMI Application-Ready-Package with Thin-Client Terminal

- Industrial 6.5"~21.5" TFT LCD Panel with 50K Lifetime LED backlight
- Durable 5-wire resistive / capacitive touch screen
- True-flat IP66 certified front panel protection
- 32GB industrial CFast card installed in standard series
- Microsoft Windows Embedded 7 Pro 64-bit installed in standard series
- Supports iDoor technology for diverse applications (optional accessory required)

#### WebAccess/HMI Runtime

- Includes HMI Runtime 1500 tags
- Supports 450 industrial communication protocol and drivers for PLC/devices
- Rich object library for easy application design
- Supports on-/off-line design simulation by the development tool

### Introduction

The WA-HT HMI series is a complete application-ready-package that includes a thin-client terminal with a 6.5 ~ 21.5" TFT LCD panel, 32 GB CFast card, Microsoft Windows Embedded 7 Pro, and WebAccess/HMI Runtime. This provides users with an efficient, integrated HMI solution for flexible system integration in the automation industry. The thin-client terminal equipped with an Intel® Atom™ processor provides a high-performance fanless, compact system for diverse field operations.

The built-in Open HMI Runtime software offers a rich object library, online/offline simulation, and over 450 industrial protocols and drivers. Open HMI Runtime is designed to enable a wide range of HMI control and visualization functions for creating powerful, user-friendly, reliable solutions for sophisticated applications.

#### Contents of the Open HMI Application-Ready-Package Solution for Industry 4.0

- Touch panel thin-client terminal
- 32 GB CFast card (standard series)/512 MB SD card (lite series)
- Microsoft Windows Embedded 7 Pro, 64 bit (standard series)/WinCE 6.0 (lite series)
- WebAccess/HMI Runtime 1500 tags

### Open HMI Solution Specifications

#### HMI Visualization for Process Information

- Wide selection of panel sizes (6.5 ~ 21.5")
- Multiple languages for HMI (up to 10 languages)
- Object library: includes default/common objects, objects groups and global objects
- HMI Designer: a powerful develop tool supports online/offline design simulation
- User-customized picture/sounds database

#### Application-Oriented HMI Functions

- Data log: up to 16 datalog blocks (saved as csv/txt file)
- Operation log: operation history for process parameter inspection (saved as csv file)
- Alarm: up to 16 alarm blocks, e-mail notification (supports SSL/TSL encryption)
- Recipe: up to 16 Recipe blocks
- Schedule: up to 80 sets
- Event: up to 36 sets
- User-customized data process: Macros
- Security Authority: 9 levels password

#### Communication with Multiple Systems

- Includes rich interfaces as RS-232/422/485, USB 3.0/2.0, Ethernet, Audio I/O
- Maximum Serial/Ethernet Links: 4-links (serial), 16-links (Ethernet)
- Supports 450 communication protocols and drivers for industrial devices
- Gateway service by Modbus for HMI devices communication
- Flexible I/O expansion by iDoor technology

#### Reliable Design for Field Operations

- Backlight life of up to 50,000 hours
- Touch screen passed 36 million touches test at single point
- True-flat touch screen designed with IP66 front protection
- Easy panel mounting installation
- Approved Certification: BSMI, CCC, CE, FCC Class A, UL
- Wide operating temperature
- Vibration Protection With CFast: 2 Grms (5~500 Hz)



For more Open HMI application stories and technical support documents, visit the Advantech website at <http://select.advantech.com/open-hmi-solutions>



## Configuration Options

Series	Touch Panel HMI - Lite			Touch Panel HMI - Standard					
<b>Part Number</b>	WA-HT3070T-R15H0AE	WA-HT3100T-R15H0AE	WA-HT651T-E15H1AE	WA-HT1051W-E15H1AE	WA-HT1251T-E15H1AE	WA-HT1551T-E15H1AE	WA-HT1751T-E15H1AE	WA-HT2140W-G15H1AE	
<b>Thin-Client Terminal</b>	WOP-3070T-C4AE	WOP-3100T-C4AE	TPC-651T-6E3AE	TPC-1051WP-E3AE	TPC-1251T-E3AE	TPC-1551T-E3AE	TPC-1751T-E3AE	TPC-2140WP-T3AE	
<b>Operating System</b>	Microsoft WinCE 6.0			Microsoft Windows Embedded 7 Pro (64 bit)					
<b>HMI Software</b>	WebAccess/HMI Runtime 1500 tags			WebAccess/HMI Runtime 1500 tags					
<b>CPU</b>	ARM® Cortex™-A8 600 MHz			Intel® Atom™ E3827 1.75GHz					AMD G-series T56E 1.65 GHz
<b>Memory</b>	256 MB DDR2			4 GB of DDR3L					
<b>Aspect Ratio</b>	16:9			4:3	16:9	4:3	4:3	16:9	
<b>Display (Size, Type)</b>	7" WVGA TFT LCD	10.1" WVGA TFT LCD	6.5" VGA TFT LED LCD	10.1" WXGA TFT LED LCD	12.1" XGA TFT LED LCD	15" XGA TFT LED LCD	17" SXGA TFT LED LCD	21.5" Full HD TFT LED LCD	
<b>Max. Resolution / Colors</b>	800 x 480 / 64k	1024 x 600 / 64k	640 x 480 / 262k	1280 x 800 / 262k	1024 x 768 / 16.2 M	1024 x 768 / 16.7M	1280 x 1024 / 16.7M	1920 x 1080 / 16.7M	
<b>Backlight MTBF</b>	50,000 hrs			50,000 hrs	25,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	
<b>Touchscreen</b>	5-wire resistive			5-wire resistive	Projected capacitive	5-wire resistive	5-wire resistive	Projected capacitive	
<b>Storage</b>	512M micro SD on board (SLC type)			1 x 32G CFast card					
<b>Expansion Slots</b>	1 x Micro SD			1 x Full-size Mini PCIe					
<b>Mounting</b>	Panel			Desktop, wall, or panel					
<b>Network (LAN)</b>	1 x 10/100 Base-T			2 x 10/100/1000 Base-T					
<b>I/O</b>	1 x RS-232/422/485 (DB9), 1 x RS-422/485 (4 pin), 1 x RS-485 (2 pin), 1 x USB 2.0 (1 x Client X1, 1 x Host), 1 x Line Out, 1 x Mic In		1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 1 x USB 2.0	3 x RS-232, 1 x RS-422/485, 2 x USB 2.0, 1 x HDMI, 1 x Mic In, 1 x Line Out	
<b>iDoor Expansion (TPC-1251T-EHKE is required)*</b>	N/A			1 x iDoor *					N/A
<b>DC Power Input (Voltage)</b>	24 V <sub>DC</sub> ± 10%			24 V <sub>DC</sub> ± 20%					18 ~ 32 V <sub>DC</sub>
<b>Power Consumption</b>	7 W	9 W	19.2 W	36 W	45.6W	40.8W	43.2W	35 W	
<b>Ingress Protection</b>	IP66-rated front panel			IP66-rated front panel					
<b>Operating Temperature</b>	-20 ~ 60°C			-20 ~ 60°C	-20 ~ 55°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	0 ~ 55°C
<b>Certification</b>	CE, FCC, BSMI, CCC, UL			CE, FCC, BSMI, CCC, UL					

## Ordering Information

- **WA-HT3070T-R15H0AE** WOP-3070T-C4AE, HMI Runtime 1500 tags, 512M SD, WinCE
- **WA-HT3100T-R15H0AE** WOP-3100T-C4AE, HMI Runtime 1500 tags, 512M SD, WinCE
- **WA-HT651T-E15H1AE** TPC-651T-6E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-HT1051W-E15H1AE** TPC-1051WP-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-HT1251T-E15H1AE** TPC-1251T-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-HT1551T-E15H1AE** TPC-1551T-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-HT1751T-E15H1AE** TPC-1751T-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-HT2140W-G15H1AE** TPC-2140WP-T3AE, HMI Runtime 1500 tags, 32G CFast, WES7P

## Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Adapter
- **TPC-1251T-EHKE** HDD/SSD and iDoor extension kit for WA-HT651T/1051W/1251T/1551T/1751T
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

## Selected iDoor Modules

- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D4R2-AE** OXPcie-954 UART, Non-Isolated RS-232, DB37 x 1
- **PCM-24D4R4-AE** OXPcie-954 UART, Non-Isolated RS-422/485, DB37 x 1
- **PCM-27D24DI-AE** Isolated Digital I/O, 16DI/8DO, mPCIe, DB37 x 1
- **PCM-27J3AU-AE** 3-Port Audio Stereo, mPCIe, 3.5 mm Jack
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, half-size mPCIe
- **PCM-24R1TP-AE** Intel® 82574L, GbE, RJ45 x 1

# WA-HU HMI Series

## Visualization Box HMI and Communication Gateway with WebAccess/HMI Runtime

NEW



### Features

#### Open HMI Application-Ready-Package with Embedded Automation Box PC

- Industrial fanless compact design with palm and regular form factor
- Flexible stand, wall, VESA, DIN rail mount options
- Powerful Intel Celeron/Core i3 processor performance
- 32GB industrial mSATA installed
- Microsoft Windows Embedded 7 Pro 64-bit installed
- Supports iDoor technology for diverse applications

#### WebAccess/HMI Runtime

- Includes HMI Runtime 1500 tags
- Supports 450 industrial communication protocol and drivers for PLC/devices
- Rich object library for easy application design
- Supports on-/off-line design simulation by the development tool

### Introduction

The WA-HU HMI series is a complete application-ready-package that includes an embedded automation box PC (in a palm-size or regular form factor), 32 GB mSATA, Microsoft Windows Embedded 7 Pro, and WebAccess/HMI Runtime. This provides users with an efficient, integrated HMI solution for production data visualization and protocol translation in the automation industry. The embedded automation box PC with Intel® Celeron®/Core™ i3 processor provides a high-performance system with various mount options for diverse field operations.

The built-in Open HMI Runtime software offers a rich object library, online/offline simulation, and over 450 industrial protocols and drivers. Open HMI Runtime is designed to enable a wide range of HMI control and visualization functions for creating powerful, user-friendly, reliable solutions for sophisticated applications.

#### Contents of the Open HMI Application-Ready-Package Solution for Industry 4.0

- Embedded automation box PC
- 32GB mSATA
- Microsoft Windows Embedded 7 Pro (64 bit)
- WebAccess/HMI Runtime 1500 tags

### Open HMI Solution Specifications

#### Visualized Box HMI for Process Information

- Supports high resolution VGA and full HD HDMI output
- Multiple languages for HMI (up to 10 languages)
- Object library: includes default/common objects, object groups and global objects
- HMI Designer: a powerful develop tool supports online/offline design simulation
- User-customized picture/sounds database

#### Application-Oriented HMI Functions

- Data log: up to 16 datalog blocks (saved as csv/txt file)
- Operation log: operation history for process parameter inspection (saved as csv file)
- Alarm: up to 16 alarm blocks, e-mail notification (supports SSL/TSL encryption)
- Recipe: up to 16 Recipe blocks
- Schedule: up to 80 sets
- Event: up to 36 sets
- User-customized data process: Macros
- Security Authority: 9 levels password

#### Communication with Multiple Systems

- Rich interfaces such as RS-232/422/485, USB 3.0/2.0, Ethernet, and Audio I/O
- Maximum Serial/Ethernet Links: 4-links (serial), 16-links (Ethernet)
- Supports 450 communication protocols and drivers for industrial devices
- Gateway service by Modbus for HMI devices communication
- Flexible I/O expansion by iDoor technology

#### Reliable Design for Field Operations

- Fanless compact design with higher reliability
- Stand, wall, VESA and Din-rail mounting for any field side installation
- Supports remote system status monitoring by WISE-PaaS/RMM
- Approved Certifications: BSMI, CCC, CE, FCC Class A, UL
- Wide operating temperature
- Vibration Protection with mSATA: 2 Grms (5-500 Hz)



For more Open HMI application stories and technical support documents, visit the Advantech website at <http://select.advantech.com/open-hmi-solutions>

## Configuration Options

Series	Visualization Box HMI and Communication Gateway		
Part Number	WA-HU2272G-J15H2AE	WA-HU2473G-J15H2AE	WA-HU2483G-315H2AE
Embedded Automation PC	UNO-2272G-J2AE	UNO-2473G-J3AE	UNO-2483G-434AE
Operating System	Microsoft WES 7 Pro (64 bit)		
HMI Software	WebAccess/HMI Runtime 1500 tags		
Form Factor	Palm size	Regular size	Regular size
CPU	Intel® Celeron® J1900 2.0 GHz	Intel® Celeron® J1900 2.4 GHz	Intel® Core™ i3-4010U 1.7 GHz
Memory	2G of DDR3L SDRAM	4G of DDR3L SDRAM	8G of DDR3L SDRAM
Display Type	HDMI: 1920 x 1080 @60Hz	HDMI: 1920 x 1080 @60Hz VGA: 2560 x 1600 @60Hz	HDMI: 3200 x 2000 @60Hz VGA: 1920 x 1200 @60Hz
Storage	1 x 32 GB mSATA		
Expansion Slots	2 x Mini PCIe	1 x Mini PCIe	2 x Mini PCIe
Mounting	Stand and wall		
	DIN rail and VESA (with optional kit)		
Network (LAN)	1 x 10/100/1000 Base-T	2 x 10/100/1000 Base-T	4 x 10/100/1000 Base-T
I/O	1 x RS-232 (optional RS-422/485 via BIOS configuration), 2 x USB 2.0, 1 x USB 3.0	2 x RS-232, 2 x RS-422/485, 4 x USB 2.0, 1 x USB 3.0	2 x RS-232, 2 x RS-422/485, 2 x USB 2.0, 2 x USB 3.0
iDoor Expansion	1 x iDoor		
Audio	1 x Line Out	1 x Line In, 1 x Line Out	1 x Line In, 1 x Line Out
DC Power Input (Voltage)	24 V <sub>DC</sub> ± 20%	10 ~ 36 V <sub>DC</sub>	24 V <sub>DC</sub> ± 20%
Power Consumption	12 W	24 W	28 W
Operating Temperature	-10 ~ 55°C	-10 ~ 55°C	-20 ~ 60°C
Dimensions	157 x 88 x 50 mm	252 x 149 x 62 mm	252 x 149 x 62 mm
Certification	CE, FCC, UL, CCC, BSMI		

## Ordering Information

- **WA-HU2483G-315H2AE** UNO-2483G-434AE, HMI Runtime 1500 tags, 32G mSATA, WES7P
- **WA-HU2473G-J15H2AE** UNO-2473G-J3AE, HMI Runtime 1500 tags, 32G mSATA, WES7P
- **WA-HU2272G-J15H2AE** UNO-2272G-J2AE, HMI Runtime 1500 tags, 32G mSATA, WES7P

## Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A power adapter for WAHU2272G/WA-HU2473G
- **96PSA-A150W24T2** 100-240V 150W 24V power adapter for WA-HU2483G
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **UNO-2000G-DMKAE** Din-rail kit for WA-HU2272G/WA-HU2473G/ WA-HU2483G
- **UNO-2000G-VMKAE** VESA Mount kit for WA-HU2272G/WA-HU2473G/ WA-HU2483G

## Selected iDoor Modules

- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D4R2-AE** OXPcie-954 UART, Non-Isolated RS-232, DB37 x 1
- **PCM-24D4R4-AE** OXPcie-954 UART, Non-Isolated RS-422/485, DB37 x 1
- **PCM-27D24DI-AE** Isolated Digital I/O, 16DI/8DO, mPCIe, DB37 x 1
- **PCM-24U2U3-AE** USB 3.0, mPCIe, USB-A type x 2
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, half-size mPCIe
- **PCM-24R1TP-AE** Intel® 82574L, GbE, RJ45 x 1

1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking



# WA-CT Control Series

## PC-Based Panel Controller with CODESYS Control Runtime and Visualization

NEW



EtherCAT PROFINET EtherNet/IP CANopen Modbus CODESYS

intel Acronis WISE-PaaS/RMM iDoor CCC CE FCC UL

## Introduction

The WA-CT Control series is a complete application-ready-package that includes a PC-based panel controller with 15.6/18.5" widescreen TFT LCD and multi-touch panel, high-performance Intel® Core™ i multi-core processor, 128GB SSD, 2 MB MRAM, Microsoft Windows Embedded 7 Pro, and CODESYS Control Runtime and Visualization. This provides users with an open control solution and PC-based real-time control system, while enabling onsite visualized HMI operation and real-time PLC or PLC/Softmotion control with flexible fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, and Modbus TCP/RTU.

This PC-based panel controller also features an anti-scratch surface of 7H hardness and MRAM for retaining operation data in harsh environments. Additionally, the stability and flexibility of the software and hardware ensure that the solution can support diverse control applications in vertical industries.

### Contents of the Open Control Application-Ready-Package for Industry 4.0

- PC-based panel controller
- 128GB SSD and 2MB MRAM
- Microsoft Windows Embedded 7 Pro (32 bit)
- CODESYS Control Runtime and Visualization

## Open Control Solution Specifications

### One Open Controller for all Control Systems

- Supports the main fieldbus configurations and portable protocol stacks
  - PROFINET (Master)
  - EtherCAT (Master)
  - EtherNet/IP (Master)
  - CANopen
  - Modbus TCP (Server/Client)
  - Modbus RTU (Master)
- Flexible in selecting the object-oriented IEC 61131-3 (FBD, LD, IL, ST, SFC) standard programming languages
- Integrated Control Runtime & Visualization allow user to develop the HMI screen in parallel to the IEC 61131-3 program
- Easy hardware configuration by iDoor technology implement for flexible I/O expansion and wireless communication options

### High-Performance CPU for Real-Time Control Applications

- Intel Core-i multi-core level CPU both for entry and high performance requirements
- The multi-core CPU distributes PLC Runtime, Visualization and other tasks to dedicated cores.
- Optimized system BIOS setting guarantees the consistent CPU clock rate for real-time control

## Features

### Open Control Application-Ready-Package Solution with PC-Based Panel Controller

- Industrial 15.6"/18.5" TFT LCD Panel with 50K Lifetime LED backlight
- True-flat 16:9 wide screen with PCT multi-touch and IP66 protection
- Powerful Intel Core-i multi-core CPU dedicated for control and HMI
- 128 GB SSD installed and 2MB MRAM retained control data value
- Microsoft Windows Embedded 7 Pro 32-bit installed
- Supports iDoor technology providing flexible I/O expansion and wireless communication options

### CODESYS Control Runtime and Visualization

- Preinstalled CODESYS Control Runtime & Visualization
- Enables real-time PLC or PLC/Softmotion control with main Fieldbuses: PROFINET, EtherCAT, EtherNet/IP and CANopen
- Supports object-oriented IEC-61131-3 standard programming languages
- Displays and operates the same control HMI program both on Panel Controller and other visualization clients

### Visualized Control of Field Operations and Remote Mobile Clients

- Smoothly operates on-site HMI control on projected capacitive touch panel
- Supports browser-based (HTML5) visualization enabling remote operating on iOS/Android mobile devices
- The complete visualization screens can be deposited into library and reused as IEC 61131-3 function blocks

### Reliable Controller Design for Harsh Environments

- Includes MRAM retaining data values during unexpected power interruption
- Rugged fanless panel PC with a backlight life of up to 50,000 hours
- Touch screen passed 36 million touches test at single point
- True-flat touch screen designed with IP66 front protection
- Easy installation by panel mounting
- Supports remote system status monitoring by WISE-PaaS/RMM
- Approved Certifications: BSMI, CCC, CE, FCC Class A, UL
- Wide operating temperature

## Configuration Options

Series	Operator Panel Controller	
Part Number	WA-CT1581W-3RHE5AE	WA-CT1881W-3RHE5AE
Platform	TPC-1581WP-433AE	TPC-1881WP-433AE
Operating System	Microsoft Windows Embedded 7 Pro (32 bit)	
Control Software	CODESYS V3.5 SP8 Control RTE and Visualization	
Aspect Ratio	16:9	
CPU	Intel® Core™ i3-4010U dual-core 1.7 GHz	
Processing Times	Bit operation (3.654 μs) Word operation (3.672 μs) REAL operation (6.263 μs)	Bit operation (3.654 μs) Word operation (3.672 μs) REAL operation (6.263 μs)
Memory	4 GB of DDR3L	
Backup Memory	2MB MRAM	
Display Size/Type	15.6" WXGA TFT LED LCD	18.5" WXGA TFT LED LCD
Max. Resolution	1366 x 768	
Backlight MTBF	50,000 hrs	
Touchscreen	Projected capacitive	
Storage	128GB SSD	
Expansion Slots	1 x CFast slot	
Mounting	Panel	
Network (LAN)	2 x 10/100/1000 Base-T (LANB: Intel® i210)	
I/O	1 x RS-232, 1 x RS-232/422/485, 1 x USB 3.0, 2 x HDMI, 1 x Line Out	
DC Power Input (Voltage)	24 V <sub>DC</sub> ± 20%	
Ingress Protection	IP66-rated front panel	
Operating Temperature	0 ~ 55°C	
Storage Temperature	-20 ~ 60°C	
Dimensions (W x D x H)	419.7 x 269 x 56.7 mm	
Certification	BSMI, CCC, CE, FCC, UL	

Note: For Softmotion control, contact Advantech for further information.

## Ordering Information

- **WA-CT1581W-3RHE5AE** TPC-1581WP-433AE, Control RTE & Visua., 128G SSD, MRAM, WES7P
- **WA-CT1881W-3RHE5AE** TPC-1881WP-433AE, Control RTE & Visua., 128G SSD, MRAM, WES7P

## Accessories

- **96PSA-A150W24T2** 100-240V 150W 24V Power Adapter
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

1

WebAccess® Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

5

Thin-Client Terminals

6

High-Performance Control Panels

7

Control Cabinet PCs

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Industrial IoT Gateways

9

Industrial monitors

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iDoor Technology Modules

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Panel PCs

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Control IPCs

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Remote DA&C Systems

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Wireless IoT Sensing Devices

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Ethernet I/O Modules

16

RS-485 I/O Modules

17

Industrial Ethernet Solutions

18

IP Gateway and Serial Device Servers

19

Networking

# WA-CU Control Series

## PC-Based Cabinet Controller with CODESYS Control Runtime and Visualization

NEW



### Features

#### Open Control Application-Ready-Package Solution with PC-Based Cabinet Controller

- Powerful Intel Atom/Core-i multi-core CPU dedicated for control and HMI
- DIN-rail fanless compact design with less maintenance effort
- 2MB MRAM retained control data value
- 128 GB SSD installed
- Microsoft Windows Embedded 7 Pro 32-bit installed
- Supports iDoor technology providing flexible I/O and wireless options

#### CODESYS Control Runtime and Visualization

- Preinstalled CODESYS Control Runtime & Visualization
- Supports real-time PLC/Softmotion control with main Fieldbuses: PROFINET, EtherCAT, EtherNet/IP, CANopen and Modbus
- Supports PLCopen IEC-61131-3 standard programming languages
- Displays and operates the same control program on different visualization clients

### Introduction

The WA-CU Controller series is a complete application-ready-package that includes a PC-based cabinet controller with a fanless high-performance Intel® Atom™/Core™ i multi-core processor, DIN rail, 128 GB SSD, 2 MB MRAM, Microsoft Windows Embedded 7 Pro, and CODESYS Control Runtime and Visualization. This provides users with an open control solution and PC-based real-time control system, while enabling parallel visualization on different HMI clients and real-time PLC or PLC/Softmotion control with flexible fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, and Modbus TCP/RTU. This PC-based cabinet controller also features MRAM for retaining data values and support dual-power input to prevent operating failure due to unexpected power interruption. Additionally, the stability and flexibility of the software and hardware ensure that this PC-based cabinet controller solution can support diverse control applications in vertical industries.

#### Contents of the Open Control Application-Ready-Package for Industry 4.0

- PC-based cabinet controller
- 128GB SSD and 2MB MRAM
- Microsoft Windows embedded 7 Pro 32bit
- CODESYS Control Runtime and Visualization

### Open Control Solution Specifications

#### One Open Controller for all Control Systems

- Supports the main fieldbus configurations and portable protocol stacks
  - PROFINET (Master)
  - EtherCAT (Master)
  - EtherNet/IP (Master)
  - CANopen
  - Modbus TCP (Server/Client)
  - Modbus RTU (Master)
- Flexible in selecting the object-oriented IEC 61131-3 (FBD, LD, IL, ST, SFC) standard programming languages
- Integrated Control Runtime & Visualization allow user to develop the HMI screen in parallel to the IEC 61131-3 program
- Easy hardware configuration by iDoor technology implement for flexible I/O expansion and wireless communication options

#### High-Performance CPU for Real-Time Control Applications

- Intel Atom/Core-i multi-core level CPU both for entry and high performance requirements
- The multi-core CPU distributes PLC Runtime, Visualization and other tasks to dedicated cores.
- Optimized system BIOS setting guarantees the consistent CPU clock rate for real-time control

#### Visualized Control of Field Operations and Remote Mobile Clients

- Creates Visualized HMI on extended touch panel for on-site operation
- Supports browser-based (HTML5) visualization enabling remote operating on iOS/Android mobile devices
- The complete visualization screens can be deposited into library and reused as IEC 61131-3 function blocks

#### Reliable Controller Design for Harsh Environments

- Includes MRAM retaining data values and dual-power input avoiding causing operating failure from unexpected power interruption
- DIN-rail mounting fanless compact design for higher reliability and less maintenance effort
- Supports remote system status monitoring by WISE-PaaS/RMM
- Approved Certifications: BSMI, CCC, CE, FCC Class A, UL
- Wide operating temperature



## Configuration Options

Series	Visualized Cabinet Controller	
Part Number	WA-CU1372G-ERHE5AE	WA-CU1483G-3RHE5AE
Platform	UNO-1372G-E3AE	UNO-1483G-434AE
Operating System	Microsoft Windows Embedded 7 Pro (32 bit)	
Control Software*	CODESYS V3.5 SP8 Control RTE and Visualization	
Form Factor (With Front-Accessible I/O)	Small size	Regular size
CPU	Intel® Atom™ E3845 quad-core 1.91 GHz	Intel® Core™ i3-4010U dual-core 1.7 GHz
Processing Times	Bit operation (3.654 μs) Word operation (3.672 μs) REAL operation (6.263 μs)	Bit operation (3.654 μs) Word operation (3.672 μs) REAL operation (6.263 μs)
Memory	4GB DDR3L	8GB DDR3L
Backup Memory	2MB MRAM	
Display Type	HDMI: 1920 x 1080 @ 60Hz VGA: 1920 x 1200 @ 60Hz	DP: 1920 x 1080 @ 60Hz VGA: 1920 x 1200 @ 60Hz
Storage	128GB SSD	
Diagnostics LED	3 x System Power, 1 x RTC status, 1 x HDD, 2 x COM, 1 x PL	3 x System Power, 1 x RTC status, 1 x HDD, 3 x COM
Expansion Slots	1 x Full-size Mini PCIe, 1 x mSATA	1 x PCIe, 1 x full-size Mini PCIe/mSATA, 1 x half-size Mini PCIe
Mounting	DIN-rail, Wall	
Network (LAN)	3 x 10/100/1000 Base-T (LAN A/B: Intel® i210)	4 x 10/100/1000 Base-T (LAN B/C/D: Intel® i210)
I/O Port	1 x RS-232, 1 x RS-422/485, 2 x USB 2.0, 1 x USB 3.0, 4-ch DI/O, 1 x Line Out	1 x RS-232, 2 x RS-422/485, 2 x USB 2.0, 2 x USB 3.0, 4-ch DI/O, 1 x Line In/Out
iDoor Expansion	1 x iDoor	
Dual DC Power Input (Voltage)	10~36 V <sub>DC</sub>	12/24 V <sub>DC</sub> ± 20%
Operating Temperature	-20 ~ 60°C	
Storage Temperature	-40 ~ 85°C	
Dimensions (W x D x H)	85 x 139 x 152 mm	106 x 139 x 198 mm
Certification	CE, FCC, UL, CCC, BSMI	

Note: For Softmotion control, contact Advantech for further information.

## Ordering Information

- **WA-CU1372G-ERHE5AE** UNO-1372G-E3AE, Control RTE & Visua., 128G SSD, MRAM, WES7P
- **WA-CU1483G-3RHE5AE** UNO-1483G-434AE, Control RTE & Visua., 128G SSD, MRAM, WES7P

## Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Adapter for WA-CU1372G
- **96PSA-A120W19T2** 100-240V 120W 19V Power Adapter for WA-CU1483G
- **1702002600** Power Cable US Plug 1.8 M for WA-CU1372G
- **1702002605** Power Cable EU Plug 1.8 M for WA-CU1372G
- **1702031801** Power Cable UK Plug 1.8 M for WA-CU1372G
- **1700000596** Power Cable China/Australia Plug 1.8 M for WA-CU1372G
- **1700001524** Power cable 3-pin US type 1.8 M for WA-CU1483G
- **170203183C** Power cable 3-pin EU type 1.8 M for WA-CU1483G
- **170203180A** Power cable 3-pin UK type 1.8 M for WA-CU1483G

## Selected iDoor Modules

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D4R2-AE** OXPcie-954 UART, Non-Isolated RS-232, DB37 x 1
- **PCM-24D4R4-AE** OXPcie-954 UART, Non-Isolated RS-422/485, DB37 x 1
- **PCM-24U2U3-AE** USB 3.0, mPCIe, USB-A type x 2
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, half-size mPCIe
- **PCM-24R1TP-AE** Intel® 82574L, GbE, RJ45 x 1

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4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
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8	Industrial IoT Gateways
9	Industrial monitors
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# Intelligent Motion Control and Machine Vision

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<b>PCIE-1674E</b>	4-Port PCI Express GigE Vision Frame Grabber	

To view all of Advantech's Intelligent Motion Control and Machine Vision, please visit [www.advantech.com/products](http://www.advantech.com/products).





# Motion Control Overview

## Motion Control Solutions to Satisfy Market Demands

Align with the PC-based control to provide latest processors, flexibility and main stream Ethernet fieldbus, Advantech intelligent motion control product division provides solutions to OEM Machine Makers and System Integrators. The core technologies are based on state-of-art DSP/FPGA/SoC processors, Advantech's own softmotion kernel for trajectory and control, EtherCAT motion bus and configuration utility.

With one Softmotion kernel, users can leverage the new, high performance computing hardware and latest application functions supported in the kernel, it will help machine makers to enhance their machine features and performance.

With the support of EtherCAT open standard protocol, users can leverage the high speed cycle time for high performance synchronous motion control, the Ethernet cable connections to save wiring costs, and users can choose from multiple suppliers for servo motors, Linear motors and IO.

### Application-Ready Embedded Motion Control

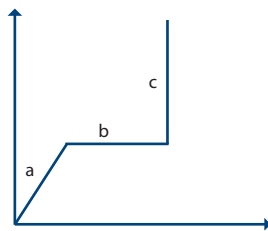
In any vertical specific application, machine builders and system integrators are looking for application-ready control platforms. The main reasons for this consideration are system integrity and system stability. Compared with plug-in motion controllers plus industrial PCs, the application-ready motion control platform provides a well-integrated system with validation to guarantee stability. Furthermore, the concept of solution selling can bring higher add-on value to system integrators and machine builders.

## Motion Control Technology

There are three basic types of motion control system: Point-to-point, Contouring and Synchronization.

### Point-to-Point (PTP) Motion

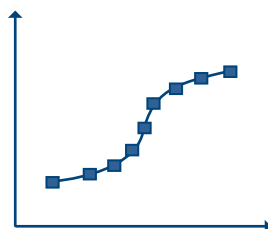
Point-to-point (PTP) movement is the most basic form of motion control. The principle function of the PTP is to position the tool from one point to another within coordinate system. It is used when precise start and stop position is important, but the path is irrelevant. Velocity, time, and acceleration can be defined for point-to-point moves, allowing the controller to construct either a T or an S-curve move profile.



a: Line  
b: PTP  
c: PTP

### Contouring (Continuous Trajectory)

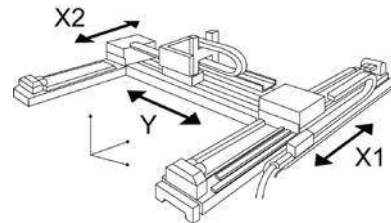
To achieve contoured motion, a series of points is provided during programming, and the motion controller extrapolates a smooth line or curve from these points. Unlike point-to-point motion, contouring guarantees that the system passes through each point, using either linear or circular interpolation. Between the points, linear or circular interpolation is performed, leading to a contour described by a succession of linear segments. In a contoured move, a time to complete the move is specified, but the actual move profile is determined by the motion controller.



### Synchronization

All synchronization controllers follow the Master- Slave principle. Where the Master can freely move with any motion profile under control of any speed curve and one or several Slaves exactly follow the Master motion in terms of position and speed.

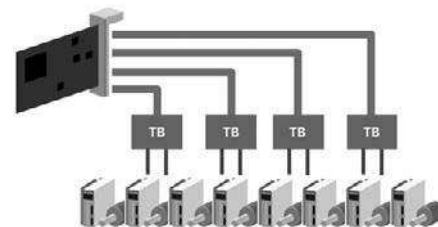
The control is based on incremental position feedback by means of encoders on both sides. Many applications just use a measuring wheel with encoder instead of a Master drive. It is possible to preset every speed or gear ratio by means of adjustable impulse scaling factors.



## Ethernet-Based Motion Control Solutions

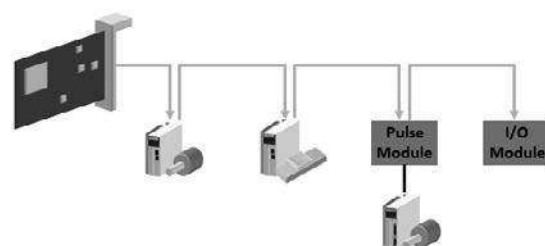
Motion control is growing in complexity as the number of axis in newly developed machines with motion control increases each year. Distance is also becoming an issue, as motors are located further and further away from the host computer.

### Centralized Motion Control



\* TB: Terminal Board

### Distributed Motion Control



## EtherCAT

EtherCAT (Ethernet Control Automation Technology) is a high-performance, Ethernet-based fieldbus industrial network system. The protocol is standardized in IEC 61158 and applies to automation applications that need faster and more efficient communications. Short data update times with precise synchronization make EtherCAT suitable for real-time requirements in automation technology.

### Functional Principle

In EtherCAT network, the Master sends Ethernet frames through all of the slave nodes. The Standard Ethernet packet or frame is no longer received, interpreted, and copied as process data at every node. Instead, slave devices read the data addressed to them and input data are also inserted in the same time while the telegram passes through the device, processing data "on the fly". Typically the entire network can be addressed with just one frame.



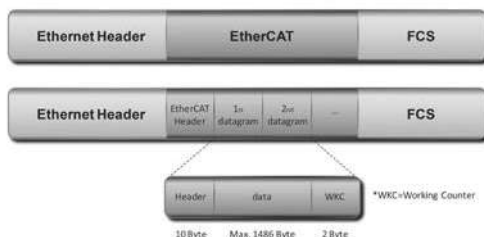
### Protocol

Data exchanges are cyclically updated between EtherCAT Masters and Slaves. Data in EtherCAT frames is transported directly within the IEEE 802.3 Ethernet frame using Ethertype 0x88a4 and are processed by the EtherCAT Slave Controller on the fly. Each EtherCAT datagram is a command that consists of a header, data and a working counter. The datagram header indicates what type of access the master device would like to execute:

- Read, write, read-write
- Access to a specified slave device through direct addressing
- Access to multiple slave devices through logical addressing

Logical addressing is used for the cyclical exchange of process data. The header and data are used to specify the operation that the slave must perform, and the working counter is updated by the slave to let the master to know that a slave has processed the command.

Every EtherCAT datagram ends with a 16 Bit Working Counter (WKC). The Working Counter counts the number of devices that were successfully addressed by this EtherCAT datagram. EtherCAT datagrams are processed before receiving the complete frame. In the case that the data is invalid, the frame check sum (FCS) is not valid and the slave will not set data for the local application.



### Topology

EtherCAT supports a variety of network topologies, including line, tree, ring and star. The line and tree topologies are more conducive to fieldbus applications because they require fewer connections and utilize a much simpler and more flexible cabling schema that switches and hubs are not necessary for lines or trees topology.

Inexpensive industrial Ethernet cable can be used between two nodes up to 100m apart in 100BASE-TX mode. EtherCAT makes a pure bus or line topology with hundreds of nodes possible without the limitations. Up to 65,535 devices can be connected to EtherCAT, so network expansion is almost unlimited.

EtherCAT supports individual nodes to be connected/disconnected during operation. If one of the slaves in the network is removed, the rest of the network can continue to operate normally. EtherCAT also enables other communication features such as cable redundancy or master redundancy with Hot Standby.

### Synchronization

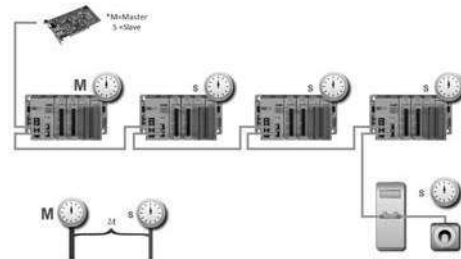
Distributed Clocks (DC) mechanism provides highly precise time synchronization between slaves in an EtherCAT network, which is equivalent to the IEEE 1588 Precision Time Protocol standard. By using distributed clocks, EtherCAT is able to synchronize the time in all local bus devices within a very narrow tolerance range. All EtherCAT slaves are provided with an internal clock which named as System Time (Local Time). One EtherCAT Slave, is used as a Reference Clock and distributes its Clock cyclically.

Possible misalignment between the reference clock and the clocks of the other slaves are caused when a slave is switched on, the internal free-running register that holds the current time is reset to zero. Unfortunately, this action doesn't happen at the same time, and this result in an initial offset (toffset) among clocks has to be compensated.

Typically, masters send a broadcast to all other slaves in the system. Having received the message, slaves will latch the value of their internal clock. There are two latch values, one is receiving and the other is returning back. Thus, the master can read all latched values and calculate the delay for each slave (t<sub>propagation</sub> Delay). Delays will be stored into offset register. In the following, the master will send a message periodically to all other slaves in EtherCAT network to make the first slave the reference clock and forcing all other slaves to set their internal clock by the calculated offset.

Because synchronization between slaves in DC mode is done by internal clocks in hardware, EtherCAT guarantee the time jitter is less than 1us.

### Diagnosis with Exact Localization



EtherCAT is an ultra-fast I/O system. To reach the best high-speed communication, high communication accuracy is demanded. EtherCAT comprises a wide range of system-inherent diagnostic features which help detect and locate system errors precisely.

Every EtherCAT datagram ends with a 16 Bit Working Counter (WKC) to count the number of devices that were successfully addressed by this EtherCAT datagram. The Master can check the data exchange situation by WKC in the same cycle and the error frame can be detected by analyzing the nodes' error counters. The slave application will be executed only as the frame is received correctly.

The automatic evaluation of the associated error counters enables precise localization of critical network sections.

Bit errors during transmission are detected reliably by the analysis of the CRC (Cyclic Redundancy Check) check sum. CRC is an error-detecting code commonly used in digital networks and storage devices to detect accidental changes to raw data.

In addition to the error detection and localization protocol, transmission physics and topology of the EtherCAT system allow an individual quality monitoring of every single transmission path.

## AMONet

AMONet makes machine building with motion control easier. The savings made on wiring and programming effort, as well as the compatibility with a wide range of popular motors have already led to many requests for AMONet products.

### Structure

AMONet products are also categorized as Master cards or Slave modules. While the Master card is kept in the host PC, the slave modules can be distributed so that they are next to motor drivers on the factory floor.

### Communication

The communication speed between the AMONet RS-485 slave modules can be up to 20 Mbps. This makes it possible to scan 2048 I/O points within 1.04 ms (or 1024 I/O points in 0.56 ms). Furthermore, an AMONet RS-485 master will update the I/O status automatically, and map data into local memory. Software running on the host PC can then read the status by simply reading the onboard memory, so no polling of slave modules is necessary.

### Flexibility

Each port of a master card can control up to 2048 I/O connections or 256 motion axes, so future extensions are easily implemented. The distance between a master card and its slave modules can be up to 100 meters, and this distance is covered with a cost-effective Cat 5 network cable. In addition to saving wiring costs, debugging and maintenance are also simplified.

### Compatibility

Another advantage of AMONet RS-485 is its compatibility with motor drivers from different vendors. Advantech provides specially designed wiring boards for popular motion drivers from vendors such as Panasonic, Mitsubishi, Yaskawa and Delta. This makes configuration easier, as pin-to-pin cables can be used. You can also connect to a manual pulse generator directly to adjust and calibrate the system without having to write programs first.

Motion control and I/O functions with AMONet RS-485 use the same library. This unique feature saves time, as programmers do not need to study both a motion library and an I/O library.

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# Intelligent Motion Control Products

## A Broad Array of Products for Motion Control

Advantech's full product offering accommodate all your motion control needs.

### Point to point motion (PTP)

Model	Type	Feature
PCI-1245L	Pulse	PTP
PCI-1245LIO	Pulse	PTP + I/O Expansion

### Contouring (Continuous Trajectory)

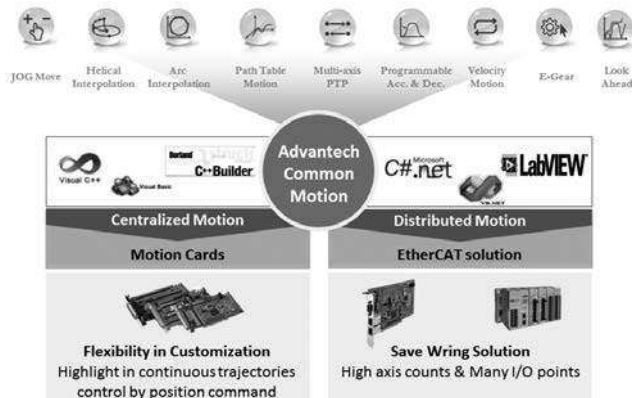
Model	Type	Feature
PCI-1245E/85E	Pulse	Path
PCI-1245V/85V	Pulse	Path + Compare Trigger
AMAX-1220/1240	AMONet	Path + Compare Trigger

### Synchronization

Model	Type	Feature
PCI-1245/65/85	Pulse	Synchronous Control
PCI-1203	EtherCAT / Pulse	Synchronous Control

## Use Motion Control on All Solutions with SoftMotion Technology

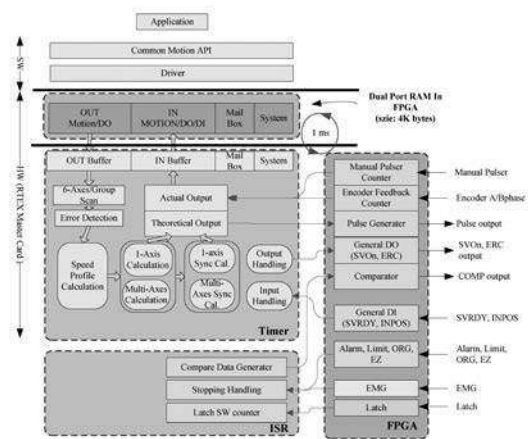
Most machine builders and system integrators face library integration headaches from different vendors and different boards. Moreover, re-programming applications are necessary when the motion control boards are changed or upgraded. Whatever centralized or distributed motion solution, Advantech provides the universal software development environment, which is called Common Motion, for users to develop their motion project by Advantech Softmotion function. The concept of Advantech Common Motion is developed to reduce time-consuming task and give faster time-to-market by the Common Motion library. All Advantech motion controllers are applied to "Common Motion API" architecture. Programmer can benefit from integrating any Advantech SoftMotion controller without changing the application code in large scale to save the effort of application maintenance and upgrade.



Advantech provides a common motion API that is the same for all motion control cards and our SDK also includes DOTNET components, G-codes and complete sample codes for major development environment.

## SoftMotion-Based Motion Control

Advantech develops DSP-based SoftMotion control cards which enable the simplified utilization of complex motion manipulation involving JOG, PTP, linear and circular interpolation, multiple axes synchronized motion, and etc. For highly flexible programming features, it has the possibility to offer motion kernel customization. For high performance FPGA, high execution rate DSP, and Dual-Port RAM (DPM) technology, SoftMotion control cards can support faster encoding speeds, higher speed position comparison, and trigger pulse outputs over cards which use ASIC motion IC. SoftMotion controllers can provide programmable acceleration and deceleration to eliminate jerk and smooth velocity profile. For each axis, individual unlimited point tables can realize seamless continuous movements. These tables are also able to combine linear and arc segments. Based on the Common motion API—DSP & FPGA architectures, Advantech provides customers much easier programming environment and robust motion control.



## Application-Ready Embedded Motion Controller - MVP-3245

MVP-3245 is the new-designed embedded motion controller aimed to machinery industry application with compact form factor.

### Key to success

- Full motion function support
- I/O function support
- Sector application feature
- Space-saving
- Easy Maintenance

Well-Integrated

Vertical Functionality

Solution Selling





# SoftMotion Introduction

## Advantech's SoftMotion Introduction

SoftMotion is Advantech's important core technology in the equipment automation field. Compared to ASIC motion control solutions, Advantech's Machine Automation Team independently developed its own SoftMotion control technology and uses the FPGA (Field Programmable Gate Array) and DSP (Digital Signal Processing) as the core-computing hardware platform. Because of SoftMotion, which is developed into the software architecture, excludes the inherent limitations of ASIC specifications Advantech is able to offer the expertise of professional motion control for our customers and provides custom firmware to optimize customer's devices control as well as to minimize their needs for programming. Through SoftMotion technology enhancements, Advantech offers critical technologies in EMA (Electronic Machine Automation) and TMA (Traditional Machine Automation) fields. Meanwhile, based on the three motion control architectures (centralized, distributed and embedded), Advantech's comprehensive product offering helps our customers to continuously progress their technologies, so as to create a win-win opportunity.

## SoftMotion Function Table

Item	Description	PCI-1245L	PCI-1245LIO	PCI-1245E	PCI-1285E	PCI-1245V	PCI-1285V	PCI-1245	PCI-1265	PCI-1285	PCI-1203 (6/10/16/32axis)	
Motion Control Function	Single-Axis Motion	JOG Move	V	V	V	V	V	V	V	V	V	
		MPG	V	V	V	V	V	V	V	V	V	
		T&S-curve speed profile	V	V	V	V	V	V	V	V	V	
		Programmable acc. and dec.	V	V	V	V	V	V	V	V	V	
		Point to point motion	V	V	V	V	V	V	V	V	V	
		Position / Speed Override	V	V	V	V	V	V	V	V	V	
		Velocity motion	V	V	V	V	V	V	V	V	V	
		Backlash compensation	V	V	V	V	V	V	V	V	V	
		Superimposed move	-	-	-	-	-	-	V	V	V	
		Stop	V	V	V	V	V	V	V	V	V	
	Multi-Axis Motion (Group)	up to 6 groups	1 Group	2 Group	2 Group	4 Group	2 Group	4 Group	2 Group	3 Group	4 Group	6 Group
		Line	2 axis	2/3 axis	2 axis	2 axis	2/3 axis	2/3 axis	2/3 axis	2/3 axis	2/3 axis	2/3 axis
		2/3-axes Circular	-	2 axis	-	-	V	V	V	V	V	V
		Speed Override	-	-	-	-	V	V	V	V	V	V
		Helical	-	-	-	-	-	-	V	V	V	V
		Pause & Resume	-	V	V	V	V	V	V	V	V	V
	Home	16 home mode	V	V	V	V	V	V	V	V	V	16 Home + CoE 402 Home
		Table	-	-	3 tables, size: 10k points	4 tables, size: 7k points	3 tables, size: 10k points	4 tables size: 7k points	3 tables, size: 10k points	3 tables, size: 10k points	4 tables, size: 7k points	6 tables, size: 7k points
		Start / End motion list	-	-	V	V	V	V	V	V	V	V
		line trajectory: up to 8 axes	-	2/3-axis Line 2-axis Direct	2-axis Line/Direct	2-axis Line/Direct	2/3-axisLine, 2-4 axis Direct	2/3-axis Line, 2-8 axis Direct	2/3-axis Line, 2-4 axis Direct	2/3-axis Line, 2-6 axis Direct	2/3-axis Line, 2-8 axis Direct	2/3-axis Line, 1-8 axis Direct
Add arc trajectory (2/3-axis)		-	-	-	-	V	V	V	V	V		
Add Dwell		-	-	V	V	V	V	V	V	V		
Start/Sop/Repeat		-	-	V	V	V	V	V	V	V		
Auto Blending		-	-	-	-	-	-	V	V	V		
Application Function	Gantry	Master & Slave Synchronized motion	-	-	-	-	V	V	V	V		
		Speed Forward	-	-	-	-	-	V	V	V		
	Tangential Following	E-Gear	-	-	V	V	V	V	V	V		
		E-CAM	-	-	-	-	-	V	V	-		
		Error check	V	V	V	V	V	V	V	V		
	Position Window trigger	Position window output	-	-	-	-	-	V	V	V		
		Position Latch	-	-	-	-	V	V	V	V		
	Multi-axis Simultaneous Start/Stop	Simultaneously Start/Stop	V	V	-	-	-	V	V	V		
		PT/PVT	-	-	-	-	-	-	-	-		
	Torque Limit	Position/Torque Limit	-	-	-	-	-	-	-	-		
		Axis Interrupt	V	V	V	V	V	V	V	V		
	Interrupt	Axis Interrupt	Axis Stop	-	-	V	V	V	V	V		
Axis Compare			-	-	-	-	-	V	V			
Axis Error			V	V	V	V	V	V	V			
Axis Latch			-	-	-	-	-	V	V			
Axis VH Start			V	V	V	V	V	V	V			
Axis VH Stop			V	V	V	V	V	V	V			
Group Interrupt		Group Stop	V	V	V	V	V	V	V			
		Group VH Start	V	V	V	V	V	V	V			
Trigger Function	Single Compare	Up to 8 channels	-	-	-	V (8 Channel)	V (4 Channel)	V (8 Channel)	V (4 Channel)	V (6 Channel)	V (8 Channel)	
	Table Compare	Up to 2 channels	-	-	-	-	V	V	V	V		
	Linear Compare	(Table size: 100K points)	-	-	-	-	V	V	V	V		
Device DIO	DAQ	DIO	-	16DI, 16DO	-	-	-	-	8DI, 8DO	-		
Device AI	DAQ	AI	-	-	-	-	-	-	2 AI	-		

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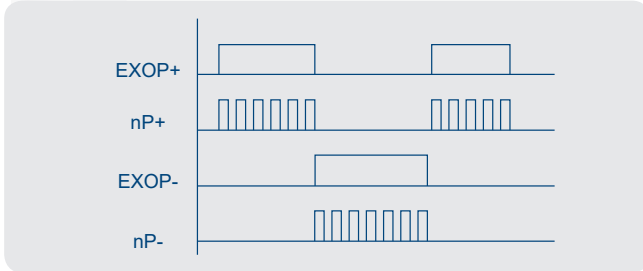
# SoftMotion Introduction

## SoftMotion Features



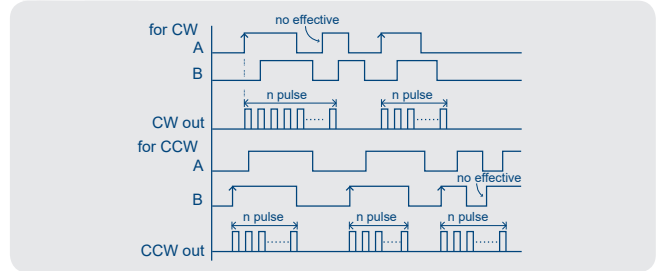
### JOG Move

Manually control the axis to directly move within a fixed (predefined) amount of position or continuously in the +/- direction along all axes via external signals; with this feature, users can manually control the movement while reducing CPU loading without consuming system resource.



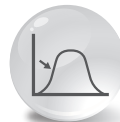
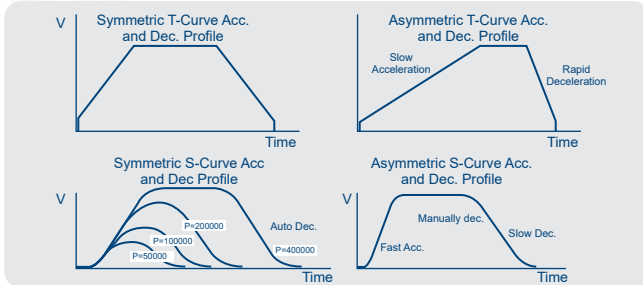
### Handwheel Move

Use a handwheel to control a motor to rotate positively or negatively; also, users can define parameters for or use external handwheels to control axial movement.



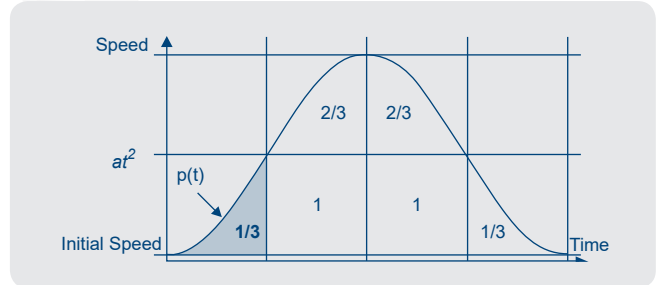
### Trapezoidal and S-Curve Profiles

Users can issue commands to configure movement profiles (initial speed, acceleration, deceleration, maximum speed and acceleration onset rate (or called jerk which is for S—speed-curve movement)) and control a motor to move based on predefined speed curves such as the trapezoidal curve or S-curve (second degree curve).



### Programmable Acceleration and Deceleration

Programmable to define the rate of acceleration and deceleration and configure acceleration curve profile (the initial speed, maximum speed, acceleration, deceleration, Jerk) that best meets user needs. Acceleration and deceleration rates can be set independently to ensure the movement better & smooth!

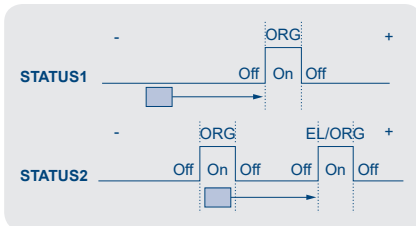


### Homing

SoftMotion supports more than 10 homing modes to fit into the mechanical design.

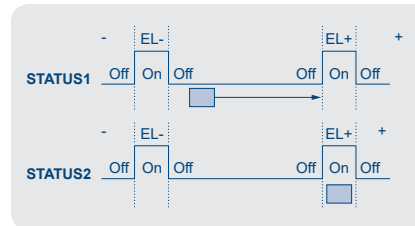
**MODE1\_Abs:** Limited to using ORG only, movement (direction) → ORG trigger → stop

**Example:** Positive direction; ORG logic: trigger on a high voltage level



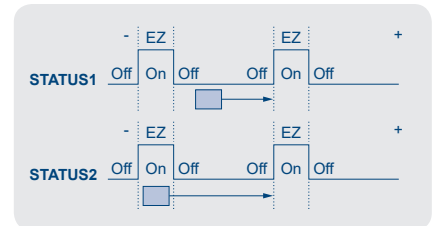
**MODE2\_Lmt:** Limited to using EL only, movement (direction) → EL trigger → stop

**Example:** Positive direction; EL logic: trigger on high voltage level



**MODE3\_Ref:** Limited to using EZ only, movement (direction) → EZ trigger → stop

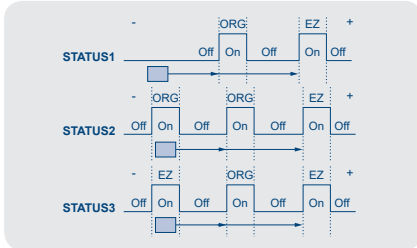
**Example:** Positive direction; EZ logic: trigger on high voltage level



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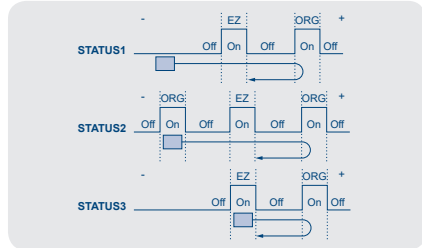
**MODE4\_Abs\_Ref:** ORG + EZ, movement (direction) → ORG trigger → stop → movement (direction) → EZ trigger → stop

**Example:** Positive direction; ORG logic: trigger on high voltage level; EZ logic: trigger on high voltage level



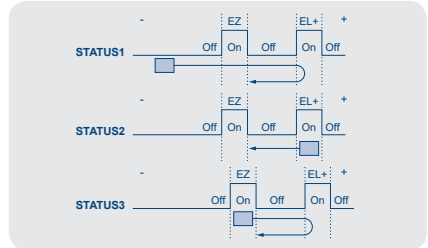
**MODE5\_Abs\_NegRef:** ORG + negative EZ, movement (direction) → ORG trigger → stop → movement (negative direction) → EZ trigger → stop

**Example:** Positive direction; ORG logic: trigger on high voltage level; EZ logic: trigger on high voltage level



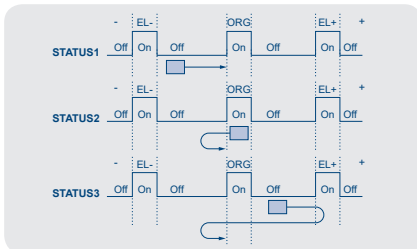
**MODE6\_Lmt\_Ref:** EL + negative EZ, movement (direction) → EL trigger → stop → movement (negative direction) → EZ trigger → stop

**Example:** Positive direction; EL logic: trigger on high voltage level; EZ logic: trigger on high voltage level



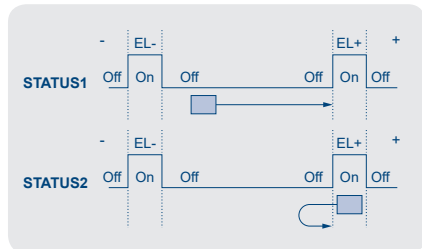
**MODE7\_AbsSearch:** limited to searching ORG only, movement (direction) → ORG → stop

**Example:** Positive direction; EL logic: trigger on high voltage level; EL logic: trigger on high voltage level



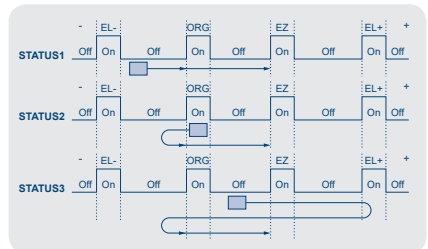
**MODE8\_LmtSearch:** Limited to searching EL only, movement (direction) → EZ search → stop

**Example:** Positive direction; EL logic: trigger on high voltage level



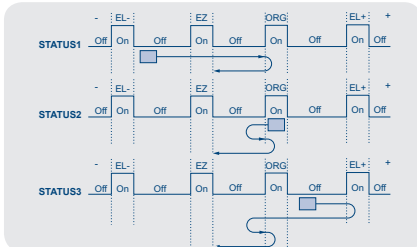
**MODE9\_AbsSearch\_Ref:** Search ORG+EZ only, movement (direction) → ORG search → stop movement (direction) → EZ trigger → stop

**Example:** Positive direction; ORG logic: trigger on high voltage level; EL logic: trigger on high voltage level



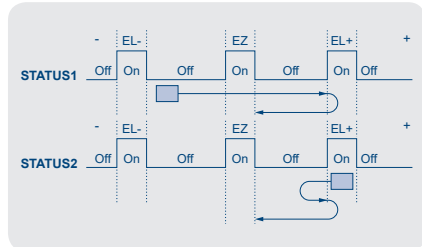
**MODE10\_AbsSearch\_NegRef:** Search ORG+ negative EZ, movement (direction) → ORG search → stop → movement (direction) → EZ trigger → stop

**Example:** Positive direction; ORG logic: trigger on high voltage level; EL logic: trigger on high voltage level; EZ logic: trigger on high voltage level



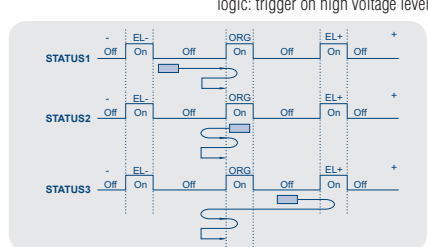
**MODE11\_LmtSearch\_Ref:** Search EL+ negative EZ, movement (direction) → EL search → stop → movement (negative direction) → EZ trigger → stop

**Example:** Positive direction; EL logic: trigger on high voltage level; EZ logic: trigger on high voltage level



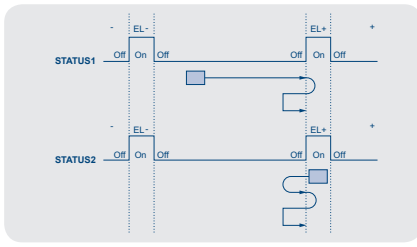
**MODE12\_AbsSearchRefind:** Search ORG + Refind ORG, movement (direction) → ORG Search → stop → movement (negative direction) → Leave ORG(FL) → stop → movement (negative direction) → Refind ORG(FL) → stop

**Example:** Positive direction; ORG logic: trigger on high voltage level; limit logic: trigger on high voltage level



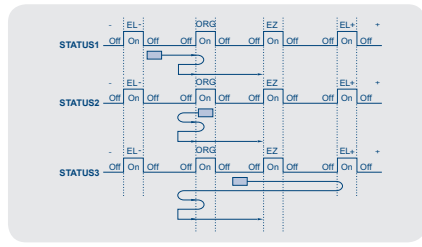
**MODE13\_LmtSearchRefind:** Search EL + Refind EL, movement (direction) → EL Search → stop → movement (negative direction) → Leave EL(FL) → stop → movement (negative direction) → Refind EL(FL) → stop

**Example:** Positive direction; limit logic: trigger on high voltage level



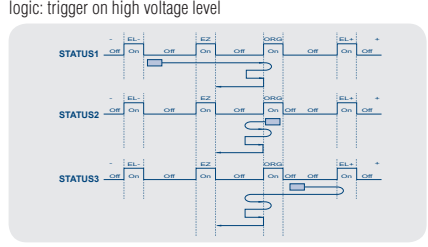
**MODE14\_AbsSearchRefind\_Ref:** Search ORG + Refind ORG + EZ, movement (direction) → ORG Search → stop → movement (negative direction) → Leave ORG(FL) → stop → movement (negative direction) → Refind ORG(FL) → stop → movement (direction) → EZ trigger → stop

**Example:** Positive direction; limit logic: trigger on high voltage level; ORG logic: trigger on high voltage level



**MODE15\_AbsSearchRefind\_NegRef:** Search ORG + Refind ORG + NegEZ, movement (direction) → ORG Search → stop → movement (negative direction) → Leave ORG(FL) → stop → movement (negative direction) → Refind ORG(FL) → stop → movement (Negative direction) → EZ trigger → stop

**Example:** Positive direction; limit logic: trigger on high voltage level; ORG logic: trigger on high voltage level



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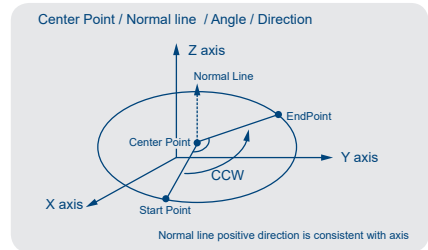
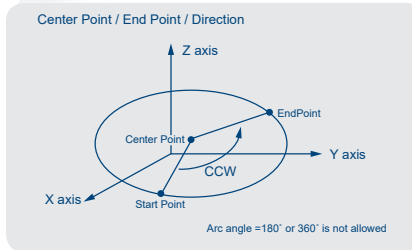
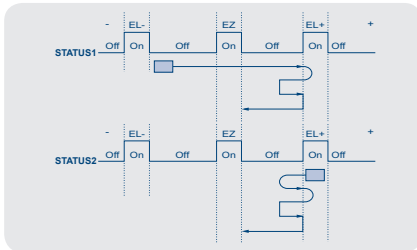
## MODE16\_LmtSearchRefind\_Ref:

Search EL + Refind EL, movement (direction) → EL Search → stop → movement (negative direction) → Leave EL(FL) → stop → movement (negative direction) → Refind EL(FL) → stop → movement (negative direction) → EZ trigger → stop

**Example:** Positive direction; limit logic: trigger on high voltage level



## 3-Axis Arc Interpolation

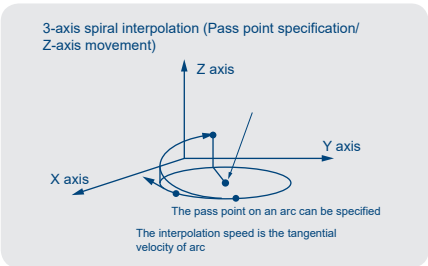
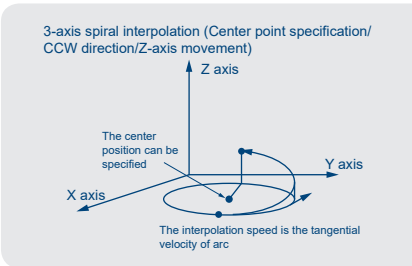
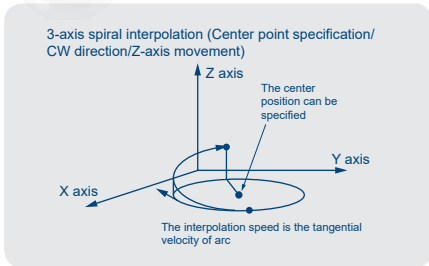


## Helical/Spiral Interpolation

Helical / spiral movement by interpolation defined by

- (1) center position
- (2) terminal point on the circular route or points along the circular route
- (3) terminal point on the circular route and Z axis movement.

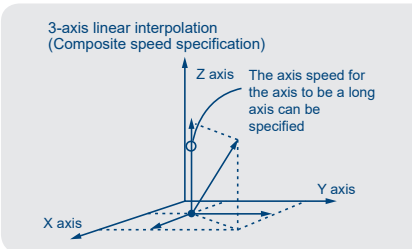
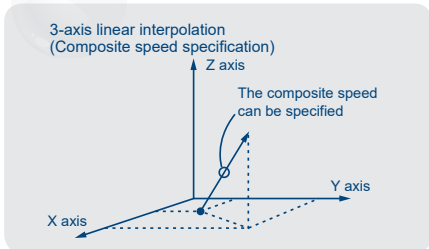
To perform interpolation up to 2+1 axes for helical / spiral movement.



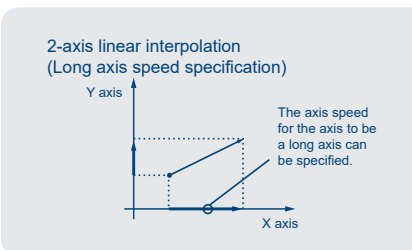
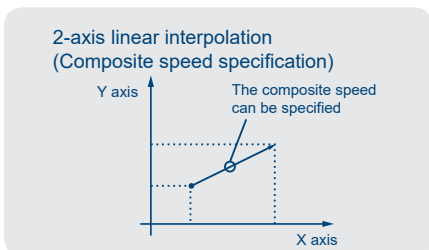
## Multi-Axis (Group) Motion

- Group settings: up to 3 group settings
- Linear interpolation: up to 8 axes
- Speed override is available

## 3-Axis Linear Interpolation



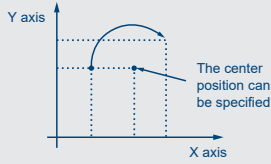
## 2-Axis Linear Interpolation



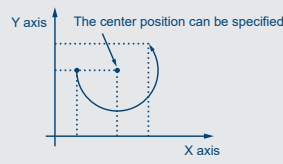


## 2-Axis Circular Interpolation

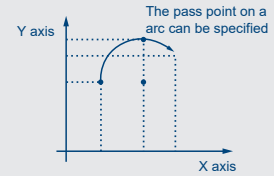
2-axis circular interpolation  
(Center point specification/CW direction)



2-axis circular interpolation  
(Center point specification/CCW direction)

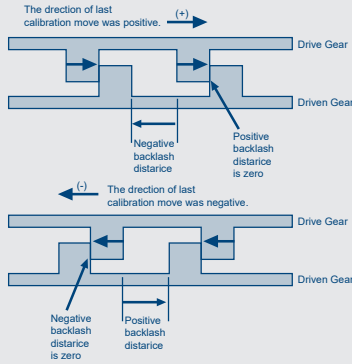


2-axis circular interpolation  
(Pass point point specification)



### Backlash Compensation

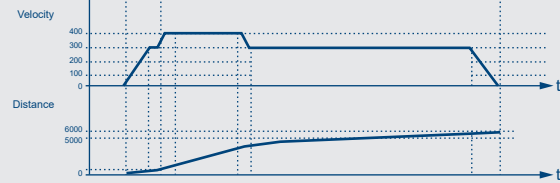
In order to enhance ball screw repeatability precision, special algorithms and commands can be adopted to eliminate these errors and offset their inherited weakness in mechanism design.



### Superimposed Move

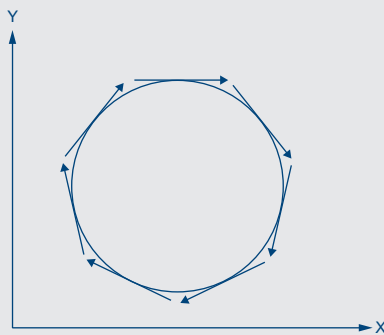
Change the current state of motion by superimposing new commands onto existing movement. E.g. the expected position and speed are 5,000 and 300. The state of motion is changed by superimposing position 1,000 and speed 100.

#### Motion



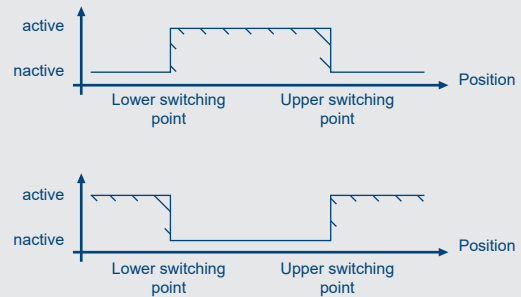
### Tangential Following

The knife control of cutting machine is typical application. For Z axis movement, a motor follows the X-Y movement and curve. As shown below, the tangential direction of the circular movement for the Z axis on this X-Y dimension will be adjusted instantly to ensure that the radius between its movement and the circular trace stays at 90 degrees.



### Position Window Output

The digital output voltage level within a certain position window can be controlled by using commands.



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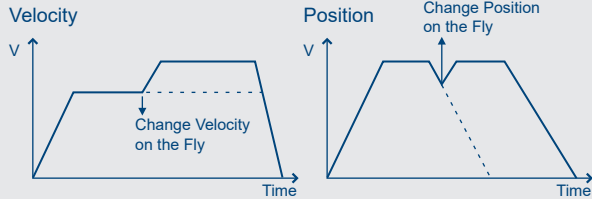
# SoftMotion Introduction



## Position / Velocity Override

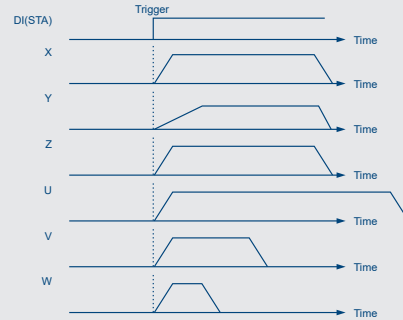
Under certain conditions, users can use commands to set up and change the position of a terminal point and movement speed to fulfill certain purposes. The terminal points and movement speed can still be changed on the fly.

### Position / Velocity Override



## Simultaneously Start/Stop

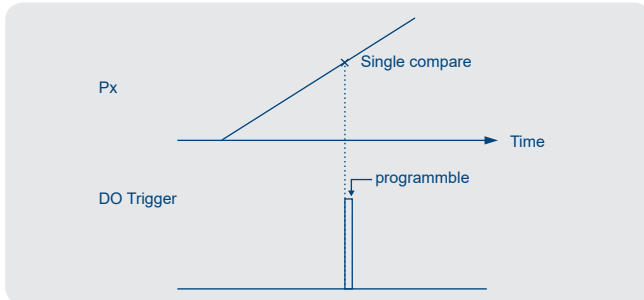
Simultaneously start/stop can be achieved by issuing commands to configure settings to trigger multiple axes and multiple cards from external signal sources. Software control via commands is also supported.



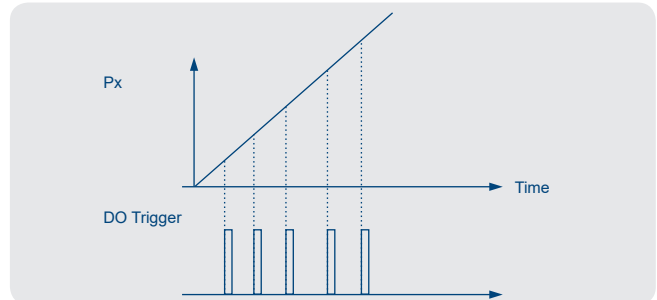
## Trigger Function

- Single compare & trigger: trigger on a single position.
- Table compare & trigger: multi position triggers during fixed intervals or variable intervals can be achieved via commands.
- Linear compare & trigger: triggers on any position within 2D or 3D space can be achieved via commands.
- Compare and toggle trigger: as shown in the bottom right figure, we can set to invert DO after triggers of a certain position – ex. high voltage level at the first point after triggers for DO, low voltage level at the second point after triggers for DO, and high voltage level again at the third position and ends with a low voltage level at the fourth point.

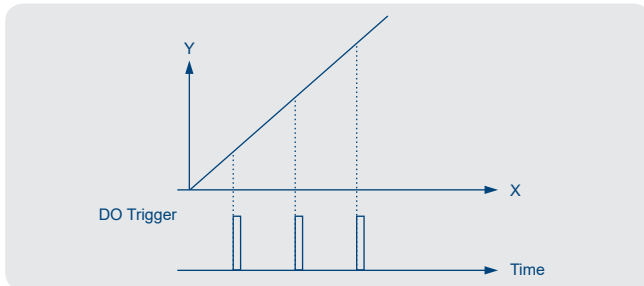
### Single Compare & Trigger



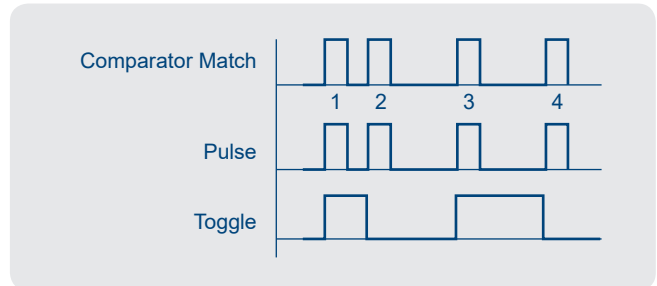
### Table Compare & Trigger



### Linear Compare & Trigger

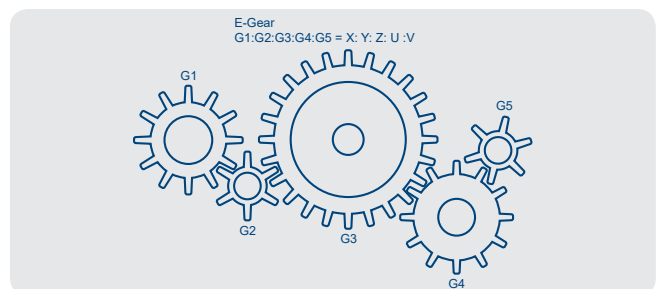


### Compare and Toggle Trigger



## E-Gear

Multi-axial and absolutely synchronized controls can be achieved through SoftMotion algorithms and parameter configurations. With E-Gear, users can enforce configurations and controls over master and slave gears through their relationship. This not only simplifies the mechanism designs, but also saves mechanism space and enforces absolute and synchronized controls.

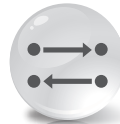
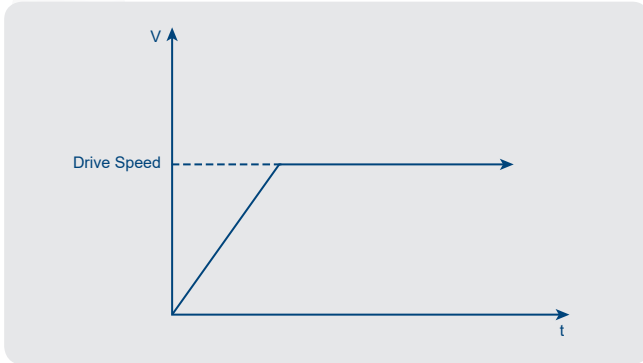


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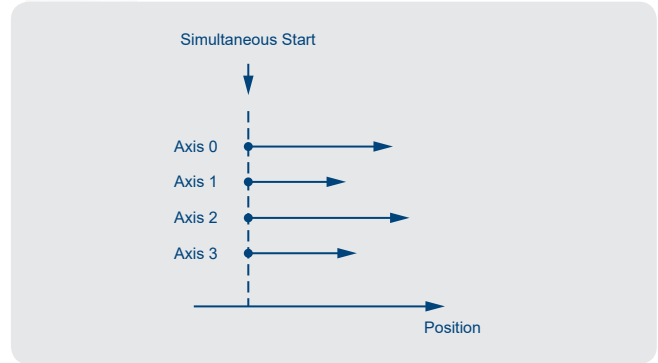
## Velocity Motion

Via commands, users can control motors to operate continuously under a defined speed.



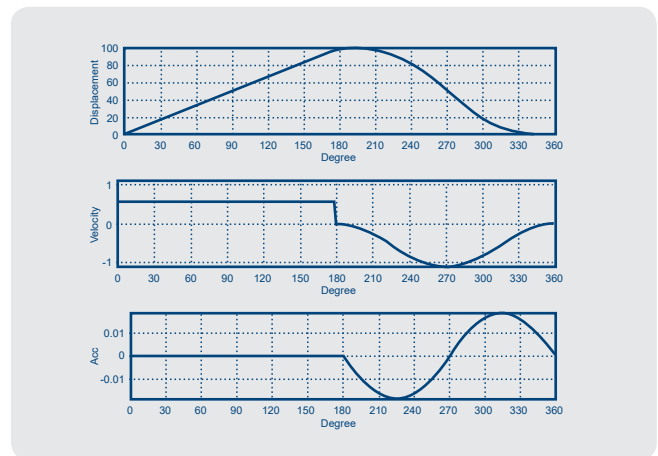
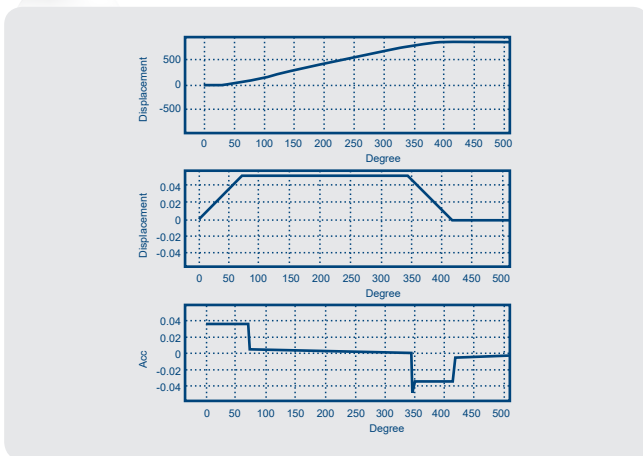
## Multi-Axis PTP Motion

Entering terminal points of axis with relative and absolute positions, users can configure the motor to arrive at the final position configured. With this feature, users can activate multi-axial control and simultaneous start/stop on the same or different cards.



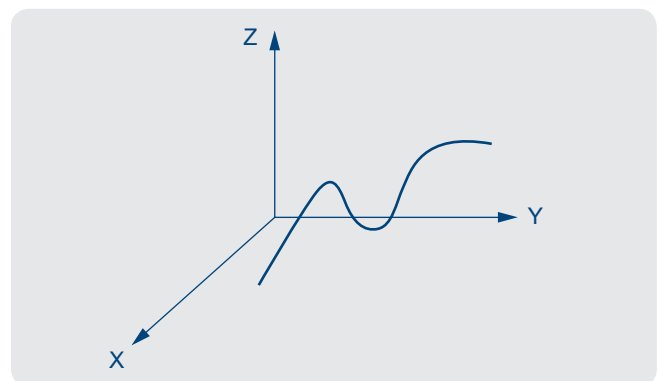
## E-Cam

The relationship of relative movement between master (shaft axis) and slave (follower axis) axes can be established from following tables and it can simulate moves of the cam and provide multiple movement models based on the relationship.



## Path Table Motion

- Supports up to 3 describing path tables and each table can be up to 10,000 points
- Supports linear and circular interpolation commands
- Supports start/stop motion list as descriptive commands for movement control
- Supports Pause/ Resume commands
- Supports Auto Blending
- Supports Z axis following movement



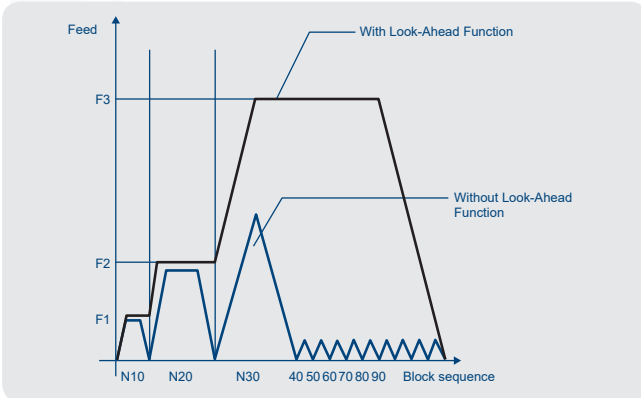
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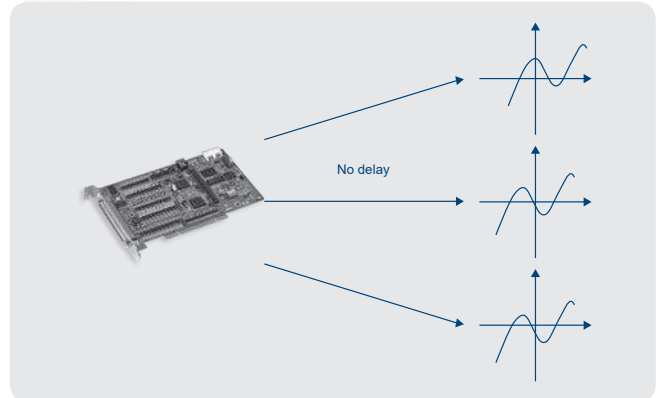
## Look Ahead

By configuring customized parameter profiles (e.g. feed speed and acceleration) users can use the forward looking preprocessing module to enforce movement control and continuous small segmented linear-wise trajectories processing procedures.



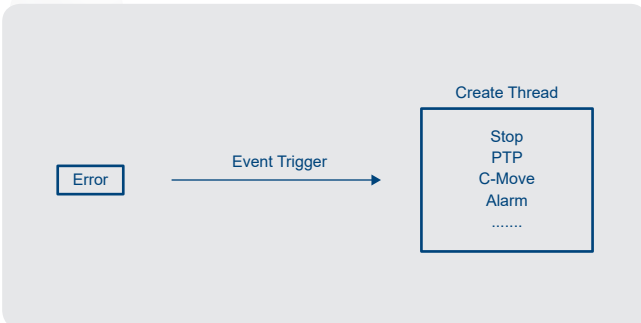
## Up to 3 Groups of Vectors Moving

With SoftMotion algorithms designed to enhance DSP and FPGA interaction, users can use the system to perform interpolated movement: to simplify the design of machines for mechanism designers.



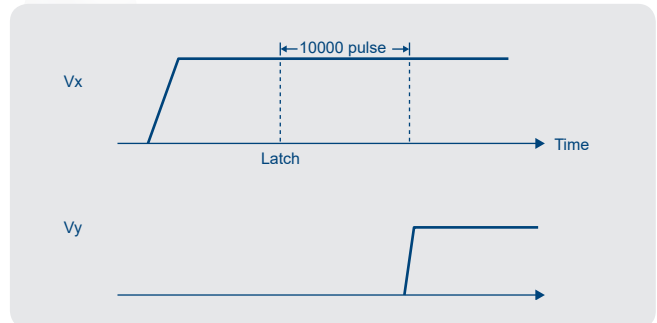
## Event Interrupt

Instantly notify users with event interruption alerts when specified event occur. So, users can activate contingency procedures based on event condition.



## Position Latch

Record down the theoretical and actual motor positions when corresponding sensors are triggered.



## Gantry Control

Ensure that the error deviation of absolute mutual parallel axes positions during active sessions remain within the predefined range via special algorithms to achieve gantry controls.

```

    graph TD
      Start([Axis Ready]) --> Acm_Reset[Acm_Reset]
      Acm_Reset --> Config[Configuration Option]
      Config --> Gear[Acm_AxGearInAx / Acm_AxGantryIn]
      Gear --> Slave[Slave Axis States: Synchronous driving]
      Slave --> Master
      subgraph Master_Axis [Master Axis]
        direction LR
        SA[Single-Axis Motion]
        MA[Multi-Axes Motion]
      end
      Slave --> Master_Axis
      Master_Axis --> Stop[Stop Gantry/E-Gear]
      Stop --> Gear
      Stop --> Start
  
```

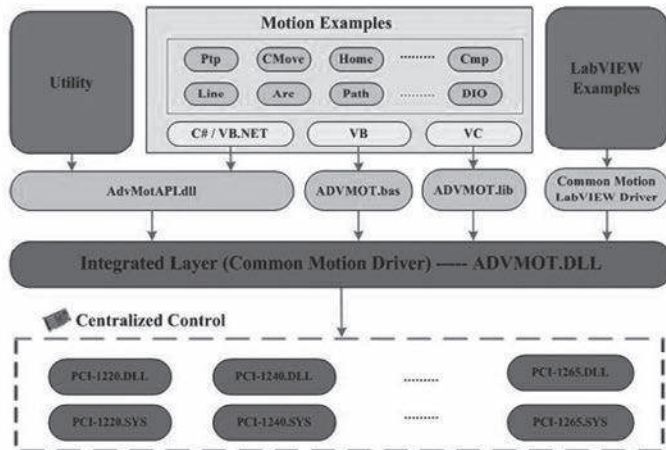


# Common Motion API Introduction

## Architecture and Features of Common Motion API

### Advantech's New Generation Motion Control Software

System integrators often encounter difficulties when an engineer may not be familiar with the different syntaxes during the integration of various motion control cards. And what both of them the most is that when the system has to be upgraded, the problems often occur with rewriting the program as well as increasing the development time. To reduce these difficulties, Advantech has introduced a unified interface - Common Motion API- which provides a single syntax and interface, regardless of the types of motion control card the integrator chooses to use. The design can proceed under a single syntax interface to save development time and speed up the time to market. The ACM (Advantech Common Motion) architecture defines a single interface which consists of three types of operation objects, including Device, Axis and Group and each object has its own Property, Method and State.



### Features of Common Motion API

- Provides complete debugging tool utility
  - Hardware wiring testing
  - Software functional testing
  - Condition & status monitoring
- Provides the dedicated APIs for different applications
- Simplifies API calls process
- Improves the integration
- Supports scalable hardware
  - Supports the existing hardware and future hardware development

Through the above advantages and the lower learning threshold, integrators can significantly reduce development time and follow-up maintenance work!

## 5 Compositions in Common Motion API

### 1. Easy-understanding Naming Rule

#### Property

- FT\_XXX: Feature Property
- CFG\_XXX: Configuration Property
- PAR\_XXX: Parameter Property

#### Method

- Acm\_DevXXX(): Use 'Device' as a control unit
- Acm\_AxXXX(): Use 'Axis' as a control unit
- Acm\_GpXXX(): Use 'Group' as a control unit

#### Event

- EVT\_DevXXX
- EVT\_AxXXX
- EVT\_GpXXX

### 2. Object-oriented Interface

#### 3 Categories of Property

- Feature Property
- Configuration Property
- Parameter Property

#### 3 Categories of Method

- Use 'Device' as a control unit
- Use 'Axis' as a control unit
- Use 'Group' as a control unit

#### 3 Categories of Event

- EVT\_DevXXX
- EVT\_AxXXX
- EVT\_GpXXX

### 3. Clear Motion Control Unit

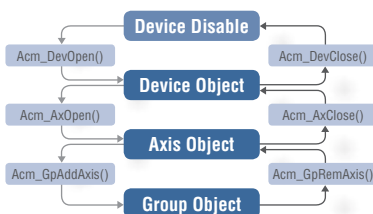
- Single-axis: Axis Object
- Multi-axis: Group Object
- DI/O, AI/O: Device Object

### 4. Simple Integer Type

- U/I/F stands for different types of integers and the following numbers stand for bits.

New Type	Windows Data Type	Description
U8	UCHAR	8-bit unsigned integer
U16	USHORT	16-bit unsigned integer
U32	ULONG	32-bit unsigned integer
U64	ULONGLONG	64-bit unsigned integer
I8	CHAR	8-bit signed integer
I16	SHORT	16-bit signed integer
I32	INT	32-bit signed integer
I64	LONGLONG	64-bit signed integer
F32	FLAOT	32-bit Floating point variable
F64	DOUBLE	64-bit Floating point variable

- Example: U32 Acm\_AxMoveRel (U32 AxisHandle, PF64 Distance)



### 5. Detailed Error Classification

No	Error Code	Classification	Description
1	0	Success	Set up successfully
2	0x01000001 ~0x01000fff	Warning	The parameter is incorrect but do not affect performance
3	0x8000xxx	Function Error	Cannot execute because the parameter is incorrect
4	0x80001xxx	Communication Error	Cannot execute because of communication errors
5	0x80002xxx	Motion Error	Cannot execute because of motion errors
6	0x80003xxx	DAQ Error	Cannot execute because of data acquisition errors

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# Motion Card Product Selection Guide

## Centralized Motion Control Solutions



Category		Motion Control								Encoder		
Bus		PCI								ISA	PCI	ISA
Model		PCI-1220U	PCI-1240U	PCI-1243U	PCI-1245L	PCI-1245LIO	PCI-1245E PCI-1285E	PCI-1245V PCI-1285V	PCI-1245 PCI-1265 PCI-1285	PCL-839+	PCI-1784U	PCL-833
Axis	Number of Axis	2	4	4	4	4	4/8	4/8	4/6/8	3	-	-
	Linear Interpolation	✓	✓	-	✓	✓	✓	✓	✓	-	-	-
	2/3-axis Circle Interpolation	✓	✓	-	-	2-axis	-	✓	✓	-	-	-
Advanced Functions	Encoder Channels	2	4	-	4	4	4/8	4/8	4/6/8	-	4	3
	Limit Switch Input Channels	4	8	8	8	8	8/16	8/16	8/12/16	6	-	-
	Home Input Channels	2	4	4	4	4	4/8	4/8	4/6/8	3	-	-
	Emergency Stop Input Channels	1	1	1	1	1	1	1	1	-	-	-
	Slow Down Limit Switches	4	8	-	8	8	8/16	8/16	8/12/16	6	-	-
	General Purpose DI Channels	6	12	8	16	32	16/32	16/32	16/32/32	16	4	2
	Servo On Output Channels	2	4	-	4	4	4/8	4/8	4/6/8	-	-	-
	General Purpose DO Channels	8	16	8	16	32	16/32	16/32	16/32/32	16	4	-
	Analog Input Channels	-	-	-	-	-	-	-	2 (PCI-1265 only)	-	-	-
	BoardID Switch	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	-
	Position Compare Event	✓	✓	-	-	-	-	-	✓	-	-	-
Position Latch	-	-	-	-	-	-	-	✓	-	-	-	
Dimensions (mm)	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	185 x 100	185 x 100	185 x 100	
Connector	50-pin SCSI	100-pin SCSI	DB62	100-pin	100-pin	100-pin SCSI 2x100-pin SCSI	100-pin SCSI 2x100-pin SCSI	100-pin SCSI 2x100-pin SCSI	100-pin SCSI 2x100-pin SCSI	1 x DB37 2 x 20-pin	DB37	1 x DB25
Wiring Boards	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3962	ADAM-3952 ADAM-3955 ADAM-3956	MTB-3956LIO	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3952 ADAM-3955 ADAM-3956	ADAM-3937 ADAM-3920	ADAM-3937	ADAM-3925
Page	2-19	2-19	2-19	2-18	2-18	2-17	2-16	2-15	online	online	online	

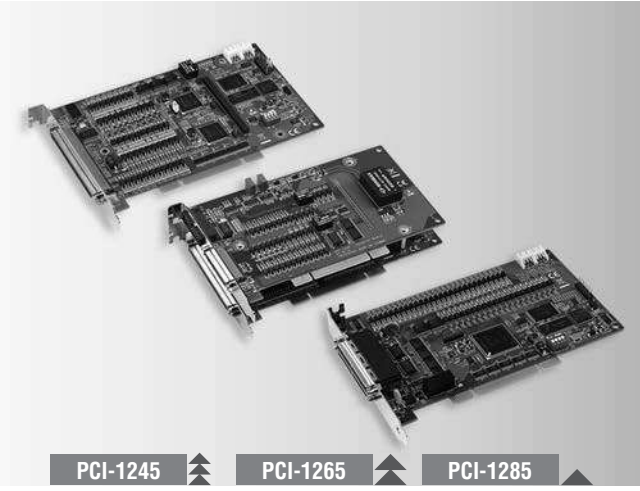
## Embedded Machine Automation Solution



Model Name		MVP-3245
Chassis	Power Type	DC
	Input Voltage	24V
	Wattage	24W MAX (1A @ 24V)
Hardware	CPU	Intel Atom E3825 1.33G dual-core
	Memory	2G
	Storage	32G mSATA
	Graphic	D-Sub15 Port
Communication	Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
	USB	4 x USB 2.0
	Serial	2 x RS-232, DB9 connector
Physical	Dimensions (W x H x D mm)	250 x 160 x 85
Page		2-21

# PCI-1245 PCI-1265 PCI-1285

## DSP-Based 4/6/8-Axis Stepping and Servo Motor Control Universal PCI Card



PCI-1245

PCI-1265

PCI-1285



### Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 5 Mpps
- Memory buffer (10K points) for trajectory planning which is designed in DSP
- Supports E-Gear, and helical interpolation
- Supports E-CAM providing 256 points to describe the CAM profiles which buffers located in DSP
- Hardware emergency input
- Watchdog timer
- Position latch
- Position compare triggering up to 100 KHz, and memory buffer is up to 100 K points in DSP
- Programmable interrupt
- Supports gantry mode by semi-closed loop pulse train control
- RDY/LTC-dedicated input channels & SVON/CMP/CAM-DO/ERC-dedicated output channels are switchable for general input and output purposes

### Introduction

PCI-1245/65/85 is a 4/6/8-axis universal PCI (supporting both 3.3 V and 5 V signal slot) stepping/pulse-type servo motor control card designed for applications which need to control interpolation, synchronization among multiple axes, continuous contouring and high speed triggering to integrated machine vision solution. PCI-1245/65/85 utilizes the high-performance DSP and FPGA to calculate the motion trajectories, synchronization timing control for multiple axes and input/output handling to offer functionality, such as up to 4/6 -axis linear interpolation, 2- axis circular interpolation, helical interpolation, T/S-curve acceleration/deceleration rate and so on. In addition, Advantech supplies a Common Motion API library, graphical utility and user-friendly examples to decrease programming load, helping users complete configuration and diagnosis easily.

### Specifications

#### Pulse Type Motion Control

- Motor Driver Support** Pulse-type servo/stepping
- Number of Axes** PCI-1245: 4  
PCI-1265: 6  
PCI-1285: 8
- Interpolation** Linear, 2/3-axis circular interpolation, 3-axis helical interpolation
- Max. Output Speed** 5 Mpps
- Step Count Range** ±2, 147, 483, 646
- Pulse Output Type** Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- Position Counters** Range of command and actual position
- Velocity Profiles** T-Curve, S-Curve
- Local I/O** Machine Interfaces: LMT+, LMT-, ORG  
Servo Driver Interfaces: ALM, INP  
Position Compare I/O: CMP  
General Digital I/O: PCI-1245:16-ch DI, 16-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/ CMP/SVON/ ERC pin to general-purpose output)  
PCI-1265: 32-ch DI, 32-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/ CMP/SVON/ ERC pin to general-purpose output)  
PCI-1285: 32-ch DI, 32-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/ CMP/SVON/ ERC pin to general-purpose output)
- Analog Input** PCI - 1265: 2

#### Encoder Interface

- Input Type** Quadrature (A/B phase) or up/down
- Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- Input Range** 0~10V
- Isolation Protection** 2,500 V<sub>DC</sub>
- Max. Input Frequency** 10 MHz under 4xAB mode

#### General

- Bus Type** Universal PCI V2.2
- Connectors** PCI-1245: 1 x 100-pin SCSI female connector  
PCI-1265: 1 x 100-pin SCSI female connector & 1 x 50-pin SCSI female connector  
PCI-1285: 2 x 100-pin mini-SCSI female connector
- Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- Power Consumption** PCI-1245/1265:  
Typical: 5 V @ 850 mA  
Max.: 5 V @ 1 A  
PCI-1285:  
Typical: 5 V @ 300 mA  
3.3 V @ 1.2 A  
Max.: 5 V @ 400 mA  
3.3 V @ 1.5 A
- Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- PCI-1245-AE** 4-axis Stepping/Servo Control Universal PCI Card
- PCI-1265 AE** 6-axis Stepping/Servo Control Universal PCI Card
- PCI-1285-AE** 8-axis Stepping/Servo Control Universal PCI Card

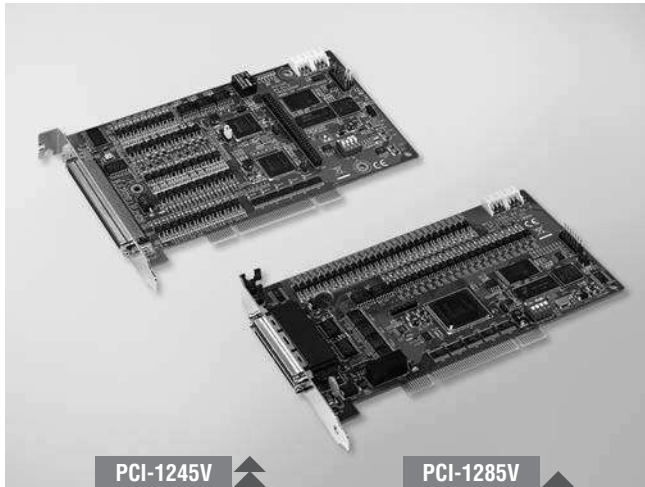
#### Accessories

- ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m (for PCI-1245/65)
- PCL-10251-1E/2E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/2m/3m (for PCI-1245/65 only)
- PCL-101100SB-1E/2E/3E** Mini-SCSI-100 Shielded Cable, 1m/2m/3m (for PCI-1285)
- PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V/7 Servo, 2 m
- PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m

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# PCI-1245V PCI-1285V

## Value DSP-Based 4/8-Axis Stepping and Servo Motor Control Universal PCI Card



PCI-1245V

PCI-1285V



### Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 5 Mpps
- Supports linear and circular interpolation
- Hardware emergency input
- Supports E-Gear
- Supports programmable acceleration/deceleration rate
- Memory buffer (10K points) for trajectory planning which is designed in DSP (Auto-blending is not supported)
- Position compares triggering up to 100 KHz, and memory buffer is up to 100 K points in DSP
- Position latch
- Programmable interrupt and watchdog timer
- RDY/LTC-dedicated input channels & SVON/CMP/CAM-DO/ERC-dedicated output channels are switchable for general input and output purposes

### Introduction

The PCI-1245V is a 4-axis universal PCI (supporting both 3.3 V and 5 V signal slot) stepping/pulse-type servo motor control card designed for applications which need to control interpolation, synchronization among multiple axes and continuous contouring. The PCI-1245V utilizes the high-performance DSP and FPGA to calculate the motion trajectories, synchronization timing control for multiple axes and input/output handling to offer functionality, such as linear interpolation, 2/3-axis circular interpolation, Compare trigger, T/S-curve acceleration/deceleration rate and so on. In addition, Advantech supplies a Common Motion API library, graphical utility and user-friendly examples to decrease programming load, helping users complete configuration and diagnosis easily.

### Specifications

#### Pulse Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axes** 4/8
- **Interpolation** Linear, 2/3-axis circular interpolation
- **Max. Output Speed** 5 Mpps
- **Step Count Range** ±2, 147, 483, 646
- **Pulse Output Type** Pulse/direction (1-pulse, 1-direction type), CW/CCW (2-pulse type)
- **Position Counters** Range of command and actual position
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**  
Machine Interfaces: LMT+, LMT-, ORG  
Servo Driver Interfaces: ALM, INP
- **Position Compare I/O** CMP

#### Encoder Interface

- **Input Type** Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** 0~10 V
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Max. Input Frequency** 10 MHz under 4xAB mode

#### General

- **Bus Type** Universal PCI V2.2
- **Connectors** 1 x 100-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA  
Max.: 5 V @ 1 A
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- **PCI-1245V-AE** Value 4-axis Stepping/Pulse-type Servo Motor Control Universal PCI Card
- **PCI-1285V-AE** Value 8-axis Stepping/Pulse-type Servo Motor Control Universal PCI Card

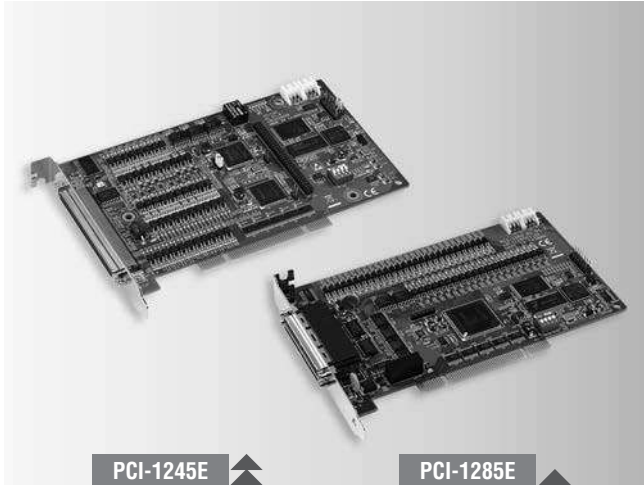
#### Accessories

- **ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- **ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- **ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- **ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- **PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m
- **PCL-10251-1E/2E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/2m/3m
- **PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- **PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V/7 Servo, 2 m
- **PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- **PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m



# PCI-1245E PCI-1285E

## Economic DSP-Based 4/8-Axis Stepping and Servo Motor Control Universal PCI Card



PCI-1245E

PCI-1285E



### Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 5 Mpps
- Memory buffer for trajectory planning (circular trajectory and auto blending are not supported)
- Supports E-Gear
- Hardware emergency input
- Watchdog timer
- Programmable interrupt
- RDY/LTC-dedicated input channels & SVON/CMP/CAM-DO/ERC-dedicated output channels are switchable for general input and output purposes

### Introduction

PCI-1245E/1285E is a 4/8-axis economic universal PCI (supporting both 3.3 V and 5 V signal slot) stepping/pulse-type servo motor control card designed for entry-level applications which need to control linear interpolation, electronic gear, continuous contouring (circular trajectories and auto blending are excluded). PCI-1245E/1285E utilizes the high-performance DSP and FPGA to calculate the motion trajectories, synchronization timing control for multiple axes and input/output handling to offer functionality, such as 2–8-axis linear interpolation, E-Gear (only for PCI-1245E), T/S-curve acceleration/deceleration rate, speed override, 16 home modes and so on. In addition, Advantech supplies a Common Motion API library, graphical utility and user-friendly examples to decrease programming load, helping users complete configuration and diagnosis easily.

### Specifications

#### Pulse Type Motion Control

- Motor Driver Support** Pulse-type servo/stepping
- Number of Axis** PCI-1245E: 4  
PCI-1285E: 8
- Interpolation** PCI-1245E: 2-axis linear  
PCI-1285E: 2-axis linear
- Max. Output Speed** 5 Mbps
- Step Count Range** ±2, 147, 483, 646
- Pulse Output Type** Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- Position Counters** Range of command and actual position
- Velocity Profiles** T-Curve, S-Curve
- Local I/O** Machine Interfaces: LMT+, LMT-, ORG  
Servo Driver Interfaces: ALM, INP  
General Digital I/O: PCI-1245E: 16-ch DI, 16-ch DO  
PCI-1285E: 32-ch DI, 32-ch DO

#### Encoder Interface

- Input Type** Quadrature (A/B phase) or up/down
- Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- Input Range** PCI-1245E: 3–10V  
PCI-1285E: 3–10V
- Isolation Protection** 2,500 V<sub>DC</sub>
- Max. Input Frequency** 10 MHz under 4xAB mode

#### General

- Bus Type** Universal PCI V2.2
- Connectors** PCI-1245E: 1 x 100-pin SCSI female connector  
PCI-1285E: 2 x 100-pin mini-SCSI female connector
- Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")

- Power Consumption** PCI-1245E: Typical: 5 V @ 850 mA  
Max.: 5 V @ 1 A  
PCI-1285E: Typical: 5 V @ 530 mA  
3.3 V @ 160 mA  
Max.: 5 V @ 500 mA  
3.3 V @ 1 A
- Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- PCI-1245E-AE** Economic 4-axis Stepping/Servo Control Universal PCI Card
- PCI-1285E-AE** Economic 8-axis Stepping/Servo Control Universal PCI Card

#### Accessories

- ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m
- PCL-10251-1E/2E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/2m/3m
- PCL-101100SB-1E/2E/3E** Mini-SCSI-100 Shielded Cable, 1m/2m/3m (for PCI-1285E)
- PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V/7 Servo, 2 m
- PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m

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# PCI-1245L PCI-1245LIO

## 4-Axis Stepping and Servo Motor Control Universal PCI Card

## 4-Axis Stepping and Servo Motor Control Universal PCI Card with I/O Extension



### Features

- Encoder input is 10 MHz for 4xAB mode, 2.5 MHz for CW/CCW mode
- Pulse output up to 1 Mpps and the output type can be switched to differential or single-end by jumper setting
- Supports 2 axis Linear interpolation
- Supports 3 axis Linear interpolation (PCI-1245LIO only)
- Supports 2 axis Arc interpolation (PCI-1245LIO only)
- Supports T/S-curve
- Supports speed override
- Hardware emergency input
- Watchdog timer
- Supports programmable acceleration/deceleration rate
- Programmable interrupt
- RDY dedicated input channels & SVON/ERC dedicated output channels are switchable for general input and output purposes
- Supports extra 16 isolated DI / 16 isolated DO via wiring board (PCI-1245LIO only)

### Introduction

The PCI-1245L/45LIO are 4-axis universal PCI cards (supporting both 3.3 V and 5 V signal slots) stepping/pulse-type servo motor control card designed for entry-level applications which need to control JOG, point to point, continuous move and interpolation motion such as 2-axis linear, 3-axis linear (PCI-1245LIO) and 2-axis arc move (PCI-1245LIO). The PCI-1245LIO also provide extra 16 DI and 16 DO via terminal board, MTB-3956LIO.

In addition, all Advantech motion controllers use the "Common Motion API" architecture which is a unified user programming interface and graphical utility. This architecture saves application maintenance and upgrades. Programmers can benefit from integrating any Advantech SoftMotion controller without changing large amounts of the application code. User-friendly examples decrease programming load, helping users complete configuration and diagnosis easily.

### Specifications

#### Pulse Type Motion Control

- Motor Driver Support** Pulse-type servo/stepping
- Number of Axes** 4
- Interpolation** 2-axis linear interpolation
- Max. Output Speed** 1 Mbps
- Step Count Range** ±2, 147, 483, 646
- Pulse Output Type** Pulse/direction (1-pulse, 1-direction type), CW/CCW (2-pulse type) or single-ended +5V output
- Position Counters** Range of command and actual position
- Velocity Profiles** T-Curve, S-Curve
- Local I/O**
  - Machine Interfaces: LMT+, LMT-, ORG
  - Servo Driver Interfaces: ALM, INP
  - General Digital I/O: 16-ch DI, 16-ch DO (RDY pin can be switchable to general-purpose input and SVON/ERC pin to general-purpose output)

#### Encoder Interface

- Input Type** Quadrature (A/B phase) or up/down
- Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- Input Range** 3~10 V
- Isolation Protection** 2,500 V<sub>DC</sub>
- Max. Input Frequency** 10 MHz under 4xAB mode

#### General

- Bus Type** Universal PCI V2.2
- Connectors** 1 x 100-pin SCSI female connector
- Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- Power Consumption** Typical: 5 V @ 0.6 A  
Max.: 5 V @ 1 A
- Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- PCI-1245L-AE** 4-axis Stepping/Pulse-type Servo Motor Control Universal PCI Card
- PCI-1245LIO-AE** 4-axis Stepping and Servo Motor Control Universal PCI Card with I/O-extension

#### Accessories

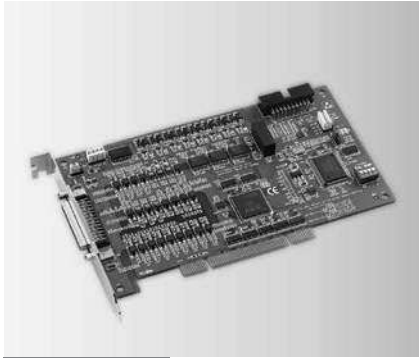
- MTB-3956LIO-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board w/ I/O-extension (Only for PCI-1245LIO)
- ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m
- PCL-10251-1E/2E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/2m/3m
- PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V/7 Servo, 2 m
- PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m

# PCI-1220U PCI-1240U PCI-1243U

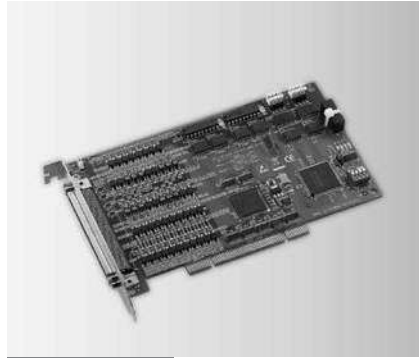
2-Axis Stepping and Servo Motor Control Universal PCI Card

4-Axis Stepping and Servo Motor Control Universal PCI Card

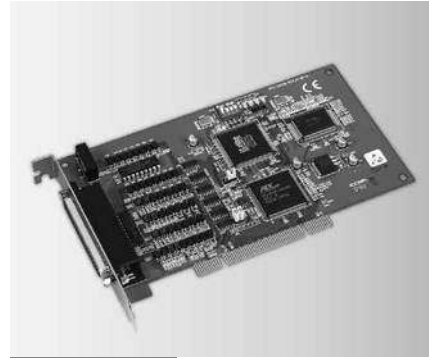
4-Axis Stepping Motor Control Universal PCI Card



PCI-1220U



PCI-1240U



PCI-1243U

## Specifications

### Pulse-Type Motion Control

- Motor Driver Support** Pulse-type servo/stepping
- Number of Axis** 4
- Interpolation** 2-axis linear, 2-axis circular
- Max. Output Speed** 4 Mpps
- Step Count Range** ±2, 147, 483, 646 (32-bit)
- Pulse Output Type** Pulse/direction (1-pulse, 1-direction type), or CW/CCW (2-pulse type)
- Position Counters** Range of command and actual position
- Velocity Profiles** T-Curve, S-Curve
- Local I/O** Machine Interfaces: LMT+, LMT-, ORG  
Servo Driver Interfaces: ALM, RDY, SVON, INP  
Position Compare I/O: CMP  
General Digital I/O: 12-ch DI, 16-ch DO

### Encoder Interface

- Input Type** Quadrature (A/B phase or up/down)
- Counts/Enc. Cycle** x1, x2, x4 (A/B phase only)
- Input Range** 5 ~ 25 V
- Isolation Protection** 2,500 V<sub>oc</sub>
- Max. Input Freq.** 1 MHz

### General

- Bus Type** PC/104
- Certification** CE, FCC Class A
- Connectors** 2 x IDC 50-pin male connector
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption** Typical: 5 V @ 850 mA  
Max.: 5 V @ 1 A
- Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- Operating Temp.** 0 ~ 60°C (32 ~ 140°F)
- Storage Temp.** -20 ~ 85°C (-4 ~ 185°F)

## Ordering Information

- PCI-1220U-AE** 2-axis Stepping and Servo Motor Control Universal PCI Card

### Accessories

- ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- PCL-10150-1.2E** IDC-50 Flat Cable, 1.2m (PCM-3240 only)
- PCL-10152-1E/3E** 50-pin SCSI M-M Shielded Cable, 1m/3m
- PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V7 Servo, 2 m
- PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m

## Specifications

### Pulse-Type Motion Control

- Motor Driver Support** Pulse-type servo/stepping
- Number of Axis** 4
- Interpolation** 2-axis linear, 3-axis linear, 2-axis circular
- Max. Output Speed** 4 Mpps
- Step Count Range** ±2, 147, 483, 646 (32-bit)
- Pulse Output Type** Pulse/direction (1-pulse, 1-direction type), or CW/CCW (2-pulse type)
- Position Counters** Range of command and actual position
- Velocity Profiles** T-Curve, S-Curve
- Local I/O** Machine Interfaces: LMT+, LMT-, ORG  
Servo Driver Interfaces: ALM, RDY, SVON, INP  
Position Compare I/O: CMP  
General Digital I/O: 12-ch DI, 16-ch DO

### Encoder Interface

- Input Type** Quadrature (A/B phase or up/down)
- Counts/Enc. Cycle** x1, x2, x4 (A/B phase only)
- Input Range** 5 ~ 25 V
- Isolation Protection** 2,500 V<sub>oc</sub>
- Max. Input Freq.** 1 MHz

### General

- Bus Type** PC/104
- Certification** CE, FCC Class A
- Connectors** 2 x IDC 50-pin male connector
- Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- Power Consumption** Typical: 5 V @ 850 mA  
Max.: 5 V @ 1 A
- Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- Operating Temp.** 0 ~ 60°C (32 ~ 140°F)
- Storage Temp.** -20 ~ 85°C (-4 ~ 185°F)

## Ordering Information

- PCI-1240U-B2E** 4-axis Stepping and Servo Motor Control Universal PCI Card

### Accessories

- ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m
- PCL-10150-1.2E** IDC-50 Flat Cable, 1.2m (PCM-3240 only)
- PCL-10251-1E/2E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/2m/3m
- PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V7 Servo, 2 m
- PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m

## Specifications

### Pulse-Type Motion Control

- Motor Driver Support** Stepping
- Number of Axis** 4
- Max. Output Speed** 400 kpps
- Step Count Range** 0 ~ 16, 777, 215
- Pulse Output Type** Pulse/Direction, CW/CCW
- Position Counters** ±16, 777, 215
- Home Modes** 4
- Velocity Profiles** T-Curve or S-Curve  
acceleration/deceleration
- Local I/O Interfaces** PEL x 4, NEL x 4, RG x 4, SLD x 4, EMG x 1
- General Input Channels** 8
- General Output Channels** 8

### Isolated Digital Input

- Channels** 8
- Input Voltage** Logic 0: 1 V  
Logic 1: 12 V (24 V max.)
- Isolation Protection** 3,750 V<sub>RMS</sub>
- Opto-Isolator Response** 25 μs
- Input Resistance** 4.7 kW

### Isolated Digital Output

- Channels** 8
- Output Type** Sink (NPN)
- Isolation Protection** 3,750 V<sub>RMS</sub>
- Output Voltage** 5 ~ 30 V<sub>DC</sub>
- Sink Current** 200 mA max./channel; 1.1 A max. total
- Opto-Isolator Response** 25 μs

### General

- Bus Type** PCI V2.2
- Certification** CE, FCC Class A
- Connectors** 1 x DB-62 female
- Dimensions** 175 x 100 mm (6.9" x 3.9")
- Power Consumption** Typical: 5 V @ 340 mA  
Max.: 5 V @ 500 mA
- Storing Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- Storing Temperature** -20 ~ 80°C (-4 ~ 170°F)

## Ordering Information

- PCI-1243U-AE** 4-axis Stepping Motor Control Card

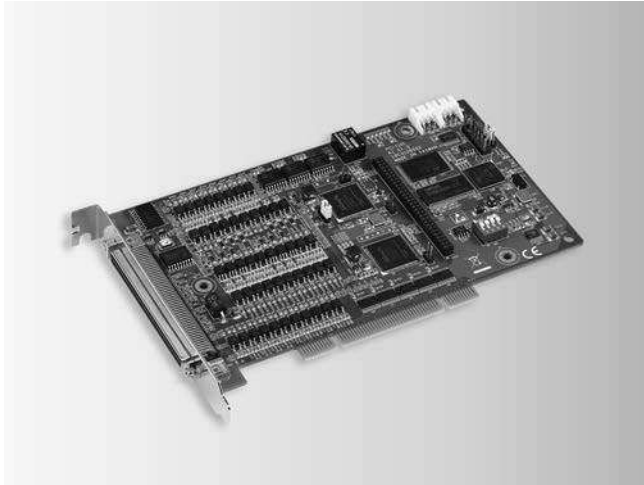
### Accessories

- PCL-10162-1E** DB-62 Cable Assembly, 1m
- PCL-10162-3E** DB-62 Cable Assembly, 3m
- ADAM-3962-AE** DB-62 Wiring Board with DIN-rail Mounting

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- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
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# PCI-1245S

## DSP-Based 4-Axis SCARA Robot Motor Control Universal PCI Card



### Features

- Pulse output is up to 5Mpps
- Encoder input is 10MHz for 4xAB mode, 2.5MHz for CW/CCW mode
- Fast processing speed provides smooth interpolation
- Support T & S-Curve for joint-space trajectory planning
- Line, Arc, Angle and PTP motion are also supported
- Support both Jog/MPG in Joint/World system
- Support RZ direct coupling structure for various applications
- Adding teaching points through JOG/MPG by Common Motion Utility for Path planning
- Easy integration for robot-vision application
- Position latch
- Position compare triggering up to 100 KHz, and memory buffer is up to 100 K points in DSP

### Introduction

PCI-1245S is 4-axis Robot PCI bus controller board which is created as the SCARA Robot solution for factories looking for maximum value without performance trade off. PCI-interface structure is a great benefit for user to embed into various platforms for flexibility and performance requirement. In addition, ease of integration with bus-level vision solutions and robot motion control for vision guide application.

All Advantech motion controllers are applied to "Common Motion API" architecture which is a unified user programming interface. This architecture can save the effort of application maintenance and upgrade. Both Joint and World coordinate system are supported. T&S-curve speed profile optimization make PCI-1245S has outstanding acceleration / deceleration characteristics. Robot path function and look ahead feature make robot trajectory can be planned in advance and move smoothly in arbitrary path. Lots of fully integrated options such as Virtual Device, .Net support, and much more enable powerful programming, reduced project-developed cycle times and very cost-saving robot solution.

### Specifications

#### Pulse-Type Motion Control

- **Motor Driver Support** Pulse-type servo/stepping
- **Number of Axes** 4
- **Interpolation** Line motion, Arc Motion
- **Max. Output Speed** 5 Mpps
- **Step Count Range**  $\pm 2, 147, 483, 646$
- **Pulse Output Type** Pulse/direction (1-pulse, 1-direction type) or CW/CCW (2-pulse type)
- **Position Counters** Range of command and actual position
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**
  - Machine Interfaces: LMT+, LMT-, ORG
  - Servo Driver Interfaces: ALM, INP
  - Position Compare I/O: CMP
  - General Digital I/O: 16-ch DI, 16-ch DO (RDY/LTC pin can be switchable to general-purpose input and CAM-DO/ CMP/SVON/ ERC pin to general-purpose output)

#### ABS Encoder Interface

- **Input Type** Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** 3~10 V
- **Isolation Protection** 2,500 V<sub>oc</sub>
- **Max. Input Frequency** 10 MHz under 4xAB mode

#### General

- **Bus Type** Universal PCI V2.2
- **Connectors** 1 x 100-pin SCSI female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: 5 V @ 850 mA  
Max.: 5 V @ 1 A
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- **PCI-1245S-AE** DSP-based 4-axis SCARA Robot Motor Control Universal PCI Card

#### Accessories

- **ADAM-3956-AE** 100-pin DIN-rail SCSI 4-axis Motion Wiring Board
- **ADAM-3955-AE** 50-pin DIN-rail SCSI 2-axis Motion Wiring Board
- **ADAM-3952-AE** 50-pin DIN-rail SCSI and Box Header Board
- **ADAM-39100-AE** 100-pin DIN-rail SCSI Wiring Board
- **PCL-101100M-1E/2E/3E** 100-pin SCSI Cable, 1m/2m/3m
- **PCL-10251-1E/2E/3E** 100-pin SCSI to Two 50-pin SCSI Cable, 1m/2m/3m
- **PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- **PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V/7 Servo, 2 m
- **PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- **PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m



# MVP-3245

## 4-Axis Embedded Motion Controller with 32-Channel Digital I/O

NEW



### Features

- Intel® Atom™ dual-core E3825, 1.33 G, processor
- Encoder input is 10 MHz for 4xAB mode and 2.5 MHz for CW/CCW mode
- Pulse output of up to 5 Mpps
- Equipped with a memory buffer (10K points) for trajectory planning
- Supports E-Gear and helical interpolation
- Supports E-CAM and provides 256 points for describing CAM profiles
- 2-axis position comparison trigger
- 3-axis arc interpolation
- 16-channel isolated digital input
- 16-channel isolated digital output

### Introduction

MVP-3245 is an embedded motion control platform equipped with the latest Intel® Atom™ processor and SoftMotion technology and aimed at machinery applications that require compact platform with a slim form factor. To satisfy demands for industrial automation, MVP-3245 offers a variety of basic motion control functions, such as linear, circular and helical interpolation, T/S-curve speed profiles, as well as advanced motion functions, such as E-Gear, E-CAM, and Tangential Following.

MVP-3245 also features specific SoftMotion functions for sector applications, such as 2D comparison trigger, Path DO, and 3D arc move. Moreover, this controller supports serial communication ports and several other networking interfaces. Advantech also provides a common motion API library, graphical utility, and user-friendly examples to reduce the programming load and facilitate easy configuration and diagnosis.

### Specifications

#### General

- **Certification** CE, FCC Class A
- **Dimensions (W x D x H)** 250 x 160 x 85 mm
- **Power Consumption** 24 W (typical)
- **Power Requirements** 10 ~ 30 V<sub>DC</sub> (e.g 24 V @ 1 A) (Min. 48 W), AT
- **Weight** 2.4 kg (typical)
- **OS Support** Windows XP/7/8

#### System Hardware

- **CPU** Intel® Atom™ dual-core E3825, 1.33 G, processor
- **Memory** DDR3 2G
- **Storage** mSATA 32G

#### I/O Interface

- **Serial Ports** COM1 RS-232  
COM2 RS-232/422/485
- **Serial Port Speed** 50 ~ 115.2 kbps
- **LAN** 2 x 10/100/1000M (RJ45)
- **USB Ports** 4 x USB, EHCI, Rev. 2.0 compliant

#### Pulse-Type Motion Control

- **Number of Axes** 4
- **Interpolation** 2/3-axis linear, 2/3-axis circular
- **Max. Output Speed** 5 Mpps
- **Step Count Range** ±2, 147, 483, 646
- **Pulse Output Type** CW/CCW or pulse/direction
- **Velocity Profiles** T-curve, S-curve
- **Local I/O** LMT+, LMT-, ORG, ALM, INP, CMP, LTC
- **General Inputs** 16
- **General Outputs** 16

#### Encoder Interface

- **Input Type** Quadrature (A/B phase) or up/down
- **Counts per Enc. Cycle** x1, x2, x4 (A/B phase only)
- **Input Range** 5 ~ 15 V
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Max. Input Frequency** 10 MHz under 4xAB mode

#### Isolated Digital Input

- **Channels** 16
- **Input Voltage** Logic 0: 2 V max.; Logic 1: 5 V min. (24 V max.)
- **Isolation Protection** 1,000 V<sub>DC</sub>

#### Isolated Digital Output

- **Channels** 16
- **Output Type** Sink type (NPN)
- **Output Voltage** 5 ~ 30 V max.
- **Sink Current** 200 mA max. per channel
- **Isolation Protection** 1,000 V<sub>DC</sub>

#### Environment

- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** -10 ~ 50°C (14 ~ 122°F) @ 5 ~ 85% RH

### Ordering Information

- **MVP-3245-AE** 4-axes embedded motion controller with 32-channel digital I/O

#### Accessories

- **PCL-101100M-1E/2E/3E** 100-pin SCSI cable, 1/2/3 m
- **PCL-10251-1E/2E/3E** 3E 100-pin SCSI to two 50-pin SCSI cable, 1/2/3 m
- **PCL-10137-1E/3E** DB25 cable, 1/3 m
- **ADAM-3956-AE** 100-pin DIN rail SCSI 4-axes motion wiring board
- **ADAM-3955-AE** 50-pin DIN rail SCSI 2-axes motion wiring board
- **ADAM-3952-AE** 50-pin DIN rail SCSI and box header board
- **ADAM-3937-AE** DB37 DIN rail wiring board
- **PCL-10153PA5-2E** 50-pin cable to Panasonic A4/A5 servo, 2 m
- **PCL-10153PA5LS-2E** 50-pin cable to Panasonic MINAS A servo, 2 m
- **PCL-10153YS5-2E** 50-pin cable to Yaskawa Sigma V/7 servo, 2 m
- **PCL-10153MJ3-2E** 50-pin cable to Mitsubishi J3/J4 servo, 2 m
- **PCL-10153DA2-2E** 50-pin cable to Delta A2 servo, 2 m

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# EtherCAT Solution Product Selection Guide

## EtherCAT Master Control Card



Model		PCI-1203
Axis		6/10/16/32
Advanced Functions	General Purpose DI Channels	8
	General Purpose DO Channels	4
	Remote Motion	128 port DI (128 byte) / 128 port DO (128 byte) 128 channel AI (256 byte) and 128 channel AO (256 byte) (based on ADAM-5000/ECAT)
	Remote I/O	32 Servo Drive Max.(eq. Panasonic A5B)
Dimensions (L x H)		175 x 100 mm
Connectors		2 x RJ45, D-sub 15
Page		2-24

## EtherCAT I/O Slave



System		ADAM-5000/ECAT
CPU		32-bit ARM RISC Processor
RAM		4 GB
I/O Slots		4
Communication	Interface	EtherCAT
	Communication Cycle Time	100us
	Data Format	TCP/IP
Power	Power Requirements	24 V <sub>DC</sub>
	Storage Temperature	2.5 W @ 24 V <sub>DC</sub> (not including I/O modules)
Dimensions (mm)		231 x 110 x 75
Page		2-25

## Analog Input/Output Modules



Module		ADAM-E5017	ADAM-E5017UH	ADAM-E5024
Analog Input	Resolution	16 bit	12 bit	-
	Input Channel	8	8	-
	Sampling Rate	10 (total*)	200K**	-
	Voltage Input	±150 mV, ±500 mV ±1 V, ±5 V, ±10 V	±10 V, 0 ~ 10 V	-
	Current Input	±20 mA	0 ~ 20 mA, 4 ~ 20 mA	-
	Direct Sensor Input	-	-	-
Analog Output	Output Channels	-	-	4
	Resolution	-	-	12 bit
	Voltage Output	-	-	0 ~ 10 V
	Current Output	-	-	0 ~ 20 mA 4 ~ 20 mA
Isolation		3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>

\*Sampling rate value depends on used channel number. Example: Using 5 channels on ADAM-E5017, sampling rate for each used channel will be 10/5 = 2 samples/second.

\*\*The sampling rate vary with the controller.

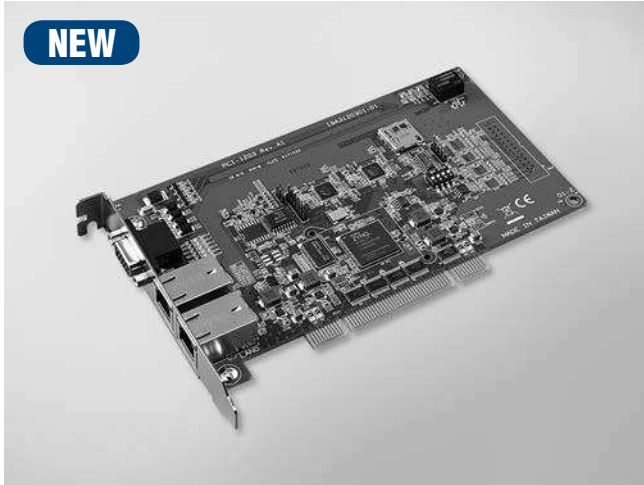


Module		ADAM-E5051S	ADAM-E5053S	ADAM-E5056S ADAM-E5056SO	ADAM-E5057S	ADAM-E5069	ADAM-E5082
Digital Input and Digital Output	Digital Input Channels	16 (ADAM-5051) 16w/LED (5051D/5051S)	32	-	-	-	-
	Digital Output Channels	-	-	16 w/LED	32	8 relay (A type)	-
Encoder	Channel	-	-	-	-	-	2
	Input Frequency	-	-	-	-	-	2.5MHz in CW/ CCW 10MHz in 4xAB mode
	Mode	-	-	-	-	-	A/B/Z
Isolation		2,500 V <sub>DC</sub> (5051S)	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>	-	2,500 V <sub>DC</sub>

# PCI-1203

## 2-Port EtherCAT Universal PCI Master Card

NEW



### Features

- 650MHz dual-core ARM processor
- 2 x EtherCAT ports for high-performance of Motion and I/O applications
- Supports common motion SDK for rapid application development
- Up to 32 axes support for motion control
- Supports a maximum of 6 motion groups and 8 axes per group
- Supports on board 8-CH isolated DI and 4-CH isolated DO
- Diagnostics for fast error handling can trace command and error message

### Introduction

The PCI-1203 is a 2-port EtherCAT PCI Universal card. It is a ready-to-use EtherCAT development platform for all PC-based industrial automation. The EtherCAT protocol stack is executed autonomously on the PCI card.

It allows the host to handle up to two EtherCAT networks with extremely short cycle time for Motion and pure I/O applications. For EtherCAT motion port, communication cycle time is no more than 500  $\mu$ s for connecting 32 axes of servo motors and for fast I/O ports the cycle time is no more than 200us in a high speed I/O system. There are 4 - channel isolated digital outputs and 8 - channel isolated inputs on the PCI-1203 to meet the extra high speed I/O requirements. Real-time and high-precision capability are features of PCI-1203. In addition, all Advantech motion controllers use the "Common Motion API" architecture which is a unified user programming interface and graphical utility. This architecture saves application maintenance and upgrades. Programmers can benefit from using any Advantech SoftMotion controller without changing large amounts of the application code. User-friendly examples decrease programming load, helping users complete configuration and diagnosis easily.

### Specifications

#### EtherCAT

- **Number of Rings** 2 (Motion x 1, I/O x 1)
- **Cable Type** CAT5 UTP/STP Ethernet cable and above
- **Cycle Time** Motion: 500  $\mu$ s  
I/O: 200  $\mu$ s
- **Communication Motion Slave** 32 Servo Drive Max.(eq. Panasonic A5B)
- **Communication IO Slave** 128 port DI (128 byte) / 128 port DO (128 byte)  
128 channel AI (256 byte) and 128 channel AO (256 byte) (based on ADAM-5000/ECAT)

#### Isolated Digital Input

- **Channels** 8
- **Input Voltage** Logic 0: 5 V max.  
Logic 1: 6 V min. (24V max.)  
Needs 24V<sub>DC</sub> external power
- **Isolation Protection** 1,000 V<sub>DC</sub>
- **Input Resistance** 8.4 k  $\Omega$

#### Isolated Digital Output

- **Channels** 4
- **Output Type** Sink
- **Isolation Protection** 1,000 V<sub>DC</sub>
- **Output Voltage** 12 ~ 24 V<sub>DC</sub>
- **Sink Current** Max: 300 mA CH

#### General

- **Bus Type** Universal PCI V2.2
- **Certification** CE, FCC Class A
- **Connectors** 2 x RJ45, 1 x D-sub 15
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** 5 V<sub>DC</sub> @ 0.5 A typical
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temp.** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temp.** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- **PCI-1203-06AE** 2-port EtherCAT 6-axis Universal PCI Master Card
- **PCI-1203-10AE** 2-port EtherCAT 10-axis Universal PCI Master Card
- **PCI-1203-16AE** 2-port EtherCAT 16-axis Universal PCI Master Card
- **PCI-1203-32AE** 2-port EtherCAT 32-axis Universal PCI Master Card

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Control Cabinet PCs

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iDoor Technology Modules

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Panel PCs

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Control IPCs

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Wireless IoT Sensing Devices

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RS-485 I/O Modules

17  
Industrial Ethernet Solutions

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IP Gateway and Serial Device Servers

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# AMAX-3285

## 8-Axis EtherCAT Motion Slave Module

NEW



### Features

- 8-axis pulse output (max. 5 MHz)
- Encoder input is 10 MHz for 4xAB mode and 2.5 MHz for CW/CCW mode
- Switchable board ID
- Highly visible LED indicators on board for easy diagnosis
- Direct wire to servo drive saves terminal board space during installation
- Supports horizontal installation for servo or stepping motor driver
- Suitable for DIN rail mounting

### Introduction

AMAX-3285 provides the ability to connect step motor drives and servo motor drives with CW/CCW and Pulse/Direction interfaces to EtherCAT networks controlled by Advantech EtherCAT master PCI-1203. Both model types have open frame designs for horizontal placement and an interface connector mounted on the board. With a to-servo-drive transfer cable, both models can be conveniently connected to Mitsubishi J3/J4, Yaskawa Sigma V/7, and Panasonic A4/A5 servos.

AMAX-3285 is 8-axis EtherCAT motion slave module that supports motion interpolation, axes synchronization, and continuous contouring. Advantech also provides a common motion API library, graphical utility, and user-friendly examples to reduce the programming load and facilitate easy configuration and diagnosis.

### Specifications

#### Pulse-Type Motion Control

▪ <b>Motor Driver Support</b>	Pulse-type servo
▪ <b>Number of Axes</b>	8
▪ <b>Interpolation</b>	Linear and circular
▪ <b>Max. Output Speed</b>	5 Mpps
▪ <b>Step Count Range</b>	±134, 217, 728
▪ <b>Pulse Output Type</b>	OUT/DIR, CW/CCW
▪ <b>Position Counter</b>	±134, 217, 728
▪ <b>Home Modes</b>	16 home mode + home motion defined by CiA402
▪ <b>Velocity Profiles</b>	T-Curve, S-Curve
▪ <b>Local I/O</b>	
General Input Signal	Input voltage: 24Vdc Max. Input delay: 100us Max. (isolation delay) Signal: EMG (emergency stop) ORG, +EL, -EL INPOS (in position signal) LTC (counter latch) RDY (servo ready) ALARM (servo alarm) SD (slow down)
General Output Signal	Output voltage: Open collect 24Vdc Max Output delay: 100us Max. (isolation delay) Sink current: 100mA per channel Signal: CMP (position compare in range output) SVON (servo on) RALM (reset driver alarm) ERC (counter clear signal)
General Purpose I/O:	16DI/16DO (terminal block)

#### Encoder Interface

- **Input Type** A/B phase, CW/CCW
- **Counts per Enc. Cycle** x1, x2, x4 (AB phase only)
- **Input Range** Low: 0 ~ 0.5V  
High: 3.5 ~ 7V
- **Isolation Protection** 2,500 V<sub>RMS</sub>
- **Max. Input Frequency** 10 MHz @ 4xAB

#### General

- **Bus Type** EtherCAT
- **Certification** CE, FCC Class A
- **Connectors** 2 x RJ-45 for communication ports  
DB-26 transfer cable to servo drives  
DB-37 for an extra 16 D/Is and 16 D/Os, others are screw terminal-type connectors
- **Dimensions (L x W x H)** 255 x 141 x 60 mm (5.6 x 4.3 x 2.4")
- **System Power Consumption** 10W max. (420mA @ 24V)
- **System Power Input** 24 V<sub>DC</sub>
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)

### Ordering Information

- **AMAX-3285-AE** 8-axes EtherCAT motion control module

#### Accessories

- **PCL-10153PA5-2E** 50-pin cable to Panasonic A4/A5 servo, 2 m
- **PCL-10153PA5LS-2E** 50-pin cable to Panasonic MINAS A servo, 2 m
- **PCL-10153YS5-2E** 50-pin cable to Yaskawa Sigma V/7 servo, 2 m
- **PCL-10153MJ3-2E** 50-pin cable to Mitsubishi J3/J4 servo, 2 m
- **PCL-10153DA2-2E** 50-pin cable to Delta A2 servo, 2 m



# AMAX-4830

# AMAX-4833

# AMAX-4834

## 16-ch Isolated Digital Input and 16-ch Isolated Digital Output EtherCAT Remote I/O Module

## 32-ch Isolated Digital Input EtherCAT Remote I/O Module

## 32-ch Isolated Digital Output EtherCAT Remote I/O Module



AMAX-4830



AMAX-4833



AMAX-4834



### Features

- Suitable for EtherCAT networks
- 16-ch digital input and 16-ch digital output with 2,500 V<sub>DC</sub> isolation
- Wide input voltage range (10 ~ 30 V<sub>DC</sub>)
- Wide output voltage range (5 ~ 40 V<sub>DC</sub>) and high output current (500 mA/ch)
- Quick removable European type connector
- LED indicators for I/O status

### Introduction

The Advantech AMAX-4830 offers quick and easy connections of digital input and output signals to EtherCAT systems. All digital input and digital output channels are protected by 2,500 V<sub>DC</sub> isolation circuit.

### Specifications

#### Communication

- **Interface** EtherCAT
- **Data transfer medium** Ethernet/EtherCAT cable (min. CAT 5), shielded
- **Distance between modules** Max. 100 m (100BASE-TX)
- **Delay** Approx. 1 μs
- **Data transfer rates** 100 Mbaud
- **Configuration** Not required
- **Power supply** 10 ~ 30 V<sub>DC</sub>

#### Digital Input

- **Channels** 16
- **Input voltage** Logic 0: 3 V max.  
Logic 1: 10 V min. (30 V max.)
- **Isolation protection** 2,500 V<sub>DC</sub>

#### Digital Output

- **Channels** 16
- **Load voltage** 5 ~ 40 V<sub>DC</sub>
- **Load current** 500 mA/ch (sink)
- **Isolation protection** 2,500 V<sub>DC</sub>

#### General

- **Connectors** 10-pin 3.81 mm terminal block \* 4 (I/O)  
3-pin 5.08 mm screw terminal block (power)  
RJ-45 \* 2 (EtherCAT)
- **Dimensions** 140 mm x 120 mm x 40 mm
- **Operating temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)

### Ordering Information

- **AMAX-4830-AE** 16-ch isolated digital input and 16-ch isolated digital output EtherCAT remote I/O module

### Features

- Suitable for EtherCAT networks
- 32-ch digital input with 2,500 V<sub>DC</sub> isolation
- Wide input voltage range (10 ~ 30 V<sub>DC</sub>)
- Quick removable European type connector
- LED indicators for I/O status

### Introduction

The Advantech AMAX-4830 offers quick and easy connections of digital input signals to EtherCAT systems. All digital input channels are protected by 2,500 V<sub>DC</sub> isolation circuit.

### Specifications

#### Communication

- **Interface** EtherCAT
- **Data transfer medium** Ethernet/EtherCAT cable (min. CAT 5), shielded
- **Distance between modules** Max. 100 m (100BASE-TX)
- **Delay** Approx. 1 μs
- **Data transfer rates** 100 Mbaud
- **Configuration** Not required
- **Power supply** 10 ~ 30 V<sub>DC</sub>

#### Digital Input

- **Channels** 32
- **Input voltage** Logic 0: 3 V max.  
Logic 1: 10 V min. (30 V max.)
- **Isolation protection** 2,500 V<sub>DC</sub>

#### General

- **Connectors** 10-pin 3.81 mm terminal block \* 4 (I/O)  
3-pin 5.08 mm screw terminal block (power)  
RJ-45 \* 2 (EtherCAT)
- **Dimensions** 140 mm x 120 mm x 40 mm
- **Operating temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)

### Ordering Information

- **AMAX-4833-AE** 32-ch isolated digital input EtherCAT remote I/O module

### Features

- Suitable for EtherCAT networks
- 32-ch digital output with 2,500 V<sub>DC</sub> isolation
- Wide output voltage range (5 ~ 40 V<sub>DC</sub>) and high output current (500 mA/ch)
- Quick removable European type connector
- LED indicators for I/O status

### Introduction

The Advantech AMAX-4830 offers quick and easy connections of output signals to EtherCAT systems. All digital output channels are protected by 2,500 V<sub>DC</sub> isolation circuit.

### Specifications

#### Communication

- **Interface** EtherCAT
- **Data transfer medium** Ethernet/EtherCAT cable (min. CAT 5), shielded
- **Distance between modules** Max. 100 m (100BASE-TX)
- **Delay** Approx. 1 μs
- **Data transfer rates** 100 Mbaud
- **Configuration** Not required
- **Power supply** 10 ~ 30 V<sub>DC</sub>

#### Digital Output

- **Channels** 32
- **Load voltage** 5 ~ 40 V<sub>DC</sub>
- **Load current** 500 mA/ch (sink)
- **Isolation protection** 2,500 V<sub>DC</sub>

#### General

- **Connectors** 10-pin 3.81 mm terminal block \* 4 (I/O)  
3-pin 5.08 mm screw terminal block (power)  
RJ-45 \* 2 (EtherCAT)
- **Dimensions** 140 mm x 120 mm x 40 mm
- **Operating temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage humidity** 5 ~ 95% RH (non-condensing)

### Ordering Information

- **AMAX-4834-AE** 32-ch isolated digital output EtherCAT remote I/O module

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 IDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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- 19 INetworking

# ADAM-5000/ECAT

## 4-Port Distributed High Speed I/O System for EtherCAT



RoHS  
COMPLIANT  
2002/95/EC

CE FCC

### Features

- 32-bit ARM RISC Processor
- 4 slots with various digital and analog I/O modules is just a single EtherCAT node on the network.
- Supports EtherCAT Distributed Clock (DC) mode and SyncManager mode
- Supports the Modular Device Profile (MDP) when all modules are a pure I/O function
- Configure I/O module parameters and upgrade via a utility
- Node addresses can be fixed by rotary switches, or set by software.
- Compatible with Advantech Common Motion SDK or other EtherCAT master through ENI file generation
- 8-bit DIP switch for Mode setting and three rotate switch for up to 4,096 slave IDs (x1, x10, x100)

\* I/O modules are optional

### Introduction

The ADAM-5000/ECAT 4-slot distributed flexible system can provide high-speed, high-precision remote I/O for EtherCAT. It is the link between the EtherCAT automation control network and the EtherCAT I/O modules ranging from basic DI/O's to high-speed AI/O models for different application scenarios. All our EtherCAT devices have been designed and tested to meet Advantech's stringent requirements on noise immunity. Fast, accurate, highly-efficient data transmission and easy remote configuration make ADAM-5000/ECAT the perfect match in industrial automation architecture.

### Specifications

#### Control System

- **CPU** 32-bit ARM RISC Processor
- **I/O Slots** 4
- **Memory** Flash ROM: 64M SPI  
RAM: 4G DDR3
- **LED Indicators** Power LED  
System status LED  
EtherCAT RUN LED  
EtherCAT ERROR LED  
EtherCAT Port 0 LINK LED  
EtherCAT Port 1 LINK LED

#### Communications

- **Data Transfer Rate** Up to 100 Mbps
- **Communication Cycle Time** 100 us
- **Interface** 2 x RJ-45
- **Wiring** UTP, category 5 or greater

#### Power

- **Power Consumption** 2.5 W @ 24 V<sub>DC</sub>  
(not including I/O modules)
- **Power Input** 10 ~ 30 V<sub>DC</sub>

#### Software

- **API** Advantech Common Motion Library
- **Windows Utility** Network setting, I/O configuration

#### Protection

- **I/O Module Isolation** 3.000 V<sub>DC</sub>
- **LAN Communication** 1.500 V<sub>DC</sub>
- **Overvoltage Protection** Yes
- **Power Reversal Protection** Yes

#### General

- **Certification** CE, FCC class A
- **Connectors** 1 x Screw-terminal for RS-485 (communication)  
1 x DB9-M for RS-232 (internal use)  
1 x Screw-terminal for power input  
2 x RJ-45 for LAN
- **Dimensions (W x H x D)** 231 x 110 x 75 mm
- **Mounting** DIN-rail, wall

#### Environment

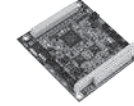
- **Operating Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** - 10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** - 25 ~ 85°C (-13 ~ 185°F)

### Ordering Information

- **ADAM-5000/ECAT-AE** 4-slot EtherCAT Distributed High Speed I/O System

# AMONet Solution Product Selection Guide

## AMONet Motion Master Cards



Model		PCI-1202U	PCM-3202P
Bus		PCI	PC/104+
Advanced Functions	General Purpose DI Channels	8	-
	General Purpose DO Channels	4	-
	Remote Motion	✓	✓
	Remote I/O	✓	✓
Dimensions (L x H)		175 x 100 mm	96 x 90 mm
Connectors		2 x RJ45	4 x 10-pin box header
Digital I/O Slave Modules		AMAX-1752, AMAX-1754, AMAX-1756, AMAX-2752SY, AMAX-2754SY, AMAX-2756SY	
Motion Slave Modules		AMAX-1220, AMAX-1240, AMAX-2241/PMA, AMAX-2242/J2S, AMAX-2243/YS2	
Page		2-27	2-27

## AMONet Motion Slave Modules



Model		AMAX-1220	AMAX-1240
Axis	Number of Axis	2	4
	Linear Interpolation	✓	✓
	2-axis Circle Interpolation	✓	✓
Advanced Functions	Encoder Channels	2	4
	Limit Switch Input Channels	4	8
	Home Input Channels	2	4
	Emergency Stop Input Channels	1	1
	Slow Down Limit Switches	4	8
	Servo On Output Channels	2	4
	BoardID Switch	✓	✓
	Position Compare Event	-	✓
	Position Latch	-	✓
	Simultaneously Start/Stop among Modules	✓	✓
	Power Consumption		2 W @ 24 V typical
Dimensions (L x W x H)		141 x 108 x 60 mm	
Page		2-28	2-28

## Isolated Digital I/O Slave Modules



Model	AMAX-1752	AMAX-1754	AMAX-1756
Isolated Digital Input Channels	32	-	16
Isolated Digital Output Channels	-	32	16
Typical Power Consumption	600 mW		
Maximum Power Consumption	2 W		
Dimensions (L x W x H)	141 x 95 x 60 mm		
Page	2-29	2-29	2-29

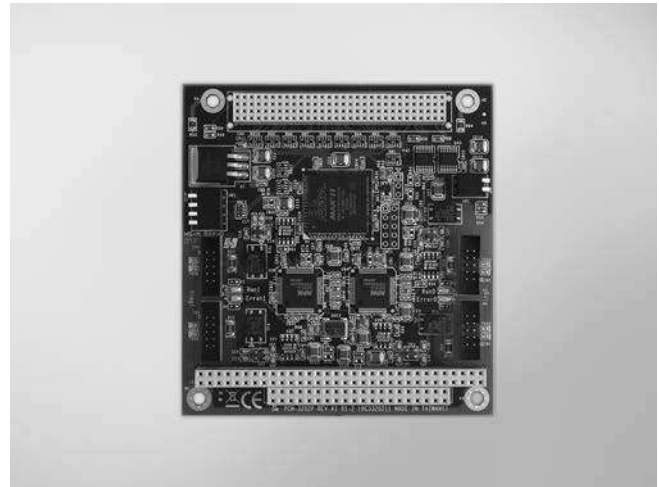
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# PCI-1202U PCM-3202P

## 2-Port AMONet RS-485 PCI Master Card 2-Port AMONet RS-485 PC/104+ Master Card



PCI-1202U



PCM-3202P



### Specifications

#### AMONet RS-485 Motion Control

- **AMONet RS-485** 2 rings
- **Interface** Half duplex RS-485
- **Cable Type** CAT5 UTP/STP Ethernet cable and above
- **Surge Protection** 10 kV
- **Transmission Speeds** 2.5, 5, 10, and 20 Mbps
- **Data Flow Control** Automatic
- **Communication Distance (Max.)** 100 m @ 20 Mbps w/32 slave modules  
100 m @ 10 Mbps w/64 slave modules
- **Slave Module** Digital I/O, Motion Control, Analog I/O

#### Isolated Digital Input

- **Channels** 8
- **Input Voltage** Dry contact (need external voltage source)
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Input Resistance** 2.4 kW @ 0.5 W

#### Isolated Digital Output

- **Channels** 4
- **Output Type** Open collector
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Output Voltage** 10 ~ 30 V<sub>DC</sub>
- **Sink Current** 1 ch: Max. 0.5 A  
4 ch: Max. 1.1 A (total)

#### General

- **Bus Type** Universal PCI V2.2
- **certification** CE, FCC Class A
- **Connectors** 2 x RJ45
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** 5 V<sub>DC</sub> @ 0.5 A typical
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temp.** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temp.** -20 ~ 85°C (-4 ~ 185°F)

### Ordering Information

- **PCI-1202U-AE** 2-port AMONet RS-485 PCI Master Card

### Specifications

#### AMONet RS-485 Motion Control

- **AMONet RS-485** 2 rings
- **Interface** Half duplex RS-485
- **Cable Type** CAT5 UTP/STP Ethernet cable
- **Surge Protection** 10 kV
- **Transmission Speeds** 2.5, 5, 10, and 20 Mbps
- **Data Flow Control** Automatic
- **Communication Distance (Max.)** 100 m @ 20 Mbps w/32 slave modules
- **Slave Module** Digital I/O, Motion Control, Analog I/O

#### General

- **Bus Type** PC/104+
- **Certification** CE, FCC Class A
- **Connectors** 4 x 10-pin box header
- **Dimensions (L x H)** 96 x 90 mm (3.8" x 3.5")
- **Power Consumption** 5 V<sub>DC</sub> @ 0.5 A typical
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temp.** 0 ~ 60°C (32 ~ 140°F)
- **Storing Temp.** -20 ~ 85°C (-4 ~ 185°F)

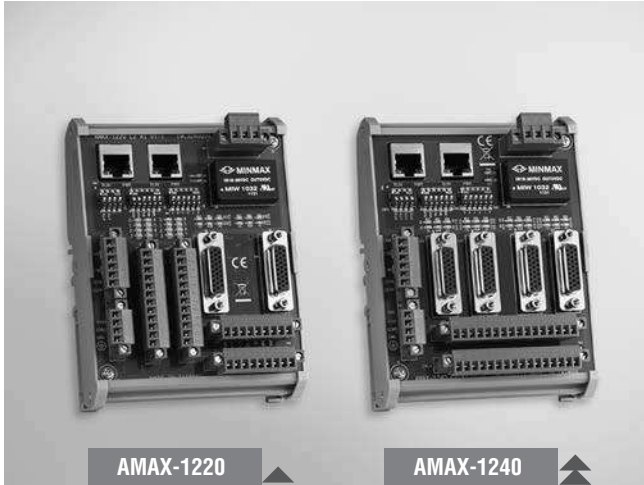
### Ordering Information

- **PCM-3202P-AE** 2-port PC/104+ AMONet RS-485 Master Card



# AMAX-1220 AMAX-1240

## Open Frame-Type 2/4-Axis AMONet Motion Slave Modules



AMAX-1220

AMAX-1240



### Features

- End limit logic is switchable (high or low active)
- BoardID is switchable
- Easily visible LED indicators on board to do diagnosis
- Direct wire to servo drive to save terminal board space while installation
- Max. 6.5 MHz, 4-axis pulse output
- 28 bits counter for incremental encoder
- Horizontal installation for for servo or stepping motor driver
- Suitable for DIN-rail mounting

### Introduction

AMAX-1220 and AMAX-1240 have compact open frame designs for horizontal placement and an interface connector mounted on the board. With a transfer cable to servo drive, both models can conveniently connect to Mitsubishi J3, Yaskwa Sigma V and Panasonic A4/A5.

The AMAX-1220 is an economic 2-axis AMONet slave module which supports motion functionality in point-to-point (PTP), linear & circular interpolation, simultaneously start/stop among multiple slave modules, and brake signal to servo for emergence consideration. The AMAX-1240 is an advanced 4-axis AMONet slave module which not only supports AMAX-1220 motion functionality, but also supports advanced features in position compare and triggering function. Both linear interval and table setups are supported.

### Specifications

#### Pulse-Type Motion Control

- **Motor Driver Support** Pulse-type servo
- **Number of Axes** AMAX-1220: 2  
AMAX-1240: 4
- **Interpolation** Linear and circular
- **Max. Output Speed** 6.5 Mpps
- **Step Count Range** ±134, 217, 728
- **Pulse Output Type** OUT/DIR, CW/CCW, A/B phase
- **Position Counter** ±134, 217, 728
- **Home Modes** 13
- **Velocity Profiles** T-Curve, S-Curve
- **Local I/O**

Machine Interfaces: EL+/-, ORG and SD (Slow Down) for Each Axis  
 Servo Driver Interfaces: ALM, RDY, SVON, INP, Break for Each Axis  
 Position Compare I/O: LTC, CMP for Each Axis(Only available for AMAX-1240-AE)

Simultaneous Move Within Multiple Modules: CSTA/CSTP (Simultaneously Start/Stop) for each model  
 General Purpose I/O: AMAX-1220 supports 8xDI and 8xDO

#### Encoder Interface

- **Input Type** A/B phase, CW/CCW
- **Counts per Enc. Cycle** x1, x2, x4 (AB phase only)
- **Input Range** Low: 0 ~ 0.5V  
High: 3.5 ~ 7V
- **Isolation Protection** 2,500 V<sub>RMS</sub>
- **Max. Input Frequency** 2 MHz @ 5 V

#### General

- **Bus Type** AMONet RS-485
- **Certification** CE, FCC Class A
- **Connectors** RJ-45 x 2 are for communication port  
DB-26 connector by transfer cable to servo drives. Other are screw terminal type connectors
- **Dimensions (L x W x H)** 141 x 108 x 60 mm (5.6" x 4.3" x 2.4")
- **System Power Consumption** 2 W @ 24 V typical
- **Output Channel Power Consumption** 120W typical, 240W max.
- **Input Channel Power Consumption** AMAX-1220: 8 W @ 24 V external power (max.)  
AMAX-1240: 10 W @ 24 V external power (max.)
- **System Power Input** 24 V<sub>DC</sub> within 200 mV ripple
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)

### Ordering Information

- **AMAX-1220-AE** Economic 2-axis AMONet Motion Control Module
- **AMAX-1240-AE** Advanced 4-axis AMONet Motion Control Module

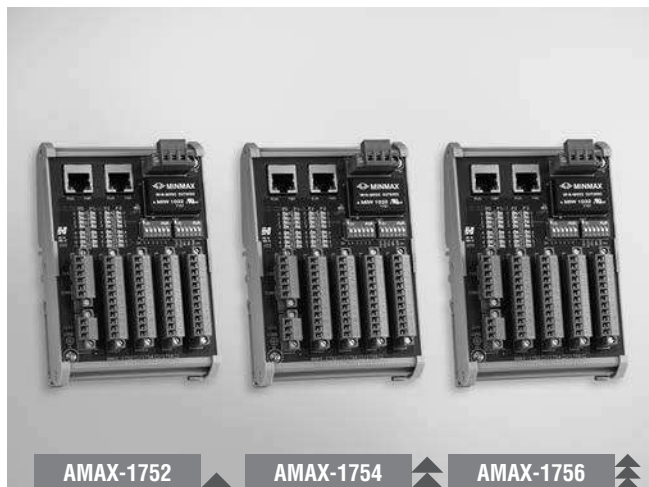
#### Accessories

- **PCL-10153PA5-2E** 50-pin Cable to Panasonic A4/A5 Servo, 2 m
- **PCL-10153PA5LS-2E** 50-pin Cable to Panasonic MINAS A Servo, 2 m
- **PCL-10153YS5-2E** 50-pin Cable to Yaskawa Sigma V/7 Servo, 2 m
- **PCL-10153MJ3-2E** 50-pin Cable to Mitsubishi J3/J4 Servo, 2 m
- **PCL-10153DA2-2E** 50-pin Cable to Delta A2 Servo, 2 m

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
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# AMAX-1752 AMAX-1754 AMAX-1756

## Open Frame Type 32-ch Isolated Digital Input/Output Slave Modules



AMAX-1752

AMAX-1754

AMAX-1756



### Features

- Communication baud rate, 2.5Mbps, 5Mbps, 10Mbps and 20Mbps are supported and switchable
- Onboard screw terminal for direct wiring
- 2,500 VRMS Isolation voltage
- Suitable for DIN-rail mounting
- BoardID is switchable
- Easily visible LED indicators on board to do diagnosis

### Introduction

The AMAX-1752, AMAX-1754 and AMAX-1756 are compact open frame designs for horizontal placement, on-board screw terminal for direct wiring and on-board easily-visible LED indicators are for system diagnosis. All the digital I/O slave modules could be connected and distributed by standard LAN cables thereby saving wiring costs and maintenance. Three models are introduced: 32-ch digital input (AMAX-1752), 32-ch digital output (AMAX-1754) and 16-ch digital input/output (AMAX-1756). According to maximum communication baud rate, 2048 I/O points can be scanned and updated within 1.04 ms.

### Specifications

#### Isolated Digital Input

- **Channels** AMAX-1752: 32  
AMAX-1756: 16
- **Input Type** Dry contact
- **Isolation Protection** 2,500 V<sub>RMS</sub>
- **Opto-Isolator Response** 100 μs (max.)
- **Input Resistance** 3.2kΩ

#### Isolated Digital Output

- **Channels** AMAX-1754: 32  
AMAX-1756: 16
- **Output Type** Sink (NPN) (open collector Darlington transistors)
- **Isolation Protection** 2,500 V<sub>RMS</sub>
- **Output Voltage** 10 ~ 30 V<sub>DC</sub>
- **Sink Current** 1 ch: 500 mA (1 port)

#### General

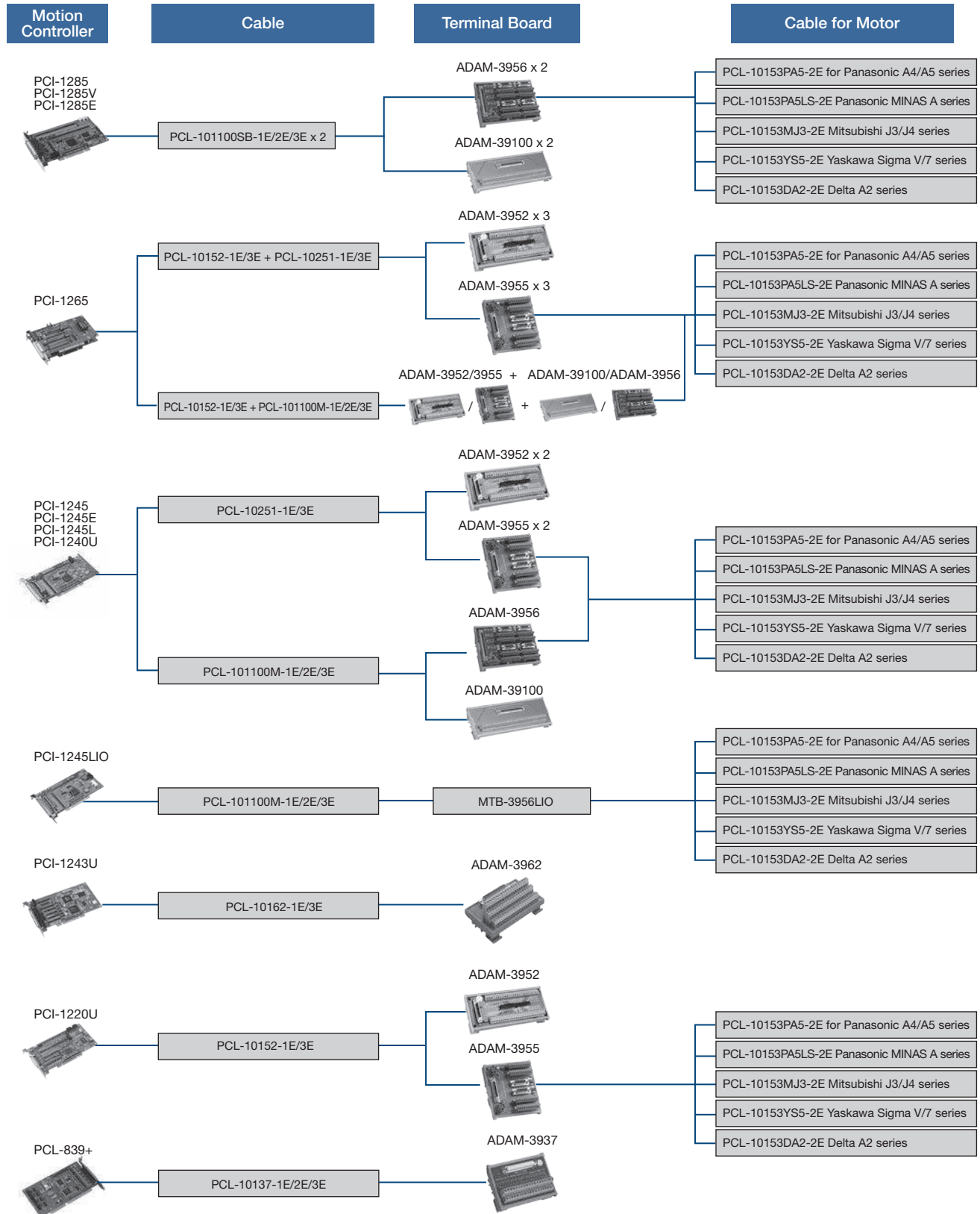
- **Bus Type** AMONet RS-485
- **Certification** CE, FCC Class A
- **Connectors** (1) RJ-45 x 2 are for communication port  
(2) I/O points use screw terminal type connector
- **Dimensions** 141 x 95 x 60 mm (5.6" x 3.7" x 2.4")
- **Power Consumption** 600mW typical, 2 W max.
- **Power Input** 24 V<sub>DC</sub> within 200 mA ripple
- **Power Supply for DIO** 10 ~ 30 V<sub>DC</sub> (2A max)
- **Humidity** 5 ~ 95% RH, non-condensing (IEC 60068-2-3)
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)

### Ordering Information

- **AMAX-1752-AE** Open Frame Type 32-ch Isolated Digital Input AMONet Module
- **AMAX-1754-AE** Open Frame Type 32-ch Isolated Digital Output AMONet Module
- **AMAX-1756-AE** Open Frame Type 16/16-ch Isolated Digital I/O AMONet Module

# Terminal Board & Cable Selection Guide

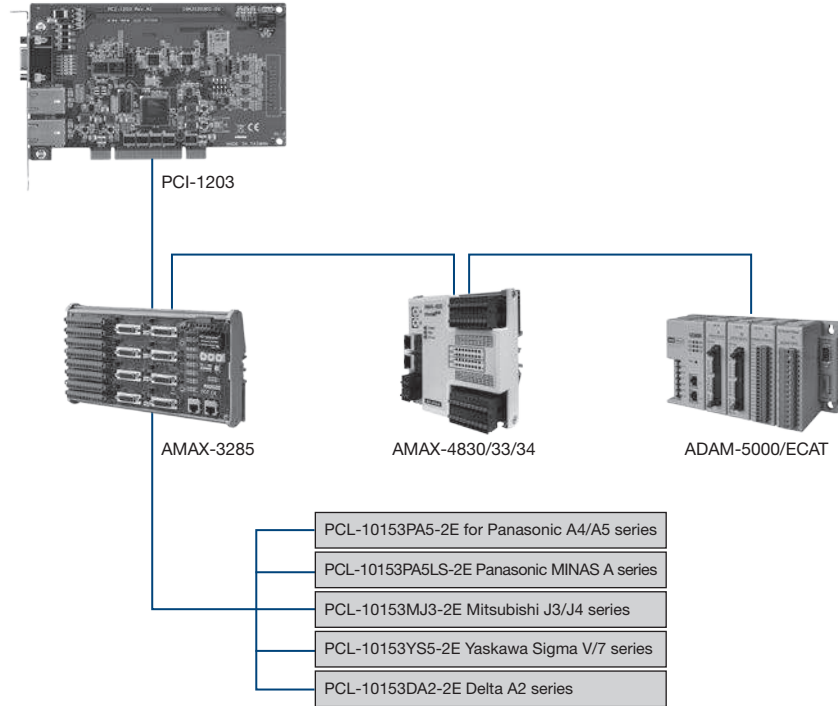
## Motion Card



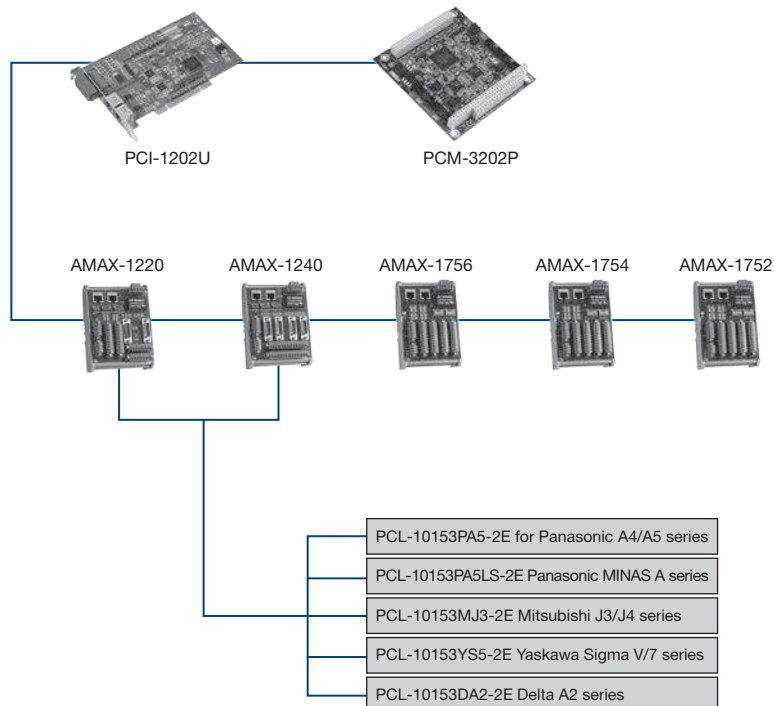
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# Terminal Board & Cable Selection Guide

## EtherCAT



## AMONet





# Machine Vision Introduction

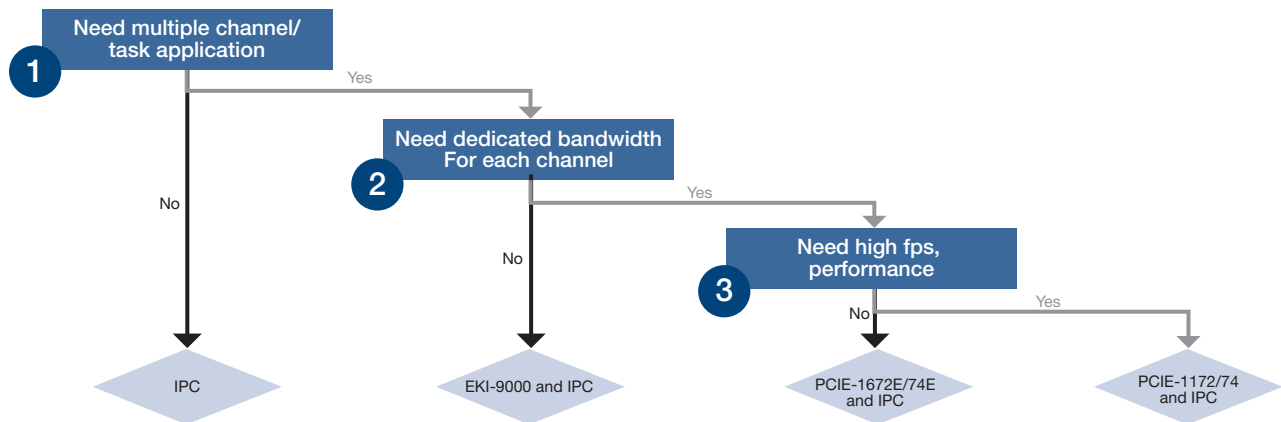
## Introduction

Machine vision is used in every manufacturing market, from food beverage, pharmaceuticals, automotive, semiconductor to general manufacturing, the human eye inspection and response is too slow and unreliable for the demanding manufacturing process nowadays, replacing human inspection with machine vision can go further in the automating factory operation, the majors applications are quality assurance, production automation and identification

The era of Industry 4.0 is upon us, the scope of the factory will change dramatically, not only the ability to produce, but to produce with the most flexibility and efficiency, machine vision plays an important role in achieving 100% quality control in manufacturing, reducing costs, increase flexibility and ensuring a high level of customer satisfaction to fit the demands of smart manufacturing.

The move from analog to digital is prevalent, and the GigE Vision become the most significant interface in this market, Advantech provides high performance GigE Vision solutions, an open PC-based architecture, including industrial camera, computing platform, frame grabber for the traceability, alignment, gauge, identification and inspection application to fulfill the requirements for versatile machine vision applications.

## Selection Guide



## Application Stories

### Backend semiconductor packaging inspection machines

The semiconductor industry has some of the most demanding applications, requiring a combination of extreme accuracy and precision combined with high throughput. Keeping up with innovations in packaging, the challenges to achieve this drastically increase. The fast-paced progress towards greater densities and finer dimensions are pushing the limits of vision systems.

Advantech suggested an intelligent GigE Vision frame grabber, DSP-based multi-axis motion control card and compact modularized system for direct integration in space-constrained machine to accomplish high-precision, high productivity IC packaging inspection. The solution adopts an industrial grade computer to combine PCIe-1174, four-channel intelligent GigE Vision frame grabber with include a dedicated FPGA (Field Programmable Gate Array) to reconstruct images before transmitting them in real time to the host PC via DMA (Direct Memory Access). This then frees up the host PC's processor and ensures there is no frame or packet loss during image acquisition.

### Improve fabric quality in textile industry

Textile manufacturing is a very complex process. Weaving is the most basic process which involves interlacing a set of vertical threads (called the warp) with a set of horizontal threads (called the weft).

The new optical web inspection system can detect the warp thread break less one second and ease of use and maintenance. Accordingly, Advantech suggested the UNO-3283G, an Intel i7 Fanless Automation Computer with 2 x GbE, 2 x mPCIe, HDMI, DVI-I, and PCIe-1172, two channel intelligent GigE Vision frame grabber with include a dedicated FPGA (Field Programmable Gate Array) to reconstruct images before transmitting them in real time to the host PC via DMA (Direct Memory Access). This then frees up the host PC's processor and ensures there is no frame or packet loss during image acquisition. To further aid installation and maintenance, this series also includes the use of PoE (Power over Ethernet) and Ad Hoc protocol which, like DHCP, doesn't require a specific IP address and enables System Integrators (SI) to simply plug the camera in and go.

### Implement the product traceability in food & beverage

As the market demand for food safety increases, traceability is getting more attention in the food and beverage industry as well as the packaging industry. One of the world's leading providers of beverage containers would like to identify the bar codes, characters and numbers on the ink-jet printing labels at a 7 unit per second run rate. Advantech provided the multiple camera, PC-based automated optical identification system to identify the bar code, data code, and the character on the beverage container, the system consists of AIIS-1240, 4-CH PoE compact vision system with Intel® Core™ i7 CPU; Inspector Express, a graphical user interface machine vision application software specifically designed to simplify the design and deployment of automated inspection on the factory floor; QCAM-GM0640-120CE, 0.3 Megapixel industrial camera, features with the PoE (Power over Ethernet) to simplify installation and maintenance.

### Vision system and robotics ensure finished product quality in automotive industry

In the automotive industry, quality control is an extremely important part. Most of time, there are engineers to verify the interiors and exteriors, including dash board, door, seat, light, and color for the finished product quality check. In one of the largest automotive groups, there are about 100 items in the finished product check list and the client was looking for a quality check system to perform the inspection automatically. To automate the quality check of the parts in different vehicles, a flexible and extensible system had to be created, and due to numbers of characteristic, the system integrators designed the AOI (Automated Optics Inspection) system with multiple-camera and robots for high flexibility and efficiency. To satisfy this case, Advantech suggested PCIe-1674E, four channel GigE Vision frame grabber and QCAM-GM2500-014CE, 5.0 Megapixel industrial camera including PoE (Power over Ethernet) function, to simply the installation and maintenance. Besides these, there are other products to help provide the client with the desired functionality. The UNO-3283G, an Intel i7 Fanless Automation Computer with 2 x GbE, 2 x mPCIe, HDMI, DVI-I, and the PC-1756, a 64-ch Isolated Digital I/O PCI Card for digital signal path to provide the total solutions in this case.

- 1 WebAccess\* Solution
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### Preliminary



### Features

- Best price/performance ratio CCD and CMOS sensor options
- Resolution up to 10.0 MP
- 100 m cable length
- Ultra small form factor
- Built in 56 MB frame buffer
- Power over Ethernet

### Introduction

The Advantech Quartz industrial camera series have between 0.3-10.0 mega pixel CCDs and include ultra-fast speeds and a high level of technology in a very small form factor.

With the Quartz series, you can choose to use many of the most popular data interfaces in the machine vision market: the popular Gigabit Ethernet interface comes with a 100 meter cable length, and PoE (Power over Ethernet) to provide camera power and data via a single cable, and also offer separate input/output ports for triggering or flash control.

### Specifications

- **Resolution** 640 x 480, 1280 x 1024, 1600 x 1200, 2592 x 1944, 3856 x 2764
- **Frame Rate** 120fps, 60fps, 60fps, 14fps, 10fps
- **Pixel Size (  $\mu\text{m}$  )** 5.6 x 5.6, 5.3 x 5.3, 4.5 x 4.5, 2.2 x 2.2, 1.67 x 1.67
- **Sensor Size** 1/4", 1/1.8", 1/1.8", 1/2.5", 1/2.3"
- **Color format** Mono
- **Image Buffer** 56 MB
- **Interface** Gigabit Ethernet(Power over Ethernet )
- **Trigger Input** 1 opto-isolated input line, can act as digital input
- **Exposure Output** 1 opto-isolated output line, can act as digital output
- **Synchronization** External trigger, software trigger or free run
- **Dimensions** 42 mm x 29 mm x 29 mm
- **Operating Temperature** 0-50°C
- **O.S Support** Windows 32/64 bit
- **Power Requirements** Power over Ethernet (IEEE 802.3af), or +12V<sub>DC</sub> ( $\pm 10\%$ )
- **Weight** 90 g

### Ordering Information

- **QCAM-GM0640—120CE** 640x480 Mono
- **QCAM-GM1300—060CE** 1280x1024 Mono
- **QCAM-GM1600—060CE** 1600x1200 Mono
- **QCAM-GM2500—014CE** 2592x1944 Mono
- **QCAM-GM3800—010CE** 3856x2764 Mono

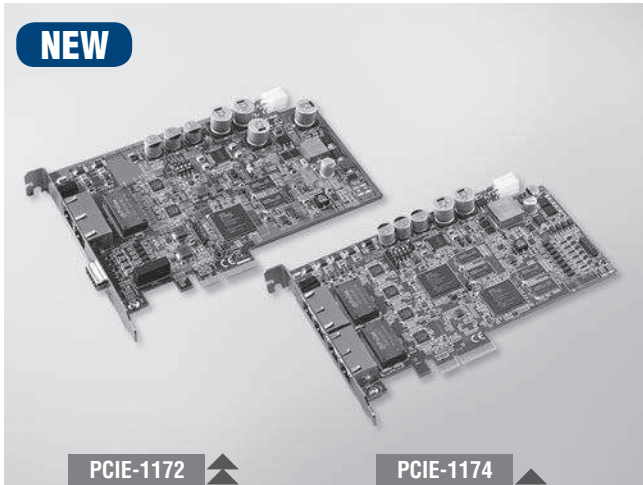
# PCIE-1172

# PCIE-1174

## 2-Port PCI Express Intelligent GigE Vision Frame Grabber

## 4-Port PCI Express Intelligent GigE Vision Frame Grabber

**NEW**



PCIE-1172

PCIE-1174

GEN<D>CAM **GIGE**  
VISION

### Features

- PCI Express® x4 compliant
- GoE(GigE Vision Offload Engine), FPGA image reconstruction, No packet loss, No CPU workload
- GigE Vision, GENICAM and GENTL compliant
- Automatic IP configuration
- 100 m cable length
- PoE, IEEE 802.3af compliant
- Direct power from PCIe slot (Total Max. 18W)
- ToE (Trigger over Ethernet)

### Introduction

The PCIE-1172/1174 series is a PCI Express® dual/quad channel frame grabber for two/four independent GigE Vision cameras. They feature GoE (GigE Vision Offload Engine), PoE (Power over Ethernet) and ToE (Trigger over Ethernet) for high performance, robust and reliable machine vision applications. Unlike conventional NICs (network interface controller) GigE Vision protocol is implemented in software and executed on the host CPU, the processor must spend more resource to handle the network traffic and incoming frames rather than the machine vision algorithms, especially in high bandwidth, multiple camera applications. The GoE feature significantly off-loads the GigE Vision protocols into dedicated FPGA (Field Programmable Gate Array), reconstruct the image then transmit to the Host PC via DMA (Direct Memory Access) in real time, release the host processor resource to execute algorithm and applications and there is no frame or packet loss during the image acquisition. The comprehensive ToE/PoE features can lower the installation/maintenance effort through the single cable connection, and reduce image acquisition latency, with the Ad hoc network feature, the connection between GigE Vision cameras and frame grabber are self-configuring, the user define IP address is no longer necessary, and significantly reduces the installation and maintenance cost and effort.

### Specifications

#### GigE Vision

- **Compatibility** IEEE802.3af
- **Speed** 1000 Mbps
- **No. of Ports** 2 or 4
- **Port Connector** 8-pin RJ45
- **Bus Interface** PCI Express® x4
- **Jumbo Frame** 9KB

#### Digital Input/Output

- **No. of Channels** 2 or 4 input and output
- **Input/Output range** 0-30V opto-isolated
- **Max. frequency** 1KHz
- **Digital input interrupt** Falling and Rising edge, normal and invert

#### Power Requirements

- **Input Voltage** 12 VDC direct from PCIe slot, total Max. 18W or ATX System power input
- **Overload Current Protection** Present
- **Connection** AT/ATX Power Jack
- **Output PoE Power** 48 V<sub>DC</sub> PoE Power output

#### Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH

#### Mechanics

- **Dimensions (W x D)** 185 x 110 mm (7.3" x 3.9")

#### Certification

- **Patent** <http://www.advantech.com/legal/patent>

### Ordering Information

- **PCIE-1172-AE** 2-port PCI Express Intelligent GigE Vision Frame Grabber
- **PCIE-1174-AE** 4-port PCI Express Intelligent GigE Vision Frame Grabber

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WebAccess® Solution

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Intelligent Motion Control and Machine Vision

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Power & Energy Automation

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Industrial Operator Panels

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Thin-Client Terminals

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High-Performance Control Panels

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Control Cabinet PCs

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Industrial IoT Gateways

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Industrial monitors

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iDoor Technology Modules

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Panel PCs

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Control IPCs

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Remote DA&C System

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Wireless IoT Sensing Devices

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Ethernet I/O Modules

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RS-485 I/O Modules

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Industrial Ethernet Solutions

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IP Gateway and Serial Device Servers

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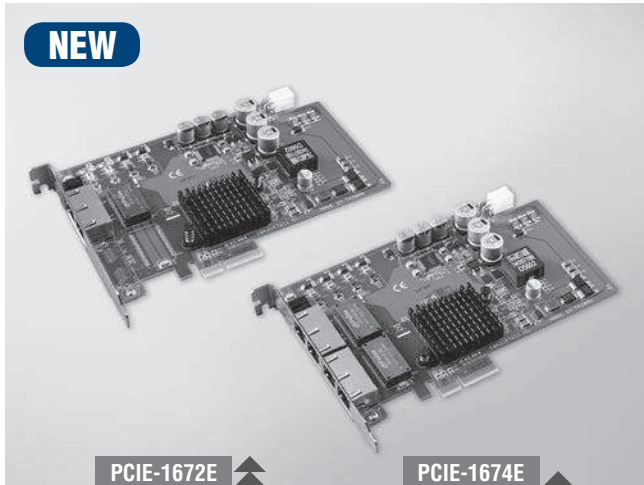
iNetworking

# PCIE-1672E PCIE-1674E

2-Port PCI Express GigE Vision Frame Grabber

4-Port PCI Express GigE Vision Frame Grabber

NEW



## Features

- Intel® server-grade GbE Mac Controller
- PCI Express® x4 compliant
- PoE power from PCIe slot (Total Max. 18W)
- Powered Device (PD) auto detection and classification
- Supports IEEE 802.3u Auto-Negotiation
- Supports Jumbo frame (9,500 byte) and link aggregation
- Supports IEEE-1588 and IEEE-802.1 AS

## Introduction

The PCIE-1672E/PCIE-1674E PoE (Power over Ethernet) PCIe series is PCI express Network Interface Card which supports 2 or 4 independent 10/100/1000BaseT(X) 802.3af (PoE) compliant Ethernet ports. With 12 VDC AT/ATX power input, the PCIE-1672E/PCIE-1674E can boost then provides up to 15.4 watts at 48 VDC power to maximum 2 or 4 x PoE ports on each module. It allows power to be supplied to connected devices, such as PoE-based GigE cameras in machine vision inspection systems, without the need to use separate PoE injectors for those applications. The PCIE-1672E/PCIE-1674E is ideally designed for scientific research instrumentations, Medical Research Instrumentations, Machine Vision System, which can also benefit from a scalable Gigabit backbone construction with Power-over-Ethernet support.

## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3af
- **Speed** 10/100/1000 Mbps
- **No. of Ports** 2 or 4 Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports.
- **Port Connector** 8-pin RJ45
- **Bus Interface** PCI Express® x4 compliant

### Protection

- **ESD** 8KV (air), 4KV (contact)
- **EFT** 2 KV
- **Surge Protection** 1 KV

### Power Requirements

- **Input Voltage** 12 V<sub>DC</sub> direct from PCIe slot, or AT/ATX System power input
- **Overload Current Protection** Present
- **Connection** AT/ATX Power Jack
- **Output PoE Power** 48 V<sub>DC</sub> PoE Power output, total Max. 18W (total Max. 60W with AT/ATX System power input)

### Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH

### Mechanics

- **Dimensions (W x D)** 185 x 110 mm (7.3" x 3.9")

### Certification

- **Patent** <http://www.advantech.com/legal/patent>

## Ordering Information

- **PCIE-1672E-AE** 2-port PCI Express GigE Vision Frame Grabber
- **PCIE-1674E-AE** 4-port PCI Express GigE Vision Frame Grabber



## Power & Energy Automation

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<b>UNO-4671A</b>	Intel® Atom™ D525 Power & Energy Automation Computers with 6 x LAN, 10 x COM, and 1 x PCI-104	<b>3-7</b>
<b>ECU-4574</b>	Intel® Atom™ N2600 Power & Energy Computers with 8 x LAN, 10 x COM Ports	<b>3-8</b>
<b>ECU-4674</b>	Intel® Atom™ N2600 Power and Energy Computers with 8 x LAN, 18 x COM, 8 x D/I, 8 x D/O, 1 x IRIG-B, and 1 x PCI-104	<b>3-9</b>
<b>UNO-4673A</b> <b>UNO-4683</b>	Intel® Atom™/Core™ i7 Automation Computers with 6 x LAN, 2 x COM and 3 x Expansion Slots	<b>3-10</b>
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<b>UNOP-1514RE/PE</b>	4-Port Gigabit Base Ethernet Card	
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# Power and Energy Automation Overview

## Introduction

The successful management of power & energy applications is becoming increasingly critical as new energy sources, distributed across a much wider area than fossil fuels, become increasingly important. The informatization, intellectualization and energy development of these new energy sources will change the traditional model, from a single communication model without response, to an alarm-to-intercommunication, and unified communication model.

Advantech, as a leading manufacturer of industrial PCs for power and energy applications, provides intelligent components, from smart meters, IEC-61850-3 certified industrial computers, intelligent wireless gateway to SCADA software, focusing on renewable energy generation, substation automation system development and energy management.

Through a host of innovative products and solutions, Advantech has shown itself to be one of the key enablers of Industrial IoT and Industry 4.0.

## Smart Substation Automation

### Applications for station level, bay level and process level

#### ▪ SCADA Application

In Smart Substations, it's essential to be able to remotely monitor substation devices from a central management center. To achieve this, high performance computing platforms integrate HMI/DATA collection, data monitoring, environmental status, which help operators accurately evaluate their devices' status and take action.

- Application Requirements
  - Reliable IEC 61850-3 certification
  - High-performance computing platform
  - AMT/TPM

#### ▪ Cyber Security for Smart Grids

There are different grades of network protection priorities in a substation, and use in these environments needs reliable cyber security. This requires a software firewall or comparable hardware firewall devices to prevent illegal and unauthorized user access.

- Application Requirements
  - Reliable IEC 61850-3 certification
  - High-performance Ethernet
  - Virtual Machine/TPM

#### ▪ Communication & Data Gateway with IEC 61850

Within a substation, various devices use a wide variety of protocols, such as IEC-60870-101/103/104, Modbus or other private rules. The status and information of these devices needs to be accurately monitored and collected through a gateway computer with a unified communication transition protocol. It's very important that transfer devices use various protocols to unify the IEC-61850 protocol.

- Application Requirements
  - Reliable IEC 61850-3 certification
  - Multiple communication interfaces support
  - Isolated serial ports, Ethernet ports, IIRIG-B

#### ▪ Auxiliary Safety Monitoring

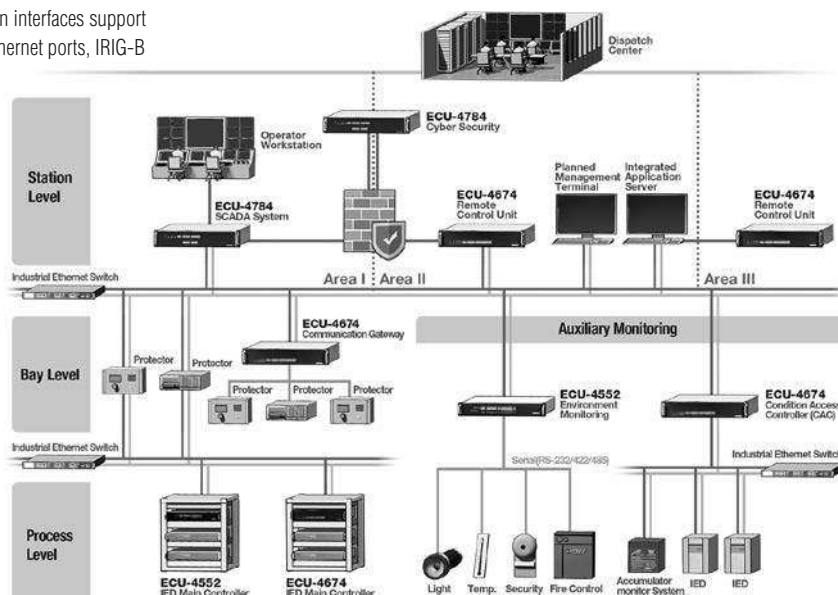
Along with modern computing and network communication technology, fast developing, electricity system automation becomes more important, especially for safety precaution related applications. The goal is to avoid the issues of traditional substation "isolated island", such as non-precaution and non-linkage conditions. Advantech's computers and devices provide safety related information acquisition and monitoring, such as environmental parameters, facility parameters, access guard status and other unusual conditions.

- Application Requirements
  - On-board or expansion IO for data acquisition
  - Communication protocol support for monitoring sensors

#### ▪ Primary Device Monitoring

In smart substations, traditional primary devices including transformers, GIS, CT/VT, Thunder and other isolated switches, normally operate without precaution, monitoring or unified communication protocols. Along with the development of modern smart substations, the IEC-61850 standard is latest trend in substation applications and primary device monitoring. To meet these requirements, Advantech provides IEC-61850 compliant computer platforms for data communication and transmission which keeps primary devices operating normally.

- Application Requirements
  - Flexible I/O, communication interfaces and protocol support
  - Highly reliable computing platform



## Renewable Energy-Solar Monitoring solution

With the increasing construction of solar power plants, customers are finding it difficult to handle issues of the number of communication protocol requests, unstable communication networks on distributed farms and no high-efficiency or intelligent monitoring software. This means traditional solar power monitoring solutions can not satisfy modern fast developing solar operation requirements.

To solve customers' issues, Advantech provides high-performance computing platforms, total data acquisition modules, communication protocol gateways, network communication and cloud software solutions with multiple communication protocols and stable Ethernet or wireless network support, network switchboards and remote monitoring software.

### ■ Data Acquisition Using Multiple Communication Protocols

There are many types of electrical equipment in solar power farms, such as inverters, combiner boxes, intelligent or non-intelligent power meters, which need the support of a diverse range of communication protocols. For device data acquisition Advantech provides communication platforms compatible with these protocols.

- Application Requirements
  - X86/ RISC-based gateway platforms
  - Multiple serial ports / network ports
  - IEC-60870 / Modbus / DNP3 protocol support

### ■ Wireless Communication on Distributed Solar Power

Distributed solar power farms are scattered over vast and remote areas, and establishing a stable communication network system under this applications is not easy. To reduce wiring costs and maintain a stable communication network, Advantech provides gateways capable of supporting 2G/3G/Wi-Fi/4G wireless for selection and keeping communication networks stable and with data integrity.

- Application Requirements
  - 2G/3G/Wi-Fi/4G wireless
  - Reliable platform with integrated intelligent software

### ■ Remote Monitoring and Maintenance

The operating status of solar power plants (especially solar panels) directly affects power generation efficiency and capacity. Comprehensive centralized monitoring and scientific management is important. Due to the characteristics of wide areas and long distances, Advantech provides remote control solutions for helping administrators immediately understand the operational status of the plant through handheld devices or PCs. This helps with the timely control and maintenance of equipment while enhancing the efficiency and safety of solar power plants.

## Power Energy Management

In order to reduce production costs and increase product profitability, manufacturing factories require the integrated monitoring management and optimization measures to manage their high energy-consuming facilities. Advantech not only provides the practical and easy-to-implement energy management solutions, but also has a full range of portfolios, including the front-end products (smart meter, data acquisition module and control host) and back-end management platform to offer the complete solutions for enterprises to achieve energy efficiency.

### ■ Multifunction Smart Meter

WISE-M500 series products are multifunctional smart meters and are in line with European standard design with easy to install and configure to meet the energy monitoring requirements of industrial equipments at minimum investment costs as well as obtaining maximum economic benefits.

### ■ High Energy-consuming Equipment Monitoring Application

Since harmonic can have a significant impact on electrical distribution systems and the critical facilities they feed, Advantech's energy-consuming management solutions use the equipment failure diagnosis and prevention mechanism to provide analytical information through monitoring the harmonic currents generated by non-linear electronic loads, so as to improve production efficiency and reduce maintenance and energy costs.

### ■ Factory Facility Monitoring Application

By providing real-time energy consumption data to accurately grasp the key moments, Advantech's factory facility monitoring system aimed at controlling the high consumption facilities such as lighting, HVAC (heating, ventilation and air conditioning) and UPS (uninterruptible power supply). Meanwhile, we offer the time-of-use pricing service to adjust the use and operation of the facility according to the actual power usage and electricity tariff, thus saving energy costs.

### ■ WebAccess Based Remote Energy Management Solution

For the factory's energy consumption, Advantech WebAccess SCADA software is able to implement the remote management, energy consumption status overview, energy saving potential assessment and recommend practical measures, energy monitoring and reporting analysis, etc. to effectively achieve energy savings and cost control.

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WebAccess\* Solution

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Intelligent Motion Control and Machine Vision

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iNetworking

# Rackmount Automation Computers Selection Guide

## P&E Automation Computers



Model Name	UNO-4671A	ECU-4674	ECU-4574	UNO-4673A/4683	ECU-4784	
Certification	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3/ IEEE 1613/ China Electricity IV level/ UL/ CB/ LVD Certificate	
CPU	Intel Atom D525 1.8GHz	Intel Atom N2600 1.66GHz	Intel Atom N2600 1.66GHz	Intel Atom D510, 1.6 GHz Intel Core i7, 2.0 GHz	Intel Haswell Core i7-4650U 1.7 GHz	
RAM	4GB DDR3 SDRAM	2G DDR3 SDRAM	2G DDR3 SDRAM	2GB DDR2 SDRAM 4GB DDR3 SDRAM	8G DDR3L SDRAM 16G DDR3L SDRAM	
Battery-Backup RAM	-	-	-	1 MB	-	
Display	VGA	VGA	VGA	VGA/DVI-I	VGA/DVI	
Serial Ports	2 x Isolated RS-232, 4 x Isolated RS-422/485, 4 x Isolated RS-485	2 x Isolated RS-232, 16 x Isolated RS-232/485	2 x isolated RS-232 8 x isolated RS-232/485	2 x Isolated RS-232/422/485	2 x Isolated RS-232 (Standard), 8 x RS-232/422/485	
Ethernet Ports	2 x 10/100/1000Base-T and 4 x 10/100 Base-T RJ-45	2 x 10/100/1000Base-T 6 x 10/100Base-T	2 x 10/100/1000Base-T 6 x 10/100Base-T	2 x 10/100/1000, 4 x 10/100 Base-T RJ-45	1 x 10/100/1000 Base T RJ45 (Support AMT) 7 x 10/100/1000 Base T RJ45	
Smart LAN	-	-	-	-	-	
USB Ports	Four (One internal)	Five (One internal)	Four	Six (One internal)	Six (One internal)	
PC/104 Expansion	PCI-104	PCI-104	-	-	-	
Onboard I/O	-	8 x isolated DI, 8 x isolated DO	-	-	-	
Watchdog Timer	Yes	Yes	Yes	Yes	Yes	
CompactFlash Slots	One Internal	One Internal	One Internal	One Internal	One Internal	
2.5" HDD Expansion	1 x SATA	2 x SATA	1 x SATA	1 x SATA	2 x SATA	
Operating Systems	WES2009, WES7, Windows CE 6.0 and Linux	WES7, Windows7, Linux	WES7, Windows7, Linux	WES7, Windows XP Embedded, Windows / XP, Windows CE 6.0, Linux, QNX, Win10, Win7, Windows Server 2008R2/ 2012/ 2012R2	Windows7, Windows8, Windows Server 2008 R2, WES7(WSP), Windows Server 2012R2, Windows Embedded 8 64-bit, Linux	
Mounting	2U Rackmount	2U Rackmount	1U Rackmount	2U Rackmount	2U Rackmount	
Anti-Vibration	2 G w/CF, 0.5 G w/HDD	2 G w/CF, 1 G w/HDD	2 G w/CF, 1 G w/HDD	2 G w/CF, 1 G w/HDD	2 Gw/CF, 1 Gw/HDD	
Anti-Shock	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-25 ~ 70°C (-13 ~ 158°F)	-25 ~ 70°C (-13 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-25 ~ 70°C (-13 ~ 158°F)	
Power Consumption Typical	30 W	30 W	30 W	45 W	25 W	
Power Requirements	Supports Redundant power input Power 1: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub> Power 2: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>	Supports Redundant power input Power 1: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub> Power 2: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>	Supports Redundant power input Power 1: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub> Power 2: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>	Supports Redundant power input Power 1: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub> Power 2: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>	Supports Redundant power input Power 1: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub> Power 2: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>	Supports Redundant power input Power 1: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub> Power 2: 100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>
Dimensions (W x D x H)	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 272 x 44 mm (17.3" x 8.6" x 3.4")	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	
Weight	~ 5.5 kg	~ 6.0 kg	4.6 Kg	~ 6.0 kg	~ 6.0 kg	
Page	3-6	3-7	3-8	3-9	3-10	



# Stand mount RISC-based Industrial Communication Gateway



Module Name	ECU-1152	ECU-4553
Certification	CE/FCC	CE/FCC/CCC
CPU	TI Cortex A8 800MHz	TI Cortex A8 800MHz
RAM	DDR3L 512MB	DDR3L 1GB
Serial Ports	6 x isolated RS-232/485	18 x isolation RS-232/485
Ethernet Ports	2 x 10/100 Base-T	4 x 10/100 Base-T
CAN	-	2 x CAN 2.0B
Display	-	VGA
USB Ports	1	1
Storage	2 x SD (Micro-SD)	2 x SD (Micro-SD)
Watch Timer	Yes	Yes
Power Requirements	10 ~ 30 V <sub>DC</sub>	100 ~ 240 V <sub>AC</sub> or 100 ~ 240 V <sub>DC</sub>
Operating System	RT-Linux 3.12	RT-Linux 3.12
Mounting	Wall-mount/ DIN-rail	1U Rack-mount
Anti-vibration	2G w/Micro-SD	2G w/Micro-SD
Anti-shock	10G w/Micro-SD	10G w/Micro-SD
Operating Temperature	-40°C ~ 70°C	-20°C ~ 70°C
Typical Power Consumption	24W	6.6W
Dimensions	170 x 110 x 32.2 mm	440 x 220 x 44 mm
Weight	1.5kg	4.5kg
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1

WebAccess® Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

5

Thin-Client Terminals

6

High-Performance Control Panels

7

Control Cabinet PCs

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Industrial IoT Gateways

9

Industrial monitors

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iDoor Technology Modules

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Panel PCs

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Remote DA&C Systems

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Ethernet I/O Modules

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RS-485 I/O Modules

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Industrial Ethernet Solutions

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IP Gateway and Serial Device Servers

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iNetworking

# Smart Meter Selection Guide

Module Name		WISE-M501	WISE-M502	WISE-M511 (coming soon)	WISE-M504 (coming soon)
Accuracy	Voltage	±0.25%	±0.25%	±0.25%	N/A
	Current	±0.25%	±0.25%	±0.25%	±0.04% of FS(A)
	Active Power	±0.5%	±0.5%	±0.5%	±0.1% of FS(W)
	Power factor	±0.5%	±0.5%	±0.5%	N/A
	Frequency	±0.2%	±0.2%	±0.1%	N/A
	Energy	±0.5%	±0.5%	±0.5%	±0.1% of FS
	THD for voltage	±1.0%	N/A	±1.0%	N/A
Energy	Active Energy	WH Total	WH Total	WH_imp,WH_exp,WH_total,WH_net	N/A
	Reactive Energy	QH Total	QH Total	QH_imp,QH_exp,QH_total,QH_net	N/A
Power Quality	THD	THD_V12, THD_V23, THD_V31, THD_Vavg THD_I1, THD_I2, THD_I3, THD_Iavg	N/A	THD_V12, THD_V23, THD_V31, THD_Vavg THD_I1, THD_I2, THD_I3, THD_Iavg	N/A
Timer	Format	Year, Month, Date, Hour, Minute, Second	Date, Hour, Minute, Second	Year, Month, Date, Hour, Minute, Second	N/A
Storage	storage medium	N/A	1MB Flash	N/A	N/A
Communication	RS-485 Port (MODBUS)	38400bps	38400 bps	38400bps	38400bps
Measurement Range	Voltage	40V to 600V L-N	50.0V ~ 99.99KV (PT primary)	40V to 600V L-N	0-50mV/ ~ 600Vdc
	Current	1% ~ 120% /0-5A	1% ~ 120% /0-5A	1% ~ 120% / 0-5A	0-200uA/ ~ 10A dc
	Frequency	45-65Hz	45-65Hz	45-65Hz	N/A
General	Display	LCD Module	LCD	LCD Module	0.28" LED
	Operating Temp.	0-60°C	0-60°C	0 ~ 60°C	0 ~ 60°C
	Weight	400g	185g	450g	310g
	Power Supply	AC 85-265/DC 100-300V	AC 85-265/DC 100-300V	AC 85-265V/DC 100-300V	AC 85-264V/DC 100-300V
others	Ordering Information	WISE-M501-A5V6E	WISE-M502-125C060E WISE-M502-332C060E	coming soon	coming soon

# UNO-4671A

## Intel® Atom™ D525 Power & Energy Automation Computers with 6 x LAN, 10 x COM, and 1 x PCI-104

NEW



### Features

- IEC 61850-3 and IEEE 1613 compliant for Power & Energy automation applications
- China Electricity Certificate IV level
- Onboard Intel Atom D525 1.8 GHz processor
- Supports wide range and dual power input
- 2 x RS-232 isolated ports, 4 x RS-422/485 isolated ports and 4 x RS-485 isolated ports
- 6 x 10/100Base-T RJ-45 connector/2 x 10/100/1000Base-T and 4 x 10/100 Base-T RJ-45 connector
- Supports 1 x internal CF card and 1 x 2.5" SATA HDD
- Fanless design
- WES 2009, Windows XP, Windows CE 6.0, WES7 and Linux ready solution

### Introduction

The UNO-4671A is compliant with Electricity Certificate level IV (especially for China) and IEC 61850-3 certification, which defines the international standards of network and system communications in power substations. Featuring a fanless design with low power consumption and high performance Intel Atom D525 processor, the UNO-4671A comes with 10 isolated serial ports, 6 x LAN, 4 x USB (Internal) and 1 x PCI-104 extension. With rich OS and driver support, such as WES 2009, Windows XP, Windows CE 6.0, WES7 and Linux, users can integrate applications easily with a platform that can provide versatile functions to fulfill diverse requirements.

### Specifications

#### General

- **Certification** CE, FCC class A, CCC, Electricity IV level for China (Compatible IEC 61850-3, IEEE 1613)
- **Dimensions (W x D x H)** 2U (440 x 220 x 88 mm/17.3" x 8.6" x 3.4") fits into standard 19 inch rack
- **Enclosure** SECC & Aluminum
- **Mounting** 2U Rackmount
- **Power Consumption** 30 W @ 24 V (Typical)
- **Power Requirements** Supports Redundant power input  
Power 1: 100 ~ 240 V<sub>AC</sub> or 100 ~ 240 V<sub>DC</sub>  
Power 2: 100 ~ 240 V<sub>AC</sub> or 100 ~ 240 V<sub>DC</sub>  
< 5.5 kg
- **Weight** < 5.5 kg
- **System Design** Fanless design
- **OS Support** WES 2009, Windows XP, Windows CE 6.0, WES7 and Linux
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE/XP/e7

#### System Hardware

- **CPU** Intel Atom D525 1.8 GHz
- **Memory** 4GB DDR3 SDRAM
- **Indicators** LEDs for Power1&2, IDE, LAN (Active,Link) and Serial (Tx, Rx)
- **Storage** 1 x Internal type/II CompactFlash® slot, 1 x Built-in 2.5" SATA HDD bracket
- **Display** VGA , 1920 x 1080
- **Reset Button** Yes
- **WatchDog Timer** Programmable 256 levels time interval, from 1 to 255 seconds for each tier

#### I/O Interface

- **Serial Ports** 10 ports, 2 x RS-232, 4 x RS-422/485, 4 x RS-485 (Automatic RS-485 data flow control)
- **Communication Speed** RS-232: 50 ~ 115.2 kps, RS-422/485: 50 ~ 921600 bps
- **LAN** 2x 10/100/1000 Base-T RJ-45 ports and 4 x 10/100 Base-T RJ-45 ports
- **USB Ports** 4 x USB (include 1 x internal USB), UHCI, Rev. 2.0 compliant
- **Expansion** 1 x PCI-104

#### Environment

- **Storage Humidity** 95% @ 40°C (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs -20 ~ 60°C (-4 ~ 140°F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Shock Protection** IEC 68 2-27 CompactFlash®: 30 G half sine, 11 ms  
HDD: 20 G half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)  
CompactFlash: 2 Grms @ 5 ~ 500 Hz

### Ordering Information

- **UNO-4671A-A44BE** Intel Atom D525 1.8 GHz, 4GB RAM Power & Energy Automation Computer
- **96PS0-A120W24(\*)** SPS AC 100-240V 120W W/PFC EOFP-120MA (For UNO-4671A Dual Power, by CTOS configuration center)

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# ECU-4574

## Intel® Atom™ N2600 Power & Energy Computers with 8 x LAN, 10 x COM Ports

NEW



### Features

- IEC 61850-3 and IEEE 1613 compliant for substation applications
- Intel Atom N2600 1.6GHz processor, 2GB DDR3
- 2 x RS-232, 8 x RS-232/485 isolated serial ports
- 2 x 10/100/1000, 6 x 10/100 Base-T Ethernet ports
- 1 x CF, 1 x 2.5" SATA SSD
- Redundant isolated power with wide AC/DC input range
- Mounting: 1U Rack-mount

### Introduction

The ECU-4574 product is compliant with Electricity Certificate level IV, IEC 61850-3 and IEEE 1613 certification, provides higher reliability and stability performance that is suitable for global smart substations. With a flexible communication interface, the ECU-4574 works as an IED Analyzer that fulfills the smart substation bay level requirements. Featuring a fanless design with Intel Atom N2600 processor, 10 isolated serial ports, eight Ethernet ports, the ECU-4574 is easy for customization and fast assembly to fulfill different kinds of applications.

### Specifications

#### General

- **Certification** CE, FCC class A, CCC (Compatible IEC 61850-3, IEEE 1613)
- **Dimensions (W x D x H)** 480 x 308.9 x 44.5 mm
- **Enclosure** SECC & Aluminum
- **Mounting** 1U Rack mount
- **Power Requirements** Supports Redundant power input  
Power 1: 100 ~ 240 V<sub>AC</sub> or 100 ~ 240 V<sub>DC</sub>  
Power 2: 100 ~ 240 V<sub>AC</sub> or 100 ~ 240 V<sub>DC</sub>
- **Power Consumption** 30W @ 220 V<sub>AC</sub> (Typical)
- **Weight** < 4.5 kg
- **OS Support** Windows7, WES7(WS7P), Linux (Debian 5.0)
- **System Design** Fanless

#### System Hardware

- **CPU** Intel Atom N2600, 1.6GHz
- **Memory** 2G DDR3 SDRAM built-in
- **Indicators** LEDs for Power, IDE, LAN(LINK, ACT) and Serial (Tx, Rx)
- **Storage** 1 x internal CF, 1 x 2.5" SATA SSD
- **Display** DB15 VGA connector
- **Watchdog Timer** Programmable 256 levels time interval, from 1 to 255 seconds for each tier

#### I/O Interface

- **Serial Ports** 2 x RS-232, 8 x RS-232/485  
2,500 V<sub>DC</sub> isolation
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps,  
RS-485: 50 ~ 921.6 kbps
- **LAN** 2 x 10/100/1000Base-T RJ-45 ports, teaming function supported  
6 x 10/100Base-T RJ-45 ports
- **USB Ports** 4 x USB, UHCI, Rev. 2.0 compliant

#### Environment

- **Storage Humidity** 5 ~ 95% RH (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 24 hrs  
-25 ~ 70°C (-13 ~ 158°F)
- **Operating Humidity** 5 ~ 95% RH (non-condensing)
- **Shock Protection** IEC 68 2-27 CompactFlash®: 30 G half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)  
CompactFlash: 2 Grms @ 5 ~ 500 Hz

### Ordering Information

- **ECU-4574-A53SAE** Intel Atom N2600 1.6Ghz 8LAN 10COM (1 IRIG-B for Selection) Computer
- **XECU-FSP150-1H35(\*)** FSP AC/DC 100-240V 150W W/PFC (Note: For ECU-4574 Dual Power, by CTOS configuration center)



# ECU-4674

Intel® Atom™ N2600 Power and Energy Computers with 8 x LAN, 18 x COM, 8 x D/I, 8 x D/O, 1 x IRIG-B, and 1 x PCI-104

NEW



## Features

- Intel® Core™ i7, i3/Celeron® processors
- Isolated 8 x LAN, 10 x serial port communication interfaces
- 220 VAC/DC redundant power supply
- 48Vdc power for selection
- 2 x I/O expansion slots
- 2 x 2.5" SATA HDD, 1 x CFast socket for storage
- VGA and DVI display interface
- Programmable LEDs
- Intelligent connectivity diagnosis management
- Remote management
- Trusted platform module
- Virtualization technology for directed I/O

## Introduction

The ECU-4674 product is compliant with Electricity Certificate level IV (especially for China) and IEC 61850-3 and IEEE 1613 certification, which provides higher reliability and stability, suitable for any Global P&E automation market and harsh environment. With versatile communication interface to use for Smart substation Communication server and IED Analyzer to fulfill the Data Gateway & Protocol Conversion requirement easily. Featuring a fanless design with high performance Intel Atom N2600 processor, the ECU-4674 comes with 18 isolated serial ports, 8 x LAN and 1 x PCI-104 extension. With iCDManager support, users can easily diagnose System & Communication and enhance maintenance efficiency, with Structured and functional module Internal design for easy customization and Fast assembly to fulfill the different kind of application.

## Specifications

### General

- **Certification** CE, FCC class A, CCC, Electricity IV level for China (Compatible IEC 61850-3, IEEE 1613)
- **Dimensions (W x D x H)** 440 x 220 x 88 mm
- **Enclosure** SECC & Aluminum
- **Mounting** 2U Rack mount
- **Power Requirements** Supports Redundant power input  
Power 1: 100 ~ 240 V<sub>AC</sub> or 100 ~ 240 V<sub>DC</sub>  
Power 2: 100 ~ 240 V<sub>AC</sub> or 100 ~ 240 V<sub>DC</sub>  
Supports Power loss alarm
- **Weight** < 5.5 kg
- **OS Support** Windows7, WES7(WS7P), Linux (Debian 5.0)
- **System Design** Fanless

### System Hardware

- **CPU** Intel Atom N2600, 1.6GHz
- **Memory** 2G DDR3 SDRAM built-in
- **Indicators** LEDs for Power, HDD, Programmable LED, IRIG-B, LAN (Active, Status) and Serial (Tx, Rx)
- **Storage** 1 x internal CF, 2 x 2.5" SATA HDD (RAID 0,1)
- **Display** DB15 VGA connector
- **Expansion slot** 1 x PCI-104
- **Watchdog Timer** Programmable 256 levels time interval, from 1 to 255 seconds for each tier

### I/O Interface

- **Serial Ports** 18 Ports, 2 x RS-232, 16 x RS-232/485 (Max.) 2,500 V<sub>DC</sub> isolation (Automatic RS-485 data flow control)
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps, RS-485: 50 ~ 921.6 kbps
- **LAN** 2 x 10/100/1000Base-T RJ-45 ports, teaming function supported, 6 x 10/100Base-T RJ-45 ports
- **USB Ports** 5 x USB (1x internal), UHCI, Rev. 2.0 compliant

- **Digital Input** 8-ch isolated digital input  
Wet contact: Logic 0:0 ~ 3 V<sub>DC</sub>; Logic 1: 10 ~ 30 V<sub>DC</sub>  
Isolation protect: 2000 V<sub>DC</sub>, 30-50 V<sub>DC</sub> over voltage protection (Only for ECU-4674-A53SAE)  
Opto-Isolator Response: 25us-interrupt capable
- **Digital Output** 8-ch isolated digital output  
2000 V<sub>DC</sub> isolation, 200mA max/channel sink current  
Keeps output status after system hot reset  
Open collector to 40V (200mA maximum sink current load) 3 kHz speed (Only for ECU-4674-A53SAE)
- **Programmable LED** 8-ch programmable LED indicator

### Time Synchronization Interface

- **Type** IRIG-B (RS-485)
- **Channel** 1
- **Support Format** IRIG-B00X according to IRIG STANDARD 04, 200-98
- **Message Syntax** QQQHMMSS (year, day, hour, minute & second)
- **Resolution of Time** 1s

### Environment

- **Storage Humidity** 5 ~ 95% RH (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 24 hrs -25 ~ 70°C (-13 ~ 158°F)
- **Operating Humidity** 5 ~ 95% RH (non-condensing)
- **Shock Protection** IEC 68 2-27 CompactFlash®: 30 G half sine, 11 ms
- **Vibration Protection** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)  
CompactFlash: 2 Grms @ 5 ~ 500 Hz

## Ordering Information

- **ECU-4674-A53SAE** Intel Atom N2600 1.6 Ghz, 8 x LAN, 18 x COM, 8 x DI/DO, 1IRIG-B Computer
- **ECU-4674-LBA53SAE** Intel Atom N2600 1.6 Ghz, 8 x LAN, 10 x COM (1 IRIG-B for Selection) Computer
- **XECU-FSP150-1H35(\*)** FSP AC/DC 100-240V 150W W/PFC (Note: For ECU-4674 Dual Power, by CTOS configuration center)
- **9893SW0400E (\*)** DC 36V ~ 72V module (Note: For ECU-4674 48V Power Request, by CTOS configuration center)
- **ECUP-1514R-AE(\*)** PCI-104 4 Port LAN Ethernet Card For ECU-4674 (Note: by CTOS configuration center)

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I/O Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# UNO-4673A UNO-4683

## Intel® Atom™/Core™ i7 Automation Computers with 6 x LAN, 2 x COM and 3 x Expansion Slots

**NEW**



### Features

- IEC 61850-3 and IEEE 1613 compliant for substation automation applications
- Onboard Intel Atom 1.66 GHz / Core i7 2.0 GHz processor
- 2 x RS-232/422/485 isolated serial ports with automatic flow control and 128KB FIFO
- 2 x 10/100/1000 Base-T (supports teaming function) and 4 x 10/100 Base-T
- Supports 1 x internal CF card and 1 x 2.5" SATA HDD
- 6 x USB 2.0 (1 x internal) and 3 x Domain I/O expansions
- Rear wiring, multiple system & I/O LED status indicators
- Windows related and Linux
- Fanless design
- Isolation power design with wide AC / DC input range
- Isolation between chassis and power ground
- One internal USB for dongle and flash drive
- Redundant power supplier for system power backup

### Introduction

The UNO-4673A and UNO-4683 are compliant with the hardware requirements of IEC 61850-3, which defines the international standards of network and system communications in power substations. Featuring fanless designs with built-in isolated PSU and 3 expansion slots for I/O plug-in cards, the UNO-4673A and UNO-4683 are suitable for harsh environment applications. The rear I/O connection and LEDs on front panel for all ports and modes highly simplify monitoring for operation and maintenance.

### Specifications

#### General

- **Certification** IEC 61850-3, IEEE 1613, CE, FCC Class A, UL, CCC
- **Dimensions (W x D x H)** 2U (440 x 280 x 88) mm (17.3" x 11" x 3.4") fits into standard 19 inch rack
- **Enclosure** SECC
- **Mounting** 2U Rackmount
- **Power Consumption** 45W (Typical)
- **Power Requirements** AC : 100 ~ 240 V<sub>AC</sub> (47 ~ 63 Hz)  
DC : 106 ~ 250 V<sub>DC</sub>  
With isolation protection, AT
- **Weight** 6.0 kg
- **OS Support** WES7, Windows XP Embedded, Windows /XP, Windows CE 6.0, Linux, QNX, Win10, Win7, Windows Server 2008R2/ 2012/ 2012R2
- **System Design** Fanless
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE/XPe

#### System Hardware

- **CPU** Intel Dual Core Atom D510 1.66 GHz / Core i7 2.0 GHz
- **Memory** 2G DDR2 SDRAM/4G DDR3 SDRAM built-in
- **Indicators** LEDs for Power, IDE, Alarm for battery backup SRAM, Diagnosis (programmable), LAN (Active, Status) and Serial (Tx, Rx)
- **Keyboard/Mouse** 2 x PS/2 connector for Keyboard & Mouse
- **Storage** CF 1 x internal type I/II CompactFlash® slot  
HDD 1 x build-in 2.5" SATA HDD bracket  
\*RAID capable with 2nd HDD kit
- **Display** DB15 VGA connector, 2048 x 1536 @ 85 Hz (UNO-4673A)  
1 x DVI-I (UNO-4683)
- **Watchdog Timer** Programmable 7-tier event handler, from 1 to 255 seconds for each tier
- **Battery Backup SRAM** 1 MB
- **Relay:** Relay output: Form C  
Contact: 5A@250V<sub>AC</sub>/5A@30V<sub>DC</sub>

#### I/O Interface

- **Serial Ports** 2 x DB-9  
Automatic RS-485 data flow control  
2000 V<sub>DC</sub> EFT protection & 2000 V<sub>DC</sub> isolation
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps  
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 2 x 10/100/1000 Base-T RJ-45 ports, teaming function supported  
4 x 10/100Base-T RJ-45 ports
- **Audio** Line-out
- **USB Ports** 6 x USB, UHCI, Rev. 2.0 compliant  
2 x Front, 3 x Rear and 1 x Internal ports
- **Expansion** 3 x Domain I/O expansions (Only slot 1 supports PCIe resource)

#### Environment

- **Storage Humidity** 5 ~ 95% RH (non-condensing)
- **Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading, 48 hrs -20 ~ 70°C
- **Operating Humidity** 5 ~ 95% RH (non-condensing)
- **Shock Protection** IEC 60068-2-27 CompactFlash®: 50 G half sine, 11 ms  
HDD: 20 G half sine, 11 ms
- **Vibration Protection** IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)  
CompactFlash®: 2 Grms @ 5 ~ 500 Hz,  
HDD: 1 Grms @ 5 ~ 500 Hz

### Ordering Information

- **UNO-4673A-A33E** Intel Atom 1.66 GHz, 2 GB RAM Automation Computer
- **UNO-4683-D34E** Core i7 2.0 GHz, 4 GB RAM Automation Computer
- **UNO-4673ADP-A33E** Intel Atom 1.66 GHz, 2 GB RAM, dual PSU Automation Computer
- **UNO-4683DP-D34E** Core i7 2.0 GHz, 4 GB RAM, dual PSU Automation Computer

# ECU-4784

## IEC-61850-3 Certified Power Automation Computers

NEW



### Introduction

The ECU-4784 series are TUV IEC 61850-3 and IEEE 1613-certified products that provide high reliability and stability for power automation applications. The fanless robust design, high CPU performance, flexible expansion, rich communication interfaces, and intelligent functions make the ECU-4784 series of industrial PCs suitable to serve as smart substations in harsh environments.

### Key Features

#### X86 Architecture with Intel® Core™ i7, i3/Celeron® Processor

The ECU-4784 series are equipped with an Intel® Core™ dual-core i7, i3 (1.7 GHz)/Celeron® (1.6 GHz) processor to ensure high-performance computing and software compatibility.

#### Redundant Power Supply

The ECU-4784 series can support two 100 ~ 240V power modules (one built-in module and one optional CTOS module) to ensure the provision of a reliable, independent, and continuous power supply for stable operation.

#### 48V Power for Selection

For special industry applications, customers can install a 48V power module through Advantech CTOS. This allows customers to select a specific power supply combination, such as 220 V and 48 V or dual 48V.

#### I/O Expansion Slots

The ECU-4784 series feature two standard PCI/PCIe expansion slots (each slot supports 1 x PCIe and 2 x PCI interfaces) to enable customization with flexible UNOP and ECM cards according to the application requirements.

#### Multiple Isolated Communication Interfaces

The ECU-4784 series systems can be equipped with up to 26 x isolated serial ports (with UNOP-1628D/1618D), 12 x isolated Ethernet ports (with UNOP-1514), and 6 x isolated USB ports for establishing reliable inter-system connectivity and handling various communication requests.

#### Fast Mass Storage

The ECU-4784 features 1 x CFast and 2 x 2.5" hot-swappable SATA interfaces on the rear panel. The integrated SATA controller can support various RAID arrays, including RAID 0, RAID 1, and RAID 5, to maximize data availability and improve storage performance.

### Features

- Intel Haswell Core i7, i3, Celeron Processors
- Isolated 8 x LAN, 10 x Serial Port Communication Interfaces
- 220V<sub>AC/DC</sub> Redundant Power Supply
- 48V Power for Selection
- 2 x IO Expansion Slots
- 2 x 2.5" SATA HDD, 1 x CFast Socket for Storage
- VGA & DVI Display Interface
- Programmable LEDs
- Intelligent Connectivity Diagnosis Management
- Remote Management
- Trusted Platform Module
- Virtualization Technology for Directed I/O

#### Versatile Display Interface

Both DVI and VGA display interfaces are supported to ensure flexible operation.

#### Programmable LEDs

The ECU-4784 series features eight programmable LEDs on the front panel.

#### Intelligent Connectivity Diagnosis Management

The ECU-4784 is equipped with an integrated intelligent agent for monitoring the connectivity of serial ports and Ethernet ports. This software function improves system management and maintenance efficiency.

#### Remote Management

The ECU-4784 is equipped with Intel® Active Management Technology, which enables remote access to the device, storage, desktop, mouse, keyboard, and video functions, regardless of whether the system is powered on or the operating system is functioning.

#### Trusted Platform Module

The ECU-4784 motherboard is equipped with a built-in Infineon microchip that prevents unauthorized system access for enhanced security.

#### Virtualization Technology for Directed I/O

With VT-D architecture, the system software can assign I/O devices to a protected domain and ensure resource isolation, thereby improving the performance of I/O devices in virtualized environments.

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
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8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

## Specifications

### General

- **Certification** CE, FCC, CCC, Electricity IV level for China, IEC-61850-3, IEEE-1613, UL, CB, LVD
- **Power Requirements** Redundant Power Supply  
Power1: 100 ~ 240 V<sub>AC</sub>, 100 ~ 240 V<sub>DC</sub>  
Power2: 100 ~ 240 V<sub>AC</sub>, 100 ~ 240 V<sub>DC</sub>
- **Power Consumption (Typical)** 25 W (ECU-4784-D55SAE/ D56SBE/ C25SAE/ E15SAE)
- **Operating System** Windows7, Windows8, Windows Server 2008 R2, WES7(WSP), Windows Server 2012R2, Windows Embedded 8 64-bit, Linux
- **Dimensions (W x D x H)** 440 x 280 x 88 mm
- **Enclosure** SECC and aluminum
- **Weight** 6.0 Kg
- **Mounting** 2U RRackmount
- **System Design** Fanless

### System Hardware

- **CPU** Intel® Core™ dual-core i7 4650U, 1.7 GHz (ECU-4784-D55SAE/D56SBE)  
Intel® Celeron® 2980U, 1.6 GHz (ECU-4784-C25SAE)  
Intel® Core™ i3 4010U, 1.7 GHz (ECU-4784-E15SAE)
- **Memory** DDR3L 1.35V non-ECC 8G  
(Up to 16G for ECU-4784-D56SBE)
- **Indicators** Programmable LEDs for PWR1, PWR2, HDD, LAN (LINK, ACT), COM (TX, RX), Slot 1, and Slot 2
- **Storage** 2 x 2.5" SATA HDD (RAID0, RAID1)  
1 x CFast socket
- **Display** 1 x DB15 VGA, 1 x DVI-D (Resolution: 1920 x 1080)
- **Watchdog Timer** Programmable 256 levels time interval, from 1 to 255 seconds for each tier
- **Relay** Relay Output Form C  
Contact 5A @ 125V<sub>AC</sub>/ 5A @ 30V<sub>DC</sub>  
Channel 1

### Communication Interface

- **Serial Ports** 2 x RS-232 (DB9 connectors, Standard)  
8 x RS-232/422/485 (Terminal Block)  
2,500V isolation
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps  
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **LAN** 8 x 10/100/1000 Base-T RJ45 ports  
(Supports teaming function, PXE, LAN1 supports AMT)
- **USB** 6 x USB, UHCI, rev 2.0 compliant (2 x front, 3 x rear, 1 x internal) (2 x front, rev 3.0 compliant for ECU-4784-D56SBE/E15SAE)
- **Expansion** 2 x Domain I/O expansion slots (Each slot supports 1 x PCIe and 2 x PCI)

### Environment

- **Operating Temperature** -25 ~ 70°C (-13 ~ 158°F)  
IEC 60068-2-2 with 100% CPU/ I/O loading, 24 hrs
- **Operating Humidity** 5 ~ 95% RH (non-condensing)
- **Storage Humidity** 5 ~ 95% RH (non-condensing)
- **Shock Protection** IEC 68 2-27 CFast®: 30 G half sine, 11 ms
- **Vibration Protection** IEC 68-2-64 (Random 1 Oct./min, 1hr/axis.) CFast®: 2Grms @ 5 ~ 500Hz

## Ordering Information

- **ECU-4784-D55SAE** Intel® Core™ dual-core i7 4650U (1.7 GHz) processor with 8 GB RAM, 8 x LAN, 10 x COM, 2 x expansion slots
- **ECU-4784-D56SBE** Intel® Core™ dual-core i7 4650U (1.7 GHz) processor with 16 GB RAM, 8 x LAN, 10 x COM, 2 x expansion slots
- **ECU-4784-C25SAE** Intel® Celeron® 2980U (1.6 GHz) processor with 8 GB RAM, 8 x LAN, 10 x COM, 2 x expansion slots
- **ECU-4784-E15SAE** Intel® Core™ i3 4010U (1.7 GHz) processor with 8 GB RAM, 8 x LAN, 10 x COM, 2 x expansion slots
- **XECU-FSP150-1H35 (\*)** FSP AC/DC 100 ~ 240V, 150W, W/PFC  
(Note: Dual power configuration is available upon request via Advantech CTOS)
- **9893SW0400E (\*)** DC 36V ~ 72V module  
(Note: A 48V power module is available upon request via Advantech CTOS)



# ECU-P1628D/1618D

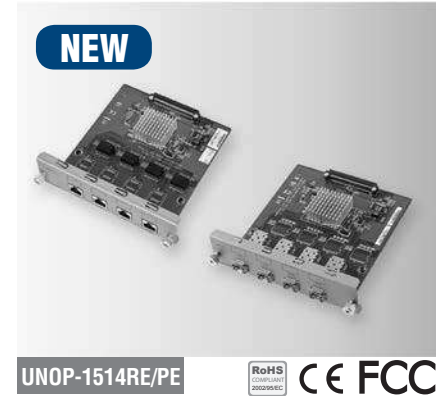
## UNOP-1624D

### UNOP-1514RE/PE

8-Port Isolated/Non Isolated RS-232/422/485

4-Port Isolated RS-232/422/485 with IRIG B

4-Port Gigabit Base Ethernet Card



## Specifications

### General

- Connector** 120-pin connector for UNO-4673A/PCI, UNO-4683/PCI, ECU-4784/PCI
- Dimensions** 5.3" x 6.0" (136 x 150 mm)
- Power Consumption** 5V ± 5% @ 620mA typical, 3.3V ± 5% @ 75mA typical, CE/FCC
- Certification**

### Communication

- IRQ** All COM ports use the same IRQ assigned by PCI Bus
- COM Ports** 8 x RS-232/422/485 ports
- Data Bits** 5, 6, 7, 8
- Stop Bits** 1, 1.5, 2
- Parity** None, Even, Odd
- Baud-rate (bps)** RS-232: 50 ~ 115.2 kbps, RS-422/485: 50 ~ 921.6 kbps (max.)
- Data Signals** TxD, RxD, RTS, CTS, RI, DSR, DTR, DCD, GND for RS-232, Data+, Data-, GND for RS-485, Tx+, Tx-, Rx+, Rx-, GND for RS-422

### Protection

- Isolation Protection** 2500 V<sub>oc</sub> (ECU-P1628D)

### Environment

- Operating Temp.** -20 ~ 70°C (-4 ~ 158°F)
- Operating Humidity** 10 ~ 90% RH non-condensing (refer to IEC 60068-2-3)
- Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

## Ordering Information

- ECU-P1618D-AE** 8-port RS-232/422/485 for UNO-4673A, UNO-4683, ECU-4784
- ECU-P1628D-AE** 8-port Iso. RS-232/422/485 for UNO-4673A, UNO-4683, ECU-4784

## Specifications

### General

- Connector** 120-pin connector for UNO-4673A/PCI, UNO-4683/PCI, ECU-4784/PCI
- Dimensions** 5.3" x 6.0" (136 x 150 mm)
- Power Consumption** 5V ± 5% @ 500mA typical, 3.3V ± 5% @ 180mA typical, CE/FCC
- Certification**

### Communication

- IRQ** All COM ports use the same IRQ assigned by PCI Bus
- COM Ports** 4 x RS-232/422/485 ports
- Baud rate (bps)** RS-232: 50 ~ 115.2 kbps, RS-422/485: 50 ~ 921.6 kbps (Max.)
- Data Signals** TxD, RxD, RTS, CTS, RI, DSR, DTR, DCD, GND for RS-232, Data+, Data-, GND for RS-485, Tx+, Tx-, Rx+, Rx-, GND for RS-422

### IRIG Time Code Input

- IRIG Interface** Male 9-pole D-Sub connector (COM4 or IRIG-B), Fiber connector, Female BNC
- ST Multi-Mode**
- Input Signal** RS-422 input signal isolated by optocoupler, Optical signal @ 820nm; TTL
- Supported Formats** IRIG-B according to IRIG STANDARD 200-04, 200-98

### IRIG Time Code Output

- IRIG Interface** Male 9-pole D-Sub connector (COM4 or IRIG-B), Female BNC
- Output Signal** RS-422 output signal; TTL

### IRIG Time Code Decoding

- Message syntax** YYYYYQQQHHMMSS (yr, d, h, min, sec)
- Resolution of the time** 1s
- Status info** 1 status LED for indication

### Protection

- Isolation Protection** 2500 V<sub>oc</sub> for COM/IRIG

### Environment

- Operating Temp.** -20 ~ 70°C (-4 ~ 158°F)
- Operating Humidity** 10 ~ 90% RH non-condensing (refer to IEC 60068-2-3)
- Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

## Ordering Information

- UNOP-1624D-AE** 4-port Iso. RS-232/422/485 and IRIG B for UNO-4673A, UNO-4683, ECU-4784

## Specifications

### General

- Connector** 120-pin connector for UNO-4673A/4683 series PCIe, ECU-4784 PCIe
- Bus Interface** PCI Express® x1 compliant
- Dimensions** 5.3" x 6.0" (136 x 150 mm)
- Power Consumption** 5V ± 5% @ 400mA typical, CE/FCC
- Certification**

### UNOP-1514PE

- Connector** SFP
- Ports** 4
- Compatibility** IEEE 802.3 Ethernet interface
- Speed** 1000M bps

### UNOP-1514RE

- Connector** RJ45
- Ports 4**
- Compatibility** IEEE 802.3 Ethernet interface
- Speed** 10/100/1000M bps

### Environment

- Operating Temp.** -20 ~ 70°C (-4 ~ 158°F)
- Operating Humidity** 10 ~ 90% RH non-condensing (refer to IEC 60068-2-3)
- Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

## Ordering Information

- UNOP-1514RE-AE** 4-port RJ45 Gigabit Base Ethernet Card for UNO-4673A, UNO-4683, ECU-4784
- UNOP-1514PE-AE** 4-port SFP Gigabit Base Ethernet Card for UNO-4673A, UNO-4683, ECU-4784

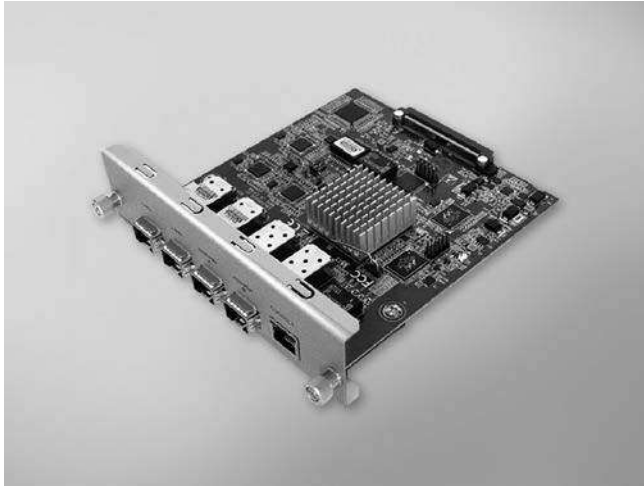
## Accessories

- SFP-GTX/RJ45** 1000Base RJ45 SFP module
- SFP-GSX/LC** 1000Base-SX Multi-mode SFP module
- SFP-GLX/LC-10** 1000Base-LX Single-mode SFP module (10 km)
- SFP-GLX/LC-20** 1000Base-LX Single-mode SFP module (20 km)
- SFP-GLX/LC-40** 1000Base-LX Single-mode SFP module (40 km)

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	iNetworking

# ECU-P1524PE

## 2-Port SFP Gigabit Base Ethernet Card with HSR/PRP



### Features

- CE/FCC certification
- Supports HSR protocol (IEC 62439-3, Clause 5)
- Supports PRP protocol (IEC 62439-3, Clause 4)
- PCI Express extension
- 2 x SFP Interface (for Ethernet communications)
- 2 x SFP interface (for HSR/PRP)
- 1 x RJ45 (Interlink)
- Supports IEEE 1588
- -25 ~ 70°C operating temperature range

### Introduction

The ECU-P1524PE is a PCIe extension card with HSR/PRP functionality for reducing the data transfer packet loss probability and ensuring seamless system switching. The ECU-P1524PE can be integrated with a power and energy automation computer, such as UNO-4673A/4683 or ECU-4784, to provide a redundant Ethernet solution for smart substation applications.

### Specifications

#### General

- **Connector** 120-pin connector for UNO- 4673A/4683/ECU-4784
- **BUS Interface** PCI Express (non-universal interface)
- **Dimensions** 5.3 x 6.0" (136 x 150 mm)
- **Power Consumption** 5V ± 5% @ 1000mA typical  
3.3V ± 5% @ 600mA typical
- **Certification** CE, FCC, IEC-61850-3

#### Communication Interface

- **Ethernet** 2x SFP (mini-GBIC) Ethernet ports with HSR/PRP (Gigabit Base-X, ECU-P1524PE-GAE)  
2 x SFP (mini-GBIC) Gigabit Base-X Ethernet port
- **LED Status** 2 x Act/Link (On ECU-4784 front panel)

#### HSR/PRP

- **Mode Selection** Hardware
- **LED Status** 2 x Act/Link, 1 x HSR, 1 x PRP, 2 x 100M/1000M (On ECU-4784 front panel)
- **Interface** 2x SFP (mini-GBIC) ports  
1x RJ45 (Interlink)

#### Environment

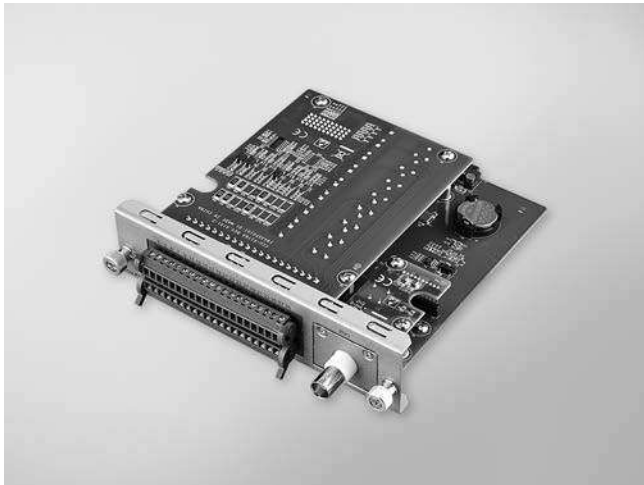
- **Operating Temperature** -25 ~ 70°C (-13 ~ 158°F)  
IEC 60068-2-2 with 100% CPU/ I/O loading for 24 hours
- **Operating Humidity** 5 ~ 95% RH (non-condensing)
- **Storage Humidity** 5 ~ 95% RH (non-condensing)

### Ordering Information

- **ECU-P1524PE-GAE** 2-port SFP Gigabit Base-X Ethernet Card with HSR/PRP

# ECU-P1761

## 4-ch Isolated Digital Input, 4-ch Isolated Relay Output with IRIG-B Board



### Features

- CE/FCC Certification
- 4 x Isolated Digital Input
- 4 x Isolated Relay Output
- 1 x IRIG-B
- PCI Extension
- Operation Temp: -25 ~ 70°C

### Introduction

The ECU-P1761 is a PCI extension card with Digital Input and Relay Output function to fulfill the acquisition requirement in power automation. With 4x DI, 4x RO and 1x IRIG-B, ECU-P1761 enrich the Advantech acquisition solution under power & energy x86 architecture UNO-4673A/4683 and ECU-4784 computers.

### Specifications

#### General

- **Connector** 120-pin connector for UNO- 4673A/4683/ECU-4784
- **BUS Interface** PCI
- **Dimensions** 5.3" x 6.0" (136 x 150 mm)
- **Power Requirements** 5 V @ 150 mA (typical)  
3.3 V @ 60 mA (typical)
- **Certification** CE, FCC, IEC-61850-3 Compliant

#### Digital Input

- **Channels** 4
- **Connector** Terminal Block
- **Input Type** Wet Contact (Sink)
- **Input Voltage** Logic 0: 0 ~ 10 V  
Logic 1: 30 ~ 48 V
- **Response time** 1ms
- **Isolation Voltage** 2,500 V<sub>DC</sub>

#### IRIG-B

- **IRIG Interface** BNC
- **Precision** 1ms
- **Resolution of time** 1s

#### Relay Output

- **Channels** 4
- **Connector** Terminal Block
- **Output Type** Relay: 1 Form C
- **Relay Output Voltage** 250 V<sub>AC</sub>/V<sub>DC</sub>
- **Max. Switching Voltage** 400 V<sub>AC</sub>
- **Relay Output Current** 25°C 3A, 70°C 1A
- **Operate/ Release Time** Max. 8 ms
- **Isolation Voltage** 2500 V<sub>DC</sub>

#### Environment

- **Operating Temperature** -25 ~ 70°C (-13 ~ 158°F)  
IEC 60068-2-2 with 100% CPU/ I/O loading, 24 hrs
- **Operating Humidity** 5 ~ 95% RH (non-condensing)
- **Storage Humidity** 5 ~ 95% RH (non-condensing)

### Ordering Information

- **ECU-P1761A-AE** 4-ch DI, 4-ch RO Isolated Board with IRIG-B

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C Systems
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# ECU-1152

## TI Cortex A8 Industrial Communication Gateway with 2 x LAN and 6 x COM Ports

**NEW**



### Features

- TI Cortex A8 800 MHz CPU
- DDR3L512 MB RAM
- 1 GB Micro SD card for system storage
- 1 x Micro SD slot
- 6 x RS-232/485 isolated serial ports
- 2 x 10/100 Base-T Ethernet ports
- 1 x Mini-PCIe for Wi-Fi/3G/GPRS/4G
- Supports web access for remote online monitoring
- Supports SD cards and online firmware updates
- Supports Modbus and IEC-60870-101/104 protocols
- Supports data logging to SD card
- RTLinux operating system
- -40 ~ 70°C operating temperature range

### Introduction

For solar power, electricity, and factory-related applications that require comprehensive wireless and Ethernet communication solutions, Advantech developed its ECU-1152 RISC-based industrial communication gateway. ECU-1152 features an open platform design with a Cortex A8 processor, six RS-232/485 isolated serial ports, two 10/100 Ethernet ports, and an operating temperature of -40 ~ 70°C. ECU-1152 is equipped with a Linux operating system and open TagLink SDK to enable system integrators to develop applications specific for their application requirements.

### Specifications

#### General

- **Certification** CE, FCC
- **Mounting** Wall/ DIN rail
- **Power Consumption** 2.4W @ 24V<sub>DC</sub> (typical)
- **Power Requirements** 10 ~ 30 V<sub>DC</sub>

#### System

- **CPU** TI Cortex A8, 800MHz
- **Memory** DDR3L 512MB
- **Indicators** Programmable LEDs for Power, LAN (LINK, ACT), Serial (Tx, Rx)
- **Storage** 1 GB Micro SD card for system storage
- **SD Slot** 1 x Micro SD
- **Watchdog** Yes
- **Real-Time Clock** Yes
- **Node ID** 8-bit

#### Communication

- **Serial Port** 6 x RS-232/485  
Isolation 3000 V<sub>DC</sub>
- **Serial Port Speed** RS-232/RS-485: 50 ~ 115.2 kbps
- **Ethernet Port** 2 x 10/100 Base-T RJ-45 ports
- **USB Port** 1 x USB
- **Wireless (Optional)** Interface: 1x Mini PCIe (full size)  
Type: Wi-Fi/3G/GPRS/4G  
Signal: USB

#### Software

- **OS Support** RTLinux 3.12
- **Configuration Tool** Advantech TagLink Studio
- **Protocol Support** Modbus, IEC-60870-101(master)/ 104(slave)
- **Programming** Linux C

#### Environment

- **Operating Temperature** -40 ~ 70°C
- **Storage Temperature** -40 ~ 85°C
- **Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **ECU-1152-R11ABE** TI Cortex A8 industrial communication gateway with 2 x LAN, 6 x COM, 1 x Mini PCIe
- **1950020136T001** DIN-Rail buckle

#### Wi-Fi Solution

- **9656EWMG00E** Half to full-size Mini PCIe bracket pack
- **EWM-W150H02E** Half-size mini card, supports 802.11bgn
- **1750006043** SMA(M) cable, 15 cm
- **1750000318** 2dBi antenna for testing, 11 cm

#### 3G/GPRS Solution (SIM card not included)

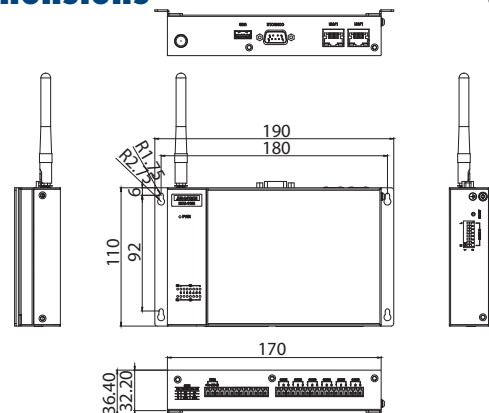
- **EWM-C109F601E** 6-band HSPA cellular module with SIM holder
- **1750006264** SMA(F) cable, 15 cm
- **1750005865** Dipole antenna, 11 cm

#### Storage Solution

- **SQF-ISDS1-4G-82E** SLC 4G, 1CH (-40 ~ 85°C)
- **SQF-ISDS1-32G-82E** SLC 32G, 1CH (-40 ~ 85°C) for reference

### Dimensions

Unit: mm





# ECU-4553

## TI Cortex4 A8 Power Automation Computer with 4 x LAN, 18 x COM Ports

NEW



### Features

- TI Cortex A8 800MHz CPU
- DDR3L 1GB RAM
- 1GB Micro-SD card for system storage; 1 x Micro-SD Slot
- 1 x IRIG-B
- 18 x RS-232/485 isolated serial ports
- 4 x 10/100 Base-T Ethernet ports
- 2 x CAN2.0
- Support SD card & on-line firmware update
- Support Modbus, IEC-60870-101/104 protocol
- Support Data logger on SD card
- Operation System: RT-Linux
- Operation Temperature -40 ~ 70°C

### Introduction

For solar power, electricity and factory related applications which require Ethernet and Serial Port communication solutions, Advantech has released the ECU-4553 RISC-based industrial communication gateway. ECU-4553 has an open platform design with Cortex A8 processor, 18xRS-232/485 isolated serial ports, 4x10/100 Ethernet ports and operating temperature range from -40 to 70°C. With Linux operating system and open TagLink SDK, which enable to system integrators to develop applications which precisely fit their need.

### Specifications

#### General

- **Certification** CE, FCC
- **Mounting** Wall-Mount
- **Power Consumption (typical)** 10 W
- **Power Requirements** 100 ~ 240 V<sub>AC</sub>, 100 ~ 240 V<sub>DC</sub>

#### System

- **CPU** TI Cortex A8, 800MHz
- **Memory** DDR3L 1GB
- **Indicators** LEDs for Power, LAN (LINK, ACT), Serial (Tx, Rx), Programmable
- **Storage** 1GB Micro-SD card for system storage
- **SD Slot** 1 x Micro-SD slot
- **Watchdog** Yes
- **Real-time clock** Yes
- **Node ID** 8-bit

#### Communication

- **Serial Port** 18 x RS-232/485 5 (Terminal Block)
- **Isolation** 3000 V<sub>DC</sub>
- **Serial Port Speed** RS-232/RS-485: 50 ~ 115.2 kbps
- **Ethernet Port** 4 x 10/100 Base-T RJ-45 ports
- **USB Port** 1 x USB
- **CAN** 2 x CAN2.0 B
- **Isolation** 3000 V<sub>DC</sub>

#### IRIG Time Code Input

- **IRIG Interface** Terminal Block (COM1 or IRIG-B)
- **Input Signal** RS-232/RS-485
- **Supported Formats** IRIG-B according to IR IG STANDARD 200-04, 200-98

#### Software

- **OS Support** RT-Linux 3.12
- **Configuration Tool** Advantech TagLink Studio
- **Protocol Support** Modbus, IEC-60870-101(master)/ 104(slave)
- **Programming** Linux C

#### Environment

- **Operating Temperature** -40 ~ 70°C
- **Storage Temperature** -40 ~ 85°C
- **Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **ECU-4553-R12SBE** TI Cortex A8 Power Automation Computer with 4 x LAN, 18 x COM, 2 x CAN, 1 x IRIG-B

#### Storage Solution

- **SQF-ISDS1-4G-82E** SLC 4G, 1CH (-40 ~ 85°C)
- **SQF-ISDS1-32G-82E** SLC 32G, 1CH (-40 ~ 85°C) for your reference

1  
WebAccess® Solution

2  
Intelligent Motion Control and Machine Vision

3  
Power & Energy Automation

4  
Industrial Operator Panels

5  
Thin-Client Terminals

6  
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Control Cabinet PCs

8  
Industrial IoT Gateways

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Industrial monitors

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iDoor Technology Modules

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Networking

# WISE-M501

# WISE-M502

Multifunction Panel Mount Smart Power Meter

Multi-Loop DIN Rail Smart Power Meter



WISE-M501



WISE-M502



## Introduction

WISE-M500 series power meters are easy to use, cost effective smart meters, that provide high accuracy measurement, display and communication (Modbus RTU). Characterized by their compact size, and flexible connection mode. WISE-M500 series meters are ideal for power monitoring operations and equipment preventative maintenance.

## Specifications

### Input

- **Measurement Type** True RMS measurement
- **Phase & Wiring** 1P2W/ 1P3W/ 3P3W (2 3CT)/ 3P4W; Balanced/ Unbalance Programmable by front buttons(Actual wiring must be same)
- **Input range** Voltage 40 ~ 400 VLN ; 60 ~ 600VLL  
PT Primary range: 100 ~ 500000V  
PT Secondary range: 100 ~ 600V  
Current: 0 ~ 5A  
CT Primary range: 5 ~ 9999A  
Frequency: 45 ~ 65Hz
- **Max. Input over** Voltage: 2 X rated continuous: 2500V, 1 sec  
Current: 2 X rated continuous: 20 X rated 1 sec  
Voltage: < 0.2VA, Current: < 0.1VA
- **Input burden**
- **Accuracy & Resolution**

Parameter	Accuracy	Resolution	Parameter	Accuracy	Resolution
Voltage	0.25%	0.1 V	Power Factor	0.5%	0.001
Current	0.25%	0.001 A	Frequency	0.2%	0.01 Hz
Natural Current	1.0%	0.001 A	Active Energy	0.5%	0.1 kWh
Active Power	0.5%	1 W	Reactive Energy	0.5%	0.1 kVarh
Reactive Power	0.5%	1 Var	THD	1.0%	0.1%
Apparent Power	0.5%	1 VA			

### Communication

- **RS485 port** Up to 38400 bauds, Modbus RTU

### Environmental

- **Operating Temp.** 0 ~ 60°C
- **Operating Hum(%RH)** 5 ~ 95%RH, non-condensing
- **Storage Temperature** -10 ~ 70°C

### General

- **Certification** EN 61326:2006, EN 61010-1:2010
- **Dimension(W x D x H)** 96 mm x 96 mm x 63 mm
- **Power Requirements** AC 85 ~ 264V / DC 100 ~ 300V
- **Power consumption** AC: ≤ 10W / DC: ≤ 3W @ 230V

### Mechanical

- **Panel cutout** 90 mm(W) x 90 mm(H)
- **Case material** Black PC (non-flammable)
- **Enclosure** Front panel: IEC 529 (IP50) Housing: IP20
- **Mounting** Panel mounting
- **Weight** ≤ 400 g

## Specifications

### Input

- **Measurement Type** True RMS measurement
- **Phase & Wiring** 1P2W/ 1P3W/ 3P3W/ 3P4W; Voltage 50 ~ 500V  
PT Primary range 50 ~ 99.99kV  
IPT Secondary range 50 ~ 500V  
Current Depends on external CT  
CT Primary range 1 ~ 9999A  
Frequency 45 ~ 65Hz  
Voltage 1.2 X rated continuous(600V max)  
Current: Clamp CT Specification 1.2X Rate  
Voltage < 0.2VA Current < 0.1VA
- **Max. Input over**
- **Input burden**
- **Accuracy & Resolution**

Parameter	Accuracy	Resolution	Parameter	Accuracy	Resolution
Voltage	0.25%	0.1 V	Apparent Power	0.5%	1 VA
Current	0.25%	0.001 A	Power Factor	0.5%	0.001
Natural Current	1.0%	0.001 A	Frequency	0.2%	0.01 Hz
Active Power	0.5%	1 W	Active Energy	0.5%	0.1 kWh
Reactive Power	0.5%	1 Var	Reactive Energy	0.5%	0.1 kVarh

### Communication

- **RS485 port** Up to 38400 bauds, Modbus RTU

### Environmental

- **Operating Temp.** 0 ~ 60°C
- **Operating Hum(%RH)** 0 ~ 80 RH, non-condensing
- **Storage Temperature** -20 ~ 70°C

### General

- **Certification** EN 61326:2006, EN 61010-1:2010
- **Dimension(W x D x H)** 54 mm x 65.5 mm x 81 mm
- **Power Requirements** AC 85 ~ 346V / DC 100 ~ 300V (50 / 60Hz)
- **Power Consumption** AC: ≤ 10W / DC: ≤ 4W

### Mechanical

- **Case Material** PC fireproof
- **Mounting** DIN rail
- **Weight** 185 g

## Ordering Information

- **WISE-M502-125C060E** 5-Loop Single Phase DIN-Rail Power Meter
- **WISE-M502-332C060E** 2-Loop Three Phase DIN-Rail Power Meter
- **WISE-M501-A5V6E** Multi-function Panel Mount Power Meter

## Industrial Operator Panels

<b>Operator Panel Selection Guide</b>		<b>4-2</b>
<b>WebOP-2100T</b>	10.1" WSVGA Operator Panel with WebAccess/HMI	<b>4-4</b>
<b>WebOP-2080T</b>	8" SVGA Operator Panel with WebAccess/HMI	<b>4-6</b>
<b>WebOP-2070T</b>	7" WVGA Operator Panel with WebAccess/HMI	<b>4-8</b>
<b>WebOP-2050T</b>	5.6" QVGA Operator Panel with WebAccess/HMI	<b>4-10</b>
<b>WebOP-2040T</b>	4.3" WQVGA Operator Panel with WebAccess/HMI	<b>4-12</b>
<b>Supported PLCs and Controllers list</b>	Communication Ports	<b>4-14</b>

To view all of Advantech's operator panels, visit [www.advantech.com/products](http://www.advantech.com/products).



# Selection Guide



Model		WOP-2040T		WOP-2050T
Ordering Information		WOP-2040T-S1AE	WOP-2040T-N1AE	WOP-2050T-S1AE
CPU		RISC 32bits, 200MHz		
Backup Memory		128 KB		
Working Memory		32 MB SDRAM		
Storage		8MB NOR Flash		
		-	128M NAND Flash	128M NAND Flash
Operating System		HMI RTOS, WebOP Designer 2.0		
Display	Type	WQVGA (16:9) TFT LCD		QVGA TFT LCD
	Size	4.3"		5.6"
	Max. Resolution	480 x 272		320 x 234
	Max. Colors	65,536 colors		65,536 colors
	Luminance (cd/m <sup>2</sup> )	400		330
	Viewing Angle (H/V°)	100/95		130/110
	Backlight Life (hr)	LED, 20,000		LED, 20,000
	Dimming	-		-
Touchscreen		4 wires Analog resistive		4 wires Analog resistive
Power-On LED		Yes		Yes
Communication LED		-		-
Front USB Access		-		-
Communication Interface	COM1	RS232/422/485		RS232/422/485 (DB9)
	COM2	RS422/485 (Terminal 5pin)		RS422/485 (Terminal 5pin)
	COM3	RS232 (COM1: Pin5; 7; 8)		RS232 (COM1: Pin5; 7; 8)
	CAN	-		-
	Ethernet (RJ45)	-	10/100-BaseT	-
I/Os	USB Client	Yes		Yes
	USB Host	Yes		Yes
	Micro-SD Slot	-	Yes	Yes
	SD Slot	-		-
	Audio	-		-
	Power Isolation	-		-
	I/O Isolation	-		-
Power Supply Voltage		24 V <sub>DC</sub> ± 10%		24 V <sub>DC</sub> ± 10%
Power Consumption		5W		10W
Dimensions W x H x D (mm)		130 x 106.2 x 36.4 mm (5.11" x 4.18" x 1.43")		188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")
Cut-out Dimensions W x H (mm)		118.5 x 92.5 mm (4.66" x 3.64")		175 x 132.5 mm (6.89" x 5.21")
Front Panel thickness (mm)		5 mm		6 mm
Enclosure		PC + ABS		PC + ABS
Net Weight		0.3 kg (0.66 lbs)		0.51 kg (1.12 lbs)
Operating Temperature		0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F)
Storage Temperature		-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)
Humidity		10% ~ 90% RH @ 40°C, non-condensing		10% ~ 90% RH @ 40°C, non-condensing
Ingress Protection		Front panel: IP66		Front panel: IP66
Certification		CE / FCC / BSMI / CCC / UL		CE / FCC / BSMI / CCC / UL
Page		4-12		4-10





# WebOP-2100T

## 10.1" WSVGA Operator Panel with WebAccess/HMI



### Features

- Includes ARM 9-based CPUs 200 MHz and 128 MB flash memory
- Includes RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through serial, Ethernet, USB interface
- Supports brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports WebAccess/HMI Designer development tool on Windows XP/Vista/7
- Easy to run one application on any screen size
- Supports vertical and horizontal application screen rotation
- Supports over 450 PLC industrial communication protocols
- Communicates with up to four types of devices
- Easily installed with panel mounting design
- Front panel with IP66 protection

### Introduction

To fulfill the stringent standards required in automation market especially in packaging, label slitting, and robot dispensing, Advantech offers the WebOP-2000T series for applications related to PLCs operation, motion/thermal controllers, inverters and sensors. It's designed with various LCD sizes from 4.3" to 10.1, ARM 9-based RISC CPU's, 128 MB flash memory and HMI application software. The WebOP-2000T series is bundled with WebAccess/HMI: a powerful software which is able to create HMI application solutions for labor-saving, manufacturing efficiency improved and visualized operation on every machine in factory.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 269.8 x 212 x 37.4mm (10.62" x 8.35" x 1.47")
- **Cut-out Dimensions** 259.5 x 201.5 mm (10.22" x 7.93")
- **Front Panel Thickness** 6mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V<sub>DC</sub> ±10%
- **Power Consumption** 10W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 1.2 kg (2.64 lbs)

#### System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB/ 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

#### Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** 10/100-BaseT (for N2AE model)
- **I/Os**
  - USB Client Yes
  - USB Host Yes
  - Micro-SD Slot Yes (for N2AE model)

#### LCD and Touchscreen

- **Display Type** WSVGA TFT LCD
- **Display Size** 10.1"
- **Max. Resolution** 1024 x 600
- **Max. Colors** 65,536 colors
- **Luminance (cd/m<sup>2</sup>)** 250
- **Backlight Life** LED, 20,000 hrs
- **Dimming** Adjustable by touch panel
- **Touchscreen** 4 wires analog resistive

#### Environment

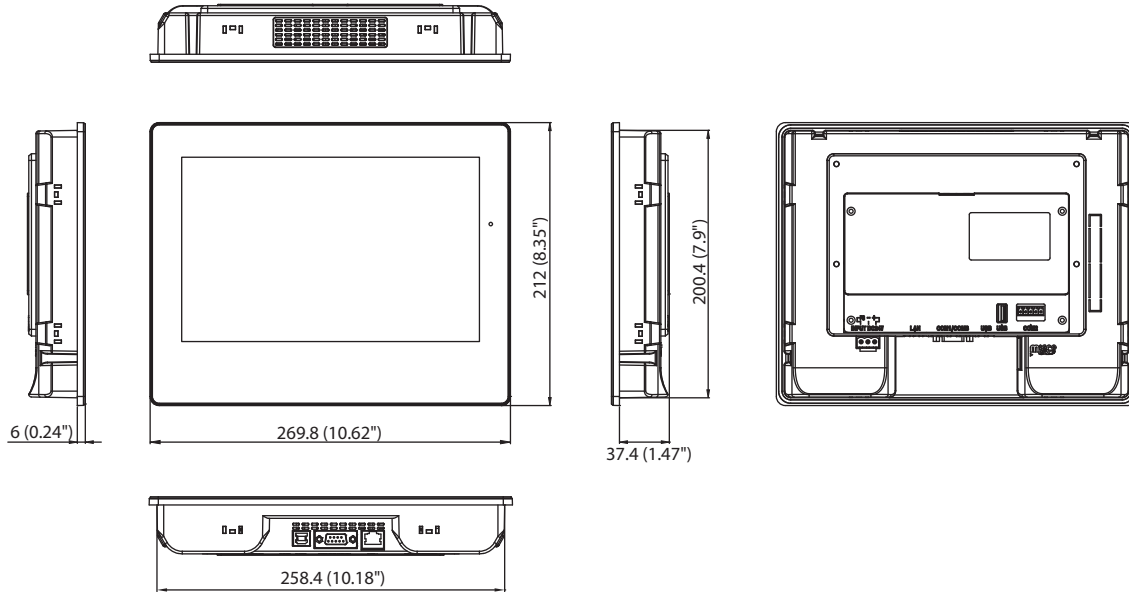
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, random vibration 1 Grms (5 ~ 500 Hz)

### Ordering Information

- **WOP-2100T-S2AE** 10.1" WSVGA, 64MB (SDRAM), 8MB (NOR)
- **WOP-2100T-N2AE** 10.1" WSVGA, 64MB (SDRAM), 8MB (NOR) & 128MB (NAND)

## Dimensions

Unit: mm

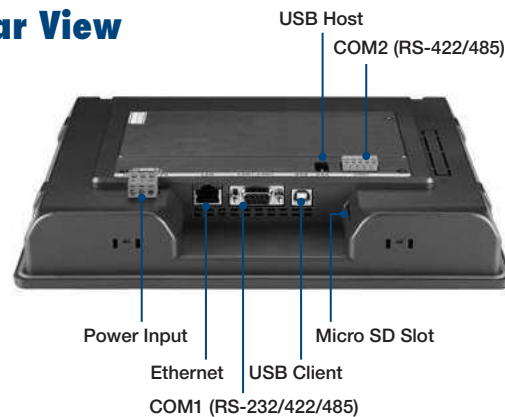


**Panel Cutout Dimensions: 259.5 x 201.5 mm (10.22 x 7.93")**

## Optional Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

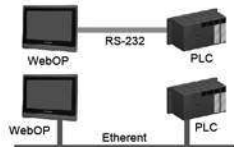
## Rear View



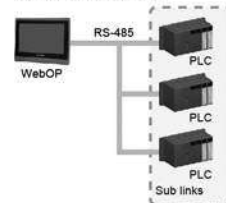
## Communication Links

### Direct Link

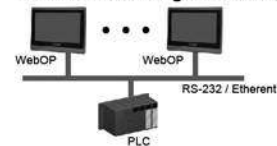
#### 1-to-1 Connection



#### 1-to-N Connection



#### N-to-1 Data Sharing Connection

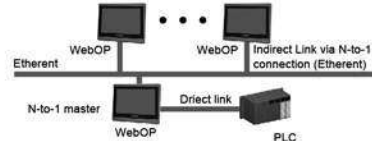


### In-Direct Link

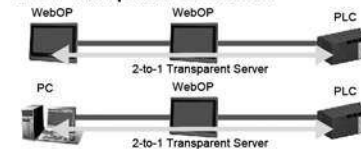
#### 2-to-1 Connection



#### N-to-1 Connection



#### 2-to-1 Transparent Connection



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 **Industrial Operator Panels**
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# WebOP-2080T

## 8" SVGA Operator Panel with WebAccess/HMI



### Features

- Includes ARM 9-based CPUs 200 MHz and 128 MB flash memory
- Includes RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through serial, Ethernet, USB interface
- Supports brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports WebAccess/HMI Designer development tool on Windows XP/Vista/7
- Easy to run one application on any screen size
- Supports vertical and horizontal application screen rotation
- Supports over 450 PLC industrial communication protocols
- Communicates with up to four types of devices
- Easily installed with panel mounting design
- Front panel with IP66 protection

### Introduction

To fulfill the stringent standards required in automation market especially in packaging, label slitting, and robot dispensing, Advantech offers the WebOP-2000T series for applications related to PLCs operation, motion/thermal controllers, inverters and sensors. It's designed with various LCD sizes from 4.3" to 10.1, ARM 9-based RISC CPU's, 128 MB flash memory and HMI application software. The WebOP-2000T series is bundled with WebAccess/HMI: a powerful software which is able to create HMI application solutions for labor-saving, manufacturing efficiency improved and visualized operation on every machine in factory.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 231.5 x 174.6 x 37 mm (9.11" x 6.87" x 1.46")
- **Cut-out Dimensions** 221 x 164 mm (8.70" x 6.46")
- **Front Panel Thickness** 6 mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V<sub>DC</sub> ±10%
- **Power Consumption** 10W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.93 kg (2.05 lbs)

#### System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB/ 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

#### Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** 10/100-BaseT (for N2AE model)
- **I/Os**
  - USB Client Yes
  - USB Host Yes
  - Micro-SD Slot Yes (for N2AE model)

#### LCD and Touchscreen

- **Display Type** SVGA TFT LCD
- **Display Size** 8"
- **Max. Resolution** 800 x 600
- **Max. Colors** 65,536 colors
- **Luminance (cd/m<sup>2</sup>)** 250
- **Backlight Life** LED, 30,000 hrs
- **Dimming** Adjustable by touch panel
- **Touchscreen** 4 wires analog resistive

#### Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, random vibration 1 Grms (5 ~ 500 Hz)

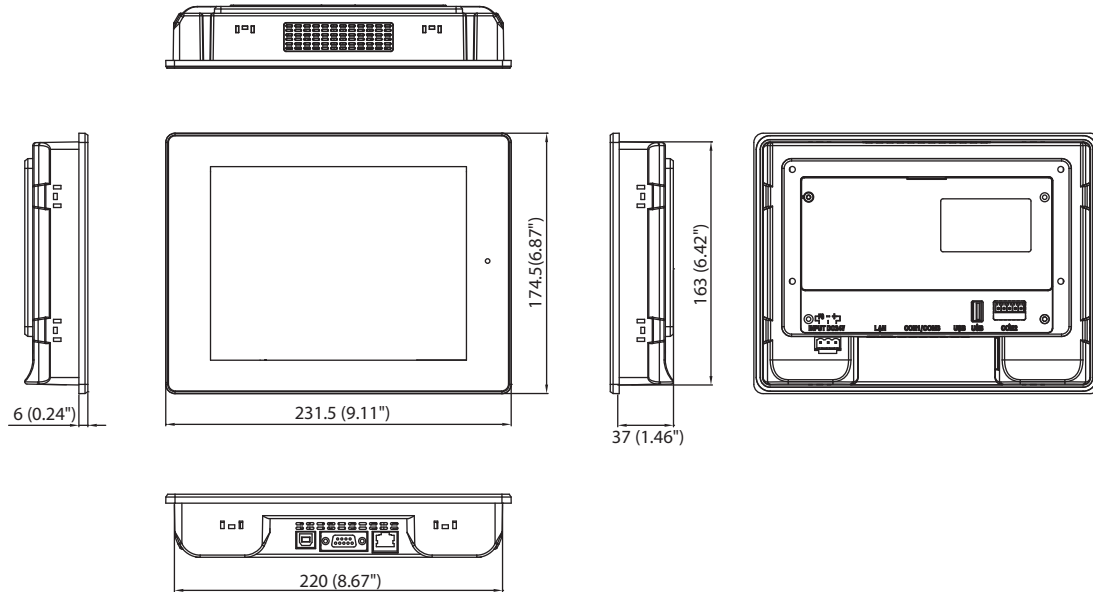
### Ordering Information

- **WOP-2080T-S2AE** 8" SVGA, 64MB (SDRAM), 8MB (NOR)
- **WOP-2080T-N2AE** 8" SVGA, 64MB (SDRAM), 8MB (NOR) & 128MB (NAND)



## Dimensions

Unit: mm

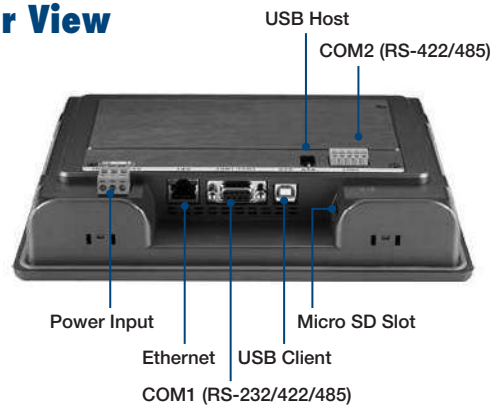


**Panel Cutout Dimensions: 221 x 164 mm (8.70 x 6.46")**

## Optional Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

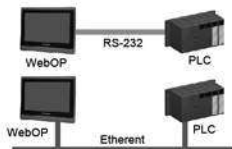
## Rear View



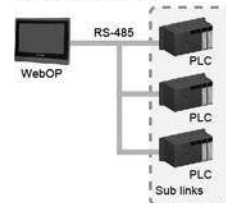
## Communication Links

### Direct Link

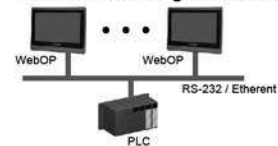
#### 1-to-1 Connection



#### 1-to-N Connection



#### N-to-1 Data Sharing Connection

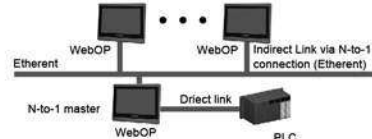


### In-Direct Link

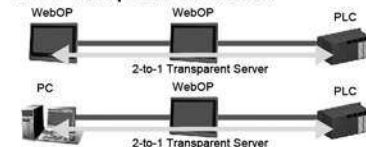
#### 2-to-1 Connection



#### N-to-1 Connection



#### 2-to-1 Transparent Connection



- 1 WebAccess<sup>®</sup> Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 **Industrial Operator Panels**
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# WebOP-2070T

## 7" WVGA Operator Panel with WebAccess/HMI



### Features

- Includes ARM 9-based CPUs 200 MHz and 128 MB flash memory
- Includes RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through serial, Ethernet, USB interface
- Supports brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports WebAccess/HMI Designer development tool on Windows XP/Vista/7
- Easy to run one application on any screen size
- Supports vertical and horizontal application screen rotation
- Supports over 450 PLC industrial communication protocols
- Communicates with up to four types of devices
- Easily installed with panel mounting design
- Front panel with IP66 protection

### Introduction

To fulfill the stringent standards required in automation market especially in packaging, label slitting, and robot dispensing, Advantech offers the WebOP-2000T series for applications related to PLCs operation, motion/thermal controllers, inverters and sensors. It's designed with various LCD sizes from 4.3" to 10.1", ARM 9-based RISC CPU's, 128 MB flash memory and HMI application software. The WebOP-2000T series is bundled with WebAccess/HMI: a powerful software which is able to create HMI application solutions for labor-saving, manufacturing efficiency improved and visualized operation on every machine in factory.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")
- **Cut-out Dimensions** 175 x 132.5 mm (6.89" x 5.21")
- **Front Panel Thickness** 6mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V<sub>DC</sub> ±10%
- **Power Consumption** 10W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.6 kg (1.32 lbs)

#### System Hardware

- **CPU** RISC 32 bits, 200 MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB/ 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

#### Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** 10/100-BaseT (for N2AE model)
- **I/Os**
  - USB Client Yes
  - USB Host Yes
  - Micro-SD Slot Yes (for N2AE model)

#### LCD and Touchscreen

- **Display Type** WVGA TFT LCD
- **Display Size** 7"
- **Max. Resolution** 800 x 480
- **Max. Colors** 65,536 colors
- **Luminance (cd/m<sup>2</sup>)** 300
- **Backlight Life** LED, 20,000 hrs
- **Dimming** Adjustable by touch panel
- **Touchscreen** 4 wires analog resistive

#### Environment

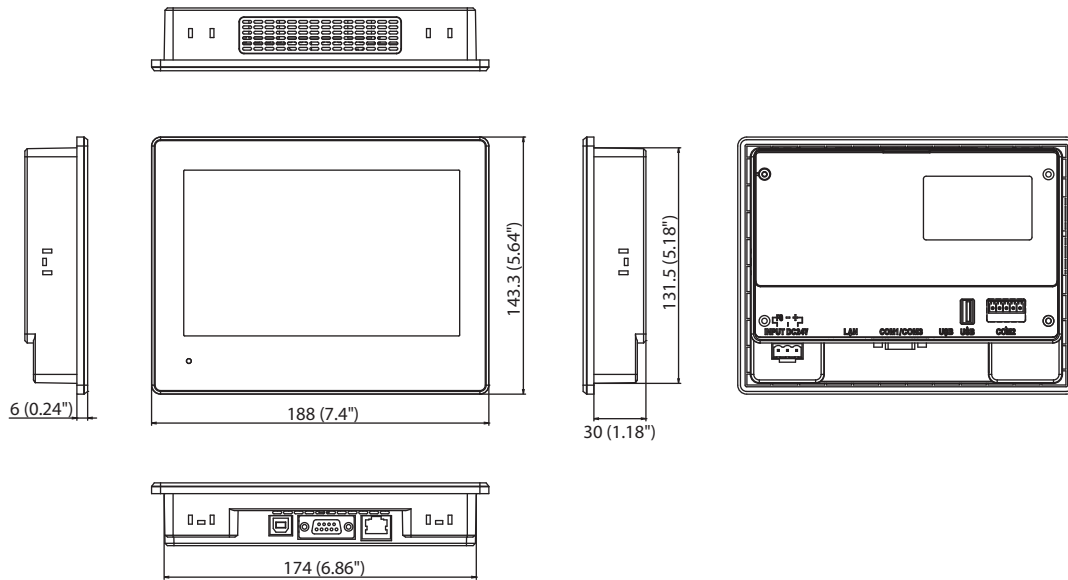
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, random vibration 1 Grms (5 ~ 500 Hz)

### Ordering Information

- **WOP-2070T-S2AE** 7" WVGA, 64MB (SDRAM), 8MB (NOR)
- **WOP-2070T-N2AE** 7" WVGA, 64MB (SDRAM), 8MB (NOR) & 128MB (NAND)

## Dimensions

Unit: mm

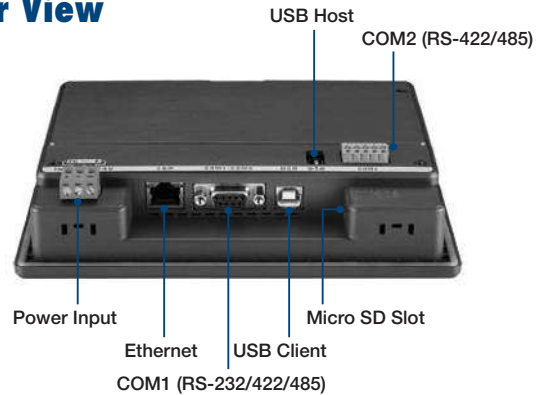


**Panel Cutout Dimensions: 175 x 132.5mm (6.89 x 5.21")**

## Optional Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

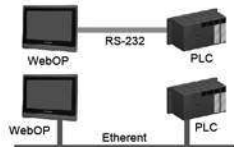
## Rear View



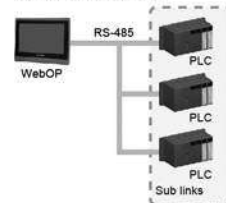
## Communication Links

### Direct Link

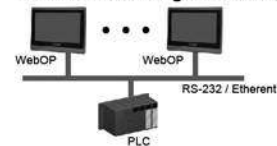
#### 1-to-1 Connection



#### 1-to-N Connection



#### N-to-1 Data Sharing Connection

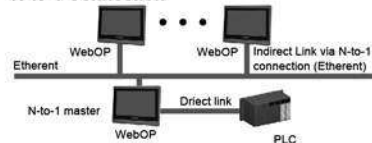


### In-Direct Link

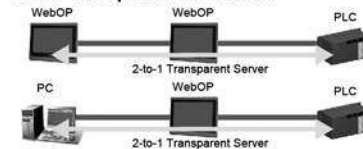
#### 2-to-1 Connection



#### N-to-1 Connection



#### 2-to-1 Transparent Connection



- 1 WebAccess<sup>®</sup> Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 **Industrial Operator Panels**
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# WebOP-2050T

## 5.6" QVGA Operator Panel with WebAccess/HMI



### Features

- Includes ARM 9-based CPUs 200 MHz and 128 MB flash memory
- Includes RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through serial, Ethernet, USB interface
- Supports brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports WebAccess/HMI Designer development tool on Windows XP/Vista/7
- Easy to run one application on any screen size
- Supports vertical and horizontal application screen rotation
- Supports over 450 PLC industrial communication protocols
- Communicates with up to four types of devices
- Easily installed with panel mounting design
- Front panel with IP66 protection

### Introduction

To fulfill the stringent standards required in automation market especially in packaging, label slitting, and robot dispensing, Advantech offers the WebOP-2000T series for applications related to PLCs operation, motion/thermal controllers, inverters and sensors. It's designed with various LCD sizes from 4.3" to 10.1", ARM 9-based RISC CPU's, 128 MB flash memory and HMI application software. The WebOP-2000T series is bundled with WebAccess/HMI: a powerful software which is able to create HMI application solutions for labor-saving, manufacturing efficiency improved and visualized operation on every machine in factory.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")
- **Cut-out Dimensions** 175 x 132.5 mm (6.89" x 5.21")
- **Front Panel Thickness** 6mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V<sub>DC</sub> ±10%
- **Power Consumption** 10W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.51 kg (1.12 lbs)

#### System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

#### Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** None
- **I/Os**
  - USB Client Yes
  - USB Host Yes
  - Micro-SD Slot Yes

#### LCD and Touchscreen

- **Display Type** QVGA TFT LCD
- **Display Size** 5.6"
- **Max. Resolution** 320 x 234
- **Max. Colors** 65,536 colors
- **Luminance (cd/m<sup>2</sup>)** 330
- **Backlight Life** LED, 20,000 hrs
- **Dimming** Adjustable by touch panel
- **Touchscreen** 4 wires analog resistive

#### Environment

- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, random vibration 1 Grms (5 ~ 500 Hz)

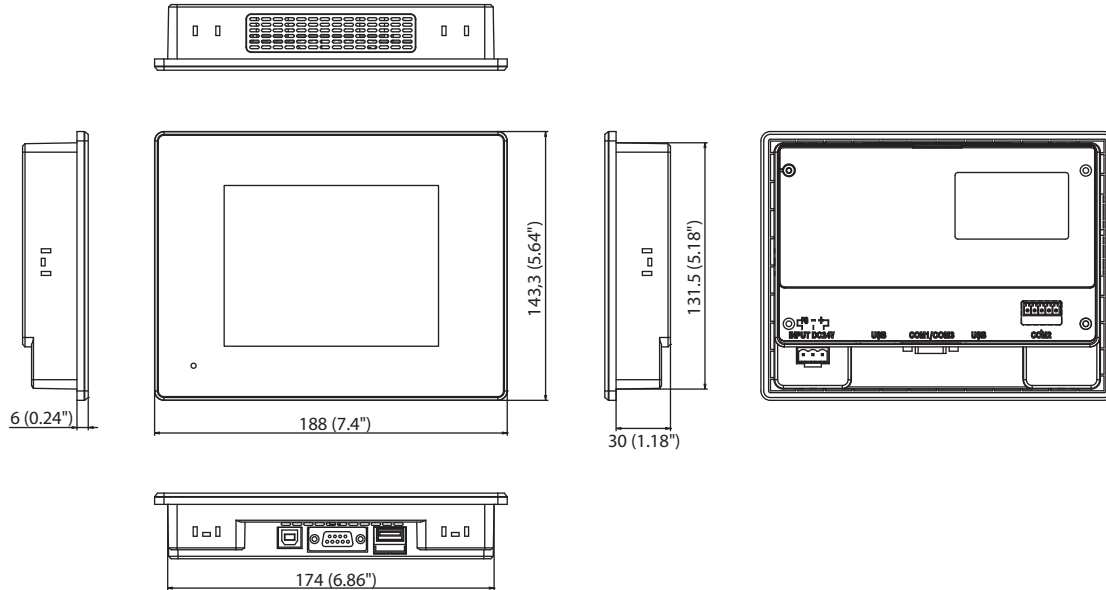
### Ordering Information

- **WOP-2050T-S1AE** 5.6" QVGA, 32 MB (SDRAM), 8MB (NOR) & 128MB (NAND)



## Dimensions

Unit: mm

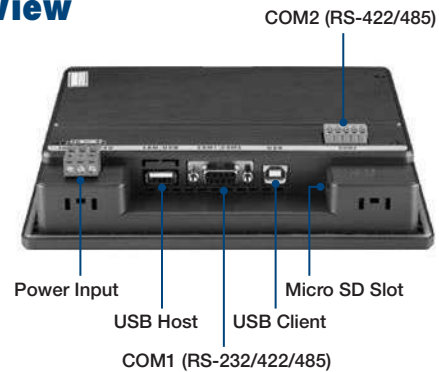


**Panel Cutout Dimensions: 175 x 132.5mm (6.89 x 5.21")**

## Optional Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

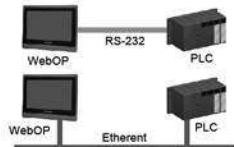
## Rear View



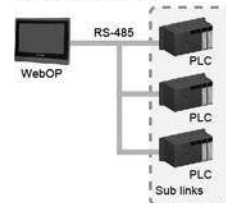
## Communication Links

### Direct Link

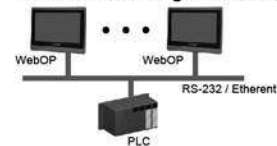
#### 1-to-1 Connection



#### 1-to-N Connection

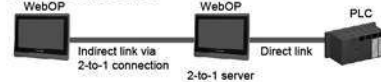


#### N-to-1 Data Sharing Connection

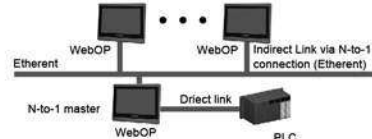


### In-Direct Link

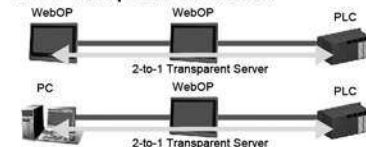
#### 2-to-1 Connection



#### N-to-1 Connection



#### 2-to-1 Transparent Connection



- 1 WebAccess<sup>®</sup> Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# WebOP-2040T

## 4.3" WQVGA Operator Panel with WebAccess/HMI



### Features

- Includes ARM 9-based CPUs 200 MHz and 128 MB flash memory
- Includes RTC, battery backup RAM, and Ethernet-based operator panels
- Supports runtime data downloads through serial, Ethernet, USB interface
- Supports brightness controls via touch panel
- Reliable firmware for 24/7 operation
- Supports WebAccess/HMI Designer development tool on Windows XP/Vista/7
- Easy to run one application on any screen size
- Supports vertical and horizontal application screen rotation
- Supports over 450 PLC industrial communication protocols
- Communicates with up to four types of devices
- Easily installed with panel mounting design
- Front panel with IP66 protection

### Introduction

To fulfill the stringent standards required in automation market especially in packaging, label slitting, and robot dispensing, Advantech offers the WebOP-2000T series for applications related to PLCs operation, motion/thermal controllers, inverters and sensors. It's designed with various LCD sizes from 4.3" to 10.1, ARM 9-based RISC CPU's, 128 MB flash memory and HMI application software. The WebOP-2000T series is bundled with WebAccess/HMI: a powerful software which is able to create HMI application solutions for labor-saving, manufacturing efficiency improved and visualized operation on every machine in factory.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 130 x 106.2 x 36.4mm (5.11" x 4.18" x 1.43")
- **Cut-out Dimensions** 118.5 x 92.5mm (4.66" x 3.64")
- **Front Panel Thickness** 5mm
- **Operating System** HMI RTOS, WebOP Designer
- **Power Supply Voltage** 24V<sub>DC</sub> ±10%
- **Power Consumption** 5W
- **Enclosure Housing** Plastic
- **Mounting** Panel
- **Weight (Net)** 0.3 kg (0.66 lbs)

#### System Hardware

- **CPU** RISC 32bits, 200MHz
- **Battery Backup Memory** 128KB
- **Flash Memory** 8MB/ 8MB + 128M NAND flash
- **Power-On LED** Yes
- **Communication LED** No
- **Front USB Access** No

#### Communication Interface

- **COM1** RS-232/422/485 (DB9 Female)
- **COM2** RS-422/485 (5-Pin Plug Connector)
- **COM3** RS-232 (Com1: Pin5;7;8)
- **Ethernet (RJ45)** 10/100-BaseT (for N1AE model)
- **I/Os**
  - USB Client Yes
  - USB Host Yes
  - Micro-SD Slot Yes (for N1AE model)

#### LCD and Touchscreen

- **Display Type** WQVGA TFT LCD
- **Display Size** 4.3"
- **Max. Resolution** 480 x 272
- **Max. Colors** 65,536 colors
- **Luminance (cd/m<sup>2</sup>)** 400
- **Backlight Life** LED, 20,000 hrs
- **Dimming** Adjustable by touch panel
- **Touchscreen** 4 wires analog resistive

#### Environment

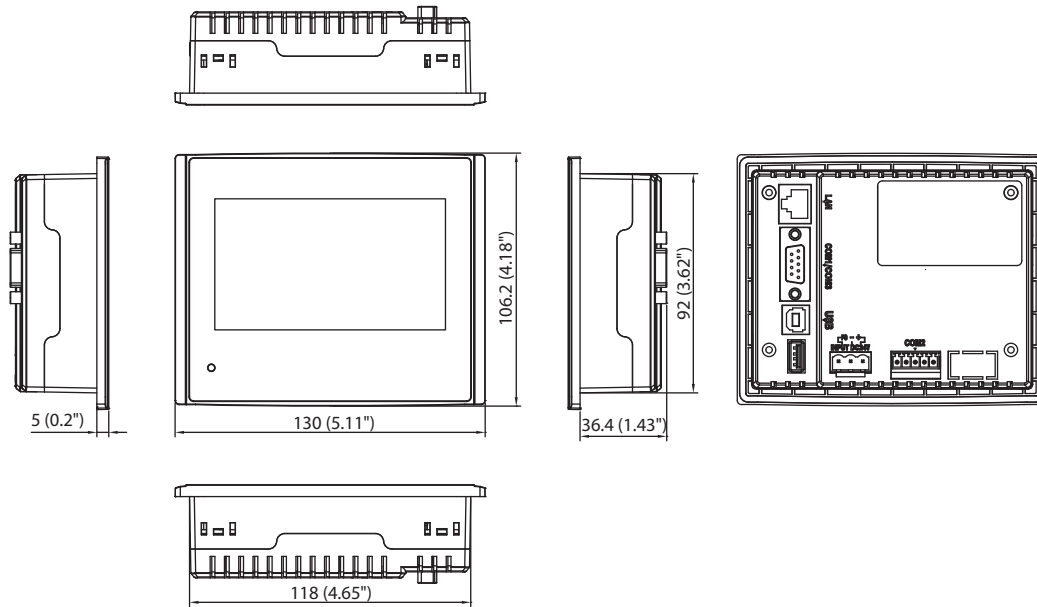
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, random vibration 1 Grms (5 ~ 500 Hz)

### Ordering Information

- **WOP-2040T-S1AE** 4.3" WQVGA, 32MB (SDRAM), 8MB (NOR)
- **WOP-2040T-N1AE** 4.3" WQVGA, 32MB (SDRAM), 8MB (NOR) & 128MB (NAND)

## Dimensions

Unit: mm

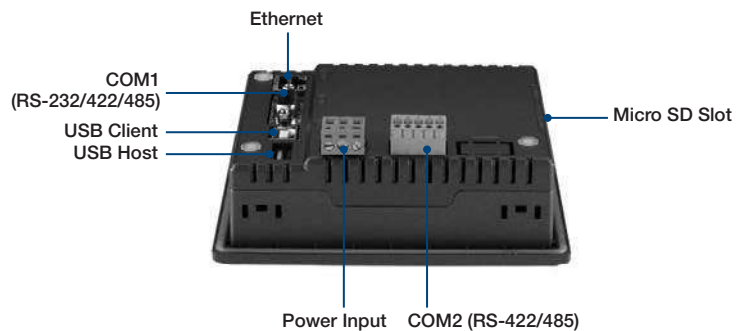


**Panel Cutout Dimensions: 118.5 x 92.5 mm (4.66 x 3.64")**

## Optional Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

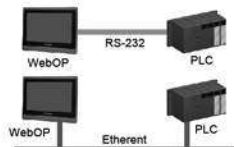
## Rear View



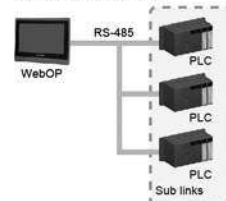
## Communication Links

### Direct Link

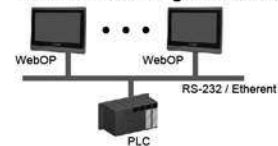
#### 1-to-1 Connection



#### 1-to-N Connection



#### N-to-1 Data Sharing Connection

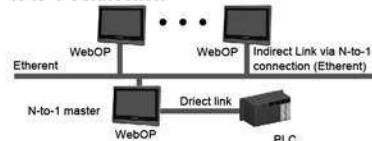


### In-Direct Link

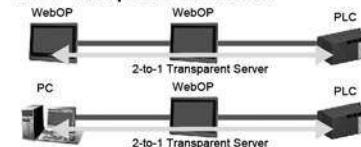
#### 2-to-1 Connection



#### N-to-1 Connection



#### 2-to-1 Transparent Connection



- 1 WebAccess<sup>+</sup> Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# Supported PLCs and Controllers List

## Communication Ports

Brand	Model	WOP-2000T	WebAccess/HMI	WOP-3000T	Type
A&D Company Ltd.	AD-4401 Weighing Indicator	V	V	V	Direct Link (COM)
ABIDO Automation Co., Ltd.	ACR420 984 Device/Slave (RTU)	V	V	V	Direct Link (COM)
ADLEE POWERTRONIC CO., LTD.	MS/AP/AS Series Inverter (RTU)	V	V	V	Direct Link (COM)
	BL/D305 Series (RTU)	V	V	V	Direct Link (COM)
Advantech	Null PLC	V	V	V	Direct Link (COM)
	ADAM (Modbus RTU)	V	V	V	Direct Link (COM)
	ADAM-4000 (ASCII)	V	V	V	Direct Link (COM)
	ADAM-6000 (Modbus TCP/IP)	V	V	V	Direct Link (Ethernet)
AIGO Technologies Corporation	SE500 Series (Modbus RTU)	V	V	V	Direct Link (COM)
Allen Bradley	Micrologix 1000/1500	V	V	V	Direct Link (COM)
	SLC 5/03, 5/04	V	V	V	Direct Link (COM)
	DH-485 (COM)	V	V	N/A	Direct Link (COM)
	PLC-5	V	V	V	Direct Link (COM)
	SLC 5/03, 5/04 (CRC)	V	V	V	Direct Link (COM)
	CompactLogix/ControlLogix Tag	V	V	N/A	Direct Link (COM)
	MicroLogix 1000/1500 via 1761-NE1-ENI	V	V	V	Direct Link (Ethernet)
	MicroLogix	V	V	V	Direct Link (Ethernet)
	CompactLogix/ControlLogix Ethernet/IP Tag	V	V	V	Direct Link (Ethernet)
ARICO Technology	FC Type (Modbus)	V	V	V	Direct Link (COM)
	ModBus Master (TCP/IP)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Modbus Master (RTU)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU)	V	V	V	Direct Link (COM)
Astraada HMI	Modicon Device/Slave (RTU, Quantum)	V	V	V	Direct Link (COM)
	ModBus Master (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
	Modbus Master (RTU; Non-volatile slave data)	V	V	V	Direct Link (COM)
Automation Technology Co., Ltd.	BLDC NLV/KLV Series	V	V	V	Direct Link (COM)
Banner Engineering Int'l Inc.	BSP01 Series	V	V	V	Direct Link (COM)
Beckhoff Automation GmbH	TwinCAT 2 ( via Ethernet )	V	V	V	Direct Link (Ethernet)
	TwinCAT 2 ( via DLL )	V	N/A	N/A	Direct Link (Ethernet)
Bosch Rexroth	ModBus Device/Slave (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
CAPAC	TC	V	V	V	Direct Link (COM)
CHINO Corporation	DB1000 Digital Indicating Controller (ASCII)	V	V	V	Direct Link (COM)
CMZ Sistemi Elettronici	NFO Controllers	V	V	V	Direct Link (COM)
	FCT Controllers	V	V	V	Direct Link (COM)
	SD Drivers	V	V	V	Direct Link (COM)
	SDS Drivers	V	V	V	Direct Link (COM)
	MDM Drivers	V	V	V	Direct Link (COM)
	FCT Controllers (TCP/IP; Type 2)	V	V	V	Direct Link (Ethernet)
Crouzet Ltd.	M3 SLIN/SLOUT Protocol	V	V	V	Direct Link (COM)
CTB Technologies Corporation	IMS Servo Controller	V	N/A	N/A	Direct Link (COM)
Danfoss Group	VLT 2800 Series (FC Protocol)	V	V	V	Direct Link (COM)
	Modbus RTU (COM port)	V	V	V	Direct Link (COM)
DEIF A/S	TCP/IP Modbus (Ethernet port)	V	V	V	Direct Link (Ethernet)
	WSS/WSS-L	V	V	V	Direct Link (COM)
Delta Corporation	DVP-ES/SS/EP/EH	V	V	V	Direct Link (COM)
	DVP-ES/SS/EP/EH (No block read)	V	V	V	Direct Link (COM)
	DVP-SV (RTU)	V	V	V	Direct Link (COM)
	VFD-M Inverter (ASCII)	V	V	V	Direct Link (COM)
	VFD-B Inverter (ASCII)	V	V	V	Direct Link (COM)
	DTC1000/2000 Temperature (ASCII)	V	V	V	Direct Link (COM)
	DTA Temperature (ASCII)	V	V	V	Direct Link (COM)
	ASDA-A Servo Controller (ASCII)	V	V	V	Direct Link (COM)
	ASDA-B Servo Controller (ASCII)	V	V	V	Direct Link (COM)
	ASDA-A2 Servo Controller (ASCII)	V	N/A	N/A	Direct Link (COM)
Dirise Electric Technology Co., Ltd.	DRS2000 Series Inverter	V	N/A	N/A	Direct Link (COM)
	DRS2800 M Series Inverter	V	V	V	Direct Link (COM)
EasyIO	EasyIO-30 (RTU)	V	V	V	Direct Link (Ethernet)
Emerson Network Power	EC Series (RTU)	V	V	V	Direct Link (COM)
	EV1000 Series Variable Speed Driver	V	V	V	Direct Link (COM)
Epson Corporate	Epson LQ Matrix Printer	V	V	V	Direct Link (COM)
Eura Drivers Electric Corp.	Eura EF1S/1N	V	V	V	Direct Link (COM)
	Eura EF2N	V	V	V	Direct Link (COM)
	Eura Inverter (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura Inverter ( Modbus ASCII )	V	V	V	Direct Link (COM)
	Eura EF200-CPU202 (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF200-CPU202XP/ CPU204 (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF200-CPU204XP/ CPU206 (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF300-CPU304 (Modbus RTU)	V	V	V	Direct Link (COM)
	Eura EF300-CPU306 (Modbus RTU)	V	V	V	Direct Link (COM)

Brand	Model	WOP-2000T	WebAccess/HMI	WOP-3000T	Type
Eura Drivers Electric Corp.	Eura Servo Drive ( Modbus RTU )	V	V	V	Direct Link (COM)
	Eura Servo Drive ( Modbus ASCII )	V	V	V	Direct Link (COM)
	Eura HFR1000 ( Modbus RTU )	V	V	V	Direct Link (COM)
	Eura HFR1000 ( Modbus ASCII )	V	V	V	Direct Link (COM)
	Eura HFR2000 ( Modbus RTU )	V	V	V	Direct Link (COM)
	Eura HFR2000 ( Modbus ASCII )	V	V	V	Direct Link (COM)
Fatek Automation Corp.	FATEK FBs/FBe	V	V	V	Direct Link (COM)
	Fatek FBs/FBe (TCP)	V	V	V	Direct Link (Ethernet)
Festo Corporation	FPC/FEC Series	V	V	V	Direct Link (COM)
	FPC/FEC EasyIP	V	V	V	Direct Link (Ethernet)
Fuji Electric Corporation	NB Series	V	V	V	Direct Link (COM)
	PXR Series Temperature (RTU)	V	V	V	Direct Link (COM)
	FRENIC-VP (RTU)	V	V	V	Direct Link (COM)
	FRENIC500G11/P11 (Fuji)	V	V	V	Direct Link (COM)
	FRENIC-Mini/Eco/Multi/Mega (RTU)	V	V	V	Direct Link (COM)
	MICREX-SX	V	V	V	Direct Link (Ethernet)
FKV Automation Co., Ltd.	F Series Inverter	V	V	V	Direct Link (COM)
GE Corporation	90 Series SNP	V	V	V	Direct Link (COM)
	VersaMax Series (SNP)	V	V	V	Direct Link (COM)
	90 and RX3i Series (SNP)	V	V	V	Direct Link (COM)
	90 Series CCM	V	V	V	Direct Link (COM)
	SRTP Ethernet	V	V	V	Direct Link (Ethernet)
	SRTP Ethernet (Micro)	V	V	V	Direct Link (Ethernet)
Gigarise Technology Co., Ltd.	SE5000	V	V	V	Direct Link (COM)
	GA400 Temperature (RTU)	V	V	V	Direct Link (COM)
GOFAST Corporation	NC Series	V	V	V	Direct Link (COM)
Haiwell Technology Co., Ltd.	HW Series (RTU)	V	V	V	Direct Link (COM)
Hanbell Precise Machinery Co., Ltd.	Air Screw Compressor	V	V	V	Direct Link (COM)
Hitachi Industrial Equipment Systems Co., Ltd.	SJ200 Inverter	V	V	V	Direct Link (COM)
	EHE/EHV Series (Ethernet; TCP)	V	V	N/A	Direct Link (Ethernet)
	EHE/EHV Series (Ethernet; UDP)	V	V	N/A	Direct Link (Ethernet)
	H/EH Series	V	V	V	Direct Link (COM)
	EHV Series (Procedure 1)	V	V	V	Direct Link (COM)
	H-252C	V	V	V	Direct Link (COM)
	AD Series Servo Drives	V	V	V	Direct Link (COM)
Hitech	Computer as Slave (COM)	V	V	V	Direct Link (COM)
	Computer as Master (COM)	V	V	V	Direct Link (COM)
	Computer as Slave V2 (COM)	V	N/A	N/A	Direct Link (COM)
	Computer as Master V2 (COM)	V	V	V	Direct Link (COM)
HOLIP ELECTRONIC TECHNOLOGY CO., LTD	HLP-C+/CP	V	V	V	Direct Link (COM)
HollySys	LE5108 (Modbus RTU)	V	V	N/A	Direct Link (COM)
Honeywell	BACnet/IP	V	N/A	N/A	Direct Link (Ethernet)
	BACnet/MSTP	V	N/A	N/A	Direct Link (COM)
	BACnet	V	N/A	N/A	Direct Link (COM)
	HW BACnet/IP	V	N/A	N/A	Direct Link (Ethernet)
	Modbus Device/Slave (RTU, 255)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU, 255, NoBlock)	V	V	V	Direct Link (COM)
Hunjoen Electronic Co., Ltd.	H_Tech PID CONTROLLER	V	V	V	Direct Link (COM)
HUST Automation Inc.	CNC Controller	V	V	V	Direct Link (COM)
	New CNC Controller	V	V	V	Direct Link (COM)
Idec Corporation	FC Series	V	V	V	Direct Link (COM)
IECCO	Sinus Penta Inverter (RTU)	V	V	V	Direct Link (COM)
	H2u (CPU Port)	V	V	V	Direct Link (COM)
Inovance Control Technology Co., Ltd.	MD Series Inverter (RTU)	V	V	V	Direct Link (COM)
	MD Series Inverter (RTU-1)	V	V	V	Direct Link (COM)
	IS Servo (RTU)	V	V	V	Direct Link (COM)
Integrated Flow Systems	iPurge Source Controller	V	V	V	Direct Link (COM)
Invt Auto-Control Technology	IVC Series	V	V	V	Direct Link (COM)
JETTER	NANO Series	V	V	V	Direct Link (COM)
	JetControl 24x Series	V	V	V	Direct Link (COM)
	JetControl 24x Series (Ethernet)	V	V	N/A	Direct Link (Ethernet)
Joint Peer SysteC Corp.	IRIS Series	V	V	V	Direct Link (COM)
	JUPITER Series	V	V	V	Direct Link (COM)
	PDAN Series	V	V	V	Direct Link (COM)
	PDS Series	V	V	V	Direct Link (COM)
Keyence Corp.	KV Series	V	V	V	Direct Link (COM)
	KV-1000	V	V	V	Direct Link (COM)
	KV-L20V-KV-NANO	V	V	V	Direct Link (COM)
	KV-L20	V	V	V	Direct Link (COM)
	KV-3000	V	V	V	Direct Link (COM)
	KV-5000	V	V	V	Direct Link (Ethernet)
Kinco Automation Ltd.	Kinco ED Series	V	V	V	Direct Link (COM)
Klockner Moeller Corporation	PS4-201-MM1	V	V	V	Direct Link (COM)
	SUCONET K	V	N/A	N/A	Direct Link (COM)



# Communication Ports

Brand	Model	WOP-2000T	WebAccess/HMI	WOP-3000T	Type
Koyo Electric Corp.	K Sequence Series	V	V	V	Direct Link (COM)
	Direct Logic Series	V	V	V	Direct Link (COM)
	Direct 06 Series (K Sequence)	V	V	V	Direct Link (COM)
Lenze Drive Systems GmbH	Direct 06 Series (DirectNET)	V	V	V	Direct Link (COM)
	93xx Servo Controllers (LECOM A/B)	V	V	V	Direct Link (COM)
LG Industrial Systems	E94AYCEN GCI(TCP/IP) Protocol	V	V	V	Direct Link (Ethernet)
	Master-K Series CNet	V	V	V	Direct Link (COM)
	K120S CPU Port	V	V	V	Direct Link (COM)
	Master-K Loader	V	V	V	Direct Link (COM)
	GLOFA GM Series CNet	V	V	V	Direct Link (COM)
	XBM-DR16S	V	V	V	Direct Link (COM)
	GLOFA GM Loader	V	V	V	Direct Link (COM)
	XEC/XGI CNet	V	V	V	Direct Link (COM)
	XGT/XGK (CPU)	V	V	V	Direct Link (COM)
	XGL-C22A	V	V	V	Direct Link (COM)
	XGT/XGK (CPU)	V	V	V	Direct Link (Ethernet)
LG System	LGA Series(as Slave)	V	V	V	Direct Link (COM)
	LGA Series (as Master)	V	V	V	Direct Link (COM)
Liyan Electric Industrial Ltd.	EX Series (CPU Port)	V	V	V	Direct Link (COM)
Lust Antriebstechnik GmbH	LustBus ServoC/CDE Series	V	V	N/A	Direct Link (COM)
	LustBus CDD Series	V	V	N/A	Direct Link (COM)
Maxtech	MC2 PID Controller	V	V	V	Direct Link (COM)
Maxthermo	MC 5738 (RTU)	V	V	V	Direct Link (COM)
Mean Well Enterprises Co., Ltd.	PRETA	V	V	V	Direct Link (COM)
Megmeet	MC Series (RTU)	V	V	V	Direct Link (COM)
Micro Trend Corporation	UTC Servo Controller	V	V	V	Direct Link (COM)
MIKOM ELECTRICAL TECHNOLOGY	MX Series PLC	V	V	V	Direct Link (COM)
Mirle Automation Corporation	Fama SoftPLC Ethernet	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	nDX Controller	V	V	V	Direct Link (COM)
Mitsubishi Electric Corp.	Melsec-FX (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q/QnA (Link Port)	V	V	V	Direct Link (COM)
	Melsec-Q0Q/01 (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q02H (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q02 (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q02U (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q00J (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-FX2n (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-FX3U (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-FX3U (Link Port)	V	V	V	Direct Link (COM)
	Melsec-AnN/AnS (Link Port)	V	V	V	Direct Link (COM)
	Melsec-AnN/AnS Protocol 4	V	V	V	Direct Link (COM)
	FX2n-10GM/20GM	V	V	V	Direct Link (COM)
	Melsec-A1S/A2S (CPU Port)	V	V	V	Direct Link (COM)
	FR-E500 Series (485)	V	V	V	Direct Link (COM)
	Melsec-A3N/A1SH (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-AnA/AnU (Link Port)	V	V	V	Direct Link (COM)
	Melsec-AnA/AnU Protocol 4	V	V	V	Direct Link (COM)
	Servo Amplifier MR-J2S-A	V	V	V	Direct Link (COM)
	Servo Amplifier MR-J3-A	V	V	V	Direct Link (COM)
	Servo Amplifier MR-J4-A	V	V	V	Direct Link (COM)
	Melsec-A2A/A2AS (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q06H (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q12H (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q03U (CPU Port)	V	V	V	Direct Link (COM)
	Melsec-Q00U (CPU Port)	V	V	V	Direct Link (COM)
	GOT-F900 Emulator (1:1 Format 1 & 2)	V	V	N/A	Direct Link (COM)
Melsec-Q01U (CPU Port)	V	V	V	Direct Link (COM)	
Q Ethernet	V	V	V	Direct Link (Ethernet)	
Q/L Ethernet (ASCII Mode)	V	V	V	Direct Link (Ethernet)	
L Ethernet (Binary Mode)	V	V	V	Direct Link (Ethernet)	
Melsec-FX3U (MC-Protocol)	V	V	V	Direct Link (Ethernet)	
Mitutoyo Corporation	EV Linear Gage Counter (ASCII)	V	V	V	Direct Link (COM)
Modicon Corp. (Schneider Electric)	TSX Premium (Uni-Telway)	V	V	V	Direct Link (COM)
	TSX Quantum (Uni-Telway)	V	N/A	N/A	Direct Link (COM)
	Twido (Modbus RTU)	V	V	V	Direct Link (COM)
	ModBus Master (TCP/IP, Type 2)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP, Type 2)	V	V	V	Direct Link (Ethernet)
	Modbus Master (RTU; Non-volatile slave data)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU; 6-digit Addresses)	V	V	N/A	Direct Link (COM)
	Modbus Master (ASCII; Non-volatile slave data)	V	V	V	Direct Link (COM)
	ModBus Master (TCP/IP)	V	V	V	Direct Link (Ethernet)
	ModBus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Modicon 984 Master (RTU)	V	V	V	Direct Link (COM)

Brand	Model	WOP-2000T	WebAccess/HMI	WOP-3000T	Type	
Modicon Corp. (Schneider Electric)	Modicon 984 Master (RTU; Little Memory)	V	V	V	Direct Link (COM)	
	Modicon 984 Device/Slave (RTU)	V	V	V	Direct Link (COM)	
	Modbus Master (ASCII)	V	V	V	Direct Link (COM)	
	Modbus Master (ASCII; Little Memory)	V	V	V	Direct Link (COM)	
	Modbus Device/Slave (ASCII)	V	V	V	Direct Link (COM)	
	Modicon Device/Slave (RTU, Quantum)	V	V	V	Direct Link (COM)	
MOTEC	ATV31 Inverter (RTU)	V	V	V	Direct Link (COM)	
	Lexium 23 Servo Controller (ASCII)	V	V	V	Direct Link (COM)	
MTC	α Series	V	V	V	Direct Link (COM)	
Muscle Corporation Inc.	MTC96 Controller (Modbus ASCII)	V	V	V	Direct Link (COM)	
MyTech	Cool Muscle CM1-17L30	V	V	V	Direct Link (COM)	
	VL-CX: Melsec-FX2n (CPU Port)	V	V	V	Direct Link (COM)	
Newtop Co., Ltd.	PSTC (Temperature Controller)	V	V	V	Direct Link (COM)	
	PSBD (Brushless Driver)	V	V	V	Direct Link (COM)	
	PSSD (Stepping Driver)	V	V	V	Direct Link (COM)	
	PSMC (Motion Controller)	V	V	V	Direct Link (COM)	
	PSNC (Embedded NC)	V	V	V	Direct Link (COM)	
	Sysmac C Series Host Link	V	V	V	Direct Link (COM)	
Omron Corporation	Sysmac CV Series Host Link	V	V	V	Direct Link (COM)	
	Sysmac CS/CJ Series Host Link	V	V	V	Direct Link (COM)	
	Sysmac CS/CJ Series (FINS)	V	V	V	Direct Link (COM)	
	Sysmac CP Series (FINS)	V	V	V	Direct Link (COM)	
	E5CN Temperature (CompoWay/F)	V	V	V	Direct Link (COM)	
	E5CN Temperature (Modbus RTU)	V	V	V	Direct Link (COM)	
	EJ1 Temperature (CompoWay/F)	V	V	V	Direct Link (COM)	
	KM100 (CompoWay/F)	V	V	V	Direct Link (COM)	
	3G3MV Inverter (RTU)	V	V	V	Direct Link (COM)	
	Sysmac CS/CJ Series FINS/TCP	V	V	V	Direct Link (Ethernet)	
	Sysmac NJ Series FINS/TCP	V	V	V	Direct Link (Ethernet)	
	Pan-Globe Corp.	E9 Temperature Series	V	V	V	Direct Link (COM)
		E904 Temperature (RTU)	V	V	V	Direct Link (COM)
		HT Series Temperature Controller	V	V	V	Direct Link (COM)
Matsushita Electric Works (Panasonic Corporation)	FP Series Computer Link	V	V	V	Direct Link (COM)	
	FP-X Series	V	V	V	Direct Link (COM)	
Panasonic Corporation	VFC Series Inverter	V	V	V	Direct Link (COM)	
	VF100 Series Inverter	V	V	V	Direct Link (COM)	
PanelMaster	FP Series	V	V	V	Direct Link (COM)	
	FP Series Computer Link	V	V	V	Direct Link (Ethernet)	
	MINAS A4 Series	V	V	V	Direct Link (COM)	
	Null PLC	V	V	V	Direct Link (COM)	
	N-to-1 Master (COM)	V	V	V	Communication Service (COM)	
	Multi-drop Client (COM)	V	V	V	Indirect Link via N-to-1 Connection (COM)	
	N-to-1 Master (Ethernet)	V	V	V	Communication Service (Ethernet)	
	N-to-1 Slave (Ethernet)	V	V	V	Indirect Link via N-to-1 Connection (Ethernet)	
	General Device (COM)	V	V	V	Direct Link (COM)	
	2-to-1 Server (COM)	V	V	V	Communication Service (COM)	
	2-to-1 Transparent Server (COM)	V	N/A	N/A	Communication Service (COM)	
PanelMaster	2-to-1 Transparent Server for Modbus Device/Slave (RTU)	N/A	V	V	Communication Service (COM)	
	2-to-1 Transparent Server for Omron Sysmac C Series Host Link	N/A	V	V	Communication Service (COM)	
	2-to-1 Transparent Server for Modbus Device/Slave (RTU; 6-digit Addresses)	N/A	V	N/A	Communication Service (COM)	
	2-to-1 Client (COM)	V	V	V	Indirect Link via 2-to-1 Connection (COM)	
	TCP/IP Gateway Server	V	V	V	Gateway Service (Ethernet)	
	Serial Gateway Server	V	V	V	Gateway Service (COM)	
	Data Sharer (UDP)	V	V	V	Direct Link (Ethernet)	
	General Device (TCP/IP Slave)	V	V	V	Direct Link (Ethernet)	
	Data Sharer (RS485)	V	N/A	V	Direct Link (COM)	
	Ping	V	N/A	N/A	Direct Link (Ethernet)	
Modicon Corp. (Schneider Electric)	Modbus Master (RTU)	V	V	V	Direct Link (COM)	
	Modbus Master (RTU; Little Memory)	V	V	V	Direct Link (COM)	
	Modbus Master (RTU; Non-volatile slave data)	V	V	V	Direct Link (COM)	
	Modbus Device/Slave (RTU)	V	V	V	Direct Link (COM)	
	Modbus Device/Slave (RTU, 16Words)	V	V	V	Direct Link (COM)	
	Modbus Device/Slave (Word order in big-endian)	V	V	V	Direct Link (COM)	

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# Supported PLCs and Controllers List

## Communication Ports

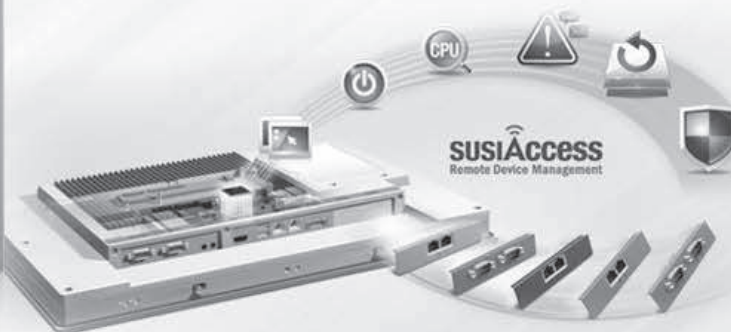
Brand	Model	WOP-2000T	WebAccess/HMI	WOP-3000T	Type
PanelMaster	Modbus Device/Slave (RTU; No block read)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (RTU, 30Words)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (ASCII)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (ASCII; No block read)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Internal Memory Server	V	V	V	Gateway Service (Ethernet)
	Internal Memory	V	V	V	Direct Link (Ethernet)
	Barcode Scanner	V	V	V	Direct Link (COM)
	Epson Matrix Printer	V	V	V	Direct Link (COM)
	PC Series PLC Module	V	V	V	Direct Link (COM)
	OPC UA Client Driver	V	V	N/A	OPC Link
	Compax3	V	V	V	Direct Link (COM)
	HID Series (X4 RS232 Port)	V	V	V	Direct Link (COM)
	SLVDN Series (X1 RS422/485 Port)	V	V	V	Direct Link (COM)
Parker Hannifin S.p.A.	6K Ethernet Protocol	V	N/A	N/A	Direct Link (Ethernet)
	XC Modbus TCP	V	V	V	Direct Link (Ethernet)
PODIS	XC Modbus RTU	V	V	V	Direct Link (COM)
Resson Technologies Co., Ltd.	RD-15S	V	V	V	Direct Link (COM)
RICH Electric Co., LTD.	EI-500 Series (RTU)	V	V	N/A	Direct Link (COM)
	EI-9001 Series (RTU)	V	V	N/A	Direct Link (COM)
RKC Instrument Inc.	MA900/CB900 Series (RTU)	V	V	V	Direct Link (COM)
	CD/CH Series (ASCII)	V	V	V	Direct Link (COM)
Saia Burgess	PCD Series (S-Bus PGU)	V	V	V	Direct Link (COM)
	PCD Series (S-Bus, Data Mode)	V	V	V	Direct Link (COM)
	PCD Series (Ether-S-Bus)	V	V	V	Direct Link (Ethernet)
	NOVA Series (RTU)	V	V	V	Direct Link (COM)
Samwon Technology	NOVA Series	V	V	V	Direct Link (COM)
Sharp Corporation	JW10/20 Series	V	V	V	Direct Link (COM)
Shenzhen Sine Electric Co., Ltd	EM303A	V	V	V	Direct Link (COM)
Shenzhen Step Servo Ltd.	Kinco Servo Controller	V	V	V	Direct Link (COM)
Shenzhen V&T Technologies Co., Ltd	V5-H	V	V	V	Direct Link (COM)
Shenzhen Xilin Electric Tech. Co., Ltd.	Inverter EH series (RTU)	V	V	V	Direct Link (COM)
Shihlin Electric&Engineering Corp.	SH Inverter	V	V	V	Direct Link (COM)
SHIMAX CO., LTD.	MAC3 Series (RTU)	V	V	V	Direct Link (COM)
Shinko Technos Co., Ltd.	CPT-20A MODBUS DEVICE/SLAVE (ASCII)	V	V	V	Direct Link (COM)
	JCS-33A-R/M (Shinko Protocol)	V	V	V	Direct Link (COM)
	JCS-33A-R/M (Modbus ASCII)	V	V	V	Direct Link (COM)
Siemens AG	Simatic S7-200 (PPI; 1-to-1)	V	N/A	N/A	Direct Link (COM)
	Simatic S7-200 SMART (PPI; 1-to-1)	V	N/A	N/A	Direct Link (COM)
	Simatic S7-200 (PPI; Network)	V	N/A	N/A	Direct Link (COM)
	Simatic S7-300 (MPI Port)	V	N/A	N/A	Direct Link (COM)
	Simatic S5 3964R	V	N/A	N/A	Direct Link (COM)
	Simatic S5	V	N/A	N/A	Direct Link (COM)
	Simatic S7-300 Ethernet Module (CP343)	V	V	V	Direct Link (Ethernet)
	"SIMATIC S7 (Ethernet) (CPU on board ethernet ET200S/ S7-300/S7-1200/S7-1500)"	V	V	V	Direct Link (Ethernet)
	SIMATIC S7-200 SMART (Ethernet)	V	V	V	Direct Link (Ethernet)
	SIMATIC S7-200 (Ethernet)	V	V	V	Direct Link (Ethernet)
	LOGO (Ethernet)	V	V	V	Direct Link (Ethernet)
Taian Automation Co., Ltd.	TP03 Series (Modbus RTU)	V	V	V	Direct Link (COM)
	TP02 Series	V	V	V	Direct Link (COM)
Taiwan Instrument & Control Co., Ltd.	TAIE FY100/900 Series (RTU)	V	V	V	Direct Link (COM)
	TAIE FY100/900 Series (TAIE)	V	V	V	Direct Link (COM)
	FY series DIGITAL PID CONTROLLER	V	V	N/A	Direct Link (COM)
Teco Electric & Machinery Co., Ltd.	TSDA Series AC Servo	V	V	V	Direct Link (COM)
	TP03 Series (Modbus RTU)	V	V	V	Direct Link (COM)
	TP02 Series	V	V	V	Direct Link (COM)
	TSTA Series AC Servo	V	V	V	Direct Link (COM)
TESHOW ELECTRONIC.	MY90V/MY40V Series (RTU)	V	V	V	Direct Link (COM)
Texas Instruments Incorporated	Ti505	V	V	V	Direct Link (COM)
Thinget Electronic Co., Ltd.	XC Series Controller (RTU)	V	V	V	Direct Link (COM)
	IPC-03 Series (RTU)	V	V	V	Direct Link (COM)
TOHO Electronics Inc.	TTX-700 (Modbus RTU)	V	V	V	Direct Link (COM)
	TTM-000 Series (TOHO Protocol)	V	V	V	Direct Link (COM)
	TTM-200 Series (TOHO Protocol)	V	V	N/A	Direct Link (COM)
TOKY ELECTRICAL	DW8-CD18B	V	V	V	Direct Link (COM)
Tokyo Keiso	UCM-04A	V	V	V	Direct Link (COM)
Toshiba Schneider Inverter Corporation	TOSVERT VF Series (Modbus RTU)	V	V	V	Direct Link (COM)

Brand	Model	WOP-2000T	WebAccess/HMI	WOP-3000T	Type
TPM	EPC-1000	V	V	V	Direct Link (Ethernet)
Unitronics	Vision 120 Series (Modbus RTU)	V	V	V	Direct Link (COM)
USAT Technologies	AX (CPU Port)	V	V	V	Direct Link (COM)
	AX2N (CPU Port)	V	V	V	Direct Link (COM)
	AX3U (CPU Port)	V	V	V	Direct Link (COM)
Vertex Technology Co., Ltd	VT26/30 Series Controllers (RTU)	V	V	V	Direct Link (COM)
Vigor Corporation	M/VB Series	V	V	V	Direct Link (COM)
	VS Series	V	V	N/A	Direct Link (COM)
VIPA GmbH	VIPA 100V/200V MPI Port	V	N/A	N/A	Direct Link (COM)
Vware	Null PLC	V	V	V	Direct Link (COM)
	N-to-1 Master (COM)	V	V	V	Communication Service (COM)
	Multi-drop Client (COM)	V	V	V	Indirect Link via N-to-1 Connection (COM)
	N-to-1 Master (Ethernet)	V	V	V	Communication Service (Ethernet)
	N-to-1 Slave (Ethernet)	V	V	V	Indirect Link via N-to-1 Connection (Ethernet)
	General Device (COM)	V	V	V	Direct Link (COM)
	Data Sharer (RS485)	V	N/A	V	Direct Link (COM)
WAGO Kontakttechnik GmbH & Co. KG	WAGO I/O-SYSTEM 750	V	V	V	Direct Link (Ethernet)
Wanfeng Electric	WF Series	V	V	V	Direct Link (COM)
YABOS	Hospital System	V	V	V	Direct Link (COM)
	Dentists	V	V	V	Direct Link (COM)
YAMAHA MOTOR CO., LTD.	Single-axis Robot Controller ERCD	V	V	V	Direct Link (COM)
Yamatate Corporation	SDC35/36 Temperature (RTU)	V	V	V	Direct Link (COM)
	SDC35/36 Temperature (ASCII)	V	V	V	Direct Link (COM)
	MA500 FA Controller (ECL Host)	V	V	V	Direct Link (COM)
	DMC10 Controller (RTU)	V	V	V	Direct Link (COM)
	DMC10 Controller (ASCII)	V	V	V	Direct Link (COM)
	MX30	V	V	V	Direct Link (COM)
	MX50	V	V	V	Direct Link (COM)
	Σ-IIISGDM/H Series AC Servo	V	V	V	Direct Link (COM)
	MP Series Controller (Memobus)	V	V	V	Direct Link (COM)
	Modbus Device/Slave (TCP/IP)	V	V	V	Direct Link (Ethernet)
	Extended MEMOBUS	V	V	V	Direct Link (Ethernet)
	MP Series Ethernet (Extension)	V	V	N/A	Direct Link (Ethernet)
	V7 inverter (Memobus)	V	V	V	Direct Link (COM)
	NS600 Servo Controller	V	V	V	Direct Link (COM)
YE-LI ELECTRIC & MACHINERY Co., Ltd.	YPV Servo Controller	V	V	V	Direct Link (COM)
	YJD Servo Controller	V	V	V	Direct Link (COM)
Yokogawa Electric Corporation	FA-M3 Series (CPU Port)	V	V	V	Direct Link (COM)
	FA-M3 Series (UDP)	V	V	V	Direct Link (Ethernet)
	FA-M3 Series (TCP)	V	V	V	Direct Link (Ethernet)
Yudian Automation Technology Ltd.	AI-7048 (AiBus)	V	V	V	Direct Link (COM)
Zhuhai Motion Control Motor Co., Ltd.	A1518/708/808/518P/708P/808P Controller (Albus)	V	V	V	Direct Link (COM)
	BP Series PSDA driver (RTU)	V	V	N/A	Direct Link (COM)

## Thin-Client Terminals

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<b>IPPC-5211WS</b>	21.5" Full HD TFT LED LCD Industrial Multi-Touch Panel PC with Stainless Steel Chassis and IP69K Rating	<b>5-22</b>
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<b>SPC-1881WP</b>	18.5" WXGA TFT LED LCD Stationary Multi-Touch Panel Computer with Intel® i3 Processor	<b>5-26</b>
<b>TPC-8100TR</b>	10.4" EN50155 Railway Panel Computer	<b>5-28</b>
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To view all of Advantech's thin-client terminals, visit [www.advantech.com/products](http://www.advantech.com/products).



# Thin-Client Panel Computers Selection Guide

NEW



NEW



NEW



NEW



NEW



NEW



Model	TPC-1751T	TPC-1551WP	TPC-1551T	TPC-1251T	TPC-1051WP	TPC-651T
CPU	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor
Memory	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM	4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
Display Type	SXGA TFT LED LCD	WXGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD	WXGA TFT LED LCD	VGA TFT LED LCD
Display Size	17"	15.6"	15"	12.1"	10.1"	5.7"/6.5"
Max. Resolution	1280 x 1024	1366 x 768	1024 x 768	1024 x 768	1280 x 800	640 x 480
Max. Colors	16.7 M	16.2 M	16.2 M	16.2 M	262 K	262 K
Luminance cd/m <sup>2</sup>	350 nits	300 nits	400 nits	600 nits	300 nits	550 nits
VieWING Angle (H/V°)	160/140	170/160	160/140	160/140	170/170	160/140
Backlight MTBF(hrs)	50,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs	25,000 hrs	50,000 hrs
Touchscreen	Resistive	Projected capacitive	Resistive	Resistive	Projected capacitive	Resistive
HDD (Optional)	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1
Network (LAN)	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2
I/O Ports	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1
CompactFlash Slots	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1
Expansion Slots	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E	Full-size Mini PCI-E
DC Power Input (Voltage)	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%
Dimensions	413.7 x 347.2 x 63.8 mm (16.28" x 13.68" x 2.5")	419.7 x 269 x 61.9 mm (16.52" x 10.59" x 2.44")	383.20 x 307.30 x 61.10 mm (15.09" x 12.10" x 2.41")	311.80 x 238 x 57.2 mm (12.28" x 9.37" x 2.25")	283.1 x 202.3 x 61.4 mm (11.15" x 7.96" x 2.42")	199 x 152 x 58.9 mm (7.83" x 5.98" x 2.32")
Weight	6.0 KG	5.0 KG	3.9KG	2.5KG	2.6 KG	1.5 KG
Front cover	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy	Front bezel: Die-cast Aluminum alloy
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 55°C (32 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 55°C (-4 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)
Ingress Protection (Front Panel)	IP66	IP66	IP66	IP66	IP66	IP66
Certification	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB
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# Thin-Client Panel Computers Selection Guide

**NEW**



Model	WOP-3070T	TPC-61T	TPC-31T	
Ordering Information	WOP-3070T-C4BE	TPC-61T-E3AE	TPC-31T-E3AE	
CPU	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	
Backup Memory	FRAM 1M bit (=128K Byte, 64word)	FRAM 128KB	FRAM 128KB	
Working Memory	DDR2 256M Bytes	DDR2 256M Bytes	DDR2 256M Bytes	
Storage	512MB on board SLC type	512MB on board SLC type	512MB on board SLC type	
Operating System	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	
Display	Type	WVGA (16:9) TFT LCD	QVGA TFT LCD	
	Size	7"	5.7"	3.5"
	Max. Resolution	800 x 480	320 x 240	320 x 240
	Max. Colors	65,536 colors	65,536 colors	65,536 colors
	Luminance (cd/m <sup>2</sup> )	500	800	450
	Viewing Angle (H/V°)	140/120	160/140	160/140
	Backlight Life (hr)	LED, 50,000	LED, 50,000	LED, 30,000
	Dimming	Adjustable	-	-
Touchscreen	5 wire Analog Resistive	4 wires Analog resistive	4 wires Analog resistive	
Power-On LED	Yes	-	-	
Communication Interface	COM1	RS-232/422485 (DB9)	RS-232 (DB9)	RS-232/485 (DB9)
	COM2	RS-422/485 (Terminal 4pin+Ground)	RS-232 (DB9)	-
	COM3	RS-485 (Terminal 2pin)	RS-422/485 (DB9)	-
	CAN	Terminal 2pin	-	CAN (DB9)
	Ethernet (RJ45)	10/100-BaseT	10/100-BaseT	10/100-BaseT
	I/Os	USB Client	USB 2.0 Client x 1	USB 2.0
USB Host		USB 2.0 Host x 1 (Top)	USB 2.0	USB 2.0
Micro-SD Slot		Yes	-	-
SD Slot		-	Yes	Yes
Audio		1 Lin out / 1 Mic in	-	-
Power Isolation		Yes	-	-
I/O Isolation		Yes	-	-
Power Supply Voltage		24VDC ± 10%	18 ~ 32 V <sub>DC</sub>	18 ~ 32 V <sub>DC</sub>
Power Consumption	7W Typical	12W	8W	
Dimensions W x H x D (mm)	203.4 x 150 x 43.7 mm (8.01" x 5.91" x 1.72")	195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")	120.79 x 85.5 x 26.5 mm (4.76" x 3.37" x 1.04")	
Cutout Dimensions W x H (mm)	192 x 138.5 mm (7.56" x 5.45")	189 x 142 mm (7.56" x 5.68")	115 x 79.5 mm (4.6" x 3.18")	
Front Panel thickness (mm)	6 mm	6 mm	6 mm	
Enclosure	Die-cast aluminum alloy front bezel	PC + ABS	PC + ABS	
Net Weight	1 kg (2.20 lbs)	0.8 kg (1.76 lb)	0.25 kg (0.55 lbs)	
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	
Storage Temperature	-30 ~ 70°C (-22 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	
Humidity	10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing	10% ~ 90% RH @ 40°C, non-condensing	
Ingress Protection (Front Panel)	IP66	IP65	IP65	
Certification	CE / FCC / BSMI / CCC / UL-508	CE / FCC / BSMI / UL	CE / FCC / BSMI / UL	
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# TPC-2000 Series

## Modular Intel® Atom™ Thin-Client Terminal

**NEW**



### Features

- Industrial grade LED LCD with 50K Lifetime
- Intel® Atom™ E3940 1.8 GHz Quad-core Processor with 4GB DDR3L SO-DIMM
- Modular design for flexible configuration and easy maintenance and upgrade
- Different sizes front panel module offering with different touch types: PCT for Multi-Touch and robust 5-wire resistive.
- Built-in Intelligent Home-key and i-Key for Intuitive UI for PCT touch selections
- Front LED Indicator to Show Operating Status
- Direct supports Full-size mini PCIe, iDoor technology and SSD expansions
- IP66 compliant Front Protection & Panel Mounting
- Compact Fanless Embedded System with Al Alloy Front Bezel and Chassis Grounding Protection
- AC/DC support (option by Power adapter)
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

TPC-2000 series is the first Modular model in thin client family. With industrial grade LCD and low power consumption embedded Intel® Atom™ E3940 1.6GHz processor and 4GB DDR3L SO-DIMM, it provides sufficient display area and adequate computing performance in a compact fanless system. Modular design further provides flexibility to expand and configure and effortless to maintain and upgrade. Front panel IP66 compliant for wide array of user environments, glass surface with 7H harness for PCT or robust 5-wire resistive touch and die-cast Aluminate Alloy front bezel provides robust and reliable enclosure of the system. In addition, through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM to fulfill different kinds of the Industrial automation application.

### System Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL, EAC
- **Cooling System** Fanless design
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- **Mounting** Panel Mount, stand mount (with optional kit) and VESA mount (with optional kit)
- **OS Support** Microsoft® Windows 10 IoT Core, Windows 10 IoT Enterprise LTSB
- **Power Input** 24 V<sub>DC</sub> ± 20%
- **Watchdog Timer** 1 ~ 255 sec (system)

#### System Hardware

- **CPU** Intel® Atom™ E3940 1.6 GHz Processor
- **Memory** 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** M.2 (2280) slot x 1  
2.5" SATA SSD slot x 1
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 2  
USB 2.0 x 2  
Audio line out x 1  
DP port x 1

#### Environment

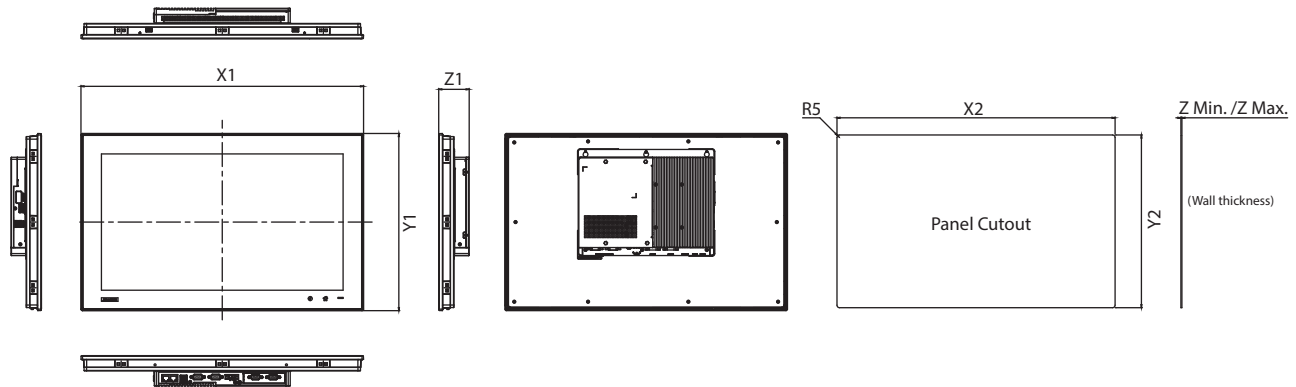
- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** With SSD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

### Front Panel Selections

Category	Item	12.1"	15"	17"	18.5"	21.5"
LCD	Display Type	XGA TFT LED LCD	XGA TFT LED LCD	SXGA TFT LED LCD	HD TFT LED LCD	Full HD TFT LED LCD
	Max. Resolution	1024 x 768	1024 x 768	1280 x 1024	1366 x 768	1920 x 1080
	Max. Color	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	600	400	350	300	300
	Viewing Angle (H/V°)	160/140	160/140	160/140	170/160	178/178
	Backlight Life	50,000	50,000	50,000	50,000	50,000
	Contrast Ratio	700:1	700:1	800:1	1000:1	5000:1
Touch	Type	5-wire Resistive	Projected Capacitive	Projected Capacitive	Projected Capacitive	Projected Capacitive
	Light Transmission	Above 75%	90% ± 3%	90% ± 3%	90% ± 3%	90% ± 3%
	Treatment	Anti-glare	90% ± 3%	90% ± 3%	90% ± 3%	90% ± 3%
System	Temperature	Operating	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
		Storage	-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
	Power Consumption	TBC	TBC	TBC	TBC	TBC

## Dimensions

Unit: mm



Display type	System Dimension			Panel Mount		Support Wall thickness	
	X1	Y1	Z1	X2	Y2	Z Min.	Z Max.
12"	311.8	238	57.1	303	229	1	6
15"	383.2	307.3	57.4	374.5	298.5	1	6
17"	410.4	343.4	59	401.3	334.8	1	6
18.5W"	488	309	60.3	479.3	300.3	1	6
21.5W"	559.2	350.6	60.3	550.3	341.8	1	6

## Ordering Information

- **TPC-2121T-E12AE** 12.1" XGA Modular TPC, Intel® Atom™ E3940 1.8 GHz Quad-core Processor, 4GB RAM, Resistive touch
- **TPC-2151T-E12AE** 15" XGA Modular TPC, Intel® Atom™ E3940 1.8 GHz Quad-core Processor, 4GB RAM
- **TPC-2171T-E12AE** 17" SXGA Modular TPC, Intel® Atom™ E3940 1.8 GHz Quad-core Processor, 4GB RAM
- **TPC-2181W-E12AE** 18.5" HD Modular TPC, Intel® Atom™ E3940 1.8 GHz Quad-core Processor, 4GB RAM
- **TPC-2211W-E12AE** 21.5" FHD Modular TPC, Intel® Atom™ E3940 1.8 GHz Quad-core Processor, 4GB RAM

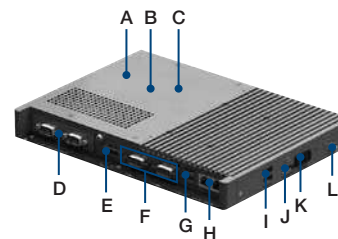
## Optional Accessories

- **PWR-247-CE** 60W DC 24V/2.5A Output Power Supply
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC
- **TPC-RUSB-W10LTS** WIN10 IoT Enterprise LTSB OS with Recovery Image

## iDoor Modules

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-26D1DB-MAE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24R2GL-AE** 2 Port Giga LAN Intel i350 PCIe mini card
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

## Rear View



- A. SSD
- B. mPCIe
- C. M.2 (Storage)
- D. iDoor
- E. Power Receptor
- F. RS-232, RS-422/485
- G. USB 3.0 x 2
- H. LAN (10/100/1000)
- I. USB 2.0 x 2
- J. Display Port
- K. Audio out
- L. Antenna

## Application Software

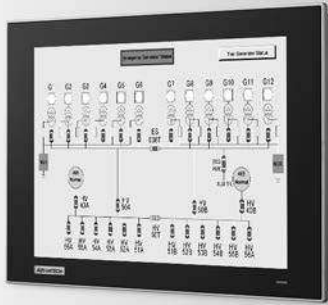
<b>WebAccess/SCADA</b>	Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.
<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

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# TPC-1751T

## 17" TFT LED LCD Intel® Atom™ Thin-Client Terminal

**NEW**



### Features

- Industrial 17" SXGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Dual-core/Intel® Celeron® J1900 2 GHz Quad-core Processor with 4GB DDR3L SDRAM
- Supports wide operating temperatures -20~60°C
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- Front LED Indicator to Show Operating Status
- Durable 5-wire resistive touchscreen
- Supports iDoor technology for diverse applications (optional accessory required)
- Compact Fanless Embedded System with AI Alloy Front Bezel, Chassis Grounding Protection
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

The TPC-1751T thin client terminal with a 17" SXGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Dual-core/Intel® Celeron® J1900 2 GHz Quad-core Processor and 4GB DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-1751T is true-flat touchscreen designed with IP66 front protection, die-cast AI Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 413.7 x 347.2 x 63.8 (16.28" x 13.68" x 2.5")
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 32bit/64bit / WE8S 64bit / Windows 7/ 8.1 32bit/64bit / Windows 10 Enterprise LTSB
- **Power Consumption** 43.2 W (Typical)
- **Power Input** 24 V<sub>DC</sub> +/- 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 4 KG

#### System Hardware

- **CPU** Intel® Atom™ E3827 1.75 GHz Dual-core Processor  
Intel® Celeron® J1900 2 GHz Quad-core Processor
- **Memory** 1 x SO-DIMM with 4GB DDR3L SDRAM (supports up to 8G)
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** CFast slot x 1  
2.5" SATA SSD slot x 1 (optional)
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 1  
USB 2.0 x 1

#### LCD Display

- **Display Type** SXGA TFT LED LCD
- **Display Size** 17"
- **Max. Resolution** 1280 x 1024
- **Max. Colors** 16.7 M
- **Luminance cd/m<sup>2</sup>** 350
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 800:1

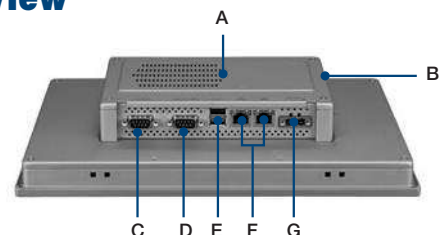
#### Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** With CFast: 2 Grms (5~500 Hz)  
With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

### Rear View

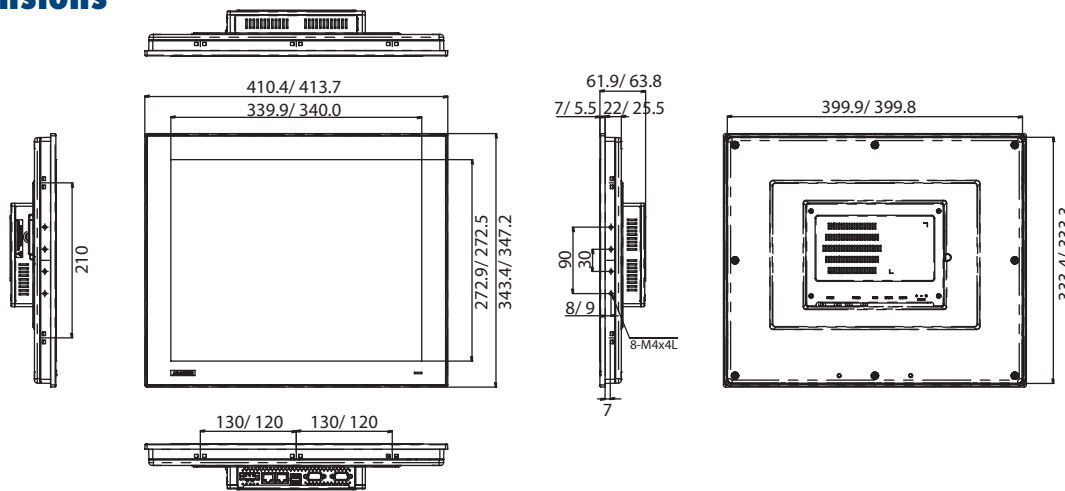


- A. External HDD/SSD/iDoor kit (TPC-1251T-EHKE) (Optional)
- B. CFast
- C. RS-232
- D. RS-232/422/485
- E. USB 3.0 & 2.0
- F. LAN (10/100/1000)
- G. Power Receptor



## Dimensions

Unit: mm



TPC-1751T Panel Cutout Dimensions: 401.3 x 334.8 mm (15.80 x 13.18")

## Ordering Information

- **TPC-1751T-E3AE** 17" SXGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (True-flat touchscreen)
- **TPC-1751H-E3AE** 17" SXGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (Non-flat touchscreen IP65 certified traditional TPC front panel)
- **TPC-1751T-J3AE** 17" SXGA Panel PC, Intel® Celeron J1900 2 GHz Quad-core Processor, 4GB (True-flat touchscreen, 0-50 operating temperature support)

## Optional Accessories

- **PWR-247-CE** 60W DC 24V/2.5A Output Power Supply
- **TPC-1251T-EHKE** HDD/SSD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC

## Embedded O/S

- **2070014327** TPC-xx51T/H WS7P x64 MUI Image v4.14
- **2070013613** TPC-xx51T/H WS7P x86 MUI Image v4.12
- **2070014303** TPC-1251T/H WEC7 x64 MUI Image V4.00
- **2070014400** TPC-xx51T/H Win10 Enterprise LTSB x64 MUI image v6.00 B002

## S/W Bundle Offering

- **WA-HT1751T-E15H1AE** TPC-1751T-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-ST1751T-E15H4AE** TPC-1751T-E3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P

## iDoor Modules

(TPC-1251T-EHKE is required for iDoor modules)

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-26D1DB-AE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24R2GL-AE** 2 Port Giga LAN Intel i350 PCIe mini card
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

## Application Software

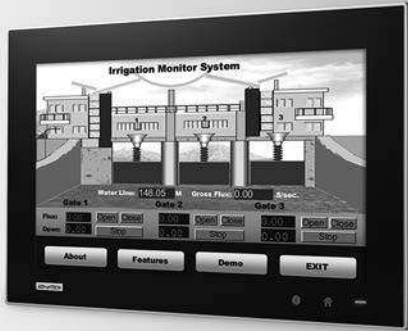
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<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

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# TPC-1551WP

## 15.6" WXGA TFT LED LCD Intel® Atom™ Thin-Client Terminal

**NEW**



### Features

- Industrial 15.6 WXGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for Intuitive UI
- Front LED Indicator to Show Operating Status
- Supports iDoor with optional accessory kit
- Chassis Grounding Protection
- Anti-scratch surface: 7H hardness
- AC/DC support (option by Power adapter)
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

The TPC-1551WP thin client terminal with a 15.6" WXGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB DDR3L SDRAM provides adequate computing performance in a compact fanless system. The TPC-1551WP is true-flat touchscreen designed with IP66 front protection, die-cast Aluminum Alloy front bezel and Projected capacitive touch. Furthermore, the TPC-1551WP is easy for your to embed to your equipment because of the small yet robust design. In addition, through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM to fulfill different kinds of the Industrial automation application.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 419.7 x 269 x 61.9 mm (16.52" x 10.59" x 2.44")
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- **Mounting** Desktop, Wall, Panel Mount, and VESA mount (with optional kit)
- **OS Support** Microsoft® WES7 32bit/64bit / Windows 7 32bit/64bit, Windows 8.1 32bit/64bit / Windows 10 Enterprise LTSB
- **Power Input** 24 V<sub>DC</sub> ± 20%
- **Power Consumption** 48 W (Typical)
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 5 Kg (11.02 lbs)

#### System Hardware

- **CPU** Intel® Atom™ E3827 1.75 GHz Processor
- **Memory** 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** CFast slot x 1  
2.5" SATA SSD slot x 1 (optional)
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 1  
USB 2.0 x 1

#### LCD Display

- **Display Type** WXGA TFT LED LCD
- **Display Size** 15.6"
- **Max. Resolution** 1366 x 768
- **Max. Colors** 16.7 M
- **Luminance cd/m2** 300
- **Viewing Angle (H/V°)** 170/160
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 500:1

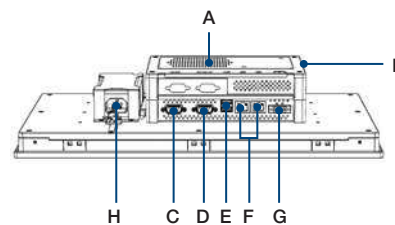
#### Touchscreen

- **Light Transmission** 90% ± 3%
- **Resolution** 2048 x 2048 dot
- **Type** Projected capacitive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20~60°C (-4~140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

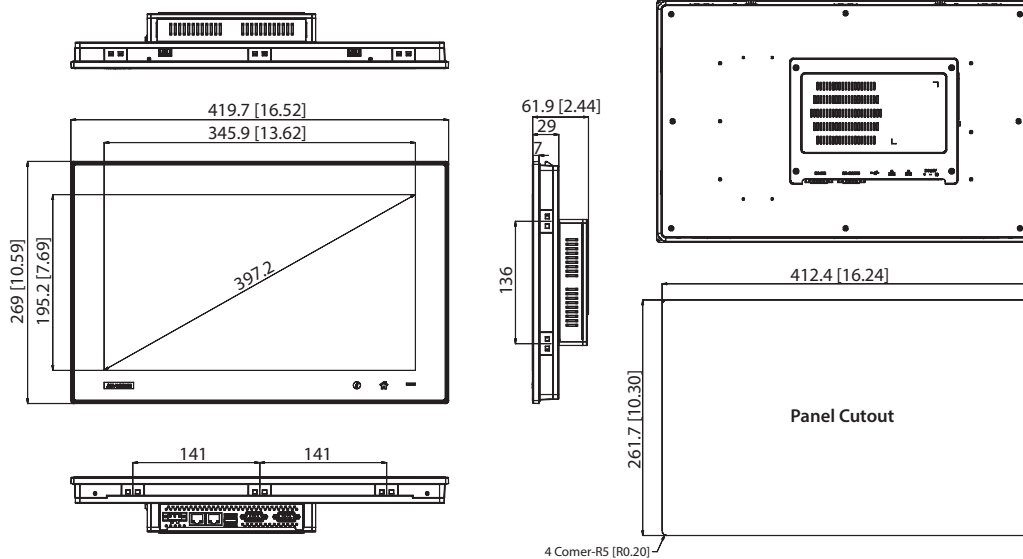
### Rear View



- A. External HDD/iDoor kit (TPC-1251T-EHKE) (Optional)
- B. CFast Slot
- C. RS-232
- D. RS-232/422/485
- E. USB 3.0 & 2.0
- F. LAN (10/100/1000)
- G. Power Inlet
- H. Power adapter and Bracket (option)

## Dimensions

Unit: mm [inch]



TPC-1551WP Panel Cutout Dimensions: 412.4 x 261.7 mm

## Ordering Information

- **TPC-1551WP-E3AE** 15.6" Multi-Touch Panel PC, Intel Atom E3827, 4GB DDR3L pre-installed

## Optional Accessories

- **TPC-1000H-ADKE** 63W DC 24V/2.62A Power supply & bracket for TPC-xx51WP series
- **TPC-1251T-EHKE** HDD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

## Embedded O/S

- **2070013484** TPC-xx51WP WS7P x64 MUI Image v4.13
- **2070013485** TPC-xx51WP WEC7 X64 MUI Image V4.00

## iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-26D1DB-MAE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-24D2R4-AE** OXPcle-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcle-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24R2GL-AE** 2 Port Giga LAN Intel i350 PCIe mini card
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

## Application Software

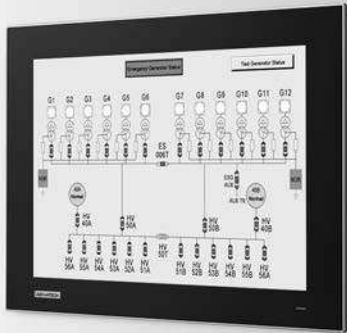
<b>WebAccess/SCADA</b>	Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.
<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# TPC-1551T

## 15" XGA TFT LED LCD Intel® Atom™ Thin-Client Terminal

**NEW**



### Features

- Industrial 15" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Dual-core Processor with 4GB DDR3L SDRAM
- Supports wide operating temperatures -20~60°C
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- Front LED Indicator to Show Operating Status
- Durable 5-wire resistive touchscreen
- Supports iDoor technology for diverse applications (optional accessory required)
- Compact Fanless Embedded System with AI Alloy Front Bezel, Chassis Grounding Protection
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

The TPC-1551T thin client terminal with a 15" XGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Dual-core Processor and 4GB DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-1551T is true-flat touchscreen designed with IP66 front protection, die-cast AI Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM.

### Specifications

#### General

- BIOS**: AMI UEFI
- Certification**: BSMI, CCC, CE, FCC Class A, UL
- Cooling System**: Fanless design
- Dimensions (W x H x D)**: 383.20 x 307.30 x 61.10 mm (15.09" x 12.10" x 2.41")
- Enclosure**: Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- Mounting**: Desktop, Wall or Panel Mount
- OS Support**: Microsoft® WES7 32bit/64bit / WE8S 64bit / Windows 7/8.1 32bit/64bit / Windows 10 Enterprise LTSC
- Power Consumption**: 40.8 W (typical)
- Power Input**: 24 V<sub>DC</sub> +/- 20%
- Watchdog Timer**: 1 ~ 255 sec (system)
- Weight (Net)**: 3.9 KG

#### System Hardware

- CPU**: Intel® Atom™ E3827 1.75 GHz Dual-core Processor
- Memory**: 1 x SO-DIMM with 4GB DDR3L SDRAM (supports up to 8G)
- LAN**: 10/100/1000 Base-T x 2
- Expansion Slots**: Full-size Mini PCI-E
- Storage**: CFast slot x 1  
2.5" SATA SSD slot x 1 (optional)
- I/O**: RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 1  
USB 2.0 x 1

#### LCD Display

- Display Type**: XGA TFT LED LCD
- Display Size**: 15"
- Max. Resolution**: 1024 x 768
- Max. Colors**: 16.7 M
- Luminance cd/m<sup>2</sup>**: 400
- Viewing Angle (H/V°)**: 160/140
- Backlight Life**: 50,000 hrs
- Contrast Ratio**: 700:1

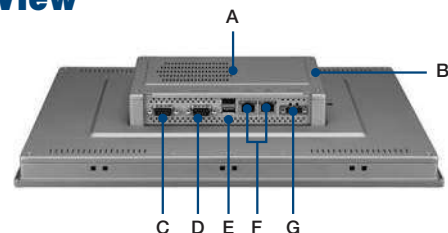
#### Touchscreen

- Lifespan**: 36 million touches at single point
- Light Transmission**: Above 75%
- Resolution**: Linearity
- Type**: 5-wire, analog resistive

#### Environment

- Humidity**: 10 ~ 95% RH @ 40°C, non-condensing
- Ingress Protection**: Front panel: IP66
- Operating Temperature**: -20 ~ 60°C (-4 ~ 140°F)
- Storage Temperature**: -30 ~ 70°C (-22 ~ 158°F)
- Vibration Protection**: With CFast: 2 Grms (5~500 Hz)  
With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

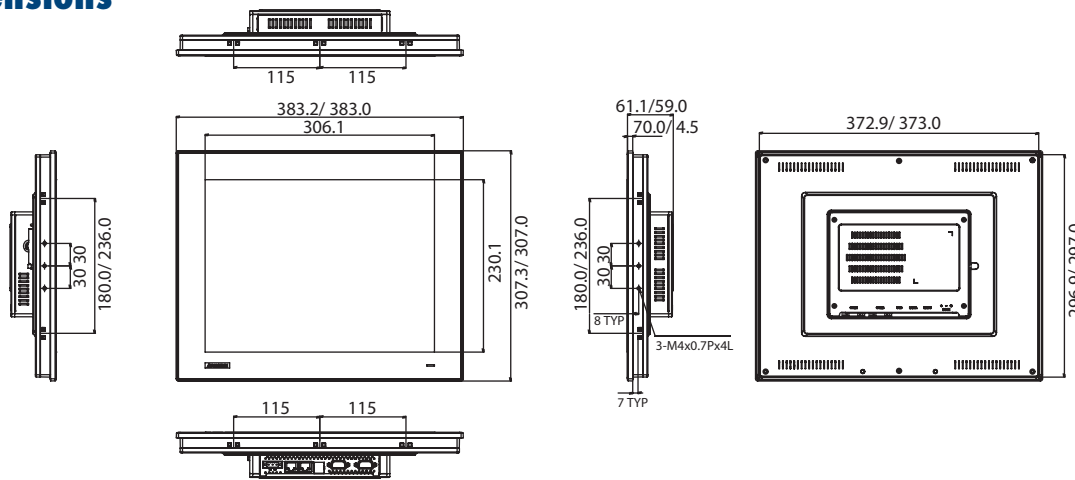
### Rear View



- A. External HDD/SSD/iDoor kit (TPC-1251T-EHKE) (Optional)
- B. CFast
- C. RS-232
- D. RS-232/422/485
- E. USB 3.0 & 2.0
- F. LAN (10/100/1000)
- G. Power Receptor

## Dimensions

Unit: mm



**TPC-1551T Panel Cutout Dimensions: 374.5 x 298.5 mm (14.74 x 11.75")**

## Ordering Information

- **TPC-1551T-E3AE** 15" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (True-flat touchscreen)
- **TPC-1551H-E3AE** 15" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (Non-flat touchscreen IP65 certified traditional TPC front panel)

## Optional Accessories

- **PWR-247-CE** 60W DC 24V/2.5A Output Power Supply
- **TPC-1251T-EHKE** HDD/SSD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC

## Embedded O/S

- **2070014327** TPC-xx51T/H WS7P x64 MUI Image v4.14
- **2070013613** TPC-xx51T/H WS7P x86 MUI Image v4.12
- **2070014303** TPC-1251T/H WEC7 x64 MUI Image V4.00
- **2070014400** TPC-xx51T/H Win10 Enterprise LTSB x64 MUI image v6.00 B002

## S/W Bundle Offering

- **WA-HT1551T-E15H1AE** TPC-1551T-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-ST1551T-E15H4AE** TPC-1551T-E3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P

## iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-26D1DB-AE** Hilscher netX100 FieldBus, Profibus, DB9 x 1
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-24D2R4-AE** OXPcIe-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcIe-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24R2GL-AE** 2 Port Giga LAN Intel i350 PCIe mini card
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

## Application Software

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>

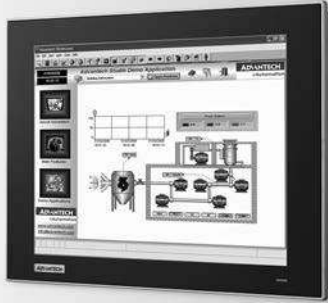
- 1 WebAccess® Solution
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# TPC-1251T

## 12.1" TFT LED LCD Intel® Atom™ Thin-Client Terminal

**NEW**



### Features

- Industrial 12.1" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Dual-core Processor with 4GB DDR3L SDRAM
- Supports wide operating temperatures -20~60°C
- True-flat with IP66 / non-flat with IP65 certified front panel protection
- Front LED Indicator to Show Operating Status
- Durable 5-wire resistive touchscreen
- Supports iDoor technology for diverse applications (optional accessory required)
- Compact Fanless Embedded System with AI Alloy Front Bezel, Chassis Grounding Protection
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

The TPC-1251T thin client terminal with a 12.1" XGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Dual-core Processor and 4GB (8GB optional) DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-1251T is true-flat touchscreen designed with IP66 front protection, die-cast AI Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311.80 x 238 x 57.2 mm (12.28" x 9.37" x 2.25")
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 32bit/64bit / WE8S 64bit / Windows 7/8.1 32bit/64bit / Windows 10 Enterprise LTSB
- **Power Consumption** 45.6 W (Typical)
- **Power Input** 24 V<sub>DC</sub> +/- 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 2.5 KG

#### System Hardware

- **CPU** Intel® Atom™ E3827 1.75 GHz Dual-core Processor
- **Memory** 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** CFast slot x 1  
2.5" SATA SSD slot x 1 (optional)
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 1  
USB 2.0 x 1

#### LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 12.1"
- **Max. Resolution** 1024 x 768
- **Max. Colors** 16.2M
- **Luminance cd/m<sup>2</sup>** 600
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 700:1

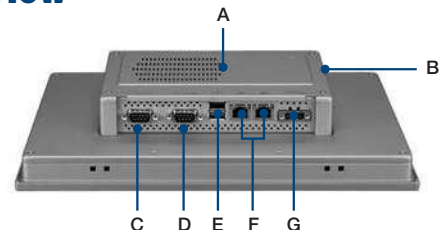
#### Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** With CFast: 2 Grms (5~500 Hz)  
With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

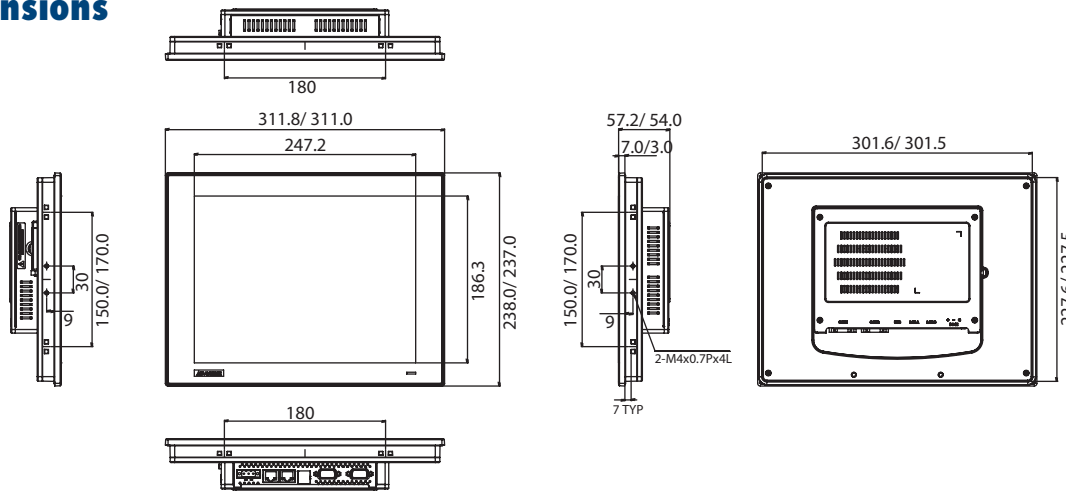
### Rear View



- A. External HDD/SSD/iDoor kit (TPC-1251T-EHKE) (Optional)
- B. CFast
- C. RS-232
- D. RS-232/422/485
- E. USB 3.0 & 2.0
- F. LAN (10/100/1000)
- G. Power Receptor

**Dimensions**

Unit: mm



**TPC-1251T Panel Cutout Dimensions: 303 x 229 mm (11.93 x 9.02")**

**Ordering Information**

- **TPC-1251T-E3AE** 12" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (True-flat touchscreen)
- **TPC-1251H-E3AE** 12" XGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (Non-flat touchscreen IP65 certified traditional TPC front panel)

**Optional Accessories**

- **PWR-247-CE** 60W DC 24V/2.5A Output Power Supply
- **TPC-1251T-EHKE** HDD/SSD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC

**Embedded O/S**

- **2070014327** TPC-xx51T/H WS7P x64 MUI Image v4.14
- **2070013613** TPC-xx51T/H WS7P x86 MUI Image v4.12
- **2070014303** TPC-1251T/H WEC7 x64 MUI Image V4.00
- **2070014400** TPC-xx51T/H Win10 Enterprise LTSB x64 MUI image v6.00 B002

**S/W Bundle Offering**

- **WA-HT1251T-E15H1AE** TPC-1251T-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P
- **WA-ST1251T-E15H4AE** TPC-1251T-E3AE, SCADA Runtime 1500 tags, 1TB HDD, WES7P

**iDoor Modules** (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-26D1DB-MAE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24R2GL-AE** 2 Port Giga LAN Intel i350 PCIe mini card
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

**Application Software**

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>

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# TPC-1051WP

## 10.1" WXGA TFT LED LCD Intel® Atom™ Thin-Client Terminal

**NEW**



### Features

- Industrial 10.1 TFT LCD with 25K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Processor with 4GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for an intuitive user interface
- Front LED Indicator to Show Operating Status
- Supports iDoor with optional accessory kit
- Chassis Grounding Protection
- Anti-scratch surface: 7H hardness
- AC/DC support (option by Power adapter)
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

The TPC-1051WP is a thin client terminal with a 10.1" WXGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Processor and 4GB DDR3L SDRAM provides adequate computing performance in a compact fanless system. The TPC-1051WP is a true-flat touchscreen design with IP66 front protection, die-cast Aluminate Alloy front bezel and Projected capacitive touch. Furthermore, the TPC-1051WP is easy for you to embed into your equipment because of its small yet robust design. In addition, through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM to fulfill different kinds of the industrial automation application.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 283.1 x 202.3 x 61.4 mm ( 11.15" x 7.96" x 2.42)
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- **Mounting** Desktop, Wall, Panel Mount, and VESA mount (with optional kit)
- **OS Support** Microsoft® WEST 32bit/64bit / Windows 7 32bit/64bit, Windows 8.1 32bit/64bit / Windows 10 Enterprise LTSB
- **Power Input** 24 V<sub>DC</sub> ± 20%
- **Power Consumption** 36 W(Typical)
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 2.56 Kg (5.64 lbs)

#### System Hardware

- **CPU** Intel® Atom™ E3827 1.75 GHz Processor
- **Memory** 4GB (8GB optional) DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** CFast slot x 1  
2.5" SATA SSD slot x 1 (optional)
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 1  
USB 2.0 x 1

#### LCD Display

- **Display Type** WXGA TFT LED LCD
- **Display Size** 10.1"
- **Max. Resolution** 1280 x 800
- **Max. Colors** 262k
- **Luminance cd/m<sup>2</sup>** 300
- **Viewing Angle (H/V°)** 170/170
- **Backlight Life** 25,000 hrs
- **Contrast Ratio** 1300:1

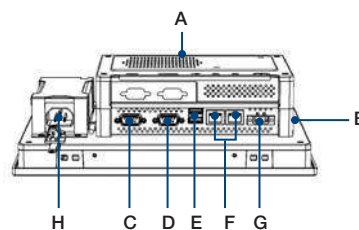
#### Touchscreen

- **Light Transmission** 90% ± 3%
- **Resolution** 2048 x 2048 dot
- **Type** Projected capacitive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** -20 ~ 55°C (-4 ~ 131°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz), (Operating, random vibration)

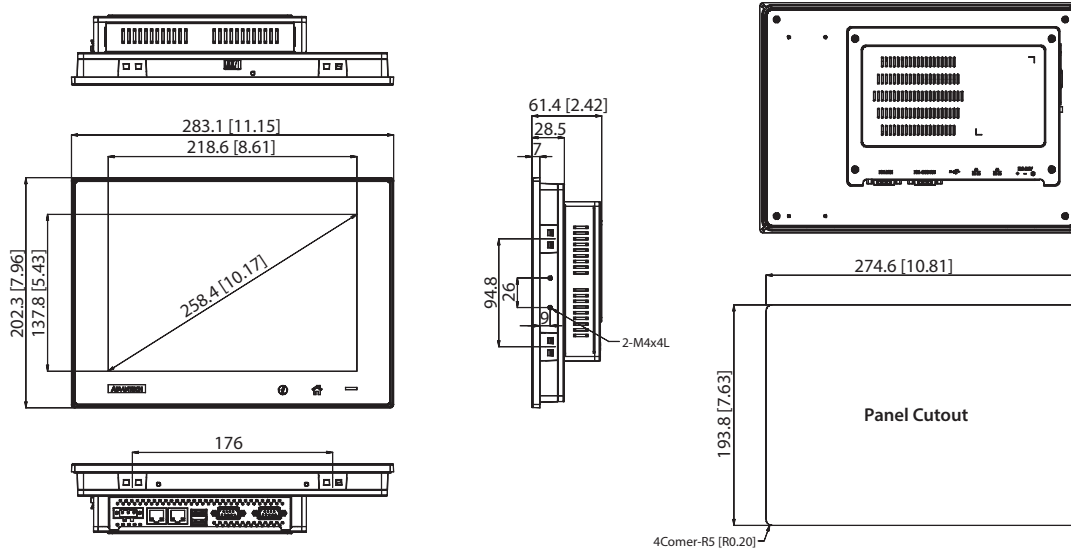
### Rear View



- A. External HDD/iDoor kit (TPC-1251T-EHKE) (Optional)
- B. CFast
- C. RS-232
- D. RS-232/422/485
- E. USB 3.0 & 2.0
- F. LAN (10/100/1000)
- G. Power Inlet
- H. Power adapter and Bracket (option)

## Dimensions

Unit: mm [inch]



TPC-1051WP Panel Cutout Dimensions: 274.6 x 193.8 mm

## Ordering Information

- TPC-1051WP-E3AE 10.1" Multi-Touch Panel PC, Intel Atom E3827, 4GB DDR3L pre-installed

## Optional Accessories

- TPC-1000H-ADKE 63W DC 24V/2.62A Power supply & bracket for TPC-xx51WP series
- TPC-1251T-EHKE HDD and iDoor extension kit
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M

## Embedded O/S

- 2070013484 TPC-xx51WP WS7P x64 MUI Image v4.13
- 2070013485 TPC-xx51WP WEC7 X64 MUI Image V4.00

## S/W Bundle Offering

- WA-HT1051W-E15H1AE TPC-1051WP-E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P

## iDoor Modules (TPC-1251T-EHKE is required for iDoor modules)

- PCM-26D2CA-AE SJA1000 CANBus, CANOpen, DB9 x 2
- PCM-26D1DB-MAE Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- PCM-27D24DI-AE Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- PCM-24D2R4-AE OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- PCM-24D2R2-AE OXPcie-952 UART, Isolated RS-232, DB9 x 2
- PCM-24R2GL-AE 2 Port Giga LAN Intel i350 PCIe mini card
- PCM-24R1TP-AE Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- PCM-24S2WF-AE 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

## Application Software

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# TPC-651T

## 5.7"/6.5" VGA TFT LED LCD Intel® Atom™ Thin-Client Terminal

NEW



### Features

- Industrial 5.7"/6.5" VGA TFT LCD with 50K Lifetime LED Backlight
- Intel® Atom™ E3827 1.75 GHz Dual-core Processor with 4GB DDR3L SDRAM
- Support wide operating temperatures -20~60°C
- True-flat with IP66 certified front panel protection
- Front LED Indicator to Show Operating Status
- Durable 5-wire resistive touchscreen
- Supports iDoor technology for diverse applications (optional accessory required)
- Compact Fanless Embedded System with Al Alloy Front Bezel, Chassis Grounding Protection
- AC/DC support with optional Power adapter
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

The TPC-651T thin client terminal with a 5.7"/6.5" VGA LCD, low power embedded Intel® Atom™ E3827 1.75 GHz Dual-core Processor and 4GB DDR3L SDRAM provides computing performance in a compact fanless system. To enhance its durability, the TPC-651T is true-flat touchscreen designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It supports wide operating temperatures -20~60°C and includes full size mini-PCIe slot to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 199 x 152 x 58.9 mm (7.83" x 5.98" x 2.32")
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 32bit/64bit / WE8S 64bit / Windows 7 / 8.1 32bit/64bit / Windows 10 Enterprise LTSB
- **Power Consumption** 19.2 W (typical)
- **Power Input** 24V<sub>DC</sub> +/- 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 1.5 KG

#### System Hardware

- **CPU** Intel® Atom™ E3827 1.75 GHz Dual-core Processor
- **Memory** 1 x SO-DIMM with 4GB DDR3L SDRAM (supports up to 8G)
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Full-size Mini PCI-E
- **Storage** CFast slot x 1  
2.5" SATA SSD slot x 1 (optional)
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 1  
USB 2.0 x 1

#### LCD Display

- **Display Type** VGA TFT LED LCD
- **Display Size** 5.7"/6.5"
- **Max. Resolution** 640 x 480
- **Max. Colors** 262K
- **Luminance cd/m<sup>2</sup>** 550/800
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 800:1/600:1

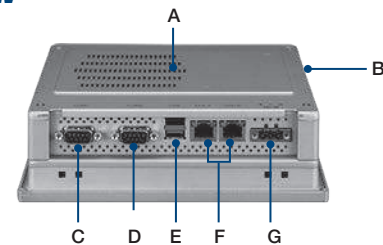
#### Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Vibration Protection** With CFast: 2 Grms (5~500 Hz)  
With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

#### Rear View

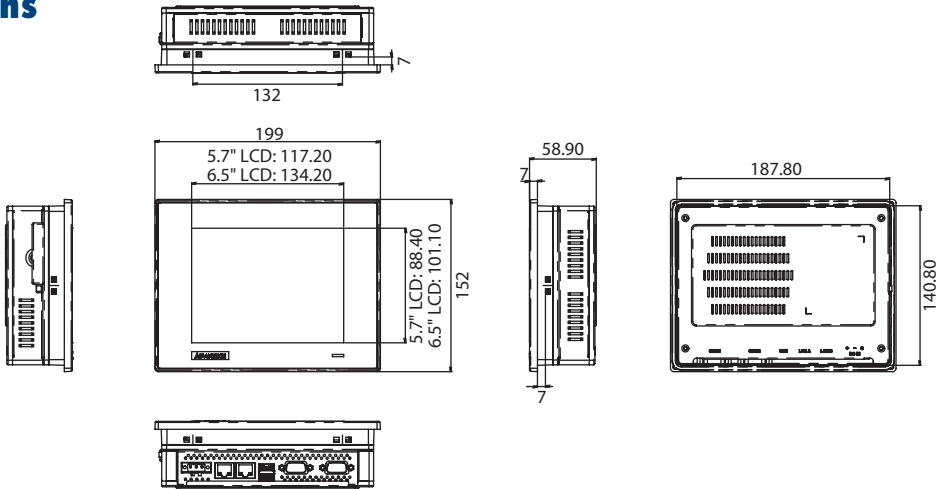


- A. External HDD/SSD/iDoor kit (TPC-1251T-EHKE) (Optional)
- B. CFast
- C. RS-232
- D. RS-232/422/485
- E. USB 3.0 & 2.0
- F. LAN (10/100/1000)
- G. Power Receptor



**Dimensions**

Unit: mm



**Panel Cutout Dimensions: 189.1 x 142.1 mm (7.44 x 5.59")**

1  
WebAccess® Solution

2  
Intelligent Motion Control and Machine Vision

3  
Power & Energy Automation

4  
Industrial Operator Panels

5  
Thin-Client Terminals

6  
High-Performance Control Panels

7  
Control Cabinet PCs

8  
Industrial IoT Gateways

9  
Industrial monitors

10  
iDoor Technology Modules

11  
Panel PCs

12  
Control IPCs

13  
Remote DA&C System

14  
Wireless IoT Sensing Devices

15  
Ethernet I/O Modules

16  
RS-485 I/O Modules

17  
Industrial Ethernet Solutions

18  
IP Gateway and Serial Device Servers

19  
Networking

**Ordering Information**

- **TPC-651T-E3AE** 5.7" VGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (True-flat touchscreen)
- **TPC-651H-E3AE** 5.7" VGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (Non-flat touchscreen IP65 certified traditional TPC front panel)
- **TPC-651T-6E3AE** 6.5" VGA Panel PC, Intel® Atom™ E3827 1.75 GHz Dual-core Processor, 4GB (True-flat touchscreen)

**Optional Accessories**

- **PWR-247-CE** 60W DC 24V/2.5A Output Power Supply
- **TPC-1251T-EHKE** HDD/SSD and iDoor extension kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

**Embedded O/S**

- **2070014327** TPC-xx51T/H WS7P x64 MUI Image v4.14
- **2070013613** TPC-xx51T/H WS7P x86 MUI Image v4.12
- **2070013845** TPC-651T/H WEC7 x64 MUI Image V4.00
- **2070014400** TPC-xx51T/H Win10 Enterprise LTSB x64 MUI image v6.00 B002

**S/W Bundle Offering**

- **WA-HT651T-E15H1AE** TPC-651T-6E3AE, HMI Runtime 1500 tags, 32G CFast, WES7P

**iDoor Modules** (TPC-1251T-EHKE is required for iDoor modules)

- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 2
- **PCM-26D1DB-MAE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcie-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24R2GL-AE** 2 Port Giga LAN Intel i350 PCIe mini card
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462

**Application Software**

<b>WebAccess/SCADA</b>	Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.
<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

# WebOP-3070T

## 7" WVGA Cortex™ - A8 Operator Panel with Wide Operating Temperature Range

NEW



### Features

- RISC 32 bits TI ARM® Cortex™-A8 processor
- Various LCD sizes (7", 10.1", 12")
- Full line LED BL TFT LCD with 50K life time
- Embedded Microsoft® WinCE 6.0 OS
- Supports WebOP Designer HMI Runtime development tool
- Backup Memory FRAM in 128KB(64 words) without battery concern
- Power & Terminal I/O ports isolation protection
- -20°C ~ 60°C wide operating temperature range
- Supports CANopen library registered by CiA 301 V4.02
- RS-422/RS-485/CAN terminal I/O ports support Termination Resistor 120Ω
- Front panel IP66 compliant
- Die-cast aluminum alloy front bezel
- Level 4 ESD protection (Air:15KV / Contact:8KV)
- Industrial Control Equipment - UL 508 certification

### Introduction

With brand-new ID design, the WebOP-3070T provides stringent standards required in the automation market. Advantech offers the WebOP-3070T with Cortex™-A8 processor which consumes minimum power without sacrificing performance. The WebOP-3000T supports a variety of LCD sizes from 7" to 12" for different applications involving the use of PLCs, motion/thermal controllers, inverters and sensors. It's also provided with a wide operating temperature range to fulfill the requirements of harsh environments.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Dimensions (WxHxD)** 203.4 x 150 x 43.7 mm (8.01" x 5.91" x 1.72")
- **Cutout Dimensions** 192 x 138.5 mm (7.56" x 5.45")
- **OS Support** Microsoft® Windows CE 6.0
- **Power Input** 24V<sub>DC</sub> ±10%
- **Power Consumption** 7W (Typical)
- **Enclosure Housing** PC + ABS
- **Mounting** Panel
- **Weight (Net)** 1 Kg (2.20 lbs)

#### System Hardware

- **CPU** RISC 32 bits, 600 MHz (ARM® Cortex™-A8)
- **Backup Memory** FRAM 128KB
- **Memory** DDR2 256MB on board
- **Storage** 512MB on board SLC type
- **Power-On LED** Yes

#### Communication Interface

- **COM1** RS-232/422/485 (DB9 Male)
- **COM2** RS-422/485 (Terminal Plug 4-Pin)
- **COM3** RS-485 (Terminal Plug 2-Pin)
- **CAN** Terminal Plug 2-Pin
- **Ethernet (RJ45)** 10/100-BaseT
- **I/Os**
  - USB Client USB 2.0 Client x 1
  - USB Host USB 2.0 Host x 1
  - Micro-SD Slot Yes
  - Audio 1 Line-out / 1 Mic-in

#### LCD Display

- **Display Type** WVGA TFT LCD
- **Display Size** 7"
- **Max. Resolution** 800 x 480
- **Max. Colors** 64K
- **Luminance (cd/m<sup>2</sup>)** 500

- **Viewing Angle (H/V)** 140/120
- **Backlight Life** LED, 50,000 hrs
- **Dimming** Adjustable by touch panel
- **Contrast Ratio** 700:1

#### Touchscreen

- **Lifespan** 36 million touches at 8mm-diameter finger point through silicone rubber bearing at least 250g 2 times per second.
- **Light** Transmission Above 80%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

#### Environment

- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
- **Humidity** 10 ~ 90% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Vibration Protection** Operating, random vibration 1 Grms (5 ~ 500 Hz)

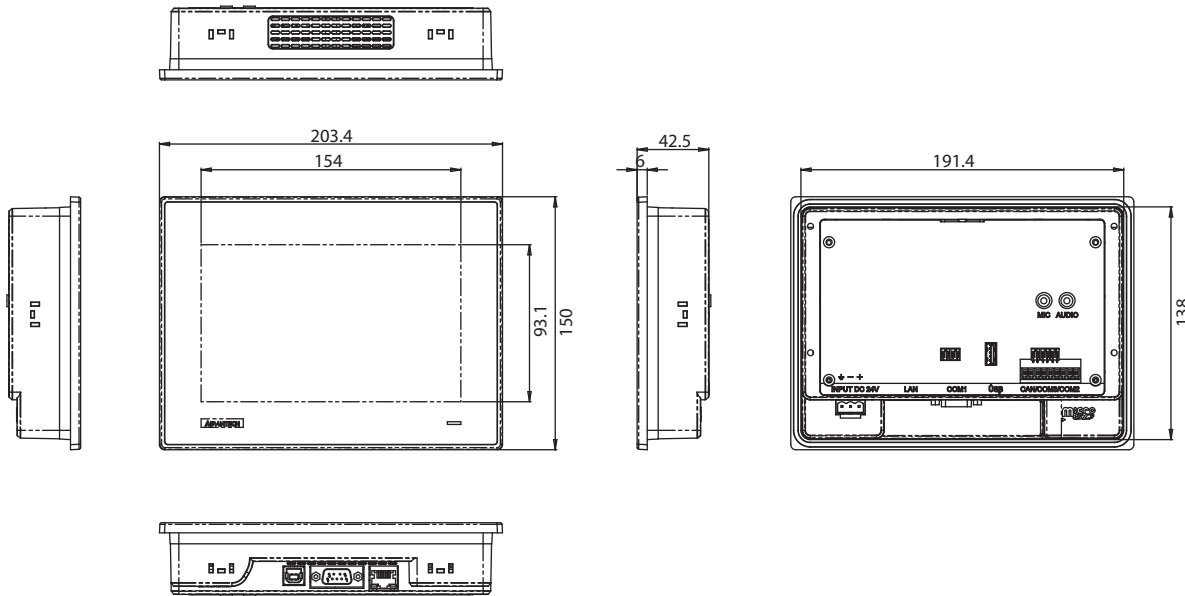
### Base View



Ethernet  
COM1 (RS-232/422/485) | USB Client | Micro SD Slot

## Dimensions

Unit: mm



**Panel Cutout Dimensions: 192 x 138.5 mm (7.56 x 5.45")**

## Ordering Information

- WOP-3070T-C4BE 7" WVGA, Cortex™-A8, 256MB DDR, WinCE 6.0

## Optional Accessories

- PWR-247-CE 24 V 60 W AC-DC Power Adapter
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1702031836 Power Cable China/Australia Plug 1.8 M

## S/W Bundle Offering

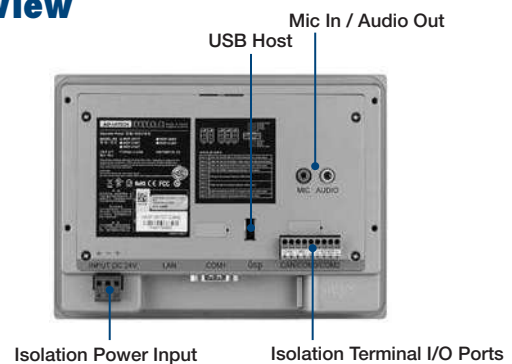
- WA-HT3070T-R15H0AE WOP-3070T-C4BE with WebAccess/HMI Runtime

## Application Software

### WebAccess/HMI

WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, i.e. speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HMI with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

## Rear View



Isolation Terminal I/O Ports

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
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- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# TPC-61T TPC-31T

## 5.7"/3.5" QVGA TFT LED LCD TI Cortex-A8 Touch Panel Computer



### Features

- TI Cortex-A8 processor on board
- 3.5"/5.7" QVGA TFT LED LCD
- Super slim and compact design with plastic housing
- Fanless cooling system
- IP65 compliant front panel
- Built-in micro SD card with Windows® CE OS
- 1 x SD card slot
- Automatic data flow control RS-485
- Supports 1Mbit FRAM for data back-up

### Introduction

The TPC-31T/61T model is a compact platform without redundant functions, and has been designed for small-sized operator interface applications. It has a 3.5"/5.7" TFT LCD display which is a cost effective choice for a limited budget. Its RISC kernel, the TI Cortex-A8 processor consumes minimum power without sacrificing performance. The TPC-31T/61T has a 10/100Base-T Ethernet port offering solid communication ability and comes bundled with a Windows® CE OS that supports Thin-Client solutions. The built-in Windows CE OS platform lets the TPC-31T/61T become an Open HMI solution for system integration.

### Specifications

#### General

- **Certification** CE, BSMI, CCC, UL, FCC Class A
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** TPC-31T: 120.79 x 85.5 x 26.5 mm (4.76" x 3.37" x 1.04")  
TPC-61T: 195 x 148 x 44.4 mm (7.68" x 5.83" x 1.75")
- **Enclosure** TPC-31T: ABS  
TPC-61T: PC/ABS Resin
- **Mounting** Panel
- **OS Support** Windows CE 6.0
- **Power Consumption** 8 W/12 W (typical)
- **Power Input** 18 ~ 32 V<sub>DC</sub>
- **Watchdog Timer** Programmable as 250 ms, 500 ms, 1 second
- **Weight (Net)** 0.25 kg (0.55 lbs)/0.8 kg (1.76 lb)

#### System Hardware

- **CPU** TI Cortex-A8 600MHz
- **Memory** DDR2 256MB on board
- **LAN** 10/100Base-T x 1
- **Storage** 512MB on board micro SD card  
1 x SD Card slot  
1Mbit FRAM for Data back-up
- **I/O** TPC-31T: RS-232/RS-485 X1 with auto data flow control, USB 2.0(Host) x 1, CAN x 1  
TPC-61T: RS-232 x 2 (COM1,2) RS-422/RS-485 x 1 (COM 3) with auto data flow control, USB2.0 (Host) x 1, USB2.0 (Client) x 1

#### LCD Display

- **Display Type** QVGA TFT LED LCD
- **Display Size** 3.5"/5.7"
- **Max. Resolution** 320 x 240
- **Max. Colors** 64 K
- **Luminance cd/m<sup>2</sup>** 450/800
- **Viewing Angle (H/V)** 160/140
- **Backlight Life** 30,000/50,000 hrs
- **Contrast Ratio** 300:1/800:1

#### Touchscreen

- **Lifespan** 1 million times with an 8mm diameter finger of silicone rubber
- **Light** Transmission Above 80%
- **Resolution** Linearity
- **Type** 4-wire, analog resistive

#### Environment

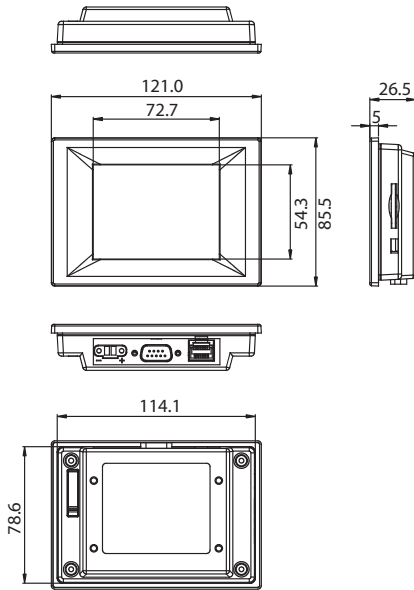
- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP65
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** 2 Grms (5 ~ 500 Hz) (Operating, random vibration)

### Ordering Information

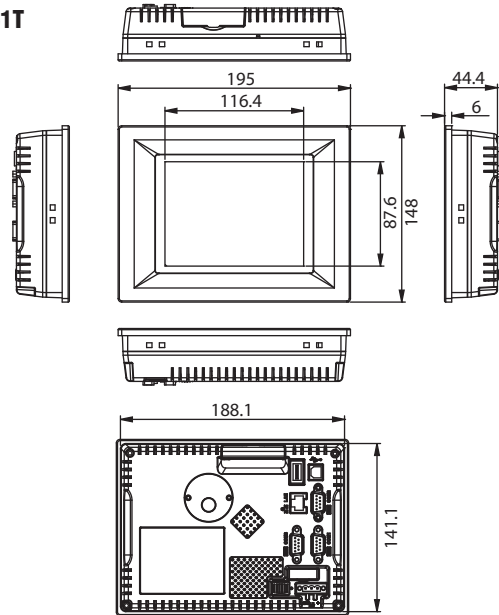
- **TPC-31T-E3AE** 3.5" QVGA Touch Panel PC, TI AM3517 600 MHz, 256 MB with WinCE 6.0
- **TPC-61T-E3AE** 5.7" QVGA Touch Panel PC TI AM3517 600 MHz, 256 MB with WinCE 6.0

**Dimensions**

**TPC-31T**



**TPC-61T**



Unit: mm

**Panel Cutout Dimensions: TPC-31T: 115 x 79.5 mm (4.6 x 3.18")**  
**TPC-61T: 189 x 142 mm (7.56 x 5.68")**

**Optional Accessories**

- PWR-247-GE 24 V 60 W AC-DC Power Adapter
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M

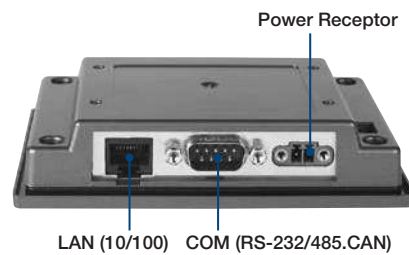
**Application Software**

**WebAccess/HMI**

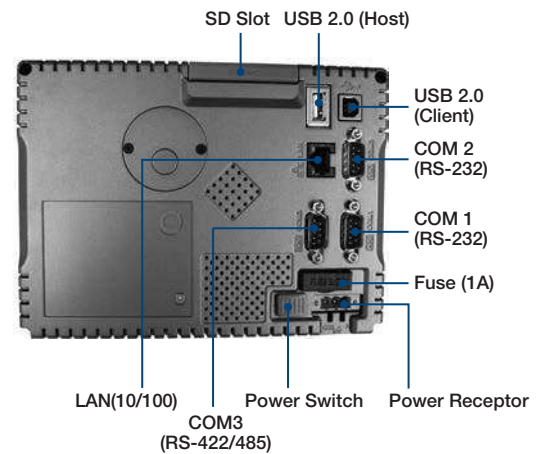
WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

**Rear View**

**TPC-31T**



**TPC-61T**



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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- 18 IP Gateway and Serial Device Servers
- 19 InNetworking



# IPPC-5211WS

## 21.5" Full HD TFT LED LCD Industrial Multi-Touch Panel PC with Stainless Steel Chassis and IP69K Rating

**NEW**



### Features

- Stainless steel chassis with IP69K waterproof rating
- The detachable product portfolio with accessories for various applications.
- Intel® Celeron Processor J1900
- Operating temperature : 0 ~ 50°C
- 21.5" Full HD TFT LED LCD display
- 16:9 widescreen with PCT multi-touch
- Supports iDoor or antenna
- Built-in function and home key button used for intuitive UI
- Fully flat glass front panel with 7H hardness
- Fanless cooling system
- Front LED indicator to show operating status
- Supports Advantech SNMP subagent

### Introduction

The IPPC-5211WS 21.5" fully sealed stainless steel multi-touch panel PC is IP69K rated and has a detachable product portfolio designed for OEMs and process manufacturing. It supports special functions via iDoor, iKey and an antenna, and is designed for HMIs which require better performance and functionality of machine-level interfaces used in Machine-to-Machine (M2M), Internet of Things (IoT) etc which require extra protection for hygienic and harsh environments where the intrusion of dust, condensation and water jets is possible. The IPPC-5211WS can also perform a touch shut-down to avoid accidental operation.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** IP69K, CE, FCC Class A, UL, CCC, BSMI
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 555 x 346.5 x 81 (21.85" x 13.64" x 3.19")
- **Enclosure** Front : Stainless steel  
Back : Aluminum / stainless steel(optional)
- **Mounting** VESA and flange adapter for arm and foot system
- **Power Consumption** 40.8 W
- **Power Input** 21~27 V<sub>DC</sub>
- **Weight** 15.8 Kg
- **OS Support** Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit  
Windows Embedded 8.1 Industry Pro 64bit

#### System Hardware

- **CPU** Intel® Celeron Processor J1900
- **Memory** 4 GB DDR3L SO-DIMM, up to 8GB
- **LAN** RTL8111E-VL-CG
- **Expansion Slots** 1 x Full-size Mini PCI-E x 1
- **Storage** 1 x CFast (optional)  
1 x 2.5" SATA (optional)
- **I/O** 2 x 10/100/1000 Mbps RJ45  
1 x RS-232  
1 x RS-232/RS-485/RS-422  
1 x USB 2.0  
1 x USB 3.0  
1 x Waterproof Wireless Antenna (optional)

#### LCD

- **Display Type** Full HD TFT LED LCD
- **Display Size** 21.5"
- **Max. Resolution** 1920 x 1080
- **Max. Colors** 16.7M

- **Luminance (cd/m<sup>2</sup>)** 300
- **Viewing Angle(H/V)** 178 / 178
- **Backlight Life** 50,000 hrs

#### Touchscreen

- **Light Transmission** ≥ 88%
- **Resolution** 4096 x 4096 dpi
- **Type** Projected capacitive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing  
**Note:** Tested for 48 hrs
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5~500Hz)  
(Operating, random vibration)

### Ordering Information

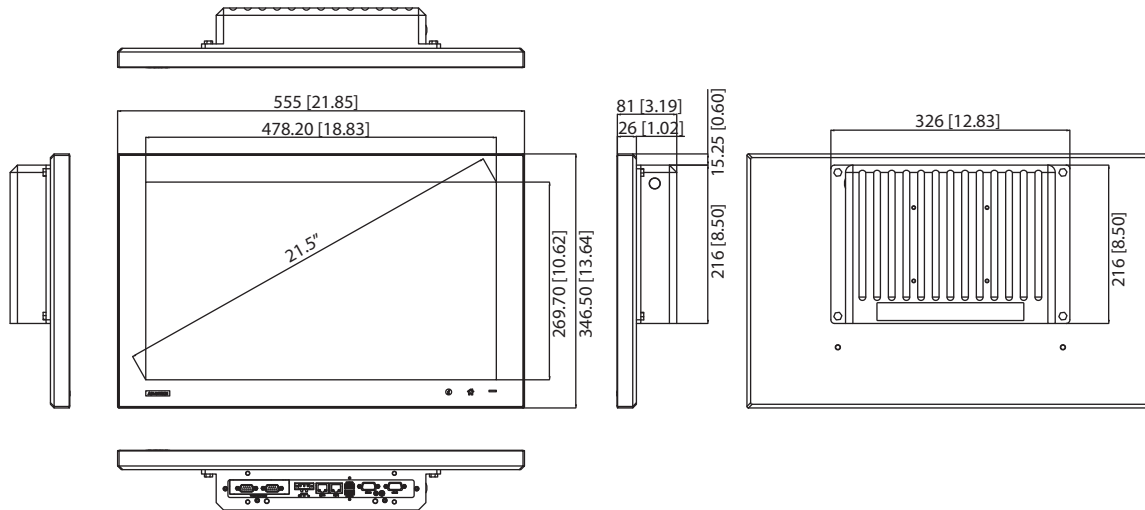
- **IPPC-5211WS-J3AE** 21.5" Full HD 1080 TFT LCD with PCT touch, Intel® Celeron Processor & IP69K rating
- **IPPC5211WSJ1501E-T** IPPC-5211WS-J3AE with complete stainless steel housing

### iDoor Modules

- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D2R2-AE** 2-Port Isolated RS-232 mPCIe, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

## Dimensions

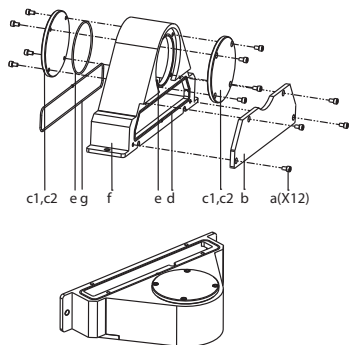
Unit: mm [inch]



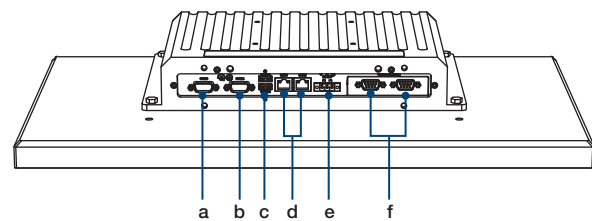
## Optional Accessories

- **PWR-247-CE** 100-240V 60W 24V 2.5A Power Supply
- **2070013799** Image WS7P x64 MUI. v4.12 B001 for IPPC-5211WS
- **9680016099** Protective sheet for 21.5" multi-touch panel PC
- **IPPC-5211WS-EMKE** The flange adaptor to connect the front panel with the arm or foot system, and for rear side IP69K protection
- **IPPC-5000-FLAE** All Stainless steel flange adaptor to connect the front panel with the arm or foot system, and for rear side IP69K protection

### IPPC-5211WS-EMKE



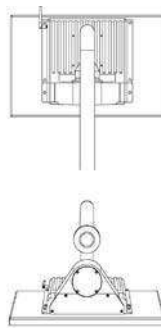
## Rear View



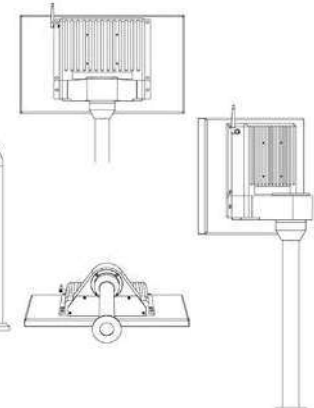
- a. COM1 (RS-232)
- b. COM2 (RS232/RS485/RS422)
- c. 2 x USB (USB 1 x 3.0, 1 x 2.0)
- d. 2 x LAN (10/100/1000 Mbps)
- e. Power Inlet
- f. iDoor

## Product Type with IPPC-5211WS-EMKE

### Arm System



### Foot System



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
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- 16 RS-485 I/O Modules
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# SPC-1840WP SPC-2140WP

18.5" WXGA TFT / 21.5" Full HD  
LED LCD Stationary Multi-Touch  
Panel Computer



product  
design award

2013



## Features

- 21.5" Full HD TFT LED LCD / 18.5" WXGA TFT LED LCD
- AMD dual-core 1.6GHz processor with independent GPU, advanced graphical performance
- 16:9 wide screen with PCT multi-touch
- Built-in function and home key button used for intuitive UI
- Anti-scratch touch surface: 7H hardness
- All around IP65 with waterproof M12 connector
- Support Mini-PCIe expansion slot
- Front LED indicator to show operating status
- Fanless cooling system
- Winner of the 2013 iF product design award

## Introduction

With a brand-new ID design, the SPC-2140WP series provide high resolution 21.5" display and PCT multi-touch in 16:9 wide format. By embedding an AMD T56N 1.6GHz processor with independent GPU, the SPC-2140WP can support advanced graphical performance in more complex applications. Built-in function and home key button for greater user usability and operating safety. The SPC-2140WP also support Mini-PCIe slot for communication function expansion. Moreover, the SPC-2140WP includes an all around IP65 waterproof design with M12 connectors. With this vertical I/O connector, cable routing can be an easy job in stationary / VESA Arm applications.

## Specifications

### General

- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 21.5": 558.4 x 349.8 x 65 mm (21.98" x 13.77" x 2.56")  
18.5": 488 x 309 x 65 mm (19.21" x 12.17" x 2.56")
- **Enclosure** Front bezel: Die-cast Aluminium alloy  
Back housing: Die-cast Aluminium alloy
- **Mounting** VESA Arm
- **OS Support** Microsoft® Win7/8/WES7P/XP/WES2009
- **Power Consumption** 35 W Typical
- **Power Input** 24 V<sub>DC</sub>
- **Weight (Net)** 9 kg (19.8 lbs)

### System Hardware

- **CPU** AMD G-series T56N 1.6GHz
- **Chipset** AMD A50M FCH
- **Memory** 4GB SO-DIMM DDR3 SDRAM
- **LAN** 10/100/1000Base-T x 2 (connection:M12 A-coded, 8-pin female)
- **Expansion Slots** Full-sized Mini PCIe slot x 1 (optional)
- **Storage** 2.5" SATA HDD bracket x 1
- **I/O** RS-232 x1 (connection:M12 A-coded, 8-pin male)  
USB 2.0 x1 (connection:M12 A-coded, 8-pin female)  
24 V<sub>DC</sub> power input (connection:M12 A-coded, 5-pin male)

### LCD Display

- **Display Type** 21.5": Full HD TFT LED LCD  
18.5": WXGA TFT LED LCD
- **Display Size** 21.5" / 18.5"
- **Max. Resolution** 21.5": 1920 x 1080  
18.5": 1366 x 768
- **Max. Colors** 16.7 M
- **Luminance cd/m<sup>2</sup>** 300
- **Viewing Angle (H/V°)** 21.5": 178/178  
18.5": 170/160
- **Backlight Life** 50,000 hrs

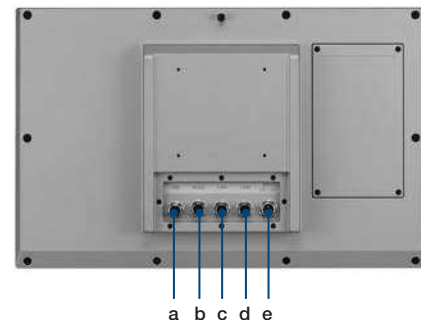
### Touchscreen

- **Light Transmission** ≥88%
- **Resolution** 4096\*4096 dot
- **Type** Projected capacitive

### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing  
**Note:** Tested for 48hrs
- **Ingress Protection** All around IP65
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

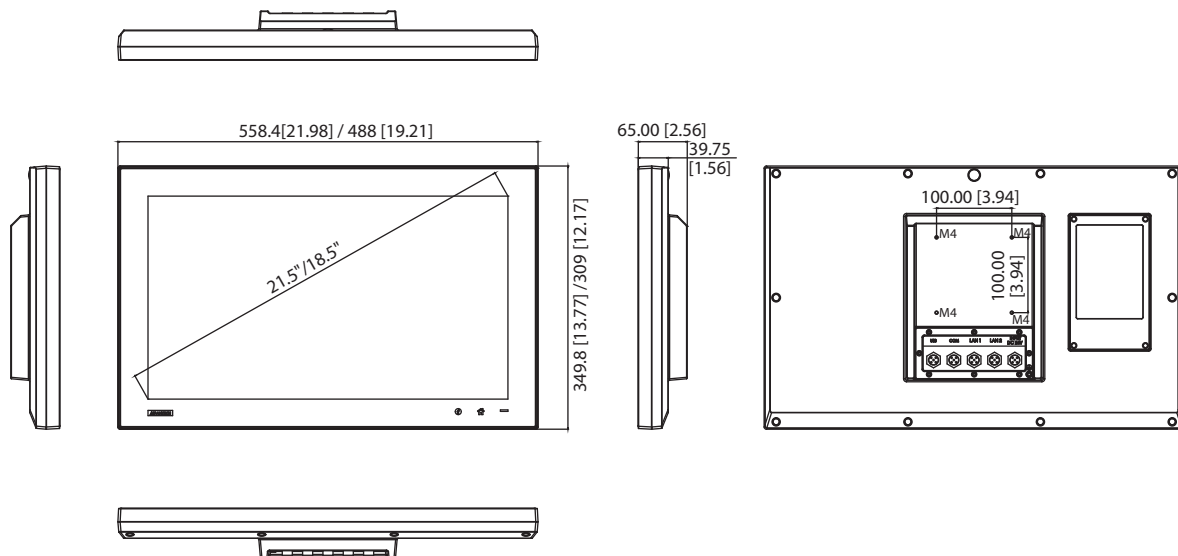
## Rear View



- a. USB 2.0 with M12 connector
- b. COM (RS-232) with M12 connector
- c. LAN 1 with M12 connector
- d. LAN 2 with M12 connector
- e. 24 V<sub>DC</sub> input with M12 connector

**Dimensions**

Unit: mm [inch]



**Ordering Information**

- **SPC-2140WP-T3AE** 21.5" full-HD stationary Multi-Touch Panel PC, 4GB
- **SPC-1840WP-T3AE** 18.5" WXGA stationary Multi-Touch Panel PC, 4GB

**Optional Accessories**

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E** 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E** Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750007668-01** Waterproof Wireless Antenna R/P SMA.M2dB L=86.7
- **1750003418** Wireless Antenna AN2400-5901RS R/P SMA.M9dB
- **SPC-1840WP-MCKE** M12 cable accessory kit for SPC series
- **SPC-1840WP-MOKE** M12 Connector accessory kit for SPC series

**Application Software**

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 **Thin-Client Terminals**
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IIoT Gateways
- 9 Industrial monitors
- 10 IIoT Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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- 18 IP Gateway and Serial Device Servers
- 19 Networking

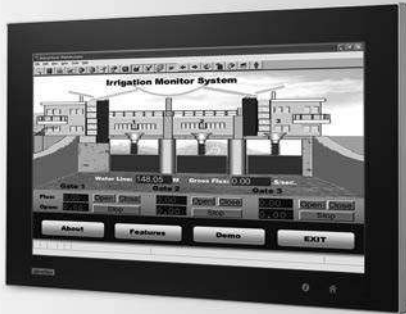
# SPC-1881WP

## 18.5" WXGA TFT LED LCD Stationary Multi-Touch Panel Computer with Intel® i3 Processor



2013

NEW



### Features

- 18.5" WXGA TFT LED LCD
- Intel® Core™ i3-4010U 1.70 GHz processor
- 16:9 wide screen with PCT multi-touch
- Built-in function and home key button used for intuitive UI
- Anti-scratch touch surface: 7H hardness
- All around IP65 with waterproof M12 connector
- Support Mini-PCIe expansion slot
- Front LED indicator to show operating status
- Fanless cooling system
- Winner of the 2013 iF product design award

### Introduction

With a brand-new ID design, the SPC-1881WP series provide high resolution 18.5" display and PCT multi-touch in 16:9 wide format. By embedding an with Intel® Core™ i3-4010U 1.70 GHz Processor, the SPC-1881WP can support advanced graphical performance in more complex applications. Built-in function and home key button for greater user usability and operating safety. The SPC-1881WP also supports Mini-PCIe slot for communication function expansion. Moreover, the SPC-1881WP includes an all around IP65 waterproof design with M12 connectors. With this vertical I/O connector, cable routing can be an easy job in stationary / VESA Arm applications.

### Specifications

#### General

- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 488 x 309 x 65mm (19.21" x 12.17" x 2.56")
- **Enclosure** Front bezel: Die-cast Aluminium alloy  
Back housing: Die-cast Aluminium alloy
- **Mounting** VESA Arm
- **OS Support** Microsoft® Windows WES7 32bit/64bit / Windows 7 32bit/64bit / Win EMB 8.1 Industry Pro / Windows 10 IOT Enterprise
- **Power Consumption** 35 W Typical
- **Power Input** 24 V<sub>DC</sub>
- **Weight (Net)** 8 kg (17.64 lbs)

#### System Hardware

- **CPU** Intel® Core™ i3-4010U 1.70 GHz Processor
- **Chipset** Integrated Intel 8 Series Chipset
- **Memory** 4GB SO-DIMM DDR3 SDRAM
- **LAN** 10/100/1000Base-T x 2 (connection:M12 A-coding, 8-pin female)
- **Expansion Slots** Full-sized Mini PCI-E x 1 (optional)
- **Storage** 2.5" SATA HDD
- **I/O** RS-232 x1 (connection:M12 A-coding, 8-pin male)  
USB 2.0 x1 (connection:M12 A-coding, 8-pin female)  
24 V<sub>DC</sub> power input (connection:M12 A-coding, 5-pin male)

#### LCD Display

- **Display Type** WXGA TFT LED LCD
- **Display Size** 18.5"
- **Max. Resolution** 1366 x 768
- **Max. Colors** 16.7 M
- **Luminance cd/m<sup>2</sup>** 300
- **Viewing Angle (H/V°)** 170/160
- **Backlight Life** 50,000 hrs

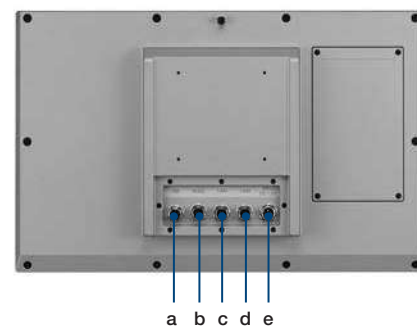
#### Touchscreen

- **Light Transmission** ≥88%
- **Resolution** 4096\*4096 dot
- **Type** Projected capacitive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing  
**Note:** Tested for 48hrs
- **Ingress Protection** All around IP65
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

### Rear View

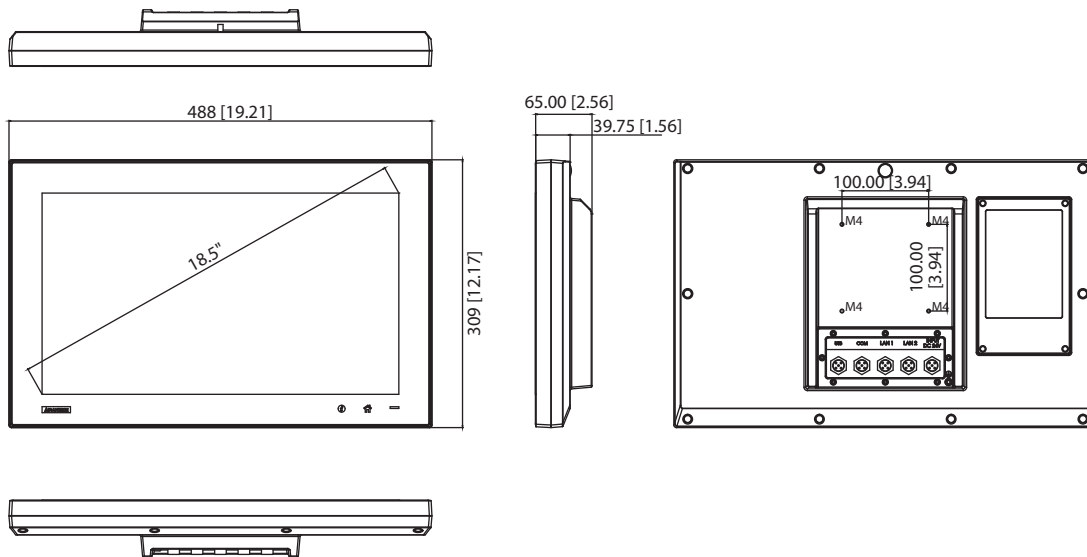


- a. USB 2.0 with M12 connector
- b. COM (RS-232) with M12 connector
- c. LAN 1 with M12 connector
- d. LAN 2 with M12 connector
- e. 24 V<sub>DC</sub> input with M12 connector



## Dimensions

Unit: mm [inch]



## Ordering Information

- **SPC-1881WP-433AE** 18.5" WXGA stationary Multi-Touch Panel PC, 4GB

## Embedded O/S

- **2070014320** Image WES7P X64 MUI V4.14 B001 for SPC-1881WP

## Optional Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E** 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E** Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750007668-01** Waterproof Wireless Antenna R/P SMA.M2dB L=86.7
- **1750003418** Wireless Antenna AN2400-5901RS R/P SMA.M9dB
- **SPC-1840WP-MCKE** M12 cable accessory kit for SPC series
- **SPC-1840WP-MOKE** M12 Connector accessory kit for SPC series

## Application Software

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IIoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>

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- 10 IIoT Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IIoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# TPC-8100TR

## 10.4" EN50155 Railway Panel Computer



### Features

- 10.4" SVGA 800x600 with 400 nits LED LCD display
- Fanless with Dual core 1.6 GHz processor
- 5H Hardness resistive touch
- Alternative keypad control in front bezel
- Mother board / Daughter board with coating for weather proof
- All around IP65 with waterproof M12 connector
- Optical bonding for weather proofing
- Ruggedized enclosure with Die-cast Aluminium alloy
- Wide operating temperature: -30 ~ 70°C
- EN50155 & EN45545 Compliance for railway application

### Introduction

Advantech's HMI TPC-8100TR for transportation is used to keep the train driver informed about status of the train's functions. Its design allows it to be deployed in environments with an extended temperature range ( -30 to +70°C) and it also complies with the EMC, shock and vibration test requirements of European standard EN50155 and EN45545 for railway applications.

The TPC-8100TR 10.4" TFT display has a ruggedized touch panel and optical bonding for weather-proofing. All round IP65 and M12 connectors are the perfect choice for Human Machine Interfaces (HMI) in railway environments. The internal boards all have Conformal Coating protection for anti-moisture protection. The TPC-8100TR includes a comprehensive feature set with two Ethernet ports, serial interfaces, USB ports, built-in CFast devices.

Railway power module design support 10 ms interruption (EN50155, S2) , EMI EN55022 CLASS A filter, Over/Short current protection for its railway application.

### Specifications

#### General

- **Certification** CE,FCC,CCC,EN50155 Compliance
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 345x227x85mm (13.58" x 8.94" x 3.35")
- **Enclosure** Front bezel: Die-cast Aluminium alloy  
Back housing: Die-cast Aluminium alloy
- **Mounting** Panel Mount / VESA Mount
- **OS Support** WES 7 & 8/ WES 2009 / Windows CE 7.0 / Linux
- **Power Consumption** 35 W Typical
- **Power Input** 110 V<sub>DC</sub>, 96 V<sub>DC</sub>, 72 V<sub>DC</sub>,  
48 V<sub>DC</sub> (option), 24 V<sub>DC</sub> (option)
- **Weight (Net)** 5 kg (11 lbs)

#### System Hardware

- **CPU** Intel Atom N2600
- **Memory** 4GB SO-DIMM DDR3 SDRAM
- **Storage** Built in 16G CFast card
- **Expansion Slot** Full-size Mini-pcie slot x 1 (option)  
Full-size Mini-pcie slot x 2 (option)
- **I/O** 2 x RS-232 (connection: M12 A-code, 8-pin male)  
2 x 422/485 (with isolation, connection: M12 A-code, 8-pin male)  
2 x USB2.0 (connection: M12 A-code, 8-pin female)  
2 x 100/1000 Base (connection: M12 A-code, 8-pin female)  
1x Audio (with Internal Buzzer,Line out, connection: M12 A-code, 8-pin male)  
1x Power connector (connection: M12 A-code, 5-pin male)

#### LCD Display

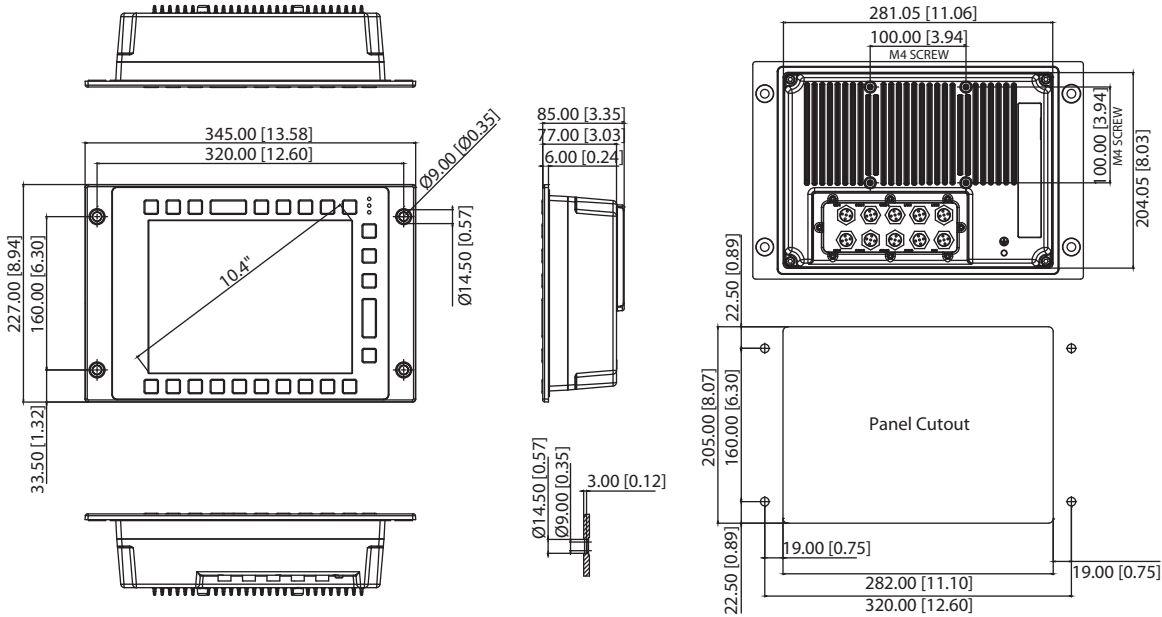
- **Display Type** SVGA TFT LED LCD
- **Display Size** 10.4"
- **Max. Resolution** 800x600
- **Max. Colors** 262 K
- **Luminance cd/m<sup>2</sup>** 400
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 700:1
- **Environment**
  - **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
  - **Ingress Protection** All around IP65
  - **Operating Temperature** -30 ~ 70°C (-22 ~ 158°F)
  - **Storage Temperature** -30 ~ 70°C (-22 ~ 158°F)
  - **Vibration Protection** IEC 61373 Railway– Shock and Vibration

### Ordering Information

- **TPC-8100TR-N3AE** 10.4" SVGA Touch Panel PC

## Dimensions

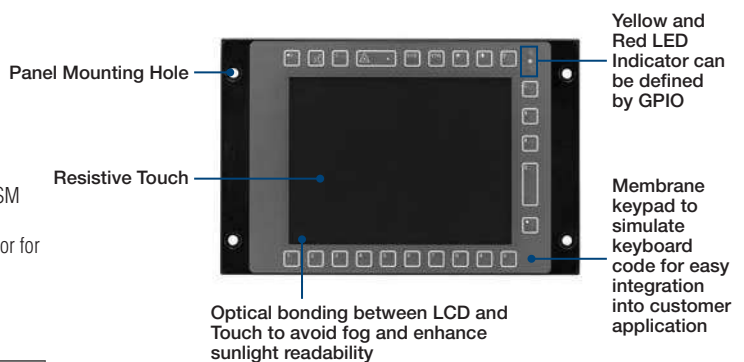
Unit: mm [inch]



## Accessories

- PWR-247-BE 63W DC 24V/2.62A Output Power Supply
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M
- EWM-C109F6G1E 6-band HSPA Cellular Module, SIM holder+GPS
- 1750006432 GPS antenna 5000mm AG1575-0250SM-UL
- 1750005865 GSM Antenna L=10.9cm 500hm AN8921F-5701SM (9 x M12 Connectors for TPC-8100TR)
- TPC-8100TR-MOKE (9 x M12 Cables supporting standard I/O connector for TPC-8100TR)
- TPC-8100TR-MCKE

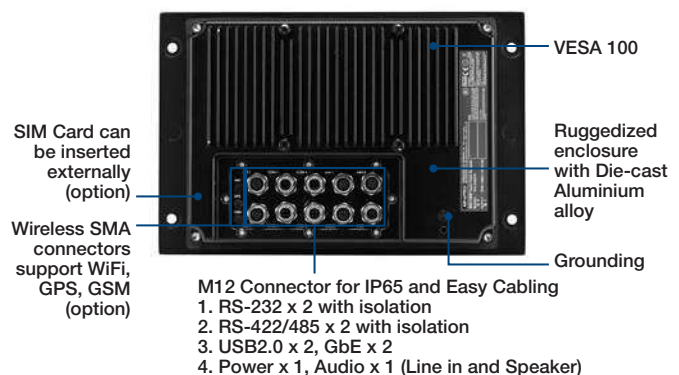
## Front View



## Application Software

<b>WebAccess/SCADA</b>	Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.
<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.

## Rear View



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# FPM-8151H

## 15" XGA Industrial Monitor with 316L Stainless Steel Front Panel for Hazardous Environments



### Features

- 15" XGA TFT LCD with LED backlight
- Stainless steel 316L front panel
- IP65 compliant front panel
- -20 ~ 60°C (-4 ~ 140°F) wide operating temperature range
- Enhanced 5-wire resistive touch panel
- Direct VGA & DVI-D video input interface
- Combo RS-232 & USB interface for touchscreen function
- Supports 24 VDC input and 100~240 VAC input (optional AC adapter)
- OSD control pad with lockable function on front panel
- Certified with UL CID2 for hazardous environments

### Introduction

The FPM-8151H is a particularly rugged and reliable 15" XGA wide temperature industrial monitor for a variety of industry applications. Equipped with a wide operating temperature range of -20 ~ 60°C (-4 ~ 140°F), it can satisfy demands in a wide range of harsh industrial applications. This model also features enhanced 5-wire resistive touch and system isolation to enhance the reliability. Moreover, FPM-8151H is designed to be safely operated in these locations and is Certified with UL Class I Division 2 for hazardous environments.

### Specifications

#### General

- **Button Controls** OSD control pad on front panel with lockable function  
2 user-defined contrast/brightness settings
- **Certification** CE, FCC Class A, UL C1D2, CB, BSMI, CCC
- **Dimensions (W x H x D)** 422 x 338 x 68 mm (16.61" x 13.31" x 2.68")
- **Enclosure** Front panel: 316L Stainless steel  
Rear cover: Stainless steel  
Ground Isolation Protection
- **Mounting** Panel, wall, desktop, VESA arm
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input  
DC Jack: external 57 W power adapter, with  
100 ~ 240 V<sub>AC</sub> input and 12 V<sub>DC</sub> @ 4.75 A output  
(Optional)
- **Power Consumption** 12W
- **Video Port** VGA & DVI-D Port
- **Weight (Net)** 8.5 kg (18.74 lbs)

#### LCD Display

- **Display Type** XGA TFT LCD
- **Backlight Type** LED
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M (RGB 8-bits)
- **Viewing Angle (H/V°)** 160/140
- **Luminance (cd/m<sup>2</sup>)** 350
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700:1

#### Touchscreen

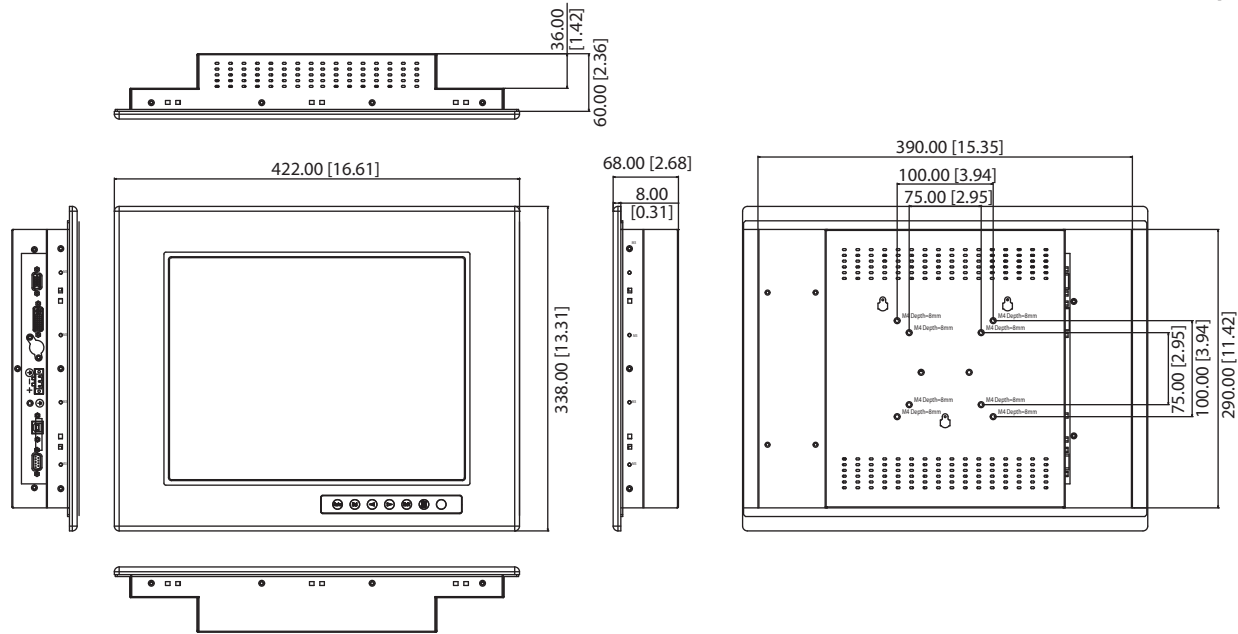
- **Sensor** AMT
- **Driver** Penmount 6000
- **Type** 5-wire resistive with enhanced ITO film
- **Interface** USB & RS-232 (Combo)
- **Lifespan** 36 million with a silicone rubber R8 finger,  
writing rate is by 250g at 2 times/s
- **Light Transmission** > 80%
- **OS Support** Windows 2000, XP, Vista, 7, XPe, CE and Linux
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

#### Environment

- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** Front panel is IP65 compliant
- **Shock** 11ms, 10G (Non Operating, Half Sine Wave)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

## Dimensions

Unit: mm [inch]



**Panel Cutout Dimensions: 396 x 296 mm (15.59 x 11.65")**

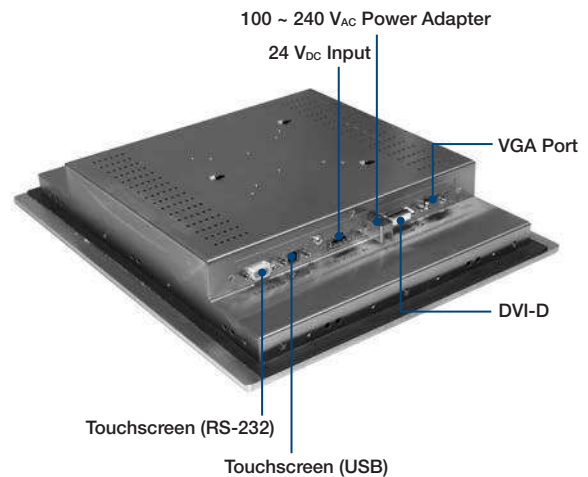
## Ordering Information

- **FPM-8151H-R3BE** 15" XGA Ind. Monitor VGA, DVI, Wide Temp

## Optional Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1702031801** Power Cable China/Australia Plug 1.8 M
- **96PSA-A60W12V1-1** ADAPTER 100-240V57W12V4.75A W/O PFC SPU63-105 L5
- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **FPM-3151G-RMKE** Rack-Mount Kit

## I/O View



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 **Thin-Client Terminals**
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I-Door Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
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- 19 Networking



# TPC Installation Accessories

## TPC VESA Mounting Kit

### TPC-1000H-WMKE

#### Features

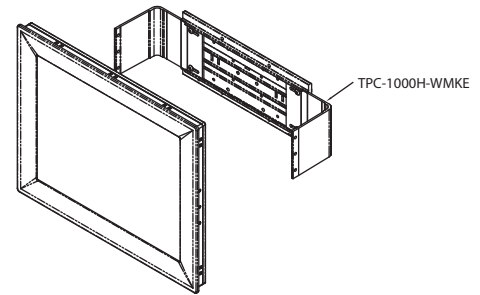
- Support VESA 75/100
- Adjustable design for 10" ~ 17" TPC
- Support any mounting with VESA

#### Ordering Information

- TPC-1000H-WMKE

#### Supported Models

- TPC-1251T, TPC-1551T, TPC-1751T
- TPC-1282T, TPC-1582H, TPC-1782H
- TPC-1071H, TPC-1271H, TPC-1571H, TPC-1771H



## TPC-Stand Kit

### TPC-1000H-SMKE

#### Features

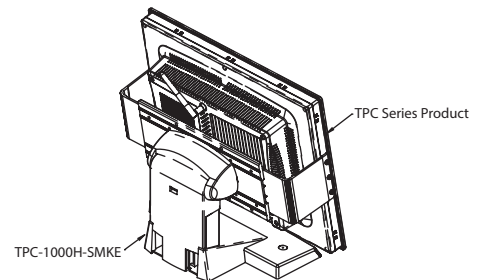
- Adjustable design for 10" ~ 17" TPC
- Adjustable view angle from 10° ~ 30°
- Can be fixed stood on the horizontal plane

#### Ordering Information

- TPC-1000H-SMKE

#### Supported Models

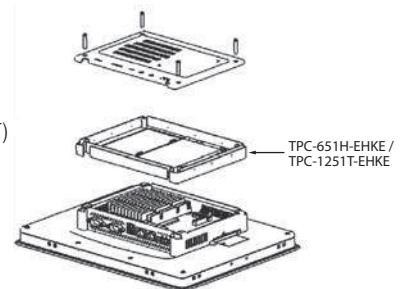
- TPC-1251T, TPC-1551T, TPC-1751T
- TPC-1282T, TPC-1582H, TPC-1782H
- TPC-1071H, TPC-1271H, TPC-1571H, TPC-1771H



## TPC HDD Extension Kit

### Ordering Information & Supported Models

- TPC-651H-EHKE (HDD extension kit for TPC-1250H, TPC-1550H, TPC-1750H, TPC-1251H, TPC-1551H)
- TPC-1251T-EHKE (HDD and iDoor extension kit for TPC-1051WP, TPC-1251T, TPC-1551T, TPC-1551WP, TPC-1751T)



## SPC M12 connector Kit

### Ordering Information & Supported Models

- SPC-1840WP-MOKE (5 x M12 Connectors for SPC-1881WP/1840WP/2140WP)
- SPC-1840WP-MCKE (5 x M12 Cables supporting standard I/O connector for SPC-1881WP/1840WP/2140WP)
- TPC-8100TR-MOKE (9 x M12 Connectors for TPC-8100TR)
- TPC-8100TR-MCKE (9 x M12 Cables supporting standard I/O connector for TPC-8100TR)



## AC to DC Power Adapter



#### Features

- Input Voltage: 100-240V<sub>AC</sub>, 47Hz-63Hz
- Output Voltage: 24V<sub>DC</sub>/2.5A, 60W

#### Supported Models

- TPC-51T-E & TPC-51H-E series
- TPC-2000 series

#### Ordering Information

- PWR-247-CE

#### Features

- Input Voltage: 100-240V<sub>AC</sub>, 47Hz-63Hz
- Output Voltage: 24V<sub>DC</sub>/6.25A, 150W









#### Supported Models

- TPC-1282T/1582H/1782H
- TPC-1581WP/TPC-1881WP
- TPC-5000 series

#### Ordering Information

- PWR-248-AE

#### Cable

Model Name	Part Number	Description
 	1702002600	Power Cable US Plug 1.8 M
 	1702002605	Power Cable EU Plug 1.8 M
 	1702031801	Power Cable UK Plug 1.8 M
 	1700000596	Power Cable China/Australia Plug 1.8 M

## High-Performance Control Panels

<b>High-Performance Control Panels Selection Guide</b>		<b>6-2</b>
<b>TPC-5000 Series</b>	Modular Intel® Core Processor Control Panel	<b>6-4</b>
<b>TPC-1881WP</b>	18.5 HD TFT LED LCD Intel® 4 <sup>th</sup> Generation Core i3/ i7 Multi-Touch Panel Computer	<b>6-6</b>
<b>TPC-1782H</b>	17" SXGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Touch Panel Computer	<b>6-8</b>
<b>TPC-1581WP</b>	15.6" WXGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Multi-Touch Panel Computer	<b>6-10</b>
<b>TPC-1582H</b>	15" XGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Touch Panel Computer	<b>6-12</b>
<b>TPC-1282T</b>	12.1" XGA TFT LED LCD 5th. Gen. Intel® Core™ i3 Touch Panel Computer	<b>6-14</b>
<b>TPC Installation Accessories</b>		<b>6-16</b>

To view all of Advantech's high-performance control panels, visit [www.advantech.com/products](http://www.advantech.com/products).



# High-Performance Control Panels Selection Guide

NEW

NEW



Model	TPC-1881WP	TPC-1581WP
CPU	4th Gen. Intel® Core™ i7/ i3 Processor	4th Gen. Intel® Core™ i3 Processor
Memory	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM
Display Type	TFT LED LCD	TFT LED LCD
Display Size	18.5"	15.6"
Max. Resolution	1366 x 768	1366 x 768
Max. Colors	16.7M	16.7M
Luminance cd/m <sup>2</sup>	300 nits	300 nits
VieWING Angle (H/V°)	170/160	170/160
Backlight MTBF (hrs)	50,000 hrs	50,000 hrs
Touchscreen	Projected capacitive touch	Projected capacitive touch
Network (LAN)	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2
I/O Ports	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)
HDD (Optional)	2.5" SATA HDD	2.5" SATA HDD
Intelligent Keys	Quick access through built-in front bezel function and home key button	Quick access through built-in front bezel function and home key button
CompactFlash Slots	CFast slot x 1	CFast slot x 1
Expansion Slots	Full-size Mini PCI-E	Full-size Mini PCI-E
Digital Input/Output	N/A	N/A
Ingress Protection	Front panel: IP66	Front panel: IP66
DC Power Input (Voltage)	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%
Enclosure	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin
Mounting	Panel Mount	Panel Mount
Weight	6 kg (13.22 lbs)	7kg (15.44 lbs)
Operating Temperature	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Dimensions	488.1 x 309.1 x 56.7 mm (19.2" x 12.2" x 2.2")	419.7 x 269 x 56.7 mm (16.52" x 10.59" x 2.23")
Certification	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB
Page	6-8	6-10

# High-Performance Control Panels Selection Guide

NEW



NEW

TPC-1782H	TPC-1582H	TPC-1282T
4th Gen. Intel® Core™ i7/ i3 Processor	4th Gen. Intel® Core™ i3 Processor	5th Gen. Intel® Core™ i3 Processor
4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM	4GB DDR3L 1600MHz SO-DIMM SDRAM
TFT LED LCD	TFT LED LCD	TFT LED LCD
17"	15"	12.1"
1280 x 1024	1024 x 768	1024 x 768
16.7M	16.2M	16.2M
350 nits	400 nits	600 nits
170/160	160/140	160/140
50,000 hrs	50,000 hrs	50,000 hrs
Resistive	Resistive	Resistive
10/100/1000 Base-T x 2	10/100/1000 Base-T x 2	10/100/1000 Base-T x 2
RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio Line out x 1, USB 2.0 x 1 (optional) Audio MIC x 1 (optional)
2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD
N/A	N/A	N/A
CFast slot x 1	CFast slot x 1	CFast slot x 1
Full-size Mini PCI-E/Half-size PCI-E	Full-size Mini PCI-E/Half-size PCI-E	Full-size Mini PCI-E/Half-size PCI-E
N/A	N/A	N/A
Front panel: IP65	Front panel: IP65	Front panel: IP66
24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%	24 V <sub>DC</sub> ± 20%
Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin	Front bezel: Die-cast Aluminum alloy Back housing: PC/ABS Resin
Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount
6 kg (13.23 lbs)	5.5 kg (12.13 lbs)	3.2 kg (7.02 lbs)
0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
414 x 347.5 x 84 mm (16.3" x 13.68" x 3.31")	383 x 307 x 78.5 mm (15.08" x 12.09" x 3.09")	311.8 x 238 x 77.2 mm (12.28" x 9.38" x 3.04")
BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB	WIN 7/8/ WES7/ WEC7/ Linux / WIN 10 Enterprise LTSB
6-12	6-14	6-16

1

WebAccess® Solution

2

Intelligent Motion Control  
and Machine Vision

3

Power & Energy  
Automation

4

Industrial Operator  
Panels

5

Thin-Client Terminals

6

High-Performance  
Control Panels

7

Control Cabinet PCs

8

Industrial IoT Gateways

9

Industrial monitors

10

iDoor Technology  
Modules

11

Panel PCs

12

Control IPCs

13

Remote DA&C System

14

Wireless IoT Sensing  
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15

Ethernet I/O Modules

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RS-485 I/O Modules

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Industrial Ethernet  
Solutions

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IP Gateway and Serial  
Device Servers

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Networking

# TPC-5000 Series

## Modular Intel® Core Processor Control Panel

**NEW**



### Features

- Industrial grade LED LCD with 50K Lifetime
- Intel® 6<sup>th</sup> Core i Dual-core Processor with 8GB DDR4 SO-DIMM
- Modular design for flexible configuration and easy maintenance and upgrade
- Different sizes front panel module offering with different touch types: PCT for Multi-Touch and robust 5-wire resistive.
- Built-in Intelligent Home-key and i-Key for Intuitive UI for PCT touch selections
- Supports Trust Platform Module (TPM) 1.2/2.0 (option)
- Direct supports Full-size mini PCIe with iDoor technology, Half-size PCIe 1x and SSD expansions.
- IP66 compliant Front Protection & Panel Mounting
- Compact Fanless Embedded System with Al Alloy Front Bezel and Chassis Grounding Protection
- AC/DC support (option by Power adapter)
- Supports Advantech WISE-PaaS/RMM Remote Device Management Software

### Introduction

TPC-5000 series is the first modularized model in Control Panel family. With industrial grade LCD and low power consumption embedded Intel® 6<sup>th</sup> Core Processors Celeron/i3/i5/i7 processor and 8GB DDR4 SO-DIMM, it provides sufficient display area and adequate computing performance in a compact fanless system. Modularizes design further provides flexibility to expand and configure and effortless to maintain and upgrade. Front panel IP66 compliant for wide array of user environments, glass surface with 7H harness for PCT or robust 5-wire resistive touch and die-cast Aluminum Alloy front bezel provides robust and reliable enclosure of the system. In addition, through the Mini-PCIe slot, Advantech iDoor technology (optional) can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM to fulfill different kinds of the Industrial automation application.

### System Specifications

#### General

- BIOS**: AMI UEFI
- Certification**: BSMI, CCC, CE, FCC Class A, UL, EAC
- Cooling System**: Fanless design
- Enclosure**: Front bezel: Die-cast Aluminum alloy  
Back housing: SECC
- Mounting**: Panel Mount, stand mount (with optional kit) and VESA mount (with optional kit)
- OS Support**: Microsoft® Windows WES7 32bit/64bit /Windows 7 32bit/64bit /Windows 8 64bit /Ubuntu 14.04.2 LTS / Windows 10 IoT Enterprise LTSB
- Power Input**: 24 V<sub>DC</sub> ± 20%
- Watchdog Timer**: 1 ~ 255 sec (system)

#### System Hardware

- CPU**: Intel 6<sup>th</sup> Generation Core i3-6100U 2.30GHz
- Memory**: 8GB (16GB optional) DDR4 2133MHz SO-DIMM SDRAM
- LAN**: 10/100/1000 Base-T x 3
- Expansion Slots**: One Half-size PCI-E x1  
Full-size Mini PCI-E x 2  
M.2(2280) slot x 1  
2.5" SATA SSD slot x 1  
CFast Slot x1 (Option by iDoor)
- Storage**: RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 2 USB 2.0 x 2  
Audio line out x 1  
Displayport 1.4 out x 1
- I/O**

#### Environment

- Humidity**: 10 ~ 95% RH @ 40°C, non-condensing
- Ingress Protection**: Front panel: IP66
- Vibration Protection**: With SSD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

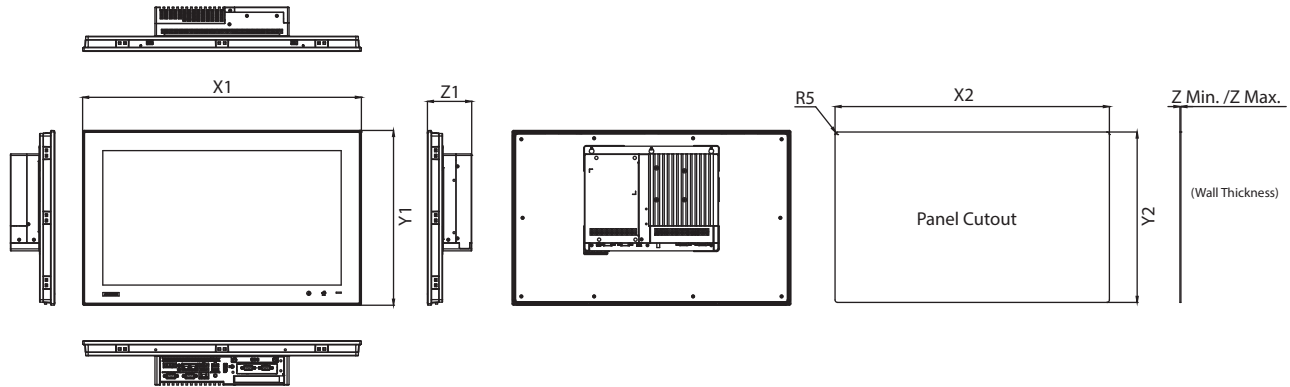
### Front Panel Selections

Category	Item	12.1"	15"	17"	18.5"	21.5"
LCD	Display Type	XGA TFT LED LCD	XGA TFT LED LCD	SXGA TFT LED LCD	HD TFT LED LCD	Full HD TFT LED LCD
	Max. Resolution	1024 x 768	1024 x 768	1280 x 1024	1366 x 768	1920 x 1080
	Max. Color	16.2 M	16.7 M	16.7 M	16.7 M	16.7 M
	Luminance (cd/m <sup>2</sup> )	600	400	350	300	300
	Viewing Angle (H/V°)	160/140	160/140	160/140	170/160	178/178
	Backlight Life	50,000	50,000	50,000	50,000	50,000
	Contrast Ratio	700:1	700:1	800:1	1000:1	5000:1
Touch	Type	5-wire Resistive	Projected Capacitive	Projected Capacitive	Projected Capacitive	Projected Capacitive
	Light Transmission	Above 75%	90% ± 3%	90% ± 3%	90% ± 3%	90% ± 3%
	Treatment	Anti-glare	90% ± 3%	90% ± 3%	90% ± 3%	90% ± 3%
System	Temperature	Operating	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
		Storage	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)
	Power Consumption	TBC	TBC	TBC	TBC	TBC



## Dimensions

Unit: mm



Display type	System Dimension			Panel Mount		Support Wall thickness	
	X1	Y1	Z1	X2	Y2	Z Min.	Z Max.
12"	311.8	238	85.6	303	229	1	6
15"	383.2	307.3	85.9	374.5	298.5	1	6
17"	410.4	343.4	87.5	401.3	334.8	1	6
18.5W"	488	309	88.8	479.3	300.3	1	6
21.5W"	559.2	350.6	88.8	550.3	341.8	1	6

## Ordering Information

- **TPC-5122T-633AE** 12.1" XGA Modular TPC, Intel® Core i3-6100U 2.30GHz Dual-core Processor, 8GB RAM, Resistive touch
- **TPC-5152T-633AE** 15" XGA Modular TPC, Intel® Core i3-6100U 2.30GHz Dual-core Processor, 8GB RAM
- **TPC-5172T-633AE** 17" SXGA Modular TPC, Intel® Core i3-6100U 2.30GHz Dual-core Processor, 8GB RAM
- **TPC-5182W-633AE** 18.5" HD Modular TPC, Intel® Core i3-6100U 2.30GHz Dual-core Processor, 8GB RAM
- **TPC-5212W-633AE** 21.5" FHD Modular TPC, Intel® Core i3-6100U 2.30GHz Dual-core Processor, 8GB RAM

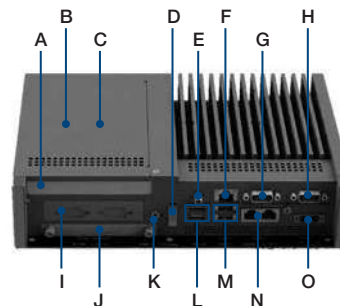
## Optional Accessories

- **96PSA-A150W24T2** Adapter 100-240V 150W 24V
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC
- **TPC-RUSB-W10LTS** WIN10 IoT Enterprise LTSB OS with Recovery Image

## iDoor Modules


- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D2CA-AE** 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master

## Rear View



- A. Half-Size PCIe 1x
- B. mPCIe x2
- C. M.2 2280 (Storage)
- D. Display Port
- E. WiFi Antenna
- F. LAN (10/100/1000)x1
- G. RS-232
- H. RS-422/485
- I. iDoor
- J. SSD
- K. Audio out
- L. USB 3.0 x2
- M. USB 2.0 x2
- N. LAN (10/100/1000) x2
- O. Power Receptor

## Application Software

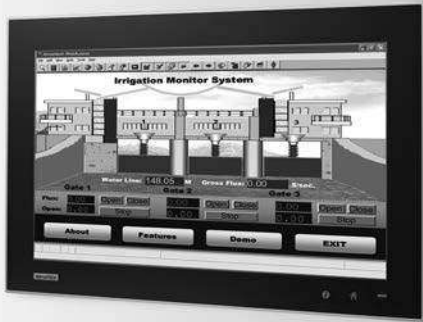
<b>WebAccess/SCADA</b>	Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IIoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.
<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HMI with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.
	The Codesys application-ready-package offering which includes PC-based Panel Controller with multi-touch panel, high performance Intel Core-i multi-core processor, SSD, 2MB MRAM, Microsoft Windows embedded 7 Pro and CODESYS Control Runtime & Visualization. This allows users to easily achieve an open control solution, the PC-based real-time control system, enabling real-time PLC or PLC/Softmotion control with flexible Fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, Modbus TCP/RTU and providing the on-site visualized HMI operation. The software/hardware flexibility and stability of PC-based Cabinet Controller is able to fulfill various control applications in vertical industries.

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	iNetworking

# TPC-1881WP

## 18.5 HD TFT LED LCD Intel® 4th Generation Core i3/ i7 Multi-Touch Panel Computer

**NEW**



### Features

- Industrial 18.5 HD TFT LCD with 50K Lifetime LED Backlight
- Intel 4th Generation Core i3-4010U/ i7-4650U with 4GB/8GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for Intuitive UI
- Front LED Indicator to Show Operating Status
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports Battery-backup MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Anti-scratch surface: 7H hardness

### Introduction

With growing up in Multi-Touch technology, the TPC-1881WP features Intel 4th Generation Core i3-4010U/ i7-4650U 1.7GHz processor with 4GB/8GB DDR3L SDRAM provides the high computing performance. To enhance reliability and durability, built-in 7H hardness Anti-scratch surface on high resolution 18.5" HD display with Multi-Touch in 16:9 format. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and Battery-backup MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

### Specifications

#### General

- BIOS** AMI UEFI
- Certification** BSMI, CCC, CE, FCC Class A, UL
- Cooling System** Fanless design
- Dimensions (W x H x D)** 488 x 309 x 56.7 mm (19.21" x 12.17" x 2.23")
- Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: PC/ABS Resin
- Mounting** Panel Mount
- OS Support** Microsoft® Windows WES7 32bit/64bit /WE8S 64bit/  
Windows 7 32bit/64bit / Windows 8 64bit/Ubuntu  
14.04.2 LTS/Windows 10 IoT Enterprise LTSB  
28W Typical, 60W Max. (Without Add-on card)
- Power Consumption** 28W Typical, 60W Max. (Without Add-on card)
- Power Input** 24V<sub>DC</sub> +/- 20%
- Watchdog Timer** 1 ~ 255 sec (system)
- Weight (Net)** 7kg (15.44 lbs)

#### System Hardware

- CPU** Intel 4th Generation Core i7-4650U 1.7GHz  
Intel 4th Generation Core i3-4010U 1.7GHz
- Chipset** Lynx Point-LP
- Memory** 4GB DDR3L 1600MHz SO-DIMM SDRAM
- LAN** 10/100/1000 Base-T x 2 (one port supports iAMT)
- Expansion Slots** Full-size Mini PCI-E
- Storage** CFast slot x 1  
2.5" SATA SSD slot x 1
- I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 2, HDMI 1.4 x 1  
Audio Line out x 1, USB 2.0 x 1 (optional)  
Audio MIC x 1 (optional)

#### LCD Display

- Display Type** HD TFT LED LCD
- Display Size** 18.5
- Max. Resolution** 1366 x 768
- Max. Colors** 16.7M
- Luminance cd/m<sup>2</sup>** 300
- Viewing Angle (H/V°)** 170/160
- Backlight Life** 50,000 hrs
- Contrast Ratio** 500:1

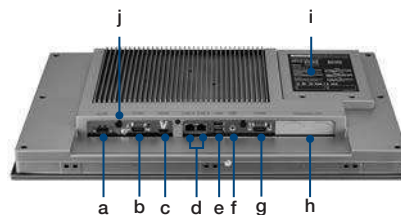
#### Touchscreen

- Light Transmission** ≥88%
- Resolution** 4096 x 4096 dot
- Type** Projected capacitive

#### Environment

- Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- Ingress Protection** Front panel: IP66
- Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

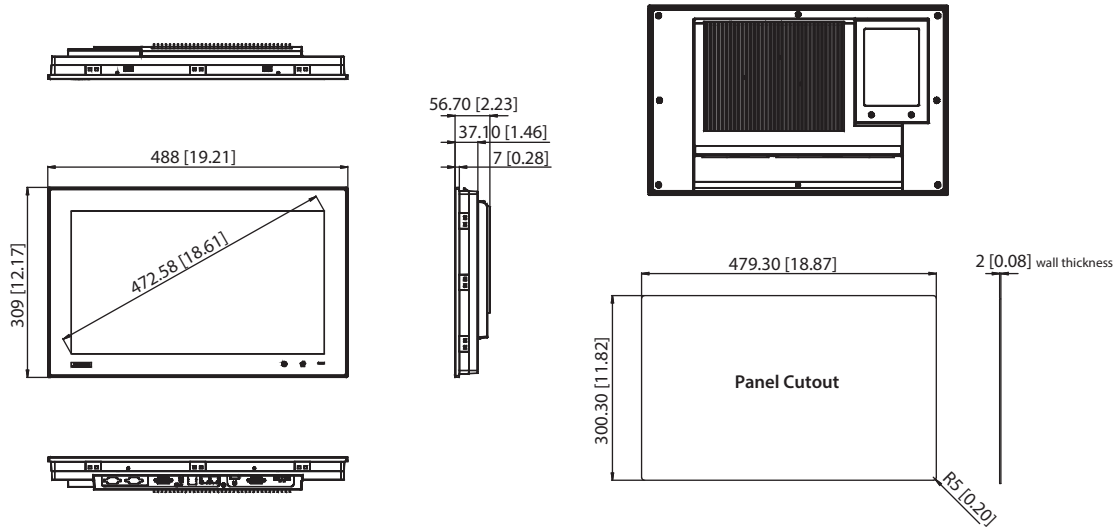
### Rear View



- a. 24V<sub>DC</sub> Power
- b. COM Port RS-232
- c. HDMI
- d. GbE
- e. USB 3.0
- f. Audio Line out
- g. COM Port RS-232/422/485
- h. Expansion I/O (iDoor)
- i. 2.5" SATA SSD, CFast and Mini PCIe Slot
- j. SMA Connector for Antenna

## Dimensions

Unit: mm [inch]



**Panel Cutout Dimensions: 479.3 x 300.3 (18.87" x 11.82")**

## Ordering Information

- **TPC-1881WP-433AE** 18.5" HD Multi-Touch Panel PC, Intel i3-4010U, 4GB, iDoor
- **TPC-1881WP-473AE** 18.5" HD Multi-Touch Panel PC, Intel i7-4650U, 4GB, iDoor
- **TPC-1881WR-433AE** 18.5" HD Resistive Touch Panel PC, Intel i3-4010U, 4GB, iDoor

## Optional Accessories

- **96PSA-A150W24T2** Adapter 100-240V 150W 24V
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power cable EU Plug 1.8M
- **1702031801** Power cable UK Plug 1.8M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E** 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCle (also need 9656EWMG00E)
- **9656EWMG00E** Half-size miniPCle to Full-size miniPCle bracket set
- **1750000318** EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222** 802.11b/g 5dBi Dipole Antenna
- **1750003418** Wireless Antenna AN2400-5901RS R/P SMA.M9dB

## Embedded O/S

- **2070013889** TPC-xx81WP WS7P x86 MUI Image v4.13
- **2070013489** TPC-xx81WP WS7P x64 MUI Image v4.12

## S/W Bundle Offering


- **WA-CT1881W-3RHE5AE** TPC-1881WP-433AE, Control RTE & Visua., 128G SSD, 2MB MRAM, WES7P

## iDoor Modules

- **PCM-2300MR-AE** MR4A16B, 2MByte
- **PCM-26D1PB-AE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-26D2CA-AE** SJA1000 CANBus, CANOpen, DB9 x 1
- **PCM-24D2R4-AE** OXPcle-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPcle-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D4R4-AE** OXPcle-954 UART, Non-Isolated RS-422/485, DB37 x 1

- **PCM-24D4R2-AE** OXPcle-954, UART, Non-Isolated RS-232, DB37 x 1
- **PCM-27D24DI-AE** Digital I/O, 16DI / 8DO, DB37 x 1

## Application Software

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>
<p><b>CODESYS</b></p> 	<p>The Codesys application-ready-package offering which includes PC-based Panel Controller with multi-touch panel, high performance Intel Core-i multi-core processor, SSD, 2MB MRAM, Microsoft Windows embedded 7 Pro and CODESYS Control Runtime &amp; Visualization. This allows users to easily achieve an open control solution, the PC-based real-time control system, enabling real-time PLC or PLC/Softmotion control with flexible Fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, Modbus TCP/RTU and providing the on-site visualized HMI operation. The software/hardware flexibility and stability of PC-based Cabinet Controller is able to fulfill various control applications in vertical industries.</p>

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- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# TPC-1782H

## 17" SXGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Touch Panel Computer

**NEW**



### Features

- Industrial 17" SXGA TFT LCD with 50K Lifetime LED Backlight
- Intel 4<sup>th</sup> Generation Core i3 1.7GHz with 4GB DDR3L SDRAM
- Compact Fanless Embedded System with AI Alloy Front Bezel
- IP65 Approved Front Protection & Panel Mounting
- More Durable 5-wire resistive touchscreen
- PCIe 1x and Mini PCIe Expansion Support
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM

### Introduction

The TPC-1782H touch panel computer with a 17" SXGA LCD, low power embedded Intel 4<sup>th</sup> Generation Core i3 1.7GHz processor and 4GB DDR3L SDRAM provides the high computing performance in a compact fanless system. To enhance its durability, the TPC-1782H is designed with IP65 front protection, die-cast AI Alloy front bezel and 5-wire resistive touch. It also includes PCIe slot and Mini-pcie slots to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital I/O, the Fieldbus Protocol, 3G/GPS/GPRS/Wi-Fi Communication and MRAM. A 2<sup>nd</sup> monitor and speaker can be attached via the integrated HDMI and Audio port.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 414 x 347.5 x 84 mm (16.3" x 13.68" x 3.31")
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: PC/ABS Resin
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit  
Windows Embedded 8.1 Industry Pro 64bit  
Windows 7 32bit/64bit/Windows 10 IoT Enterprise LTSC
- **Power Consumption** 20W Typical, 60W Max. (Without Add-on card)
- **Power Input** 24V<sub>DC</sub> ± 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 6 kg (13.23 lbs)

#### System Hardware

- **CPU** Intel 4<sup>th</sup> Generation Core i3-4010U 1.7GHz  
Intel 4<sup>th</sup> Generation Core i7-4650U 1.7GHz
- **Chipset** Lynx Point-LP
- **Memory** 4GB DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2 (one port supports iAMT)
- **Expansion Slots** Half-size PCIe 1x and Full-size Mini PCI-E
- **Storage** CFAST slot x 1  
2.5" SATA SSD slot x 1
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 2, HDMI 1.4 x 1  
Audio Line out x 1, USB 2.0 x 1 (optional)  
Audio MIC x 1 (optional)

#### LCD Display

- **Display Type** SXGA TFT LED LCD
- **Display Size** 17"

- **Max. Resolution** 1280 x 1024
- **Max. Colors** 16.7 M
- **Luminance cd/m<sup>2</sup>** 350
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 800:1

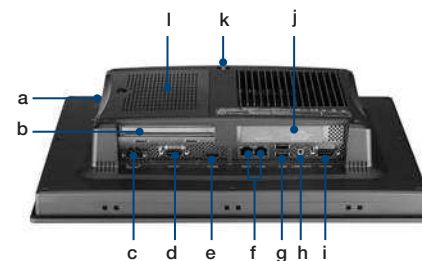
#### Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP65
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

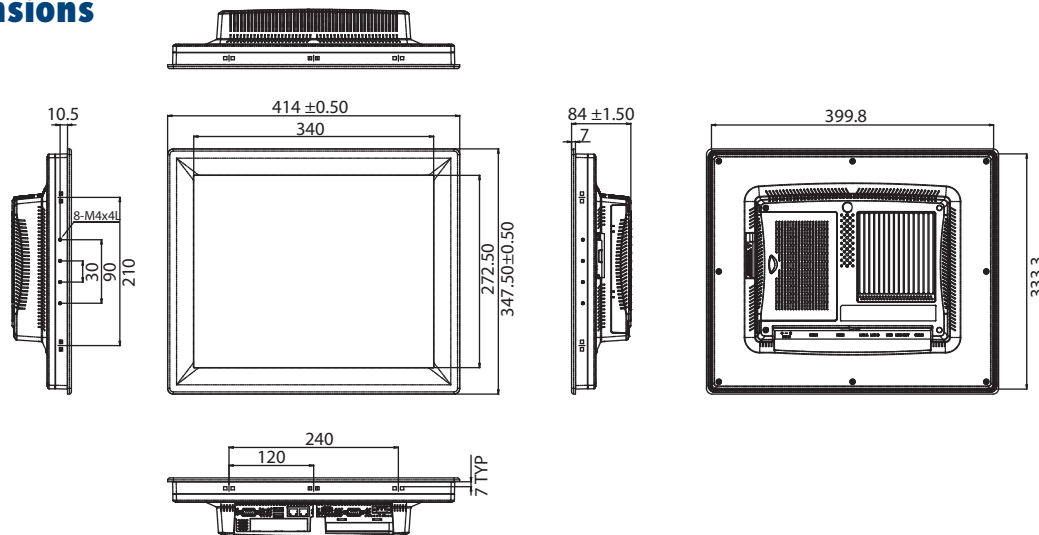
### Rear View



- a. CFAST
- b. PCI-E Slot
- c. 24V<sub>DC</sub> Power
- d. COM (RS-232)
- e. HDMI
- f. LAN
- g. USB3.0
- h. Audio Line Out
- i. COM (RS-232/422/485)
- j. iDoor
- k. SMA Connector for Antenna
- l. 2.5" SATA SSD Slot and Mini-PCIe Slot

## Dimensions

Unit: mm



**Panel Cutout Dimensions: 400.8 x 334.3 mm (16.03" x 13.37")**

## Ordering Information

- **TPC-1782H-433AE** 17" SXGA Panel PC, Intel i3-4010U, 4GB, iDoor, PCIe
- **TPC-1782H-473AE** 17" SXGA Panel PC, Intel i7-4650U, 4GB, iDoor, PCIe

## Optional Accessories

- **96PSA-A150W24T2** Adapter 100-240V 150W 24V
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **TPC-1000H-WMKE** TPC VESA Mounting Kit from 10" to 17" TPC
- **TPC-1000H-SMKE** TPC Stand kit from 10" to 17" TPC
- **EWM-W151H01E** 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- **9656EWMG00E** Half-size miniPCIe to Full-size miniPCIe bracket set
- **1750000318** EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- **1750003222** 802.11b/g 5dBi Dipole Antenna
- **1750003418** Wireless Antenna AN2400-5901RS R/P SMA.M9dB

## Embedded O/S


- **2070013102** TPC-xx82 WS7P x64 MUI Image v4.12 B005

## iDoor Modules

- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-26D2CA-AE** 2-Port Isolated CANbus mPCIe, CANOpen, DB9
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-24S2WF-AE** WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master

- **PCM-26R2EC-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- **PCM-26R2EI-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- **PCM-26R2S3-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

## Application Software

<b>WebAccess/SCADA</b>	Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IIoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.
<b>WebAccess/HMI</b>	WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HM with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.
	The Codesys application-ready-package offering which includes PC-based Panel Controller with multi-touch panel, high performance Intel Core-i multi-core processor, SSD, 2MB MRAM, Microsoft Windows embedded 7 Pro and CODESYS Control Runtime & Visualization. This allows users to easily achieve an open control solution, the PC-based real-time control system, enabling real-time PLC or PLC/Softmotion control with flexible Fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, Modbus TCP/RTU and providing the on-site visualized HMI operation. The software/hardware flexibility and stability of PC-based Cabinet Controller is able to fulfill various control applications in vertical industries.

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# TPC-1581WP

## 15.6" WXGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Multi-Touch Panel Computer

**NEW**



### Features

- Industrial 15.6 HD TFT LCD with 50K Lifetime LED Backlight
- Intel 4<sup>th</sup> Generation Core i3-4010U with 4GB DDR3L SDRAM
- 16:9 Wide Screen with PCT Multi-Touch
- IP66 Approved Front Protection & Panel Mounting
- Built-in Intelligent Home key and i Key for Intuitive UI
- Front LED Indicator to Show Operating Status
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Anti-scratch surface: 7H hardness

### Introduction

With growing up in Multi-Touch technology, the TPC-1581WP features Intel 4<sup>th</sup> Generation Core i3-4010U 1.7GHz processor with 4GB DDR3L SDRAM provides the high computing performance. To enhance reliability and durability, built-in 7H hardness anti-scratch surface on high resolution 15.6" HD display with Multi-Touch in 16:9 format. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM. A 2nd monitor and speaker can be attached via the integrated HDMI and Audio port.

### Specifications

#### General

- BIOS**: AMI UEFI
- Certification**: BSMI, CCC, CE, FCC Class A, UL
- Cooling System**: Fanless design
- Dimensions (W x H x D)**: 419.7 x 269 x 56.7 mm (16.52" x 10.59" x 2.23")
- Enclosure**: Front bezel: Die-cast Aluminum alloy  
Back housing: PC/ABS Resin
- Mounting**: Panel Mount
- OS Support**: Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit  
Windows Embedded 8.1 Industry Pro 64bit Ubuntu  
14.04.2 LTS/Windows 10 IoT Enterprise LTSC
- Power Consumption**: 18W Typical, 60W Max. (Without Add-on card)
- Power Input**: 24V<sub>DC</sub> ± 20%
- Watchdog Timer**: 1 ~ 255 sec (system)
- Weight (Net)**: 6 kg (13.22 lbs)

#### System Hardware

- CPU**: Intel 4<sup>th</sup> Generation Core i3-4010U 1.7GHz
- Chipset**: Lynx Point-LP
- Memory**: 4GB DDR3L 1600MHz SO-DIMM SDRAM
- LAN**: 10/100/1000 Base-T x 2
- Expansion Slots**: Full-size Mini PCI-E
- Storage**: CFAST slot x 1  
2.5" SATA SSD slot x 1  
mSATA slot x 1 (via Mini PCIe slot, can't be used simultaneously with iDoor)
- I/O**: RS-232/422/485 x 1, RS-232 x 1  
USB 3.0 x 2, HDMI 1.4 x 1  
Audio Line out x 1, USB 2.0 x 1 (optional)  
Audio MIC x 1 (optional)

#### LCD Display

- Display Type**: WXGA TFT LED LCD
- Display Size**: 15.6
- Max. Resolution**: 1366 x 768

- Max. Colors**: 16.7M
- Luminance cd/m<sup>2</sup>**: 300
- Viewing Angle (H/V°)**: 170/160
- Backlight Life**: 50,000 hrs
- Contrast Ratio**: 500:1

#### Touchscreen

- Light Transmission**: ≥88%
- Resolution**: 2048 x 2048 dot
- Type**: Projected capacitive

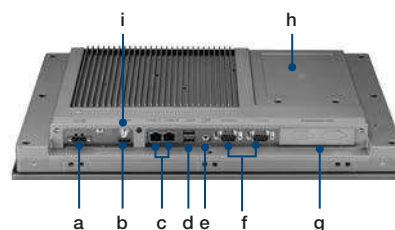
#### Environment

- Humidity**: 10 ~ 95% RH @ 40°C, non-condensing
- Ingress Protection**: Front panel: IP66
- Operating Temperature**: 0 ~ 55°C (32 ~ 131°F)
- Storage Temperature**: -20 ~ 60°C (-4 ~ 140°F)
- Vibration Protection**: With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

### Ordering Information

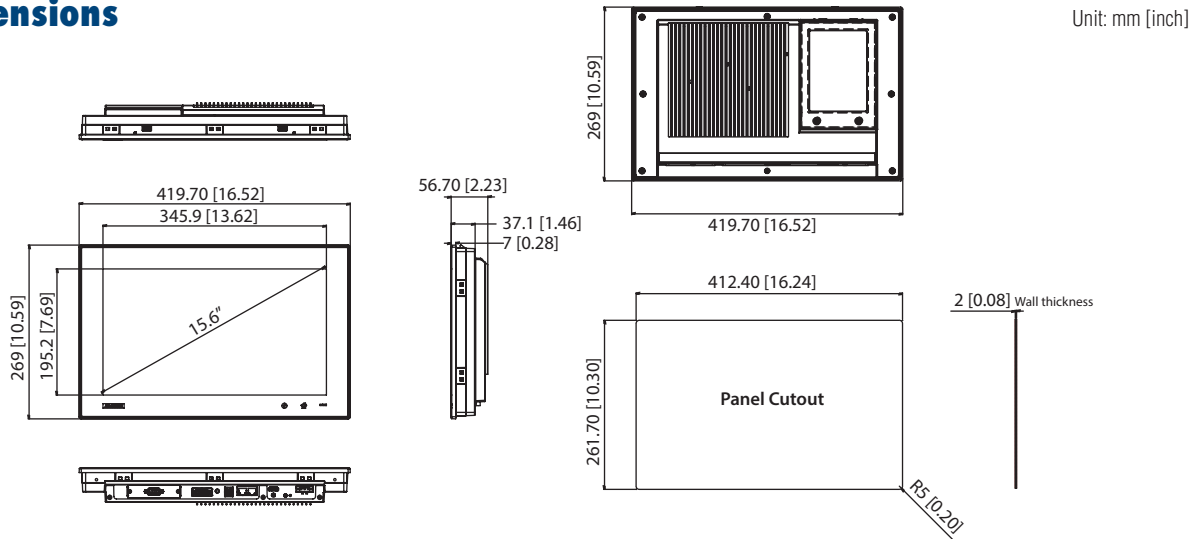
- TPC-1581WP-433AE**: 15.6" HD Multi-Touch Panel PC, Intel i3-4010U, 4GB, iDoor

### Rear View



- a. 24V<sub>DC</sub> Power
- b. HDMI
- c. GbE
- d. USB3.0
- e. Audio Line out
- f. COM Port RS-232/422/485, RS-232
- g. Expansion I/O (iDoor)
- h. 2.5" SATA SSD, CFAST and Mini PCIe Slot
- i. SMA Connector for Antenna

## Dimensions



## Optional Accessories

- **96PSA-A150W24T2** Adapter 100-240V 150W 24V
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power cable EU Plug 1.8M
- **1702031801** Power cable UK Plug 1.8M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **EWM-W151H01E** 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCle (also need 9656EWMG00E)
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- **1750003222** 802.11b/g 5dBi Dipole Antenna
- **1750003418** Wireless Antenna AN2400-5901RS R/P SMA.M9dB

## Embedded O/S

- **2070013487** TPC-xx81WP WS7P x64 MUI Image v4.12 B003

## S/W Bundle Offering

- **WA-CT1581W-3RHE5AE** TPC-1581WP-433AE, Control RTE & Visua., 128G SSD, 2MB MRAM, WES7P

## iDoor Modules

- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCle, DB9
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCle, DB37
- **PCM-26D2CA-AE** 2-Port Isolated CANBus mPCle, CANOpen, DB9
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCle, RJ45
- **PCM-24S2WF-AE** WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCle, 2-port SMA
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCle, PROFIBUS, DB9, Master
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCle, PROFINET, RJ45, Master
- **PCM-26R2EC-MAE** 2-Port Hilscher netX100 FieldBus mPCle, EtherCAT, RJ45, Master
- **PCM-26R2EI-MAE** 2-Port Hilscher netX100 FieldBus mPCle, EtherNet/IP, RJ45, Master
- **PCM-26R2S3-MAE** 2-Port Hilscher netX100 FieldBus mPCle, Sercos III, RJ45, Master

## Application Software

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IIoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
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- 18 IP Gateway and Serial Device Servers
- 19 IIoT Networking

# TPC-1582H

## 15" XGA TFT LED LCD 4th. Gen. Intel® Core™ i3 Touch Panel Computer



### Features

- Industrial 15" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel 4<sup>th</sup> Generation Core i3 1.7GHz with 4GB DDR3L SDRAM
- Compact Fanless Embedded System with Al Alloy Front Bezel
- IP65 Approved Front Protection & Panel Mounting
- More Durable 5-wire resistive touchscreen
- PCIe and Mini PCIe Expansion Support
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Support Advantech WISE-PaaS/RMM

### Introduction

The TPC-1582H touch panel computer with a 15" XGA LCD, low power embedded Intel 4<sup>th</sup> Generation Core i3 1.7GHz processor and 4GB DDR3L SDRAM provides the high computing performance in a compact fanless system. To enhance its durability, the TPC-1582H is designed with IP65 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It also includes PCIe slot and Mini-pcie slots to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM. A 2<sup>nd</sup> monitor and speaker can be attached via the integrated HDMI and Audio port.

### Specifications

#### General

- BIOS**: AMI UEFI
- Certification**: BSMI, CCC, CE, FCC Class A, UL
- Cooling System**: Fanless design
- Dimensions (W x H x D)**: 383 x 307 x 78.5 mm (15.08" x 12.09" x 3.09")
- Enclosure**: Front bezel: Die-cast Aluminum alloy  
Back housing: PC/ABS Resin
- Mounting**: Desktop, Wall or Panel Mount
- OS Support**: Microsoft® Windows WES7 32bit/64bit / WES8 64bit / Windows 7 32bit/64bit / Windows 8 64bit Linux Kernel 3.x/Windows 10 IoT Enterprise LTSB
- Power Consumption**: 18W Typical, 60W Max. (Without Add-on card)
- Power Input**: 24V<sub>DC</sub> ± 20%
- Watchdog Timer**: 1 ~ 255 sec (system)
- Weight (Net)**: 5.5 kg (12.13 lbs)

#### System Hardware

- CPU**: Intel 4<sup>th</sup> Generation Core i3-4010U 1.7GHz
- Chipset**: Lynx Point-LP
- Memory**: 4GB DDR3L 1600MHz SO-DIMM SDRAM
- LAN**: 10/100/1000 Base-T x 2 (one port supports iAMT)
- Expansion Slots**: Half-size PCI-E and Full-size Mini PCI-E
- Storage**: CFast slot x 1  
2.5" SATA SSD slot x 1  
mSATA slot x 1 (via Mini PCIe)
- I/O**: RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 2, HDMI 1.4 x 1  
Audio Line out x 1, USB 2.0 x 1 (optional)  
Audio MIC x 1 (optional)

#### LCD Display

- Display Type**: XGA TFT LED LCD
- Display Size**: 15"

- Max. Resolution**: 1024 x 768
- Max. Colors**: 16.2 M
- Luminance cd/m<sup>2</sup>**: 400
- Viewing Angle (H/V°)**: 160/140
- Backlight Life**: 50,000 hrs
- Contrast Ratio**: 700:1

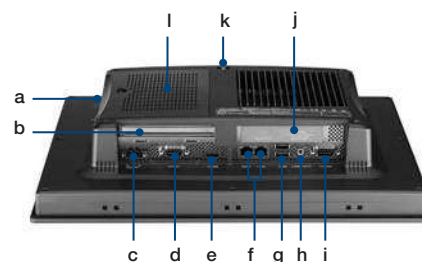
#### Touchscreen

- Lifespan**: 36 million touches at single point
- Light Transmission**: Above 75%
- Resolution**: Linearity
- Type**: 5-wire, analog resistive

#### Environment

- Humidity**: 10 ~ 95% RH @ 40°C, non-condensing
- Ingress Protection**: Front panel: IP65
- Operating Temperature**: 0 ~ 55°C (32 ~ 131°F)
- Storage Temperature**: -20 ~ 60°C (-4 ~ 140°F)
- Vibration Protection**: With HDD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

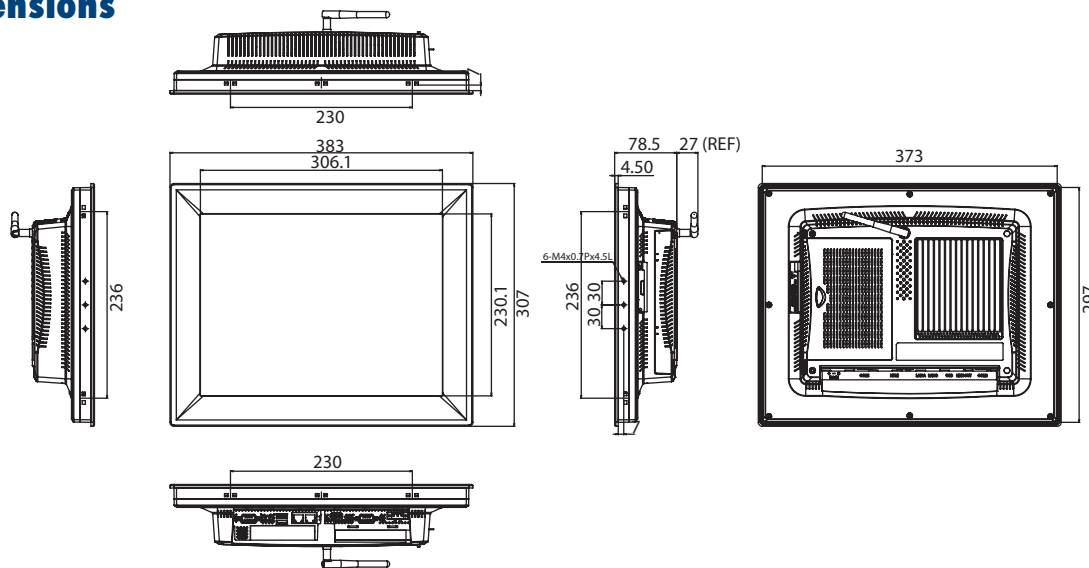
### Rear View



- a. CFast
- b. PCI-E Slot
- c. 24V<sub>DC</sub> Power
- d. COM (RS-232)
- e. HDMI
- f. LAN
- g. USB3.0
- h. Audio Line Out
- i. COM (RS-232/422/485)
- j. iDoor
- k. SMA Connector for Antenna
- l. 2.5" SATA SSD Slot and Mini-PCIe Slot

## Dimensions

Unit: mm



**Panel Cutout Dimensions: 374.5 x 298.5 mm (14.74" x 11.75")**

## Ordering Information

- TPC-1582H-433BE 15" XGA Panel PC, Intel i3-4010U, 4GB, iDoor, PCIe

## Optional Accessories

- 96PSA-A150W24T2 Adapter 100-240V 150W 24V
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M
- TPC-1000H-WMKE TPC VESA Mounting Kit from 10" to 17" TPC
- TPC-1000H-SMKE TPC Stand kit from 10" to 17" TPC
- EWM-W15H01E 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- 9656EWMG00E Half-size miniPCIe to Full-size miniPCIe bracket set
- 1750000318 EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- 1750003222 802.11b/g 5dBi Dipole Antenna
- 1750003418 Wireless Antenna AN2400-5901RS R/P SMA.M9dB

## Embedded O/S


- 2070013102 TPC-xx82 WS7P x64 MUI Image v4.12 B005

## iDoor Modules

- PCM-24D2R4-AE 2-Port Isolated RS-422/485 mPCIe, DB9
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-26D2CA-AE 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- PCM-24R1TP-AE 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- PCM-24S2WF-AE WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-26D1DB-MAE 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master

- PCM-26R2PN-MAE 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- PCM-26R2EC-MAE 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- PCM-26R2EI-MAE 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- PCM-26R2S3-MAE 2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

## Application Software

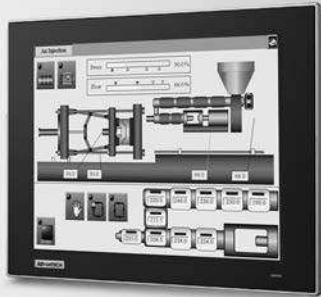
<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IIoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
<p><b>WebAccess/HMI</b></p>	<p>WebAccess/HMI is Human Machine Interface (HMI) software based on Microsoft's Windows operating system. It utilizes a PC's ample resources, ie speed, storage, multimedia, peripheral devices, and large screen to produce a complex human-machine interface. WebAccess/HMI with its communication and monitoring ability supports more than 350 PLC communication protocols and a wide choice of screen design objects, to satisfy multiple integrations of factory automation and all-round human-machine interface operation and monitoring requirements.</p>
<p><b>CODESYS</b></p> 	<p>The Codesys application-ready-package offering which includes PC-based Panel Controller with multi-touch panel, high performance Intel Core-i multi-core processor, SSD, 2MB MRAM, Microsoft Windows embedded 7 Pro and CODESYS Control Runtime &amp; Visualization. This allows users to easily achieve an open control solution, the PC-based real-time control system, enabling real-time PLC or PLC/Softmotion control with flexible Fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, Modbus TCP/RTU and providing the on-site visualized HMI operation. The software/hardware flexibility and stability of PC-based Cabinet Controller is able to fulfill various control applications in vertical industries.</p>

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- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IIoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IIoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# TPC-1282T

## 12.1" XGA TFT LED LCD 5th. Gen. Intel® Core™ i3 Touch Panel Computer

**NEW**



### Features

- Industrial 12.1" XGA TFT LCD with 50K Lifetime LED Backlight
- Intel 5<sup>th</sup> Generation Core Processors with 4GB DDR3L SDRAM
- Compact Fanless Embedded System with Al Alloy Front Bezel
- True-flat with IP66 certified front panel protection
- More Durable 5-wire resistive touchscreen
- PCIe and Mini PCIe Expansion Support
- Diverse system IO and Isolated Digital IO by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/WiFi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- HDMI and Audio Multimedia Support
- Supports Advantech SNMP Subagent
- Supports Advantech WISE-PaaS/RMM

### Introduction

The TPC-1282T touch panel computer with a 12.1" XGA LCD, low power embedded Intel 5<sup>th</sup> Generation Core processor and 4GB DDR3L SDRAM provides the high computing performance in a compact fanless system. To enhance its durability, the TPC-1282T is designed with IP66 front protection, die-cast Al Alloy front bezel and 5-wire resistive touch. It also includes PCIe slot and Mini-pcie slots to extend the functionality and meet a variety of automation applications needs. Through the Mini-PCIe slot, Advantech iDoor technology can provide more I/O connectors, Isolated Digital IO, the Fieldbus Protocol, 3G/GPS/GPRS/WiFi Communication and MRAM. A 2<sup>nd</sup> monitor and speaker can be attached via the integrated HDMI and Audio port.

### Specifications

#### General

- **BIOS** AMI UEFI
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311.8 x 238 x 77.2 mm (12.28" x 9.38" x 3.04")
- **Enclosure** Front bezel: Die-cast Aluminum alloy  
Back housing: PC/ABS Resin
- **Mounting** Desktop, Wall or Panel Mount
- **OS Support** Microsoft® WES7 32bit/64bit Windows 7 32bit/64bit  
Windows Embedded 8.1 Industry Pro 64bit/Windows 10 IoT Enterprise LTSB
- **Power Consumption** 19W Typical, 60W Max. (Without Add-on card)
- **Power Input** 24V<sub>DC</sub> ± 20%
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 3.2 kg (7.02 lbs)

#### System Hardware

- **CPU** Intel 5<sup>th</sup> Generation Core i3-5010U 2.10GHz
- **Chipset** WildcatPoint-LP
- **Memory** 4GB DDR3L 1600MHz SO-DIMM SDRAM
- **LAN** 10/100/1000 Base-T x 2
- **Expansion Slots** Half-size PCI-E and Full-size Mini PCI-E
- **Storage** CFast slot x 1  
2.5" SATA SSD slot x 1  
mSATA slot x 1 (via Mini PCIe)
- **I/O** RS-232 x 1, RS-232/422/485 x 1  
USB 3.0 x 2, HDMI 1.4 x 1  
Audio Line out x 1, USB 2.0 x 1 (optional)  
Audio MIC x 1 (optional)

#### LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 12.1"
- **Max. Resolution** 1024 x 768
- **Max. Colors** 16.2 M
- **Luminance cd/m<sup>2</sup>** 600

- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 700:1

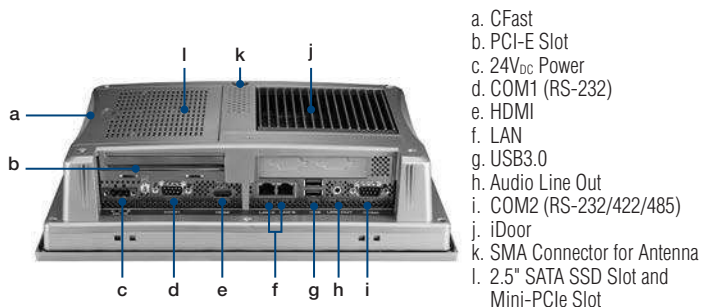
#### Touchscreen

- **Lifespan** 36 million touches at single point
- **Light Transmission** 81 ± 3%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

#### Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: IP66
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)  
(Operating, random vibration)

### Rear View

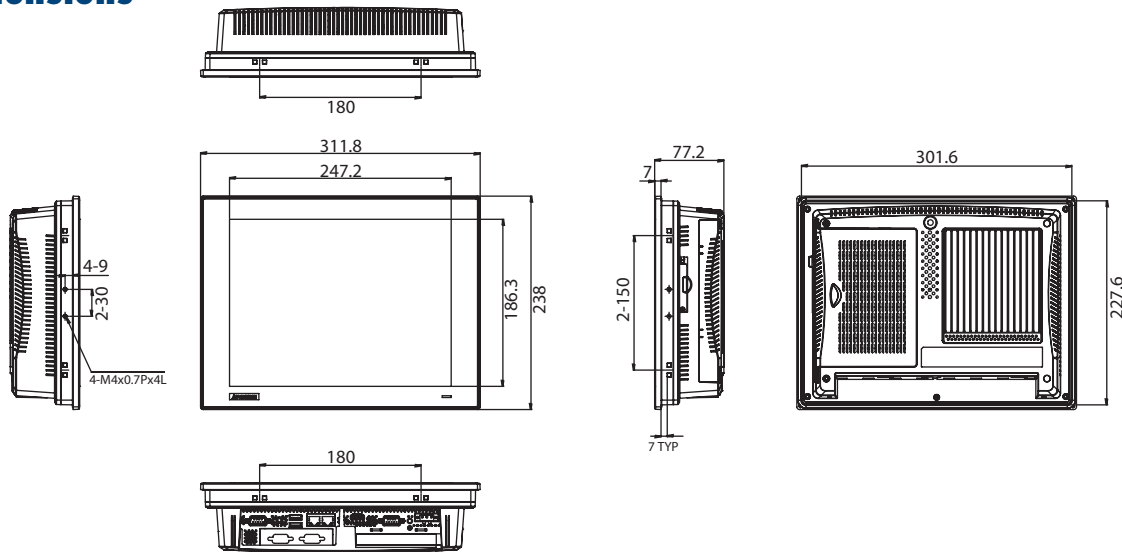


- a. CFast
- b. PCI-E Slot
- c. 24V<sub>DC</sub> Power
- d. COM1 (RS-232)
- e. HDMI
- f. LAN
- g. USB3.0
- h. Audio Line Out
- i. COM2 (RS-232/422/485)
- j. iDoor
- k. SMA Connector for Antenna
- l. 2.5" SATA SSD Slot and Mini-PCIe Slot



## Dimensions

Unit: mm



**Panel Cutout Dimensions: 303 x 229 mm (11.93" x 9.02")**

## Ordering Information

- TPC-1282T-533AE 12.1" XGA Panel PC, Intel i3-50101U, 4GB, iDoor, PCIe

## Optional Accessories

- 96PSA-A150W24T2 Adapter 100-240V 150W 24V
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M
- TPC-1000H-WMKE TPC VESA Mounting Kit from 10" to 17" TPC
- TPC-1000H-SMKE TPC Stand kit from 10" to 17" TPC
- EWM-W151H01E 802.11bgn RTL8188EE 1T1R, Half-size Mini-PCIe (also need 9656EWMG00E)
- 9656EWMG00E Half-size miniPCIe to Full-size miniPCIe bracket set
- 1750000318 EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384
- 1750003222 802.11b/g 5dBi Dipole Antenna
- 1750003418 Wireless Antenna AN2400-5901RS R/P SMA.M9dB

## Embedded O/S

- 2070013700 WS7P x86 V4.12 B001 MUL. for TPC-1282T

## iDoor Modules

- PCM-24D2R4-AE 2-Port Isolated RS-422/485 mPCIe, DB9
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-26D2CA-AE 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- PCM-24R1TP-AE 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- PCM-24S2WF-AE WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-26D1DB-AE 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master

- PCM-26R2PN-AE 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- PCM-26R2EC-AE 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- PCM-26R2EI-AE 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45, Master
- PCM-26R2S3-AE 2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45, Master

## Application Software

<p><b>WebAccess/SCADA</b></p>	<p>Advantech WebAccess is a 100% web based SCADA (Supervisory Control And Data Acquisition) software and it acts as an IIoT Platform providing open interfaces for partners to develop IIoT applications for different vertical markets. In addition to traditional SCADA functions, WebAccess has an intelligent Dashboard, to provide users with cross-platform, cross-browser data analysis and user interface using HTML5 technology. As well as the built-in widgets, WebAccess also provides Widget Builder to allow customers to build their own.</p>
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<p><b>CODESYS</b></p>	<p>The Codesys application-ready-package offering which includes PC-based Panel Controller with multi-touch panel, high performance Intel Core-i multi-core processor, SSD, 2MB MRAM, Microsoft Windows embedded 7 Pro and CODESYS Control Runtime &amp; Visualization. This allows users to easily achieve an open control solution, the PC-based real-time control system, enabling real-time PLC or PLC/Softmotion control with flexible Fieldbus options such as PROFINET, EtherCAT, EtherNet/IP, CANopen, Modbus TCP/RTU and providing the on-site visualized HMI operation. The software/hardware flexibility and stability of PC-based Cabinet Controller is able to fulfill various control applications in vertical industries.</p>

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# TPC Installation Accessories

## TPC VESA Mounting Kit

### TPC-1000H-WMKE

#### Features

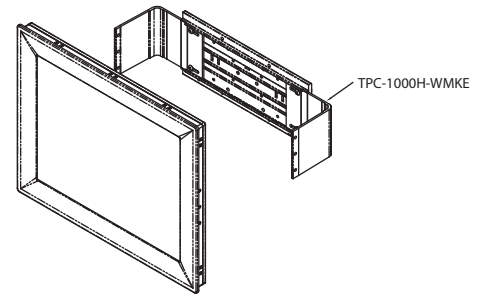
- Support VESA 75/100
- Adjustable design for 10" ~ 17" TPC
- Support any mounting with VESA

#### Ordering Information

- TPC-1000H-WMKE

#### Supported Models

- TPC-1251T, TPC-1551T, TPC-1751T
- TPC-1282T, TPC-1582H, TPC-1782H
- TPC-1071H, TPC-1271H, TPC-1571H, TPC-1771H



## TPC Stand Kit

### TPC-1000H-SMKE

#### Features

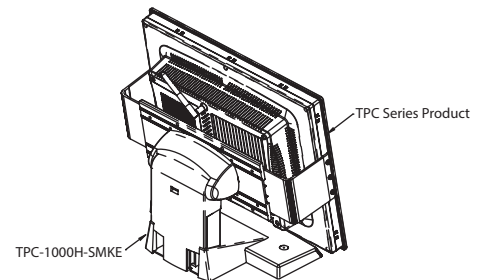
- Adjustable design for 10" ~ 17" TPC
- Adjustable view angle from 10° ~ 30°
- Can be fixed stood on the horizontal plane

#### Ordering Information

- TPC-1000H-SMKE

#### Supported Models

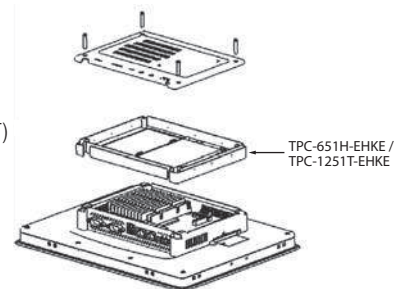
- TPC-1251T, TPC-1551T, TPC-1751T
- TPC-1282T, TPC-1582H, TPC-1782H
- TPC-1071H, TPC-1271H, TPC-1571H, TPC-1771H



## TPC HDD Extension Kit

### Ordering Information & Supported Models

- TPC-651H-EHKE (HDD extension kit for TPC-1250H, TPC-1550H, TPC-1750H, TPC-1251H, TPC-1551H)
- TPC-1251T-EHKE (HDD and iDoor extension kit for TPC-1051WP, TPC-1251T, TPC-1551T, TPC-1551WP, TPC-1751T)



## SPC M12 Connector Kit

### Ordering Information & Supported Models

- SPC-1840WP-MOKE (5 x M12 Connectors for SPC-1881WP/1840WP/2140WP)
- SPC-1840WP-MCKE (5 x M12 Cables supporting standard I/O connector for SPC-1881WP/1840WP/2140WP)
- TPC-8100TR-MOKE (9 x M12 Connectors for TPC-8100TR)
- TPC-8100TR-MCKE (9 x M12 Cables supporting standard I/O connector for TPC-8100TR)



## AC to DC Power Adapter



#### Features

- Input Voltage: 100-240V<sub>AC</sub>, 47Hz-63Hz
- Output Voltage: 24V<sub>DC</sub>/2.5A, 60W

#### Supported Models

- TPC-51T-E & TPC-51H-E series
- TPC-2000 series

#### Ordering Information

- PWR-247-CE

#### Features

- Input Voltage: 100-240V<sub>AC</sub>, 47Hz-63Hz
- Output Voltage: 24V<sub>DC</sub>/6.25A, 150W









#### Supported Models

- TPC-1282T/1582H/1782H
- TPC-1581WP/TPC-1881WP
- TPC-5000 series

#### Ordering Information

- PWR-248-AE

#### Cable

Model Name	Part Number	Description
 	1702002600	Power Cable US Plug 1.8 M
 	1702002605	Power Cable EU Plug 1.8 M
 	1702031801	Power Cable UK Plug 1.8 M
 	1700000596	Power Cable China/Australia Plug 1.8 M

## Control Cabinet PCs

Control Cabinet PCs Selection Guide		7-2
<b>UNO-1251G</b>	TI Cortex A8 Micro DIN-rail Gateway w/ 2 x LAN, 1 x USB, 1 x CAN, 3 x COM, 2 x microSD, 1 x micro SIM	7-4
<b>UNO-1252G</b>	Intel® Quark Micro DIN-rail Gateway w/ 2 x LAN, 2 x mPCIe, 2 x COM, 8 x DI/O, 2 x USB, 1 x 1GB microSD card, 1 x SIM	7-6
<b>UNO-1372G</b>	Intel® Atom™ Quad-Core Small-Size Control DIN-rail PC w/ 3 x GbE, on-board 4GB DDR3L SDRAM, 2 x mPCIe, 1 mSATA, 2 x COM, 8 x DI/O, 3 x USB, HDMI/ VGA	7-8
<b>UNO-1483G</b>	Intel® Core™ i Regular-Size DIN-rail Controller w/ 4 x GbE, 3 x mPCIe, 1 PCIe, DP/VGA, 8 DI/O	7-10
<b>UNO-3382G</b> <b>UNO-3384G</b>	Intel® Core™ i7/Celeron® Control Cabinet PC w/ 2 x GbE, 2 x mPCIe, HDMI/DP	7-12
<b>UNO-3483G</b>	Intel® Core™ i7 Control Cabinet PC w/ 2 x GbE, 2 x mPCIe, HDMI/VGA	7-14
<b>UNO-3283G</b>	Intel® Core™ i7 Automation Computer w/ 2 x GbE, 2 x mPCIe, HDMI, DVI-I	7-16

To view all of Advantech's Control Cabinet PCs, please visit [www.advantech.com/products](http://www.advantech.com/products).



# Control Cabinet PCs Selection Guide

NEW



NEW



Model Name	UNO-1251G	UNO-1252G	UNO-1372G	UNO-1483G
CPU	ARM® Cortex™ A8, 600 MHz	Intel® Quark 400 MHz	Intel® Atom™ E3845 1.91 GHz	4th Gen. Intel® Core™ i3-4010U 1.7 GHz
Onboard RAM	256 MB DDR2	256 MB DDR3	4 GB DDR3L	8 GB DDR3L
Battery-Backup SRAM	FRAM 128KB	-	-	-
Display	-	-	HDMI, VGA	DP, VGA
Audio	-	-	Line-out	Line-out
Serial Ports	1 x RS-485, 1 x RS-422/485, 1 x RS232	1 x RS-232 (console port), 1 x RS-485	1 x RS-232, 1 x RS-422/485	1 x RS-232, 2 x RS-422/485
Ethernet Ports	2 x 10/100Base-T	2 x 10/100 Base-T	3 x 10/100/1000 Base-T	4 x 10/100/1000 Base-T
USB Ports	1 x USB 2.0	1 x USB 2.0 1 x USB 2.0 client	2 x USB 2.0 1 x USB 3.0	2 x USB 2.0 2 x USB 3.0
PCIe/PCI Expansion	1 x Mini PCIe (w/ USB signal only)	2 x Mini PCIe	2 x Mini PCIe	1 x PCIe1 2 x Mini PCIe, mPCIe 2.0 (1 supports mSATA / SIM card)
Onboard I/O	-	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO
Watchdog Timer	Yes	Yes	Yes	Yes
Micro SD slots	1 x 1G MicroSD card on board 1 x External accessible MicroSD card slot	1 x 1G MicroSD card	-	-
2.5" HDD Expansion	-	-	1 x SATA 6Gb/s	1 x SATA 6Gb/s
Operating Systems	Windows Embedded Compact 7 (WEC7), Embedded Linux	Yocto Linux	Windows 7/8/10, WES7/Win10 Ent. LTSB, Linux	Windows 7/8, WES7/Win10 Ent. LTSB, Linux
Mounting	DIN-rail Mount	DIN-rail Mount	DIN-rail/Wall Mount	DIN-rail/Wall Mount
Anti-Vibration	3G w/ MicroSD	2G w/ MicroSD	5G w/ mSATA	1G w/ mSATA
Anti-Shock	50 G w/ MicroSD	50 G w/ MicroSD	50 G w/ mSATA	50 G w/ mSATA
Power Input Range*	10 ~ 30 V <sub>DC</sub>	10 ~ 36 V <sub>DC</sub>	9 ~ 36 V <sub>DC</sub>	12/24 V <sub>DC</sub>
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	5.3 W	10 W	24 W	41 W
Dimensions (W x D x H)	50 x 90 x 100 mm (1.97" x 3.54" x 3.94")	63 x 105 x 100 mm (2.48" x 4.13" x 3.94")	85 x 139 x 152 mm (3.3" x 5.5" x 6.0")	110 x 198 x 139 mm (4.3" x 7.8" x 5.8")
Weight	0.4Kg	0.6Kg	1.6Kg	2.4Kg
Page	7-4	7-6	7-8	7-10

\* All power input ranges represent the minimum and maximum values recommended for these devices.

# Control Cabinet PCs Selection Guide



**NEW**



**NEW**



**NEW**



Model Name	UNO-3083G/3085G UNO-3073G/3075G UNO-3073GL	UNO-3283G/UNO-3273G	UNO-3382G/3384G	UNO-3483G
CPU	UNO-3073GL: Intel Celeron® 807UE 1GHz UNO-3073G: Intel Celeron® 847 1.1GHz UNO-3083G/3085G: Intel Core i7 3555 LE 2.5 GHz or -2655LE 2.2 GHz	UNO-3283G: Intel® 6th Gen. Quad Core™ i7-6822EQ 2.0Hz UNO-3273G: Intel® Atom™ processor	Intel® Core™ i7-4650U 1.7Hz Intel® Celeron® 2980U 1.6GHz	Intel® Core™ i7-3612QE
Onboard RAM	4GB DDR3	UNO-3283G: 8GB DDR4 UNO-3273G: 4GB DDR3L	8GB DDR3L (Core i version) 4GB DDR3L (Celeron version)	8GB DDR3/DDR3L
Battery-Backup RAM	-	-	On board MDRAM 512K	-
Display	1 x DVI-I, 1 x HDMI	UNO-3283G: DVI-I, HDMI UNO-3273G: VGA, HDMI	HDMI, DP	VGA, HDMI
Audio	Mic in, Line Out	(built-in Line-in/out/Mic, I/O through iDoor)	(built-in Line-in/out/Mic, I/O through iDoor)	Mic in, Line out (pin header)
Serial Ports	2 x RS-232/422/485 2 x RS-232 (optional)	2 x RS-232/422/485	1x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485 with DB9 connection (pin header)
Ethernet Ports	2 x 10/100/1000 Base-T RJ-45 ports Supports AMT (UNO-3083G/3085G only)	2 x 10/100/1000 Base-T RJ-45 (supports IEEE1588)	2 x 10/100/1000 Base-T RJ-45 (supports IEEE1588)	2 x 10/100/1000 Base-T RJ-45 (supports IEEE1588)
USB Ports	Nine (One Internal)	UNO-3283G: 6 x USB 3.0 UNO-3273G: 5 x USB 2.0, 1 x USB 3.0	2 x USB 2.0 2 x USB 3.0	2 x USB 2.0 2 x USB 3.0
PCIe/PCI Expansion	UNO-3073G/UNO-3073GL/ 3083G: 3 slots 3085G: 5 slots	UNO-3283G: 1 x PCIe x16 + 1 x PCI (Optional: 2 x PCIe x8 or 2 x PCI) UNO-3273G: 2x PCI	UNO-3382G: 2 x Mini PCIe UNO-3384G: 2 x Mini PCIe, 1 x PCIe4 + 1 x PCI	1 x PCIe x4, 3 x Mini PCIe (2 x full, 1 x half)
Watchdog Timer	Yes	Yes	Yes	Yes
CompactFlash Slots	Two internal	One internal	One internal	-
2.5" HDD Expansion	2 x SATA, support RAID 0/1 (except UNO-3073GL)	2 x SATA, support RAID 0/1	2 x SATA, support RAID 0/1	2 x SATA, support RAID 0/1
Operating Systems	Windows XP/Windows7/8, WES7, WES-2009, Linus	WIN7/8, WES7, WES10, Linux	WIN7/8/10, WES7, Win10 Ent. LTSB, Linux	WIN7/8, WES7, WES-2009, Linux
Mounting	Wall/Stand/Panel	Wall/Stand/Enclosure	Book Mount	Enclosure Mount
Anti-Vibration	-	4G w/ SSD	2G w/ SSD	2G w/ SSD
Anti-Shock	50 G w/CF 20 G w/HDD	50 G w/ SSD	50 G w/ SSD	50 G w/ SSD
Power Input Range*	9 ~ 36 V <sub>DC</sub>	10 ~ 36 V <sub>DC</sub>	24 V <sub>DC</sub> ± 20%	12/24 V <sub>DC</sub> ± 20%
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 55°C (32 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	UNO-3073GL: 25W (Typical) UNO-3073G: 35W (Typical) UNO-3083G/3085G: 45W (Typical)	30W (Typical)	45W	50W
Dimensions (W x D x H)	UNO-3083G/3073G/GL: 148 x 238 x 177 mm (5.8" x 9.3" x 7.0") UNO-3085G: 193 x 238 x 177 mm (7.6" x 9.3" x 7.0")	142 x 238 x 177 mm (5.6" x 9.3" x 6.9")	UNO-3382G: 65.2 x 254 x 207 mm (2.57" x 10" x 8.15") UNO-3384G: 103.2 x 254 x 207 mm (4.06" x 10" x 8.15")	305 x 82 x 225 mm (120.1" x 32.3" x 88.6")
Weight	UNO-3083G/3073G/GL: 4.5 kg UNO-3085G: 5.0 kg	4.0 kg	UNO-3382G: 3.1 kg UNO-3384G: 3.9 kg	4.9 kg
Page	online	7-16	7-12	7-14

\* All power input ranges represent the minimum and maximum values recommended for these devices.

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



# UNO-1251G

TI Cortex A8 Micro DIN-rail Gateway w/  
2 x LAN, 1 x USB, 1 x CAN, 3 x COM,  
2 x microSD, 1 x micro SIM

NEW



## Features

- RISC 32 bit TI ARM® Cortex™-A8 processor
- Programmable OLED display for status & error indication
- 1 x CAN, 3 x COM, 2 x LAN, 1 x USB ports
- Backup Memory FRAM in 128KB for retaining critical data
- Easily accessible Micro SD slot & Micro SIM slot
- Expandable with Wi-Fi/3G connectivity
- Supports WEC7 & Linux operating systems
- Supports WebAccess/HMI software for compatibility with 450 types of PLC, controllers & I/O devices protocols

## Introduction

The UNO-1251G is an Industrial IoT DIN-rail gateway. This gateway features dual LAN ports & expandable Wi-Fi/3G connectivity. There are also some user friendly design elements such as: a programmable OLED display to indicate the system status, and a front-accessible microSD card/micro SIM slot. With WebAccess/HMI support, it is compatible with 450 types of PLC, controllers & I/O devices. User can easily access UNO-1251G through mobile devices by VNC. It is the ideal solution for automation control as a cloud enabled HMI platform.

## Specifications

### General

- **Certification** CE, FCC, CCC, BSMI, UL
- **Dimensions (W x D x H)** 50 x 90 x 100 mm (1.97" x 3.54" x 3.94")
- **Form Factor** Micro Size
- **Enclosure** Aluminum Housing
- **Mounting** DIN-rail
- **Weight (Net)** 0.4 kg (0.88 lbs)
- **Power Requirements** 10~36 V<sub>DC</sub>
- **Power Consumption** 5.3W(Typical), 20W(Maximum)
- **OS Support** Windows Embedded Compact7 (WEC7)/Embedded Linux (kernel v2.6.37)

### System Hardware

- **Processor** RISC 32 bit, 600 MHz (ARM® Cortex™-A8)
- **Backup Memory** FRAM 128KB
- **Memory** Onboard DDR2 256MB 166MHz (Optional 512MB)
- **LED Indicators** LEDs for Power(PWR), COM1-3(Tx/Rx) and CAN(Tx/Rx)
- **Storage** Bootloader and image:  
1 x microSD 1G (Built-in) (SDHC)  
External storage:  
1 x microSD card slot (SDHC)  
1 x Full-size mPCIe slot (USB2.0 signal only)

### I/O Interfaces

- **Serial Ports** 1 x RS485, terminal block, auto direction control, 300~115.2k bps  
1 x RS422/485, terminal block, auto direction control (RS-485), 300~115.2k bps  
1 x RS232, DB9, auto flow control 300~115.2k bps  
CANbus, version 2.0A/B compliant (terminal block, 10k~500k bps)
- **CAN** 2 x RJ45, 10/100 Mbps
- **LAN Ports** 1 x USB 2.0
- **USB Ports** 1 x 4 Pin, terminal block supports dual power input
- **Power Connector** Chassis Grounding
- **Grounding Protection** 1 x Micro SIM card slot
- **SIM**

### Environment

- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 3 Grms, random, 5 ~ 500Hz, 1 hr/axis

## Application Software / SDK

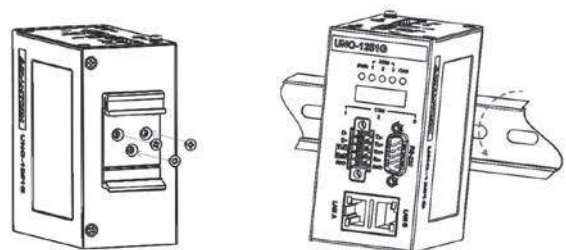
- Modbus TCP Client/Server API
- Modbus RTU Master/Slave API
- CAN SDK
- Advantech CANopen protocol library
- FRAM API
- Watchdog SDK
- OLED programmable display API
- Supports WebAccess/HMI

## Software Features

- FTP/Telnet service
- Remote display technology
- VNC
- OpenGL
- Remote Access: DigAnywhere & VNC

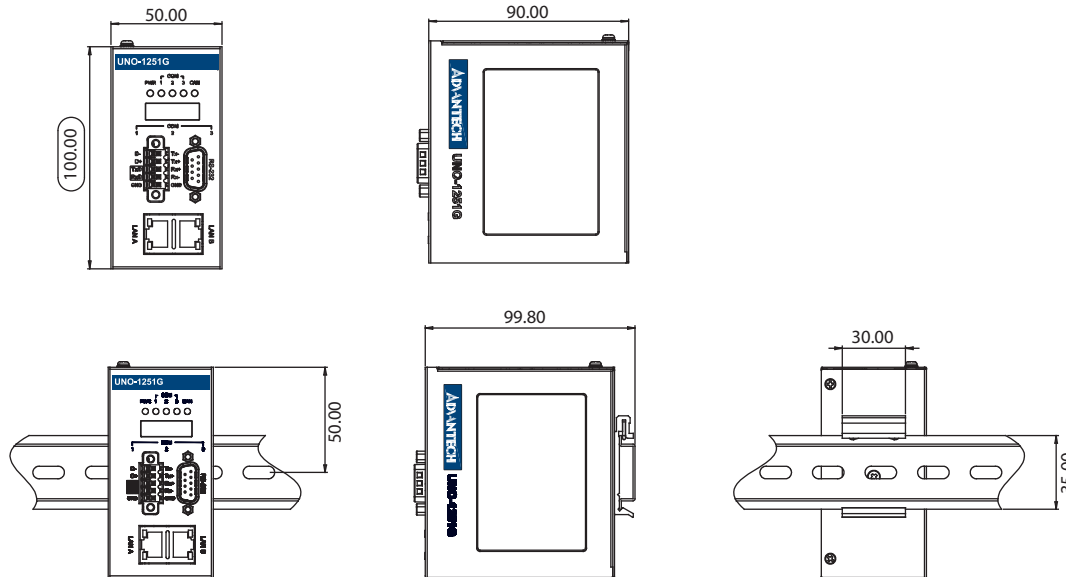
## Installation Scenario

### DIN-rail Mount Illustration

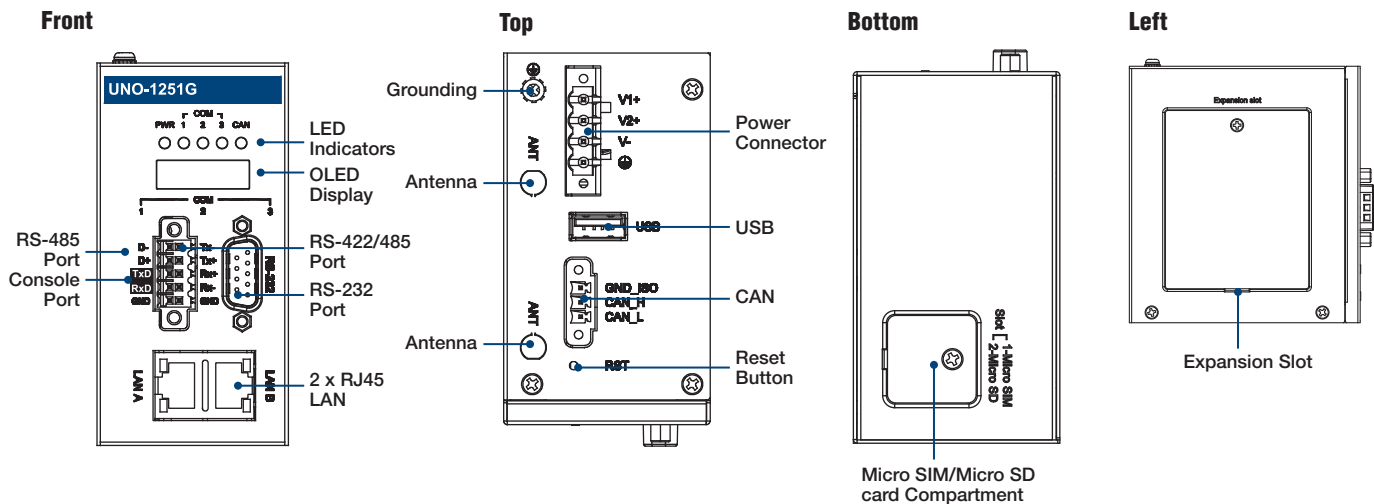


## Dimensions

Unit: mm



## I/O Views



## Ordering Information

- UNO-1251G-A0AE ARM Cortex A8, built-in 256MB Memory, 1G SLC MicroSD, WEC7
- UNO-1251G-WA0AE UNO-1251G-A0AE with WebAccess/HMI 1500 tags

## Optional Accessories

### Adapters & Power cords:

- PWR-247-CE ADP A/D 100-240V 60W
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M

### Micro SD card:

- 96FMMSDI-2G-ET-AT ATP 2G MICRO SD CARD I-GRD SLC(G)

### 3G module & antenna:

- EWM-C109F601E Wide-Temp 3.75G HSPA, Mini PCIe Card
- 1750006264 Coaxial cable for antenna
- 1750005865 Antenna L=10.9 cm 50 Ohm

### Wi-Fi module & antenna:

- EWM-W150H02E 802.11bgn / RT5390 1T1R
- 9656EWMG00E Half-size miniPCIe to Full-size miniPCIe bracket set
- 1750006043 150 mm Coaxial cable for antenna
- 1750000318 Antenna

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- 19 InNetworking

# UNO-1252G

Intel® Quark Micro DIN-rail Gateway  
w/ 2 x LAN, 2 x mPCIe, 2 x COM, 8 x DI/O,  
2 x USB, 1 x 1GB microSD card, 1 x SIM

NEW



## Features

- Intel® Quark X1001 400 MHz Processor with 256MB Memory
- 2 x LAN, 2 x mPCIe, 1 x RS-232, 1 x RS-232/485, 8 x DI/O, 2 x USB, 1 x 1GB microSD card, 1 x SIM
- COM ports and Digital I/O with Isolation Protection design for Sensing and Controlling
- Chassis Grounding Protection
- Compact with Fanless Design
- DIN-rail mounting design
- Supports GPRS/3G/GPS/Wi-Fi Communication by iDoor Technology
- Supports Yocto Linux system

## Introduction

The UNO-1252G is an Intel Quark DIN-rail controller for IoT gateway solution. This controller features dual LAN ports and mPCIe card slots for economic gateway application bridging cloud and brown area. The general purpose input/output ports also success gateway controller directly reading status of sensors and indicating required results. The UNO-1252G is also equipped with Advantech iDoor technology that employs iDoor modules to extend itself to become a wireless gateway. In addition, the UNO-1252G also features eight LED indicators for the status of Power, Battery, SD card, COM ports and three programmable indicators.

## Specifications

### General

- **Certification** CE, FCC, CCC, BSMI, UL
- **Dimensions (W x D x H)** 63 x 105 x 100 mm (2.48" x 4.13" x 3.94")
- **Form Factor** Micro Size
- **Enclosure** Aluminum Housing
- **Mounting** DIN-rail
- **Weight (Net)** 0.6 kg (1.33 lbs)
- **Power Requirements** 10~36 VDC
- **Power Consumption** 10 W (Typical)
- **OS Support** Yocto Linux

### System Hardware

- **BIOS** 8MB SPI Flash
- **Processor** Intel Quark X1001 400 MHz
- **System Chip** Integrated Intel SoC Chipset
- **Memory** On-board 256 MB DDR3 800 MHz
- **LED Indicators** LEDs for Power (PWR), battery (BTR), COM1~2 (Tx/Rx) and microSD (SD), Programmable Indicators (PL1~3)
- **Storage** 1 x microSD Slot (1GB microSD card included)
- **Expansion** 1 x Full-size mPCIe with USB signal, 1 x Full-size mPCIe with PCIe signal, 1 x iDoor I/O front plate

### I/O Interfaces

- **Isolated Serial Ports** 1 x RS-232, DB9, 50~115.2 kbps, supports console debug  
1 x RS-232/485, DB9, 50~115.2 kbps (Isolation Protection 1000 V<sub>DC</sub>)
- **LAN Ports** 2 x RJ45, 10/100 Mbps (DHCP supported by LAN A)
- **USB Ports** 1 x USB 2.0 (type-A), 1 x USB Client (micro-B)

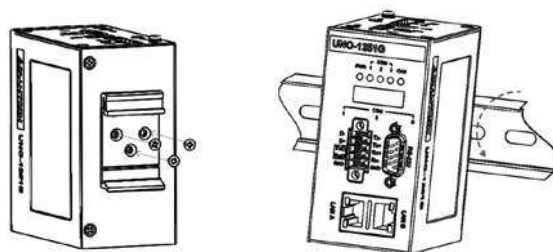
- **Isolated DI/O** 4-ch digital input, 4-ch digital output (Isolation Protection 1000 V<sub>DC</sub>, Overvoltage protection 30 V<sub>DC</sub>)
- **Power Connector** 1 x 3 Pin, Terminal Block
- **Grounding Protection** Chassis Grounding
- **SIM** 1 x SIM card slot

### Environment

- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500Hz, 1 hr/axis

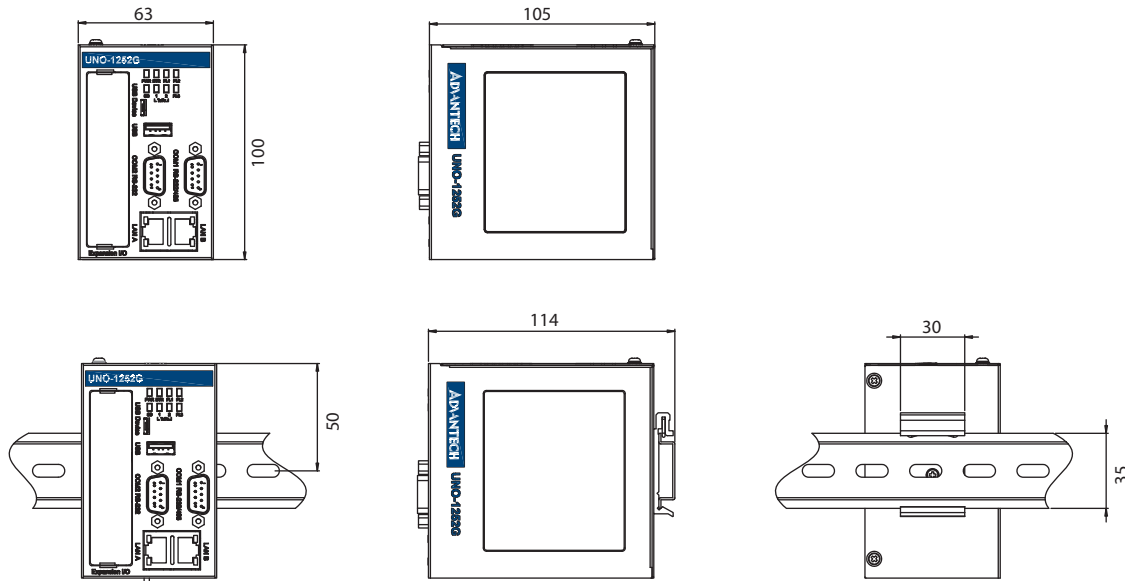
## Installation Scenario

### DIN-rail Mount Illustration



Dimensions

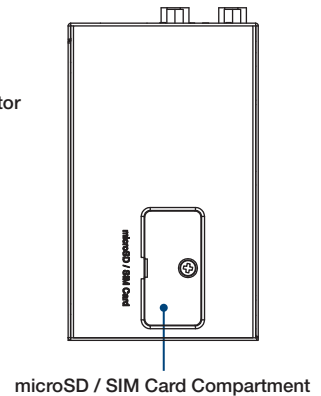
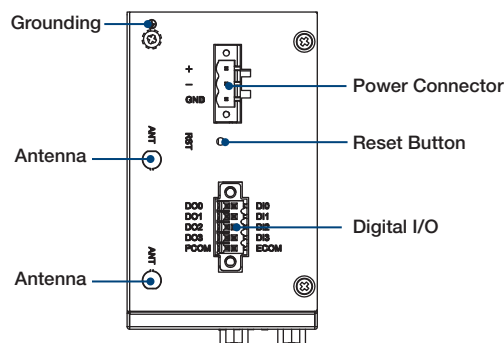
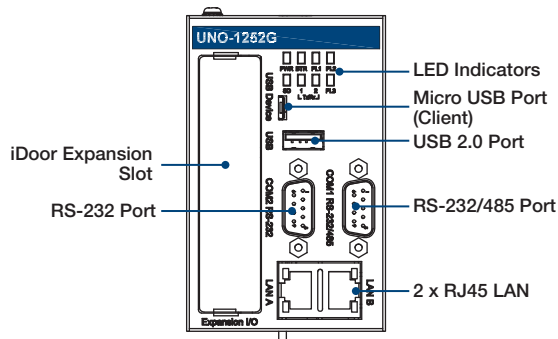
Unit: mm



Front I/O View

Top I/O View

Bottom I/O View



Ordering Information

- UNO-1252G-Q0AE Intel Quark X1001 400MHz, 2 x LAN, 2 x mPCIe, 2 x COM, 8 x DI/O, 2 x USB, 1GB microSD

iDoor Modules

- PCM-24S33G-AE Wide-Temp 3.75G HSPA and GPS, 2-in-1, mPCIe w/ dual SIM Card holder, Antenna, cable

\*More iDoor modules will be supported by project.

Optional Accessories

- PWR-247-CE ADP A/D 100-240V 60W 24V
- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 170203180 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M
- 96FMMSDI-2G-ET-AT ATP 2G MICRO SD CARD I-GRD SLC(G)
- 968EMC0048 HSPA/EDGE/GPS PCI Express Mini Card
- 1750006264 Coaxial cable for antenna
- 1750005865 Antenna L=10.9 cm 50 Ohm

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
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# UNO-1372G

Intel® Atom™ Quad-Core Small- Size Control DIN-rail PC w/ 3 x GbE, on-board 4GB DDR3L SDRAM, 2 x mPCIe, 1 mSATA, 2 x COM, 8 x DI/O, 3 x USB, HDMI/VGA

NEW



## Features

- Intel® Atom E3845 1.91GHz processor with 4GB DDR3L Memory
- 3 x GbE, 3 x USB, 2 x COM, 1 x VGA, 1 x HDMI, Audio, iDoor, mSATA, 2mPCIe, 1 x SATA, 8 x DIO, 1 x Power Terminal
- Compact with Fanless Design
- Dual Power Input for Reducing Power Down Time
- Exchangeable RTC Battery with easy Access on the Top
- Digital I/O with Isolation Protection for Sensing and controlling
- Diverse system IO and Supports Fieldbus Protocol by iDoor Technology as a Protocol Gateway
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology as a Communication Gateway
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)

## Introduction

The UNO-1372G is an Intel Atom Quad-Core DIN-rail controller. This controller features dual power inputs that shorten the down time to enhance operation excellence. The general purpose input/output ports also help machine builders integrate direct control of start/stop inspection and indicate inspection results. The UNO-1372G is also equipped with Advantech iDoor technology that uses iDoor modules to extend this product to become a gateway controller, such as a PoE card, or isolation serial port card. The UNO-1372G also features 3 gigabyte LAN ports, 1 USB 3.0 port, 2 COM ports and HDMI& VGA display ports for essential upstream and downstream links, for example, PoE connected to IP camera from iDoor.

## Specifications

### General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions ( W x D x H )** 85 x 139 x 152 mm (3.3" x 5.5" x 6.0")
- **Form Factor** Small Size
- **Enclosure** Aluminum Housing
- **Mounting** DIN-rail, Wallmount
- **Weight (Net)** 1.6kg (3.5lbs)
- **Power Requirement** 9~36Vdc
- **Power Consumption** 24W (Typical)
- **OS Support** Microsoft® Windows 7/8, WES7, WIN10 Ent. LTSB, AdvLinux

### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 6 levels timer interval, from 15 to 255 sec
- **Processor** Intel Atom E3845 1.91GHz, 2MB L2 Cache
- **System Chip** Integrated Intel SoC Chipset
- **Memory** On-board 4GB DDR3L 1333 MHz
- **Graphics Engine** Intel® HD Graphics
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, 802.1AS, 802.3az  
Realtek RTL8111E GbE
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
- **Storage** One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD)  
CFast drive by iDoor Technology (Optional)
- **Expansion** 2 x Full-size mPCIe slot, 1x mSATA (Full-size)

### I/O Interfaces

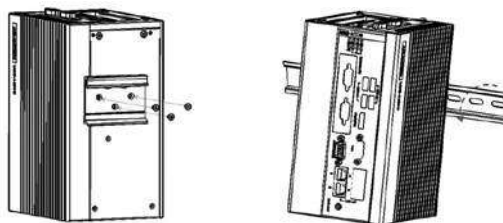
- **Serial Ports** 1 x RS-232, DB9, 50~115.2kbps  
1 x RS-422/485, DB9, auto flow control, 50~115.2kbps  
3 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet, support Jumbo Frame
- **LAN Ports** 3 x USB Ports (2 x USB2.0, 1 x USB 3.0 compliant)  
4-ch digital input, (Wet/dry contact with Isolation Protection 2,500 VDC) 4-ch digital output (Compatible 5 V/TTL, Capable Sink: 24 mA max. per channel)
- **USB Ports** 1 x VGA, supports 1920 x 1200 @ 60Hz 24bpp
- **Isolated DIO** 1 x HDMI 1.4a, supports 1920 x 1080 @ 60Hz 24bpp  
Line-Out
- **Displays** 1 x 4 Pins, Terminal Block to support dual power input
- **Audio** Chassis Grounding
- **Power Connector**
- **Grounding Protection**

### Environment

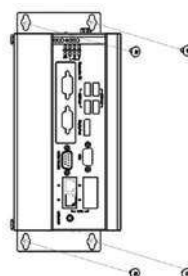
- **Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 5Grms, random, 5 ~ 500Hz, 1 hr/axis
- **Ingress Protection** IP40

## Installation Scenario

### DIN-rail mounting illustration



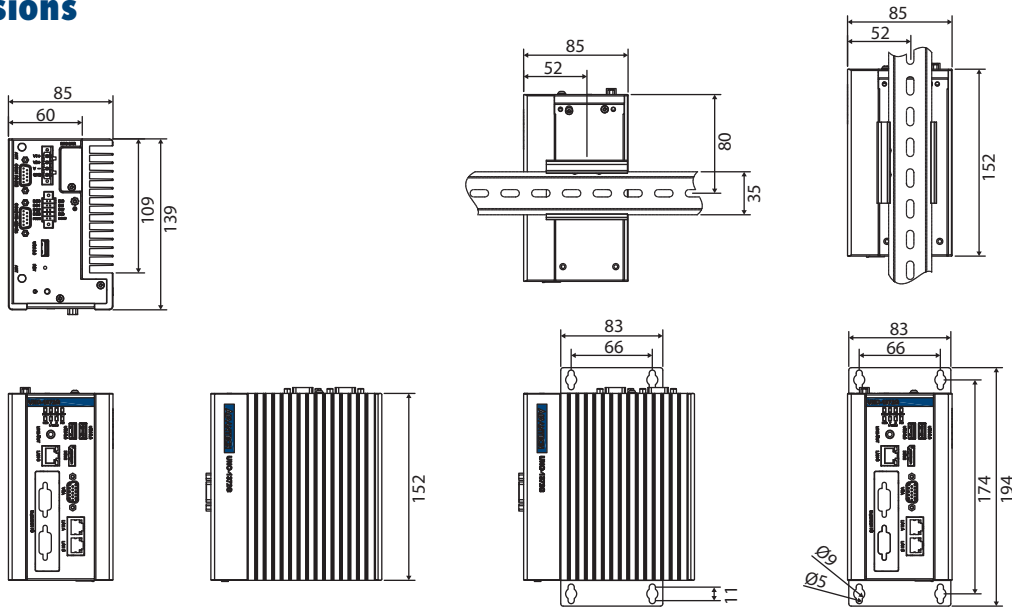
### Wall mounting illustration



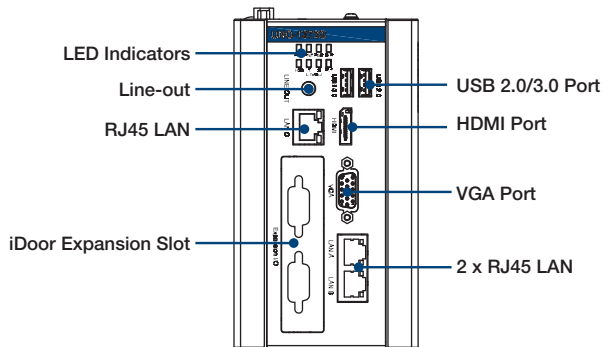


## Dimensions

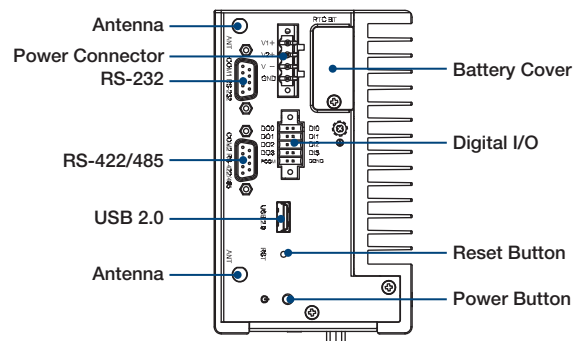
Unit: mm



## Front I/O View



## Top I/O View



## Ordering Information

- **UNO-1372G-E3AE** Intel Atom Quad-Core 1.91GHz, 4GB, 3 x LAN, 2 mPCIe, iDoor

## iDoor Modules

- **PCM-23C1CF-AE** 1 CFast Slot with Cover Protection
- **PCM-23U1DG-AE** USB Slot w/ Lock for USB Dongle
- **PCM-24R2GL-AE** 2-Port Gigabit Ethernet, mPCIe, RJ45
- **PCM-24U2U3-AE** 2-Port USB 3.0, mPCIe, USB-A type
- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D4R4-AE** 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-24S2WF-AE** Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S23G-AE** Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

## Optional Accessories

- **PWR-247-CE** ADP A/D 100-240V 60W 24V (Commercial Grade)
- **1702002600** Power Cable US Plug 1.8 M (Industrial Grade)
- **1702002605** Power Cable EU Plug 1.8 M (Industrial Grade)
- **1702031801** Power Cable UK Plug 1.8 M (Industrial Grade)
- **1700000596** Power Cable China/Australia Plug 1.8 M (Industrial Grade)

## Embedded O/S

- **2070014384** Image Win10 LTSB X64 MUI for UNO-1372G
- **2070013467** Image WES7P X64 MUI. for UNO-1372G
- **2070013468** Image Linux for UNO-1372G

## S/W Bundle Offering

- **WA-CU1372G-ERHE5AE** UNO-1372G-E3AE, Control RTE & visualization., 128G SSD, 2MB MRAM, WES7P

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# UNO-1483G

Intel® Core™ i Regular-Size DIN-rail  
Controller w/ 4 x GbE, 3 x mPCIe,  
1 PCIe, DP/VGA, 8 DI/O

NEW



## Introduction

The UNO-1483G is an Intel 4th generation Core i3 DIN-rail controller. This controller features dual power inputs that shorten down time and enhance operation excellence. The general purpose input/output ports also help machine builders integrate direct control of start/stop inspections and indicate inspection results. UNO-1483G is also equipped with PCIe slot and Advantech iDoor technology that extend this product to applications such as motion controller, or isolation control unit using iDoor modules. A UNO-1483G fitted with 4 gigabyte LAN, 2 USB 3.0, 3 COM, DP, and VGA provides essential upstream and downstream links. PoE, for example, can be connected to an IP camera using iDoor.

## Specifications

### General

▪ Certification	CE, FCC, UL, CCC, BSMI
▪ Dimensions (W x D x H)	106 x 139 x 198 mm (4.2" x 5.8" x 7.8")
▪ Form Factor	Regular Size
▪ Enclosure	Aluminum Housing
▪ Mounting	DIN-rail, Wallmount
▪ Weight (Net)	2.4kg (5.3lbs)
▪ Power Requirement	12V/24VDC ± 20%
▪ Power Consumption	41W (Typical), 60W(Max)
▪ OS Support	Microsoft® Windows 7/8, WES7, WIN10 Ent. LTSB, AdvLinux

### System Hardware

▪ BIOS	AMI UEFI 128Mbit Flash BIOS
▪ Watchdog Timer	Programmable 6 levels timer interval, from 15 to 255 sec
▪ Processor	Intel® 4th Gen. Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3MB L2
▪ System Chip	Core i7-4650U/i5-4300U/Celeron 2980U by project
▪ Memory	Integrated Intel 8 Series Chipset
▪ Graphics Engine	On-board 8GB DDR3L 1333/1600 MHz
▪ Ethernet	Intel® HD Graphics 4400
▪ LED Indicators	Intel® i210-IT GbE
▪ Storage	Intel® i218-LM GbE
▪ Expansion	LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD) CFast drive by iDoor Technology (Optional) 2 x Full-size mPCIe slot, mPCIe 2.0 (1 supports mSATA / SIM card) 1 x Half-size mPCIe slot w/o USB signal 1 x PCIe (optional PCI by project) slot with x1 signal

### I/O Interfaces

▪ Serial Ports	1x RS-232, DB9, 50-115.2kbps 2x RS-422/485, DB9, auto flow control, 50-115.2kbps
▪ LAN Ports	4x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet, support Jumbo Frame
▪ USB Ports	4x USB Ports (2 x USB2.0, 2 x USB3.0 compliant)
▪ Isolated DIO	4-ch digital input, (Wet/dry contact with Isolation Protection 2,500 VDC) 4-ch digital output (Compatible 5 V/TTL, Capable Sink: 24 mA max. per channel)
▪ Displays	1x VGA, supports 1920x1200@60Hz 24bpp 1x DP 1.2, supports 1920x1080@60Hz 24bpp
▪ Audio	Line-Out

## Features

- 4th Generation Intel® Core™ i Processors up to 1.7GHz with 8GB DDR3L Memory
- 4 x GbE, 4 x USB 2.0/3.0, 1 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x DP, Audio
- Compact with Fanless Design
- Supports PCIe card, PoE iDoor module and Digital I/O for Machine Motion/Vision application
- Dual Power Input and Remote Power Button for reducing power down time and remote power control
- 4G/3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- Hot-Swap RTC battery with easily access at top side
- Supports Fieldbus Protocol by iDoor Technology

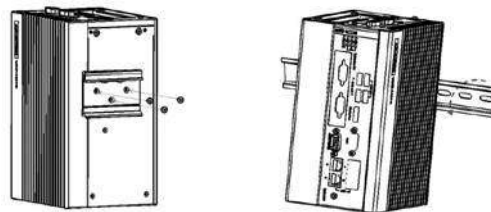
- Power Connector 1x 7 Pins, Terminal Block to support dual power input and remote power control
- Grounding Protection Chassis Grounding

### Environment

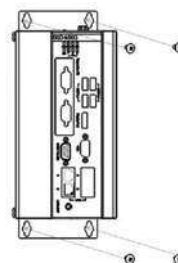
- Operating Temperature -20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- Storage Temperature -40 ~ 85°C (-40 ~ 185°F)
- Relative Humidity 10 ~ 95% RH @ 40°C, non-condensing
- Shock Protection Operating, IEC 60068-2-27, 50G, half sine, 11ms
- Vibration Protection Operating, IEC 60068-2-64, 1Grms, random, 5 ~ 500Hz, 1 hr/axis

## Installation Scenario

### DIN-rail mounting illustration

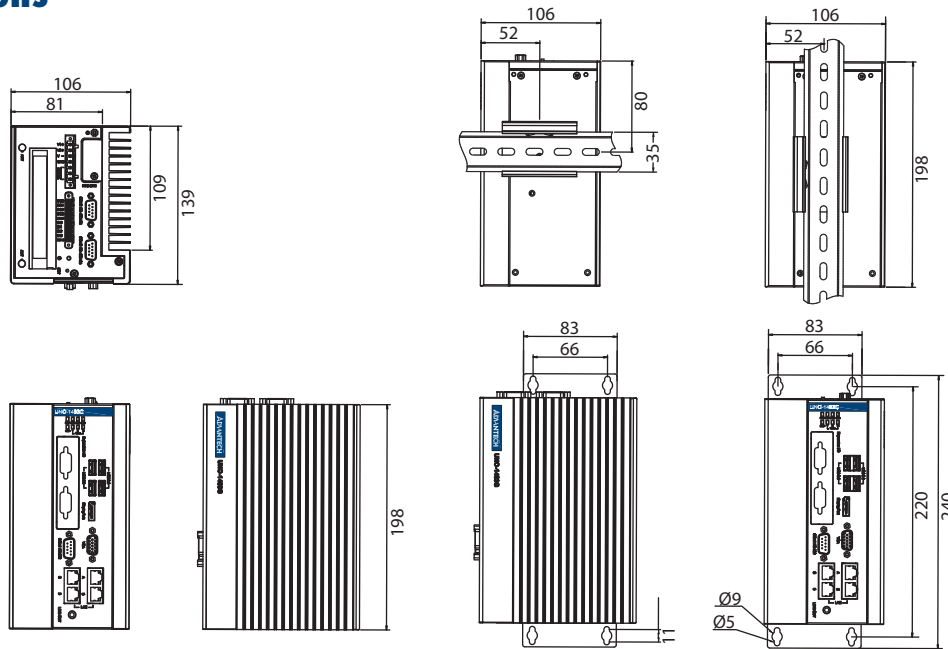


### Wall mounting illustration

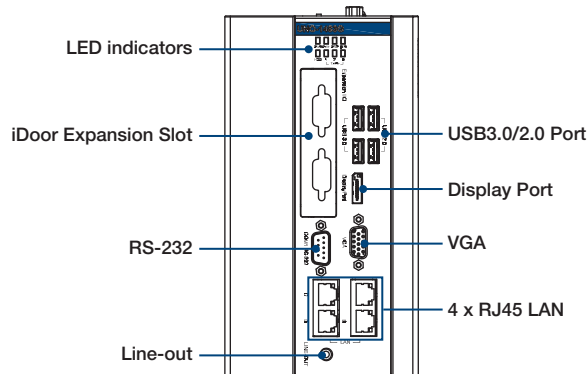


## Dimensions

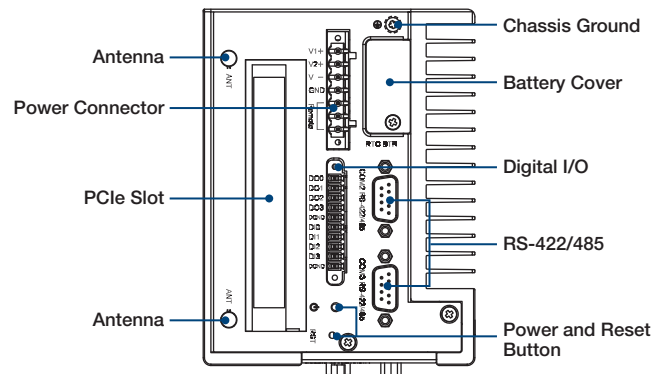
Unit: mm



## Front I/O View



## Top I/O View



## Ordering Information

- UNO-1483G-434AE** Intel® Core™ i3-4010U ULT 1.7GHz, 8GB, 4 x LANs, 2 x mPCIe, 1 PCIe Slot

Note: Processor i7-4650U/i5-4300U/Celeron 2980U reserved for project

## iDoor Modules

- PCM-24R2PE-AE** Intel i350, GbE, PoE IEEE 802.3af, PD, RJ45 x 2
- PCM-24U2U3-AE** 2 port USB 3.0 mini card
- PCM-2300MR-AE** MR4A16B, 2MByte
- PCM-26D1PB-AE** Hillscher netX100 FieldBus, ProfiBus, DB9 x 1
- PCM-26D2CA-AE** SJA1000 CANbus, CANopen, DB9 x 1
- PCM-24D2R4-AE** OXPcie-952 UART, Isolated RS-422/485, DB9 x 2
- PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462
- PCM-24S23G-AE** 6-band HSPA Cellular Module, SIM holder+GPS
- PCM24S24G-T** Full-size mPCIe, LTE bands 2, 4, 5, 7, 17, (for USA, AT&T, T-Mobile)
- PCM-24S24G-AE** Full-size mPCIe, LTE bands 1, 3, 5, 7, 8, 20, (for Europe, APAC)

## Optional Accessories

- 96PSA-A120W19T2** AC to DC 100-240V 120W Adapter
- 1702002600** Power Cable US Plug 1.8 M
- 1702002605** Power Cable EU Plug 1.8 M
- 1702031801** Power Cable UK Plug 1.8 M
- 1700000596** Power Cable China/Australia Plug 1.8 M
- SQF-SMSM4-16G-S8E** SQF MSATA 820 16G MLC 4-CH (-40-85°C)

## Embedded O/S

- 2070013050** Image WES7P X64 MUI. for UNO-1483G
- 2070013219** Image Linux for UNO-1483G
- 2070014427** Image Win 10 LTSB X64 for UNO-1483G

## S/W Bundle Offering

- WA-CU1483G-3RHE5AE** UNO-1483G-434AE, Control RTE & Visua., 128G SSD, 2MB MRAM, WES7P

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# UNO-3382G

# UNO-3384G

Intel® Core™ i7/Celeron® Control Cabinet PC w/ 2 x GbE, 2 x mPCIe, HDMI/DP

**NEW**



## Features

- 4th Generation Intel® Core™ i7/Celeron® Processors with 8GB/4GB DDR3L Memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232/RS-422/485, 1 x HDMI, 1 x DP, 2 x PCI/PCIe, 2 x mPCIe (2 x full)
- Hot-Swappable HDD/SSD support for RAID 0/1
- Protection Technology of optional UPS is compatible with UNO-3300 series which enhances the quality of input power and secure the data safety
- Supports Fieldbus Protocol by iDoor Technology 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- LAN Redundancy (Teaming)

## Introduction

Advantech's UNO-3300 series offer an open and universal automation solution. The newest UNO-3300 series of the Control Cabinet PC have attractive and flexible extension capabilities such as 2 x USB 2.0 ports and 2 x USB 3.0 ports, 1 x HDMI, 1 x DP, 1 x COM ports, 2 x LANS, 2 x mPCIe and 2 x PCI/PCIe. It's a reliable industrial control machine certified by industrial automation standard IEC-61010.

## Specifications

### General

- **Certification** CE, FCC, UL
- **Dimensions (W x D x H)** UNO-3382G: 65.2 x 254 x 207 mm (2.5" x 10" x 8.15")  
UNO-3384G: 103.2 x 254 x 207 mm (4.06" x 10" x 8.15")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Book mounting
- **Weight (Net)** UNO-3382G: 3.1kg  
UNO-3384G: 3.9kg
- **Power Requirements** 24 V<sub>DC</sub> ± 20%
- **Power Consumption** 45 W (Typical)
- **OS Support** WIN7/8, WES7, WES10, Advantech Linux

### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel® Core™ i7-4650U 1.7GHz Haswell, 4MB L2  
Intel® Celeron® 2980U 1.6GHz, 2MB L2
- **System Chip** Integrated Intel 8 Series Chipset
- **Memory** Built-in 4GB/8GB DDR3L 1333 MHz
- **Graphics Engine** Intel® HD graphics 5000
- **Ethernet** Intel® i210-ITGbE
- **LED Indicators** LEDs for Power, Battery, Tx/Rx, HDD and reserved x 2
- **Storage** 1 x CFast slot  
Two built-in 2.5" SATA HDD brackets with support for RAID 0/1. (Compatible with 9.5mm height HDD)
- **Expansion** UNO-3382G: 2 Full-size mPCIe  
UNO-3384G: 2 Full-size mPCIe, 1x PCIe x4, 1x PCI  
(total combined power consumption on the PCI/PCIe slots should be less than 20W)

### I/O Interfaces

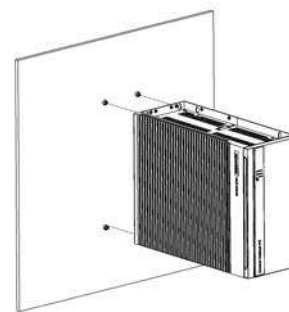
- **Serial Ports** 1 x RS-232/422/485, DB9, auto flow control, 50~115.2kbps
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays** 1 x HDMI, supports 1920 x 1200 @ 60Hz 24bpp  
1 x DP, supports 3200 x 2000 @ 60Hz 24bpp
- **Power Connector** 1 x 3 Pin, Terminal Block

### Environment

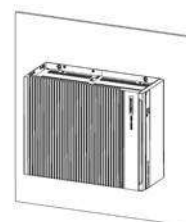
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 20G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)

## Installation Scenario

### Book mounting



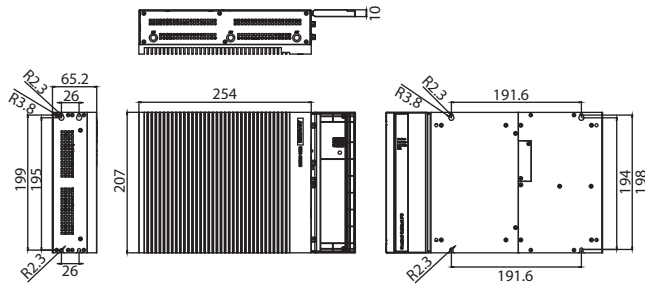
### Wall mount



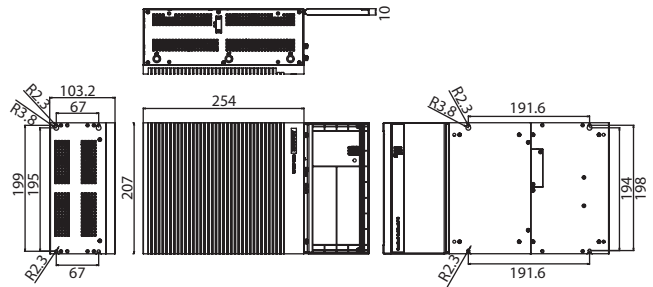
## Dimensions

Unit: mm

### UNO-3382G

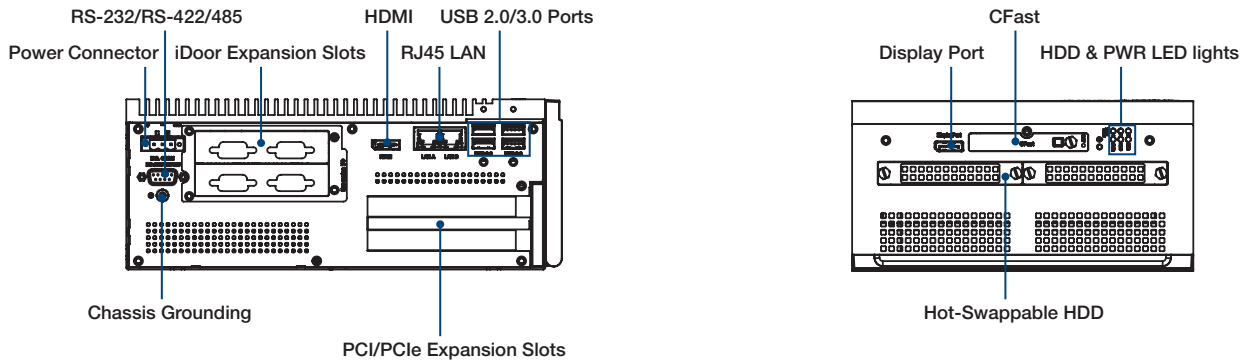


### UNO-3384G



## I/O View

### UNO-3384G



## Ordering Information

- UNO-3382G-474AE** Intel® Core™ i7-4650U 1.7GHz, 8GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- UNO-3384G-474AE** Intel® Core™ i7-4650U 1.7GHz, 8GB, 2 x LANs, 1 x PCIe4, 1 x PCI, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- UNO-3382G-4C3AE** Intel® Celeron® 2980U 1.6GHz, 4GB, 2 x LANs, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP
- UNO-3384G-4C3AE** Intel® Celeron® 2980U 1.6GHz, 4GB, 2 x LANs, 1 x PCIe4, 1 x PCI, 2 x Full-size mPCIe, 1 x HDMI, 1 x DP

## Optional Accessories

- UNO-IPS2730-AE** UPS module
- UNO-3300FAN-AE** FAN kit for UNO-3384G series
- UNO-3300PSM-AE** 110W AC to DC power adapter

## Embedded O/S

- 2070013477** Image WES7P X64 MUI. for UNO-3382G/3384G
- 2070013478** Image Linux for UNO-3382G/3384G

## iDoor Modules

- PCM-24R2PE-AE** 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
- PCM-24R2GL-AE** 2-Port Gigabit Ethernet, mPCIe, RJ45
- PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- PCM-24D4R4-AE** 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-24S2WF-AE** Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-26R2PN-AE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- PCM-26R2PN-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- PCM-26R2EC-AE** 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Master
- PCM-26R2EC-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45, Slave
- PCM-26R2EI-AE** 2-Port Hilscher netX100 FieldBus mPCIe, Ethernet/IP, RJ45, Master
- PCM-26R2EI-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, Ethernet/IP, RJ45, Slave
- PCM-26D1DB-AE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

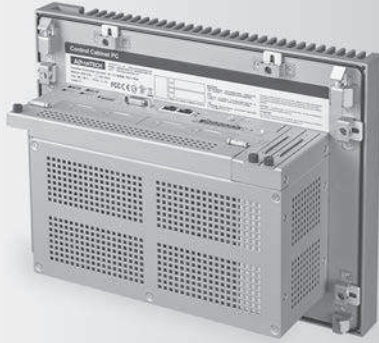
- 1 WebAccess® Solution
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- 18 IP Gateway and Serial Device Servers
- 19 Networking



# UNO-3483G

## Intel® Core™ i7 Control Cabinet PC w/ 2 x GbE, 2 x mPCIe, HDMI/VGA

NEW



### Features

- 3rd Generation Intel® Quad Core Processors, up to 2.1 GHz with 8GB DDR3L Memory
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232, 1 x RS-422/485 (pin header), 1 x VGA, 1 x HDMI
- 1 x PCIe4, 3 x mPCIe (2 x full, 1 x half), 1 x mSATA slot
- Space-saving Compact with Fanless Design
- Thumb screw to easy maintenance
- Hot-Swappable HDD/SSD support for RAID 0/1
- High protection IP67 certification
- Convenient "Place & Click"
- Easily exchangeable RTC battery
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)

### Introduction

Advantech's UNO-3483G Control Cabinet PC is configured with high-performance Intel Core i7 processors and QM77 PCH, which supports two displays, four USB ports, two mPCIe sockets, and up to three expansion slots. It also includes iDoor technology which supports automation feature extensions such as industry Fieldbus communication, Wi-Fi/3G, and Digital I/O. The UNO-3483G has a compact heat sink with integrated seals mounted on the outside of the cabinet through a corresponding cutout; it has a place-and-click feature that considers users' activities and then simplifies the installation procedure to conserve space and to maintain IP67 protection. The high performing UNO-3483G model offers maximum flexibility when selecting the control cabinet, and remains independent of the number and form of control buttons and switches on the front panel.

### Specifications

#### General

- **Certification** CE, FCC, UL, BSMI
- **Dimensions (W x D x H)** 305 x 82 x 225 mm (12" x 3.2" x 8.9")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Enclosure mounting
- **Weight (Net)** 4.9kg (10.8lbs)
- **Power Requirements** 12V/24V<sub>DC</sub> ± 20%
- **Power Consumption** 50W (Typical)
- **OS Support** WIN7/8, WES7, WES-2009, Linux

#### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel® Core™ i7-3612QE QC 2.1GHz Ivy Bridge Quad Core, 6MB L2
- **System Chip** Integrated Intel 8 Series Chipset
- **Memory** On-board 8GB DDR3L 1333 MHz
- **Graphics Engine** Intel® HD Graphics 4000
- **Ethernet** LAN A: Intel® 82579LM GbE, Intel® AMT, IEEE802.1AS, 802.3az  
LAN B: Intel® 82583V GbE, IEEE802.1AS, 802.3az
- **LED Indicators** LEDs for Power, LAN (Active, Status), Tx/Rx and HDD
- **Storage** One mSATA slot  
Two built-in 2.5" SATA HDD brackets with support for RAID 0/1. (Compatible with 9.5mm height HDD)
- **Expansion** 1 x PCIe4, 2 x Full-size mPCIe, 1 x half-size mPCIe

#### I/O Interfaces

- **Serial Ports** 1 x RS-232, DB9, 50~115.2kbps (pin header)  
1 x RS-422/485, DB9, auto flow control, 50~115.2kbps (pin header)
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet

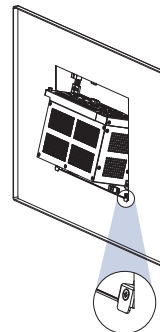
- **USB Ports** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant)
- **Displays** 1 x VGA, supports 1920 x 1200 @ 60Hz 24bpp  
1 x HDMI 1.4a, supports 3200 x 2000 @ 60Hz 24bpp
- **Audio** Mic-in, Line-In, Line-Out (Pin Header)
- **Power Connector** 1 x 7 Pin, Terminal Block to support dual power input and remote power control

#### Environment

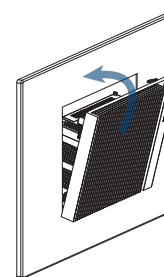
- **Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow (Industry SSD)  
- 40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)
- **Ingress Protection** Integrated seals maintain IP67 protection

### Installation Scenario

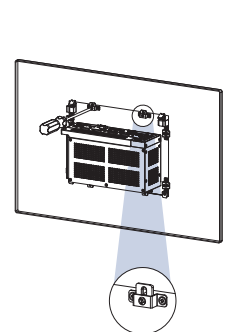
#### STEP 1



#### STEP 2

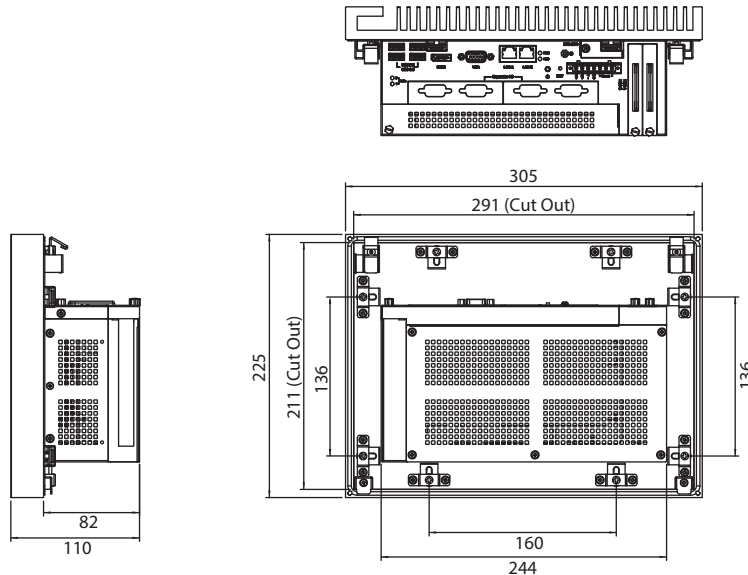


#### STEP 3

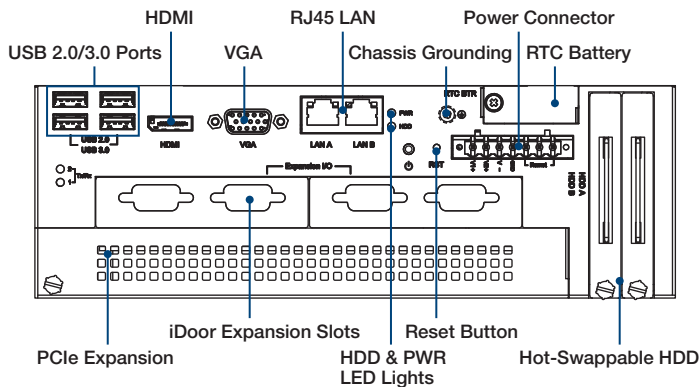


## Dimensions

Unit: mm



## I/O View



## iDoor Modules

- **PCM-23C1CF-AE** 1 CFast Slot with Cover Protection
- **PCM-24R2PE-AE** 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45
- **PCM-24D2R4-AE** 2-Port Isolated RS-422/485 mPCIe, DB9
- **PCM-24D4R4-AE** 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- **PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- **PCM-24S2WF-AE** Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S23G-AE** Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA
- **PCM-26R2PN-MAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- **PCM-26R2PN-SAE** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave
- **PCM-26D1DB-MAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- **PCM-26D1DB-SAE** 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave

## Ordering Information

- **UNO-3483G-374AE** Intel® Core™ i7-3612QE QC 2.1GHz, 8GB, 2 x LANs, 1 x PCIe4, 2 x Full-size mPCIe, 1 x half-size mPCIe

## User scenario



## Optional Accessories

- **96PSA-A150W19P4-1** 150W AC to DC power adapter
- **1702002600** Power cable US Plug 1.8 M
- **1702002605** Power cable EU Plug 1.8 M
- **1702031801** Power cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

## Embedded O/S

- **2070013472** Image WES7P X64 MUI. for UNO-3483G
- **2070013473** Image Linux for UNO-3483G

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# UNO-3283G

## Intel® Core™ i7 Automation Computer w/ 2 x GbE, 2 x mPCIe, HDMI, DVI-I

**NEW**



### Features

- 6th Generation Intel® Quad Core Processors, up to 2.0 GHz with 8GB DDR4 Memory
- 2 x GbE, 6 x USB 3.0, 2 x RS-232/422/485, 1 x RS-422/485 (pin header), 1 x DVI-I, 1 x HDMI
- 1 x PCIe x16, 1x PCI, 2 x mPCIe (2 x full), 1x CFast slot, 1 x mSATA slot (optional)
- Thumb screw for easy maintenance
- Hot-Swappable HDD/SSD support for RAID 0/1
- Easily exchangeable RTC battery
- Supports Fieldbus Protocol by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)



### Introduction

The high performing UNO-3283G models are configured with high-performance Intel Gen.6 Quad Core i7 processor and QM170 PCH, which offers users the maximum flexibility, up to three displays, six USB 3.0 ports, two mPCIe sockets, and up to three expansion slots including one PCIe x16 slot, one PCI slot and one iDoor expansion, iDoor technology supports automation feature extensions such as industry Fieldbus communication, POE, COM & Digital I/O. The UNO-3283G has a variety of convenient designs, captive thumb screw, dual hot-swappable HDD/SSD slots; the exchangeable RTC battery facilitates maintenance work, and dual power input helps ensure a stable power environment.

### Specifications

#### General

- **Certification** CE, UL, CCC, FCC, BSMI
- **Dimensions (W x D x H)** 142 x 238 x 177 mm (5.6" x 9.3" x 6.9")
- **Form Factor** Regular Size
- **Mounting** Wall mount, Stand mount, Enclosure mount
- **Weight (Net)** 4.5kg (9.9lbs)
- **Power Requirements** 10-36 V<sub>DC</sub>
- **Power Consumption** 30W (Typical @ 24W); 90W (Max. @ 24W)
- **OS Support** WIN7/8/10, WES7, Win10 Ent. LTSB, AdvLinuxTU

#### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec (Timebase 100ms of trigger timer in AP mode is available)
- **Processor** Intel® Core™ i7-6822EQ 2.0GHz 6th gen Quad Core L2 Integrated Intel 100 Series Chipset
- **System Chip** Built-in 8GB DDR4 2133 MHz (Optional ECC RAM with selected RAM module)
- **Memory** Intel HD Graphics 100 series
- **Graphics Engine** LAN A: Intel® I219-LM GbE, Intel® AMT, IEEE802.1AS, 802.3az
- **Ethernet** LANB: Intel® I210-IT GbE, IEEE802.1AS, 802.3az
- **LED Indicators** LEDs for Power, LAN, Tx/Rx, battery and HDD
- **Storage** One mSATA slot; One CFast slot  
Two built-in 2.5" SATA HDD brackets with support for RAID 0/1. (Compatible with 9.5mm height HDD)
- **Expansion** 1 x PCIe x16, 1 x PCI, 2 x Full-size mPCIe

#### I/O Interfaces

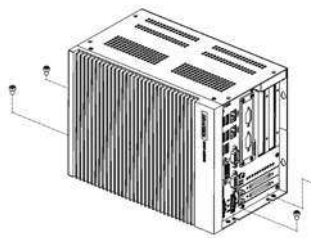
- **Serial Ports** 2 x RS-232/422/485 with DB9 connectors, automatic RS-485 data flow control, 2 x RS-232 (optional pin header)
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 6 x USB 3.0 Ports
- **Displays** 1 x DVI-I, supports 1920 x 1080 @ 60Hz 24bpp  
1 x HDMI 1.4a, supports 1920 x 1080 @ 24Hz 24bpp
- **Audio** Mic-in, Line-In, Line-Out (Pin Header)
- **Power Connector** 2 x 3 Pin, terminal Block to support dual power input and relay output

#### Environment

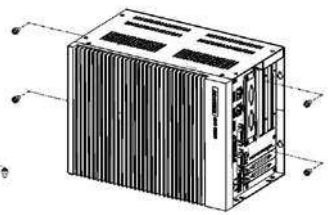
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F) with 0.7m/s airflow environment
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 4Grms, random, 5 ~ 500Hz, 1hr/axis (SSD); 1.5Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)

### Installation Scenario

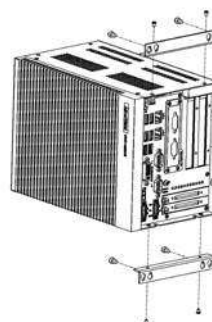
#### Stand mount



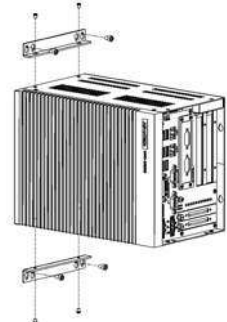
#### Wall mount 02



#### Enclosure Mount 01

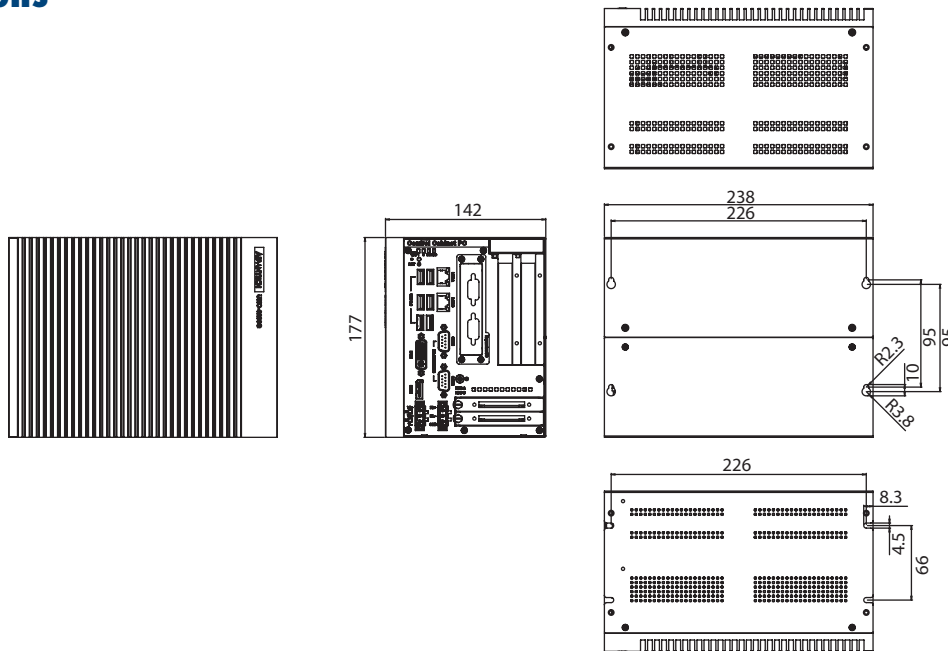


#### Wall mount 01

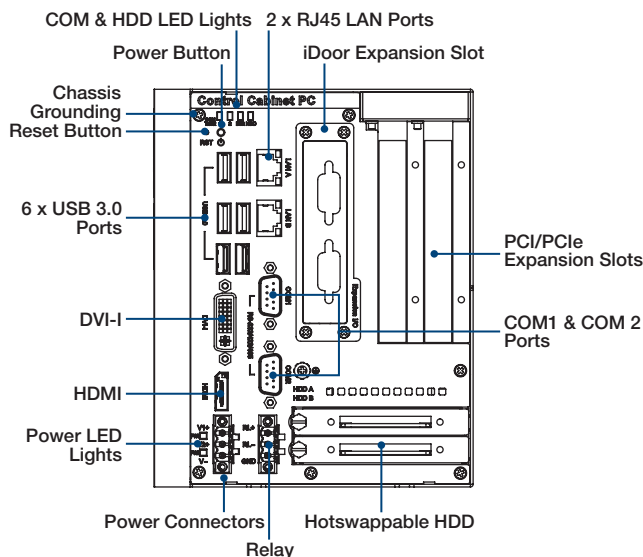


## Dimensions

Unit: mm



## I/O View



## iDoor Modules

- **PCM-2300MR-AE** MR4A16B, 2MByte
- **PCM-26D1PB-AE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-26D2CA-AE** SJA1000 CANbus, CANopen, DB9 x 1
- **PCM-24D2R4-AE** OXPCIe-952 UART, Isolated RS-422/485, DB9 x 2
- **PCM-24D2R2-AE** OXPCIe-952 UART, Isolated RS-232, DB9 x 2
- **PCM-24D4R4-AE** OXPCIe-954 UART, Non-Isolated RS-422/485, DB37 x 1
- **PCM-24D4R2-AE** OXPCIe-954, UART, Non-Isolated RS-232, DB37 x 1
- **PCM-27D24DI-AE** Digital I/O, 16DI / 8DO, DB37 x 1
- **PCM-24R1TP-AE** Intel 82574L, GbE, IEEE 1588 PTP, RJ45 x 1

## Optional Accessories

- **96PSA-A150W24T2** 150W AC to DC power adapter
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **UNO-3200MKT-AE** Mounting kit for UNO-3200 series

## Ordering Information

- **UNO-3283G-674AE** Intel Core™ i7-6822EQ 2.0GHz, 8GB, 2 x LAN, 1 x PCIe x16, 1 x PCI, 2 x Full-size mPCIe

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
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- 16 RS-485 I/O Modules
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- 19 Networking





## Industrial IoT Gateways

<b>Industrial IoT Gateways Selection Guide</b>		<b>8-2</b>
<b>UNO-2271G</b>	Intel® Atom™ Pocket-Size Automation Computer with 2 x GbE, 1 x mPCIe, HDMI, eMMC	<b>8-4</b>
<b>UNO-2272G</b>	Intel® Atom™/Celeron® Palm-Size Automation Computer with 1 x GbE, 2 x mPCIe, VGA/HDMI	<b>8-6</b>
<b>UNO-2362G</b>	AMD® Dual Core T40E Small-Size Automation Computer w/ 1 x GbE, 1 x mPCIe, HDMI/DP	<b>8-8</b>
<b>UNO-2483G</b>	Intel® Core™ i7/i3/Celeron® Regular-Size Automation Computer w/ 4 x GbE, 3 x mPCIe, HDMI/VGA	<b>8-10</b>
<b>UNO-2473G</b>	Intel® Atom™/Celeron® J1900 Processor Regular-Size Automation Computer w/ 4 x GbE, 3 x mPCIe, HDMI/VGA	<b>8-12</b>

To view all of Advantech's Industrial IoT Gateways, please visit [www.advantech.com/products](http://www.advantech.com/products).



# Industrial IoT Gateways Selection Guide

NEW



NEW



Model Name	UNO-2271G	UNO-2272G
CPU	4G DDR3L Onboard	Intel® Atom™ N2800, 1.86GHz Intel® Atom™ J1900, 2.41GHz
Onboard RAM	N/A	2G DDR3/DDR3L SDRAM
Battery-Backup RAM	HDMI	-
Display	N/A	VGA for N2800 HDMI for J1900
Audio	2 x RS-232/433/485 for E23AE	Yes
Serial Ports	2 x 10/100/1000Base-T	1 x RS-232
Ethernet Ports	1 x USB3.0 for E21AE	1 x 10/100/1000Base-T
USB Ports	1 x USB3.0 and 3 x USB2.0 for E22AE	3 external for N2800 3 external (1 x USB3.0) for J1900
PC Card Slots	1 x USB3.0 for E23AE	-
Printer Ports	N/A	-
PC/104 Expansion	N/A	-
PCIe/PCI Expansion	1 x full size mPCIe	1 x Mini PCIe, 1 x Half-size Mini PCIe with 1 x SIM slot for N2800 2 x Mini PCIe with 1 x SIM slot for J1900
Onboard I/O	N/A	-
Watchdog Timer	Yes	Yes
CompactFlash Slots	N/A	1 x mSATA
2.5" HDD Expansion	N/A	-
Operating Systems	Microsoft Windows 7, Linux	Microsoft® Windows 7, WES7, Linux
Mounting	Stand, Wall, VESA, Pole	Stand, Wall, VESA (Optional)
Anti-Vibration	2G w/eMMC	0.75G w/mSATA, 2G w/HDD
Anti-Shock	50G w/eMMC	50G w/mSata, 20G w/HDD
Power Input Range*	10 ~ 30V @1A power input	24V ± 20%
Operating Temperature	0 ~ 50°C	- 20 ~ 60°C (-4 ~ 140°F) for N2800, 0 ~ 50°C (32 ~ 122°F) for J1900
Power Consumption Typical	10W	10 W
Power Requirements	12W, +24 V @ 0.5 A	12W, +24 V @ 0.5 A power input
Dimensions (W x D x H)	100 x 70 x 35 mm	157 x 88 x 50 mm (6.2" x 3.5" x 2.0")
Weight	0.6kg	0.8kg
Page	8-4	8-6

\* All power input ranges represent the minimum and maximum values recommended for these devices.

# Selection Guide

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**NEW**



**NEW**



**NEW**



UNO-2362G	UNO-2473G	UNO-2483G
AMD G-Series APU T40E 1.0GHz Dual Core	Intel® Core™ i7-4650U ULT 1.7GHz Dual Core Intel® Core™ i3-4010U ULT 1.7GHz Dual Core Intel® Celeron® 2980U ULT 1.6GHz Dual Core Intel® Atom™ E3845 1.91GHz Quad Core Intel Celeron J1900 2.41GHz Quad Core	Intel® Core™ i7-4650U ULT 1.7GHz Dual Core Intel® Core™ i3-4010U ULT 1.7GHz Dual Core Intel® Celeron® 2980U ULT 1.6GHz Dual Core Intel® Atom™ E3845 1.91GHz Quad Core Intel Celeron J1900 2.41GHz Quad Core
2G DDR3 SDRAM	8G/4G DDR3L SDRAM	8G/4G DDR3L SDRAM
-	-	-
HDMI/DP	HDMI/VGA	HDMI/VGA
-	Yes	Yes
1 x RS-232, 1 x RS-485	2 x RS-232, 2 x RS-422/485	2 x RS-232, 2 x RS-422/485
2 x 10/100/1000Base-T, (1 x Giga Ethernet switch with daisy chain technology)	4 x 10/100/1000Base-T	4 x 10/100/1000Base-T
4 external	4 external (2 x USB3.0)	4 external (2 x USB3.0)
-	-	-
-	-	-
-	-	-
1 x Mini PCIe with 1 x SIM slot	2 x mPCIe, 1 x Half-size mPCIe	2 x mPCIe, 1 x Half-size mPCIe
-	-	-
Yes	Yes	Yes
1 x mSATA	1 x mSATA	1 x mSATA
1 x SATA (optional)	1 x SATA for UNO-2473G 2 x SATA for UNO-2483G	1 x SATA for UNO-2473G 2 x SATA for UNO-2483G
Microsoft® Windows XP/7/8 WES7, Linux	Microsoft® Windows 7/8, WES7, Linux	Microsoft® Windows 7/8, WES7, Linux
Stand, Wall, VESA (Optional)	Stand, Wall, VESA (Optional)	Stand, Wall, VESA (Optional)
0.75G w/mSATA, 2G w/HDD	0.7G w/mSATA, 2G w/HDD	0.7G w/mSATA, 2G w/HDD
50G w/mSata, 20G w/HDD	50G w/mSata, 20G w/HDD	50G w/mSata, 20G w/HDD
24V ± 15%	24V ± 20%	24V ± 20%
- 10 ~ 60°C (14 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)
14 W	28 W	28 W
24W, +24 V @ 1A power input	72 W, +24 V @ 3A power input	72 W, +24 V @ 3A power input
190 x 107 x 47 mm (7.5" x 4.2" x 1.8")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
1.0kg	1.6kg	1.6kg
8-8	8-12	8-10

# UNO-2271G

Intel® Atom™ Pocket-Size  
Smart Factory Edge Gateway with  
2 x GbE, 1 x mPCIe, HDMI, eMMC

NEW



## Features

- Intel® Atom™ E3815 Processor up to 1.46 GHz with 4GB DDR3L onboard Memory
- 2 x GbE, 1 x USB 3.0, 1 x HDMI, Option 2 x RS-232/422/485 or 3 x USB2.0
- Compact Fanless Design
- Rubber Stopper Design with internal reserved screws for 2nd layer assembly
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports 30+ iDOOR combination with four main categories of smart factory application
- Chassis Grounding Protection
- Built-in 32G eMMC storage
- Selectable I/O support for standard models

## Introduction

Advantech's new generation UNO-2000 series of Embedded Automation Computers are Fanless with highly ruggedized with embedded operation system. New UNO-2000 series implement Universal, Customized, and Domain idea into modular design concept which provides flexible and time-to-market support in variety of applications. The series also includes iDOOR technology which supports automation feature-extensions such as Multiple I/O Peripheral, Industrial Fieldbus, Smart I/O Communication, and Signal Communication. New UNO-2000 series including pocket, small, and regular-size form-factors with indicated market segments in terms of different kinds of smart factory application categories such as Equipment Connectivity (EC), Process Visualization (PV), Environment Management (EM), and Dispatch Management (DM) solution. New UNO enables smart factory and fulfill all application.

## Specifications

### General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 100 x 70 x 30 mm (3.9" x 2.8" x 1.2"), UNO-2271G-E21AE  
100 x 70 x 65 mm (3.9" x 2.8" x 2.6"), UNO-2271G-E22AE and E23AE
- **Form Factor** Pocket Size, same dimension as standard 2.5" SSD/HDD
- **Enclosure** Aluminum Housing
- **Mounting** Stand, Wall, VESA (Optional), DIN-rail (Optional), Pole (Optional)
- **Weight (Net)** 0.5 kg (1.1lbs) for UNO-2271G-E21AE  
0.6 kg (1.2lbs) for UNO-2271G-E22AE and E23AE
- **Power Requirement** 10 ~ 30V<sub>DC</sub>
- **Power Consumption** 12W (Typical), 20W (Max)
- **OS Support** Microsoft® Windows 10, Windows 7, Advantech Linux

### System Hardware

- **BIOS** AMI EFI64 Mbit
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel Atom E3815 1.46GHz
- **System Chip** Intel Atom SoC integrated
- **Memory** Onboard 4GB DDR3L 1066 MHz
- **Graphics Engine** Intel® HD Graphics
- **Ethernet** Realtek RTL8111E GbE, 802.10av, IEEE1588/802.1AS, 803.3az
- **LED Indicators** LEDs for Power, HDD, LAN (Active, Status)
- **Storage** Onboard 32G eMMC (Option mSATA)
- **Expansion** 1 x Full-size mPCIe slot

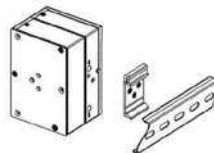
### I/O Interfaces

- **Serial Ports** 2 x RS 232/422/485 by extension mini card for UNO-2271G-E22AE/UNO-2271G-E23AE
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet

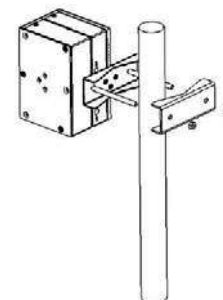
- **USB Ports** 1 x USB 3.0 for UNO-2271G-E21AE  
3 x USB 2.0 and 1 x USB 3.0 for UNO-2271G-E22AE and UNO-2271G-E23E by extension USB card support (Option COM port x 2)
  - **Displays** 1 x HDMI, supports 1920 x 1080 @ 60Hz
  - **Power Connector** 1 x 2 Pins, Terminal Block
  - **Grounding Protection** Chassis Grounding
- ### Environment
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F) @ 5 ~ 85% RH with 0.7 m/s airflow
  - **Storage Temperature** -20 ~ 70°C (-4 ~ 158°F)
  - **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
  - **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11 ms
  - **Vibration Protection** Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (mSATA)
  - **Ingress Protection** IP40

## Installation Scenario

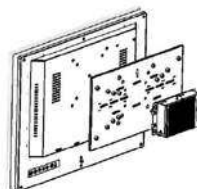
### DIN-rail Mount Illustration



### Pole Mount Illustration



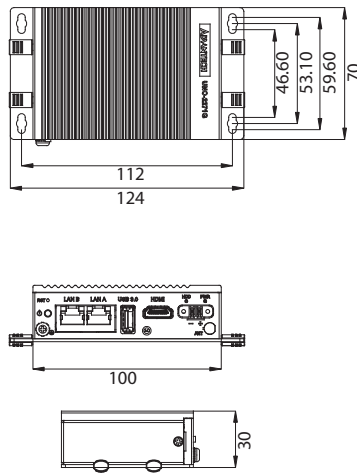
### VESA Mount Illustration



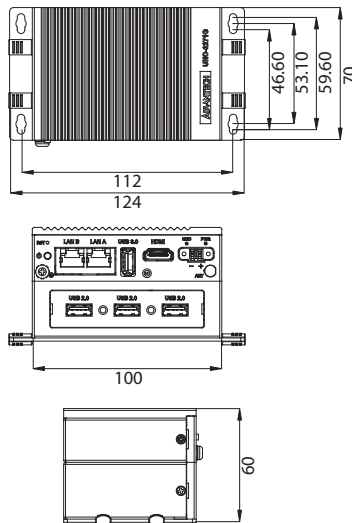
## Dimensions

Unit: mm

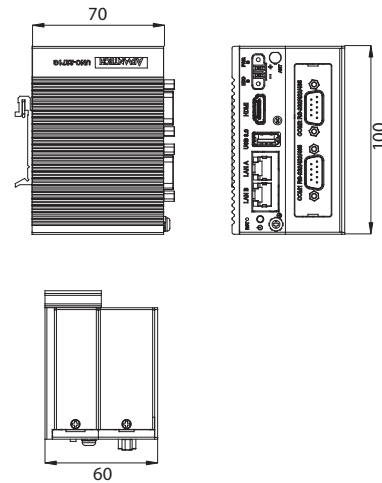
UNO-2271G-E21AE



UNO-2271G-E22AE

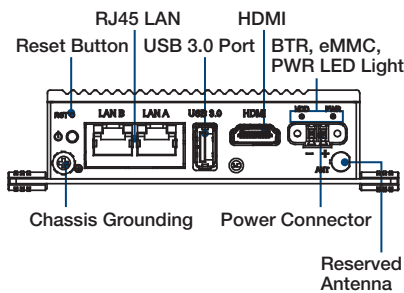


UNO-2271G-E23AE

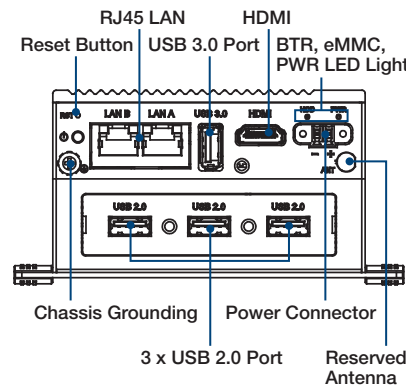


## Front I/O View

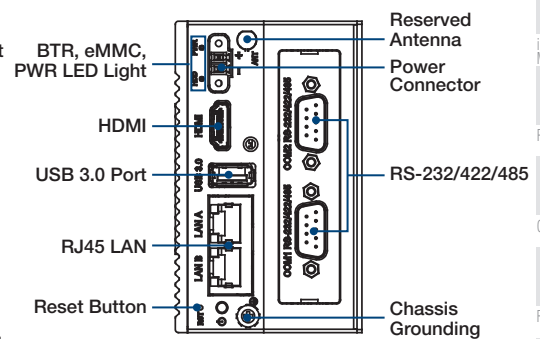
UNO-2271G-E21AE



UNO-2271G-E22AE



UNO-2271G-E23AE



## Ordering Information

- UNO-2271G-E21AE 2271G-Standard, Intel Atom E3815 1.46 GHz, 4GB, 2 x LAN, 1 x mPCIe, 1 x USB3.0
- UNO-2271G-E22AE 2271G-Universal, Intel Atom E3815 1.46 GHz, 4GB, 2 x LAN, 1 x mPCIe, 1 x USB3.0, 3 x USB2.0
- UNO-2271G-E23AE 2271G-DIN RAIL, Intel Atom E3815 1.46GHz, 4GB, 2 x LAN, 1 x mPCIe, 1 x USB3.0, 2 x RS-232/422/485
- UNO-2271G-STKAE 2271G-Ready-to-Go, UNO-2271G-E21AE with Windows 10 LTSB, WISE-PaaS/RMM, and PWR-247-CE 60W Adapter

## iDoor Modules

- PCM-24S2WF-AE 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-24S23G-AE 6-band HSPA Cellular Module, GPS, SIM holder, SMAx2
- PCM-24R2GL-AE 2-Port Gigabit Ethernet, mPCIe, RJ45
- PCM-24D2R2-AE 2-Port Isolated RS-232 mPCIe, DB9
- PCM-24D4R4-AE 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- PCM-24R1TP-AE 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37

## Optional Accessories

- PWR-247-CE 60W AC to DC UNO series power adapter (Industrial Grade)
- 1702002600 Power Cable US Plug 1.8 M (Industrial Grade)
- 1702002605 Power Cable EU Plug 1.8 M (Industrial Grade)
- 1702031801 Power Cable UK Plug 1.8 M (Industrial Grade)
- 1700000596 Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- UNO-2000G-VMKAE UNO-2000 VESA Mount Kit
- UNO-2000G-PMKAE UNO-2000 Pole Mount Kit
- 1960018849T021 UNO-2271G DIN RAIL Kit
- TBD Windows 10 Enterprise image for UNO-2271G
- TBD WES7P image for UNO-2271G MUI

## EIS Software Bundle Packages

- EIS-FPV110-A2271AE UNO-2271G-E22AE, ACP TMRReady Client, HDMIx1
- EIS-FPV110-H2271AE UNO-2271G-E21AE, 1500 tags, 32G eMMC, WES7P
- EIS-FEM210-H2271AE UNO-2271G-E23AE, 1500 tags, 32G eMMC, WES7P
- EIS-FEM210-S2271AE UNO-2271G-E23AE, 1500 tags, 32G eMMC, WES7P
- EIS-FEC310-H2271AE UNO-2271G-E23AE, 1500 tags, 32G eMMC, WES7P
- EIS-FDM410-H2271AE UNO-2271G-E23AE, 1500 tags, 32G eMMC, WES7P

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- 18 IP Gateway and Serial Device Servers
- 19 iNetworking



# UNO-2272G

Intel® Atom™/Celeron® Palm-Size Automation Computer with 1 x GbE, 2 x mPCIe, VGA/HDMI

NEW



## Features

- Intel® Atom™ N2800/J1900 Processors up to 2.41 GHz with 2GB DDR3/DDR3L Memory
- 1 x GbE, 3 x USB 2.0/3.0, 1 x RS-232, 1 x VGA or HDMI, Audio
- Comprehensive palm, small, regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- Supports Fieldbus Protocol by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection

## Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are fanless, with a highly ruggedized embedded operating system (Linux-Embedded). The series also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including palm, small, and regular-size form-factors with indicated market segments in terms of entry, value, and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

## Specifications

### General

- Certification** CE, FCC, UL, CCC, BSMI
- Dimensions (W x D x H)** 157 x 88 x 50 mm (6.2" x 3.5" x 2.0")
- Form Factor** Palm Size
- Enclosure** Aluminum Housing
- Mounting** Stand, Wall, VESA (Optional), DIN-rail (Optional)
- Weight (Net)** 0.8 kg (1.76 lbs)
- Power Requirement** 24VDC ± 20%
- Power Consumption** 12W (Typical), 20W (Max)
- OS Support** Microsoft® Windows 7, WES7, Advantech Linux

### System Hardware

- BIOS** AMI EFI64 Mbit
- Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- Processor** Intel Atom Dual Core N2800 1.86 GHz  
Intel Celeron Quad Core J1900 2 GHz
- System Chip** Intel Atom SoC integrated
- Memory** Built-in 2GB DDR3 1600 MHz for UNO-2272G-N2AE  
Built-in 2GB DDR3L 1333 MHz for UNO-2272G-J2AE
- Graphics Engine** Intel® HD Graphics
- Ethernet** Intel 82583V GbE, 802.10av, IEEE1588/802.1AS, 803.3az for UNO-2272G-N2AE  
Intel i210 GbE, 802.10av, IEEE1588/802.1AS, 803.3az for UNO-2272G-J2AE
- LED Indicators** LEDs for Power, HDD, LAN ((Active, Status)
- Storage** 1 x half-size mSATA for UNO-2272G-J2AE  
1 x full-size mSATA for UNO-2272G-N2AE  
Supports HDD/SSD by project
- Expansion** 1 x Full-size mPCIe slot, 1 x Half-size mPCIe slot, mPCIe Rev. 2.0 for UNO-2272G-N2AE  
2 x Full-size mPCIe slot, mPCIe Rev. 2.0 for UNO-2272G-J2AE

### I/O Interfaces

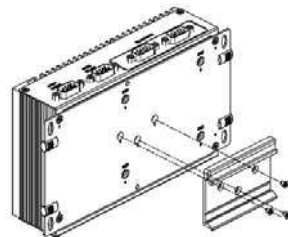
- Serial Ports** 1 x RS-232, DB9, 50 ~ 115.2kbps for UNO-2272G-N2AE  
1 x RS-232 (RS-422/485 by BIOS option), DB9, 50 ~ 115.2kbps for UNO-2272G-J2AE
- LAN Ports** 1 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- USB Ports** 3 x USB 2.0 for UNO-2272G-N2AE  
2 x USB 2.0 and 1 x USB 3.0 for UNO-2272G-J2AE
- Displays** 1 x VGA, supports 1920x1200 @ 60Hz 24bpp for UNO-2272G-N2AE  
1 x HDMI, supports 1920 x 1080 @ 60Hz for UNO-2272G-J2AE
- Audio** Line-Out
- Power Connector** 1 x 2 Pins, Terminal Block
- Grounding Protection** Chassis Grounding

### Environment

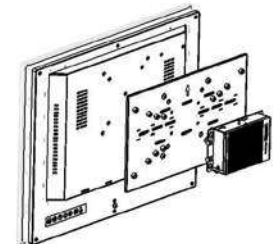
- Operating Temperature** - 20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7 m/s airflow for UNO-2272G-N2AE  
-10 ~ 55°C (14 ~ 131) @ 5 ~ 85% RH with 0.7 m/s airflow for UNO-2272G-J2AE
- Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11 ms
- Vibration Protection** Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (mSATA)
- Ingress Protection** IP40

## Installation Scenario

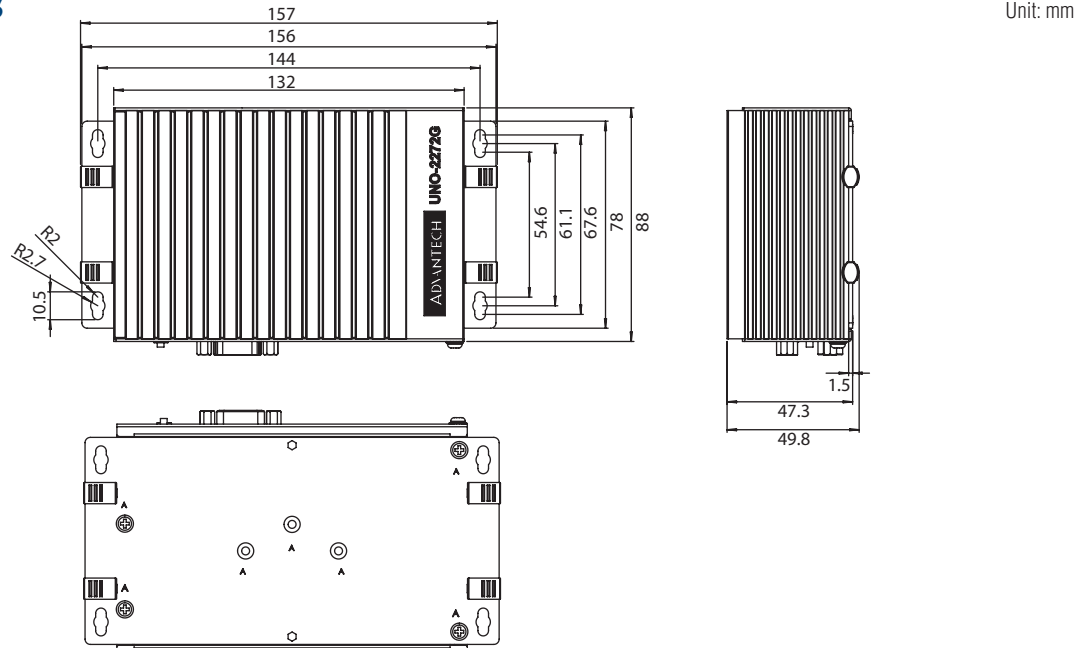
### DIN-rail Mount Illustration



### VESA Mount Illustration

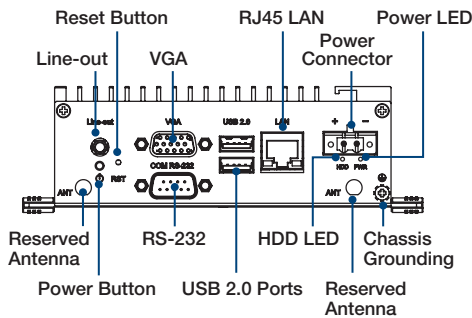


## Dimensions

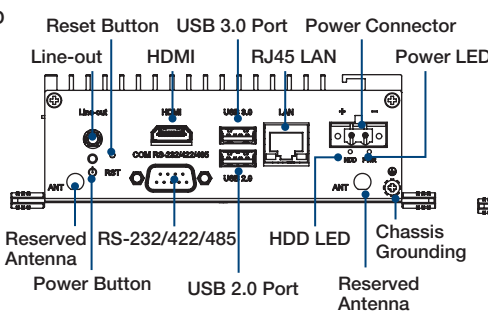


## Front I/O View

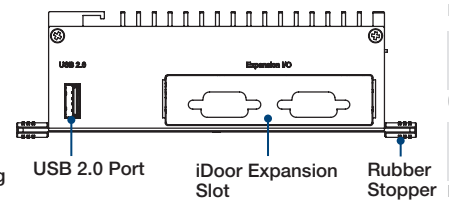
UNO-2272G-N2AE



UNO-2272G-J2AE



## Rear I/O View



## Ordering Information

- UNO-2272G-N2AE Intel Atom N2800 1.86GHz, 2GB, 1xLANs, 2xmPCIe
- UNO-2272G-J2AE Intel Atom J1900 2.41GHz, 2GB, 1xLANs, 2xmPCIe

## iDoor Modules

- PCM-24S2WF-AE 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-24U2U3-AE 2-Port USB 3.0, mPCIe, USB-A type
- PCM-24R2GL-AE 2-Port Gigabit Ethernet, mPCIe, RJ45
- PCM-24D2R2-AE 2-Port Isolated RS-232 mPCIe, DB9
- PCM-24D4R4-AE 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- PCM-24R1TP-AE 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-26D1DB-MAE 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Master
- PCM-26D1DB-SAE 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9, Slave
- PCM-26R2PN-MAE 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Master
- PCM-26R2PN-SAE 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45, Slave

## Optional Accessories

- 96PSA-A60W24T2 60WC to DC UNO series power adapter (Industrial Grade)
- 1702002600 Power Cable US Plug 1.8 M (Industrial Grade)
- 1702002605 Power Cable EU Plug 1.8 M (Industrial Grade)
- 1702031801 Power Cable UK Plug 1.8 M (Industrial Grade)
- 1700000596 Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- 1700001524 Power Cable 3-pin US type 1.8 M (Commercial Grade)
- 170203183C Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- 170203180A Power Cable 3-pin UK type 1.8 M (Commercial Grade)
- UNO-2000G-DMKAE UNO-2000 DIN Rail Kit
- UNO-2000G-VMKAE UNO-2000 VESA Mount Kit

## Embedded O/S

- 2070013098 Image WES7P X86 MUI. V4.12 B001 for UNO-2272G-Nx

## S/W Bundle Offering

- WA-HU2272G-J15H2AE UNO-2272G-J2AE, HMI Runtime 1500 tags, 32G mSATA, WES7P

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# UNO-2362G

## AMD® Dual Core T40E Small-Size Automation Computer w/ 1 x GbE, 1 x mPCIe, HDMI/DP

NEW



susiAccess iDoor RoHS COMPLIANT 2002/95/EC CE FCC UL US LISTED E10001 ETC.

## Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are fanless, with a highly ruggedized embedded operating system (Windows CE, Windows XPE, Linux-Embedded). The series also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including palm, small, and regular-size form-factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

## Specifications

### General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 190 x 107 x 47 mm (7.5" x 4.2" x 1.8")
- **Form Factor** Small Size
- **Enclosure** Aluminum Housing
- **Mounting** Stand, Wall, VESA (Optional)
- **Weight (Net)** 1.0kg (2.2lbs)
- **Power Requirement** 24VDC  $\pm$ 15%
- **Power Consumption** 14W (Typical), 24W (Max)
- **OS Support** Microsoft® Windows XP/7/8 WES7  
Advantech Linux

### System Hardware

- **BIOS** AMI UEFI 32Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** AMD® G-series T40E 1.0GHz dual core, 512MB
- **System Chip** AMD® A50M FCH
- **Memory** On-board 2GB DDR3 833/1066 MHz
- **Graphics Engine** AMD Radeon™ HD 6250 DirectX® 11 graphics with UVD 3.0 2D/3D Accelerator
- **Ethernet** Realtek RTL8111E, Marvell 88E6172 Giga Ethernet switch with daisy chain technology
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status) and HDD
- **Storage** One mSATA drive or  
One drive bay for SATA 2.5" HDD (Compatible with 9.5mm height HDD)  
Note: iDoor technology isn't compatible with HDD storage.  
CFast drive by iDoor Technology (Optional)
- **Expansion** 1 x Full-size mPCIe slot, mPCIe 2.0 (supports SIM card)

### I/O Interfaces

- **Serial Ports** 1 x RS-232, DB9, 50 ~ 115.2kbps  
1 x RS-485, DB9, auto flow control, 50 ~ 115.2kbps
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 4 x USB 2.0 Compliant
- **Displays** 1 x DisplayPort 1.1, supports 1920x1200 (HD 6250) @ 30 bpp  
1 x HDMI v1.3, supports 1920x1080p @ 36 bpp  
1 x 2 Pins, Terminal Block
- **Power Connector** Chassis Grounding
- **Grounding Protection**

## Features

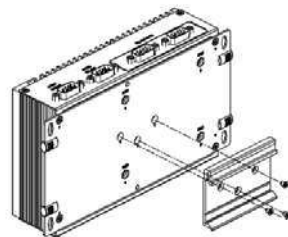
- Onboard AMD® Dual Core T40E 1.0GHz processors with 2GB DDR3 SODIMM Memory
- 1 x GbE, 4 x USB 2.0, 1 x RS-232, 1 x RS-485, 1 x DP, 1 x HDMI
- Comprehensive palm, small, regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Daisy-Chain for Ethernet with auto-bypass protection enabled
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports Battery-backup MRAM by iDoor Technology
- Chassis Grounding Protection

### Environment

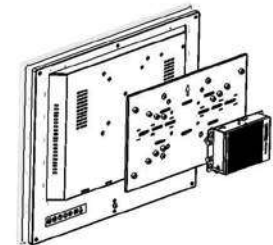
- **Operating Temperature** - 10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature** - 40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)  
Operating, IEC 60068-2-64, 0.75Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
- **Ingress Protection** IP40

## Installation Scenario

### DIN-rail Mount Illustration

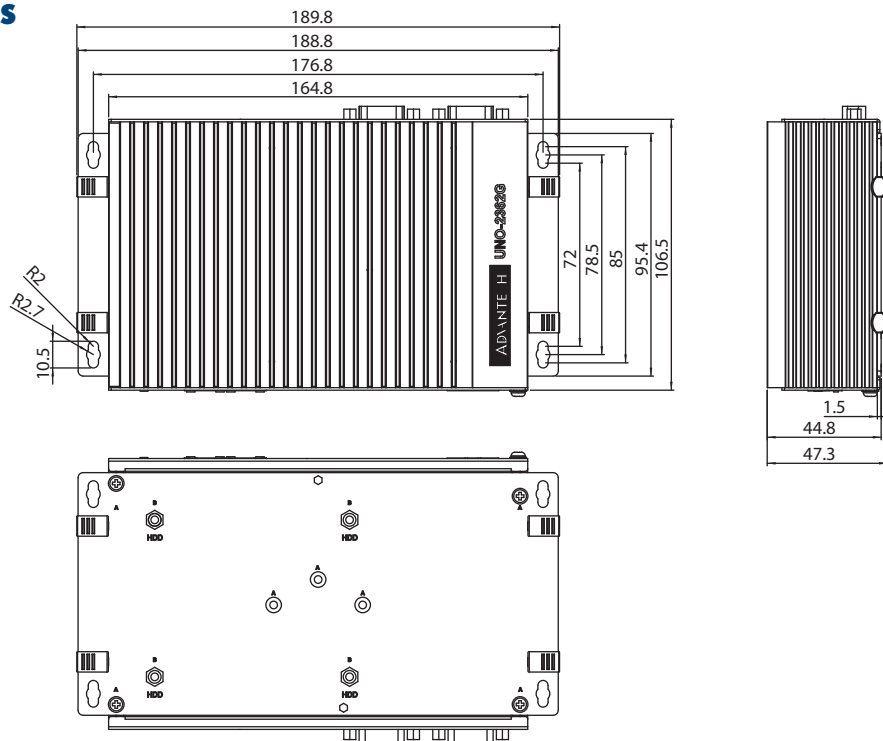


### VESA Mount Illustration

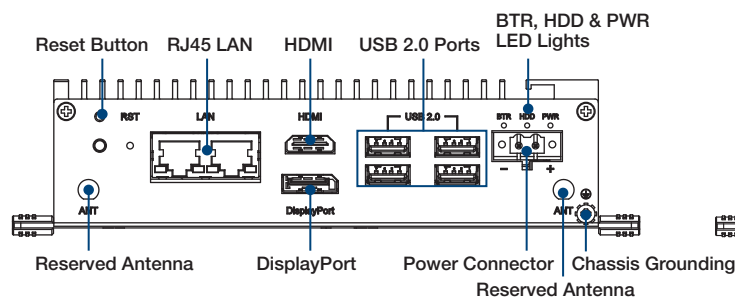


## Dimensions

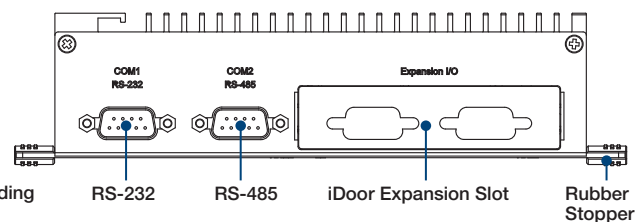
Unit: mm



## Front I/O View



## Rear I/O View



## Ordering Information

- UNO-2362G-T2AE AMD G-series T40E 1.0GHz, 2GB, 1 x GbE, 1 x mPCIe, HDMI/DP

## iDoor Modules

- PCM-24D2R2-AE 2-Port Isolated RS-232 mPCIe, DB9
- PCM-24D2R4-AE 2-Port Isolated RS-422/485 mPCIe, DB9
- PCM-24D4R2-AE 4-Port Non-Isolated RS-232 mPCIe, DB37
- PCM-24D4R4-AE 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- PCM-26D2CA-AE 2-Port Isolated CANBus mPCIe, CANopen, DB9
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-24R1TP-AE 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- PCM-2300MR-AE MR4A16B, MRAM, 2 MByte, mPCIe
- PCM-24S23G-AE Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

## Optional Accessories

- 96PSA-A60W24T2 60W AC to DC UNO series power adapter (Industrial Grade)
- 1702002600 Power Cable US Plug 1.8 M (Industrial Grade)
- 1702002605 Power Cable EU Plug 1.8 M (Industrial Grade)
- 1702031801 Power Cable UK Plug 1.8 M (Industrial Grade)
- 1700000596 Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- 1700001524 Power Cable 3-pin US type 1.8 M (Commercial Grade)
- 170203183C Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- 170203180A Power Cable 3-pin UK type 1.8 M (Commercial Grade)
- UNO-2000G-DMKAE UNO-2000 DIN Rail Kit
- UNO-2000G-VMKAE UNO-2000 VESA Mount Kit

## Embedded O/S

- 2070012411 Image WES7P MUI. V4.12 for UNO-2362G

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# UNO-2483G

Intel® Core™ i7/i3/Celeron®  
Regular-Size Automation Computer w/  
4 x GbE, 3 x mPCIe, HDMI/VGA

NEW



## Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are fanless, with a highly ruggedized embedded operating system (Windows CE, Windows Embedded 7/8, Linux-Embedded). The series also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including palm, small, and regular-size form-factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

## Specifications

### General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Stand, Wall, VESA (Optional)
- **Weight (Net)** 1.6kg (3.5lbs)
- **Power Requirement** 24Vdc ± 20%
- **Power Consumption** 28W (Typical), 72W (Max)
- **OS Support** Microsoft® Windows 7/8

### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** 4th Gen Intel® Core™ i7-4650U ULT 1.7 GHz Dual Core, 4MB L2  
4th Gen Intel® Core™ i3-4010U ULT 1.7 GHz Dual Core, 3MB L2  
4th Gen Intel® Celeron® 2980U ULT 1.6 GHz Dual Core, 2MB L2
- **System Chip** Integrated Intel 8 Series Chipset
- **Memory** On-board 4GB DDR3L 1600 MHz for UNO-2483G-4C3AE  
On-board 8GB DDR3L 1600 MHz for UNO-2483G-434AE and UNO-2483G-474AE
- **Graphics Engine** Intel® HD Graphics 5000/4400
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az  
Intel® i218-LM GbE, Intel® AMT, IEEE1588/802.1AS, 802.3az
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status), Tx/Rx and HDD
- **Storage** One mSATA  
Two drive bays for SATA 2.5" HDD (Compatible with 9.5mm height HDD)  
CFAST drive by iDoor Technology (Optional)
- **Expansion** 2 x Full-size mPCIe slot, mPCIe 2.0

### I/O Interfaces

- **Serial Ports** 2 x RS-232, DB9, 50 – 115.2kbps  
2 x RS-422/485, DB9, auto flow control, 50 – 115.2kbps
- **LAN Ports** 4 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 4 x USB Ports (2 x USB 2.0, 2 x USB 3.0 compliant )
- **Displays** 1 x VGA, supports 1920 x 1200 @ 60Hz 24bpp  
1 x HDMI 1.4a, supports 3200 x 2000 @ 60Hz 24bpp
- **Audio** Line-In, Line-Out
- **Power Connector** 1 x 3 Pins, Terminal Block

## Features

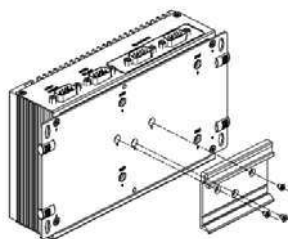
- 4th Generation Intel® Core™ i7/i3/Celeron® Processors up to 1.9GHz with 4GB/8GB DDR3L Memory
- 4 x GbE, 4 x USB 2.0/3.0, 2 x RS-232, 2 x RS-422/485, 1 x VGA, 1 x HDMI, Audio
- Comprehensive Palm, Small, Regular-size form-factor
- Compact, with Fanless Design
- Rubber Stopper Design with Captive Screw
- Dual HDD/SSD support with RAID 0/1 in regular-size
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)
- Fault-Protected RS-485 Transceivers With Extended Common-Mode Range

### Environment

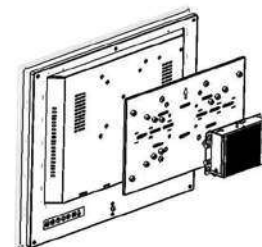
- **Operating Temperature** - 20 – 60°C (-4 – 140°F) @ 5 – 85% RH with 0.7m/s airflow  
- 40 – 85°C (-40 – 185°F)
- **Storage Temperature** - 40 – 85°C (-40 – 185°F)
- **Relative Humidity** 10 – 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 – 500Hz, 1hr/axis (mSATA)  
Operating, IEC 60068-2-64, 0.7Grms, random, 5 – 500Hz, 1hr/axis (HDD)
- **Ingress Protection** IP40

## Installation Scenario

### DIN-rail Mount Illustration

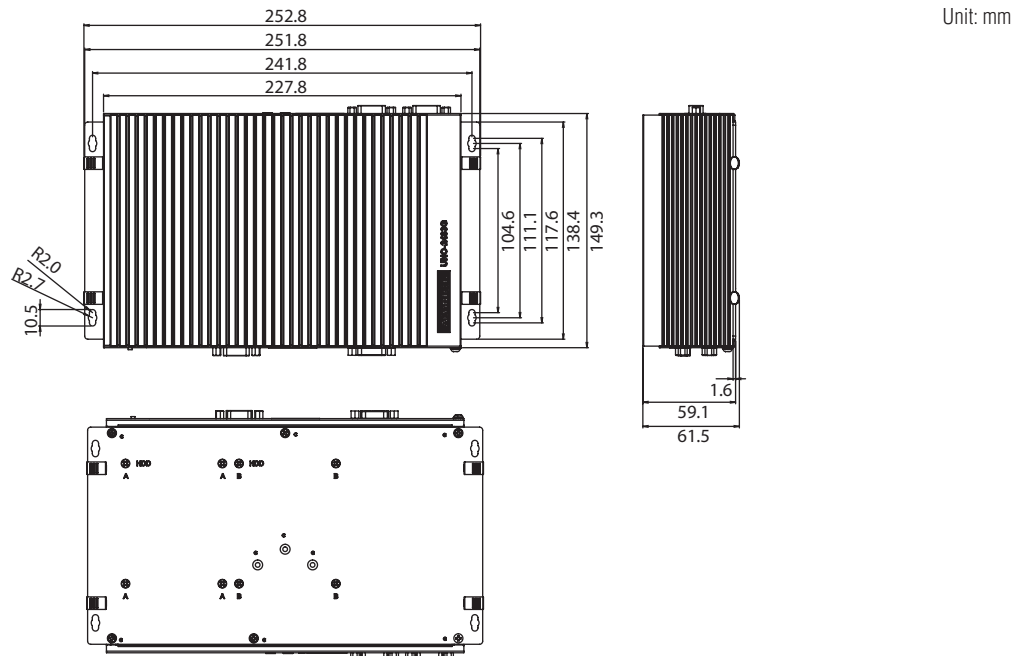


### VESA Mount Illustration

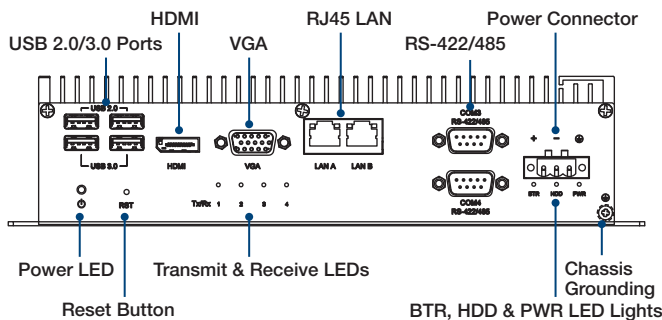




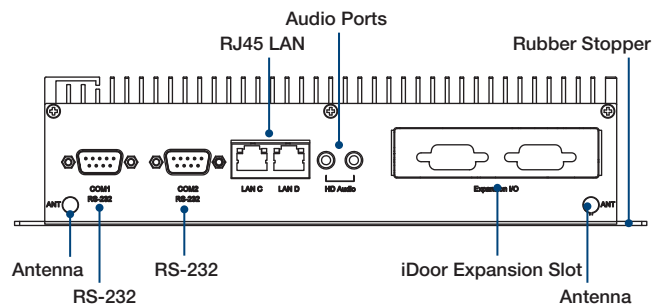
Dimensions



Front I/O View



Rear I/O View



Ordering Information

- UNO-2483G-4C3AE Intel® Celeron 2980U ULT 1.6GHz, 4GB, 4 x LANs, 2 x mPCIe
- UNO-2483G-434AE Intel® Core™ i3-4010U ULT 1.7GHz, 8GB, 4 x LANs, 2 x mPCIe
- UNO-2483G-474AE Intel® Core™ i7-4650U ULT 1.7GHz, 8GB, 4 x LANs, 2 x mPCIe

iDoor Modules

- PCM-24D4R2-AE 4-Port Non-Isolated RS-232 mPCIe, DB37
- PCM-24D4R4-AE 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- PCM-26D2CA-AE 2-Port Isolated CANBus mPCIe, CANopen, DB9
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-24R1TP-AE 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- PCM-2300MR-AE MR4A16B, MRAM, 2 MByte, mPCIe
- PCM-24R2GL-AE 2-Port Gigabit Ethernet, mPCIe, RJ45
- PCM-24R2PE-AE 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45 (optional)
- PCM-24S2WF-AE Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, Half-size mPCIe, 2-port SMA
- PCM-24S23G-AE Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

Optional Accessories

- 96PSA-A150W24T2 150WC to DC UNO series power adapter (Industrial Grade)
- PWR-249-AE 65W AC to DC power adapter (Commercial Grade)
- PWR-244-AE 96W AC to DC power adapter (Commercial Grade)
- 1702002600 Power Cable US Plug 1.8 M (Industrial Grade)
- 1702002605 Power Cable EU Plug 1.8 M (Industrial Grade)
- 1702031801 Power Cable UK Plug 1.8 M (Industrial Grade)
- 1700000596 Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- 1700001524 Power Cable 3-pin US type 1.8 M (Commercial Grade)
- 170203183C Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- 170203180A Power Cable 3-pin UK type 1.8 M (Commercial Grade)
- UNO-2000G-DMKAE UNO-2000 DIN Rail Kit
- UNO-2000G-VMKAE UNO-2000 VESA Mount Kit

Embedded O/S

- 2070012443 Image WES7P MUI. V4.12 B001 for UNO-2483G
- 2070012949 Image WES7P X64 MUI. V4.12 B002 for UNO-2483G

S/W Bundle Offering

- WA-HU2483G-315H2AE UNO-2483G-434AE, HMI Runtime 1500 tags, 32G mSATA, WES7P
- WA-SU2483G-315H5AE UNO-2483G-434AE, SCADA Runtime 1500 tags, 128G SSD, WES7P

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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# UNO-2473G

## Intel® Atom™/Celeron® J1900 Processor Regular-Size Automation Computer w/ 4 x GbE, 3 x mPCIe, HDMI/VGA

**NEW**



susiAccess iDoor RoHS COMPLIANT 2002/95/EC CE FCC UL US LISTED E30001 ETC

## Introduction

Advantech's UNO-2000 series of Embedded Automation Computers are fanless, with a highly ruggedized embedded operating system (Linux-Embedded). The series also includes iDoor technology which supports automation feature extensions such as industry fieldbus communication, Wi-Fi/3G, Digital I/O, including palm, small, and regular-size form-factors with indicated market segments in terms of entry, value and performance product positioning. Both entry and value Embedded Automation Computers feature specific functions and they are suitable for data gateway, concentrator and data server applications. The performance model can shorten your development time and offer multiple networking interfaces to fulfill a diverse range of requirements.

## Specifications

### General

- **Certification** CE, FCC, UL, CCC, BSMI
- **Dimensions (W x D x H)** 252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
- **Form Factor** Regular Size
- **Enclosure** Aluminum Housing
- **Mounting** Stand, Wall, VESA (Optional), Din-rail (Optional)
- **Weight (Net)** 1.6kg (3.5lbs)
- **Power Requirements** 24Vdc ± 20% / 10 ~ 36 Vdc (e.g., +12V @ 1.16A)
- **Power Consumption** 28W (Typical), 48W (Max) / 10W (Typical), 14W(Max)
- **OS Support** Microsoft® Windows 7/8

### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel® Atom™ Processor E3845 1.91 GHz Quad Core, 2MB L2  
Intel® Celeron™ Processor J1900 2.42 GHz Quad Core, 2MB L2
- **System Chip** Intel Atom™/Celeron J1900 Processor SoC integrated
- **Memory** On-board 4GB DDR3L 1600 MHz / 4GB DDR3L 1333 MHz
- **Graphics Engine** Intel® HD Graphics: Gen7 with 4EU
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status), Tx/Rx (UNO-2473G-E3AE only) and HDD
- **Storage** One mSATA  
One drive bay for SATA 2.5" HDD  
CFast drive by iDoor Technology (Optional)
- **Expansion** 3 x Full-size mPCIe slot, mPCIe 2.0 for UNO-2473G-E3AE  
1 x Full-size mPCIe slot, mPCIe 2.0 for UNO-2473G-J3AE

### I/O Interfaces

- **Serial Ports** 2 x RS-232, DB9, 50 ~ 115.2kbps, 2 x RS-422/485, DB9, auto flow control, 50 ~ 115.2kbps(E3AE)  
2 x RS-232, DB9, 50 ~ 115.2kbps, 2 x 232/422/485, DB9, auto flow control, 50 ~ 115.2kbps (J3AE)
- **LAN Ports** 4/2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 4 x USB Ports (3 x USB 2.0, 1 x USB 3.0 compliant) for UNO-2473G-E3AE  
5 x USB Ports (4 x USB 2.0, 1 x USB 3.0 compliant) for UNO-2473G-J3AE
- **Displays** 1 x VGA, supports 2560 x 1600 at 60Hz  
1 x HDMI, supports 1920 x 1080 at 60Hz  
eDP is supported on a project basis
- **Audio** Line-In
- **Power Connector** 1 x 3 Pins, Terminal Block
- **Grounding Protection** Chassis Grounding

## Features

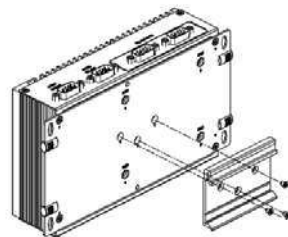
- 4<sup>th</sup> Generation Intel® Atom™/Celeron® J1900 Processor up to 1.91/2.42 GHz with 4GB DDR3L Memory
- 4/2 x GbE, 3 x USB 2.0 and 1 x USB 3.0/4 x USB 2.0 and 1 x USB 3.0, 2 x RS-232, 2 x RS-422/485 (E3AE), 2 x RS-232/422/485 (J3AE), 1 x VGA, 1 x HDMI, Audio
- Comprehensive Palm, Small, Regular-size form-factor
- Compact with Fanless Design
- Rubber Stopper Design with Captive Screw
- Diverse system I/O and Isolated Digital I/O by iDoor Technology
- 3G/GPS/GPRS/Wi-Fi Communication by iDoor Technology
- Supports MRAM by iDoor Technology
- Chassis Grounding Protection
- LAN Redundancy (Teaming)
- Fault-Protected RS-485 Transceivers With Extended Common-Mode Range

### Environment

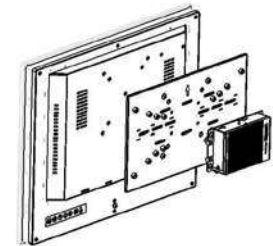
- **Operating Temperature** UNO-2473G-E3AE: -20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow  
UNO-2473G-J3AE: -10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)  
Operating, IEC 60068-2-64, 0.7Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
- **Ingress Protection** IP40

## Installation Scenario

### DIN-rail Mount Illustration



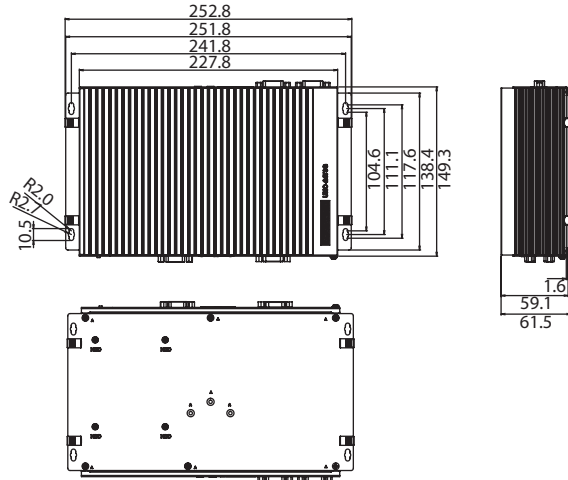
### VESA Mount Illustration



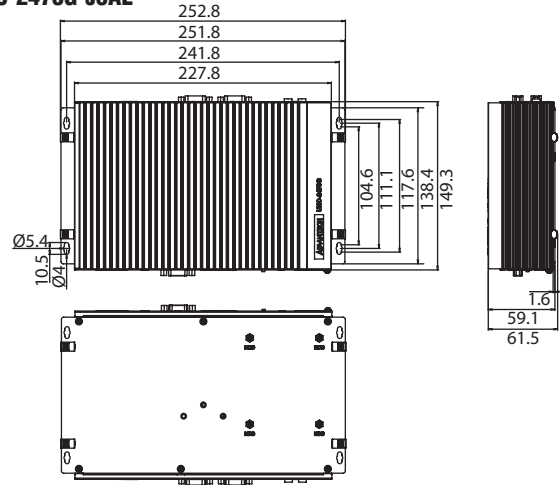
## Dimensions

Unit: mm

### UNO-2473G-E3AE

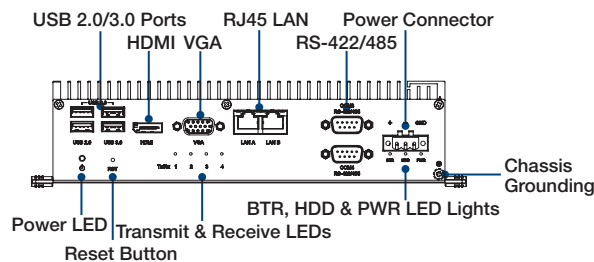


### UNO-2473G-J3AE

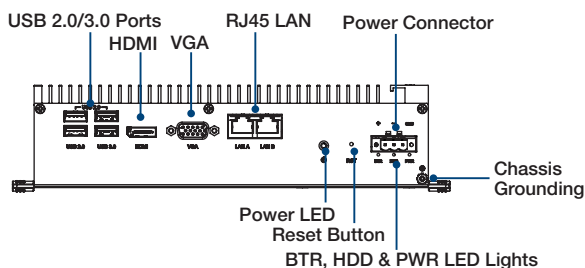


## Front I/O View

### UNO-2473G-E3AE

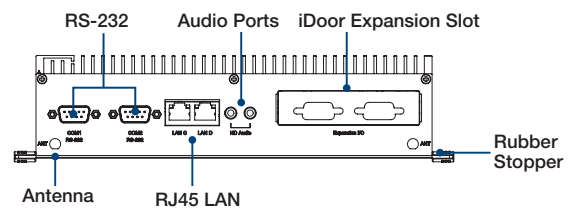


### UNO-2473G-J3AE

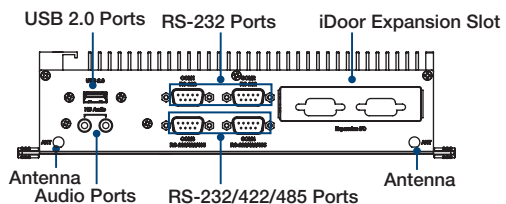


## Rear I/O View

### UNO-2473G-E3AE



### UNO-2473G-J3AE



## Ordering Information

- UNO-2473G-E3AE Intel® Atom™ E3845 1.91GHz, 4GB, 4 x LANs, 3 x mPCIe
- UNO-2473G-J3AE Intel® Celeron J1900 2.42GHz, 4GB, 2 x LANs, 1 x mPCIe

## iDoor Modules

- PCM-24D4R2-AE 4-Port Non-Isolated RS-232 mPCIe, DB37
- PCM-24D4R4-AE 4-Port Non-Isolated RS-422/485 mPCIe, DB37
- PCM-26D2CA-AE 2-Port Isolated CANBus mPCIe, CANopen, DB9
- PCM-27D24DI-AE 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-2300MR-AE MR4A16B, MRAM, 2 MByte, mPCIe
- PCM-24S2WF-AE Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-24U2U3-AE 2-Port USB 3.0, mPCIe, USB-A type
- PCM-24R2GL-AE 2-Port Gigabit Ethernet, mPCIe, RJ45
- PCM-24S23G-AE Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ Redundant SIM Card holder, 2-port SMA

## Optional Accessories

- 96PSA-A60W24T2 ADP A/D 100-240V 60W 24V C14 Cord End Terminal
- 1702002600 Power Cable US Plug 1.8 M (Industrial Grade)
- 1702002605 Power Cable EU Plug 1.8 M (Industrial Grade)
- 1702031801 Power Cable UK Plug 1.8 M (Industrial Grade)
- 1700000596 Power Cable China/Australia Plug 1.8 M (Industrial Grade)
- 1700001524 Power Cable 3-pin US type 1.8 M (Commercial Grade)
- 170203183C Power Cable 3-pin EU type 1.8 M (Commercial Grade)
- 170203180A Power Cable 3-pin UK type 1.8 M (Commercial Grade)
- UNO-2000G-DMKAE UNO-2000 DIN Rail Kit
- UNO-2000G-VMKAE UNO-2000 VESA Mount Kit

## Embedded O/S

- 2070013268 Image WES7P X64 MUI. V4.12.B001 for UNO-2473G-Ex

## S/W Bundle Offering

- WA-HU2473G-J15H2AE UNO-2473G-J3AE, HMI Runtime 1500 tags, 32G mSATA, WES7P
- WA-SU2473G-J15H5AE UNO-2473G-J3AE, SCADA Runtime 1500 tags, 128G SSD, WES7P

- WebAccess® Solution
- Intelligent Motion Control and Machine Vision
- Power & Energy Automation
- Industrial Operator Panels
- Thin-Client Terminals
- High-Performance Control Panels
- Control Cabinet PCs
- Industrial IoT Gateways
- Industrial monitors
- iDoor Technology Modules
- Panel PCs
- Control IPCs
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## Industrial monitors

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To view all of Advantech's Industrial monitors, please visit [www.advantech.com/products](http://www.advantech.com/products).





# Industrial Monitors Selection Guide



Model		FPM-7211W	FPM-7181W	FPM-7151W	FPM-7151T	FPM-7121T	FPM-7061T
Display	Display Type	Full HD	WXGA	WXGA	XGA	XGA	VGA
	Display Size	21.5"	18.5"	15.6"	15"	12.1"	6.5"
	Max.Resolution	1920x1080	1366 x 768	1366 x 768	1024 x 768	1024 x 768	640 x 480
	Max.Colors	16.7M	16.7M	16.7M	16.7M	16.2M	16.2M
	Luminance cd/m <sup>2</sup>	300	300	300	400	600	800
	Viewing Angle (H/V°)	178/178	170/160	170/160	160/140	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000	50,000	50,000	50,000
Video Port	VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DP	VGA/DP	VGA/DP	
Touchscreen	Combo	Combo	Combo	Combo	Combo	USB	
OSD (onscreen display)	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	
Power Input Voltage	100 ~ 240v (Optional adapter)	100 ~ 240v (Optional adapter)	100 ~ 240v (Optional adapter)	100 ~ 240v (Optional adapter)	100 ~ 240v (Optional adapter)	100 ~ 240v (Optional adapter)	
DC Power Input(voltage)	24V	24V	24V	24V	24V	24V	
Operating Temperature (°C)	0 ~ 55	0 ~ 55	0 ~ 55	-20 ~ 60	-20 ~ 60	-20 ~ 60	
Storage Temperature (°C)	-20 ~ 60	-20 ~ 60	-20 ~ 60	-30 ~ 70	-30 ~ 70	-30 ~ 70	
Dimensions	558.4 x 349.8 x 47.7 mm	488 x 309 x 47.7 mm	419.7 x 269 x 47.7 mm	383.2 x 307.3 x 48.2 mm	311.8 x 238 x 44.5 mm	199 x 152 x 46.1 mm	
Cut-out Dimensions	550.3 x 341.8 mm	479.3 x 300.3 mm	412.4 x 261.7 mm	374.5 x 298.5 mm	303 x 229 mm	189.1 x 142.1 mm	
Weight	8kg	6kg	5kg	4.2kg	2.6kg	1.2kg	
Certifications	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	
Operating System	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	
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# Industrial Monitors Selection Guide



Model	FPM-5191G	FPM-5171G	FPM-5151G	
Display	Display Type	SXGA	SXGA	XGA
	Display Size	19"	17"	15"
	Max.Resolution	1280 x 1024	1280 x 1024	1024 x 768
	Max.Colors	16.7M	16.7M	16.2M
	Luminance cd/m <sup>2</sup>	350	350	400
	Viewing Angle (H/V°)	170/160	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000
Video Port	VGA/DVI	VGA/DVI	VGA/DVI	
Touchscreen	Combo	Combo	Combo	
OSD (onscreen display)	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	
Power Input Voltage	100 ~ 240v (Adapter Optional)	100 ~ 240v (Adapter Optional)	100 ~ 240v (Adapter Optional)	
DC Power Input(voltage)	10-30v	10-30v	10-30v	
Operating Temperature (°C)	0 ~ 50	0 ~ 50	0 ~ 50	
Storage Temperature (°C)	-20 ~ 60	-20 ~ 60	-20 ~ 60	
Dimensions	481.93 x 384.6 x 59 mm	481.9 x 355.9 x 55 mm	449.92 x 315.63 x 50.5 mm	
Cut-out Dimensions	454 x 338 mm	454 x 338 mm	424 x 293 mm	
Weight	8.5kg	7kg	6kg	
Certifications	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	
Operating System	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	
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Model	FPM-2170G	FPM-2150G	FPM-2120G	
Display	Display Type	SXGA	XGA	SVGA
	Display Size	17"	15"	12"
	Max.Resolution	1280x1024	1024x768	800x600
	Max.Colors	16.7M	16.2M	16.2M
	Luminance cd/m <sup>2</sup>	350	400	450
	Viewing Angle (H/V°)	160/140	160/140	160/140
	Backlight MTBF (hrs)	50,000	50,000	50,000
Video Port	VGA	VGA	VGA	
Touchscreen	Combo	Combo	Combo	
OSD (onscreen display)	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	
Power Input Voltage	100 ~ 240V (Adapter)	100 ~ 240V (Adapter)	100 ~ 240V (Adapter)	
DC Power Input(voltage)	12V	12V	12V	
Operating Temperature (°C)	0 ~ 50	0 ~ 50	0 ~ 50	
Storage Temperature (°C)	-20 ~ 60	-20 ~ 60	-20 ~ 60	
Dimensions	413.72 x 347.22 x 52.13 mm	383 x 307 x 48.13 mm	311 x 237 x 40.63 mm	
Cut-out Dimensions	400.92 x 334.42 mm	374.5 x 298.5 mm	303 x 229 mm	
Weight	5.6kg	4.5kg	4kg	
Certifications	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	
Operating System	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	WIN XP/Vista/7/8/10/XPE/Linux	
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- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
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- 7 Control Cabinet PCs
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# FPM-7211W

## 21.5" Full HD Industrial Monitor with PCT Touch, Direct-VGA and DVI Ports

**NEW**



### Features

- 21.5" Full HD TFT LED LCD wide screen display
- 16:9 wide screen display, viewing area increases by 40%
- Supports 10 points multi-touch via USB interface in Windows 7/8
- Slim design for Panel mount / Wall mount easy installation
- Various mounting options: panel, wall, desktop and VESA arm mounting
- Projected Capacitive Touchscreen with reliable glass surface
- Robust design with SECC chassis and Magnesium alloy front panel with IP66 compliance
- OSD control buttons on rear panel
- Lockable I/O connectors

### Introduction

The FPM-7211W is an industrial grade, wide screen display with sleek, simple lines and a truly flat touch screen. Its projected capacitive touch screen supports applications with up to 10 touch points, and the front bezel meets IP66 test criteria. FPM-7211W is designed for easy, one-person installation in either panel or wall mount configurations.

### Specifications

#### General

- **OSD Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 558.4 x 349.8 x 47.7 mm (21.98" x 13.77" x 1.88")
- **Enclosure** Front panel: Die-cast Magnesium alloy  
Rear cover: SECC
- **Mounting** Panel, wall, desktop, VESA (MIS,100,C)
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input
- **Power Consumption** 25 W + 20%
- **Video Port** VGA & DVI-D port
- **Weight (Net)** 8kg (17.6 lb)

#### LCD Display

- **Display Type** Full HD TFT LED LCD
- **Display Size** 21.5"
- **Max. Resolution** 1920 x 1080
- **Max. Color** 16.7 M
- **Viewing Angle (H/V°)** 178/178
- **Luminance (cd/m<sup>2</sup>)** 300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 5000:1

#### Touchscreen

- **Type** Projected Capacitive touch
- **Interface** RS-232 and USB
- **Light Transmission** Above 75%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux
- **Multi Touch** 10 points, USB interface in Win 7/8.
- **Hardness** >6H

#### Environment

- **Operation Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is IP66 compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

### Ordering Information

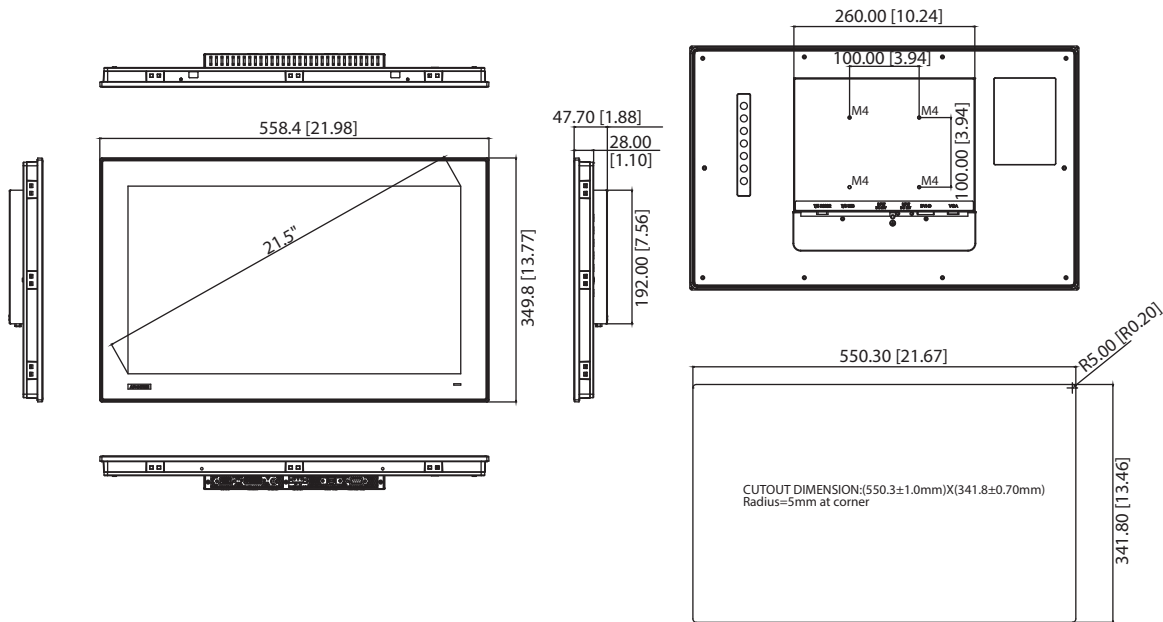
- **FPM-7211W-P3AE** 21.5" Full HD Ind Monitor w/PCT TS (RS-232, USB)

### Optional Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **96PSA-A60W24T2** Adapter 100-240V 60W 24V 2.5A

## Dimensions

Unit: mm [inch]



**Panel Cut-out Dimensions: 550.30 x 341.8 mm (21.67" x 13.46")**

## Easy Installation

**Snap hook in rear cover**



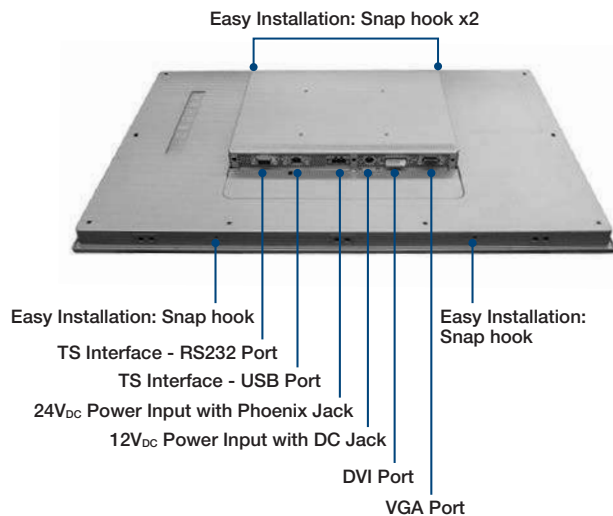
Screw to set up the snap hook out of upper side

**Stopper Screw in rear cover**



Screw for the stopper screw out of bottom side

## Rear View



- 1 WebAccess<sup>+</sup> Solution
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# FPM-7181W

18.5" WXGA Industrial Monitor with PCT Touch, Direct-VGA and DVI Ports

NEW



## Features

- 18.5" WXGA TFT LED LCD wide screen display
- 16:9 wide screen display, view area increases by 40%
- Supports 10 points multi-touch via USB interface in Windows 7/8
- Slim design for Panel mount / Wall mount easy installation
- Various mounting options: panel, wall, desktop and VESA arm mounting
- Projected Capacitive Touchscreen with reliable glass surface
- Robust design with SECC chassis and Magnesium alloy front panel with IP66 compliance
- OSD control buttons on rear panel
- Lockable I/O connectors

## Introduction

The FPM-7181W is an industrial grade, wide screen display with sleek, simple lines and a truly flat touch screen. Its projected capacitive touch screen supports applications with up to 10 touch points, and the front bezel meets IP66 test criteria. FPM-7181W is designed for easy, one-person installation in either panel or wall mounts.

## Specifications

### General

- **OSD Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 488 x 309 x 47.7 mm (19.21" x 12.17" x 1.88")
- **Enclosure** Front panel: Die-cast Magnesium alloy  
Rear cover: SECC
- **Mounting** Panel, wall, desktop, VESA (MIS,100,C)
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input
- **Power Consumption** 20 W + 20%
- **Video Port** VGA & DVI-D port
- **Weight (Net)** 6kg (13.2 lb)

### LCD Display

- **Display Type** WXGA TFT LED LCD
- **Display Size** 18.5"
- **Max. Resolution** 1366 x 768
- **Max. Color** 16.7M
- **Viewing Angle (H/V°)** 170/160
- **Luminance (cd/m<sup>2</sup>)** 300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 1000:1

### Touchscreen

- **Type** Projected capacitive touch
- **Interface** RS-232 and USB
- **Light Transmission** Above 75%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux
- **Multi Touch** 10 points, USB interface in Win 7/8.
- **Hardness** 7H

### Environment

- **Operation Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is IP66 compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

## Ordering Information

- **FPM-7181W-P3AE** 18.5" WXGA Ind Monitor w/PCT TS (RS-232, USB)

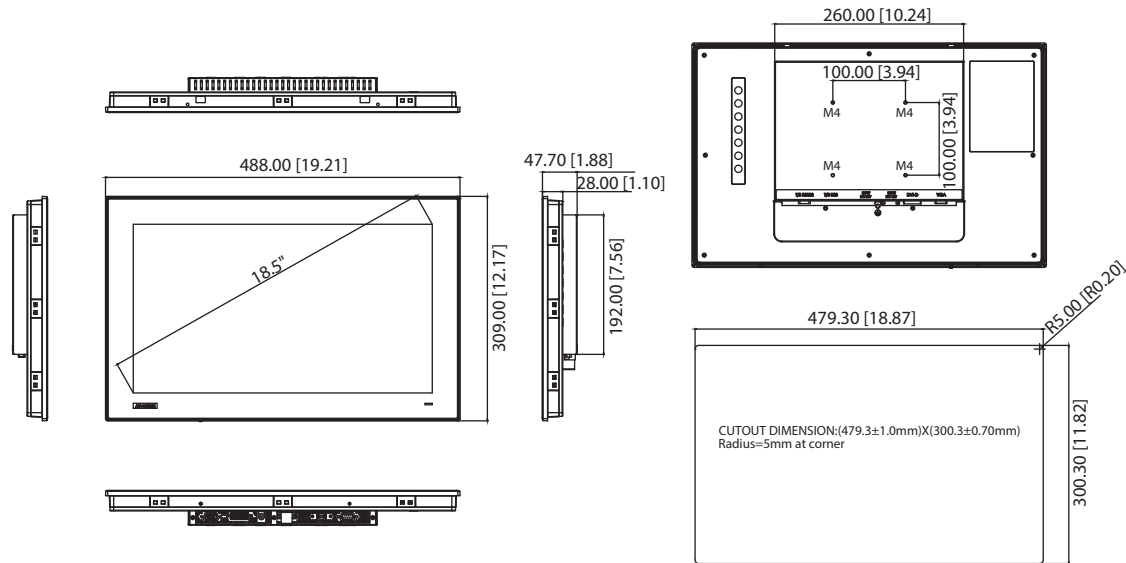
## Optional Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **96PSA-A60W24T2** Adapter 100-240V 60W 24V 2.5A



## Dimensions

Unit: mm [inch]



**Panel Cut-out Dimensions: 479.30 x 300.30 mm (18.87" x 11.82")**

## Easy Installation

**Snap hook in rear cover**



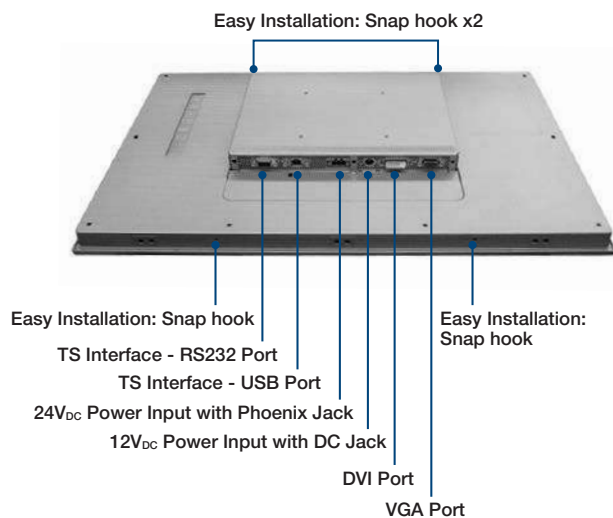
Screw to set up the snap hook out of upper side

**Stopper Screw in rear cover**



Screw for the stopper screw out of bottom side

## Rear View



- 1 WebAccess<sup>®</sup> Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# FPM-7151W

15.6" WXGA Industrial Monitor with PCT Touch, Direct-VGA/DVI ports

NEW



## Features

- 15.6" WXGA TFT LED LCD backlight LCD with truly flat multi-touch screen
- 16:9 wide screen display, viewing area increases by 40%
- Supports 10 points multi-touch via USB interface in Windows 7/8
- Slim design for Panel mount / Wall mount easy installation
- Various mounting options: panel, wall, desktop and VESA arm mounting
- Projected Capacitive Touchscreen with reliable glass surface
- Robust design with SECC chassis and Magnesium alloy front panel with IP66 compliance
- OSD control buttons on rear panel
- Lockable I/O connectors

## Introduction

The FPM-7151W is an industrial grade, wide screen display with sleek, simple lines and a truly flat touch screen. Its projected capacitive touch screen supports applications with up to 10 touch points (via USB interface in Windows 7/8), and the front bezel meets IP66 test criteria. The slim FPM-7151W is designed for easy, one-person installation, and is ideal for either panel or wall mounting.

## Specifications

### General

- **OSD Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 419.7 x 269 x 47.7 mm (16.52" x 10.59" x 1.88")
- **Enclosure** Front panel: Die-cast Magnesium alloy  
Rear cover: SECC
- **Mounting** Panel, wall, desktop, VESA (MIS,100,C)
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input
- **Power Consumption** 20 W + 20%
- **Video Port** VGA & DVI-D or VGA & HDMI
- **Weight (Net)** 5kg (11 lb)

### LCD Display

- **Display Type** WXGA TFT LED LCD
- **Display Size** 15.6"
- **Max. Resolution** 1366 x 768
- **Max. Color** 16.7 M
- **Viewing Angle (H/V°)** 170/160
- **Luminance (cd/m<sup>2</sup>)** 300
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 500:1

### Touchscreen

- **Type** Projected capacitive touch
- **Interface** RS-232 and USB
- **Light Transmission** Above 75%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux
- **Multi Touch** 10 points, USB interface in Win 7/8.
- **Hardness** 7H

### Environment

- **Operation Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is IP66 compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

## Ordering Information

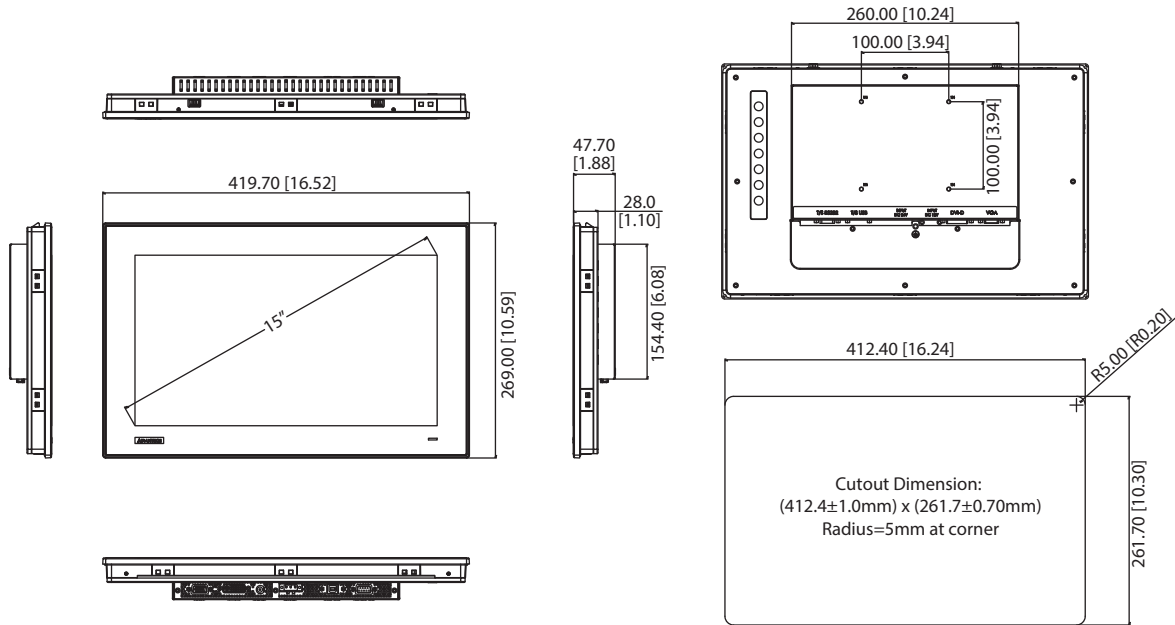
- **FPM-7151W-P3AE** 15.6" WXGA Ind Monitor w/PCT TS (VGA/DVI)

## Optional Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **96PSA-A60W24T2** Adapter 100-240V 60W 24V 2.5A

## Dimensions

Unit: mm [inch]



**Panel Cut-out Dimensions: 412.40 x 261.70 mm (16.24" x 10.30")**

## Easy Installation

### Snap hook in rear cover



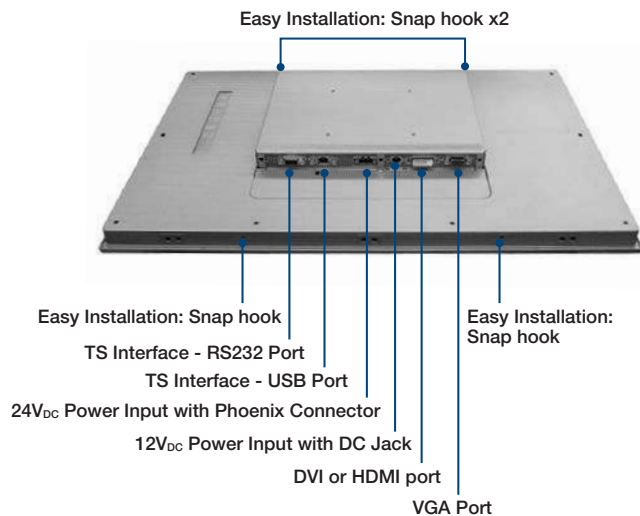
Screw to set up the snap hook out of upper side

### Stopper Screw in rear cover



Screw for the stopper screw out of bottom side

## Rear View



- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# FPM-7151T

## 15" XGA Industrial Monitor with Resistive Touchscreen, Direct-VGA/DP and Wide Operating Temperature Range

NEW



### Features

- 15" XGA TFT LED LCD with 50,000 backlight life time
- Robust design with IP66 compliance aluminum front panel
- Supports Wide operating temperature -20 ~ 60°C
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function
- OSD control buttons on rear panel
- Lockable I/O connectors

### Introduction

FPM-7000T series monitors are the first, true-flat 4:3 industrial grade monitors. The 5-wire resistive touch screens are surrounded by highly durable, die-cast aluminum alloy front bezels that provide IP66 front protection. The series supports wide operating temperatures -20 ~ 60 °C for diverse user environments, and various mounting methods allow for easy installation.

### Specifications

#### General

- **OSD Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 383.2 x 307.3 x 48.2 mm (15.09" x 12.10" x 1.90")
- **Enclosure** Front panel: Die-cast Magnesium alloy  
Rear cover: SECC
- **Mounting** Stand, Wall, Panel and VESA 75 x 75 & 100 x 100mm
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input
- **Power Consumption** 15 W + 20%
- **Video Port** VGA & DP
- **Weight (Net)** 4.2kg (9.26 lb)

#### LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.7M
- **Viewing Angle (H/V°)** 160/140
- **Luminance (cd/m<sup>2</sup>)** 400
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700 :1

#### Touchscreen

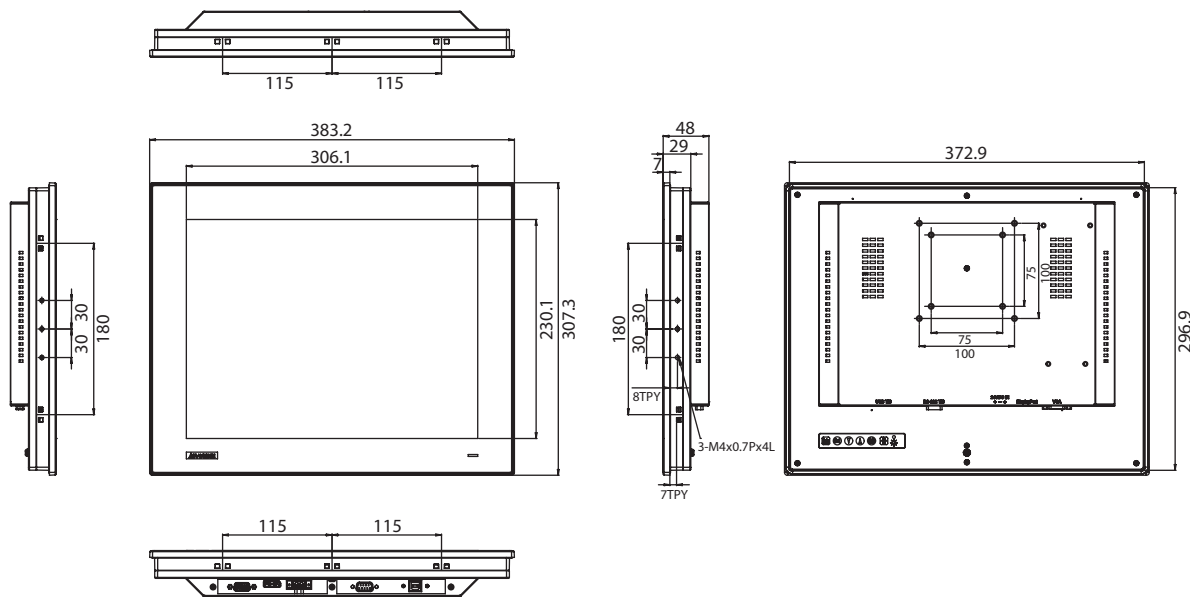
- **Type** 5-wire, analog resistive
- **Interface** RS-232 and USB
- **Light Transmission** Above 75%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux

#### Environment

- **Operation Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 176°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is IP66 compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

## Dimensions

Unit: mm



**Panel Cut-out Dimensions: 374.5 x 298.5 mm (14.74" x 11.75")**

## Ordering Information

- FPM-7151T-R3AE 15" XGA Ind Monitor w/Resistive TS (VGA/DP)

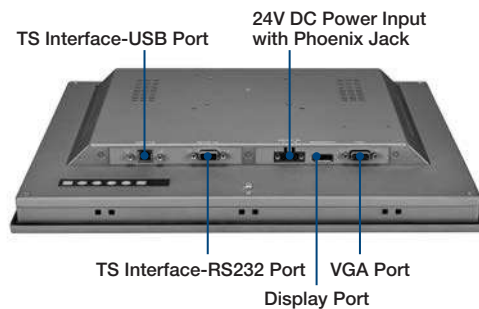
## Optional Accessories

- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M
- 96PSA-A60W24T2 Adapter 100-240V 60W 24V 2.5A
- FPM-7000G-ADKE Mounting bracket of adapter for FPM-7000
- FPM-1000T-SMKE Stand/Wall Mount Kit

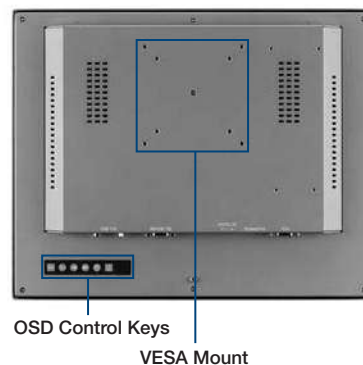
## Front View



## I/O View



## Rear View



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



# FPM-7121T

## 12.1" XGA Industrial Monitor with Resistive Touchscreen, Direct-VGA/DP and Wide Operating Temperature Range

NEW



### Features

- 12.1" XGA TFT LED LCD with 50,000 backlight life time
- Robust design with IP66 compliance aluminum front panel
- Wide operating temperature support -20 ~ 60°C
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function
- OSD control buttons on rear panel
- Lockable I/O connectors

### Introduction

FPM-7000T series monitors are the first, true-flat 4:3 industrial grade monitors. The 5-wire resistive touch screens are surrounded by highly durable, die-cast aluminum alloy front bezels that provide IP66 front protection. The series supports wide operating temperatures -20 ~ 60 °C for diverse user environments, and various mounting methods allow for easy installation.

### Specifications

#### General

- **OSD Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 311.8 x 238 x 44.5 mm (12.28" x 9.37" x 1.76")
- **Enclosure** Front panel: Die-cast Magnesium alloy  
Rear cover: SECC
- **Mounting** Stand, Wall, Panel and VESA 75x75 & 100x100mm
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input
- **Power Consumption** 15 W + 20%
- **Video Port** VGA & DP
- **Weight (Net)** 2.6kg (5.73 lb)

#### LCD Display

- **Display Type** XGA TFT LED LCD
- **Display Size** 12.1"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M
- **Viewing Angle (H/V°)** 160/140
- **Luminance (cd/m<sup>2</sup>)** 600
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700 :1

#### Touchscreen

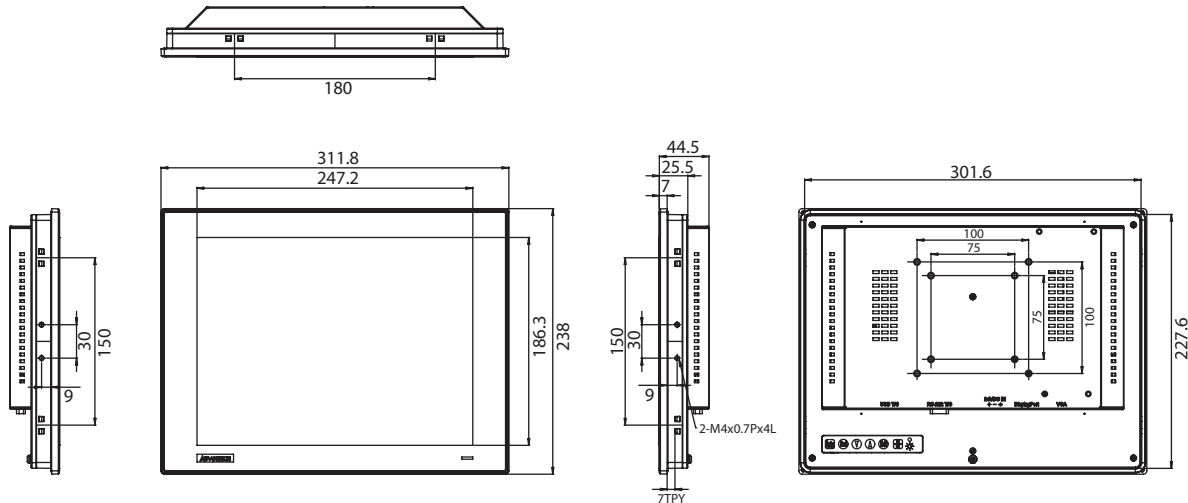
- **Type** 5-wire, analog resistive
- **Interface** RS-232 and USB
- **Light Transmission** Above 75%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux

#### Environment

- **Operation Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 176°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is IP66 compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

## Dimensions

Unit: mm



Panel Cut-out Dimensions: 303 x 229 mm(11.93" x 9.02")

## Ordering Information

- FPM-7121T-R3AE 12.1" XGA Ind Monitor w/Resistive TS (VGA/DP)

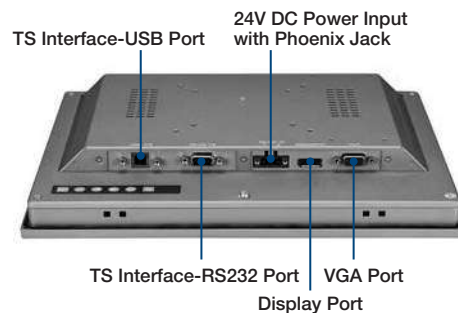
## Optional Accessories

- 1702002600 Power Cable US Plug 1.8 M
- 1702002605 Power Cable EU Plug 1.8 M
- 1702031801 Power Cable UK Plug 1.8 M
- 1700000596 Power Cable China/Australia Plug 1.8 M
- 96PSA-A60W24T2 Adapter 100-240V 60W 24V 2.5A
- FPM-7000G-ADKE Mounting bracket of adapter for FPM-7000
- FPM-1000T-SMKE Stand/Wall Mount Kit

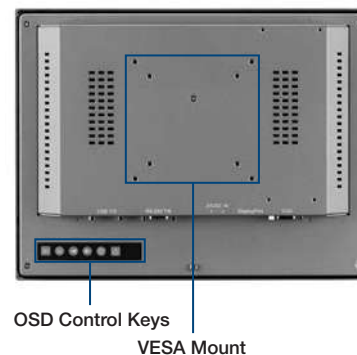
## Front View



## I/O View



## Rear View



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# FPM-7061T

## 6.5" VGA Industrial Monitor with Resistive Touchscreen, Direct-VGA/DP and Wide Operating Temperature Range

NEW



### Features

- 6.5" VGA TFT LED LCD with 50,000 backlight life time
- Robust design with IP66 compliance aluminum front panel
- Wide operating temperature support -20 ~ 60°C
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop, or VESA arm mounting
- USB interface for touchscreen function
- OSD control buttons on rear panel
- Lockable I/O connectors

### Introduction

FPM-7000T series monitors are the first, true-flat 4:3 industrial grade monitors. The 5-wire resistive touch screens are surrounded by highly durable, die-cast aluminum alloy front bezels that provide IP66 front protection. The series supports wide operating temperatures -20 ~ 60 °C for diverse user environments, and various mounting methods allow for easy installation.

### Specifications

#### General

- **OSD Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)** 199x151x46.1mm
- **Enclosure** Front panel: Die-cast Magnesium alloy  
Rear cover: SECC
- **Mounting** Stand, Wall, Panel mount or VESA 75 x 75 mm
- **Power Input** Phoenix Jack: 24 V<sub>DC</sub> input
- **Power Consumption** 10 W + 20%
- **Video Port** VGA & DP
- **Weight (Net)** 1.2 kg

#### LCD Display

- **Display Type** VGA TFT LED LCD
- **Display Size** 6.5"
- **Max. Resolution** 640 x 480
- **Max. Color** 16.2M
- **Viewing Angle (H/V°)** 160/140
- **Luminance (cd/m<sup>2</sup>)** 800
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 600 :1

#### Touchscreen

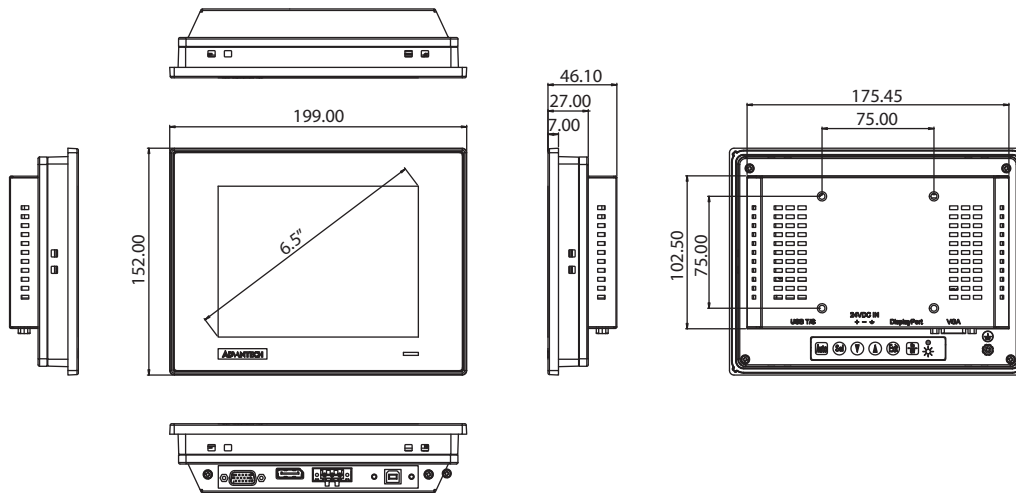
- **Type** 5-wire, analog resistive
- **Interface** USB
- **Light Transmission** Above 75%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux

#### Environment

- **Operation Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 70°C (-22 ~ 176°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is IP66 compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

## Dimensions

Unit: mm



**Panel Cut-out Dimensions: 189.1 x 142.1 mm (7.44" x 5.59")**

## Ordering Information

- **FPM-7061T-R3AE** 6.5" VGA Ind Monitor w/Resistive TS (VGA/DP)

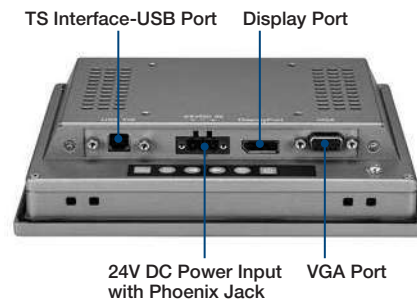
## Optional Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **96PSA-A60W24T2** Adapter 100-240V 60W 24V 2.5A
- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series

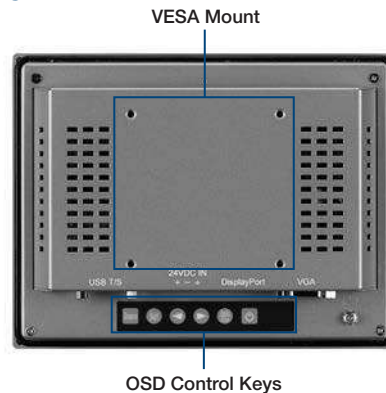
## Front View



## I/O View



## Rear View



- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# FPM-5191G

# FPM-5171G

# FPM-5151G

## 15" XGA/17" SXGA/19" SXGA Industrial Monitors with Resistive Touchscreens, Direct-VGA, and DVI Ports



### Features

- 15" XGA or 17" / 19" SXGA TFT LED LCD with 50,000 backlight life time
- Direct VGA & DVI-D input interface
- Lockable OSD keys with 2 user-defined contrast/brightness control
- Flat-sealed and IP65 certified front panel
- Robust design with anti-rust chassis and aluminum die-cast front panel
- Front accessible USB connector
- Combo RS-232 & USB interface for touchscreen function (switchable)
- Supports industrial 10-30 V<sub>DC</sub> power input with Phoenix jack
- Supports panel, wall, desktop, rack or VESA arm mounting

### Introduction

The FPM-5000G series provides 15", 17", and 19" flat panel color monitors. These TFT LCD displays with LED backlights are specifically designed for industrial applications. With LCD size from 15" to 19", they present ample display areas as well as sharp, vivid images. They feature Direct-VGA and DVI-D signal transmission, which allow VGA control cards to be used in your system. The onscreen displays allow users to adjust display output with two user-defined settings. The front-accessible USB connector provides easy access to the controller, and the industrial, 10-30 VDC, wide-range power support makes this product an excellent option for factory and machine automation display solutions.

### Specifications

#### General

- **Button Controls** Lockable OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC Class A, UL
- **Dimensions (W x H x D)**
  - 5151G: 449.92 x 315.63 x 50.5 mm (17.71" x 12.43" x 1.99")
  - 5171G: 481.93 x 355.87 x 55 mm (18.97" x 14.01" x 2.17")
  - 5191G: 481.93 x 384.6 x 59 mm (18.97" x 15.14" x 2.32")
- **Enclosure** Front panel: Aluminum and flat-sealed  
Rear cover: Anti-rust coating
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount
- **Power Input** Phoenix Jack - 10 ~ 30 V<sub>DC</sub> input  
Optional external 57 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 4.7A output
- **Power Consumption** 18 W + 20%/31 W + 20%/32 W + 20%
- **USB** Front side USB access for extension
- **Video Port** VGA & DVI-D
- **Weight (Net)** 6 kg (13.22 lb)/7 kg (17.63 lb)/9 kg (22.04 lb)

#### LCD Display

- **Display Type** XGA/SXGA/SXGA TFT LCDs
- **Display Size** 15"/17"/19"
- **Max. Resolution** 1024 x 768/1280 x 1024/1280 x 1024
- **Max. Color** 16.2M / 16.7M / 16.7M
- **Viewing Angle (H/V°)** 160/140, 160/140, 170/160
- **Luminance (cd/m<sup>2</sup>)** 400/350/350
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700:1 / 800:1 / 1000:1

#### Touchscreen

- **Sensor** AMT
- **Driver** Penmount 6000
- **Type** 5-wire Resistive
- **Interface** RS-232 & USB
- **Lifespan** 10/10/36 million with R8 silicone rubber finger, 2 250g presses per second
- **Light Transmission** > 80%
- **OS Support** Windows XP, Vista, 7, 8, 10, XPe and Linux
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

#### Environment

- **Operation Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 90% non-condensing
- **Waterproof** Front panel is compliant with IP65
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

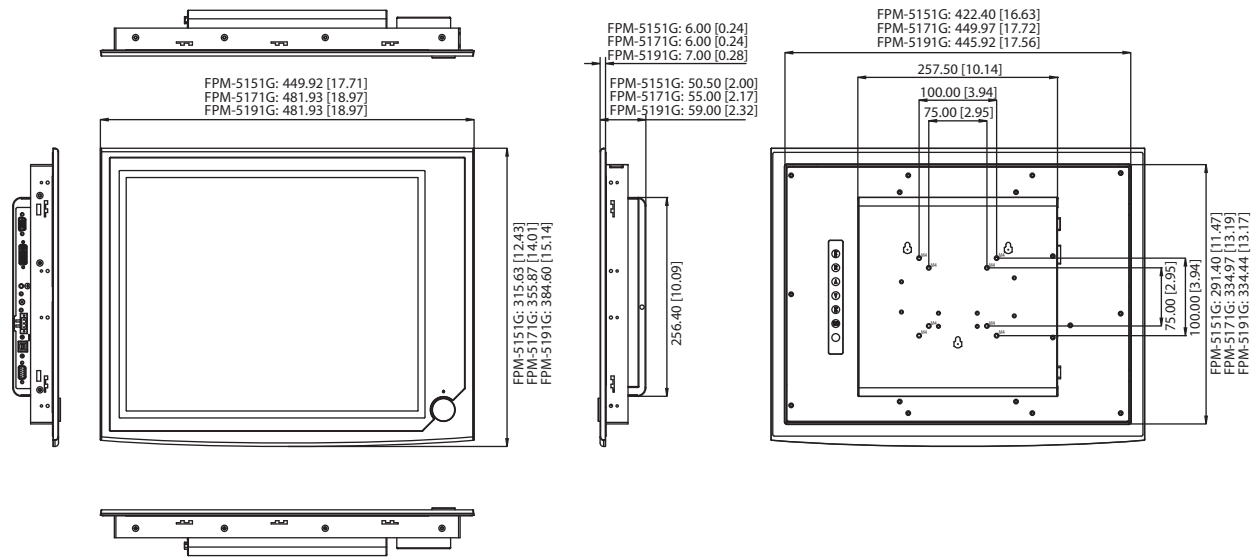
### Ordering Information

- **FPM-5191G-R3BE** 19" SXGA Ind. Monitor w/Resistive TS(RS-232,USB)
- **FPM-5171G-R3BE** 17" SXGA Ind. Monitor w/Resistive TS(RS-232,USB)
- **FPM-5151G-R3BE** 15" XGA Ind. Monitor w/Resistive TS(RS-232,USB)



## Dimensions

Unit: mm [inch]



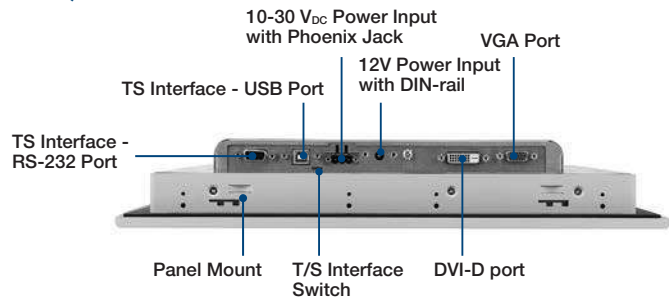
**Panel Cut-out Dimensions:** **FPM-5151G: 424 x 293 mm (16.69" x 11.54")**  
**FPM-5171G: 454 x 338 mm (17.87" x 13.31")**  
**FPM-5191G: 454 x 338 mm (17.87" x 13.31")**

## Optional Accessories

- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **IPPC-6152A-RMKE** IPPC-6152A/FPM-5151G Rack Mount Kit
- **IPPC-6172A-RMKE** IPPC-6172A/FPM-5171G Rack Mount Kit
- **IPPC-6192A-RMKE** IPPC-6192A/FPM-5191G Rack Mount Kit
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **96PSA-A60W12V1-1** ADP A/D 100-240V 60W 12V C14 DC PLUG 180°
- **FPM-5000G-ADKE** Mounting bracket of adapter for FPM-5000

Note: VESA mounting screw length: M4 x 6 mm

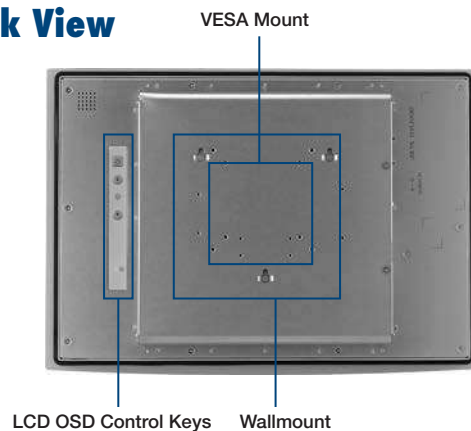
## I/O View



## Front Accessible USB Port



## Back View



- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# FPM-2170G

## 17" SXGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port

NEW



### Features

- 17" SXGA TFT LED LCD with 50,000 backlight life time
- Robust design with aluminum front panel
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function

### Introduction

The FPM-2170G is an industrial-grade, 17" TFT LCD flat panel monitor with LED backlight, Al-Mg front panel, and a sleek, low-profile design. It offers one of the most competitive prices on the market for a 17" LCD with LED backlight. The FPM-2170G is extremely light and thin, and provides many industrial-grade features including a stainless steel chassis, VESA mounting flexibility, and more. The FPM-2170G is especially suitable for service with industrial PCs such as IPC-610 or IPC-6806. These combinations lead to extremely tough, reliable systems, ready to operate in a wide variety of industrial applications.

### Specifications

#### General

- **Button Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC, UL
- **Dimensions (W x H x D)** 413.72 x 347.22 x 52.13 mm (16.29" x 13.67" x 2.05")
- **Enclosure** Front panel: Aluminum, Rear cover: SECC chassis
- **Mounting** Panel, wall, desktop, VESA arm
- **Power Input External** 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output (included)
- **Video Port** VGA
- **Weight (Net)** 5.60 kg (12.34 lb)

#### LCD Display

- **Display Type** SXGA TFT LCD with LED Backlight
- **Display Size** 17"
- **Max. Resolution** 1280 x 1024
- **Max. Color** 16.7M
- **Viewing Angle (H/V)°** 160°(V), 140°(H)
- **Luminance (cd/m<sup>2</sup>)** 350
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 800:1

#### Touchscreen

- **Interface Combo** RS-232 & USB interface
- **Lifespan** 36 million times with R8 silicone rubber finger, @ 2 250g presses per second
- **OS Support** Windows® XP, Vista, 7, 8, 10, XPe, CE and Linux

#### Environment

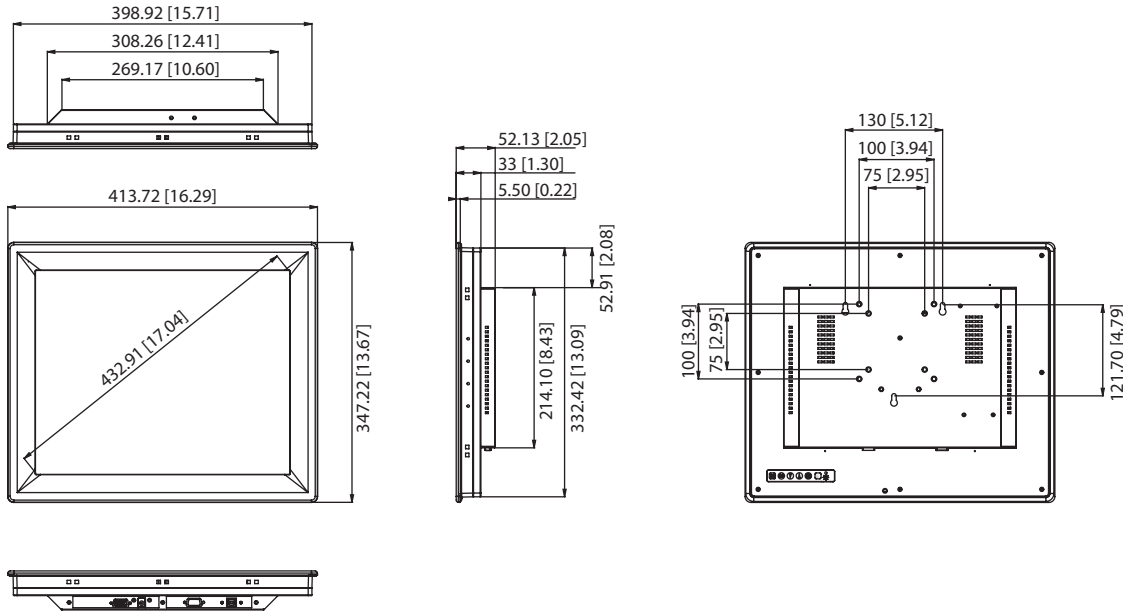
- **Operation Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** Front Panel IP65 Compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

### Ordering Information

- **FPM-2170G-R3BE** 17" SXGA Industrial LED Monitor w/Resistive TS (RS-232 and USB interfaces)

**Dimensions**

Unit: mm [inch]

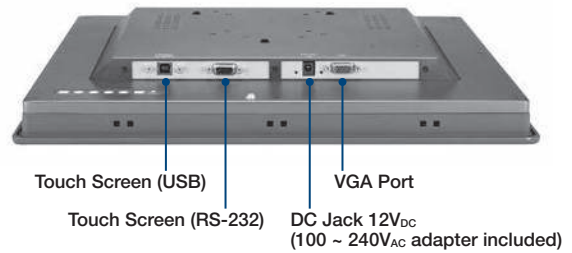


**Panel Cut-out Dimensions: 400.92 x 334.42 mm (15.78" x 13.17")**

**Optional Accessories**

- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M

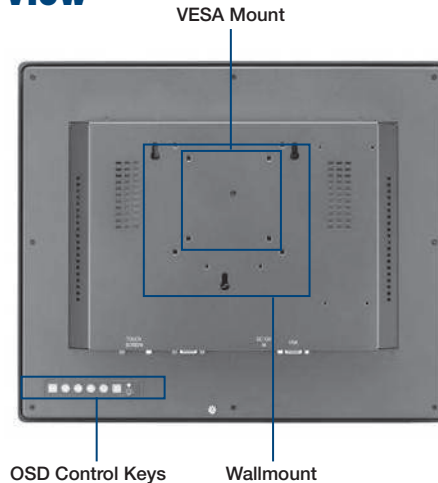
**I/O View**



**Front View**



**Rear View**



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# FPM-2150G

## 15" XGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port

NEW



### Features

- 15" XGA TFT LED LCD with 50,000 hours of backlight life
- Robust design with aluminum front panel
- Lockable OSD control buttons on rear panel
- Anti-glare screen with tempered glass and IP65 certified front panel
- Supports Panel, Wall, Desktop, Rack or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function

### Introduction

The FPM-2150G is an industrial-grade, 15" TFT LCD flat panel monitor with LED backlight, Al-Mg front panel, and a sleek, low-profile design. It offers one of the most competitive prices on the market for a 15" LCD with LED backlight. The FPM-2150G is extremely light and thin, and provides many industrial-grade features including a stainless steel chassis, VESA mounting flexibility, and more. The FPM-2150G is especially suitable for service with industrial PCs. These combinations lead to extremely tough, reliable systems, ready to operate in a wide variety of industrial applications.

### Specifications

#### General

- **Button Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC, UL
- **Dimensions (W x H x D)** 383 x 307 x 48.13 mm (15.08" x 12.09" x 1.89")
- **Enclosure** Front panel: Aluminum with coating, Rear cover: SECC coating chassis
- **Mounting** Panel, wall, desktop, VESA arm, or rackmount with optional mounting kit
- **Power Input** External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output (included)
- **Video Port** VGA
- **Weight (Net)** 4.5 kg (9.9 lb)

#### LCD Display

- **Display Type** XGA TFT LCD with LED backlight
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M
- **Viewing Angle (H/V)°** 160, 140
- **Luminance (cd/m<sup>2</sup>)** 400
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700: 1

#### Touchscreen

- **Interface Combo** RS-232 & USB interface
- **Lifespan** 36 million times with R8 silicone rubber finger, @ 2 250g presses per second
- **OS Support** Windows® XP, Vista, 7, 8, 10, XPe, CE and Linux

#### Environment

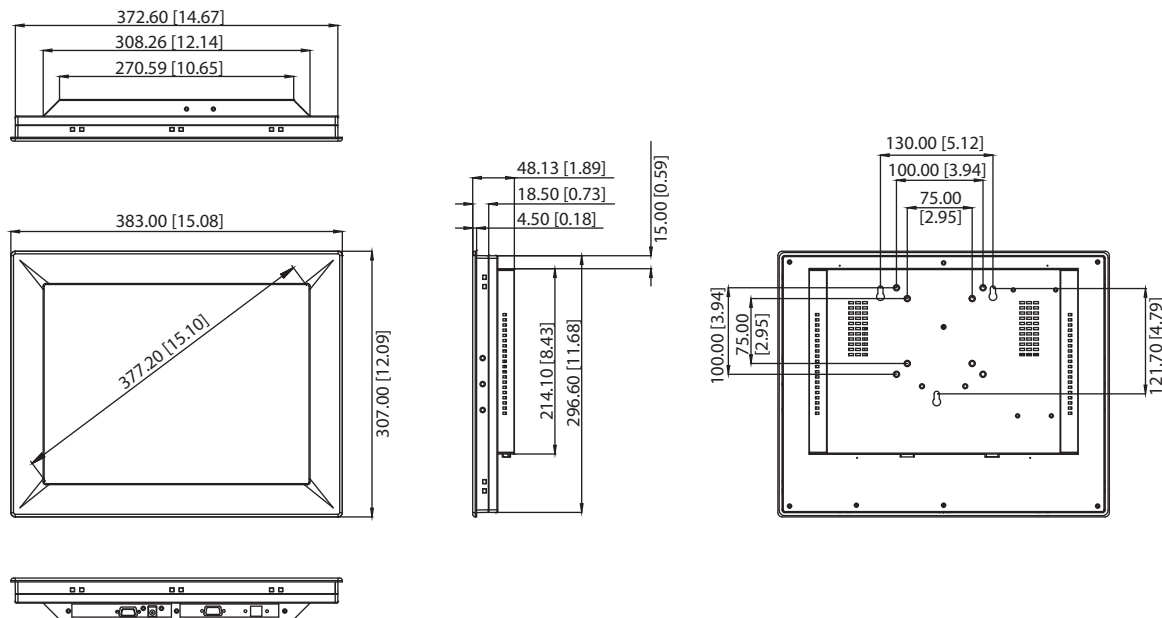
- **Operation Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** Front Panel IP65
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

### Ordering Information

- **FPM-2150G-R3BE** 15" XGA Industrial LED Backlight Monitor w/Resistive TS (RS-232 and USB interfaces)

## Dimensions

Unit: mm [inch]

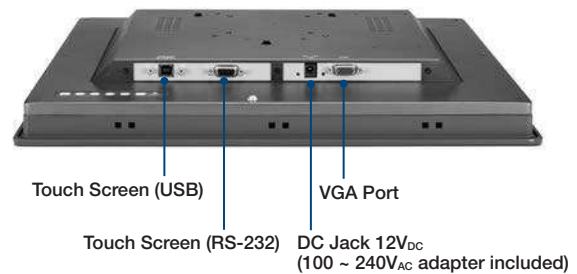


**Panel Cut-out Dimensions: 374.5 x 298.5 mm (14.74" x 11.75")**

## Optional Accessories

- **FPM-2150G-R1MKE** FPM-2150G Rack-Mount Kit
- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8

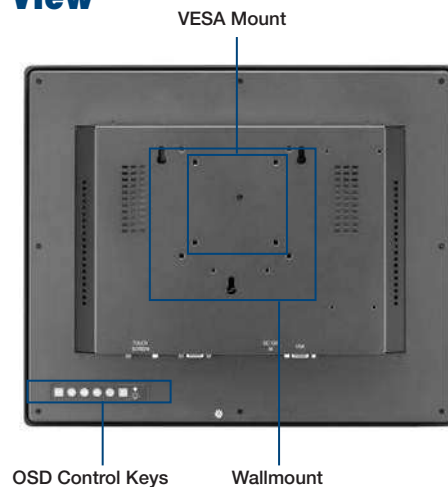
## I/O View



## Front View



## Rear View



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
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- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
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- 19 Networking



# FPM-2120G

## 12" XGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port

NEW



### Features

- 12" XGA TFT LED LCD with 50,000 backlight life time
- Robust design with aluminum front panel
- Anti-glare screen with tempered glass
- Supports Panel, Wall, Desktop or VESA arm mounting
- Combo RS-232 & USB interface for touchscreen function

### Introduction

The FPM-2120G is an industrial-grade, 12" TFT LCD flat panel monitor with LED backlight, Al-Mg front panel, and a sleek, low-profile design. It offers one of the most competitive prices on the market for a 12" LCD with LED backlight. The FPM-2120G is extremely light and thin, and provides many industrial-grade features including a stainless steel chassis, VESA mounting flexibility, and more. The FPM-2120G is especially suitable for service with industrial PCs such as IPC-610 or IPC-6806. These combinations lead to extremely tough, reliable systems, ready to operate in a wide variety of industrial applications.

### Specifications

#### General

- **Button Controls** OSD control buttons on rear panel
- **Certification** BSMI, CCC, CE, FCC, UL
- **Dimensions (W x H x D)** 311 x 237 x 40.63 mm (12.24" x 9.33" x 1.60")
- **Enclosure** Front panel: Aluminum, Rear cover: SECC chassis
- **Mounting** Panel, wall, desktop, VESA arm
- **Power Input** External 60 W power adapter, with AC 100 V ~ 240 V input and DC +12 V @ 5 A output (included)
- **Video Port** VGA
- **Weight (Net)** 4kg (8.82 lb)

#### LCD Display

- **Display Type** XGA TFT LCD with LED backlight
- **Display Size** 12.1"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M
- **Viewing Angle (H/V)°** 160°(V), 140°(H)
- **Luminance (cd/m<sup>2</sup>)** 600
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700:1

#### Touchscreen

- **Interface Combo** RS-232 & USB interface
- **Lifespan** 36 million times with R8 silicone rubber finger, @ 2 250g presses per second
- **OS Support** Windows® XP, Vista, 7, 8, 10, XPe, CE and Linux

#### Environment

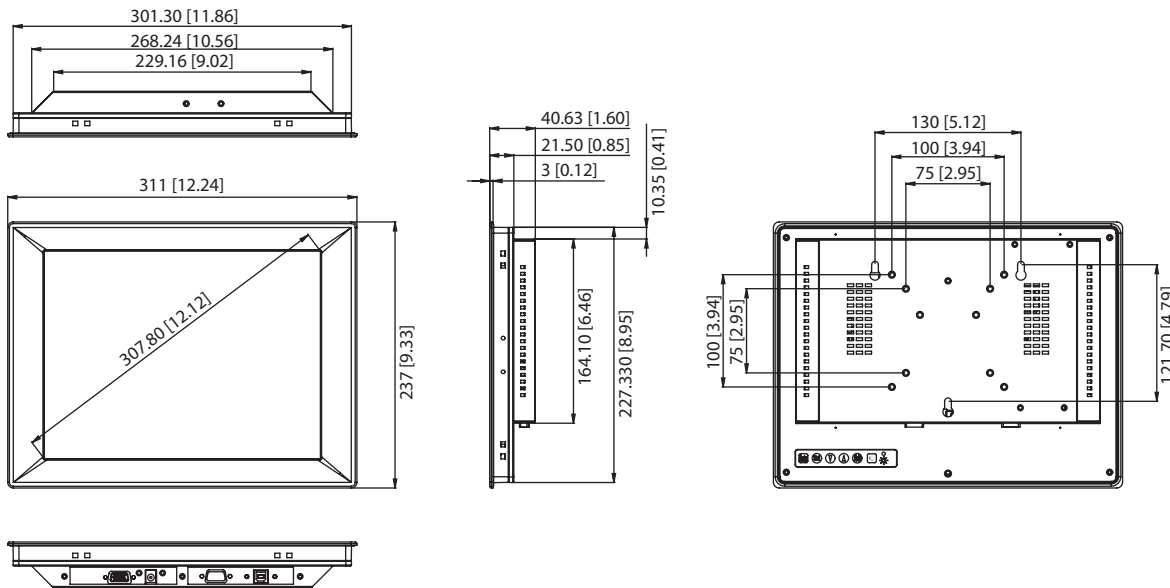
- **Operation Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** Front Panel IP65 Compliant
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

### Ordering Information

- **FPM-2120G-R3BE** 12.1" XGA Industrial LED Monitor w/Resistive TS (RS-232 and USB interfaces)

## Dimensions

Unit: mm [inch]



Panel Cut-out Dimensions: 303 x 229 mm (11.93" x 9.02")

## Optional Accessories

- **FPM-1000T-SMKE** Desktop/Wall Mounting kit for FPM series
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8 M
- **1702002600** Power Cable US Plug 1.8 M

## I/O View

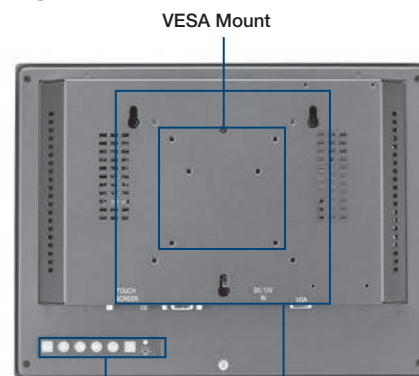


Touch Screen (USB)      Touch Screen (RS-232)      DC Jack 12V<sub>dc</sub> (100 ~ 240V<sub>AC</sub> adapter included)      VGA Port

## Front View



## Rear View



VESA Mount      OSD Control Keys      Wallmount

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# FPM Accessories



Panel Mount

Arm Mount

Rack Mount

VESA Mount

## Panel Mount (\* Included in accessory box)

Model Name	Part Number	Description
All FPM Series	1962055040*	CLAMPER PPC-55 M1632611 A2
	1935042520	Screw M4*25L R/S D=8.3 H=2.5 + ST BZn





## Stand/Wall Mount

Model Name	Part Number	Description
FPM-3121G	FPM-1000T-SMKE	Mounting kit for desktop stand & wall
FPM-3151G		
FPM-5000 series		
FPM-7000 series		

## Adapter (\* Included in accessory box)

Model Name	Part Number	Description
FPM-2000 series	96PSA-A60W12V1-1*	ADP A/D 100-240V 60W 12V C14 DC PLUG 180°
FPM-3000 series	96PSA-A60W24T2	ADP A/D 100-240V 60W 24V C14 CORD END TERMINAL
FPM-5000 series		
FPM-7000 series		

## Cable

Model Name	Part Number	Description
	1702002600	Power Cable US Plug 1.8 M
	1702002605	Power Cable EU Plug 1.8 M
	1702031801	Power Cable UK Plug 1.8 M
	1700000596	Power Cable China/Australia Plug 1.8 M
	1700000243	DVI CABLE 200cm
	1700019762	M CABLE DVI 24+1P(M)/DVI 24+1P(M) 300cm FPM-3121
	1700020273-01	M CABLE DisplayPort 20P(M)/DisplayPort 20P(M)

## iDoor Technology Modules

<b>iDoor Module Selection Guide</b>		<b>10-2</b>
<b>iDoor Support Table</b>		<b>10-3</b>
<b>PCM-2300MR</b>	MR4A16B, MRAM, 2 MByte, mPCIe	<b>10-4</b>
<b>PCM-23C1CF</b>	1 CFast Slot with Cover Protection	
<b>PCM-23U1DG</b>	USB Slot w/ Lock for USB Dongle, Half-size mPCIe	<b>10-5</b>
<b>PCM-24U2U3</b>	2-Port USB 3.0, mPCIe, USB-A type	<b>10-6</b>
<b>PCM-2300TM</b>	TPM compliant with TCG 1.2 via LPC	<b>10-7</b>
<b>PCM-27J3AU</b>	3-Port Audio Stereo, mPCIe, 3.5 mm Jack	<b>10-8</b>
<b>PCM-28P1AD</b>	PCIe to mPCIe, 2-Slots mPCIe, iDoor I/O plate expansion	
<b>PCM-28P1BK</b>	iDoor PCIe I/O Plate	<b>10-9</b>
<b>PCM-24D2R2</b>	2-Port Isolated RS-232, mPCIe, DB9	
<b>PCM-24D2R4</b>	2-Port Isolated RS-422/485, mPCIe, DB9	
<b>PCM-24D4R2</b>	4-Port Non-Isolated RS-232, mPCIe, DB37 cable	<b>10-10</b>
<b>PCM-24D4R4</b>	4-Port Non-Isolated RS-422/485 mPCIe, DB37 cable	
<b>PCM-27D24DI</b>	24-Channel Isolated Digital I/O w/ counter mPCIe, DB37	<b>10-11</b>
<b>PCM-24S2WF</b>	WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, Antennas	<b>10-12</b>
<b>PCM-24S33G</b>	3.75G HSPA and GPS, Full-size mPCIe, Front-accessible dual SIM card slots, 3G/GPS antennas	<b>10-13</b>
<b>PCM-24S34G</b>	LTE/HSPA+/GPRS and GPS, Full-size mPCIe, 4G/GPS antennas, for EMEA/ Australia and Americas regions	<b>10-14</b>
<b>PCM-24R1TP</b>	1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45	<b>10-15</b>
<b>PCM-24R2PE</b>	2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45	<b>10-16</b>
<b>PCM-24R2GL</b>	2-Port Gigabit Ethernet, Intel® I350, mPCIe, RJ45	<b>10-17</b>
<b>PCM-26D2CA</b>	2-Port Isolated CANBus mPCIe, CANopen, DB9	<b>10-18</b>
<b>PCM-26D1DB</b>	1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9	<b>10-19</b>
<b>PCM-26R2EC</b>	2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45	
<b>PCM-26R2EI</b>	2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45	
<b>PCM-26R2S3</b>	2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45	<b>10-20</b>
<b>PCM-26R2PN</b>	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45	
<b>PCM-26R2PL</b>	2-Port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45	

To view all of Advantech's iDoor Technology Modules, please visit [www.advantech.com/products](http://www.advantech.com/products).



ik · iLink iDoor



# iDoor Module Selection Guide

## Multiple I/O & Peripheral



Model Name	PCM-2300MR	PCM-23C1CF	PCM-23U1DG	PCM-24R1TP	PCM-24U2U3	PCM-24R2PE	PCM-24R2GL	PCM-28P1AD	PCM-28P1BK	PCM-27J3AU
Description	MR4A16B, MRAM, 2 MByte, mPCIe	1 CFast Slot with Cover Protection	USB Slot w/ Lock for USB Dongle, Half-size mPCIe	1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45	2-Port USB 3.0, mPCIe, USB-A type	2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45	2-Port Gigabit Ethernet, Intel® I350, mPCIe, RJ45	PCIe to mPCIe, 2-Slots mPCIe, iDoor I/O plate expansion	iDoor PCIe I/O Plate	3-Port Audio Stereo, mPCIe, 3.5 mm Jack
Page	10-4	10-5	10-5	10-15	10-6	10-16	10-17	10-9	10-9	10-8

## Smart I/O & Comm.



Model Name	PCM-24D2R4	PCM-24D2R2	PCM-24D4R4	PCM-24D4R2	PCM-27D24DI
Description	2-Port Isolated RS-422/485, mPCIe, DB9	2-Port Isolated RS-232, mPCIe, DB9	4-Port Non-Isolated RS-422/485 mPCIe, DB37 cable	4-Port Non-Isolated RS-232 mPCIe, DB37 cable	24-Channel Isolated Digital I/O with counter mPCIe, DB37
Page	10-10	10-10	10-10	10-10	10-11

## Communication



Model Name	PCM-24S2WF	PCM-24S33G	PCM-24S34G
Description	Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, Antennas	3.75G HSPA / GPS, Full-size mPCIe, Front-accessible dual SIM card slots, 3G/GPS antennas	LTE/HSPA+/GPRS and GPS, Full-size mPCIe, 4G/GPS antennas
Page	10-12	10-13	10-14

## Industrial Fieldbus



Model Name	PCM-26D2CA	PCM-26D1DB	PCM-26R2PN	PCM-26R2EC	PCM-26R2EI	PCM-26R2S3	PCM-26R2PL
Description	2-Port Isolated CANBus mPCIe, CANopen, DB9	1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45	2-Port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45
Page	10-18	10-19	10-20	10-20	10-20	10-20	10-20

## Naming Convention

PCM-26D2CA

Category	Connector	Function
23-Memory / Storage / External I/O	R-RJ45	BK-Bracket
24-Communication	D-DB9	DB-PROFIBUS
25-Display	U-USB	PN-PROFINET
26-Fieldbus	P-PCIe/mPCIe	EI-Ethernet/IP
27-Digital/Analog I/O	J-Phone Jack	EC-EtherCAT
28-Expansion kit		S3-SERCOS III
	<b>Port</b>	CA-CANopen
	0-No Connector	PL-PowerLink
	1-One Connector	WF-Wi-Fi/BT
	2-Two Connectors	3G-3G/GPS
	4-Four Connectors	ZB-ZigBee
		AD-Adapter
		PE-PoE
		TP-Precision Time Protocol
		DC-Daisy-Chain
		MR-MRAM
		TM-TPM
		DI-Digital I/O
		AI-Analog I/O
		R4-Multi-drop RS-422/485
		R2-Single-ended RS-232
		ID-Intelligent Displays
		U3-USB 3.0
		HD-HDMI
		4G-LTE/GPS
		DG-Dongle
		GL-Gigabit LAN



# iDoor Support Table

Model	Function	UNO-1252G	UNO-1483G	UNO-1372G	UNO-2272G	UNO-2362G	UNO-2473G	UNO-2483G
PCM-24D2R2	2-port Iso. RS-232	-	✓	✓	✓	✓	✓	✓
PCM-24D2R4	2-port Iso. RS-422/485	-	✓	✓	✓	✓	✓	✓
PCM-24D4R2	4-port Non-Iso. RS-232	-	✓	✓	✓	✓	✓	✓
PCM-24D4R4	4-port Non-iso. RS-422/485	-	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. Digital I/O	-	✓	✓	✓	✓	✓	✓
PCM-24R1TP	1-port GigaLAN IEEE1588	-	✓	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	-	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast slot	-	✓	✓	-	✓	✓	✓
PCM-24R2GL	2-port GigaLAN	-	✓	✓	✓	-	✓	✓
PCM-23U1DG	USB dongle with mPCIe	-	✓	✓	✓	✓	✓	✓
PCM-24R2PE	Power over Ethernet	-	✓	✓	✓	-	✓	✓
PCM-24S2WF	Wi-Fi / Bluetooth	✓	✓	✓	✓	✓	✓	✓
PCM-24U2U3	2-port USB 3.0	-	✓	✓	✓	-	✓	✓
PCM-24S33G	3G/GPS w/ dual SIM holder	✓	✓	✓	✓	✓	✓	✓
PCM-24S34G	4G/GPS	*	✓	✓	*	✓	✓	✓
PCM-2300TM	TPM	-	-	*	-	-	✓ (UNO-2473G-E3AE)	✓
PCM-26D2CA	CANopen	-	✓	✓	✓	✓	✓	✓
PCM-26D1DB	PROFIBUS	-	✓	✓	✓	-	✓	✓
PCM-26R2PN	PROFINET	-	✓	✓	✓	-	✓	✓
PCM-26R2EC	EtherCAT	-	✓	✓	✓	-	✓	✓
PCM-26R2EI	EtherNet/IP	-	✓	✓	✓	-	✓	✓
PCM-26R2S3	Sercos 3	-	✓	✓	✓	-	✓	✓
PCM-26R2PL	POWERLINK	-	✓	✓	✓	-	✓	✓
PCM-28P1AD	iDoor PCIe adapter card	-	✓	-	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	✓	-	-	-	-	-
PCM-27J3AU	Audio	-	✓	✓	-	✓	✓ (UNO-2473G-J3AE)	-

Model	Function	UNO-3283G	UNO-3382/3384G	UNO-3483G	TPC-82H/T	TPC-1581/1881WP	TPC-51WP	TPC-51T	IPPC-5211WS
PCM-24D2R2	2-port Iso. RS-232	✓	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R4	2-port Iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R2	4-port Non-Iso. RS-232	✓	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R4	4-port Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. Digital I/O	✓	✓	✓	✓	✓	✓	✓	✓
PCM-24R1TP	1-port GigaLAN IEEE1588	✓	✓	✓	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast slot	-	-	✓	-	-	**	**	-
PCM-24R2GL	2-port GigaLAN	✓	✓	✓	✓	✓	✓	✓	✓
PCM-23U1DG	USB dongle with mPCIe	✓	✓	✓	✓	✓	✓	✓	✓
PCM-24R2PE	Power over Ethernet	✓	✓	✓	-	-	-	-	-
PCM-24S2WF	Wi-Fi / Bluetooth	✓	✓	✓	✓	✓	✓	✓	✓
PCM-24U2U3	2-port USB 3.0	✓	✓	✓	-	*	**	**	**
PCM-24S33G	3G/GPS w/ dual SIM holder	✓	✓	✓	✓	✓	*	*	*
PCM-24S34G	4G/GPS	✓	-	-	-	-	-	-	-
PCM-2300TM	TPM	*	-	✓	-	-	-	-	-
PCM-26D2CA	CANopen	✓	✓	✓	✓	✓	✓	✓	✓
PCM-26D1DB	PROFIBUS	✓	✓	✓	*	✓	✓	✓	✓
PCM-26R2PN	PROFINET	✓	✓	✓	*	✓	✓	✓	✓
PCM-26R2EC	EtherCAT	✓	✓	✓	*	✓	✓	✓	✓
PCM-26R2EI	EtherNet/IP	✓	✓	✓	*	✓	✓	✓	✓
PCM-26R2S3	Sercos 3	✓	✓	✓	*	✓	✓	✓	✓
PCM-26R2PL	POWERLINK	✓	✓	✓	*	✓	✓	✓	✓
PCM-28P1AD	iDoor PCIe adapter card	✓	✓	✓	✓	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	✓	✓	✓	✓	-	-	-	-
PCM-27J3AU	Audio	✓	✓	✓	✓	✓	✓	✓	✓

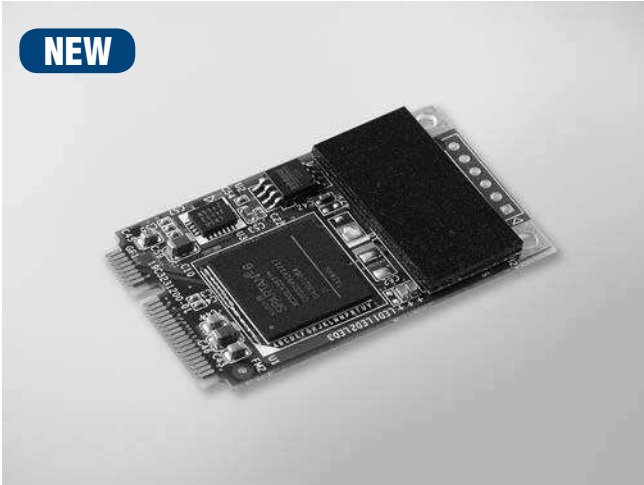
\* Contact Advantech for further information  
 \*\* Need extra accessory

1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	iNetworking

# PCM-2300MR

## MR4A16B, MRAM, 2 MByte, mPCIe

**NEW**



### Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Data always non-volatile for >20-year at temperature
- Read / Write Memory speed 6 MB/Sec
- 2MB MRAM Storage
- I/O address automatically assigned by PCIe plug & play
- Supports Microsoft® Windows CE5/CE6
- Supports Microsoft® Windows Enterprise Server 2008, Windows XP/7
- Supports Linux Intel® x86 hardware platform
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

### Introduction

The PCM-23 series are industrial storage or memory modules for the mPCIe interface which is able to extend connection to the connector through iDoor technology with different functions. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications, ZigBee module as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
- **Power Consumption** Typical : +3.3 V @ 150 mA

#### Memory

- **Memory Everspin** MR4A16B
- **Size** 2 MB
- **Read/Write Speed** 6 MB/sec

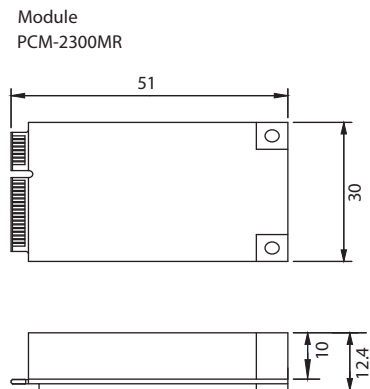
#### Software

- **Driver** Microsoft® Windows CE5/CE6  
Microsoft® Windows Enterprise Server 2008  
Microsoft® Windows XP/7

#### Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Maximum magnetic field immunity during write** 8000 A/m
- **Maximum magnetic field during reading or standby** 8000 A/m

### Dimensions



### Ordering Information

- **PCM-2300MR-AE** MR4A16B, MRAM, 2MByte

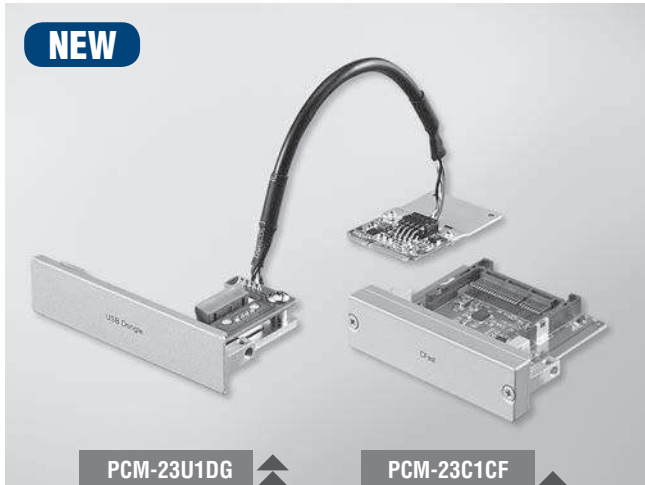
# PCM-23C1CF

# PCM-23U1DG

## 1 CFast Slot with Cover Protection

## USB Slot w/ Lock for USB Dongle, Half-size mPCIe

**NEW**



PCM-23U1DG

PCM-23C1CF



### Features

- Meets Advantech iDoor Technology Standard
- PCM-23C1CF includes single CFast II slot which utilizes existing internal HDD cable
- PCM-23C1CF includes a captive screw type cover for CFast card protection
- PCM-23U1DG includes locked USB connector preventing disk from falling out
- Supports Control DIN-Rail PC (UNO-1300/1400)
- Supports Embedded Automation PC (UNO-2300/2400 series)
- Supports Control Cabinet PC (UNO-3200/3400 series)
- Supports Embedded Automation PC (UNO-2200 series (PCM-23U1DG))
- Supports Control Cabinet PC (UNO-3300 series (PCM-23U1DG))
- Supports Control Panel Computers (TPC-xx81/xx82 series (PCM-23U1DG))
- Supports Thin Client Panel Computers (TPC-xx51 series (PCM-23U1DG))

### Introduction

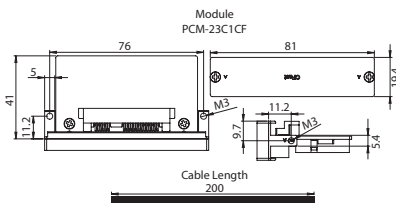
The PCM-23 series are storage modules from Advantech iDoor Technology. They are compatible with the PCI Express® Mini Card Specification Revision 1.2. They include no-battery MRAM for automation machine memory backup, SATA to CFast on ThinClient terminals offering storage with longer MTB repairs and quick maintenance, locked USB dongle for software protection in SCADA systems, and TPM for quality system management. This is a flexible design that enables customers to customize their features with iDoor Technology.

### PCM-23C1CF Specifications

#### General

- Dimensions** 19.4 x 81 x 41 mm
- Features** I/O plate to SATA connector
- Form Factor** I/O Plate
- Contents** I/O module, bracket
- Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- I/O Port** 1 slot with CFast Type II connector
- Color** Silver

### PCM-23C1CF Dimensions

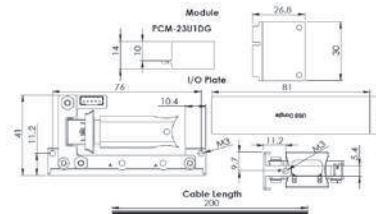


### PCM-23U1DG Specifications

#### General

- Dimensions** 19.4 x 81 x 41 mm (USB: L x W x H-max: 52 x 17 x 10)
- Features** USB A-type, utilizing system USB signal, +5V supported
- Contents** I/O module, cable, half-size mPCIe, Half/Full-size mPCIe adapter kit
- Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- I/O Port** 1 port internal USB 2.0
- Color** Silver

### PCM-23U1DG Dimensions



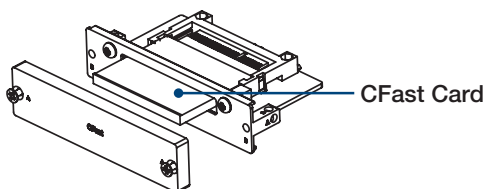
### Ordering Information

- PCM-23C1CF-AE** SATAII 3G/Sec to CFast

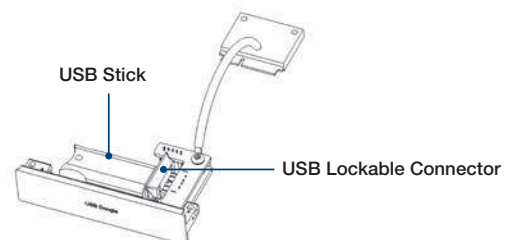
### Ordering Information

- PCM-23U1DG-BE** USB Slot w/ Lock for USB Dongle, Half-size mPCIe

### PCM-23C1CF User scenario



### PCM-23U1DG User scenario



- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PCM-24U2U3

## 2-Port USB 3.0, mPCIe, USB-A type

**NEW**



### Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision TM 2.0 compliant
- Expands two external USB3.0 Super-Speed ports
- Complies with xHCI specification
- Supports hot-swapping function
- Supplies maximum +5 V/900 mA power output to USB device
- Supports 32/64-bit Microsoft® Windows® XP/Vista/7/8
- Supports Embedded Automation PC UNO-2200/2400 series
- Supports Control DIN-rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Thin Client Panel Computers TPC-xx51 series\*

\*Additional power cable is required

### Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications, ZigBee module as an IoT terminal or controller and PoE function for smart camera in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- **Bus Type** PCI Express Mini Card Revision TM 2.0
- **Certification** CE, FCC class A
- **Connector** 2 x USB standard-A type
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")

#### Power Requirements

- **Input Voltage** 5~24 VDC
- **Connection** 20 cm wired cable with 4-pin pitch 2.0 connector
- **Power Consumption** Maximum: +5V @ 900 mA per port

#### Communication

- **Protocol** Universal Serial Bus 3.0 specification Rev. 1.0
- **Speed** 5 Gbps (Max.)

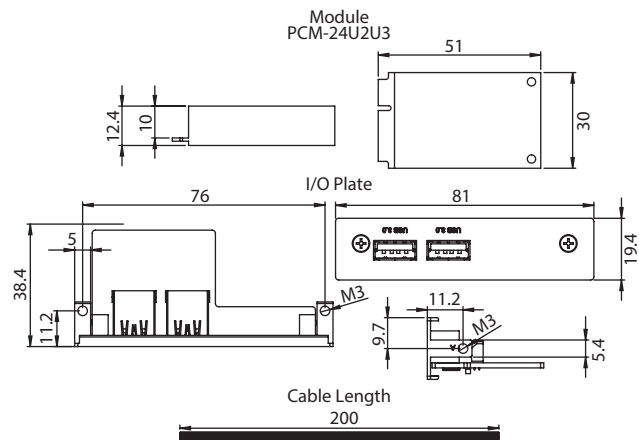
#### Software

- **OS Support** Microsoft® Windows® XP/Vista/7/8

#### Environment

- **Humidity (Operating)** 5~95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

### Dimensions



### Ordering Information

- **PCM-24U2U3-AE** USB 3.0, mPCIe, USB-A type x 2
- **1700023725-01** Power cable 4P/5P 20cm for TPC-xx51 series

# PCM-2300™

TPM compliant with TCG 1.2 via LPC

NEW



iDoor RoHS COMPLIANT 2009/10/EC CE FCC

## Features

- Meets Advantech iDoor Technology Standard
- Trusted Platform Module Revision TCG 1.2 compliant
- Hardware-based data protection prevents encrypted data from illegal decrypting
- Connect to system via on-board LPC connector
- Supports 32/64-bit Microsoft® Windows® XP/7/8
- Supports Embedded Automation PC UNO-2400 series

## Introduction

The PCM-23 series are storage modules from Advantech iDoor Technology. They are compatible with the PCI Express® Mini Card Specification Revision 1.2. They include no-battery MRAM for automation machine memory backup, SATA to CFast on ThinClient terminals offering storage with longer MTB repairs and quick maintenance, locked USB dongle for software protection in SCADA systems, and TPM for quality system management. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- **Certification** CE, FCC class A
- **Connector** Low Pin Count connector (14 pin)
- **Dimensions** 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")

### Power Requirements

- **Input Voltage** 3.3 V<sub>DC</sub>
- **Power Consumption** Typical 3.3V @ 5 mA

### Communication

- **Protocol** Trusted Platform Module TCG 1.2
- **Connection** 20 cm wired cable to on-board LPC connector

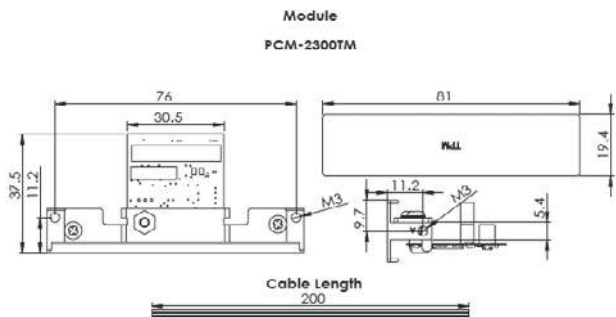
### Software

- **OS Support** Microsoft® Windows® XP Professional Edition  
Microsoft® Windows® 7 Ultimate  
Microsoft® Windows® 8

### Environment

- **Humidity (Operating)** 40° C @ 85% RH, non-condensing
- **Operating Temperature** 0 ~ 60° C ( 32 ~ 140° F)
- **Storage Temperature** - 40 ~ 85° C ( - 40 ~ 185° F)

## Dimensions



## Ordering Information

- **PCM-2300TM-AE** TPM compliant with TCG 1.2 via LPC

1  
WebAccess® Solution

2  
Intelligent Motion Control and Machine Vision

3  
Power & Energy Automation

4  
Industrial Operator Panels

5  
Thin-Client Terminals

6  
High-Performance Control Panels

7  
Control Cabinet PCs

8  
Industrial IoT Gateways

9  
Industrial monitors

10  
iDoor Technology Modules

11  
Panel PCs

12  
Control IPCs

13  
Remote DA&C Systems

14  
Wireless IoT Sensing Devices

15  
Ethernet I/O Modules

16  
RS-485 I/O Modules

17  
Industrial Ethernet Solutions

18  
IP Gateway and Serial Device Servers

19  
Networking



# PCM-27J3AU

## 3-Port Audio Stereo, mPCIe, 3.5 mm Jack

NEW



### Features

- Meets Advantech iDoor Technology Standard
- 3 x 3.5 mm Jack (Line-in, Line-out, MIC-in)
- 102 dB Signal-to-Noise Ratio (A-weighting) for DAC output
- 97 dB Signal-to-Noise Ratio (A-weighting) for ADC input
- All DACs/ADCs support 44.1/48/96/192 kHz sample rate
- Supports two stereo digital microphone inputs
- S/PDIF-OUT supports 16/20/24-bit format and 44.1/48/96/192 kHz rate
- Supports Embedded Automation PC (UNO-2200/2300 series)
- Supports Control DIN-Rail PC (UNO-1300/1400 series)
- Supports Control Cabinet PC (UNO-3200/3300/3400 series)
- Supports Control Panel Computers (TPC-xx81/xx82 series)
- Supports Thin Client Panel Computers (TPC-xx51 series)

### Introduction

The PCM-27 series are digital/analog input/output modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications, ZigBee module as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- **Bus Type** PCI Express Mini Card Revision TM 2.0 (USB differential)
- **Certification** CE, FCC class A
- **Connector** 3 x 3.5 mm Jack (1/8") (Line-in, Line-out, MIC-in)
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")
- **I/O Plate:** 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** 25 mW per channel @ 5 V<sub>DC</sub>

#### Communication

- **Audio Chipset** Realtek ALC286S-VC
- **Channels** 4-channels (supports independent 2 stereo channels for DAC/ADC)
- **Input/Output Full-Scale Voltage** 1.3/1.2 V<sub>rms</sub> (input/output)
- **Analog Playback/Recording Sample Rate and Resolution** 44.1/48/96/192 kHz @ 24 bit
- **Signal to Noise Ratio (SNR)** 120 dB for DAC output; 97 dB for ADC input

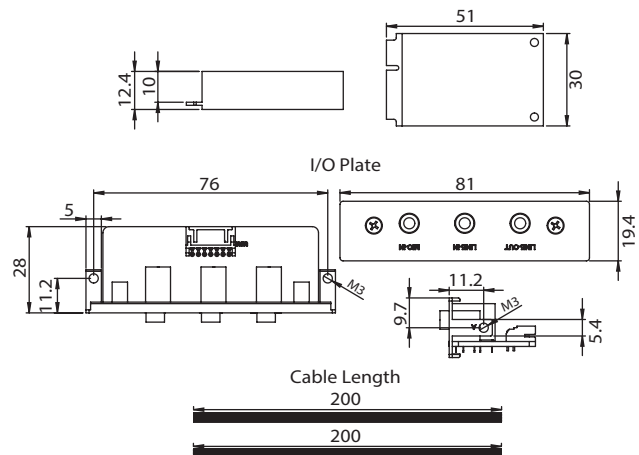
#### Software

- **OS Support** Microsoft® Windows® XP/7/8

#### Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

### Dimensions



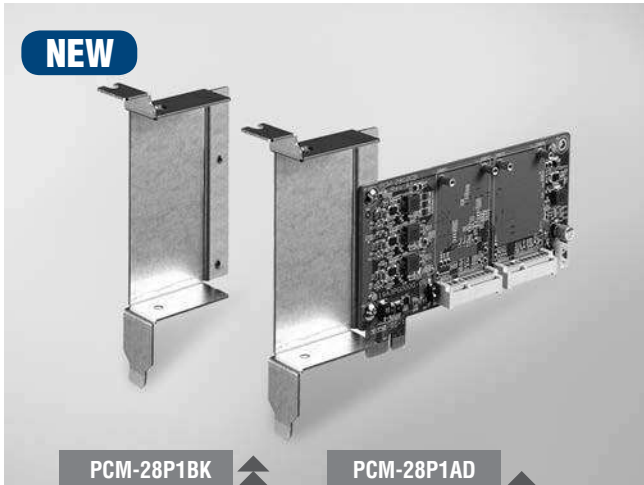
### Ordering Information

- **PCM-27J3AU-AE** 3-Port Audio Stereo, mPCIe, 3.5 mm Jack

# PCM-28P1AD PCM-28P1BK

## PCIe to mPCIe, 2-Slots mPCIe, iDoor I/O plate expansion

### iDoor PCIe I/O Plate



### Features

- Meets Advantech iDoor Technology Standard
- PCI Express base SPEC 2.0 and backward compatible with SEPC 1.1 & 1.0a compliant
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Expands two external full-size mPCIe slots from an existing PCIe slot
- Expands one external iDoor I/O module plate from existing PCIe plate
- Supports Microsoft® Windows® XP/7/8
- Supports Control DIN-Rail PC UNO-1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series

\*Please visit Advantech's websites for the latest iDoor modules support information

### Introduction

The PCM-28 series are expansion kits providing multi-application solutions using Advantech iDoor technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; the ZigBee module serves as an IoT terminal or controller, and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- Bus Type** PCI Express® Rev. 2.0 compliant
- Interface** PCI Express® Mini Card Specification Revision 1.2 compliant
- Certification** CE, FCC class A
- I/O Connectors** 1 x PCI Express Male, 2 x mPCIe Female
- Dimensions** 173 x 120.8 x 21.6mm (6.8" x 4.8" x 0.9")
- Power Consumption** Input: +12 V/2.1 A, +3.3 VSB/375 mA  
Output: +3.3 V/1.1 A, +1.5 V/375 mA

#### Software

- OS Support** Windows® XP/7/8

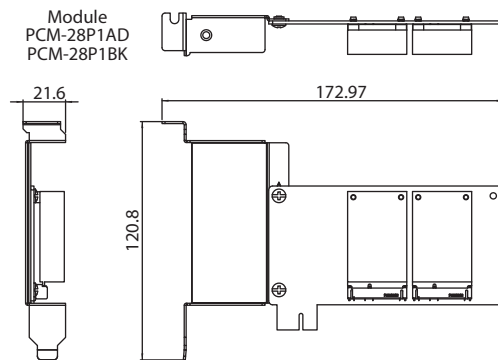
#### Environment

- Humidity (Operating)** 5-95% RH, non-condensing
- Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

### Support iDoor Module

- PCM-24D2R2-AE** 2-Port Isolated RS-232, mPCIe, DB9
- PCM-24D2R4-AE** 2-Port Isolated RS-422/485, mPCIe, DB9
- PCM-24D4R2-AE** 4-Port Non-Isolated RS-232, mPCIe, DB37 cable
- PCM-24D4R4-AE** 4-Port Non-Isolated RS-422/485 mPCIe, DB37 cable
- PCM-26D2CA-AE** 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- PCM-27D24DI-AE** 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37
- PCM-2300MR-AE** MR4A16B, MRAM, 2 MByte, mPCIe
- PCM-24S2WF-AE** Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- PCM-24U2U3-AE** 2-Port USB 3.0, mPCIe, USB-A type

### Dimensions

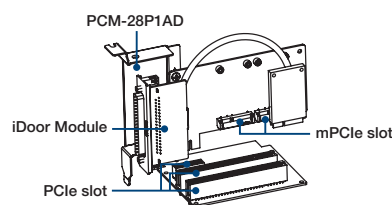


### Ordering Information

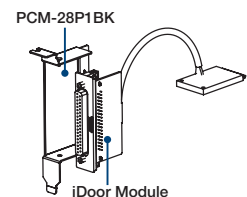
- PCM-28P1AD-AE** PCIe to mPCIe, mPCIe Slot x2, iDoor PCIe I/O plate x1
- PCM-28P1BK-AE** iDoor PCIe I/O Plate

### User scenario

#### 2-Slots mPCIe expansion



#### iDoor with PCIe I/O Plate



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

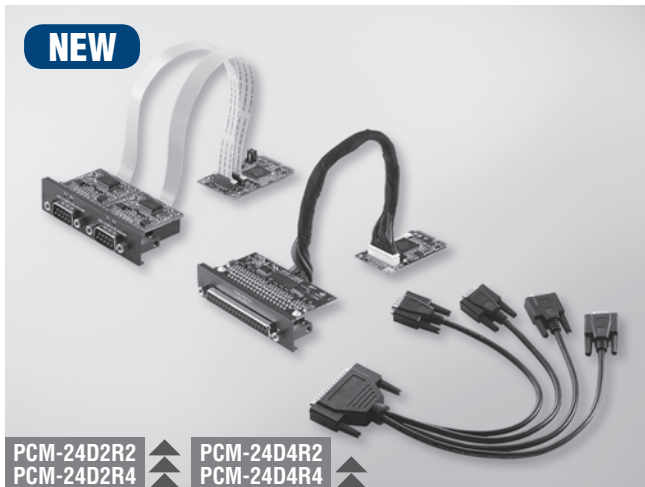
# PCM-24D2R2 PCM-24D2R4 PCM-24D4R2 PCM-24D4R4

2-Port Isolated RS-232, mPCIe, DB9

2-Port Isolated RS-422/485, mPCIe, DB9

4-Port Non-Isolated RS-232, mPCIe, DB37 cable

4-Port Non-Isolated RS-422/485 mPCIe, DB37 cable



PCM-24D2R2  
PCM-24D2R4

PCM-24D4R2  
PCM-24D4R4



## Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Speeds up to 921.6 kbps for extremely fast data transmission
- Supports any baud rate setting (50 bps ~ 921.6 kbps)
- Supports both Isolated & Non-Isolated Protection with 2/4 ports RS-232/422/485
- I/O address automatically assigned by PCIe plug & play
- Supports Windows XP/Vista/7, Linux Ubuntu 12.10
- OXPCIe952/OXPCIe954 UART with 128-byte FIFOs standard
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

## Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- Bus Type** PCI Express Mini Card Revision 1.2
- Certification** CE, FCC class A
- Connectors** 2 x Male DB9 for PCM-24D2xx  
1 x Female DB37 for PCM-24D4xx
- Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- Power Consumption** 400 mA @ +3.3 V for PCM-24D2xx  
500 mA @ +3.3 V for PCM-24D4xx

### Communications

- Comm. Controller** OXPCIe952 for PCM-24D2xx  
OXPCIe954 for PCM-24D4xx
- Data Bits** 5, 6, 7, 8
- Data Signals** RS-232: TX, RX, RTS, CTS, DTR, DSR, DCD, DI, GND  
RS-422: TX+, TX-, RX+, RX-, (PCM-24D4R4)  
TX+, TX-, RX+, RX-, CTS+, CTS-, RTS+, RTS- (PCM-24D2R4)  
RS-485: Data+, Data-  
128 bytes
- FIFO** 128 bytes
- Flow Control** RTS/CTS (PCM-24D4R4 not supported), Xon/Xoff
- Parity** None, Odd, Even, Mark and Space
- Speed** 50 bps ~ 921.6 kbps (PCM-24D2R4 & PCM-24D4R4)  
230.4 kbps (PCM-24D2R2 & PCM-24D4R2)
- Stop Bits** 1, 1.5, 2

### Protection

- Isolation Protection** 2,000 V<sub>DC</sub> for PCM-24D2xx only
- ESD Protection** 15 KV
- EFT Protection** 2,500 V
- Surge Protection** 1,000 V<sub>DC</sub>

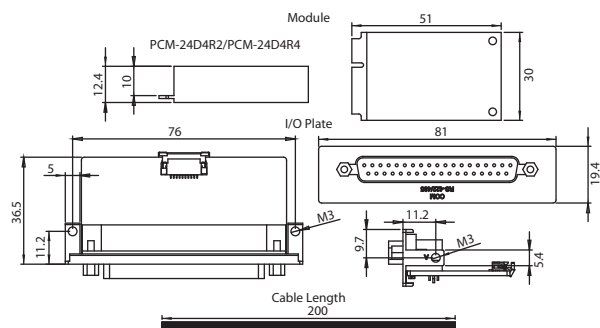
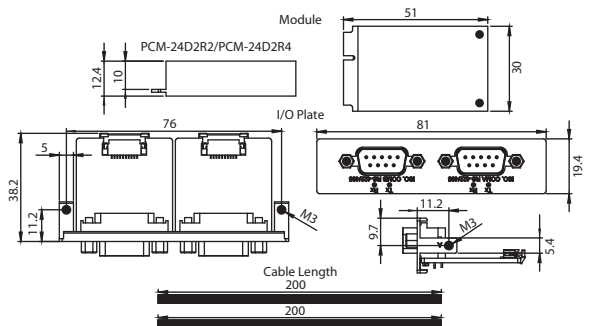
### Software

- Bundled Software** ICOM Tools & Drivers
- OS Support** Microsoft® Windows® XP/Vista/7, Linux Ubuntu 12.10

### Environment

- Humidity (Operating)** 5-95% RH, non-condensing
- Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

## Dimensions



## Ordering Information

- PCM-24D2R2-AE** 2-Port Isolated RS-232, mPCIe, DB9
- PCM-24D2R4-AE** 2-Port Isolated RS-422/485, mPCIe, DB9
- PCM-24D4R2-AE** 4-Port Non-Isolated RS-232, mPCIe, DB37 cable
- PCM-24D4R4-AE** 4-Port Non-Isolated RS-422/485 mPCIe, DB37 cable

# PCM-27D24DI

## 24-Channel Isolated Digital I/O w/ counter mPCIe, DB37

**NEW**



iDoor RoHS COMPLIANT 2009/RESC CE FCC

### Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports wide-input/output voltage (10-30 V<sub>DC</sub>/5-30 V<sub>DC</sub>)
- High over-voltage-protection (70 V<sub>DC</sub>) and voltage isolation (2,500 V<sub>DC</sub>)
- Easy configuration & efficient programming by Advantech DAQNav
- I/O address automatically assigned by PCIe plug & play
- Keeps the output settings and values after system hot reset
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

### Introduction

The PCM-27 series are digital input/output modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; the ZigBee module serves as an IoT terminal or controller, and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- Bus Type** PCI Express Mini Card Revision 1.2
- Certification** CE, FCC class A
- Connectors** 1 x Female DB37
- Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- Power Consumption** Typical: +3.3 V @ 400 mA  
Max.: +3.3V @ 520 mA

#### Isolated Digital Input

- Input Channels** 16
- Input Voltage (Wet Contact)** Logic 0: 0-3 V<sub>DC</sub>  
Logic 1: 10-30 V<sub>DC</sub>
- Input Voltage (Dry Contact)** Logic 0: Open  
Logic 1: Shorted to GND
- Input Current** 10 V<sub>DC</sub> @ 2.97 mA  
20 V<sub>DC</sub> @ 6.35 mA  
30 V<sub>DC</sub> @ 9.73 mA
- Input Resistance** 5K Ohm
- Interrupt Capable Channels** 2 (ID10, ID18)
- Isolation Protection** 2,500 V<sub>DC</sub>
- Overvoltage Protection** 70 V<sub>DC</sub>
- ESD Protection** 4KV (Contact), 8KV (Air)
- Opto-isolator Response** 50 μs

#### Isolated Digital Output

- Output Channels** 8
- Output Type** MOSFET
- Isolation Protection** 2,500 V<sub>DC</sub>
- Output Voltage** 5 ~ 30 V<sub>DC</sub>
- Sink Current** 100 mA max./channel
- Opto-isolator** Response 50 μs

#### Counter

- Channels** 2
- Resolution** 32 bits
- Max. Input Frequency** 1 kHz

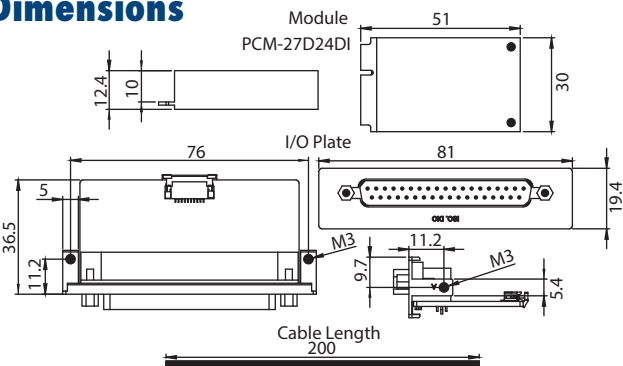
#### Software

- Tools & Drivers** Advantech DAQNav Tools & API Drivers
- OS Support** Microsoft® Windows® XP/7/8  
Linux Ubuntu 14.04, OpenSUSE 13.1, Fedora 20, Debian 6.08, Red Hat 6.5

#### Environment

- Humidity (Operating)** 5-95% RH, non-condensing
- Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

### Dimensions



### Ordering Information

- PCM-27D24DI-AE** Iso. Digital I/O, 16DI/8DO, mPCIe, DB37 x 1

#### Accessories

- PCL-10137-1E** DB-37 Shielded Cable, 1m
- PCL-10137-2E** DB-37 Shielded Cable, 2m
- PCL-10137-3E** DB-37 Shielded Cable, 3m
- ADAM-3937-BE** DB-37 Wiring Terminal, DIN-rail Mount

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# PCM-24S2WF

WiFi 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, Half-size mPCIe, Antennas

NEW



## Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- IEEE 802.11 a/b/g/n + Bluetooth 4.0 HS standard
- 2 SMA, 2Tx/ 2Rx ports
- Up to 300 Mbps data throughput
- 64/128/152-bit WEP, 802.1x, TKIP and AES
- Operating temperature: 0 ~ 70°C (32 ~ 158°F)
- Includes Half/Full-size mPCIe card adapter
- Supports 32/64-bit Windows XP/Vista/7/8/8.1
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

## Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** 3.3 V, 445 mW (Wi-Fi continue, Avg.)
- **Antenna** WiFi 2.4 GHz and 5 GHz dipole antenna, 109 mm
- **Cable** WiFi coaxial cable, 200 mm

### Communications

- **Data throughput** 300 Mbps (Max.)
- **Security** 64/128-bit WEP

### Software

- **OS Support** Microsoft® Windows® XP/Vista/7/8/8.1

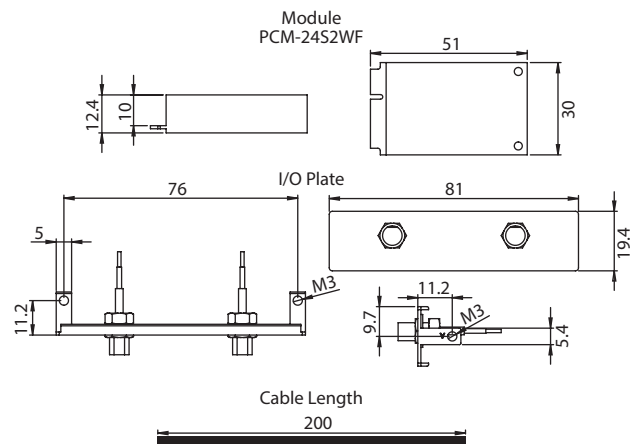
### Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)

## Regulation

The PCM-24S2WF-AE employs Atheros AR9462 as main chipset and corresponds to its regulations.

## Dimensions



## Ordering Information

- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, Half-size mPCIe



# PCM-24S33G

**3.75G HSPA and GPS, Full-size mPCIe, Front-accessible dual SIM card slots, 3G/GPS antennas**

**NEW**



iDoor RoHS COMPLIANT 2009/SEC CE FCC

## Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- 6-bands, 800/850/900/1700/1900/2100 MHz for UMTS/HSPA network
- 850/900/1800/1900 MHz for EDGE/GPRS/GSM network
- With hardware standalone GPS, u-blox MAX-6
- With SIM card holder
- HSDPA 7.2 Mbps, HSUPA 5.76 Mbps
- Operating temperature: -40 ~ 85°C (-40 ~ 185°F)
- Supports 32/64-bit Windows XP/7/8/8.1, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series

## Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- Bus Type** PCI Express Mini Card Revision 1.2
- Certification** CE, FCC class A
- Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- Power Consumption** 3.3~3.6 V, <700 mA (HSPA connected mode)
- Antenna** 824~960 MHz, 1710~2170 MHz dipole antenna, 109 mm  
GPS antenna 1575MHz, cubic antenna 45 x 35 x 14 mm, wire length 5000mm
- Cable** Coaxial GSM/ GPS cable, 250 mm

### Communications

- Frequency Band** UMTS/HSPA: 800/850/900/1700/1900/2100 MHz  
EDGE/GPRS/GSM: 850/900/1800/1900 MHz
- Data throughput** Downlink: 7.2 Mbps  
Uplink: 5.76 Mbps

### Software

- OS Support** Microsoft® Windows® XP/7/8/8.1, Linux Ubuntu 14.04

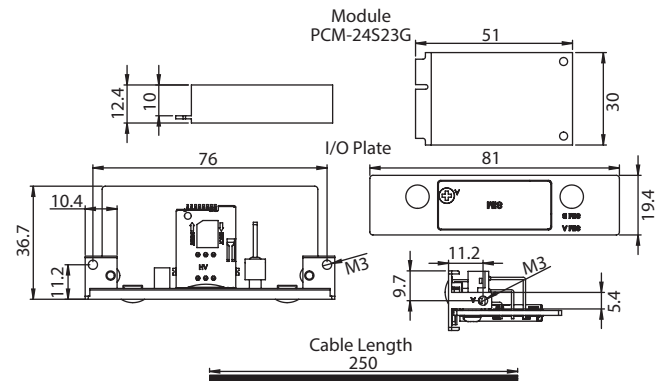
### Environment

- Humidity (Operating)** 5-95% RH, non-condensing
- Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)

## Regulation

PCM-24S33G-AE employs u-blox LISA-U200/Max-6 as main chipset and corresponds to its regulation.

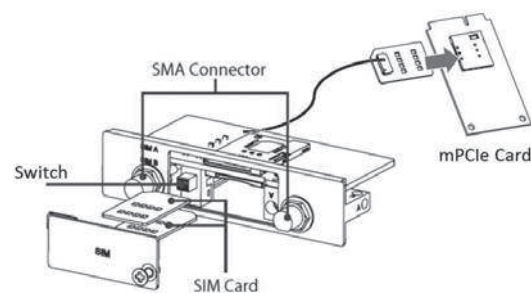
## Dimensions



## Ordering Information

- PCM-24S33G-AE** 3.75G HSPA/GPS, Full-size mPCIe, Front-accessible dual SIM card slots, 3G/GPS antennas

## User scenario



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PCM-24S34G

LTE/HSPA+/GPRS and GPS,  
Full-size mPCIe, 4G/GPS antennas,  
for EMEA/Australia and Americas regions

**NEW**



## Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports B1/B2/B3/B4/B5/B7/B8/B13/B17/B20/B25 for LTE network
- Supports B1/B2/B4/B5/B8 for UMTS/HSPA+ network
- Supports 850/900/1800/1900 MHz for EDGE/GPRS/GSM network
- Supports GPS location function
- Operating temperature: -40 ~ 85°C ( -40 ~ 185°F)
- Supports 32/64-bit Windows 7/8/8.1, Linux Ubuntu 14.04
- Supports Embedded Automation PC UNO-2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200 series

\* For UNO-2200 series, contact Advantech for more ordering information

## Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- Bus Type** PCI Express Mini Card Revision 1.2
- Certification** CE, FCC, GCF, NCC, PTCRB
- Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- Power Consumption** 3.3 V / 950 mA (Max)
- SMA Cable** Coaxial GSM/ GPS cable, 250 mm

### Communication

Model Name	PCM-24S34G-EAE	PCM-24S34G-AAE
<b>Communication</b>	<b>Bands</b>	
<b>LTE</b>	Band 1 (2100 MHz) Band 3 (1800 MHz) Band 7 (2600 MHz) Band 8 (900 MHz) Band 20 (800 MHz)	Band 2 (1900 MHz) Band 4 (1700/2100 MHz) Band 5 (850 MHz) Band 13 (700 MHz) Band 17 (700 MHz) Band 25 (1900 MHz)
<b>UMTS (WCDMA) HSPA+</b>	Band 1 (2100 MHz) Band 2 (1900 MHz) Band 5 (850 MHz) Band 8 (900 MHz)	Band 1 (2100 MHz) Band 2 (1900 MHz) Band 4 (1700/2100 MHz) Band 5 (850 MHz) Band 8 (900 MHz)
<b>CDMA</b>	N/A	BC 0/1/10
<b>GSM/GPRS/EDGE</b>	850/900/1800/1900 MHz	
<b>Data rates (LTE)</b>	Maximum Downlink: 100 Mbps Maximum Uplink: 50 Mbps	

### Antenna

- 4G Antenna Frequency** 700 ~ 960 MHz, 1710 ~ 2700 MHz
- 4G Antenna Length** 167 mm
- GPS Antenna Frequency** 1575.42 ± 5 MHz
- GPS Antenna Cable Length** 500 mm

### Software

- OS Support** Microsoft® Windows® 7/8/8.1,  
Linux Ubuntu 14.04

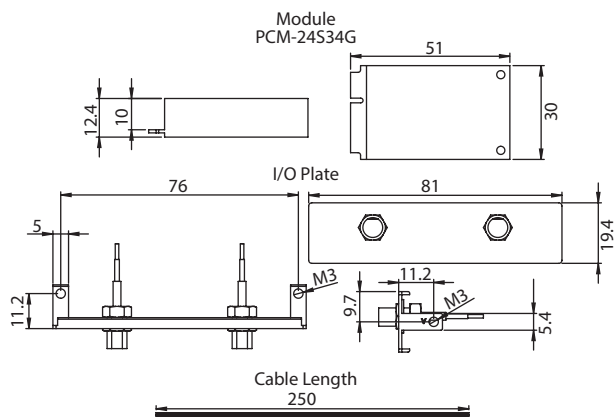
### Environment

- Humidity (Operating)** 5-95% RH, non-condensing
- Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)

## Regulation

PCM-24S34G employs Sierra Wireless MC-7304/7354 module and corresponds to its regulation.

## Dimensions



## Ordering Information

- PCM-24S34G-EAE** Sierra MC7304 LTE/HSPA+/GPS, mPCIe, antennas, for EMEA/Australia
- PCM-24S34G-AAE** Sierra MC7354 LTE/HSPA+/GPS, mPCIe, antennas, for Americas

# PCM-24R1TP

## 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45

**NEW**



### Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Real-time Ethernet with hardware based Precision Time Protocol
- Achieves time synchronization for device or system
- I/O address automatically assigned by PCIe plug & play
- Supports 32/64-bit Windows 7/8, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

### Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Connectors** 1 x RJ45 GbE Half-/Full-Duplex
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** Typical : +3.3V @ 9 W

#### Communications

- **LAN Controller** Intel® 82574L Gigabit Ethernet Chip
- **Speed** 10/100/1000 Base-TX, Auto-negotiation
- **Support** 9K jumbo frames, hardware-based support for precise time synchronization over Ethernet, wake-on-LAN

#### Protection

- **Isolation Protection** 1,500 V<sub>DC</sub>
- **ESD Protection** 4KV (Contact), 8KV (Air)
- **EFT Protection** 1,000 V
- **Surge Protection** 1,000 V<sub>DC</sub>

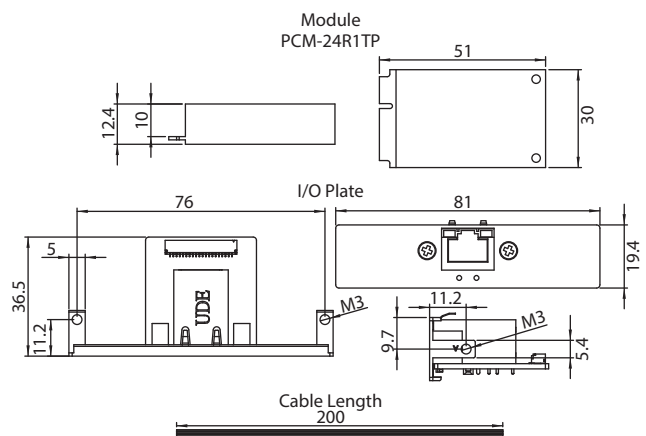
#### Software

- **OS Support** Microsoft® Windows® XP/7/8, Linux Ubuntu 14.04

#### Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

### Dimensions



### Ordering Information

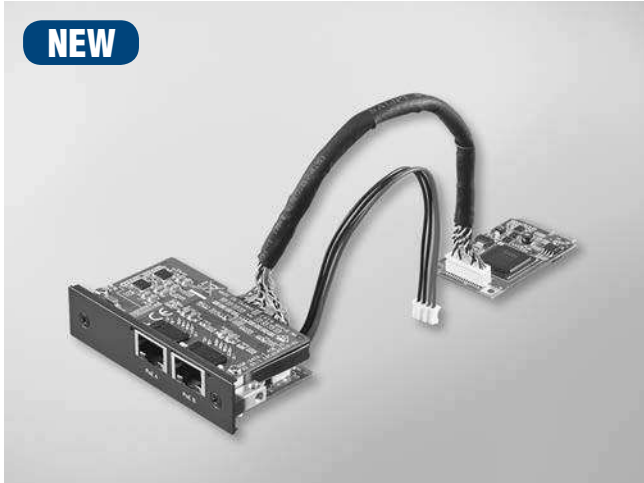
- **PCM-24R1TP-AE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PCM-24R2PE

2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45

NEW



## Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports 2 Gigabit Ethernet MAC Controller and PHY ports
- Supports 24 V<sub>DC</sub> input power boost up to 15.4 W at 48 V<sub>DC</sub> per PoE port
- Supports PoE (Power over Ethernet), IEEE 802.3af compliant
- Powered Device (PD) auto detection and classification
- Supports IEEE 802.3u Auto-Negotiation
- Supports 32/64-bit Windows 7/8, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2400 series
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series

## Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Connectors** 2 x RJ45 GbE Half-/Full-Duplex
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")

\*Shielding ethernet cable is recommended for use in PoE applications.

### Communications

- **PoE Controller** MICROSEMI\_PD69101ILQ-TR
- **Compatibility** IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3af
- **Speed** 10/100/1000 Mbps
- **No. of Ports** 2 Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports.

### Power Requirements

- **Input Voltage** 24 V<sub>DC</sub>
- **Overload Current** Present Protection
- **Connection** Internal 24 V<sub>DC</sub>  
External 24 V<sub>DC</sub> Phoenix terminal block (Optional add-on)
- **Output PoE Power** 48 V<sub>DC</sub> PoE Power output PCM-24R2PE  
Supports 2 PoE ports up to 2 x 15.4 W at 48 V<sub>DC</sub>

### Protection

- **Isolation Protection** 1,600 V<sub>DC</sub>
- **ESD Protection** 4KV (Contact), 8KV (Air)
- **EFT Protection** 1,000 V

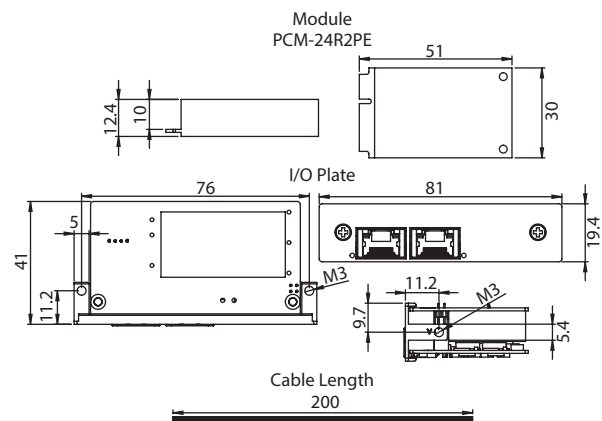
### Software

- **OS Support** Microsoft® Windows® XP/7/8, Linux 2.4/2.6

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -20 ~ 50°C (-4 ~ 122°F)
- **Storage Temperature** -25 ~ 80°C (-13 ~ 176°F)

## Dimensions



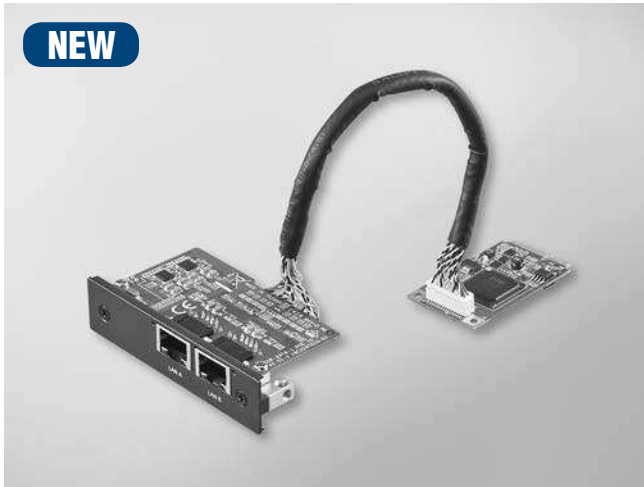
## Ordering Information

- **PCM-24R2PE-AE** 2-Port Gigabit Ethernet, IEEE 802.3af (PoE) Compliant, mPCIe, RJ45

# PCM-24R2GL

2-Port Gigabit Ethernet, Intel® I350, mPCIe, RJ45

NEW



iDoor RoHS COMPLIANT 2009/REACH CE FCC

## Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports 2 Gigabit Ethernet MAC Controller and PHY ports
- Supports 32/64-bit Windows 7/8, Linux 2.4/2.6
- Supports Embedded Automation PC UNO-2200/2400 series
- Supports Control DIN-Rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

## Introduction

The PCM-24 series are communication modules from Advantech iDoor Technology. They are all compatible with PCI Express® Mini Card Specification Revision 1.2, including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Connectors** 2 x RJ45
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")

### Communications

- **LAN Controller** Intel® I350-AM2 LAN Controller
- **Speed** 10/100/1000 Mbps
- **No. of Ports** 2 Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports.

### Power Requirements

- **Power Consumption** Typical: +3.3 V @ 9 W

### Protection

- **Isolation Protection** 1,600 V<sub>oc</sub>
- **ESD Protection** 4 KV (Contact), 8 KV (Air)
- **EFT Protection** 1,000 V

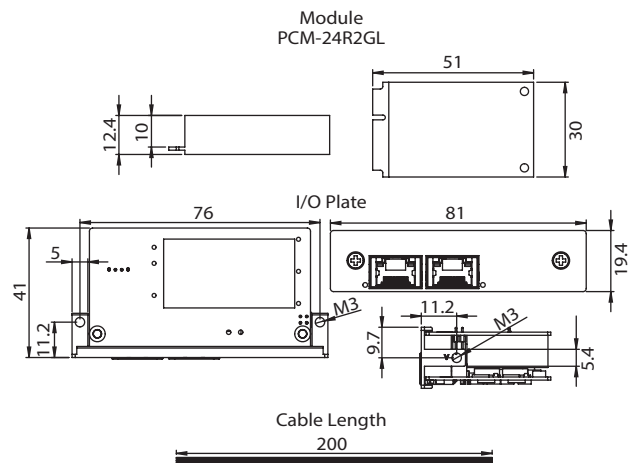
### Software

- **OS Support** Microsoft® Windows® XP/7/8, Linux 2.4/2.6

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)

## Dimensions



## Ordering Information

- **PCM-24R2GL-AE** 2-Port Gigabit Ethernet, Intel® I350, mPCIe, RJ45

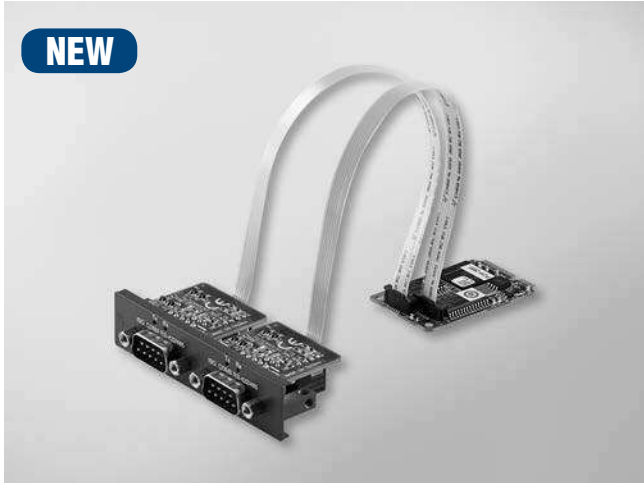
1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking



# PCM-26D2CA

## 2-Port Isolated CANBus mPCIe, CANopen, DB9

NEW



iDoor CANopen RoHS COMPLIANT 2002/95/EC CE FCC

### Features

- Meets Advantech iDoor Technology Standard
- PCI Express® Mini Card Specification Revision 1.2 compliant
- Supports Advantech CANopen Protocol Library
- Operates two separated CAN networks simultaneously
- High speed transmission up to 1 Mbps
- I/O address automatically assigned by PCIe plug & play
- Supports 32/64-bit Windows 2000/XP/Vista/7, Linux 2.4/2.6
- Optical isolation protection of 2,500 V<sub>DC</sub> ensures system reliability
- Includes Windows® DLL library and examples
- Supports Embedded Automation PC UNO-2200/2300/2400 series
- Supports Control DIN-rail PC UNO-1200/1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

### Introduction

The PCM-26 series are Industrial Communication with Fieldbus Protocol modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including including isolated/ non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, FCC class A
- **Connectors** 2 x Male DB9
- **Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41 mm (3.19" x 0.76" x 1.61")
- **Power Consumption** Typical : +5V @ 400 mA

#### Communications

- **CAN Controller** NXP SJA-1000
- **CAN Transceiver** NXP 82C251
- **Protocol** CAN 2.0 A/B
- **Signal Support** CAN\_H, CAN\_L
- **Speed** 1Mbps
- **CAN Frequency** 16MHz
- **Termination Resistor** 120 Ohm (selected by jumper)

#### Protection

- **Isolation Protection** 2,500 V
- **ESD Protection** 15 KV
- **EFT Protection** 2,500 V
- **Surge Protection** 1,000 V<sub>DC</sub>

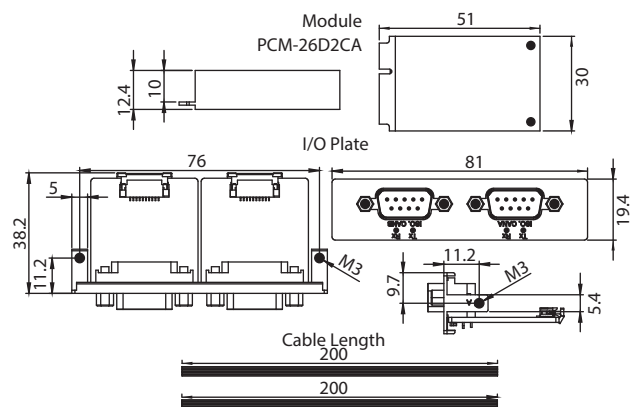
#### Software

- **CAN Bus Driver** Windows 2000/XP/Vista/7, Windows CE 5/6, Linux Ubuntu 12.10, QNX 6.5
- **CANopen Software** Windows 2000/XP/Vista/7, Windows CE 5/6

#### Environment

- **Humidity (Operating)** 5-95% RH, non-condensing
- **Operating Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)

### Dimensions



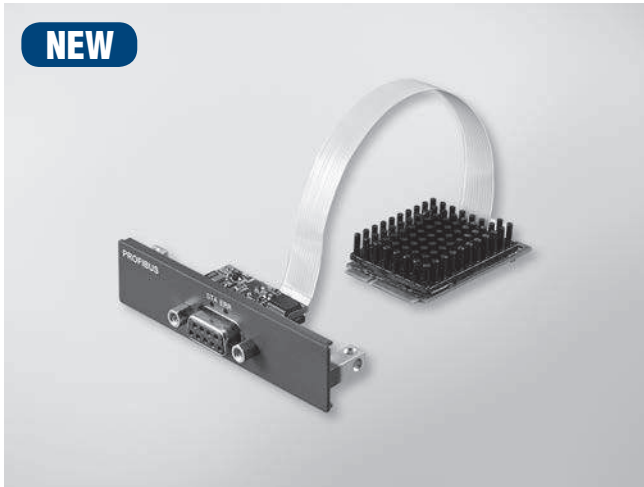
### Ordering Information

- **PCM-26D2CA-AE** SJA1000 CANBus, CANopen, DB9 x 2

# PCM-26D1DB

## 1-Port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9

NEW



### Features

- Meets Advantech iDoor Technology Standard
- PCI Express Mini Card Specification Revision 1.2 compliant
- Supports Hilscher PROFIBUS Protocol Library
- Easy integration by wide range of device drivers
- High extended temperature range up to 70°C
- Supports Embedded Automation PC UNO-2200/2400 series
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81/xx82 series
- Supports Thin Client Panel Computers TPC-xx51 series

### Introduction

The PCM-26 series are Industrial Communication with Fieldbus Protocol modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

### Specifications

#### General

- **Bus Type** PCI Express Mini Card Revision 1.2
- **Certification** CE, UL
- **Connectors** 1 x Female DB9
- **Dimensions** Module: 51 x 30 x 12.4mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 41mm (3.19" x 0.76" x 1.61")
- **Power Consumption** Typical : +3.3 V @ 650mA

#### Communications

- **Controller** Hilscher netX100
- **Protocol** PROFIBUS DP V1
- **Signal interface** Iso. RS-485, RxD/TxD-P, RxD/TxD-N
- **Speed** 9.6 kbps ~ 12 Mbps
- **Displays** SYS, System status LED

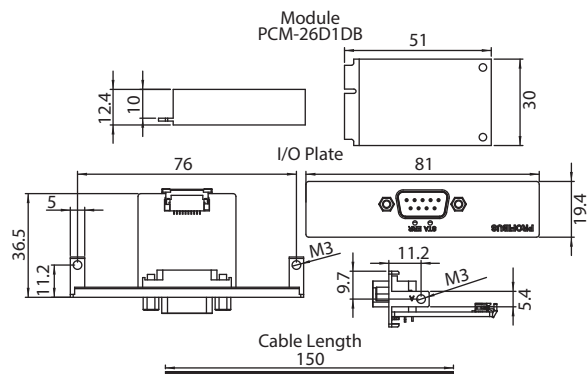
#### Software

- **OS Device** Windows 2000/XP/Vista/7/8 (32/64-bit)
- **Utility** SYCON.net

#### Environment

- **Humidity (Operating)** 10-95% RH, non-condensing
- **Operating Temperature** -20 ~ 70°C (-4 ~ 158°F), w/ Air flow during measurement: 0.5 m/s
- **Storage Temperature** -10 ~ 70°C (14 ~ 158°F)

### Dimensions



### Ordering Information

#### Master

- **PCM-26D1DB-MAE** Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9 x 1, Master

#### Slave

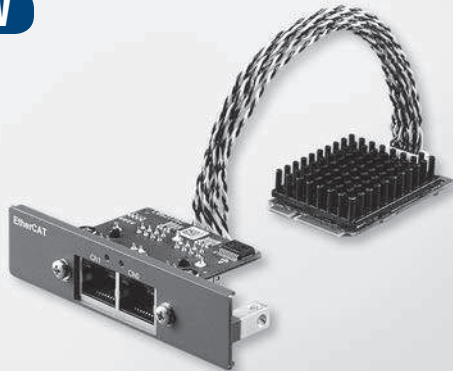
- **PCM-26D1DB-SAE** Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9 x 1, Slave

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PCM-26R2EC PCM-26R2EI PCM-26R2S3 PCM-26R2PN PCM-26R2PL

2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45  
2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45  
2-Port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45  
2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45  
2-Port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45

**NEW**



EtherCAT, ETHERNET, POWERLINK, PROFINET, EtherNet/IP, SERCOS



## Features

- Meets Advantech iDoor Technology Standard
- PCI Express Mini Card Specification Revision 1.2 compliant
- Identical interface for all Hilscher Real-Time Ethernet Fieldbus Protocols
- Various colorful front plates for protocol identification
- Easy integration by wide range of device drivers
- High extended temperature range up to 70°C
- Supports Embedded Automation PC UNO-2200/2400 series
- Supports Control DIN-Rail PC UNO-1300/1400 series
- Supports Control Cabinet PC UNO-3200/3300/3400 series
- Supports Control Panel Computers TPC-xx81 series
- Supports Thin Client Panel Computers TPC-xx51 series

## Introduction

The PCM-26 series are Industrial Communication with Fieldbus Protocol modules from Advantech iDoor Technology. They are all compatible with the PCI Express® Mini Card Specification Revision 1.2, including including isolated / non-isolated RS-232/422/485 communication cards for automation control, Wi-Fi/3G/GPS/GSM/LTE wireless communication models for data exchange for management and machine level automation applications; ZigBee module serves as an IoT terminal or controller and PoE function for smart cameras in detection-inspection-production applications. This is a flexible design that enables customers to customize their features with iDoor Technology.

## Specifications

### General

- Bus Type** PCI Express Mini Card Revision 1.2
- Certification** CE, UL
- Connectors** 2 x Female RJ45
- Dimensions** Module: 51 x 30 x 12.4 mm (2" x 1.18" x 0.49")  
I/O Plate: 81 x 19.4 x 45 mm (3.19" x 0.76" x 1.61")
- Power Consumption** Typical : +3.3 V @ 650 mA

### Communications

- Controller** Hilscher netX100
- Protocol** EtherCAT, EtherNET/IP, Sercos III, PROFINET, POWERLINK
- Signal interface** Isolation 10BASE-T/100BASE-TX
- Speed** 100 Mbps, 10 Mbps (depending on loaded firmware)
- Displays** SYS, System status LED

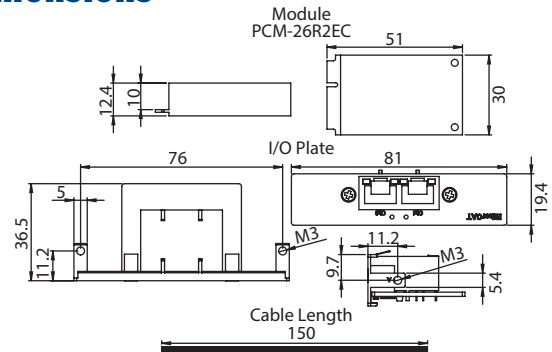
### Software

- OS Device** Windows 2000/XP/Vista/7/8 (32/64-bit)
- Utility** SYCON.net

### Environment

- Humidity (Operating)** 10-95% RH, non-condensing
- Operating Temperature** 0 ~ 70°C (32 ~ 140°F), w/ Air flow during measurement: 0.5 m/s
- Storage Temperature** 0 ~ 70°C (32 ~ 185°F)

## Dimensions



## Ordering Information

### Master

- PCM-26R2EC-MAE** Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45 x2, Master
- PCM-26R2EI-MAE** Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45 x2, Master
- PCM-26R2S3-MAE** Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45 x2, Master
- PCM-26R2PN-MAE** Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45 x2, Master

### Slave

- PCM-26R2EC-SAE** Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45 x2, Slave
- PCM-26R2EI-SAE** Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45 x2, Slave
- PCM-26R2S3-SAE** Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45 x2, Slave
- PCM-26R2PN-SAE** Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45 x2, Slave
- PCM-26R2PL-SAE** Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45 x2, Slave

## Panel PCs

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<b>Performance Panel PC selection guide</b>	<b>11-3</b>
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<b>PPC-6120</b> 12" Panel PC Supporting 4th Generation Intel® Core™ i / Celeron® Processors	<b>11-24</b>
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<b>PPC-6170</b> 17" Panel PC with Intel® Core™ i3 / i5 Processor	<b>11-28</b>
<b>PPC-8150</b> 15" Panel PC with Intel® Core™ i3 / i5 Processor	<b>11-30</b>
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To view all of Advantech's Automation Panel PCs, please visit [www.advantech.com/products](http://www.advantech.com/products).

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Made to Fit Your needs

**High Performance**  
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**Core i**  
The most  
Advanced performance

**C/P!**  
Enhanced  
Price-Performance

Wide I/O for  
Easy Integration

Powerful but  
Compact and Fanless

# Regular Panel PC Selection Guide

NEW

NEW



Model	PPC-3060S		PPC-3100S/3120S		PPC-3100/3120		PPC-3150/3170/3190		
CPU	Intel® Celeron® 1.58 GHz Processor		Intel® Celeron® 1.86 GHz Processor		Intel® Atom™ 1.86GHz Processor		Intel® Atom™ 1.91 GHz Processor		
Memory	1 x SO-DIMM, DDR3L 1333, Max 4 GB		1 x SO-DIMM, DDR3L 1333, Max 8 GB		1 x SO-DIMM, DDR3, Max 4 GB		1 x SO-DIMM, DDR3L 1333, Max 8 GB		
Display Type	TFT LED LCD		TFT LED LCD	TFT LED LCD	TFT LED LCD		TFT LED LCD	TFT LED LCD	TFT LED LCD
Display Size	6.5"		10.4"	12.1"	10.4"	12.1"	15"	17"	19"
Max. Resolution	640 x 480		800 x 600	1024 x 768	800 x 600	1024 x 768	1024 x 768	1280 x 1024	1280 x 1024
Luminance cd/m <sup>2</sup>	700		400	500	400	600	400	350	350
Viewing Angle (H/V°)	80 (left), 80 (right), 70 (up), 70 (down)		80 (left), 80 (right), 70 (up), 70 (down)		80 (left), 80 (right), 70 (up), 70 (down)		80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 60 (up), 80 (down)	85 (left), 85 (right), 80 (up), 80 (down)
Backlight MTBF (hrs)	50,000		30,000	30,000	30,000	50,000	50,000	50,000	50,000
Touchscreen	Elo Resistive 5-wire		Elo Resistive 5-wire		Analog Resistive 5-wire		Analog Resistive 5-wire		
Network (LAN)	2 x GbE (Intel I211)		2 x GbE (Intel I211)		2 x GbE		2 x GbE (Intel I210)		
IO Ports	2 x Serial ports: 1 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 1 x USB 2.0, 1 x USB 3.0		2 x Serial ports: 1 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 1 x USB 2.0, 1 x USB 3.0		4 x Serial ports: 3 x RS-232, 1 x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 1 x Line-out, 1x Mic-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programmable)		5 x Serial ports: 1 x RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (needs optional module) 1 x USB 3.0, 3 x USB 2.0 1 x VGA 1 x DP1.1a 1 x Line-out, 1 x Mic-in		
Storage	1 x 2.5" SATA Bay 1 x mSATA Bay		1 x 2.5" SATA Bay 1 x mSATA Bay		1 x 2.5" SATA Bay 1 x mSATA Bay		1 x 2.5" SATA Bay 1 x mSATA Bay		
Expansion Slots	N/A		N/A		N/A	1 x PCIe x1; 1 x PCI	1 x PCI (standard); 1 x PCIe x1 (in the accessory box)		
Additional Expansion	1 x Full size Mini PCIe		1 x Full size Mini PCIe		1 x Full size Mini PCIe		1 x Full size Mini PCIe Optional: 1 x CFast; 1 x CF card; 1 x Internal USB dongle; 2 x RS-232 or 1 x RS-232 + 1 x GPIO		
Power Input (Voltage)	12 - 24 Vdc		12 - 24Vdc		12 - 30 Vdc		9 - 32 Vdc		
Ingress Protection	Front panel: IP65		Front panel: IP65		Front panel: IP65		Front panel: IP65		
Mounting	PanelMount, VESA 75, wall mount, stand, ARM		PanelMount, VESA 75, wall mount, stand, ARM		PanelMount, VESA 75, wall mount, stand, ARM		PanelMount, VESA 75, wall mount, stand, ARM		
Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD		0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD		0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD		
Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)		-40 ~ 60°C (-40 ~ 140°F)		-40 ~ 60°C (-40 ~ 140°F)		-40 ~ 60°C (-40 ~ 140°F)		
Dimensions	202 x 148 x 41 mm (7.9" x 5.8" x 1.6")		272 x 217 x 46 mm (10.7" x 8.5" x 1.8")	317 x 246 x 49 mm (12.5" x 9.7" x 1.9")	275 x 220 x 64.3 mm (10.83" x 8.74" x 2.53")	325 x 253.8 x 58.4 mm (12.79" x 10" x 2.3")	396.5 x 317.6 x 65.3 mm (15.6" x 12.5" x 2.57")	442.0 x 362.0 x 69.5 mm (17.4" x 14.3" x 2.74")	458.2 x 384 x 67.3 mm (18" x 15" x 2.6")
Weight	1.5 Kg		1.9 Kg	2.1 Kg	2.5 Kg	3.3 Kg	5.3 Kg	6.3 Kg	7.9 Kg
Certification	CE, FCC Class B, BSMI; CB, CCC, BSMI, UL		CE, FCC Class B, BSMI; CB, CCC, BSMI, UL		CE, FCC Class B, BSMI; CB, CCC, BSMI, UL		CE, FCC Class A, BSMI; CB, CCC, BSMI, UL		
Operating System	Win 7/Win 8.1/Win 10/WES7/WEC 7/Linux/Android 4.4		Win 7/Win 8.1/Win 10/WES7/WEC 7/Linux/Android 4.4		Win XP/Win 7/Win XPE/WES 7/WEC7/Linux		WEC 7/WES7/Win 7/Win 8.1/Win 10/Linux		
Page	11-4		11-6	11-8	11-10	11-12	11-14	11-16	11-18



# Performance Panel PC selection guide



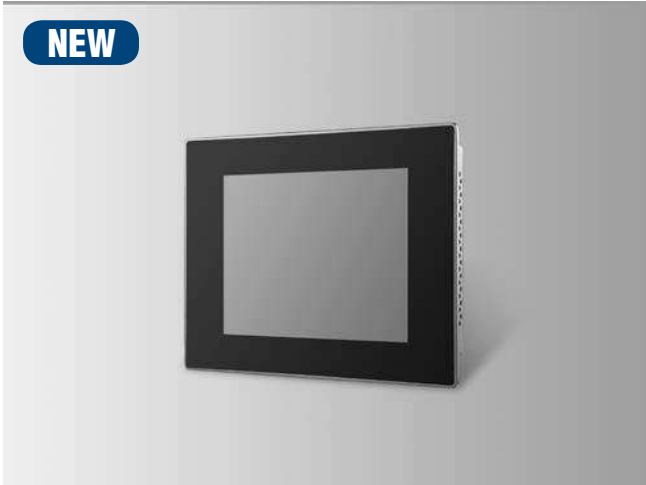
Model	PPC-4151W/4211W		PPC-6120	PPC-6150/6170		PPC-8150/8170	
CPU	4th Gen. Intel® Core™ i5/ i3 Processor	4th Gen. Intel® Core™ i5/ i3 Processor	4th Gen. Intel® Core™ i/ Celeron® Processor	3rd Gen. Intel® Core™ i5/ i3/ Celeron Processor	3rd Gen. Intel® Core™ i5/ i3 Processor	3rd Gen. Intel® Core™ i5/ i3 Processor	
Memory	1 x SO-DIMM, DDR3L1333/1600, Max 8GB	1 x SO-DIMM, DDR3L1333/1600, Max 8GB	2 x SO-DIMM, DDR3 1066/1333; DDR3L 1066/1333, up to 16GB/8GB per SO-DIMM	1 x SO-DIMM, DDR3 1600/DDR3L 1333, Max 8 GB		2 x SO-DIMM, DDR3 1066/1333/1600, Max 16 GB/8GB per SO-DIMM	
Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD
Display Size	15.6"	21.5"	12.1"	15"	17"	15"	17"
Max. Resolution	1366 x 768	1920 x 1080	1024 x 768	1024 x 768	1280 x 1024	1024 x 768	1280 x 1024
Luminance cd/m <sup>2</sup>	400	300	600	400	350	400	350
Viewing Angle (H/V°)	85 (left), 85 (right), 85 (up), 85 (down)	89 (left), 89 (right), 89 (up), 89 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 60 (up), 80 (down)	80 (left), 80 (right), 70 (up), 70 (down)	80 (left), 80 (right), 60 (up), 80 (down)
Backlight MTBF (hrs)	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Touchscreen	PCT Multi Touch or Analog Resistive 5-wire	PCT Multi Touch or Analog Resistive 5-wire	Analog Resistive 5-wire	Analog Resistive 5-wire		Analog Resistive 5-wire	
Network (LAN)	2 x GbE (Intel I211-AT, Intel I218LM)	2 x GbE (Intel I211-AT, Intel I218LM)	2 x GbE	2 x GbE (Intel 82579LM, Intel 82583V)		2 x GbE	
IO Ports	5 x Serial ports: 4 x RS-232, 1 x isolated RS-422/485 4 x USB 3.0 in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1 x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	5 x Serial ports: 4 x RS-232, 1 x isolated RS-422/485 4 x USB 3.0 in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1 x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	5 x Serial ports: 4 x RS-232, 1 x isolated RS422/485 4 x USB 3.0 (Ext.), 2 x USB 2.0 (Int. pin head) 1 x Display Port 1.2 1 x VGA 1 x Line-out, 1 x Mic-in	4 x Serial ports: 1 x isolated RS-232/422/485, 3 x RS-232 1 x GPIO/RS-232 (8 channels, TTL level); by pin header 3 x USB 3.0, 2 x USB 2.0 1 x VGA 1 x HDMI 1 x Line-out, 1 x Mic-in		6 Serial ports: 1 x RS-232/422/485, 5 x RS-232 6 x USB 2.0 1 x VGA, 1 x DVI 1 x GPIO 8 bits (Internal pin header) 1 x Line-out, 1 x Mic-in 1 x PS/2	
Storage	1 x 2.5" SATA Bay 1 x mSATA Bay	2 x 2.5" SATA Bay (Intel RAID) 1 x mSATA Bay	1 x 2.5" SATA Bay 1 x mSATA Bay	1 x 2.5" SATA Bay Either one: Second 2.5" SATA bay (Intel RAID, optional) Slim type 8X or above DVD +/- RW (optional)		1 x 2.5" SATA Bay	
Expansion Slots	1 x PCIe x4 or 1 x PCI (either one)	1 x PCIe x4 or 1 x PCI (either one)	1 x PCIe x1 or 1 x PCI through riser (Optional)	1 x PCI + 1 x PCIe x1 (standard) 1 x PCIe x4 (in the accessory box) 2 x PCIe x4 (optional) 2 x PCI (optional)		1 x PCIe x4 (standard) 1 x PCI (in the accessory box)	
Additional Expansion	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe 1 x Half-size Mini PCIe		1 x Full-size Mini PCIe	
Power Input (Voltage)	9 - 32 Vdc	12 - 32 Vdc	12 - 30 Vdc	100 - 240 Vac, 50/60Hz, 4-2A		100 - 240 Vac, 50/60Hz, 4-2A	
Ingress Protection	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65		Front panel: IP65	
Mounting	Panel Mount, VESA 75/100, wall mount, stand, ARM	Panel Mount, VESA 75/100, wall mount, stand, ARM	PanelMount, VESA 75, wall mount, stand, ARM	PanelMount, VESA 75/100, wall mount, stand, ARM		PanelMount, VESA 75/100, wall mount, stand, ARM	
Operating Temperature	0 ~ 50° C (32 ~ 122° F) for SSD, 0 ~ 45° C for HDD	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)	0 ~ 50° C (32 ~ 122° F)		0 ~ 50° C (32 ~ 122° F)	
Storage Temperature	-40 ~ 60° C (-40 ~ 140° F)	-40 ~ 60° C (-40 ~ 140° F)	-40 ~ 60° C (-40 ~ 140° F)	-40 ~ 60° C (-40 ~ 140° F)		-40 ~ 60° C (-40 ~ 140° F)	
Dimensions	419.7 x 269 x 59 mm (16.52" x 10.59" x 2.32")	557.77 x 349.17 x 63.6 mm (219.59" x 137.47" x 25.04")	325 x 253.8 x 73.8 mm (12.80" x 9.99" x 2.91")	395.5 x 316.8 x 105.5mm (15.6" x 12.5" x 4.15")	442.0 x 362.0 x 113.5mm (17.4" x 14.25" x 4.47")	395.5 x 316.8 x 110.5mm (15.6" x 12.5" x 4.35")	442.0 x 362.0 x 113.5mm (17.4" x 14.25" x 4.47")
Weight	5.69 Kg	7.8 Kg	3.8 Kg (8.38lb)	6.5 Kg (14.32lb)	7.5Kg (16.52lb)	6.98 Kg (15.39lb)	9.2 Kg (20.28lb)
Certification	CE, FCC Class A, BSMI; CB, CCC, BSMI, UL	CE, FCC Class A, BSMI; CB, CCC, BSMI, UL	CE, FCC Class A, BSMI; CB, CCC, BSMI, UL	CE, FCC Class A, BSMI; CB, CCC, BSMI, UL		CE, FCC Class A, BSMI; CB, CCC, BSMI, UL	
Operating System	Win 7/WES 7/Win 8.1/Linux	Win 7/WES 7/Win 8.1/Linux	Win 7/ Win 8.1/ Win 10/ Linux/WEC7	Win XPE/Win XP Pro/WES7/Win 7/ Win 8.1/ Win 10/ Linux		Win XP Pro/Win 7/WES7/Win 8.1	
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# PPC-3060S

## 6.5" Fanless Panel PC with Intel® Celeron® N2807 Processor

**NEW**



### Features

- Industrial 6.5" TFT VGA LCD (LED Backlight)
- Durable 5-wire Resistive Touch Screen
- Embedded Intel Celeron® processor, dual core N2807 1.58 GHz on board
- System memory up to 4 GB DDR3L SDRAM
- Compact Fanless Design
- True-flat with IP65 certified front panel protection
- Supports Full-size Mini PCIe Expansion
- Supports USB 3.0
- Supports Windows Embedded and Android
- Supports VESA 75



### Introduction

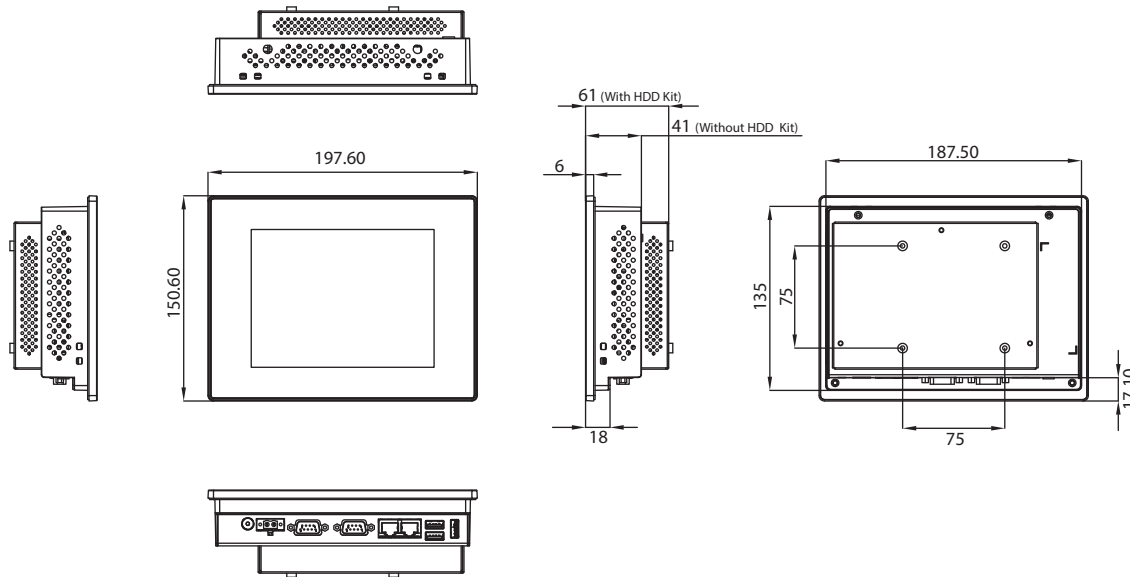
The PPC-3060S is a high-value, ultraslim Panel PC with a 6.5" TFT VGA LCD and low-power Intel® Celeron® N2807 1.58GHz processor. It provides high computing performance in a compact, fanless, embedded system. With a highly durable design, the PPC-3060S is equipped with an IP65 protected front panel and true-flat, 5-wire resistive touch screen. It supports two serial ports, three USB ports, and two GbE LAN to satisfy various industrial applications.

### Specifications

<b>Processor System</b>	CPU	Intel® Celeron® N2807, Dual core
	Frequency	1.58 GHz
	2nd Cache	1 MB
	Memory	1 x SO-DIMM, DDR3L 1333, Max 4 GB
	Storage	1 x 2.5" SATA Bay (Optional, need ordering bracket module for installation) 1 x mSATA Bay (default)
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel 211)
	I/O ports	2 x Serial ports: 1 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 2 x USB 2.0, 1 x USB 3.0
	Expansion	1 x Full size Mini PCIe slot
	Watchdog Timer	255 timer levels, set up by software
<b>Physical Characteristics</b>	Dimensions	197.6 x 150.6 x 41 mm (7.8" x 5.9" x 1.6")
	Weight	1.5 kg (3.30 lb)
<b>OS Support</b>	OS Support	Microsoft® Windows 7 32bit&64bit/Windows 8.1 32bit&64bit/Windows 10 32bit&64bit/WES7/WEC 7/Linux/Android 4.4
<b>Power Consumption</b>	Input Voltage	12- 24 Vdc
	Power Consumption	11 W (Burn-in test 7.0 in Windows 7 32bit)
<b>LCD Display</b>	Display Type	6.5" TFT LCD (LED backlight)
	Resolution	640 x 480
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m <sup>2</sup> )	800
	Contrast Ratio	600
	Backlight Lifetime	50,000 hrs (typical)
<b>Touchscreen</b>	Touch Type	Elo Resistive 5 wires
	Light Transmission	80±5% at 550 nm wavelength
	Controller	RS232 interface
	Durability (Touches)	Greater than 35 million touches in one location without failure
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60068-2-64
	EMC	CE, FCC Class B, BSMI
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

### Dimensions

Unit: mm

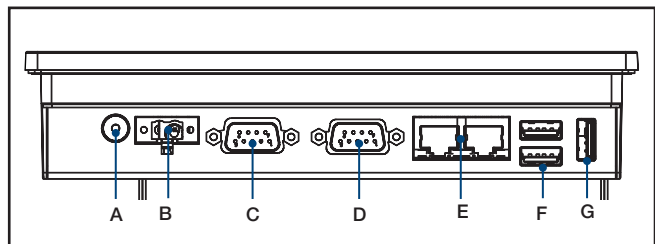


Cut-out dimensions: 189 x 136.5 mm

### Ordering Information

Part No.	Description
PPC-3060S-N80AE	Intel Celeron N2807 Fanless Panel PC with 6.5" LCD LED backlight
98R3P30600E	Bracket module for 2.5" SSD/HDD installation
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-ARM-A03	ARM VESA Standard (A-CLEVER) for PPC series
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-Stand-A1E	Stand for PPC series
98R3612000E	mSATA/CFast to USB card reader
98R3415010E	Front USB on cabinet module with Cable 100cm
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070014419	Image WS7P 64-bit PPC-3xx0S MUI V4.14
2070014420	Image WEC7 PPC-3060S MUI V4.01
2070014474	Image Android PPC-3060S MUI V1.00

### I/O Appearance



- A. Power Switch
- B. DC-In
- C. RS-232
- D. RS-232/422/485
- E. 2 x RJ45 LAN
- F. 1 x USB 2.0, 1 x USB 3.0
- G. USB 2.0

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# PPC-3100S

## 10.4" Fanless Panel PC with Intel® Celeron® N2930 Processor

**NEW**



### Features

- Industrial 10.4" TFT SVGA LED panel with 30k (min.) lifetime backlight
- Durable 5-wire Resistive Touch Screen
- Embedded Intel® processor, quad core Celeron® N2930 1.83GHz onboard
- System memory up to 8 GB DDR3L SDRAM
- Compact Fanless Design with solid Al Alloy enclosure
- True-flat with IP65 certified front panel protection
- E-Eye Monitoring and Protection
- Supports Full-size Mini PCIe Expansion
- Supports USB 3.0
- Supports Windows Embedded and Android
- Supports VESA 75



### Introduction

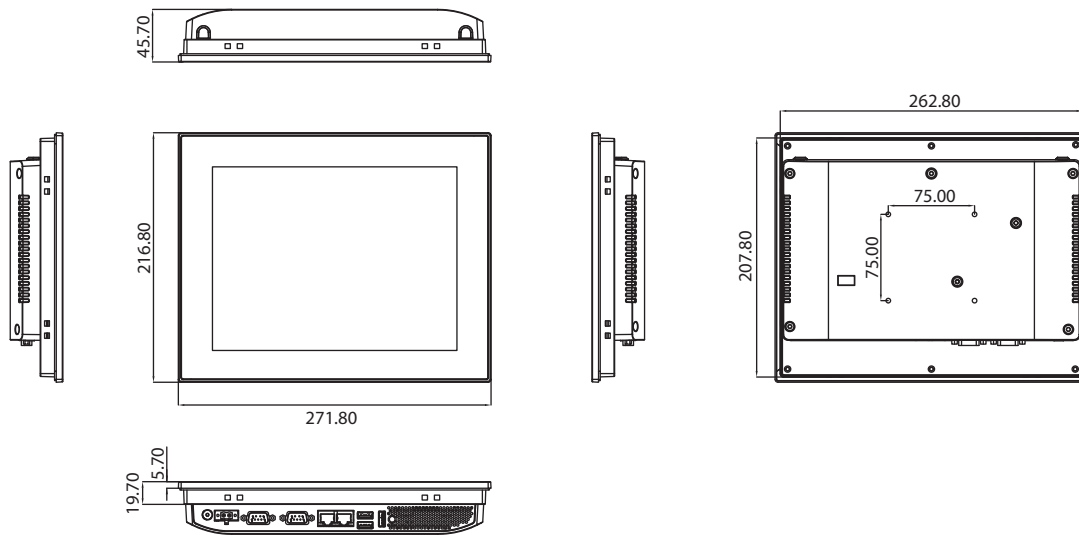
The PPC-3100S is a high value, ultraslim Panel PC with a 10.4" SVGA LCD; the low power Intel® Celeron® N2930 1.86GHz processor provides high computing performance in a compact, fanless, embedded system. With a high durability design, the PPC-3100S is equipped with a true-flat touch screen with IP65 front panel protection, die-cast Al alloy enclosure, and 5-wire resistive touch screen. It supports two serial ports, three USB ports, and two GbE LANs to satisfy various industrial applications. To provide further system monitoring and protection, the E-Eye in the PPC-3100S rear cover gives a clear indication of system operating status, for detection and analysis.

### Specifications

<b>Processor System</b>	CPU	Intel® Celeron® N2930, Quad core
	Frequency	1.83 GHz
	2nd Cache	2 MB
	Memory	1 x SO-DIMM, DDR3L 1333, Max 8 GB
	Storage	1 x 2.5" SATA Bay (Optional, need ordering bracket module for installation) 1 x mSATA Bay (default)
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel 211)
	I/O ports	2 x Serial ports: 1 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 2 x USB 2.0, 1 x USB 3.0
	Expansion	1 x Full size Mini PCIe slot
<b>Physical Characteristics</b>	Watchdog Timer	255 timer levels, set up by software
	Dimensions	272 x 217 x 46 mm (10.7" x 8.5" x 1.8")
<b>OS Support</b>	Weight	1.9 Kg (4.18 lb)
	OS Support	Microsoft® Windows 7 32bit&64bit/Windows 8.1 32bit&64bit/Windows 10 32bit&64bit/WES7/WEC 7/Linux/Android 4.4
<b>Power Consumption</b>	Input Voltage	12- 24 Vdc
	Power Consumption	16W (Burn-in test 7.0 in Windows 7 32 bit)
<b>LCD Display</b>	Display Type	10.4" TFT LCD (LED backlight)
	Resolution	800 x 600
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m <sup>2</sup> )	400
	Contrast Ratio	700
	Backlight Lifetime	30,000 hrs (Min.)
<b>Touchscreen</b>	Touch Type	Elo Resistive 5 wire
	Light Transmission	80±5% at 550 nm wavelength
	Controller	RS232 interface
	Durability (Touches)	Greater than 35 million touches in one location without failure
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60068-2-64
	EMC	CE, FCC Class B, BSMI
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

## Dimensions

Unit: mm

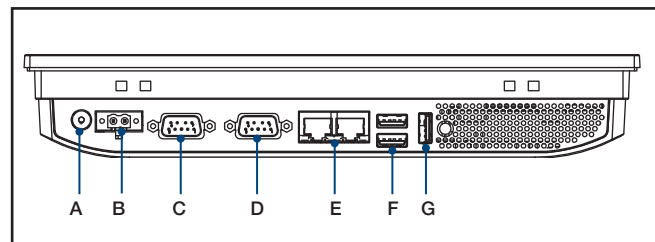


Cut-out dimensions: 265 x 210 mm

## Ordering Information

Part No.	Description
PPC-3100S-RAE	Intel Celeron N2930 Fanless Panel PC with 10.4" SVGA LED backlight
PPC-3100S-HDDE	Bracket module for 2.5" SSD/HDD installation
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-ARM-A03	ARM VESA Standard (A-CLEVER) for PPC series
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-Stand-A1E	Stand for PPC series
98R3612000E	mSATA/CFast to USB card reader
98R3415010E	Front USB on cabinet module with Cable 100cm
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070014331	Image WEC7 PPC-3100S Eng V4.00
2070014419	Image WS7P 64-bit PPC-3100S Multi V4.14
2070014474	Image Android 4.4 for PPC-3100S V1.00

## I/O Appearance



- A. Power Switch
- B. DC-In
- C. RS-232
- D. RS-232/422/485
- E. 2 x RJ45 LAN
- F. 1 x USB 2.0, 1 x USB 3.0
- G. USB 2.0

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# PPC-3120S

## 12.1" Fanless Panel PC with Intel® Celeron® N2930 Processor

**NEW**



### Features

- Industrial 12.1" TFT XGA LED panel with 30k (min.) lifetime backlight
- Durable 5-wire Resistive Touch Screen
- Embedded Intel® processor, quad core Celeron® N2930 1.83GHz onboard
- System memory up to 8 GB DDR3L SDRAM
- Compact Fanless Design with solid Al Alloy enclosure
- True-flat with IP65 certified front panel protection
- E-Eye Monitoring and Protection
- Supports Full-size Mini PCIe Expansion
- Supports USB 3.0
- Supports Windows Embedded and Android
- Supports VESA 75



### Introduction

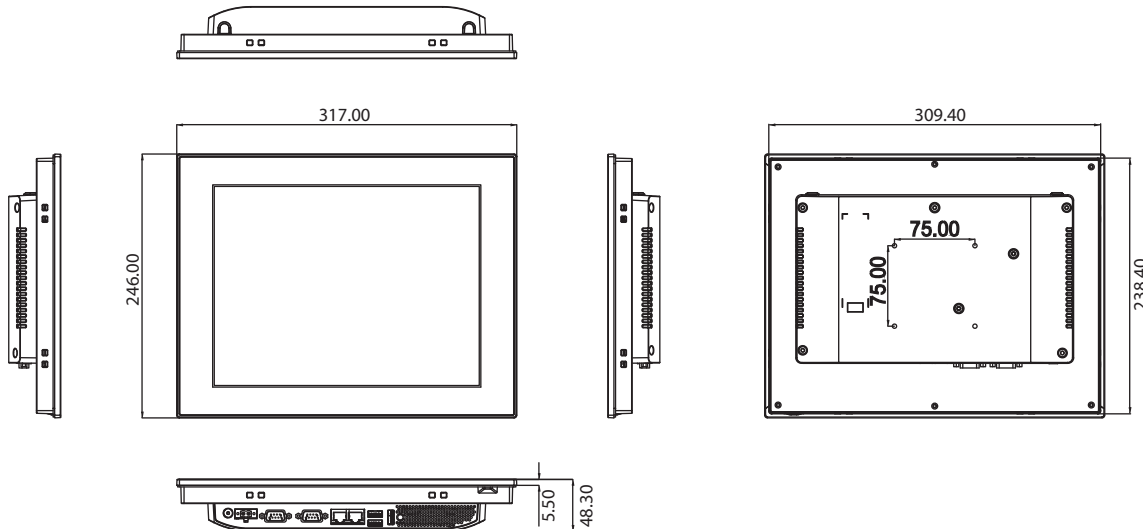
The PPC-3120S is a high value, ultraslim Panel PC with a 12.1" XGA LCD; the low power, Intel® Celeron N2930 1.86GHz processor provides high computing performance in a compact, fanless, embedded system. With a high durability design, the PPC-3120S is equipped with a true-flat touch screen with IP65 front panel protection, die-cast Al alloy enclosure, and 5-wire resistive touch screen. It supports two serial ports, three USB ports, and two GbE LANs to satisfy various industrial applications. To provide further system monitoring and protection, the E-Eye in the PPC-3120S rear cover gives clear indication of system operating status, for detection and analysis.

### Specifications

<b>Processor System</b>	CPU	Intel® Celeron® N2930, Quad core
	Frequency	1.83 GHz
	2nd Cache	2 MB
	Memory	1 x SO-DIMM, DDR3L 1333, Max 8 GB
	Storage	1 x 2.5" SATA Bay (Optional, need ordering bracket module for installation) 1 x mSATA Bay (default)
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet
	I/O ports	2 x Serial ports: 1 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 2 x USB 2.0, 1 x USB 3.0
	Expansion	1 x Full size Mini PCIe slot
<b>Physical Characteristics</b>	Watchdog Timer	255 timer levels, set up by software
	Dimensions	317 x 246 x 49 mm (12.5" x 9.7" x 1.9")
<b>OS Support</b>	Weight	2.1 Kg (4.63 lb)
	OS Support	Microsoft® Windows 7 32bit&64bit/Windows 8.1 32bit&64bit/Windows 10 32bit&64bit/WES7/WEC 7/Linux/Android 4.4
<b>Power Consumption</b>	Input Voltage	12- 24 Vdc
	Power Consumption	18W (Burn-in test 7.0 in Windows 7 32 bit)
<b>LCD Display</b>	Display Type	12.1" TFT LCD (LED backlight)
	Resolution	1024 x 768
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m <sup>2</sup> )	500
	Contrast Ratio	700
	Backlight Lifetime	30,000 hrs (Min.)
<b>Touchscreen</b>	Touch Type	Elo Resistive 5 wires
	Light Transmission	80±5% at 550 nm wavelength
	Controller	RS232 interface
	Durability (Touches)	Greater than 35 million touches in one location without failure
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60068-2-64
	EMC	CE, FCC Class B, BSMI
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

## Dimensions

Unit: mm

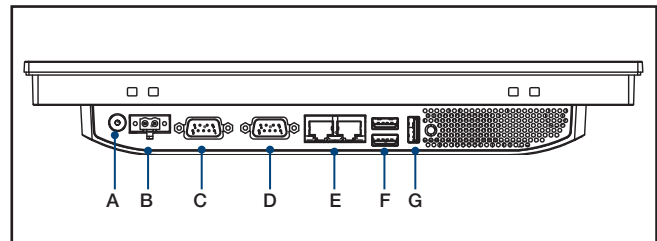


Cut-out Dimensions: 311 x 240 mm

## Ordering Information

Part No.	Description
PPC-3120S-RAE	Intel Celeron N2930 Fanless Panel PC with 12.1" XGA LED backlight
PPC-3100S-HDDE	Bracket module for 2.5" SSD/HDD installation
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-ARM-A03	ARM VESA Standard (A-CLEVER) for PPC series
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-Stand-A1E	Stand for PPC series
98R3612000E	mSATA/CFast to USB card reader
98R3415010E	Front USB on cabinet module with Cable 100cm
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070014473	Image WEC7 PPC-3120S MUI Image v4.01
2070014419	Image WS7P 64-bit PPC-3120S Multi V4.14
2070014474	Image Android PPC-3060S MUI V1.00

## I/O Appearance



- A. Power Switch
- B. DC-In
- C. RS-232
- D. RS-232/422/485
- E. 2 x RJ45 LAN
- F. 1 x USB 2.0, 1 x USB 3.0
- G. USB 2.0

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# PPC-3100

## 10.4" Fanless Panel PC with Intel® Atom™ D2550 Processor



### Features

- 10.4" TFT SVGA LED Panel with resistive touchscreen
- Embedded Intel® Atom™ processor D2550 1.86 GHz
- System memory up to 4 GB DDR3 1066 SDRAM
- Supports one internal SATA 2.5" HDD and 1 x mSATA socket
- Fanless design and low power consumption
- Automatic data flow control over RS-485
- Adjust RS-232/422/485 through BIOS
- COM1/COM2 pin9 RI/5V/12V adjustable through BIOS
- LED backlight Auto dimming



### Introduction

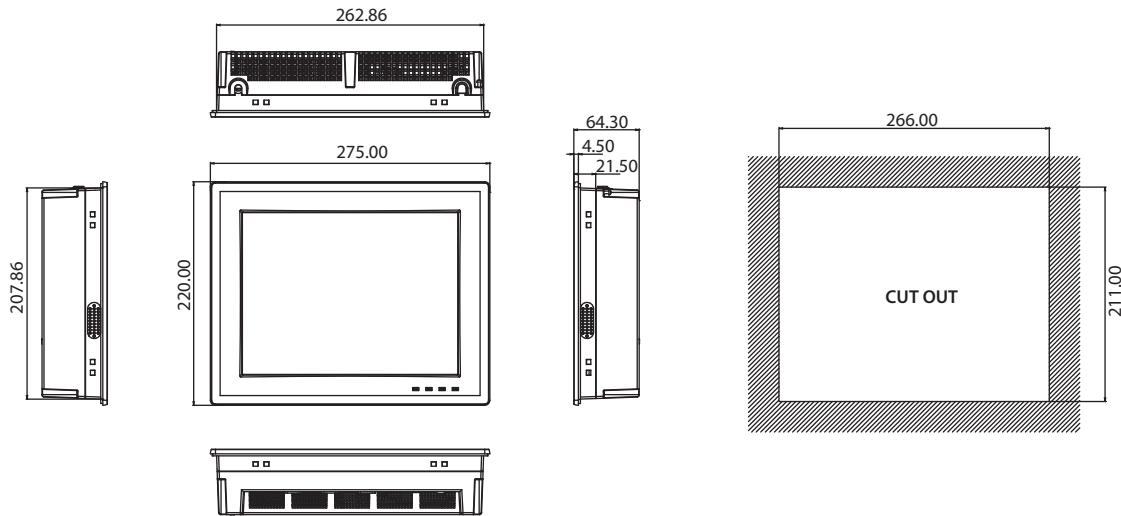
PPC-3100 is a new, 10.4" Panel PC equipped with an Intel® Atom™ processor D2550. Meeting the demands of harsh environments, the fanless design makes the PPC-3100 extra reliable for applications in the machine building industry. In addition, the dual GbE LAN, 4 x serial ports, 4 x USB ports, and GPIO connector make device connection and integration easy. With a user friendly design, it comes with front panel LED indicators that show power on/off, storage access, and LAN activity.

### Specifications

<b>Processor System</b>	CPU	Intel® Atom™ D2550, Dual core
	Frequency	1.86 GHz
	2nd Cache	1 MB
	Chipset	NM10
	Memory	1 x SO-DIMM, DDR3, Max 4 GB
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet
	I/O ports	4 x Serial ports: 3 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programmable)
	Expansion	1 x Mini PCIe
	Watchdog Timer	255 timer levels, set up by software
Speaker	2 x 3W	
<b>Physical Characteristics</b>	Dimensions	275 x 220 x 64.3 mm (10.83" x 8.74" x 2.53")
	Weight	2.5 kg (5.51 lb)
<b>OS Support</b>	OS Support	Microsoft® Windows XPE / Windows XP Pro / WES7 32bit / WEC7 / Windows 7 32bit / Linux
	Input Voltage	12- 30 Vdc
<b>Power Consumption</b>	Power Consumption	25 W (Burn-in test 7.0 in Windows 7 32bit) 22 W (Burn-in test 7.0 in Windows XP 32bit)
	Display Type	10.4" TFT LED Panel (LED Backlight)
<b>LCD Display</b>	Max. Resolution	800 x 600
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m <sup>2</sup> )	400
	Contrast Ratio	700
	Backlight Lifetime	30,000 hrs (typical)
	Touch Type	Analog Resistive 5-wire
<b>Touchscreen</b>	Light Transmission	81+/-3%
	Controller	RS-232 interface
	Durability (Touches)	36 million

## Dimensions

Unit: mm



Cut-out dimensions: 266 x 211 mm

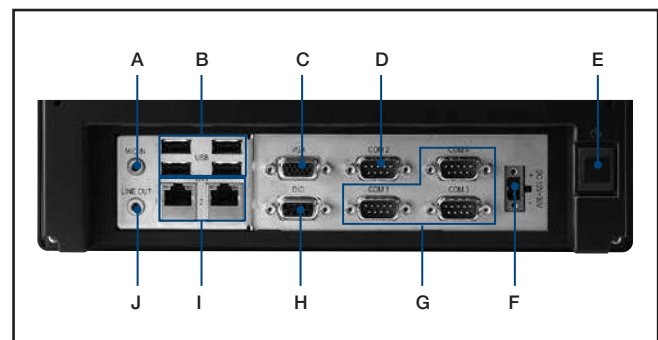
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms, follow IEC 60068-2-64
	EMC	CE, FCC Class B, BSMI
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

## Ordering Information

Part No.	Description
PPC-3100-RAE	Atom D2550 Fanless Panel PC with 10.4" SVGA LED backlight, touch, without memory
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
1700001524	Power cord 3P UL 10A 125V 1.8m
170203183C	Power cord 3P Europe (WS-010+083)183cm
1700008921	Power cord 3P/3P Power supply 1.8M PSE
* PPC-174T-WL-MTE	Wall mount kit for PPC series
* PPC-ARM-A03	PPC ARM VESA Standard
PPC-3100-VESAE	PPC-3100 VESA bracket
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
2070011747	Image XPE WES2009 PPC-3100 V4.3.1 24 multi-languages with SUSI Access
2070012891	Image WES7P 32-bit Multi V4.12 PPC-3120/3100
2070012470	Image WEC7 PPC-3100 V1.0 Eng
* PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
98R3612000E	mSATA/CFast to USB card reader
98R3415010E	Front USB on cabinet module with Cable 100cm

\* if you order the Wall mount kit / ARM / Desktop stand , please also order PPC-3100-VESAE at the same time.

## I/O



- A. MIC in
- B. 4 x USB
- C. VGA
- D. RS-232/422/485
- E. Power S/W
- F. DC-in
- G. 3 x RS-232
- H. GPIO
- I. RS-485 I/O Modules
- J. LINE out

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I/O Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-3120

## 12.1" Fanless Panel PC with Intel® Atom™ D2550 Processor



### Features

- 12.1" TFT XGA LED Panel with resistive touchscreen
- Embedded Intel® Atom™ processor D2550 1.86 GHz
- System memory up to 4 GB DDR3 1066 SDRAM
- Supports one internal SATA 2.5" HDD and 1 x mSATA socket
- Optional PCI/PCIe x1 expansion kit
- Fanless design and low power consumption
- Automatic data flow control over RS-485
- Adjust RS-232/422/485 through BIOS
- COM1/COM2 pin9 RI/5V/12V adjustable through BIOS
- Auto dimming LED backlight



### Introduction

The PPC-3120 is a new, 12.1" Panel PC equipped with an Intel® Atom™ processor D2550. Meeting the demands of harsh environments, the fanless design makes PPC-3120 extra reliable for applications in the machine building industry. In addition, the dual GbE LAN, 4 x serial ports, 4 x USB ports, and GPIO connector make device connection and integration easy. With a user friendly design it comes with front panel LED indicators that show power on/off, storage access, and LAN activity.

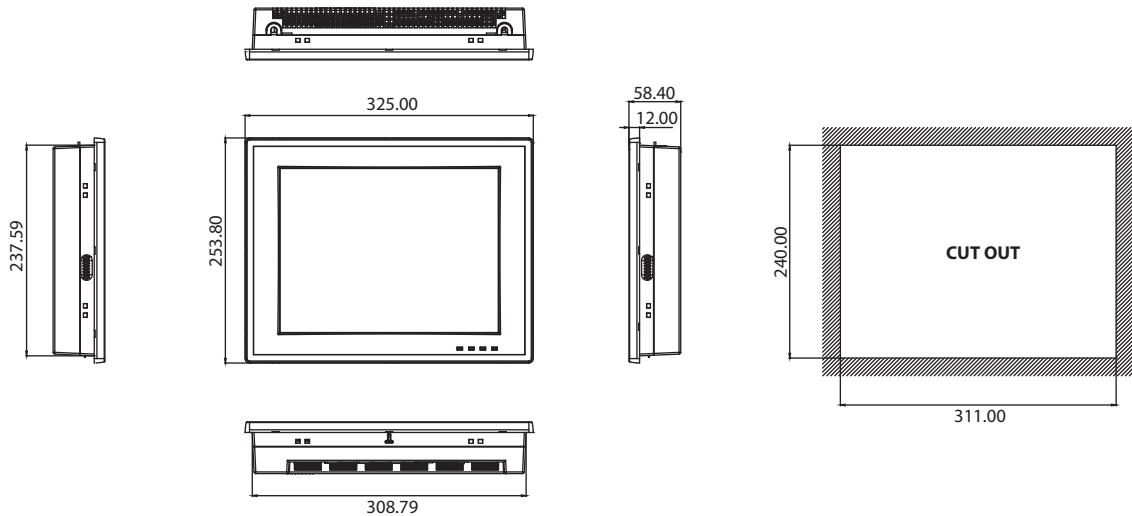
### Specifications

<b>Processor System</b>	CPU	Intel® Atom™ D2550, Dual core
	Frequency	1.86 GHz
	2nd Cache	1 MB
	Chipset	NM10
	Memory	1 x SO-DIMM, DDR3, Max 4 GB
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet
	I/O ports	4 x Serial ports: 3 x RS-232, 1x RS-232/422/485 (Adjustable through BIOS) 4 x USB 2.0 1 x Line-out, 1x MIC-in 1 x DB15 VGA 1 x DB9 GPIO port (8 pin programmable)
	Expansion	1 x Mini PCIe 1 x PCIe x1; 1 x PCI
	Watchdog Timer	255 timer levels, set up by software
Speaker	2 x 3W	
<b>Physical Characteristics</b>	Dimensions	325 x 253.8 x 58.4 mm (12.79" x 10" x 2.3")
	Weight	3.3 kg (7.27 lb)
<b>OS Support</b>	OS Support	Microsoft® Windows XPE / Windows XP Pro / WES7 32bit / WEC7 / Windows 7 32bit / Linux
<b>Power Consumption</b>	Input Voltage	12- 30 Vdc
	Power Consumption	36 W (Burn-in test 7.0 in Windows 7 32bit) 34 W (Burn-in test 7.0 in Windows XP 32bit)
<b>LCD Display</b>	Display Type	12.1" TFT LED Panel (LED Backlight)
	Max. Resolution	1024 x 768
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m <sup>2</sup> )	600
	Contrast Ratio	700
<b>Touchscreen</b>	Backlight Lifetime	50,000 hrs (typical)
	Touch Type	Analog Resistive 5-wire
	Light Transmission	81+/-3%
	Controller	RS-232 interface
	Durability (Touches)	36 million



**Dimensions**

Unit: mm



**Cut-out dimensions: 311 x 240 mm**

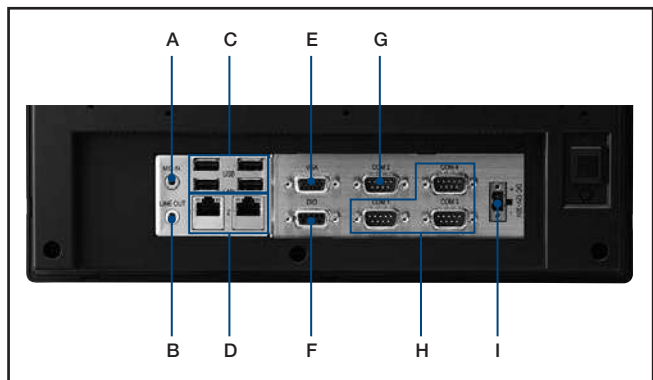
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms, follow IEC 60068-2-64
	EMC	CE, FCC Class B, BSMI
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

**Ordering Information**

Part No.	Description
PPC-3120-RAE	Atom D2550 Fanless PPC with 12.1" XGA LED backlight, touch, without memory
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
1700001524	Power cord 3P UL 10A 125V 1.8m
170203183C	Power cord 3P Europe (WS-010+083)183cm
1700008921	Power cord 3P/3P Power supply 1.8M PSE
* PPC-174T-WL-MTE	Wall mount kit for PPC series
* PPC-ARM-A03	PPC ARM VESA Standard
* PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
PPC-3100-VESAE	PPC-3100 VESA bracket module
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
PPC-3120-EXPE	Add-on box for PCI or PCIe expansion (include PCI / PCIe riser card)
2070012891	Image WES7P 32-bit Multi V4.12 PPC-3120/3100
2070011967	Image windows XPE WES2009 PPC-3120 V4.3 MUI SA
2070012979	Image WEC7 PPC-3120 V4.00 Eng
98R3612000E	mSATA/CFast to USB card reader
98R3415010E	Front USB on cabinet module with Cable 100cm

\* If you order Wall mount kit / ARM / Desktop stand, please also order PPC-3100-VESAE at the same time.

**I/O**



- A. MIC in
- B. Line Out
- C. USB 2.0 x 4
- D. 10/100/1000 Mbps Ethernet x 2
- E. VGA Port
- F. DIO Port
- G. RS-232/422/485 x 1
- H. RS-232 x 3
- I. DC Inlet

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-3150

## 15" Fanless Panel PC with Intel® Atom™ Quad-Core Processor



### Features

- 15" TFT XGA LCD with resistive touchscreen
- Embedded Intel® Atom™ Quad-Core E3845 1.91G
- Fanless and Slim design
- Supports one internal 2.5" SATA HDD, one mSATA socket
- Built-in one PCI or one PCIe x1 expansion slot
- Wide operating temp. range from -20 ~ 60°C
- Wide range power input for 9 ~ 32V<sub>DC</sub>
- One isolated RS-422/485 with Autoflow, Dual Intel GbE
- One optional GPIO (8 channels, TTL level)



### Introduction

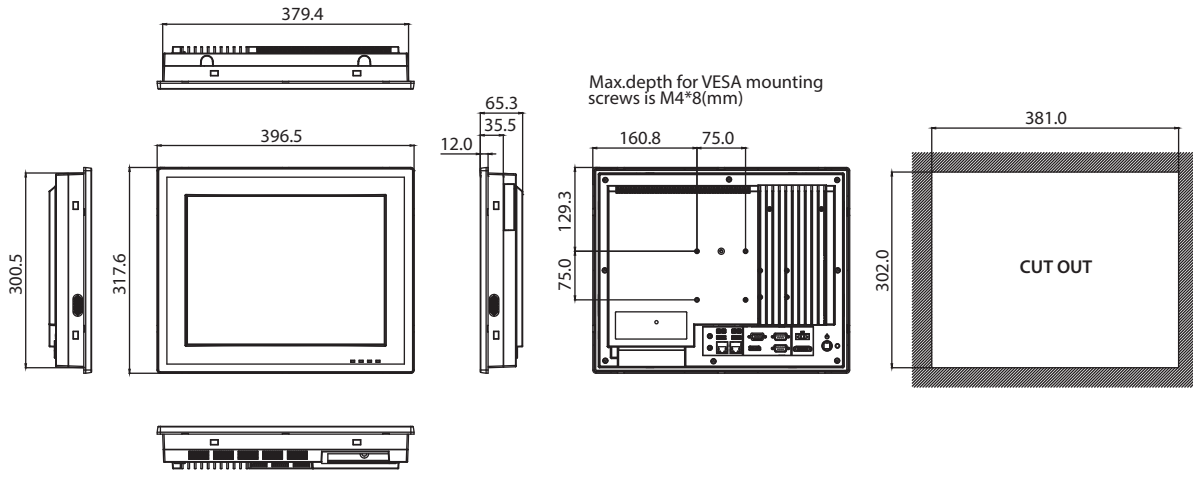
The PPC-3150 is a 15" fanless panel PC that not only delivers high performance with an Intel® quad-core Atom™ processor, but also supports a wide range operating temperature (-20~60 °C) and wide range of power input (9-32Vdc). It consolidates performance and reliability in one system. Multiple I/Os such as 4 x COM, 1 x USB3.0, 1 x isolated RS-422/485 and dual Intel® Gigabit Ethernet make device connection and integration easy. The PCI/PCIe expansion allows adding field bus or proprietary cards for even more application possibilities.

### Specifications

<b>Processor System</b>	CPU	Intel® Atom™ E3845, Quad core
	Frequency	1.91GHz
	L3 Cache	2 MB
	Memory	1 x SO-DIMM, DDR3L 1333MHz, Max 8 GB
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel I210)
	I/O ports	1 x isolated RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) 1 x USB3.0, 3 x USB2.0 1 x VGA 1 x DP1.1a 1 x Line-out, 1 x Mic-in
	Expansion	1 x Mini PCIe 1 x PCI (standard); 1 x PCIe x1 (in the accessory box) Optional: 1 x Cfast; 1 x CF card; 1 x Internal USB dongle; 2 x RS-232 or 1 x RS-232 + 1 x GPIO
Watchdog Timer	255 timer levels, set up by software	
Speaker	2 x 1W	
<b>Physical Characteristics</b>	Dimensions	396.5 x 317.6 x 65.3 mm (15.6" x 12.5" x 2.57")
	Weight	5.3 kg (11.68 lb)
<b>OS Support</b>	OS Support	Microsoft® WEC7/ WES7 32bit&64bit/ Windows 7 32bit&64bit/Windows 8.1 32bit&64bit/Windows 10 32bit&64bit/Linux
<b>Power Consumption</b>	Input Voltage	9 - 32 Vdc
	Power Consumption	30W (Burn-in test 7.0 in Windows 7 32 bit)
<b>LCD Display</b>	Display Type	15" TFT LED Panel
	Max. Resolution	1024 x 768
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)
	Luminance (cd/m <sup>2</sup> )	400
	Contrast Ratio	700
	Backlight Lifetime	50,000 hrs (Min.)
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire
	Light Transmission	80+/-3%
	Controller	USB interface
	Durability (Touches)	36 million

Dimensions

Unit: mm



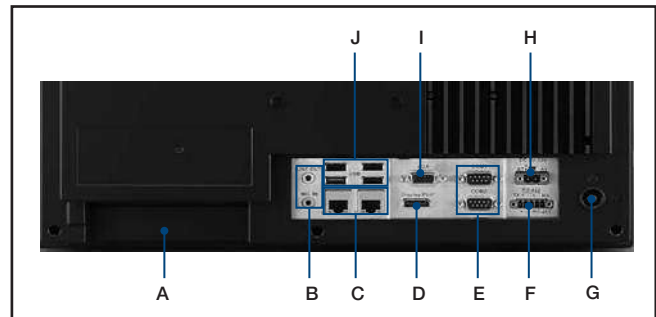
Cut-out dimensions: 381 x 302 mm

Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-3150-RE4AE	Intel Atom E3845 (1.91G) Panel PC with 15" XGA panel, 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-3150-COME	Module to install either two additional RS-232 port or one additional RS-232 and one GPIO for PPC-3150/PPC-3170
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070013015	Image WES7P 32-bit Multi V4.12 for PPC-3150/3170
2070013321	Image WES7P 64-bit Multi V4.12 for PPC-3150/3170
98R3612000E	mSATA/CFast to USB card reader
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
98R3C31500E	PPC-315/317/319 internal USB dongle kits
98R3C31510E	PPC-3150/3170 install CF card kits
98R3C31520E	PPC-3150/PPC-3170 CFast card kits

I/O Appearance



- A. Expansion slot x 1 (PCI or PCIe x1)
- B. Line out/ Mic in
- C. Intel Gigabit Ethernet x 2
- D. DisplayPort x 1
- E. RS-232 x 2
- F. Isolated RS-422/485 x 1
- G. Power Button
- H. DC inlet and AT/ATX switch
- I. VGA x1
- J. USB3.0 x 1 + USB2.0 x 3

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-3170

## 17" Fanless Panel PC with Intel® Atom™ Quad-Core Processor



### Features

- 17" TFT SXGA LCD with resistive touchscreen
- Embedded Intel® Atom™ Quad-Core E3845 1.91G
- Fanless and Slim design
- Supports one internal 2.5" SATA HDD, one mSATA socket
- Built-in one PCI or one PCIe x1 expansion slot
- Wide operating temp. range from -20 ~ 60°C
- Wide range power input for 9 ~ 32V<sub>DC</sub>
- One isolated RS-422/485 with Autoflow, Dual Intel GbE
- One optional GPIO (8 channels, TTL level)



### Introduction

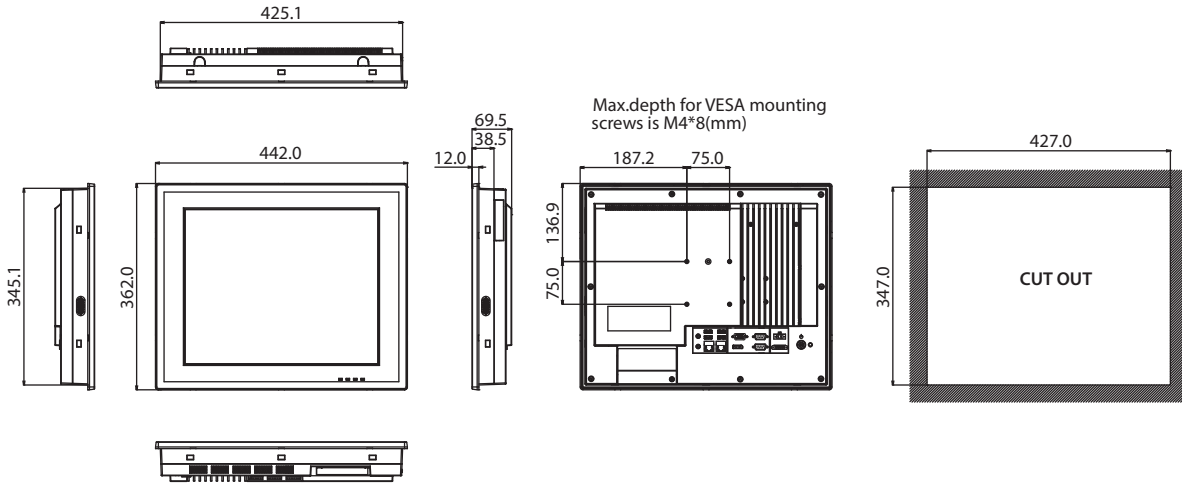
The PPC-3170 is a 17" fanless panel PC that not only delivers high performance with an Intel® quad-core Atom™ processor, but also supports a wide operating temp. (-20~60°C) and wide range of power input (9-32Vdc). It consolidates performance and reliability in one system. With multiple I/Os such as 4 x COM, 1 x USB3.0, 1 x isolated RS-422/485, and dual Intel® Gigabit Ethernet make device connection and integration easy. The PCI/PCIe expansion allows adding field bus or proprietary cards for even more application possibilities.

### Specifications

<b>Processor System</b>	CPU	Intel® Atom™ E3845, Quad core
	Frequency	1.91GHz
	L3 Cache	2 MB
	Memory	1 x SO-DIMM, DDR3L 1333MHz, Max 8 GB
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel I210)
	I/O ports	1 x isolated RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) 1 x USB3.0, 3 x USB2.0 1 x VGA 1 x DP1.1a 1 x Line-out, 1 x Mic-in
	Expansion	1 x Mini PCIe 1 x PCI (standard); 1 x PCIe x1 (in the accessory box) Optional: 1 x Cfast; 1 x CF card; 1 x Internal USB dongle; 2 x RS-232 or 1 x RS-232 + 1 x GPIO
Watchdog Timer	255 timer levels, set up by software	
Speaker	2 x 1W	
<b>Physical Characteristics</b>	Dimensions	442.0 x 362.0 x 69.5 mm (17.4" x 14.3" x 2.74")
	Weight	6.3 kg (13.89lb)
<b>OS Support</b>	OS Support	Microsoft® WEC7/ WES7 32bit&64bit/ Windows 7 32bit&64bit/Windows 8.1 32bit&64bit/Windows 10 32bit&64bit/Linux
<b>Power Consumption</b>	Input Voltage	9 - 32 Vdc
	Power Consumption	34W (Burn-in test 7.0 in Windows 7 32 bit)
<b>LCD Display</b>	Display Type	17" TFT LED Panel
	Max. Resolution	1280 x 1024
	Viewing Angle	80 (left), 80 (right), 60 (up), 80 (down)
	Luminance (cd/m <sup>2</sup> )	350
	Contrast Ratio	800
	Backlight Lifetime	50,000 hrs (Min.)
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire
	Light Transmission	81+/-3%
	Controller	USB interface
	Durability (Touches)	36 million

Dimensions

Unit: mm



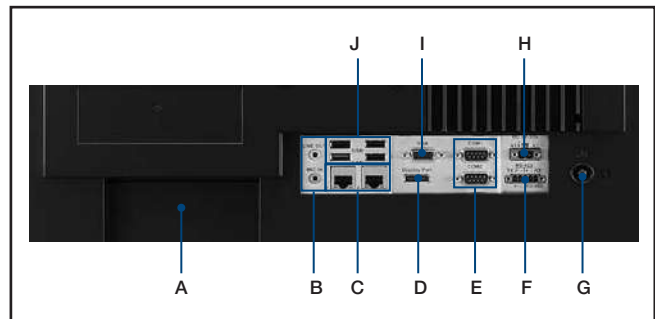
Cut-out dimensions: 427 x 347 mm

Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-3170-RE4AE	Intel Atom E3845 (1.91G) Panel PC with 17" SXGA panel, 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-3150-COME	Module to install either two additional RS-232 port or one additional RS-232 and one GPIO for PPC-3150/PPC-3170
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070013015	Image WES7P 32-bit Multi V4.12 for PPC-3150/3170
98R3175R00E	19" Rack Mounting kits for PPC
2070013321	Image WES7P 64-bit Multi V4.12 for PPC-3150/3170
PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	9663612000E mSATA/CFast to USB card reader
98R3C31500E	PPC-315/317/319 internal USB dongle kits
98R3C31510E	PPC-3150/3170 install CF card kits
98R3C31520E	PPC-3150/PPC-3170 CFast card kits

I/O Appearance



- A. Expansion slot x 1 (PCI or PCIe x1)
- B. Line out/ Mic in
- C. Intel Gigabit Ethernet x 2
- D. DisplayPort x 1
- E. RS-232 x 2
- F. Isolated RS-422/485 x 1
- G. Power Button
- H. DC inlet and AT/ATX switch
- I. VGA x1
- J. USB3.0 x 1 + USB2.0 x 3

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I/O Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



# PPC-3190

## 19" Fanless Panel PC with Intel® Atom™ Quad-Core Processor



### Features

- 19" TFT SXGA LCD with resistive touchscreen
- Embedded Intel® Atom™ Quad-Core E3845 1.91G
- Fanless and Slim design
- Supports one internal 2.5" SATA HDD, one mSATA socket
- Built-in one PCI or one PCIe x1 expansion slot
- Wide operating temp. range from -20 ~ 60°C
- Wide range power input for 9 ~ 32V<sub>DC</sub>
- One isolated RS-422/485 with Autoflow, Dual Intel GbE
- One optional GPIO (8 channels, TTL level)



### Introduction

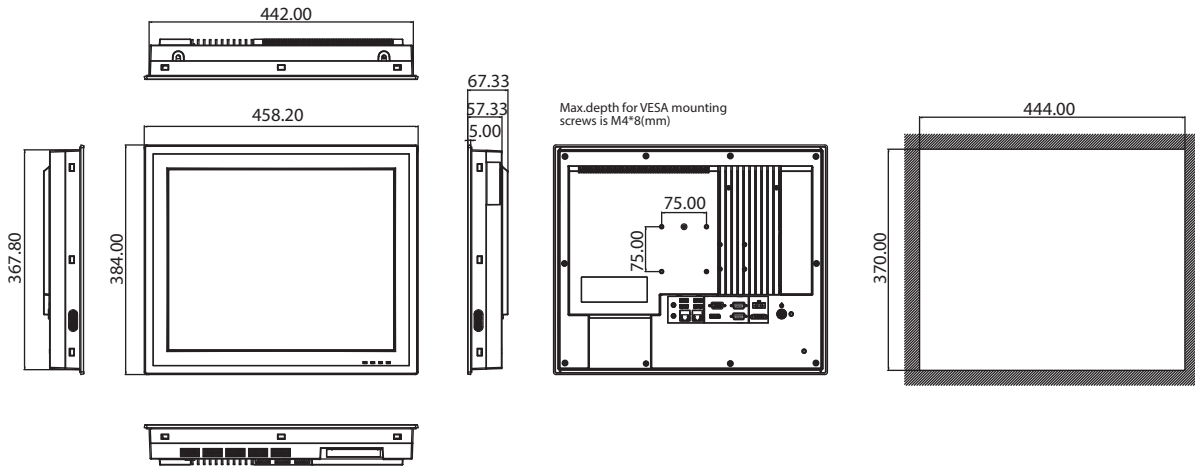
The PPC-3190 is a 19" fanless panel PC that not only delivers high performance with an Intel® quad-core Atom™ processor, but also supports a wide operating temp. (-20~60°C) and wide range of power input (9-32Vdc). It consolidates performance and reliability in one system. With multiple I/Os such as 4 x COM, 1 x USB3.0, 1 x isolated RS-422/485, and dual Intel® Gigabit Ethernet make device connection and integration easy. The PCI/PCIe expansion allows adding field bus or proprietary cards for even more application possibilities.

### Specifications

<b>Processor System</b>	CPU	Intel® Atom™ E3845, Quad core
	Frequency	1.91GHz
	L3 Cache	2 MB
	Memory	1 x SO-DIMM, DDR3L 1333MHz, Max 8 GB
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel I210)
	I/O ports	1 x isolated RS-422/485 (terminal block) 4 x RS-232, two external and two by internal pin header (need optional module) 1 x GPIO (8 channels, TTL level) by internal pin header (need optional module) 1 x USB3.0, 3 x USB2.0 1 x VGA 1 x DP1.1a 1 x Line-out, 1 x Mic-in
	Expansion	1 x Mini PCIe 1 x PCI (standard); 1 x PCIe x1 (in the accessory box) Optional: 1 x Cfast; 1 x CF card; 1 x Internal USB dongle; 2 x RS-232 or 1 x RS-232 + 1 x GPIO
	Watchdog Timer	255 timer levels, set up by software
Speaker	2 x 1W	
<b>Physical Characteristics</b>	Dimensions	458.2 x 384 x 67.3 mm (18" x 15" x 2.6")
	Weight	7.9 kg (17.3lb)
<b>OS Support</b>	OS Support	Microsoft® WEC7/ WES7 32bit&64bit/ Windows 7 32bit&64bit/Windows 8.1 32bit&64bit/Windows 10 32bit&64bit/Linux
<b>Power Consumption</b>	Input Voltage	9 - 32 Vdc
	Power Consumption	27W (Burn-in test 7.0 in Windows 7 32 bit)
<b>LCD Display</b>	Display Type	19" TFT LED Panel
	Max. Resolution	1280 x 1024
	Viewing Angle	85 (left), 85 (right), 80 (up), 80 (down)
	Luminance (cd/m <sup>2</sup> )	350
	Contrast Ratio	1000
	Backlight Lifetime	50,000 hrs (Min.)
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire
	Light Transmission	81+/-3%
	Controller	USB interface
	Durability (Touches)	36 million

Dimensions

Unit: mm



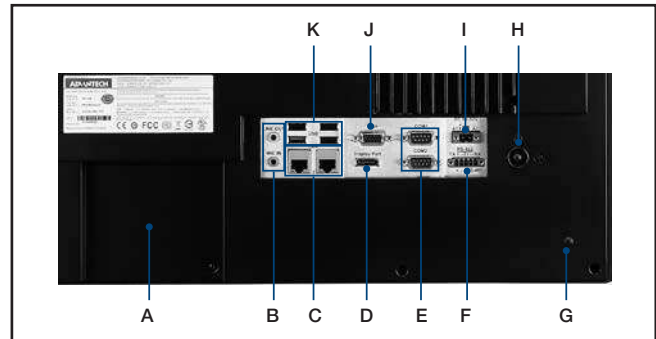
Cut-out dimensions: 444 x 370 mm

Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	BSMI, CE, FCC Class A
	Safety	CB, CCC, BSMI, UL
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-3190-RE4AE	Intel Atom E3845 (1.91G),19" SXGA LED&T/S,W/O RAM
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
PPC-3150-COME	Kit to install extra COMx2/DIOx1 for PPC-3150/3190
96PSA-A90W190T-1	ADP A/D 100-240V 90W 19V W/PFC
1700001524	Power cord 3P UL 10A 125V 1.8M
170203183C	Power cord 3P Europe (WS-010+083) 183cm
1700008921	Power cord 3P/3P 1.8M PSE
2070013015	Image WES7P 32-bit Multi V4.12 for PPC-3150/3170
2070013321	Image WES7P 64-bit Multi V4.12 for PPC-3150/3170
PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	mSATA/CFast to USB card reader
98R3C31500E	PPC-315/317/319 internal USB dongle kits

I/O Appearance



- A. Expansion slot x 1 (PCI or PCIe x1)
- B. Line out/ Mic in
- C. Intel Gigabit Ethernet x 2
- D. DisplayPort x 1
- E. RS-232 x 2
- F. Isolated RS-422/485 x 1
- G. Ground Line
- H. Power Button
- I. DC inlet and AT/ATX switch
- J. VGA x1
- K. USB3.0 x 1 + USB2.0 x 3

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I/O Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-4151W

## 15.6" Fanless Wide Screen Panel PC with Intel® Core™ i5-4300U/i3-4010U Processor



### Features

- 15.6" WXGA entirely flat panel with Projected Capacitive Touchscreen or flat panel with resistive touchscreen
- High performance Intel Core i CPU with Fanless design
- PCIe x4 or PCI expansion support
- Automatic data flow control over RS-485
- Wide Range DC 9-32V support
- Dual Gigabit Ethernet, support IEEE1588
- 3 x Independent display



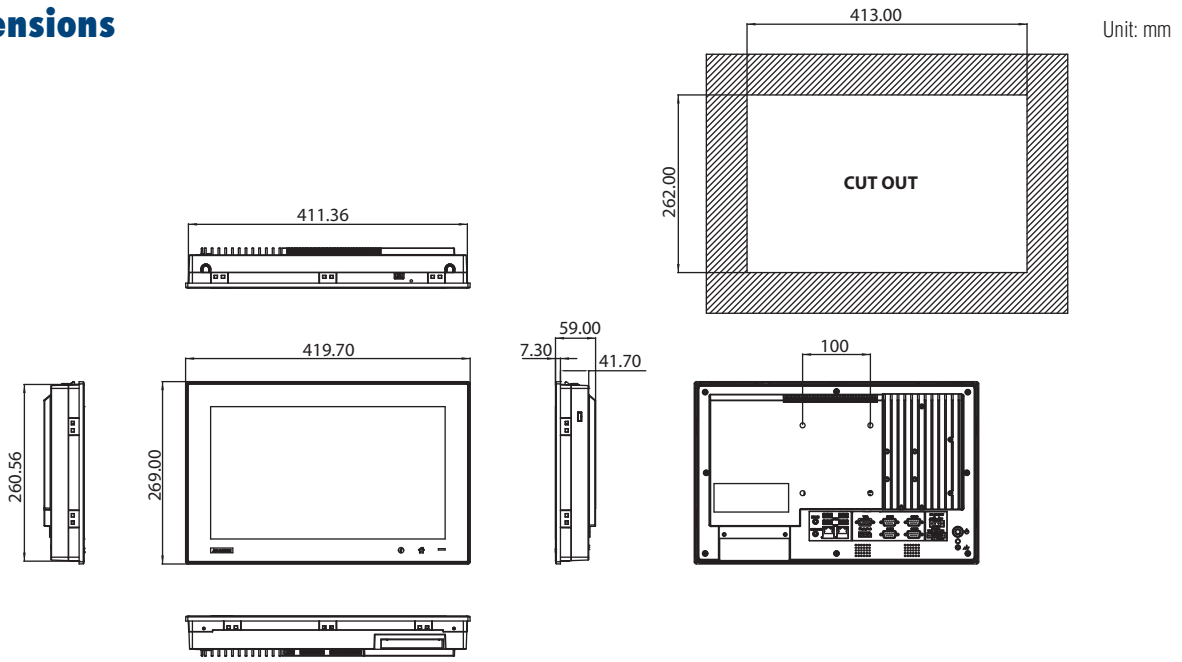
### Introduction

The PPC-4151W is a new generation Panel PC with a WXGA (1366 x 768) screen. Most importantly, the system is equipped with a high performance Intel® Core™ i CPU, yet operating heat is easily dispatched by the high efficiency, fanless thermal design. This is a big step forward in HMI, consolidating performance and reliability in one system. Besides, rich I/O such as 5 x COM, 5 x USB and dual Gigabit ethernet make device connection and integration easy. In addition, PCI/PCIe expansion allows adding field bus or proprietary cards for even more application possibilities. Last but not least, the multi touch screen makes the HMI more intuitive, delivering the best operating experience.

### Specifications

Model	PPC-4151W-P5AE	PPC-4151W-R3AE	
<b>Processor System</b>	CPU	Intel Core i5-4300U, Dual Core	Intel Core i3-4010U, Dual Core
	Frequency	1.9GHz, turbo boost to 2.9GHz	1.7GHz
	2nd Cache	3MB	
	Memory	1 x SO-DIMM, DDR3L1333/1600, Max 8GB (1.35V)	
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay	
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel I211-AT; Intel I218LM)	
	I/O ports	5 x Serial ports: 4 x RS-232, 1 x RS-422/485 with isolation 1K V <sub>oc</sub> 4 x USB 3.0 ports in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1 x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	
	Expansion	1 x Mini PCIe 1 x PCIe x4 or 1 x PCI (either one)	
	Watchdog Timer	255 timer levels, set up by software	
	Speaker	2 x 1W	
<b>Physical Characteristics</b>	Dimensions	419.7 x 269 x 59 mm (165.24" x 105.9" x 23.23")	
	Weight	5.8 kg (12.79 lb)	
<b>OS Support</b>	OS Support	Microsoft® Windows 7 32 and 64-bit/Windows 8.1 64-bit/WES 7 32 and 64-bit/Linux	
<b>Power Consumption</b>	Input Voltage	9 - 32 Vdc	
	Power Consumption	i5-4300U/i3-4010U: 56W (Burn-in test 7.0 in Windows 7 64 bit)	
<b>LCD Display</b>	Display Type	15.6" TFT LCD (LED Backlight)	
	Max. Resolution	1366 x 768	
	Viewing Angle	85 (Left), 85 (Right), 80 (Up), 80 (Down)	
	Luminance (cd/m <sup>2</sup> )	400	
	Contrast Ratio	500	
	Backlight Lifetime	50,000 hrs min.	
<b>Touchscreen</b>	Touch Type	Projected Capacitive Multi-Touch 10 Point	Analog Resistive 5-Wire
	Light Transmission	88 % ± 2 %	80% ± 5%
	Controller	USB Interface	
<b>Environment</b>	Operating Temperature	0 - 50° C (32 - 122° F) for SSD, 0 - 45° C for HDD	
	Storage Temperature	-40 - 60° C (-40 - 140° F)	
	Relative Humidity	10 - 95% @ 40° C (Non-Condensing)	
	Shock	Operating 10 G Peak Acceleration (11 ms Duration), Follows IEC 60068-2-27	
	Vibration	Operating Random Vibration Test 5 - 500Hz, 1Grms @with HDD; 2Grms @with SSD, Follows IEC 60068-2-64	
	EMC	CE, FCC Class B, BSMI	
	Safety	CB, UL, CCC, BSMI	
	Front Panel Protection	IP65 Compliant	

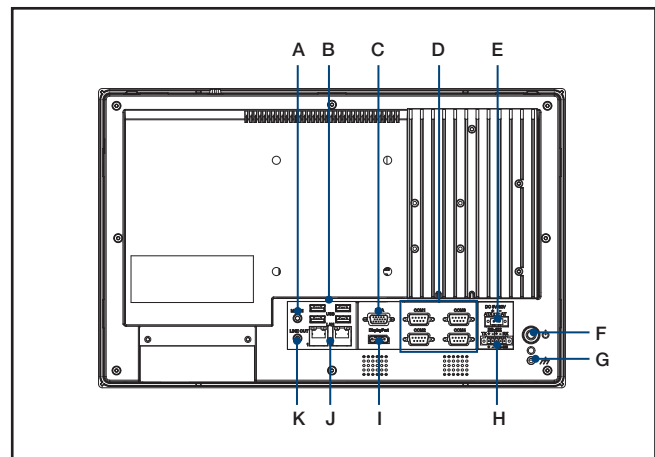
**Dimensions**



**Ordering Information**

Part NO	Description
PPC-4151W-P5AE	15.6" Wide screen PPC with PCT Multi-touch, Intel Core i5-4300U
PPC-4151W-R3AE	15.6" Wide screen PPC with resistive touch, Intel Core i3-4010U
96PSA-A90W190T-1	Adapter AC100-240V 90W 19V
1700001524	POWER Cord 3P UL 10A 125V 180cm
170203183C	POWER Code 3P Europe (WS-010+083)183cm
1700008921	POWER CORD 3P/3P POWER SUPPLY 1.8M PSE
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-STAND-A1E	Stand for PPC series
PPC-ARM-A03	ARM VESA Standard (A-CLEVER) for PPC series
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
2070012905	Image WES7P 32-bit Multi PPC-4151W/4211W-P
2070013051	Image WES7P 64-bit Multi PPC-4151W/4211W-P
98R3415010E	Front USB on cabinet module with Cable 100cm
98R3415000E	15.6" Rack Mounting Kit
98R3612000E	mSATA/CFast to USB Card Reader

**I/O Appearance**



- A. Mic-in
- B. 4 x USB 3.0
- C. VGA Port
- D. 4 x RS-232
- E. DC Inlet
- F. Power Button
- G. Ground Line
- H. 1 x RS-422/485
- I. Display Port
- J. 2 x 10/100/1000 Mbps Ethernet
- K. Line Out

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I'door Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-4211W

## 21.5" Fanless Wide Screen Panel PC with Intel® Core™ i5-4300U/i3-4010U Processor



### Features

- 21.5" Full HD entirely flat panel with Projected capacitive touchscreen or flat panel with resistive touchscreen
- High performance Intel Core i CPU with Fanless design
- Supports 2 x 2.5" HDD Bay (supports Intel RAID)
- PCIe x4 or PCI expansion support
- Automatic data flow control over RS-485
- Wide Range DC 12-32 V support
- Dual Gigabit Ethernet, support IEEE1588
- 3 x Independent display

### Introduction

The PPC-4211W is a new generation Panel PC with Full HD (1920 x 1080) screen. The large panel helps display more important information on one screen. Most importantly, the system is equipped with a high performance Intel® Core™ i CPU, yet operating heat is easily dispatched by the high efficiency, fanless thermal design. This is a big step forward in HMI, consolidating performance and reliability in one system. Besides, rich I/O such as 5 x COM, 5 x USB and dual Gigabit Ethernet make device connection and integration easy. Moreover, PCIe x4 expansion allows adding field bus or proprietary cards for even more application possibilities. Last but not least, the multi touch screen makes the HMI more intuitive, delivering the best operating experience.

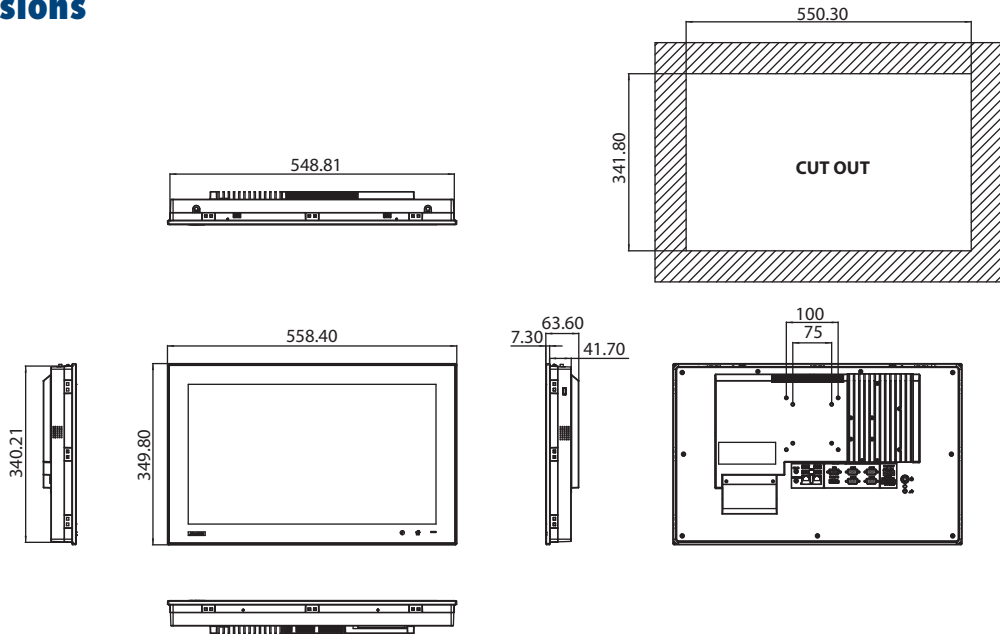
### Specifications

Model	PPC-4211W-P5AE		PPC-4211W-R3AE
<b>Processor System</b>	CPU	Intel Core i5-4300U, Dual Core	Intel Core i3-4010U, Dual Core
	Frequency	1.9GHz, turbo boost to 2.9GHz	1.7GHz
	2nd Cache	3MB	
	Memory	1 x SO-DIMM, DDR3L1333/1600, Max 8GB (1.35V)	
	Storage	2 x 2.5" SATA Bay (supports Intel RAID) 1 x mSATA Bay	
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (Intel I211-AT; Intel I218LM)	
	I/O ports	5 x Serial ports: 4 x RS-232, 1 x RS-422/485 with isolation 1K VDC 4 x USB 3.0 ports in rear side, 1 x USB 2.0 in right side 1 x Line-out, 1 x MIC-in 1 x DB15 VGA 1 x Display Port (1.2)	
	Expansion	1 x Mini PCIe 1 x PCIe x4 or 1 x PCI (either one)	
Watchdog Timer	255 timer levels, set up by software		
Speaker	2 x 1W		
<b>Physical Characteristics</b>	Dimensions	557.77 x 349.17 x 63.6 mm (219.59" x 137.47" x 25.04")	
	Weight	7.8 kg (17.2 lb)	
<b>OS Support</b>	OS Support	Microsoft® Windows 7 32 and 64-bit/Windows 8.1 64-bit/WES 7 32 and 64-bit/Linux	
<b>Power Consumption</b>	Input Voltage	12 - 32 Vdc	
	Power Consumption	i5-4300U/i3-4010U: 66W (Burn-in test 7.0 in Windows 7 64 bit)	
<b>LCD Display</b>	Display Type	21.5" TFT LCD (LED Backlight)	
	Max. Resolution	1920 x 1080	
	Viewing Angle	178 (Left), 178 (Right), 178 (Up), 178 (Down)	
	Luminance (cd/m2)	300	
	Contrast Ratio	5000	
Backlight Lifetime	50,000 hrs min.		
<b>Touchscreen</b>	Touch Type	Projected Capacitive Multi-Touch 10 Point	Analog Resistive 5-Wire
	Light Transmission	88% ± 2%	80% ± 3%
	Controller	USB Interface	
<b>Environment</b>	Operating Temperature	0 - 50°C (32 - 122°F)	
	Storage Temperature	-40 - 60°C (-40 - 140°F)	
	Relative Humidity	10 - 95% @ 40°C (Non-Condensing)	
	Shock	Operating 10 G Peak Acceleration (11 ms Duration), Follows IEC 60068-2-27	
	Vibration	Operating Random Vibration Test 5 - 500Hz, 1Grms @with HDD; 2Grms @with SSD, Follows IEC 60068-2-64	
	EMC	CE, FCC Class B, BSMI	
	Safety	CB, UL, CCC, BSMI	
Front Panel Protection	IP65 Compliant		



**Dimensions**

Unit: mm

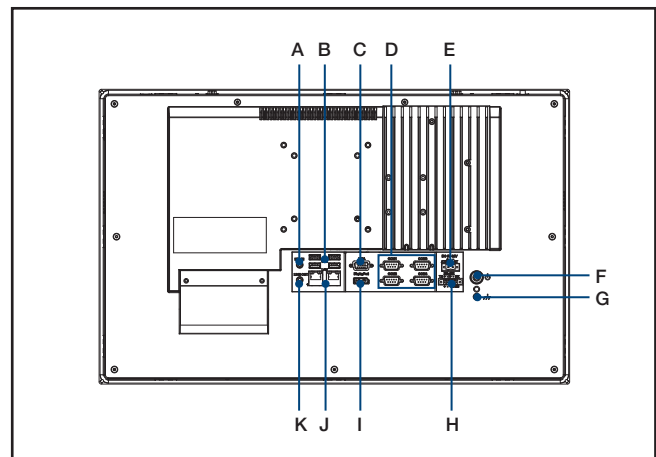


**Cut-out dimensions: 550.3 x 341.8 mm**

**Ordering Information**

Part No	Description
PPC-4211W-P5AE	21.5" Wide screen PPC with PCT Multi-touch, Intel Core i5-4300U
PPC-4211W-R3AE	21.5" Wide screen PPC with resistive touch, Intel Core i3-4010U
1700001524	POWER Cord 3P UL 10A 125V 180cm
170203183C	POWER Code 3P Europe (WS-010+083)183cm
1700008921	POWER CORD 3P/3P POWER SUPPLY 1.8M PSE
96PSA-A150W19P2-1	Adapter AC100-240V 150W 19V
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	ARM VESA Standard (A-CLEVER) for PPC series
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-STAND-A1E	Stand for PPC Series
2070012905	Image WES7P 32-bit Multi V4.12 PPC-4151W/4211W-P
2070013051	Image WES7P 64-bit Multi V4.12 PPC-4151W/4211W-P
98R3415010E	Front USB on cabinet module with Cable 100cm
98R3612000E	mSATA/CFast to USB Card Reader

**I/O Appearance**



- A. Mic-in
- B. 4 x USB 3.0
- C. VGA Port
- D. 4 x RS-232
- E. DC Inlet
- F. Power Button
- G. Ground Line
- H. 1 x RS-422/485
- I. Display Port
- J. 2 x 10/100/1000 Mbps Ethernet
- K. Line Out

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
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- 9 Industrial monitors
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- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
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- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-6120

## 12" Panel PC Supporting 4th Generation Intel® Core™ i / Celeron® Processors



### Features

- 12.1" TFT XGA LED Panel with resistive touchscreen
- Supports 4th Generation Intel® Core™ i / Celeron® Processor (Thermal Design Power: 35W/45W)
- System memory supports 2 x 204-pin SODIMM DDR3/DDR3L total up to 16G
- Supports 2 x Mini PCIe sockets, one is included mSATA function.
- Optional one PCI/PCIe x1 expansion kit
- Supports one isolated RS422/485 (terminal block)
- 1 x VGA and 1 x Display port
- Dual GbE, supports Intel AMT9.0
- LED backlight Auto dimming



### Introduction

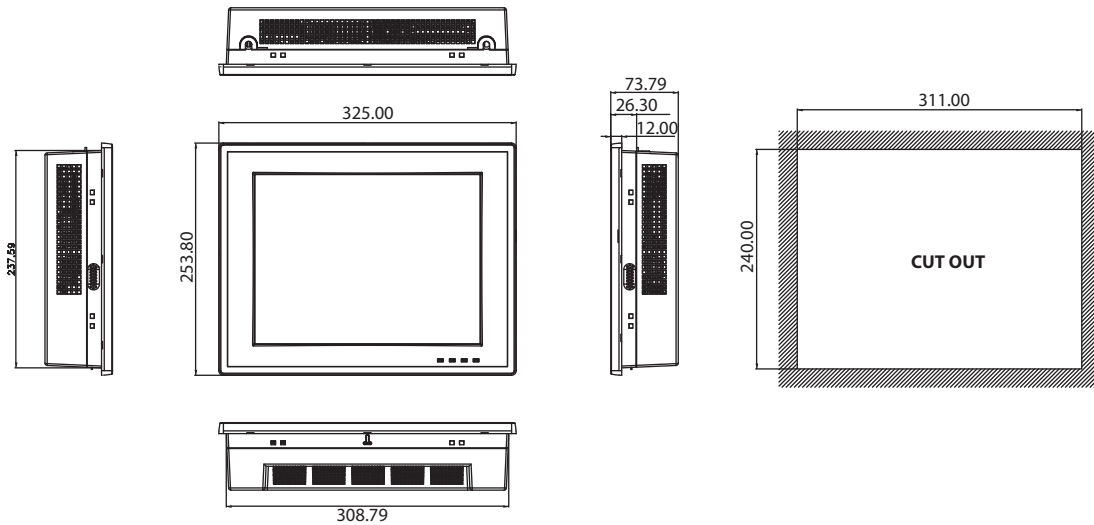
The PPC-6120 is a 12" color TFT LCD Panel PC that supports 4th Generation Intel® Core™ i / Celeron® Processors. It features extremely high computing power, various connectors, and can be installed in virtually any application. In addition, its user-friendly interface makes it a great host for information appliances. Four RS-232, one isolated RS422/485, and Dual Gb Ethernet connectors support Intel® AMT; one expansion slot makes PPC-6120 highly reliable, and provides a great platform for versatile applications.

### Specifications

<b>Processor System</b>	CPU	i7-4770TE	i5-4570TE	i5-4590T	i3-4330TE	i3-4350T	i3-4340TE	Pentium G3320TE	Celeron 1820TE	
	Cores	Quad Core	Dual Core	Quad Core	Dual Core	Dual Core	Dual Core	Dual Core	Dual Core	
	Frequency	2.3GHz	2.7GHz	2.0GHz	2.4GHz	3.1GHz	2.6GHz	2.3GHz	2.2GHz	
	L3 Cache	8MB	4MB	6MB	4MB	4MB	4MB	3MB	2MB	
	TDP	45W	35W	35W	35W	35W	35W	35W	35W	
	Chipset	Q87								
	Memory	2 x SO-DIMM,DDR3 1066/1333; DDR3L 1066/1333, up to 16GB/8GB per SO-DIMM								
	Storage	1 x 2.5" SATA Bay 1 x mSATA Bay								
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet, supports Intel AMT9.0								
	I/O ports	5 x Serial ports: 4 x RS-232, 1 x isolated RS422/485 (1KVDC) 4 x USB 3.0 (Ext.), 2 x USB 2.0 (Int. pin head) 1 x Display Port 1.2 1 x VGA 1 x Line-out, 1 x Mic-in								
	Expansion	1 x Mini PCIe (Standard) 1 x PCIe x1 or 1 x PCI through riser (Optional)								
	Watchdog Timer	255 timer levels; setup by software								
	Speaker	2 x 1W								
Fan	1 x 80x80x15 mm									
<b>Physical Characteristics</b>	Dimensions	325 x 253.8 x 73.8 mm (12.80" x9.99" x2.91")								
	Weight	3.8 kg (8.38lb)								
<b>OS Support</b>	OS Support	Microsoft® Windows 7 32bit&64bit/ Windows 8.1 32bit&64bit / Windows 10 32bit&64bit/Linux/WEC7								
<b>Power Consumption</b>	Power Consumption	12 - 30 Vdc								
		84W with i7-4770TE 65W with i5-4590TE 56W with i3-4330TE 47W with Petium-G3320TE Burn-in test 7.0 Windows 7 64bit 83W with i7-4770TE 61W with i5-4590TE 54W with i3-4330TE 46W with Petium-G3320TE (Burn-in test 7.0 Windows 8 64bit)								
<b>LCD Display</b>	Display Type	12.1" TFT LED Panel								
	Max. Resolution	1024 x 768								
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)								
	Luminance (cd/m <sup>2</sup> )	600								
	Contrast Ratio	700								
Backlight Lifetime	50,000 hrs (Min.)									

Dimensions

Unit: mm



Cut-Out dimensions: 311 x 240 mm

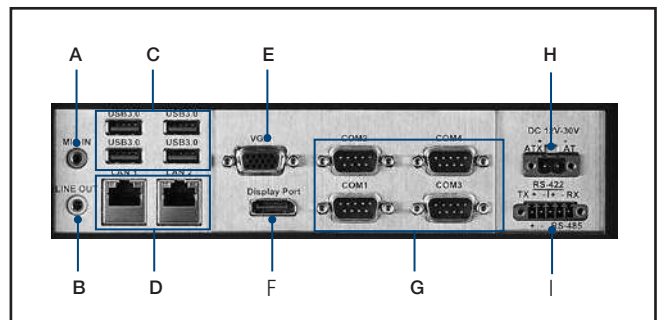
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire
	Light Transmission	80+/-3%
	Controller	RS-232 interface
	Durability (Touches)	36 million
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL,CCC, BSMI
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-6120-RAE	12.1" 4th Generation Intel® Core™ i / Celeron Panel PC with Resi. T/S
1702002600	Power Cable UL/CSA (USA) 180D 125V10A 1.83M
1702002605	Power Cable 90D 220V EUROPEAN 250V/6A 1.8M
* PPC-174T-WL-MTE	Wall mount kit for PPC series
* PPC-ARM-A03	PPC ARM VESA Standard
* PPC-STAND-A1E	Stand For PPC Series (single acting hinge)
PPC-3100-VESAE	PPC-3100 VESA bracket module
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
98R3612003E	Add-on box for PCI or PCIe expansion (include PCI / PCIe riser card)
96PSA-A150W19P2-1	ADP A/D 100-240V 150W 19V C14 TERMINAL BLOCK 2P
2070012966	Image WES7P 32-bit Multi V4.12 PPC-6120
2070013226	Image WES7P 64-bit Multi V4.12 PPC-6120
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	mSATA/CFast to USB card reader

\* if you order Wall mount kit / ARM / Desktop stand, please also order PPC-3100-VESAE at the same time.

I/O



- A. MIC in
- B. Line Out
- C. USB 3.0 x 4
- D. 10/100/1000 Mbps Ethernet x 2
- E. VGA Port
- F. Display Port
- G. COM RS-232 x 4
- H. DC Inlet
- I. COM RS-422/485

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
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- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-6150

## 15" Panel PC with Intel® Core™ i3 / i5 / Celeron® Processor



### Features

- Intel® Core™ i3, i5, Celeron 1020E + Intel QM77 PCH
- 1X DDR3/DDR3L SODIMM supports to 8 GB
- Multiple expansion slots including one PCIe x4, one PCI + one PCIe x1, two PCI (optional) and two PCIe x1 (optional)
- Optional second HDD, supports Intel RAID
- One isolated RS-232/422/485 port; (selectable in by BIOS)
- One GPIO/RS-232 (8 channels, TTL level); (by swapping pin header)
- Dual GbE, supports Intel AMT8.0
- Supports iManager, SUSIAccess and Embedded Software APIs

### Introduction

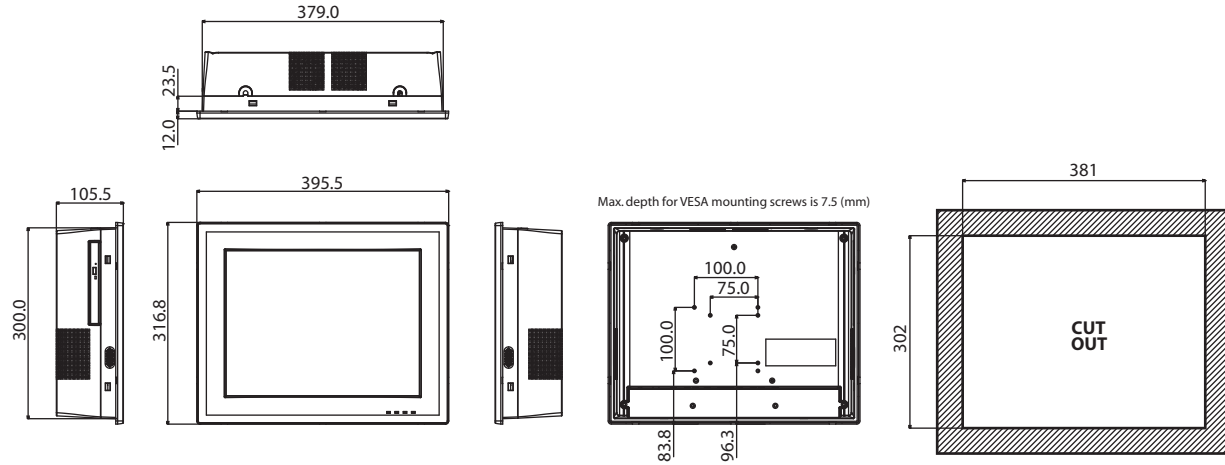
The PPC-6150 is a Panel PC with an Intel® Core™ i3/i5 or Celeron® processor, and a 15" color TFT LCD panel. It features extremely high computing power, modular design, excellent connectivity, and can support virtually any application. In addition, its user-friendly interface makes it a great host for information appliances. Two expansion slots, dual hard drives supporting Intel® RAID, and one isolated RS-232/422/485 port make the PPC-6150 highly reliable, and provide a great solution for a wide range of applications.

### Specifications

<b>Processor System</b>	CPU	Intel® Core i5-3610ME	Intel® Core i3-3120ME	Intel® Celeron 1020E
	Cores	Dual Core	Dual Core	Dual Core
	Frequency	2.7 GHz	2.4 GHz	2.2 GHz
	L3 Cache	3 MB	3 MB	2 MB
	Chipset	QM77		
	Memory	1 x SO-DIMM, DDR3 1600/DDR3L 1333, Max 8 GB		
	Storage	1 x 2.5" SATA Bay Either one: Second 2.5" SATA bay (Intel RAID supported, optional) Slim type 8X or above DVD +/- RW (optional)		
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (GbE1- Intel 82579LM, GbE2 – Intel 82583V), Intel AMT supported		
	I/O ports	4 x Serial ports: 1 x isolated RS-232/422/485, 3 x RS-232 1 x GPIO/RS-232 (8 channels, TTL level); by pin header 3 x USB 3.0, 2 x USB 2.0 1 x VGA 1 x HDMI 1 x Line-out, 1 x Mic-in		
	Expansion	1 x PCI + 1 x PCIe x1 (standard) 1 x PCIe x4 (in the accessory box) 2 x PCIe x1 (optional) 2 x PCI (optional) 1 x Full-size Mini PCIe (Supports mSATA) 1 x half-size Mini PCIe		
Speaker	2 x 1W			
Fan	2 x 12V 60x60x13mm with smart fan control, (70,000 hours continuous test @ 40 °C)			
<b>Physical Characteristics</b>	Dimensions	395.5 x 316.8 x 105.5mm (15.6" x 12.5" x 4.15")		
	Weight	6.5 Kg (14.32lb)		
<b>OS Support</b>	OS Support	Microsoft® Windows XPE/Windows XP Pro/WES7 32bit&64bit/Windows 7 32bit&64bit/ Windows 8.1 32bit&64bit/ Windows 10 32bit&64bit/ Linux		
<b>Power Consumption</b>	Output Rating	150 W (max.)		
	Input Voltage	100 - 240 Vac, 50/60Hz, 4-2A		
	Power Consumption	61W with i5-3610ME 50W with i3-3120ME (Burn-in test 7.0 in Windows 7 32 bit)		
<b>LCD Display</b>	Display Type	15" TFT LED Panel		
	Max. Resolution	1024 x 768		
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)		
	Luminance (cd/m <sup>2</sup> )	400		
	Contrast Ratio	700		
Backlight Lifetime	50,000 hrs min.			

Dimensions

Unit: mm



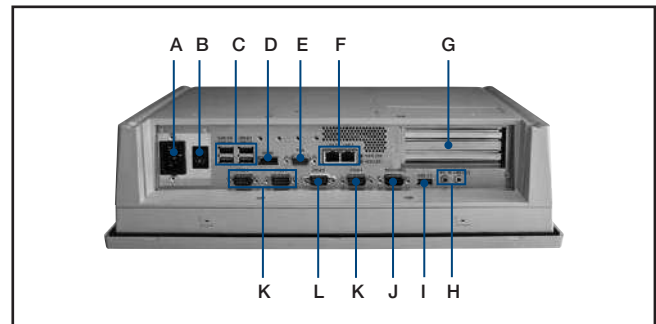
Cut-Out dimension: 381 x 302 mm

Touchscreen	Touch Type	Analog Resistive 5-wire
	Light Transmission	80+/-3%
	Controller	RS-232 interface (COM5), USB interface is available as an option
	Durability (Touches)	36 million
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL, CCC, BSMI
	Front Panel Protection	IP65 compliant

Ordering Information

Part No.	Description
PPC-6150-Ri5AE	Intel Core i5-3610ME (2.7G) Panel PC with 15" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6150-Ri3AE	Intel Core i3-3120ME (2.4G) Panel PC with 15" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6150-RC10AE	Intel Celeron 1020E (2.2G) Panel PC with 15" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
989K091800E	Two PCI slots for PPC-6150/6170
989K091700E	Two PCIe x1 slots for PPC-6150/6170
98R3615000E	A second 2.5"SATA HDD for PPC-6150
PPC-6150-DVDE	Module with 8X SATA DVD-RW for PPC-6150/PPC-6170
PPC-174T-WL-MTE	Wall mount kit for PPC series
PPC-ARM-A03	PPC ARM VESA Standard
1702002605	Power cord 90D 220V EUROPEAN 250V/6A, 1.8M
1702002600	Power cord UL/CSA (USA) 180D 125V/10A 1.83M
96CB-POWER-B-1.8M1	POWER CORD for China 1.8M
1700019336	Cable for an external 25-pin LPT port
2070013299	WES7P PPC-6150/70 32-bits V5.1.6 10multi-languages with SUSI Access
2070013328	WES7P PPC-6150/70 64-bits V5.6.6 10multi-languages with SUSI Access
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	mSATA/CFast to USB card reader

I/O Placement



- A: AC Inlet
- B: Power Switch
- C: USB 3.0 x 2, USB 2.0 x 2
- D: HDMI
- E: VGA
- F: Gigabit Ethernet x 2
- G: 2 Expansion slots
- H: Line out/ Mic in
- I: USB 3.0 x 1
- J: GPIO / RS-232 (by swapping pin header)
- K: RS-232 x 3
- L: Isolated RS-232/422/485 (selecting by BIOS)

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



# PPC-6170

## 17" Panel PC with Intel® Core™ i3 / i5 Processor



### Features

- Intel® Core™ i3, i5 + Intel QM77 PCH
- 1X DDR3/DDR3L SODIMM support to 8 GB
- Multiple expansion slots including one PCIe x4, one PCI + one PCIe x1, two PCI (optional) and two PCIe x1 (optional)
- Optional second HDD, supports Intel RAID
- One isolated RS-232/422/485 port; (selectable in by BIOS)
- One GPIO/RS-232 (8 channels, TTL level); (by swapping pin header)
- Dual GbE, supports Intel AMT8.0
- Supports iManager, SUSIAccess and Embedded Software APIs



### Introduction

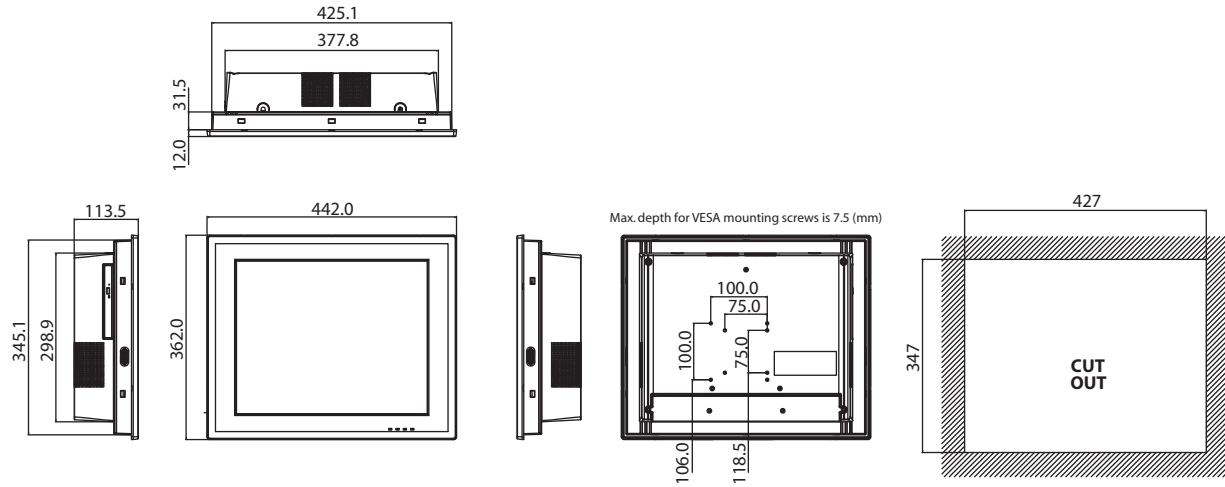
The PPC-6170 is a Panel PC with an Intel® Core™ i3/i5 processor, and a 17" color TFT LCD panel. It features extremely high computing power, modular design, excellent connectivity, and can support virtually any application. In addition, its user-friendly interface makes it a great host for information appliances. Two expansion slots, dual hard drives supporting Intel® RAID, and one isolated RS-232/422/485 port, make the PPC-6170 highly reliable, and provide a great solution for a wide range of applications.

### Specifications

<b>Processor System</b>	CPU	Intel® Core i5-3610ME	Intel® Core i3-3120ME
	Cores	Dual Core	Dual Core
	Frequency	2.7 GHz	2.4 GHz
	L3 Cache	3 MB	3 MB
	Chipset	QM77	
	Memory	1 x SO-DIMM, DDR3 1600/DDR3L 1333, Max 8 GB	
	Storage	1 x 2.5" SATA Bay Either one: Second 2.5" SATA bay (Intel RAID supported, optional) Slim type 8X or above DVD +/- RW (optional)	
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet (GbE1- Intel 82579LM, GbE2 – Intel 82583V), Intel AMT supported	
	I/O ports	4 x Serial ports: 1 x isolated RS-232/422/485, 3 x RS-232 1 x GPIO/RS-232 (8 channels, TTL level); by pin header 3 x USB 3.0, 2 x USB 2.0 1 x VGA 1 x HDMI 1 x Line-out, 1 x Mic-in	
	Expansion	1 x PCI + 1x PCIe x1 (standard) 1 x PCIe x4 (in the accessory box) 2 x PCIe x1 (optional) 2 x PCI (optional) 1 x Full-size Mini PCIe (Supports mSATA) 1 x half-size Mini PCIe	
Speaker	2 x 1W		
Fan	2 x 12V 60x60x13mm with smart fan control (70,000 hours continuous test @ 40° C)		
<b>Physical Characteristics</b>	Dimensions	442.0 x 362.0 x 113.5mm (17.4" x 14.25" x 4.47")	
	Weight	7.5Kg (16.52lb)	
<b>OS Support</b>	OS Support	Microsoft® Windows XPE/WES7 32bit&64bit/Windows XP Pro/Windows 7 32bit&64bit/ Windows 8.1 32bit&64bit/ Windows 10 32bit&64bit/ Linux	
<b>Power Consumption</b>	Output Rating	150 W (max.)	
	Input Voltage	100 - 240 Vac, 50/60Hz, 4-2A	
	Power Consumption	65W with Core i5-3610ME 55W with Core i3-3120ME (Burn-in test 7.0 in Windows 7 32 bit)	
<b>LCD Display</b>	Display Type	17" TFT LED Panel	
	Max. Resolution	1280 x 1024	
	Viewing Angle	80 (left), 80 (right), 60 (up), 80 (down)	
	Luminance (cd/m <sup>2</sup> )	350	
	Contrast Ratio	1,000	
Backlight Lifetime	50,000 hrs (Min.)		

**Dimensions**

Unit: mm



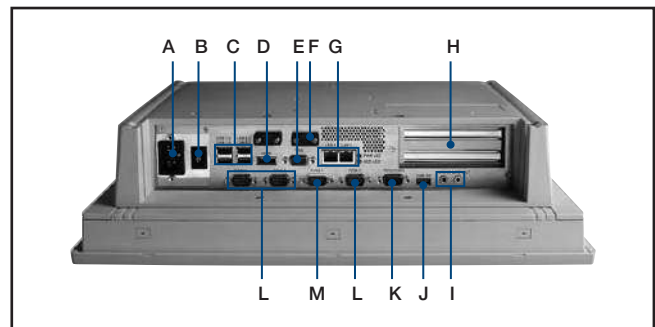
**Cut-Out dimension: 427 x 347mm**

<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire
	Light Transmission	81+/-3%
	Controller	RS-232 interface (COM5), USB interface is available as an option
	Durability (Touches)	36 million
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL, CCC, BSMI
	Front Panel Protection	IP65 compliant

**Ordering Information**

Part No.	Description
PPC-6170-Ri5AE	Intel Core i5-3610ME (2.7G) Panel PC with 17" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-6170-Ri3AE	Intel Core i3-3120ME (2.4G) Panel PC with 17" XGA LED backlight and 5-wire resistive T/S, w/o memory
PPC-WLAN-A1E	WiFi Module with Antenna Cable 40cm for PPC
989K091800E	Two PCI x1 slots for PPC-6150/6170
989K091700E	Two PCIe x1 slots for PPC-6150/6170
98R3615000E	A second 2.5" SATA HDD for PPC-6150
PPC-6150-DVDE	Module with 8X SATA DVD-RW for PPC-6150/PPC-6170
PPC-174T-WL-MTE	Wall mount kit for PPC series
98R3175R00E	19" Rack Mounting kits for PPC
PPC-ARM-A03	PPC ARM VESA Standard
PPC-174 Stand	Stand for PPC Series (double acting hinges)
1702002605	Power cord 90D 220V EUROPEAN 250V/6A, 1.8M
1702002600	Power cord UL/CSA (USA) 180D 125V/10A 1.83M
96CB-POWER-B-1.8M1	POWER CORD for China 1.8M
1700019336	Cable for an external 25-pin LPT port
2070013299	WES7P PPC-6150/70 32-bits V5.1.6 10multi-languages with SUSI Access
2070013328	WES7P PPC-6150/70 64-bits V5.6.6 10multi-languages with SUSI Access
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	mSATA/CFast to USB card reader

**I/O Placement**



- A: AC Inlet
- B: Power Switch
- C: USB 3.0 x 2, USB 2.0 x 2
- D: HDMI
- E: VGA
- F: Cable clip x 2
- G: Gigabit Ethernet x 2
- H: 2 Expansion slots
- I: Line out / Mic in
- J: USB 3.0 x 1
- K: GPIO / RS-232 (by swapping pin header)
- L: RS232 x 3
- M: Isolated RS-232/422/485 (selecting by BIOS)

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-8150

## 15" Panel PC with Intel® Core™ i3 / i5 Processor



### Features

- 15" TFT LED Panel, resolution up to 1024 x 768
- Built-in Intel® Core™ i3, i5 desktop processor (LGA) with Intel H61 chipset
- Two 204 PIN DDR3 SO-DIMM, DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM
- Support one expansion PCIe x 4 slot installed Replaceable with PCI riser accessory
- Supports 6 USB, 6 COMs, 1 x GPIO, 8 bits (Internal pin header)
- Support 1 x 2.5" SATA bay
- Support AC 100 ~ 240V input
- Supports iManager, SUSIAccess and Embedded Software APIs



### Introduction

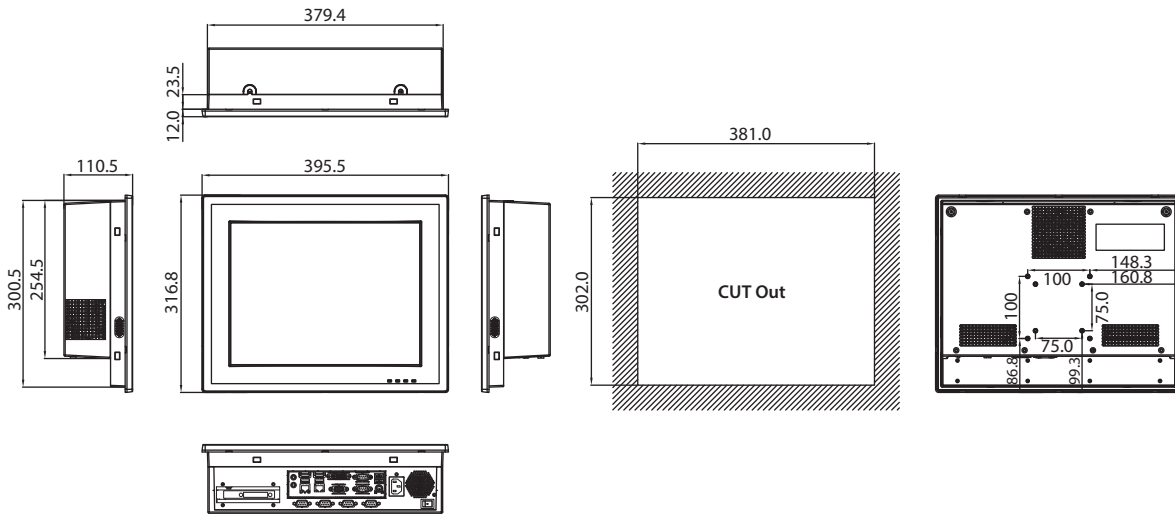
PPC-8150 is a Panel PC with an Intel® Core™ i3, i5 desktop processor, and a 15" color TFT LCD panel. It features extremely high computing power and performance, excellent connectivity, and good expansion ability. In addition, its rich variety of IO support makes it an easy choice for information applications, and provides a great solution for a wide-range of industrial applications.

### Specifications

<b>Processor System</b>	CPU	Intel® Core i3-3220	Intel® Core i5-3550S
	Cores	Dual Core	Quad Core
	Frequency	3.3GHz	3.7 GHz
	L3 Cache	3 MB	6 MB
	Chipset	H61	
	Memory	2 x SO-DIMM, DDR3 1066/1333/1600, Max 16 GB/8GB per SO-DIMM	
	Storage	1 x 2.5" SATA Bay	
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet	
	I/O ports	6 x Serial ports: 1 x RS-232/422/485, 5 x RS-232 6 x USB2.0 1 x VGA, 1 x DVI 1 x GPIO 8 bits (Internal pin header) 1 x Line-out, 1 x Mic-in 1 x PS/2	
	Expansion	1 x PCIe x4 (Standard) 1 x PCI (in the accessory box) 1 x Mini PCIe	
Speaker	2 x 1W		
Fan	1 x 12V 80x80x15mm		
<b>Physical Characteristics</b>	Dimensions	395.5 x 316.8 x 110.5mm (15.6" x 12.5" x 4.35")	
	Weight	6.98 kg (15.39lb)	
<b>OS Support</b>	OS Support	Microsoft® Windows XP Pro/WES7 32bit&64bit/Windows 7 32bit&64bit/Windows 8.1	
<b>Power Consumption</b>	Output Rating	180W (Max.)	
	Input Voltage	100 - 240 Vac, 50/60Hz, 4-2A	
	Power Consumption	71W with Core i3-3220 86W with Core i5-3550s (Burn-in test 7.0 in Windows 7 32 bit)	
<b>LCD Display</b>	Display Type	15" TFT LED Panel	
	Max. Resolution	1024 x 768	
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)	
	Luminance (cd/m <sup>2</sup> )	400	
	Contrast Ratio	700	
	Backlight Lifetime	50,000 hrs (Min.)	
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire	
	Light Transmission	80+/-3%	
	Controller	USB Interface	
	Durability (Touches)	36 million	

**Dimensions**

Unit: mm



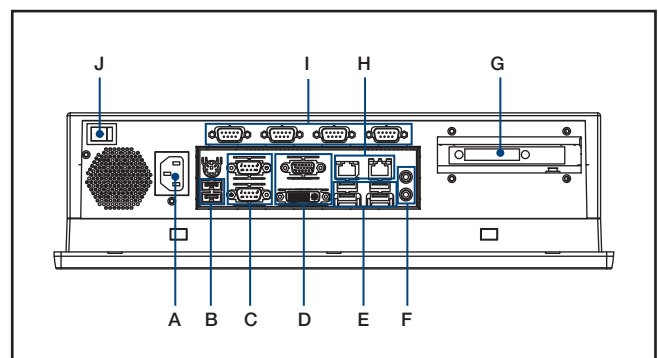
**Cut-Out dimension:381 x 302 mm**

Environment	Parameter	Value
	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL,CCC, BSMI
	Front Panel Protection	IP65 compliant

**Ordering Information**

Part No.	Description
PPC-8150-RI3AE	15" XGA Panel PC w/Intel Core i i3-3220, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-8150-RI5AE	15" XGA Panel PC w/Intel Core i i5-3550S, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kits for PPC series
PPC-ARM-A03	PPC ARM VESA stand
PPC-Stand-A1E	Stand For PPC Series
1702002605	Power cord 2P FRANCE 10A/16A 220V 1.83M 90D
1702002600	Power Cord 3P UL/CSA (USA) 125V 10A 1.83M 180D
96CB-POWER-B-1.8M1	POWER CORD for China 1.8M
2070013998	Image WES7P 32-bit Multi V4.13 for PPC-8150/8170
2070014377	Image WES7P 64-bit Multi V4.14 for PPC-8150/8170
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	mSATA/CFast to USB card reader

**I/O Placement**



- A. AC Power Input
- B. USB ports
- C. COM Ports
- D. VGA and DVI Ports
- E. USB Ports
- F. Audio Line-out/MIC
- G. Riser Card Expansion
- H. LAN Ports
- I. COM Ports
- J. Power Switch

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I-door Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# PPC-8170

## 17" Panel PC with Intel® Core™ i3 / i5 Processor



### Features

- 17" TFT LED Panel, resolution up to 1280 x 1024
- Built-in Intel® Core™ i3, i5 desktop processor (LGA) with Intel H61 chipset
- Two 204 PIN DDR3 SO-DIMM, DDR3 1066/1333/1600MHz SDRAM, up to 8 GB/4 GB per SO-DIMM
- Support one expansion PCIe x 4 slot installed. (Replaceable with PCI riser accessory)
- Supports 6 USB, 6 COMs, 1 x GPIO 8 bits (Internal pin header)
- Support 1 x 2.5" SATA bay
- Support AC 100 ~ 240V input
- Supports iManager, SUSIAccess and Embedded Software APIs



### Introduction

PPC-8170 is a Panel PC with an Intel® Core™ i3/i5 desktop processor, and a 17" color TFT LCD panel. It features extremely high computing power and performance, excellent connectivity, and good expansion ability. In addition, its rich variety of IO support makes it an easy choice for information applications, and provides a great solution for a wide-range of industrial applications.

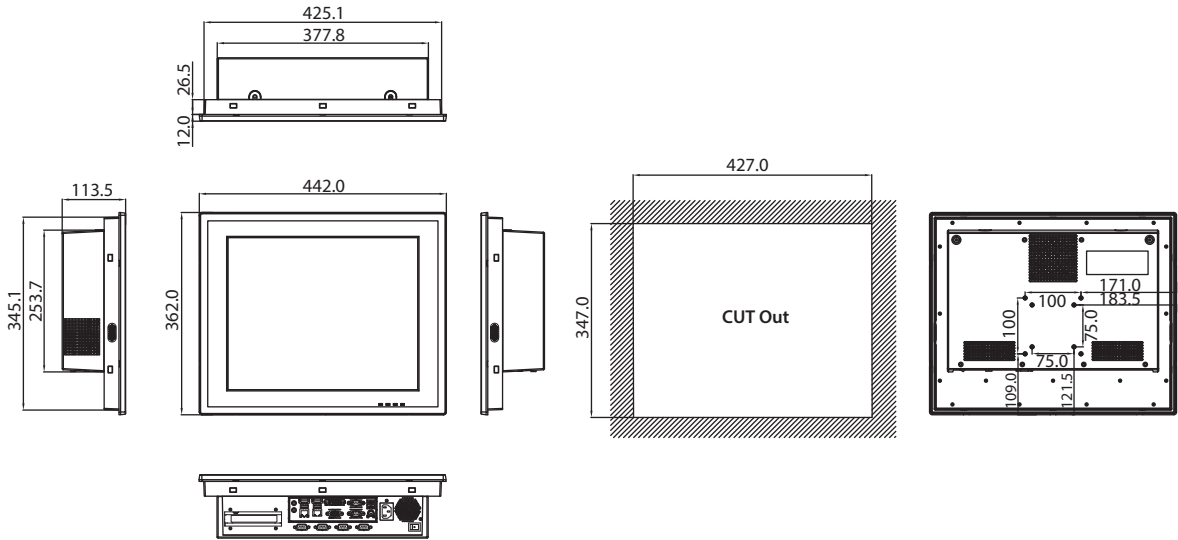
### Specifications

<b>Processor System</b>	CPU	Intel® Core i3-3220	Intel® Core i5-3550S
	Cores	Dual Core	Quad Core
	Frequency	3.3GHz	3.7 GHz
	L3 Cache	3 MB	6 MB
	Chipset	H61	
	Memory	2 x SO-DIMM, DDR3 1066/1333/1600, Max 16 GB/8GB per SO-DIMM	
	Storage	1 x 2.5" SATA Bay	
	Network (LAN)	2 x 10/100/1000 Mbps Ethernet	
	I/O ports	6 x Serial ports: 1 x RS-232/422/485, 5 x RS-232 6 x USB2.0 1 x VGA, 1 x DVI 1 x GPIO 8 bits (Internal pin header) 1 x Line-out, 1 x Min-in 1 x PS/2	
	Expansion	1 x PCIe x4 (Standard) 1 x PCI (in the accessory box) 1 x Mini PCIe	
Speaker	2 x 1W		
Fan	1 x 12V 80x80x15mm		
<b>Physical Characteristics</b>	Dimensions	442.0 x 362.0 x 113.5mm (17.4" x 14.25" x 4.47")	
	Weight	9.2 Kg (20.28lb)	
<b>OS Support</b>	OS Support	Microsoft® Windows XP Pro/WES7 32bit&64bit/Windows 7 32bit&64bit/Windows 8.1	
<b>Power Consumption</b>	Output Rating	180W (Max.)	
	Input Voltage	100 - 240 Vac, 50/60Hz, 4-2A	
	Power Consumption	81W with i3-3220 96W with i5-3550s (Burn-in test 7.0 in Windows 7 32-bit)	
<b>LCD Display</b>	Display Type	17" TFT LED Panel	
	Max. Resolution	1280 x 1024	
	Viewing Angle	80 (left), 80 (right), 60 (up), 80 (down)	
	Luminance (cd/m <sup>2</sup> )	350	
	Contrast Ratio	800	
	Backlight Lifetime	50,000 hrs (Min.)	
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire	
	Light Transmission	81+/-3%	
	Controller	USB Interface	
	Durability (Touches)	36 million	



**Dimensions**

Unit: mm



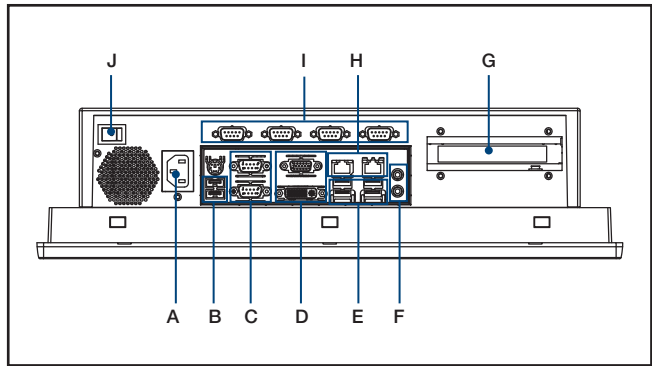
**Cut-out dimension: 427 x 347 mm**

<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F)
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock	Operating 10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follow IEC 60068-2-64
	EMC	CE, FCC Class A, BSMI
	Safety	CB, UL, CCC, BSMI
	Front Panel Protection	IP65 compliant

**Ordering Information**

Part No.	Description
PPC-8170-RI3AE	17" SVGA Panel PC w/Intel Corei3-3220, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-8170-RI5AE	17" SVGA Panel PC w/Intel Core i5-3550S, 5-Wire Touch, 6 COM, 6 USB, 2 LAN, 1 x PCIe or 1 x PCI expansion
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
PPC-174T-WL-MTE	Wall mount kits for PPC series
PPC-ARM-A03	PPC ARM VESA stand
PPC-Stand-A1E	Stand For PPC Series
1702002605	Power cord 2P FRANCE 10A/16A 220V 1.83M 90D
1702002600	Power Cord 3P UL/CSA (USA) 125V 10A 1.83M 180D
96CB-POWER-B-1.8M1	POWER CORD for China 1.8M
2070013998	Image WES7P 32-bit Multi V4.13 for PPC-8150/8170
2070014377	Image WES7P 64-bit Multi V4.14 for PPC-8150/8170
98R3415010E	98 Level For 9663415010E Front USB Cable 100cm
98R3612000E	mSATA/CFast to USB card reader

**I/O Placement**



- A. AC Power Input
- B. USB ports
- C. COM Ports
- D. VGA and DVI Ports
- E. USB Ports
- F. Audio Line-out/MIC
- G. Riser Card Expansion
- H. LAN Ports
- I. COM Ports
- J. Power Switch

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
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# Configurable Panel PC Introduction

Panel PCs suffer from one major drawback: lack of flexibility in their configuration. When you buy a PPC you are limited to the options that the manufacturer chooses. Now, in an industry first, Advantech has solved this problem by allowing System Integrators to choose any Mini-ITX motherboard (MB) and have it installed by Advantech's own engineers.

## 3 Steps to configure your system!

### Choose Standard Mini-ITX MB

- According to functionality

### Select Chassis

- Correspondent chassis
- Cooler

### System configure

- CPU
- Memory
- Storage

### Assemble in CTOS!

## More flexible choice of Standard Mini-ITX MB!



The configurable Panel PC works with any commercially available Mini-ITX motherboard. The issue with traditional panel PCs is that the display panel and the touch sensors are proprietary, and connecting them to a third-party MB is a near impossible task. Advantech has solved this problem by developing a proprietary daughter board which translates the signals of the display panel and sends them to the MB.

## Off-the-shelf replacements save time and money!







In addition to the flexibility in choice of motherboard, which allows users to choose boards which meet their exact requirements, rather than having to over spend on redundant features, the flexibility means that, in the event of a motherboard failure, an off the shelf replacement can be purchased and installed in a quicker fashion than having to send the machine away to the original manufacturer.

## Certified and Installed MB within 30 days!



In addition to providing a list of pre-certified motherboards, which can be installed in just 7 days, Advantech can also take any other off-the-shelf motherboard and have it certified and installed within 30 days. This means the PPC is the most flexible panel PC on the market and demonstrates Advantech's commitment to being the most forward thinking industrial automation company.

# Selection guide

M/B	PPC-MB-8260AE	AIMB-275
Photo		
Chassis	PPC-6151C-RTAE	PPC-6151C-RMAE
Photo		
CPU	6th Gen Intel Core I LGA 1151 processor up to 45W	6th Gen Intel Core I LGA 1151 processor up to 45W
Memory	1 x 260pin SO-DIMM, DDR4 2133MHz, up to 16GB	2 x 260pin SO-DIMM, DDR4 2133MHz, up to 32GB
Display Type	TFT LED LCD	TFT LED LCD
Display Size	15"	15"
Max. Resolution	1024 x 768	1024 x 768
Max.Color	16.7M	16.7M
Luminance cd/m <sup>2</sup>	400 nits	400 nits
Viewing Angle (H/V)	80 (left), 80 (right) 70 (up), 70 (down)	80 (left), 80 (right) 70 (up), 70 (down)
Backlight MTBF (hrs)	50K hrs	50K hrs
Touchscreen	Analog Resistive 5-wire	Analog Resistive 5-wire
Network (LAN)	2 x GbE (Intel i211)	2 x GbE (LAN1 i219LM, LAN2 i211AT)
I/O Ports	1 x RS232/422/485, 1xRS232, 1 x DP 1.3, 1 x VGA, 4 x USB (3.0), 1 x Line-out, 1 x Mic-in, 3 x RS232, (by cabling) 1 x GPIO (8 Bits) (by cabling)	1 x RS-232, 1 x DP 1.2, 1 x (HDMI 2.0 or HDMI 1.2), 1 x VGA, 4 x USB (3.0), 1 x Line-out, 1 x Mic-in, 1 x Line-in
HDD (optional)	1 x 2.5" SATA HDD	2 x 2.5"HDD kit support RAID
Expansion Slots	either 1 x PCIe x4 or 2 x PCI (accessory box)	either 1 x PCIe x4, or 1 x PCI (accessory box)
Additional Expansion	either 1 x full-size mSATA or Mini PCIe	1 x M.2, either 1 x full-size mSATA or Mini PCIe
Power Input (Voltage)	100 ~ 240 V <sub>AC</sub>	100 ~ 240 V <sub>AC</sub>
Ingress Protection	Front panel: IP65	Front panel: IP65
Mounting	Panel Mount	Panel Mount
Operating Temperature	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Dimensions	391.4 x 312.5 x 103.6 mm (15.4" x 12.3" x 4.08")	391.4 x 312.5 x 103.6 mm (15.4" x 12.3" x 4.08")
Weight	5.4 kg (11.9 lb)	5.4 kg (11.9 lb)
Certification	CE,FCC classA UL,CB,CCC, BSMI	CE,FCC classA UL,CB,CCC, BSMI
Operating System	WES7/Win7 32bit&64bit/Win 8.1 64bit/Win10 64bit	WES7/Win7 32bit&64bit/Win 8.1 64bit/Win10 64bit
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# PPC-6151C

## 15" Configurable Panel PC Chassis for selectable Mini-ITX Motherboard



### Features

- 15" true-flat PPC with Resistive touch
- Supports certified mini-ITX motherboard up to 45W TDP processor
- Support PCI or PCIe expansion slot
- Front LED indicators for power status
- Front panel is IP65 compliant
- Optional VESA mount by request

### Product Feature

		PPC-6151C-RTAE	PPC-6151C-RMAE
<b>Supported M/B</b>		PPC-MB-8260AE	<ul style="list-style-type: none"> <li>▪ AIMB-275</li> <li>▪ AIMB-226</li> <li>▪ SIMB-382</li> </ul>
<b>Chassis feature</b>	Storage	1 x 2.5" SATA HDD bay	2 x 2.5" SATA HDD bay
	I/O ports	4 x Reservation ports (DB9) 2 x WLAN Antenna holes  1 x AC inlet 1 x Power Switch Reserved opening:Based on M/B PPC-MB-8260AE's specific	1 x AC inlet 1 x Power Switch 1 x DP port (input, for connecting M/B and LVDS panel) 1 x USB 2.0 (input, for connecting M/B and touch controller) Reserved opening:Based on M/B's specific
	Expansion	either 1 x PCIe x4, or 2 x PCI (in the accessory box)	either 1 x PCIe x4, or 1 x PCI (in the accessory box)
	Speaker	2 X 1W	Optional 2 X1W
	Fan	2 x 12V 60 x 60 x 15mm	
<b>Physical Characteristics</b>	Dimensions	391.4 x 312.5 x 103.6 mm (15.4" x 12.3 x 4.08")	
	Weight	5.03 kg (11.08 lb)	
<b>OS Support</b>	OS Support	Based in M/B spec	
<b>Power Consumption</b>	Input Voltage	100-240V <sub>AC</sub> , 250W	
<b>LCD Display</b>	Display Type	15" TFT LED Panel	
	Max. Resolution	1024 x 768	
	Viewing Angle	80 (left), 80 (right), 70 (up), 70 (down)	
	Luminance (cd/m <sup>2</sup> )	400	
	Contrast Ratio	700	
	Backlight Lifetime	50,000 hrs min.	
<b>Touchscreen</b>	Touch Type	Analog Resistive 5-wire/Projected capacitive type (optional)	
	Light Transmission	80+/-5%	
	Controller	USB interface	
	Durability (Touches)	35 million	
<b>Environment</b>	Operating Temperature	0 ~ 50°C (32 ~ 122°F)	
	Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)	
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)	
	Shock	Operating 10 G peak acceleration (11 ms duration), follows IEC 60068-2-27	
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD, follows IEC 60068-2-64	
	EMC	CE, FCC Class A	
	Front Panel Protection	IP65 compliant	

## M/B Specifications

### PPC-MB-8260AE (For PPC-6151C-RTAE only)

<b>CPU</b>	i7-6700TE	i5-6500TE	i3-6100TE	Pentium G4400TE	Celeron G3900TE
	Quad Core	Quad Core	Dual Core	Dual Core	Dual Core
	3.4GHz	3.3GHz	2.7GHz	2.4GHz	2.3GHz
	8MB	6MB	4MB	3MB	2MB
	35W	35W	35W	35W	35W
<b>Chipset</b>	H110				
<b>Memory</b>	1 x 260pin SO-DIMM,DDR4,2133MHz, up to 16GB (Non-ECC)				
<b>Network (LAN)</b>	2 x 10/100/1000 Mbps Ethernet, Intel 211 x 2				
<b>Rear I/O</b>	1 x RS232/422/485, 1xRS232, 1 x DP 1.2, 1 x VGA, 4 x USB (3.0), 1 x Line-out, 1 x Mic-in				
<b>Internal Connector</b>	3 x RS232 1 x GPIO ( 8 channels) 1x speaker connector 1xLED Connector 2 xUSB2.0 1 x LVDS Connector 1 x Touch Connector 2 x SATA Connector				
<b>Watchdog Timer</b>	255 timer levels, set up by software				
<b>Expansion</b>	1 x full-size mSATA or Mini PCIe, 1 x PCIe x4 slot for riser card				
<b>Dimensions</b>	170 x 170 mm (6.69" x 6.69")				
<b>OS Support</b>	Microsoft® Windows 7 32bit&64bit/ Windows 8.1 64bit / Windows 10 64bit				

## Ordering Information

M/B Part Number	Chassis Part Number	Cooler Part Number
PPC-MB-8260AE	PPC-6151C-RTAE	1960053207N001
AIMB-275	PPC-6151C-RMAE	1960053207N001
AIMB-226	PPC-6151C-RMAE	1960061914N001

Note 1: Please order M/B, Chassis and Cooler together for configuring a system.  
Note 2: For AC power supply and Riser cards, both are equipped with the Chassis.

## Optional Accessories

Part Number	Description
PPC-WLAN-A1E	Wi-Fi Module with Antenna Cable 40cm for PPC
1702002605	Power cord EU 90D 220V 250V/6A, 1.8M
1702002600	Power Cable US Plug 180D 125V/10A 1.83M
1702031801	Power Cable UK Plug 1.8 M
96CB-POWER-B-1.8M1	Power CORD for China 1.8M

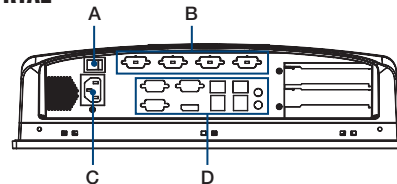
### Dimensions

Unit: mm

**Cut-out Dimensions: 382 x 303 mm**

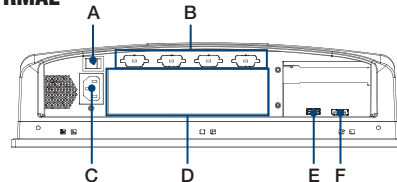
## I/O Review

### PPC-6151C-RTAE



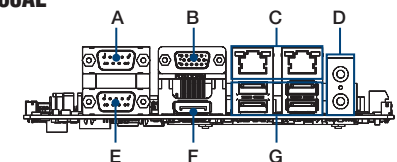
- A: Power Switch
- B: Reservation port
- C: AC inlet
- D: PPC-MB-8260AE I/O port

### PPC-6151C-RMAE



- A: Power Switch
- B: Reservation port
- C: AC inlet
- D: Mini-ITX M/B I/O port
- E: USB 2.0 (input, for connecting M/B and touch controller)
- F: Display port (input, for connecting M/B and LVDS panel)

### PPC-MB-8260AE



- A: RS232
- B: VGA
- C: Gigabit Ethernet x 2
- D: Line out/ Mic in
- E: RS232/422/485
- F: Display Port
- G: USB 3.0

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# PPC-IPS-AE

## 12-30 V<sub>DC</sub> input/24 V<sub>DC</sub> output, Uninterruptible Power Supply Module



### Features

- 50W (2.1A @ 24Vdc) output, 25.2Wh with auto shut down function to PC
- With changeable battery pack for easy maintenance
- Wide Range power input for 12 - 30 Vdc
- Supports over discharging protection to extend battery life
- Metal enclosure supports VESA 75/ VESA 100 and DIN Rail mounting
- With status indicators for monitoring battery pack and input power
- With accessible switch for adjusting timing (30sec / 6 min), to execute auto shut down PC
- With free software utility for configuration and monitoring

### Introduction

This lightweight and intelligent power management module protects a Panel PC from electrical damage and greatly reduces the risk of losing data. The IPS module serves as temporary power supply during a break in power and allows a safe system shutdown. It can be easily installed on DIN-rail or on the back of a Panel PC.

### Specifications

<b>Input</b>	Input Voltage	12 -30 Vdc
	Input power rating	90 W
	Charging current	2 A
<b>Output</b>	Output Voltage	24Vdc +/-10%
	Max. output current	2.5 A
<b>Battery</b>	Battery Capacity	14.4 V <sub>DC</sub> , 1750 mAh
	Cycle life	300 times of charge circle (Above 60% capacity compared to the initial state)
<b>Protection</b>	Short-circuit protection	Yes
	Over discharge protection	IPS shuts down when 5% of battery capacity (Default)
<b>Certification</b>	EMC	CE, FCC, CCC, BSMI
	Safety	UL, CB, CCC, BSMI
<b>Dimensions</b>		151.8 x 125 x 37.2 mm (5.98" x 4.92" x 1.46")
<b>Environment</b>	Operating Temperature	0 ~ 50°C (Din rail mounting) 0-45°C (VESA mounting, secured with PPC)
	Storage Temperature	-20 ~ 50°C
	Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
	Shock Operating	10 G peak acceleration (11 ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms, follow IEC 60068-2-64
<b>I/O Connectors</b>		PS_ON to shut down PC RS-232 for monitoring and setting IPS

### VESA Mount

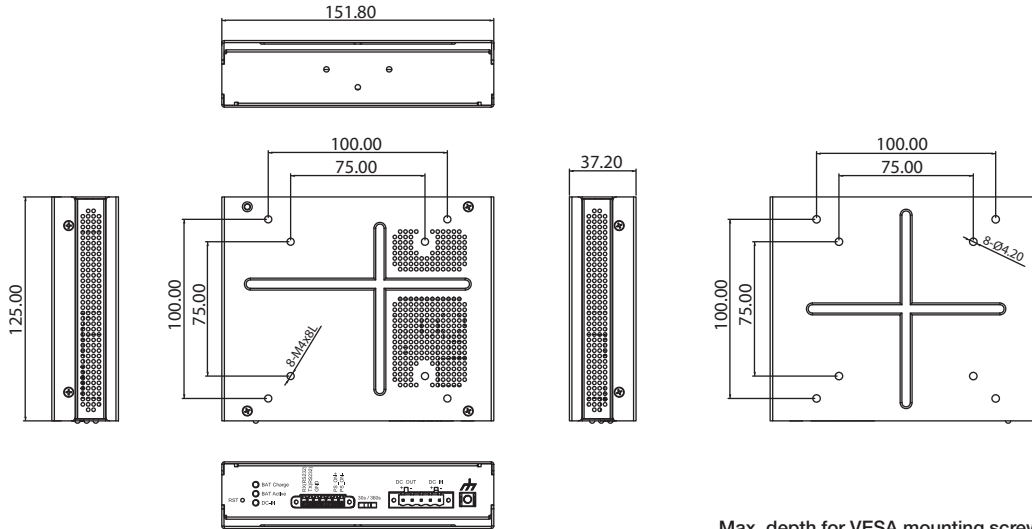


### Din-rail Mount



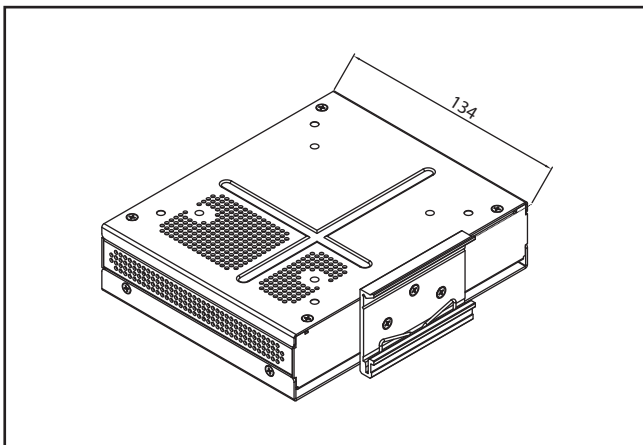
Dimensions

Unit: mm

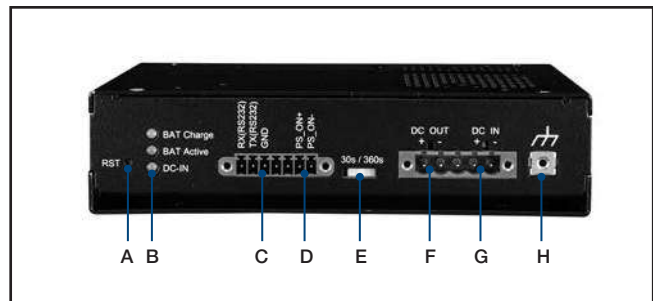


Max. depth for VESA mounting screws is M4\*8 (mm)

Din-rail Dimensions



I/O Appearance



- A. System reset
- B. Status indicators
- C. RS-232 (for connecting a PC)
- D. PS\_ON (to shutdown PC)
- E. Time switch (for setting auto shutdown)
- F. DC out (2 pins)
- G. DC input (2 pins)
- H. Grounding

Ordering Information

Part No.	Description
PPC-IPS-AE	12-30 V <sub>DC</sub> input/24 V <sub>DC</sub> output, Uninterruptible Power Supply Module
98R3612001E	PPC-IPS power cable 1 m
98R3612002E	PPC-IPS control cable 1 m
1760001866-01	PPC-IPS battery pack (spare part)

Note: The PPC-IPS-AE is equipped with a battery pack / 300 mm power cable / 300 mm control cable.

If a longer cable is needed, the customer can order the 1 meter 98R3612001E and 98R3612002E cables.

The PPC-IPS-AE only currently supports the PPC-3000 series, please contact Advantech first for operating with other PC systems.

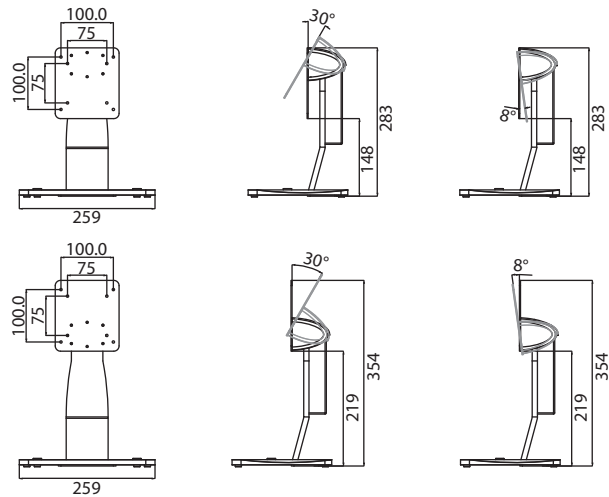
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# Installation Accessories

## PPC-STAND-A1E

Dimension

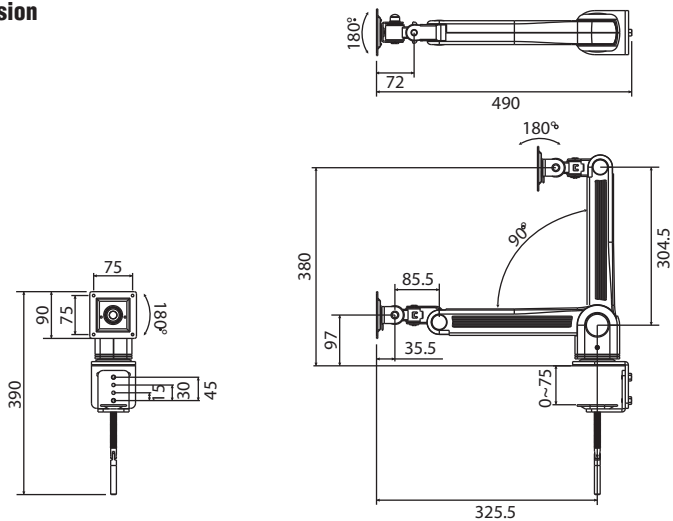
Unit:mm



## PPC-ARM-A03

Dimension

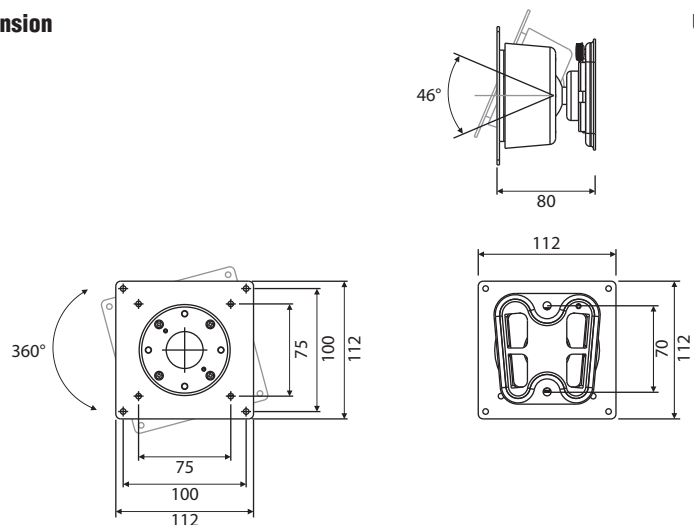
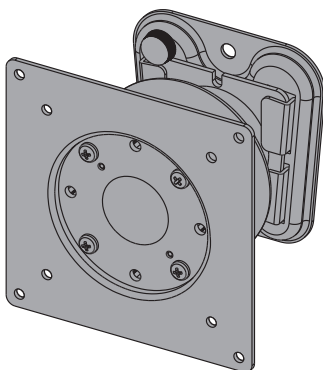
Unit:mm



## PPC-174T-WL-MTE

Dimension

Unit:mm



## Control IPCs

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<b>APAX-5580</b>	Intel® Core™ i7/i3/Celeron® Control IPC w/ 2 x GbE, 2 x mPCIe, VGA	<i>12-12</i>
<b>APAX-5580CDS</b>	High-performance SoftLogic PC-based controller, empowered by CODESYS	<i>12-14</i>
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<b>APAX-5430</b>	SATA HDD module	
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<b>APAX-5490</b>	4-port RS-232/422/485 Communication Module	
<b>APAX-5090</b>	4-port RS-232/422/485 Virtual COM with APAX Bus	<i>12-18</i>
<b>APAX-5342</b>	Power Converter for APAX-5580	
<b>APAX-5001/5002/5002L</b>	1/2/2-slot Backplane Modules	<i>12-19</i>
<b>APAX-5070</b>	Modbus/TCP Communication Coupler	
<b>APAX-5071</b>	PROFINET Communication Coupler	<i>12-20</i>
<b>APAX-5072</b>	EtherNet/IP Communication Coupler	
<b>APAX-5017H</b>	12-ch High Speed Analog Input Module	
<b>APAX-5028</b>	8-ch Analog Output Module	<i>12-21</i>
<b>APAX-5046</b>	24-ch Digital Output Module	
<b>APAX-5046SO</b>	20-ch Source Type DO Module	<i>12-22</i>
<b>APAX-5060</b>	12-ch Relay Output Module	
<b>APAX-5080</b>	4/8-ch High/Low Speed Counter Module	<i>12-23</i>
<b>APAX Controller Support Table</b>		<i>12-24</i>

To view all of Advantech's Control IPCs, please visit [www.advantech.com/products](http://www.advantech.com/products).



# Control IPC Overview

## Introduction

Advantech offers PAC solutions designed for industrial automation applications that combine the openness and flexibility of PCs with the reliability of traditional automation controllers, such as PLCs. Advantech's offerings include the APAX series, ADAM-5000 series, utilizing sophisticated thermal designs to ensure the system stability. APAX series support Windows CE, Windows 7/10 and Linux operating systems. Advantech's Control IPCs are ideal platforms to implement in diverse applications, such as power/energy, transportation, machine automation, factory automation, building automation, facility management system, environment monitoring, and more.

### Real-time Control IPC: APAX Series

APAX series are Ethernet-enabled controllers allowing users to deploy I/O modules in flexible expansion combinations, like direct stack or daisy-chain. The control performance and functionality are not only better than PLCs, but also better than most PC-based controllers. Features including versatile CPU modules, I/O modules designed as reliable as PLC I/Os, high density I/Os with LEDs, hot swap and stackable functionality are delivered. Both C/C++ and .NET library, and IEC 61131-3 languages are provided as programming tools.

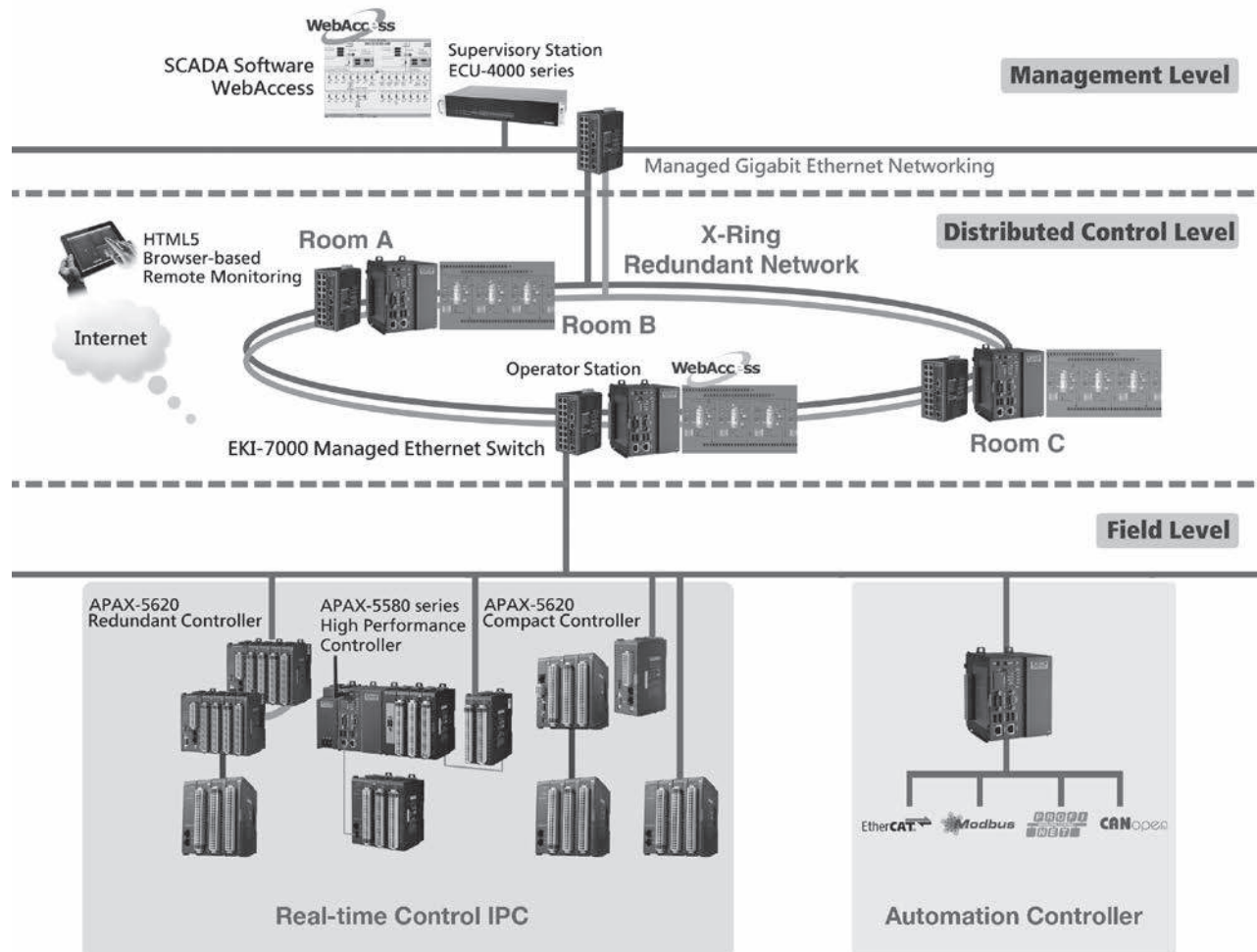
### Data Acquisition Control IPC: ADAM-5000 Series

ADAM-5000 series are modularized I/Os to be inserted on backplanes with fixed slot numbers. Leveraging Advantech's rich experience in industrial data acquisition applications, ADAM-5000 offers a compact control system. Inheriting the reliability and robustness of a PLC system, ADAM-5000 offers the openness and flexibility of a PC, including computing power, networking and storage capability. Both C/C++ and .NET libraries and IEC 61131-3 languages are provided as programming tools.

### Automation Controllers

Advantech's Embedded Automation Computers are designed to fulfill the needs of mission critical automation applications. Their embedded design, industrial automation features and advanced computer technology deliver robustness, reliability and flexibility to satisfy customers who are looking for a rugged and compact computing platform. They support various interfaces to integrate with other devices, such as Ethernet, RS-232/422/485, onboard I/O, extension PC card slots, CAN-bus and more. Through standard Ethernet networking, these computers can link to Advantech remote I/O solutions, such as APAX-5000 high density I/O (through APAX-5070 Modbus/TCP coupler module) or ADAM-6000 series compact modules, to get data and perform control tasks.

## Control System Architecture





# Control IPC Overview

## Real-time I/O Control Suitable for Multiple Domain Applications

Currently most PC-based controllers face one major challenge, especially Control IPCs systems, and that is real-time I/O control. Performance is severely hampered when I/O points increase because the access time also increases, which impacts control precision as well.

Food and beverage companies face shorter production runs on a wide range of products for different vendors, while automotive companies are dealing with changes in customer preference, aggressive competition and rising fuel costs. These industries require a mix of discrete, batch, process and motion control solutions. In the past, these applications forced engineers to use multiple controllers: a PLC for discrete control, a motion controller for multi-axis control, and a distributed control system or loop controller for process applications, which has proven time consuming and costly. Advantech Control IPCs feature the ability to handle all these tasks with a single control system.

The result is shortened development time through reusable programming tools, lower maintenance costs through reduced parts, better information sharing among applications, and fewer support personnel throughout the plant.

## Information Processing and Networking Capabilities

Advantech Control IPCs not only provide excellent real-time I/O control, but also another key benefit for automation applications, information processing. With the ability to perform field operations, data exchanges and valuable information collection, this series is able to execute efficient decision-making. Information processing includes data logging and analysis with storage devices like SD or CF cards, recipe management for batch control, and database exchanges through SQL and OPC. Furthermore, implementing HMI software enables local operation.

This improves control system networking tremendously, allowing the network to share a common protocol at the device level, control level, and information level. It provides the ability to move information from the device level to executives at the enterprise resource planning (ERP) level without new protocols or drivers.

Advantech Control IPCs feature a PC-based architecture, delivering significant networking benefits for manufacturers by USB, RS-232, RS-422/485 and Ethernet interfaces. Users can connect to field devices through serial or USB interface to satisfy any kind of application. The Ethernet interface allows users to effectively manage I/O control and information flow throughout the manufacturing and IT enterprise. Leveraging the high computing power of Advantech Control IPCs also allows networks to communicate seamlessly on the factory floor with other common sets of IT capabilities like video, data and telephones. Easy access to such information is critical to making decisions about the capacity of an enterprise.

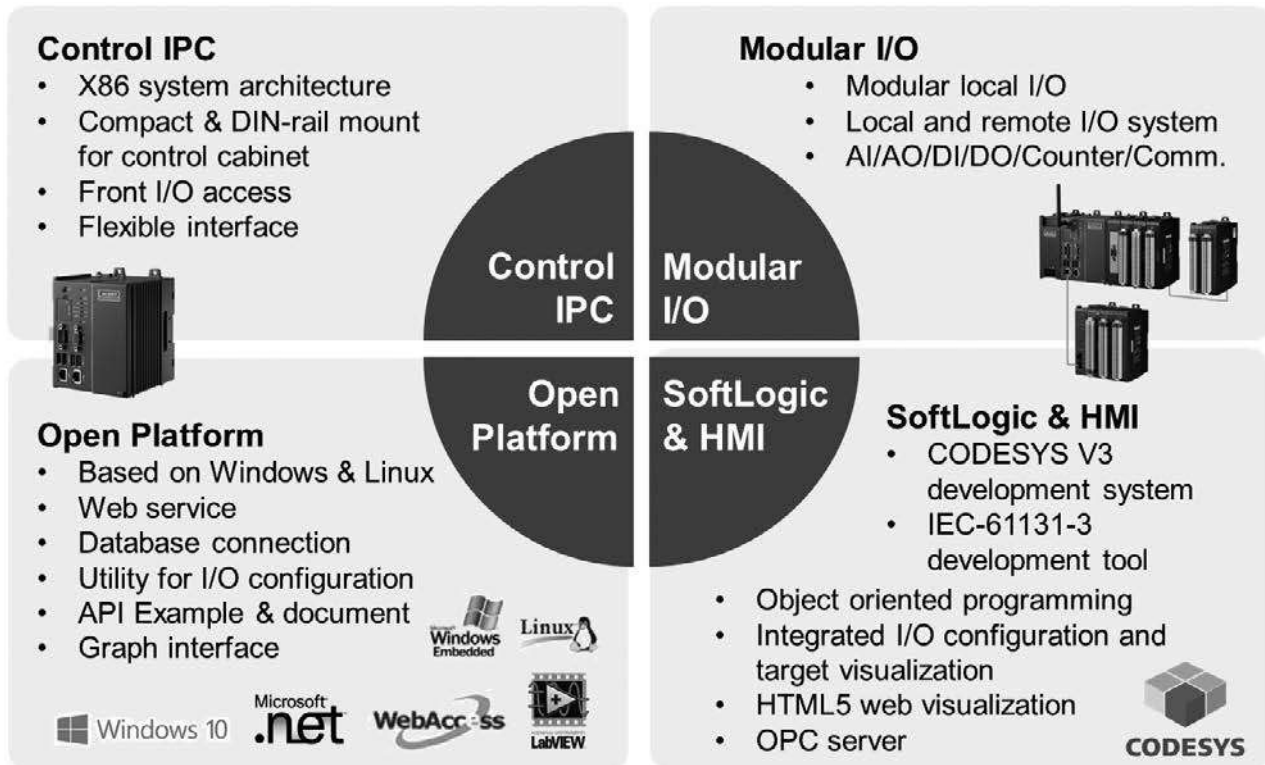
## Scalability

In the past, many PLCs required users to learn different programming software and specify networks depending on the size and complexity of the application. Advantech Control IPCs allow users to more closely match the controller to application needs without compromising functionality or learning a new control system. Such scalability reduces the headaches and high costs associated with system redesign, lack of program re-use, and re-training.

## Software

Advantech Control IPCs support software to satisfy both PC-based and PLC-based programmers. Leveraging IEC 61131-3 SoftLogic programming environment, PLC programmers can take PLC operations to the next level in many areas, such as communication, information processing, enterprise level database integration, and user interface development.

For PC-based programmers, Advantech offers an open platform solution, with C/C++ and .NET libraries for I/O control and communication functionality. They can satisfy programmers familiar with high level programming languages like Microsoft Visual Studio .NET. In addition, several convenient utilities are offered to save development time.

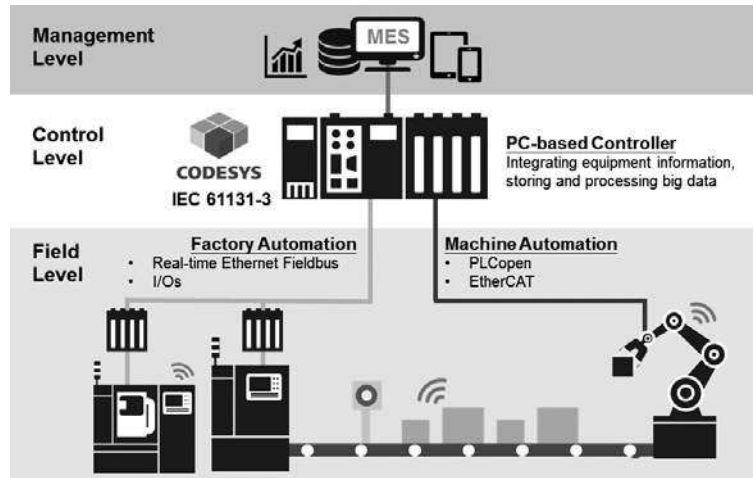


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# SoftLogic Control Software

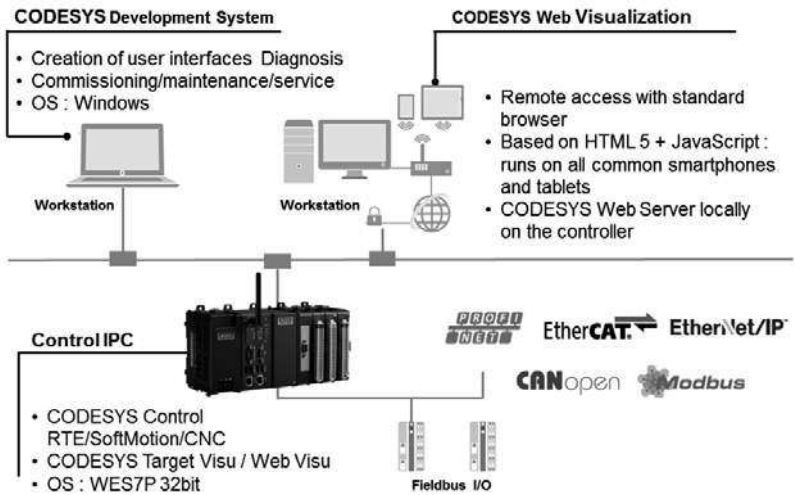
## Advantech CODESYS Introduction

For traditional PLC controllers, the development environment will vary depending on the PLC supplier and they are not compatible with each other. Our control IPC adopts the international standard IEC 61131-3 based on PLCopen, established to standardize multiple languages, sets of instructions and different concepts existing in the field of automation systems. Therefore, these programming languages which comply with the IEC 61131-3 standard, usually called SoftLogic software, enable users to leverage PLC-world typical programming interfaces. But they can also benefit from a portability of all platforms and shorten the learning curve from that of the traditional PLC.



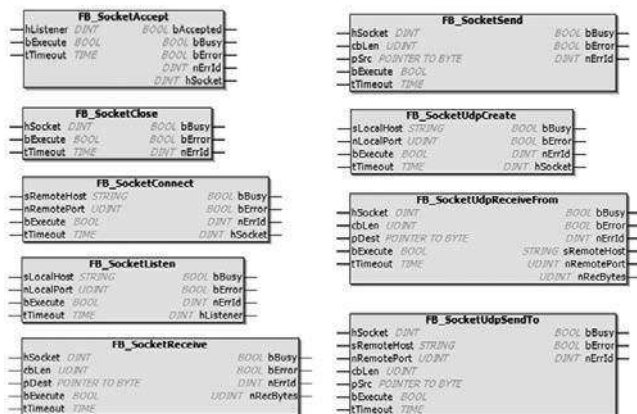
## Advantech CODESYS Architecture

Advantech supports all kinds of CODESYS runtime, including RTE, SoftMotion and CNC which based on Windows embedded 7 operation system. Its runtime doesn't only support SoftLogic control, but also visualization, which includes Target(Local HMI) and Web(Browser-based). CODESYS help to make Advantech control IPC has real-time logic control and HMI within one control platform.



## Advantech Function Blocks

For communication with higher-level systems and the IT world, Advantech CODESYS provides our own function block to help customer has the way to connect to other Ethernet based devices with specific protocol or database, likes SQL server. we will continue implement more and more based on PLCopen to fulfill IIoT application.



# PC-based Programming Software

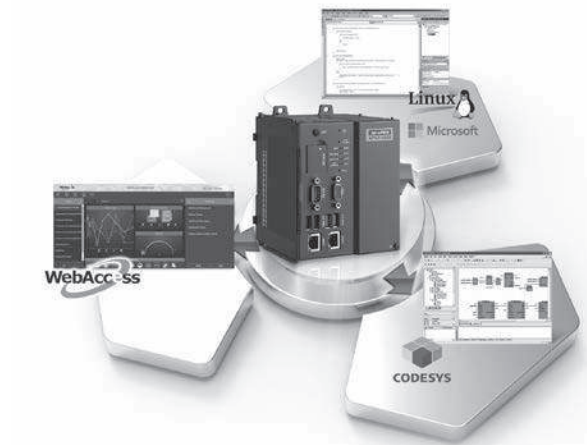
## PC-based Programming Software

Advantech Control IPCs offer the seamless software integration for automation applications. Regarded as SoftPLC, Advantech Control IPCs not only leverage PLCopen, IEC 61131-3 software including LD/FBD/IL/ST and SFC, but also empower many application-oriented & practice-oriented function blocks to different domain fields, such as batch control for food/beverage, auto-tuning PID for temperature control in EFMS, PLCopen-compliant motion control blocks for a variety of trajectory control and positioning purposes in machine automation. Multi-tasking, runtime error reports and operating mode changes are also possible for Control IPCs applications.

For PC-based users, Advantech also offers the .NET function library. System integrators can benefit from flexibility to integrate I/O control, motion control, industrial communication protocols and data process/exchange, database access, HMI interface and SCADA. Plenty of C/C++ and .NET examples save programmer learning time, helping save programmers' development effort and shorten time to market.

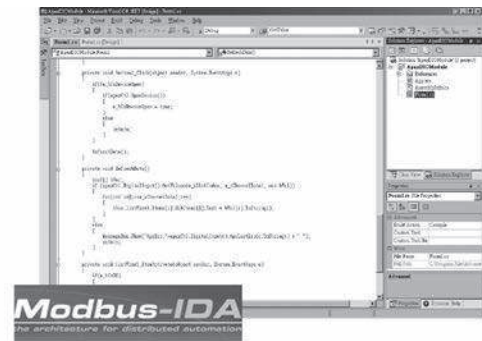
## .NET and C/C++ Library

Advantech's Control IPCs series solution offers a complete PC-based platform with Application Programming Interface (API). With C/C++ libraries and .NET class libraries provided by Advantech, PC-based programmers can develop their own programs for industrial control and automation tasks, involving I/O control, system backup function, communication, SQL and scheduling, even integrated with HMI/SCADA interface.



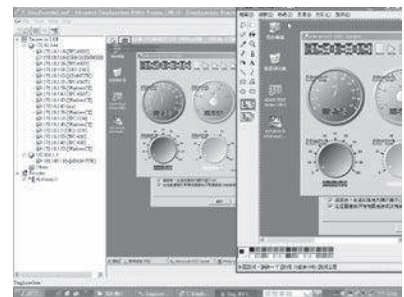
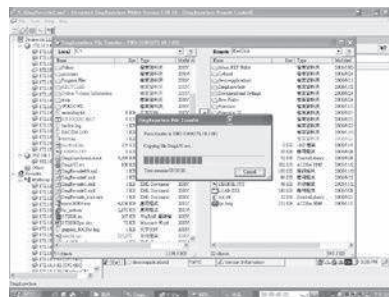
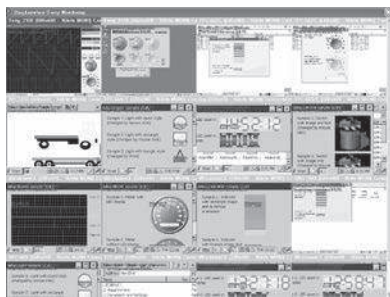
## Modbus Server

Advantech's PAC series offers Modbus/RTU and Modbus/TCP for data exchange purposes. Advantech offers a series of APIs, including Modbus server/client configuration, easy data access function and callback function for multithread event handling. Plenty of samples programs can help you to easily set up the Modbus communication. Besides, APAX-5580 series and APAX-5620 controller has built-in Modbus server, so any Modbus client (such as HMI) can access to APAX I/O without writing programming.



## DiagAnywhere – Remote Maintenance Software

DiagAnywhere, an abbreviation of "Diagnostic Anywhere", is a networking solution for remotely monitoring and controlling APAX controllers through Windows-based operating systems. It includes the utility on the client side and the server on APAX controllers. Any computer installed with the utility can connect to APAX controllers, seeing what's happens on the controller and performing remote control. It is very convenient that the engineer doesn't need use a screen to operate the controller in the field, and allows them to maintain the system on the remote site. One DiagAnywhere client can monitor and control up to 16 target controllers simultaneously. This useful software tool also supports remote screen snapshots, remote screen recording, file upload and download between utility (on the client computer) and server (APAX controller), favorite devices grouping to manage system more easily, and authentication functionality. All these features help users save maintenance cost and effort.



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# APAX System Architecture

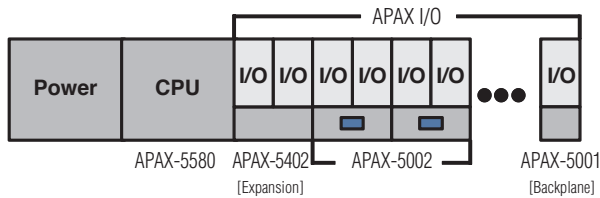
## Introduction

Advantech's Control IPC is a powerful control platform for IoT and other industrial automation applications. Its computing power and different types of standard high speed communication interface make big data processing and decentralized architecture possible. Users can easily add their own vertical application software with the Control IPC and implement the system in automation field sites. To simplify the system configuration, APAX-5000 series provides an easy and flexible way to setup different functions and configurations. There are multiple APAX series system combinations that can be selected to develop reliable control systems as detailed below.

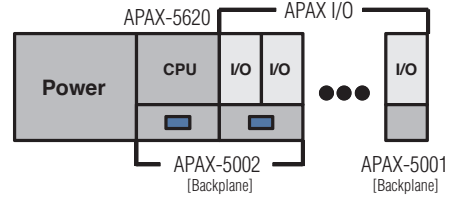
## Application Ready High Performance Control IPCs

Advantech's APAX-5580 series and APAX-5620 control IPCs benefit from the high throughput, openness, flexibility and connectivity brought by PC-based architectures. Contributed by excellent heat dissipation technology with no hard disks, they deliver great system reliability. Various peripheral interfaces such as LAN, USB, DVI, audio, RS-232, RS-422/485, etc., are provided. These high performance Control IPCs are suitable for many complex control applications. Besides, its powerful integration ability makes it an ideal platform to integrate video, audio, HMI/SCADA software, database, data processing into one single solution.

**APAX-5580 Architecture**

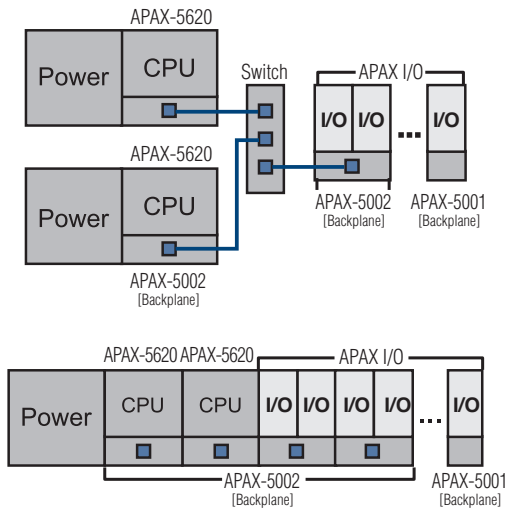


**APAX-5620 Architecture**



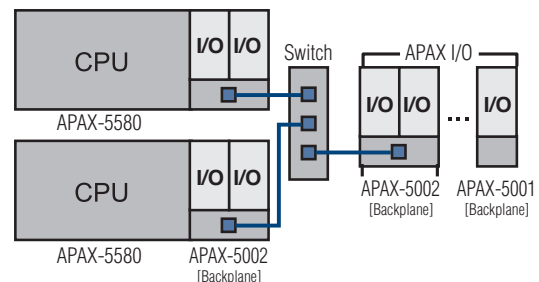
## Redundant System

With the data synchronization, the secondary controller can take over the control tasks at the same position which primary fails within a very short time. Depending on customers request, the power supply can be separated to increase the availability.



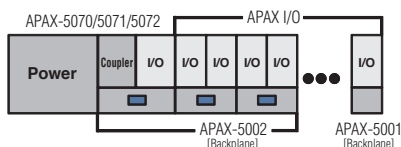
## Reliable Backup System

APAX-5000 series delivers system backup functionality to significantly decrease the risk that the system will fail when the controller crashes. To leverage this, two controllers with the same control program are installed in one system. After both controllers' backup functions are enabled, APAX-5000 will automatically delegate one controller as the master controller. The master controller will run the control program to execute the control process, while another controller (the backup controller) is put on standby. The master controller periodically sends live messages to the backup controller. If the backup controller does not receive a message from the master controller, it will automatically become the master controller and restart the control process. If the master controller is switched, it means there was an error happening on the previous master controller. Therefore, engineers can repair or change the previous master controller and re-enable it as the backup controller. Then if the new master controller fails, the new backup controller will automatically take over the control once again. This mechanism ensures the control system will continuously run the control process.



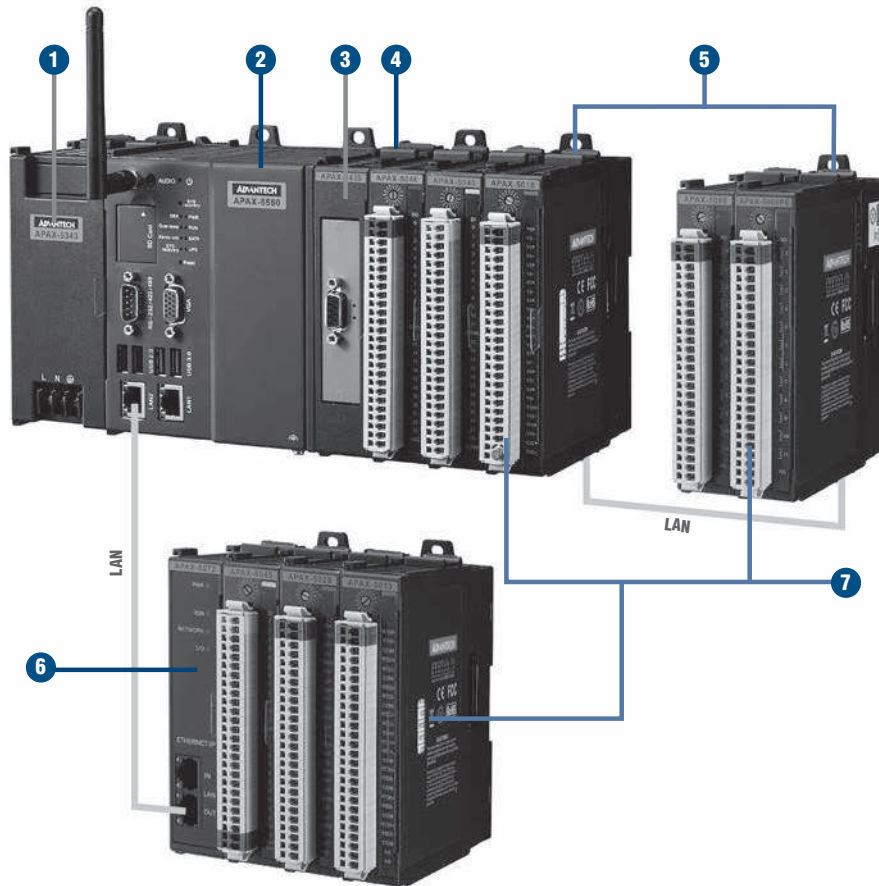
## Remote I/O Scalable System

For different fieldbus or real-time Ethernet networks, such as Modbus/TCP, Ethernet/IP, PROFINET, etc., APAX series offers different kinds of couplers for communication. Controllers, HMI, and computers in the same network can access APAX I/O modules through the coupler. Not having to change I/O modules for different fieldbus or real-time Ethernet networks helps ensuring current I/O modules' investment for future demands. These couplers feature daisy-chain design, making installation easier.





## APAX-5000 System



1



### Power Supply Modules

- APAX-5342 Power Converter for APAX-5580

2



### Control Platform

- APAX-5580 Intel® Core™ i7/i3/Celeron Control IPC w/ 2 x GbE, 2 x mPCIe, VGA
- APAX-5580CDS High performance SoftLogic PC-based controller, empowered by CODESYS
- APAX-5620 PAC with Marvel XScale CPU, CAN, KW

3



### PCI Express Interface Communication Modules

- APAX-5435 mPCIe module to support iDoor fieldbus interface Module
- APAX-5490 4-port RS-232/422/485 Communication Module
- APAX-5430 SATA HDD module

4



### Expansion Backplane

- APAX-5402 Expansion backplane Only for APAX-5580 and PCIe Module

5



### I/O Backplane

- APAX-5001 1-slot Backplane Module
- APAX-5002 2-slot Backplane Modules
- APAX-5002L 2-slot Backplane Modules

6



### Communication & Coupler Modules

- APAX-5070 Modbus/TCP Communication Coupler
- APAX-5071 PROFINET Communication Coupler
- APAX-5072 EtherNet/IP Communication Coupler
- APAX-5090 4-port RS-232/422/485 Virtual COM with APAX Bus

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### Analog I/O Modules

- APAX-5013 8-ch RTD Module
- APAX-5017 12-ch Analog Input Module
- APAX-5017H 12-ch High Speed Analog Input Module
- APAX-5018 12-ch Thermocouple Input Module
- APAX-5028 8-ch Analog Output Module

### Digital I/O Modules

- APAX-5040 24-ch Digital Input Module
- APAX-5045 24-ch Digital Input/Output Module
- APAX-5046 24-ch Digital Output Module
- APAX-5046SO 20-ch Source Type DO Module
- APAX-5060 12-ch Relay Output Module
- APAX-5080 4/8-ch High/Low Speed Counter Module

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Intelligent Motion Control and Machine Vision

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Power & Energy Automation

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iNetworking



# APAX Series Selection Guide

## APAX Control Platform

**NEW**



Model		APAX-5580			APAX-5620
Description		APAX-5580 controller with Intel® Celeron® CPU	APAX-5580 controller with Intel® Core™ i3 CPU	APAX-5580 controller with Intel® Core™ i7 CPU	APAX-5620 controller
System Hardware	CPU	Intel® Celeron® 2980U ULT 1.6GHz Haswell Dual Core, 2MB L2	Intel® Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3MB L2	Intel® Core™ i7-4650U ULT 1.7GHz Haswell Dual Core, 4MB L2	Marvel XScale PXA270 520 MHz
	Memory	On-board 4GB (8GB optional)			-
	Storage	1 x mSATA, 1 x SD, 1 x SD (for OS backup)			1 x Type II CompactFlash card slot
	USB Ports	4 x USB ports (2 x USB 2.0, 2 x USB 3.0 compliant), 1 x internal USB			1 x USB 1.1
	VGA	1 x VGA, supports 1920 X 1080 @ 60 Hz 24 bpp			DB15 connector
	Audio	Line-out			-
General	Dimensions (W x H x D)	128 x 106 x 110 mm			60 x 139 x 100 mm
	Power Consumption	28 W (typical), 72 W (Max) @ 24 V <sub>DC</sub> ± 20%			5 W @ 24 V <sub>DC</sub> (typical)
	Status Display	LEDs for power, battery, LAN (Active, Status), Tx/Rx and HDD			-
Software	Control Software	C/C++ library and .NET class library for C and .NET programming environment, CODESYS IEC 61131-3 SoftLogic control software			C/C++ and .NET library KW Multiprog (development tool), KW ProConOS (runtime kernel)
	OS Support	Microsoft® Windows 7/8, Linux Kernel 3.X			Windows CE
Environment	Shock Protection	Operating, IEC 60068-2-27, 50G, half sine, 11ms			-
	Vibration Protection	Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)			-
Communications (Ethernet)	LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet			2 x RJ-45 port, 10/100 Mbps
Communications (Serial)	COM Ports	1 x RS-232/422/485, DB9, 50 ~ 115.2kbps			2 x Isolated RS-485 (2-wire, isolated)
Page		12-12			12-16

## APAX Analog I/O Module



Model		APAX-5013	APAX-5017	APAX-5017H	APAX-5018	APAX-5028
Description		8-ch RTD module	12-ch AI module	12-ch high speed AI module	12-ch thermocouple module	8-ch AO module
General	Dimensions (W x H x D)	30 x 139 x 100 mm				
	Power Consumption	2.5 W @ 24 V <sub>DC</sub> (typical)	4 W @ 24 V <sub>DC</sub> (typical)	3.5 W @ 24 V <sub>DC</sub> (typical)	3.5 W @ 24 V <sub>DC</sub> (typical)	3.5 W @ 24 V <sub>DC</sub> (typical)
Analog Input	Channels	8 (differential)	12 (differential)	12 (differential)	12 (differential)	-
	Input Type*	RTD (2-wire or 3-wire)	V, mV, mA	V, mV, mA	V, mV, mA, Thermocouple	-
	Sampling Rates	10 sample/second (total)**	12 sample/second (total)**	1,000 sample/second (per channel)	12 sample/second (total)**	-
	Resolution	16-bit with accuracy ±0.1% of Full Scale Range	16-bit with accuracy ±0.1% or better of Full Scale Range (Voltage), ±0.2% or better of Full Scale Range (current)	12-bit with accuracy ±0.1% or better of Full Scale Range (Voltage), ±0.2% or better of Full Scale Range (current)	16-bit with accuracy ±0.1% or better of Full Scale Range (Voltage), ±0.2% or better of Full Scale Range (current)	-
	Input Impedance	> 10 MΩ	> 10 MΩ (voltage), 120 Ω (current)	2 MΩ (voltage), 120 Ω (current)	> 1 MΩ (voltage), 120 Ω (current)	-
	Wire Burn-out Det.	Yes	Yes (4 ~ 20 mA only)	Yes (4 ~ 20 mA only)	Yes (4 ~ 20 mA and Thermocouple)	-
Analog Output	Resolution	-	-	-	-	14-bit with accuracy ±0.1% or better of Full Scale Range
	Channels	-	-	-	-	8
	Output Type*	-	-	-	-	V, mA
	Slew Rate	-	-	-	-	0.7 VDC/μs (per channel)
Environment	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 70°C				
	Relative Humidity	5 ~ 95% (non-condensing)				
Page		online	online	12-21	online	12-21

\*Each channel can be configured with different type and range

\*\* Sampling rate value depends on used channel number.

Example: Using 6 channels on APAX-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

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# APAX Series Selection Guide

## APAX Digital I/O Module



Model		APAX-5040	APAX-5045	APAX-5046/ APAX-5046SO	APAX-5060	APAX-5080
Description		24-ch DI module	24-ch DI/O module	24-ch/20-ch DO module	12-ch relay module	4/8-ch counter module
General	Dimensions (W x H x D)	30 x 139 x 100 mm				
	Power Consumption	2 W @ 24 V <sub>DC</sub> (typical)	2.5 W @ 24 V <sub>DC</sub> (typical)	2.5 W @ 24 V <sub>DC</sub> (typical)	2 W @ 24 V <sub>DC</sub> (typical)	2.5 W @ 24 V <sub>DC</sub> (typical)
	Status Display	LED per channel On: Logic level 1 Off: Logic level 0				
Digital Input	Channels	24	12	-	-	4 (Sink)
	Input Voltage	Rated Value: 24 V <sub>DC</sub> , For "0" signal: -5 ~ 5 V <sub>DC</sub> , For "1" signal: 15 ~ 30 V <sub>DC</sub> and -15 ~ 30 V <sub>DC</sub>	Rated Value: 24 V <sub>DC</sub> , For "0" signal: -5 ~ 5 V <sub>DC</sub> , For "1" signal: 15 ~ 30 V <sub>DC</sub> and -15 ~ 30 V <sub>DC</sub>	-	-	For "0" signal: 0 ~ 3 V <sub>DC</sub> , For "1" signal: 10 ~ 30 V <sub>DC</sub>
	Type	Sink or Source Load	Sink or Source Load	-	-	-
Digital Output	Channels	-	12 (Sink)	24 (Sink)	-	4 (Sink)
	Voltage Range	-	8 ~ 35 V <sub>DC</sub>	8 ~ 35 V <sub>DC</sub>	-	8 ~ 35 V <sub>DC</sub>
	Rated Current Output	-	0.5 A (per channel, at signal "1")	0.5 A (per channel, at signal "1")	-	0.5 A (per channel)
Relay Output	Channels	-	-	-	12	-
Counter/ Frequency Input	Channels and Mode	-	-	-	-	8 (up and frequency mode), 4 (Pulse/Direction, Up/Down, A/B phase mode)
	Counting Range	-	-	-	-	32-bit + 1-bit overflow
	Minimum Pulse Width	-	-	-	-	1 μs for High Freq. mode and other modes
	Counter Frequency	-	-	-	-	0.1 Hz ~ 10 Hz for Low Freq. mode and Wave Width mode, 10 Hz ~ 1M Hz for High Freq. mode and other modes
	Input Voltage	-	-	-	-	For "0" signal: 0 ~ 3 V <sub>DC</sub> , for "1" signal: 10 ~ 30 V <sub>DC</sub>
Environment	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 70°C				
	Relative Humidity	5 ~ 95% (non-condensing)				
Page		online	online	12-22	12-23	12-23

## APAX Coupler Modules



Model		APAX-5070	APAX-5071	APAX-5072
Description		Modbus/TCP communication coupler	PROFINET communication coupler	EtherNET/IP communication coupler
General	Dimensions (W x H x D)	30 x 139 x 100 mm		
	Power Consumption	2 W @ 5 V <sub>DC</sub> (typical)		
	Connectors	2 x RJ-45 (2-channel switch, share same IP address)		
Communications	Protocols	Modbus/TCP	PROFINET RT	Ethernet/IP
	Data Transfer Rates	10/100 Mbps		
	Connected I/O Modules	32 (max.)*		
	Digital Signals	768 (max.)		
	Analog Signals	192 (max.)		
Environment	Operating Temperature	-10 ~ 60° C (mounted vertically)		
	Storage Temperature	-40 ~ 85° C		
	Relative Humidity	5 ~ 95% (non-condensing)		
Page		12-20	12-20	12-20

\*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

## APAX Communication Module



Model		APAX-5435	APAX-5490	APAX-5090	APAX-5430
Description		mPCIe module for iDoor Technology expansion	RS-232/422/485 Module	4-port RS-232/422/485 Virtual COM	SATA HDD module
General	Dimensions (W x H x D)	30 x 139 x 100 mm			
	Power Consumption	2.5 W @ 24 V <sub>DC</sub> (typical)	2 W @ 5 V <sub>DC</sub> (typical)	2 W @ 24 V <sub>DC</sub> (typical)	2.5 W @ 5 V <sub>DC</sub> (typical)
	Connectors	1 x 26-pin clamp-type terminal			
	Interface	mini PCI express 2.0 (Support iDoor), mSATA	RS-232/422/485	COM 1, COM 2: RS-232/422/485* COM 3, COM 4: RS-232/422/485* * Change Mode with the switch	SATA
Environment	Operating Temperature	-10 ~ 60°C (mounted vertically)			
	Storage Temperature	-40 ~ 70°C			
	Relative Humidity	5 ~ 95% (non-condensing)			
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# APAX-5580

Intel® Core™ i7/i3/Celeron® Control IPC  
w/ 2 x GbE, 2 x mPCIe, VGA

NEW



## Features

- 4th generation Intel® Core™ i7/i3/Celeron processors up to 1.7 GHz with 4GB/8GB DDR3L memory
- 2 x GbE, 4 x USB 2.0/3.0, 1 x RS-232 /422/485, 1 x VGA, Audio
- Dual power input and UPS support
- Compact with fanless design
- Supports Fieldbus protocol by iDoor technology
- 3G/GPS/GPRS/Wi-Fi communication by mPCIe
- Chassis grounding protection
- LAN redundancy (teaming)
- Fault-protected RS-485 transceivers with extended common-mode range
- One button system recovery
- 10 year lifetime RTC battery

## Introduction

Advantech's APAX-5580 is a powerful Control IPC with an Intel Core i7/i3/Celeron CPU. It is the ideal open control platform to be combined with APAX I/O modules, and features flexible I/O expansion, real-time I/O control, network capability through various interfaces, and support dual power input for robust power system. It also has a built-in standard mini PCI express interface for wireless communication and Advantech's iDoor technology. The APAX-5580 is the best solution for data gateway, concentrator and data server applications, its seamless integration with I/O can save costs and fulfill a diverse range of automation projects.

## Specifications

### General

- Certification** CE, FCC, UL
- Dimensions (W X H X D)** 117 x 148.5 x 106 mm
- Form Factor** Regular size
- Enclosure** Aluminum housing
- Mounting** DIN-rail, Wall mount
- Weight (Net)** 1.8 kg (4.0 lbs)
- Power Requirement** 24 V<sub>DC</sub> ± 20%
- Power Consumption** 28 W (Typical), 72 W (Max)
- OS Support** Microsoft® Windows 7/8, Linux Kernel 3.X

### System Hardware

- BIOS** AMI UEFI 128Mbit Flash BIOS
- Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- Processor** Intel® Core™ i7-4650U ULT 1.7GHz Haswell Dual Core, 4MB L2  
Intel® Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3MB L2  
Intel® Celeron 2980U ULT 1.6GHz Haswell Dual Core, 2MB L2
- System Chip** Integrated Intel 8 series chipset
- Memory** On-board 4GB (8GB optional)
- Graphics Engine** Intel® HD graphics 5000/4400
- Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az  
Intel® i218-LM GbE, Intel® AMT, IEEE1588/802.1AS, 802.3az
- LED Indicators** LEDs for power, battery, LAN (Active, Status), Tx/Rx and HDD
- Storage** 1 x mSATA, 1 x SD, 1 x SD (for OS backup)
- Expansion** 1 x Full-size mPCIe slot, 1 x Half-size mPCIe slot, mPCIe 2.0



### I/O Interfaces

- Serial Ports** 1 x RS-232/422/485, DB9, 50 ~ 115.2kbps
- LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- USB Ports** 4 x USB ports (2 x USB 2.0, 2 x USB 3.0 compliant )  
1 x internal USB
- Display** 1 x VGA, supports 1920 X 1080 @ 60 Hz 24 bpp
- Audio** Line-out
- Power Connector** Dual power input and UPS support
- Grounding Protection** Chassis grounding

### Environment

- Operating Temperature** -10 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11 ms
- Vibration Protection** Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (mSATA)

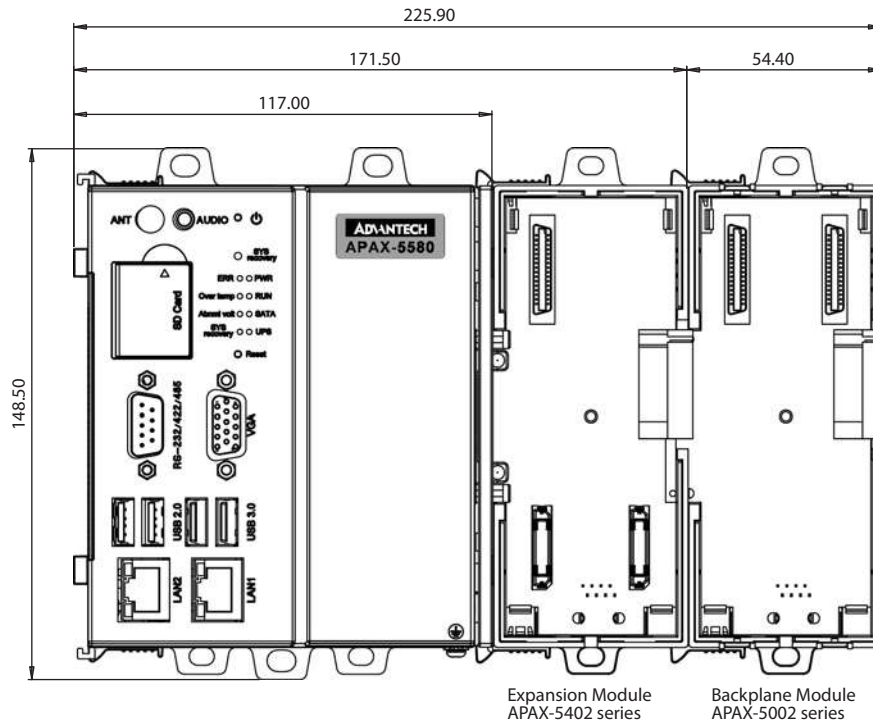
## Application Software

	<p>Version : V3 CODESYS is the world lead PC-based control software which support IEC 61131-3 and real-time fieldbus, such as EtherCAT, PROFINET, Ethernet/IP and Modbus. Also it integrates the local and remote visualization function within one software, it can help to short the time and cost.</p>
	<p>Version : V7.1 or above WebAccess, as the core of Advantech's IoT solution, is full web browser-based software package for HMI and SCADA software. All HMI and SCADA software features including: Animated Graphics Displays, Real-time Data, Control, Trends, Alarms and Logs, are available in a standard web browser. WebAccess is built around the latest internet technologies. With its open architecture, vertical domain applications can easily be integrated.</p>



## Dimensions

Unit: mm



## Ordering Information

- **APAX-5580-4C3AE** Intel Celeron 1.6 GHz with 4 GB memory, no external expansion slot
- **APAX-5580-433AE** Intel Core i3 1.7 GHz with 4 GB memory, no external expansion slot
- **APAX-5580-474AE** Intel Core i7 1.7 GHz with 8 GB memory, no external expansion slot

## Accessories

- **PWR-244-AE** 96W AC to DC power adapter
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8
- **SQF-SMSM4-XG-S8E** SQFlash 820 series mSATA MLC 16/32/64/128G (-40 ~ 85°C)

## iDoor Modules for APAX-5435

- **PCM-24R2PE-AE** Intel i350, GbE, PoE IEEE 802.3af, PD, RJ45 x 2
- **PCM-2300MR-AE** MR4A16B, 2MByte
- **PCM-26D1PB-AE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-26D2CA-AE** SJA1000 CANBus, CANopen, DB9 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462
- **PCM-24S33G-AE** 6-band HSPA Cellular Module, SIM holder+GPS
- **PCM-26R2PN-MAE** Hilscher netX100 FieldBus, PROFINET, RJ45 x2
- **PCM-26R2EC-MAE** Hilscher netX100 FieldBus, ETHERCAT, RJ45 x2

## Expansion Modules

- **APAX-5402-E2A0AE** 2 expansion slots to support APAX-5490, APAX-5435, APAX-5430
- **APAX-5402-E2A1AE** 2 expansion slots with APAX bus
- **APAX-5490-IP4AE** 4x RS-232/422/485 communication module
- **APAX-5435** APAX iDoor expansion module
- **APAX-5430** APAX SATA interface module

## Embedded OS & Automation Software

- **2070013551** WES7P X64 Eng. for 5580
- **2070013554** WES7P X64 MUI. for 5580
- **2070013654** WES7P X86 Eng. for 5580
- **2070013656** WES7P X86 MUI. for 5580
- **968LS3SS02** CODESYS V3 RTE
- **968LS3SS03** CODESYS V3 RTE + TV\*
- **968LS3SS05** CODESYS V3 RTE + TV\* and WV\*\*

\*TV: Target Visualization

\*\*WV: Web Visualization

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- 8 Industrial IoT Gateways
- 9 Industrial monitors
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# APAX-5580CDS

High-performance SoftLogic PC-based controller, empowered by CODESYS

NEW



## Features

- Preinstalled CODESYS V3 Control RTE based on WES7
- Supports PLCopen IEC 61131-3 standard programming languages
- Full integration with all Advantech remote I/O module systems
- Two alternative display options through local VGA and web browser
- Supports real-time fieldbus protocol through onboard LAN port and iDoor technology: PROFINET, Ethernet/IP, EtherCAT, CANopen and Modbus

### APAX-5580 Control IPC

- Optimized system BIOS setting for real-time control
- DIN-rail fanless compact design
- Dual power input and relay indicator
- One button system recovery
- 10 year lifetime RTC battery
- Supports 2MB MRAM

## Introduction

Advantech's APAX-5580CDS series is a high performance control IPC with Core™i/Celeron® multi-core processor, Microsoft Windows embedded 7 Pro and CODESYS Control Runtime & Visualization. This PC-based control system allows users to develop their solutions by PLCopen IEC-61131-3 standard programming languages and flexible fieldbus options such as PROFINET, Ethernet/IP, EtherCAT, CANopen, and Modbus and provides local VGA and browser-based (HTML5) visualization to do on-site operation and remote diagnosis via your smart device. The APAX-5580 with CODESYS combines hardware and software flexibility and stability, to fulfill the needs of different control application.

## CODESYS Real-time SoftLogic Control Software

- **Development Tool** CODESYS V3
- **Language** PLCopen object-oriented IEC 61131-3 (FBD, LD, IL, ST, SFC)
- **Runtime** Control RTE  
Control RTE with Softmotion under Windows embedded 7 Pro 32bit
- **Visualization** Target visualization (local HMI)  
Web visualization (HTML5)
- **OPC Server** OPC DA
- **Protocol** EtherCAT MASTER  
PROFINET MASTER  
Ethernet/IP MASTER  
CANopen, MASTER  
Modbus/RTU  
Modbus/TCP

## APAX-5580 Open Control Platform

### General

- **Certification** CE, FCC, BSMI, UL
- **Dimensions(W x H x D)** 117 x 148.5 x 106 mm
- **Mounting** DIN-Rail, Wall mount
- **Power Requirement** 24V<sub>DC</sub> ± 20%
- **Power Consumption** 28W (Typical), 72W (Max)
- **OS** Windows Embedded 7 Pro 32bit

### System

- **Processor** Intel Core i7-4650U 1.7GHz, 4MB L2  
Intel Core i3-4010U 1.7GHz, 3MB L2  
Intel Celeron 2980U 1.6GHz, 2MB L2
- **Memory** On-board 4GB (i7 with 8GB)
- **Ethernet** Intel i210-IT GbE, 802.1 Qav, IEEE1588/802.1AS, 802.3az  
Intel i218-LM GbE, Intel AMT, IEEE1588/802.1AS, 802.3az
- **Storage** 1 x mSATA, 1 x SD

### I/O Interfaces

- **Serial Ports** 1 x RS-232/422/485, DB9, 50 ~ 115.2kbps
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T
- **USB Ports** 4 x USB Ports (2x USB2.0, 2x USB3.0 compliant)  
1 x internal USB
- **Display** 1 x VGA, support 1920 X 1080 @ 60 Hz 24bpp

## Ordering Information

- **CDS-APAX5580-R023A** APAX-5580-433AE with CODESYS RTE, no HMI
- **CDS-APAX5580-R320A** APAX-5580-433AE with CODESYS RTE, TV\* and WV\*\*
- **CDS-APAX5580-M120A** APAX-5580-433AE with CODESYS Softmotion w/ TV\*

\* TV = Target Visualization

\*\* WV = Web Visualization

**Note:** Other configurations available on request

## Accessories

- **PWR-244-AE** 96W AC to DC power adapter
- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1700000596** Power Cable China/Australia Plug 1.8

## iDoor Modules for APAX-5435

- **PCM-24R2PE-AE** Intel i350, GbE, PoE IEEE 802.3af, PD, RJ45 x 2
- **PCM-2300MR-AE** MR4A16B, 2MByte
- **PCM-26D1PB-AE** Hilscher netX100 FieldBus, ProfiBus, DB9 x 1
- **PCM-26D2CA-AE** SJA1000 CANBus, CANopen, DB9 x 1
- **PCM-24S2WF-AE** 802.11 a/b/g/n 2T2R w/ BT4.0, Atheros AR9462
- **PCM-24S33G-AE** 6-band HSPA Cellular Module, SIM holder+GPS
- **PCM-26R2PN-MAE** Hilscher netX100 FieldBus, PROFINET, RJ45 x2
- **PCM-26R2EC-MAE** Hilscher netX100 FieldBus, ETHERCAT, RJ45 x2

## Expansion Modules

- **APAX-5402-E2A1AE** 2 expansion slots with APAX bus
- **APAX-5490-IP4AE** 4x RS-232/422/485 Communication Module
- **APAX-5435** APAX iDoor expansion Module
- **APAX-5430** APAX SATA interface Module

1

WebAccess\* Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

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Thin-Client Terminals

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High-Performance Control Panels

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Control Cabinet PCs

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Industrial IoT Gateways

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Industrial monitors

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iDoor Technology Modules

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Panel PCs

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Control IPCs

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Remote DA&C Systems

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Wireless IoT Sensing Devices

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RS-485 I/O Modules

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Networking

# APAX-5620

PAC with Marvel XScale® CPU and CAN



## Features

- Onboard Intel XScale® PXA270 520 MHz processor
- 64 MB SDRAM on board, 32 MB Flash
- Expands I/O by connecting with APAX-5000 I/O modules
- 2 x 10/100 Mbps RJ-45 LAN ports and 2 x Isolated RS-485 ports
- 2 x Isolated CAN bus interfaces to support CANopen stack
- 1 x VGA port for display and 1 x USB port
- 1 x CompactFlash slot for data storage
- Windows CE, C/C++, .NET ready platform

## Specifications

### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 60 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 310 g
- **Power Consumption** 5 W @ 24 V<sub>DC</sub> (typical)
- **Redundancy** 25ms data sync, 20ms changeover time and 14kbytes for data sync

### System Hardware

- **CPU** Intel XScale PXA270 520 MHz
- **Memory Flash** 32M bytes, SDRAM 64M bytes
- **Battery Backup Memory** 256 KB file system, 256 KB direct access
- **Real-time Clock** Yes
- **Watchdog Timer** Yes
- **VGA** DB15 connector
- **USB Ports** 1 x USB 1.1
- **Storage** 1 x Type II CompactFlash card slot

### Software

- **OS Support** Windows CE
- **Control Software** C/C++ and .NET library  
KW Multiprog (development tool), KW ProConOS (runtime kernel)

### I/O Expansion

- **Connected I/O Modules** 32 (max.)\*
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)

\*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

### Communication (Ethernet)

- **LAN** 2 x RJ-45 Port, 10/100 Mbps
- **Offers Modbus/TCP Server and Client APIs**
- **Modbus/TCP under KW** Server : 64 connections  
Client : 128 connections

### Communication (Serial)

- **Medium** 2 x Isolated RS-485 (2-wire, isolated)
- **Offers Modbus/RTU Master and Slave APIs**

### Communication (CAN)

- **Medium** 2 x Isolated CAN
- **Protocol** CANopen (DS301/302)
- **Speed maximum** 1 Mbit/s

### Environment

- **Operating Temperature** -10 ~ 55°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

## Ordering Information

- **APAX-5620KW** PAC with Marvel XScale CPU, CAN, KW

### Accessories

- **APAX-5002** 2-slot Backplane Module

# APAX-5430

# APAX-5435

## SATA HDD module

## mPCIe module to support iDoor



NEW

APAX-5430



NEW

APAX-5435



### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 165 g
- **Power Consumption** 2.5 W @ 24 V<sub>DC</sub> (typical)

#### Function

- **Interface** SATA
- **RAID** Supports RAID 0/1
- **Power Supply** 5V:2A  
3.3V:2A
- **Support SATA I/II/III 2.5" HDD/SDD**
- **Support Hot swap**

#### Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **APAX-5430** SATA HDD Module

Note: APAX-5430 can only be used by controllers with a PCI Express interface (ex. APAX-5580)

### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 165 g
- **Power Consumption** 0.5 W @ 24 V<sub>DC</sub> (typical)

#### Function

- **Interface** mini PCI express 2.0 (support Advantech iDoor)  
mSATA (support t SATA GENI/GENII/GENIII)
- **Support Hot Plug**

#### Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

#### Supported iDoor Modules

- **PCM-26D2CA** SJA1000 CANBUS, CANopen, DB9
- **PCM-26D1DB** 1-Port Hilscher netX100 FieldBus mPCIe, ProfiBus, DB9
- **PCM-26R2PN** 2-Port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45
- **PCM-26R2EC** 2-Port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45
- **PCM-26R2EI** 2-Port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45
- **PCM-24S2WF** Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth4.0, Half-size mPCIe, 2-port SMA
- **PCM-24S33G** Wide-Temp 3.75G HSPA and GPS, 2-in-1, Full-size mPCIe w/ dual SIM Card holder, Antenna, cable
- **PCM-24R2GL** 2-port GbE BaseT(X) 10/100/1000 Mbps, mPCIe Card
- **PCM-24R1TP** Intel® 82574L, GbE, RJ45 x 1
- **PCM-23U1DG** USB Slot w/ Lock for USB Dongle, Half-size mPCIe
- **PCM-2300MR** MRAM, 2 MByte

### Ordering Information

- **APAX-5435** mPCIe Module to support iDoor

Note: APAX-5435 can only be used by controllers with a PCI Express interface (ex. APAX-5580)

- 1 WebAccess® Solution
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# APAX-5490

# APAX-5090

## 4-port RS-232/422/485 Communication Module

## 4-port RS-232/422/485 Virtual COM with APAX Bus

NEW



APAX-5490



### Specifications

#### General

- **Certification** CE, FCC class A
- **Interface** COM 1, COM 2: RS-232/422/485  
COM 3, COM 4: RS-232/422/485
- **Connectors** 1 x 26-pin clamp-type terminal
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 180 g
- **Power Consumption** 2 W @ 5 V<sub>DC</sub> (typical)

#### Communications

- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, even, odd
- **Baud Rate** 50 bps ~ 230.4 kbps
- **Data Signals** RS-232: Tx+, Rx+, GND  
RS-422: Tx+, Tx-, Rx+, RX-  
RS-485: Data+, Data-
- **FIFO** 256 bytes
- **Flow Control** Xon/Xoff

#### Protection

- **ESD Protection** 15 kV
- **EFT Protection** 2,500 V<sub>DC</sub>
- **Isolation Protection** 2,500 V<sub>DC</sub> (between COM port and backplane)

#### Environment

- **Operating Temperature** -10 ~ 60°C (mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **APAX-5490** Isolation 4-port RS-232/422/485 Comm. Module.

Note: APAX-5490 can only be used by controllers with a PCI Express interface (ex. APAX-5580)

NEW



APAX-5090



### Specifications

#### General

- **Certification** CE, FCC class A
- **Interface** COM 1, COM 2: RS-232/422/485\*  
COM 3, COM 4: RS-232/422/485\*  
\* Change Mode with the switch
- **Connectors** 1 x 26-pin clamp-type terminal
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 180 g
- **Power Consumption** 2 W @ 24 V<sub>DC</sub> (typical)
- **LED Indicators** TX, RX
- **Supported OS** Win7 32-bit

#### Communications

- **Data Bits** 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, even, odd
- **Baud Rate** 600bps ~ 115.2 kbps
- **Data Signals** RS-232: Tx+, Rx+, GND  
RS-422: Tx+, Tx-, Rx+, RX  
RS-485: Data+, Data-
- **FIFO** 256 bytes
- **Operation Mode** Virtual COM
- **Maximum Support** Up to 8 pcs with one controller

#### Protection

- **ESD Protection** 15 kV
- **EFT Protection** 2,500 V<sub>DC</sub>
- **Isolation Protection** 2,500 V<sub>DC</sub> (between COM port and backplane)

#### Environment

- **Operating Temperature** -10 ~ 60°C (mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% RH (non-condensing)

### Ordering Information

- **APAX-5090** 4-port RS-232/422/485 Virtual COM with APAX Bus

Note: The APAX-5090 can only be used by the APAX-5580 series

# APAX-5342

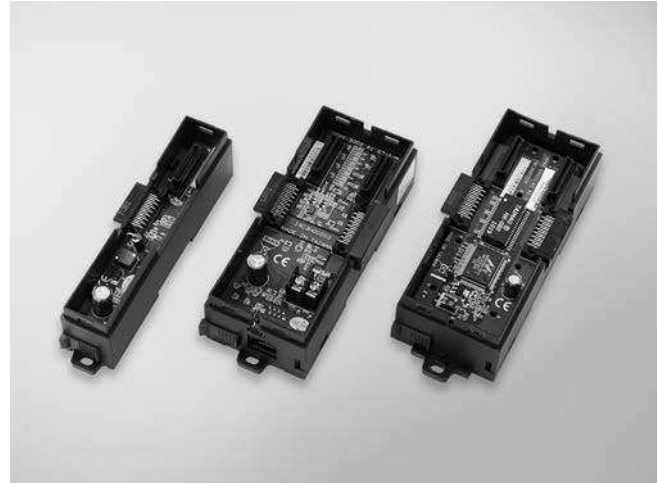
## APAX-5001/5002/5002L

# Power Converter for APAX-5580

## 1/2/2-slot Backplane Modules



APAX-5342



APAX-5001

APAX-5002

APAX-5002L



### Specifications

#### General

- **Certification** CE, FCC class A, UL 508, Energy Star
- **Dimensions (W x H x D)** 75 x 151 x 115 mm
- **Enclosure** PC
- **Operating Temperature** -10 ~ 60°C (mounted vertically)
- **Storage Temperature** -20 ~ 75°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Mounting** DIN-rail, wall mount (panel mount)

#### Input

- **Rated Voltage** 48 V<sub>DC</sub>
- **Voltage Range** 36 ~ 58 V<sub>DC</sub>
- **Rated Input Current** 2.2A (Max.) @ 48 V<sub>DC</sub>

#### Output

- **Output Power** 96 W
- **Efficiency** > 88% (at rated load)
- **Rated Voltage** 24 V<sub>DC</sub>
- **Rated Output Current** 4A
- **Output Current Limit** 4.8 A
- **Reverse Voltage Protection (RVP)** Yes

#### Input Protection

- **Over Voltage Protection (OVP)** 58 V<sub>DC</sub>
- **Under Voltage Protection (UVP)** 36 V<sub>DC</sub>
- **Over Current Protection (OCP)** 3.33 A

#### Output Protection

- **Over Current Protection (OCP)** 4.8A
- **Shout Current Protection** Yes

### Ordering Information

- **APAX-5342** Power Converter for APAX-5580

### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 28 x 151 x 38 mm (APAX-5001)  
54 x 151 x 38 mm (APAX-5002, APAX-5002L)
- **Enclosure** ABS+PC
- **Weight** 70 g (APAX-5001)  
120 g (APAX-5002, APAX-5002L)
- **Mounting** DIN-rail, Wall mount (panel mount)
- **Power Consumption** 0.3 W @ 24 V<sub>DC</sub> (APAX-5001)  
1.3 W @ 24 V<sub>DC</sub> (APAX-5002, APAX-5002L)
- **Power Input** 18 ~ 30 V<sub>DC</sub>
- **Slot Number** 1 (APAX-5001)  
2 (APAX-5002, APAX-5002L)

#### Environment

- **Operating Temperature** APAX-5001\*/APAX-5002\*: 0 ~ 60°C  
APAX-5002L\*: -20 ~ 70°C
- **Storage Temperature** -25 ~ 75°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

\*when mounted vertically

### Ordering Information

- **APAX-5001** 1-slot Backplane Module
- **APAX-5002** 2-slot Backplane Module with RJ-45 Port and 24V<sub>DC</sub> input
- **APAX-5002L** 2-slot Backplane Module

	Slot Number	Expansion Port (RJ-45)	Power Input Terminal
APAX-5001	1	N/A	N/A
APAX-5002	2	Yes	Yes
APAX-5002L	2	N/A	N/A

- 1 WebAccess\* Solution
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# APAX-5070 APAX-5071 APAX-5072

## Modbus/TCP Communication Coupler

## PROFINET Communication Coupler

## EtherNet/IP Communication Coupler



### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 190 g
- **Connector** 2 x RJ-45 (2-channel switch, share same IP address)
- **Power Consumption** 2 W @ 5 V<sub>DC</sub> (typical)

#### Communication

- **Protocol** Modbus/TCP
- **Connected I/O Modules** 32 (max.)\*
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)
- **Data Transfer Rates** 10/100 Mbps
- **Topology** Line or star
- **Isolation Protection** 1,500 V<sub>AC</sub>

#### Environment

- **Operating Temperature** -10 ~ 60°C (mounted vertically)
- **Storage Temperature** -40 ~ 85°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Shock Protection** 10 G @ wall mount, half sine, 11 ms (confirms to IEC 60068-2-27)
- **Vibration Protection** 1 Grms @ 5 ~ 500 Hz (random, operating, 1 hr/axis)  
2 G @ 5 ~ 500 Hz (sine, non-operating, 1 hr/axis) (confirms to IEC 60068-2-64 and IEC 60068-2-6)

### Ordering Information

- **APAX-5070** Modbus/TCP Communication Coupler

### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 180 g
- **Connector** 2 x RJ-45 (2-channel switch, share same IP address)
- **Power Consumption** 2 W @ 5 V<sub>DC</sub> (typical)

#### Communication

- **Protocol** PROFINET RT V2.2
- **Connected I/O Modules** 32 (max.)\*
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)
- **Data Transfer Rates** 10/100 Mbps
- **Topology** Line or Star

#### Environment

- **Operating Temperature** -10 ~ 60°C (mounted vertically)
- **Storage Temperature** -40 ~ 85°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Shock Protection** 10 G @ wall mount, half sine, 11 ms (Confirms to IEC 60068-2-27)
- **Vibration Protection** 1 Grms @ 5 ~ 500 Hz (random, operating, 1 hr/axis)  
2 G @ 5 ~ 500 Hz (sine, non-operating, 1 hr/axis) (confirms to IEC 60068-2-64 and IEC 60068-2-6)

### Ordering Information

- **APAX-5071** PROFINET Communication Coupler

### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 180 g
- **Connectors** 2 x RJ-45 (2-channel switch, share same IP address)
- **Power Consumption** 2 W @ 5 V<sub>DC</sub> (typical)

#### Communications

- **Protocol** EtherNet/IP
- **Connected I/O Modules** 32 (max.)\*
- **Digital Signals** 768 (max.)
- **Analog Signals** 192 (max.)
- **Data Transfer Rates** 10/100 Mbps
- **Topology** Line or star
- **Isolation Protection** 1,500 V<sub>AC</sub>

#### Environment

- **Operating Temperature** -10 ~ 60°C (mounted vertically)
- **Storage Temperature** -40 ~ 85°C
- **Relative Humidity** 5 ~ 95% (non-condensing)
- **Shock Protection** 10 G @ wall mount, half sine, 11 ms (confirms to IEC 60068-2-27)
- **Vibration Protection** 1 Grms @ 5 ~ 500 Hz (random, operating, 1 hr/axis)  
2 G @ 5 ~ 500 Hz (sine, non-operating, 1 hr/axis) (confirms to IEC 60068-2-64 and IEC 60068-2-6)

### Ordering Information

- **APAX-5072** EtherNet/IP Communication Coupler

#### Accessories

- **APAX-5002** 2-slot Backplane Module

\*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

# APAX-5017H

# APAX-5028

## 12-ch High Speed Analog Input Module

## 8-ch Analog Output Module



APAX-5017H



### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 175 g
- **Power Consumption** 3.5 W @ 24 V<sub>DC</sub> (typical)

#### Analog Input

- **Channels** 12
- **Input Impedance** 2 M $\Omega$  (Voltage), 120  $\Omega$  (Current)
- **Input Type** V, mV, mA
- **Input Range** 0 ~ 500 mV,  $\pm 10$  V, 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Configure Different Range for Each Channel**
- **Resolution** 12-bit with accuracy  $\pm 0.1\%$  or better of Full Scale Range (Voltage),  $\pm 0.2\%$  or better of Full Scale Range (Current)
- **Sampling Rate** 1,000 sample/second (per channel)

\* Support Integration function to eliminate field site noise at sample rate: 100 sample/second

- **Span Drift**  $\pm 25$  ppm/ $^{\circ}$ C
- **Zero Drift**  $\pm 6$   $\mu$ V/ $^{\circ}$ C
- **Wire Burn-out Detection** Yes (4 ~ 20 mA only)

#### Protection

- **Over Voltage Protection**
- **2,500 V<sub>DC</sub> Isolation Between Channels and Backplane**

**Note:** The voltage between any two pins must not exceed 15 V

#### Environment

- **Operating Temperature** -10 ~ 60 $^{\circ}$ C (when mounted vertically)
- **Storage Temperature** -40 ~ 70 $^{\circ}$ C
- **Relative Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **APAX-5017H** 12-ch High Speed Analog Input Module



APAX-5028



### Specifications

#### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 175 g
- **Power Consumption** 3.5 W @ 24 V<sub>DC</sub> (typical)

#### Analog Output

- **Channels** 8
- **Output Type** V, mA
- **Output Range**  $\pm 2.5$  V,  $\pm 5$  V,  $\pm 10$  V, 0 ~ 2.5 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Configure Different Range for Each Channel**
- **Resolution** 14-bit with accuracy  $\pm 0.1\%$  or better of Full Scale Range
- **Settling time** about 500  $\mu$ s
- **Slew Rate** 0.7 V<sub>DC</sub>/ $\mu$ s (per channel)
- **Span Drift**  $\pm 60$  ppm/ $^{\circ}$ C
- **Zero Drift**  $\pm 275$  mV/ $^{\circ}$ C (Voltage),  $\pm 250$  mV/ $^{\circ}$ C (Current)
- **Drive Voltage (Current Mode)** 15 V<sub>DC</sub>
- **Load (Current Mode)** 0 ~ 500 $\Omega$

#### Protection

- **Short Circuit Protection**
- **2,500 V<sub>DC</sub> Isolation Between Channels and Backplane**

#### Environment

- **Operating Temperature** -10 ~ 60 $^{\circ}$ C (when mounted vertically)
- **Storage Temperature** -40 ~ 70 $^{\circ}$ C
- **Relative Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **APAX-5028** 8-ch Analog Output Module

1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	iDoor Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C Systems
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# APAX-5046

# APAX-5046SO

24-ch Digital Output Module

20-ch Source Type DO Module



APAX-5046



## Specifications

### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 165 g
- **Power Consumption** 2.5 W @ 24 V<sub>DC</sub> (typical)
- **Status Display** LED per channel  
On: Logic level 1  
Off: Logic level 0

### Digital Output

- **Channels** 24 (Sink Type)
- **Voltage Range** 8 ~ 35 V<sub>DC</sub>
- **Rated Current Output** 0.5 A (per channel, at signal "1")
- **Leakage Current** 0.1 mA (at signal "0")
- **Switch Rate:** Resistive load: 300 Hz (max.)  
Inductive load: 20 Hz (max.)  
Lamp load: 200 Hz  
(max. at 5W lamp and under 50 Ω, 24 V)

### Protection

- 2,500 V<sub>DC</sub> isolation between channels and backplane
- Short Circuit Protection
- Thermal Shutdown Protection

### Environment

- **Operating Temperature** -10 ~ 60°C  
(when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

## Ordering Information

- **APAX-5046** 24-ch Digital Output Module



APAX-5046SO



## Specifications

### General

- **Certification** CE, FCC class A
- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Enclosure** ABS+PC
- **Weight** 165 g
- **Power Consumption** 2.5 W @ 24 V<sub>DC</sub> (typical)
- **Status Display** LED per channel  
On: Logic level 1  
Off: Logic level 0

### Relay Output

- **Channels** 20 (Source Type)
- **Voltage Range** 10 ~ 35 V<sub>DC</sub>
- **Rated Current Output** 1 A (per channel, at signal "1")
- **Leakage Current** 0.1 mA (at signal "0")
- **Switch Rate** Resistive load : 300 Hz (max.)  
Inductive load: 20 Hz (max.)  
Lamp load: 200 Hz  
(max., at 5W amp and under 50 Ω, 24V)

### Protection

- 2,500 V<sub>DC</sub> isolation between channels and backplane
- Short Circuit Protection
- Thermal Shutdown Protection

### Environment

- **Operating Temperature** -10 ~ 60° C  
(when mounted vertically)
- **Storage Temperature** -40 ~ 70° C
- **Relative Humidity** 5 ~ 95% (non-condensing)

## Ordering Information

- **APAX-5046SO** 20-ch Source-Type DO Module



# APAX-5060

# APAX-5080

## 12-ch Relay Output Module

## 4/8-ch High/Low Speed Counter Module

NEW



APAX-5060



### Specifications

#### General

- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Weight** 195 g
- **Power Consumption** 2 W @ 24 V<sub>DC</sub> (typical)
- **Status Display** LED per channel  
On: Logic level 1  
Off: Logic level 0

#### Relay Output

- **Channels** 12
- **Relay Type** Form A (SPST)
- **Switching Capacity and Lifetime of the Contact (for resistive load)**  
VDE: 30,000 operations (5 A @ 250 V<sub>AC</sub>,  
10 operations/minute at 8°C)  
70,000 operations (5 A @ 30 V<sub>DC</sub>,  
10 operations/minute at 85°C)  
UL: 60,000 operations (5 A @ 250 V<sub>AC</sub>)  
100,000 operations (5 A @ 30 V<sub>DC</sub>)  
Mechanism: 20,000,000 operations  
(no load, 300 operations/min)
- **Breakdown Voltage** 500 V<sub>AC</sub> (50/60 Hz)
- **Contact Resistance** 30 mΩ (maximum)
- **Insulation Resistance** 1 GΩ (minimum) at  
500 V<sub>DC</sub>

#### Protection

- **Isolation Between Channels and Backplane** 2,500 V<sub>DC</sub>

#### Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)  
-20 ~ 70°C (for PE version)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **APAX-5060** 12-ch Relay Output Module

NEW



APAX-5080



### Specifications

#### General

- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Weight** 170 g
- **Power Consumption** 2.5 W @ 24 V<sub>DC</sub> (typical)
- **Status Display** LED per channel (for DI/O only)  
On: Logic level 1; Off: Logic level 0

#### Counter/Frequency Input

- **Channels & Mode** 8 (Up Counter, High/Low Freq. and Wave Width mode)  
4 (Pulse and Direction, Up/Down Pulse, A/B Phase)  
32-bit + 1-bit overflow
- **Counting Range** 32-bit + 1-bit overflow
- **Minimum Pulse Width** 1 μs for High Freq. mode; 1 ms for Low Freq. mode
- **Counter Frequency** 0.1 Hz ~ 10 Hz for Low Freq. mode and Wave Width mode  
10 Hz ~ 1M Hz for High Freq. mode and other modes
- **Input Voltage** For "0" signal: 0 ~ 3 V<sub>DC</sub>; For "1" signal: 10 ~ 30 V<sub>DC</sub>
- **Accuracy** 0.1% for Low Freq. mode
- **Input Filter** 0.1 us ~ 40 ms

#### Digital Input

- **Channels** 4
- **Type** Sink (wet contact)
- **Input Voltage** For "0" signal: 0 ~ 3 V<sub>DC</sub>; For "1" signal: 10 ~ 30 V<sub>DC</sub>

#### Digital Output

- **Channels** 4 (sink type)
- **Output Voltage Range** 8 ~ 35 V<sub>DC</sub>
- **Normal Output Current** 0.5 A (per channel)

#### Protection

- **Isolation Between Channels and Backplane** 2,500 V<sub>DC</sub>
- **Short Circuit Protection (For DO channel)**
- **Thermal Shutdown Protection (For DO channel)**

#### Environment

- **Operating Temperature** -10 ~ 60°C (when mounted vertically)
- **Storage Temperature** -40 ~ 70°C
- **Relative Humidity** 5 ~ 95% (non condensing)

### Ordering Information

- **APAX-5080** 4/8-ch High Speed Counter Module

1

WebAccess\* Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

5

Thin-Client Terminals

6

High-Performance Control Panels

7

Control Cabinet PCs

8

Industrial IoT Gateways

9

Industrial monitors

10

Door Technology Modules

11

Panel PCs

12

Control IPCs

13

Remote DA&C System

14

Wireless IoT Sensing Devices

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Ethernet I/O Modules

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RS-485 I/O Modules

17

Industrial Ethernet Solutions

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IP Gateway and Serial Device Servers

19

Networking

# APAX Controller Support Table

Type		Control IPC		Coupler		
System		APAX-5580	APAX-5620KW	APAX-5070	APAX-5071	APAX-5072
Function	I/O Module	Intel® Core™ i7/i3/ Celeron Control IPC w/ 2 x GbE, 2 x mPCIe, VGA	PAC with Marvel XScale® CPU and CAN	Modbus/TCP Communication Coupler	PROFINET Communication Coupler	EtherNet/IP Communication Coupler
Analog I/O	APAX-5013	V	V	V	V	V
	APAX-5017	V	V	V	V	V
	APAX-5017H	V	V	V	V	V
	APAX-5018	V	V	V	V	V
	APAX-5028	V	V	V	V	V
Digital I/O	APAX-5040	V	V	V	V	V
	APAX-5045	V	V	V	V	V
	APAX-5046	V	V	V	V	V
	APAX-5060	V	V	V	V	V
	APAX-5046SO	V	V	V	V	V
	APAX-5080	V	V	V	V	V
Communication	APAX-5490	V	-	-	-	-
	APAX-5090	V	-	-	-	-
	APAX-5435	V	-	-	-	-
SATA	APAX-5430	V	-	-	-	-
Backplane & Expansion	APAX-5001	V	V	V	V	V
	APAX-5002	V	V	V	V	V
	APAX-5002/L	V	V	V	V	V
	APAX-5402	V	-	-	-	-
Power Supply	APAX-5343	V	-	-	-	-
	APAX-5342	V	-	-	-	-
	APAX-5343E	-	V	V	V	V

## Remote DA&C Systems

<b>iRTU Overview</b>		<b>13-2</b>
<b>ADAM-3600-C2G</b>	8AI / 8DI / 4DO / 4-Slot Expansion Wireless Intelligent RTU	<b>13-3</b>
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<b>ADAM-3617</b>	4-ch Analog Input Module	
<b>ADAM-3618</b>	4-ch Thermocouple Input Module	<b>13-7</b>
<b>ADAM-3624</b>	4-ch Analog Output Module	
<b>ADAM-3651</b>	8-ch Digital Input Module	
<b>ADAM-3656</b>	8-ch Digital Output Module	<b>13-8</b>
<b>ADAM-5000 Series</b>	Distributed I/O Systems & PC-based Controllers	<b>13-9</b>
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<b>ADAM-5560CE/XPE</b>	7-slot PC-based Controller with Intel® Atom™ CPU	
<b>ADAM-5560KW</b>	7-slot Micro PAC with Intel® Atom™ CPU	<b>13-16</b>
<b>ADAM-5560WA</b>	7-slot Compact SCADA Controller with 600 Tags WebAccess	<b>13-17</b>
<b>ADAM-5510 Series</b>	4/8 slots PC-based Controller	<b>13-18</b>
<b>ADAM-5000/485</b>	4-slot Distributed DA&C System for RS-485	
<b>ADAM-5000E</b>	8-slot Distributed DA&C System for RS-485	<b>13-19</b>
<b>ADAM-5000L/TCP</b>	4-slot Distributed DA&C System for Ethernet	
<b>ADAM-5000/TCP</b>	8-slot Distributed DA&C System for Ethernet	<b>13-20</b>

To view all of Advantech's Remote DA&C Systems, please visit [www.advantech.com/products](http://www.advantech.com/products).



# iRTU Overview

## Introduction

ADAM-3600 series is a new ADAM series for RTU applications that leverages IoT technology. They feature high environmental adaptability so they can work in remote locations and their new form factor is suitable for installation in control cabinets. Their domain focused on-board I/O design and 4-slot I/O expansion capability provides maximum flexibility to serve a multitude of applications with fewer IO requirements.

## Vertical Driven Product Development

The ADAM-3600 series are intelligent RTU terminal units for many types of application fields. Their primary purpose is to execute programmed tasks locally and report back to the datacenter in the cloud.

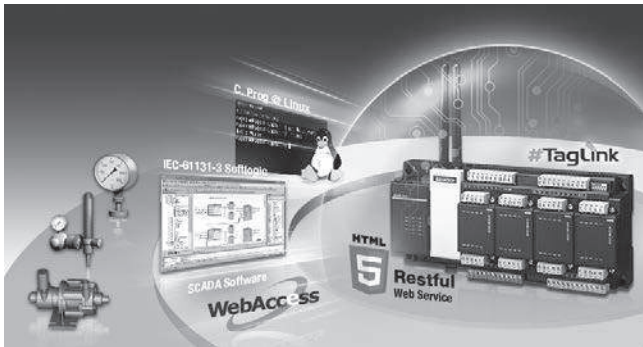
To fit every conceivable vertical application, the unit needs to have certain vertical features such as domain protocols and algorithms. It must also be a trusted embedded platform which can protect customer's domain intelligence. Developers can use familiar programming languages such as C+ or the 5 main PLC languages defined by IEC-61131-3.

The ADAM-3600-C2G is designed for the oil & gas and water markets and focuses on monitoring, gathering and transmission of data over a wide area. It's equipped with an on-board IO which fulfills most application scenarios in the field. The modularized expansion IO and communication module provide users with maximum flexibility to adapt to field applications. It can also easily integrate with Advantech WebAccess SCADA software and provide users with a complete solution.

The ADAM-3600-A1F focuses on realizing a Smart City vision by leveraging IoT technology. Through it, users can access data directly from the cloud using standard IT languages. To secure user data, it can log all data in the SD/USB storage. It also provides a friendly interface for users to monitor, maintain and upgrade the device.

ADAM-3600's development team will continue cultivating vertical markets, and provide new models and firmware upgrades to service more requirements for IoT applications. Due to the flexible open system architecture, we can rapidly fulfill any customization requirements.

## Advantech TagLink, Core Technology for Big-data Application in IoT Era



Advantech TagLink is a new technology used with ADAM-3600 series products. It is a technology which helps users access data easily and intuitively as a tag. In the IoT era, data is the primary concern of customers. But for traditional RTU devices, users need to take care of the IO source, scaling, unit translation and communication with other software. With TagLink, users can access the data directly on ADAM-3600 via the tag name. By setting up the "tags", users can then retrieve the physical unit which is well scaled in ADAM-3600. To achieve this, we provide a configuration utility for users to easily map the I/O data.

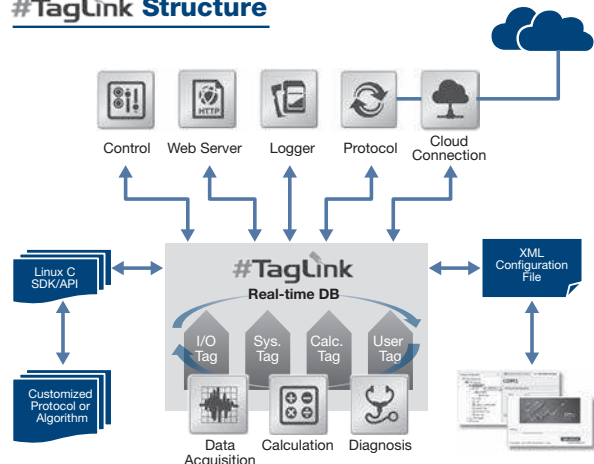
In an on-site application, one or several RTU devices may have been installed. We provide tool to carry out the configuration and management of these RTU devices as well as the whole project in a unified and user-friendly way so more of your resources can be freed. TagLink Studio helps you configure and manage devices and projects which may have multiple devices under it. Moreover, Advantech TagLink supports various standard protocols such as: Modbus, DNP3 and IEC-104, which can realize multiple communications between RTU and devices or meters.

As an Industrial IoT core technology, Advantech TagLink provides a solution which centralizes data access and activates connectivity, diagnosis and web services altogether within the software. Advantech TagLink enables local data to be exchanged between independent devices and applications. Mass data can be filtered out which saves IT maintenance cost and time. When Advantech TagLink is deployed with Advantech WebAccess, active connection and breakpoint resume services could be provided to ensure the reliability of data transmissions. Advantech TagLink provides an open interface for customized protocols or algorithms and with standard Linux C language, it also provides logic control based on IEC-61131 to complete local data pretreatment.

### Features

- Unified interface, for easy engineering
- Open interface for multiple possibilities
- Quick and easy connection with WebAccess
- High-way to the cloud
- Multiple communication drivers, DNP3, IEC 60870, and Modbus
- Data Export through Web page

### #TagLink Structure



# ADAM-3600-C2G

## 8AI / 8DI / 4DO / 4-Slot Expansion Wireless Intelligent RTU

**NEW**



### Features

- High Performance CPU Cortex A8 600MHz
- Low Power DDR3L 256MB RAM
- Embedded Real-time Linux Kernel
- Domain Focused Onboard IO -8AI / 8DI / 4DO
- 4-Slot I/O Expansion
- High I/O Flexibility with 4-slot I/O Expansion
- Multiple wireless options for Zigbee/ Wi-Fi/ 3G/ 4G/ GPRS
- IEC61131-3&C Programming Language
- Modbus & DNP3 & IEC-60870-5-104
- Operation Temperature -40 ~ 70°C
- Internal Webpage for Online Monitoring
- Periodic Logger for Data Buffering on SD card

### Introduction

ADAM-3600-C2G is an intelligent Remote Terminal Unit with multiple wireless function capability, multiple I/O selection, wide temperature range and supports flexible communication protocol for oil, gas and water applications. In these application environments, ADAM-3600 is ideal for remote inhospitable regions with many devices that need to be managed remotely.

### Features

#### Wide Array of Flexible I/Os

Wide array of on-board I/O and flexible expansion I/O modules supporting different acquisition requirements giving it a high cost performance.



#### Wireless Communication & Protocols

The ADAM-3600 simultaneously supports two mini-PCIe cards (a half-size and a full-size) for Wi-Fi/ 3G/ GPRS/ Zigbee communication which is flexible for wiring in the field. Modbus RTU/TCP and DNP3 protocols integrate ADAM-3600 with more SCADA systems.



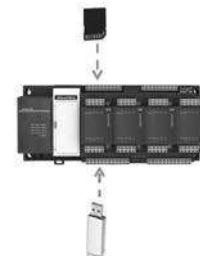
#### Wide Temperature Range

A -40 ~ 70°C operating temperature allows the ADAM-3600 to work in harsh environments and reduces maintenance costs for customers.



#### Remote Firmware Update

The ADAM-3600 can use a USB drive and an SD card to automatically update the firmware so there's no need to bring a computer and execute the configuration program in the field.



#### Intelligent Connectivity Diagnosis Manager (iCD Manager)

Remotely monitor serial and Ethernet port status and send alarm information during communication failures to help improve intelligent monitoring.



#### Node ID for Batch Configuration

Each ADAM-3600 has a node ID as its name to support batch configuration (max.64) with the configuration utility. When an alarm is displayed on the utility, customers can directly find the fault source with the node ID.



1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
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18	IP Gateway and Serial Device Servers
19	Networking



## Specifications

### Control System

- **CPU** Cortex-A8 AM3352
- **Memory** RAM 256MB  
Battery Backup RAM 32KB
- **OS** RT-Linux V3.12
- **Storage** MicroSD card / 1GB included for system  
SD card slot / Optional IEC-61131-3, Linux C
- **Programming** Yes
- **Watchdog** Yes
- **Real-time Clock** Yes
- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Power Consumption** 24V @ 5W

### Communication

- **Protocol** Modbus/TCP, DNP3 L2, TCP/IP, DHCP, IEC104
- **Serial Port** 1 x RS232/485- DB9  
2 x RS485- Terminal Block
- **Ethernet Port** 2 x RJ-45 10/100 Mbps
- **USB Port** 1 x USB 2.0
- **VGA Port** 1 x D-SUB15
- **LED** System LEDs/ IO LEDs
- **Isolation** 2000 V<sub>DC</sub>

### Analog Input

- **Channel** 8 differential
- **Resolution** 16-bit
- **Input Type** ±10V, ±2.5V, 0 ~ 20mA, 4 ~ 20mA
- **Isolation** 2,000 V<sub>DC</sub>

### Digital Input

- **Channel** 8
- **Input Type** Wet Contact
- **Protection Voltage** +40 V<sub>DC</sub>
- **Isolation** 2,000 V<sub>DC</sub>

### Digital Output

- **Channel** 4
- **Output Type** Open Collector (Sink)
- **Rated Voltage** 8 ~ 30 V<sub>DC</sub>
- **Isolation** 2,000 V<sub>DC</sub>

### Wireless Communication(Selectable)

- **Interface** Mini-PCIe (1 x Half-Size / 1 x Full-Size)
- **Wireless Type** Zigbee- UART Signal  
Wi-Fi/3G/GPRS- USB Signal

### General

- **Certification** CE/FCC
- **Operating Temp.** -40 ~ 70°C
- **Storage Temp.** -40 ~ 85°C
- **Humidity** 5 ~ 95%(no-condensation)
- **Mounting** DIN 35 rail/ Wall Mount

### I/O Expansion Module Selection Table

Unit: Channels

Expansion Module	AI	T.C.	AO	DI	DO
ADAM-3617	4				
ADAM-3618		4			
ADAM-3624			4		
ADAM-3651				8	
ADAM-3656					8

## Ordering Information

- **ADAM-3600-C2GL1A1E** 8AI/8DI/4DO/4-Slot Expansion Wireless Intelligent RTU

## Optional Accessory

### Wi-Fi Solution

- **EWM-W150H02E** Half-size mini card. Supports 802.11bgn
- **1750006043** SMA(M) Cable, 15 cm
- **1750000318** 2dBi Antenna for testing, 11 cm

### 3G/GPRS Solution (SIM card is not included)

- **EWM-C109F601E** 6-band HSPA Cellular Module with SIM Holder
- **1750006264** SMA(F) Cable, 15 cm
- **1750005865** Dipole Antenna, 11 cm

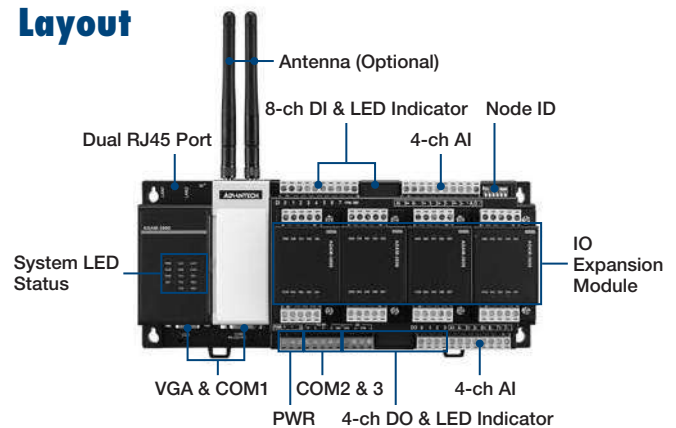
### GPS Solution

- **EWM-G108H01E** GPS/GNSS Half-MiniPCIe card
- **1750006264** SMA (F) Cable, 15cm
- **1750006432** Antenna 4.5 dBi, 500cm

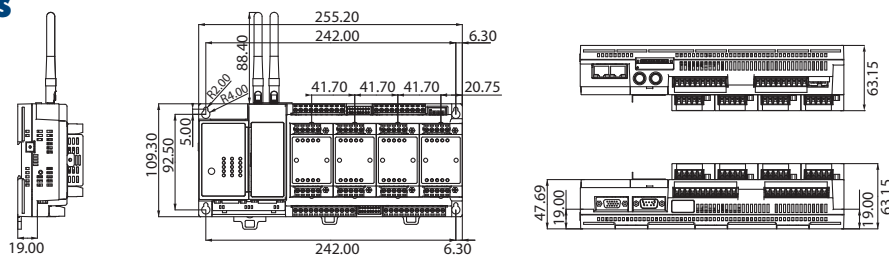
### Storage Solution

- **SQF-ISDS1-4G-82E** SLC 4G, 1CH (-40 ~ 85°C)
- **SQF-ISDS1-32G-82E** SLC 32G, 1CH (-40 ~ 85°C)

## Layout



## Dimensions



Unit: mm

# ADAM-3600/TCP

## 16-ch Digital Input, 8-ch Relay Output with 4 Expansion Slots IoT Ethernet I/O

Preliminary



### Features

- IEEE 802.3u 10/100Base-T(X)
- 16-ch Digital Input and 8-ch Relay Output on board I/O
- Flexible I/O deployment by 4-slot expansion module
- Supported Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, HTTP
- Supports RESTful web API in JSON format
- Supports Web Server in HTML5 with JavaScript & CSS3
- Industrial grade operating temperature -40 ~ 70°C
- Supports local logging with RTC time stamp by internal memory, SD card, USB
- Supports mobile device web configuration with HTML5

### Introduction

ADAM-3600/TCP is an intelligent I/O module which provides 16 digital inputs, 8 relay outputs and 4 I/O expansion slots for many different scenarios. With data logging and data process functions, it can transmit truly useful data to users. In addition, ADAM-3600/TCP has a built in a web server so users can remotely acquire I/O data from any web service or smart device without routing from the SCADA system.

### Features

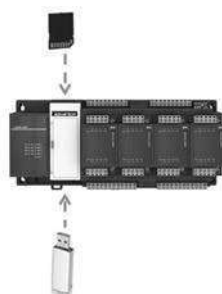
#### Flexible I/O deployment

The ADAM-3600 can approach different scenarios by switching I/O expansion modules. Users can easily change and expand ADAM-3600's I/O deployment by applying on board I/O and switching the I/O expansion modules.



#### Datalog by either a USB storage device or a SD card

ADAM-3600 is able to log its data with either a USB storage device or an SD card to prevent data loss and provide data for analysis.



#### Built-in Switch

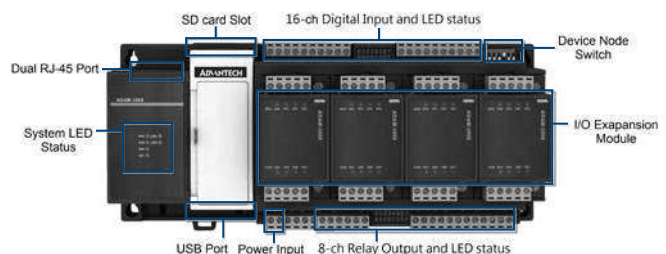
The ADAM-3600 can apply Daisy Chain topology, which can save on wiring costs and space.



#### Remote monitor, control and configure through a Web browser

ADAM-3600/TCP I/O module features a built-in Web server that can be accessed by using a common Web browser, such as IE, Safari, Chrome or Firefox. There is a default Web page in HTML 5 that follows the REST software style. Users who are using remote computers or mobile devices can configure, monitor and control ADAM-3600-A1F through the Web page. This feature will bring obvious benefits to users in maintenance anywhere in the local field. Moreover, it could allow programmers to create powerful, custom Web pages using HTML5 and Java Script.

### Layout



- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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## Specifications

### Digital Input

- Channel 16
- Wet Contact Logic level 0: 0 ~ 5 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub>
- Max. Input Frequency 3 kHz
- Max. Counter Frequency 3 kHz
- Isolation Protection 2500 V<sub>DC</sub>

### Relay Output

- Channel 8
- Input Type Form A
- Contact Rating 250 V<sub>AC</sub> @ 5A  
(Resistive Load)  
30 V<sub>DC</sub> @ 3A
- Relay On Time 10 ms
- Relay Off Time 5 ms
- Insulation Resistance 1 GΩ
- Maximum Switching 20 operations/minute
- Isolation Protection 2500 V<sub>DC</sub>

### General

- Protocol Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- LAN 2 x RJ-45 ports
- Watchdog System (1.6 second)  
Communication (programmable)
- Power Input 10V<sub>DC</sub> ~ 30V<sub>DC</sub>
- LED Indicator System LEDs
- Mounting DIN 35 rail, Wall-mount

### External Media for Datalog

- USB Port 1 x USB 2.0 (Mass Storage Class)
- SD Card 1 x Standard SD card slot (V 2.0)
- File System FAT32

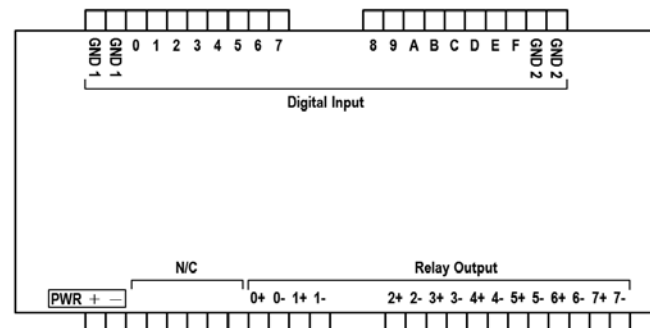
### I/O Expansion

- Accompanied I/O Slots 4 x expansion modules
- Digital Signals 56 points (max)
- Analog Signals 16 points (max)

### Environment

- Operating Temperature -40 ~ 70°C (-40 ~ 150°F)
- Storage Temperature -40 ~ 85°C (-40 ~ 185°F)
- Operating Humidity 20 ~ 95% RH (non-condensing)
- Storage Humidity 0 ~ 95% RH (non-condensing)

## Pin Assignment



## Ordering Information

- ADAM-3600/TCP-AE 16-ch Digital Input and 8-ch Relay Output Module with 4 Expansion Slots

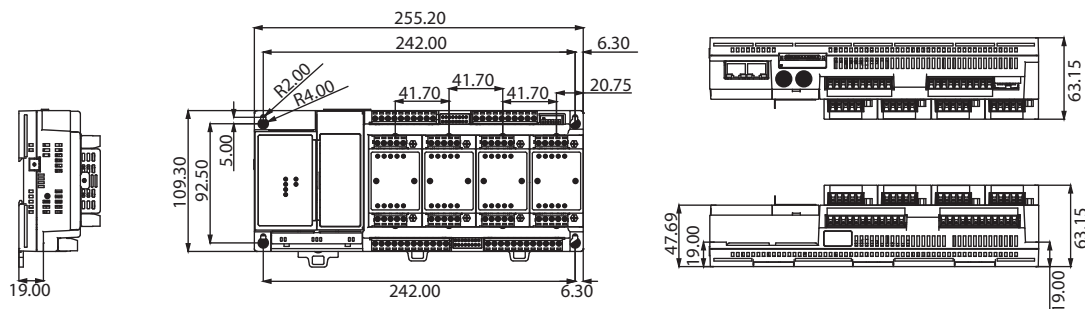
### I/O Expansion Module Selection Table

Unit: Channels

Expansion Module	AI	T/C	AO	DI	DO
ADAM-3617	4				
ADAM-3618		4			
ADAM-3624			4		
ADAM-3651				8	
ADAM-3656					8

## Dimensions

Unit: mm



# ADAM-3617-AE

# ADAM-3618-AE

# ADAM-3624-AE

4-ch Analog Input Module

4-ch Thermocouple Input Module

4-ch Analog Output Module



## Specifications

### General

- Power Consumption 1W (Max)
- Certification CE/FCC

### Analog Input

- Channels 4, differential
- Input Type Voltage, Current
- Resolution 16-bit
- Voltage/Current  $\pm 10V$ ,  $\pm 2.5V$ ,  $0 \sim 20mA$ , Range  $4 \sim 20mA$
- Sampling rate 10 sample/second (total)
- Input Impedance  $0.1 M\Omega$
- Accuracy  $\pm 0.1\%$  or better of FSR (Voltage)  $\pm 0.2\%$  or better of FSR (Current)
- CMR @ 50/60 Hz 90 dBs
- NMR @ 50/60 Hz 60 dBs
- Span Drift  $\pm 25$  ppm/ $^{\circ}C$
- Zero Drift  $\pm 6 \mu V/^{\circ}C$ ,  $\pm 6 \mu A/^{\circ}C$
- Isolation Voltage 2000 V<sub>DC</sub>
- Burn-out detection Yes (Current-only)

### Environment

- Operating Temp.  $-40 \sim 70^{\circ}C$
- Storage Temp.  $-40 \sim 85^{\circ}C$
- Humidity 5 ~ 95% (no-condensation)

## Ordering Information

- ADAM-3617-AE 4-ch Analog Input Module

## Specifications

### General

- Power Consumption 1W (Max)
- Certification CE/FCC

### Analog Input

- Channels 4
- Input Type J, K, T, E, R, S, B Type Thermocouple
- Temperature Range Type J ( $0 \sim 760^{\circ}C$ )  
Type K ( $0 \sim 1370^{\circ}C$ )  
Type T ( $-100 \sim 400^{\circ}C$ )  
Type E ( $0 \sim 1000^{\circ}C$ )  
Type R ( $500 \sim 1750^{\circ}C$ )  
Type S ( $500 \sim 1750^{\circ}C$ )  
Type B ( $500 \sim 1800^{\circ}C$ )
- Resolution 16-bit
- Sampling rate 10 sample/second (total)
- Input Impedance  $>1 M\Omega$
- Accuracy  $\pm 3^{\circ}C$
- CMR @ 50/60 Hz 90 dBs
- NMR @ 50/60 Hz 60 dBs
- Span Drift  $\pm 25$  ppm/ $^{\circ}C$
- Zero Drift  $\pm 6 \mu V/^{\circ}C$
- Isolation Voltage 2000 V<sub>DC</sub>
- Burn-out detection Yes

### Environment

- Operating Temp.  $-40 \sim 70^{\circ}C$
- Storage Temp.  $-40 \sim 85^{\circ}C$
- Humidity 5 ~ 95% (no-condensation)

## Ordering Information

- ADAM-3618-AE 4-ch Thermocouple Input Module

## Specifications

### General

- Power Consumption 1W (Max)
- Certification CE/FCC

### Analog Output

- Channels 4
- Output Impedance  $4 \Omega$
- Output Settling Time  $10 \mu s$
- Driving Load Voltage:  $2k\Omega$   
Current:  $500 \Omega$
- Output Type Voltage, Current
- Output Range  $0 \sim 10 V_{DC}$   
 $0 \sim 20 mA4 \sim 20 mA$
- Resolution 12-bit
- Accuracy  $\pm 0.3\%$  of FSR (Voltage)  
at  $25^{\circ}C \pm 0.3\%$  of FSR (Current) at  $25^{\circ}C$
- Current Load Resistor  $0 \sim 500\Omega$
- Drift  $\pm 25$  ppm/ $^{\circ}C$
- Isolation Voltage 2000 V<sub>DC</sub>

### Environment

- Operating Temp.  $-40 \sim 70^{\circ}C$
- Storage Temp.  $-40 \sim 85^{\circ}C$
- Humidity 5 ~ 95% (no-condensation)

## Ordering Information

- ADAM-3624-AE 4-ch Analog Output Module

1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C Systems
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# ADAM-3651

# ADAM-3656

## 8-ch Digital Input Module

## 8-ch Digital Output Module

NEW



ADAM-3651

### Specifications

#### General

- Power Consumption 1 W (max.)
- Certification CE/FCC

#### Digital Input

- Channels 8
- Wet Contact Logic Level 0: 0 ~ +5 V  
Logic Level 1: +11 ~ 30V
- Rated Input >5m A @ 12 V<sub>DC</sub>
- Current >10m A @ 24 V<sub>DC</sub>
- Input Filter 3 ms
- Pulse Input Frequency 150 Hz (max.)
- Over Voltage +40 V<sub>DC</sub>

#### Protection

- Isolation Voltage 2000 V<sub>DC</sub>

#### Environment

- Operating Temp. -40 ~ 70°C
- Storage Temp. -40 ~ 85°C
- Humidity 5 ~ 95% (no-condensation)

### Ordering Information

- ADAM-3651-AE 8-ch Digital Input Module

NEW



ADAM-3656

### Specifications

#### General

- Power Consumption 1 W (max.)
- Certification CE/FCC

#### Digital Input

- Channels 8
- Output Type Open Collector (Sink)
- OC Output Rated Voltage 8 ~ 30 V<sub>DC</sub>  
Rated Current 200 mA (max load)
- Over Voltage +40 V<sub>DC</sub>

#### Protection

- Pulse Output 1 KHz

#### Frequency

- Opto-isolator 150 us (max)

#### Response time

- Isolation Voltage 2000 V<sub>DC</sub>

#### Environment

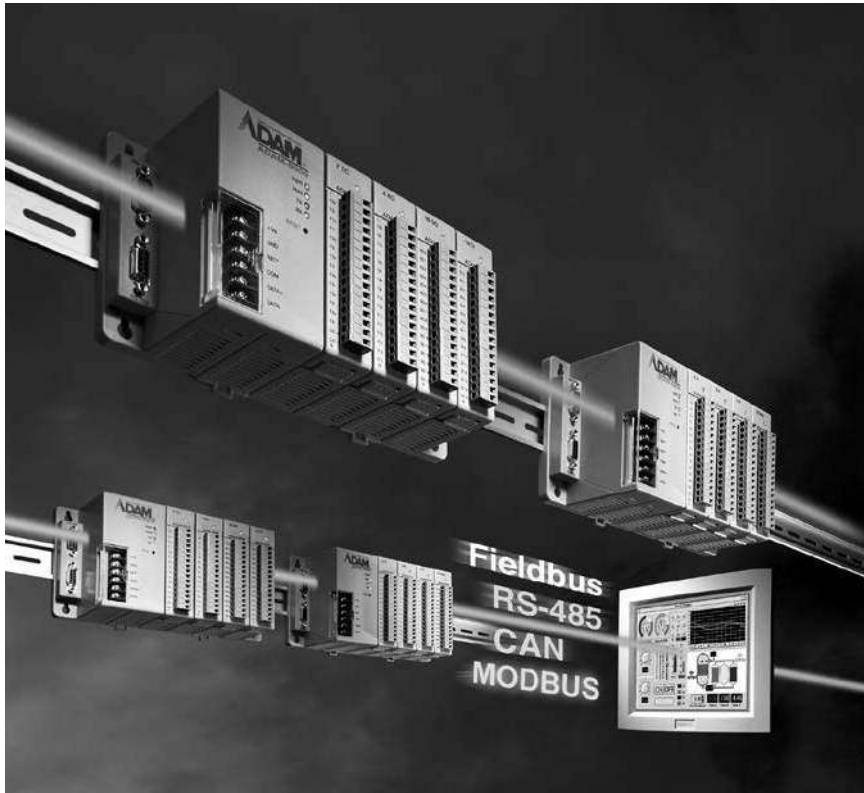
- Operating Temp. -40 ~ 70°C
- Storage Temp. -40 ~ 85°C
- Humidity 5 ~ 95% (no-condensation)

### Ordering Information

- ADAM-3656-AE 8-ch Digital Output (Sink type) Module



# ADAM-5000 Series



## Open Network and Fieldbus Solutions for Device Networking

## Introduction

The Fieldbus concept will change the control environment and device characteristics of future control systems in both processing and manufacturing. Compared with traditional systems, the Fieldbus system reduces cost of cabling, commissioning, and installation. In addition, the Fieldbus system has greater reliability.

The ADAM-5000 series, a compact distributed data acquisition and control system, supports the shift toward Fieldbus-based systems. Based on popular Fieldbus data communication structures such as RS-485 and Modbus, the ADAM-5000 series now offers two different DA&C systems that allow field I/O devices to easily connect to PC network applications: the ADAM-5000 DA&C systems and the ADAM-5510 series of PC-based controllers.



## Distributed I/O Systems

### Ethernet-based Data Acquisition and Control System

With the ADAM-5000/TCP as your Ethernet I/O data processing center, you can monitor and control field signals at speeds of 10/100 Mbps. The best field-proven communication performance that can be reached in industrial network environments. Additionally, the popular Modbus/TCP protocol is also supported.

### RS-485 based Data Acquisition and Control System

The ADAM-5000/485 system is a data acquisition and control system that can acquire, monitor and control data through multi-channel I/O modules. It communicates with a network master over a twisted-pair, multi-drop RS-485 network. Both ADAM ASCII and Modbus/RTU protocols are supported.

## PC-based Controllers

### Ethernet-enabled PC-based Controllers

The ADAM-5510 series of PC-based programmable controllers includes ADAM-5510M, ADAM-5510E, ADAM-5510/TCP and ADAM-5510E/TCP. They feature Intel x86-based CPUs running Datalight ROM-DOS.

Users can use Borland C 3.0 to develop the application program and then download it by the Windows-based ADAM-5510 series utility. The Ethernet-enabled feature of ADAM-5510/TCP and ADAM-5510E/TCP enables features like: FTP server, web server, TCP/UDP connections and email alarm. ADAM-5510 controllers also have high expansion capability by supporting Modbus/RTU master/slave and Modbus/TCP client/server functions.

The ADAM-5550CE features AMD GX2 CPU running Windows CE. Users can use Microsoft Visual Studio .NET to develop the application program.

The ADAM-5550KW and ADAM-5510KW series allow users to leverage the IEC 61131-3 SoftLogic programming environment to complete their automation task.

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
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- 9 Industrial monitors
- 10 I-Door Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
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# Distributed I/O Systems & PC-based Controllers

## Maximum System Design Flexibility

The ADAM-5000's modular design allows users to tailor solutions based on their own requirements. Built-in programmable I/O ranges and alarm outputs enhance flexibility in system design. A variety of communication media such as twisted-pair wiring, radio modems and fiber optics are supported.

## System Maintenance and Troubleshooting

The ADAM-5000 series uses hardware self-test and software diagnosis to monitor system problems. Also included is a watchdog timer that monitors the microprocessor. If the system crashes, the watchdog automatically resets the system. Node ID setting is easily accomplished by setting a DIP switch on the front of the system.

## Easy Installation and Networking

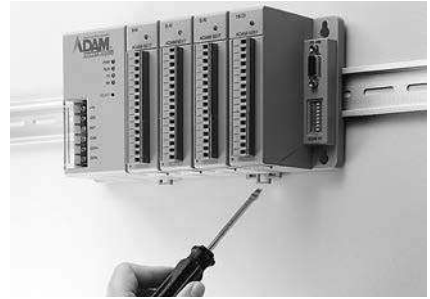
The ADAM-5000 series can be easily mounted on a DIN-rail or panel. Signal connections, network modifications and maintenance are simple and quick. Building a multi-drop network only requires a single twisted pair of wires.

## Proven for Industrial Environments

The ADAM-5000 series can operate in industrial environments at temperatures between -10 and 70°C, and can use unregulated power sources between 10 and 30 V<sub>DC</sub>. These units are protected against accidental power supply reversals. A 3-way isolation design (I/O, power & communication) prevents ground loops and reduces the effect of electrical noise in the system.

## Extensive Software Support

The ADAM-5000 series is supported by most standard process controls and HMI software. .NET Class LIB is provided for use with Windows applications. OPC drivers provide links to a wide range of HMI/SCADA software packages such as InTouch, FIX and ICONICS. Advantech data acquisition software and Advantech Studio SCADA/HMI software are both tightly integrated with the ADAM-5000 systems.



DIN-rail Mounting  
Installed on industrial standard DIN-rails



Panel/Wall Mounting  
Flat surface system mounting

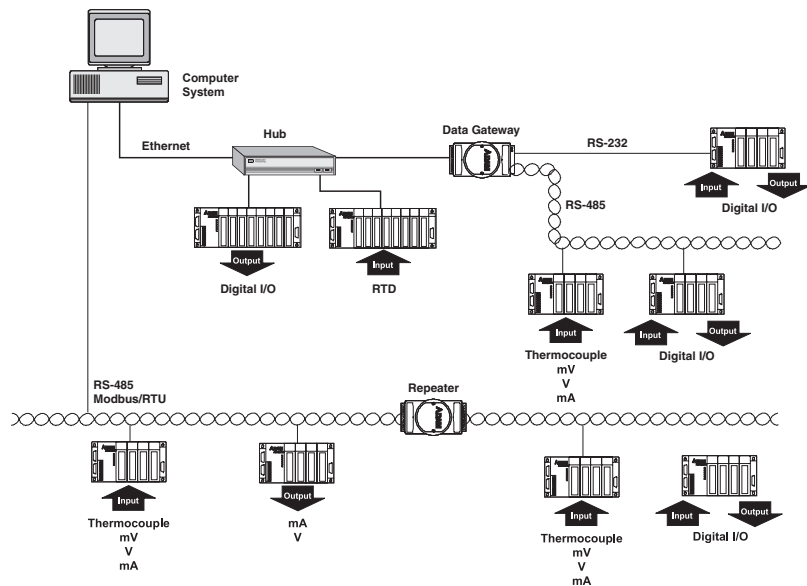


Node ID Setting  
8-pin dip switch configuration



Connection  
Pre-wired plug-in terminals with I/O modules

## Simple & Low Cost Network



# ADAM-5000 Controller Selection Guide



System		ADAM-5510M ADAM-5510KW	ADAM-5510E	ADAM-5510/TCP ADAM-5510KW/TCP	ADAM-5510E/TCP ADAM-5510EKW/TP	ADAM-5560
CPU		80188				Intel Atom Z510P 1.1 GHz
RAM		640 KB				1 GB DDR2 SDRAM
Flash ROM		256 KB				-
Flash Memory		256 KB				-
Flash Disk		1 MB				-
OS		ROM-DOS				WinCE5.0/XP embedded
Control Software		ADAM-5510M: Borland C ADAM-5510KW: KW SoftLogic	Borland C	ADAM-5510/TCP: Borland C ADAM-5510KW/TCP: KW SoftLogic	ADAM-5510E/TCP: Borland C ADAM-5510EKW/TP: KW SoftLogic	ADAM-5560CE: C/C++ and .NET ADAM-5560KW: KW SoftLogic
Real-time Clock		Yes				
Watchdog Timer		Yes				
COM1		RS-232	RS-232/485	RS-232	RS-232/RS-485	RS-232/485
COM2		RS-485				
COM3 (Programming)		RS-232 (TX, RX, GND)				RS-232/485
COM4		RS-232/485				
I/O Slots		4	8	4	8	7
Power Consumption		4 W				17 W
Isolation	Communication	2,500 V <sub>DC</sub> (COM2 RS-485)				2,500 V <sub>DC</sub> (COM2 RS-485) 1,500 V <sub>DC</sub> (COM1, COM3, COM4 RS-485)
	Communication Power	3,000 V <sub>DC</sub>				
	I/O Module	3,000 V <sub>DC</sub>				
Diagnosis	Status Display	Power, CPU, Communication, Battery				Power, User Define
	Self Test	Yes, while ON				
	Software Diagnosis	Yes				
Communication	Interface	RS-232/485		Ethernet (RJ-45)		Ethernet (2 x RJ-45)
	Speeds	1,200 bps ~ 115.2 kbps		10/100 Mbps		10/100 Mbps
	Max. Distance	4,000 feet (1.2 km)		100 m		100 m
	Data Format	N, 8, 1, 1		-		-
	Max. Nodes	32	32	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485
	Protocol	User Defined, Modbus/RTU	User Defined, Modbus/RTU	User Defined, Modbus/RTU, Modbus/TCP	User Defined, Modbus/RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP
	Remote I/O	Modbus Device				
	Power Requirements	10 ~ +30 V <sub>DC</sub>				
Environment	Operating Temperature	-10 ~ 70°C (14 ~ 158°F)				0 ~ 55°C (32 ~ 131°F)
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)				
	Humidity	5 ~ 95%				
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75	355 x 110 x 75
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- 1 WebAccess\* Solution
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- 14 Wireless IoT Sensing Devices
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# ADAM-5000 I/O Module Selection Guide



System		ADAM-5000/485	ADAM-5000E	ADAM-5000L/TCP	ADAM-5000/TCP
CPU		80188	80188	RISC CPU	
RAM		-	-	4 MB	
Flash ROM (User AP)		-	-	512 KB	
Flash Memory (Data Storage)		-	-	-	
Flash Disk		-	-	-	
OS		-	-	real-time OS	
Timer BIOS		-	-	-	
Real-time Clock		-	-	-	
Watchdog Timer		Yes			
I/O Slots		4	8	4	8
Power Consumption		3 W		4.0 W	5.0 W
Isolation	Communication	2,500 V <sub>DC</sub>		3,000 V <sub>DC</sub>	
	Communication Power	RS-485: 1,500 V <sub>DC</sub>			
	I/O Module	3,000 V <sub>DC</sub>			
Diagnosis	Status Display	Power, CPU, Communication		Power, CPU, Error Diagnostic, Communication	
	Self Test	Yes, while ON			
	Software Diagnosis	Yes			
Communication	Interface	RS-232/485 (2-wire)	RS-232/485 (2-wire)	Ethernet	
	Speeds (bps)	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	10 M, 100 M	
	Max. Distance	4,000 feet (1.2 km)	4,000 feet (1.2 km)	100 m without repeater	
	Data Format	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1 O, 8, 1	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1	TCP/IP	
	Max. Nodes	128	128	Depend on IP address	
	Protocols	ADAM ASCII/Modbus Protocol	ADAM ASCII/Modbus Protocol	Modbus/TCP	
	Remote I/O	-	-	20 nodes Modbus devices	
	Power Requirements	+10 ~ +30 V <sub>DC</sub>			
Environment	Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)			
	Humidity	5 ~ 95%			
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75
Page		13-19	13-19	13-20	13-20

# ADAM-5000 I/O Module Selection Guide

## Analog Input/Output Modules



Module		ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017UH	ADAM-5018
Analog Input	Resolution	16 bit	16 bit	16 bit	12 bit	16 bit
	Input Channel	3	8	8	8	7
	Sampling Rate	10 (total*)	10 (total*)	10 (total*)	200K**	10 (total*)
	Voltage Input	-	±150 mV, ±500 mV ±1 V, ±5 V, ±10 V	±150 mV, ±500 mV ±15V, ±10V, ±5 V, ±1 V 0 ~ 150mV, 0 ~ 500mV 0 ~ 1V, 0 ~ 5V, 0 ~ 10V 0 ~ 15V	±10 V, 0 ~ 10 V	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V
	Current Input	-	±20 mA	±20 mA, 4 ~ 20mA	0 ~ 20 mA, 4 ~ 20 mA	±20 mA
	Direct Sensor Input	Pt or Ni RTD	-	-	-	J, K, T, E, R, S, B
Isolation		3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>
Page		online	online	online	online	online

\*Sampling rate value depends on used channel number.

Example: Using 5 channels on ADAM-5017, sampling rate for each used channel will be 10/5 = 2 samples/second.

\*\*The sampling rate varies with the controller.



Module		ADAM-5018P	ADAM-5024	ADAM-5050	ADAM-5051/ ADAM-5051D/ ADAM-5051S	ADAM-5052	ADAM-5053S
Analog Input	Resolution	16 bit	-	-	-	-	-
	Input Channel	7	-	-	-	-	-
	Sampling Rate	10 (total*)	-	-	-	-	-
	Voltage Input	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V	-	-	-	-	-
	Current Input	4 ~ 20 mA	-	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B	-	-	-	-	-
Analog Output	Output Channels	-	4	-	-	-	-
	Resolution	-	12 bit	-	-	-	-
	Voltage Output	-	0 ~ 10 V	-	-	-	-
	Current Output	-	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	16 DI/O (bit-wise selectable)	16 (ADAM-5051) 16w/LED (5051D/5051S)	8	32
	Digital Output Channels	-	-	-	-	-	-
Isolation		3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	-	2,500 V <sub>DC</sub> (5051S)	5,000 V <sub>RMS</sub>	2,500 V <sub>DC</sub>
Page		online	online	online	online	online	online

\*Sampling rate value depends on used channel number.

Example: Using 6 channels on ADAM-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

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# ADAM-5000 I/O Module Selection Guide

## Digital Input/Output Modules



Module		ADAM-5055S	ADAM-5056/ ADAM-5056D	ADAM-5056S/ ADAM-5056SO	ADAM-5057S	ADAM-5060
Digital Input and Digital Output	Digital Input Channels	8 w/LED	-	-	-	-
	Digital Output Channels	8 w/LED	16 (ADAM-5056) 16 w/LED (ADAM-5056D)	16 w/LED	32	6 relay (2 form A/4 form C)
Isolation		2,500 V <sub>DC</sub>	-	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>	-
Page		online	online	online	online	online



Module		ADAM-5069	ADAM-5080	ADAM-5081	ADAM-5090/ ADAM-5091	ADAM-5095
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-
	Digital Output Channels	8 power relay (form A)	-	-	-	-
Counter (32-bit)	Channels	-	4	4/8	-	-
	Input Frequency	-	0.3 ~ 1000 Hz max. (frequency mode) 5000 Hz max. (counter mode)	5 Hz ~ 1 MHz max. (frequency mode) 1 MHz max. (counter mode)	-	-
	Mode	-	Frequency, Up/Down Counter, Bi-direction Counter	Frequency, Counter (Up/Down, Bi-direction, Up, A/B Phase)	-	-
Communication	Channels	-	-	-	4	2
	Type	-	-	-	RS-232	CAN
Isolation		-	1,000 V <sub>RMS</sub>	2,500 V <sub>DC</sub>	-	1,000 V <sub>DC</sub>
Page		online	online	online	online	online

# ADAM-5000 Controller Support Table

Type		PAC			PC-based Controller		
System		ADAM-5560KW	ADAM-5510KW ADAM-5510EKW	ADAM-5510KW/TCP ADAM-5510EKW/TP	ADAM-5560CE	ADAM-5510/TCP ADAM-5510E/TCP	ADAM-5510M ADAM-5510E
Function	I/O Module	7-slot Micro PAC with Atom™ CPU	4/8-slot Softlogic Controller w/ RS-485	4/8-slot Softlogic Controller w/ Ethernet	7-slot PC-based Controller with Atom™ CPU	4/8-slot PC-based Controller with Ethernet	4/8-slot PC-based Controller with RS-485
Analog Input (AI)	ADAM-5013	•	•	•	•	•	•
	ADAM-5017	•	•	•	•	•	•
	ADAM-5017P	•	-	-	•	•	•
	ADAM-5017H	-	•	•	-	•	•
	ADAM-5017UH	•	-	-	•	•	•
	ADAM-5018	•	•	•	•	•	•
	ADAM-5018P	•	-	-	•	•	•
Analog Output (AO)	ADAM-5024	•	•	•	•	•	•
Digital Input (DI)	ADAM-5051	•	•	•	•	•	•
	ADAM-5051D	•	•	•	•	•	•
	ADAM-5051S	•	•	•	•	•	•
	ADAM-5052	•	•	•	•	•	•
	ADAM-5053S	•	-	-	•	-	-
Digital Output (DO)	ADAM-5056	•	•	•	•	•	•
	ADAM-5056D	•	•	•	•	•	•
	ADAM-5056S	•	•	•	•	•	•
	ADAM-5056SO	•	•	•	•	•	•
	ADAM-5057S	•	-	-	•	-	-
Digital I/O	ADAM-5050	•	•	•	•	•	•
	ADAM-5055S	•	•	•	•	•	•
Relay Output	ADAM-5060	•	•	•	•	•	•
	ADAM-5069	•	•	•	•	•	•
Counter/Frequency	ADAM-5080	-	•	•	-	•	•
	ADAM-5081	•	-	-	•	•	•
Comm.	ADAM-5090	-	•	•	-	•	•
	ADAM-5095	•	-	-	•	-	-
Motion	ADAM-5202	•	-	-	•	-	-
	ADAM-5240	•	-	-	•	-	-
SD	ADAM-5030	•	-	-	•	-	-

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
- 14 Wireless IoT Sensing Devices
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# ADAM-5560CE/XPE ADAM-5560KW

7-slot PC-based Controller with  
Intel® Atom™ CPU

7-slot Micro PAC with Intel® Atom™ CPU



## Features

- Optional SCADA software WebAccess through CTOS
- Integrated VGA port for local display of HMI software
- Can be operated with or without display/ keyboard/ mouse
- Remote monitoring through Web Server
- Remote maintenance via FTP Server
- Supports .NET class library in Windows CE and XP embedded
- Supports IEC-61131-3 SoftLogic Control Software
- Supports Modbus/RTU (Master/Slave) and Modbus/TCP (Server/Client)
- Supports SD Storage I/O Module
- Remote I/O expansion
- Supports ADAM-5000 I/O Modules

## Introduction

ADAM-5560 is a Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with a PLC's robustness. The ADAM-5560 offers an Intel Atom CPU along with control specific features such as watchdog timer, battery backup RAM and deterministic I/O. The ADAM-5560KW features 5 standard IEC 61131-3 programming languages in Windows CE, so PLC users can develop control strategies with their own familiar programming languages. The powerful Multiprog KW Software and stable ProConOS have caused the ADAM-5560KW to become the best choice for a Programmable Automation Controller on the market today. Besides, the ADAM-5560CE offers an open platform that helps users to develop their own program using the common eVC and .NET programming environments to build compact and reliable control solutions. With the optional HMI Software and built-in VGA port, users no longer need to build additional SCADA PC's into their applications. This compact and powerful PAC is ideal for a variety of applications ranging from machine automation to SCADA applications.

## Specifications

### Control System

- **CPU** Intel Atom Z510P
- **I/O Capacity** 7 slots
- **LED Indicators** Power, User defined
- **Memory** 1 GB DDR2 SDRAM  
1 MB Battery Backup  
1 x CompactFlash® Card (Internal, 4GB)
- **Operating System** Windows® CE5.0
- **Real-time Clock** Yes
- **Watchdog Timer** Yes
- **Control Software** ADAM-5560CE: eVC and .NET library  
ADAM-5560XPE: .NET library  
ADAM-5560KW: KW Multiprog (development tool)  
ProConOS (runtime Kernel)

### Communications

- **Comm. Protocol** Modbus/RTU and Modbus/TCP
- **Medium** 2 x 10/100 Base-T w/ RJ-45  
4 x RS-485 w/ DB9

### Protection

- **Communication** RS-485 Isolation 1.5kV for COM1, COM3 and COM4  
RS-485 Isolation 2.5kV for COM2
- **Power Reversal** Yes

### Power

- **Power Consumption** 17w @ 24 V<sub>DC</sub> (Not include I/O modules)
- **Power Input** 12 ~ 24 V<sub>DC</sub>, ± 20%

### General

- **Certification** CE, FCC Class A
- **Connectors** 1 x RS-232/485 (COM1)  
1 x RS-485 (COM2)  
1 x RS-232/485 (COM3)  
1 x RS-232/485 (COM4)  
2 x USB 2.0 ports (KB/Mouse via USB Ports)  
1 x VGA (1024 x 768 Resolution)
- **Dimensions** 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN-rail, wall mount (panel mount)
- **Plug-in Screw Terminal** Accepts 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>, 1 – #12 or 2 – #14 to #22 AWG

### Environment

- **Humidity** 5% to 95%, non-condensing
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

## Ordering Information

- **ADAM-5560XPE** 7-slot PC-based Controller with Intel ATOM CPU (XP embedded)
- **ADAM-5560CE** 7-slot PC-based Controller with Intel ATOM CPU (WinCE5.0)
- **ADAM-5560KW** 7-slot Micro PAC with Intel Atom CPU
- **ADAM-5030** 2 x SD slots and 2 x USB 2.0
- **2070012606** WebAccess WinCE Option for CTOS

# ADAM-5560WA

## 7-slot Compact SCADA Controller with 600 Tags WebAccess



### Features

- Bundled with Advantech WebAccess, browser based HMI/SCADA software
- Built-in Windows XP Embedded
- Fanless design with no internal cabling
- Remote monitoring through Web Server
- Remote maintenance via FTP Server
- Supports .NET class library in Windows XP embedded
- Support more than 200 industrial protocol by 4 isolated comport and 2 LANs
- Onboard system status LED indicators
- Front-accessible design
- Remote I/O expansion
- Supports ADAM-5000 I/O Modules

### Introduction

The ADAM-5560WA is a compact SCADA controller with 7-slots. It is built on Advantech's solid platform and comes pre-installed with WebAccess SCADA software and pre-configured with Windows XP Embedded and the IIS environment. Just plug in the power and a network cable and the web enabled browser-based controller is ready for users to start configuring the SCADA system and IO from a computer. This compact SCADA controller is powered by an Intel Atom Z510P processor. It provides excellent computing power with low power consumption. It also has a direct I/O connection to form a space saving controller system.

### WebAccess Professional Version

- **I/O Tag Number** 600
- **Internal Tag Number** 600
- **Web Client** 1024
- **Alarm Logs** 5000
- **Action Logs** 5000
- **Graphics** Unlimited Number of Graphic Pages, Global Tag Source
- **Number of data logs** Number of I/O Tag Licenses x 2
- **Others** SCADA Redundancy  
TelScript / VBScript / Jscript Language  
Data Transfer and Reporting  
ODBC and SQL Query  
Device Redundancy

### Specifications

#### Control System

- **CPU** Intel Atom Z510P
- **I/O Capacity** 7 slots
- **LED Indicators** Power, User defined
- **Memory** 1 GB DDR2 SDRAM
- **Storage** 1 x CompactFlash® Card (Internal, 8GB)
- **Operating System** Windows XP Embedded (WES2009)
- **Real-time Clock** Yes
- **Watchdog Timer** OS and Application

#### Protection

- **Communication** RS-485 Isolation 1.5kV for COM1, COM3 and COM4  
RS-485 Isolation 2.5kV for COM2
- **Power Reversal** Yes

#### Power

- **Power Consumption** 17W @ 24 V<sub>DC</sub> (Not include I/O modules)
- **Power Input** 12 ~ 24 V<sub>DC</sub>, ± 20%

#### General

- **Certification** CE, FCC Class A
- **Dimensions** 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN-rail, wall mount (panel mount)
- **Plug-in Screw Terminal** Accepts 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>, 1 - #12 or 2 - #14 to #22 AWG

#### I/O Interfaces

- **Serial Ports** 1x RS-485, Terminal, 50 ~ 115.2kbps  
3x RS-232/485, DB9, 50 ~ 115.2kbps
- **LAN Ports** 2x RJ-45, 10/100Mbps
- **USB Ports** 2x USB2.0
- **Displays** 1x VGA, support 1024 x 768

#### Environment

- **Humidity** 5% to 95%, non-condensing
- **Operating Temperature** 0 ~ 55°C (32 ~ 131°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

### Ordering Information

- **ADAM-5560WA-T600E** 7-slot Compact SCADA Controller with 600 Tags WebAccess (Traditional Chinese)
- **ADAM-5560WA-C600E** 7-slot Compact SCADA Controller with 600 Tags WebAccess (Simplified Chinese)
- **ADAM-5560WA-E600E** 7-slot Compact SCADA Controller with 600 Tags WebAccess (English)

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
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11	Panel PCs
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# ADAM-5510 Series

## 4/8 slots PC-based Controller



ADAM-5510E

ADAM-5510



### Features

- Supports Modbus/RTU, Modbus/TCP Master and Slave function libraries
- Windows-based utility
- Optional support C Programming and IEC-61131-3 standard
- Complete set of I/O modules
- Built-in real-time clock and watchdog timer
- ROM-DOS operating system
- 4 serial communication ports
- Optional support Ethernet Interface with network function, such as Web Server, FTP Server and Email Alarm.
- 4 or 8 I/O slot expansion

### Introduction

The ADAM-5510 Series are ideal for PC-based data acquisition and control applications. They are compact, controllers with an Intel x86- based CPU running Datalight ROM-DOS. Built-in battery backup SRAM is the best choice for complex logic or data storage applications. For professional C/C++ programmers, the ADAM-5510 Series application programs may be written and compiled in Borland C++ 3.0, and downloaded to the controller.

For user who familiar with PLC programing environment, we provide the option for customer to use the KW softlogic which supports 5 standard IEC 61131-3 programming languages, including LD/FB/SFC/IL/ST.

### Specifications

#### Control System

- **CPU** 80188, 16-bit microprocessor
- **I/O Slots** Optional 8 or 4 slots
- **LED Indicators** Power, CPU, communications and battery
- **Memory**
  - Flash disk: 1 MB (960 KB for user applications)
  - Flash memory: 256 KB
  - Flash ROM: 256 KB
  - RAM: 640 KB (up to 384 KB with battery backup)
- **Memory (Softlogic version)**
  - Flash disk: 512KB
  - Flash memory: 768KB
  - Flash ROM: 256KB
  - RAM: 640KB SRAM, 32KB with battery backup (ADAM-5510KW)
  - RAM: 768KB SRAM, 17KB with battery backup (ADAM-5510KW/TCP, ADAM-5510EKW/TP)
- **Operating System** ROM-DOS (MS-DOS 6.22 Compatible)
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

#### Serial Communication

- **Max. Nodes** 256 (in RS-485 daisy-chain network)
- **Distance** 1.2 km (4,000 feet)
- **Speed** 1,200 bps ~ 115.2 kbps (9600, 19200, 38400 bps for Softlogic version)
- **Isolation** 2500 V<sub>DC</sub> (COM2 only)

#### Ethernet Communication

- **Medium** Cat.5 cable with RJ-45 connector
- **Distance** 100 m
- **Speed** 10/100Base-T

#### Power

- **Power Consumption** 4 W @ 24 V<sub>DC</sub> (not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>
- **Isolation** 3000 V<sub>DC</sub>
- **Reverse Protection** Yes

#### Software

- **ROM DOS version** C library for Borland C++ 3.0
- **Softlogic version** Development tool : KW Multiprog  
Runtime kernel : ProConOS

#### General

- **Certification** CE, FCC Class A
- **Connectors** COM1 : DB9-M  
COM2 : Screw terminal(RS-485)  
COM3 : DB9-F (RS-232/Programming)  
COM4 : DB9-M (RS-232/485)  
Power : Screw terminal  
LAN : RJ-45 (option)
- **Dimensions** 4-slot: 231 x 110 x 75 mm  
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN-rail, stack, wall

#### Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storing Temperature** -25 ~ 85°C (-13 ~ 185°F)

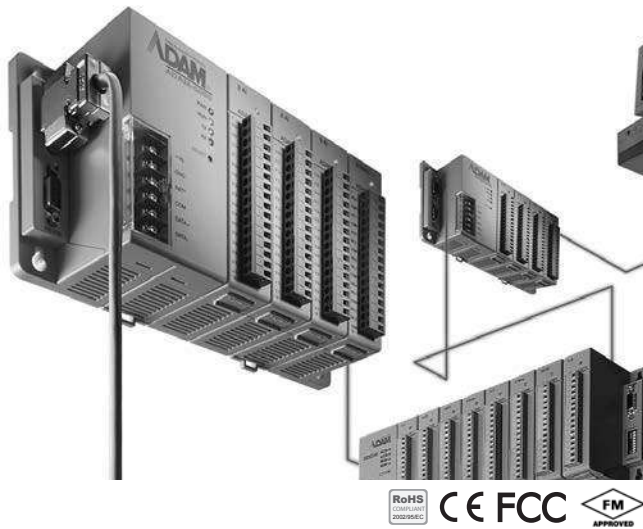
### Ordering Information

- **ADAM-5510M** 4-slot PC-based Controller
- **ADAM-5510E** 8-slot PC-based Controller
- **ADAM-5510/TCP** 4-slot PC-based Controller with Ethernet
- **ADAM-5510E/TCP** 8-slot PC-based Controller with Ethernet
- **ADAM-5510KW** 4-slot Softlogic Controller
- **ADAM-5510KW/TCP** 4-slot Softlogic Controller with Ethernet
- **ADAM-5510EKW/TP** 8-slot Softlogic Controller with Ethernet
- **MPROG-PRO535E** KW Multiprog Pro v5.35 (128k bytes I/O, Win7 support)



# ADAM-5000/485 ADAM-5000E

## 4-slot Distributed DA&C System for RS-485 8-slot Distributed DA&C System for RS-485



### Features

- RS-485 communication for easy installation and networking
- 4 or 8 slots for up to 128 points data monitoring card control in one module
- Extensive software support, includes windows DLL drivers, OCX drivers, OPC server and popular HMI/SCADA software drivers
- Seamlessly integrated with easy-to-use ADAMView data acquisition software
- Supports ADAM ASCII protocol or Modbus®/RTU protocol
- Supports Modbus/RTU protocol with user-defined Modbus address

### Introduction

The ADAM-5000/485 and ADAM-5000E systems conform to the EIA RS-485 communication standard. This is the industry's most widely used, balanced, bidirectional transmission line standard. RS-485 was specifically developed for industrial applications to transmit and receive data at high rates over long distances.

### Specifications

#### Control System

- **CPU** 16-bit 80188 microprocessor
- **I/O Slots** ADAM-5000/485: 4  
ADAM-5000E: 8
- **LED Indicators** Power, CPU, communications
- **Watchdog Timer** 1.6 sec. (System)

#### Communications

- **Command Format** ASCII command/response protocol, Modbus/RTU
- **Communication Distance** RS-485: 1.2 km (4000 feet)
- **Data Format** Asynchronous. 1 start bit, 8 data bits, 1 stop bit, no parity
- **Network Protocols** Programming link: RS-232 (3-wire: TX, RX, GND)  
Communication: RS-485 (2-wire)
- **Reliability Check** Communication error checking with checksum
- **Max. Nodes** 128 (in RS-485 daisy-chain network)
- **Speeds (kbps)** 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, and 115.2

#### Power

- **Power Consumption** 3 W @ 24 V<sub>DC</sub> (ADAM-5000/485)  
(not including I/O modules)  
4.0 W @ 24 V<sub>DC</sub> (ADAM-5000E)  
(not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>

#### Software

- **Driver Support Windows DLL, OPC Server, Wonderware InTouch, Intellution, iFIX, Citect, Advantech Studio, ADAMView**
- **C and .NET Class Library**

#### Protection

- **Communication Line Isolation** 2,500 V<sub>DC</sub> (ADAM-5000/485)  
3,000 V<sub>DC</sub> (ADAM-5000E)
- **I/O Module Isolation** 3,000 V<sub>DC</sub>
- **Transient Protection** RS-485 communication lines, power input
- **Power Reversal Protection** Yes

#### General

- **Certification** CE, FM
- **Connectors** 1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)  
1 x DB9-F for RS-232 (configuration)  
1 x Screw-terminal for power input
- **Dimensions (WxHxD)** 4-slot: 231 x 110 x 75 mm  
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN-rail, wall, rack (with mounting kit)

#### Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storing Temperature** -25 ~ 85°C (-13 ~ 185°F)

### Ordering Information

- **ADAM-5000/485** 4-slot Distributed DA & C System for RS-485
- **ADAM-5000E** 8-slot Distributed DA & C System for RS-485

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C Systems
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# ADAM-5000L/TCP

# ADAM-5000/TCP

4-slot Distributed DA&C System for Ethernet

8-slot Distributed DA&C System for Ethernet



ADAM-5000/TCP

ADAM-5000L/TCP



## Features

- Cortex M4 CPU
- 10/100Base-T auto-negotiation high-speed communication port
- Supports Modbus/TCP for easy integration
- Supports UDP event handling function
- Up to 100 m communication distance w/o repeater
- Allows remote configuration via Ethernet
- Allows concurrent access for 16 host PCs
- 4 I/O slots for up to 64 points and 8 I/O slots for up to 128 points data monitoring and control
- 1500 V<sub>DC</sub> isolation for Ethernet communication
- Built-in watchdog timer for system auto-reset
- Windows utility
  - I/O modules configuration and calibration
  - Network auto searching
  - Data stream setting
  - Current status monitoring and alarm trigger
- Provides C and .NET class library to develop applications
- Support GCL function for easy IO interlocking logic

## Introduction

The ADAM-5000L/TCP and ADAM-5000/TCP are both Ethernet-based I/O systems. Without a repeater, the ADAM-5000L/TCP and ADAM-5000/TCP can cover a communication distance up to 100 m. This allows remote configuration via Ethernet and sixteen PCs can simultaneously access the data. The ADAM-5000L/TCP and ADAM-5000/TCP are the solutions for easy configuration and efficient management. It is an ideal and cost-effective solution for eAutomation architecture.

## Specifications

### Control System

- **CPU** Cortex M4
- **I/O Slots** ADAM-5000L/TCP: 4  
ADAM-5000/TCP: 8
- **Memory** Flash ROM:1 MB
- **Operating System** Real-time OS
- **LED Indicators** Power (3.3 V)  
RUN  
Communication (Link, Active, 10/100 Mbps, Tx, Rx)
- **Storage** 1 x MicroSD slot

### Communications (Ethernet)

- **Data Transfer Rate** Up to 100 Mbps
- **Event Response Time** < 5 ms
- **Interface** 2 x RJ-45 sharing one MAC Address
- **Wiring** UTP, category 5 or greater

### Communications (Serial)

- **Comm. Distance** RS-485: 1.2 km (4000 feet)  
RS-232: 15 m
- **Comm. Protocol** Modbus/RTU
- **Data Transfer Rate** Up to 115.2 kbps
- **Interface** 1 x DB9-M for RS-485  
1 x DB9-F for RS-485  
1 x DB9-F for RS-232 (System Monitoring)
- **Max. Nodes** 15 (in RS-485 daisy-chain network for Remote I/O connection)

### Power

- **Power Consumption** 4.0 W @ 24 V<sub>DC</sub> (ADAM-5000L/TCP)  
(not including I/O modules)  
5.0 W @ 24 V<sub>DC</sub> (ADAM-5000/TCP)  
(not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>

### Software

- **API** VS.NET Class Library
- **Windows Utility** Network setting, I/O configuration & calibration, data stream, alarm setting
- **Modbus/TCP OPC Server**

### Protection

- **Communication Line Isolation** 3.000 V<sub>DC</sub>
- **I/O Module Isolation** 3.000 V<sub>DC</sub>
- **LAN Communication** 1.500 V<sub>DC</sub>
- **Overvoltage Protection** Yes
- **Power Reversal Protection** Yes

### General

- **Certification** CE, FCC class A
- **Connectors** 1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)  
1 x DB9-F for RS-232 (internal use)  
1 x Screw-terminal for power input  
2 x RJ-45 for LAN
- **Dimensions (W x H x D)** ADAM-5000L/TCP: 231 x 110 x 75 mm  
ADAM-5000/TCP: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN-rail, wall

### Environment

- **Operating Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** - 10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** - 25 ~ 85°C (-13 ~ 185°F)

## Ordering Information

- **ADAM-5000L/TCP** 4-slot Ethernet-based Distributed DA & C System
- **ADAM-5000/TCP** 8-slot Ethernet-based Distributed DA & C System

## Wireless IoT Sensing Devices

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To view all of Advantech's Wireless IoT Sensing Devices, please visit [www.advantech.com/products](http://www.advantech.com/products).



# IoT Wireless I/O Modules Overview



## DNA of Wireless IoT Sensing Devices

### DNA 1 ▶ Data Acquisition



#### Broad Adoptability

The WISE-4000 series adopts major sensors in different formats with different I/O channel types and amounts.



#### Robust Protection

The wide operating temperature with isolation protection ensures it can be deployed in even more environments.



#### Easy Installation

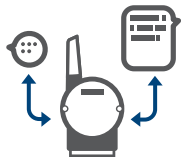
New industrial design for quick hardware installation and also software configuration.

### DNA 2 ▶ Data Processing



#### Data Log

Data can be buffered with a time stamp, which can then be queried or automatically pushed.



#### Data Conditioning

Built-in local intelligence includes filtering, scaling and other several logic rules.



#### Web Configuration

With an HTML5 web server, all devices with a browser can access modules for configuration and troubleshooting.

### DNA 3 ▶ Data Publishing



#### Cloud Access

Data can be transmitted to the cloud in a secure socket without using a gateway.



#### RESTful Web Service

With the RESTful web service, I/O modules can seamlessly integrate with IT systems.



#### Direct Mobile Connectivity

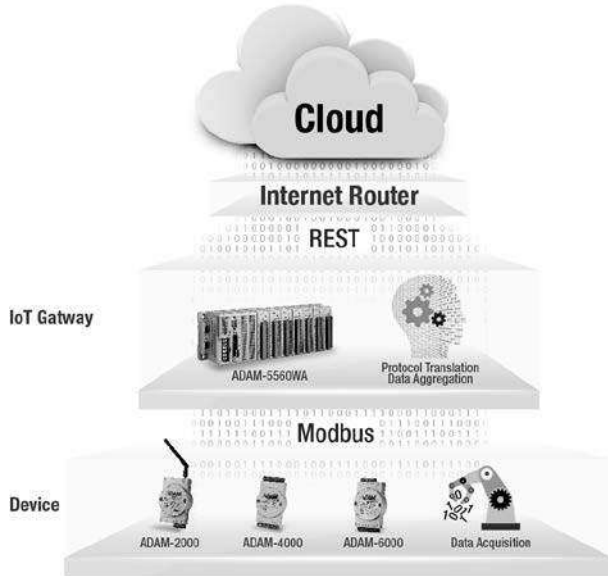
Mobile devices can connect to WISE-series via Wi-Fi, to get the data and module configuration without needing other devices in between.

## Data Acquisition and Sensing in IoT

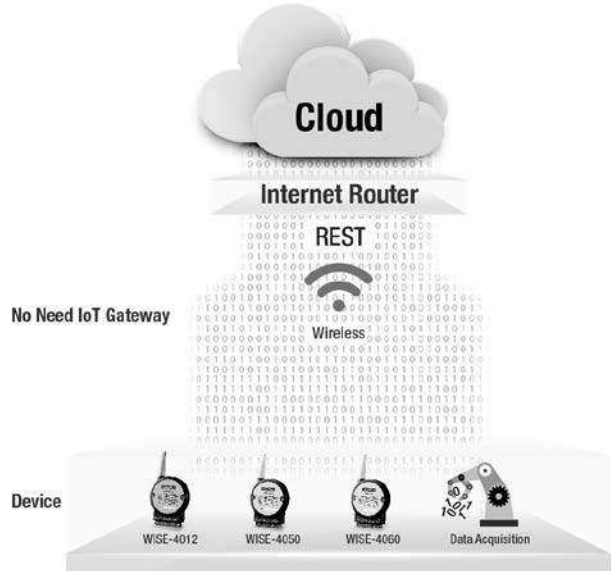
### IoT Architecture

There are two different ways to get the devices to the cloud. For legacy devices, an IoT gateway can be used to perform protocol translation and data aggregation. A gateway then publishes the aggregated data to the cloud. For IoT devices which support Ethernet, it can be directly connected to the cloud to provide further service if there are not many devices in the system, or the devices are widely deployed in different areas. Otherwise, an IoT gateway can be used to manage the data before publishing to the cloud to reduce the connections between cloud and devices, or reducing the network bandwidth.

**IoT Architecture with Legacy Device**



**IoT Architecture with IoT Device**



### RESTful API

Representational State Transfer (REST) is a software architecture style and widely used for creating scalable web services. With the advantage of scalability, simplicity and performance, it's already adopted in IoT applications. It is based on Hypertext Transfer Protocol (HTTP) and uses verbs, like GET, POST, PUT, DELETE, etc., for web browsers to get web pages or retrieve data with remote servers. The data can be retrieved by internet media like HTML, XML, or JSON. REST is a Uniform Resource Identifier (URI) used to identify data, like using "http://10.0.0.1/analoginput/ch0" to identify the analog input value of channel 0, so the web server may retrieve a JSON file analog input value of channel 0.

### Secure Socket

Compared to Modbus/TCP which is also based on TCP, RESTful API provides higher scales to be used in wide area network (WAN). Modbus/TCP does not support security, so it can only be used in local area networks (LAN). However, RESTful which uses HTTP for data retrieval, can support HTTPS (HTTP over SSL (Secure Socket Layer)) or TLS (Transport Layer Secure). For developing IoT applications, RESTful API will be a better option for publishing data to the cloud or retrieving data between devices.

#### Automation Protocol

Modbus/TCP Master



Modbus/TCP Slave

#### RESTful Web API

Web Client



Web Server



- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
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- 19 Networking



# IoT Wireless I/O Modules Features

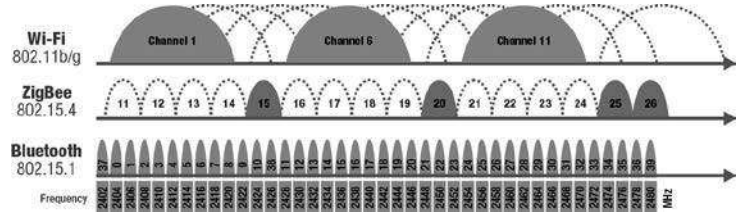
## Wireless Ethernet Interface

### IEEE 802.11 b/g/n and Wi-Fi

The 802.11 specification is a standard for wireless LAN (WLAN) that was ratified by the Institute of Electrical and Electronics Engineers (IEEE) in the year 1997. Like all IEEE 802 standards, the 802.11 standards focus on the bottom two levels the ISO model, the physical layer and link layer. The name Wi-Fi (short for "Wireless Fidelity") corresponds to the name of the certification given by the Wi-Fi Alliance, the group which ensures compatibility between hardware devices that use the 802.11 standard. Due to misuse of the terms, the name of the standard is often confused with the name of the certification. A Wi-Fi network, in reality, is a network that complies with the 802.11 standard.

### 2.4 GHz Interface Comparison

2.4 GHz radio band is one of the industrial, scientific and medical (ISM) radio bands. It is the most widely used band for short-range, low power communications systems, which includes Bluetooth, Near Field Communication (NFC), wireless sensor networks (like Zigbee), and wireless LAN (WLAN). WLAN provides most bandwidth and is the widest standard used by vendors. Bluetooth offers low power consumption and is widely applied to mobile devices. The new Bluetooth standard of can automatically avoid radio band interference with WLAN by frequency hopping. ZigBee also provides low energy consumption, and it also has various network topologies. However, ZigBee cannot be used in environments with other 2.4GHz radio wireless devices. Plus, it needs its own gateway to organize the ZigBee network, and it is not compatible with other vendor's ZigBee devices.

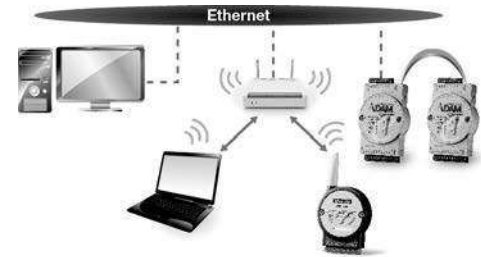


### WLAN Infrastructure

The WLAN infrastructure is organized by WLAN Access Point (AP) and WLAN Stations. The wireless client, which is the end device like a smart phone, connects to a wireless access point (AP) to join the WLAN network. The wireless server which provides the wireless network, and organizes the network for WLAN stations is called a WLAN access point (AP), or wireless adapter. WLAN APs sometime provides the function of a DHCP server with dynamically assigned IP address for WLAN stations. This kind of AP usually acts a as a network router, so it can also be called a wireless router.

### Ethernet Architecture

WLAN is the easiest interface to implement into an existing Ethernet network, users just need to add an access point to an existing network to extend wireless connectivity. Because all network devices don't need to be from same vendor, it has been widely established for a wide range of different application scenarios.



### HTML5 Web configuration

A web interface is the most common interface that can be accessed by most devices. Compared with .NET programmed utilities or mobile apps, a web interface has much less limitations compared to platforms. WISE modules provide web interface configuration in HTML5. By using browsers which support HTML5, like Google Chrome, Mozilla Firefox, IE or Apple Safari, users can access WISE using any devices or platform.

The new web configuration interface can automatically change its layout when using different kinds of device, and for mobile devices which have vertical screens, it will automatically adjust the layout to fit the screen of the mobile device and switch to horizontal layout when using a laptop. Before entering the page or web configuration, WISE modules provide an authorization process, meaning that users need to login with different accounts for different authorizations, which ensures the security of the module.

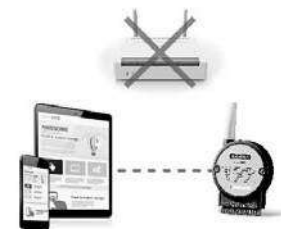
### Wireless Operation Mode

In general, WISE modules need to stay connected to access points (AP) to be online. Users who want to connect their mobile devices to WISE modules will need to connect to the same AP as WISE modules connect to. In this case, that access point acts as a wireless switch for both Ethernet devices.



### Limited AP Mode

For configuration or module diagnostics, it is not necessary to have a wireless switch. WISE-4000 series offers another network mode: Limited AP Mode. Users can connect their mobile devices to the WISE module directly without an AP. When WISE-4000 works in Limited AP mode, users can find the SSID for and connect to it as a wireless switch. This makes the configuration and diagnostics much easier.

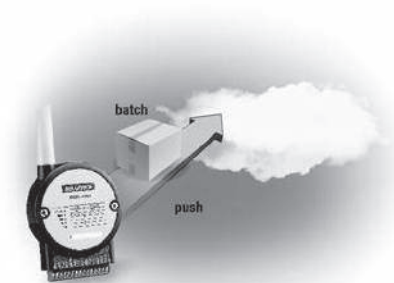


## File-based Cloud Logger and Local Data Storage



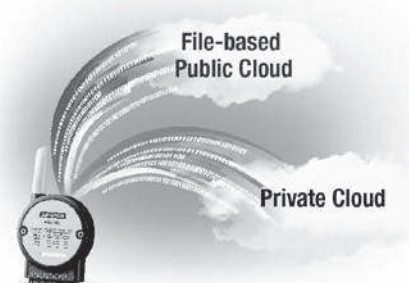
### Up to 10,000 samples of local data storage

The internal flash of the WISE module can log up to 10,000 samples of data with a time stamp. The I/O data can be logged periodically, and also when the I/O status changes. Once the memory is full, users can choose to overwrite the old data to ring log or just stop the log function. When the module is powered-off, data can be kept in the module. When restarting, users can decide whether to clear all data or continue logging.



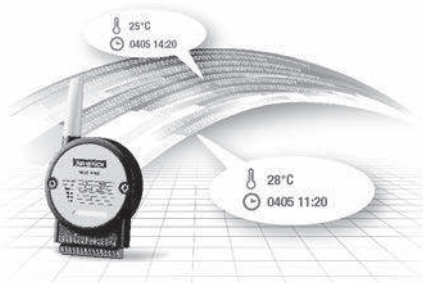
### Reduce the communication time and bandwidth

In the IoT communication architecture, periodic polling takes lots of time and bandwidth. Once the data can be logged in the module, users can poll a batch of data at the same time, instead of polling each piece of data individually. In this case, user can simplify the polling mechanism and also reduce the communication interface fee.



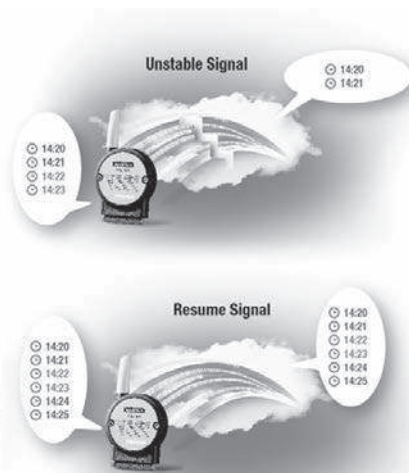
### Cloud Logger function with public cloud or private cloud

Locally stored data can not only be polled by the user, it can also be automatically pushed to the cloud. Once the logger meets the upload criteria, it will push the data to a public cloud service such as Dropbox or Baidu. This data will be saved on the cloud using a \*.csv file extension and users can synchronize the data on the cloud using the application provided by the cloud provider and access it from wherever they are. Using the included RESTful API, users can configure their private cloud server and push the data to it in the JSON format. Cloud Logger provides a very flexible solution for cloud data storage making WISE modules a one stop solution from data acquisition to the cloud.



### Data storage with time stamps

The definition of data in the IoT is not only the status of everything, but also includes time or location information. With a built-in Real Time Clock (RTC), WISE modules log data with a time stamp and the MAC address of the WISE module. The internal RTC can be calibrated by SNTP with the time server. Once the module been powered-off, the internal time can also be saved using the time backup battery. When users poll the data from the data logger, the time stamp will always be attached to the data.



### Reducing the concerns of a wireless interface

WISE-4000 Wireless IoT Ethernet I/O Modules focus on wireless connectivity. Even though a new generation of Wi-Fi interface could be stable, users are concerned that the wireless signal maybe reduced or nonexistent. In this situation, WISE modules provide local data storage. The I/O data and system events are logged in the internal flash memory of the WISE module. So now users can fetch this logged data when communication is restored.



### Modbus/RTU to Web Service or Modbus/TCP

The RS-485 port of the WISE-4051 supports Modbus, which can be used to poll the data from Modbus/RTU devices, like ADAM-4000, or ADAM-5000/485. Then you can access the data by Modbus/TCP or REST from the WISE-4051. The data can also be logged.

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# IoT Wireless I/O Modules Features

## Quick Installation and Easy Maintenance



### Changeable Antenna

For flexibility, the wireless antenna of the WISE module is not fixed. Users can replace the antenna by unscrewing it counterclockwise. Advantech only ensures the performance of the default antenna and the performance is decided by the application's environment.

### LED Indicator for Diagnostics

WISE modules have an LED indicator on the front of the module. Besides the status and communication indicator, users can instantly see the network mode via an LED indicator. The LED will be ON when working in AP mode. During infrastructure mode, the LED will be OFF and the signal strength LED will be on to indicate the signal quality between the WISE module and wireless access point.



### External Switches and Detailed Product Label

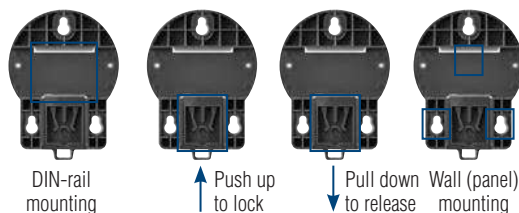
The I/O input setting switches are on the back of the WISE module. Users don't need to open the device to configure the I/O type. For example, users can configure the digital input contact to be dry or wet via the switches. The details of the switch will be shown on the product label for the reference. The MAC address of the module is also on the label.

### Initial Switch

There is a DIP switch on the back of the device for switching the WISE module to the default factory communication settings. If the user forgets the IP address of the WISE module, or wireless communication password they can configure this switch to the OFF position for the default factory communication settings.

### New Mounting Kit

WISE modules come with a new type of mounting kit. Users can use this kit for DIN-rail and wall mounting (panel mount). The new mounting kit provides easy mounting for DIN-rails, users just need to switch the hook for the mounting kit to lock or release the module on the DIN-rail. WISE modules also support stack mounting as used on Advantech's other I/O modules.



## Power Supply



### Power Input (Not applicable to WISE-4012E)

The WISE-4000 is designed for a standard industrial unregulated 24 V<sub>DC</sub> power supply. For further applications, it can also accept 10 ~ 30 V<sub>DC</sub> of power input, maximum 200mV peak to peak power ripple.



### USB Power Input (WISE-4012E Only)

For the IoT developer, reliable power is an important feature. So a micro-B USB power connector is provided for powering the WISE module via the computer's USB port, mobile device's USB power adapter, or using a USB power bank. (Note: WISE modules are not battery chargeable, the USB port is only for powering up the module, not for USB communication.)

# IoT Wireless I/O Modules Selection Guide



Model		WISE-4012E	WISE-4012	WISE-4050	WISE-4060	WISE-4051
Description		6-ch Input/Output IoT Wireless I/O Module for IoT Developers	4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Relay Output IoT Wireless I/O Module	8-ch Digital Input IoT Wireless I/O Module with 1-port RS-485
Wireless Interface	IEEE Standard	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n
	Frequency Band	2.4GHz	2.4GHz	2.4GHz	2.4GHz	2.4GHz
	Outdoor Range	110m (L.O.S.)	110m (L.O.S.)	110m (L.O.S.)	110m (L.O.S.)	110m (L.O.S.)
	Network Mode	Infrastructure, Limited AP	Infrastructure, Limited AP	Infrastructure, Limited AP	Infrastructure, Limited AP	Infrastructure, Limited AP
	Security	WPA2 Personal & Enterprise	WPA2 Personal & Enterprise	WPA2 Personal & Enterprise	WPA2 Personal & Enterprise	WPA2 Personal & Enterprise
	Antenna Connector	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA
Analog Input	Channel	2-ch (Differential)	4-ch	-	-	-
	Input Type	V	V, A, Dry contact DI	-	-	-
	Voltage Range	0 ~ 10V	±150mV, ±500mV, ±1V, ±5V, ±10V, 0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V	-	-	-
	Current Range	-	0 ~ 20mA, 4 ~ 20mA, ±20mA	-	-	-
	Resolution	12-bit	16-bit	-	-	-
	Sampling Rate	10 Hz (Total)	10 Hz (Total)	-	-	-
	Accuracy	±0.1 V <sub>DC</sub>	Voltage: ±0.1% of FSR Current: ±0.2% of FSR	-	-	-
	Burn-out Detection	-	Yes (4 ~ 20 mA only)	-	-	-
	Isolation	-	3,000 V <sub>rms</sub>	-	-	-
Digital Input	Channel	2-ch Dry Contact	Shared with AI	4-ch Dry Contact or Wet Contact	4-ch Dry Contact or Wet Contact	8-ch Dry Contact or Wet Contact
	Counter Input	3kHz	2Hz	3kHz	3kHz	3kHz
	Frequency Input	0.1 ~ 3kHz	0.1 ~ 2Hz	0.1 ~ 3kHz	0.1 ~ 3kHz	0.1 ~ 3kHz
	Isolation	-	3,000 V <sub>rms</sub>	3,000 V <sub>rms</sub>	3,000 V <sub>rms</sub>	3,000 V <sub>rms</sub>
Digital Output	Channel	2-ch Relay	2-ch (Sink Type)	4-ch (Sink Type)	4-ch Power Relay	-
	Output Rating (Resistive Load)	120 V <sub>AC</sub> @ 0.5 A 30 V <sub>DC</sub> @ 1 A	Open collector to 30 V <sub>DC</sub> , 400 mA max.		250 V <sub>AC</sub> @ 5 A 30 V <sub>DC</sub> @ 3 A	-
	Pulse Output	60 operations/minute	5kHz	5kHz	60 operations/minute	-
	Isolation	1,500 V <sub>rms</sub>	3,000 V <sub>rms</sub>	3,000 V <sub>rms</sub>	3,000 V <sub>AC</sub>	-
Serial Port	Port Number	-	-	-	-	1
	Type	-	-	-	-	RS-485
	Data Bits	-	-	-	-	7, 8
	Stop Bits	-	-	-	-	1, 2
	Parity	-	-	-	-	None, Odd, Even
General	LED Indicators	Status, Communication, Network Mode, Quality	Status, Communication, Network Mode, Quality	Status, Communication, Network Mode, Quality	Status, Communication, Network Mode, Quality	Status, Communication, Network Mode, Quality, Serial Tx, Rx
	Real-time Clock	Yes	Yes, with battery backup	Yes, with battery backup	Yes, with battery backup	Yes, with battery backup
	Connectors	I/O: Terminal block Power: Micro-B USB	Plug-in screw terminal block (I/O and power)	Plug-in screw terminal block (I/O and power)	Plug-in screw terminal block (I/O and power)	Plug-in screw terminal block (I/O and power)
	Dimensions	80 x 148 x 25 mm (W x H x D)				
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)				
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)				
	Operating Humidity	20 ~ 95% RH (non-condensing)				
	Storage Humidity	0 ~ 95% RH (non-condensing)				
Power	Input Range	Micro USB 5 V <sub>DC</sub>	10 ~ 30 V <sub>DC</sub>	10 ~ 30 V <sub>DC</sub>	10 ~ 30 V <sub>DC</sub>	10 ~ 30 V <sub>DC</sub>
	Protection	-	Power Reversal Protection	Power Reversal Protection	Power Reversal Protection	Power Reversal Protection
	Power Consumption	1.5 W @ 5 V <sub>DC</sub>	2.5 W @ 24 V <sub>DC</sub>	2.2 W @ 24 V <sub>DC</sub>	2.5 W @ 24 V <sub>DC</sub>	2.2 W @ 24 V <sub>DC</sub>
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# WISE-4012

# WISE-4051

4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module

8-ch Digital Input IoT Wireless I/O Module with RS-485 Port

NEW



WISE-4012



## Specifications

### Universal Input

- **Channels** 4
- **Resolution** 16-bit
- **Sampling Rate** Analog Input 10Hz (Total)  
Digital Input 2Hz (Per Channel)
- **Accuracy** ±0.1% of FSR (Voltage)  
±0.2% of FSR (Current)
- **Input Type and Range**  
Analog Input ±150mV, ±500mV, ±1V, ±5V, ±10V,  
0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V,  
0 ~ 20mA, 4 ~ 20mA, ±20mA
- **Input Impedance** Digital Input (Dry Contact) 0: Open, 1: Close  
> 10M Ω (Voltage)  
120 Ω (External resistor for current)
- **Over Voltage Protection** ±35 V<sub>DC</sub>
- **Burn-out Detection** Yes (4 ~ 20mA only)
- **Supports Data Scaling and Averaging**

### Digital Output

- **Channels** 2  
(Open collector to 30 V, 400 mA max.  
for resistance load)
- **Isolation** 3,000 V<sub>rms</sub>
- **Supports 5 kHz Pules Output**
- **Supports High-to-Low and Low-to-High Delay Output**

## Common Specifications

### General

- **WLAN** IEEE 802.11b/g/n 2.4GHz
- **Outdoor Range** 110 m with line of sight
- **Connectors** Plug-in screw terminal block (I/O and power)
- **Watchdog Timer** System (1.6 second) and  
Communication (programmable)
- **Certification** CE, FCC, R&TTE, NCC, SRRC, RoHS, KC
- **Dimensions (W x H x D)** 80 x 148 x 25 mm
- **Enclosure** PC
- **Mounting** DIN 35 rail, wall, and stack
- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Power Reversal Protection**

NEW



WISE-4051



## Specifications

### Digital Input

- **Channels** 8
- **Logic Level** Dry Contact 0: Open  
1: Close to DCOM  
Wet Contact 0: 0 ~ 3 V<sub>DC</sub>  
1: 10 ~ 30 V<sub>DC</sub> (3 mA min.)
- **Isolation** 3,000 V<sub>rms</sub>
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**
- **Serial Port**
- **Port Number** 1
- **Type** RS-485
- **Serial Signal** DATA+, DATA-
- **Data Bits** 7, 8
- **Stop Bits** 1, 2
- **Parity** None, Odd, Even
- **Baud Rate (bps)** 1200, 2400, 4800, 9600, 19200,  
38400, 57600, 115200
- **Protection** 15 kV ESD
- **Protocol** Modbus/RTU (Total 32 address by max. 8 instructions)

### Power Consumption

WISE-4012: 2.5 W @ 24 V<sub>DC</sub>  
WISE-4050: 2.2 W @ 24 V<sub>DC</sub>  
WISE-4051: 2.2 W @ 24 V<sub>DC</sub>  
WISE-4060: 2.5 W @ 24 V<sub>DC</sub>

- **Supports User Defined Modbus Address**
- **Supports Data Log Function** Up to 10,000 samples with RTC time stamp
- **Supported Protocols** Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**
- **Supports Web Server in HTML5 with JavaScript & CSS3**
- **Supports System Configuration Backup and User Access Control**

### Environment

- **Operating Temperature** -25 ~ 70°C (-13 ~ 158°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)



# WISE-4050

# WISE-4060

## 4-ch Digital Input and 4-ch Digital Output IoT Wireless I/O Module

## 4-ch Digital Input and 4-ch Relay Output IoT Wireless I/O Module



WISE-4050



### Specifications

#### Digital Input

- **Channels** 4
- **Logic Level** Dry Contact 0: Open  
1: Close to DI COM  
Wet Contact 0: 0 ~ 3 V<sub>DC</sub>  
1: 10 ~ 30 V<sub>DC</sub> (3 mA min.)
- **Isolation** 3,000 V<sub>rms</sub>
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

#### Digital Output

- **Channels** 4  
(Open collector to 30 V, 400 mA max. for resistive load)
- **Isolation** 3,000 V<sub>rms</sub>
- **Supports 5 kHz Pules Output**
- **Supports High-to-Low and Low-to-High Delay Output**



WISE-4060



### Specifications

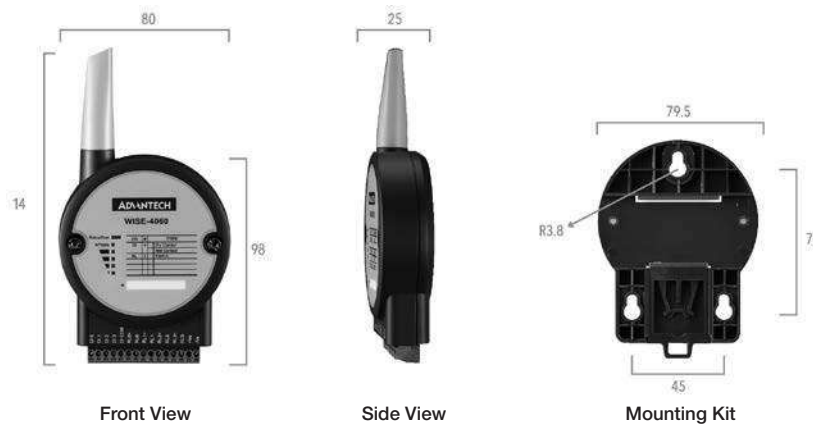
#### Digital Input

- **Channels** 4
- **Logic Level** Dry Contact 0: Open  
1: Close to DI COM  
Wet Contact 0: 0 ~ 3 V<sub>DC</sub>  
1: 10 ~ 30 V<sub>DC</sub> (3 mA min.)
- **Isolation** 3,000 V<sub>rms</sub>
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

#### Relay Output

- **Channels** 4 (Form A)
- **Contact Rating** 250 V<sub>AC</sub> @ 5 A  
(Resistive Load) 30 V<sub>DC</sub> @ 3 A
- **Isolation (b/w coil & contacts)** 3,000 V<sub>AC</sub>
- **Relay On Time** 10 ms
- **Relay Off Time** 5 ms
- **Insulation Resistance** 1 GΩ min. @ 500 V<sub>DC</sub>
- **Maximum Switching** 60 operations/minute
- **Supports Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

### Dimensions



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# WISE-4012E

## 6-ch Input/Output IoT Wireless I/O Module for IoT Developers



SRRC R&TTE FC CE

### Features

- 2.4 GHz IEEE 802.11b/g/n WLAN
- 2-ch 0 ~ 10V Input, 2-ch DI, and 2-ch Relay Output
- Includes WebAccess with demo project for developer
- Includes extension board for simulating sensor status
- Includes micro USB cable for power input
- Supports Modbus/TCP with RESTful web service
- Supports wireless client and server mode that can be accessed directly without AP or router
- Supports mobile device web configuration with HTML5 without the platform limitation
- Supports file-based cloud storage and local logging with time stamp

### Introduction

The Advantech WISE IoT Developer Kit is a complete hardware & software solution to help users develop IoT applications and simulate their projects in the simplest way. The WISE IoT Developer Kit provides everything you need to get going: a WISE-4012E 6-ch universal input or output wireless Ethernet I/O module, and developer kit including: WebAccess 8.0 with open interfaces for intelligent application developer, extension board for simulating sensor status, a micro USB cable for power input, and a screwdriver for wiring. The WISE-4012E has an integrated Wi-Fi interface with AP mode and web configuration which can be accessed by mobile device directly. Data can be logged in the I/O module and then automatically pushed to the file-based cloud.



### Product Concept: Data A-P-P



Data Acquisition



Data Processing



Data Publishing

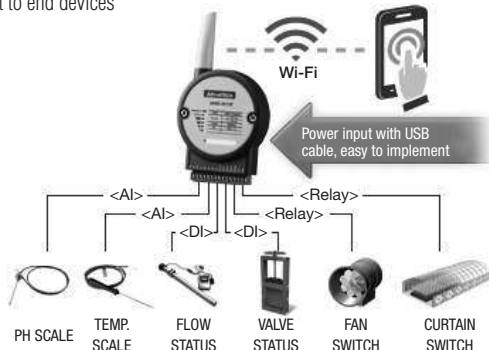
### IoT Developer Kit

WebAccess Cloud Mobile WiFi

- WISE-4012E (x1)
- Extension Board (x1)
- USB Cable (x1)
- Screwdriver (x1)
- WebAccess (x1)

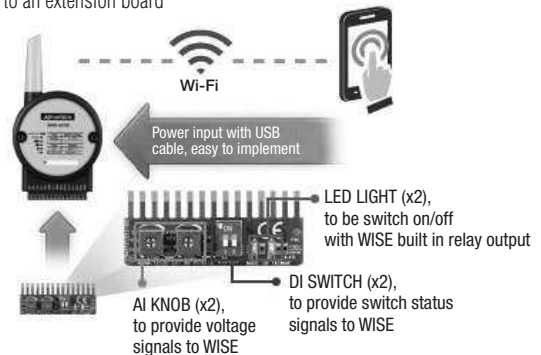
### Application Scenario 1

Connect to end devices



### Application Scenario 2

Connect to an extension board



## Specifications

### Voltage Input

- **Channel** 2
- **Resolution** 12-bit
- **Sampling Rate** 10 Hz (Total)
- **Accuracy**  $\pm 0.1 V_{DC}$
- **Input Type and Range** 0 ~ 10 V
- **Input Impedance** 100 k $\Omega$

### Digital Input

- **Channels** 2
- **Logic level** Dry Contact 0: Open  
1: Close to GND
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

### Relay Output

- **Channels** 2 (Form A)
- **Contact Rating** 120 V<sub>AC</sub> @ 0.5 A  
(Resistive Load) 30 V<sub>DC</sub> @ 1 A
- **Isolation** (b/w coil & contacts) 1,500 V<sub>rms</sub>
- **Relay On Time** 10 ms
- **Relay Off Time** 7 ms
- **Insulation Resistance** 1 G $\Omega$  min. @ 500 V<sub>DC</sub>
- **Maximum Switching** 60 operations/minute
- **Supports Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

### Environment

- **Operating Temperature** -25 ~ 70°C (-13 ~ 158°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

### General

- **WLAN** IEEE 802.11b/g/n 2.4GHz
- **Connectors** Plug-in screw terminal block (I/O)
- **Watchdog Timer** System (1.6 second) and Communication (programmable)
- **Certification** CE, FCC, R&TTE, NCC, SRRC, RoHS
- **Dimensions (W x H x D)** 80 x 139 x 25 mm
- **Enclosure** PC
- **Power Input** Micro-B USB 5 V<sub>DC</sub>
- **Power Consumption** 1.5 W @ 5 V<sub>DC</sub>
- **Supports User Defined Modbus Address**
- **Supports Data Log Function** Up to 10,000 samples with time stamp
- **Supported Protocols** Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**
- **Supports Web Server in HTML5 with JavaScript & CSS3**
- **Supports System Configuration Backup and User Access Control**

## Ordering Information

- **WISE-4012E-AE-WA** WISE-4012E IoT Developer Kit with WebAccess

## Advantech WebAccess 8.0

### WebAccess Cloud Architecture

WebAccess is a 100% web based HMI and SCADA software with private cloud software architecture. WebAccess can provide large equipment vendors, SIs, and Enterprises access to and manipulation of centralized data to configure, change/update, or monitor their equipment, projects, and systems all over the world using a standard web browser. Also, all the engineering works, such as: database configuration, graphics drawing and system management and the troubleshooting can be operated remotely. This can significantly increase the efficiency of maintenance operations and reduce maintenance costs.

### Business Intelligence Dashboard

WebAccess 8.0 provides an HTML5 based Dashboard as the next generation of WebAccess HMI. System integrators can use Dashboard Editor to create the customized information page by using analysis charts and diagrams which are called widgets. Ample widgets have been included in the built-in widget library, such as trends, bars, alarm summary, maps...etc. After the dashboard screens have been created, end user can view the data by Dashboard Viewer in different platforms, like Explorer, Safari, Chrome, and Firefox for a seamless viewing experience across PCs, Macs, tablets and smartphones.

### Open Interfaces

WebAccess has three interfaces for different uses. First, WebAccess provides a Web Service interface for partners to integrate WebAccess data into APPs or application system. Second, a pluggable widget interface has been opened for programmer to develop their widget and run on WebAccess Dashboard. Last, WebAccess API, a DLL interface for programmer to access WebAccess platform and develop Windows applications. With these interfaces, WebAccess can act as an IoT platform for partners to develop IoT applications in various vertical markets.

### Google Maps and GPS Tracking Integration

WebAccess integrates real-time data on each geographical site with Google Maps and GPS location tracking. For remote monitoring, users can intuitively view the current energy consumption on each building, production rate on each field or traffic flow on the highway together with alarm status. By right-clicking on Google Maps or entering the coordinate of the target, users can create a marker for the target and associate the real-time data of three sites with a display label. Furthermore, this function also integrates with GPS modules to track the location of the marker in Google Maps and allows it to be used in vehicle systems.

### Ample Driver Support

WebAccess supports hundreds of devices. In addition to Advantech I/Os and controllers, WebAccess also supports all major PLCs, controllers and I/Os, like Allen Bradley, Siemens, LonWorks, Mitsubishi, Beckhoff, Yokogawa etc. WebAccess can easily integrate all devices in one SCADA. All of these device drivers are integrated into WebAccess and free of charge. For a complete list of WebAccess drivers, refer to [webaccess.advantech.com](http://webaccess.advantech.com).

### Distributed SCADA Architecture with Central Database Server

SCADA nodes run independent of any other node. Each SCADA node communicates to automation equipment using communication drivers supplied with Advantech WebAccess. The Project Node is a centralized database server of configuration data. A copy of the database and graphics of all SCADA nodes is kept on the Project Node. The historical data is also stored in the database in project node.

### Open Data Connectivity

Advantech WebAccess exchanges online data with 3rd party software in real-time by supporting OPC UA/DA, DDE, Modbus and BACnet Server/Client. It supports SQL, Oracle, MySQL, and MS Access for offline data sharing.

### Software Requirements

- **Operating System** Windows XP (SCADA Node Only), Windows 7 SP1, Windows 8 Professional, Windows Server 2008 R2 or later
- **Hardware** Intel Atom or Celeron. Dual Core processors or higher recommended  
2GB RAM minimum, more recommended  
30GB or more free disk space



# IoT Wireless Sensor Node Overview

## IoT Sensing Solutions for Energy and Environment Applications



### Environment

- Agriculture
- Wastewater
- Air Emission

### Factory

- Shopfloor / Warehouse / Data Center Environment
- Machine Status
- Equipment Efficiency

### Energy

- Wind Power
- Solar Power
- Water Power

### Transportation

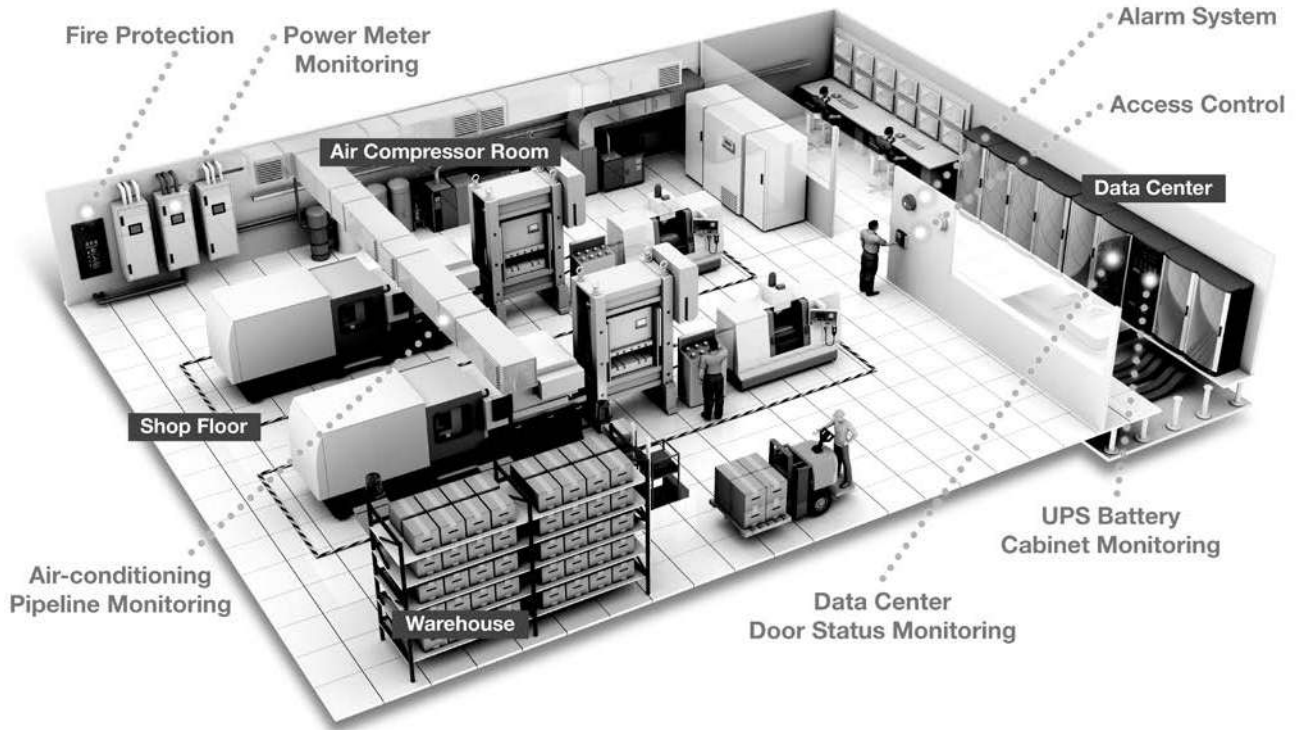
- Rolling Stocking
- Fleet Management
- Material Traceability

The Advantech WISE wireless sensor node (WSN) series includes WISE-4200, WISE-4400 and WISE-4600 for fulfilling different domain specific applications. WISE WSN series provides intelligent sensing ability with flexible I/O combination, serial interface and built-in sensor. Besides the easy-to-use WLAN (Wireless Local Area Network) interface which can be integrated within existing Ethernet networks, WISE-4200 series also introduces LPWAN (Low Power Wide Area Network) wireless interface which offers kilometer level communication radius using battery power. LPWAN features mean WISE modules can be deployed as indoor monitoring systems or outdoor Energy and Environment monitoring systems. Moreover, to enable simple and cost-effective IoT vertical application development, WISE WSN will provide plenty of connectivity directly with different cloud platforms or cloud applications.





## IoT Wireless Monitoring Solution for iFactory 4.0

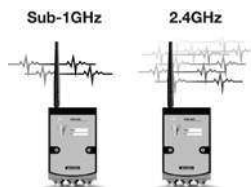


## Industrial Sub-GHz IoT Wireless Solution



### Application-ready Sensor Combination

The combination of I/O and sensors allow WISE-4200 to be more user-friendly for diverse applications. For example, with DI, DO, and RS-485 ports combined in a module, WISE-4200 can be quickly adapted to access control monitoring for data centers or warehouses.



### Less Interference than 2.4GHz Spectrum

Compared to Wi-Fi, Bluetooth, ZigBee, or any other 2.4GHz wireless interface, sub-GHz gives less interference in high humidity locations or places already with 2.4GHz wireless.



### Longer Communication Range than 2.4GHz

Sub-GHz is a kind of LPWAN (Low-Power Wide-Area Networks) which was designed for long range communication. Under the same power consumption, sub-GHz has longer communication range than 2.4GHz. (Note: Low data rate for long range)



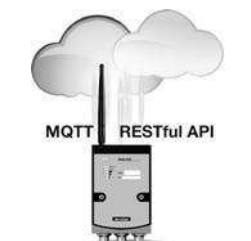
### Better Penetration Through Concrete or Steel than 2.4GHz

Sub-GHz signals can bend around concrete or steel buildings. Compared with 2.4GHz, sub-GHz has better penetration and less degradation which makes it more suitable for indoor or smart city applications.



### Powered by 3.6V AA Type Lithium Battery

The low power features of sub-GHz allows sensor nodes to be powered by batteries. With 3.6V AA type Lithium batteries, the sensor node can keep communicating at up to 5 km for 5 years thus reducing the effort of changing.



### IoT Protocol Supported: MQTT, RESTful API

The IoT wireless sensor nodes are designed not only for automation, but also for IoT applications which can use MQTT or RESTful web API IoT protocols for cloud integration.

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
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# WISE-4210

## Industrial Sub-GHz IoT Wireless Sensor Node

### Preliminary



### Features

- Application-ready sensor combination
- Powered by 3.6V Lithium Battery
- Longer communication range than 2.4GHz
- Better penetration through concrete and steel than 2.4GHz
- Less interference than 2.4GHz spectrum
- IoT protocol supported: MQTT, RESTful Web API
- Data log function and cloud connectivity

### Common Specification

#### Wireless Communication

- IEEE Standard IEEE 802.15.4g
- Frequency Band 433 MHz or 868, 915 MHz
- Outdoor Range 5 km with line of sight (with 2 dBi Antenna)
- Topology Star
- Network Capacity 64 clients

#### General

- Power Input AP: 10 ~ 30 V<sub>DC</sub>  
Sensor Node: 3 x AA, 3.6V Lithium Battery or 10 ~ 30 V<sub>DC</sub>
- Battery Life 3 year with 60 second update rate
- Mounting DIN 35 rail, wall, and stack

#### Environment

- Operating Temperature -20 ~ 70°C
- Operating Humidity 5 ~ 95% RH
- Storage Temperature -40 ~ 85°C
- Storage Humidity 0 ~ 95% RH

### Wireless Access Point

#### General

- Ethernet IEEE 802.3u 10/100Base-T(X)
- Connector RJ-45
- Messaging Protocol Modbus/TCP, RESTful Web API, MQTT
- Application Protocol HTTP, HTTPS, SNMP, DHCP
- Transport Protocol TCP, UDP
- Supports RESTful Web API in JSON format
- Supports Web Server in HTML5

### Temperature and Humidity Sensors

#### Temperature Sensor

- Operating Range -20°C ~ 70°C (-4°F ~ 157.9°F)
- Resolution 0.02°C (0.04°F)
- Accuracy ±1.0°C

#### Humidity Sensor

- Operating Range 5 ~ 95% RH
- Resolution 0.15% RH
- Accuracy ±6.0% RH @ 40 ~ 60% RH

### Temperature Monitoring

#### RTD Input

- Channels 4
- Input Type 2, 3-wire Pt RTD or digital input
- Temperature Range Pt-100: -200 ~ 200°C  
Pt-1000: -40 ~ 160°C
- Accuracy ±0.1% or better

### Power Unit Monitoring

#### Analog Input

- Channels 8
- Resolution 16-bit
- Input Range 0 ~ 10V, 4 ~ 20mA

### Access Control Monitoring

#### Digital Input

- Channels 6 (Dry Contact)

#### Digital Output

- Channels 2

#### Serial Port

- Port Number 1
- Type RS-485
- Data Bits 7, 8
- Stop Bits 1, 2
- Parity None, Odd, Even
- Baud Rate (bps) 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
- Protocol Modbus/RTU (Total 32 address by max. 8 instructions)

### Ordering Information

#### Wireless Access Point

- WISE-4210-AP Industrial Sub-GHz IoT Wireless to Ethernet AP

#### Wireless Sensor Node

- WISE-4210-S215 Industrial Sub-GHz IoT Wireless Sensor Node for Temperature Monitoring
- WISE-4210-S217 Industrial Sub-GHz IoT Wireless Sensor Node for Power Unit Monitoring
- WISE-4210-S231 Industrial Sub-GHz IoT Wireless Sensor Node with Temperature and Humidity Sensors
- WISE-4210-S250 Industrial Sub-GHz IoT Wireless Sensor Node for Access Control Monitoring

# WISE-4220

## WLAN IoT Wireless Sensor Node

Preliminary



### Features

- 2.4GHz Wi-Fi reducing the wiring cost during big data acquisition
- Easily extend the existing network by adding APs, and share existing Ethernet software
- Configured by mobile devices directly without installing any software or Apps
- Zero data loss using the log function with RTC time stamp
- Data can be automatically pushed to Dropbox or computer
- Supports RESTful web API in JSON format for IoT integration

### Common Specification

- **WLAN** IEEE 802.11b/g/n 2.4GHz
- **Outdoor Range** 110 m with line of sight
- **Connectors** Plug-in screw terminal block (I/O and power)
- **Watchdog Timer** System (1.6 second) and Communication (programmable)
- **Enclosure** PC
- **Mounting** DIN 35 rail, wall, and stack
- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Power Reversal Protection**
- **Supports User Defined Modbus Address**
- **Supports Data Log Function** Up to 10,000 samples with RTC time stamp
- **Supported Protocols** Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**
- **Supports Web Server in HTML5 with JavaScript & CSS3**
- **Supports System Configuration Backup and User Access Control**

### Temperature and Humidity Sensors

#### Temperature Sensor

- **Operating Range** -20°C ~ 70°C (-4°F ~ 157.9°F)
- **Resolution** 0.02°C (0.04°F)
- **Accuracy** ±1.0°C

#### Humidity Sensor

- **Operating Range** 5 ~ 95% RH
- **Resolution** 0.15% RH
- **Accuracy** ±6.0% RH @ 40 ~ 60% RH

### Temperature Monitoring

#### RTD Input

- **Channels** 4
- **Input Type** 2, 3-wire Pt RTD or digital input
- **Temperature Range** Pt-100: -200 ~ 200°C  
Pt-1000: -40 ~ 160°C
- **Accuracy** ±0.1% or better

### Power Unit Monitoring

#### Analog Input

- **Channels** 8
- **Resolution** 16-bit
- **Input Range** 0 ~ 10V, 4 ~ 20mA

### Access Control Monitoring

#### Digital Input

- **Channels** 6 (Dry Contact)

#### Digital Output

- **Channels** 2

#### Serial Port

- **Port Number** 1
- **Type** RS-485
- **Data Bits** 7, 8
- **Stop Bits** 1, 2
- **Parity** None, Odd, Even
- **Baud Rate (bps)** 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
- **Protocol** Modbus/RTU (Total 32 address by max. 8 instructions)

### Ordering Information

#### Wireless Sensor Node

- **WISE-4220-S215** WLAN IoT Wireless Sensor Node for Temperature Monitoring
- **WISE-4220-S217** WLAN IoT Wireless Sensor Node for Power Unit Monitoring
- **WISE-4220-S231** WLAN IoT Wireless Sensor Node with Temperature and Humidity Sensors
- **WISE-4220-S250** WLAN IoT Wireless Sensor Node for Access Control Monitoring

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# IoT Tags and Sensor Gateways Overview

## IoT Sensing Solutions for Smart City Applications



### Hospital

- Faculty Management
- Patient Tracking
- Asset Management



### Factory

- Environmental Monitoring
- Visitor Tracking
- Equipment Management



### Retail

- Real-time Mobile Promotion Message Delivering
- Collect Customer behavior
- Shopping Maps Navigation

The Advantech® WISE-2200W is an active RFID location tracking tag that operates with existing Wi-Fi network infrastructure to keep costs low and make deployments simple and fast. In conjunction with Advantech® Real Time Location System (RTLS) controller, the tag enables location of virtually any asset or object. WISE-2200W operates on standard Wi-Fi networks; it does not require any extra infrastructure beyond your facility's existing WLAN. Using standard 802.11b/g/n 2.4GHz Wi-Fi networks, WISE-2200W tracks assets in real-time. For applications requiring ultra-high location accuracy, such as in hospitals, WISE-2200W in combination with WISE-2400 wireless industrial beacons deliver high accuracy. Each WISE-2200W tag features a built-in battery, with charging via a USB adapter.



# IoT Tags and Sensor Gateways Selection Guide



	WISE Tag		Industrial Beacon	WISE-RTLS
Model	WISE-2200W	WISE-2200B	WISE-2400	UNO-2473G
Description	802.11b/g/n Wi-Fi Low Energy Tag	Bluetooth 4.1 Low Energy Tag	BLE/ Wi-Fi Intelligent Sensor Gateway	WISE-RTLS Server
Standard	IEEE 802.11 b/g/n	Bluetooth Low Energy 4.1	Bluetooth Low Energy 4.1 / IEEE 802.11 b/g/n	<ul style="list-style-type: none"> <li>Supports WISE-Tag *1000 units</li> <li>Supports Web browser and multiple algorithms to determine accurate in real-time</li> <li>Supports multiple function of Asset/people tracking, alerting and reporting, Push Message, Navigation and device management</li> <li>Supports simplify integration into your ecosystem with an open API</li> </ul>
Security	WPA2 Personal and Enterprise Security	AES-128	WPA2 Personal and Enterprise Security /AES-128	
Operation Modes	Station	Advertising, Connected	BLE : Scan Wi-Fi : Station, Access Point	
Typical Operating Range	Up to 80m	Up to 50m	Up to 80m	
Group Configuration	FOTA (Firmware upgrade Over The Air) remote configuration			
User Interface	Call button Tamper switch Power On/Off button One Blue/Red LED Motion detection	Call button Tamper switch One Blue/Red LED Motion detection	One Blue/Red LED Power On/Off button	
Precision	~ 5 meter (Depends on AP performance)	Less than 2 meter	N/A	
Battery Type	960mAh Li-ion Rechargeable Battery	CR2450 Battery *550mAh	Power Adapter:AC to DC, DC 5V/1A	
Tag Operation Life	Up to 6 months (Battery life dependent on usage scenario and other factors)	Up to 1 year (Battery life dependent on usage scenario and other factors)	N/A	
Dimensions (W x H x D)	71 x 43 x 17 mm, IP54	47.5 x 32 x 15 mm, IP54	90 x 90 x 25 mm	
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# WISE-RTLS

## WISE-RTLS Server

### Preliminary



### Features

- Supports IEEE 802.11b/g/n or Bluetooth® version 4.1 \* 1000 tags/sensors
- Supports web browser to find anyone and anything in real-time on maps or lists
- Supports multiple algorithms to determine accurate, reliable real-time presence detection and location
- Supports multiple wireless visibility technologies to suit all needs--detection, chokepoint visibility, room and sub-room location detection, sensors and telemetry
- Supports multiple functions to suit all applications--asset/people tracking, alerting and reporting, Push Message, navigation and device management
- Supports location and status data collection for data analytics
- Supports simple integration into your ecosystem with an open API

## Introduction

Advantech WISE-RTLS is web-based LBS software that enables users to strengthen location applications, and remotely manage and configure systems such as the IoT Software Framework. Advantech's complete LBS software, the IoT Software Framework offering empowers professionals to develop applications efficiently and cost-effectively.

The WISE-RTLS (Real Time Location System) platform, powered by Tableau, reveals game-changing business intelligence that impacts decision-making and workflows using accurate, real-time location data. Using actual floor plans, WISE-RTLS displays building(s), floor(s), zone(s), room, and sub-room locations with the status and condition of assets and people as activity occurs in real-time; it also handles tag management, provides an open API for integration with third-party systems, enables alerts, generates reports, and offers dashboard views to help support improved decision making.



## Specifications

### System Hardware

- **BIOS** AMI UEFI 128Mbit Flash BIOS
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Processor** Intel® Celeron™ Processor J1900 2.42 GHz Quad Core, 2MBL2
- **System Chip** Intel Atom™/Celeron J1900 Processor SoC integrated
- **Memory** On-board 4GB DDR3L 1600 MHz/4GB DDR3L 1333 MHz
- **Graphics Engine** Intel® HD Graphics: Gen7 with 4EU
- **Ethernet** Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az
- **LED Indicators** LEDs for Power, battery, LAN (Active, Status), Tx/Rx (UNO-2473G-E3AE only) and HDD
- **Storage** One mSATA  
One drive bay for SATA 2.5" HDD
- **Expansion** 1 x Full-size mPCIe slot, mPCIe 2.0

### I/O Interfaces

- **Serial Ports** 2 x RS-232, DB9, 50 ~ 115.2kbps, 2 x 232/422/485, DB9, auto flow control, 50 ~ 115.2kbps
- **LAN Ports** 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
- **USB Ports** 5 x USB Ports (4 x USB 2.0, 1 x USB 3.0 compliant) for UNO-2473G-J3AE
- **Displays** 1 x VGA, supports 2560 x 1600 at 60Hz 1 x HDMI, supports 1920 x 1080 at 60Hz
- **Audio** Line-In
- **Power Connector** 1 x 3 Pins, Terminal Block
- **Grounding Protection** Chassis Grounding

### Environment

- **Operating Temperature** - 10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow
- **Storage Temperature** - 40 ~ 85°C ( -40 ~ 185°F)
- **Relative Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (mSATA)  
Operating, IEC 60068-2-64, 0.7Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
- **Ingress Protection** IP40

## Ordering Information

- **UNO-2473G-J3AE** Intel® Celeron J1900 2.42GHz, 4GB, 2 x LANs, 1 x mPCIe
- **968LSDOU00** WISE-RTLS Software
- **968LSDOU01** WISE-RTLS Software – Cloud version



# WISE-2200W

## 802.11b/g/n Wi-Fi Low Energy Tag



SRRC  FCC  CE 

### Features

- Compliant with standard IEEE 802.11b/g/n
- Supports G sensor and Tamper Switch for motion detection
- Small size fits on small and odd-shaped assets
- Supports push button / dual LED to set and modify tag behaviors
- Supports power saving function
- Supports Over-the-air remote setting to modify tag behavior
- Rechargeable battery for easy maintenance
- Asset/Object location tracking and management

### Introduction

The Advantech® WISE-2200W is an active RFID location tracking tag that operates with existing Wi-Fi network infrastructure to keep costs low and make deployments simple and fast. In conjunction with Advantech® Real Time Location System (RTLS) controller, the tag enables location of virtually any asset or object. WISE-2200W operates on standard Wi-Fi networks; it does not require any extra infrastructure beyond your facility's existing WLAN.

Using standard 802.11b/g/n 2.4GHz Wi-Fi networks, WISE-2200W tracks assets in real-time. For applications requiring ultra-high location accuracy, such as in hospitals, WISE-2200W in combination with WISE-2400 wireless industrial beacons deliver high accuracy. Each WISE-2200W tag features a built-in battery, with charging via a USB adapter.

The tag has built-in, configurable button that can send alarms or event notifications to preassigned authorities, also can be reconfigured and managed remotely anywhere in the enterprise without having to recall or touch the tag. It also includes an LED light for local alerts, and an advanced, tamper-proofing mechanism for security and theft prevention; it triggers an immediate alert if it is removed or tampered with in any way.

### Specifications

#### Wireless Network

- **Standard** IEEE 802.11 b/g/n standards compliant
- **Transmission Power** -17 dBm at 1 DSSS  
-17.25 dBm at 11 CCK  
-13.5 dBm at 54 OFDM
- **Receiver Sensitivity** -94.7 dBm at 1 DSSS  
-87 dBm at 11 CCK  
-73 dBm at 54 OFDM
- **Security** WPA2 Personal and Enterprise Security
- **Typical Operating Range** Indoor Range: Up to 80m (260 feet)
- **Operation Modes** Station (Client / Network modes)

#### Interface

- **LED Indicator (Red / Blue)** Power, WLAN, Battery
- **Antenna** Omni-directional Antenna
- **Call Button** \*1  
1. Reset: Resets device to factory defaults (to reset to factory defaults, push the button for more than 10 seconds)  
2. Emergency alerting: Press the button and let go after 1 second to enable alert function
- **Micro USB Port** \*1, Micro USB port for charging
- **Tamper Button** \*1, Security and theft prevention, triggering an immediate alert
- **Power Button** \*1, Power On/Off

#### General

- **Group Configuration** FOTA (Firmware upgrade Over The Air) remote configuration
- **G-Sensor** 1. Motion detection  
2. Adjustable motion detection trigger level  
3. Wake up tag in sleep mode to active mode immediately
- **Battery Management** Tag Battery gauge detection

#### Mechanics

- **Dimensions** 71 x 43 x 17 mm
- **Weight** 52g
- **Water Resistant** Plastic: IP54
- **Mounting** Double-sided tape, Wall mount, Pole mount

#### Power Requirements

- **960mAh Li-ion Rechargeable Battery**

#### Environment

- **Operating Temperature** 0 to 50°C
- **Storage Temperature** -20 to 70°C
- **Operating Humidity** 10 to 90% RH (Non-condensing)
- **Storage Humidity** 5 to 95% RH (Non-condensing)

### Ordering Information

- **WISE-2200W-00A1E** 802.11b/g/n Wi-Fi Low Energy Tag

1

WebAccess® Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

5

Thin-Client Terminals

6

High-Performance Control Panels

7

Control Cabinet PCs

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Industrial IoT Gateways

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Industrial monitors

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# WISE-2400

## BLE/ Wi-Fi Intelligent Sensor Gateway



SRRC   

### Features

- Compliant with standard IEEE 802.11b/g/n and Bluetooth 4.1 low energy
- Centralized monitoring of multiple BLE tags / sensors
- Multiple BLE-Wi-Fi Gateway can be accessed/controlled from server and smart devices
- Supports SmartConfig™ Technology, AP Mode, and WPS2 for Easy and Flexible Wi-Fi Provisioning
- Supports Bluetooth 4.1 compliant up to 8 simultaneous connections
- Supports fast scan BLE devices up to over 40 devices
- Supports longer range design
- Supports over-the-air programming
- Supports sensors function (temperature / humidity)

### Introduction

The Advantech® WISE-2400 is a Bluetooth® 4.1 and IEEE 802.11 b/g/n intelligent sensor gateway that enables simultaneous, high-speed sensing and data acquisition from multiple WISE-2200B, temperature, and humidity inputs. Our range of Bluetooth sensing systems is ideal for both small scale applications requiring a few sensor nodes and large scale applications requiring hundreds.

### Specifications

#### Wireless Network

- **Standard** Bluetooth® version 4.1 / 802.11 b/g/n
- **Frequency Range** 2.400 ~ 2.4835GHz
- **Receiver Sensitivity** Bluetooth RF Performance:  
TX Power Up to +10dBm  
RX Sensitivity -97 dBm  
Wi-Fi RF Performance:  
TX Power 17.0 dBm @1 DSSS 14.5 dBm @ 54 OFDM  
RX Sensitivity -94.7 dBm @ 1 DSS -74.0 dBm @ 54 OFDM
- **Security** WPA2 Personal and Enterprise Security /AES-128
- **Typical Operating Range** Indoor Range: Up to 80m (260 feet)
- **Operation Modes** BLE: Scan  
Wi-Fi: Station, Access Point

#### Interface

- **LED Indicators (Red / Blue)** WLAN, PWR
- **Antenna** Omni-directional Antenna
- **Micro USB** \*1, Power , Data configuration
- **Reset Button** \*1, Press button 10 seconds to reset to factory default

#### General

- **Upgrade** FOTA (Firmware upgrade Over The Air) remote configuration
- **Sensor** Temperature / Humidity
- **Device Connection** Supports up to 8 simultaneous connections  
Fast Scan BLE devices up to over 40 devices

#### Mechanics

- **Dimensions (W x H x D)** 90 x 90 x 25 mm
- **Weight** 56g
- **Mounting** Ceiling Mount

#### Power Requirements

- **AC/DC USB POWER ADAPTER** 5V/1A (US/EU)

#### Environment

- **Operating Temperature** 0 to 50°C
- **Storage Temperature** -20 to 70°C
- **Operating Humidity** 10 to 90% RH (Non-condensing)
- **Storage Humidity** 5 to 95% RH (Non-condensing)

### Ordering Information

- **WISE-2400-00A1E** BLE/ Wi-Fi Intelligent Sensor Gateway

# WISE-2200B

## Bluetooth 4.1 Low Energy Tag



SRRC   

### Features

- Compliant with standard 2.4-GHz Bluetooth 4.1 low energy
- Supports G sensor and Tamper Switch for motion detection
- Small size fits on small and odd-shaped assets
- Supports push button / dual LED to set and modify tag behaviors
- Supports power saving function
- Supports Over-the-air remote setting to modify tag behavior
- Asset/object location tracking and management

### Introduction

The Advantech® WISE-2200B is an active RFID location tracking tag that operates with WISE-2400 wireless industrial beacons on Bluetooth 4.1 with 2.4GHz. This keeps costs low and makes deployments simple and fast. In conjunction with Advantech® Real Time Location System (RTLS) controller, the tag enables location of virtually any asset or object.

WISE-2200B tracks assets in real-time. When used in combination with WISE-2400, the WISE-2200B delivers ultra-high location accuracy; perfect for applications such as in hospitals, or anywhere that precise locations are required.

The tag has a built-in, configurable button that can send alarms or event notifications to preassigned authorities, it also can be reconfigured and managed remotely anywhere in the enterprise without having to recall or touch the tag. The tag also includes an LED light for local alerts, and an advanced, tamper-proof mechanism for security and theft prevention that triggers an immediate alert if it is removed or tampered with in any way.

### Specifications

#### Wireless Network

- **Standard** Bluetooth® version 4.1
- **Transmit Power(EIRP)** ~ 5dBm (max)
- **Receiver Sensitivity** Typical -94dBm
- **Security** AES128
- **Typical Operating Range** Indoor Range: Up to 50m (164 feet)
- **Operation Modes** Advertising, Connected

#### Interface

- **LED Indicator (Red / Blue)** Power, WLAN, Battery
- **Antenna** Omni-directional Antenna
- **Call Button** \*1
  - 1. Reset: Resets device to factory defaults (to reset to factory defaults, push the button for more than 10 seconds)
  - 2. Emergency alerting: Press the button and let go after 1 second to enable alert function
- **Tamper Button** \*1, Security and theft prevention, triggering an immediate alert

#### General

- **Group Configuration** FOTA (Firmware upgrade Over The Air) remote configuration
- **G-Sensor**
  - 1. Motion detection
  - 2. Adjustable motion detection triggers level
  - 3. Wake up tag in sleep mode to active mode immediately
- **Battery Management** Tag Battery gauge detection

#### Mechanics

- **Dimensions (W x H x D)** 47.5 x 32 x 15 mm
- **Weight** 20g
- **Water Resistant** Plastic: IP54
- **Mounting** Double-sided tape, Wall mount, Pole mount

#### Power Requirements

- CR2450 (600mAh) battery

#### Environment

- **Operating Temperature** 0 to 50°C
- **Storage Temperature** -20 to 70°C
- **Operating Humidity** 10 to 90% RH (Non-condensing)
- **Storage Humidity** 5 to 95% RH (Non-condensing)

### Ordering Information

- **WISE-2200B-00A1E** Bluetooth 4.1 Low Energy Tag

1

WebAccess® Solution

2

Intelligent Motion Control and Machine Vision

3

Power & Energy Automation

4

Industrial Operator Panels

5

Thin-Client Terminals

6

High-Performance Control Panels

7

Control Cabinet PCs

8

Industrial IoT Gateways

9

Industrial monitors

10

iDoor Technology Modules

11

Panel PCs

12

Control IPCs

13

Remote DA&C Systems

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Wireless IoT Sensing Devices

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Ethernet I/O Modules

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RS-485 I/O Modules

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Industrial Ethernet Solutions

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IP Gateway and Serial Device Servers

19

iNetworking

# ARK-RI2150L

## Fanless Intelligent Video Controller



### Features

- All-in-One x86-based Intelligent and Industrial Platform with Intel® Core™ i7 processors + Intel QM77 PCH
- 1 x DDR3/DDR3L, SO-DIMM supports up to 8 GB
- Supports up to 2 x GbE, 2 x USB 3.0, 2 x USB 2.0 and 2 x COMs ports
- Supports 1 x internal mSATA socket
- Supports Intel AMT8.0
- Integrate video capture, analysis
- Feature-rich Protocol, support .Net, c/c++, Java, VB
- Supports VMS/CMS and SDK for AP software integration
- Power saving mode and fanless design
- Supports UHF RFID Tag Detection (Optional)

### WebAccess/IVS Introduction



ARK-RI2150L is a fan-less intelligent video controller powered by Intel® 3rd Generation Core i7-3517UE Dual Core 1.7 GHz processor, Intel QM77 express chipset and supports Intel AMT8.0 management engine interface. It also support power saving mode, fanless design. With changeable embedded modules and feature-rich protocol, ARK-RI2150L creates a high-performance open platform for easy integration and development in different applications. With Advantech® RFID module, ARK-RI2150L is an intelligent RFID controller and enables users to deploy manageable, easy-to-install, high-performance solutions.

### Specifications

#### Processor System

- **CPU** Intel ULV Core i7 3517UE
- **Max. Speed** Dual Core 1.7 GHz (Max Turbo Frequency 2.8 GHz)
- **L3 Cache** 4 MB
- **System Chipset** Intel QM77
- **BIOS** AMI EFI 64Mbit

#### Memory

- **Technology** DDR3 1600MHz, DDR3L 1333 MHz
- **Max. Capacity** 8GB
- **Socket** 1 x 204-pin SO-DIMM

#### Graphic

- **Chipset** Intel QM77 Integrated GFX Gen 7
- **Graphic Engine** DirectX11, OpenGL 3.1, and Open CL 1.1  
Hardware decode acceleration: AVC/H.264, M PEG-2, VC-1
- **VGA** Integrated 340.4MHz RAMDAC, Max resolution up to 2048 x 1536 @ 75Hz
- **HDMI** Supports HDMI 1.4 for HD Video playback  
Max resolution up to 2560 x 1600 @ 60Hz on DisplayPort, Max resolution up to 1920 x 1200 @ 60Hz on HDMI
- **Dual Display** VGA + HDMI or VGA + DisplayPort

#### I/O Interface

- **COM** 2 x RS232
- **USB** 2 x USB 3.0 ports and 2 x USB 2.0 ports
- **LAN** 1 x 10/100/1000 Mbps Intel 82579LM Ethernet controller, support Wake On Lan  
1 x 10/100/1000 Mbps Intel 82583V Ethernet controller, support Wake On Lan

#### Expansion

- **Mini PCIe** 1 x Full-size Mini PCIe (Supports mSATA)  
1 x Half-size Mini PCIe

#### Storage

- **SSD** Supports one internal mSATA socket

#### Power

- **Power Type** AT/ATX
- **DC-input** 12 V<sub>DC</sub>
- **Minimum Power Input** 12 V, 4 A
- **Power Adapter** AC to DC, DC12 V/5 A, 60 W

#### Software Support

- **Microsoft Windows** Windows 7, Windows 7 Embedded

#### Mechanical & Environmental

- **Construction** Aluminum housing
- **Dimensions(W x H x D)** 264.5 x 75.1 x 133.0 mm (10.41" x 2.96" x 5.24")
- **Weight** 2.35 kg
- **Operating Temperature** Actual operational temperature may vary depending on used sensing module
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** Relative Humidity 95% @ 40°C (non-condensing)
- **Mounting** Din-Rail mounting, Desk/wall-mounting

### Ordering Information

- **ARK-RI2150L-UFAN0E** Intel ULV Core i7 3517UE/Win7E/64GB\_mSATA/ 4GB DDR3

# ART-321E

## UHF RFID Two-Port Module



### Features

- Smallest mini-size UHF RFID module
- Compliant with EPC global Class 1 Gen. 2 (ISO18000-6C)
- Free SDK, standard version; Supports Windows®
- Supports power saving mode and Low Power Consumption
- RF output power: Adjustable 30dBm/1W (Max)
- RF ASIC: Impinj R1000 chipset based design
- RFID Silicon: Impinj-R1000
- Two antenna ports supporting two mono-static antennas
- UART Interface
- Supports remote upgrade firmware

### Introduction

RFID Tracer Module ART-321E, UHF RFID module, is designed with an Impinj R1000 chipset which contains two antenna ports. The maximum RF output power is 30dBm. ART-321E is designed for easy integration into any existing or new platforms. The low power consumption and super small form factor provides a perfect alternative for mobile or handheld devices.

The ART-321E easy and powerful demo package allows for fast creation of custom applications via an API. It operates over the North American UHF frequency band (902 ~ 928 MHz) and follows ISO 18000-6C international standards, and free demo software offers quick evaluation without software development.

### Specifications

#### Wireless Network

- **Frequency Range** 902 ~ 928MHz
- **Channel Spacing** 500KHz
- **Frequency Hopping** 50CH
- **Frequency Stability** 10ppm
- **RF Output Power** Max. output power is 30dBm  
Available to adjust from +10 ~ +30dBm in 1dB step
- **Supply Voltage** 3.3V<sub>DC</sub> +/-5%
- **Reception Sensitivity** -75dBm

#### General

- **Host Control Signal/ Data Rate** UART
- **RFID Protocols** EPC Class 1 Gen 2 / ISO 18000-6C  
Linking Frequency: 250KHz  
Data Rate: 62.5 kbps  
Data Encoding: Miller-4  
Modulation : PR-ASK
- **Architecture** Impinj R1000

#### Mechanics

- **Dimensions** 70.5 mm (L) X 41.5 mm (W) X 8.2 mm (H)
- **Digital Connector** 1.27mm 12\*2 P Header
- **Antenna Connector** Two RP SMA (F) to support mono-static antenna

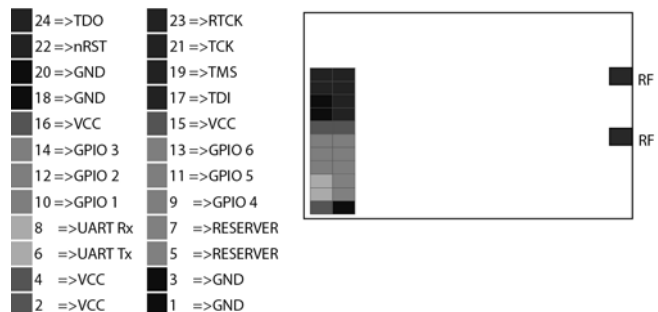
#### Environment

- **Operating Temperature** -10°C to 55°C
- **Temperature Threshold** 85°C (Typical)
- **Storage Temperature** -40°C to 85°C

### Signal Description

Signal/Group Name	Pin Number	Type	Function Description
VCC	2, 4, 15, 16	Power	Power Supply Input
GND	1, 3, 18, 20	Ground	Ground
nRST	22	Input	Module Reset
UART Tx	6	Output	UART Serial Transmit Data
UART Rx	8	Input	UART Serial Receive Data
GPIO X	9, 10, 11, 12, 13, 14	I/O	General Purpose Input/Output
JTAG	17, 19, 21, 23, 24	I/O	Valid for Manufacturing
RESERVER	5, 7	Open	Reserved for Further Use

### Pin Definitions



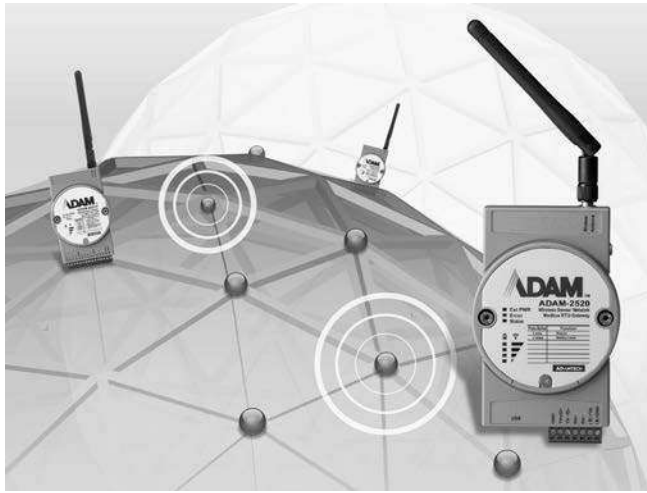
### Ordering Information

- **ART-321E-00A1E** UHF RFID Two-Port Module

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



# M2M I/O Modules Overview



## Introduction

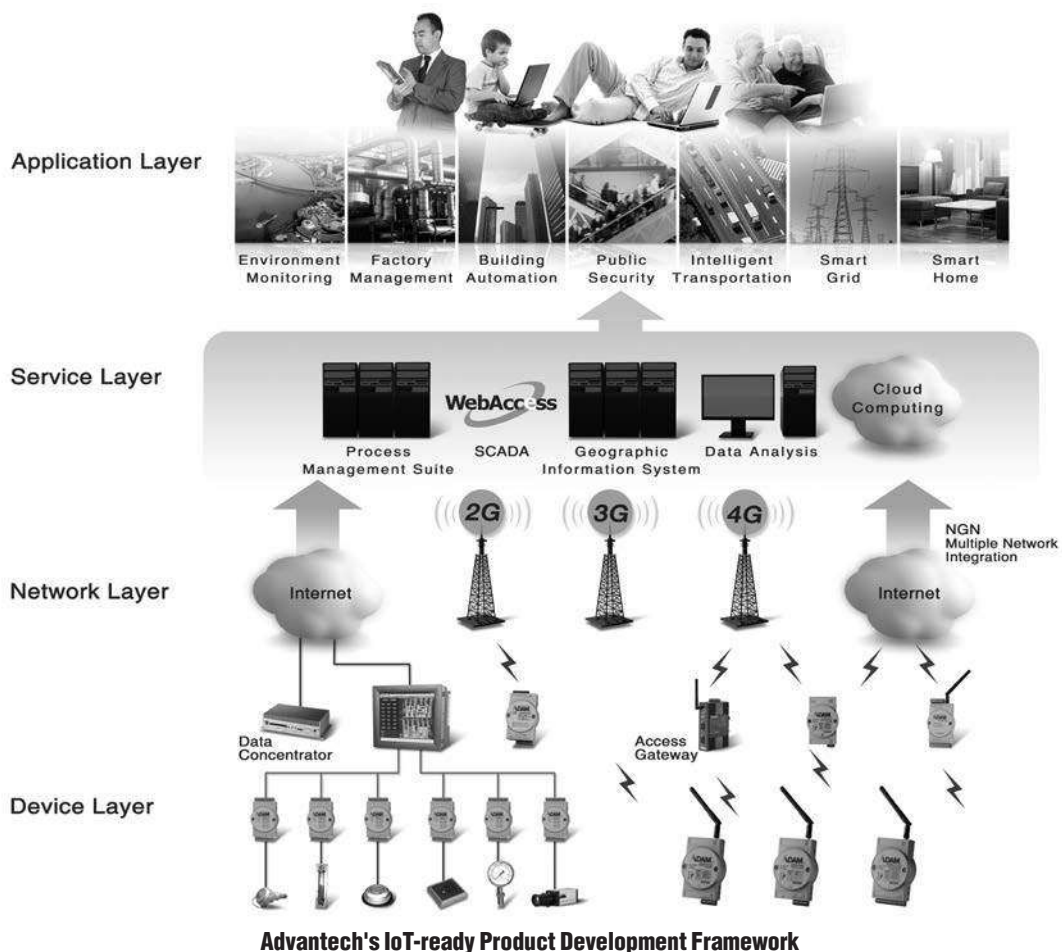
The Internet of Things (IoT) is a new paradigm gaining wide global attention from academia, industry, and government. The fundamental concept is a network of physical objects, devices, vehicles, buildings etc—denoted as things, embedded with electronics such as sensors, actuators, machine-to-machine (M2M) devices, and wireless sensor networks (WSN) that communicate and share data.

## Machine To Machine (M2M) Technology

Machine To Machine (M2M) technology is now sufficiently mature that large numbers of companies are confident enough in its potential to launch their own projects that include innovation in services and products. The use of M2M technology is particularly well-suited to interaction with a large number of remote, and possibly mobile, devices, usually acting as the interface with an end-user.

## Wireless Sensor Networks

The IoT is composed of four layers, an application layer, service layer, network layer and device layer. The application layer is the real application system, the service layer is now defined as cloud computing and the network layer is the wired/wireless network infrastructure. The device layer connects everything to the internet and is the key infrastructure of the IoT. One of the most important technologies is the Wireless Sensor Network, which is the wireless I/O and sensor solution/interface to collect and transmit analog/digital signals to the internet. The WSN is composed of two major parts; the wireless technology is based on IEEE 802.15.4 and the I/O technology. With different types of I/Os and sensors, signals can be measured in every situation. For instance, bridges can be measured through strain gauges, and buildings can be measured for energy usage. WSN is the next generation of wireless data acquisition solution.



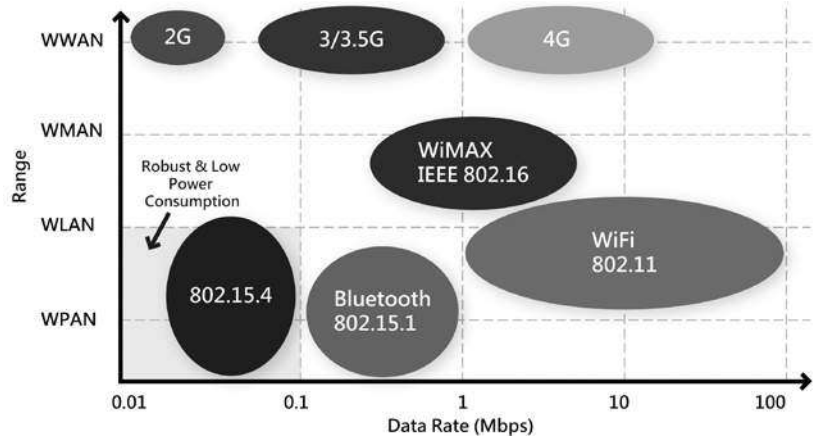
Advantech's IoT-ready Product Development Framework

## IEEE 802.15.4

IEEE 802.15.4 is defined and maintained by the IEEE organization. The standard intends to offer fundamental lower network layers of low-rate wireless personal area networks (WPANs) which focuses on low-data rates, low-power consumption ubiquitous wireless communication between devices. IEEE 802.15.4 conforming devices may use one of three possible unlicensed frequency bands for operation:

- 868.0-868.6 MHz: Europe, allows one communication channel.
- 902-928 MHz: North America, up to ten channels, extended to thirty.
- 2400-2483.5 MHz: worldwide use, up to sixteen channels.

IEEE 802.15.4 defines the Wireless Medium Access Control (MAC) and Physical Layer (PHY) for WPANs only, upper layer stacks can be implemented by users for variety of applications. One example of the known protocols is ZigBee.



## Network Topologies

Wireless Sensor Networks (WSN) can be built using a few or a lot of “nodes”. Each node can be connected to one or several sensors; the network topology is composed of three typical components, PAN Coordinator/Gateway, Router and End Device (or called End Node), which can be built to Star, Tree and Mesh network topologies.

### Three components of a wireless sensor network

#### ▪ PAN Coordinator/Gateway

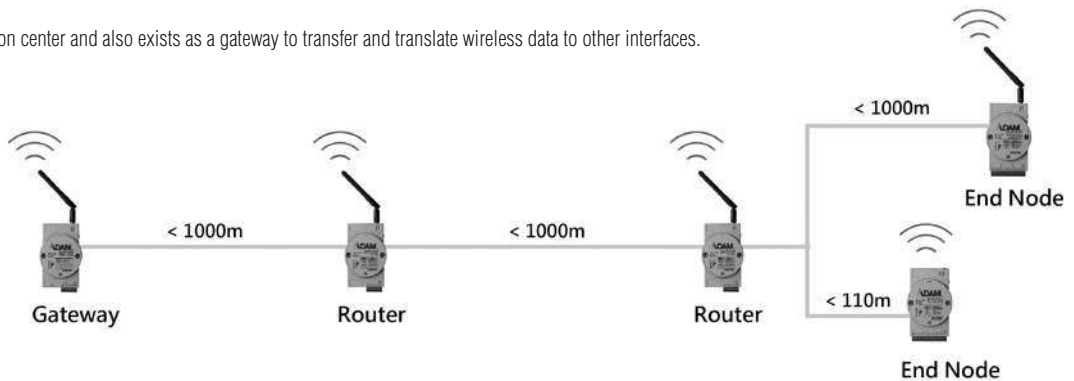
A coordinator is the data collection center and also exists as a gateway to transfer and translate wireless data to other interfaces.

#### ▪ Router

A router enhances the wireless signal and a wireless router is used to select the optimal path for wireless communication between the coordinator and the end nodes.

#### ▪ End Node/Device

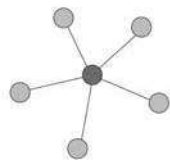
An end node is a wireless remote I/O for data acquisition. Data is acquired from sensors or devices which are then transmitted through it. The end node communicates with the coordinator directly or via a router to a coordinator.



### Three Network Topologies

#### ▪ Star Topology

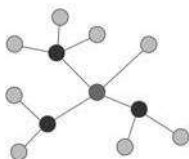
It's the simplest way to construct a network with a gateway and end nodes. The benefit of the topology is that it operates as a low-latency communication network. But has the limitation of low wireless signal coverage.



● WSN End Node  
● WSN Gateway

#### ▪ Tree Topology

Using a tree topology, the network can be extended through routers making it flexible enough to locate the end nodes in specified locations. Latency is increased with the number of routers hopping.



● WSN End Node  
● WSN Gateway  
● WSN Router

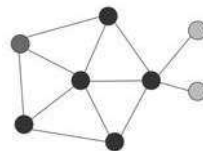
#### ▪ Mesh Topology

When routers connect to each other in a mesh topology they have the following benefits.

1. Wide network coverage.
2. Robust routing mechanism with self-healing.
3. Multi-hopping mechanism.

But also the following limitations:

1. More power consumption than the other topologies.
2. Routing path and hop counts affect the latency and performance.



● WSN End Node  
● WSN Gateway  
● WSN Router

## Comparison of Topologies

Topology	Star	Tree	Mesh
Power Consumption	Low	Medium	High
Installation Fee	Low	Medium	High
Network Coverage	Small	Large	Large
Network Capability	Small	Large	Large
Reliability	Low	Low	High

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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- 9 Industrial monitors
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- 11 Panel PCs
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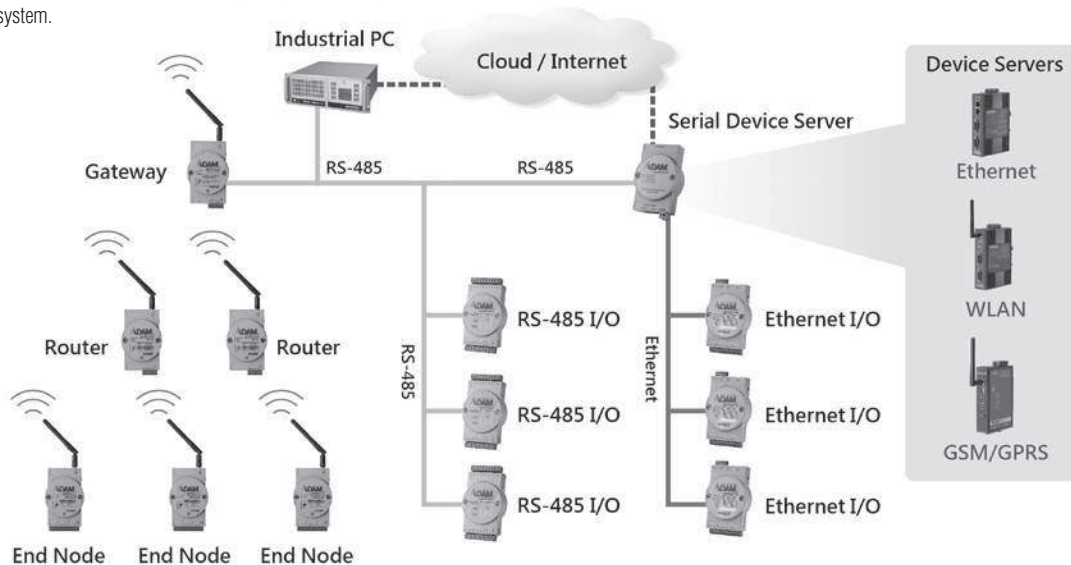
# M2M I/O Modules Overview

## ADAM-2000 Series

Advantech provides ADAM-2000 series industrial grade Wireless Sensor Network I/O solutions for low-power consumption, cost-efficient and reliable networking for remote monitoring applications. It utilizes IEEE 802.15.4 wireless technology and supports star, tree and mesh topologies. Once the modules are configured, the ADAM-2000 series will automatically construct the most suitable network topology for your control system without further configuration.

The ADAM-2000 series contains several models, including coordinator (gateway), router, analog input, digital input, and sensor modules. To perform as a Wireless Sensor Network, a gateway ADAM-2520Z is essential for collecting data from end nodes. With the Modbus RTU protocol, the ADAM-2000 series can be easily integrated into any SCADA or Modbus RTU compliant system.

- **ADAM-2520Z:** Wireless Modbus RTU Gateway
- **ADAM-2510Z:** Wireless Router
- **ADAM-2017PZ:** Wireless 6-ch Analog Input Node with Power Amplifier
- **ADAM-2031Z:** Wireless Temperature & Humidity Sensor Node
- **ADAM-2051Z:** Wireless Sensor Network 8-ch Digital Input Node
- **ADAM-2051PZ:** Wireless Sensor Network 8-ch Digital Input Node with Power Amplifier



## Features

Advantech's ADAM-2000 Series are wireless I/O devices designed for industrial systems and applications.



2.4GHz IEEE 802.15.4

### Global Deployable ISM 2.4GHz IEEE 802.15.4 Standard

The standard has the following benefits.

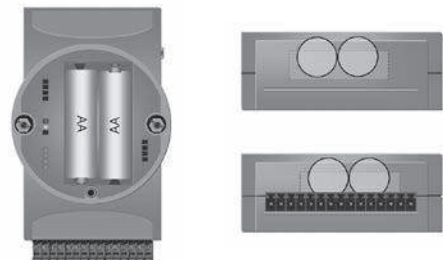
- With the global deployable ISM 2.4 GHz RF band, the ADAM-2000 series can be installed worldwide.
- Compared to a wired solution, wireless technology makes the network easily extendible and can be installed in almost any location, especially in distributed construction applications.
- Enhances transmission power and high gain antennas can expand network coverage.
- Enlarges highly effective network structure to reduce development costs and maintainable complexity in harsh applications.
- Provides self-forming and self-healing ability to cope with communication failures or node failures conditions.
- Low data rates and low duty cycles make it possible to act as standalone devices with batteries for a long term operation without maintenance.



Low-power Consumption

### Low Power Consumption Design

The ADAM-2000 series is designed for applications that require long-time operation without maintenance. Therefore power consumption is taken into consideration during its design. The ADAM-2000 series not only follows the IEEE 802.15.4 standard for low-power consumption wireless communication, but also optimizes the peripheral hardware and firmware design to achieve uA-level power consumption. This allows ADAM-2000 input/output and sensor modules to be powered by 2 AA Alkaline batteries\*.



### Modbus Industrial Communication and I/O Interfaces

The popular industrial communication protocol Modbus makes the ADAM-2000 series easy to integrate with industrial systems and is also compliant with ADAM-4000 and ADAM-6000 wired solutions. Multiple I/O interface selection provides users plentiful sensor options.

\* We suggest using Energizer L91 Ultimate Lithium AA batteries.  
\* Only the ADAM-2031Z and ADAM-2051Z support low power consumption. For other modules batteries can still be used as back-up power.



SCADA Software Support

## Advantech and Industrial SCADA Software Support

The ADAM-2000 series can be configured through the Adam/Apax .NET Utility. Only a few steps are required, and wireless networks can be built up quickly. Due to the Modbus protocol design, the ADAM-2000 series can support any third-party SCADA software and HMI, including Advantech SCADA software, WebAccess.



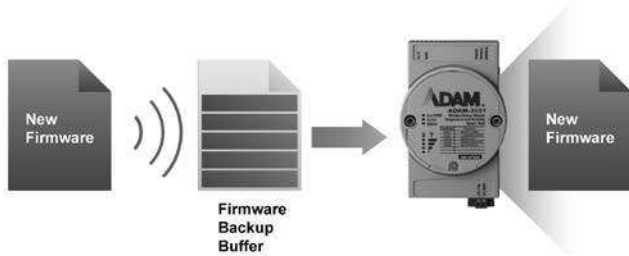
## Ensured Data Design

The ADAM-2000 family has a tracking mechanism feature to ensure data communication processes can be successfully transferred between the coordinator and end device before the device enters sleep mode.



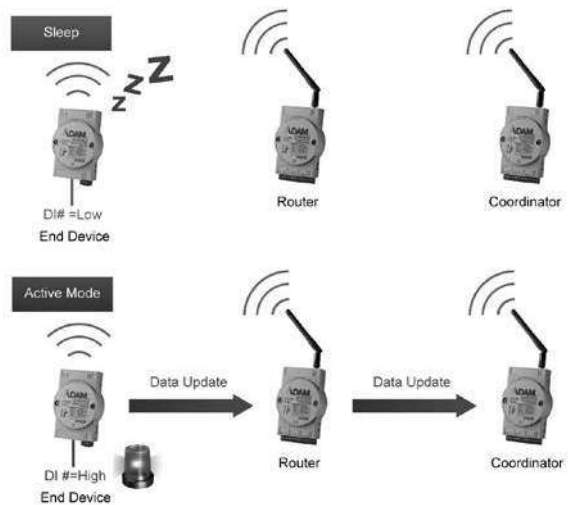
## Over The Air (OTA) Firmware Update

ADAM-2000 modules with strengthened firmware have a stable backup buffer and security mechanism allowing wireless module firmware updates during operation.



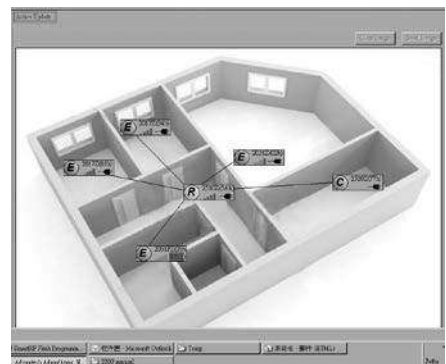
## Event Triggering

ADAM-2000 digital input modules are empowered with an Event Triggering function. When receiving DI status change, ADAM-2000 digital input modules will wake up immediately from sleep mode and send I/O data to a coordinator. This avoids the missing of events during operation.



## Site Survey Monitoring

ADAM-2000 modules provide the Adam/Apax .Net utility to achieve easier network setup and remote maintenance tasks. The topology monitoring of ADAM-2000 network uses a drag and drop interface allowing users to choose the working field image for monitoring backgrounds, and lists the relations among ADAM-2000 modules all illustrated on a single page. Through site survey monitoring, users can comprehensively learn about each device location, current status and information in customized background.



- 1 WebAccess® Solution
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# M2M I/O Modules Selection Guide



Model		ADAM-2520Z	ADAM-2510Z	ADAM-2017PZ	ADAM-2051PZ	ADAM-2031Z
Description		Wireless Modbus RTU Gateway	Wireless Router	Wireless 6-ch Analog Input Node	Wireless 8-ch Digital Input Node	Wireless Temperature & Humidity Sensor Node
Wireless Interface	Function	Coordinator	Router	End Device	End Device	End Device
	IEEE Standard	IEEE 802.15.4				
	Modulation Type	DSSS (OQPSK)				
	Frequency Band	ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)				
	Channels	11 - 26				
	Topology	Star / Tree / Mesh				
	Antenna Connector	Reverse SMA				
	Outdoor Range	1000m (L.O.S.)	1000m (L.O.S.)	1000m (L.O.S.)	1000m (L.O.S.)	110m (L.O.S.)
Network	Interface	USB / RS-485	-	-	-	-
	Protocol	Modbus/RTU	-	-	-	-
Analog / Sensor Input	Channel	-	-	6-ch	-	Built-in Sensors
	Input Type	-	-	V, A	-	Temperature, Humidity
	Input Range	-	-	±150mV, ±500mV, ±1V, ±5V, ±10V, 0 ~ 20mA, 4 ~ 20mA, ±20mA	-	-20°C ~ 70°C (-4°F ~ 158°F) 0 ~ 100% RH
	Resolution	-	-	16-bit	-	0.02°C 0.15% RH
	Accuracy	-	-	Voltage: ±0.1% of FSR Current: ±0.2% of FSR	-	±2.0°C ±8.0% RH
Digital Input	Channel	-	-	-	8-ch Dry Contact or Wet Contact	-
	Connectors	Terminal block / USB				
	LED Indicators	Terminal block (I/O and power)				
Environment	Operating Temperature	External Power: -20 ~ 70°C (-4 ~ 158°F) Battery Power: 0 ~ 50°C (32 ~ 122°F)				
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)				
	Operating Humidity	20 ~ 95% RH (non-condensing)				
	Storage Humidity	0 ~ 95% RH (non-condensing)				
Power Consumption	Power Input 10 ~ 30 V <sub>DC</sub>	0.8 W @ 24 V <sub>DC</sub>	0.8 W @ 24 V <sub>DC</sub>	0.5 W @ 24 V <sub>DC</sub>	0.3 W @ 24 V <sub>DC</sub>	0.3 W @ 24 V <sub>DC</sub>
	Battery Input 2 x AA Alkaline 3 V <sub>DC</sub>	0.3 W @ 3 V <sub>DC</sub>	0.3 W @ 3 V <sub>DC</sub>	130 uW @ 3 V <sub>DC</sub> (5 minute Tx Interval) 220 uW @ 3 V <sub>DC</sub> (2 minute Tx Interval) 380 uW @ 3 V <sub>DC</sub> (1 minute Tx Interval)	130 uW @ 3 V <sub>DC</sub> (5 minute Tx Interval) 220 uW @ 3 V <sub>DC</sub> (2 minute Tx Interval) 380 uW @ 3 V <sub>DC</sub> (1 minute Tx Interval)	150 uW @ 3 V <sub>DC</sub> (5 minute Tx Interval) 240 uW @ 3 V <sub>DC</sub> (2 minute Tx Interval) 420 uW @ 3 V <sub>DC</sub> (1 minute Tx Interval)
	USB Input 5 V <sub>DC</sub>	0.5 W @ 5 V <sub>DC</sub>				
Page		14-29	14-29	14-30	14-30	14-30



# ADAM-2520Z

# ADAM-2510Z

## Wireless Modbus RTU Gateway

## Wireless Router



ADAM-2520Z  
**Features**



- 2.4 GHz IEEE 802.15.4 compliant RF
- Provides RS-422/485 and USB interfaces
- Multiple power input design

### Specifications

#### General

- **Function** Coordinator
- **Network Capacity** 32 nodes (Routers & End Devices)  
(Based on user's configuration)
- **Range Extenders** Maximum 5 Hops
- **Protocol** Modbus RTU
- **Power Consumption** 0.8 W @ 24 V<sub>DC</sub>  
0.5 W @ 5 V<sub>DC</sub> (USB)  
0.3 W @ 3 V<sub>DC</sub> (Battery AA \* 2)

### Ordering Information

- **ADAM-2520Z** Wireless Modbus RTU Gateway



ADAM-2510Z  
**Features**



- Easy maintenance and field installation
- Low duty wireless communication
- Smart and simple indicator design
- Extends network range and coverage

### Specifications

#### General

- **Function** Router
- **Power Consumption** 0.8 W @ 24 V<sub>DC</sub>  
0.3 W @ 3 V<sub>DC</sub> (Battery AA \* 2)

### Ordering Information

- **ADAM-2510Z** Wireless Router

## Common Specifications

### Wireless Communication

- **IEEE Standard** IEEE 802.15.4
- **Modulation Type** DSSS (OQPSK)
- **Frequency Band** ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)
- **Channels** 11 - 26
- **RF Data Rate** 250 Kbps
- **Transmit Power** 3 ± 1 dBm (ADAM-2031Z)  
15 ± 1dBm (ADAM-2017PZ)
- **Receiver Sensitivity** -97 dBm
- **Topology** Star / Tree / Mesh
- **Outdoor Range** 1000 m with line of sight (with 2 dBi Antenna)

### General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG)  
1 x USB-type A connector (type A to B cable provided) (ADAM-2520Z only)
- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>  
or USB 5 V<sub>DC</sub> (ADAM-2520Z only)
- **Battery Input** 2 x AA Alkaline

### Environment

- **Operating Temperature**  
External Power -20°C ~ 70°C (-4°F ~ 157.9°F)  
Battery Power 0°C ~ 50°C (32°F ~ 122°F)
- **Storage Temperature** -40°C ~ 85°C (-40°F ~ 184°F)
- **Operating Humidity** 20 ~ 95% RH
- **Storage Humidity** 0 ~ 95% RH

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- 9 Industrial monitors
- 10 I/Door Technology Modules
- 11 Panel PCs
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# ADAM-2031Z

# ADAM-2017PZ

# ADAM-2051PZ

Wireless Temperature & Humidity Sensor Node  
 Wireless 6-ch Analog Input Node with Power Amplifier  
 Wireless Sensor Network 8-ch Digital Input Node with Power Amplifier



ADAM-2031Z



ADAM-2017PZ



ADAM-2051PZ



## Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- Low Power Consumption
- LED Indicators
- Sensor Embedded

## Specifications

### Temperature Sensor Input

- Operating Range** -20°C ~ 70°C (-4°F ~ 157.9°F)
- Resolution** 0.02°C (0.04°F)
- Accuracy** ±2.0°C
- (Battery Mode)** ±1.0°C @ 25 ~ 40°C
- Response Rate** ±1°C/min.
- Long Term Drift** < 0.04°C/Year (0.07°F/Year)

### Humidity Sensor Input

- Operating Range** 0 ~ 100% RH
- Resolution** 0.15% RH
- Accuracy** ±8.0% RH
- (Battery Mode)** ±6.0% RH @ 40 ~ 60% RH
- Response Time** 8 seconds (Achieving 63% of a step function)
- Long Term Drift** 0.5% RH/Year

### General

- Power Consumption** 0.3 W @ 24 V<sub>DC</sub> (Battery AA \* 2)  
 420 uW @ 3 V<sub>DC</sub> (1 minute Tx Interval)  
 240 uW @ 3 V<sub>DC</sub> (2 minute Tx Interval)  
 150 uW @ 3 V<sub>DC</sub> (5 minute Tx Interval)

## Ordering Information

- ADAM-2031Z** Wireless Temperature & Humidity Sensor Node

## Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- LED Indicators

## Specifications

### Analog Input

- Channels** 6 Non-Isolation (Differential)
- Input Max Voltage** +/-15V
- Common Mode Volts** 10 V<sub>DC</sub>
- Input Impedance** >10 MΩ (Voltage), 120Ω (Current)
- Input Type** mV, V, mA
- Input Range** ±150mV, ±500mV, ±1V, ±5V, ±10V, ±20mA, 0 ~ 20mA, 4 ~ 20 mA
- Accuracy** Voltage: +/-0.1% or better at 25°C  
 Current: +/-0.2% or better at 25°C  
 ±25 ppm/°C
- Span Drift** ±6 μV/°C
- Zero Drift** 16-bit
- Resolution** 12 samples/second (total)
- Sampling Rate** 100 dB
- CMR @ 50/60 Hz** 65 dB
- NMR @ 50/60 Hz** 65 dB

### General

- Power Consumption** 0.5 W @ 24 V<sub>DC</sub> (Battery AA \* 2)  
 380 uW @ 3 V<sub>DC</sub> (1 minute Tx Interval)  
 220 uW @ 3 V<sub>DC</sub> (2 minute Tx Interval)  
 130 uW @ 3 V<sub>DC</sub> (5 minute Tx Interval)

## Ordering Information

- ADAM-2017PZ** Wireless 6-ch Analog Input Node with Power Amplifier

## Features

- IEEE 802.15.4 Wireless Standard
- Supports Star/Tree/Mesh Network Topologies
- Modbus Communication Protocol
- LED Indicators
- Event Triggering

## Specifications

### Digital Input

- Channels** 8
- Input Resistance** 10 KΩ
- Input Level** Dry contact: Logic level 0: Close to GND  
 Logic level 1: Open  
 Wet contact: Logic level 0: 0-0.8 V max  
 Logic level 1: 2.0 ~ 5.0 V  
 (Note: The Digital Input Level 0 and 1 status can be inverted)

### General

- Power Consumption** 0.3 W @ 24 V<sub>DC</sub> (Battery AA \* 2)  
 380 uW @ 3 V<sub>DC</sub> (1 minute Tx Interval)  
 220 uW @ 3 V<sub>DC</sub> (2 minute Tx Interval)  
 130 uW @ 3 V<sub>DC</sub> (5 minute Tx Interval)

## Ordering Information

- ADAM-2051PZ** Wireless 8-ch Digital Input Node with Power Amplifier
- ADAM-2051Z** Wireless 8-ch Digital Input Node

## Common Specifications

### Wireless Communication

- IEEE Standard** IEEE 802.15.4
- Modulation Type** DSSS (OQPSK)
- Frequency Band** ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)
- Channels** 11 ~ 26
- RF Data Rate** 250 Kbps
- Transmit Power Typ.** 3 ± 1 dBm (ADAM-2031Z, ADAM-2051Z)  
 15 ± 1 dBm (ADAM-2017PZ)  
 19 ± 1 dBm (ADAM-2051PZ)
- Receiver Sensitivity** -97 dBm
- Topology** Star / Tree / Mesh

- Outdoor Range** 110 m with line of sight (ADAM-2031Z, ADAM-2051Z)  
 1000 m with line of sight (ADAM-2017PZ, ADAM-2051PZ)
- Function** End Device

### General

- Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG)
- Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>
- Battery Input** 2 x AA Alkaline

### Environment

- Operating Temperature** External Power -20°C ~ 70°C (-4°F ~ 157.9°F)  
 Battery Power 0°C ~ 50°C (32°F ~ 122°F)
- Storage Temperature** -20°C ~ 70°C (-4°F ~ 157.9°F)
- Operating Humidity** 20 ~ 95% RH
- Storage Humidity** 0 ~ 95% RH

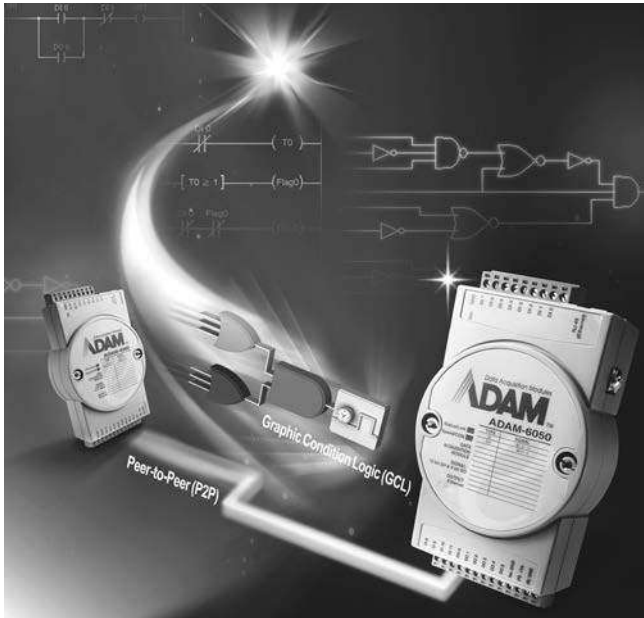
## Ethernet I/O Modules: ADAM-6000

<b>ADAM-6000 Series</b>		<b>15-2</b>
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<b>ADAM-6000 Series Selection Guide</b>		<b>15-5</b>
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<b>ADAM-6066</b>	6-ch Digital Input and 6-ch Power Relay Modbus TCP Module	
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<b>ADAM-6151/6156</b>	16-ch Isolated Digital Input/ Digital Output Real-time Ethernet Module	

To view all of Advantech's IoT Ethernet I/O Modules, please visit [www.advantech.com/products](http://www.advantech.com/products).



# ADAM-6000 Series



## Features

- Ethernet-based smart I/O
- Mixed I/O in single module
- Pre-built HTTP server and web pages in each module
- Web language support: XML, HTML 5, Java Script
- Remote monitoring and control with smart phone/pad
- Active I/O message by data stream or event trigger function
- Industrial Modbus/TCP protocol
- Easily update firmware through Ethernet
- ADAM.NET Class Library for .NET application
- Intelligent control ability by Peer-to-Peer and GCL function
- Group configuration capability for multiple module setup
- Flexible user-defined Modbus address
- System configuration backup
- User Access Control

## The Path to Seamless Integration

The integration of automation and enterprise systems requires a change in the architecture of open control systems. From Advantech's point of view, the level of integration between automation and enterprise systems can only be accomplished through Internet technology. It is believed that IP/Ethernet protocols will progress beyond the control layer, into the field layers. Placing remote I/O with IP/Ethernet connections on the shop floor is economical. Advantech believes that over the next five years, Internet protocols over Ethernet will dominate major field connections. The Advantech ADAM-6000 series offers ideal remote I/O solutions with Internet protocols for industrial automation environments.

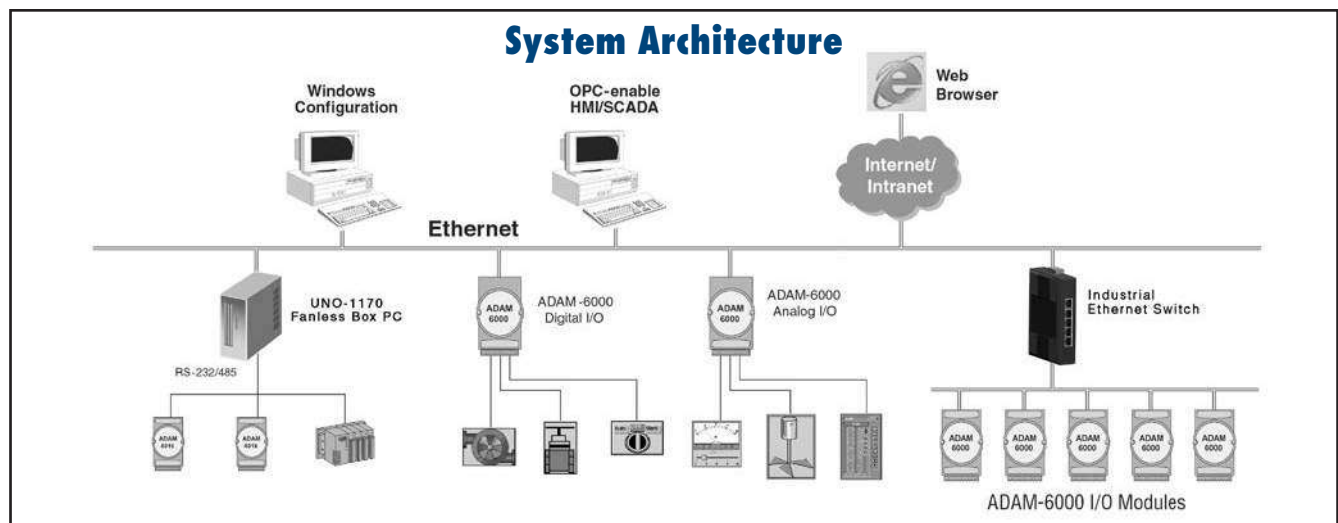
ADAM-6000 firmware features a built-in Modbus/TCP server. Advantech provides the ADAM.NET Utility, ADAM.NET class library and OPC Server for the ADAM-6000 series to support these functions as well. Users can configure DA&C systems via ADAM.NET Utility and integrate it with an HMI software package via Modbus/TCP driver or Modbus/TCP OPC Server. Furthermore, users can easily use the ADAM.NET class library to develop their own applications.

## Web-enabled Technology Becomes Popular on Factory Floors

As Internet technologies and standards have rapidly developed over the past decade, Web-based control methodologies now obviously represent a powerful opportunity for extending efficient network-based management techniques to encompass non-IT real-world assets.

The ADAM-6000 series is equipped with a built-in web server so that its data can be viewed, anytime-anywhere via the Internet. Moreover, the ADAM-6000 series allows users to configure user-defined web pages to meet the diverse needs in various applications. With this powerful function, the ADAM-6000 series breaks the boundary of traditional multi-layer automation architecture and allows users to access field data directly in real time, which enables seamless integration between the plant floor and the front office.

HMI has provided a friendly operator interface for discrete control and sharply reduced the cost and complexity of automation systems. A web server has been added to most HMI software and a browser allows access to HMI displays from remote locations via the network. The end user is able to see and use an identical HMI from any Internet connected computer anytime, anywhere. ADAM-6000 series can be fully integrated with standard HMI software which supports Modbus/TCP.

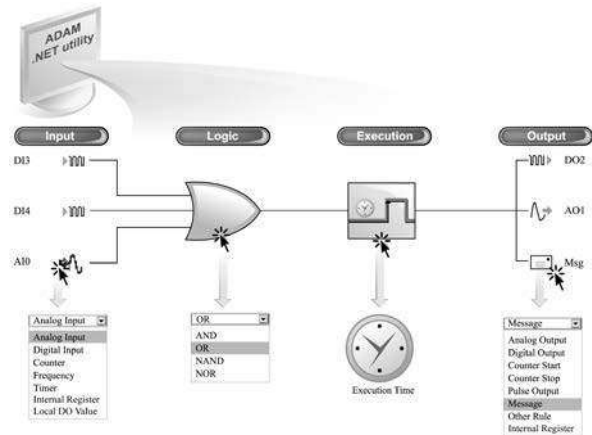


# ADAM-6000 GCL Features

## Using Ethernet I/O Modules as Controllers

### What is GCL?

Graphic Condition Logic (GCL) gives Ethernet I/O modules controllability. Users can define the control logic rules using the graphic configuration environment in the ADAM series and download defined logic rules to ADAM-6000 Ethernet I/O modules. The Ethernet I/O module will then execute the logic rules automatically just like a standalone controller. For each Ethernet I/O module, 16 logic rules can be defined. In the configuration environment of ADAM.NET Utility, four graphic icons show the four stages of one logic rule: Input, Logic, Execution and Output (Refer to figure below). Users can simply click on each icon and a dialog window will pop-up for users to configure each stage. After completing all configurations, users can click a button to download the defined logic rules for their specific Ethernet I/O module.



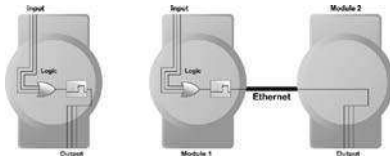
## ADAM-6000 GCL is the Simplest Logic Ethernet I/O

### Complete Graphic Configuration Environment

Unlike other text-based logic configuration utilities, Advantech GCL provides a complete graphic configuration utility, which is very intuitive to use. By simply clicking the icons, all related configurations can be made through the pop-up dialog window. GCL is not only easy-to-use, but it also offers powerful functionality.

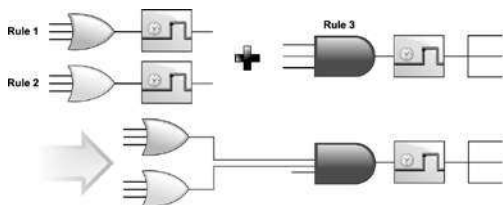
### Supports Both Local and Remote Output

When users define the destination of output stage (such as digital output, analog output, counter and pulse output), users can choose either the local module or another remote module as the target.



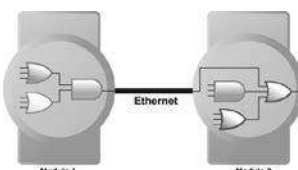
### Cascade Logic

The output of one logic rule can be another rule. Therefore, different rules can be combined together. GCL provides this kind of functionality called Cascade Logic. For example, if users combine rule 1 and rule 2 with rule 3, the maximum inputs become seven. (Two inputs of rule 3 will be rule 1 and rule 2. Refer to figure below.) So users can define complex logic architecture to satisfy various application requirements.



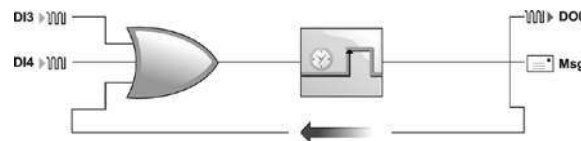
### Distributed Cascade Logic

Users can assign other rules as the output of one logic rule. In fact, that "other rule" can be on the same module, or on another remote module. So, one GCL logic architecture can operate across different modules. Several Ethernet I/O modules can be integrated into one complete logic system.



### Feedback

Users can assign input and output of logic rule to the same internal register. This gives GCL feedback ability. No hardware wiring is needed.



### Rich I/O Options

Analog Input	Thermocouple, RTD, Voltage, Current
Analog Output	Voltage, Current
Digital Input	Dry Contact, Wet Contact, Counter/Frequency input
Digital Output	Sink, Source, Relay output, Pulse output

### Fast Execution Time

Advantech GCL feature the shortest logic rule execution time in the market. When you choose local output (input and output channels are on the same module), the processing time (including hardware input delay time, logic rule, execution time, and hardware output delay time) is less than 1 millisecond. When you choose remote output (input and output channel are on different modules), the total time needed (including processing and communication time) is less than 3 milliseconds.

### Analog Input Scaling

When configuring analog input conditions, GCL provides a linear scaling function to convert measured voltage/current values to its engineer unit value (such as temperature or pressure unit). Then users can use the engineer unit value to define the logic condition, making it is more intuitive.

### Online Monitoring

After users complete all GCL configurations in the ADAM.NET Utility, they can simply click the "Run Monitoring" button. Then users can see the real-time execution workflow of the logic rule on ADAM-6000 modules. Current input values will also be displayed, this helps users to easily maintain the system.

### Sending Messages

In GCL, you can define your customized message. When conditions are satisfied, The message, module's IP and I/O status will be sent to defined PC or device.

### Local DO Status Can be Input Condition

In GCL, you can read the local DO channel value and use it in the input condition. So you can define logic rules based on the local DO status.

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# ADAM-6000 Features: Peer-to-Peer

## Requirements

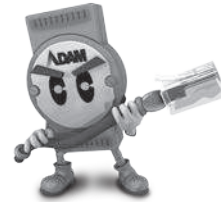
A client has three branch offices across multiple countries. For each branch, cameras were installed near the entrance gates. At the headquarters, people in the control room monitored each gate via the Internet. They also wanted to enhance the system so as to remotely control each gate from inside the control room at their headquarters. Since the distance between the headquarters and each branch was thousands of miles, it was a difficult challenge to establish a reliable network communication link.

## Solution

Through three pairs of Advantech ADAM-6000 Peer-to-Peer Ethernet I/O modules (without any additional hardware), the application request was easily solved. For each pair of ADAM-6000 modules, one module was placed inside the headquarters control room and another was located at each branch. When the headquarters module was activated, it notified its paired module at the branch to open or close the gate. Communication is Ethernet-based, so the client could easily leverage their existing Ethernet infrastructure.

### What is Peer-to-Peer?

Unlike client / server mode, Peer-to-Peer enabled modules will actively update input channel status to a specific output channel. There will be a pair of modules: one input module and one output module. Users can define the mapping between them and the input value will be transferred to the output channel.



## What Benefits Do Peer-to-Peer Modules Provide?

### No Controller Required

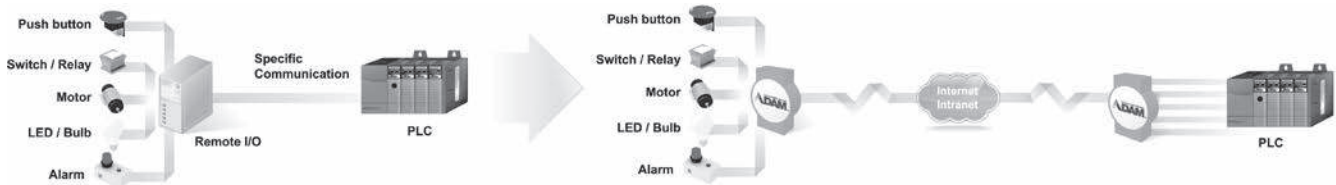
For Ethernet I/O modules without Peer-to-Peer functionality, a controller is needed to read data from the input module and then send data to the output module. With Peer-to-Peer solutions, the controller can be removed since data will automatically transfer. This not only simplifies the process, but also helps save system hardware costs.

### No Programming Required

To utilize Peer-to-Peer modules, the only thing required is to configure settings through the ADAM .NET Utility. No additional programming effort is needed, thereby reducing system development time.

### Simple and Flexible System Wiring

Long distance wiring can be difficult. For some automation applications, if the PLC and the sensors are far away, one remote I/O module needs to be located near the sensors and a proprietary communication network needs to connect the PLC and the remote I/O module, but communication will be severely limited. Moreover, networks provided by PLC manufacturers are rarely open. Peer-to-Peer modules can replace limited and closed networks with no limitations since they leverage the most open and flexible Ethernet networks.



## Why is Advantech's Peer-to-Peer Technology the Best Choice?

### Flexible Channel Mapping

ADAM-6000 Peer-to-Peer modules provide two modes: Basic and Advanced. For Basic mode, channels on one input module are directly mapped to channels on another single output module. For Advanced mode, channels on one input module can be mapped to channels on different output modules. (Refer to figure below)

### Fast Response Time

Advantech Peer-to-Peer modules offer the best execution times in market. The execution time to transfer data from input to output is less than 1.2 millisecond.

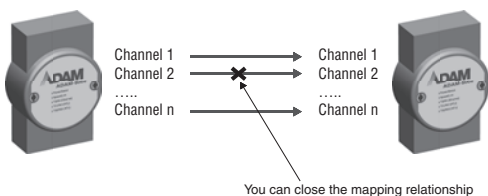
### Advanced Security

When engineers use Peer-to-Peer modules, they don't want them to be controlled by non-authorized computers or devices. ADAM-6000 Peer-to-Peer modules lets users decide which IP or MAC address has control authority. This can make sure the output module is only controlled by its paired input module.

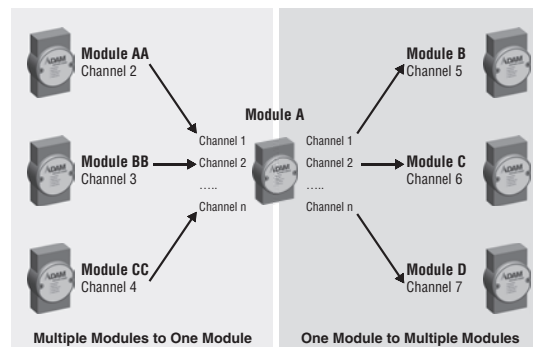
### Advanced Reliability

When communication between a pair of ADAM-6000 Peer-to-Peer modules is broken, the digital output module can generate pre-defined values to ensure safety.

ADAM-6000 P2P Mode: Basic Mode



ADAM-6000 P2P Mode: Advanced Mode



# ADAM-6000 Series Selection Guide



Spec.		Model	ADAM-6015	ADAM-6017	ADAM-6018	ADAM-6022	ADAM-6024	
Interface			10/100 Mbps Ethernet					
Peer-to-Peer <sup>1</sup>			Yes		No		Receiver Only <sup>2</sup>	
GCL <sup>1</sup>			Yes		No		Receiver Only <sup>2</sup>	
Resolution			16 bit		16 bit for AI 12 bit for AO		16 bit for AI 12 bit for AO	
Analog Input	Channels		7	8	8	6	6	
	Sampling Rate		10 S/s					
	Voltage Input		-	±150mV, ±500mV, ±1 V, ±5V, ±10V, 0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V	-	±10 V		±10 V
	Current Input		-	0 ~ 20mA 4 ~ 20mA ±20mA	-	0 ~ 20 mA 4 ~ 20 mA		0 ~ 20 mA 4 ~ 20 mA
	Direct Sensor Input		Pt, Balco and Ni RTD	-	J, K, T, E, R, S, B Thermocouple	-		-
	Burn-out Detection		Yes	Yes (4 ~ 20mA only)		Yes		-
Math. Functions			Max. Min. Avg.	Max. Min. Avg.	Max. Min. Avg.	-		-
Analog Output	Channels		-		2		2	
	Current Output		-		0 ~ 20 mA, 4 ~ 20 mA with 15 V <sub>DC</sub>		0 ~ 20 mA, 4 ~ 20 mA with 15 V <sub>DC</sub>	
	Voltage Output		-		0 ~ 10 V <sub>DC</sub> with 30 mA		0 ~ 10 V <sub>DC</sub> with 30 mA	
Digital Input/Output	Input Channels		-		2		2	
	Output Channels		2 (Sink)		8 (Sink)		2 (Sink)	
	Extra Counter Channels		-		-		-	
	Counter Input		-		-		-	
	Frequency Input		-		-		-	
	Pulse Output		-		-		-	
	High/Low Alarm Settings		Yes	Yes		Yes		-
Isolation Protection			2,000 V <sub>DC</sub>		2,000 V <sub>DC</sub> <sup>3</sup>		2,000 V <sub>DC</sub> <sup>3</sup>	
Remark			-		Built-in Dual Loop PID Control Algorithm		-	
Page			15-6	15-6	15-6	15-7	15-7	



Spec.		Model	ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060	ADAM-6066
Interface			10/100 Mbps Ethernet				
Peer-to-Peer <sup>1</sup>			Yes				
GCL <sup>1</sup>			Yes				
Digital Input/Output	Input Channels		12	12	8	6	6
	Output Channels		6 (Sink)	2 (Sink)	8 (Source)	6-channel relay	6-channel power relay
	Extra Counter Channels		-		-		-
	Counter Input		3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Frequency Input		3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Pulse Output		-		Yes		-
Isolation Protection			-		2,000 V <sub>DC</sub>		-
Page			15-8	15-8	15-8	15-9	15-9

Note 1: Peer-to-Peer and GCL cannot run simultaneously, only one feature is enabled at one time.

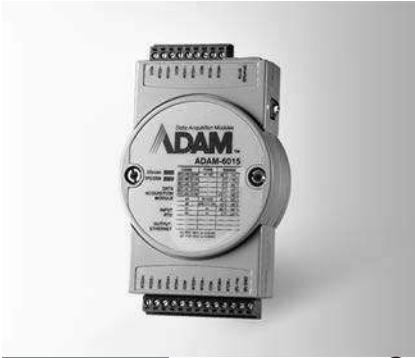
Note 2: ADAM-6024 can only act as a receiver and generate analog output when using Peer-to-Peer or GCL.

Note 3: Only for analog input and analog output channels.

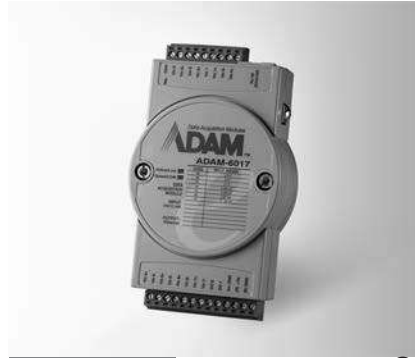
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# ADAM-6015 ADAM-6017 ADAM-6018

7-ch Isolated RTD Input Modbus TCP Module  
8-ch Isolated Analog Input Modbus TCP Module  
with 2-ch DO  
8-ch Isolated Thermocouple Input Modbus TCP  
Module with 8-ch DO



ADAM-6015



ADAM-6017



ADAM-6018



## Specifications

### Analog Input

- **Channels** 7 (differential)
- **Input Impedance** > 10 MΩ
- **Input Connections** 2 or 3 wire
- **Input Type** Pt, Balco and Ni RTD
- **RTD Types and Temperature Ranges**
  - Pt 100 -50°C ~ 150°C
  - 0°C ~ 100°C
  - 0°C ~ 200°C
  - 0°C ~ 400°C
  - 200°C ~ 200°C
  - Pt 1000 -40°C ~ 160°C

Supports both IEC 60751 ITS90 (0.0385 W/W/°C) and JIS C 1604 (0.0392 W/W/°C)

  - Balco 500 -30°C ~ 120°C
  - Ni 518 -80°C ~ 100°C
  - 0°C ~ 100°C
- **Accuracy** ±0.1% or better
  - High speed mode ±0.5% or better
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 μV/°C
- **Resolution** 16-bit
- **Sampling Rate**
  - 10 sample/ second (total)
  - High speed mode: 1K sample/second (total)
  - CMR @ 50/60 HZ 90dB
  - NMR @ 50/60 HZ 60dB
  - \* high speed mode does not support CMR/NMR
- **Wire Burn-out Detection**

## Ordering Information

- **ADAM-6015** 7-ch Isolated RTD Input Modbus TCP Module

## Specifications

### Analog Input

- **Channels** 8 (differential)
- **Input Impedance** > 10 MΩ (voltage)  
120 Ω (current)
- **Input Type** mV, V, mA
- **Input Range**
  - ±150mV, ±500mV, ±1 V,
  - ±5V, ±10V, 0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V,
  - 0 ~ 10V, 0 ~ 20mA, 4 ~ 20mA, ±20mA
- **Accuracy** ±0.1% (voltage)  
±0.2% (current)
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 μV/°C
- **Resolution** 16-bit
- **Sampling Rate** 10 or 100 sample/ second (total)
  - CMR @ 50/60 HZ 90dB
  - NMR @ 50/60 HZ 67dB
- **Common-Mode Voltage** 350V<sub>DC</sub>
- **Digital Output**
  - **Channels** 2, open collector to 30 V, 100 mA max. load
  - **Power Dissipation** 300 mW for each module
  - **Output Delay** On: 100μs  
Off: 150μs

## Ordering Information

- **ADAM-6017** 8-ch Isolated AI with 2-ch DO Modbus TCP Module

## Specifications

### Analog Input

- **Channels** 8 (differential)
- **Input Impedance** > 10 MΩ
- **Input Type** Thermocouple
- **Thermocouple Type and Range:**

<b>J</b>	0 ~ 760°C	<b>R</b>	500 ~ 1,750°C
<b>K</b>	0 ~ 1,370°C	<b>S</b>	500 ~ 1,750°C
<b>T</b>	-100 ~ 400°C	<b>B</b>	500 ~ 1,800°C
<b>E</b>	0 ~ 1,000°C		
- **Accuracy** ±0.1%
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 μV/°C
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/ second (total)
  - CMR @ 50/60 HZ 90dB
  - NMR @ 50/60 HZ 60dB
- **Wire Burn-out Detection**

### Digital Output

- **Channels** 8, open collector to 30 V, 100 mA max. load
- **Power Dissipation** 300 mW for each module

## Ordering Information

- **ADAM-6018** 8-ch Isolated Thermocouple Input Modbus TCP Module w/ 8-ch DO

## Common Specifications

### General

- **LAN** 10/100Base-T(X)
- **Power Consumption** 2.5 W @ 24 V<sub>DC</sub> (ADAM-6015)  
2.7 W @ 24 V<sub>DC</sub> (ADAM-6017)  
2 W @ 24 V<sub>DC</sub> (ADAM-6018)
- **Connectors** 1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog** System (1.6 second) and Communication (programmable)

- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Supports Peer-to-Peer**
- **Supports GCL**
- **Supports Modbus/TCP, TCP/IP, UDP and HTTP Protocols**
- **Protection**
  - **Over Voltage Protection** ±35 V<sub>DC</sub>
  - **Isolation Protection** 2,000 V<sub>DC</sub>
  - **Built-in TVS/ESD Protection**
  - **Power Reversal Protection**

### Environment

- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)  
-20 ~ 70°C (-4 ~ 158°F) (ADAM-6017)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)  
-30 ~ 80°C (-22 ~ 176°F) (ADAM-6017)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

# ADAM-6022

# ADAM-6024

## Ethernet-based Dual-loop PID Controller

## 12-ch Isolated Universal Input/Output Modbus TCP Module



ADAM-6022

FCC CE RoHS

### Specifications

#### General

- **Loop Number** 2 (3 AI, 1 AO, 1 DI, 1 DO for each control loop)

#### Analog Input

- **Channels** 6 (differential)
- **Input Range**  $\pm 10 V_{DC}$ , 0 ~ 20 mA, 4 ~ 20 mA

#### Analog Output

- **Channels** 2
- **Output Type** V, mA
- **Output Range** 0 ~ 10  $V_{DC}$ , 4 ~ 20 mA, 0 ~ 20 mA

#### Digital Input

- **Channels** 2
- **Dry Contact** Logic level 0: close to GND  
Logic level 1: open
- **Wet Contact** Logic level 0: 0 ~ 3  $V_{DC}$   
Logic level 1: 10 ~ 30  $V_{DC}$

#### Digital Output

- **Channels** 2, open collector to 30 V, 100 mA max. load
- **Power Dissipation** 300 mW for each module

### Ordering Information

- **ADAM-6022** Ethernet-based Dual-loop PID Controller



ADAM-6024

FCC CE RoHS

### Specifications

#### Analog Input

- **Channels** 6 (differential)
- **Input Range**  $\pm 10 V_{DC}$ , 0 ~ 20 mA, 4 ~ 20 mA

#### Analog Output

- **Channels** 2
- **Output Type** V, mA
- **Output Range** 0 ~ 10  $V_{DC}$ , 4 ~ 20 mA, 0 ~ 20 mA

#### Digital Input

- **Channels** 2
- **Dry Contact** Logic level 0: close to GND  
Logic level 1: open
- **Wet Contact** Logic level 0: 0 ~ 3  $V_{DC}$   
Logic level 1: 10 ~ 30  $V_{DC}$

#### Digital Output

- **Channels** 2, open collector to 30 V, 100 mA max. load
- **Power Dissipation** 300 mW for each module

#### Supports

- **Peer-to-Peer (Receiver only)**
- **GCL (Receiver only)**

### Ordering Information

- **ADAM-6024** 12-ch Isolated Universal I/O Modbus TCP Module

### Common Specifications

#### General

- **LAN** 10/100Base-T(X)
- **Power Consumption** 4 W @ 24  $V_{DC}$
- **Connectors** 1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog** System (1.6 second) and Communication (programmable)
- **Power Input** 10 ~ 30  $V_{DC}$
- **Supports Modbus/TCP, TCP/IP, UDP and HTTP Protocols**

#### Analog Input

- **Input Impedance** 20 M $\Omega$
- **Accuracy**  $\pm 0.1\%$  of FSR
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/second
- **CMR @ 50/60 Hz** 90 dB
- **NMR @ 50/60 Hz** 60 dB
- **Span Drift**  $\pm 25$  ppm/ $^{\circ}$  C
- **Zero Drift**  $\pm 6$   $\mu$ V/ $^{\circ}$  C

#### Analog Output

- **Accuracy**  $\pm 0.1\%$  of FSR
- **Resolution** 12-bit
- **Drift**  $\pm 50$  ppm/ $^{\circ}$  C
- **Current Load Resistor** Max. 500 $\Omega$
- **Voltage Load Resistor** Min. 1K  $\Omega$

#### Protection

- **Isolation Protection** 2,000  $V_{DC}$
- **Built-in TVS/ESD Protection**
- **Over Voltage Protection**  $\pm 35 V_{DC}$
- **Power Reversal Protection**

#### Environment

- **Operating Temperature** -10 ~ 50 $^{\circ}$  C (14 ~ 122 $^{\circ}$  F)
- **Storage Temperature** -20 ~ 80 $^{\circ}$  C (-4 ~ 176 $^{\circ}$  F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

- 1 WebAccess<sup>+</sup> Solution
- 2 Intelligent Motion Control and Machine Vision
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# ADAM-6050

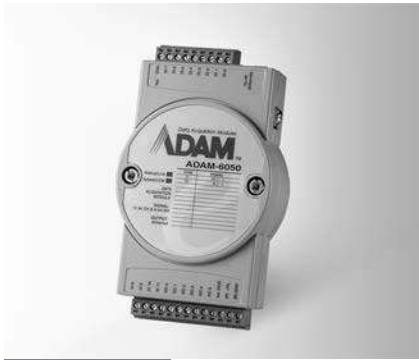
# ADAM-6051

# ADAM-6052

**18-ch Isolated Digital I/O Modbus TCP Module**

**14-ch Isolated Digital I/O Modbus TCP Module with 2-ch Counter**

**16-ch Source-type Isolated Digital I/O Modbus TCP Module**



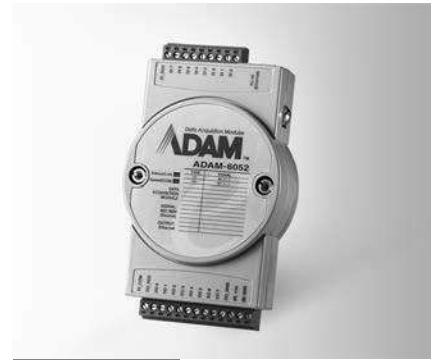
ADAM-6050

FCC CE RoHS COMPLIANT 2002/95/EC



ADAM-6051

FCC CE RoHS COMPLIANT 2002/95/EC



ADAM-6052

FCC CE RoHS COMPLIANT 2002/95/EC

## Specifications

### Digital Input

- **Channels** 12
- **Dry Contact** Logic level 0: close to GND  
Logic level 1: open
- **Wet Contact** Logic level 0: 0 ~ 3 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub>
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

### Digital Output

- **Channels** 6 (sink type), open collector to 30 V, 100 mA maximum load
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

## Ordering Information

- **ADAM-6050** 18-ch Isolated DI/O Modbus TCP Module

## Specifications

### Digital Input

- **Channels** 12
- **Dry Contact** Logic level 0: close to GND  
Logic level 1: open
- **Wet Contact** Logic level 0: 0 ~ 3 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub>
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

### Counter Input

- **Channels** 2
- **Mode** Counter, Frequency
- **Keep/Discard Counter Value when Power-off** 4,294,967,295 (32-bit + 1-bit overflow)
- **Maximum Count**
- **Input Frequency** Frequency Mode: 0.2 ~ 4500 Hz  
Counter Mode: 0 ~ 4.5 kHz

### Digital Output

- **Channels** 2 (sink type), open collector to 30 V, 100 mA maximum load
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

## Ordering Information

- **ADAM-6051** 16-ch Isolated DI/O with Counter Modbus TCP Module

## Specifications

### Digital Input

- **Channels** 8
- **Dry Contact** Logic level 0: close to GND  
Logic level 1: open
- **Wet Contact** Logic level 0: 0 ~ 3 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub>
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

### Digital Output

- **Channels** 8 (Source Type)
- **Voltage Range** 10 ~ 35 V<sub>DC</sub>
- **Current** 1 A (per channel)
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**
- **Supports Over Current Protection**

## Ordering Information

- **ADAM-6052** 16-ch Source-type Isolated DI/O Modbus TCP Module

## Common Specifications

### General

- **LAN** 10/100Base-T(X)
- **Power Consumption** 2 W @ 24 V<sub>DC</sub>
- **Connectors** 1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog** System (1.6 second) and Communication (programmable)

- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Supports Peer-to-Peer, GCL**
- **Supports User Defined Modbus Address**
- **Supports Modbus/TCP, TCP/IP, UDP, DHCP and HTTP Protocol**

### Protection

- **Power Reversal Protection**
- **Isolation Protection** 2,000 V<sub>DC</sub>

### Environment

- **Operating Temperature** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)



# ADAM-6060

# ADAM-6066

6-ch Digital Input and 6-ch Relay  
Modbus TCP Module

6-ch Digital Input and 6-ch Power Relay  
Modbus TCP Module



ADAM-6060

ADAM-6066



## Specifications

### General

- LAN 10/100Base-T(X)
- Power Consumption 2 W @ 24 V<sub>DC</sub> (ADAM-6060)  
2.5 W @ 24 V<sub>DC</sub> (ADAM-6066)
- Connectors 1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- Watchdog Timer System (1.6 second) and Communication (programmable)
- Power Input 10 ~ 30 V<sub>DC</sub>
- Supports Peer-to-Peer
- Supports GCL
- Supports Modbus/TCP, TCP/IP, UDP and HTTP Protocols

### Digital Input

- Channels 6
- Dry Contact Logic level 0: close to GND  
Logic level 1: open
- Wet Contact Logic level 0: 3 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub>
- Supports 3 kHz Counter Input (32-bit + 1-bit overflow)
- Keep/Discard Counter Value when Power-off
- Supports 3 kHz Frequency Input
- Supports Inverted DI Status

### Relay Output (Form A)

- Channels 6
- Contact Rating (Resistive) ADAM-6060: 120 V<sub>AC</sub> @ 0.5 A  
30 V<sub>DC</sub> @ 1 A  
ADAM-6066: 250 V<sub>AC</sub> @ 5 A  
30 V<sub>DC</sub> @ 3 A
- Breakdown Voltage 500 V<sub>AC</sub> (50/60 Hz)
- Relay On Time 7 ms
- Relay Off Time 3 ms
- Total Switching Time 10 ms
- Insulation Resistance 1 GΩ min. at 500 V<sub>DC</sub>
- Maximum Switching Rate (at rated load) 20 operations/minute
- Supports Pulse Output

### Protection

- Isolation Voltage 2,000 V<sub>DC</sub>
- Power Reversal Protection

### Environment

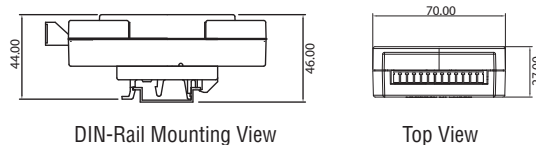
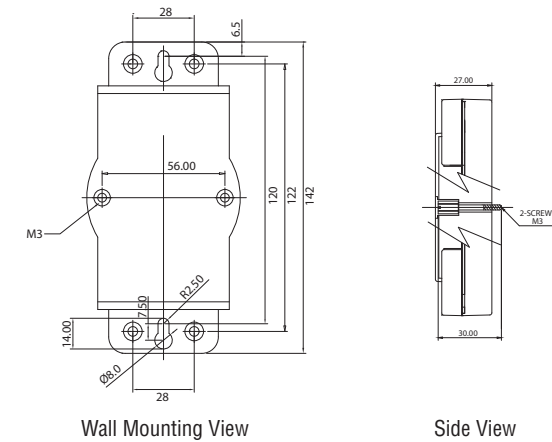
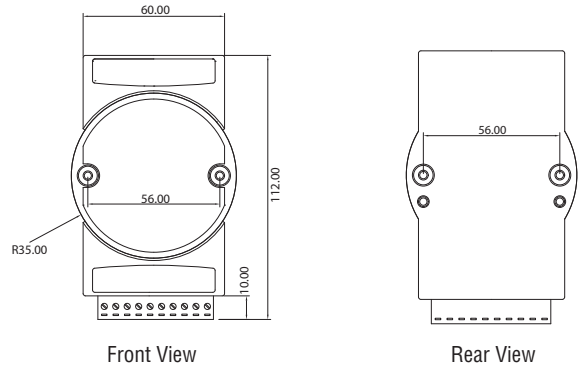
- Operating Temperature -10 ~ 70°C (14 ~ 158°F)
- Storage Temperature -20 ~ 80°C (-4 ~ 176°F)
- Operating Humidity 20 ~ 95% RH (non-condensing)
- Storage Humidity 0 ~ 95% RH (non-condensing)

## Ordering Information

- ADAM-6060 6-ch DI and 6-ch Relay Modbus TCP Module
- ADAM-6066 6-ch DI and 6-ch Power Relay Modbus TCP Module

## ADAM-6000 Series Dimensions

Unit: mm



## ADAM-6000 Series Common Specifications

### General

- Dimensions (W x H x D) 70 x 120 x 30 mm
- Enclosure ABS+PC
- Mounting DIN 35 rail, stack, wall

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
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# ADAM-6200 Series



## Feature

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- DI/O LED indication
- Flexible user-defined Modbus address
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

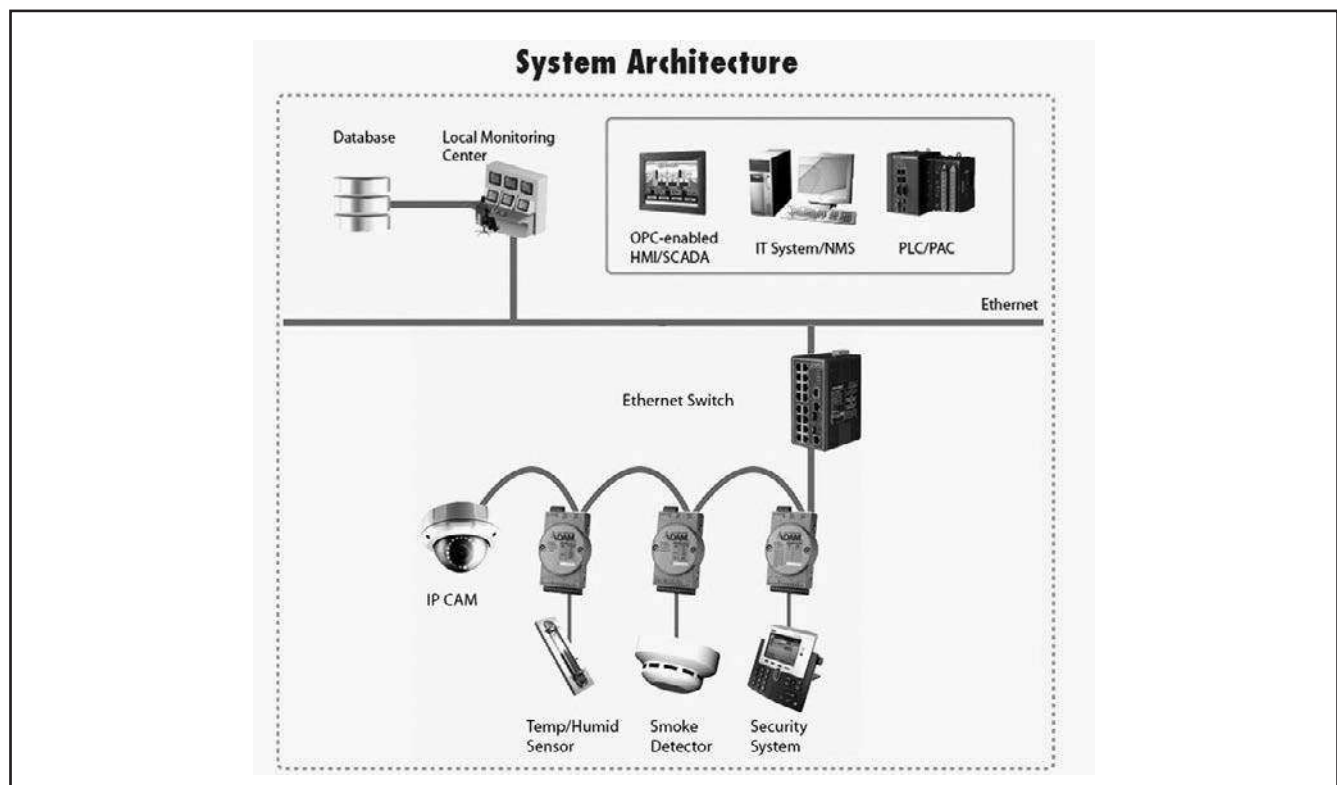
## Transition and Vision on Remote DAQ Device

In 2002, Advantech released its first Ethernet I/O module, ADAM-6000 series, which aims to provide ideal remote Ethernet I/O solution for industrial automation environments. It could work as a standalone station to conduct data acquisition, processing and delivery reliably in diverse of automation applications such as factory automation, EFMS and building automation.

However, as of today, the information technologies and network infrastructure are getting well-developed in the world. More and more enterprises not only face the requirement of enhancing their existing automation systems for greater overall equipment effectiveness (OEE), but also need up-to-date information integration, plant management and business systems. In the same way, the remote DAQ modules should be evolved to make it more effective, interoperable, and smarter than before to meet new requirements.

In the future, there are plenty of potential key elements like intelligence, energy-efficiency, cloud computing, cyber-security and mobile communication technologies being progressively leveraged in automation market. We believe that these will also contribute to ideal remote DAQ devices in IoT world.

In order to fulfill the transition of requirements and future applications, Advantech releases ADAM-6200 series, a new selection of Ethernet I/O family comprised of analog I/O, digital I/O and relay modules. ADAM-6200 series module possesses plenty of advanced features whatever the evolution of hardware design and what's worth expecting for user is a variety of useful software functions to make it effective in the application field. With new design and strong capabilities, ADAM-6200 can be a well-integrated I/O solution in Ethernet control systems.



# ADAM-6200 Key Features

## Flexible Deployment with Daisy Chain Networking and Auto-Bypass Protection

ADAM-6200 module has built-in Ethernet switches to allow daisy chain connections in an Ethernet network, making it easier to deploy, saving wiring costs, and helping improve scalability. The two Ethernet ports are fully compliant with IEEE 802.3u 10/100Mbps through standard RJ-45 connectors.

Although daisy chain topology brings attractive benefits for user, it still comes with the risk that once any device in the daisy-chain network suffers power outage, it will cause the disconnection of all devices data stream

### Auto-bypass Protection

To prevent this critical issue from happening, Advantech especially refines the hardware design of ADAM-6200 so that it can rapidly recover the network connection in about 2.5 seconds. Therefore, the damage will be greatly minimized.



## Remote Monitoring and Control with Smart Phone/Pad

In early stage of automation, it's hard to access or obtain the data of equipments online when conducting on-site inspection. Mostly, the possible way to do that is communicating with engineers in branch or central control room where the SCADA program is running. It always takes extra efforts to complete an on-site checking or debugging.

The ADAM-6200 series module integrates the latest Web language HTML 5, allowing users to remotely monitor the status of all online modules without bridging SCADA system and to perform basic I/O configurations on any built-in HMI devices such as Smart Phone, Smart Pad over the Internet. Moreover, users can further develop its extended applications based on the default HTML 5 file embedded in the module.

### HTML 5

HTML is a markup language popularly used to program the content for Web page over the Internet. The fifth revision (HTML 5) is the latest version which enhances its syntax structure and additionally mixes up with rich Web technologies like CSS, JavaScript to implement more Web service, API, interactive applications in mobile communications.



## Group Configuration Capability for Multiple Module Setup

In certain application scenario, it requires to set multiple modules with the same settings because these modules are doing the same tasks on different sites. Users have to set configurations of module one after another before onsite deployment. After the modules are installed and the system is running, it will still require repetitive efforts in maintenance when doing firmware update.

ADAM-6200 series modules are equipped with group configuration capability to reduce the repetitive efforts and quickly finish the multiple module setups, including firmware upgrade, configuration and HTML 5 file at one time. Users can finish the module installation faster than before as the configuration time tremendously reduced.



- 1 WebAccess® Solution
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# ADAM-6200 Series Selection Guide



Model	ADAM-6217	ADAM-6224	ADAM-6250	ADAM-6251	ADAM-6256	ADAM-6260	ADAM-6266	
Interface	10/100Mbps Ethernet							
Peer-to-Peer <sup>1</sup>	Yes	Receiver Only <sup>2</sup>	Yes	Yes	Yes	Yes	Yes	
GCL <sup>1</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Analog Input	Channels	8	-	-	-	-	-	
	Input Impedance	>10M $\Omega$ (voltage) 120 $\Omega$ (current)	-	-	-	-	-	
	Voltage Input	$\pm 150\text{mV}$ , $\pm 500\text{mV}$ , $\pm 1\text{V}$ , $\pm 5\text{V}$ , $\pm 10\text{V}$	-	-	-	-	-	
	Current Input	0 ~ 20 mA, 4 ~ 20mA, $\pm 20\text{mA}$	-	-	-	-	-	
	Sampling Rate (sample/second)	10	-	-	-	-	-	
	Direct Sensor Input	-	-	-	-	-	-	
	Burn-out Detection	Yes (4 ~ 20 mA)	-	-	-	-	-	
	Resolution	16-bit	-	-	-	-	-	
	Accuracy	$\pm 0.1\%$ of FSR (Voltage) at 25°C $\pm 0.2\%$ of FSR (Current) at 25°C	-	-	-	-	-	
Analog Output	Channels	-	4	-	-	-	-	
	Voltage Output	-	0 ~ 5V, 0 ~ 10V, $\pm 5\text{V}$ , $\pm 10\text{V}$	-	-	-	-	
	Current Output	-	0 ~ 20mA, 4 ~ 20mA	-	-	-	-	
	Resolution	-	12-bit	-	-	-	-	
Digital Input/Output	Input Channels	-	4 (Dry contact only)	8	16	-	-	
	Output Channels	-	-	7 (Sink)	-	16 (Sink)	-	
	Relay Output	-	-	-	-	-	6 (5 Form C + 1 Form A) 4 (Form C)	
	Contact Rating	-	-	-	-	-	250 V <sub>AC</sub> @ 5A 30 V <sub>DC</sub> @ 5A	
	Counter Input	-	-	3kHz	3kHz	-	-	3kHz
	Frequency Input	-	-	3kHz	3kHz	-	-	3kHz
	Pulse Output	-	-	5kHz	-	5kHz	5kHz	5kHz
LED Indicator	-	-	8 DI, 7 DO	16 DI	16 DO	6 RL	4 DI, 4 RL	
Power Consumption	3.5W	6W	3W	2.7W	3.2W	4.5W	4.2W	
Isolation Voltage	2,500 V <sub>DC</sub>							
Watchdog Timer	System (1.6 seconds) Communication (Programmable)							
Communication Protocol	Modbus TCP, TCP/IP, UDP, HTTP, DHCP							
Power Requirements	10 - 30 V <sub>DC</sub> (24 V <sub>DC</sub> standard)							
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)							
Storage Temperature	-20 ~ 80°C (-4 ~ 176°F)							
Operating Humidity	20 ~ 95% RH (non-condensing)							
Storage Humidity	0 ~ 95% RH (non-condensing)							
Page	15-13	15-13	15-14	15-14	15-14	15-15	15-15	

Note 1: Peer-to-Peer and GCL cannot run simultaneously, only one feature is enabled at one time.

Note 2: ADAM-6224 can only act as a receiver and generate analog output when using Peer-to-Peer or GCL.

# ADAM-6217

# ADAM-6224

## 8-ch Isolated Analog Input Modbus TCP Module

## 4-ch Isolated Analog Output Modbus TCP Module



ADAM-6217



### Specifications

#### Analog Input

- **Channels** 8 (differential)
- **Input Impedance** > 10 MW (voltage)  
120 W (current)
- **Input Type** mV, V, mA
- **Input Range** ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0 ~ 20 mA, 4 ~ 20 mA, ±20 mA
- **Span Drift** ± 30 ppm/°C
- **Zero Drift** ± 6 µV/°C
- **Resolution** 16-bit
- **Accuracy** ± 0.1% of FSR (Voltage) at 25°C  
± 0.2% of FSR (Current) at 25°C
- **Sampling Rate** 10 sample/second (total)
- **CMR @ 50/60 Hz** 92 dB
- **NMR @ 50/60 Hz** 67 dB
- **Common Mode** 200 V<sub>DC</sub>

### Ordering Information

- **ADAM-6217** 8-ch Isolated Analog Input Modbus TCP Module



ADAM-6224



### Specifications

#### Analog Output

- **Channels** 4
- **Output Impedance** 2.1 Ω
- **Output Settling Time** 20 µs
- **Driving Load** Voltage: 2kΩ  
Current: 500 Ω
- **Programmable Output Slope** 0.125 ~ 128 mA/sec
- **Output Type** 0.0625 ~ 64 V/sec
- **Output Range** V, mA
- **Accuracy** 0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V, 0 ~ 20 mA, 4 ~ 20 mA  
± 0.3% of FSR (Voltage) at 25°C  
± 0.5% of FSR (Current) at 25°C
- **Resolution** 12-bit
- **Current Load Resistor** 0 ~ 500 Ω
- **Drift** ± 50 ppm/°C

#### Digital Input

- **Channels** 4 (Dry Contact only)
- **Dry Contact** Logic 0: Open  
Logic 1: Closed to DGND
- **Support DI Filter**
- **Support Inverted DI Status**
- **Support Trigger to Startup or Safety Value**

### Ordering Information

- **ADAM-6224** 4-ch Isolated Analog Output Modbus TCP Module

### Common Specifications

#### General

- **Ethernet** 2-port 10/100 Base-TX (for Daisy Chain)
- **Protocol** Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- **Connector** Plug-in 5P/15P screw terminal blocks
- **Power Input** 10 ~ 30 V<sub>DC</sub> (24 V<sub>DC</sub> standard)
- **Watchdog Timer** System (1.6 seconds)  
Communication (Programmable)
- **Dimensions** 70 x 122 x 27 mm
- **Protection** Built-in TVS/ESD protection  
Power Reversal protection  
Over Voltage protection: +/- 35V<sub>DC</sub>  
Isolation protection: 2500 V<sub>DC</sub>  
ADAM-6217: 3.5W @ 24 V<sub>DC</sub>  
ADAM-6218: 3.5W @ 24 V<sub>DC</sub>  
ADAM-6224: 6W @ 24 V<sub>DC</sub>
- **Power Consumption**

#### Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- Flexible user-defined Modbus address
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, JavaScript
- System configuration backup
- User Access Control

#### Environment

- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F) ADAM-6224  
-20 ~ 70°C (-4 ~ 158°F) ADAM-6217, ADAM-6218  
-20 ~ 80°C (-4 ~ 176°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

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# ADAM-6250

# ADAM-6251

# ADAM-6256

**15-ch Isolated Digital I/O Modbus TCP Module**

**16-ch Isolated Digital Input Modbus TCP Module**

**16-ch Isolated Digital Output Modbus TCP Module**



ADAM-6250



ADAM-6251



ADAM-6256



## Specifications

### Digital Input

- **Channels** ADAM-6250: 8  
ADAM-6251: 16
- **Dry Contact** Logic 0: Open  
Logic 1: Closed to DGND
- **Wet Contact** Logic 0: 0 ~ 3 V<sub>DC</sub> or 0 ~ -3 V<sub>DC</sub>  
Logic 1: 10 ~ 30 V<sub>DC</sub> or -10 ~ -30 V<sub>DC</sub>  
(Dry/Wet Contact decided by Switch)
- **Input Impedance** 5.2 k $\Omega$  (Wet Contact)
- **Transition Time** 0.2 ms
- **Frequency Input Range** 0.1 ~ 3kHz
- **Counter Input** 3kHz (32 bit + 1 bit overflow)
- **Keep/Discard Counter Value when power off**
- **Supports Inverted DI Status**

### Digital Output

- **Channels** ADAM-6250: 7 (Sink Type)  
ADAM-6256: 16 (Sink Type)
- **Output Voltage Range** 10 ~ 30 V<sub>DC</sub>
- **Normal Output Current** 100 mA (per channel)
- **Pulse Output** Up to 5kHz
- **Delay Output** High-to-Low and Low-to-High

## Ordering Information

- **ADAM-6250** 15-ch Isolated Digital I/O Modbus TCP Module
- **ADAM-6251** 16-ch Isolated Digital Input Modbus TCP Module
- **ADAM-6256** 16-ch Isolated Digital Output Modbus TCP Module

## Common Specifications

### General

- **Ethernet** 2-port 10/100 Base-TX (for Daisy Chain)
- **LED Indication** ADAM-6250: 8 DI + 7 DO  
ADAM-6251: 16 DI  
ADAM-6256: 16 DO
- **Protocol** Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- **Connector** Plug-in 5P/15P screw terminal blocks
- **Power Input** 10 ~ 30 V<sub>DC</sub> (24 V<sub>DC</sub> standard)
- **Watchdog Timer** System (1.6 seconds)  
Communication (Programmable)
- **Dimensions** 70 x 122 x 27 mm
- **Protection** Built-in TVS/ESD protection  
Power Reversal protection  
Over Voltage protection: +/- 35V<sub>DC</sub>  
Isolation protection: 2500 V<sub>DC</sub>
- **Power Consumption** ADAM-6250: 3 W @ 24 V<sub>DC</sub>  
ADAM-6251: 2.7 W @ 24 V<sub>DC</sub>  
ADAM-6256: 3.2 W @ 24 V<sub>DC</sub>

### Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- DI/O LED Indication
- Flexible user-defined Modbus address.
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

### Environment

- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

# ADAM-6260

# ADAM-6266

## 6-ch Relay Output Modbus TCP Module

## 4-ch Relay Output Modbus TCP Module with 4-ch DI



ADAM-6260



ADAM-6266



### Specifications

#### Relay Output

- **Channels** ADAM-6260: 5 Form C and 1 Form A  
ADAM-6266: 4 Form C
- **Contact Rating (Resistive)** 250 V<sub>AC</sub> @ 5A  
30 V<sub>DC</sub> @ 5A
- **Max. Switching Voltage** 400 V<sub>AC</sub>  
300 V<sub>DC</sub>
- **Breakdown Voltage** 500 V<sub>AC</sub> (50/60Hz)
- **Max. Breakdown Capacity** 1250 VA
- **Frequency of Operation** 360 operations/hour with load  
72,000 operations/hour without load
- **Set/Reset Time** 8 ms/8 ms
- **Mechanical Endurance** > 15 x 10<sup>6</sup> operations
- **Isolation between Contact** 1000 V<sub>rms</sub>
- **Insulation Resistance** > 10 G $\Omega$  @ 500 V<sub>DC</sub>

#### Digital Input

- **Channels** ADAM-6266: 4
- **Dry Contact** Logic 0: Open  
Logic 1: Closed to DI COM
- **Wet Contact** Logic 0: 0 ~ 3 V<sub>DC</sub> or 0 ~ -3 V<sub>DC</sub>  
Logic 1: 10 ~ 30 V<sub>DC</sub> or -10 ~ -30 V<sub>DC</sub>  
(Dry/Wet Contact decided by Switch)
- **Input Impedance** 5.2 k $\Omega$  (Wet Contact)
- **Transition Time** 0.2 ms
- **Frequency Input Range** 0.1 ~ 3kHz
- **Counter Input** 3kHz (32 bit + 1 bit overflow)
- **Keep/Discard Counter Value when power off**
- **Supports Inverted DI Status**

### Ordering Information

- **ADAM-6260** 6-ch Relay Output Modbus TCP Module
- **ADAM-6266** 4-ch Relay Output Modbus TCP Module with 4-ch DI

### Common Specifications

#### General

- **Ethernet** 2-port 10/100 Base-TX (for Daisy Chain)
- **LED Indication** ADAM-6260: 6 RL  
ADAM-6266: 4 RL + 4 DI
- **Protocol** Modbus/TCP, TCP/IP, UDP, HTTP, DHCP
- **Connector** Plug-in 5P/15P screw terminal blocks
- **Power Input** 10 - 30 V<sub>DC</sub> (24 V<sub>DC</sub> standard)
- **Watchdog Timer** System (1.6 seconds)  
Communication (Programmable)
- **Dimensions** 70 x 122 x 27 mm
- **Protection** Built-in TVS/ESD protection  
Power Reversal protection  
Over Voltage protection: +/- 35V<sub>DC</sub>  
Isolation protection: 2500 V<sub>DC</sub>  
ADAM-6260: 4.5 W @ 24 V<sub>DC</sub>  
ADAM-6266: 4.2 W @ 24 V<sub>DC</sub>
- **Power Consumption**

#### Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- DI/O LED Indication
- Flexible user-defined Modbus address.
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

#### Environment

- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

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# EtherNet/IP & Profinet I/O Module Introduction



Real-time distributed control systems are an important technology for reliable industrial Ethernet and automation applications. A number of techniques are used to adapt the Ethernet protocol for industrial processes, which must provide reliable service to ensure stable operation. With modern protocols, automation systems from different manufacturers can be interconnected throughout a plant. Industrial Ethernet takes advantage of the relatively larger marketplace for computer interconnections to reduce cost and improve performance of communications between industrial controllers.

## Real-time Systems

A real-time system is one in which the correctness of a result not only depends on precise calculations, but also upon accurate timing. In computing, real-time refers to a time frame that is very brief, appearing to be immediate. When a computer processes data in real time, it reads and handles data as it is received, producing results without delay. A non real-time computer process does not have a deadline. Such a process can be considered non-real-time, even if fast results are preferred. A real-time system, on the other hand, is expected to respond not just quickly, but also within a predictable period of time. In an automation control system, real time technology provides multiple advantages, such as improved safety, quality, and efficiency. To build a real-time distributed control system, it is critical to establish reliable real-time communication among the controllers, so there is now an increasing interest in the use of Ethernet as the link-layer protocol, such as EtherNet/IP, PROFINET, EtherCAT, Ethernet PowerLink, SERCOS III.

## EtherNet/IP

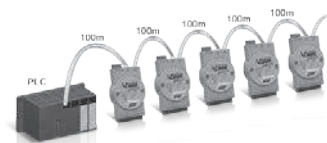
EtherNet/IP was developed in the late 1990's by Rockwell Automation for use in process control and other industrial automation applications, ensuring multi-vendor system interoperability. EtherNet/IP is a lot like standard office Ethernet, using the same TCP/IP messaging but with a new application layer added where data is arranged. This is known as Object-Orientated Organization, and allows ordinary office Ethernet to become a more versatile system. Today, EtherNet/IP is commonly used in industrial automation applications, such as water processing, manufacturing and utilities.

## Profinet

PROFINET, the standard for industrial networking in automation, connects devices, systems, and cells, facilitating faster, safer, less costly and higher quality manufacturing. As it's fully compatible with office Ethernet it easily integrates existing systems and equipment while bringing enhanced features such as real-time performance and control and monitoring functions as well as the ability to withstand harsh industrial environments. In addition to the above, PROFINET also features highly scalable architectures, remote access and maintenance of field devices over the network, and lower production/quality data monitoring costs.

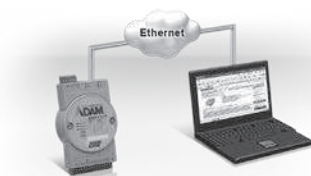
## Feature Highlights

### Daisy Chain Connections

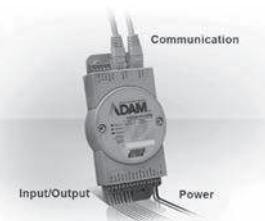


Each ADAM-6100 module has two built in Ethernet switches to allow daisy chain connections in an Ethernet network, making it easier to deploy, helping improve scalability and improving resistance against interference common in factory settings.

### Ethernet-based Configuration Tool



ADAM.NET Utility comes bundled with each ADAM-6100 module. With ADAM.NET Utility, users can configure, set and test ADAM-6100 modules through Ethernet.



### 2,500 V<sub>DC</sub> Isolation Protection

With triple isolation, including power supply, input/output, and Ethernet communication, ADAM-6100 series ensures I/O data to be controlled correctly, and prevents devices from breaking down.



### Multiple Mounting Mechanisms

Advantech provides versatile mounting methods to fit various demands in the field. ADAM-6100 series supports DIN-rail mounting, wall mounting and piggybacking.

# ADAM-6100 Series Selection Guide



Model		ADAM-6117	ADAM-6150	ADAM-6151	ADAM-6156	ADAM-6160
Interface		10/100 Mbps Ethernet				
Support Protocol		ADAM-6100EI: EtherNet/IP ADAM-6100PN: Profinet				
Analog Input	Resolution	16-bit	-	-	-	-
	Channels	8	-	-	-	-
	Sampling Rate (sample/second)	10	-	-	-	-
	Voltage Input	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	-	-	-
	Current Input	0 ~ 20 mA 4 ~ 20 mA ±20 mA	-	-	-	-
Direct Sensor Input		-	-	-	-	-
Analog Output	Resolution	-	-	-	-	-
	Channels	-	-	-	-	-
	Current Output	-	-	-	-	-
	Voltage Output	-	-	-	-	-
Digital Input/Output	Input Channels	-	8	16	-	-
	Output Channels	-	7	-	16	6-ch power relay
Isolation Protection		2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>	2,500 V <sub>DC</sub>
Connectors		2 x RJ-45 LAN (Daisy Chain) Plug-in screw terminal block (I/O and power)				
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# ADAM-6117

# ADAM-6160

## 8-ch Isolated Analog Input Real-time Ethernet Module

## 6-ch Relay Real-time Ethernet Module



ADAM-6117

FCC CE RoHS COMPLIANT 2002/95/EC

### Specifications

#### Analog Input

- Channels 8 (differential)
- Input Impedance > 10 M $\Omega$  (voltage)  
120  $\Omega$  (current)
- Input Type mV, V, mA
- Input Range  $\pm 150$  mV,  $\pm 500$  mV,  $\pm 1$  V  
 $\pm 5$  V,  $\pm 10$  V, 0 ~ 20 mA,  
4 ~ 20 mA,  $\pm 20$  mA
- Span Drift  $\pm 30$  ppm/ $^{\circ}$ C
- Zero Drift  $\pm 6$   $\mu$ V/ $^{\circ}$ C
- Resolution 16-bit
- Accuracy  $\pm 0.1\%$  of FSR (Current) at 25 $^{\circ}$ C  
 $\pm 0.2\%$  of FSR (Current) at 25 $^{\circ}$ C
- Sampling Rate 10 sample/second (total)
- CMR @ 50/60 Hz 92 dB
- NMR @ 50/60 Hz 67 dB
- High Common Mode 200 V<sub>DC</sub>

### Ordering Information

- ADAM-6117E1 8-ch Isolated AI EtherNet/IP Module



ADAM-6160

FCC CE RoHS COMPLIANT 2002/95/EC

### Specifications

#### Relay Output

- Channels 5 Form C and 1 Form A
- Contact Rating (Resistive) 250 V<sub>AC</sub> @ 5A  
30 V<sub>DC</sub> @ 5A
- Max. Switching Voltage 400 V<sub>AC</sub>  
300 V<sub>DC</sub>
- Breakdown Voltage 500 V<sub>AC</sub> (50/60Hz)
- Max. Breakdown Capacity 1250 VA
- Frequency of Operation 360 operations/hour with load  
72,000 operations/hour without load
- Set/Reset Time 8 ms/8 ms
- Mechanical Endurance > 15 x 10<sup>6</sup> operations
- Isolation between Contact 1000 V<sub>rms</sub>
- Insulation Resistance > 10 G $\Omega$  @ 500 V<sub>DC</sub>

### Ordering Information

- ADAM-6160E1 6-ch Relay EtherNet/IP Module

### Common Specifications

#### General

- LAN 10/100Base-T(X)
- Power Consumption ADAM-6117: 3.5 W @ 24 V<sub>DC</sub>  
ADAM-6160: 4.5 W @ 24 V<sub>DC</sub>
- Connectors 2 x RJ-45 LAN (Daisy Chain)  
Plug-in screw terminal block (I/O and power)
- Watchdog System (1.6 second)
- Power Input 10 ~ 30 V<sub>DC</sub>

#### Protection

- Isolation Protection 2,500 V<sub>DC</sub>
- Built in TVS/ESD Protection
- Power Reversal Protection

#### Environment

- Operating Temperature -10 ~ 70 $^{\circ}$ C (14 ~ 158 $^{\circ}$ F)
- Storage Temperature -20 ~ 80 $^{\circ}$ C (-4 ~ 176 $^{\circ}$ F)
- Operating Humidity 20 ~ 95% RH (non-condensing)
- Storage Humidity 0 ~ 95% RH (non-condensing)



# ADAM-6150

## ADAM-6151/6156

15-ch Isolated Digital I/O Real-time Ethernet Module

16-ch Isolated Digital Input/ Digital Output Real-time Ethernet Module



ADAM-6150

FCC CE RoHS COMPLIANT

### Specifications

#### Digital Input

- Channels 8
- Dry Contact Logic level 0: open  
Logic level 1: close to DGND
- Wet Contact Logic level 0: 0 ~ 3 V<sub>DC</sub> or 0 ~ -3 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub> or -10 ~ -30 V<sub>DC</sub>  
(Dry/Wet Contact decided by switch)
- Input Impedance 5.2 kΩ (Wet Contact)
- Transition Time From logic level 0 to 1: 0.2 ms  
From logic level 1 to 0: 0.2 ms

#### Digital Output

- Channels 7
- Output Voltage Range 8 ~ 35 V<sub>DC</sub>
- Normal Output Current 100 mA (per channel)

### Ordering Information

- ADAM-6150EI 15-ch Isolated DI/O EtherNet/IP Module



ADAM-6151/6156

FCC CE RoHS COMPLIANT

### Specifications

#### Digital Input (ADAM-6151)

- Channels 16
- Dry Contact Logic level 0: open  
Logic level 1: close to DGND
- Wet Contact Logic level 0: 0 ~ 3 V<sub>DC</sub> or 0 ~ -3 V<sub>DC</sub>  
Logic level 1: 10 ~ 30 V<sub>DC</sub> or -10 ~ -30 V<sub>DC</sub>  
(Dry/Wet Contact decided by switch)
- Input Impedance 5.2 kΩ (Wet Contact)
- Transition Time From logic level 0 to 1: 0.2 ms  
From logic level 1 to 0: 0.2 ms

#### Digital Output (ADAM-6156)

- Channels 16
- Output Voltage Range 8 ~ 35 V<sub>DC</sub>
- Normal Output Current 100 mA (per channel)

### Ordering Information

- ADAM-6151EI 16-ch Isolated DI EtherNet/IP Module
- ADAM-6156EI 16-ch Isolated DO EtherNet/IP Module

### Common Specifications

#### General

- LAN 10/100Base-T(X)
- Power Consumption ADAM-6150: 3 W @ 24 V<sub>DC</sub>  
ADAM-6151: 2.7 W @ 24 V<sub>DC</sub>  
ADAM-6156: 3.2 W @ 24 V<sub>DC</sub>
- Connectors 2 x RJ-45 LAN, (Daisy Chain)  
Plug-in screw terminal block (I/O and power)
- Watchdog System (1.6 second)
- Power Input 10 ~ 30 V<sub>DC</sub>

#### Protection

- Over Voltage Protection ±35 V<sub>DC</sub>
- Isolation Protection 2,500 V<sub>DC</sub>
- Power Reversal Protection

#### Environment

- Operating Temperature -10 ~ 70°C (14 ~ 158°F)
- Storage Temperature -20 ~ 80°C (-4 ~ 176°F)
- Operating Humidity 20 ~ 95% RH (non-condensing)
- Storage Humidity 0 ~ 95% RH (non-condensing)

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## RS-485 I/O Modules: ADAM-4000

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<b>ADAM-4019+</b>	8-ch Universal Analog Input Module with Modbus	
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To view all of Advantech's IoT Ethernet I/O Modules, please visit [www.advantech.com/products](http://www.advantech.com/products).



# ADAM-4000 Series



## Applications

- Remote data acquisition
- Process monitoring
- Industrial process control
- Energy management
- Supervisory control
- Security systems
- Laboratory automation
- Building automation
- Product testing
- Direct digital control
- Relay control

## Introduction

The ADAM-4000 series modules are compact, versatile sensor-to-computer interface units designed specifically for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial grade plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, data display and RS-485 communication. The ADAM-4000 series can be categorized into three groups: controllers, communication modules, and I/O modules.



## General Features

### RS-485

The ADAM-4000 series of modules use the EIA RS-485 communication protocol, the industry's most widely used bi-directional, balanced transmission line standard. The EIA RS-485 was specifically developed for industrial applications. It lets ADAM-4000 modules transmit and receive data at high rates over long distances. All modules use optical isolators to prevent ground loop problems and reduce damages caused by power surges.

### Modbus Communication Protocol

Since Modbus is one of the most popular communication standards in the world, Advantech has applied it as the major communication protocol for eAutomation product development. The new-generation ADAM-4000 modules now also support the Modbus/RTU protocol as the remote data transmission mechanism. Featuring the Modbus-support capacity, the new ADAM-4000 series becomes universal remote I/O modules, which work with any Modbus systems. The HMI server or controller can read/write data via standard Modbus command instead of complex ASCII code.

### Watchdog Timer

A watchdog timer supervisory function will automatically reset the ADAM-4000 series modules if required, which reduces the need for maintenance. It also provides great reliability to the system.

## Flexible Networking

ADAM-4000 series modules need just two wires to communicate with their controlling host computer over a multidrop RS-485 network. Their ASCII-based command/response protocol ensures compatibility with virtually any computer system.

## Modular Industrial Design

You can easily mount modules on a DIN-rail, a panel or modules can piggyback on top of each other. You make signal connections through plug-in screw-terminal blocks, ensuring simple installation, modification and maintenance.

## Controller Features

### Alternative Standalone Control Solution

A standalone control solution is made possible when the ADAM-4000 series modules are controlled by the ADAM-4501 or ADAM-4502 PC-based communication controller. The ADAM-4501 and ADAM-4502 allow users to download an application (written in a high-level programming language) into its Flash ROM. This allows customization for your applications.

## I/O Module Features

### Remotely Programmable Input Ranges

The ADAM-4000 series modules stand out because of their ability to accommodate multiple types and ranges of analog input. The type and range can be remotely selected by issuing commands from a host computer. One type of module satisfies many different tasks, which greatly simplifies design and maintenance. A single kind of module can handle the measurement needs of a whole plant. Since all modules are remotely configured by the host computer, physical adjustments are unnecessary.

### Easy Plug-in System Integration

With ADAM-4000's Modbus I/O, and built-in Modbus/RTU protocol, any controller using the Modbus/RTU standard can be integrated as part of an ADAM-4000 control system. Any Modbus Ethernet data gateway can upgrade these I/O Modules up to the Modbus/TCP Ethernet layer. Most HMI software is bundled with a Modbus driver, and can access the ADAM-4000 I/O directly. Moreover, Advantech provides Modbus OPC Server and Modbus/TCP OPC Server as data exchange interfaces between the ADAM-4000 Modbus I/O and any Windows Applications.

## Communication Module Features

### Ethernet

ADAM-4570 and ADAM-4571 are designed for the connection between serial devices (RS-232/422/485) and Ethernet. With ADAM-4570 or ADAM-4571, you can use graphical control software to monitor and control I/O modules. With existing devices, you can connect to an Ethernet network with the benefits of enhanced host performance and convenience.

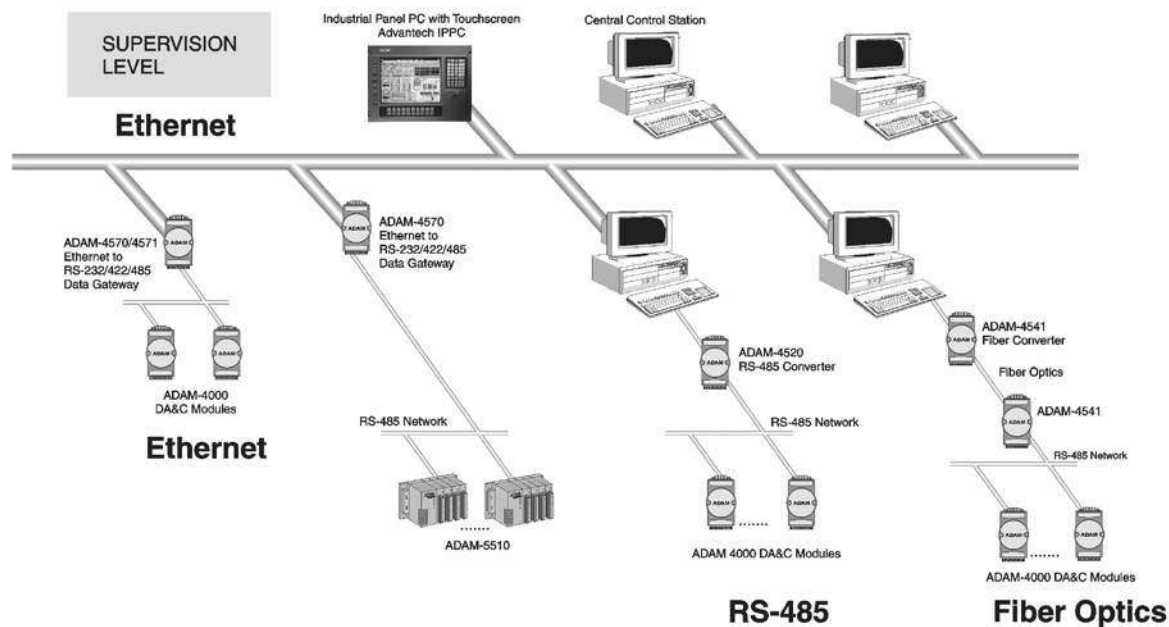
### Fiber Optics

If users need to transmit over long distances without noise interference, ADAM-4541 and ADAM-4542+ are designed for this task. The ADAM-4541 is a multi-mode converter, which carries signals from fiber optics to RS-232/422/485. It offers a transmission distance of up to 2,500 m with a total immunity to electromagnetic noise. The ADAM-4542+ is a single-mode converter, which carries signals from fiber to optics to RS-232/422/485. It offers a transmission distance of up to 15 km with total immunity to electromagnetic noise.

### USB Communications

ADAM-4561/4562 is an one-port isolated USB to RS-232/422/485 converter. ADAM-4561 can convert USB to RS-232/422/485 with plug-in terminal. The major features of ADAM-4562 are the capability to use 9-wire RS-232, and to get power from the USB port. With 9-wire RS-232 capability, this converter meets the requirements of PLCs, modems, and controller equipment. As a USB-to-serial converter, ADAM-4562 supports Plug & Play, and hot-swapping, which simplifies the configuration process, and it also acts as a power supply for the module. It is no longer necessary to have an external power supply.

## ADAM-4000 Remote Data Acquisition and Control System



- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I-Door Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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- 16 RS-485 I/O Modules
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- 19 Networking



# Communication and Controller Module Selection Guide

## Controllers



Model	ADAM-4022T
Network	RS-485
Comm. Protocol	ASCII Command/ Modbus
Comm. Speed (bps)	Serial: From 1,200 to 115.2 k
Comm. Distance	Serial: 1.2 km
Interface Connectors	RS-485: plug-in screw terminal
LED Indicators	Power
Data Flow Control	Yes
Watchdog Timer	Yes
Isolation Voltage	3,000 V <sub>DC</sub>
Special Features	PID Control
Built-in I/O	-
Power Requirements	10 ~ 30 V <sub>DC</sub>
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)
Operating Humidity	5 ~ 95% RH
Power Consumption	4 W @ 24 V <sub>DC</sub>
Page	16-10

## Repeaters



	ADAM-4510 ADAM-4510S
Network	RS-422 RS-485
Comm. Protocol	-
Comm. Speed (bps)	Serial: From 1,200 to 115.2 k
Comm. Distance	Serial: 1.2 km
Interface Connectors	RS-422/485: plug-in screw terminal
LED Indicators	Communication & Power
Data Flow Control	-
Watchdog Timer	-
Isolation Voltage	ADAM-4510: - ADAM-4510S: 3,000 V <sub>DC</sub>
Special Features	-
Built-in I/O	-
Power Requirements	10 ~ 30 V <sub>DC</sub>
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)
Operating Humidity	5 ~ 95% RH
Power Consumption	1.4 W @ 24 V <sub>DC</sub>
Page	16-14

## Converters



Model	ADAM-4520	ADAM-4521	ADAM-4541 ADAM-4542+	ADAM-4561 ADAM-4562
Network	RS-232 to RS-422/485		Fiber Optic to RS-232/422/485	USB to RS-232/485/422
Comm. Protocol	-			
Comm. Speed (bps)	Serial: From 1,200 to 115.2 k			
Comm. Distance	Serial: 1.2 km	Serial: 1.2 km	ADAM-4541: 2.5 km ADAM-4542+: 15 km	Serial: 1.2 km
Interface Connectors	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232/422/485: plug-in screw terminal Fiber: ADAM-4541: ST connector ADAM-4542+: SC connector	USB: type A client connector Serial: ADAM-4561: plug-in screw terminal (RS-232/422/485) ADAM-4562: DB9 (RS-232)
LED Indicators	Communication & Power			
Data Flow Control	-	Yes	-	Yes
Watchdog Timer	-	Yes	-	Yes
Isolation Voltage	3,000 V <sub>DC</sub>	1,000 V <sub>DC</sub>	-	ADAM-4561: 3,000 V <sub>DC</sub> ADAM-4562: 2,500 V <sub>DC</sub>
Power Requirements	10 ~ 30 V <sub>DC</sub>			
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
Operating Humidity	5 ~ 95% RH			
Power Consumption	1.2 W @ 24 V <sub>DC</sub>	1 W @ 24 V <sub>DC</sub>	ADAM-4541: 1.5 W @ 24 V <sub>DC</sub> ADAM-4542+: 3 W @ 24 V <sub>DC</sub>	ADAM-4561: 1.5 W @ 5 V <sub>DC</sub> ADAM-4562: 1.1 W @ 5 V <sub>DC</sub>
Page	16-14	16-14	16-15	16-15

# I/O Module Selection Guide

## Analog Input



Model		ADAM-4012	ADAM-4013	ADAM-4015	ADAM-4017+
Resolution			16 bit		
Analog Input	Channels	1 differential	1 differential	6 differential	8 differential
	Sampling Rate	10 Hz			
	Voltage Input	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	-	±150 mV ±500 mV ±1 V ±5 V ±10 V
	Current Input	±20 mA	-	-	4 ~ 20 mA ±20 mA
	Direct Sensor Input	-	RTD	RTD	-
	Burn-out Detection	-	-	Yes	-
	Channel Independent Configuration	-	-	Yes	Yes
Analog Output	Channels	-	-	-	-
	Voltage Output	-	-	-	-
	Current Output	-	-	-	-
Digital Input/Output	Input Channels	1	-	-	-
	Output Channels	2	-	-	-
	Alarm Settings	Yes	-	-	-
Counter (32-bit)	Channels	-	-	-	-
	Input Frequency	-	-	-	-
Isolation Voltage		3,000 V <sub>DC</sub>			
Digital LED Indicator		-			
Watchdog Timer		Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)
Safety Setting		-			
Modbus Support *		-	-	Yes	Yes
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\*: All ADAM-4000 I/O Modules support ASCII Commands

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# I/O Module Selection Guide

## Analog Input

## Analog Output

## Digital Input/Output



Model	ADAM-4018+	ADAM-4019+	ADAM-4021	ADAM-4024	ADAM-4050	ADAM-4051	
Resolution	16 bit		12 bit	12 bit	-	-	
Analog Input	Channels	8 differential	8 differential	-	-	-	
	Sampling Rate	10 Hz	10 Hz	-	-	-	
	Voltage Input	-	± 100 mV ± 500 mV ± 1 V ± 2.5 V ± 5 V ± 10 V	-	-	-	-
	Current Input	4 ~ 20 mA ±20 mA	4 ~ 20 mA ±20 mA	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	J, K, T, E, R, S, B Thermocouple	-	-	-	-
	Burn-out Detection	Yes	Yes (4 ~ 20 mA & All T/C)	-	-	-	-
	Channel Independent Configuration	Yes	Yes	-	-	-	-
Analog Output	Channels	-	-	1	4	-	-
	Voltage Output	-	-	0 ~ 10 V	±10 V	-	-
	Current Output	-	-	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	-	-
Digital Input/Output	Input Channels	-	-	-	4	7	16
	Output Channels	-	-	-	-	8	-
	Alarm Settings	-	-	-	Yes	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-
Isolation Voltage	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	3,000 V <sub>DC</sub>	-	2,500 V <sub>DC</sub>	
Digital LED Indicator	-	-	-	-	-	Yes	
Watchdog Timer	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	
Safety Setting	-	-	-	Yes	-	-	
Modbus Support *	Yes	Yes	-	Yes	-	Yes	
Page	16-9	16-9	16-10	16-10	16-11	16-11	

\*: All ADAM-4000 I/O Modules support ASCII Commands



# ADAM-4012

# ADAM-4013

# ADAM-4015

1-ch Analog Input Module

1-ch RTD Input Module

6-ch RTD Module with Modbus



ADAM-4012



ADAM-4013



ADAM-4015



## Specifications

### General

- Power Consumption 1.2 W @ 24 V<sub>DC</sub>
- Supported Protocols ASCII command
- Connectors 1 x plug-in terminal block (#14 ~ 22 AWG)

### Analog Input

- Channels 1
- Input Impedance Voltage: 20 M $\Omega$   
Current: 125  $\Omega$  (Added by user)
- Input Type mV, V or mA
- Input Range  $\pm 150$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 5$  V,  $\pm 10$  V and  $\pm 20$  mA
- Accuracy Voltage mode:  $\pm 0.1\%$  or better  
Current mode:  $\pm 0.2\%$  or better
- Span Drift  $\pm 25$  ppm/ $^{\circ}$ C
- Zero Drift  $\pm 6$   $\mu$ V/ $^{\circ}$ C

### Digital Input

- Channels 1  
Logic level 0: 1 V max.  
Logic level 1: 3.5 ~ 30 V  
pull up current: 0.5 mA,  
10 k $\Omega$  resistor to 5 V
- Event Counter Max. input freq.: 50 Hz  
Min. input pulse width: 1 msec.

### Digital Output

- Channels 2, open collector to 30 V,  
30 mA max. load
- Power Dissipation 300 mW

## Common Specifications

### General

- Power Input Unregulated 10 ~ 30 V<sub>DC</sub>
- Connectors 1 x plug-in terminal block (#14 ~ 22 AWG)
- Watchdog Timer System (1.6 second)

### Analog Input

- Resolution 16-bit
- Sampling Rate 10 sample/second (total)

## Specifications

### General

- Power Consumption 0.7 W @ 24 V<sub>DC</sub>
- Supported Protocols ASCII command
- Connectors 1 x plug-in terminal block (#14 ~ 22 AWG)

### Analog Input

- Channels 1
  - Input Connections 2 or 3-wire
  - Input Impedance 2 M $\Omega$
  - Input Type Pt or Ni RTD
  - RTD Types and Temperature Ranges
- | IEC RTD 100 ohms |                   |    |                   |
|------------------|-------------------|----|-------------------|
| Pt               | -100 $^{\circ}$ C | to | +100 $^{\circ}$ C |
| a =              |                   |    | 0.00385           |
| Pt               | 0 $^{\circ}$ C    | to | +100 $^{\circ}$ C |
| a =              |                   |    | 0.00385           |
| Pt               | 0 $^{\circ}$ C    | to | +200 $^{\circ}$ C |
| a =              |                   |    | 0.00385           |
| Pt               | 0 $^{\circ}$ C    | to | +600 $^{\circ}$ C |
| a =              |                   |    | 0.00385           |
| JIS RTD 100 ohms |                   |    |                   |
| Pt               | -100 $^{\circ}$ C | to | +100 $^{\circ}$ C |
| a =              |                   |    | 0.003916          |
| Pt               | 0 $^{\circ}$ C    | to | +100 $^{\circ}$ C |
| a =              |                   |    | 0.003916          |
| Pt               | 0 $^{\circ}$ C    | to | +200 $^{\circ}$ C |
| a =              |                   |    | 0.003916          |
| Pt               | 0 $^{\circ}$ C    | to | +600 $^{\circ}$ C |
| a =              |                   |    | 0.003916          |
| Ni RTD           |                   |    |                   |
| Ni               | -80 $^{\circ}$ C  | to | +100 $^{\circ}$ C |
| Ni               | 0 $^{\circ}$ C    | to | +100 $^{\circ}$ C |

## Specifications

### General

- Connectors 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- Power Consumption 1.2 W @ 24 V<sub>DC</sub>
- Watchdog Timer System (1.6 s) & Communication
- Supported Protocols ASCII command and Modbus/RTU
- Burn-out Detection Yes

### Analog Input

- Channels 6 differential
  - Input Connections 2, 3-wire
  - Input Impedance 10 M $\Omega$
  - Input Type Pt, Balco and Ni RTD
  - RTD Types and Temperature Ranges
- | Pt 100 RTD:                    |                     |
|--------------------------------|---------------------|
| Pt -50 $^{\circ}$ C            | to 150 $^{\circ}$ C |
| Pt 0 $^{\circ}$ C              | to 100 $^{\circ}$ C |
| Pt 0 $^{\circ}$ C              | to 200 $^{\circ}$ C |
| Pt 0 $^{\circ}$ C              | to 400 $^{\circ}$ C |
| Pt -200 $^{\circ}$ C           | to 200 $^{\circ}$ C |
| IEC RTD 100 ohms (a = 0.00385) |                     |
| JIS RTD 100 ohms (a = 0.00392) |                     |
| Pt 1000 RTD                    |                     |
| Pt -40 $^{\circ}$ C            | to 160 $^{\circ}$ C |
| Balco 500 RTD                  |                     |
| -30 $^{\circ}$ C               | to 120 $^{\circ}$ C |
| Ni 50 RTD                      |                     |
| Ni -80 $^{\circ}$ C            | to 100 $^{\circ}$ C |
| Ni 508 RTD                     |                     |
| Ni 0 $^{\circ}$ C              | to 100 $^{\circ}$ C |
| BA1                            |                     |
| -200 $^{\circ}$ C              | to 600 $^{\circ}$ C |

## Ordering Information

- ADAM-4012 1-ch Analog Input Module
- ADAM-4013 1-ch RTD Input Module
- ADAM-4015 6-ch RTD Module with Modbus



# ADAM-4017+ ADAM-4018+ ADAM-4019+

**8-ch Analog Input Module with Modbus**  
**8-ch Thermocouple Input Module with Modbus**  
**8-ch Universal Analog Input Module with Modbus**



ADAM-4017+



ADAM-4018+



ADAM-4019+



## Specifications

### General

- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

### Analog Input

- **Channels** 8 differential
- **Channel Independent Configuration** Yes
- **Input Impedance** Voltage: 20 MΩ  
Current: 120 Ω
- **Input Type** mV, V, mA
- **Input Range** ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA, 4 ~ 20 mA

## Specifications

### General

- **Power Consumption** 0.8 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

### Analog Input

- **Channels** 8 differential
- **Channel Independent Configuration** Yes
- **Input Impedance** Voltage: 20 MΩ  
Current: 120 Ω
- **Input Type** Thermocouple, mA
- **Input Range** ± 20 mA, 4 ~ 20 mA
- **T/C Types and Temperature Ranges**

<b>J</b>	0 ~ 760°C	<b>R</b>	500 ~ 1,750°C
<b>K</b>	0 ~ 1,370°C	<b>S</b>	500 ~ 1,750°C
<b>T</b>	-100 ~ 400°C	<b>B</b>	500 ~ 1,800°C
<b>E</b>	0 ~ 1,000°C		

- **Burn-out Detection** All T/C

## Specifications

### General

- **Power Consumption** 1.0 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

### Analog Input

- **Channels** 8 differential channels for individual input type
- **Channel Independent Configuration** Yes
- **Input Impedance** Voltage: 20 MΩ  
Current: 120 Ω
- **Input Type** T/C, mV, V, mA
- **Input Range** ±1 V, ±2.5 V, ±5 V, ±10 V, ±100 mV, ±500 mV, ±20 mA, 4 ~ 20 mA

### T/C Types and Temperature Ranges

<b>J</b>	0 ~ 760°C	<b>R</b>	500 ~ 1,750°C
<b>K</b>	0 ~ 1,370°C	<b>S</b>	500 ~ 1,750°C
<b>T</b>	-100 ~ 400°C	<b>B</b>	500 ~ 1,800°C
<b>E</b>	0 ~ 1,000°C		

- **Burn-out Detection** 4 ~ 20 mA & all T/C

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>
- **Connectors** 2 x plug-in terminal block (#14 ~ 22 AWG)

### Analog Input

- **Accuracy** Voltage mode: ±0.1% or better  
Current mode: ±0.2% or better
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/second (total)
- **Isolation Voltage** 3,000 V<sub>DC</sub>

- **Overvoltage Protection** ±35 V<sub>DC</sub>
- **CMR @ 50/60 Hz** 120 dB
- **NMR @ 50/60 Hz** 100 dB
- **Span Drift** ±25 ppm/°C (Typical)
- **Zero Drift** ±6 μV/°C
- **Built-in TVS/ESD Protection**

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

## Ordering Information

- **ADAM-4017+** 8-ch Analog Input Module with Modbus
- **ADAM-4018+** 8-ch Thermocouple Input Module w/Modbus
- **ADAM-4019+** 8-ch Universal Analog Input Module w/Modbus

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# ADAM-4021 ADAM-4022T ADAM-4024

## 1-ch Analog Output Module

## 2-ch Serial Based Dual Loop PID Controller with Modbus

## 4-ch Analog Output Module with Modbus



ADAM-4021



ADAM-4022T



ADAM-4024



### Specifications

#### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1.4 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

#### Analog Output

- **Channels** 1
- **Output Impedance** 0.5 Ω
- **Output Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Output Type** mA, V
- **Accuracy** ±0.1% of FSR for current output  
±0.2% of FSR for voltage output
- **Current Load Resistor** 0 to 500 Ω (source)
- **Resolution** 12-bit
- **Isolation Voltage** 3,000 V<sub>DC</sub>
- **Programmable Output Slope** 0.125 ~ 128 mA/sec.  
0.0625 ~ 64.0 V/sec.
- **Readback Accuracy** ±1% of FSR
- **Span Temperature Coefficient** ±25 ppm/°C
- **Zero Drift**
  - Voltage output: ±30 μV/°C
  - Current output: ±0.2 μA/°C

### Common Specifications

#### General

- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>

#### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 185°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

### Specifications

#### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 4 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command and Modbus/RTU

#### Analog Input (Only AI0 and AI2 are the PID input)

- **Channels** 4
- **Input Type** mA, V, Thermistor, RTD
- **Input Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Thermistor Type and Temperature Ranges**
  - Thermistor 3 K (NTC): 0 ~ 100°C
  - Thermistor 10 K (NTC): 0 ~ 100°C
- **RTD Type and Temperature Ranges**
  - Pt 100 RTD**
    - Pt 0 ~ 100°C Pt -100 ~ 100°C
    - Pt 0 ~ 600°C Pt 0 ~ 200°C
    - IEC RTD 100 ohms (α = 0.00385)
    - JIS RTD 100 ohms (α = 0.00392)
  - Pt 1000 RTD Pt -40 ~ 160°C
- **Resolution** 16-bit
- **Sampling Rate** 10 sample/second
- **Isolation Voltage** 3,000 V<sub>DC</sub>

#### Analog Output

- **Channels** 2
- **Output Range** 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- **Output Type** mA, V
- **Resolution** 12-bit
- **Isolation Voltage** 3,000 V<sub>DC</sub>

#### Digital Input

- **Channels** 2
- **Dry Contact** Logic level 0-close to GND  
Logic level 1-open

#### Digital Output

- **Channels** 2
- **Power Dissipation** Open Collector to 30 V,  
30 mA max. load  
300 mW

### Specifications

#### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 3 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU

#### Analog Output

- **Channels** 4
- **Output Impedance** 0.5 Ω
- **Output Range** 0 ~ 20 mA, 4 ~ 20mA, ±10 V
- **Output Type** mA, V (Differential)
- **Accuracy** ±0.1 % of FSR for current output  
±0.1 % of FSR for voltage output
- **Current Load Resistor** Max. 500 Ω (source)
- **Voltage Load Resistor** Min. 1K Ω
- **Resolution** 12-bit
- **Isolation Voltage** 3,000 V<sub>DC</sub>
- **Programmable Output Slope** 0.125 ~ 128 mA/sec.  
0.0625 ~ 64.0 V/sec.
- **Span Temperature Coefficient** ±25 ppm/°C
- **Zero Drift**
  - Voltage output: ±30 μV/°C
  - Current output: ±0.2 μA/°C

#### Digital Input

- **Channels** 4
- **Input Level** Logic level 0: 1 V max.  
Logic level 1: 10 ~ 30 V<sub>DC</sub>
- **Isolation Voltage** 3,000 V<sub>DC</sub>

### Ordering Information

- **ADAM-4021** 1-ch Analog Output Module
- **ADAM-4022T** 2-ch Serial Based Dual Loop PID Controller w/ Modbus
- **ADAM-4024** 4-ch Analog Output Module with Modbus

# ADAM-4050 ADAM-4051 ADAM-4052

15-ch Digital I/O Module  
16-ch Isolated Digital Input Module with Modbus

8-ch Isolated Digital Input Module



ADAM-4050



ADAM-4051



ADAM-4052



## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.4 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

### Digital Input

- **Channels** 7
- **Input Level** Logic level 0: 1 V max.  
Logic level 1: 3.5 ~ 30 V  
Pull up current: 0.5 mA,  
10 kΩ resistor to 5 V

### Digital Output

- **Channels** 8  
open collector to 30 V,  
30 mA max. load
- **Power Dissipation** 300 mW

## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 1 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command and Modbus/RTU
- **LED Indicators** Yes

### Digital Input

- **Channels** 16
- **Input Voltage** 50 V max
- **Input Level**  
Dry contact: Logic level 0: open  
Logic level 1: close to GND  
Wet contact: Logic level 0: 3 V max  
Logic level 1: 10 ~ 50 V  
(Note: Digital Input levels 0 and 1 can be inverted)
- **Isolation Voltage** 2,500 V<sub>DC</sub>
- **Input Resistance** 5.2 kΩ
- **Overshoot Protection** 70 V<sub>DC</sub>

## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.4 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

### Digital Input

- **Channels** 8  
(6 fully independent isolated channels, 2 isolated channels with common ground)
- **Input Level** Logic level 0: 1 V max.  
Logic level 1: 3 ~ 30 V
- **Isolation Voltage** 5,000 V<sub>RMS</sub>
- **Input Resistance** 3 kΩ

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

## Ordering Information

- **ADAM-4050** 15-ch Digital I/O Module
- **ADAM-4051** 16-ch Isolated Digital Input Module with Modbus
- **ADAM-4052** 8-ch Isolated Digital Input Module

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- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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# ADAM-4055 ADAM-4056S/4056SO ADAM-4080

**16-ch Isolated Digital I/O Module with Modbus**  
**12-ch Sink/Source Type Isolated Digital Output Modules with Modbus**  
**2-ch Counter/Frequency Module**



ADAM-4055



ADAM-4056S/4056SO



ADAM-4080



## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- **Power Consumption** 1 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII command and Modbus/RTU
- **Isolation Voltage** 2,500 V<sub>DC</sub>
- **LED Indicators** Yes

### Digital Input

- **Channels** 8
- **Input Level**  
Dry Contact: Logic level 0: open  
Logic level 1: close to GND  
Wet Contact: Logic level 0: 3 V max.  
Logic level 1: 10 ~ 50 V
- **Overvoltage Protection** 70 V<sub>DC</sub>

### Digital Output

- **Channels** 8, open collector to 40 V (200 mA max. load)
- **Power Dissipation** Channel: 1 W max.  
Total: 2.2 W (8 Channels)

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

## Specifications

### General

- **Connectors** 2 x Plug-in terminal blocks (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Support Protocol** ASCII command and Modbus/RTU
- **Isolation Voltage** 5000 V<sub>DC</sub>
- **LED Indicators** Yes

### ADAM-4056S

- **Digital Output Channels** 12  
Open collector to 40V (200mA max. load)
- **Power Dissipation** Channel: 1 W max  
Total: 4 W (12 Channels)
- **Digital Output Type** Sink

### ADAM-4056SO

- **Digital Output Channels** 12  
VCC: 10 ~ 35 V<sub>DC</sub>  
Current: 1A (per channel)
- **Digital Output Type** Source
- **Over Current Detection and Protection**

## Ordering Information

- **ADAM-4055** 16-ch Isolated Digital I/O Module with Modbus
- **ADAM-4056S** 12-ch Sink Type Isolated Digital Output Module with Modbus
- **ADAM-4056SO** 12-ch Source Type Isolated Digital Output Module with Modbus
- **ADAM-4080** 2-ch Counter/Frequency Modules

## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 2.0 W @ 24 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

### Counter Input

- **Channels** 2 independent counters (32-bit + 1-bit overflow)
- **Input Frequency** 50 kHz max.
- **Input Pulse Width** >10 μs.
- **Input Mode** Isolated or non-isolated
- **Isolated Input Level** Logic level 0: 1 V max.  
Logic level 1: 3.5 ~ 30 V
- **Isolation Voltage** 2,500 V<sub>RMS</sub>
- **Non-isolated Input Level** Programmable threshold:  
Logic level 0: 0.8 V<sub>max</sub>.  
Logic level 1: 2.4 ~ 5.0 V
- **Maximum Count** 4,294,967,295 (32-bit)
- **Preset Type** Absolute or relative
- **Programmable Digital Noise Filter** 2 μs ~ 65 ms
- **Alarm** Alarm comparators on each counter
- **Frequency Measurement Range** 5 Hz ~ 50 kHz
- **Programmable Built-in Gate Time** 1 or 0.1 second

### Digital Output

- **Channels** 2, open collector to 30 V, 30 mA max. load
- **Power Dissipation** 300 mW for each channel

# ADAM-4060

# ADAM-4068

# ADAM-4069

4-ch Relay Output Module

8-ch Relay Output Module with Modbus

8-ch Power Relay Output Module with Modbus



ADAM-4060



ADAM-4068



ADAM-4069



## Specifications

### General

- Connectors 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- Power Consumption 0.8 W @ 24 V<sub>DC</sub>
- Watchdog Timer System (1.6 second)
- Supported Protocols ASCII command

### Relay Output

- Breakdown Voltage 500 V<sub>AC</sub> (50/60 Hz)
- Channels 2 x Form A  
2 x Form C
- Contact Rating (Resistive) 0.6 A @ 125 V<sub>AC</sub>  
0.3 A @ 250 V<sub>AC</sub>  
2 A @ 30 V<sub>DC</sub>  
0.6 A @ 110 V<sub>DC</sub>
- Initial Insulation Resistance 1 GΩ min. at 500 V<sub>DC</sub>
- Relay off Time (Typical) 2 ms
- Relay on Time (Typical) 3 ms
- Maximum Operating Speed 20 operations/min (at related load)

## Specifications

### General

- Connectors 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- Power Consumption 0.6 W @ 24 V<sub>DC</sub>
- Watchdog Timer System (1.6 second) & Communication
- Supported Protocols ASCII command and Modbus/RTU

### Relay Output

- Breakdown Voltage 500 V<sub>AC</sub> (50/60 Hz)
- Channels 4 x Form A  
4 x Form C
- Contact Rating (Resistive) 0.5 A @ 120 V<sub>AC</sub>  
0.25 A @ 240 V<sub>AC</sub>  
1 A @ 30 V<sub>DC</sub>  
0.3 A @ 110 V<sub>DC</sub>
- Initial Insulation Resistance 1 GΩ min. at 500 V<sub>DC</sub>
- Relay off Time (Typical) 4 ms
- Relay on Time (Typical) 3 ms
- Maximum Operating Speed 50 operations/min (at related load)

## Specifications

### General

- Connectors 2 x plug-in terminal blocks (#14 ~ 28 AWG)
- Power Consumption 2.2 W @ 24 V<sub>DC</sub>
- Watchdog Timer System (1.6 second) & Communication
- Supported Protocols ASCII command and Modbus/RTU

### Relay Output

- Breakdown Voltage 1,000 V<sub>AC</sub> (50/60 Hz)
- Channels 4 x Form A  
4 x Form C
- Contact Rating (Resistive) 5 A @ 250 V<sub>AC</sub>  
5 A @ 30 V<sub>DC</sub>
- Initial Insulation Resistance 1 GΩ min. at 500 V<sub>DC</sub>
- Relay off Time (Typical) 5.6 ms
- Relay on Time (Typical) 5 ms
- Maximum Operating Speed 6 operations/min (at related load)

## Common Specifications

### General

- Power Input Unregulated 10 ~ 30 V<sub>DC</sub>

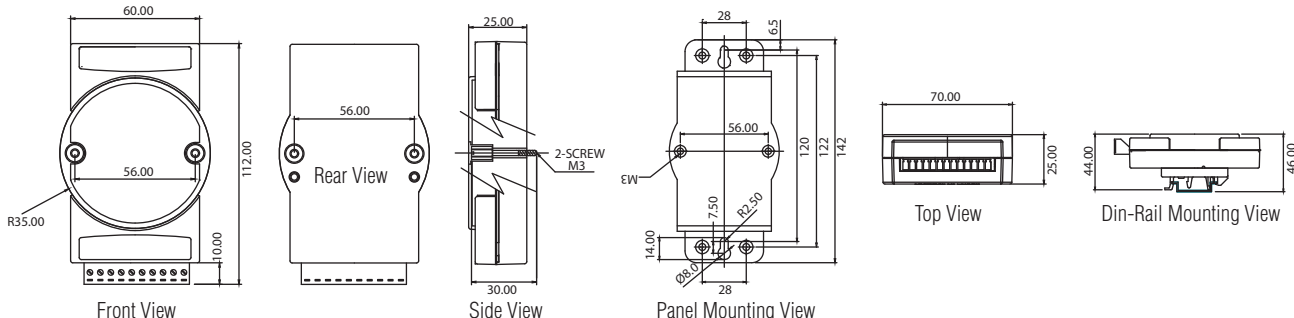
### Environment

- Operating Humidity 5 ~ 95% RH
- Operating Temperature -10 ~ 70°C (14 ~ 158°F)
- Storage Temperature -25 ~ 85°C (-13 ~ 185°F)

## Ordering Information

- ADAM-4060-DE 4-ch Relay Output Module
- ADAM-4068-BE 8-ch Relay Output Module with Modbus
- ADAM-4069-AE 8-ch Power Relay Output Module with Modbus

## Dimensions



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# ADAM-4510/S

# ADAM-4520

# ADAM-4521

RS-422/485 Repeater

Isolated RS-232 to RS-422/485 Converter

Addressable RS-422/485 to RS-232 Converter



ADAM-4510/4510S    



ADAM-4520   



ADAM-4521    

## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG) (RS-422/485)
- **Isolation Voltage** 3,000 V<sub>DC</sub> (ADAM-4510S)
- **Power Consumption** 1.4 W @ 24 V<sub>DC</sub>

### Serial Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)

## Specifications

### General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)  
1 x DB9-F (RS-232)
- **Isolation Voltage** 3,000 V<sub>DC</sub>
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>

### Serial Communications

- **Input** RS-232 (DB9)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)

## Specifications

### General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)  
1 x DB9-F (RS-232)
- **Isolation Voltage** 1,000 V<sub>DC</sub>
- **Power Consumption** 1.0 W @ 24 V<sub>DC</sub>
- **Built-in microprocessor and watchdog timer**

### Serial Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-232 (DB9)
- **Speed Modes (bps)** 300, 600, 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k (software configurable)
- **RS-232 and 485 can be set to different baudrates**
- **RS-485 surge protection and automatic RS-485 data flow control**
- **Software configurable to either addressable or non-addressable mode**

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 30 V<sub>DC</sub> w/ power reversal protection

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

## Ordering Information

- **ADAM-4510** RS-422/485 Repeater
- **ADAM-4510S** Isolated RS-422/485 Repeater
- **ADAM-4520** Isolated RS-232 to RS-422/485 Converter
- **ADAM-4521** Addressable RS-422/485 to RS-232 Converter

# ADAM-4541 ADAM-4542+ ADAM-4561/4562

**Multi-mode Fiber Optic to RS-232/422/485 Converter**  
**Single-mode Fiber Optic to RS-232/422/485 Converter**  
**1-port Isolated USB to RS-232/422/485 Converter**



ADAM-4541



ADAM-4542+



ADAM-4561/4562



## Specifications

### General

- Power Input** Unregulated 10 ~ 30 V<sub>DC</sub>
- Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485)  
2 x ST fiber connector
- Power Consumption** 1.5 W @ 24 V<sub>DC</sub>
- Operation Modes** Support Point-to-Point, and Ring (half-duplex)

### Fiber Optic Communications

- Optical Power Budget (Attenuation)** 15 dB (measured with 62.5/125 μm)
- Transmission Distance** 2.5 km
- Transmission Mode** Multi mode (Send and Receive)
- Wavelength** 820 nm

### Serial Communications

- Communication Mode** Asynchronous
- Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k and RS-232/422 mode (switchable)
- Transmission Mode** Full/half duplex, bidirectional

## Common Specifications

### Environment

- Operating Humidity** 5 ~ 95% RH
- Operating Temperature** ADAM-4541/4542+: -10 ~ 70°C (14 ~ 158°F)  
ADAM-4561/4562: -10 ~ 70°C (14 ~ 158°F)
- Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

## Specifications

### General

- Power Input** Unregulated 12 ~ 24 V<sub>DC</sub>
- Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-232/422/485)  
1 x SC fiber connector
- Power Consumption** 3 W @ 24 V<sub>DC</sub>
- Operation Modes** Support Point-to-Point, Redundant and Ring (half-duplex)

### Fiber Optic Communications

- Optical Power Budget (Attenuation)** 15 dB
- Transmission Distance** 15 km
- Transmission Mode** Single mode (Send and Receive)
- Wavelength** 1310 nm

### Serial Communications

- Communication Mode** Asynchronous
- Speed Modes (bps)\*** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, 230.4 k, 460.8 k, 921.6 k and RS-232/422 mode (switchable)
- Transmission Modes** Full/half duplex, bidirectional

\* The highest speed for RS-232 mode is 115.2 kbps

## Specifications

### General

- Connectors** Network: USB-type A connector (type A to type B cable provided)  
Serial:  
ADAM-4561 1 x plug-in terminal (#14 ~ 22 AWG) (3-wire RS-232/422/485)  
ADAM-4562 1 x DB-9 serial connectors (9-wire RS-232)

### Isolation Voltage

- ADAM-4561: 3,000 V<sub>DC</sub>
- ADAM-4562: 2,500 V<sub>DC</sub>

### Power Consumption

- ADAM-4561: 1.5 W @ 5 V
- ADAM-4562: 1.1 W @ 5 V

### Driver Support

- ADAM-4561/4562: Windows 2000/XP/Vista/7/8 (32&64-bit)

### USB Specification Compliance

- ADAM-4561: USB 2.0
- ADAM-4562: USB 2.0

### Serial Communications

- Speed Modes (bps)**  
ADAM-4561: 600 bps to 115.2 kbps  
ADAM-4562: 75 bps to 115.2 kbps
- Transmission Modes** Full/half duplex, bidirectional

## Ordering Information

- ADAM-4541** Multi-mode Fiber to RS-232/422/485 Converter
- ADAM-4542+** Single-mode Fiber to RS-232/422/485 Converter
- ADAM-4561** 1-port Isolated USB to RS-232/422/485 Converter
- ADAM-4562** 1-port Isolated USB to RS-232 Converter

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# ADAM-4100 Series

## Robust Remote Data Acquisition and Control Modules Overview



### Introduction

The robust ADAM-4000 family includes the ADAM-4100 series modules, ADAM-4510I and ADAM-4520I modules. The ADAM-4100 series are compact, versatile sensor-to-computer interface units designed for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial-grade ABS+PC plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, LED data display, and an address mode with a user-friendly design for convenient address reading. The ADAM-4510I and ADAM-4520I modules are robust industrial-grade communication modules.

The ADAM-4000 robust family is designed to endure more severe and adverse environments. The operating temperature is  $-40 \sim 85^{\circ}\text{C}$  which makes them suitable for more widespread applications.

## Designed for Severe Industrial Environments

### Broader Operating Temperature Range

The ADAM-4000 robust family supports a broad operating temperature range of  $-40$  to  $85^{\circ}\text{C}$ .

### Higher Noise Immunity

In order to prevent noise from affecting your system, the ADAM-4000 robust family has been designed with more protection to counteract these effects. New standard features include: 1 kV surge protection on power inputs, 3 kV EFT, and 8 kV ESD protection.

### Broader Power Input Range

The ADAM-4000 robust family accepts any unregulated power source between 10 and  $48 V_{\text{DC}}$ . In addition, they are also protected against accidental power reversals, and can be safely connected or disconnected without disturbing a running network.

### New Features for I/O Modules

- **ADAM-4117/4118**
  1. Supports  $200 V_{\text{DC}}$  High Common Mode voltage
  2. Software Filter
  3. Supports Auto Optimized Working Frequency
  4. Auto noise rejection at 50/60 Hz
  5. Higher over voltage protection  $\pm 60 V_{\text{DC}}$
  6. Optional Sampling Rate 10 or 100 samples/sec
  7. Supports unipolar and bipolar input (ADAM-4117 only)
  8. Supports  $\pm 15V$  input range (ADAM-4117 only)

- **ADAM-4150**

1. Over current and temperature protection circuit
2. DI channels support counter (32-bit, overflow flag) and frequency type signal input
3. DO channels support pulse (1 kHz) and delay (high-to-low and low-to-high) type signal output
4. Support invert DI status

- **ADAM-4168**

1. Supports 1 kHz pulse output

### ADAM-4100 Module with LED Display

The ADAM-4100 series modules have a LED display that lets you monitor the channel status. Using ADAM-4117/4118, the LED will be lit when related channel is active. Using ADAM-4150/4168, the LED will be lit when related channel value is high. The ADAM-4100 series modules have two operating modes (initial and normal), unlike the old module using extra wiring, ADAM-4100 modules can use the switch on the case to set "initial" mode or "normal" mode. It is very convenient for the user to configure. When you set to "initial" mode, the LED display can represent the node address of that module. Besides, when you use multiple ADAM-4100 series modules, you can locate the module through ADAM utility and LED display. All of these functions are very helpful to diagnose the ADAM-4100 series system.

### Online Firmware Updates

The ADAM-4100 series modules have a friendly and convenient design where firmware can be updated through a local network or the Internet. You can easily update latest firmware using utility on host PC. This saves time and ensures that the module always runs with the latest functional enhancements.

### Legacy Communication Protocol Support

To satisfy both the current ADAM users, and Modbus users, The ADAM-4100 series modules support both the ADAM (ASCII) protocol and the Modbus/RTU protocol. You can select the communication mode you want through the Windows Utility Software. The Modbus protocol not only supports the original data format (N, 8, 1) for (parity check, data bit, stop check) but also accepts (N,8,1) (N, 8, 2) (E, 8, 1) (O, 8, 1).

# Robust RS-485 I/O Module Selection Guide



Model	ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Resolution	16 bit			
Channels	8 differential			
Sampling Rate	10/100 Hz (total)			
Voltage Input	0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 15 V, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±15V	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5V	-	-
Current Input	0 ~ 20 mA, ±20 mA, 4 ~ 20 mA	±20 mA, 4 ~ 20 mA	-	-
Direct Sensor Input	-	J, K, T, E, R, S, B Thermocouple	-	-
Burn-out Detection	Yes (mA)	Yes (mA and All T/C)	-	-
Channel Independent Configuration	Yes			
Input Channels	-	-	7	-
Output Channels	-	-	8	8-ch relay
Channels	-	-	7	-
Input Frequency	-	-	3 kHz	-
Isolation Voltage	3,000 V <sub>DC</sub>			
Digital LED Indicator	Communication and Power			
Watchdog Timer	Yes (System & Communication)			
Safety Setting	-	-	Yes	Yes
Communication Protocol	ASCII Command/Modbus			
Power Requirements	10 ~ 48 V <sub>DC</sub>			
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)			
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)			
Operating Humidity	5 ~ 95% RH			
Power Consumption	1.2 W @ 24 V <sub>DC</sub>	0.5 W @ 24 V <sub>DC</sub>	0.7 W @ 24 V <sub>DC</sub>	1.8 W @ 24 V <sub>DC</sub>
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Model	ADAM-4510I	ADAM-4520I
Network	RS-422/485	RS-232 to RS-422/485
Communication Speed (bps)	From 1,200 to 115.2k	
Communication Distance	Serial: 1.2 km	
Interface Connectors	RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal
Digital LED Indicators	Communication and Power	
Auto Data Flow Control	Yes	
Isolation Voltage	3,000 V <sub>DC</sub>	
Power Requirement	10 ~ 48 V <sub>DC</sub>	
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)	
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	
Operating Humidity	5 ~ 95%	
Power Consumption	1.4 W @ 24 V <sub>DC</sub>	1.2 W @ 24 V <sub>DC</sub>
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- 2 Intelligent Motion Control and Machine Vision
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# ADAM-4510I

# ADAM-4520I

# ADAM-4117

Robust RS-422/485 Repeater

Robust RS-232 to RS-422/485 Converter

Robust 8-ch Analog Input Module with Modbus



ADAM-4510I



ADAM-4520I



ADAM-4117



## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1.4 W @ 24 V<sub>DC</sub>

### Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**
- **Provide RS-485 to RS-422 Convert Ability**

## Specifications

### General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)  
1 x DB9-F (RS-232)
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>

### Communications

- **Input** RS-232 (DB9)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**

## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII Command and Modbus/RTU
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>

### Analog Input

- **Channels** 8 differential and independent configuration channels
- **Input Impedance** Voltage: 800 K $\Omega$   
Current: 120  $\Omega$
- **Input Type** mV, V (supports unipolar and bipolar), mA
- **Input Range** 0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V, 0 ~ 15V,  $\pm 150$  mV,  $\pm 500$  mV,  $\pm 1$ V,  $\pm 5$  V,  $\pm 10$  V,  $\pm 15$ V,  $\pm 20$  mA, 0 ~ 20 mA, 4 ~ 20mA
- **Accuracy** Voltage mode :  $\pm 0.1\%$  or better  
Current mode :  $\pm 0.2\%$  or better
- **Resolution** 16-bit
- **Sampling Rate** 10/100 samples/sec (selected by utility)
- **CMR @ 50/60 Hz** 92 dB
- **NMR @ 50/60 Hz** 60 dB
- **Over Voltage Protection**  $\pm 60$  V<sub>DC</sub>
- **High Common Mode** 200 V<sub>DC</sub>
- **Span Drift**  $\pm 25$  ppm/ $^{\circ}$ C (Typical)
- **Zero Drift**  $\pm 6\mu$ V/ $^{\circ}$ C
- **Built-in TVS/ESD Protection**

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 48 V<sub>DC</sub> w/power reversal protection
- **Isolation Voltage** 3,000 V<sub>DC</sub>

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** - 40 ~ 85 $^{\circ}$ C (-40 ~ 185 $^{\circ}$ F)
- **Storage Temperature** - 40 ~ 85 $^{\circ}$ C (-40 ~ 185 $^{\circ}$ F)
- **Supports Noise Rejection**

## Ordering Information

- **ADAM-4510I** Robust RS-422/485 Repeater
- **ADAM-4520I** Robust RS-232 to RS-422/485 Converter
- **ADAM-4117** Robust 8-ch Analog Input Module with Modbus



# ADAM-4118

# ADAM-4150

# ADAM-4168

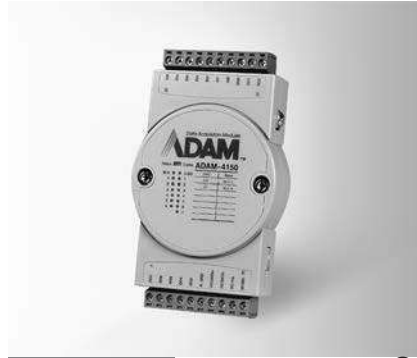
**Robust 8-ch Thermocouple Input Module with Modbus**

**Robust 15-ch Digital I/O Module with Modbus**

**Robust 8-ch Relay Output Module with Modbus**



ADAM-4118



ADAM-4150



ADAM-4168



## Specifications

### General

- Power Consumption 0.5W @ 24 V<sub>DC</sub>

### Analog Input

- Channels 8 differential and independent configuration channels
- Input Impedance Voltage: 20 M $\Omega$   
Current: 120  $\Omega$
- Input Type T/C, mV, V, mA
- Input Range Thermocouple

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

- Voltage mode  $\pm 15$  mV,  $\pm 50$  mV,  $\pm 100$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 2.5$  V
- Current mode  $\pm 20$  mA, 4 ~ 20 mA
- Accuracy Voltage mode:  $\pm 0.1\%$  or better  
Current mode:  $\pm 0.2\%$  or better
- Resolution 16-bit
- Sampling Rate 10/100 samples/sec (selected by Utility)
- CMR @ 50/60 Hz 92 dB
- NMR @ 50/60 Hz 60 dB
- Overvoltage Protection  $\pm 60$  V<sub>DC</sub>
- High Common Mode 200 V<sub>DC</sub>
- Span Drift  $\pm 25$  ppm/ $^{\circ}$ C (Typical)
- Zero Drift  $\pm 6\mu$ V/ $^{\circ}$ C
- Built-in TVS/ESD Protection
- Burn-out Detection

## Common Specifications

### General

- Power Input Unregulated 10 ~ 48 V<sub>DC</sub>
- Watchdog Timer System (1.6 second) & Communication
- Connector 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- Isolation Voltage 3,000 V<sub>DC</sub>

## Specifications

### General

- Power Consumption 0.7 W @ 24 V<sub>DC</sub>

### Digital Input

- Channels 7
- Input Level Dry contact: Logic level 0: Close to GND  
Logic level 1: Open  
Wet contact: Logic level 0: 3 V max  
Logic level 1: 10 ~ 30 V  
(Note: The Digital Input Level 0 and 1 status can be inverted)
- Supports 3 kHz Counter Input (32-bit + 1-bit overflow)
- Supports 3 kHz Frequency Input
- Supports Invert DI Status
- Over Voltage Protection 40 V<sub>DC</sub>

### Digital Output

- Channels 8, open collector to 40 V (0.8A max. load)
- Power Dissipation 1W load max
- RON Maximum 150 m $\Omega$
- Supports 1 kHz Pulse Output
- Supports High-to-Low Delay Output
- Supports Low-to-High Delay Output

- Supported Protocols ASCII Command and Modbus/RTU

### Environment

- Operating Humidity 5 ~ 95% RH
- Operating Temperature -40 ~ 85 $^{\circ}$ C (-40 ~ 185 $^{\circ}$ F)
- Storage Temperature -40 ~ 85 $^{\circ}$ C (-40 ~ 185 $^{\circ}$ F)

## Specifications

### General

- Power Consumption 1.8 W @ 24 V<sub>DC</sub>

### Relay Output

- Output Channels 8 Form A
- Contact Rating (Resistive) 0.5 A @ 120 V<sub>AC</sub>  
0.25 A @ 240 V<sub>AC</sub>  
1 A @ 30 V<sub>DC</sub>  
0.3 A @ 110 V<sub>DC</sub>
- Breakdown Voltage 750 V<sub>AC</sub> (50/60 Hz)
- Initial Insulation Resistance 1 G  $\Omega$  min. @ 500 V<sub>DC</sub>
- Relay Response Time (Typical) On: 3ms  
Off: 1ms
- Total Switching Time 10 ms
- Supports 100 Hz pulse output
- Maximum Operating Speed 50 operations/min (at related load)

## Ordering Information

- ADAM-4118 Robust 8-ch Thermocouple Input Module w/ Modbus
- ADAM-4150 Robust 15-ch Digital I/O Module with Modbus
- ADAM-4168 Robust 8-ch Relay Output Module with Modbus

- WebAccess<sup>®</sup> Solution
- Intelligent Motion Control and Machine Vision
- Power & Energy Automation
- Industrial Operator Panels
- Thin-Client Terminals
- High-Performance Control Panels
- Control Cabinet PCs
- Industrial IoT Gateways
- Industrial monitors
- Door Technology Modules
- Panel PCs
- Control IPCs
- Remote DA&C System
- Wireless IoT Sensing Devices
- Ethernet I/O Modules
- RS-485 I/O Modules
- Industrial Ethernet Solutions
- IP Gateway and Serial Device Servers
- iNetworking



# Industrial Ethernet Solutions

## Industrial Ethernet Product Selection Guide

EKI-6331AN	IEEE 802.11 a/n Wi-Fi AP/Client	17-12
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EKI-6528TPI	EN50155 8-port M12 Unmanaged PoE Switch with Wide Temperature	17-15
EKI-9516	EN 50155 16-port Full Gigabit Managed Ethernet Switch	17-16
EKI-6558TI	EN50155 IP67 8-port M12 Managed Ethernet Switch with Wide Temperature	17-16
EKI-6559TMI	EN50155 IP67 8-port M12 + 2-port Fiber Optic Managed Ethernet Switch with Wide Temperature	17-17
EKI-7428G-4CI	24G+4G Combo port L2 Managed Switch	17-17
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EKI-9228G-8CBI	Ind. Rackmount L2 Managed Switch with 48V <sub>DC</sub>	17-18
EKI-9228G-8CMI	Ind. Rackmount L2 Managed Switch with AC/DC	17-19
EKI-9228G-8CBI	Ind. Rackmount L2 Managed Switch with AC/DC	17-19
EKI-9316	Industrial-Class 16 Port Full Gigabit Managed DIN Rail Switch	17-19
EKI-7758F	4G+4 SFP Gigabit Managed Redundant Industrial Ethernet Switch	17-20
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EKI-7710G-2CI	8G+2G Port Gigabit Managed Redundant Industrial Switch	17-22
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EKI-7712E-4FI	8FE+4SFP Port Gigabit Managed Redundant Industrial Switch	17-23
EKI-7712G-4F	8G+4SFP Port Gigabit Managed Redundant Industrial Switch	17-24
EKI-7712G-4FI	8G+4SFP Port Gigabit Managed Redundant Industrial Switch	17-24
EKI-7720E-4F	16FE+4SFP Port Gigabit Managed Redundant Industrial Switch	17-25
EKI-7720E-4FI	16FE+4SFP Port Gigabit Managed Redundant Industrial Switch	17-25
EKI-7720G-4F	16GE+4SFP Port Gigabit Managed Redundant Industrial Switch	17-26
EKI-7720G-4FI	16GE+4SFP Port Gigabit Managed Redundant Industrial Switch	17-26
EKI-7657C/CI	7+3G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch with 2 x DI/O	17-27
EKI-7654C	4+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	17-28
EKI-7559SI/MI	8+2 SC Type Fiber Optic Managed Industrial Ethernet Switch with Wide Temperature	17-29
EKI-7554SI/MI	4+2 SC Type Fiber Optic Managed Industrial Ethernet Switch with Wide Temperature	17-29
EKI-2748FI	4Gx+4SFP Managed Ethernet Switch with Wide Temperature	17-30
EKI-2748CI	6Gx+2 Combo Managed Ethernet Switch with Wide Temperature	17-30
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EKI-5528/I-EI	8 port Entry-Level Managed Switch Supporting EtherNet/IP	17-31
EKI-5526/I-MB	16 port Entry-Level Managed Switch Supporting Modbus/TCP	17-32
EKI-5528/I-MB	8 port Entry-Level Managed Switch Supporting Modbus/TCP	17-32
EKI-5626C/I-EI	16 + 2G Combo ports Entry-Level Managed Switch Supporting EtherNet/IP	17-33
EKI-5629C/I-EI	8 + 2G Combo ports Entry-Level Managed Switch Supporting EtherNet/IP	17-33
EKI-5626C/CI-MB	16 + 2G Combo ports Entry-Level Managed Switch Supporting Modbus/TCP	17-34
EKI-5629C/CI-MB	8 + 2G Combo ports Entry-Level Managed Switch Supporting Modbus/TCP	17-34
EKI-5729F/CI	8-Port+2 SFP Gigabit Ethernet ProView Switch	17-35
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EKI-5728/I	8-port Gigabit Ethernet ProView Switch	17-36
EKI-5629C/CI	8FE + 2GE Combo Ethernet ProView Switch	17-37
EKI-5626C/CI	16FE + 2GE Combo Ethernet ProView Switch	17-37
EKI-5525/I	5-port Fast Ethernet ProView Switch	17-38
EKI-5528/I	8-port Fast Ethernet ProView Switch	17-38
EKI-5525S/M Series	4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet ProView Switch	17-39
EKI-5524S/MM Series	4-port + 2x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet ProView Switch	17-40
EKI-7626C/CI	16+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch	17-41
EKI-7529MI/ST	8+2 Multi-Mode Fiber Optic Industrial Unmanaged Ethernet Switch with Wide Temperature	17-42
EKI-2728MI	6G+2G Multi-Mode Unmanaged Ethernet Switch with Wide Temperature	17-43
EKI-2725/I	5-port Gigabit Unmanaged Industrial Ethernet Switch	17-44
EKI-2525/I	5-port Unmanaged Industrial Ethernet Switch	17-45
EKI-2528/I	8-port Unmanaged Industrial Ethernet Switch	17-45
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EKI-2526M/S	4+2 100FX Port Unmanaged Industrial Ethernet Switch	17-46
EKI-7710G-2CP	8G+2G Port Gigabit Managed Redundant Industrial PoE Switch	17-47
EKI-7710G-2CPI	8G+2G Port Gigabit Managed Redundant Industrial PoE Switch	17-47
EKI-7710E-2CP	8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch	17-48
EKI-7710E-2CPI	8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch	17-48
EKI-7712G-4FP	8G+4SFP Port Gigabit Managed Redundant Industrial PoE Switch	17-49
EKI-7712G-4FPI	8G+4SFP Port Gigabit Managed Redundant Industrial PoE Switch	17-49
EKI-7659CPI	8+2G Port Gigabit Managed Redundant Industrial PoE Switch with Wide Temperature	17-50
EKI-2525P	5-port Industrial PoE Switch	17-51
EKI-2526PI	6-port Industrial PoE Switch with Wide Temperature	17-51
EKI-2525PA	5-port Industrial PoE Switch with 24/48 V <sub>DC</sub> Power Input	17-52
EKI-2528PAI	8-port Industrial PoE Switch with 24/48 V <sub>DC</sub> Power Input and Wide Temperature	17-52
EKI-2741 Series	10/100/1000T (X) to Fiber Optic Gigabit Industrial Media Converters	17-53
EKI-2541M/MI	10/100T (X) to Multi-Mode SC Type Fiber Optic Industrial Media Converter	17-54
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# Industrial Ethernet Product Selection Guide

## Wireless Access Points/Client



Model Name		EKI-6331AN	EKI-6332GN
Description		IEEE 802.11 a/n Wi-Fi AP/Client	IEEE 802.11 b/g/n Wi-Fi AP/Client
Interface	IEEE Standard	IEEE 802.11 a/n	802.11 b/g/n
	100BaseFX	✓	✓
	1000BaseFX	-	-
RF	Frequency	2.4GHz	5GHz
	MIMO	2T2R	2T2R
	Multi-Hopping	✓	✓
	Mobility/Roaming	✓	✓
Operating Mode	Mesh	-	-
	Mobility/ Roaming	-	-
	Multi-Hopping	-	-
	AP/CPE	✓	✓
Power	PoE	Passive 24V	Passive 24V
	Power Input Voltage	24V <sub>dc</sub>	24V <sub>dc</sub>
	Redundant DC Power Input	-	-
Mechanism	DIN-rail Mount	-	-
	Wall Mount	-	-
	VESA Mount	-	-
	Pole Mount	✓	✓
	IP Grade	IP55	IP55
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	✓	✓
	-40 ~ 70° C (-40 ~ 158° F)	-	-
Certifications	CE	✓	✓
	FCC	✓	✓
	Others	Telec, ANATEL	Telec
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\* Note: Transmit Output Power & Receive Sensitivity are specified on data sheet.

## EN50155 Ethernet Switches



Model Name		EKI-6528TI	EKI-6528TPI	EKI-6558TI	EKI-6559TMI	EKI-9512	EKI-9512P	EKI-9516	EKI-9516P
Description		EN50155 8-port M12 Unmanaged Switch with Wide Temperature	EN50155 8-port PoE M12 Unmanaged Switch with Wide Temperature	EN50155 IP67 8-port M12 Managed Ethernet Switch with Wide Temperature	EN50155 IP67 8-port M12 + 2-port Fiber Optic Managed Ethernet Switch with Wide Temperature	EN 50155 12-port Full Gigabit Managed Ethernet Switch	EN 50155 12-port Full Gigabit Managed Ethernet Switch with PoE/PoE+	EN 50155 16-port Full Gigabit Managed Ethernet Switch	EN 50155 16-port Full Gigabit Managed Ethernet Switch with PoE/PoE+
Interface	Ports Number	8	8	8	10	12	12	16	16
	10/100Base-T (X)	8	8	8	8	-	-	-	-
	100BaseFX	-	-	-	2	12	12	16	16
	10/100/1000Base-T (X)	-	-	-	-	-	-	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-	-	-	-	-
	PoE (10/100 Mbps)	-	4	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	8	8	12	12
	DI/DO	-	-	-	-	-	-	-	-
Network Management	Console	-	-	✓	✓	✓	✓	✓	✓
	Redundancy	-	-	✓	✓	✓	✓	✓	✓
	Diagnostics	-	-	✓	✓	✓	✓	✓	✓
	VLAN	-	-	✓	✓	✓	✓	✓	✓
	Configuration	-	-	✓	✓	✓	✓	✓	✓
	SNMP	-	-	✓	✓	✓	✓	✓	✓
	Security	-	-	✓	✓	✓	✓	✓	✓
Traffic Control	-	-	✓	✓	✓	✓	✓	✓	
Power	2 x Unregulated 12 ~ 48 V DC	12 ~ 48V <sub>dc</sub>	24 ~ 48V <sub>dc</sub>	✓	✓	24 ~ 110V <sub>dc</sub>	24 ~ 48V <sub>dc</sub> or 72 ~ 110V <sub>dc</sub>	24 ~ 110V <sub>dc</sub>	24 ~ 48V <sub>dc</sub> or 72 ~ 110V <sub>dc</sub>
	2 x Unregulated 100 ~ 240 V DC	-	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V AC	-	-	-	-	-	-	-	-
	Relay Output	-	-	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	-	-	-	-	-	-
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-
	IP Level	IP40	IP40	IP67	IP67	IP67	IP67	IP67	IP67
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-	-	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	-
	-40 ~ 185°F	-	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-	-
	UL 508	-	-	✓	✓	-	-	-	-
Others	EN50155	EN50155	EN50155	EN50155	EN50155	EN50155	EN50155	EN50155	EN50155
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- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
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# Industrial Ethernet Product Selection Guide

## Managed Redundant Industrial Ethernet Switches



Model Name		EKI-7428G-4CI EKI-7428G-4CPI	EKI-9228G-8CMI EKI-9228G-8COI	EKI-9316/ EKI-9312	EKI-7758F	EKI-7710E-2C EKI-7710E-2CI	EKI-7710G-2C EKI-7710G-2CI	EKI-7712E-4F EKI-7712E-4FI
Description		24G+4G Combo port L2 Managed Switch	Ind. Rackmount L2 Managed Switch	16/12 Port Industrial-Class Managed DIN Rail Switch Full Gigabit Switch	4G+4SFP Gigabit Managed Redundant Switch	8FE+2G Port Gigabit Managed Redundant Industrial Switch	8G+2G Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8FE+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature
Interface	Ports Number	28	28	16/12	8	10	10	12
	10/100Base-T (X)	-	-	-	-	8	-	-
	100BaseFX	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	28	24	12/8	4	2	8	8
	1000Base-SX/LX/LHX/XD/ZX/EZX	4	12	4	4	2	2	4
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	0/4	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
Console	✓	✓	✓	✓	✓	✓	✓	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	-	✓	✓	✓	✓	✓
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	12 ~ 48 V <sub>DC</sub> / 48 V <sub>DC</sub>	EKI-9228G-8CMI: 48V <sub>DC</sub>	24/48 V <sub>DC</sub>	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	EKI-9228G-8COI 90 ~ 264V <sub>AC</sub> / 88 ~ 370V <sub>DC</sub>	-	-	-	-	-
	Relay Output	-	-	-	✓	-	-	-
Mechanism	DIN-rail Mount	-	-	✓	✓	✓	✓	✓
	Wall Mount	-	-	✓	✓	✓	✓	✓
	Rack Mount	✓	✓	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	✓	✓	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 70°C (-40 ~ 158°F)	-	✓	-	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	✓	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	✓	✓	-	-	-
	Class 1, Division 2	-	-	✓	✓	-	-	-
	UL 508	✓	✓	-	-	✓	✓	✓
Others	NEMA TS2 EN50121-4	IEC 61850-3	-	-	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	
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# Selection Guide



Model Name	EKI-7712G-4F EKI-7712G-4FI	EKI-7720E-4F EKI-7720E-4FI	EKI-7720G-4F EKI-7720G-4FI	EKI-7659C EKI-7659CI	EKI-7657C EKI-7657CI	EKI-7656C EKI-7656CI	EKI-7654C	EKI-7559SI EKI-7559MI	EKI-7554SI EKI-7554MI	
<b>Description</b>	8G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	16FE+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	16G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	7+3G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch with 2 x DI/O	16+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	4+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch	8+2 SC Type Fiber Optic Managed Redundant Industrial Ethernet Switch with Wide Temperature	4+2 SC Type Fiber Optic Managed Redundant Industrial Ethernet Switch with Wide Temperature	
<b>Interface</b>	Ports Number	12	20	20	10	10	18	6	10	6
	10/100Base-T (X)	-	-	-	8	7	16	4	8	4
	100BaseFX	-	-	-	-	-	-	-	2	2
	10/100/1000Base-T (X)	8	16	16	2	3	2	2	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	4	4	4	2	3	2	2	-	-
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	2	-	-	-	-
Console	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<b>Network Management</b>	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Power</b>	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-	-	-
	Relay Output	-	-	-	✓	✓	✓	✓	✓	✓
<b>Mechanism</b>	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
<b>Protection</b>	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Operating Temperature</b>	-10 ~ 60°C (14 ~ 140°F)	✓	✓	✓	✓	✓	✓	✓	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	EKI-7659CI	-	✓	-	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	-	-
	CE	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Certifications</b>	FCC	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	✓	✓	✓	✓	✓	✓
	Class 1, Division 2	-	-	-	-	✓	-	-	✓	-
	UL 508	✓	✓	✓	-	-	-	-	-	-
	Others	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	-	-	-	-	-	-
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# Industrial Ethernet Product Selection Guide

## Managed Redundant Industrial Ethernet Switches

## Entry Level Managed Ethernet Switches



Model Name		EKI-2748FI EKI-2748CI	EKI-2548I	EKI-5526/I-EI EKI-5528/I-EI	EKI-5526/I-PN EKI-5528/I-PN	EKI-5526/I-MB EKI-5528/I-MB	EKI-5626C/I-EI EKI-5629C/I-EI	EKI-5626C/I-PN EKI-5629C/I-PN	EKI-5626C/I-MB EKI-5629C/I-MB
Description		8Gx Managed Ethernet Switch with Wide Temperature	8Tx Managed Ethernet Switch with Wide Temperature	16/8 port Entry-Level Managed Switch Supporting EtherNet/IP	16/8 port Entry-Level Managed Switch Supporting PROFINET	16/8 port Entry-Level Managed Switch Supporting Modbus	18/10 port Entry-Level Managed Switch Supporting EtherNet/IP	18/10 port Entry-Level Managed Switch Supporting PROFINET	18/10 port Entry-Level Managed Switch Supporting Modbus
Interface	Ports Number	8	8	16/8	16/8	16/8	16/8	16/8	16/8
	10/100Base-T (X)	-	8	16/8	16/8	16/8	16/8	16/8	16/8
	100BaseFX	-	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	4/6	-	-	-	-	2/2	2/2	2/2
	1000Base-SX/LX/LHX/XD/ZX/EZX	4/2	-	-	-	-	2/2	2/2	2/2
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-	-
Console	✓	-	-	-	-	-	-	-	
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓
Power	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	✓	✓	✓	✓	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-	-	-
	Class 1, Division 2	✓	✓	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓	✓	✓
	Others	-	-	-	-	-	-	-	-
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## Viewable Unmanaged ProView Industrial Ethernet Switches



Model Name		EKI-5726F EKI-5726FI	EKI-5729F EKI-5729FI	EKI-5726 EKI-5726I	EKI-5725/I EKI-5728/I	EKI-5626CI EKI-5626C	EKI-5629CI EKI-5629C	EKI-5528/I EKI-5525/I
Description		16-port+2 SFP Gigabit Ethernet ProView Switch	8-Port+2 SFP Gigabit Ethernet ProView Switch	16-port Gigabit Ethernet ProView Switch	5/8-port Gigabit Ethernet ProView Switch	16FE + 2GE Combo Ethernet ProView Switch	8FE + 2GE Combo Ethernet ProView Switch	8/5-port Fast Ethernet ProView Switch
Interface	Ports Number	16	8	16	5/8	18	10	8/5
	10/100Base-T (X)	-	-	-	-	16	8	8/5
	100BaseFX	✓	✓	-	-	-	-	-
	10/100/1000Base-T (X)	16	8	16	5/8	-	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	✓	✓	-	-	2	2	-
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
Network Management	Console	✓	✓	-	-	-	-	-
	Redundancy	-	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-	-
	Configuration	✓	✓	✓	-	-	-	-
	SNMP	✓	✓	✓	✓	-	-	-
	Security	-	-	-	-	-	-	-
	Traffic Control	-	-	-	-	-	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	EKI-5726	-	EKI-5626C	EKI-5629C	EKI-5525/5528
	-40 ~ 75°C (-40 ~ 167°F)	-	-	EKI-5726I	-	EKI-5626CI	EKI-5629CI	EKI-5525I/5528I
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-	-
	Class 1, Division 2	✓	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓	✓
	Others	-	-	-	-	-	-	-
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## Viewable Unmanaged ProView Industrial Ethernet Switches

## Unmanaged Industrial Ethernet Switches



Model Name		EKI-5525S/M Series	EKI-5524SS/MM Series	EKI-7626C EKI-7626CI	EKI-7629C EKI-7629CI	EKI-7526I	EKI-7529MI EKI-7529ST	EKI-4524I EKI-4524RI
Description		4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet ProView Switch	4-port + 2x100FX port (Single/Multimode, SC/ST type), Fast Ethernet ProView Switch	16+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch	8+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch	16-port Unmanaged Industrial Ethernet Switch with Wide Temperature Range	8+2 Multi-Mode Fiber Optic Industrial Unmanaged Ethernet Switch with Wide Temperature	24+2 SPF Port Unmanaged Industrial Ethernet Switch with Wide Temperature
Interface	Ports Number	4	6	18	10	16	10	24/26
	10/100Base-T (X)	4	4	16	8	16	8	24
	100BaseFX	1	2	-	-	-	2	0/2
	10/100/1000Base-T (X)	-	-	2	2	-	-	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	2	2	-	-	-
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
Network Management	Console	-	-	-	-	-	-	-
	Redundancy	-	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-	-
	Configuration	-	-	-	-	-	-	-
	SNMP	-	-	-	-	-	-	-
	Security	-	-	-	-	-	-	-
	Traffic Control	-	-	-	-	-	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓	-
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	✓
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	✓
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-5525S/M Series	EKI-5524SS/MM Series	EKI-7626C	EKI-7629C	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	EKI-5525SI/MI Series	EKI-5524SSI/MMI Series	EKI-7626CI	EKI-7629CI	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	✓	✓	-	-	-
	Class 1, Division 2	✓	✓	-	-	-	-	-
	UL 508	✓	✓	-	-	✓	✓	-
	Others	-	-	-	-	-	-	-
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## Unmanaged Industrial Ethernet Switches



Model Name		EKI-2728MI	EKI-2725/I	EKI-2728/I	EKI-2525/I EKI-2528/I	EKI-2525M/S	EKI-2526M/S
Description		6G+2G Multi-Mode Unmanaged Ethernet Switch with Wide Temperature	8-port Gigabit Unmanaged Industrial Ethernet Switch	8-port Gigabit Unmanaged Industrial Ethernet Switch	5/8-port Unmanaged Industrial Ethernet Switch	4+1 100FX Port Multi-mode/ Single-mode Unmanaged Industrial Ethernet Switch	4+2 100FX Port Multi-mode/ Single-mode Industrial Ethernet Switch
Interface	Ports Number	8	5	8	5/8	5	6
	10/100Base-T (X)	-	-	-	5/8	4	4
	100BaseFX	-	-	-	-	1	2
	10/100/1000Base-T (X)	6	5	8	-	-	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	2	-	-	-	-	-
	PoE (10/100 Mbps)	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-
	Console	-	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-
	Configuration	-	-	-	-	-	-
	SNMP	-	-	-	-	-	-
	Security	-	-	-	-	-	-
	Traffic Control	-	-	-	-	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	EKI-2725	EKI-2728	EKI-2525/2528	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	EKI-2725I	EKI-2728I	EKI-2525I/2528I	-	-
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	✓	✓	✓	✓	✓
	Class 1, Division 2	✓	-	-	-	-	-
	UL 508	✓	-	-	-	-	-
	Others	-	-	-	-	-	-
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## Power Over Ethernet (PoE) Switches



Model Name		EKI-9316P	EKI-9312P	EKI-7710G-2CPI EKI-7710G-2CP	EKI-7710E-2CP EKI-7710E-2CPI	EKI-7712G-4FP EKI-7712G-4FPI	EKI-7659CPI	EKI-2726FHPI	EKI-2701PSI
Description		16 Port Industrial-Class Managed DIN Rail Switch Full Gigabit Switch with PoE/PoE+	12 Port Industrial-Class Managed DIN Rail Switch Full Gigabit Switch with PoE/PoE+	8G+2G Port Gigabit Managed Redundant Industrial PoE Switch	8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch	8G+4G Port Gigabit Managed Redundant Industrial PoE Switch	8+2G Port Gigabit Managed Redundant Industrial PoE Switch with Wide Temperature	4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature Switch	Industrial PoE Splitter with Wide Temperature
Interface	Ports Number	16	12	10	10	12	10	6	2
	10/100Base-T (X)	-	-	-	-	-	-	-	-
	100BaseFX	-	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	12	8	8	8	8	-	4	1
	1000Base-SX/LX/LHX/ XD/ZX/EZX	4	4	2	2	4	2	2	-
	PoE (10/100 Mbps)	12	8	-	8	-	8	4 (PoE+, 30W)	-
	PoE (10/100/1000 Mbps)	-	-	8	-	8	-	-	1
Network Management	DI/DO	-	-	-	-	-	-	-	-
	Console	✓	✓	✓	✓	✓	✓	-	-
	Redundancy	✓	✓	✓	✓	✓	✓	-	-
	Diagnostics	✓	✓	✓	✓	✓	✓	-	-
	VLAN	✓	✓	✓	✓	✓	✓	-	-
	Configuration	✓	✓	✓	✓	✓	✓	-	-
	SNMP	✓	✓	✓	✓	✓	✓	-	-
	Security	✓	✓	✓	✓	✓	✓	-	-
	Traffic Control	✓	✓	✓	✓	✓	✓	-	-
Power	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	✓	✓	✓	✓	48 V <sub>DC</sub>	48 V <sub>DC</sub>	48 V <sub>DC</sub>	44-57 V <sub>DC</sub>
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-	-
	Relay Output	-	-	-	-	✓	✓	✓	-
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	7710G-2CP	7710E-2CP	7712G-4F	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	7710G-2CPI	7710E-2CPI	7712G-4FI	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	-	-	-	✓	-	✓
	Class 1, Division 2	✓	✓	-	-	-	-	-	-
	UL 508	-	-	✓	✓	✓	-	✓	-
Others	-	-	-	-	-	-	-	-	
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## Power Over Ethernet (PoE) Switches

## Industrial Media Converters



Model Name		EKI-2701HPI	EKI-2528PAI	EKI-2525P	EKI-2526PI	EKI-2525PA	EKI-2741F/FI/SX/SXI/LX/LXI	EKI-2541M/MI/S/SI
Description		Industrial PoE+ Injector with Wide Temperature	8-port Industrial PoE Switch with 24/48 V DC Power Input and Wide Temperature	5-port Industrial PoE Switch	6-port Industrial PoE Switch with Wide Temperature	5-port Industrial PoE Switch with 24/48 V DC Power Input	10/100/1000TX to Fiber Optic Gigabit Industrial Media Converters	10/100TX to Multi-mode / Single-mode SC Type Fiber Optic Industrial Media Converters
Interface	Ports Number	2	8	5	6	5	2	2
	10/100Base-T (X)	-	4	1	2	1	-	1
	100BaseFX	-	-	-	-	-	-	1
	10/100/1000Base-T (X)	1	-	-	-	-	1	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-	-	1	-
	PoE (10/100 Mbps)	-	4	4	4	4	-	-
	PoE (10/100/1000 Mbps)	1	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
Network Management	Console	-	-	-	-	-	-	-
	Redundancy	-	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-	-
	Configuration	-	-	-	-	-	-	-
	SNMP	-	-	-	-	-	-	-
	Security	-	-	-	-	-	-	-
Power	Traffic Control	-	-	-	-	-	-	-
	2 x Unregulated 12 ~ 48 V <sub>DC</sub>	24/48 V <sub>DC</sub>	24/48 V <sub>DC</sub>	48 V <sub>DC</sub>	48 V <sub>DC</sub>	24/48 V <sub>DC</sub>	✓	✓
	2 x Unregulated 100 ~ 240 V <sub>DC</sub>	-	-	-	-	-	-	-
	2 x Unregulated 100 ~ 240 V <sub>AC</sub>	-	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	✓	-	✓	EKI-2741F/SX/LX	EKI-2541M
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	-	✓	-	EKI-2741FI/SXI/LXI	EKI-2541MI/SI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	✓	✓	-	✓	✓
	Class 1, Division 2	-	-	-	-	-	✓	✓
	UL 508	✓	✓	-	-	-	✓	✓
Others	-	-	-	-	-	-	-	
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- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
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# EKI-6331AN

## IEEE 802.11 a/n Wi-Fi AP/Client



### Features

- Compliant with IEEE 802.11 a/n
- IP55 waterproof certification
- MIMO 2 x 2 11n
- External RP-SMA connectors for 2T2R antennae
- High output power
- Passive 24 V PoE
- WPA/WPA2-Enterprise encryption for a highly secure wireless network
- WEP/WPA/WPA2/ IEEE 802.1x authentication support
- IGMP snooping protocol support

### Introduction

The EKI-6331AN is a feature rich wireless AP/Client which provides a reliable 5GHz wireless connectivity for industrial environments. The PoE injector enhances flexibility in deployment of this AP/Client even where the DC power supply is hard to fulfill. As an 802.11n compliant device, EKI-6331AN provides 6 times higher data rates than legacy 802.11a devices. With MIMO 2 x 2 technology, EKI-6331AN provides both robust wireless connectivity as well as high throughput rate in wireless transmission. With the support of WMM and IGMP snooping protocols, EKI-6331AN effectively improves the reliability of wireless connectivity, especially in applications that need high reliability and high throughput data transmission. To secure wireless connections, EKI-6331AN implements the latest encryption technologies including WPA2/WPA/802.1x for powerful security authentication.

### Specifications

#### Standard Support

- **Wireless** IEEE 802.11 a/n
- **Ethernet** IEEE 802.3u MDI / MDIX 10/100 Fast Ethernet
- **LAN** IEEE 802.11a wireless LAN interface  
IEEE 802.11n wireless LAN standard  
Passive 24 V PoE, max. distance: 50 meters
- **Certification** FCC 15B/C  
EN300328 V17.1  
EN301489 -1/-17  
EN55022/24  
EN60950  
Telec
- **Data Rates** 11a: 54M, 48M, 36M, 24M, 18M, 12M, 9M, 6Mbps  
auto fallback  
11n: HT20 MCS0 ~ 15 / HT40 MCS0 ~ 15

#### Physical Specifications

- **Power** DC 24 V / 1A; AC Adapter 100 V ~ 240 V
- **Dimensions (W x H x D)** 111 x 256 x 48 mm (4.37" x 10.08" x 1.89")
- **Mounting** Wall, Pole
- **Weight** 0.5 Kg

#### Environment

- **Operating Temp.** -20 ~ 70°C (-4 ~ 158°F)
- **Storage Temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Humidity** 10% ~ 95% non-condensing

#### Interface Operation Modes

- Access Point (AP) / Client

#### Antenna

- Default external 5 dBi Omni antenna
- 2 x RP-SMA connectors (female) for RP-SMA antennae (male)

#### Other Features

- **Management** Telnet, FTP, SNMP, Web UI
- **Security** Open System, Shared Key, Legacy 802.1X, WPA, WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)
- **Wireless** Radio on/off, WMM/Regatta Mode, Output Power Control, Fragmentation Length, Beacon Interval, RTS/CTS threshold, DTIM Interval

#### Modulation Techniques

- **IEEE 802.11n** OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
- **IEEE 802.11a** OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

#### Channel Support

- **FCC** 5.15 GHz ~ 5.25 GHz ; 5.725 GHz ~ 5.85 GHz
- **CE** 5.15 GHz ~ 5.35 GHz ; 5.47 GHz ~ 5.725 GHz

#### Wireless Transmission Rates

- **IEEE 802.11a** 6-24 Mbps: 23 dBm  
54 Mbps: 20 dBm
- **IEEE 802.11n** HT20 - MCS0: 23 dBm  
MCS15: 19 dBm  
HT40 - MCS0: 21 dBm  
MCS15: 19 dBm

Note: The listed value is the target power calibrated in the card. The actual power will vary depending on each country's regulation.

#### Receiver Sensitivity

- **IEEE 802.11a** 6Mbps: -89 dBm  
54Mbps: -70 dBm
- **IEEE 802.11n** HT20 - MCS15: -65 dBm  
HT40 - MCS15: -62 dBm

### Ordering Information

- **EKI-6331AN** IEEE 802.11 a/n Wireless AP/Client
- **EKI-6331AN-EU** IEEE 802.11 a/n Wireless AP/Client (EU)

# EKI-6332GN

## IEEE 802.11 b/g/n Wi-Fi AP/Client



### Features

- Compliant with IEEE 802.11 b/g/n
- IP55 waterproof certification
- External RP-SMA connectors for 2T2R antennae
- High output power
- MIMO 2 x 2 11n
- Passive 24 V PoE
- WPA/WPA2-Enterprise encryption for a highly secure wireless network
- WEP/WPA/WPA2/ IEEE 802.1x authentication support
- Spanning Tree and IGMP snooping protocol support

### Introduction

The EKI-6332GN is a feature rich wireless AP/Client which provides a reliable wireless connectivity for industrial environments. The PoE injector enhances flexibility in deployment of this AP/Client even where the DC power supply is hard to fulfill. As an 802.11n compliant device, EKI-6332GN provides 6 times higher data rates than legacy 802.11g devices. With the support of STP, WMM and IGMP snooping protocols, EKI-6332GN effectively improves the reliability of wireless connectivity, especially in applications that need high reliability and high throughput data transmission. To secure wireless connections, EKI-6332GN implements the latest encryption technologies including WPA2/WPA/802.1x for powerful security authentication.

### Specifications

#### Standard Support

- Wireless** IEEE 802.11b/g/n
- Ethernet** IEEE 802.3u MDI / MDIX 10/100 Fast Ethernet
- LAN** IEEE 802.11b/g wireless LAN interface  
IEEE 802.11n wireless LAN standard  
Passive 24 V PoE, max. distance: 50 meters
- Certification** FCC 15B/C  
EN300328 V181  
EN301489 -1/-17  
Telec  
EN55022/24  
EN60950
- Data Rates** 11b: 11M, 5.5M, 2M, 1Mbps  
11g: 54M, 48M, 36M, 24M, 18M, 12M, 9M, 6Mbps  
11n: HT20 MCS0 ~ 15 / HT40 MCS0 ~ 15

#### Physical Specifications

- Power** DC 24 V / 1A; AC Adapter 100 V ~ 240 V
- Dimensions (W x H x D)** 111 x 256 x 48 mm (4.37" x 10.08" x 1.89")
- Mounting** Wall, Pole
- Weight** 0.5 Kg

#### Environment

- Operating Temperature** Non Heater : -20 ~ 70°C (-4 ~ 158°F)
- Storage Temperature** -40 ~ 70° C (-40 ~ 158° F)
- Humidity** 10% ~ 95% non-condensing

#### Interface Operation Modes

- Access Point (AP) / Client

#### Antenna

- Default external 5 dBi Omni antenna
- 2 x RP-SMA connectors (female) for RP-SMA antennae (male)

#### Other Features

- Management** Telnet, FTP, SNMP, Web UI

- Wireless** Radio on/off, WMM/Regatta Mode, Output Power Control, Fragmentation Length, Beacon Interval, RTS/CTS threshold, DTIM Interval,
- Security** Open System , Shared Key, Legacy 8021X, WPA, WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)

#### Modulation Techniques

- IEEE 802.11n** OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
- IEEE 802.11b** DSSS (DBPSK, DQPSK, CCK)
- IEEE 802.11g** OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

#### Channel Support

- IEEE 802.11b/g/n** HT20  
FCC: CH1 ~ CH11; ETSI: CH1 ~ CH13  
HT40  
FCC: CH3 ~ CH9; ETSI: CH3 ~ CH11
- IEEE 802.11gn**

#### Wireless Transmission Rates

- Transmitted Power\*** 802.11b: 27 dBm  
802.11g: 25 dBm @ 6 Mbps, 23 dBm @ 54 Mbps  
802.11gn HT20: 27 dBm @ MCS0/8, 23 dBm @ MCS7/15  
802.11gn HT40: 26 dBm @ MCS0/8, 22 dBm @ MCS7/15

\*Note: The listed value is the target power calibrated in the card. The actual power will vary depending on each country's regulation

#### Receiver Sensitivity

- 802.11b Sensitivity** -91 dBm @ 1 Mbps; -85 dBm @ 11 Mbps
- 802.11g Sensitivity** -89 dBm @ 6 Mbps; -70 dBm @ 54 Mbps
- 802.11n HT20** -83 dBm @ MCS0/8; -65 dBm @ MCS7/15
- 802.11n HT40** -80 dBm @ MCS0/8; -62 dBm @ MCS7/15

### Ordering Information

- EKI-6332GN** 802.11 b/g/n Wireless AP/Client (US)
- EKI-6332GN-EU** 802.11 b/g/n Wireless AP/Client (EU)

1	WebAccess* Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
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19	iNetworking



# EKI-6528TI

# EKI-6528TPI

## EN50155 8-port M12 Unmanaged Switch with Wide Temperature

## EN50155 8-port M12 Unmanaged PoE Switch with Wide Temperature



### Features

- Auto Bypass between Port 1 and Port 2
- EN50155 certified
- Wide redundant power design
- 8-port 10/100 Mbps M12 type connector with IP40 protection
- 4-port PoE type M12 (EKI-6528TPI)
- Dual redundant power input
- Supports wide operating temperature -40 ~ 75°C



### Introduction

The EKI-6528TI and EKI-6528TPI are EN50155 certified industrial switches with IP40 protection and wide temperature support designed for railway applications. EKI-6528TPI provides four PoE ports that support IEEE 802.3af and can provide up to 15.4 watts of power per port. M12 connectors ensure highly reliable connectivity for industrial communication applications. With IP40 compact metal housings, these switches are protected against dusty environments and are a good fit for many industrial applications. Under no-power condition, 'Auto Bypass' function ensures the Ethernet signal connection through internal circuitry. This feature provides non-stop communication to rolling stocks even no power exists in some of the carriages.

### Specifications

#### Communications

- **Standard** IEEE 802.3  
IEEE 802.3u  
IEEE 802.3x  
IEEE 802.3af
- **LAN** 10/100Base-T (X)
- **Transmission Speed** Up to 100 Mbps

#### Interface

- **Ethernet** M12, 4-pole D-coded, Female x 8

#### Mechanism

- **Enclosure** IP40 protected metal shell
- **Dimensions (W x H x D)** 92 x 180 x 42 mm (3.62" x 7.08" x 1.65")
- **Mounting** DIN-rail, Wall

#### Power

- **Power Consumption** Max. 3.36 W (EKI-6528TI)  
Max. 72 W (EKI-6528TPI)
- **Power Input** 24 ~ 48 V<sub>DC</sub>, redundant dual inputs (for EKI-6528TPI)  
12 ~ 48 V<sub>DC</sub>, redundant dual inputs (for EKI-6528TI)
- **Power Connector** M12, 5-pole A-coded, male x 1
- **P-Fail Output** 1A @ 24 V<sub>DC</sub>
- **P-Fail Connector** M12, 8-pole A-coded, Female x 1

#### Protection

- **Power Reverse** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 391,307 hours (EKI-6528TI)  
348,384 hours (EKI-6528TPI)

#### Certification

- **Safety** UL 60950-1
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 61373
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 61373
- **Railway** EN50155, EN 50121-3-2, EN 50121-4
- **Patent** <http://www.advantech.com/legal/patent>

### Ordering Information

- **EKI-6528TI** EN50155 8-port M12 Unmanaged Ethernet Switch
- **EKI-6528TPI** EN50155 8-port M12 Unmanaged PoE Switch

# EKI-9516

## EN 50155 16-port Full Gigabit Managed Ethernet Switch



### Features

- Complies with EN50155 and EN45545-2
- All Gigabit connections support dual ring protection and non-blocking traffic forwarding
- 12 x M12 Gigabit ports and 2 pairs M12 Gigabit ports with bypass relay function
- X-Ring Pro supports rapid and predictable convergence
- Provides M12 connector with IP67 protection
- Operating Temperature: -40 ~ 70° C

### Introduction

EKI-9516 M12 Managed Ethernet Switch is designed for railway applications, including rolling stock. EKI-9516 switch uses M12 connectors to ensure tight, robust connections, and to guarantee reliable operation against environmental disturbances, such as vibration and shock. EKI-9516 provides 16 Gigabit Ethernet M12 ports.

In addition, EKI-9516 provides a wide power input range of 24/36/48/72/96/110 V<sub>DC</sub>; the dual, isolated power input increases the reliability of your communications system. The -40 to 70° C operating temperature and IP67-rated waterproof enclosure allow deployment in harsh environments. Moreover, the EKI-9516 is compliant with the essential sections of EN 50155, EN50121-3-2, EN 45545-2 covering operating temperature, power input voltage, surge, ESD, and vibration, making the switches suitable for a variety of industrial applications.

### Specifications

#### Interface

- I/O Port** 16 x 10/100/1000Base-T M12 X-Code
- Console port** M12 A-Code
- F/W backup port** USB (M12 A-Code)
- Power Connector** M23 6 pin

#### Physical

- Enclosure** Aluminum Shell
- Protection Class** IP 67
- Installation** Wall Mount, DIN Rail (Optional)
- Dimensions (W x D x H)** 254 x 174 x 64.5 (mm)
- Weight** 3.6 kg

#### LED Display

- System LEDs** PWR1, PWR2, SYS, CFG, ALM
- Port LED** Data

#### Environment

- Operating Temperature** -40 ~ 70°C (-40 ~ 158°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- Ambient Relative Humidity** 5 ~ 95% (non-condensing)

#### Power

- Power Consumption** ~ 26.4 Watts (System)
- Power Input** 24/36/48/72/96/110 V<sub>DC</sub> dual inputs  
Supports Overload Current Protection  
Supports Reverse Polarity Protection

#### Certification

- EMI** FCC Part 15 Subpart B Class A  
CE EN55022 (CISPR)  
EN55024 Class A
- EMS** EN61000-4-2 (ESD); EN61000-4-3 (RS); EN61000-4-4 (EFT); EN61000-4-5 (Surge); EN61000-4-6 (CS)
- Shock** IEC 61373
- Freefall** IEC 60068-2-32
- Vibration** IEC 61373
- Rail Traffic** EN 50155; EN50121-3-2; EN 45545-2

#### L2 Features

- L2 MAC Address** 16K
- Jumbo Frame** 9KB
- VLAN Group** 256 (VLAN ID 1 ~ 4093)
- VLAN** Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, GVRP
- Port Mirroring** Per port, Multi-source port
- IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- Storm Control** Broadcast, Multicast, Unknown unicast
- Spanning Tree** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro

#### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Priority)
- Class of Service** IEEE 802.1p based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- Port Security** Static, Dynamic
- Authentication** 802.1x (Port-Based, MAC-Based), RADIUS, TACACS+
- ACL** 1K rules
- Advanced Security** IP Source Guard

#### Management

- DHCP** Client, Server, Relay, Option 66/67/82
- Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- Security Access** SSH 2.0, SSL
- Software Upgrade** TFTP, HTTP, Dual Image
- NTP** NTP client

### Ordering Information

- EKI-9516-C01DW10E** 16x M12 GbE Managed Ethernet Switch including 24/36/48/72/96/110 V<sub>DC</sub> dual power inputs

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	iNetworking

# EKI-6558TI

# EKI-6559TMI

**EN50155 IP67 8-port M12 Managed Ethernet Switch with Wide Temperature**

**EN50155 IP67 8-port M12 + 2-port Fiber Optic Managed Ethernet Switch with Wide Temperature**



EKI-6558TI

EKI-6559TMI



## Features

- EN50155 certified
- Supports X-Ring Pro function (ultra high-speed recovery time < 20 ms)
- Wide redundant power design
- Provides M12 connector with IP67 protection
- Provides Waterproof fiber optic connector
- TFTP firmware updates and system configure restore and backup
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output
- Supports wide operating temperature -40 ~ 75°C
- Provides 100 Mbps LC type connector

## Introduction

The EKI-6558TI and EKI-6559TMI are EN50155 certified IP67 wide temperature industrial switches which are especially designed for railway industry and harsh environments. M12 connectors secure highly reliable connectivity for industrial communication applications. EN50155 certification ensures the use of railway application. EKI-6559TMI also provides two additional fiber optic ports to extend communication range. Both EKI-6558TI and EKI-6559TMI provide Advantech's X-Ring Pro protocol, which enables users to establish a redundant Ethernet network with ultra high-speed recovery (less than 20 ms). They also support advanced network standards to optimize network performance, reduce maintenance cost, and secure network safety.

## Specifications

### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3ad, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X
- **LAN** 10/100Base-T (X), 100Base-FX
- **Transmission Speed** Up to 100 Mbps

### Interface

- **Ethernet** M12, 4-pole D-coded, Female x 8
- **Fiber Optic** LC type waterproof x 2, Multi-mode (EKI-6559TMI)
- **Console** M12, 8-pole A-coded, Female x 1

### Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNMP, Syslog, Email Alert, SNMP Trap, RMON

### Mechanism

- **Enclosure** IP67, aluminum shell with solid mounting kits
- **Dimensions (W x H x D)** 193 x 176 x 62.5 mm (7.59" x 6.93" x 2.46")
- **Mounting** Wall

### Power

- **Power Consumption** Max. 8.1 W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Power Connector** M12, 5-pole A-coded, male x 1
- **P-Fail Output** 1A @ 24 V<sub>DC</sub>
- **P-Fail Connector** M12, 8-pole A-coded, Female x 1

### Protection

- **Power Reverse** Present

### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 388,201 hours (EKI-6558TI)  
320,420 hours (EKI-6559TMI)

### Certification

- **Safety** UL 508
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
IEC 61373
- **Shock** IEC 60068-2-32
- **Freefall** IEC 61373
- **Vibration** IEC 61373
- **Railway** EN50155, EN 50121-3-2, EN 50121-4

## Ordering Information

- **EKI-6558TI** EN50155 8-port M12 Managed Ethernet Switch
- **EKI-6559TMI** EN50155 8-port M12+ 2-port FX Managed Ethernet Switch

# EKI-7428G-4CI

# EKI-7428G-4CPI

## 24G+4G Combo port L2 Managed Switch

## 24G+4G Combo port L2 Managed PoE Switch



### Features

- 24 x IEEE 802.3 af/at PoE Gigabit ports + 4 x Gigabit Copper/SFP combo ports, provide up to 30Watts per port
- SFP socket for Easy and Flexible Fiber Expansion
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), HTTPS, SSH and SNMPv3
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP
- 48V<sub>DC</sub> power input (46-57 V<sub>DC</sub> for POE af , 53 -57 V<sub>DC</sub> is recommended for at) and 2 relay output
- 40 ~ 70°C wide-range operating temperature

### Introduction

The EKI-7428G is an industrial-class layer 2 full managed switch including 24 Gigabit ports and 4 Gigabit combo ports. It is designed for rack-mount installation, and can be deployed in demanding industrial environments. It is suitable for edge to core industrial networks. It integrates Layer 2 switching software, which is optimized for scale and performance, delivering wire speed across all ports up to 56 Gbps for layer 2 traffic forwarding. In addition, the PoE design provides up to 30 watts per port to fulfill high power consumption device, moreover, it supports high reliability with -40 ~ 70°C operating temperatures, and dual 48 V<sub>DC</sub> input power design ensure vital network capabilities with minimum downtime. It is also embedded with Advantech IXM, which benefits users by giving them fast deployment and can dramatically save engineer's time and costs.

### Specifications

#### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab, 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- LAN**
- Transmission Distance** Ethernet: Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
SFP: Up to 110 km (depends on SFP)
- Transmission Speed** Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
Gigabit Fiber: Up to 1000 Mbps

#### Interface

- Connectors** 24 x RJ45 (Ethernet)  
4 x RJ45/SFP (mini-GBIC) combo ports  
4-pin removable screw terminal (Power)  
3-pin removable screw terminal (Relay)
- LED Indicators** 10/100T (X): Link/Activity, Duplex/Collision  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
SFP: Link/Activity
- Console** RS-232 (RJ45)

#### Network Management

- Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- Redundancy** Advantech X-Ring, 802.1w/D RSTP/STP
- Security** IP Access security, port security, DHCP client, Port and IP Binding, 802.1X Port Access Control, IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTp, Syslog, E-Mail Alert, SNMP Trap, RMON

#### Mechanism

- Enclosure** IP30, metal shell with solid mounting kits
- Dimensions (W x H x D)** 438 x 43.6 x 259.20 mm (17.24" x 1.72" x 10.2")
- Mounting** 1U 19" Rack mount

#### Power

- Power Consumption** 20W @ 24V (EKI-7428G-4CI)  
20W @ 48V (EKI-7428G-4CPI)
- Power Budget** 685W (EKI-7428G-4CPI)
- Power Input** EKI-7428G-4CI 12-48 V<sub>DC</sub>  
EKI-7428G-4CPI 48 V<sub>DC</sub> (46 to 57 V<sub>DC</sub>), 53 -57 V<sub>DC</sub> is recommended for 802.3at  
2 Relay Outputs
- Fault Output**

#### Protection

- Power Reverse** Present
- Overload Current** Present

#### Environment

- Operating Temperature** -40 ~ 70°C (-40 ~ 158°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- Operating Humidity** 10 ~ 95% (non-condensing)
- Storage Humidity** 10 ~ 95% (non-condensing)
- MTBF** EKI-7428-4CI: 787,940 hours  
EKI-7428G-4CPI: 424,517 hours

#### Certification

- Safety** UL 61010-2-201
- EMI** CE FCC EN55022 Class A
- EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN 61000-4-8  
IEC 60068-2-27  
IEC 60068-2-32  
IEC 60068-2-6  
EN 50121-4  
<http://www.advantech.com/legal/patent>
- Shock**
- Freefall**
- Vibration**
- Railway Track Side**
- Patent**

### Ordering Information

- EKI-7428G-4CI-AE** 24GE+4G Combo Port Managed Ethernet Switch w/ Wide Temp
- EKI-7428G-4CPI-AE** 24G+4G Combo Port POE Managed Ethernet Switch w/ Wide Temp

- 1 WebAccess® Solution
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- 3 Power & Energy Automation
- 4 Industrial Operator Panels
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- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 InNetworking

# EKI-9228G-8CBI

# EKI-9228G-8CMI

# EKI-9228G-8COI

**Ind. Rackmount L2 Managed Switch with 48V<sub>DC</sub>**

**Ind. Rackmount L2 Managed Switch with AC/DC**



## Features

- 16 x Gigabit RJ-45 ports + 4 Gigabit x SFP ports + 8 x Gigabit Combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB
- Security: 802.1x (Port-Based, MD5/TLS/TTL/PEAP Encryption), HTTPS, SSH and SNMPv3
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D), MSTP
- Dual Power input and 2 relay output
- -40 ~ 85°C wide-range operating temperature

## Introduction

The EKI-9228G series are designed for power substation automation applications which meet IEC 61850-3 certification. Thanks to its -40 ~ 85°C wide operating temperature it can operate well in extremely harsh environments. Designed with 16 Gigabit ports and 4 Gigabit SFP ports and 8 Gigabit com. ports it provides abundant and flexible connection ports. Finally, the EKI-9228G series contain dual power inputs to ensure system stability and 2 relay output for greater user flexibility.

## Specifications

### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab, 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **LAN**
- **Transmission Distance** Ethernet: Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
Gigabit Fiber: Up to 1000 Mbps

### Interface

- **Connectors** 16 x RJ45 (Ethernet)  
8 x RJ45/SFP (mini-GBIC) combo ports  
4 x SFP Ports  
3-pin removable screw terminal (Power)  
4-pin removable screw terminal (Relay)
- **LED Indicators** 10/100T (X): Link/Activity, Duplex/Collision  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
SFP: Link/Activity
- **Console** RS-232 (RJ45)

### Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP client, Port and IP Binding, 802.1X Port Access Control, IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Traffic Control** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON
- **Diagnostics**

### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 442 x 44 x 352 mm (17.4" x 1.73" x 13.85")
- **Mounting** 1U 19" Rack mount

### Power

- **Power Consumption** EKI-9228G-8CMI: 19.21 W @ 48V  
EKI-9228G-8COI: 19.24 W @ 110V<sub>AC</sub>
- **Power Input** EKI-9228G-8CMI: 48V<sub>DC</sub>  
EKI-9228G-8COI: 90 ~ 264AC/88 ~ 370V<sub>DC</sub>
- **Fault Output** 2 Relay Outputs

### Protection

- **Power Reverse** Present
- **Overload Current** Present

### Environment

- **Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** TBD

### Certification

- **Safety** UL 61010
- **EMI** CE FCC EN55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6
- **Power Automation** IEC 61850-3

## Ordering Information

- **EKI-9228G-8CMI-AE** Ind. Rackmount L2 Managed Switch with 48VDC
- **EKI-9228G-8COI-AE** Ind. Rackmount L2 Managed Switch with AC/DC



# EKI-9316

## Industrial-Class 16 Port Full Gigabit Managed DIN Rail Switch



### Features

- All Gigabit connections support dual-ring protection and non-blocking traffic forwarding
- X-Ring Pro: recovery time within 20ms for 250 node connections
- STP, RSTP, MSTP for better redundancy
- Super security mechanism includes SSL, SSH, 802.1X, MAC, IP filtering, RADIUS, TACACS+, VLAN for access protection
- Dual power input, dual image for system reliability
- Operating temperature: -40 ~ 75°C

### Introduction

The EKI-9316 Gigabit Managed Ethernet Switches are designed for rigorous mission critical applications, such as factory automation, ITS, and process control. The 4 Gigabit Ethernet ports allow great flexibility to build up a Gigabit redundant ring and a Gigabit uplink.

The EKI-9316 is equipped with 12 Gigabit Ethernet ports and up to 4 fiber optic ports, making them ideal for upgrading an existing network to Gigabit speed or building a new, full Gigabit network. The X-Ring Pro with RSTP, STP and MSTP support, increases system reliability and the availability of your network. The EKI-9316 is designed especially for communication demanding applications, such as video and process monitoring, or intelligent transportation systems, all of which can benefit from a scalable backbone construction.

### Specifications

#### Interface

- I/O Port** 12 x 10/100/1000Base-T/TX RJ-45  
4 x 1000 BASE-X SFP
- Console port** RJ-45
- F/W backup port** USB
- Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- Enclosure** Aluminum Shell
- Protection Class** IP 30
- Installation** DIN Rail
- Dimensions (W x H x D)** 86 x 165 x 125 (mm)

#### LED Display

- System LED** PWR1, PWR2, SYS, CFG, Alarm and R.M.
- Port LED** Link / Speed / Activity

#### Environment

- Operating Temperature** -40 ~ 75°C
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)

#### Power

- Power Consumption** ~ 21.82 Watts (System)
- Power Input** 24/48 V<sub>DC</sub> dual inputs

#### Certification

- EMI** CE, FCC Class A
- Safety** UL60950 C1D2
- EMC** EN61000-6-4; EN61000-6-2; EN61000-4-2 (ESD) Level 4 EN61000-4-3 (RS) Level 3; EN61000-4-4 (EFT) Level 4 EN61000-4-5 (Surge) Level 4; EN61000-4-6 (CS) Level 3 EN61000-4-8 (Magnetic Field) Level 4; EN50121-4 IEC 60068-2-27
- Shock** IEC 60068-2-32
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

#### L2 Features

- L2 MAC Address** 16K
- Jumbo Frame** 12KB
- VLAN Group** 4K (VLAN ID 1 ~ 4094)
- VLAN Arrange** Mac based VLAN, Protocol based VLAN, IP subnet based VLAN, Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- Port Mirroring** Per port, Multi-source port
- IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- Storm Control** Broadcast, Multicast, Unknown unicast
- Spanning Tree** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro

#### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Priority), Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- Port Security** Static, Dynamic
- Authentication** 802.1x (Port-Based, MAC-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS, TACACS+
- ACL** 1K rules
- Advanced Security** IP Source guard, ARP inspection, DHCP Snooping

#### Management

- DHCP** Client, Server, Relay, Option66/67/82
- Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- Security access** SSH2.0, SSL
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** NTP client/server

### Ordering Information

- EKI-9316-C0ID42E** Layer 2 Fastpath, 12xGbE 100/1000Base-T + 4x GbE SFP w/ 24/48 V<sub>DC</sub> Redundant Power Input

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# EKI-7758F

## 4G+4 SFP Gigabit Managed Redundant Industrial Ethernet Switch



### Features

- All Gigabit Ethernet ports for 4 Copper and 4 SFP
- SFP sockets for easy and flexible fiber expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL
- Diagnostic: Port statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

The EKI-7758F supports eight Gigabit ports with four Ethernet and four SFP. To create reliability in your network, the EKI-7758F comes equipped with a proprietary redundant network protocol – X-Ring that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, the EKI-7758F also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 100Base-T (X), 10/1000Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet : Up to 100 m (4- wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
SFP: Up to 1000 Mbps

#### Interface

- **Connectors** 4 x RJ45 (Ethernet)  
4 x SFP (mini-GBIC) ports  
6-pin removable screw terminal (Power & Relay)
- **LED Indicators** System: PWR, R.M., PWR1, PWR2, P-Fail  
Gigabit Copper: Link/Activity, Speed  
SFP: Link/Activity
- **Console** RS-232 (RJ45)

#### Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNMP, Syslog, E-Mail Alert, SNMP Trap, RMON

#### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

#### Power

- **Power Consumption** Max. 17 W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

#### Protection

- **Power Reverse** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 289,777 hours

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950 Class I, Division 2
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-7758F** 4G+4 SFP Managed Gigabit Ethernet Switch

# EKI-7710E-2C EKI-7710E-2CI

## 8FE+2G Port Gigabit Managed Redundant Industrial Switch



### Features

- 8 Fast Ethernet ports + 2 Gigabit Copper/SFP combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- -40 ~ 75°C wide-range operating temperature (EKI-7710E-2CI)
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7710E-2C/2CI supports 8 Fast Ethernet ports and 2 Gigabit combo ports. It can provide users abundant ports to connect many devices. Besides, it is embedded with Advantech IXM function, this can benefit users for fast deployment and can dramatically save engineers time and costs. The EKI-7710E series also support NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7710E series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability.

### Specifications

#### Interface

- **I/O Port** 8 x 10/100Base-T/TX RJ-45  
2 x RJ-45/SFP (mini-GBIC) Combo port
- **Console port** RS-232 (RJ45)
- **Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- **Enclosure** Metal Shell
- **Protection Class** IP 30
- **Installation** DIN-Rail
- **Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- **System LED** PWR1, PWR2, SYS, Alarm and R.M.
- **Port LED** Link / Speed / Activity

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) 7710E-2CI  
-10 ~ 60°C (-10 ~ 140°F) 7710E-2C
- **Storage Temperature** -40 ~ 85°C
- **Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- **Humidity** 10 ~ 95% (non-condensing)

#### Power

- **Power Consumption** 12.1W @ 48V<sub>DC</sub> (System)
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual power input
- **Fault Output** 1 Relay Output

#### Certification

- **EMI** CE, FCC Class A
- **Safety** UL508  
UL60950\*, C1D2\*
- **EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4\*
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32

- **Vibration** IEC 60068-2-6
  - **Traffic control** NEMA TS2\*
- \*= Compliant

#### L2 Features

- **L2 MAC Address** 8K
- **Jumbo Frame** 9216 Bytes
- **VLAN Group** 256 (VLAN ID 1 ~ 4094)
- **VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring** Per port, Multi-source port, IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **IP Multicast** Broadcast, Multicast, Unknown unicast
- **Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms
- **Redundancy**

#### QoS

- **Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- **Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** Ingress Rate limit, Egress Rate limit
- **Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- **Port Security** Static, Dynamic
- **Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- **DHCP** Client, Server, Option66/67/82
- **Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** SSH2.0, SSL
- **Software upgrade** TFTP, HTTP, Dual Image
- **NTP** Sntp client

### Ordering Information

- **EKI-7710E-2CI-AE** 8FE + 2G Combo Port Managed Ethernet Switch w/Wide Temp
- **EKI-7710E-2C-AE** 8FE + 2G Combo Port Managed Ethernet Switch

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
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- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# EKI-7710G-2C EKI-7710G-2CI

## 8G+2G Port Gigabit Managed Redundant Industrial Switch



### Features

- 8 Gigabit ports + 2 Gigabit Copper/SFP combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- -40 ~ 75°C wide-range operating temperature (EKI-7710G-2CI)
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7710G-2C/2CI supports 8 Gigabit ports and 2 Gigabit combo ports. It can provide users abundant ports to connect many devices. Besides, it is embedded with Advantech IXM function, this can benefit users for fast deployment and can dramatically save engineers time and costs. The EKI-7710G series also support NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7710G series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability.

### Specifications

#### Interface

- **I/O Port** 8 x 10/100/1000Base-T/TX RJ-45  
2 x RJ-45/SFP (mini-GBIC) Combo port
- **Console port** RS-232 (RJ45)
- **Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- **Enclosure** Metal Shell
- **Protection Class** IP 30
- **Installation** DIN-Rail
- **Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- **System LED** PWR1, PWR2, SYS, Alarm and R.M.
- **Port LED** Link / Speed / Activity

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) 7710G-2CI  
-10 ~ 60°C (-40 ~ 140°F) 7710G-2C
- **Storage Temperature** -40 ~ 85°C
- **Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- **Humidity** 10 ~ 95% (non-condensing)

#### Power

- **Power Consumption** 12.1W @ 48 V<sub>DC</sub> (System)
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual power input
- **Fault Output** 1 Relay Output

#### Certification

- **EMI** CE, FCC Class A
- **Safety** UL508  
UL60950\*, C1D2\*
- **EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN 50121-4\*
- **Shock** IEC 60068-2-27

- **Freefall** IEC 60068-2-32
  - **Vibration** IEC 60068-2-6
  - **Traffic control** NEMA TS2\*
- \*= Compliant

#### L2 Features

- **L2 MAC Address** 8K
- **Jumbo Frame** 9216 Bytes
- **VLAN Frame** 256 (VLAN ID 1 ~ 4094)
- **VLAN Group** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **VLAN Arrange** Per port, Multi-source port, IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **IP Multicast** Broadcast, Multicast, Unknown unicast
- **Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms
- **Redundancy**

#### QoS

- **Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- **Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** Ingress Rate limit, Egress Rate limit
- **Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- **Port Security** Static, Dynamic
- **Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- **DHCP** Client, Server, Option66/67/82
- **Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** SSH2.0, SSL
- **Software upgrade** TFTP, HTTP, Dual Image
- **NTP** SNTP client

### Ordering Information

- **EKI-7710G-2CI-AE** 8G + 2G Combo Port Managed Ethernet Switch w/Wide Temp
- **EKI-7710G-2C-AE** 8G + 2G Combo Port Managed Ethernet Switch

# EKI-7712E-4F

# EKI-7712E-4FI

## 8FE+4SFP Port Gigabit Managed Redundant Industrial Switch



### Features

- 8 Fast Ethernet ports + 4 SFP ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- NEMA TS2 for Traffic Control
- EN50121-4 approval for Railway trackside deployment
- -40 ~ 75°C wide-range operating temperature (EKI-7712E-4FI)
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7712E-4F/4FI provides user with abundant ports to connect to many devices and with 8 Fast Ethernet ports and 4 SFP (mini-GBIC) ports. It is embedded with Advantech's IXM function, which can benefit users for fast deployment and can dramatically save engineers time and cost. The EKI-7712E series also supports NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7712E series is equipped with X-Ring Pro which can achieve ultra high speed recovery times of less than 20 ms to ensure network stability. The switch also features a wide -40° to 75°C operating temperature (EKI-7712G-4FI) and NEMA TS2 rating, making the switch ideal solution for use in traffic applications. EKI-7712E-4F/4FI has successfully passed the EN50121-4 European railway standard requirements for emissions and railway platform and trackside deployment.

### Specifications

#### Interface

- **I/O Port** 8 x 10/100Base-T/TX RJ-45  
4 x SFP (mini-GBIC) port
- **Console port** RS-232 (RJ45)
- **Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- **Enclosure** Metal Shell
- **Protection Class** IP 30
- **Installation** DIN-Rail
- **Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- **System LED** PWR1, PWR2, SYS, Alarm and R.M.
- **Port LED** Link / Speed / Activity

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) (7712E-4FI)  
-10 ~ 60°C (-40 ~ 140°F) (7712E-4F)
- **Storage Temperature** -40 ~ 85°C
- **Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- **Humidity** 10 ~ 95% (non-condensing)

#### Power

- **Power Consumption** 12.1W @ 48V<sub>DC</sub> (System)
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual power input
- **Fault Output** 1 Relay Output

#### Certification

- **EMI** CE, FCC Class A
- **Safety** UL61010-2-201  
IEC60950\*
- **EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4\*
- **Shock** IEC 60068-2-27

- **Fre fall** IEC 60068-2-32
  - **Vibration** IEC 60068-2-6
  - **Traffic control** NEMA TS2\*
- \*= Compliant

#### L2 Features

- **L2 MAC Address** 8K
- **Jumbo Frame** 9216 Bytes
- **VLAN Group** 256 (VLAN ID 1 ~ 4094)
- **VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring** Per port, Multi-source port,
- **IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave Broadcast, Multicast, Unknown unicast
- **Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms
- **Redundancy**

#### QoS

- **Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- **Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** Ingress Rate limit, Egress Rate limit
- **Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- **Port Security** Static, Dynamic
- **Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- **DHCP** Client, Server, Option66/67/82
- **Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** SSH2.0, SSL
- **Software upgrade** TFTP, HTTP, Dual Image
- **NTP** SNTp client

### Ordering Information

- **EKI-7712E-4FI-AE** 8FE + 4SFP Port Managed Ethernet Switch w/Wide Temp
- **EKI-7712E-4F-AE** 8FE + 4SFP Port Managed Ethernet Switch

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 InNetworking



# EKI-7712G-4F

# EKI-7712G-4FI

## 8G+4SFP Port Gigabit Managed Redundant Industrial Switch



### Features

- 8 Gigabit ports + 4 SFP ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- NEMA TS2 for Traffic Control
- EN50121-4 approval for Railway trackside deployment
- 40 ~ 75°C wide-range operating temperature (EKI-7712G-4FI)
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7712G-4F/4FI provides users with abundant ports to connect to many devices with 8 Gigabit ports and 4 SFP (mini-GBIC) ports. It is embedded with Advantech's IXM function, which can benefit users for fast deployment and can dramatically save engineers time and cost. The EKI-7712G series also support NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7712G series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability. The switch also features a wide -40° to 75°C operating temperature (EKI-7712G-4FI) and NEMA TS2 rating, making the switch an ideal solution for use in traffic applications. EKI-7712G-4F/4FI has successfully passed the EN50121-4 European railway standard requirement for emissions and railway platform and trackside deployment.

### Specifications

#### Interface

- I/O Port** 8 x 10/100/1000Base-T/TX RJ-45  
4 x SFP (mini-GBIC) port  
RS-232 (RJ45)
- Console port**
- Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- Enclosure Class** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- System LED** PWR1, PWR2, SYS, Alarm and R.M.
- Port LED** Link / Speed / Activity

#### Environment

- Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) (7712G-4FI)  
-10 ~ 60°C (-40 ~ 140°F) (7712G-4F)
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)

#### Power

- Power Consumption** 12.1W @ 48V<sub>DC</sub> (System)
- Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual power input
- Fault Output** 1 Relay Output

#### Certification

- EMI** CE, FCC Class A
- Safety** UL61010-2-201  
IEC60950\*
- EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4\*  
IEC 60068-2-27
- Shock**

- Freefall** IEC 60068-2-32
  - Vibration** IEC 60068-2-6
  - Traffic control** NEMA TS2\*
- \*= Compliant

#### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- Port Mirroring** Per port, Multi-source port, IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- IP Multicast** Broadcast, Multicast, Unknown unicast
- Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms
- Redundancy**

#### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- Port Security** Static, Dynamic
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- DHCP** Client, Server, Option66/67/82
- Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- Security access** SSH2.0, SSL
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** SNTp client

### Ordering Information

- EKI-7712G-4FI-AE** 8GE + 4SFP Port Managed Ethernet Switch w/Wide Temp
- EKI-7712G-4F-AE** 8GE + 4SFP Port Managed Ethernet Switch

# EKI-7720E-4F

# EKI-7720E-4FI

## 16FE+4SFP Port Gigabit Managed Redundant Industrial Switch



### Features

- 16 Fast Ethernet ports + 4 SFP ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based), MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- NEMA TS2 for Traffic Control
- EN50121-4 approval for Railway trackside deployment
- -40 ~ 75°C wide-range operating temperature (EKI-7720E-4FI)
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7720E-4F/4FI provides users with abundant ports to connect to many devices with 16 Fast Ethernet ports and 4 SFP (mini-GBIC) ports. It is embedded with Advantech's IXM function, which can benefit users for fast deployment and can dramatically save engineers time and cost. The EKI-7720E series also supports NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7720E series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability. The switch also features a wide -40° to 75°C operating temperature (EKI-7720E-4FI).

### Specifications

#### Interface

- **I/O Port** 16 x 10/100Base-T/TX RJ-45
- **Console port** 4 x SFP (mini-GBIC) port
- **Power Connector** RS-232 (RJ45)  
6-pin screw Terminal Block (including relay)

#### Physical

- **Enclosure** Metal Shell
- **Protection Class** IP 30
- **Installation** DIN-Rail
- **Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- **System LED** PWR1, PWR2, SYS, Alarm and R.M.
- **Port LED** Link / Speed / Activity

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) (7720E-4FI)  
-10 ~ 60°C (-40 ~ 140°F) (7720E-4F)
- **Storage Temperature** -40 ~ 85°C
- **Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- **Humidity** 10 ~ 95% (non-condensing)

#### Power

- **Power Consumption** TBC
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual power input
- **Fault Output** 1 Relay Output

#### Certification

- **EMI** CE, FCC Class A
- **Safety** UL61010-2-201  
IEC60950\*
- **EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4
- **Shock** IEC 60068-2-27

- **Freetail** IEC 60068-2-32
  - **Vibration** IEC 60068-2-6
  - **Traffic control** NEMA TS2
- \*= Compliant

#### L2 Features

- **L2 MAC Address** 8K
- **Jumbo Frame** 9216 Bytes
- **VLAN Group** 256 (VLAN ID 1 ~ 4094)
- **VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring** Per port, Multi-source port,
- **IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **Storm Control** Broadcast, Multicast, Unknown unicast
- **Redundancy** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms

#### QoS

- **Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- **Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** Ingress Rate limit, Egress Rate limit
- **Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- **Port Security** Static, Dynamic
- **Authentication** 802.1x (Port-Based), MD5/TLS/TTLS/PEAP Encryption)

#### Management

- **DHCP** Client, Server, Option66/67/82
- **Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** SSH2.0, SSL
- **Software upgrade** TFTP, HTTP, Dual Image
- **NTP** SNTP client

### Ordering Information

- **EKI-7720E-4FI-AE** 16FE + 4SFP Port Managed Ethernet Switch w/Wide Temp
- **EKI-7720E-4F-AE** 16FE + 4SFP Port Managed Ethernet Switch

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# EKI-7720G-4F

# EKI-7720G-4FI

## 16GE+4SFP Port Gigabit Managed Redundant Industrial Switch



### Features

- 16 Gigabit Ethernet ports + 4 SFP ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- NEMA TS2 for Traffic Control
- EN50121-4 approval for Railway trackside deployment
- -40 ~ 75°C wide-range operating temperature (EKI-7720G-4FI)
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7720G-4F/4FI provides users with abundant ports to connect to many devices with 16 Gigabit Ethernet ports and 4 SFP (mini-GBIC) ports. It is embedded with Advantech's IXM function, which can benefit users for fast deployment and can dramatically save engineers time and cost. The 7720G series also supports NMS to help IT managers with networking maintenance and failure prevention. Finally, the 7720G series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability. The switch also features a wide -40° to 75°C operating temperature (EKI-7720G-4FI).

### Specifications

#### Interface

- **I/O Port** 16 x 10/100/1000Base-T/TX RJ-45  
4 x SFP (mini-GBIC) port  
RS-232 (RJ45)
- **Console port**
- **Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- **Enclosure** Metal Shell
- **Protection Class** IP 30
- **Installation** DIN-Rail
- **Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- **System LED** PWR1, PWR2, SYS, Alarm and R.M.
- **Port LED** Link / Speed / Activity

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) (7720G-4FI)  
-10 ~ 60°C (-40 ~ 140°F) (7720G-4F)
- **Storage Temperature** -40 ~ 85°C
- **Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- **Humidity** 10 ~ 95% (non-condensing)

#### Power

- **Power Consumption** TBC
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual power input
- **Fault Output** 1 Relay Output

#### Certification

- **EMI** CE, FCC Class A
- **Safety** UL61010-2-201  
IEC60950\*
- **EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4
- **Shock** IEC 60068-2-27

- **Freefall** IEC 60068-2-32
  - **Vibration** IEC 60068-2-6
  - **Traffic control** NEMA TS2
- \*= Compliant

#### L2 Features

- **L2 MAC Address** 8K
- **Jumbo Frame** 9216 Bytes
- **VLAN Group** 256 (VLAN ID 1 ~ 4094)
- **VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- **Port Mirroring** Per port, Multi-source port,
- **IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- **Storm Control** Broadcast, Multicast, Unknown unicast
- **Redundancy** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms

#### QoS

- **Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- **Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- **Rate Limiting** Ingress Rate limit, Egress Rate limit
- **Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- **Port Security** Static, Dynamic
- **Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- **DHCP** Client, Server, Option66/67/82
- **Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- **Security access** SSH2.0, SSL
- **Software upgrade** TFTP, HTTP, Dual Image
- **NTP** SNTP client

### Ordering Information

- **EKI-7720G-4FI-AE** 16GE + 4SFP Port Managed Ethernet Switch w/Wide Temp
- **EKI-7720G-4F-AE** 16GE + 4SFP Port Managed Ethernet Switch

# EKI-7657C/CI

## 7+3G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch with 2 x DI/O



### Introduction

EKI-7657C supports 7 Fast Ethernet ports and 3 Gigabit combo ports with 2 x Digital Input and Digital Output ports. To create reliability in your network, the EKI-7657C comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7657C also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

### Specifications

#### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- LAN** 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- Transmission Distance** Ethernet: Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
SFP: Up to 110 km (depends on SFP)
- Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
Gigabit Fiber: Up to 1000 Mbps

#### Interface

- Connectors** 7 x RJ45 (Ethernet)  
3 x RJ45/SFP (mini-GBIC) combo ports  
1 x 6-pin removable terminal (Power & Relay)  
1 x 6-pin removable terminal (DI/DO)
- LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail  
10/100T (X): Link/Activity, Duplex/Collision  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
SFP: Link/Activity
- Console** RS-232 (RJ45)

#### Network Management

- Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTp, Syslog, Email Alert, SNMP Trap, RMON

### Features

- 3 Gigabit Copper/SFP combo ports, plus 7 Fast Ethernet ports
- 2 Digital Inputs and 2 Digital Outputs for Events and Alarms in the Network
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output
- Operating temperature from -40 to 75°C (EKI-7657CI)

#### Mechanism

- Enclosure** IP30, metal shell with solid mounting kits
- Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- Mounting** DIN-rail, Wall

#### Power

- Power Consumption** Max. 10.7 W
- Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- Fault Output** 1 Relay Output

#### Protection

- Power Reverse** Present
- Overload Current** Present

#### Environment

- Operating Temperature** -10 ~ 60°C (14 ~ 140°F)  
-40 ~ 75°C (-40 ~ 167°F) (EKI-7657CI)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- Operating Humidity** 5 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)
- MTBF** 284,409 hours

#### Certifications

- Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

### Ordering Information

- EKI-7657C** 7FE + 3G Combo Port Managed Ethernet Switch w/ 2 x DI/DO
- EKI-7657CI** 7FE + 3G Combo Port Managed Ethernet Switch w/ 2 x DI/DO and Wide Temp

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# EKI-7654C

## 4+2G Combo Port Gigabit Managed Redundant Industrial Ethernet Switch



### Features

- 2 Gigabit Copper/SFP combo ports, plus 4 Fast Ethernet ports
- Full/half duplex mode flow control
- MDI/MDI-X auto crossover
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/ Query, LACP, Rate
- Limit Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3 Diagnostic: Port Statistic, Port Mirroring, RMON, SNMP Trap, SMTP, Syslog, SSL
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7654C supports 4 Fast Ethernet ports and 2 Gigabit combo ports. To create reliability in your network, the EKI-7654C comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7654C also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 100Base-TX, 10/100Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
Gigabit Fiber: Up to 1000 Mbps

#### Interface

- **Connectors** 4 x RJ45 (Ethernet) 2 x RJ45/SFP (mini-GBIC) combo ports 6-pin removable screw terminal (Power & Relay)
- **LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail  
10/100T (X): Link/Activity, Duplex/Collision  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
SFP: Link/Activity
- **Console** RS-232 (RJ45)

#### Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNMP, Syslog, E-Mail Alert, SNMP Trap, RMON

#### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

#### Power

- **Power Consumption** Max. 10.7 W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

#### Protection

- **Power Reverse** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 284,409 hours

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-7654C** 4FE + 2G Combo Port Managed Ethernet Switch



# EKI-7559SI/MI

# EKI-7554SI/MI

**8+2 SC Type Fiber Optic Managed Industrial Ethernet Switch with Wide Temperature**

**4+2 SC Type Fiber Optic Managed Industrial Ethernet Switch with Wide Temperature**



EKI-7559SI/MI

EKI-7554SI/MI



## Features

- 2 x SC type fiber ports, plus 4 Fast Ethernet ports. (EKI-7554SI/MI)
- 2 x SC type fiber ports, plus 8 Fast Ethernet ports. (EKI-7559SI/MI)
- Redundancy: X-Ring Pro (high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC, port binding, DHCP Server, IP access list, 802.1X, SSL, SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output
- Supports wide operating temperature -40 ~ 75°C

## Introduction

Both EKI-7554SI/MI and EKI-7559SI/MI support 2 SC type Fiber ports, EKI-7554SI/MI 4 Fast Ethernet ports and EKI-7559SI/MI can support up to 8 Fast Ethernet ports. To create reliability in your network, the EKI-7554SI/MI come equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7554SI/MI also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

## Specifications

### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3ad, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 10/100Base-T (X), 100Base-FX
- **LAN** Ethernet : Up to 100 m
- **Transmission Distance** Multi-mode Fiber: Up to 2 km (EKI-7554MI)  
Single-mode Fiber: Up to 30 km (EKI-7554SI)
- **Transmission Speed** Up to 100 Mbps

### Interface

- **Connectors** 4 x RJ45 ports (EKI-7554SI/MI)  
8 x RJ45 ports (EKI-7559SI/MI)  
2 x SC type fiber optic connectors
- **LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail  
10/100T (X): Link/Activity, Duplex/Collision  
RS-232 (RJ45)
- **Console**

### Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/ DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNMP, Syslog, Email Alert, SNMP Trap, RMON

### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

### Power

- **Power Consumption** Max. 7.7 W (EKI-7554SI/MI)  
Max. 8.4 W (EKI-7559SI/MI)
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

### Protection

- **Power Reverse** Present
- **Overload Current** Present

### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 262,230 hours (EKI-7554SI/MI)  
264,964 hours (EKI-7559SI/MI)

### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950  
Class I, Division 2 (EKI-7559MI/SI)
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

## Ordering Information

- **EKI-7554SI** 4FE + 2-port Single-mode Fiber Managed Ethernet Switch w/Wide Temp
- **EKI-7554MI** 4FE + 2-port Multi-mode Fiber Managed Ethernet Switch w/Wide Temp
- **EKI-7559SI** 8FE + 2-port Single-mode Fiber Managed Ethernet Switch w/Wide Temp
- **EKI-7559MI** 8FE + 2-port Multi-mode Fiber Managed Ethernet Switch w/Wide Temp

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- 9 Industrial monitors
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- 12 Control IPCs
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# EKI-2748FI

# EKI-2748CI

## 4Gx+4SFP Managed Ethernet Switch with Wide Temperature

## 6Gx+2 Combo Managed Ethernet Switch with Wide Temperature



### Features

- All Gigabit Ethernet ports for Copper and SFP/Combo interfaces
- SFP sockets for easy and flexible fiber expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP v1/v2c/v3
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL
- Diagnostic: Port statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-2748FI and EKI-2748CI supports Gigabit with Ethernet and SFP/Combo ports. To enhance reliability in industrial communication network, it equipped with Advantech owned redundant network protocol -- X-Ring Pro, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-2748FI and EKI-2748CI also support advanced network standards to optimize network performance, reduce maintenance cost, and secure network safety.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.1d, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3ad, 802.3ab
- **LAN** 100Base-T (X), 10/1000Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Speed** Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
SFP: Up to 1000 Mbps

#### Interface

- **Connectors** RJ45 x 4; SFP Combo: 100/1000 SFP \*4 (EKI-2748FI)  
RJ45 x 6; SFP Combo: RJ45 x 2;  
100/1000 Mini-GBIC x 2 (EKI-2748CI)  
Console port : RJ45 x 1
- **LED Indicators** System: PWR1, PWR2, P-Fail, R-Master  
Gigabit Copper: Link/Activity, Speed  
SFP: Link/Activity
- **Console** RS-232 (RJ45)

#### Network Management

- **Configuration** SNMP v1/v2c/v3, Web, Telnet, CLI, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, IEEE 802.1w/d RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTP, Syslog, E-Mail Alert, SNMP Trap, RMON, DMI

#### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 59.6 x 152 x 105 mm (2.35" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

#### Power

- **Power Consumption** Max. 12.21 W (EKI-2748FI)  
Max. 15.12 W (EKI-2748CI)
- **Power Input** 12 ~ 48 V<sub>DC</sub>, 24 V<sub>AC</sub> (18 ~ 30 V<sub>AC</sub>)
- **Fault Output** 1 Relay Output

#### Protection

- **Power Reverse** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 5 ~ 95% (non-condensing)
- **MTBF** 248,507 hours (EKI-2748CI)  
289,385 hours (EKI-2748FI)

#### Certification

- **Safety** UL 508  
Class I, Division 2
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-2748FI** 6Gx + 2G Combo Port Managed Ethernet Switch w/ Wide Temp
- **EKI-2748CI** 4Gx + 3G SFP Managed Ethernet Switch w/ Wide Temp

# EKI-5526/I-EI

# EKI-5528/I-EI

**16 port Entry-Level Managed Switch  
Supporting EtherNet/IP**

**8 port Entry-Level Managed Switch  
Supporting EtherNet/IP**



EKI-5526/I-EI

EKI-5528/I-EI



## Features

- 16 ports Fast Ethernet RJ-45 (EKI-5526/I-EI) & 8 ports Fast Ethernet RJ-45 (EKI-5528/I-EI)
- Entry-Level Managed Switch
- IXM function enables fast deployment
- Provides EtherNet/IP EDS (Electronic Data Sheet) file, AOI (Add-On Instructions) file, and FactoryTalk® View faceplate
- Management: SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB

## Introduction

EKI-5526/I-EI and EKI-5528/I-EI are a new generation of entry-level managed switch products. They support the EtherNet/IP protocol to communicate with Ethernet/IP based PLCs. Advantech also provides FactoryTalk® View compliant faceplate, so users can easily integrate the switch with Allen-Bradley® PLCs. "Electronic Data Sheet" (EDS files) are also available for users to customize their faceplate. The devices come in a compact metal housing that is IP30 rated to protect against dusty industrial environments. The wide power input power (8.4 to 52.8 V<sub>DC</sub>) is dedicated to operating in areas of unstable power and rugged environments.

## Specifications

### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3AD, 802.3az
- LAN** 10/100Base-T (X)
- Transmission Distance** Ethernet: Up to 100 m
- Transmission Speed Ethernet** 10/100 Mbps Auto-Negotiation

### Interface

- I/O Port** EKI-5526/I-EI: 16 x RJ-45  
EKI-5528/I-EI: 8 x RJ-45
- Power Connector** 6-pin screw Terminal Block (including relay)

### Physical

- Enclosure Class** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** EKI-5526/I-EI: 74 x 120 x 84 mm  
EKI-5528/I-EI: 43 x 120 x 84 mm

### LED Display

- System LED** PWR1, PWR2, P-Fail, Loop detection
- Port LED** Link / Speed / Activity

### Environment

- Operating Temperature** EKI-5526I-EI & EKI-5528I-EI: -40 ~ 75°C (-40 ~ 167°F)  
EKI-5526-EI & EKI-5528-EI: -10 ~ 60°C (14 ~ 140°F)
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)
- MTBF** EKI-5528/I-EI: 4,176,861 hours  
EKI-5526/I-EI: 2,788,343 hours

### Power

- Power Consumption** EKI-5526/I-EI: Max. 8 W  
EKI-5528/I-EI: Max. 5.2 W
- Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual power input
- Fault Output** 1 Relay Output

### Certification

- EMI** CE, FCC Class A
- Safety** UL508, Class 1 Division 2, ATEX
- EMC** EN 61000-4-2; EN 61000-4-3; EN 61000-4-4;

- Shock** EN 61000-4-5; EN 61000-4-6; EN 61000-4-8
- Freefall** IEC 60068-2-27
- Vibration** IEC 60068-2-32  
IEC 60068-2-6

### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, GVRP
- Port Mirroring** Per port, Multi-source port, IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- IP Multicast** Broadcast, Multicast, Unknown unicast
- Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring, with ultra high-speed recovery time less than 20ms
- Redundancy**

### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate Limit, Egress Rate Limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

### Security

- Port Security** Static, Dynamic, MAC address filtering
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

### Management

- DHCP** Client, Option 82
- Access** SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** Sntp client
- Data** Syslog
- Protocols** IPv6, LLDP, EtherNet/IP

## Ordering Information

- EKI-5526-EI-AE** 16 port entry-level managed switch support EtherNet/IP w/wide temp.
- EKI-5526I-EI-AE** 16 port entry-level managed switch support EtherNet/IP w/wide temp.
- EKI-5528-EI-AE** 8 port entry-level managed switch support EtherNet/IP
- EKI-5528I-EI-AE** 8 port entry-level managed switch support EtherNet/IP w/wide temp.

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- 16 RS-485 I/O Modules
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- 19 iNetworking

# EKI-5526/I-MB

# EKI-5528/I-MB

**16 port Entry-Level Managed Switch  
Supporting Modbus/TCP**

**8 port Entry-Level Managed Switch  
Supporting Modbus/TCP**



EKI-5526/I-MB

EKI-5528/I-MB



## Features

- 16 ports Fast Ethernet RJ-45 (EKI-5526/I-MB) & 8 ports Fast Ethernet RJ-45 (EKI-5528/I-MB)
- Entry-Level Managed Switch
- IXM function enables fast deployment
- Management: SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB

## Introduction

The EKI-5526/I-MB and EKI-5528/I-MB are a new generation of entry-level managed switch products. They support basic Layer 2 managed functions such as Ring, SNMP, and IGMP. They also support Modbus/TCP and can easily integrate with SCADA systems. The devices come in a compact metal housing that is IP30 rated to protect against dusty industrial environments. The wide power input power (8.4 to 52.8 V<sub>DC</sub>) is dedicated to operating in areas of unstable power and rugged environments.

## Specifications

### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3AD, 802.3az, 10/100Base-T (X),
- LAN** Ethernet: Up to 100 m
- Transmission Distance** Ethernet: Up to 100 m
- Transmission Speed Ethernet** 10/100 Mbps Auto-Negotiation

### Interface

- I/O Port** EKI-5526/I-MB: 16 x RJ-45  
EKI-5528/I-MB: 8 x RJ-45
- Power Connector** 6-pin screw Terminal Block (including relay)

### Physical

- Enclosure** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** EKI-5526/I-MB: 74 x 120 x 84 mm  
EKI-5528/I-MB: 43 x 120 x 84 mm

### LED Display

- System LED** PWR1, PWR2, P-Fail, Loop detection
- Port LED** Link / Speed / Activity

### Environment

- Operating Temperature** EKI-5526I-MB & EKI-5528I-MB: -40 ~ 75°C (-40 ~ 167°F)  
EKI-5526-MB & EKI-5528-MB: -10 ~ 60°C (14 ~ 140°F)  
-40 ~ 85°C
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)
- MTBF** EKI-5528/I-MB: 4,176,861 hours  
EKI-5526/I-MB: 2,788,343 hours

### Power

- Power Consumption** EKI-5526/I-MB: Max. 8 W  
EKI-5528/I-MB: Max. 5.2 W
- Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual power input
- Fault Output** 1 Relay Output

### Certification

- EMI** CE, FCC Class A
- Safety** UL508, Class 1 Division 2, ATEX

- EMC** EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8
- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, GVRP
- Port Mirroring** Per port, Multi-source port, IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- IP Multicast** Broadcast, Multicast, Unknown unicast
- Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring, with ultra high-speed recovery time less than 20ms
- Redundancy**

### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

### Security

- Port Security** Static, Dynamic, MAC address filtering
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLs/PEAP Encryption)

### Management

- DHCP** Client, Option 82
- Access** SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** SNTP client
- Data** Syslog
- Protocols** IPV6, LLDP, Modbus/TCP

## Ordering Information

- EKI-5526-MB-AE** 16 port entry-level managed switch support Modbus/TCP
- EKI-5526I-MB-AE** 16 port entry-level managed switch support Modbus/TCP w/ wide temp.
- EKI-5528-MB-AE** 8 port entry-level managed switch support Modbus/TCP
- EKI-5528I-MB-AE** 8 port entry-level managed switch support Modbus/TCP w/ wide temp.

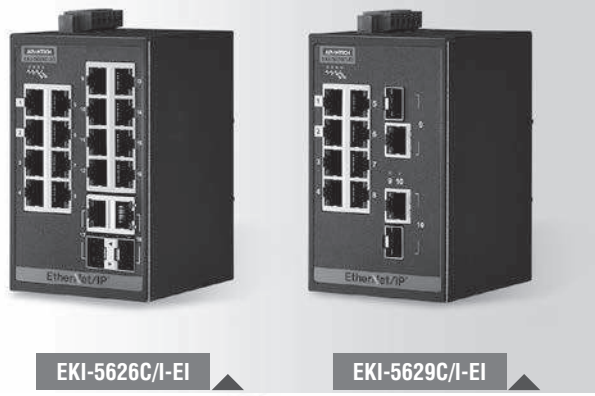


# EKI-5626C/I-EI

# EKI-5629C/I-EI

**16 + 2G Combo ports Entry-Level Managed Switch Supporting EtherNet/IP**

**8 + 2G Combo ports Entry-Level Managed Switch Supporting EtherNet/IP**



EKI-5626C/I-EI

EKI-5629C/I-EI



## Introduction

The EKI-5626C/I-EI and EKI-5629C/I-EI are a new generation of entry-level managed switch products. They support the EtherNet/IP protocol to communicate with Ethernet/IP based PLCs. Advantech also provides the FactoryTalk® View compliant faceplate, so users can easily integrate the switch with Allen-Bradley® PLCs. "Electronic Data Sheet" (EDS files) are also available for users to customize faceplate. The devices come with a compact metal housing that is IP30 rated to protect against dusty industrial environments. The wide power input power (8.4 to 52.8 V<sub>DC</sub>) is dedicated to operating in areas of unstable power and rugged environments.

## Specifications

### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3AD, 802.3az
- LAN** 10/100Base-T (X)
- Transmission Distance** Ethernet: UP to 100m (4-wire Cat.5e, Cat.6 RJ-45 cable suggested for Gigabit port)  
SFP: UP to 110km (depends on SFP)
- Transmission Speed Ethernet** Ethernet: 10/100Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000Mbps, Auto-Negotiation  
Gigabit Fiber: UP to 1000Mbps

### Interface

- I/O Port** EKI-5626C/I-EI: 16 x RJ-45 + 2 x RJ-45/SFP combo ports  
EKI-5629C/I-EI: 8 x RJ-45 + 2 x RJ-45/SFP combo ports
- Power Connector** 6-pin screw Terminal Block (including relay)

### Physical

- Enclosure** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** 74 x 120 x 84 mm

### LED Display

- System LED** PWR1, PWR2, P-Fail, Loop detection
- Port LED** Link / Speed / Activity

### Environment

- Operating Temperature** EKI-5626C-I-EI & EKI-5629C-I-EI: -40 ~ 75°C (-40 ~ 167°F)  
EKI-5626C-EI & EKI-5629C-EI: -10 ~ 60°C (14 ~ 140°F)
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)
- MTBF** EKI-5626C/I-EI: 2,825,281 hours  
EKI-5629C/I-EI: 3,183,604 hours

### Power

- Power Consumption** EKI-5626C/I-EI: Max 8.2W  
EKI-5629C/I-EI: Max 5.8W
- Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual power input
- Fault Output** 1 Relay Output

### Certification

- EMI** CE, FCC Class A
- Safety** UL508, Class 1 Division 2, ATEX

## Features

- 16 Fast Ethernet ports + 2 Gigabit Copper/SFP combo ports (EKI-5626C/I-EI) & 8 Fast Ethernet ports + 2 Gigabit Copper/SFP combo ports (EKI-5629C/I-EI)
- Entry-Level Managed Switch
- IXM function enables fast deployment
- Provides EtherNet/IP EDS (Electronic Data Sheet) file, AOI (Add-On Instructions) file, and FactoryTalk® View faceplate
- Management: SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB

- EMC** EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8
- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, GVRP
- Port Mirroring** Per port, Multi-source port
- IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- Storm Control** Broadcast, Multicast, Unknown unicast
- Redundancy** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring, with ultra high-speed recovery time less than 20ms

### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

### Security

- Port Security** Static, Dynamic, MAC address filtering
- Authentication** 802.1x (Port-Based), MD5/TLS/TTLS/PEAP Encryption)

### Management

- DHCP** Client, Option 82
- Access** SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** Sntp client
- Data** Syslog
- Protocols** IPV6, LLDP, EtherNet/IP

## Ordering Information

- EKI-5626C-EI-AE** 16 + 2G Combo ports entry-level managed switch Support EtherNet/IP
- EKI-5626C-I-EI-AE** 16 + 2G Combo ports entry-level managed switch support EtherNet/IP w/wide temp.
- EKI-5629C-EI-AE** 8 + 2G Combo ports entry-level managed switch support EtherNet/IP
- EKI-5629C-I-EI-AE** 8 + 2G Combo ports entry-level managed switch support EtherNet/IP w/wide temp.

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking



# EKI-5626C/CI-MB EKI-5629C/CI-MB

**16 + 2G Combo ports Entry-Level  
Managed Switch Supporting Modbus/TCP**  
**8 + 2G Combo ports Entry-Level  
Managed Switch Supporting Modbus/TCP**



EKI-5626C/CI-MB

EKI-5629C/CI-MB



## Features

- 16 Fast Ethernet ports + 2 Gigabit Copper/SFP combo ports (EKI-5626C/CI-MB) & 8 Fast Ethernet ports + 2 Gigabit Copper/SFP combo ports (EKI-5629C/CI-MB)
- Entry-Level Managed Switch
- IXM function enables fast deployment
- Management: SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB

## Introduction

The EKI-5626C/CI-MB and EKI-5629C/CI-MB are a new generation of entry-level managed switch products. They support basic Layer 2 managed function such as Ring, SNMP, IGMP etc. Besides, they support Modbus/TCP and can easily integrate with SCADA. The devices come with a compact metal housing that is IP30 rated to protect against dusty industrial environments. The wide power input power (8.4 to 52.8 V<sub>DC</sub>) is dedicated to operating in areas of unstable power and rugged environments.

## Specifications

### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X, 802.3AD, 802.3az, 10/100Base-T (X)
- LAN**
- Transmission Distance** Ethernet: UP to 100m (4-wire Cat.5e, Cat.6)  
RJ-45 cable suggested for Gigabit port  
SFP: UP to 110km (depends on SFP)
- Transmission Speed Ethernet** Ethernet: 10/100Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000Mbps, Auto-Negotiation  
Gigabit Fiber: UP to 1000Mbps

### Interface

- I/O Port** EKI-5626C/CI-MB: 16 x RJ-45 + 2 x RJ-45/SFP combo ports  
EKI-5629C/CI-MB: 8 x RJ-45 + 2 x RJ-45/SFP combo ports
- Power Connector** 6-pin screw Terminal Block (including relay)

### Physical

- Enclosure** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** 74 x 120 x 84 mm

### LED Display

- System LED** PWR1, PWR2, P-Fail, Loop detection
- Port LED** Link / Speed / Activity

### Environment

- Operating Temperature** EKI-5626C/CI-MB & EKI-5629C/CI-MB: -40 ~ 75°C (-40 ~ 167°F)  
EKI-5626C-MB & EKI-5629C-MB: -10 ~ 60°C (14 ~ 140°F)  
-40 ~ 85°C
- Storage Temperature** 10 ~ 95% (non-condensing)
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity**
- MTBF** EKI-5626C/CI-MB: 2,825,281 hours  
EKI-5629C/CI-MB: 3,183,604 hours

### Power

- Power Consumption** EKI-5626C/CI-MB: Max 8.2W  
EKI-5629C/CI-MB: Max 5.8W
- Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual power input
- Fault Output** 1 Relay Output

### Certification

- EMI** CE, FCC Class A
- Safety** UL508, Class 1 Division 2, ATEX

- EMC** EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8
- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, GVRP
- Port Mirroring** Per port, Multi-source port,
- IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- Storm Control** Broadcast, Multicast, Unknown unicast
- Redundancy** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring, with ultra high-speed recovery time less than 20ms

### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

### Security

- Port Security** Static, Dynamic, MAC address filtering
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLs/PEAP Encryption)

### Management

- DHCP** Client, Option 82
- Access** SNMP v1/v2c/v3, WEB, Standard MIB, Private MIB
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** Sntp client
- Data** Syslog
- Protocols** IPV6, LLDP, Modbus/TCP

## Ordering Information

- EKI-5626C-MB-AE** 16 + 2G Combo ports entry-level managed switch Support Modbus/TCP
- EKI-5626C/CI-MB-AE** 16 + 2G Combo ports entry-level managed switch support Modbus/TCP w/wide temp.
- EKI-5629C-MB-AE** 8 + 2G Combo ports entry-level managed switch support Modbus/TCP
- EKI-5629C/CI-MB-AE** 8 + 2G Combo ports entry-level managed switch support Modbus/TCP w/wide temp.

# EKI-5729F/FI

## 8-Port+2 SFP Gigabit Ethernet ProView Switch



### Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5729FI only)
- 12V ~ 48 V<sub>DC</sub> (8.4 V to 52.8 V<sub>DC</sub>) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48V<sub>DC</sub> power input and P-Fail relay
- Loop detection

### Introduction

The EKI-5729F/FI are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5729F/FI switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN** 10/100/1000Base-T(X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: UP to 100 m (4-wire Cat.5e, Cat.6 RJ-45 cable suggested for Gigabit port)  
SFP: UP to 110 km (depends on SFP)
- **Transmission Speed** Ethernet: 10/100/1000 Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
Gigabit Fiber: UP to 1000 Mbps

#### Interface

- **Connectors** 8 x RJ45  
2 x SFP ports  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail, Loop detection  
10/100/1000T(X): Link/Activity, Speed  
SFP: Link/Activity

#### Switch Properties

- **MAC Table Size** 8K
- **Packet Buffer Size** 4.1M bit
- **Switching Capacity** 20 Gbps
- **Jumbo Frame** 9216 bytes

#### Power

- **Power Consumption** Max. 6.8 W
- **Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** 43 x 120 x 84 mm
- **Enclosure** IP30, metal shell with solid mounting kits
- **Mounting** DIN-Rail, Wall

#### Protection

- **Reverse Polarity** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** EKI-5729F: -10 ~ 60°C (14 ~ 140°F)  
EKI-5729FI: -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** 3,858,286 hours

#### Certification

- **Safety** IEC/EN 60950-1, UL508, Class 1 Division 2, IECEx, ATEX
- **EMC** CE, FCC, e-Mark
- **EMI** EN 55011/55022 Class A, EN 61000-6-4, FCC Part 15 Subpart B Class A
- **EMS** EN 61000-4-2 (Level 3)  
EN 61000-4-3 (Level 3)  
EN 61000-4-4 (Level 3)  
EN 61000-4-5 (Level 3)  
EN 61000-4-6 (Level 3)  
EN 61000-4-8 (Level 3)
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-5729F** 8-port+2 SFP Gigabit Ethernet ProView Switch
- **EKI-5729FI** 8-port+2 SFP Gigabit Ethernet ProView Switch with Wide Operating Temperature Range

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C Systems
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	Networking

# EKI-5725/I

# EKI-5728/I

## 5-port Gigabit Ethernet ProView Switch

## 8-port Gigabit Ethernet ProView Switch



### Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5725I and EKI-5728I only)
- 12 ~ 48V<sub>DC</sub> (8.4 ~ 52.8V<sub>DC</sub>) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48 V<sub>DC</sub> power input and P-Fail relay
- Loop detection

### Introduction

The EKI-5725/I and EKI-5728/I are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5725/I and EKI-5728/I switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN** 10/100/1000Base-T(X)
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 1000 Mbps

#### Interface

- **Connectors** EKI-5725/I: 5 x RJ45  
EKI-5728/I: 8 x RJ45  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail, Loop detection  
10/100/1000T(X): Link/Activity, Speed

#### Switch Properties

- **MAC Table Size** EKI-5725/I: 2K  
EKI-5728/I: 8K
- **Packet Buffer Size** EKI-5725/I: 1M bit  
EKI-5728/I: 4.1M bit
- **Switching Capacity** EKI-5725/I: 10 Gbps  
EKI-5728/I: 16 Gbps
- **Jumbo Frame** 9216 bytes

#### Power

- **Power Consumption** EKI-5725/I: Max. 2 W  
EKI-5728/I: Max. 5.2 W
- **Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** EKI-5725/I: 27 x 120 x 84 mm  
EKI-5728/I: 43 x 120 x 84 mm
- **Enclosure** IP30, metal shell with solid mounting kits
- **Mounting** DIN-Rail, Wall

#### Protection

- **Reverse Polarity** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** EKI-5725 & EKI-5728: -10 ~ 60°C (14 ~ 140°F)  
EKI-5725I & EKI-5728I: -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** EKI-5725/I: 5,168,110 hours  
EKI-5728/I: 4,176,861 hours

#### Certification

- **Safety** IEC/EN 60950-1, UL508, Class 1 Division 2, IECEx, ATEX
- **EMC** CE, FCC, e-Mark(EKI-5728/5728I only)
- **EMI** EN 55011/55022 Class A, EN 61000-6-4, FCC Part 15 Subpart B Class A
- **EMS** EN 61000-4-2 (Level 3)  
EN 61000-4-3 (Level 3)  
EN 61000-4-4 (Level 3)  
EN 61000-4-5 (Level 3)  
EN 61000-4-6 (Level 3)  
EN 61000-4-8 (Level 3)
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-5725** 5-port Gigabit Ethernet ProView Switch
- **EKI-5725I** 5-port Gigabit Ethernet ProView Switch with Wide Temperature
- **EKI-5728** 8-port Gigabit Ethernet ProView Switch
- **EKI-5728I** 8-port Gigabit Ethernet ProView Switch with Wide Temperature

# EKI-5629C/CI

# EKI-5626C/CI

8FE + 2GE Combo Ethernet ProView Switch

16FE + 2GE Combo Ethernet ProView Switch



## Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5629C/CI/5626C/CI only)
- EMS level 3 protection for extreme outdoor environments
- 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>) wide-range power input
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48 V<sub>DC</sub> power input and P-Fail relay
- Loop detection

## Introduction

The EKI-5629C/CI and EKI-5626C/CI is the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5629C/CI and EKI-5626C/CI switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interference for industrial resistance.

## Specifications

### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az, 802.3ab
- **LAN** 10/100/1000Base-T(X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: UP to 100m (4-wire Cat.5e, Cat.6 RJ-45 cable suggested for Gigabit port)
- **Transmission Speed** SFP: UP to 110km (depends on SFP)  
Ethernet: 10/100Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000Mbps, Auto-Negotiation  
Gigabit Fiber: UP to 1000Mbps

### Interface

- **Connectors** EKI-5629C/CI: 8 x Fast Ethernet (RJ45) + 2 x Giga (RJ45/SFP) combo ports  
EKI-5626C/CI: 16 x Fast Ethernet (RJ45) + 2 x Giga (RJ45/SFP) combo ports
- **LED Indicators** 6-pin removable screw terminal (power & relay)  
P1, P2, P-Fail, Loop detection  
10/100T(X): Link/Activity, Speed  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
SFP: Lin k/Activity

### Switch Properties

- **MAC Table Size** 8K
- **Packet Buffer Size** 4.1M bit
- **Switch Capacity** EKI-5629C/CI: 5.6 Gbps  
EKI-5626C/CI: 7.2 Gbps
- **Jumbo Frame** 9216 bytes

### Power

- **Power Consumption** EKI-5629C/CI: 5.8W  
EKI-5626C/CI: 8.2W
- **Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual inputs
- **Fault Output** 1 Relay Output

### Mechanism

- **Dimensions (W x H x D)** 74 x 120 x 84 mm
- **Enclosure** IP30, metal shell with solid mounting kits
- **Mounting** DIN-Rail, Wall

### Protection

- **Reverse Polarity** Present
- **Overload Current** Present

### Environment

- **Operating Temperature** EKI-5629C/5626C: -10 ~ 60°C (14 ~ 140°F)  
EKI-5629C/CI/5626C/CI: -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** EKI-5629C/CI: 3,183,604 hours  
EKI-5626C/CI: 2,825,281 hours

### Certification

- **Safety** IEC/EN 60950-1, UL508, Class 1 Division 2, IECEx, ATEX
- **EMI** FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- **EMS** EN 61000-4-2 (Level 3)  
EN 61000-4-3 (Level 3)  
EN 61000-4-4 (Level 3)  
EN 61000-4-5 (Level 3)  
EN 61000-4-6 (Level 3)  
EN 61000-4-8 (Level 3)
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

## Ordering Information

- **EKI-5629C** 8FE + 2GE Combo Ethernet ProView Switch
- **EKI-5629CI** 8FE + 2GE Combo Ethernet ProView Switch with Wide Temperature
- **EKI-5626C** 16FE + 2GE Combo Ethernet ProView Switch
- **EKI-5626CI** 16FE + 2GE Combo Ethernet ProView Switch with Wide Temperature

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 IDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# EKI-5525/I

# EKI-5528/I

## 5-port Fast Ethernet ProView Switch

## 8-port Fast Ethernet ProView Switch



### Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- 40 ~ 75°C operating temperature range (EKI-5525I and EKI-5528I only)
- 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>) wide-range power input EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support
- Supports redundant 12 ~ 48 V<sub>DC</sub> power input and P-Fail relay
- Loop detection

### Introduction

The EKI-5525/I and EKI-5528/I are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with the NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5525/I and EKI-5528/I switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interference for industrial resistance.

### Specifications

#### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az
- LAN** 10/100Base-T(X)
- Transmission Distance** Up to 100 m
- Transmission Speed** Up to 100 Mbps

#### Interface

- Connectors** EKI-5525/I: 5 x RJ45  
EKI-5528/I: 8 x RJ45  
6-pin removable screw terminal (power & relay)
- LED Indicators** P1, P2, P-Fail, Loop detection  
10/100T (X): Link/Activity, Speed

#### Switch Properties

- MAC Table Size** EKI-5525/I: 2K  
EKI-5528/I: 8K
- Packet Buffer Size** EKI-5525/I: 1M bit  
EKI-5528/I: 128K bit
- Switching Capacity** EKI-5525/I: 1Gbps  
EKI-5528/I: 1.6 Gbps
- Jumbo Frame** EKI-5525/I: 9216 bytes  
EKI-5528/I: 2048 bytes

#### Power

- Power Consumption** EKI-5525/I: Max. 2 W  
EKI-5528/I: Max. 3.6 W
- Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual inputs
- Fault Output** 1 Relay Output

#### Mechanism

- Dimensions (W x H x D)** EKI-5525/I: 27 x 120 x 84 mm  
EKI-5528/I: 43 x 120 x 84 mm
- Enclosure** IP30, metal shell with solid mounting kits
- Mounting** DIN-Rail, Wall

#### Protection

- Reverse Polarity** Present
- Overload Current** Present

#### Environment

- Operating Temperature** EKI-5525 & EKI-5528: -10 ~ 60°C (14 ~ 140°F)  
EKI-5525I & EKI-5528I: -40 ~ 75°C (-40 ~ 167°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- Operating Humidity** 10 ~ 95% (non-condensing)
- Storage Humidity** 10 ~ 95% (non-condensing)
- MTBF** EKI-5525/I: 5,168,110 hours  
EKI-5528/I: 5,235,270 hours

#### Certification

- Safety** IIEC/EN60950, UL60950, UL508, Class 1 Division 2, ATEX
- EMI** FCC Part 15 Subpart B Class A, EN 55011/55022 Class A
- EMS** EN 61000-4-2 (Level 3)  
EN 61000-4-3 (Level 3)  
EN 61000-4-4 (Level 3)  
EN 61000-4-5 (Level 3)  
EN 61000-4-6 (Level 3)  
EN 61000-4-8 (Level 3)
- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

### Ordering Information

- EKI-5525** 5-port Fast Ethernet ProView Switch
- EKI-5525I** 5-port Fast Ethernet ProView Switch with Wide Temperature
- EKI-5528** 8-port Fast Ethernet ProView Switch
- EKI-5528I** 8-port Fast Ethernet ProView Switch with Wide Temperature



# EKI-5525S/M Series

## 4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet ProView Switch



EKI-5525S Series

EKI-5525M Series



### Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- -40 ~ 75°C operating temperature range (EKI-5525SI/SI-ST, EKI-5525MI/MI-ST only)
- 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48V<sub>DC</sub> power input and P-Fail relay
- Loop detection

### Introduction

The EKI-5525S/SI/S-ST/SI-ST and EKI-5525M/MI/M-ST/MI-ST are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5525S/SI/S-ST/SI-ST and EKI-5525M/MI/M-ST/MI-ST switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az
- **LAN** 10/100Base-T(X), 100Base-FX
- **Transmission Distance** Ethernet: Up to 100 m  
Multi-mode Fiber: Up to 2 km (EKI-5525M Series)  
Single-mode Fiber: Up to 30 km (EKI-5525S Series)

#### Optical Fiber

##### Multi-Mode (EKI-5525M/MI/M-ST/MI-ST)

Wavelength: 1310nm  
Tx Power: -14/-20 dBm  
Rx Sensitivity: -32 dBm  
Parameters: 50/125 um, 62.5/125 um

##### Single-Mode (EKI-5525S/SI/S-ST/SI-ST)

Wavelength: 1310 nm  
Tx Power: -8/-15 dBm  
Rx Sensitivity: -34 dBm  
Parameters: 9/125 um  
Up to 100 Mbps

#### Transmission Speed

#### Interface

- **Connectors** 4 x RJ45 ports  
1 x SC/ST type fiber optic connectors  
6-pin screw Terminal Block (including relay)
- **LED Indicators** P1, P2, P-Fail, Loop detection  
10/100T(X): Link/Activity, Speed

#### Switch Properties

- **MAC Table Size** 2K
- **Packet Buffer Size** 1M bit
- **Switching Capacity** 1 Gbps
- **Jumbo Frame** 9216 bytes

#### Power

- **Power Consumption** Max. 2.8 W
- **Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** 27 x 120 x 84 mm
- **Enclosure** IP30, metal shell with solid mounting kits
- **Mounting** DIN-Rail, Wall

#### Protection

- **Reverse Polarity** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** EKI-5525S/S-ST/M/M-ST: -10 ~ 60°C (14 ~ 140°F)  
EKI-5525SI/SI-ST/MI/MI-ST: -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** 282,703 hours

#### Certification

- **Safety** IEC/EN 60950-1, UL508, Class 1 Division 2, ATEX, IECEx
- **EMC** CE, FCC
- **EMI** EN 55011/55022 Class A, EN 61000-6-4, FCC Part 15 Subpart B Class A
- **EMS** EN61000-4-2 (ESD) Level 3  
EN61000-4-3 (RS) Level 3  
EN61000-4-4 (EFT) Level 3  
EN61000-4-5 (Surge) Level 3  
EN61000-4-6 (CS) Level 3  
EN61000-4-8 (Magnetic Field) Level 3
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-5525S** 4-port +1 x100FX port (Single-mode, SC type), Fast Ethernet ProView Switch
- **EKI-5525SI** 4-port + 1 x100FX port (Single-mode, SC type), Fast Ethernet ProView Switch with Wide Temperature
- **EKI-5525M** 4-port + 1 x100FX port (Multi-mode, SC type), Fast Ethernet ProView Switch
- **EKI-5525MI** 4-port + 1 x100FX port (Multi-mode, SC type), Fast Ethernet ProView Switch with Wide Temperature
- **EKI-5525S-ST** 4-port + 1 x100FX port (Single-mode, ST type), Fast Ethernet ProView Switch
- **EKI-5525SI-ST** 4-port + 1 x100FX port (Single-mode, ST type), Fast Ethernet ProView Switch with Wide Temperature
- **EKI-5525M-ST** 4-port + 1 x100FX port (Multi-mode, ST type), Fast Ethernet ProView Switch
- **EKI-5525MI-ST** 4-port + 1 x100FX port (Multi-mode, ST type), Fast Ethernet ProView Switch with Wide Temperature

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote D/A/C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# EKI-5524SS/MM Series

## 4-port + 2x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet ProView Switch



### Features

- Communicates with SCADA software via Modbus/TCP
- Communicates with NMS (Networking management system) via SNMP
- Port-based QoS for deterministic data transmission
- 40 ~ 75°C operating temperature range (EKI-5524SSI/SSI-ST, EKI-5524MMI/MMI-ST only)
- 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>) wide-range power input
- EMS level 3 protection for extreme outdoor environments
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- Jumbo Frame Support (Up to 9,216 Bytes)
- Supports redundant 12 ~ 48V<sub>DC</sub> power input and P-Fail relay
- Loop detection

### Introduction

The EKI-5524SS/SSI/SS-ST/SSI-ST and EKI-5524MM/MMI/MM-ST/MMI-ST are the world's first convergence switches for process control and IT networking management. This series uses Modbus/TCP to communicate with the SCADA software and SNMP to communicate with NMS (Networking Management System) at the same time, thereby allowing full read control over the devices either for control engineers or for IT. The devices come with the Port-based QoS for deterministic data transmission allows the priority ports to prioritize the traffic coming over those ports and delay the less immediately necessary data over the remaining ports. EKI-5524SS/SSI/SS-ST/SSI-ST and EKI-5524MM/MMI/MM-ST/MMI-ST switches use the highest quality components, to enable the range to operate in temperatures of between -40 and 75°C along with EMS Level 3 protection to repel electromagnetic interface for industrial resistance.

### Specifications

#### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x, 802.1p, 802.3az
- LAN** 10/100Base-T(X), 100Base-FX
- Transmission Distance** Ethernet: Up to 100 m  
Multi-mode Fiber: Up to 2 km (EKI-5524MM Series)  
Single-mode Fiber: Up to 30 km (EKI-5524SS Series)
- Optical Fiber**
  - Multi-Mode (EKI-5524MM/MMI/MM-ST/MMI-ST)**
    - Wavelength: 1310nm
    - Tx Power: -14/-20 dBm
    - Rx Sensitivity: -32 dBm
    - Parameters: 50/125 um, 62.5/125 um
  - Single-Mode (EKI-5524SS/SSI/SS-ST/SSI-ST)**
    - Wavelength: 1310 nm
    - Tx Power: -8/-15 dBm
    - Rx Sensitivity: -34 dBm
    - Parameters: 9/125 um
- Transmission Speed** Up to 100 Mbps

#### Interface

- Connectors** 4 x RJ45 ports  
2 x SC/ST type fiber optic connectors  
6-pin screw Terminal Block (including relay)
- LED Indicators** P1, P2, P-Fail, Loop detection  
10/100T(X): Link/Activity, Speed

#### Switch Properties

- MAC Table Size** 2K
- Packet Buffer Size** 1M bit
- Switching Capacity** 1.2 Gbps
- Jumbo Frame** 9216 bytes

#### Power

- Power Consumption** Max. 4 W
- Power Input** 12 ~ 48 V<sub>DC</sub> (8.4 ~ 52.8 V<sub>DC</sub>), redundant dual inputs
- Fault Output** 1 Relay Output

#### Mechanism

- Dimensions (W x H x D)** 43 x 120 x 84 mm
- Enclosure** IP30, metal shell with solid mounting kits
- Mounting** DIN-Rail, Wall

#### Protection

- Reverse Polarity** Present
- Overload Current** Present

#### Environment

- Operating Temperature** EKI-5524SS/SS-ST/MM/MM-ST: -10 ~ 60°C (14 ~ 140°F)  
EKI-5524SSI/SSI-ST/MMI/MMI-ST: -40 ~ 75°C (-40 ~ 167°F)
- Storage Temperature** -40 ~ 75°C (-40 ~ 167°F)
- Operating Humidity** 10 ~ 95% (non-condensing)
- Storage Humidity** 10 ~ 95% (non-condensing)
- MTBF** 144,890 hours

#### Certification

- Safety** IEC/EN 60950-1, UL508, Class 1 Division 2, IECEx, ATEX
- EMC** CE, FCC
- EMI** EN 55011/55022 Class A, EN 61000-6-4, FCC Part 15 Subpart B Class A
- EMS** EN61000-4-2 (ESD) Level 3  
EN61000-4-3 (RS) Level 3  
EN61000-4-4 (EFT) Level 3  
EN61000-4-5 (Surge) Level 3  
EN61000-4-6 (CS) Level 3  
EN61000-4-8 (Magnetic Field) Level 3
- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6

### Ordering Information

- EKI-5524SS** 4-port +2x100FX port (Single-mode, SC type), Fast Ethernet ProView Switch
- EKI-5524SSI** 4-port + 2x100FX port (Single-mode, SC type), Fast Ethernet ProView Switch with Wide Temperature
- EKI-5524MM** 4-port + 2 x100FX port (Multi-mode, SC type), Fast Ethernet ProView Switch
- EKI-5524MMI** 4-port + 2 x100FX port (Multi-mode, SC type), Fast Ethernet ProView Switch with Wide Temperature
- EKI-5524SS-ST** 4-port + 2 x100FX port (Single-mode, ST type), Fast Ethernet ProView Switch
- EKI-5524SSI-ST** 4-port + 2 x100FX port (Single-mode, ST type), Fast Ethernet ProView Switch with Wide Temperature
- EKI-5524MM-ST** 4-port + 2 x100FX port (Multi-mode, ST type), Fast Ethernet ProView Switch
- EKI-5524MMI-ST** 4-port + 2 x100FX port (Multi-mode, ST type), Fast Ethernet ProView Switch with Wide Temperature

# EKI-7626C/CI

## 16+2G Combo Port Gigabit Unmanaged Industrial Ethernet Switch



### Features

- Provides 2 Gigabit Copper/SFP combo port plus 16 Fast Ethernet ports (EKI-7626C/CI)
- SFP socket for Easy and Flexible Fiber Expansion
- Supports Auto Negotiation and Auto MDI/MDI-X
- Provides flexible mounting: DIN-rail and Wall mount
- Supports Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output
- Supports wide operating temperatures from -40 to 75°C (EKI-7626CI)

### Introduction

Aside from 2 Gigabit fiber optic/copper combo ports, the EKI-7626C/CI comes equipped with 16 x 10/100Base-T (X) fast Ethernet ports. Traditional RJ45 ports can be used for up-linking wide-band paths in short distances (< 100 m), or the appropriate replaceable SFP module can be used for the application of wideband uploading and long distance transmissions to flexibly fit field requests. The long MTBF (Mean Time Between Failures) ensures low operation and maintenance cost. EKI-7626C/CI includes a switch controller that can automatically sense transmission speeds (10/100 Mbps) The RJ45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism, which assures that data can be transmitted properly

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3ab, 802.3u, 802.3x, 802.3z
- **LAN** 100Base-TX, 10/1000Base-T, Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
Gigabit Fiber: Up to 110 km (depending on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
SFP: Up to 1000 Mbps

#### Interface

- **Connectors** 16 x RJ45 (Ethernet) with 2 x RJ45/SFP (mini-GBIC) combo ports (EKI-7626C/CI)  
6-pin removable screw terminal (Power & Relay)
- **LED Indicators** System: PWR1, PWR2, P-Fail  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
Gigabit SFP: Link/Activity

#### Power

- **Power Consumption** Max. 6.5 W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

#### Protection

- **Reverse Polarity** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)  
Wide Temp. Model -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 295,000 hours

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-7626C** 16+2G Combo Port Unmanaged Ethernet Switch
- **EKI-7626CI** 16+2G Combo Port Unmanaged Ethernet Switch w/ Wide Temp

1	WebAccess® Solution
2	Intelligent Motion Control and Machine Vision
3	Power & Energy Automation
4	Industrial Operator Panels
5	Thin-Client Terminals
6	High-Performance Control Panels
7	Control Cabinet PCs
8	Industrial IoT Gateways
9	Industrial monitors
10	Door Technology Modules
11	Panel PCs
12	Control IPCs
13	Remote DA&C System
14	Wireless IoT Sensing Devices
15	Ethernet I/O Modules
16	RS-485 I/O Modules
17	Industrial Ethernet Solutions
18	IP Gateway and Serial Device Servers
19	iNetworking

# EKI-7529MI/ST

## 8+2 Multi-Mode Fiber Optic Industrial Unmanaged Ethernet Switch with Wide Temperature



### Features

- Provides ST type fiber optic ports plus 8 Fast Ethernet ports
- Supports Auto Negotiation and Auto MDI/MDI-X
- Provides flexible mounting: DIN-rail and Wall mount
- Supports Dual 12 ~ 48 V<sub>DC</sub> power input and 1 relay output
- Enable or disable broadcast storm protection through a simple dip switch
- Supports wide operating temperatures -40 ~ 75°C

### Introduction

EKI-7529MI/ST come equipped with 8 x 10/100Base-TX fast Ethernet ports. Traditional ST fiber optic ports can be used for uplinking and long distance transmissions to flexibly fit field requests. The RJ45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a cross-over cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism, which assures that data can be transmitted properly. Furthermore, the power line of EKI-7529MI/ST supports Surge and EFT protection which secure equipment against unregulated voltage and make systems safer and more reliable.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-T (X), Optional 100Base-FX
- **Transmission Distance** Ethernet: Up to 100 m  
Multi-mode Fiber: Up to 2 km

#### Transmission Speed

- **Ethernet:** Port 1 ~ 2: 10 Mbps  
Port 3 ~ 8: 10/100 Mbps Auto-Negotiation

#### Interface

- **Connectors** 8 x RJ45 (Ethernet) with 2 x ST-type fiber optic connectors  
6-pin removable screw terminal (Power & Relay)
- **LED Indicators** System: PWR1, PWR2, P-Fail  
10/100T (X): Link/Activity, Duplex/Collision
- **Dip Switch** DIP1 (Port 1 and 2): ON: 10M Full Force/  
OFF: 10M Full Auto-Negotiation
- DIP2: ON: Broadcast Storm filter enable/  
OFF: Broadcast Storm filter Disable

#### Power

- **Power Consumption** Max. 6.7W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

#### Protection

- **Reverse Polarity** Present

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 289,329 hours

#### Certification

- **Safety** UL 508
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-7529MI/ST** 8 + 2-port Multi-mode Fiber Ethernet Switch w/ ST and Wide Temp

# EKI-2728MI

## 6G+2G Multi-Mode Unmanaged Ethernet Switch with Wide Temperature



### Introduction

EKI-2728MI is a cost effective unmanaged industrial Ethernet switch which supports Giga Ethernet. It supports Green Power requirement, furthermore, EKI-2728MI also supports advanced network standards to optimize network performance, reduce maintenance cost, and secure network safety.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.1ab, 802.1z
- **LAN** 10/100/1000Base-Tx
- **Transmission Distance** Ethernet: Up to 100 m  
Fiber: Up to 2 km
- **Transmission Speed** Up to 1000 Mbps

#### Interface

- **Connectors** 6 x RJ45 ports  
2 x SC type fiber optic
- **LED Indicators** System: PWR1, PWR2, P-Fail  
Gigabit Ethernet copper: Link/Activity, speed (10/100/1000 Mbps)  
Fiber SC: Link/Activity

#### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 59.6 x 152 x 105 mm (2.35" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

#### Power

- **Power Consumption** Max. 10.2 W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, 24 V<sub>AC</sub> (18 ~ 30 V<sub>AC</sub>)
- **Fault Output** 1 Relay Output, 1 A @ 24 V<sub>DC</sub>

#### Protection

- **Power Reverse** Present

### Features

- Supports 10/100/1000 Mbps Auto Negotiation
- Supports jumbo frame transmission up to 9kbytes
- Provides Slim size, DIN-rail with IP30 metal mechanism
- Provides broadcast storm protection
- Redundant DC power supply and one removable AC power input

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 505,863 hours

#### Certifications

- **Safety** UL 508, Class I, Division 2
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-2728MI** 6Gx+2 Multi-mode Fiber Unmanaged Ethernet Switch w/ Wide Temp

1  
WebAccess\* Solution

2  
Intelligent Motion Control and Machine Vision

3  
Power & Energy Automation

4  
Industrial Operator Panels

5  
Thin-Client Terminals

6  
High-Performance Control Panels

7  
Control Cabinet PCs

8  
Industrial IoT Gateways

9  
Industrial monitors

10  
iDoor Technology Modules

11  
Panel PCs

12  
Control IPCs

13  
Remote DA&C System

14  
Wireless IoT Sensing Devices

15  
Ethernet I/O Modules

16  
RS-485 I/O Modules

17  
Industrial Ethernet Solutions

18  
IP Gateway and Serial Device Servers

19  
Networking



# EKI-2725 / I

## 5-port Gigabit Unmanaged Industrial Ethernet Switch



### Features

- Provides 5 Gigabit Ethernet ports with Auto MDI/MDI-X
- Supports 10/100/1000 Mbps Auto Negotiation
- Supports jumbo frame transmission up to 9kbytes
- Provides Slim size, DIN-rail with IP30 metal mechanism
- Supports Redundant 12 ~ 48 VDC power input and P-Fail Relay
- Provides broadcast storm protection

### Introduction

The EKI-2725 supports Gigabit Ethernet. The power is a +12 ~ 48 V<sub>DC</sub> redundant input design, and is secured with a double protection mechanism: Power Polarity Reverse Protect and an Overload Current Resettable Fuse. The former tolerates reverse power wiring while the later secures the system from overload currents. As the power supply turns normal, EKI-2725 will automatically get back to normal operation state. Each port of EKI-2725 has 2 LED's to show the link status transmission speed and collision status. It also provides a relay output for an event alarm. In the event of a power failure, the built-in LED will activate the alarm to notify administrators. Engineers can simply verify the hardware status by checking the LED, and have troubleshooting easy and quick. EKI-2725 comes with compact metal housing that rates IP30 to help against from dusty industrial environments.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3ab
- **LAN** 10/100/1000Base-T(X)
- **Transmission Distance** Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable)
- **Transmission Speed** Up to 1000 Mbps

#### Interface

- **Connectors** 5 x RJ45 (EKI-2725)  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail  
10/100/1000T (X): Link/Activity, Duplex/Collision

#### Power

- **Power Consumption** 2.5W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** 30 x 140 x 95 mm (1.18" x 5.51" x 3.74")
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

#### Protection

- **Power Reverse** Present
- **Overload current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)  
-40 ~ 75°C (-40 ~ 167°F) / (I model)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** TBD

#### Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-2725-CE** 5-port Gigabit Unmanaged Switch
- **EKI-2725I-CE** 5-port Gigabit Unmanaged Switch w/wide temp

# EKI-2525/I

# EKI-2528/I

## 5-port Unmanaged Industrial Ethernet Switch

## 8-port Unmanaged Industrial Ethernet Switch



EKI-2525

EKI-2528



### Features

- Provides 5/8 Fast Ethernet ports with Auto MDI/MDI-X
- Supports 10/100 Mbps Auto-Negotiation
- Provides broadcast storm protection
- Provides compact size with DIN-rail/Wall mount, and IP30 metal mechanism
- Supports redundant 12 ~ 48 V<sub>DC</sub> power input and P-Fail relay
- Supports wide operating temperatures from -40 to 75°C (EKI-2525I/EKI-2528I)

### Introduction

The EKI-2525/2528 supports a Fast Ethernet solution. The power is a +12 ~ 48 V<sub>DC</sub> redundant input design, and is secured with a double protection mechanism: Power Polarity Reverse Protect and an Overload Current Resettable Fuse. The former tolerates reverse power wiring while the later secures the system from overload currents. As the power supply turns normal, EKI-2525/2528 will automatically get back to work. Each port of EKI-2525/2528 has 2 LED's to show the link status transmission speed and collision status. It also provides a relay output for an event alarm. In the event of a power failure, the built-in LED will activate the alarm to notify administrators. Engineers can simply verify the hardware status by checking the LED, and have troubleshooting easy and quick. EKI-2525/2528 comes with compact metal housing that rates IP30 to help against from dusty industrial environments.

### Specifications

#### Communications

- **Standard IEEE** 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-T (X)
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100 Mbps

#### Interface

- **Connectors** 8 x RJ45 (EKI-2528) or 5 x RJ45 (EKI-2525)  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail  
10/100T (X): Link/Activity, Duplex/Collision

#### Power

- **Power Consumption** EKI-2525/I: 2.88 Watts  
EKI-2528/I: 4.71 Watts
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** EKI-2525: 30 x 120 x 95 mm (1.18" x 4.72" x 3.74")  
EKI-2528: 30 x 140 x 95 mm (1.18" x 5.51" x 3.74")
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

#### Protection

- **Reverse Polarity** Present
- **Overload current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)  
-40 ~ 75°C (-40 ~ 167°F), (EKI-2525I and EKI-2528I)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% (non-condensing)
- **Storage Humidity** 10 ~ 95% (non-condensing)
- **MTBF** 388,566 hours (EKI-2528)  
412,590 hours (EKI-2525)

#### Certification

- **Safety** EKI-2525/I: UL/cUL 60950  
EKI-2528/I: UL/cUL 60950 Class I, Division 2, Groups A, B, C and D
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
Shock IEC 60068-2-27  
Freefall IEC 60068-2-32  
Vibration IEC 60068-2-6

### Ordering Information

- **EKI-2525-BE** 5-port Ethernet Switch
- **EKI-2525I-BE** 5-port Ethernet Switch w/ Wide Temp
- **EKI-2528-BE** 8-port Ethernet Switch
- **EKI-2528I-BE** 8-port Ethernet Switch w/ Wide Temp

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# EKI-2525M EKI-2526M/S

## 4+1 100FX Port Multi-Mode/Single Mode Unmanaged Industrial Ethernet Switch 4+2 100FX Port Unmanaged Industrial Ethernet Switch



### Features

- Provides 4 x 10/100 Mbps Ethernet ports with RJ45 connector
- Provides 1 x 100 Mbps Multi-mode SC type fiber optic port (EKI-2525M)
- Provides 2 x 100 Mbps Multi-mode SC type fiber optic port (EKI-2526M)
- Provides 2 x 100 Mbps Single-mode SC type fiber optic port (EKI-2526S)
- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Provides redundant 12 ~ 48 V<sub>DC</sub> power input
- Provides flexible mounting: DIN-rail and Wall mount

### Introduction

EKI-2525M/2526M/2526S are industrial-grade Ethernet switches that enable you to expand your industrial network fast and cost-effectively. The EKI-2525M/2526M/2526S have four 10/100 Mbps Ethernet ports, and additionally the EKI-2525M/2526M provides one or two multi-mode fiber-optic ports, while the 2526S provide one or two single-mode single-mode fiber-optic ports. Using fiber-optics, you can prevent noise from interfering with your system and supports high-speed (100 Mbps) and high-distance (up to 30 km) transmissions.

EKI-2525M/2526M/2526S have industrial-grade designs, assuring high reliability and stability in harsh environments, making it a robust bridge between enterprise fiber-optic backbones and Ethernet devices. EKI-2525M/2526M/2526S includes a switch controller that can automatically sense transmission speeds. The RJ45 interface can also be autodetected, so MDI or MDI-X is automatically selected and a crossover cable is not required. All the Ethernet ports have memory buffers that support the store and forward mechanism, assuring all data is transmitted properly.

### Specifications

#### Communications

- Standard** IEEE 802.3, 802.3u, 802.3x
- LAN** 10/100Base-T (X), 100Base-FX
- Transmission Distance** Ethernet: Up to 100 m  
Multi-mode Fiber: Up to 2 km (EKI-2525M/2526M)  
Single-mode Fiber: Up to 30 km (EKI-2526S)
- Transmission Speed** Up to 100 Mbps
- Optical Fiber** Wavelength: 1310nm
- Multi-Mode** (EKI-2525M/EKI-2526M)  
Tx Power: -14/-20 dBm  
Rx Sensitivity: -31 dBm  
Parameters: 50/125 um, 62.5/125 um
- Single-Mode** (EKI-2526S)  
Wavelength: 1310 nm  
Tx Power: -8/-15 dBm  
Rx Sensitivity: -34 dBm  
Parameters: 9/125 um

#### Interface

- Connectors** 4 x RJ45 ports  
1 x SC type fiber connector (EKI-2525M) or  
2 x SC type fiber connector (EKI-2526M/S)  
6-pin removable screw terminal (Power & Relay)  
P1, P2, P-Fail
- LED Indicators** 10/100TX: Link/Activity, Duplex/Collision

#### Power

- Power Consumption** EKI-2525M: Max. 5 W  
EKI-2526M: Max. 6.41 W  
EKI-2526S: Max. 6.45 W
- Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- Fault Output** 1 Relay Output

#### Mechanism

- Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")

- Enclosure** IP30, Metal shell with solid mounting kits
- Mounting** DIN-rail, Wall

#### Protection

- Reverse Polarity** Present
- Overload Current** Present

#### Environment

- Operating Temperature** EKI-2525M/2526M/2526S: -10 ~ 60°C (14 ~ 140°F)
- Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- Operating Humidity** 5 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)
- MTBF** 610,453 hours

#### Certification

- Safety** UL 60950-1, CAN/CSA-C22.2 No.60950, Class I, Division 2
- EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- EMS** EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8
- Shock** IEC60068-2-27
- Freefall** IEC60068-2-32
- Vibration** IEC60068-2-6

### Ordering Information

- EKI-2525M** 5-port Ethernet Switch w/ 1-port 100FX Multi-mode
- EKI-2526M** 4-port Ethernet Switch w/ 2-port 100FX Multi-mode
- EKI-2526S** 4-port Ethernet Switch w/ 2-port 100FX Single-mode
- EKI-2526S-ST** 4-port Ethernet Switch w/ 2-port 100FX Single-mode (ST type connector)
- EKI-2526M-ST** 4-port Ethernet Switch w/ 2-port 100FX Multi-mode (ST type connector)

# EKI-7710G-2CP EKI-7710G-2CPI

## 8G+2G Port Gigabit Managed Redundant Industrial PoE Switch



### Introduction

The EKI-7710G-2CP/2CPI supports eight Gigabit Power over Ethernet (PoE) ports and two Gigabit combo ports. It can provide up to 30 watts per port to fulfill high power consumption PD (Power Device). Besides, it is embedded with Advantech IXM function, this can benefit users for fast deployment and can dramatically save engineers time and costs. The EKI-7710G series also support NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7710G series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability.

### Specifications

#### Interface

- I/O Port** 8 x 10/100/1000Base-T/TX RJ-45  
2 x RJ-45/SFP(mini-GBIC)Combo port  
RS-232 (RJ45)
- Console port**
- Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- Enclosure** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- System LED** PWR1, PWR2, SYS, CFG, Alarm and R.M.
- Port LED** Link / Speed / Activity / PoE

#### Environment

- Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) 7710G-2CPI  
-10 ~ 60°C (-40 ~ 140°F) 7710G-2CP
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)

#### Power

- Power Consumption** 12.1W @ 48V<sub>DC</sub> (System)
- Power Input** 24 ~ 48 V<sub>DC</sub>, redundant dual power input
- Power Budget** 120W
- Fault Output** 1 Relay Output

#### Certification

- EMI** CE, FCC Class A
- Safety** UL508  
UL60950\*, C1D2\*
- EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4\*

### Features

- 8 x IEEE 802.3 af/at PoE Gigabit ports + 2 x Gigabit Copper/SFP combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- 40 ~ 75°C wide-range operating temperature (EKI-7710G-2CPI)
- Dual 24 ~ 48 V<sub>DC</sub> power input and 1 relay output

- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6
- Traffic Control** NEMA TS2\*
- \*= Compliant
- Patent** <http://www.advantech.com/legal/patent>

#### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- Port Mirroring** Per port, Multi-source port, IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- IP Multicast** Broadcast, Multicast, Unknown unicast
- Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms
- Redundancy**

#### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- Port Security** Static, Dynamic
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- DHCP** Client, Server, Option66/67/82
- Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- Security access** SSH2.0, SSL
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** NTP client

### Ordering Information

- EKI-7710G-2CPI-AE** 8GE + 2G Combo Port Managed PoE Ethernet Switch w/ Wide Temp
- EKI-7710G-2CP-AE** 8GE + 2G Combo Port Managed PoE Ethernet Switch

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# EKI-7710E-2CP EKI-7710E-2CPI

## 8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch



### Features

- 8 x IEEE 802.3 af/at PoE Fast Ethernet ports + 2 x Gigabit Copper/SFP combo ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- 40 ~ 75°C wide-range operating temperature (EKI-7710E-2CPI)
- Dual 24 ~ 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

The EKI-7710E-2CP/2CPI supports eight Power over Ethernet (PoE) ports and two Gigabit combo ports. It can provide up to 30 watts per port to fulfill high power consumption PD (Power Device). Besides, it is embedded with Advantech IXM function, this can benefit users for fast deployment and can dramatically save engineers time and costs. The EKI-7710E series also support NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7710E series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability.

### Specifications

#### Interface

- I/O Port** 8 x 10/100Base-T/TX RJ-45  
2 x RJ-45/SFP(mini-GBIC)Combo port  
RS-232 (RJ45)
- Console port**
- Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- Enclosure** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- System LED** PWR1, PWR2, SYS, Alarm and R.M.
- Port LED** Link / Speed / Activity / PoE

#### Environment

- Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) 7710E-2CPI  
-10 ~ 60°C (-40 ~ 140°F) 7710E-2CP
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)

#### Power

- Power Consumption** 12.1W @ 48V<sub>DC</sub> (System)
- Power Input** 24 ~ 48 V<sub>DC</sub>, redundant dual power input
- Power Budget** 120W
- Fault Output** 1 Relay Output

#### Certification

- EMI** CE, FCC Class A
- Safety** UL508  
UL60950\*, C1D2\*  
EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4\*
- EMC**

- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6
- Traffic control** NEMA TS2\*
- Patent** <http://www.advantech.com/legal/patent>

#### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Group** 256 (VLAN ID 1 ~ 4094)
- VLAN Arrange** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- Port Mirroring** Per port, Multi-source port,
- IP Multicast** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave Broadcast, Multicast, Unknown unicast
- Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP,
- Redundancy** X-Ring Pro, with ultra high-speed recovery time less than 20ms

#### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- Port Security** Static, Dynamic
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- DHCP** Client, Server, Option66/67/82
- Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- Security access** SSH2.0, SSL
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** SNTP client

### Ordering Information

- EKI-7710E-2CPI-AE** 8FE + 2G Combo Port Managed PoE Ethernet Switch w/Wide Temp
- EKI-7710E-2CP-AE** 8FE + 2G Combo Port Managed PoE Ethernet Switch



# EKI-7712G-4FP EKI-7712G-4FPI

## 8G+4SFP Port Gigabit Managed Redundant Industrial PoE Switch



### Features

- 8 x IEEE 802.3 af/at PoE Gigabit ports + 4 SFP ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- IXM function enables fast deployment
- Security: 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption), RADIUS
- Management: SNMP v1/v2c/v3, WEB, Telnet, Standard MIB, Private MIB
- NEMA TS2 for Traffic Control
- EN50121-4 approval for Railway trackside deployment
- 40 ~ 75°C wide-range operating temperature (EKI-7712G-4FPI)
- Dual 48 V<sub>DC</sub> power input and 1 relay output

### Introduction

EKI-7712G-4FP/4FPI supports 8 Gigabit IEEE 802.3 af/at PoE ports and 4 SFP (mini-GBIC) ports. They can provide up to 30 watts per port to fulfill high power consumption PD (Power Device) requirements. They are embedded with Advantech's IXM function, which can benefit users for fast deployment and can dramatically save engineers time and cost. The EKI-7712G series also supports NMS to help IT managers with networking maintenance and failure prevention. Finally, the EKI-7712G series is equipped with X-Ring Pro which can achieve ultra high speed recovery time of less than 20 ms to ensure network stability. The switch also features a wide -40° to 75°C operating temperature (EKI-7712G-4FPI) and NEMA TS2 rating, making the switch an ideal solution for use in traffic applications. EKI-7712G-4FP/4FPI has successfully passed the EN50121-4 European railway standard requirements for emissions and railway platform and trackside deployment.

### Specifications

#### Interface

- I/O Port** 8 x 10/100/1000Base-T/TX RJ-45  
4 x SFP (mini-GBIC) port  
RS-232 (RJ45)
- Console port**
- Power Connector** 6-pin screw Terminal Block (including relay)

#### Physical

- Enclosure** Metal Shell
- Protection Class** IP 30
- Installation** DIN-Rail
- Dimensions (W x H x D)** 74 x 152 x 105 mm (2.91" x 5.98" x 4.13")

#### LED Display

- System LED** PWR1, PWR2, SYS, Alarm and R.M.
- Port LED** Link / Speed / Activity

#### Environment

- Operating Temperature** -40 ~ 75°C (-40 ~ 167°F) (7712G-4FPI)  
-10 ~ 60°C (-10 ~ 140°F) (7712G-4FP)
- Storage Temperature** -40 ~ 85°C
- Ambient Relative Humidity** 10 ~ 95% (non-condensing)
- Humidity** 10 ~ 95% (non-condensing)

#### Power

- Power Consumption** 12.1W @ 48V<sub>DC</sub> (System)
- Power Input** 48 V<sub>DC</sub> (46 to 57 V<sub>DC</sub>),  
53 ~ 57 V<sub>DC</sub> is recommended for 802.3at, redundant dual power input
- Power Budget** 240W
- Fault Output** 1 Relay Output

#### Certification

- EMI** CE, FCC Class A
- Safety** UL61010-2-201  
IEC60950\*
- EMC** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8  
EN50121-4

- Shock** IEC 60068-2-27
- Freefall** IEC 60068-2-32
- Vibration** IEC 60068-2-6
- Traffic control** NEMA TS2
- \*= Compliant
- Patent** <http://www.advantech.com/legal/patent>

#### L2 Features

- L2 MAC Address** 8K
- Jumbo Frame** 9216 Bytes
- VLAN Frame** 256 (VLAN ID 1 ~ 4094)
- VLAN Group** Port based VLAN, Q-in-Q (VLAN Stacking), GVRP
- VLAN Arrange** Per port, Multi-source port,
- Port Mirroring** IGMP Snooping v1/v2/v3, MLD Snooping, IGMP Immediate leave
- IP Multicast** Broadcast, Multicast, Unknown unicast
- Storm Control** IEEE 802.1D-STP, IEEE 802.1s-MSTP, IEEE 802.1w-RSTP, X-Ring Pro, with ultra high-speed recovery time less than 20ms
- Redundancy**

#### QoS

- Priority Queue Scheduling** WRR (Weighted Round Robin), SP (Strict Scheduling Priority) Hybrid Priority
- Class of Service** IEEE 802.1p Based CoS, IP TOS, DSCP based CoS
- Rate Limiting** Ingress Rate limit, Egress Rate limit
- Link Aggregation** IEEE 802.3ad Dynamic Port Trunking, Static Port Trunking

#### Security

- Port Security** Static, Dynamic
- Authentication** 802.1x (Port-Based, MD5/TLS/TTLS/PEAP Encryption)

#### Management

- DHCP** Client, Server, Option66/67/82
- Access** SNMP v1/v2c/v3, WEB, Telnet, RMON, Standard MIB, Private MIB
- Security access** SSH2.0, SSL
- Software upgrade** TFTP, HTTP, Dual Image
- NTP** SNTP client

### Ordering Information

- EKI-7712G-4FPI-AE** 8GE + 4SFP Port Managed PoE Ethernet Switch w/Wide Temp
- EKI-7712G-4FP-AE** 8GE + 4SFP Port Managed PoE Ethernet Switch

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 Indoor Technology Modules
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# EKI-7659CPI

## 8+2G Port Gigabit Managed Redundant Industrial PoE Switch with Wide Temperature



### Features

- 2 Gigabit Copper/SFP combo ports, plus 8 PoE injector ports
- SFP socket for Easy and Flexible Fiber Expansion
- Redundancy: Gigabit X-Ring Pro (ultra high-speed recovery time < 20 ms), RSTP/STP (802.1w/1D)
- Management: Web, Telnet, Serial Console, SNMP
- Control: VLAN/GVRP, QoS, IGMP Snooping/Query, LACP, Rate Limit
- Security: IP/MAC and port binding, DHCP Server, IP access list, 802.1X, SSL SNMPv3
- Diagnostic: Port Statistic, Port Mirroring, RMON, Trap, Email Alert, Syslog
- Dual 48 V<sub>DC</sub> power input and 1 relay output
- Supports wide operating temperatures -40 ~ 75°C

### Introduction

The EKI-7659CPI supports eight Power over Ethernet (PoE) ports and two Gigabit combo ports. The PoE device helps realize a centralized power supply solution and provides up to 15.4 watts of power per port. To create reliability in your network, the EKI-7659CPI comes equipped with a proprietary redundant network protocol -- X-Ring Pro that was developed by Advantech, which provides users with an easy way to establish a redundant Ethernet network with ultra high-speed recovery time less than 20 ms. Furthermore, EKI-7659CPI also supports many advanced network standards to optimize network performance, ease maintenance issues, and secure network safety.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3z, 802.3ad, 802.3ab, 802.3af, 802.1D, 802.1w, 802.1p, 802.1Q, 802.1X
- **LAN** 10/100/1000Base-T (X), Optional 100Base-FX, 1000Base-SX/LX/LHX/XD/ZX/EZX
- **Transmission Distance** Ethernet: Up to 100 m (4-wire Cat.5e, Cat.6 RJ45 cable suggested for Gigabit port)  
SFP: Up to 110 km (depends on SFP)
- **Transmission Speed** Ethernet: 10/100 Mbps Auto-Negotiation  
Gigabit Copper: 10/100/1000 Mbps, Auto-Negotiation  
Gigabit Fiber: Up to 1000 Mbps

#### Interface

- **Connectors** 8 x RJ45 (Ethernet)  
2 x RJ45/SFP (mini-GBIC) combo ports  
6-pin removable screw terminal (Power&Relay)
- **LED Indicators** System: PWR, PWR1, PWR2, R.M., P-Fail  
10/100T (X): Link/Activity, Duplex/Collision  
Gigabit Copper: Link/Activity, Speed (1000 Mbps)  
SFP: Link/Activity
- **Console** RS-232 (RJ45)

#### Network Management

- **Configuration** Web browser, Telnet, Serial console, TFTP, SNMPv1/v2c/v3, Port Speed/Duplex Configuration, IPv6
- **VLAN** IEEE 802.1Q, GVRP, Port-based VLAN
- **Redundancy** Advantech X-Ring Pro (Recovery time < 20 ms at 250 pcs full loading ring structure), Dual Homing, Dual Ring, Couple Ring, 802.1w/D RSTP/STP
- **Security** IP Access security, port security, DHCP Server, Port and IP Binding, 802.1X Port Access Control, SSL
- **Traffic Control** IGMP Snooping/Query for multicast group management, Port Trunking, Static/802.3ad, LACP Rate limit and storm control, IEEE 802.1p QoS CoS/TOS/DSCP priority queuing, IEEE 802.3x flow control
- **Diagnostics** Port Mirroring, Real-time traffic statistic, MAC Address Table, SNTp, Syslog, E-Mail Alert, SNMP Trap, RMON

#### Mechanism

- **Enclosure** IP30, metal shell with solid mounting kits
- **Dimensions (W x H x D)** 79 x 152 x 105 mm (3.11" x 5.98" x 4.13")
- **Mounting** DIN-rail, Wall

#### Power

- **Power Consumption** 116 W (Full load PoE)
- **Power Input** 48 V<sub>DC</sub>, redundant dual power input
- **Power Output** 15.4W at 48V (per PoE port)
- **Fault Output** 1 Relay Output

#### Protection

- **Power Reverse** Present
- **Overload Current** Present

#### Environment

- **Operating Temperature** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 190,200 hours

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6
- **Patent** <http://www.advantech.com/legal/patent>

### Ordering Information

- **EKI-7659CPI** 8FE + 2G Combo Port Managed PoE Ethernet Switch w/Wide Temp

# EKI-2525P EKI-2526PI

## 5-port Industrial PoE Switch 6-port Industrial PoE Switch with Wide Temperature



EKI-2525P

EKI-2526PI



### Features

- Provides 5/6 Fast Ethernet ports with 4 PoE ports with injector function
- Supports 10/100 Mbps Auto Negotiation
- Provides broadcast storm protection
- Supports Ethernet ESD protection
- Provides Slim size, DIN-rail/Wall mount with IP30 metal mechanism
- Supports Redundant 48 V<sub>DC</sub> power input and P-Fail relay
- Supports operating temperatures from -10 to 60°C (EKI-2525P)
- Supports wide operating temperature -40 ~ 75°C (EKI-2526PI)

### Introduction

The EKI-2525P is a 5-port unmanaged PoE (Power-over-Ethernet) Industrial Ethernet switch and EKI-2526PI is a 6-port unmanaged PoE Industrial Ethernet switch, they support 4 PoE ports which are classified as power source equipments (PSE). The PoE devices makes centralized power supply come true and provides up to 15.4 watts of power per port. Advantech EKI PoE devices can be used to power IEEE 802.3af compliant powered devices (PD) by Ethernet cable and eliminates the need for additional power wiring. Advantech EKI PoE devices come equipped with all the standard features of the EKI family. Furthermore, it offers a 48 V<sub>DC</sub> redundant power input design (EKI-2525P/EKI-2526PI), and is secured with a double protection mechanism; Power Polarity Reverse Protect and an Overload Current Resettable Fuse. Advantech EKI PoE devices come with compact metal housing that rates IP30 to help against from dusty industrial environments.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3af
- **LAN** 10/100Base-T (X)
- **Transmission Distance** Ethernet: Up to 100 m (EKI-2525P/EKI-2526PI)
- **Transmission Speed** Up to 100 Mbps

#### Fiber Optics (EKI-252SPI)

- **Single-mode** 1310 nm  
Tx Power: -8/-15 dBm  
Rx Sensitivity: -34 dBm  
Parameters: 9/125 um

#### Interface

- **Connectors** PoE Ports: 4 (Ports 1 ~ 4)  
Ethernet x1 (EKI-2525P)  
Ethernet x2 (EKI-2526PI)  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail  
10/100TX: Link/Activity, Duplex/Collision

#### Power

- **Power Consumption** EKI-2525P: 65 W (Full load PoE)  
EKI-2526PI: 62.6 W (Full load PoE)
- **Power Input** 48 V<sub>DC</sub> (EKI-2525P/EKI-2526PI), redundant dual inputs
- **Power Output** 15.4 W at 48 V (per PoE port)
- **Fault Output** 1 Relay Output

#### Mechanism

- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")  
(EKI-2525P)  
48.6 x 140 x 95 mm (1.91" x 5.51" x 3.74")  
(EKI-2526PI)
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

#### Protection

- **Reverse Polarity** Present
- **Overload current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F) (EKI-2525P)  
-40 ~ 75°C (-40 ~ 167°F) (EKI-2526PI)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 440,132 hours

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6
- **Patent** <http://www.advantech.com/legal/patent>

### Ordering Information

- **EKI-2525P** 5-port Switch with 4 port-PoE
- **EKI-2526PI** 6-port Switch with 4 port-PoE

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
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# EKI-2525PA EKI-2528PAI

**5-port Industrial PoE Switch with  
24/48 V<sub>DC</sub> Power Input**

**8-port Industrial PoE Switch with  
24/48 V<sub>DC</sub> Power Input and Wide Temperature**



EKI-2525PA

EKI-2528PAI



## Features

- Provides 5/8 Fast Ethernet ports with 4 PoE ports with injector function
- Supports 10/100 Mbps Auto Negotiation
- Provides broadcast storm protection
- Supports Ethernet ESD protection
- Provides power line EFT protection
- Provides slim size, DIN-rail/Wall mount with IP30 metal mechanism
- Supports Redundant 24/48 V<sub>DC</sub> power input and P-Fail Relay
- Supports operating temperatures from -10 to 60°C (EKI-2525PA)
- Supports wide operating temperature -40 ~ 75°C (EKI-2528PAI)

## Introduction

The EKI-2525PA and EKI-2528PAI are a 5/8-port unmanaged PoE (Power-over-Ethernet) Industrial Ethernet switches that supports 4 PoE ports which are classified as power source equipment (PSE). These PoE devices make centralized power supply possible and provide up to 15.4 watts of power per port. Advantech EKI PoE devices can be used to power IEEE 802.3af compliant powered devices (PD) through Ethernet cable and eliminate the need for additional power wiring. Advantech EKI PoE devices come equipped with all the standard features of the EKI family. Furthermore, they offer a 24/48 V<sub>DC</sub> redundant power input design and is secured with a double protection mechanism; Power Polarity Reverse Protect and an Overload Current Resettable Fuse. Advantech EKI PoE devices come with compact metal housing that rates IP30 to help against from dusty industrial environments.

## Specifications

### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x, 802.3af
- **LAN** 10/100Base-T (X)
- **Transmission Distance** Up to 100 m
- **Transmission Speed** Up to 100 Mbps

### Interface

- **Connectors** PoE Ports: 4 (Ports 1 ~ 4)  
Ethernet ports: 1 (Port 5 ~ Port 8), EKI-2525PA  
Ethernet ports: 4 (Port 5 ~ Port 8), EKI-2528PAI  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail  
10/100TX: Link/Activity, Duplex/Collision

### Power

- **Power Consumption** EKI-2525PA: 62.5 W (Full load PoE)  
EKI-2528PAI: 65 W (Full load PoE)
- **Power Input** 24/48 V<sub>DC</sub>, redundant dual inputs
- **Power Output** 15.4 W at 48 V (per PoE port)
- **Fault Output** 1 Relay Output

### Mechanism

- **Dimensions (W x H x D)** 48.6 x 140 x 95 mm (1.91" x 5.51" x 3.74")
- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

### Protection

- **Reverse Polarity** Present
- **Overload current** Present

### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F) (EKI-2525PA)  
Wide temp. model -40 ~ 75°C (-40 ~ 167°F) (EKI-2528PAI)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 440,132 hours

### Certification

- **Safety** UL508
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6
- **Patent** <http://www.advantech.com/legal/patent>

## Ordering Information

- **EKI-2525PA** 5-port Switch with 4 port-PoE and 24/48 V<sub>DC</sub> Power Input
- **EKI-2528PAI** 8-port Switch with 4 port-PoE and 24/48 V<sub>DC</sub> Power Input (Wide Temp)

# EKI-2741 Series

## 10/100/1000T (X) to Fiber Optic Gigabit Industrial Media Converters



### Features

- Provides 1 x 1000 Mbps Ethernet port with RJ45 connector
- Provides 1 x 1000 Mbps fiber port with SC or SFP (mini-GBIC) type connector for 1000Base-SX/LX device
- Provides DIP switch for full/half duplex setting
- Supports MDI/MDI-X auto crossover
- Supports Auto-Negotiation
- Supports redundant 12 ~ 48 V<sub>DC</sub> power input
- Provides flexible mounting: DIN-rail and Wall mount
- Provides Link Fault Pass-through (LFP)
- Jumbo Frame: 9K bytes

### Introduction

The EKI-2741 is designed to convert Gigabit Ethernet networks to Gigabit fiber networks by transparently converting Ethernet signals to optic signals. Therefore, the EKI-2741 is an ideal solution for “fiber to building” applications at central offices or local sites. EKI-2741 supports MDI/MDIX auto detection, so you don’t need to use crossover wires. Furthermore, the EKI-2741 accepts a wide voltage range from 12 ~ 48 V<sub>DC</sub>. Besides, it also provides 3,000 V<sub>DC</sub> surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

EKI-2741 is an enhanced gigabit Ethernet to fiber optic converter. Aside from its standard features, the versatile the EKI-2741 also has the LFP (Link Fault Pass-through) feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. EKI-2741 will force the link to shut down as soon as noticed that the other link has failed, giving the application software a chance to react to the situation.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3ab, 802.3x, IEEE 802.3z
- **LAN** 10/100/1000Base-T (X), 1000Base-SX or 1000Base-LX
- **Transmission Distance** Ethernet: Up to 100 m  
Fiber:  
Multi-mode: Up to 550 m  
Single-mode: Up to 10 km (EKI-2741LX) or up to 110 km (EKI-2741F)  
SFP: Up to 110 km (EKI-2741F)  
Up to 1000 Mbps

#### Transmission Speed

- **Optical Fiber** Multi-mode (EKI-2741SX)  
Wavelength: 850 nm  
Tx Power: -4/-9.5 dBm  
Rx Sensitivity: -18 dBm  
Parameters: 50/125 um, 62.5/125 um
- Single-mode (EKI-2741LX/LXI)  
Wavelength: 1310 nm  
Tx Power: -3/-9.5 dBm  
Rx Sensitivity: -20 dBm  
Parameters: 9/125 um

#### Interface

- **Connectors** 1 x RJ45  
1 x SC type fiber connector (EKI-2741SX/LX) or 1 x SFP type fiber connector (EKI-2741F)  
6-pin removable screw terminal (power & relay)
- **LED Indicators** P1, P2, P-Fail  
Fiber: LNK/ACT  
Ethernet: 1000M, LNK/ACT  
Port Alarm, LFP
- **DIP Switch**

#### Power

- **Power Consumption** 5.28 W (EKI-2741F/FI)  
5.18 W (EKI-2741SX/SXI)  
5.30 W (EKI-2741LX/LXI)
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs

#### Mechanism

- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")

- **Enclosure** IP30, Metal shell with solid mounting kits
- **Mounting** DIN-rail, Wall

#### Protection

- **Power Reverse** Present
- **Overload current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)  
Wide Temp Model -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 515,600 hours (EKI-2741F/FI)  
525,300 hours (EKI-2741SX/SXI/LX/LXI)

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-2741F** Giga Ethernet to SFP Fiber Converter
- **EKI-2741FI** Giga Ethernet to SFP Fiber Converter with Wide Temp.
- **EKI-2741SX** Giga Ethernet to 1000Base-SX Fiber Converter
- **EKI-2741SXI** Giga Ethernet to 1000Base-SX Fiber Converter with Wide Temp.
- **EKI-2741LX** Giga Ethernet to 1000Base-LX Fiber Converter
- **EKI-2741LXI** Giga Ethernet to 1000Base-LX Fiber Converter with Wide Temp.

- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
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- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
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# EKI-2541M/MI

# EKI-2541S/SI

## 10/100T (X) to Multi-Mode SC Type Fiber Optic Industrial Media Converter

## 10/100T (X) to Single-Mode SC Type Fiber Optic Industrial Media Converter



### Features

- Provides 1 x 10/100 Mbps Ethernet port with RJ45 connector
- Provides 1 x 100 Mbps Multi-mode/Single-mode SC type fiber port
- Provides internal jumper for Link Fault Pass-through (LFP) setting
- Supports full/half duplex flow control
- Supports store and forward transmission
- Supports Auto-negotiation
- Supports MDI/MDI-X auto-crossover
- Supports redundant 12-48 V<sub>DC</sub> power input
- Provides flexible mounting: DIN-rail and Panel mount
- Supports wide operating temperatures from -40 to 75°C (EKI-2541M/SI)

### Introduction

The EKI-2541M/2541S is designed to convert Ethernet networks to fiber networks by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmissions. Therefore, the EKI-2541M/2541S is an ideal solution for "fiber to building" applications at central offices or local sites. EKI-2541M/2541S supports MDI/MDIX auto detection, so you don't need to use crossover wires. Furthermore, the EKI-2541M/2541S can work normally from -10 to 60°C and accepts a wide voltage range from 12 ~ 48 V<sub>DC</sub>. Besides, it also provides 3,000 V<sub>DC</sub> surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

#### Link Fault Pass-Through (LFP)

The EKI-2541M/2541S is an enhanced Ethernet to fiber-optic converter. Aside from its standard features, the versatile the EKI-2541M/2541S also has the LFP (Link Fault Pass-through) feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. Use the internal jumper to enable the LFP function, then the EKI-2541M/2541S will force the link to shut down as soon as noticed that the other link has failed, giving the application software a chance to react to the situation.

### Specifications

#### Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-T (X), 100Base-FX
- **Transmission Distance** Ethernet: Up to 100 m  
Fiber: Multi-mode: up to 2 km  
Fiber: Single-mode: up to 30 km  
Up to 100 Mbps
- **Transmission Speed**
- **Optical Fiber**
  - Multi-mode (EKI-2541M/MI)
    - Wavelength: 1310 nm
    - Tx Power: -14/-20 dBm
    - Rx Sensitivity: -31 dBm
    - Parameters: 50/125 um, 62.5/125 um
  - Single-mode (EKI-2541S/SI)
    - Wavelength: 1310 nm
    - Tx Power: -8/-15 dBm
    - Rx Sensitivity: -34 dBm
    - Parameters: 9/125 um

#### Interface

- **Connectors** 1 x RJ45  
1 x SC type fiber connector  
6-pin removable screw terminal (power)
- **LED Indicators** P1, P2, P-Fail  
Ethernet: 10/100 m, LNK/ACT  
Fiber: HDX/FDX, LNK/ACT
- **DIP Switch** Port/Power Alarm, LFP  
Fiber: HDX/FDX, Converter/Switch

#### Power

- **Power Consumption** Max. 2.7 W
- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs

#### Mechanism

- **Dimensions (W x H x D)** 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")
- **Mounting** DIN-rail, Wall

- **Enclosure** IP30, Metal shell with solid mounting

#### Protection

- **Power Reverse** Present
- **Overload current** Present

#### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Wide Temp. model** -40 ~ 75°C (-40 ~ 167°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 577,175 hours

#### Certification

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMI** FCC Part 15 Subpart B Class A, EN 55022 Class A
- **EMS** EN 61000-4-2  
EN 61000-4-3  
EN 61000-4-4  
EN 61000-4-5  
EN 61000-4-6  
EN 61000-4-8
- **Shock** IEC 60068-2-27
- **Freefall** IEC 60068-2-32
- **Vibration** IEC 60068-2-6

### Ordering Information

- **EKI-2541M** Ethernet to Multi-mode Fiber Converter
- **EKI-2541MI** Ethernet to Multi-mode Fiber Converter w/ Wide Temp.
- **EKI-2541S** Ethernet to Single-mode Fiber Converter
- **EKI-2541SI** Ethernet to Single-mode Fiber Converter w/ Wide Temp.

## IP Gateway and Serial Device Servers

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To view all of Advantech's IP Gateway and Serial Device Servers, please visit [www.advantech.com/products](http://www.advantech.com/products).



# Selection Guide

## Wireless Devices

## Modbus Gateways



Model Name		EKI-1331	EKI-1334	EKI-1321 EKI-1322	EKI-1361 EKI-1362	EKI-1361-MB EKI-1362-MB	EKI-1221/CI/I EKI-1222/CI/I EKI-1224/CI/I
Description		1-port RS-232/485 to HSPA+ IP Gateway	Industrial Ethernet/Serial Router	1/2-port RS-232/422/485 to GPRS IP Gateway	1/2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	1/2-port RS-232/422/485 to 802.11b/g/n WLAN Modbus Gateway	1/2/4-Port Modbus Gateway
Connectivity	10/100Base-TX, Fixed	1	5	1	1/2	1/2	2
	10/100/1000Based-T, Fixed	-	-	-	-	-	-
	RS-232 only	-	1	-	-	-	-
	RS-232/422/485	1 (RS-232/485)	-	1/2	1/2	1/2	1/2/4 (CI version: RS-422/485)
Serial connector type		Terminal block	DB9 Male	DB9 Male	DB9 Male	DB9 Male	DB9 Male
Operating Mode	Mobility/Roaming	v	v	-	v	v	-
	Multi-Hopping	-	-	-	-	-	-
	AP/CPE	-	-	-	-	-	-
Enclosure & Mount Kit	Enclosure	IP30	IP30	IP30	IP40	IP40	IP30
	DIN-rail	v	v	v	v	v	v
	Wall	v	v	v	v	v	v
	VESA Mount	-	-	-	-	-	-
	Pole Mount	-	-	-	-	-	-
Power	Power Input (VDC)	(12 ~ 24V)	(9 ~ 26V)	2* (12 ~ 48V)	2* (12 ~ 48V)	2* (12 ~ 48V)	2* (12 ~ 48V)
	Power input (PoE)	-	-	-	-	-	-
	Power connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V <sub>DC</sub> ) Watts	-	-	8W (EKI-1321) 8.5W (EKI-1322)	8W (EKI-1361) 9W (EKI-1362)	8W (EKI-1361-MB) 9W (EKI-1362-MB)	5.2W (EKI-1221/1222) 6.3W (EKI-1224)
Environment	Operating Temp.	-20 ~ 70°C	-20 ~ 70°C	-30 ~ 65°C	-30 ~ 65°C	-30 ~ 65°C	EKI-1221/EKI-1222/ EKI-1224: -10 ~ 60°C 'CI & I' models: -40 ~ 70°C
	Operating Humidity	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%
	Input Reverse Protection	v	v	-	v	v	-
Software	Netwok Protocol	NAT	NAT	ARP, ICMP, IPv4, IPv6, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, SNTp, SSL	-	Modbus TCP, Modbus RTU/ASCII	Modbus RTU, Modbus TCP, Modbus ASCII
	Firewall	-	-	NAT, port forwarding	-	-	-
	Router	Username/Password	Username/Password	NAT, port forwarding	-	-	-
	configuration option	Telnet console, Web-base	Telnet console, Web-base	Windows utility, Telnet console, Web Browser	Web-base, windows utility	Web-base, windows utility	Windows Utility, Web Browser
	Authentication	-	-	-	Username/Password	Username/Password	-
Standard operation mode		Modbus RTU & TCP, USDG mode (TCP/UDP server mode, TCP/UDP client mode), IP Router w/ VPN	USDG mode (TCP/UDP server mode, TCP/UDP client mode), IP Router w/ VPN	Virtual COM, Reverse Virtual COM, TCP/UDP server mode, TCP/UDP client mode, Pair connection mode (Serial Tunnel), RFC2217, SMS Tunnel, IP Gateway w/ VPN	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Pair connection/Access Point Mode	Pair connection/Access Point Mode/ Modbus RTU Master/Slave, Modbus ASCII Master/Slave	Modbus RTU Master/Slave mode Modbus ASCII Master/Slave mode
WLAN	IEEE Standard	-	-	-	b/g/n	b/g/n	-
	Radio Number	1	1	-	1	1	-
	Security	-	-	-	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	-
RF	MIMO	-	-	-	2T2R	2T2R	-
	Maximum Transmit Output Power	HSDPA Cat. 10 / HSUPA Cat.6 data rates DGE class 12 data rates: GPRS class 12 data rates	HSDPA Cat. 10 / HSUPA Cat.6 data rates DGE class 12 data rates: GPRS class 12 data rates	-	19dBm (11n)	19dBm (11n)	-
	Receive Sensitivity	-102dBm	-102dBm	-	-93dBm (11g Rx0+Rx1)	-93dBm (11g Rx0+Rx1)	-
	Antenna Connector	SMA	SMA	-	R-SMA	R-SMA	-
Cellular	Standard	HSUPA Cat.6	HSUPA Cat.6	GSM/GPRS	-	-	-
	Five-band option in UMTS	v	v	-	-	-	-
	Quad-band optin in EDGE/GSM	v	v	-	-	-	-
	Certification (GCF, PTCRB)	v	v	-	-	-	-
	UL60950-1	-	-	-	-	-	v
Certification	EN60950-1	-	-	-	-	-	-
	CE (EN55022 class A, EN55024)	v	v	v	v	v	v
	FCC (part 15 subpart B class A)	v	v	v	v	v	v
	Hazardous Location (Class I, Division 2)	-	-	-	-	-	v
	Radio (EN 301 489-1/-4, EN 301 511)	v	v	v	-	-	-
	Radio (FCC part 22H, part 24E)	-	-	-	-	-	-
EN 50155	-	-	-	-	-	-	
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## Serial Device Servers



Model Name		EKI-1521/C1/I EKI-1522/C1/I EKI-1524/C1/I	EKI-1528I-DR EKI-1528CI-DR	EKI-1528/T EKI-1526/T	ADAM-4571/L ADAM-4570/L
Description		1/2/4-port RS-232/422/485 Serial Device Server	8-port RS-232/422/485 Device Server 8-port RS-422/485 Device Server	8/16-port RS-232/422/485 Serial Device Server	1/2-port RS-232/422/485 Serial Device Server
Connectivity	10/100Base-TX, Fixed	2	2	2	1
	10/100/1000Based-T,Fixed	-	-	-	-
	RS-232 only	-	-	-	ADAM-4571L/4570L: 1/2
	RS-232/422/485	1/2/4 (CI version: RS-422/485)	8	8/16	ADAM-4571L: 10-pin RJ48
Serial connector type		DB9 Male	DB9 Male	8-pin RJ45	ADAM-4570/L: 10-pin RJ48
Enclosure & Mount kit	Enclosure	IP30	IP30	SECC chassis	ABS+PC with solid mounting hardware
	DIN-rail	v	v	Rackmount	v
	Wall	v	v	v	v
	VESA Mount	-	-	-	-
	Pole Mount	-	-	-	-
Power	Power Input (V <sub>DC</sub> )	2* (12 ~ 48V)	2* (12 ~ 48V)	EKI-1528/EKI-1526: 100 ~ 240 V <sub>AC</sub> EKI-1528T/EKI-1526T: 48 V <sub>DC</sub>	(10 ~ 30V)
	Power input (PoE)	-	-	-	-
	Power connector	Terminal block	Terminal block	EKI-1528/EKI-1526: Toggle Switch EKI-1528T/EKI-1526T: Terminal Block	Terminal block
	Power Consumption (12/24/48VDC) Watts	5.2 W (EKI-1521/EKI-1522) 6.3 W (EKI-1524)	5 W (EKI-1528I) 6 W (EKI-1528CI)	10 W (EKI-1528/EKI-1528T) 12 W (EKI-1526/EKI-1526T)	2.5 W
Environment	Operating Temp.	EKI-1521/EKI-1522/EKI-1524: -10 ~ 60°C CI & I models: -40 ~ 70°C	-40 ~ 70°C	-10 ~ 60°C	-10 ~ 60°C
	Operating Humidity	5 ~ 95%	10 ~ 95%	5 ~ 95%	5 ~ 95%
	Input Reverse Protection	-	-	-	-
Software	Network Protocol	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP
	Firewall	-	-	-	-
	Router	-	-	-	-
	configuration option	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser, serial console	Windows utility, Telnet console, Web Browser
	Authentication	-	-	-	-
	Standard operation mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode
Certification	UL60950-1	v	v	-	-
	EN60950-1	-	-	-	-
	CE(EN55022 class A, EN55024)	v	v	v	v
	FCC (part 15 subpart B class A)	v	v	v	v
	Hazardous Location (Class I, Division 2)	v	-	-	-
	Radio (EN 301 489-1/-4, EN 301 511)	-	-	-	-
	Radio (FCC part 22H, part 24E) EN 50155	-	-	-	-
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## Accessories



Model Name		OPT1-DB9	OPT1A	OPT1D	OPT1I	OPT1J
Length		-	1 m	30 cm	1 m	30 cm
Communication Interfaces	Connector Type	DB9 Female		RJ48		RJ45
	Qty	1		1		1
	Connector Type	Terminal		DB9 Male		DB9 Male
	Qty	1		1		1
Where Used		EKI-1000 Series, ADAM-4570 Series		ADAM-4570, ADAM-4570L		EKI-1526, EKI-1528
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- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I/O Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C System
- 14 Wireless IoT Sensing Devices
- 15 Ethernet I/O Modules
- 16 RS-485 I/O Modules
- 17 Industrial Ethernet Solutions
- 18 IP Gateway and Serial Device Servers
- 19 Networking

# EKI-1331

## 1-port RS-232/485 to HSPA+ IP Gateway

NEW



### Features

- Universal five-band UMTS/HSPA+ 850/900/1800/1900/2100 MHz
- Universal quad-band GSM/GPRS 850/900/1800/1900 MHz
- Connect Ethernet and Serial Devices over VPN
- Protocols converting between serial and Ethernet: Modbus RTU & TCP
- EMC Level III for industrial standards
- Built-in 15 KV ESD protection for all serial signals
- Multiple configuration methods: Serial Console, Telnet, and Web console

### Introduction

EKI-1331 cellular gateways can transparently bring RS-232/485 or Ethernet devices to a cellular network. They allow nearly any device with serial or Ethernet ports to connect and share a cellular network with easy and simple configuration. EKI-1331 cellular IP Gateway's are compact, and can be DIN-rail or wall mounted and with front panel LED displays for easy identification. They come with DC power input from 12-24 V<sub>DC</sub> and have 2 KV EFT/Surge protection to prevent damage from various type of power resources. The serial ports are also protected by 15 KV ESD line protection to keep your system safe from unexpected electrical discharges. From the rugged design to the built in automatic recovery mechanisms, the EKI-1331 can ensure critical applications stay connected. While providing a suite of VPN features, the EKI-1331 guarantees data security.

### Specifications

#### LAN Interface

- **Ethernet** 10/100 Mbps, auto MDI/MDIX
- **Connector** RJ45
- **Protection** 1.5 KV built-in magnetic isolation protection

#### Cellular Interface

- **Standards** HSPA+/UMTS/GPRS/GSM
- **Band Option** 850/900/1800/1900/2100 MHz
- **No. of SIM** 1
- **SIM Control** 3 V
- **SMA Connector** SMA Female with inner pin

#### Serial Communications

- **Port Type** RS-232/485
- **No. of Ports** 1
- **Port Connector** 5-pin Terminal block
- **Data Bits** 6, 7, 8
- **Stop Bits** 1, 2
- **Parity** None, Odd, Even
- **Baud Rates** 300/600/1200/2400/4800/9600/19200/38400/57600/115200 bps
- **Serial Signals** RS-232: Tx, Rx, GND  
RS-485: Data+, Data-, GND
- **Protection** 15 KV ESD for all signals

#### General

- **LED Indicators** System: Power, Status, Warn, Error, Modem, Cellular: SIM, Three Levels of Cellular Signal Strength
- **Reboot Trigger** Built-in WDT (watchdog timer)

#### Software

- **Operating Modes** TCP/UDP server mode, TCP/UDP client mode, IP Gateway w/ VPN
- **Configuration** Telnet console, Web Browser
- **Protocols** ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, DHCP Server, Auto IP, SNTP, SMTP, Ping, Trace, DNS Relay, DDNS, Telnet, HTTP, HTTPS

#### Network Security

SPI, DDoS protection, Stateless Packet Inspection, Filtering Multicast/Ping package, Access Control List (ACL), NAT, DMZ, Port mapping, GRE, L2TP, PPTP, IPsec, OpenVPN

#### Mechanics

- **Dimensions (W x H x D)** 80 x 45 x 90 mm (3.1" x 1.8" x 3.5")
- **Enclosure** Metal with solid mounting hardware
- **Mounting** DIN-rail, Wall
- **Weight** 0.34 Kg

#### Power Requirements

- **Power Input** 12 ~ 24 V<sub>DC</sub>
- **Power Connector** Terminal block
- **Power Consumption** 2.16W
- **Power EFT/Surge Prot.** 2 KV

#### Environment

- **Operating Temperature** -20 ~ 70°C (-5 ~ 160°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% RH

#### Regulatory Approvals

- **EMC** EN61000-4-2, level 3  
EN61000-4-3, level 3  
EN61000-4-4, level 3  
EN61000-4-5, level 3  
EN61000-4-6, level 3  
EN61000-4-12, level 3  
EN61000-4-11, Voltage Dip: 70%
- **Shock** IEC60068-2-27
- **Free Fall** IEC60068-2-32
- **Vibration** IEC60068-2-6

### Ordering Information

- **EKI-1331** 1-Port HSPA+ IP Gateway



# EKI-1221/CI/I

# EKI-1222/CI/I

# EKI-1224/CI/I

1-port Modbus Gateway

2-port Modbus Gateway

4-port Modbus Gateway



EKI-1221

EKI-1222

EKI-1224



## Features

- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Integration of Modbus TCP and Modbus RTU/ASCII networks
- Supports up to 921.6 kbps, and any baud rate setting
- Supports up to 16 connections and 32 requests simultaneously
- Auto searching slave ID over configuration utility
- Software selectable RS-232/422/485 communication
- Mounts on DIN-rail and Wall mount
- Built-in 15 KV ESD protection for all serial signals
- Automatic RS-485 data flow control
- Supports surge protection for D.C. power ports with line to line 2 KV, and line to earth 4 KV; for signal ports with 4 KV.
- 'I' models support a wide operating temperature
- 'CI' models support auto isolation and wide operating temperature

## Introduction

The EKI-1200 series Modbus gateways are bi-directional gateways for integrating new and existing Modbus/RTU and Modbus/ASCII serial devices to newer TCP/IP networked-based devices. The EKI-1221/1222/1224 feature two independent Ethernet ports and MAC addresses to provide a redundant networking mechanism to guarantee Ethernet networking reliability. They provide a simple and cost-effective way to bring the advantage of remote management and data accessibility to thousand of devices that can not connect to a network. The EKI-1221/1222/1224 provide a feature that can allow users to select master or slave operation mode for each serial port. They not only allow an Ethernet master to control serial slaves, but also allow serial masters to control Ethernet slaves.

## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **No. of Ports** 2
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

### Serial Communications

- **Port Type** RS-232/422/485, software selectable
- **No. of Ports** EKI-1221: 1  
EKI-1222: 2  
EKI-1224: 4
- **Port Connector** DB9 male
- **Data Bits** 7, 8
- **Stop Bits** 1, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND  
RS-422: TxD+, TxD-, RxD+, RxD-, GND  
RS-485: Data+, Data-, GND
- **Protection** 15 KV ESD for all signals  
'CI' models: 2KV Isolation for RS-422/485 signals

### Software

- **OS Support** 32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
- **Utility Software** Advantech EKI Device Configuration Utility
- **Operation Modes** Modbus RTU Master/Slave mode  
Modbus ASCII Master/Slave mode
- **Configuration** Windows Utility, Web Browser
- **Protocols** Modbus RTU, Modbus TCP, Modbus ASCII

### General

- **LED Indicators** System: Power, System Status  
LAN: Speed, Link/Active  
Serial: Tx, Rx
- **Reboot Trigger** Built-in WDT (watchdog timer)

### Mechanics

- **Dimensions (W x H x D)** EKI-1221/1222: 37 x 140 x 95 mm (1.46" x 5.51" x 3.74")  
EKI-1224: 55 x 140 x 95 mm (2.17" x 5.51" x 3.74")

- **Enclosure** Metal with solid mounting hardware
- **Mounting** DIN-rail, Wall
- **Weight** EKI-1221: 0.592 Kg  
EKI-1222: 0.6 Kg  
EKI-1224: 0.668 Kg

### Power Requirements

- **Power Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Power Connector** Terminal block
- **Power Consumption** EKI-1221: 5.2 W  
EKI-1222: 5.2 W  
EKI-1224: 6.3 W

### Environment

- **Operating Temperature** EKI-1221/EKI-1222/EKI-1224: -10 ~ 60°C (14 ~ 140°F)  
'CI' & 'I' models: -40 ~ 70°C (-40 ~ 158°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH

### Regulatory Approvals

- **EMC** CE, FCC Part 15 Subpart B (Class A)

## Ordering Information

- **EKI-1221** 1-port RS-232/422/485 Modbus Gateway
- **EKI-1222** 2-port RS-232/422/485 Modbus Gateway
- **EKI-1224** 4-port RS-232/422/485 Modbus Gateway
- **EKI-1221I** 1-port RS-232/422/485 Modbus Gateway with Wide Operating Temperature
- **EKI-1222I** 2-port RS-232/422/485 Modbus Gateway with Wide Operating Temperature
- **EKI-1224I** 4-port RS-232/422/485 Modbus Gateway with Wide Operating Temperature
- **EKI-1221CI** 1-port RS-422/485 Modbus Gateway with Wide Operation Temperature and Isolation
- **EKI-1222CI** 2-port RS-422/485 Modbus Gateway with Wide Operation Temperature and Isolation
- **EKI-1224CI** 4-port RS-422/485 Modbus Gateway with Wide Operation Temperature and Isolation
- **OPT1-DB9** D-Sub9 to Terminal Converter

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
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- 9 Industrial monitors
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- 15 Ethernet I/O Modules
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- 17 Industrial Ethernet Solutions
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- 19 iNetworking

# EKI-1361 EKI-1362 EKI-1361-MB EKI-1362-MB

1-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server  
2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server  
1-port RS-232/422/485 to 802.11b/g/n WLAN Modbus Gateway  
2-port RS-232/422/485 to 802.11b/g/n WLAN Modbus Gateway



## Features

- Link any serial device to an IEEE 802.11b/g/n network
- Support 802.11n MIMO 2T2R
- WLAN transmission rate up to 300 Mbps
- Supports secure access with WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise
- Provides COM port redirection, TCP, UDP, and pair connection modes
- Supports up to 921.6 kbps, and any baud rate setting
- Provides Web-based configuration and Windows utility
- Allows a max. of 5 hosts to access one serial port
- Supports Modbus TCP and Modbus RTU

## Introduction

EKI-1361 and EKI-1362 wireless serial device servers bring RS-232/422/485 to wireless LAN or LAN. They allow nearly any device with serial ports to connect and share an WLAN network. EKI-1361 and EKI-1362 provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With EKI-1361 and EKI-1362, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/422/485 side or wireless LAN side. This data can be sent bilaterally. Thus, the EKI-1361 and EKI-1362 are especially suitable for remote monitoring environments such as security systems, factory automaton, SCADA, transportation and more.

## Specifications

### Ethernet Communications

▪ Port Type	RJ45
▪ No. of Ports	1
▪ Speed	10/100/1000 Mbps

### Wireless LAN Communications

▪ Compatibility	IEEE 802.11b/g/n
▪ Speed	Up to 300Mbps
▪ Network Mode	Infrastructure
▪ Antenna Connector	Reverse SMA
▪ No. of Antenna	2 (supports 2T2R)
▪ Free Space Range	Open space 100 m
▪ Wireless Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise

### Serial Communications

▪ Port Type	RS-232/422/485, software selectable
▪ No. of Ports	EKI-1361: 1 EKI-1362: 2
▪ Port Connector	DB9 male
▪ Data Bits	5, 6, 7, 8
▪ Stop Bits	1, 1.5, 2
▪ Parity	None, Odd, Even, Space, Mark
▪ Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting
▪ Serial Signals	RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485: Data+, Data-, GND
▪ Protection	15 KV ESD for all signals

### Software

▪ OS Support	32-bit/64-bit Windows XP/Vista/7/8/8.1, Windows Server 2003/2008/2008 R2/2012/2012 R2, Windows CE 5.0, and Linux
▪ Utility Software	Advantech EKI Device Configuration Utility
▪ Operation Modes	Access point mode Pair connection without AP (peer to peer) mode <b>EKI-1361/2</b> COM port redirection mode (Virtual COM) TCP/UDP server (polling) mode TCP/UDP client (event handling) mode <b>EKI-1361/2-MB</b> Modbus RTU Master/Slave Modbus ASCII Master/Slave

▪ Configuration	Windows utility, Telnet console, Web Browser
▪ Protocol	ARP, ICMP, IPv4, IPv6, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, DNS, SNMP, HTTP, SMTP, SNT

### Mechanics

▪ Enclosure	Plastic and metal shell with solid mounting kits
▪ Mounting	DIN-rail, Wall
▪ Dimensions (W x H x D)	28.5 x 120 x 85.3 mm (1.12" x 4.72" x 3.36")
▪ Weight	0.5 Kg

### General

▪ LED Indicators	System: Power, System Status WLAN: Quality, Link/Active LAN: Link/Active Serial: Tx, Rx Built-in WDT (watchdog timer)
▪ Reboot Trigger	

### Power Requirements

▪ Power Input	12 ~ 48 V <sub>DC</sub> , redundant dual inputs
▪ Power Connector	Terminal block
▪ Power Consumption	EKI-1361: 8W EKI-1362: 9W

### Environment

▪ Operating Temperature	-30 ~ 65°C (-22 ~ 149°F)
▪ Storage Temperature	-40 ~ 80°C (-40 ~ 176°F)
▪ Operating Humidity	5 ~ 95% RH

### Regulatory Approvals

▪ EMC	CE, FCC Part 15 Subpart B (Class B)
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## Ordering Information

▪ EKI-1361	1-port 802.11b/g/n WLAN Serial Device Server
▪ EKI-1362	2-port 802.11b/g/n WLAN Serial Device Server
▪ EKI-1361-MB	1-port 802.11b/g/n WLAN Modbus Gateway
▪ EKI-1362-MB	2-port 802.11b/g/n WLAN Modbus Gateway
▪ OPT1-DB9	D-Sub9 to Terminal Converter

# EKI-1521/CI/I

# EKI-1522/CI/I

# EKI-1524/CI/I

1-port RS-232/422/485 Serial Device Server

2-port RS-232/422/485 Serial Device Server

4-port RS-232/422/485 Serial Device Server



EKI-1521

EKI-1522

EKI-1524



## Features

- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Supports up to 921.6 kbps, and any baud rate setting
- Allows a max. of 5 hosts to access one serial port
- Allows a max. of 16 hosts to be accessed as TCP client mode
- Built-in 15 KV ESD protection for all serial signals
- Provides rich configuration methods including Windows utility, Telnet console, and Web Browser
- Supports 32-bit/64-bit Windows 2000/XP/Vista/7/8/8.1, Windows Server 2003/2008/2012, Windows CE 5.0, and Linux
- Automatic RS-485 data flow control
- Supports line to line 4 KV, line to ground 8 KV surge protection
- 'I' models support a wide operating temperature
- 'CI' models support isolation and wide operating temperature

## Introduction

EKI-1521, EKI-1522 and EKI-1524 feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. EKI-1521, EKI-1522 and EKI-1524 are serial device servers that connect RS-232/422/485 serial devices, such as PLC, meters, sensors, and barcode reader to an IP-based Ethernet LAN. They allow nearly any device with serial ports to connect and share an Ethernet network. EKI-1521, EKI-1522 and EKI-1524 provide various operations: COM port redirection (Virtual COMport), TCP Server, TCP Client and UDP mode. With COM port redirection mode, standard serial operation calls are transparently redirected to the EKI-1521, EKI-1522 and EKI-1524, guaranteeing compatibility with legacy serial devices and enabling backward compatibility with existing software. With TCP server, TCP client, and UDP modes, EKI-1521, EKI-1522 and EKI-1524 ensure the compatibility of network software that uses a standard network API. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming.

## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **No. of Ports** 2
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

### Serial Communications

- **Port Type** RS-232/422/485, software selectable
- **No. of Ports** EKI-1521: 1/EKI-1522: 2/EKI-1524: 4
- **Port Connector** DB9 male
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND  
RS-422: TxD+, TxD-, RxD+, RxD-, GND  
RS-485: Data+, Data-, GND
- **Protection** Built-in 15 KV ESD for all signals

### Software

- **Driver Support** 32-bit/64-bit Windows 2000/XP/Vista/7/8/8.1, Windows Server 2003/2008/2012, Windows CE 5.0, and Linux
- **Operation Modes** COM port redirection mode (Virtual COM)  
TCP/UDP server (polling) mode  
TCP/UDP client (event handling) mode  
Pair connection (peer to peer) mode
- **Configuration Management** Windows utility, Telnet console, Web Browser  
SNMP MIB-II

### Mechanics

- **Dimensions (W x H x D)** EKI-1521: 36.6 x 140 x 95 mm (1.44" x 5.51" x 3.74")  
EKI-1524: 48.6 x 140 x 95 mm (1.91" x 5.51" x 3.74")
- **Enclosure** Metal with solid mounting hardware
- **Mounting** DIN-rail, Wall
- **Weight** EKI-1521: 612g/EKI-1522: 620g/EKI-1524: 690g

### General

- **LED Indicators** System: Power, System Status/LAN: Speed, Link/Active  
Serial: Tx, Rx

### Power Requirements

- **Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Connector** Terminal block
- **Consumption** EKI-1521: 5.2 W  
EKI-1522: 5.2 W  
EKI-1524: 6.3 W

### Environment

- **Operating Temperature** EKI-1521/EKI-1522/EKI-1524: -10 ~ 60°C (14 ~ 140°F) 'CI' & 'I' models: -40 ~ 70°C (-40 ~ 158°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 5 ~ 95% RH
- **Regulatory Approvals** CE, FCC Part 15 Subpart B (Class A)

## Ordering Information

- **EKI-1521** 1-port RS-232/422/485 Serial Device Server
- **EKI-1522** 2-port RS-232/422/485 Serial Device Server
- **EKI-1524** 4-port RS-232/422/485 Serial Device Server
- **EKI-1521CI** 1-port RS-232/422/485 Serial Device Server with wide operating temperature
- **EKI-1522CI** 2-port RS-232/422/485 Serial Device Server with wide operating temperature
- **EKI-1524CI** 4-port RS-232/422/485 Serial Device Server with wide operating temperature
- **EKI-1521CI** 1-port RS-422/485 Serial Device Server with wide operation temperature and isolation
- **EKI-1522CI** 2-port RS-422/485 Serial Device Server with wide operation temperature and isolation
- **EKI-1524CI** 4-port RS-422/485 Serial Device Server with wide operation temperature and isolation
- **OPT1-DB9** D-Sub9 to Terminal Converter

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 I-Door Technology Modules
- 11 Panel PCs
- 12 Control IPCs
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- 16 RS-485 I/O Modules
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- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

# EKI-1528I-DR

# EKI-1528CI-DR

8-port RS-232/422/485 Device Server

8-port RS-422/485 Device Server



## Features

- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Supports up to 921.6 kbps, and any baud rate setting
- Allows a max. of 5 hosts to access one serial port
- Allows a max. of 16 hosts to be accessed as TCP client mode
- Built-in 15 KV ESD protection for all serial signals
- Provides rich configuration methods including Windows utility, Telnet console, and Web Browser
- Supports 32-bit/64-bit Windows 2000/XP/Vista/7/8/8.1, Windows Server 2003/2008/2012, Windows CE 5.0, and Linux
- Automatic RS-485 data flow control
- Supports line to line 4 KV, line to ground 8 KV surge protection
- 'I' models support a wide operating temperature
- 'CI' models support isolation and wide operating temperature

## Introduction

The EKI-1528I and EKI-1528CI feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. The EKI-1528I and EKI-1528CI are serial device servers that connect RS-232/422/485 serial devices, such as PLC, meters, sensors, and barcode reader to an IP-based Ethernet LAN. They allow nearly any device with serial ports to connect and share an Ethernet network. The EKI-1528I and EKI-1528CI provide various operations: COM port redirection (Virtual COMport), TCP Server, TCP Client and UDP mode. With COM port redirection mode, standard serial operation calls are transparently redirected to the EKI-1528I and EKI-1528CI, guaranteeing compatibility with legacy serial devices and enabling backward compatibility with existing software. With TCP server, TCP client, and UDP modes, EKI-1528I and EKI-1528CI ensure the compatibility of network software that uses a standard network API. Moreover, you can make serial devices communicate with other devices peer-to-peer, without any intermediate host PCs and software programming.

## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **No. of Ports** 2
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

### Serial Communications

- **Port Type** RS-232/422/485, software selectable
- **No. of Ports** 8
- **Port Connector** DB9 male
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND  
RS-422: TxD+, TxD-, RxD+, RxD-, GND  
RS-485: Data+, Data-, GND
- **Protection** Built-in 15 KV ESD for all signals

### Software

- **Driver Support** 32-bit/64-bit Windows 2000/XP/Vista/7/8/8.1, Windows Server 2003/2008/2012, Windows CE 5.0, and Linux
- **Operation Modes** COM port redirection mode (Virtual COM)  
TCP/UDP server (polling) mode  
TCP/UDP client (event handling) mode  
Pair connection (peer to peer) mode

- **Configuration** Windows utility, Telnet console, Web Browser
- **Management** SNMP MIB-II

### Mechanics

- **Dimensions (W x H x D)** 86 x 140 x 95 mm (3.38" x 5.51" x 3.74")
- **Enclosure** Metal with solid mounting hardware
- **Mounting** DIN-rail, Wall
- **Weight** EKI-1528I:900g/ EKI-1528CI:1000g

### General

- **LED Indicators** System: Power, System Status/LAN: Speed, Link/Active  
Serial: Tx, Rx

### Power Requirements

- **Input** 12 ~ 48 V<sub>DC</sub>, redundant dual inputs
- **Connector** Terminal block
- **Consumption** EKI-1528I: 5W  
EKI-1528CI: 6W

### Environment

- **Operating Temperature** -40 ~ 70°C (-40 ~ 158°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Operating Humidity** 10 ~ 95% RH
- **Regulatory Approvals**
- **EMC** CE, FCC Part 15 Subpart B (Class A)

## Ordering Information

- **EKI-1528I-DR** 8-port Serial Device Server with wide temp. (DR)
- **EKI-1528CI-DR** 8-port Serial Device Server with wide temp & iso



# EKI-1528/T

# EKI-1526/T

8-port RS-232/422/485 Serial Device Server

16-port RS-232/422/485 Serial Device Server



EKI-1528

EKI-1526



## Features

- 8 or 16-port RS-232/422/485 serial communication
- Provides 2 x 10/100 Mbps Ethernet ports for LAN redundancy
- Supports up to 921.6 kbps, and any baud rate setting
- Provides COM port redirection (Virtual COM), TCP and UDP operation modes
- Provides rich configuration methods: Windows utility, Telnet console, Web Browser, and serial console
- Built-in 15 KV ESD protection for all serial signals
- SNMP MIB-II for network management
- Built-in buzzer for easy location
- Standard 1U rackmount size
- Rear wiring
- Automatic RS-485 data flow control

## Introduction

The EKI-1528 and EKI-1526 are industrial-grade network-based serial device servers for connecting up to 8 or 16 serial RS-232/422/485 devices, such as CNCs, PLCs, scales and scanners, directly to a TCP/IP network. The EKI-1528 and EKI-1526 feature two independent Ethernet ports and MAC addresses to provide a redundant network mechanism to guarantee Ethernet network reliability. The EKI-1528 and EKI-1526 provide a simple and cost-effective way to bring the advantages of remote management and data accessibility to thousand of devices that can't connect to an Ethernet network. The EKI-1528 and EKI-1526 offer multiple ways to configure through Windows utility, Web Browser, serial console or Telnet console, these methods make it easy manage many EKI-1528 and EKI-1526 or serial devices on your network.

## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps, auto MDI/MDIX
- **No. of Ports** 2
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

### Serial Communications

- **Port Type** RS-232/422/485, software selectable
- **No. of Ports** EKI-1528/EKI-1528T: 8  
EKI-1526/EKI-1526T: 16
- **Port Connector** 8-pin RJ45
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS, DTR/DSR
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** 16 ports up to 230.4 kbps simultaneously  
RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, GND  
RS-422: TxD+, TxD-, RxD+, RxD-, GND  
RS-485: Data+, Data-, GND
- **Protection** 15 KV ESD for all signals

### Software

- **Driver Support** 32-bit/64-bit Windows 2000/XP/Vista/7, Windows Server 2003/2008, Windows CE 5.0, and Linux
- **Utility Software** Advantech Serial Device Server Configuration Utility
- **Operation Modes** COM port redirection mode (Virtual COM)  
TCP/UDP server (polling) mode  
TCP/UDP client (event handling) mode  
Pair connection (peer to peer) mode  
RFC2217 mode
- **Configuration Protocols** Windows utility, Telnet console, Web Browser, serial console  
ARP, ICMP, IPv4, TCP, UDP, BOOTP/DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP
- **Management** SNMP MIB-II

### Mechanics

- **Dimensions (W x H x D)** 440 x 44 x 220 mm (17.32" x 1.73" x 8.66")
- **Enclosure** SECC chassis
- **Mounting** Rack

### General

- **LED Indicators** System: Power, System Status  
LAN: Speed, Link/Active  
Serial: Tx, Rx
- **Alert Tools** Built-in buzzer and RTC (real time clock)
- **Reboot Trigger** Built-in WDT and push button for hardware reboot

### Power Requirements

- **Power Input** EKI-1528/EKI-1526: 100 ~ 240 VAC, 47 ~ 63 Hz  
EKI-1528T/EKI-1526T: 48 VDC, Terminal Block
- **Power Consumption** EKI-1528/EKI-1528T: 10 W  
EKI-1526/EKI-1526T: 12 W

### Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH

### Regulatory Approvals

- **EMC** CE, FCC Part 15 Subpart B (Class A)

## Ordering Information

- **EKI-1528** 8-port RS-232/422/485 Serial Device Server
- **EKI-1526** 16-port RS-232/422/485 Serial Device Server
- **EKI-1528T-VDC** 8-port RS-232/422/485 Serial Device Server w/ DC Input
- **EKI-1526T-VDC** 16-port RS-232/422/485 Serial Device Server w/ DC Input

\*All items include 1pc OPT1J

### Accessories

- **OPT1J** 1 m RJ45 to DB9 Male Cable
- **OPT1J** 30 cm RJ45 to DB9 Male Cable
- **1702002600** Power Cable US Plug 1.8 m
- **1702002605** Power Cable EU Plug 1.8 m
- **1702031801** Power Cable UK Plug 1.8 m
- **1702031836** Power Cable China/Australia Plug 1.8 m

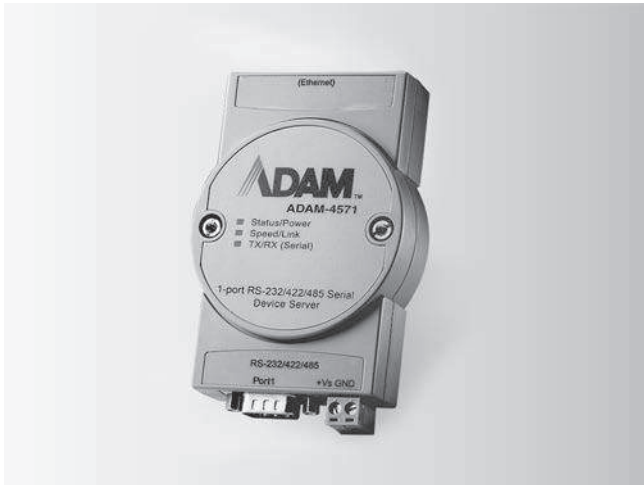
- 1 WebAccess\* Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
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# ADAM 4571/L ADAM-4570/L

1-port RS-232/422/485 Serial Device Server

2-port RS-232/422/485 Serial Device Server



## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **No. of Ports** 1
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

### Serial Communications

- **Port Type** ADAM-4571/4570: RS-232/422/485, software selectable  
ADAM-4571L/4570L: RS-232
- **No. of Ports** ADAM-4571/4571L: 1  
ADAM-4570/4570L: 2
- **Port Connector** ADAM-4571/4571L: DB9 male  
ADAM-4570/4570L: 10-pin RJ48
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND  
RS-422: TxD+, TxD-, RxD+, RxD-, GND  
RS-485: Data+, Data-, GND
- **Protection** 15 KV ESD protection for all signals

### Software

- **Driver Support** 32-bit/64-bit Windows 2000/XP/Vista/7, Windows Server 2003/2008, Windows CE 5.0, and Linux
- **Utility Software** Advantech Serial Device Server Configuration Utility
- **Operation Modes** COM port redirection (Virtual COM)  
TCP/UDP server (polling) mode  
TCP/UDP client (event handling) mode  
Pair Connection (peer to peer) mode
- **Configuration** Windows utility, Telnet console, Web Browser
- **Protocol** ICMP, IP, TCP, UDP, BOOTP, DHCP, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, ARP

### Mechanics

- **Dimension (W x H x D)** 70 x 130 x 30 mm (2.76" x 5.12" x 1.18")
- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** Stack, Wall
- **Weight** ADAM-4571/4571L: 135 g  
ADAM-4570/4570L: 160 g

### General

- **LED Indicators** System: Power, System Status  
LAN: Speed, Link/Active  
Serial: Tx, Rx
- **Reboot Trigger** Built-in WDT (watchdog timer)

### Power Requirements

- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Power Connector** Terminal block
- **Power Consumption** ADAM-4571/4571L: 2.5 W  
ADAM-4570/4570L: 2.5 W

### Environment

- **Operating Temperatures** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 to 95% RH

### Regulatory Approvals

- **EMC** CE, FCC Part 15 Subpart B (Class A)

## Ordering Information

- **ADAM-4571** 1-port RS-232/422/485 Serial Device Server
- **ADAM-4571L** 1-port RS-232 Serial Device Server
- **ADAM-4570** 2-port RS-232/422/485 Serial Device Server
- **ADAM-4570L** 2-port RS-232 Serial Device Server

\*ADAM-4570/4570L includes 2pcs OPT1A

### Accessories

- **OPT1A** 1 m RJ48 to DB9 Male Cable
- **OPT1D** 30 cm RJ48 to DB9 Male Cable

## iNetworking

<b>Selection Guide</b>		<b>19-2</b>
<b>Smallest, Most Reliable Switching Media Converter</b>	MiniMc LFPT	<b>19-6</b>
<b>Industrial Grade 10/100 Miniature Media Converters</b>	IE-MiniMc/LFPT	<b>19-7</b>
<b>1000 Mbps, Compact, 3-Port Media Converter</b>	Giga-McBasic-II	<b>19-8</b>
<b>Smallest, Most Reliable Gigabit Switching Media Converter</b>	Giga-MiniMc LFPT	<b>19-9</b>
<b>Industrial Grade 10/100/1000 Miniature Media Converters</b>	IE-Giga-MiniMc (with LFPT Switch)	<b>19-10</b>
<b>PoE Switching Media Converter 10/100/1000 Mbps</b>	PoE & PoE+ Giga-MiniMc/LFPT	<b>19-11</b>
<b>10/100/1000 Mbps Optical Ethernet Demarcation Unit</b>	IE-Multiway	<b>19-12</b>
<b>Small Form Pluggable Modules</b>	IE-SFP Fiber Modules - 155 Mbps Speed	<b>19-13</b>
<b>Ultra Compact Ethernet Serial Servers</b>	VESR900 Series - Fiber Models	<b>19-14</b>
<b>Ultra Compact Ethernet Serial Servers</b>	VESR900 Series - Copper Models	<b>19-15</b>
<b>Ultra Compact Ethernet Serial Servers</b>	VESP211 Series	<b>19-16</b>
<b>Industrial Modbus Ethernet to Serial Gateways</b>	MESR900 Series - Fiber Models	<b>19-17</b>
<b>Industrial Modbus Ethernet to Serial Gateways</b>	MESR900 Series - Copper Models	<b>19-18</b>
<b>Industrial Serial to Fiber Optic Converters</b>	FOSTCDRI, FOSTCDRI-INV	<b>19-19</b>
<b>Industrial RS-232 to RS-422/485 Converter</b>	485DRCi	<b>19-20</b>
<b>Port-Powered RS-232/485 Converters</b>	485SD9R, 485SD9RJ, 485SD9TB	<b>19-21</b>
<b>Industrial RS-422/485 Isolated Repeater</b>	485OPDRI	<b>19-22</b>
<b>Industrial RS-232 Isolated Repeater</b>	232OPDRI	<b>19-23</b>
<b>T3-Stage DIN Rail Surge Protector</b>	HESP4DR	<b>19-24</b>
<b>In-Line USB Converters</b>	USOPTL4 & USPTL4	<b>19-25</b>
<b>USB to RS-485 Mini Converters</b>	485USBTB-2W & 485USBTB-4W	<b>19-26</b>
<b>USB to RS-485 Mini Converters</b>	485USB9F-2W & 485USB9F-4W	<b>19-27</b>
<b>4-Port Rugged USB Hubs</b>	UHR304 & UHR204	<b>19-28</b>
<b>4-Port Industrial USB Hub</b>	UH104	<b>19-29</b>
<b>Single-Port USB Isolators</b>	UH401 Series	<b>19-30</b>
<b>Spectre Network Gateway</b>	Compatible with Wzzard Intelligent Edge Nodes	<b>19-31</b>
<b>Wzzard™ Intelligent Edge Node</b>	With SmartMesh IP and Bluetooth LE	<b>19-32</b>

To view all of Advantech's iNetworking products, visit <http://webaccess.advantech.com/>.



# Selection Guide

## Compact Ethernet Media Converters

## Compact Ethernet Gigabit Media Converter



Model Name		MiniMc with LFPT	IE-MiniMc with LFPT	Giga-MiniMc with LFPT	IE-Giga-MiniMc with LFPT
Part Numbers		855-11621, 855-11623, 855-11619	855-19822	856-11700,856-11701, 856-11703	856-18930,856-18931
Description		Two Port Copper to Fiber compact 10/100 Media Converter with Link Fault Pass Through, unmanaged	Industrial Two Port Copper to Fiber compact 10/100Media Converter with Link Fault Pass Through, unmanaged	Two Port Copper to Fiber 10/100/1000 Media Converter with Link Fault Pass Through, Unmanaged	Industrial Two Port Copper to Fiber 10/100/1000 Media Converter with Link Fault Pass Through, unmanaged
Interface	Ports Number	2	2	2	2
	10/100Base-T (X)	✓	✓	-	-
	100BaseFX	✓	✓	✓	✓
	10/100/1000Base-T (X)	-	-	✓	✓
	1000Base-SX/LX	✓	✓	✓	✓
	PoE (10/100/1000 Mbps)	-	-	-	-
	PoE+ (10/100/1000 Mbps)	-	-	-	-
	PoE Reset DSX	-	-	-	-
	SFP port model option	✓	-	✓	-
Network Management	LFPT	✓	✓	✓	✓
	Redundancy	-	-	-	-
	Diagnostics	-	-	-	-
	VLAN	-	-	-	-
	Configuration	-	-	-	-
	SNMP	-	-	-	-
	Security	-	-	-	-
Power	Jumbo Frames	1916	1916	10240	10240
	100-240V <sub>ac</sub>	✓	✓	✓	✓
Hardware Mtg.	DC voltage	-	7-50 V <sub>DC</sub>	-	7-50 V <sub>DC</sub>
	DIN-rail Mount	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓
	Rack Mount	✓	✓	✓	✓
Protection	IP Level	-	-	-	-
	ESD (Ethernet)	✓	✓	✓	-
	Surge (EFT for power)	✓	✓	✓	✓
Operating Temp	Reverse Polarity	✓	✓	✓	✓
	0 ~50°C	✓	-	✓	-
	-25 ~ 85°C (-13 ~ +185°F)	-	-	-	✓
Certifications	-40 ~ 85°C (-40 ~ 185°F)	-	✓	-	-
	CE	✓	✓	✓	✓
	FCC	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	✓
	Class 1, Division 2	-	-	-	-
	UL 508	-	-	-	-
Page	MSA compliant	-	-	-	-
	Class 1, Eye-safe Lasers	✓	✓	✓	✓

## PoE, PoE+ Gigabit Media Converters

## Gigabit Ethernet Media Converter, Multiport



PoE Giga-MiniMc w/LFPT	PoE+ Giga-MiniMc w/LFPT	Giga-McBasic-II	IE-MultiWay	IE-SFP Fiber Modules
PoE:857-11811,857-11812,857-11814	857-11911, 857-11912	856-30600	858-11121	808-38101, 808-38102, 808-38103, 80838121,808,-38122 (Dual Strand, Single Strand Fiber)
PoE capable Unmanaged 10/100/1000 Media Converters	PoE+ capable Unmanaged 10/100/1000 Media Converters	Three Port Copper to Fiber 10/100/1000 unmanaged switching Media Converter	Four Port Managed 10/100/1000 switch, with SFP capability, compact form factor	Dual Strand, Single Strand Fiber, Multi Mode and Single Mode
3	3	3	4	1
-	-	-	-	✓
✓	-	✓	✓	-
2	2	✓	✓	-
1	1	✓	✓	-
1	-	-	-	-
✓	2	-	-	-
✓	✓	-	-	-
✓	✓	✓	✓	-
✓	✓	✓	✓	-
-	-	-	✓	-
-	-	-	✓	-
-	-	-	✓	-
-	-	-	✓	-
-	-	-	✓	-
10240	-	10240	10240	-
✓	-	✓	✓	-
-	-	-	480 V <sub>DC</sub>	-
✓	-	✓	✓	-
✓	-	✓	✓	-
✓	-	✓	✓	-
-	-	-	-	-
-	-	✓	-	-
✓	✓	✓	✓	-
✓	-	✓	✓	-
✓	-	✓	-	-
-	-	-	-	-
-	-	-	✓	✓
✓	-	✓	✓	✓
✓	-	✓	✓	✓
-	-	-	-	✓
-	-	-	-	✓
✓	-	✓	✓	✓
19-11	19-11	19-8	19-12	19-13

- 1 WebAccess® Solution
- 2 Intelligent Motion Control and Machine Vision
- 3 Power & Energy Automation
- 4 Industrial Operator Panels
- 5 Thin-Client Terminals
- 6 High-Performance Control Panels
- 7 Control Cabinet PCs
- 8 Industrial IoT Gateways
- 9 Industrial monitors
- 10 iDoor Technology Modules
- 11 Panel PCs
- 12 Control IPCs
- 13 Remote DA&C Systems
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- 15 Ethernet I/O Modules
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# Selection Guide

## Serial Converters, Isolators and Surge Protectors



Model Name		485DRCI	485SD9R, 485SD9TB	FOSTCDRI	232OPDRI	485OPDRI	HESP4DR
Description		Triple Isolated RS-232 to RS-422/485 Converter	Port Powered RS-232 to RS-485 Converter	Triple Isolated RS-232/422/485 to Fiber Converter	Triple Isolated RS-232 DIN Rail Repeater	Triple Isolated RS-485/422 DIN Rail Repeater	Three-stage DIN Rail RS422/485 Surge Protector
Function		Serial Converter			Isolator / Repeater		Surge Protector
Key Features		Class 1 Division 2/ Tripple Isolation, Oil and Gas Applications	Small Form Factor, Port Powered	Fiber to Serial	Class 1 Division 2/ Tripple Isolation, Oil and Gas Applications	Class 1 Division 2/ Tripple Isolation, Oil and Gas Applications	High Energy Surge Protector
Specifications	Temp	-40 to 80°C	0 to 70°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Isolation	✓	–	✓	✓	✓	–
	Input Power	10 to 48 V <sub>DC</sub>	Port Powered from RS-232 Ports	10 to 48 V <sub>DC</sub>	10 to 48 V <sub>DC</sub>	10 to 48 V <sub>DC</sub>	–
	Dataline Surge Protection	✓	–	✓	✓	✓	v (5 lines)
	RS-232 Connector	DB9 female	DB9 female	Removable Terminal Blocks	DB9 female & DB9 male	–	–
	RS-422/485 Connector and Power	Remmovable Terminal Blocks	DB9 female or Terminal Block	Remmovable Terminal Blocks	–	Remmovable Terminal Blocks	Terminal Block
	Maximum Baud Rate	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	–
	Mounting	DIN Rail	In-line	DIN Rail	DIN Rail	DIN Rail	DIN Rail
	Industrial Rating	Light	–	Light	Light	Light	Light
	UL Rating	UL 508	–	UL 508	UL 508	UL 508	–
Class 1 Division 2	✓	–	✓	✓	✓	–	
Page		19-20	19-21	19-19	19-23	19-22	19-24

## Ethernet to Serial Converters



Model Name		VESP211, VESP211-232, VESP211-485	VESR901	VESR921-MC	MESR901	MESR921-MC
Description		Compact Ethernet to Serial Converter	DIN Rail Mount Ethernet to Serial Converter	DIN Rail Mount Ethernet to Serial Converter with Fiber Port	Modbus Ethernet to Modbus Serial Converter	Modbus Ethernet to Modbus Serial Converter with Fiber Port
Function		VCOM, Socket Connection, Paired Mode			Modbus	
Ethernet	Copper Ports	1	1	1	1	1
	Fiber Ports	–	–	1 Multi-mode (SC)	–	1 Multi-mode (SC)
Serial	Port Count	1	1	1	1	1
	DB9	232	232	232	232	232
	Terminal Block	422/485	422/485	422/485	422/485	422/485
Specifications	Temp Spec	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Power DC	10 to 30V <sub>DC</sub>	10 to 48V <sub>DC</sub>	10 to 48V <sub>DC</sub>	10 to 48V <sub>DC</sub>	10 to 48V <sub>DC</sub>
	Mounting	Panel	DIN	DIN	DIN	DIN
	Class 1 Division 2	–	yes	yes	yes	yes
Page		19-16	19-14	19-15	19-17	19-18



## USB to Serial, USB Hubs and Isolators



Model Name		USOPTL4, USPTL4	485USB9F-2W	485USBTB-2W	UHR204, UHR304	UH104	UH401
Description		USB to RS-422/485 Converter	Mini USB to RS-485 2-wire Converter	Mini USB to RS-485 2-wire Converter	Industrial DIN Rail Mount USB 4 Port Hub	Panel Mount USB 4 Port Hub	USB to USB Isolator
Function		USB to Serial Converter			USB Hub		USB Isolator
USB Ports	High Retention USB Connectors	✓	-	✓	✓	✓	✓
	Number of USB Upstream Ports	1	1	1	1	1	1
	Number of USB Downstream ports	-	-	-	4	4	1
	Isolation	-	-	-	4kV (UHR304)	-	4kV
Serial Ports	Number of Serial Ports	1	1	1	-	-	-
	Serial Interface	RS-422/485	RS-485	RS-485	-	-	-
	Serial Connector	Terminal Block	DB9 Female	Terminal Block	-	-	-
	Isolation	2kV (USOPTL4 only)	-	-	-	-	-
Specifications	Temperature	0 to 70°C	0 to 70°C	0 to 70°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Power Input	USB Bus	USB Bus	USB Bus	10 to 30V <sub>DC</sub> (USB Bus, UHR204 only)	USB Bus	USB Bus
	DIN Mount	-	-	-	✓	-	-
	Panel Mount	-	-	-	✓	✓	-
	Inline	✓	✓	✓	-	-	✓
	UL	-	-	-	✓	-	-
Class 1 Division 2	-	-	-	✓	-	-	
Page		19-25	19-27	19-26	19-28	19-29	19-30

- 1 WebAccess® Solution
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- 18 IP Gateway and Serial Device Servers
- 19 iNetworking

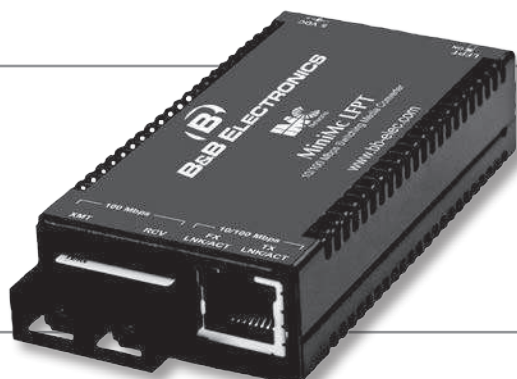
# Smallest, Most Reliable Switching Media Converter

MiniMc LFPT

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- One 100 Mbps FDX fiber port or 1 SFP fiber port
- One 10/100 Base-TX twisted pair port
- AutoCross automatic selection between crossover or straight-through connection
- Supports Link Fault Pass Through

## ACCESSORIES

- 806-39105 - DIN Rail Clip
- 806-39628 - USB 36"/.9m Power Cable (for MiniMc only)
- 806-39629 - USB 12"/.3m Power Cable (for MiniMc only)
- 806-39638 - Double-USB Power Cable, 36"/.9m
- 806-39650 - 12"/.3m Barrel-Connector Power Cable
- 850-13086 - IE-PowerTray/18-AC (-20°C to +70°C), 18-slot AC powered chassis
- 895-39229 - Wall Mount Bracket

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>MiniMc LFPT SFP *</b>					
855-11619	SFP	1	Various	1	RJ45

\* SFP Fiber sold separately

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>MiniMc LFPT, TP-TX/FX</b>					
855-11620	MM850-ST	1	2 km	1	RJ45
855-11621	MM850-SC	1	2 km	1	RJ45
855-11622	MM1300-ST	1	5 km	1	RJ45
855-11623	MM1300-SC	1	5 km	1	RJ45
855-11624	SM1310/PLUS-ST	1	40 km	1	RJ45
855-11625	SM1310/PLUS-SC	1	40 km	1	RJ45
855-11626	SM1310/LONG-ST	1	80 km	1	RJ45
855-11627	SM1310/LONG-SC	1	80 km	1	RJ45
855-11641	SM1550/LONG-SC	1	80 km	1	RJ45

## SINGLE STRAND FIBER \*\*

855-11619		1			
855-11650	SSFx-MM1300-SC	1	2 km	1	RJ45
855-11651	SSFx-MM1550-SC	1	2 km	1	RJ45
855-11652	SSFx-SM1310-SC	1	20 km	1	RJ45
855-11653	SSFx-SM1550-SC	1	20 km	1	RJ45
855-11654	SSFx-SM1310/PLUS-SC	1	40 km	1	RJ45
855-11655	SSFx-SM1550/PLUS-SC	1	40 km	1	RJ45
855-11656	SSFx-SM1310/LONG-SC	1	60 km	1	RJ45
855-11657	SSFx-SM1550/LONG-SC	1	60 km	1	RJ45

\*\*These products have single-strand fiber technology. Deploy in pairs or connect another compatible B+B IMC LLC single-strand fiber product.

MiniMc TP-TX/FX also available in CWDM Fiber.

## SPECIFICATIONS

### TECHNICAL

- IEEE 802.3 10Base-T twisted pair
- IEEE 802.3u 100Base-TX twisted pair
- Supports jumbo packets up to 1916 bytes
- Plug-and-play operation
- RJ-45, ST or SC and SFP connectors available 50/125µm or 62.5/125µm multi-mode fiber
- 9/125µm single-mode fiber
- Available with single-strand fiber support
- Country-specific, high-reliability power adapter
- Auto Negotiation, Auto-Cross for MDI/MDIX
- Layer 2 packet switching, store and forward (forwarding rate: 14,881 pps for 10 Mbps, 148,100 pps for 100 Mbps)
- Status LEDs
- Link Fault Pass Through

### MECHANICAL

- Dimensions: 0.83"H x 1.80"W x 3.35"D (2.11 x 4.57 x 8.51 cm)
- Shipping Weight: 0.7 lbs (.317 kg)

### POWER

- 5 VDC, 500mA
- AC Adapter: +32° F to +122° F (0° C to +50° C)

### ENVIRONMENTAL

- Operating Temperature: +32° F to +122° F (0° C to +50° C)
- Storage Temperature: -31° F to +167° F (-35° C to +75° C);
- Operating Humidity: 5% to 95% (non-condensing)

### REGULATORY APPROVALS

- FCC Class B
- UL/cUL, CSA, CE

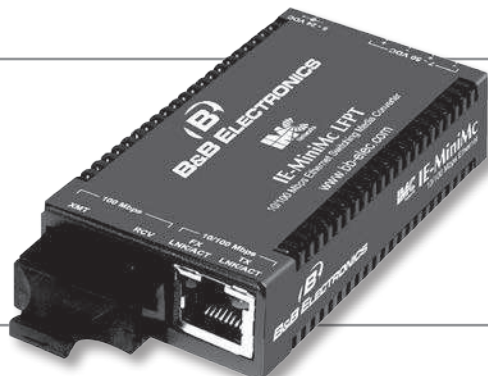
# Industrial Grade 10/100 Miniature Media Converters

IE-MiniMc/LFPT

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Extended operating temperature of -40 to +85° C
- Auto-Cross automatic selection between crossover or straight-through connections
- Status LEDs
- Link Fault Pass-Through (LFPT) capability

## ACCESSORIES

- 806-39105 - DIN Rail Clip
- 806-39638 - Double-USB Power Cable, 36"/.9m
- 806-39650 - 12"/.3m Barrel-Connector Power Cable
- 850-13086 - IE-PowerTray/18-AC (-20°C to +70°C), 18-slot AC powered chassis
- 895-39229 - Wall Mount Bracket
- 806-39753 - IE-Power/5V Module, AC to DC DIN Rail Power Adapter

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>IE-MiniMc/LFPT</b>					
855-19821	MM850-ST	1	2 km	1	1
855-19822	MM850-SC	1	2 km	1	1
855-19823	MM1300-ST	1	5 km	1	1
855-19824	MM1300-SC	1	5 km	1	1
855-19830	SM1310/PLUS-SC	1	30 km	1	1
855-19831	SM1310/LONG-ST	1	80 km	1	1
855-19832	SM1310/LONG-SC	1	80 km	1	1
855-19833	SM1550/LONG-SC	1	80 km	1	1

## SPECIFICATIONS

### TECHNICAL

- IEEE 802.3 10Base-T twisted pair
- IEEE 802.3u 100Base-TX twisted pair
- IEEE 802.3u 100Base-FX fiber
- IEEE 802.3af Power Over Ethernet
- Supports jumbo packets up to 1916 bytes
- Plug-and-play operation
- RJ45 and ST or SC ports available
- 50/125µm or 62.5/125µm multi-mode fiber
- 9/125µm single-mode fiber
- Available with single-strand fiber support
- Includes terminal DC power block
- Country-specific, high-reliability power adapter
- Auto Negotiation
- Auto-Cross for MDI/MDIX
- Layer 2 packet switching, store and forward (forwarding rate: 14,881 pps for 10 Mbps, 148,100 pps for 100 Mbps)
- Status LEDs

### MECHANICAL

- Dimensions: 0.83"H x 1.80"W x 3.35"D (2.11 x 4.57 x 8.51 cm)
- Shipping Weight: 0.7 lbs (.317 kg)

### INPUT SPECIFICATIONS

- DC Terminal (Telco): 12 to 48 VDC
- Barrel Connector: 5 to 24 VDC
- PoE: Maximum supply voltage is 50V

### ENVIRONMENTAL

- Operating Temperature: DC or PoE (PD): -13° F to 185° F (-40° C to +85° C)
- Operating Temperature: AC wall adapter: +14° F to +122° F (-10° C to +50° C)
- Storage Temperature: -13° F to 185° F (-25° C to +85° C)
- Operating Humidity: 5% to 95% (non-condensing)

### REGULATORY APPROVALS

- FCC Class A (using DC terminal or PoE power)
- FCC Class B (using any DC jack, optional)
- UL/cUL, CSA, CE

# 1000 Mbps, Compact, 3-Port Media Converter

## Giga-McBasic-II

B+B SMARTWORX

Powered by

ADVANTECH



### PRODUCT FEATURES

- Two 10/100/1000 Mbps copper ports
- One SFP port or fixed fiber port (available in SM or MM)
- Compact, rugged device with internal AC power supply
- Easy to install, unmanaged device
- Supports Link Fault Pass-Through
- Auto-negotiation, Auto-cross

### ORDERING INFORMATION

MODEL NUMBER	FIBER TYPE	FIBER PORTS	RANGE	ETHERNET PORT
<b>Giga-McBasic-II</b>				
856-30600	TX/SFP (requires one IE-SFP/1250 Module)	1	Variable (SFP)	(2) RJ-45
856-30601	TX/SX-MM850-SC	1	220/550 m	(2) RJ-45
856-30602	TX/LX-MM1300-SC	1	2 km	(2) RJ-45
856-30603	TX/LX-SM1310-SC	1	10 km	(2) RJ-45
856-30604	TX/LX-SM1310/PLUS-SC	1	40 km	(2) RJ-45
856-30605	TX/LX-SM1550/LONG-SC	1	80 km	(2) RJ-45
856-30606	TX/LX-SM1550/XLONG-SC	1	100 km	(2) RJ-45
<b>Single-Strand Fiber</b>				
856-30620	TX/SSLX-SM1310-SC (1310xmt/1550rcv)	1	15 km	(2) RJ-45
856-30621	TX/SSLX-SM1550-SC (1550xmt/1310rcv)	1	15 km	(2) RJ-45
856-30622	TX/SSBX-SM1310-SC (1310xmt/1490rcv)	1	10 km	(2) RJ-45
856-30623	TX/SSBX-SM1490-SC (1490xmt/1310rcv)	1	10 km	(2) RJ-45
856-30624	TX/SSFX-SM1310-SC (1310xmt/1550rcv)	1	40 km	(2) RJ-45
856-30625	TX/SSFX-SM1550-SC (1550xmt/1310rcv)	1	40 km	(2) RJ-45
856-30626	TX/SSFX-SM1310/PLUS-SC (1310xmt/1550rcv)	1	30 km	(2) RJ-45
856-30627	TX/SSFX-SM1550/PLUS-SC (1550xmt/1310rcv)	1	30 km	(2) RJ-45
856-30628	TX/SSBX-SM1310/PLUS-SC (1310xmt/1490rcv)	1	70 km	(2) RJ-45
856-30629	TX/SSBX-SM1490/PLUS-SC (1490xmt/1310rcv)	1	70 km	(2) RJ-45

### SPECIFICATIONS

MECHANICAL	
Connectors	RJ-45, SFP or fixed fiber
Dimensions	0.80H x 4.0W x 4.0D inches (2.032H x 10.16W x 10.16D cm)
Shipping Weight	0.7 lbs (0.3 kg)
POWER RATING	
100-240V AC, 50-60 Hz, 7W maximum working power	
ENVIRONMENTAL	
Operating Temperature	+14° to +122°F (-10° to +50° C)
Storage Temperature	-31° to +167°F (-35° to +75° C)
Operating Humidity	5 to 95% (non-condensing)
Altitude	0 to 10,000 ft.
REGULATORY APPROVALS	
FCC Class A	
UL/cUL, CSA, CE	

# Smallest, Most Reliable Gigabit Switching Media Converter

Giga-MiniMc LFPT

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- One 1000Base-SX or SFP fiber port
- One 10/100/1000 Mbps twisted pair port
- AutoCross automatic selection between crossover or straight-through connection
- Status LEDs
- LFPT
- 18 connections in the 1.5U high PowerTray/18 Chassis

## ACCESSORIES

- 806-39105 - DIN Rail Clip
- 806-39638 - Double-USB Power Cable, 36"/.9m
- 806-39650 - 12"/.3m Barrel-Connector Power Cable
- 850-13086 - IE-PowerTray/18-AC (-20°C to +70°C), 18-slot AC powered chassis
- 895-39229 - Wall Mount Bracket

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>Giga-MiniMc - with SFP/LFPT</b>					
856-11700	SFP	1	Various	1	RJ45
<b>Giga-MiniMc LFPT - Multi-Mode/Single-Mode</b>					
856-11701	SX-MM850-SC	1	220/500 m	1	RJ45
856-11702	MM1300-SC	1	5 km	1	RJ45
856-11703	SM1310-SC	1	10 km	1	RJ45
856-11704	SM1310/PLUS-SC	1	40 km	1	RJ45
856-11705	SM1550/LONG-SC	1	80 km	1	RJ45
856-11706	SM1550/SLONG-SC	1	100 km	1	RJ45
<b>Giga-MiniMc LFPT - Single-Strand</b>					
856-11710	SSLX-SM1310-SC (1310xmt/1550rcv)	1	15 km	1	RJ45
856-11711	SSLX-SM1550-SC (1550xmt/1310-SC)	1	15 km	1	RJ45
856-11712	SSBX-SM-1310-SC (1310xmt/1490rcv)	1	10 km	1	RJ45
856-11713	SSBX-SM1490-SC (1490xmt/1310rcv)	1	10 km	1	RJ45
856-11714	SSLX-SM1310/PLUS-SC (1310xmt/1550rcv)	1	40 km	1	RJ45
856-11715	SSLX-SM1550/PLUS-SC (1550xmt-1310rcv)	1	40 km	1	RJ45
856-11742	SSBX-SM1310-SC (1310xmt/1490-SC)	1	30 km	1	RJ45
856-11743	SSBX-SM1490-SC (1490xmt/1310rcv)	1	30 km	1	RJ45
856-11744	SSLX-SM1490/LONG-SC (1490xmt/1550rcv)	1	60 km	1	RJ45
856-11745	SSLX-SM1550/LONG-SC (1550xmt/1490rcv)	1	60 km	1	RJ45

\* SFP Fiber sold separately

## SPECIFICATIONS

### TECHNICAL

- Plug-and-play operation
- RJ45 and SC or SFP connectors
- IEEE 802.3 10Base-T twisted pair
- IEEE 802.3u 100Base-TX twisted pair
- IEEE 802.3ab 1000Base-T twisted pair
- IEEE 802.3z 1000Base-LX or SX fiber
- MTU: Supports Jumbo Frames up to 10240 bytes
- Country-specific, high-reliability power adapter
- Auto-Cross for MDI/MDIX

Layer 2 packet switching, store and forward (forwarding rate: 1,488,096 pps for 1000 Mbps)

### Status LEDs

### MECHANICAL

Dimensions 0.83"H x 1.80"W x 3.35"D (2.11 x 4.57 x 8.51 cm)

Shipping Weight 0.7 lbs (.317 kg)

### POWER

5 VDC, 600mA

120 VAC, 0.1A

### ENVIRONMENTAL

Operating Temperature: +32° F to +122° F (0° C to +50° C)

Storage Temperature: -31° F to +167° F (-35° C to +75° C);

Operating Humidity 5% to 95% (non-condensing)

### REGULATORY APPROVALS

FCC Class A

UL/cUL, CSA, CE



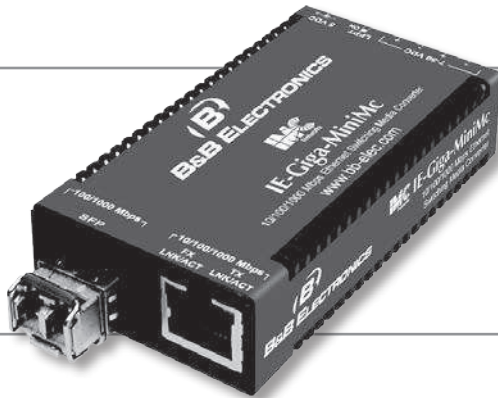
# Industrial Grade 10/100/1000 Miniature Media Converters

B+B SMARTWORX

Powered by

ADVANTECH

IE-Giga-MiniMc (with LFPT Switch)



## PRODUCT FEATURES

- Connects 10/100/1000 Mbps copper to 1000 Mbps fiber
- For use in extended temperatures
- Cascading power on DIN rail installations
- Dual USB power cable (optional)
- Link Fault Pass-Through (LFPT) capability via a DIP Switch

## ACCESSORIES

- 806-39105 - DIN Rail Clip
- 806-39638 - Double-USB Power Cable, 36"/.9m
- 806-39650 - 12"/.3m Barrel-Connector Power Cable
- 850-13086 - IE-PowerTray/18-AC (-20°C to +70°C), 18-slot AC powered chassis
- 895-39229 - Wall Mount Bracket
- 806-39753 - IE-Power/5V Module, AC to DC DIN Rail Power Adapter

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>IE-Giga-MiniMc (with LFPT Switch)</b>					
856-18929	SFP	1	Various	1	RJ45
856-18930	MM850-SC	1	220/550 m	1	RJ45
856-18931	SM1310-SC	1	15 km	1	RJ45
856-18932	SM1310/PLUS-SC	1	30 km	1	RJ45
856-18933	SM1550/LONG-SC	1	80 km	1	RJ45
856-18934	SM1550/XLONG-SC	1	100 km	1	RJ45
<b>SINGLE STRAND FIBER *</b>					
856-18935	SSLX-SM1310-SC	1	15 km	1	RJ45
856-18936	SSLX-SM1550-SC	1	15 km	1	RJ45
856-18925	SSBX-SM1310-SC	1	10 km	1	RJ45
856-18926	SSBX-SM1490-SC	1	10 km	1	RJ45
856-18937	SSLX-SM1310/PLUS-SC	1	40 km	1	RJ45
856-18938	SSLX-SM1550/PLUS-SC	1	40 km	1	RJ45
856-18927	SSBX-SM1310/PLUS-SC	1	30 km	1	RJ45
856-18928	SSBX-SM1490/PLUS-SC	1	30 km	1	RJ45
856-18939	SSLX-SM1490/LONG-SC	1	70 km	1	RJ45
856-18940	SSLX-SM1550/LONG-SC	1	70 km	1	RJ45
856-18941	SSLX-SM1550/XLONG-SC	1	80 km	1	RJ45
856-18942	SSLX-SM1550/XLONG-SC	1	80 km	1	RJ45

\* SFP Fiber sold separately

\* These products have single-strand fiber technology. Deploy in pairs or connect another compatible B+B IMC LLC single-strand fiber product.

IE-Giga-MiniMc LFPT also available in CWDM Fiber.

## SPECIFICATIONS

### TECHNICAL

IEEE 802.3 10Base-T twisted pair
IEEE 802.3u 100Base-TX twisted pair
IEEE 802.3ab 1000Base-T twisted pair
IEEE 802.3z 1000Base-LX or SX fiber
MTU: Supports Jumbo Frames up to 10240 bytes
Extended temperature range (DC configuration)
Plug-and-play operation
RJ45, SC and SFP connectors
50/125µm or 62.5/125µm multi-mode fiber
9/125µm single-mode fiber Single-strand fiber and CWDM models
4-terminal DC power with a pair of input terminals and a pair of output terminals for cascading power on DIN installations
Country-specific, high-reliability power adapter
Auto Negotiation, Auto-Cross for MDI/MDIX
Layer 2 packet switching, store and forward (forwarding rate: 14,881 pps for 10 Mbps, 148,810 pps for 100 Mbps, 1,488,096 pps for 1000 Mbps)
Status LEDs
Supports DIN Rail mounting

### MECHANICAL

Dimensions	0.83"H x 1.80"W x 3.35"D (2.11 x 4.57 x 8.51 cm)
Shipping Weight	0.7 lbs (.317 kg)

### POWER

AC Adapter	100 to 240 ±10% VAC input, 5 VDC @ 2.0 A max
DC Input Voltage	7 to 50 VDC @ 2.5 watts, Chassis grounded to negative terminal
Power Consumption	5 DVC, 600mA

### ENVIRONMENTAL

Operating Temperature: DC terminal block	-13°F to +185°F (-25°C to +85°C)
Operating Temperature: AC Adapter	+14°F to +122°F (-10°C to +50°C)
Storage Temperature:	-31° F to +167° F (-35° C to +75° C);
Operating Humidity	5% to 95% (non-condensing)

### REGULATORY APPROVALS

FCC Class B  
UL/cUL, CSA, CE

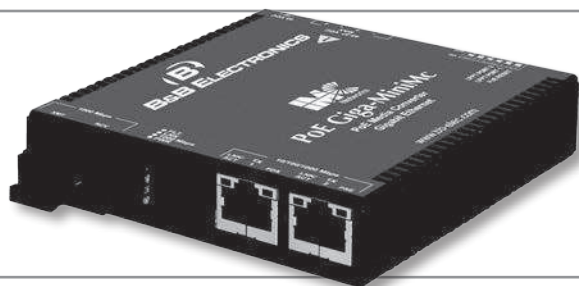
# PoE Switching Media Converter 10/100/1000 Mbps

PoE & PoE+ Giga-MiniMc/LFPT

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Rugged stand-alone metal enclosure with compact external power supply
- Supports Jumbo Frames (up to 10240 bytes)
- Multiple mounting options (Desktop, DIN Rail or Wall-mount)
- Features configurable PoE Reset on Fiber LOS
- Supports IEEE 802.3af PoE (15.4W) and IEEE 802.3at PoE+ (25.5W) standards
- Link Fault Pass Through

## ACCESSORIES

- 806-39105 - DIN Rail Clip
- 806-39800 - PoE Power Adapter for PoE Giga-MiniMc
- 895-39229 - Wall Mount Bracket
- 806-39900 - PoE+ Power Adapter for PoE+ Giga-MiniMc
- 806-39910 - PoE+ Isolated Power Adapter

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>PoE Giga-MiniMc /LFPT</b>					
857-11811	SFP *	1	Various	2	RJ45
857-11812	MM850-SC	1	220/550 m	2	RJ45
857-11813	MM1300-SC	1	2 km	2	RJ45
857-11814	SM1310-SC	1	15 km	2	RJ45
857-11815	SM1310/PLUS-SC	1	40 km	2	RJ45
857-11816	SM1550/LONG-SC	1	80 km	2	RJ45
857-11817	SM1550/XLONG-SC	1	100 km	2	RJ45
<b>SINGLE STRAND FIBER SSLX OR SSBX **</b>					
857-11820	SM1310-SC	1	15 km	2	RJ45
857-11821	SM1550-SC	1	15 km	2	RJ45
857-11822	SM1310-SC	1	10 km	2	RJ45
857-11823	SM1490-SC	1	10 km	2	RJ45
857-11824	SM1310/PLUS-SC	1	40 km	2	RJ45
857-11825	SM1550/PLUS-SC	1	40 km	2	RJ45
857-11826	SM1310/PLUS-SC	1	30 km	2	RJ45
857-11827	SM1490/PLUS-SC	1	30 km	2	RJ45
857-11828	SM1490/LONG-SC	1	70 km	2	RJ45
857-11829	SM1550/LONG-SC	1	70 km	2	RJ45

MODEL NUMBER	FIBER	FIBER PORTS	RANGE	ETHERNET PORTS	ETHERNET CONNECTOR
<b>PoE+ Giga-MiniMc/LFPT</b>					
857-11911	SFP	1	Various	2	RJ45
857-11912	MM850-SC	1	220/550 m	2	RJ45
857-11913	MM1300-SC	1	2 km	2	RJ45
857-11914	SM1310-SC	1	15 km	2	RJ45
857-11915	SM1310/PLUS-SC	1	40 km	2	RJ45
857-11916	SM1550/LONG-SC	1	80 km	2	RJ45
857-11917	SM1550/XLONG-SC	1	100 km	2	RJ45
<b>SINGLE STRAND FIBER SSLX OR SSBX **</b>					
857-11920	SM1310-SC	1	15 km	2	RJ45
857-11921	SM1550-SC	1	15 km	2	RJ45
857-11922	SM1310-SC	1	10 km	2	RJ45
857-11923	SM1490-SC	1	10 km	2	RJ45
857-11924	SM1310/PLUS-SC	1	40 km	2	RJ45
857-11925	SM1550/PLUS-SC	1	40 km	2	RJ45
857-11926	SM1310/PLUS-SC	1	30 km	2	RJ45
857-11927	SM1490/PLUS-SC	1	30 km	2	RJ45
857-11928	SM1490/LONG-SC	1	70 km	2	RJ45
857-11929	SM1550/LONG-SC	1	70 km	2	RJ45

\* SFP Fiber sold separately

\*\* These products have single-strand fiber technology. Deploy in pairs or connect another compatible B+B IMC LLC single-strand fiber product.

PoE and PoE+ Giga-MiniMc/LFPT also available in CWDM Fiber.

## SPECIFICATIONS

### TECHNICAL

IEEE 802.3 10Base-T twisted pair  
 IEEE 802.3u 100Base-TX twisted pair  
 IEEE 802.3ab 1000Base-T twisted pair  
 IEEE 802.3z 1000Base-LX or SX fiber  
 IEEE 802.3af Power over Ethernet  
 IEEE 802.3at Power over Ethernet Plus  
 IEEE 802.3u Auto-Negotiation  
 RFC-2474  
 RFC-2475 DiffServ QoS  
 Extreme temperature range (DC configuration)  
 Plug-and-play operation  
 Accepts RJ45, SC and SFP connectors  
 50/125µm or 62.5/125µm multi-mode fiber  
 9/125µm single-mode fiber  
 Single-strand fiber and CWDM models  
 Country-specific, high-reliability power adapter  
 FX and TX Auto Negotiation  
 AutoCross for MDI/MDIX  
 MTU: Supports Jumbo Frames up to 10240 bytes  
 Supports DIN Rail mounting (DIN clips sold separately)  
 Link Fault Pass Through DIP Switch

### MECHANICAL

Dimensions 0.80" H x 3.645" W x 3.82" D  
 (2.032 cm x 9.258 cm x 9.7028 cm)  
 Shipping Weight 1.0 lbs (0.45 kg)

### AC ADAPTER

PoE Giga-MiniMc/LFPT Input: 100 to 240 ±10% VAC, 50/60Hz, 0.7A \*  
 Output: 48 VDC, 0.62A  
 PoE+ Giga-MiniMc/LFPT Input: 100 to 240 ±10% VAC, 50/60Hz, 2A \*  
 Output: 52 VDC, 2.31A

\* Maximum input power in Watts is calculated by multiplying the input amps by the lowest input voltage.

### DC Input Voltage:

PoE Giga-MiniMc/LFPT 45 to 57 VDC on DC terminal block  
 48 VDC on DC jack  
 PoE+ Giga-MiniMc/LFPT 51 to 57 VDC on DC terminal block  
 51 to 57 VDC on DC jack

### ENVIRONMENTAL

Operating Temperature DC Terminal Block: +32° F to +158° F (0° C to +70° C)  
 Operating Temperature AC Adapter: +32° F to +122° F (0° C to +50° C)  
 Storage Temperature: -31° F to +167° F (-35° C to +75° C);  
 Operating Humidity 5% to 95% (non-condensing)

### REGULATORY APPROVALS

FCC Class A  
 UL/cUL, CSA, CE

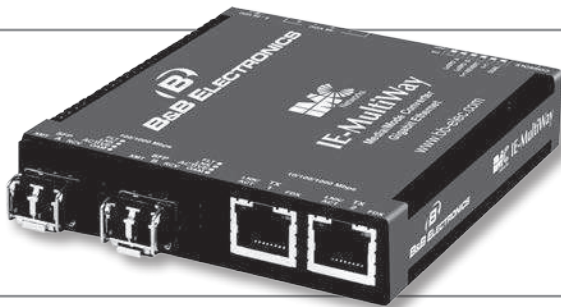
# 10/100/1000 Mbps Optical Ethernet Demarcation Unit

IE-Multiway

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Versatile 4 port device
- SNMP Manageable
- Supports SFP fibers
- Extended Temperature
- Supports OAM, VLAN, 1+1 Revertive
- RS-232 CLI (Command Line Interface) Console Port

## ACCESSORIES

- 806-39105 - DIN Rail Clip
- 806-39638 - Double-USB Power Cable, 36"/.9m
- 825-39951 - Serial Cable, MiniJack to DB9 (female)
- 895-39229 - Wall Mount Bracket

## ORDERING INFORMATION

MODEL NUMBER	FIBER	FIBER PORTS	ETHERNET PORTS	ETHERNET CONNECTOR
<b>IE-Multiway With AC to DC Power Adapter</b>				
858-11121	*SFP	2	2	RJ45

\* SFP modules are sold separately. Two (2) SFP transceivers are needed for full device functionality.

## IE-SFP MODULES: 100 TO 155 MBPS

MODEL NUMBER	DESCRIPTION	FIBER TYPE	RANGE	POWER BUDGET
808-38101	MM850	LC	2 km	14.5 (db)
808-38103	SM1310	LC	15 km	13 (db)
808-38104	SM1310/PLUS	LC	40 km	31 (db)
808-38105	SM1550/LONG	LC	80 km	31 (db)

## IE-SFP MODULES: 1 GBPS GIGABIT ETHERNET

MODEL NUMBER	DESCRIPTION	FIBER TYPE	RANGE	POWER BUDGET
808-38201	MM850	LC	550 m	7.5 (db)
808-38202	SM1310	LC	10 km	13 (db)
808-38203	SM1310/PLUS	LC	30 km	17 (db)
808-38204	SM1550/LONG	LC	40 km	17 (db)
808-38205	SM1550/XLONG	LC	70 km	23 (db)

## SPECIFICATIONS

### TECHNICAL

Plug-and-Play Operation

2 x RJ-45 and 2 x SFP ports (SFPs sold separately)

IEEE 802.3i 10Base-T over twisted pair

IEEE 802.3u 100Base-TX over twisted pair

IEEE 802.3u 1000Base-T over twisted pair

IEEE 802.3u 100Base-FX

IEEE 802.3u 1000Base-X

Jumbo Frames support (up to 10240 bytes)

Auto Negotiation, Auto-Cross for MDI/MDIX

Includes diagnostic LEDs

1+1 uplink protection (< 50 mSecs)

Extended temperature range from -40° to +85° C

-48 VDC terminal for Telco applications

Compatible with all standard MSA compliant SFP transceivers

### STANDARDS COMPLIANCE

IEEE 802.3ah

IEEE 802.1ag

Y.1731

SFP-MSA SFP standard (September 14, 2000)

SFF-8472 DDMI standard (Revision 1.0)

### MECHANICAL

Dimensions 0.86"H x 3.66"W x 3.86"D  
(2.2 x 9.38 x 9.94 cm)

Enclosure Metal

Shipping Weight 1.0 lbs (0.45 kg)

### POWER

5 to 24 VDC (Barrel)

48 VDC Telco (Terminal)

### POWER INFORMATION

Min: 3.15W (1 optic SFP [1 Gbps], 1 Tx [100 Mbps])

Max: 7.0W (2 Cu SFP [1 Gbps], 2 Tx [1 Gbps])

\* Power consumption is based on SFP types

### ENVIRONMENTAL

Operating Temperature w/ Franmar AC Wall Adapter +14° to +122° F (-10° to +50° C)

Operating Temperature w/DC Configuration -40° to +185° F (-40° to +85° C)

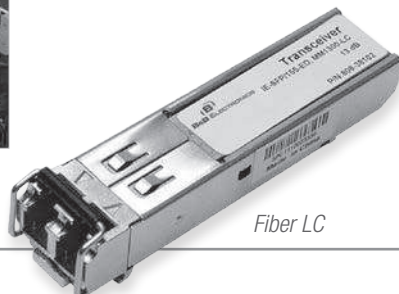
Storage Temperature -49° to +185° F (-45° to +85° C)

Operating Humidity 10 to 95% Non-condensing

### REGULATORY APPROVALS

FCC Class A (Using 48V Telco-type power)

FCC Class B (Using all other power options)



Fiber LC

### PRODUCT FEATURES

- Future-proof network equipment
- Available in SM, MM fiber types
- Maximize network hardware
- Troubleshooting diagnostics
- Plug-and-play operation

SFP modules are compact transceivers that function as modular connectors. Available for all common fiber modes, wavelengths and data rates, these modules allow network operators to connect different interface types to the same network equipment via an SFP port. The cost of cable upgrades is greatly reduced preserving the networking equipment investment – all for the price of a relatively inexpensive SFP.

More and more network equipment is being designed with SFP ports to take advantage of the inherent flexibility and to eliminate the guesswork and uncertainty of expensive equipment purchases. All SFP modules from Advantech B+B SmartWorx carry a limited lifetime warranty.

### ORDERING INFORMATION

NOTE: For each fiber product listed in the ordering table below, DISTANCE represents an approximate fiber distance based on industry-standard fiber attenuation specifications. Actual distances will vary for each installation. For complete power budgets and additional information on calculating specific distances, contact Advantech B+B SmartWorx Technical Support specialists at (815) 433-5100 (USA).

### IE-SFP FIBER MODULES: 100 TO 155 MBPS (OC-3) 1, 2

PART NUMBER	PORT DESCRIPTION	FIBER	DISTANCE	POWER BUDGET
				<b>(db)</b>
808-38101	MM850	LC	2 km	14.5
808-38102	MM1300	LC	2 km	11
808-38103	SM1310	LC	20 km	21
<b>Single-Strand Fiber</b>				
808-38121	SSFX-SM1310/1550	SC	20 km	20
808-38122	SSFX-SM15501310	SC	20 km	20

### KEY FEATURES

#### Robust Industrial Performance

Extended operating temperature range  
Hot swappable

#### Feature Friendly

Available in a wide range of fiber types, wavelengths and transmission rates to meet almost any networking need  
Includes single-strand fiber versions

#### Standard Diagnostics

Fiber Link Length  
Wavelength  
Bit Rate  
Date Code

#### DDMI/Extended Diagnostics

Powerful troubleshooting Digital Diagnostics Monitoring Interface (DDMI)  
Temperature  
Voltage  
Bias Current  
TX Power  
RX Power

#### Standard Compliances

MSA compliant: available in dual- or single-strand, SC or LC connector  
Eye Safety meets Laser Class 1 compliance with IEC 60825-1  
Complies with Telecordia GR-468-CORE  
RoHS compliant

#### Voltage/Temperature

Input Voltage: 3.3V  
Operating Temperature: -40° to +85° C  
Storage Temperature: -40° to +85° C

#### Data Rate

**155 Mbps**  
Compliant with ITU-T G.957, G.958 and IEEE 802.3u  
Applications: Fast Ethernet, OC-3/STM-1 and other optical links

# Ultra Compact Ethernet Serial Servers

VESR900 Series - Fiber Models

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Ethernet enable serial devices
- Direct IP, virtual COM port, or paired mode
- Ethernet pass-through port available
- Ethernet fiber options
- Serial RS-232/RS-422/485 ports
- UL Class 1 Division 2

## ACCESSORIES

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

ESR35 - DIN Rail 1 Meter 35mm Steel

DRPM25 - 35mm DIN Rail to Panel Mount Bracket

TBKT2 - Replacement Terminal Block, One 5 Position 5.08 mm

TBKT1 - Replacement Terminal Block, One 2 Position 5.08 mm

## ORDERING INFORMATION

MODEL NUMBER	SERIAL PORTS	SERIAL CONNECTORS	ETHERNET MEDIA	ETHERNET CONNECTORS
VESR921-MC	1	DB9 & TB	CAT 5, Multi-mode Fiber	One RJ45, One SC
VESR921-MT	1	DB9 & TB	CAT 5, Multi-mode Fiber	One RJ45, One ST
VESR921-SC	1	DB9 & TB	CAT 5, Single Mode Fiber	One RJ45, One SC
VESR922T-MC	2	TB	CAT 5, Multi-mode Fiber	One RJ45, One SC
VESR922T-MT	2	TB	CAT 5, Multi-mode Fiber	One RJ45, One ST
VESR922T-SC	2	TB	CAT 5, Single Mode Fiber	One RJ45, One SC

+ All serial ports are software configurable for RS-232, RS-422, or RS-485.

Copper options available.

## SPECIFICATIONS

### FIBER OPTIC TECHNOLOGY

	VESR9xx-Mx	VESR9xx-Sx
Type / Wavelength	Multi-mode / 1310 nm	Single-mode / 1310 nm
Output Power	(-) 19 to (-) 14 dBm	(-) 15 to (-) 8 dBm
Receive Sensitivity	~ (-) 32 dBm	~ (-) 32 dBm
Cable	62.5 / 125 µm	9 / 125 µm
Connector	SC or ST	SC or ST
Range	2 km (1.2 miles)	15 km (9.3 miles)

### NETWORK

Serial Memory	8 KB per port
Network Memory	4 KB

### NETWORK COMMUNICATIONS

LAN	10/100 Mbps Auto-detecting , 10BaseT or 100BaseTX
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### NETWORK PHYSICAL LAYER STANDARDS

Ethernet	IEEE 802.3 auto detecting & auto MDI/MDX, 10BaseT and 100Base TX
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### PROTOCOLS

Protocols	TCP, IPv4, UDP, ARP, HTTP 1.0, ICMP/PING, DHCP/BOOTP
IP Mode	Static, DHCP
TCP/UDP	User definable

### OTHER

Connection Mode	Server, Client, VCOM, Paired
Client Connection	At power up or upon data arrival
Search	Serial direct COM and Ethernet Auto Search or specific IP
Diagnostics	Display PC IP, ping, test VCOM, save test config (text readable)
Firmware Upgrade	Vlinux Manager

### ETHERNET PASS-THROUGH PORT (VESR92X)

Standards	IEEE 802.3, 802.3u, 802.3x
Processing Type	Store and Forward with 802.3x full duplex, non blocking flow control
Flow Control	IEEE 802.3x flow control, back pressure flow control
MAC Address Table	2K

### CONFIGURATION SOFTWARE

Vlinux Manager	Windows 2000, XP (32/64 bit), 2003 Server (32/64 bit), Vista (32/64 bit), 2008 Server (32/64 bit), Win 7 (32/64 bit)
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### REGULATORY / CERTIFICATIONS / SAFETY

Compliance	FCC, CE, NEMA TS2 UL Listed, File E222870 UL Class 1 Division 2 Groups A, B, C, D (HAZLOC) File E245458
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# Ultra Compact Ethernet Serial Servers

VESR900 Series - Copper Models

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Ethernet enable serial devices
- Direct IP, virtual COM port, or paired mode
- Ethernet pass-through port available
- Serial RS-232/RS-422/485 ports
- UL Class 1 Division 2
- NEMA TS2 (VESR901)

## ACCESSORIES

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

ERS35 - 1 M 35mm DIN rail, steel

DRPM25 - 35mm DIN Rail to Panel Mount Bracket

TBKT2 - Replacement Terminal Block, One 5 Position 5.08 mm

TBKT1 - Replacement Terminal Block, One 2 Position 5.08 mm

## ORDERING INFORMATION

MODEL NUMBER	SERIAL PORTS	SERIAL CONNECTORS	ETHERNET MEDIA	ETHERNET CONNECTORS
VESR901†	1	DB9 & TB	CAT 5	RJ45
VESR902D	2	DB9	CAT 5	RJ45
VESR902T	2	TB	CAT 5	RJ45
VESR921	1	DB9 & TB	CAT 5	Two RJ45
VESR922T	2	TB	CAT 5	Two RJ45

\* Fiber options available.

† NEMA TS2

## SPECIFICATIONS

### SERIAL TECHNOLOGY

RS-232 TD, RD, RTS, CTS, DTR, DSR, DTD, GND

RS-485 2-Wire Data A(-), Data B(+), GND

RS-422/485 4-Wire TDA(-), TDB(+), RDA(-), RDB(+), GND

Serial Connector DB9M or Removable Terminal Blocks

Data Rate Up to 230.4 Kbps

### POWER

Source External

Input Voltage 10 to 48 VDC (58 VDC Maximum)

Connector Removable Terminal Block (12 – 28 AWG)

Power Consumption VESR90x: 4.0 Watts Max.  
VESR92x: 6.0 Watts Max.

### MECHANICAL

LED Indicators Serial Port, Ethernet Link, Ready

Switches Reset Button

Dimensions VESR90x: 11.94 x 8.03 x 2.96 cm (4.70 x 3.16 x 1.16 in)  
VESR92x: 14.86 x 10.11 x 2.96 cm (5.85 x 3.98 x 1.16 in)

Enclosure 35mm DIN mount, Plastic, IP 30

Weight VESR90x: 149.7 g (0.33 lbs)  
VESR92x: 204.1 g (0.45 lbs)

### ENVIRONMENTAL

Operating Temperature -40 to 80°C (-40 to 176°F)

Operating Humidity 10 to 95% Non-condensing

MTBF VESR90x: ~ 132309 hours  
VESR92x: ~ 102593 hours

MTBF Calc Method Parts Count Reliability Prediction

### NETWORK

Serial Memory 8 KB per port

Network Memory 4 KB

### NETWORK COMMUNICATIONS

LAN 10/100 Mbps Auto-detecting, 10BaseT or 100BaseTX

### NETWORK PHYSICAL LAYER STANDARDS

Ethernet IEEE 802.3 auto detecting & auto MDI/MDX, 10BaseT and 100Base TX

### PROTOCOLS

Protocols TCP, IPv4, UDP, ARP, HTTP 1.0, ICMP/PING, DHCP/BOOTP

IP Mode Static, DHCP

TCP/UDP User definable

### OTHER

Connection Mode Server, Client, VCOM, Paired

Client Connection At power up or upon data arrival

Search Serial direct COM and Ethernet Auto Search or specific IP

Diagnostics Display PC IP, ping, test VCOM, save test config (text readable)

Firmware Upgrade Vlinx Manager

### ETHERNET PASS-THROUGH PORT (VESR92X)

Standards IEEE 802.3, 802.3u, 802.3x

Processing Type Store and Forward with 802.3x full duplex, non blocking flow control

Flow Control IEEE 802.3x flow control, back pressure flow control

MAC Address Table 2K

### CONFIGURATION SOFTWARE

Vlinx Manager Windows 2000, XP (32/64 bit), 2003 Server (32/64 bit), Vista (32/64 bit), 2008 Server (32/64 bit), Win 7 (32/64 bit)

### REGULATORY / CERTIFICATIONS / SAFETY

Compliance FCC, CE, NEMA TS2 (VESR901)

UL Listed, File E222870  
UL Class 1 Division 2 Groups A, B, C, D (HAZLOC) File E245458

# Ultra Compact Ethernet Serial Servers

VESP211 Series

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Ethernet enable serial devices
- Ultra compact design fits into the tightest spaces
- RS-232, RS-422/485, and RS-232/422/485 models
- TCP/IP interface
- Windows utility for configuration
- Industrial EMC specifications
- IP30 metal enclosure
- UL 60950 Listed

## ACCESSORIES

- 232NM9 - Null Modem Crossover Cable for DTE to DTE connection
- DRAD35 - DIN Rail Adaptor Clip (pair)
- PS12VDC1A - Replacement Power Supply
- SM16-12-V-ST - Replacement Power Supply with International Blade Kit

## ORDERING INFORMATION

MODEL NUMBER	SERIAL PROTOCOL	SERIAL PORT	ETHERNET PORTS	ETHERNET CONNECTOR
<b>US Power Supply</b>				
VESP211	RS-232/422/485	DB9M	1	RJ45
VESP211-232	RS-232	DB9M	1	RJ45
VESP211-485	RS-422/485	Removable Terminal Block	1	RJ45

## SPECIFICATIONS

SERIAL TECHNOLOGY	
RS-232 (DB9)	TD, RD, DTR, DSR, RTS, CTS, DCD plus Signal Ground
RS-485 2-Wire	Data A(-), Data B(+), GND
RS-422/485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+), GND
Serial Protocols & Connectors:	
VESP211:	RS-232/422/485 (DB9 male)
VESP211-232:	RS-232 (DB9 male)
VESP211-485:	RS-422/485 (removeable terminal block)
Data Rate	Up to 230.4 Kbps
POWER	
Source	Power supply included
Input Voltage	10 to 30 VDC
Power Connector Dimensions	5.5 x 2.1 mm
Power Consumption	2.5 Watts Max.
POWER SUPPLY (INCLUDED)	
Input Voltage	90 to 264 VAC
Frequency	47 to 63 Hz
Power Consumption	No load; Level VI = 0.1W; ErP Tier 1 = 0.075W
Operating Temperature	0 to +40°C
Storage Temperature	-10 to +70°C
Operating Humidity	20 to 80%
Storage Humidity	10 to 90%
International Blade Kit	North America, Europe, U.K., Australia, China, Japan

MECHANICAL	
LED Indicators	Serial Port, Ethernet, Ready LED's
Switches	Reset Button
Dimensions	VESP211 - 7.938 x 5.257 x 2.209 cm (3.125 x 2.070 x 0.870 in)
Enclosure	Metal, IP 30
ENVIRONMENTAL	
Operating Temperature	-40 to +80°C (-40 to +176°F)
Operating Humidity	10 to 95% Non-condensing
MTBF Calculation Method	MIL 217 F Parts Count Reliability Prediction
NETWORK	
Serial Memory	8 KB per port
Network Memory	4 KB
LAN	10/100 Mbps Auto-detecting, 10BaseT or 100BaseTX
Ethernet	IEEE 802.3 auto detecting & auto MDI/MDI-X, 10BaseT and 100Base TX
PROTOCOLS	
Protocols	TCP, IPv4, UDP, ARP, HTTP 1.0, ICMP/PING, DHCP/BOOTP
IP Mode	Static, DHCP
TCP/UDP	User definable
UDP	Unicast or Multicast
OTHER	
Connection Mode	Server, Client, VCOM, Paired
Client Connection	At power up or upon data arrival
Search	Serial direct COM and Ethernet Auto Search or specific IP
Diagnostics	Display PC IP, ping, test VCOM
Firmware Upgrade	via Vlinx™ Manager
CONFIGURATION SOFTWARE	
Vlinx™ Manager	Windows XP (32/64 bit), 2003 Server (32/64 bit), Vista (32/64 bit), 2008 Server (32/64 bit), Windows 7 (32/64 bit), Windows 8/8.1 (32/64 bit)
REGULATORY / CERTIFICATIONS / SAFETY	
Compliance	FCC Part 15 Class B 2004/108/EC, Electromagnetic Compatibility Directive 2011/65/EU, Reduction of Hazardous Substances Directive EN55022:2010+AC:2011, Information Technology Equipment - Class B RF Emissions EN55024:2010, Information Technology Equipment - Immunity (Light Industrial Environments)
EMC	EN61000-4-2:2009, ESD Immunity EN61000-4-3:2006+A2:2010, Radiated Field Immunity (RFI) EN61000-4-4:2012, EFT/Burst Immunity EN61000-4-5:2006, Electrical Surges Immunity EN61000-4-6:2009, RF Conducted Immunity
UL	UL 60950 File# E353510

# Industrial Modbus Ethernet to Serial Gateways

MESR900 Series - Fiber Models

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Ethernet enable Modbus RS-232/422/485
- Modbus TCP, ASCII & RTU
- Modbus flexibility – serial & Ethernet, Masters & slaves
- Modbus messaging priority control
- View messaging status in real time
- Easy configuration software

## ACCESSORIES

MDR-20-24 - DIN rail mount power supply 24VDC, 1.0 A output power

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

DRPM25 - 35mm DIN Rail to Panel Mount Bracket, 25mm wide

ERS35 - DIN Rail 1 Meter 35mm Steel

## ORDERING INFORMATION

MODEL NUMBER	SERIAL PORTS	SERIAL CONNECTOR	ETHERNET PORTS	ETHERNET CONNECTOR
MESR921-MC	1	DB9 or Terminal Block	Multi-mode Fiber, Copper	(1) SC, (1) RJ45
MESR921-MT	1	DB9 or Terminal Block	Multi-mode Fiber, Copper	(1) ST, (1) RJ45
MESR921-SC	1	DB9 or Terminal Block	Single-mode Fiber, Copper	(1) SC, (1) RJ45
MESR921-ST	1	DB9 or Terminal Block	Single-mode Fiber, Copper	(1) ST, (1) RJ45
MESR922T-MC	2	Terminal Block	Multi-mode Fiber, Copper	(1) SC, (1) RJ45
MESR922T-MT	2	Terminal Block	Multi-mode Fiber, Copper	(1) ST, (1) RJ45
MESR922T-SC	2	Terminal Block	Single-mode Fiber, Copper	(1) SC, (1) RJ45

+ All serial ports are software configurable for RS-232, RS-422, or RS-485. Copper options available.

## SPECIFICATIONS

### SERIAL TECHNOLOGY

RS-232	TD, RD, RTS, CTS, DTR, DSR, DTD, GND
RS-485 2-Wire	Data A(-), Data B(+), GND
RS-422/485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+), GND
Serial Connector	DB9M or Removable Terminal Blocks, 12 to 28 AWG
Data Rate	Up to 230.4 Kbps

### FIBER OPTIC TECHNOLOGY

	MESR9xx-Mx	MESR9xx-Sx
Type / Wavelength	Multi-mode / 1310 nm	Single-mode / 1310 nm
Output Power	(-) 19 to (-) 14 dBm	(-) 15 to (-) 8 dBm
Receive Sensitivity	~ (-) 32 dBm	~ (-) 32 dBm
Cable	62.5 / 125 µm	9 / 125 µm
Connector	SC or ST	SC or ST
Range	2 km (1.2 miles)	15 km (9.3 miles)

### POWER

Source	External
Input Voltage	10 to 48 VDC (58 VDC Maximum)
Connector	Removable Terminal Block (12 – 28 AWG)

### POWER CONSUMPTION

MESR90x	4.0 Watts
MESR92x	6.0 Watts

### MECHANICAL

LED Indicators	Serial Port, Ethernet Link, Ready
Switches	Reset Button
Dimensions	MESR92x: 14.86 x 10.11 x 2.96 cm (5.85 x 3.98 x 1.16 in)
Enclosure	35mm DIN mount, Plastic, IP 30
Weight	MESR92x: 0.45 lbs (201.4 g)
eDrawing	Available on website

### ENVIRONMENTAL

Operating Temperature	-40 to 80°C (-40 to 176°F)
Operating Humidity	0 to 95% Non-condensing
MTBF MESR90X	~ 132309 hours
MTBF MESR92X	~ 102593 hours
MTBF Calc Method	Parts Count Reliability Prediction

### NETWORK

Serial Memory	8 KB per port
Network Memory	4 KB
IP Port Addresses	5300 – Heartbeat and configuration Setting in TCP Mode (paired mode) 8899 – MESR 9xx Update
LAN	10/100 Mbps Auto-detecting
Ethernet	IEEE 802.3 auto detecting & auto MDI/MDX 10/100

### PROTOCOLS

TCP, IPv4, ARP, HTTP 1.0, ICMP/PING, DHCP/BOOTP	
IP Mode	Static, DHCP
TCP	User definable

### OTHER

Mode	Modbus RTU Master / Slave Modbus ASCII Master / Slave
Search	Serial direct COM and Ethernet Auto search or specific IP
Diagnostics	Display PC IP, ping, save test config. (text readable)
Firmware Upgrade	Vlinx Manager

### ETHERNET PASS-THROUGH PORT (MESR92X)

Standards	IEEE 802.3, 802.3u, 802.3x
Processing Type	Store and Forward with 802.3x full duplex, non blocking flow control
Flow Control	IEEE 802.3x flow control, back pressure flow control
MAC Address Table	2K

### CONFIGURATION SOFTWARE

Vlinx Manager	Windows 2000, XP (32/64 bit), 2003 Server (32/64 bit), Vista (32/64 bit), 2008 Server (32/64 bit), Win 7 (32/64 bit)
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### REGULATORY

Compliance	FCC, CE, NEMA TS2 UL Listed, File E222870 UL Class 1 Division 2 Groups A, B, C, D (HAZLOC), File E245458
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# Industrial Modbus Ethernet to Serial Gateways

MESR900 Series - Copper Models

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Ethernet enable Modbus RS-232/422/485
- Modbus TCP, ASCII & RTU
- Modbus flexibility – serial & Ethernet, Masters & slaves
- Modbus messaging priority control
- View messaging status in real time
- Easy configuration software
- UL Class 1 Division 2
- NEMA TS2 (MESR901)

## ACCESSORIES

MDR-20-24 - DIN rail mount power supply 24VDC, 1.0 A output power

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

DRPM25 - 35mm DIN Rail to Panel Mount Bracket, 25mm wide

ERS35 - DIN Rail 1 Meter 35mm Steel

## ORDERING INFORMATION

MODEL NUMBER	SERIAL PORTS	SERIAL CONNECTOR	ETHERNET PORT	ETHERNET CONNECTOR
MESR901 †	1	DB9 or Terminal Block	(1) Copper	RJ45
MESR902T	2	Terminal Block	(1) Copper	RJ45
MESR921	1	DB9 or Terminal Block	(2) Copper	(2) RJ45
MESR922T	2	Terminal Block	(2) Copper	(2) RJ45

## SPECIFICATIONS

### SERIAL TECHNOLOGY

RS-232	TD, RD, RTS, CTS, DTR, DCR, DTD, GND
RS-485 2-Wire	Data A(-), Data B(+), GND
RS-422/485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+), GND
Serial Connector	DB9M or Removable Terminal Blocks; 12 to 28 AWG
Data Rate	Up to 230.4 Kbps

### POWER

Source	External
Input Voltage	10 to 48 VDC (58 VDC Maximum)
Connector	Removable Terminal Block (12 – 28 AWG)

### POWER CONSUMPTION

MESR90X	4.0 Watts
MESR92X	6.0 Watts

### MECHANICAL

LED Indicators	Serial Port, Ethernet Link, Ready
Switches	Reset Button
Dimensions	MESR90x: 11.94 x 8.03 x 2.96 cm (4.70 x 3.16 x 1.16 in) MESR92x: 14.86 x 10.11 x 2.96 cm (5.85 x 3.98 x 1.16 in)
Weight	MESR90x: 149.7 g (0.33 lbs) MESR92x: 204.1 g (0.45 lbs)

### ENVIRONMENTAL

Operating Temperature	-40 to 80°C (-40 to 176°F)
Operating Humidity	0 to 95% Non-condensing
MTBF MESR90X	~ 132309 hours
MTBF MESR92X	~ 102593 hours
MTBF Calc Method	Parts Count Reliability Prediction

### NETWORK

Serial Memory	8 KB per port
Network Memory	4 KB
LAN	10/100 Mbps Auto-detecting
Ethernet	IEEE 802.3 auto detecting & auto MDI/MDX 10/100

### PROTOCOLS

Protocols	TCP, IPv4, ARP, HTTP 1.0, ICMP/PING, DHCP/BOOTP
IP Mode	Static, DHCP
TCP	User definable

### OTHER

Mode	Modbus RTU Master / Slave Modbus ASCII Master/Slave
Search	Serial direct COM and Ethernet Auto Search or specific IP
Diagnostics	Display PC IP, ping, test VCOM, save test config. (text readable)
Firmware Upgrade	Vlinx Manager

### ETHERNET PASS-THROUGH PORT (MESR92X)

Standards	IEEE 802.3, 802.3u, 802.3x
Processing Type	Store and Forward with 802.3x full duplex, non blocking flow control
Flow Control	IEEE 802.3x flow control, back pressure flow control
MAC Address Table	2K

### CONFIGURATION SOFTWARE

Vlinx Manager	Windows 2000, XP (32/64 bit), 2003 Server (32/64 bit), Vista (32/64 bit), 2008 Server (32/64 bit), Win 7 (32/64 bit)
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### REGULATORY / CERTIFICATIONS / SAFETY

Compliance	FCC, CE, NEMA TS2 (MESR901) UL Listed, File E222870 UL Class 1 Division 2 Groups A, B, C, D (HAZLOC), File E245458
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# Industrial Serial to Fiber Optic Converters

FOSTCDRI, FOSTCDRI-INV

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Data rates up to 115.2 kbps
- 10 – 48 VDC input power range
- Wide operating temperature
- 2,000V, 3-way optical isolation
- Modbus ASCII/RTU compatible
- EMI / RFI protection
- UL Class 1/Division 2
- Inverted fiber state option (Model FOSTCDRI-INV)
- TD, RD and Power LED's

## ACCESSORIES

MDR-40-24 - 24 VDC, 1A, slim-line DIN rail power supply

DFMM-STST-1M - Multi-mode fiber optic cable with ST/ST connectors (62.5/125 micro-meter), 1 meter

TBKT1 - Replacement 2-position terminal block, 5.08 mm

TBKT2 - Replacement 5-position terminal block, 5.08 mm

## ORDERING INFORMATION

MODEL NUMBER	SERIAL CONNECTOR	FIBER CONNECTOR	ISOLATION
FOSTCDRI	Terminal Block	Multi-mode ST	2,000 V
FOSTCDRI-INV	Terminal Block	Multi-mode ST	2,000 V

## SPECIFICATIONS

### SERIAL TECHNOLOGY

Data Rate 9.6 to 115.2 kbps

### RS-232

Connector Removable terminal block  
Signals TD, RD, GND

### RS-422/485

Connector 5-position, removable terminal block

RS-485, 2-wire Data A(-), Data B(+), GND

RS-422/485, 4-wire TDA(-), TDB(+), RDA(-), RDB(+), GND

Bias Built-in, switchable, 1.2K $\Omega$

Termination Built-in, switchable, 120 $\Omega$

### ISOLATION

Rating 2KV RMS, 1 minute

Surge Protection 600 W peak power dissipation

Clamping Time < 1 pico-second

Lines Protected 2-way (input, output lines)

Method Optical

### FIBER OPTIC TECHNOLOGY

Type / Wavelength Multi-mode / 820 nm

Output Power -16dBm min, -12dBm typical, -9dBm maximum

Receive Sensitivity -24dBm min, -25.4dBm maximum

Cable 62.5/125 micro-meter

Connector ST

Data Rate 9.6 to 115.2 kbps

Maximum Distance 4 km (2.5 mi)

Idle State, FOSTCDRI Transmitter light ON

Idle State, FOSTCDRI-INV Transmitter light OFF

### INDUSTRIAL BUS

Modbus ASCII/RTU

### POWER

Source External

Input Voltage 10 to 48 VDC (56 VDC maximum)

Consumption 0.5 W (typical), 1.3W (with termination)

Connector 2-position, removable terminal block, 24 to 14 AWG

### TERMINAL BLOCKS

Wire Size Accepted 28 to 12 AWG

Pitch 5.08 mm

Insulation Resistance  $\geq$  500 M $\Omega$  @ 500 VDC

Maximum Torque 5 Kg / cm

### LED INDICATORS

Power Red LED

FO Receive Red LED

FO Transmit Red LED

### MECHANICAL

Dimensions 12.3 x 11.3 x 3.2 cm (4.9 x 4.5 x 1.3 in)

Enclosure IP 20 plastic, 35 mm DIN mount

Weight 199.6 g (0.44 lbs)

### ENVIRONMENTAL

Operating Temperature -40 to +80°C (-40 to +176°F)

Storage Temperature -40 to +85°C (-40 to +185°F)

Operating Humidity 0 to 95% non-condensing

MTBF 138904 hours

MTBF Calculation Method Parts Count Reliability Prediction

### APPROVALS / CERTIFICATIONS - FOSTCDRI

UL Class 1 Division 2, Groups A, B, C, D

File Number: E222870 (HAZLOC E245458)

FCC Part 15, CISPR, EN 55022: 2010 + AC:2011 Class B Emissions

CE

EN 61000-6-1: 2007 Generic Standards for Residential, Commercial and Light-Industrial Environments

EN 61000-4-2: 2009 Electro-Static Discharge (ESD)

EN 61000-4-3: 2006 +A1 +A2 +IS1 Radiated Field Immunity (RFI)

EN 61000-4-4: 2012 Electrical Fast Transients-Burst Immunity (EFT)

EN 61000-4-6: 2009 Conducted Immunity

Download complete Declaration of Conformity at [www.bb-elec.com](http://www.bb-elec.com)

### APPROVALS / CERTIFICATIONS - FOSTCDRI-INV

UL 508, File Number: E222870

FCC Part 15, CISPR, EN 55022: 2010 + AC:2011 Class A Emissions

CE



# Industrial RS-232 to RS-422/485 Converter

485DRCi

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Data rates up to 115.2 kbps
- Three-way 2,000V optical isolation (input, output, power)
- Wide operating temperature
- UL Class 1/Division 2
- Modbus ASCII/RTU compatible
- 10–48 VDC input power range

## ACCESSORIES

MDR-40-24 - DIN Rail Mount Power Supply 24VDC, 1.7 A output power

EK-CLIP-MPC - Replacement DIN Rail Clip

TBKT1 - Replacement Term Block, 2 position 5.08mm

TBKT2 - Replacement Term Block, 5 position 5.08mm

## ORDERING INFORMATION

MODEL NUMBER	RS-232 CONNECTOR	RS-422/485 CONNECTOR	ISOLATION
485DRCi	DB9 Female (DCE)	Removable Terminal Block	2,000 V

## SPECIFICATIONS

### SERIAL TECHNOLOGY

Data Rate 1.2 to 115.2 kbps

### RS-232

Connector DB9 female (DCE)  
Signals TD, RD, GND

### RS-422/485

Connector Removable terminal block, 28 to 14 AWG

RS-485, 2-wire Data A(-), Data B (+), GND

RS-422/485, 4-wire TDA(-), TDB(+), RDA (-), RDB(+), GND

### ISOLATION

Rating 2,000 V

Lines Protected 3-way (input, output, power lines)

Method Optical

### SURGE SUPPRESSION

Lines Protected Data lines

Rating 600W peak power dissipation

Clamping/Response Time < 1 pico-second

### INDUSTRIAL BUS

Modbus ASCII/RTU

### POWER

Connector Removable terminal block, 28 to 14 AWG

Voltage 10-48 VDC

Consumption 960 mW

Source External

### MECHANICAL

LED Indicators Transmit, Receive, and Power

Dimensions 11.4 x 3.3 x 12.4 cm (4.5 x 1.3 x 4.9 in)

Enclosure 35mm DIN mount, plastic, IP30

Weight 204.12 g (0.45 lbs)

### ENVIRONMENTAL

Operating Temperature -40 to +80°C (-40 to +176°F)

Storage Temperature -40 to +85°C (-40 to +185°F)

Operating Humidity 0 to 95% non-condensing

MTBF 254617 hours

MTBF Calculation Method Parts Count Reliability Prediction

### CLASS 1/DIVISION 2 WIRING

Type Solid copper only

Size 28 to 14 AWG

Temperature 105°C (221°F) minimum

Terminal Torque 0.5 Nm (Newton-meters)

### APPROVALS / CERTIFICATIONS - 485DRCi

cUL 508, File Number: E222870 (C1 D2 E245458)

FCC Part 15, CISPR, EN 55022: 2010 + AC:2011 Class B Emissions

CE

EN 61000-6-1: 2007 Generic Standards for Residential, Commercial and Light-Industrial Environments

EN 61000-4-2: 2009 Electro-Static Discharge (ESD)

EN 61000-4-3: 2006 +A1 +A2 +IS1 Radiated Field Immunity (RFI)

EN 61000-4-4: 2012 Electrical Fast Transients-Burst Immunity (EFT)

EN 61000-4-6: 2009 Conducted Immunity

Download complete Declaration of Conformity at [www.bb-elec.com](http://www.bb-elec.com)

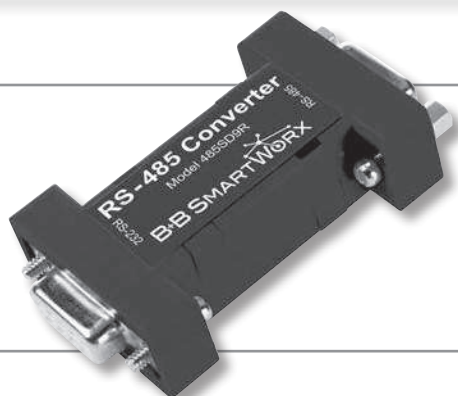
# Port-Powered RS-232/485 Converters

485SD9R, 485SD9RJ, 485SD9TB

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Extend RS-232 data signals up to 1.2 km (4,000 ft.)
- Change RS-232 TD and RD to RS-485 signals
- Automatic Send Data Control - no software drivers necessary
- Baud rates up to 115.2 kbps
- Powered from RS-232 handshake lines - no power supply required

## ACCESSORIES

485PS2 - 120 VAC to 12 VDC power supply, 100 mA, tinned leads, USA

PS1EU-1000 - 220-240 VAC to 12 VDC power supply, 1A, tinned leads, Euro CEEE7/7 plug

PS1UK-1000 - 220-240 VAC to 12 VDC power supply, 1A, tinned leads, UK BS-1353 plug

9PAMF6 - DB9 male to DB9 female adapter cable, 6 ft. (1.8 m)

## ORDERING INFORMATION

MODEL NUMBER	RS-232 CONNECTOR	RS-485 CONNECTOR	OUTPUT	OPTIONAL POWER SUPPLY
485SD9R	DB9 Female	DB9 Female	RS-485 2-wire	
485SD9RJ	DB9 Female	RJ11	RS-485 2-wire	
485SD9TB	DB9 Female	Terminal Block	RS-485 2-wire	✓

## SPECIFICATIONS

SERIAL TECHNOLOGY	
Data Rate	115.2 kbps maximum
RS-232	
Connector	485SD9R: DB9 female 485SD9RJ: DB9 female 485SD9TB: DB9 female
RS-485	
	485SD9R: DB9 female 485SD9RJ: RJ11 485SD9TB: Terminal block
Biasing Resistors	4.7k Ohms
POWER	
Source	Port-powering: from RS-232 handshake lines. External power option, 12-16 VDC (485SD9TB only)
Power Connector	Terminal block (485SD9TB only)
Input Voltage	12 VDC (485SD9TB only)
Power Consumption	40mA maximum
MECHANICAL	
Dimensions	485SD9R: 6.0 x 3.2 x 1.6 cm (2.4 x 1.3 x 0.6 in) 485SD9RJ: 7.3 x 3.2 x 1.6 cm (2.9 x 1.3 x 0.6 in) 485SD9TB: 8.7 x 3.2 x 1.6 cm (3.4 x 1.3 x 0.6 in)
Enclosure	plastic
Weight	0.18 lbs (81.6 g)
MTBF	485SD9R: 986473 485SD9RJ: 897656 485SD9TB: 968410
MTBF Calc. Method	Parts Count Reliability Prediction
ENVIRONMENTAL	
Operating Temperature	0 to +70°C (+32 to +158°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Operating Humidity	0 to 95% non condensing
APPROVALS / CERTIFICATIONS - 485SD9R, 485SD9RJ, 485SD9TB	
FCC Part 15, CISPR, EN 55022: 2010 + AC:2011 Class B Emissions	
CE	
EN 61000-6-1: 2007 Generic Standards for Residential, Commercial and Light-Industrial Environments	
EN 61000-4-2: 2009 Electro-Static Discharge (ESD)	
EN 61000-4-3: 2006 +A1 +A2 +IS1 Radiated Field Immunity (RFI)	
EN 61000-4-4: 2012 Electrical Fast Transients-Burst Immunity (EFT)	
EN 61000-4-6: 2009 Conducted Immunity	
Download complete Declaration of Conformity at <a href="http://www.bb-elec.com">www.bb-elec.com</a>	

# Industrial RS-422/485 Isolated Repeater

4850PDRI

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Supports data rates up to 115.2 Kbps
- Extends signal 1,200 m (4,000 feet)
- Wide -40 to +80°C temperature range
- 10 to 48 VDC input power range
- 2000 V, 3-way optical isolation
- UL Class 1/Division 2 Listed
- Built-in, switchable termination & bias

## ACCESSORIES

MDR-20-24 - DIN rail mount power supply 24VDC, 1.0 A output power

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

DRPM25 - 35mm DIN rail to Panel Mount Bracket, 25mm wide

EK-CLIP-MPC - DIN rail clip for enclosure

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
4850PDRI	Industrial RS-422/485 Isolated Repeater

## SPECIFICATIONS

SERIAL TECHNOLOGY	
RS-422	TDA(-), TD(B+), RDA(-), RDB(+)
RS-485 4-Wire	TDA(-), TD(B+), RDA(-), RDB(+)
RS-485 2-Wire	Data A(-), Data B(+)
Serial Connector	5 Position, Removable Terminal Block
Data Rate	2.4 to 115.2 Kbps
Isolation	2KV RMS, 1 Minute
Surge Protection	600 W Peak Power Dissipation Clamping time < 1 pico-second
Industrial Bus	Modbus ASCII / RTU
Bias	Built-in, Switchable, 1.2K $\Omega$ XMT/RCV
Termination	Built-in, Switchable, 120 $\Omega$
POWER	
Source	External power required
Power Connector	2 Position, Removable Terminal Block
Input Voltage	10 to 48 VDC (56 VDC Maximum)
Power Consumption	0.5 W (typical), 1.3 W (termination on both sides)
TERMINAL BLOCKS	
Wire Size Accepted	28 to 12 AWG
Pitch	5.08 mm
Insulation Resistance	$\geq$ 500 M $\Omega$ @ 500 VDC
Maximum Torque	5 Kg / cm
INDICATORS	
Power	Red LED
Data	Red LED for Each Data Port
MECHANICAL	
Dimensions	12.3 x 11.3 x 3.2 cm (4.9 x 4.5 x 1.3 in)
Enclosure	IP 20 Plastic, 35 mm DIN Mount
Weight	222 g (0.49 lbs)
MTBF	114696 Hours
MTBF Calc. Method	Parts Count Reliability Prediction
ENVIRONMENTAL	
Operating Temperature	-40 to 80°C (-40 to 176°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	0 to 95% Non-condensing
REGULATORY	
Approvals	FCC, CE, UL, UL Class 1 DIV 2, Groups A, B, C, D
UL File	E222870 (HAZLOC E245458)

# Industrial RS-232 Isolated Repeater

2320PDRI

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Supports Data Rates up to 115.2 Kbps
- Wide -40 to 80°C Temperature Range
- 10 to 48 VDC Input Power Range
- 2000 V 3-Way Optical Isolation
- UL Class 1 Division 2 Listed

## ACCESSORIES

MDR-20-24 - DIN rail mount power supply 24VDC, 1.0 A output power

MDR-40-24 - DIN rail mount power supply 24VDC, 1.7 A output power

DRPM25 - 35mm DIN Rail to Panel Mount Bracket, 25mm wide

EK-CLIP-MPC - DIN rail clip for enclosure

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
2320PDRI	Industrial RS-232 Isolated Repeater

## SPECIFICATIONS

SERIAL TECHNOLOGY	
Serial Connector	DB9 F (DCE), DB9 M (DTE)
Data Rate	Up to 115.2 Kbps
Isolation	2 KV RMS, 1 minute
POWER	
Source	External
Power Connector	2 Position Removable Terminal Block
Input Voltage	10 to 48 VDC (56 VDC Maximum)
Power Consumption	0.6 W typical
TERMINAL BLOCKS	
Wire Size Accepted	28 to 12 AWG, Copper wire only.
Pitch	5.08 mm
Insulation Resistance	≥500 MΩ @ 500 VDC
Maximum Torque	5 Kg / cm
INDICATORS	
Power	Red LED
TD / RD	Red LED TD, RD, CTS, RTS
MECHANICAL	
Dimensions	12.3 x 11.3 x 3.2 cm (4.9 x 4.5 x 1.3 in)
Enclosure	IP 30 Plastic, 35 mm DIN Mount
Weight	0.43 lbs (195 g)
MTBF	177250 Hours
MTBF Calc. Method	Parts Count Reliability Prediction
ENVIRONMENTAL	
Operating Temperature	-40 to 80°C (-40 to 176°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	0 to 95% Non-condensing
REGULATORY	
Approvals	FCC, CE UL C1 D2, File Number E245458 UL 508, File Number E222870

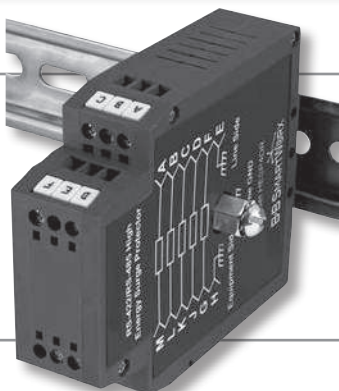
# 3-Stage DIN Rail Surge Protector

HESP4DR

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Three stages of protection on every data line
  - 1) Gas discharge tube
  - 2) Series resistor
  - 3) Transient voltage suppressor
- Protected signal ground connection
- Rugged terminal block connections
- Dedicated chassis ground lug
- Wide operating Temperature
- NEMA TS2

## ACCESSORIES

CU15B - Copper Grounding Strap

## ORDERING INFORMATION

MODEL NUMBER	INTERFACE	LINES PROTECTED	MOUNTING
HESP4DR	RS-422/485	(5) RS-422/485	DIN Rail Mount

## SPECIFICATIONS

### SERIAL TECHNOLOGY

Connectors, line	5 position terminal blocks
Connectors, equipment	5 position terminal blocks

### SURGE SUPPRESSION

Clamping Voltage - stage 1	72 VDC, minimum 108 VDC, maximum
Series Resistance - stage 2	2.7 Ohms
Clamping Voltage - stage 3	6.45 VDC, minimum 7.14 VDC, maximum
Clamping Time	Less than $5 \times 10^{-9}$ seconds
Dimensions	3.55 x 7.88 x 10.53 cm (1.4 x 3.1 x 4.2 in)
Installation	DIN rail mount
Weight	0.114 kg (4.02 oz)

### ENVIRONMENTAL

Operating Temperature	-40 to 80°C (-40 to 176°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	0 to 95% Non-condensing

### APPROVALS / CERTIFICATIONS - HESP4DR

FCC Part 15, CISPR, EN 55022: 2010 + AC:2011 Class A Emissions

CE, NEMA TS2

EN 61000-6-1: 2007 Generic Standards for Residential, Commercial and Light-Industrial Environments

EN 61000-4-5: 2006 Electrical Surges

Download complete Declaration of Conformity at [www.bb-elec.com](http://www.bb-elec.com)



# In-Line USB Converters

USOPTL4 & USPTL4

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- 2000 V RMS optical isolation
- 15KV ESD surge protection
- Adds a COM port to your PC
- LEDs for transmit and receive lines
- USB 1.0, 1.1 and 2.0 compatible (12 Mbps)
- Automatic configuration on Windows 2000, XP, Vista, 7 (32/64 bit), 8 (32/64 bit)
- No power supply required (powered from USB bus)

## ACCESSORIES

9PAMF6 - DB9 to DB9 serial cable, male to female, 6 ft. (1.8 m)

TB5P508SR-2PK - 5-position terminal block with strain relief paddle board, 2 pack

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
USOPTL4	Isolated RS-422/485 Inline USB Converter
USOPTL4-LS	Locked Serial Number Version of USOPTL4
USPTL4	Non-isolated RS-422/485 Inline USB Converter
USPTL4-LS	Locked Serial Number Version of USPTL4

## SPECIFICATIONS

### SERIAL TECHNOLOGY

RS-422/485 4-Wire TDA(-), RDA(-), TDB(+), RDB(+), GND

RS-485 2-Wire DATA A(-), DATA B(+), GND

Connector Terminal block

Data Rate 460.8 Kbps

Isolation 2 kV RMS

Surge Protection 15kV ESD

Industrial Bus Modbus ASCII/RTU

Bias 4.7 K $\Omega$  on receive lines in RS-422/485 mode

### USB TECHNOLOGY

USB Compatibility 1.1 and 2.0

Speed 1.5, 12 Mbps

Connector Type B High Retention (15 N / 3.4 lbs-force withdrawal)

Operating System Windows 2000, XP (32/64 bit), Vista (32/64 bit), 7 (32/64 bit), 8 (32/64 bit), 2003 & 2008 Server (32/64 bit)

### POWER

USB Low power device (draws <100 mA)

### INDICATORS

LEDs Transmit data, Receive data

### MECHANICAL

Dimensions 8.9 x 4.3 x 2.1 cm (3.5 x 1.7 x 0.8 in)

Enclosure IP 30, Plastic

MTBF USOPTL4 311,327 hours

MTBF USPTL4 1,012,584 hours

MTBF Calc. Method MIL 217F Parts Count Reliability

### ENVIRONMENTAL

Operating Temperature 0 to 70°C (32 to 158°F)

Operating Humidity 0 to 95% Non-condensing

### APPROVALS / CERTIFICATIONS

Emissions EN 55022: 2010 + AC:2011 Class B Emissions

CE EN 61000-6-1: 2007 Generic Standards for Residential, Commercial and Light-Industrial Environments

EN 61000-4-2: 2009 Electro-Static Discharge (ESD)

EN 61000-4-3: 2006 +A1 +A2 +IS1 Radiated Field Immunity (RFI)

EN 61000-4-4: 2012 Electrical Fast Transients-Burst Immunity (EFT)

EN 61000-4-6: 2009 Conducted Immunity

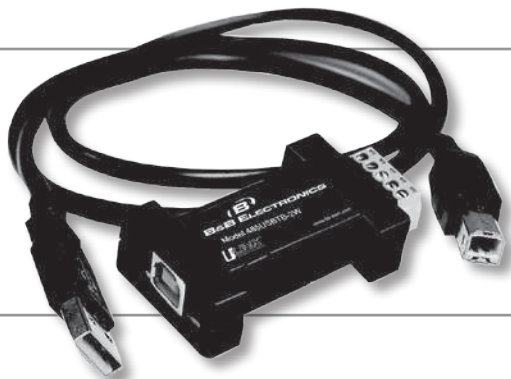
# USB to RS-485 Mini Converters

485USBTB-2W & 485USBTB-4W

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Connect RS-485 Devices to your USB Port
- Perfect for Field Service Applications
- Small – Fits easily into any laptop bag
- USB Port Powered
- USB 2.0 (12 Mbps) Compatible
- RS-485 Data rates up to 921.6 Kbps
- Removable Terminal Block for Easy Wiring
- High Retention USB Connector
- Supports Windows 98, ME, 2000, XP, Vista, 7 (32/64 bit), 8 (32/64 bit)

## ACCESSORIES

USBAMB-3F - 3 ft. (1 M) USB Cable (One Included)

7372 - Replacement TB (One Included)

Contact Customer Service for ordering information.

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
485USBTB-2W	USB to RS-485 2-Wire Converter
485USBTB-4W	USB to RS-485 4-Wire Converter
485USBTB-2W-LS	USB to RS-485 2-Wire Converter (Locked Serial Number)
485USBTB-4W-LS	USB to RS-485 4-Wire Converter (Locked Serial Number)

## SPECIFICATIONS

### SERIAL TECHNOLOGY

RS-485 2-Wire	Data A(-), Data B(+), Ground
RS-485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+), Ground
Connector	Removable Terminal Block (28 to 16 AWG)
Data Rate	Up to 921.6 Kbps

### USB TECHNOLOGY

Connector	USB Type B Female (High Retention)
Standard	2.0 (Backward Compatible)
Data Rate	12 Mbps

### POWER

Source	USB Port
Input Voltage	5 VDC
Consumption	~ 0.5 W (Low power device, draws less than 100 mA)

### SOFTWARE

Driver CD	Windows 98, ME, 2000, XP, Vista, 7 (32/64 bit), 8 (32/64 bit)
-----------	---

### MECHANICAL

Dimensions	6.5 x 3.2 x 1.6 cm (2.6 x 1.3 x .6 in)
Enclosure	In-line mounted, plastic
Weight	0.23 lbs (104.3 g) with USB Cable

### ENVIRONMENTAL

Operating Temp	32 to 158°F (0 to 70°C)
Storage Temp	-40 to 185°F (-40 to 85°C)
Op Humidity	0 to 95 % (Non-condensing)
MTBF	1869313 hours
MTBF Method	Parts Count Reliability Prediction

### REGULATORY

Approvals	FCC, CE
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### CERTIFICATIONS

Test	Description		Test Level	Level
IEC 61000-4-2	ESD	Contact	±8kV	±8kV
		Air	±15kV	±15kV
IEC 61000-4-3	Radiated Immunity		3 v/m	3 v/m
IEC 61000-4-4	Burst (Fast Transient)	Serial	±500	±500
		USB	±500	±500
IEC 61000-4-6	Induced (Conductive) RFI	Serial	3 V RMS	3 V RMS
		USB	3 V RMS	3 V RMS
EN 55022/CISPR 22	Emissions		3 meters	Class B

# USB to RS-485 Mini Converters

485USB9F-2W & 485USB9F-4W

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Connect RS-485 Devices to your USB Port
- Perfect for Field Service Applications
- Small – Fits easily into any laptop bag
- USB Port Powered
- USB 2.0 (12 Mbps) Compatible
- RS-485 Data rates up to 921.6 Kbps
- Supports Windows 98, ME, 2000, XP, Vista, 7 (32/64 bit), 8 (32/64 bit)

## ACCESSORIES

USBAMB-3F - 3 ft. (1 M) USB Cable (One Included)

7372 - Replacement TB (One Included)

Contact Customer Service for ordering information.

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
485USB9F-2W	USB to RS-485 2-Wire Converter
485USB9F-4W	USB to RS-485 4-Wire Converter
485USB9F-2W-LS	USB to RS-485 2-Wire Converter (Locked Serial Number)
485USB9F-4W-LS	USB to RS-485 4-Wire Converter (Locked Serial Number)

## SPECIFICATIONS

### SERIAL TECHNOLOGY

RS-485 2-Wire	Data A(-), Data B(+), Ground
RS-485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+), Ground
Connector	DB9 Female
Data Rate	Up to 921.6 Kbps

### USB TECHNOLOGY

Connector	USB Type B Female
Standard	2.0 (Backward Compatible)
Data Rate	12 Mbps

### POWER

Source	USB Port
Input Voltage	5 VDC
Consumption	~ 0.5 W (Low power device, draws less than 100 mA)

### SOFTWARE

Driver CD	Windows 98, ME, 2000, XP, Vista, 7 (32/64 bit), 8 (32/64 bit)
-----------	---

### MECHANICAL

Dimensions	5.8 x 3.2 x 1.6 cm (2.3 x 1.3 x .6 in)
Enclosure	In-line mounted, plastic
Weight	0.23 lbs (104.3 g) with USB Cable

### ENVIRONMENTAL

Operating Temp	32 to 158°F (0 to 70°C)
Storage Temp	-40 to 185°F (-40 to 85°C)
Op Humidity	0 to 95 % (Non-condensing)
MTBF 2-Wire	2130833 hours
MTBF 4-Wire	1869313 hours
MTBF Method	Parts Count Reliability Prediction

### REGULATORY

Approvals	FCC, CE
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### APPROVALS / CERTIFICATIONS

Emissions	EN 55022: 2010 + AC:2011 Class B Emissions	
CE	EN 61000-6-1:2007	Generic Standards for Residential, Commercial and Light-Industrial Environments
	EN 61000-4-2: 2009	Electro-Static Discharge (ESD)
	EN 61000-4-3: 2006	+A1 +A2 +IS1 Radiated Field Immunity (RFI)
	EN 61000-4-4: 2012	Electrical Fast Transients-Burst Immunity (EFT)
	EN 61000-4-6: 2009	Conducted Immunity

# 4-Port Rugged USB Hubs

UHR304 & UHR204

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- 4 kV Isolation (Model UHR304)
- High Retention USB Connectors
- Level 4 ESD Protection – 15kV
- Rugged Metal Case – Panel & DIN Rail Mount
- Wide Operating Temperature (-40 to 80°C)
- USB 2.0 – Full Speed (12 Mbps) Model UHR304
- USB 2.0 – High Speed (480 Mbps) Model UHR204

## ACCESSORIES

PS12VLB-INT-MED - Power Supply 12VDC, Medical Grade - US, EU, UK Blades

MDR-20-24 - DIN Rail Mount Power Supply 24VDC, 1.0A

USBAMB-15F - Type A Male to Type B Male, 15 ft. (4.6 m)

USBAMB-3F - Type A Male to Type B Male, 3 ft. (0.9 M) (Grey)

USBAMB-6F - Type A Male to Type B Male, 6 ft. (1.8 m) (Grey)

## ORDERING INFORMATION

MODEL NUMBER	USB SPEED
UHR304	4 Port Industrial USB Hub, Isolated
UHR204	4 Port Industrial USB Hub

## SPECIFICATIONS

USB INTERFACE	
Standards	USB 1.1 & 2.0
Upstream Port	(1) Type B Female – High Retention
Downstream Port	(4) Type A Female – High Retention
Speed	12 Mbps – Model UHR304 480 Mbps – Model UHR204 Multi-transaction Translator, 1 per port
Isolation	4 kV – Upstream to Downstream Model UHR304
Surge Protection	+/- 0.5 kV DC Ports, +/- 1 kV Signal Ports
ESD	15 kV Air, 8 kV Contact
High Retention	USB Ports require 15 N (3.2 lbs-force) withdrawal force using standard USB Cable
POWER	
Source	External (Required for Model UHR304) Model UHR204 may be bus powered. See Downstream power limitations
Power Connector	Terminal Block or threaded barrel jack
Input Voltage	10 to 30 VDC
Power	UHR204 – 16 Watts (External Source) UHR304 – 16 Watts (External Source)
Power TB	3 Position, 5.08 mm spacing, 28-12 AWG, Solid Wire
Barrel Jack	Locking / Threaded, 5.5 mm, Center Positive
Downstream Power	500 mA per port 100 mA per port when bus powered.

## INDICATORS

Power	Green LED (External Power) Yellow LED (Bus Power)
Port Ready	Green LED

## MECHANICAL

Dimensions	13.9 x 8.7 x 3.5 cm (5.5 x 3.5 x 1.4 in)
Enclosure	IP 30, Metal
Weight	1.4 lbs (635 g)
MTBF UHR204	211,773 Hours
MTBF UHR304	190,999 Hours
MTBF Calc. Method	MIL 217F Parts Count Reliability


## ENVIRONMENTAL

Operating Temperature	-40 to 80°C
Storage Temperature	-40 to 85°C
Operating Humidity	0 to 95% Non-condensing

## APPROVALS/CERTIFICATIONS

Emissions	FCC Class B, CISPR Class B (EN55022)
CE	EN61000-6-2:2005 (Heavy Industrial) EN61000-4-2:2008 (ESD) +/- 8kV contact, +/- 15 kV air EN61000-4-3:2006 (RI) 10 V/m, 80-1000 MHz; 3 V/m 1.3 to 2.7 GHz EN61000-4-4:2004 (EFT Burst) +/- 2kV DC ports; +/- 1 kV signal ports EN61000-4-5:2005 (Surge) +/- 2 kV com; +/- 1 kV differential EN61000-4-6:2008 (CI) 10 Vrms, 0.15 to 80 MHz EN61000-4-8:2001 (Magnetic) 10 A/m, 50 Hz & 60 Hz
Other	IEC60068-2-27 (Shock) 50G Peak, 11 ms, 3 axes IEC60068-2-6 (Vibration) 140-500 Hz, 4G, 3 axes IEC60068-2-32 (Drop) 10 total drops from sides, corner, edges
UL	Class 1 Division 2 Listed File: E245458

## UL INFORMATION

 Suitable for use in Class 1, Division 2, Groups A, B, C and D Hazardous Locations, or Nonhazardous locations only.  
WARNING - EXPLOSION HAZARD – DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.  
WARNING - EXPLOSION HAZARD - SUBSTITUTION OF ANY COMPONENT MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2 Install in accordance with control drawing number 9340R0.

Ind. Cont. Eq.  
For HAZ LOC  
3HTV  
E245458  
Class I, Div. 2, Groups A, B, C & D  
Temp. Code: T4A

# 4-Port Industrial USB Hub

UH104

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- High Retention USB Connectors
- 15 kV ESD Protection
- Rugged Panel Mount Case
- Wide Operating Temperature (-40 to 80°C)
- USB 2.0 – High Speed (480 Mbps)

## ACCESSORIES

USBAMBM-3F - 0.9 m (3 ft.) USB Extension Cable

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
UH104	4-port Industrial USB Hub

(USB cable required - sold separately.)

## SPECIFICATIONS

USB INTERFACE	
Standards	USB 2.0
Upstream Port	(1) Type B Female – High Retention
Downstream Port	(4) Type A Female – High Retention
Speed	480 Mbps on each port Multi-transaction Translator, 1 per port
ESD	15 kV Air, 8 kV Contact
High Retention	USB ports require 15 N - 3.4 lbs (1.54 kg) force withdrawal force using standard USB cable
POWER	
Source	5 VDC from USB Bus
Downstream Power	100 mA per port
MECHANICAL	
Dimensions	6.1 x 4.45 x 2.79 cm (2.4 x 1.75 x 1.10 in)
Enclosure	IP 30, Polycarbonate Plastic
Weight	0.11 lb (49.90 g)
MTBF	552,747 Hours
MTBF Calc. Method	MIL 217F Parts Count Reliability
ENVIRONMENTAL	
Operating Temperature	-40 to 80°C (-40 to 176°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	0 to 95% Non-condensing
APPROVALS / CERTIFICATIONS	
CE	
EN61000-6-1	(Light Industrial)
EN61000-4-2	(ESD) +/- 8kV contact, +/-15 kV air
EN61000-4-3	(RI) 3 V/m
EN61000-4-4	(EFT Burst) +/- 1 kV DC ports +/- 0.5 kV signal ports
EN61000-4-5	(Surge) +/- 0.5 kV Power
EN61000-4-6	(CI) 3 V/m
OTHER	
IEC60068-2-32	(Drop) 10 total drops from sides, corner, edges
Emissions	FCC Class B, CISPR Class B (EN55022)



# Single-Port USB Isolators

UH401 Series

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- 15 kV ESD Protection
- -40 to 80°C Operating Temperature
- High Retention USB Connectors
- Ultra-Compact
- USB Bus Powered
- USB Cable Included

## ORDERING INFORMATION

MODEL NUMBER	USB SPEED	ISOLATION
UH401	Full (12 Mbps)	4 kV
UH401SL	Low (1.5 Mbps)	4 kV
UH401-2KV	Full (12 Mbps)	2 kV
UH401SL-2KV	Low (1.5 Mbps)	2 kV

## SPECIFICATIONS

TECHNOLOGY	
Standards	USB 1.1, 12 Mbps (UH401 & UH401-2KV) or 1.5 Mbps (UH401SL & UH401SL-2KV) Note: These devices are transparent to the operating system, require no software drivers and will not be enumerated in device manager.
INTERFACE	
USB Ports	High Retention USB Type B (Upstream) , Type A (Downstream), Minimum withdrawal force of 15 Newtons (~3.4 lbs-force)
LED Indicators	Power from USB bus
POWER	
Input Voltage	Standard USB bus power (5VDC)
Downstream Power Provided	Up to 100mA with full power upstream connection
Isolation UH401-2KV	2KV
Isolation UH401SL-2KV	2KV
Isolation UH401	4KV
Isolation UH401SL	4KV
ENVIRONMENTAL	
Operating Temperature	-40 to 80° C (-40 to 176° F)
MTBF	1,049,851 hours
MTBF Calculation	MIL 217F Parts count reliability prediction
MECHANICAL	
Enclosure	IP30 plastic case
Dimensions	4.32 x 5.08 x 2.03 cm (1.7 x 2.0 x 0.8 in)
APPROVALS/CERTIFICATIONS	
Emissions	FCC Class A, CISPR Class A (EN55022)
CE	EN61000-6-2:2005 (Heavy Industry) EN61000-4-2:2008 (ESD +/-8kV Contact, +/-15kV Air) EN61000-4-3:2006 (RI) 10V/m, 80-1000MHz; 3V/m, 1.3 to 2.7 GHz EN61000-4-4:2004 (EFT Burst) +/-2KV DC ports; +/-1kV signal ports EN61000-4-5:2005 (Surge) +/-500V DC ports ; +/-1kV signal ports EN61000-4-6:2005 (CI) 10Vrms, 0.15 to 80 MHz EN61000-4-8:2001 (Magnetic) 10A/m, 50Hz & 60Hz

# Spectre Network Gateway

Compatible with Wzzard Intelligent Edge Nodes

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- 802.15.4e SmartMesh IP radio
- 10/100 Ethernet network interface
- EV-DO/CDMA and HSPA+/GPRS/GSM cellular network interface
- Communicates with Wzzard Intelligent Edge Nodes
- Industrial design - wide operating range (-30 to +60 C)
- 10-30 VDC power
- Class 1/Division 2 Certified

## ORDERING INFORMATION

### SPECTRE NETWORK GATEWAY MODEL NUMBERS

ERT351	Ethernet Network Gateway with 2 Ethernet ports, wireless mesh 802.15.4e, AC power adapter
RT3G-350	Cellular/Ethernet Network Gateway with 1 Ethernet port, wireless mesh 802.15.4e, 3G cellular, AC power adapter
RT3G-351	Cellular/Ethernet Network Gateway with 2 Ethernet ports, wireless mesh 802.15.4e, 3G cellular, AC power adapter
RT3G-352	Cellular/Ethernet Network Gateway with 1 Ethernet port, 1 RS-232 port, wireless mesh 802.15.4e, 3G cellular, AC power adapter
RT3G-354	Cellular/Ethernet Network Gateway with 1 Ethernet port, 1 RS-485 port, wireless mesh 802.15.4e, 3G cellular, AC power adapter

USA, Canada. Check with your local distributor for availability and options.

## SPECIFICATIONS

### INTERFACES

#### Standard

Ethernet	10/100 Mbps
USB	USB Type A host
Binary I/O	1 input / 1 output
SIM Card	1 SIM card port

802.15.4E radio

#### Expansion Port Options

Ethernet	10/100 Mbps
RS-232	
RS-422/485	

### ANTENNA:

SMA	– 50 Ohms
3G:	2 dBi, penta band, right angle dipole (2 included)
802.15.4e,	2.4 GHz, 5 dBi (1 included)

### 3G CELLULAR FREQUENCY BANDS

Quad Band UMTS (WCDMA):	850, 900, 1900 and 2100 MHz
Quad-Band GSM/GPRS/EDGE:	850, 900, 1800 and 1900 MHz

### POWER

Source	10 – 30 VDC
Consumption	2.3W receive mode Up to 3.5 W (GPRS transmission) Up to 5.5 W (UMTS/HSDPA transmission)

### MECHANICAL

Dimensions	1.7 x 3.0 x 4.5 in (42 x 80 x 113 mm), 35mm DIN rail
Enclosure	Metal
Weight	150 g

### ENVIRONMENTAL

Operating Temperature	-30 to +60°C
Storage Temperature	-40 to +85°C

### FEATURES -- SMARTMESH IP RADIO -- 802.15.4E -- 2.4 GHZ

Parameter	Conditions	Min	Typ	Max	Units
Frequency Band		2400		2.4835	GHz
Number of Channels			15		
Channel Separation			5		MHz
Channel Clear Frequency			2405 + 5*(k-11)		MHz
Modulation	IEEE 802.15.4 Direct Sequence Spread Spectrum (DSSS)				
Raw Data Rate			250		kbps
Range	25°C, 50% RH, +2dBi Omni-Directional Antenna, Antenna 2 m	m			
	Indoor		100		m
	Outdoor		300		m
Free Space			1200		m
Receiver Sensitivity	Packet Data Error Rate (PER) = 1%			-93	dBm
Receiver Sensitivity	PER = 50%			-95	dBm
Output Power -- Delivered to a 50 Ω load					
High Calibration Setting				8	dBm
Low Calibration Setting				0	dBm

### NETWORKING AND SECURITY

DHCP – automatic IP addressing in LAN network  
 NAT – IP address and ports translation between inside/outside network  
 Firewall – filtering of addresses, ports, protocols  
 VRRP – virtual backup router function  
 DynDNS client – access to the router with a dynamic IP address  
 QoS – quality of service  
 Dial-in – Communicate via CSD call  
 PPPoE Bridge – PPP frames encapsulation inside ETH frames  
 IPsec, OpenVPN, L2TP – secure encrypted tunnels  
 GRE tunnel – simple tunnel without security measures

### CONFIGURATION AND DIAGNOSTICS

HTTP server – configuration via web server  
 Telnet – configuration and access to the file system  
 SNMP – router diagnostics, communication with I/O and M-Bus  
 Cellular state signalization by LED  
 On-line info on cellular signal status (level, cell, neighbors)  
 SMS info – power on, cellular connection or disconnection  
 SMS control – on/off cellular connection, switch SIM, I/O, etc.  
 Transferred data counting, one more APN as backup  
 Remote router group configuration change, switching among configuration profiles  
 SSH – encrypted configuration and access to the file system

### APPROVALS / CERTIFICATIONS

	FCC Part 15, CE Class 1/Division 2
Certifications	AT&T, Verizon, PTCRB (Contact B&B Electronics for the latest approvals.)
CE	EN 301 511, v9.0.2 EN 301 908-1&2, v3.2.1 ETSI EN 301 489-1 V1.8.1 EN 60950-1:06 ed.2 + A11:09 + A1:10
Emission	EN 55022/B
Immunity	ETS 300 342 immunity
Safety	EN 60950
Isolation	EN 60747 isolation

# Wzzard™ Intelligent Edge Node

With SmartMesh IP and Bluetooth LE

B+B SMARTWORX

Powered by

ADVANTECH



## PRODUCT FEATURES

- Ultra low power 802.15.4e SmartMesh IP technology
- Communicates with Spectre Network Gateway via highly scalable and reliable wireless mesh networks
- Connect to industry standard analog or digital sensors
- Wzzard app lets you read or configure the nodes using Android tablets and smart phones
- Rugged, IP66-rated, fiber reinforced polyester PBT enclosure
- MQTT and JSON IoT protocol to application platform
- Class 1 DIV 2 approved for hazardous locations

## ACCESSORIES

ACH2-DBAT-DP003 - External Antenna, 2.4 GHz, 2 dBi, Dipole, RP-SMA, hinged, 3.8 dBi

ACH2-AT-DP011 - Magnetic Mount Antenna, 2.4 GHz, 3.8 dBi

WSCACO-6 - Pigtail Cable 6 ft (1.8m)

ZXTMT - Cable Gland/Conduit Kit

## ORDERING INFORMATION

MODEL NUMBER	THERMOCOUPLE INPUT
WSD2CTJ	Wireless Mesh 802.15.4e, 2 Thermocouple J-type Inputs, 1 Digital Output; External Antenna, Conduit Connector
WSD1CTJ	Wireless Mesh 802.15.4e, 2 Thermocouple J-type Inputs, 1 Digital Output; Internal Antenna, Conduit Connector
WSD2CTK	Wireless Mesh 802.15.4e, 2 Thermocouple K-type Inputs, 1 Digital Output; External Antenna, Conduit Connector
WSD1CTK	Wireless Mesh 802.15.4e, 2 Thermocouple K-type Inputs, 1 Digital Output; Internal Antenna, Conduit Connector
MODEL NUMBER	ACCELEROMETER
WSD2XV0	Wireless Mesh 802.15.4e Integrated Accelerometer; External Antenna
WSD1XV0	Wireless Mesh 802.15.4e Integrated Accelerometer; Internal Antenna
MODEL NUMBER	ANALOG INPUT
WSD2MA2	Wireless Mesh 802.15.4e; 2 Analog Inputs, 1 Digital Output; External Antenna, M12 Connector
WSD1MA2	Wireless Mesh 802.15.4e; 2 Analog Inputs, 1 Digital Output; Internal Antenna, M12 Connector
WSD2CA2	Wireless Mesh 802.15.4e; 2 Analog Inputs, 1 Digital Output; External Antenna, Conduit Connector
WSD1CA2	Wireless Mesh 802.15.4e; 2 Analog Inputs, 1 Digital Output; Internal Antenna, Conduit Connector
WSD2CJA	Wireless Mesh 802.15.4e; 2 Analog Inputs, 1 Digital Output, 2 Thermocouple J-type Inputs; External Antenna, Conduit Connector
WSD2MA3	Wireless Mesh 802.15.4e; 3 Analog Inputs; External Antenna, M12 Connector
WSD1MA3	Wireless Mesh 802.15.4e; 3 Analog Inputs; Internal Antenna, M12 Connector
WSD2CA3	Wireless Mesh 802.15.4e; 3 Analog Inputs; External Antenna, Conduit Connector
WSD1CA3	Wireless Mesh 802.15.4e; 3 Analog Inputs; Internal Antenna, Conduit Connector
MODEL NUMBER	DIGITAL INPUT
WSD2MD2	Wireless Mesh 802.15.4e; 2 Digital Inputs, 2 Digital Outputs; External Antenna, M12 Connector
WSD1MD2	Wireless Mesh 802.15.4e; 2 Digital Inputs, 2 Digital Outputs; Internal Antenna, M12 Connector
WSD2CD2	Wireless Mesh 802.15.4e; 2 Digital Inputs, 2 Digital Outputs; External Antenna, Conduit Connector
WSD1CD2	Wireless Mesh 802.15.4e; 2 Digital Inputs, 2 Digital Outputs; Internal Antenna, Conduit Connector

## SPECIFICATIONS

POWER	
Internal	(2) 3.6V 2400 mAh Lithium Thionyl Chloride AA batteries
Battery Life	Multiyear based on 1 min sensor sampling and reporting
Optional External Input Voltage	3.3 VDC +/- 5%
MECHANICAL	
Physical Connection	M12 Connector 1/2" (12.7 mm) Conduit, sensor interface cable included; 8 wire, 26 gage, 6 ft. (1.8 m)
Sensor Inputs	Analog Input (0 - 5 VDC, 0 - 20 mA, 4 - 20 mA) Digital Input (0-48 VDC) Digital Input Frequency 1-1K Hz (Accuracy + or - 1 Hz) Digital Input Counter Integrated Accelerometer 3 Axis Integrated Temperature Thermocouple J, K Type Digital Output (0-30 VDC)
Optional External Antenna	RP-SMA, Omnidirectional, 3.8 dBi, 2.4 GHz Dimensions 7.64 inches (194 mm)
Mounting	Magnetic mounting via internal magnet Pull force 4.7 lbs (2.13 kg) (4) Mounting ears, M5 (#10)
Enclosure	IP66-rated, fiber reinforced polyester PBT
Weight	0.75 lbs (0.34 kg)
TECHNOLOGY	
Wireless	802.15.4e, SmartMesh IP
Protocols	MQTT-SN, MQTT, JSON
Bluetooth	Bluetooth 4.0 Low Energy (LE)
LED	Network Connectivity
ENVIRONMENTAL	
Installation	Indoor or outdoor
Operating Temperature	-40 to 80°C (-40 to 176°F)
Storage Temperature	-40 to 85°C
Operating Humidity	0 to 95% Non-condensing
WIRELESS SECURITY	
Device Authentication	128 bit AES-based encryption with multiple keys
Message integrity check (MIC)	Synchronized key changeovers
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