NZ7 Series Automatic Transfer Switching Equipment

1. Scope of application

Applicable to the three-phase four-line two-circuit power supply network with an AC power frequency of 50Hz, rated operational voltage of AC400V, and rated operational current of up to 630A, the NZ7 series automatic transfer switching equipment can automatically connect one or several loads from one power source to another to ensure the normal power supply of the load circuit.

This product is applicable to the important places such as industrial, commercial, and storied buildings, and residential houses.

Execution standard: GB/T 14048.11.

2. Type designation

N Z 7－□□/□□□□□□□□□

- Additional function
  X: fire control linkage function
  Without code:
  no fire control linkage function
- Transfer mode without code:
  Users can set the matter
  R: self-throwing and self-reset
  (power network to power network)
  S: self-throwing and not self-reset
  (power network to power network)
  F: self-throwing and self-reset
  (power network to power generation)
- Controller type
  A: basic type　B: liquid crystal type
- Structure
  Y: integrated (type)
  Without code: separated (type)
- Actuator circuit breaker type
  Without code: NM1
- Rated current (Arabic numerals)
- Release with nothing as its code: NM1
- Number of poles: 3, 4
- Breaking capacity code: S, H, R
- Shell grade rated current (Arabic numerals)
- Design serial number
- Automatic transfer switching equipment
- Enterprise code

3. Normal service conditions

3.1 Ambient air temperature
The upper limit for the ambient air temperature is +40℃, lower limit -5℃, and the mean value of the temperature is not greater than +35℃ within 24 hours;

3.2 Altitude
Altitude: not higher than 2,000m for the installation site.

3.3 Atmospheric conditions:
When the ambient air temperature is +40℃, the relative humidity of the air shall not be higher than 50%, a higher relative humidity is allowed at a lower temperature, e.g. 90% at +20℃, and special measures shall be taken for the condensation occasionally produced due to temperature changes.

3.4 Class of pollution:
Class of pollution: 3

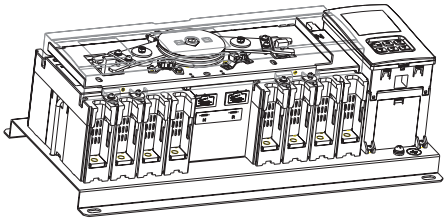
4. Technical parameters and performance

Product type	NZ7-63	NZ7-100	NZ7-225	NZ7-400	NZ7-630
Up to standard	GB/T14048.11-2008				
Actuator circuit breaker	NM1-63	NM1-100	NM1-225	NM1-400	NM1-630
Parameters of electrical characteristics					
Operating environment temperature	-5℃～+40℃				
Altitude	2000m				
Class of pollution	3				
Specification for current	6,10,16,20,25, 32,40,50,63A	16,20,25,32,40, 50,63,80,100A	100,125,160, 180,200,225A	250,315, 350,400A	400,500, 630A

Rated operational voltage (Ue)	400V 50Hz																		
Nominal insulation voltage (Ui)	AC500V			AC800V															
Rated impulse withstand voltage	6kV			8kV															
Number of poles	3P		4P	3P			4P	3P			4P	3P, 4P			3P, 4P				
Short circuit breaking capacity codes	S	H	H	S	H	R	H	S	H	R	H	S	H	R	S	H	R		
Rated short circuit making capacity (Icm)	52.5	105	105	73.5	105	187	105	73.5	105	187	105	105	143	220	105	143	220		
Rated short circuit breaking capacity (Icn)	25	50	50	35	50	85	50	35	50	85	50	50	65	100	50	65	100		
Rated ultimate short circuit breaking capacity (Icu)	25	50	50	35	50	85	50	35	50	85	50	50	65	100	50	65	100		
Rated service short circuit breaking capacity (Ics)	50%Icu																		
Service life	6000 times			6000 times				6000 times				4000 times			3000 times				
Usage category	AC-33B																		
Electric equipment grade	CB Class																		
Protection level	IP30 (except the main circuit terminal)																		
Protection	Overload protection/short circuit protection																		
Controller characteristic																			
Controller	Type A(basic type)																		
Rated control supply voltage Us	230V 50Hz																		
Installation mode for the controller	Integrated/separated (as installed on the surface of the cabinet)																		
Operating transfer time (no time delay) ≤2s	≤2s			≤2s				≤2s				≤3s			≤3s				
Power consumption	≤10W																		
Installation and connection																			
Installation mode	Fixed tepe																		
Connection mode	Front connection																		

5. Characteristics and functions

The NZ7 series automatic transfer switching equipment (hereinafter referred to as automatic transfer switch) is the CB class product of a new generation combined with the advanced digital electronic control technique. The product features compactness, energy conservation, convenient installation, reliable dual-interlock protection, etc., and is advanced and complete in terms of function.



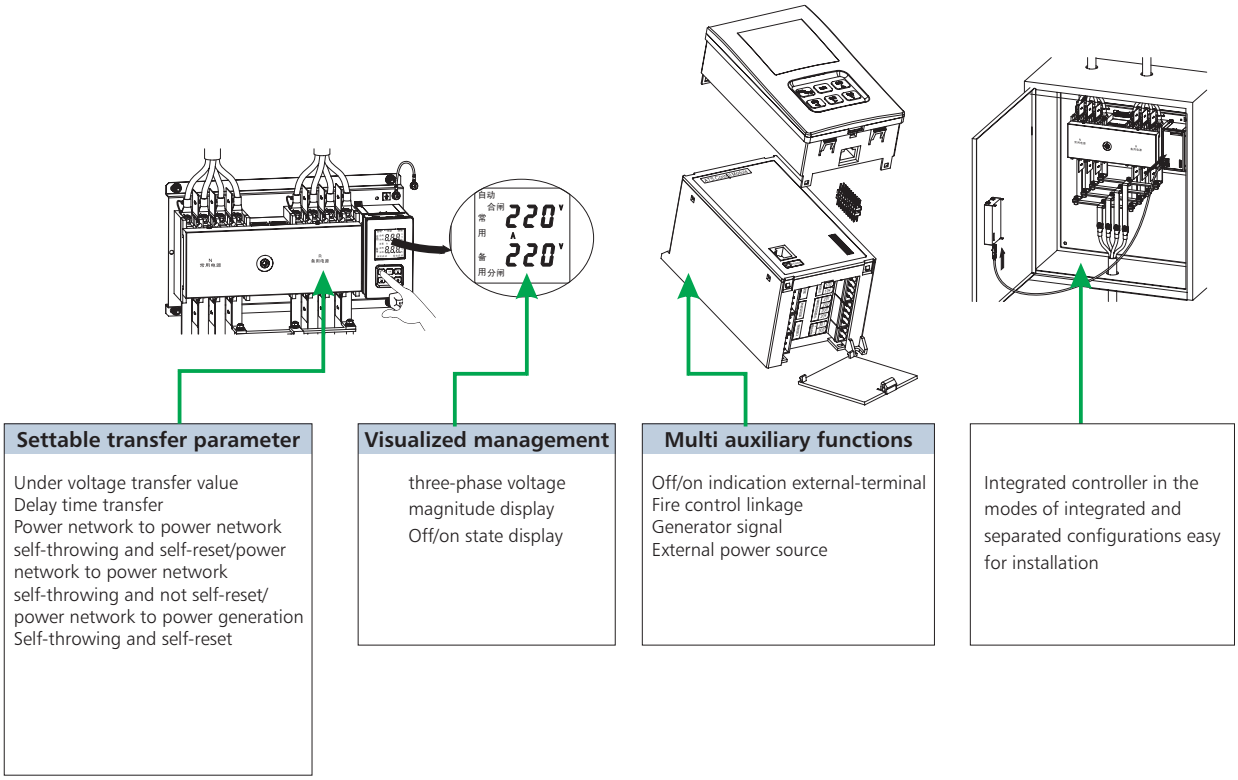
Single motor structure, compact

Visualized management

5.1 Compactness
The transfer function is achieved via using the forward and backward rotation of the only one motor which allows for reducing the product's height and room for its installation.
5.2 Energy saving
The driving mechanism works in the mode of motor drive with less power consumption and noise.

Type A controller (long-term service)	Transmission mechanism (short-term service)		
	Type 63/Type 100	Type 225	Type 400/Type 630
≤10W	20W	40W	20W

5.3 Advanced and multipurpose functions



Settable transfer parameter

Under voltage transfer value
Delay time transfer
Power network to power network self-throwing and self-reset/power network to power network self-throwing and not self-reset/ power network to power generation
Self-throwing and self-reset

Visualized management

three-phase voltage magnitude display
Off/on state display

Multi auxiliary functions

Off/on indication external-terminal
Fire control linkage
Generator signal
External power source

Integrated controller in the modes of integrated and separated configurations easy for installation

5.4 Dual-interlock protection

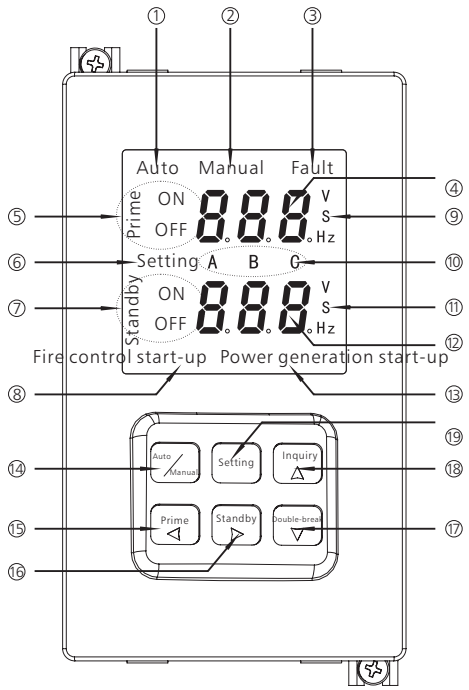
The mechanical-electrical interlock duplex protection is used to prevent two power sources from being connected simultaneously to the load, wherein the electrical interlock works in the breaker contact position mode for directly indicating the automatic transfer switch to perform the genuine electrical interlock so that the automatic transfer does not take place automatically in such cases as contact fusion welding, breaker handle damage, and circuit fault breaker tripping.

6. Controller

Type and function	Type A (basic type)
Modes of manual and automatic transfer	■
Working position of the main contact (actuator circuit breaker)	
Prime power turned on	■
Standby power turned on	■
Double-break	■
Automatic control	
Monitoring the prime power	Failures such as loss of phase/voltage, under and over voltage for any of three phases of the power supply
Monitoring the standby power	Failures such as loss of phase/voltage, under and over voltage for any of three phases of the power supply
Self-throwing and self-reset	■
Self-throwing and not self-reset	■
Power network to power network	■
Power network to power generation	■
No-voltage transfer	■
Under voltage transfer	■
Over voltage transfer	■
Adjustable delay time	■
Transfer delay a	Continuously adjustable in the range of 0s~180s
Return c	Continuously adjustable in the range of 0s~180s
Generator control	■
Fire control linkage (inactive contact)	■
Indication	
Indication for on, off, and double-break	■
Prime power indication	■ (Displaying voltage magnitude)
Standby power indication	■ (Displaying voltage magnitude)
Fault tripping indication	■
External indication signal terminal	■
Parameter setting indication	■
Interlock protection	
Mechanical interlock	■
Electrical interlock	■ (not transfer automatically with faulty tripping)

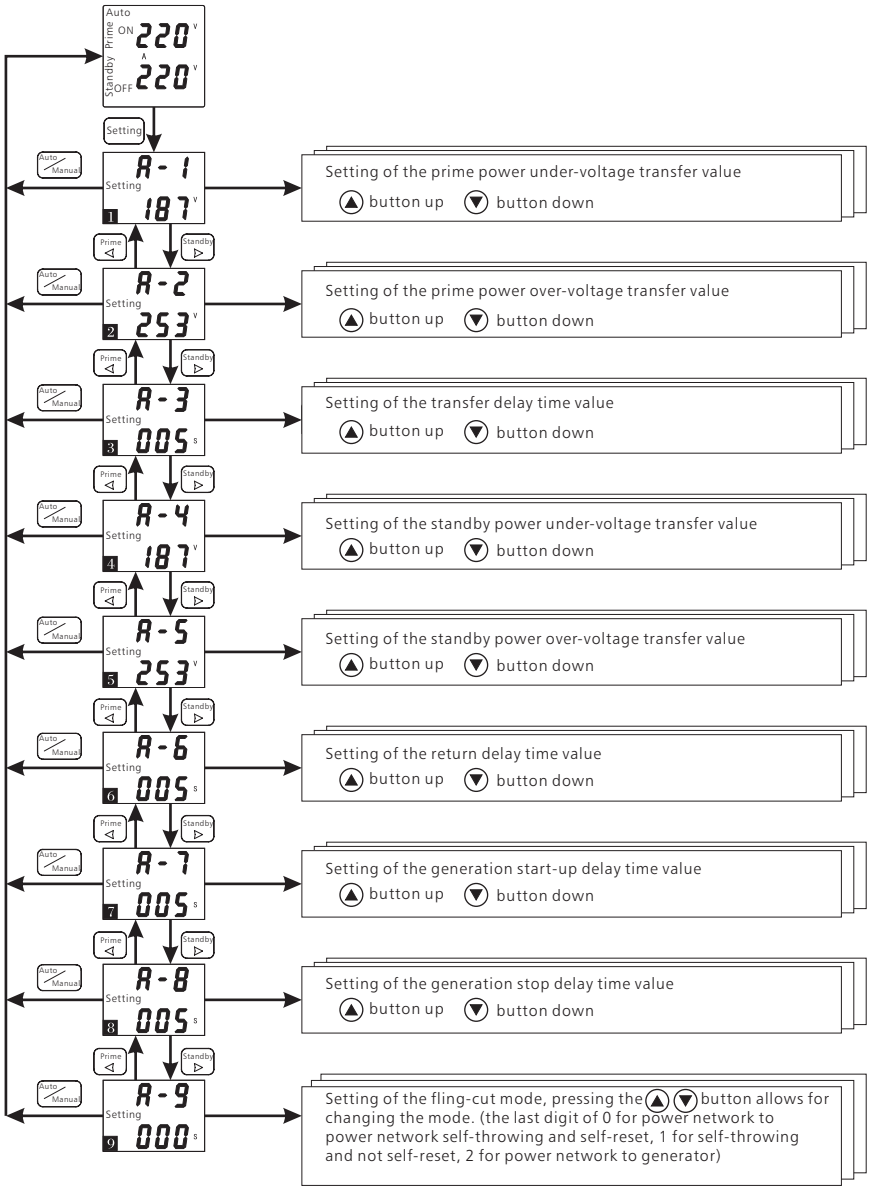
6.1 The Type A integrated controller works in the modes of integrated or separated configurations, and is installed in the cabinet or on the panel to allow operation outside the cabinet.
Whether to transfer from one power source to another depends on the state of the operational power supply.
Generating set control
Press-key manually forced transfer operating
6.2 Control voltage
AC230V 50Hz
6.3 Operation: automatic operation, manual operation
6.4 Setting delay
Transfer delay: adjustable in the range of 0 - 180s, prime power failure, time before off for QN
Return delay: continuously adjustable within the range of 0s - 180s, prime power recovery, time before off for QN

6.5 Interface for display and operation
LED digital display



1.Indication for the auto work mode
2.Indication for the manual work mode
3.Fault indication
This indicator turns on when the switch fails or the short circuit of the load results in the tripping of the breaker
4.The prime power voltage parameter display area shows the prime power voltage parameter and transfer delay time in the work state, and the set item symbol in the setting state
5.The power breaker on the side of the prime power is closed to cut off the indication
6.Setting the status indication
7.The power breaker on the side of the standby power is closed to cut off the indication
8.Fire control linkage function start-up indication
9.Units for the voltage, time, and frequency on the side of the prime power
10.Phases of A, B, and C
11.Units for the voltage, time, and frequency on the side of the standby power
12.The standby power voltage parameter display area shows the standby power voltage parameter and transfer delay time in the work state, and the set item parameter in the set state
13.Engine start-up signal indication
14.The selector buttons for the modes of auto and manual transfer are used for selecting such modes in the normal work state, and perform the functions of save and exit in the set state
15.Fling-cut switch for the prime power
In the manual control mode, if the prime power works properly, pressing this button allows switching over to the standby power in a forced way; this key acts as the down button for the set item in the set state
16.Fling-cut switch for the standby power
In the manual control mode, if the standby power works properly, pressing this button allows for forced switch over to the standby power in a forced way; this key acts as the down button for the set item in the set state
17.OFF pushbutton
In the manual control mode, if any of the two powers works properly, pressing this button allows for switch over to the OFF position; this key acts as the minus button for the set parameter in the set state
18.Fault inquiry button
After the fault indicator on the failure screen turns on, pressing this button allows for inquiring the detailed fault code for the switch; this key acts as the plus button for the set parameter in the set state
19.Setting button
Pressing this button allows for entering into the menu for parameter setting of the controller.

6.6 Setting parameters for the Type A controller



Note for keys

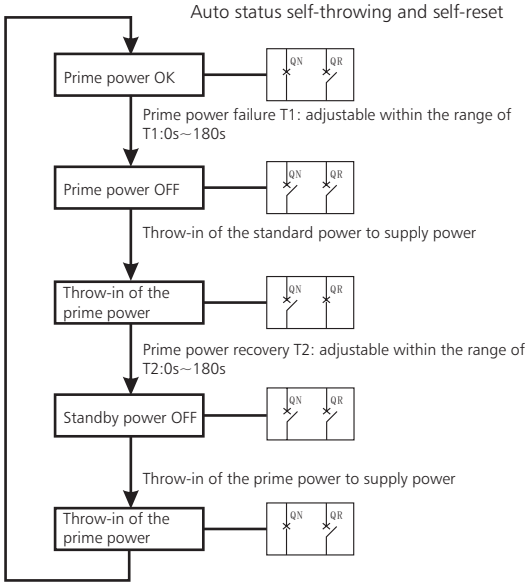
When the controller is in operation, press the setting key, and the LED will display the parameter setting menu interface shown as 1 in the drawing; under the setting menu

Pressing the "◀""▶"key(s) allows for setting of options in way of UP/DOWN, and pressing the auto/manual key allows for the exit of the setting menu

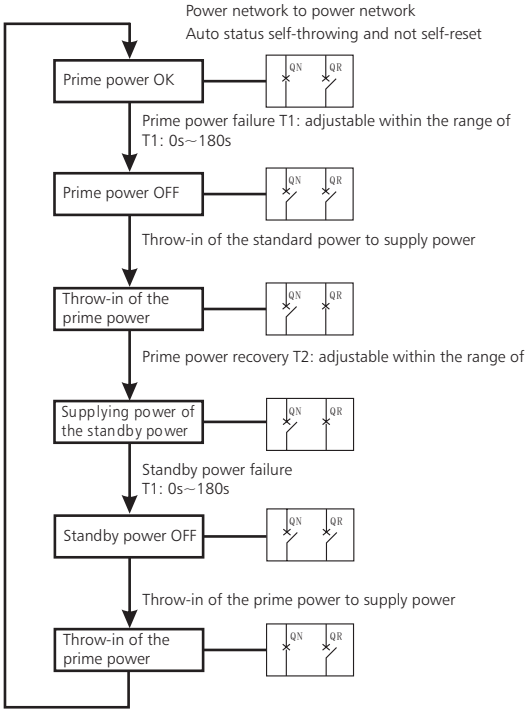
Pressing the "▼""▲"key(s) allows for the modification of parameters

Type A controller operating process

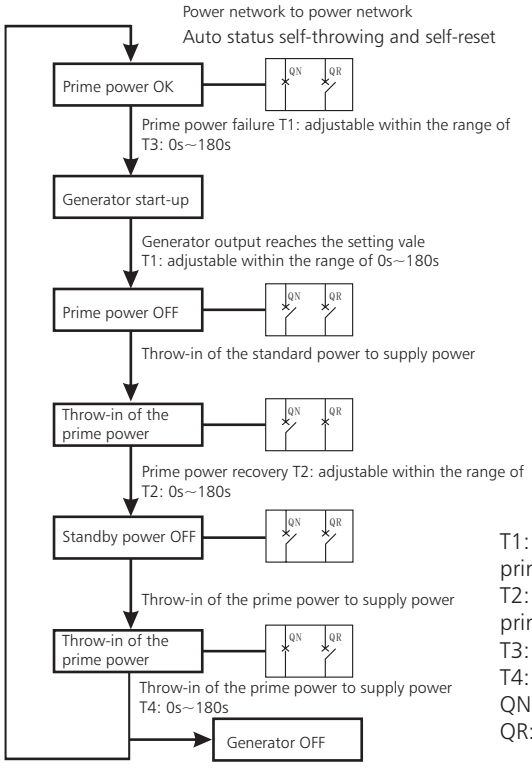
Power network to power network
Auto status self-throwing and self-reset



Power network to power network
Auto status self-throwing and not self-reset



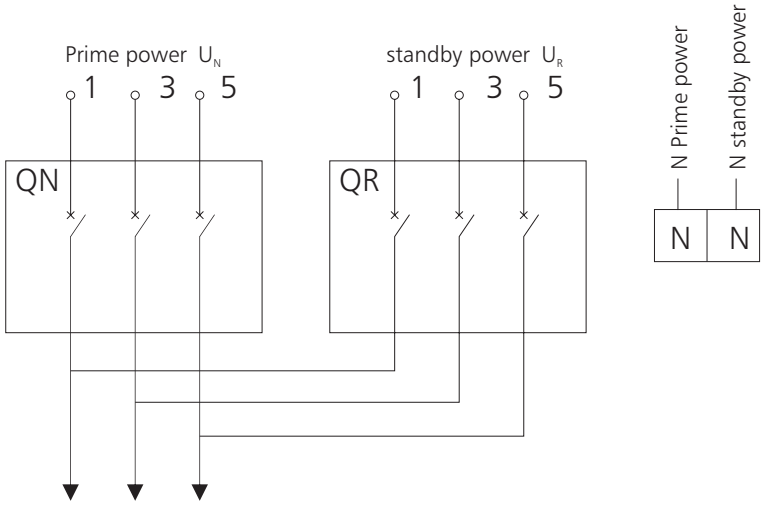
Power network to power network
Auto status self-throwing and self-reset



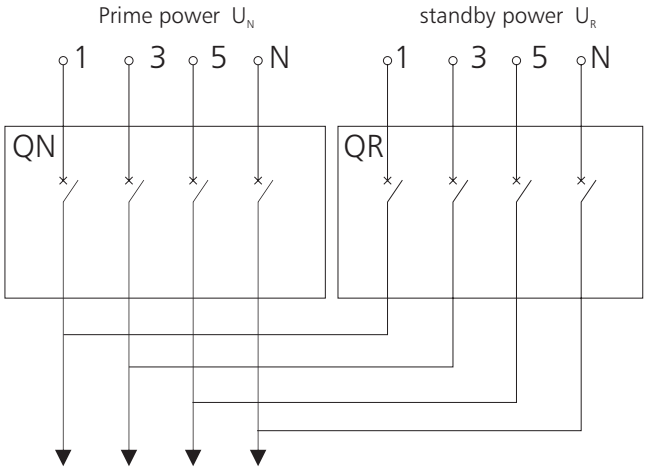
T1: Transfer delay time, adjustable within the range of 0s～180s, prime power failure, time before off for QN
T2: Return delay time, adjustable within the range of 0s～180s, prime power recovery, time before off for QR
T3: Generation start-up delay time, adjustable within the range of 0s～180s
T4: Generation OFF delay time, adjustable within the range of 0s～180s
QN: Actuator circuit breaker on the prime (normal) side
QR: Actuator circuit breaker on the standby (reserve) side

7. NZ7 external connection diagram

7.1 product connection diagram

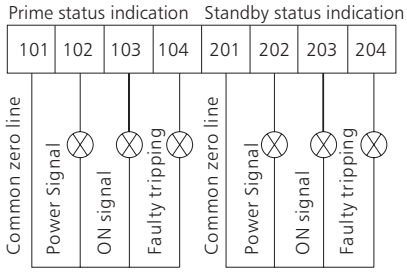


7.2 4P product connection diagram

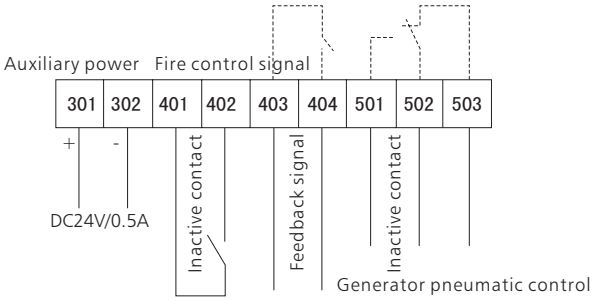


Note：
QN actuator circuit breaker on the prime (normal) side
QR actuator circuit breaker on the standby (reserve) side

7.3 Type A controller's external wiring

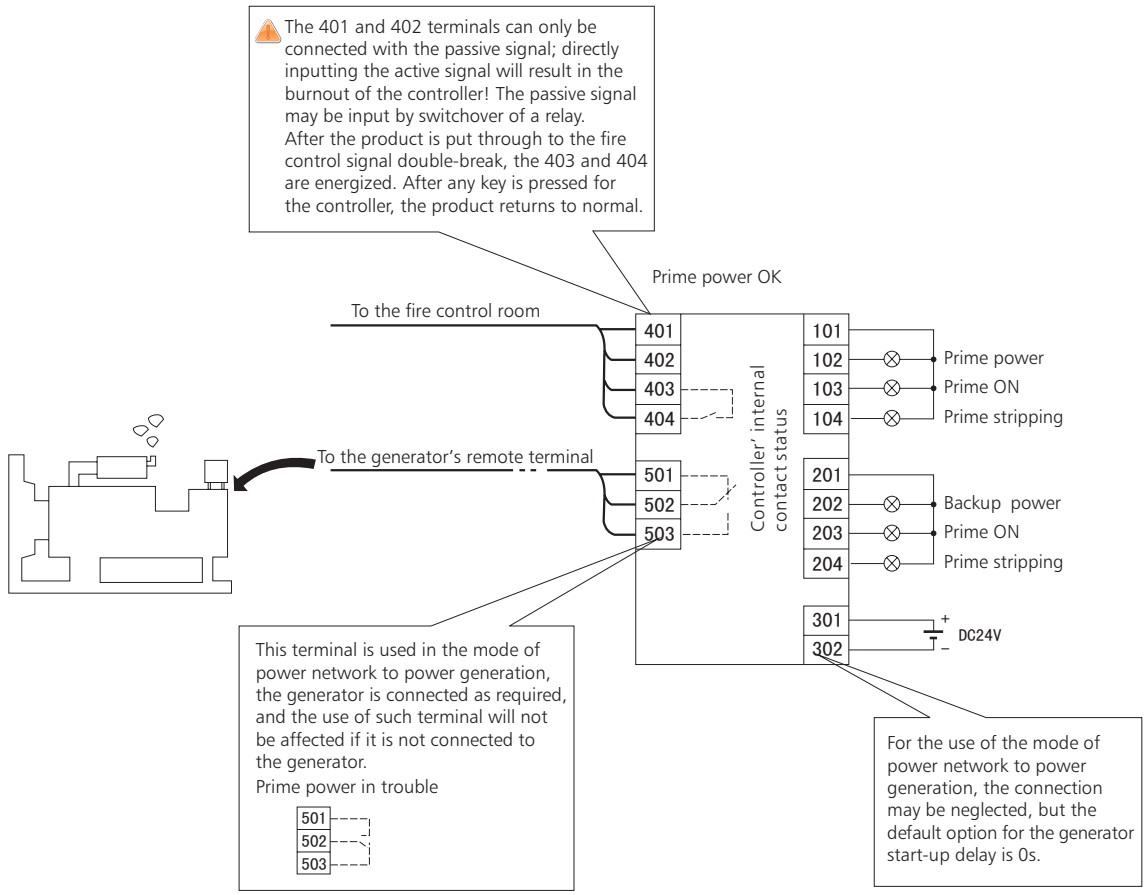


Active AC230V/0.5A



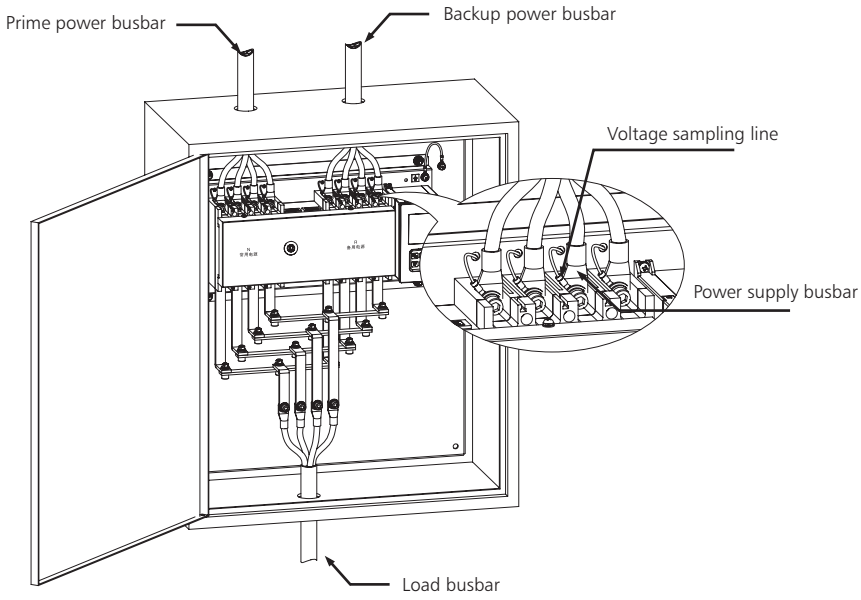
Note: the part indicated by the dashed lines is the controller's internal wiring

7.4 Typical application



8. Line incoming pattern

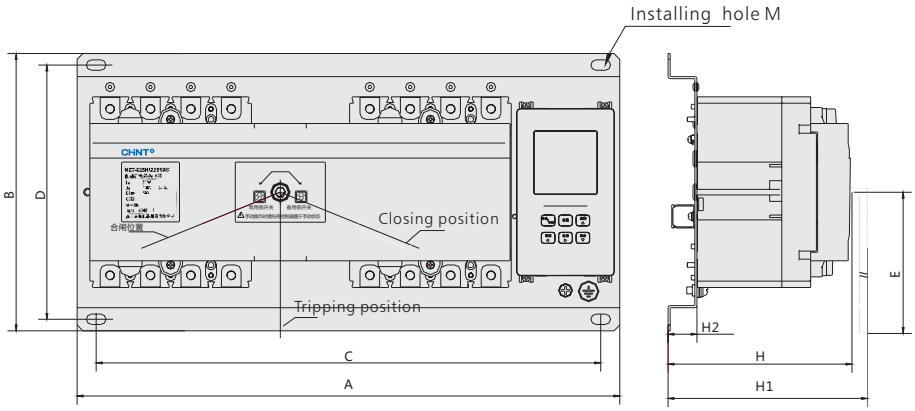
8.1 Wire to enter from the upper port



8.2 Installation mode: vertical installation and horizontal installation

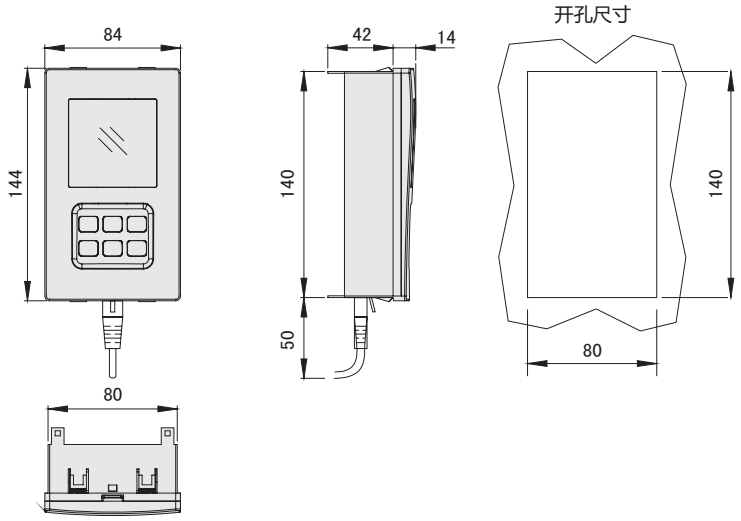
9. Overall and Mounting dimensions (mm)

9.1 NZ7-63~630



Dimension / Modle	A		B	C		D	H	H1	H2	M
	3P	4P		3P	4P					
NZ7-63	355	380	240	322	347	220	150	170	25	Φ8
NZ7-100	390	420	240	357	387	220	150	180	25	Φ8
NZ7-225	435	470	240	402	437	220	160	190	25	Φ8
NZ7-400	565	615	330	505	555	300	200	227	24	Φ10
NZ7-630	682	740	330	622	680	300	200	232	24	Φ10

9.2 Size of the hole to be drilled on the Type A controller's panel



10. What you need to know to order

The user shall indicate such items as the type, current specification, number of poles.

Example: If you order an auto transfer switch equipment, shell current 100A, rated current 100A, breaking capacity of Type H, 4 poles, Type A controller, you can write it as NZ7-100H/4100YAX.