

Electricity changes Life,  
efficiency leads the Future!



# NLDQ3

## Dual Power Automatic Transformer Series

**NLD** 北陆电气®



### >> NLDQ3 Series Dual Power Automatic Transformer

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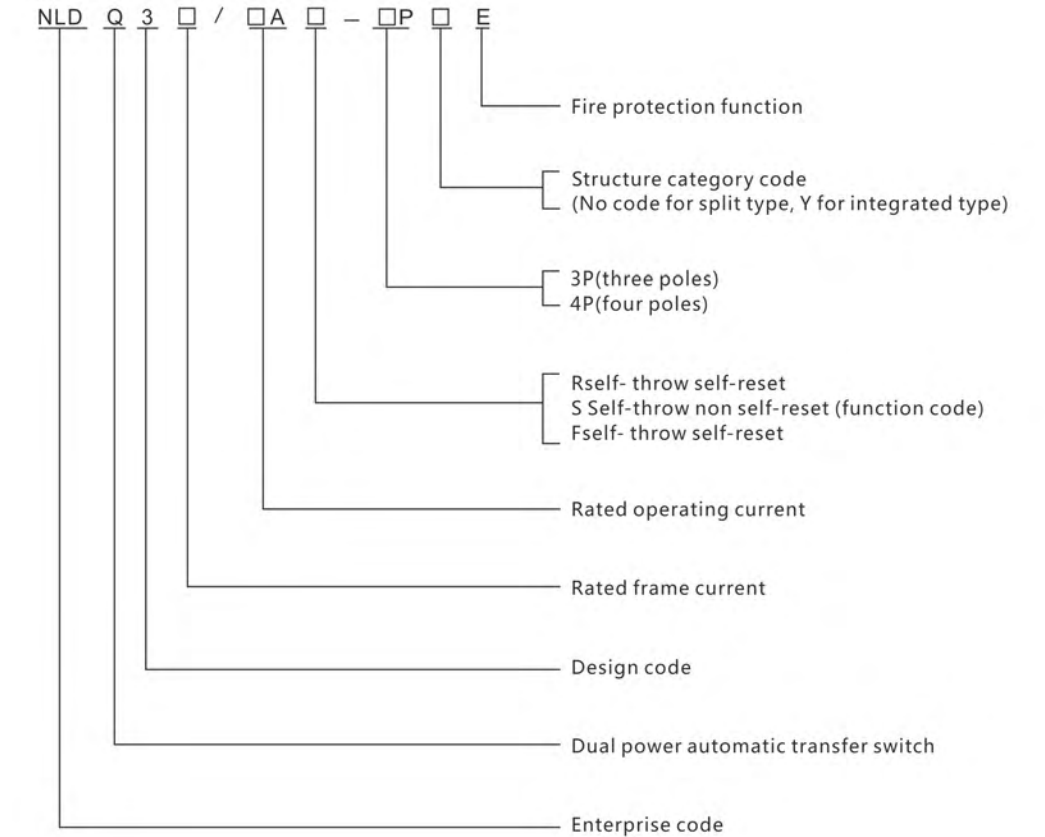
#### ■ Scope of application



The dual power automatic transfer switch (hereinafter referred to as the switch) is suitable for three-phase four wire power supply system with frequency of AC 50Hz, rated operating voltage of 400V and rated operating current 16A~1600A. It can achieve automatic and manual switching between normally used power supply (N) and reserved power supply (R), and interrupt power supply to the load during the power switching process. It's suitable for occasions that require dual power supply and high power quality requirements. This series of products have communication port, which can achieve remote control and enable users to achieve unmanned substations.



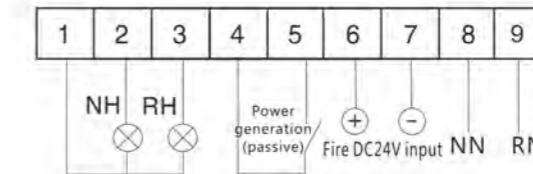
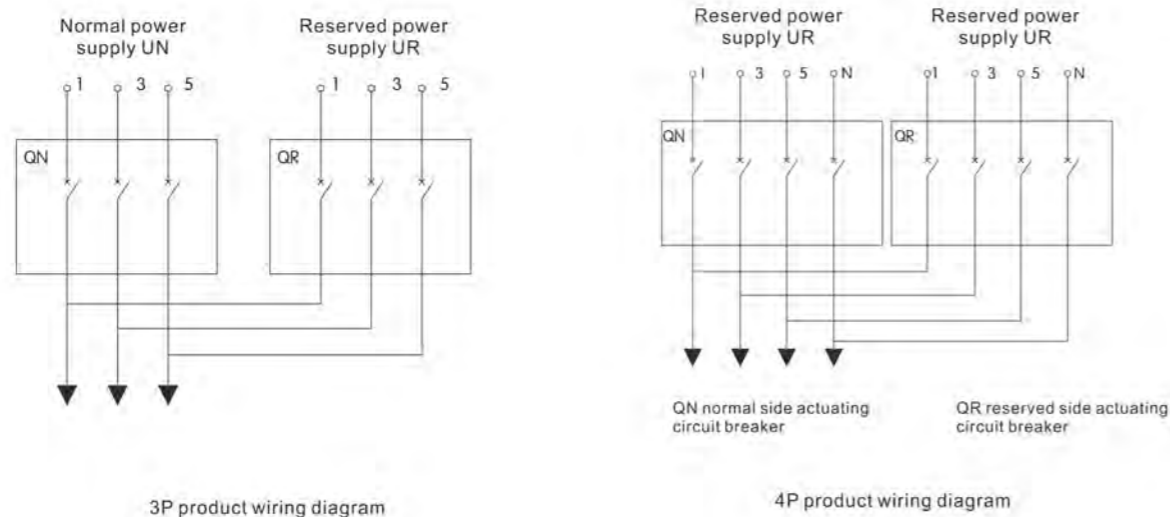
#### ■ Model and meaning



■ Technical parameters and performance

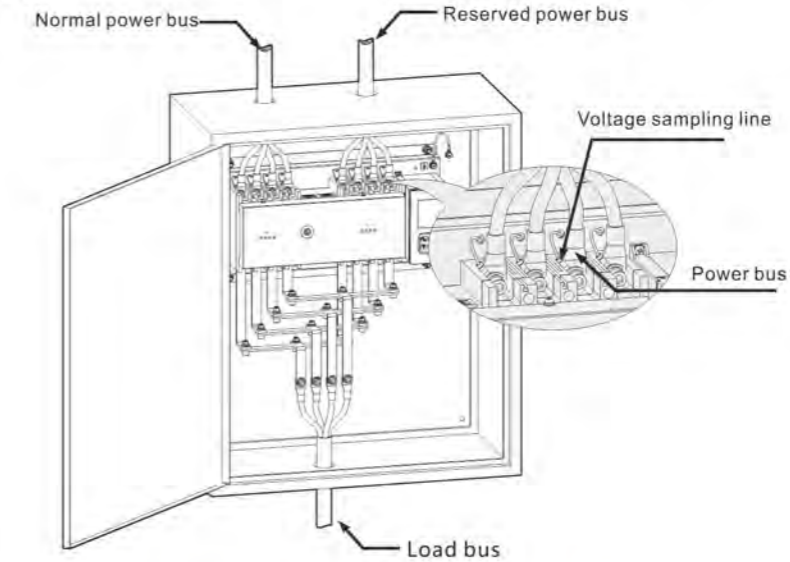
Product model	NLDQ3-63	NLDQ3-125	NLDQ3-250	NLDQ3-400	NLDQ3-630	NLDQ3-800	NLDQ3-1600
Compliant standard	GB/T14048.11						
Actuating circuit breaker	NLDB1-63	NLDM1-125	NLDM1-250	NLDM1-400	NLDM1-630	NLDM1-800	NLDM1-1600
Current specification (A)	10,16,20,25,32,40,50,63	25,32,40,50,63,80,100,125	100,125,160,180,200,225,250	250,315,350,400	400,500,630	630,700,800	1000,1250,1600
Rated operating voltage (Ue)	AC400V						
Rated insulation voltage (U)	AC690V						
Rated impulse withstand voltage	6kV	6kV	8kV				
Rated short-circuit making capacity (Icm)	7.65	17	17	26	26		
Rated short-circuit breaking capacity (Icn)	5	10	10	15	15		
Life	6000 times		4000 times	3000 times			
Utilization category	AC-33iB						
Electrical appliance class	Class CB						
Protection grade Ip20	IP30(except main circuit terminal)		IP30(except main circuit terminal)				
Protection	Overload protection/short circuit protection			Overload protection/short circuit protection			
Rated control supply voltage Us	230V 50Hz			230V 50Hz			
Controller installation method	Integrated/split type (cabinet mounted)						
Transfer action time (no delay) ≤3s							
Installation method	Fixed type						
Connection method	Front panel						

■ External wiring diagram

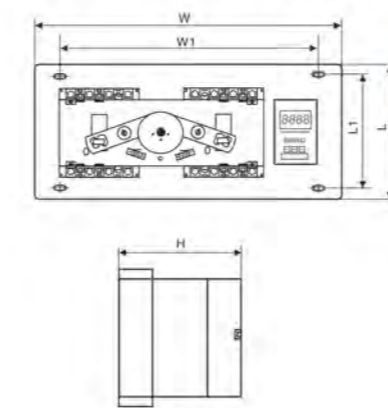


Note: The above figure is for user reference only, and the comprehensive function wiring diagram varies depending on the model and function. This wiring diagram is suitable for four-pole circuit breakers. When using three-pole circuit breaker, both the normal power zero line (NN) and the reserved power zero line (RN) are connected to the wiring terminal simultaneously. When fire occurs, the EPS fire signal is activated (provided by the fire center) to open the Q1 and Q2 circuit breakers.  
 (NH, RH) power closing indicator light AC220V (provided by user) external;  
 (Q1, Q2) circuit breaker;  
 The dashed part of the (built-in) passive power generation contact is provided by the user.

■ Incoming line mode



■ Overall and installation dimension (intelligent, integrated)

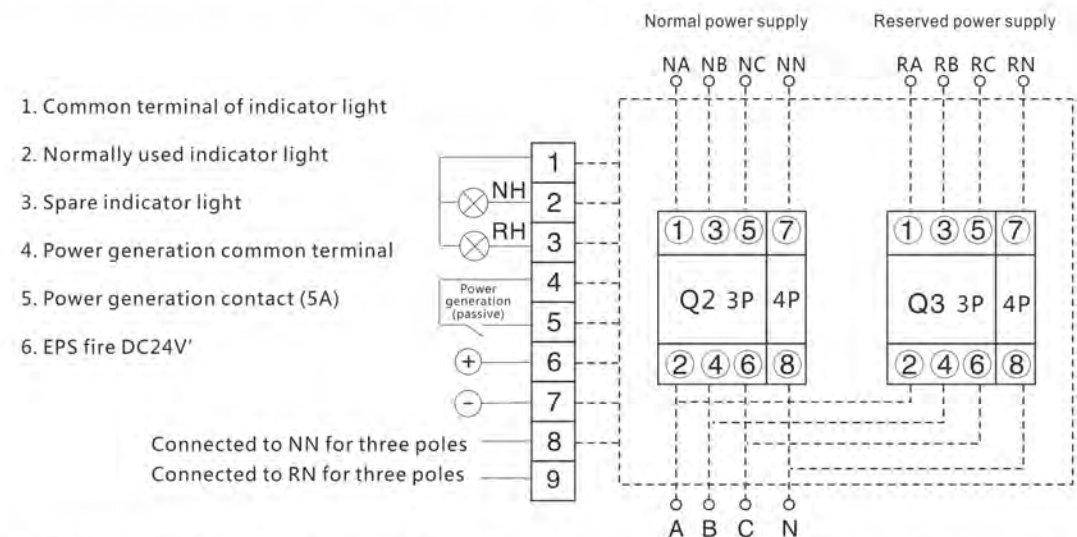


Specification	Dimension	W	L	W 1	L 1	(including handle)
63/3P, 4P integrated		380	240	345	220	150
125/3P, 4P integrated		420	240	385	220	150
250/3P, 4P integrated		470	240	435	220	170
400/3P, 4P integrated		615	330	555	300	255
630/3P, 4P integrated		740	330	680	300	255
800/3P integrated		720	350	660	320	255
800/4P integrated		790	350	735	320	255
1250/3P integrated		730	475	685	366	275
1250/4P integrated		800	475	755	366	275
1600/3P integrated		730	515	685	366	275
1600/4P integrated		800	515	755	366	275

■ Main technical parameters

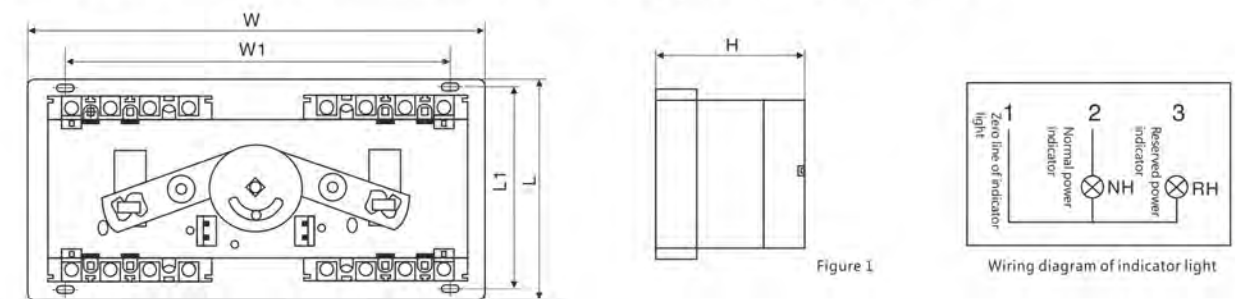
Specification	Dimension	Circuit breaker model	Frame current A	Rated operating current A	Breaking current kA	Rated operating voltage	Insulation voltage	Frequency	Delay time	Rated operating voltage of controller	Mechanical life								
125/3P	NLDM1 series		125	10/16/20/32/40/50	Refer to the circuit breaker manual for specific model	400V	2500V	50/60Hz	0~99s Adjustable	AC230V	5000 Times								
125/4P				63/80/100/125															
250/3P			250	100/125/140/160/180															
250/4P				200/225/250															
400/3P			400	225/250/315/350/400															
400/4P																			
630/3P			630	400/500/630															
630/4P																			
800/3P			800	630/700/800															
800/4P																			
1250/3P			1250	1000/1250															
1250/4P																			
1600/3P			1600	1000/1250/1600															
1600/4P																			
																			3000 Times

■ Installation and use method (intelligent type)



Note: The above figure is for user reference only, and the comprehensive function wiring diagram varies depending on the model and function. This wiring diagram is suitable for four-pole circuit breakers. When using a three-pole circuit breaker, both the normal power zero line (NN) and the reserved power zero line (RN) are connected to the wiring terminal simultaneously. When fire occurs, the EPS fire signal is activated (provided by the fire center) to open the Q3 and Q2 circuit breakers, (NH, RH) power closing indicator light AC220V (provided by user) external; (Q3, Q2) circuit breaker; The dashed part of the (built-in) passive power generation contact is provided by the user.

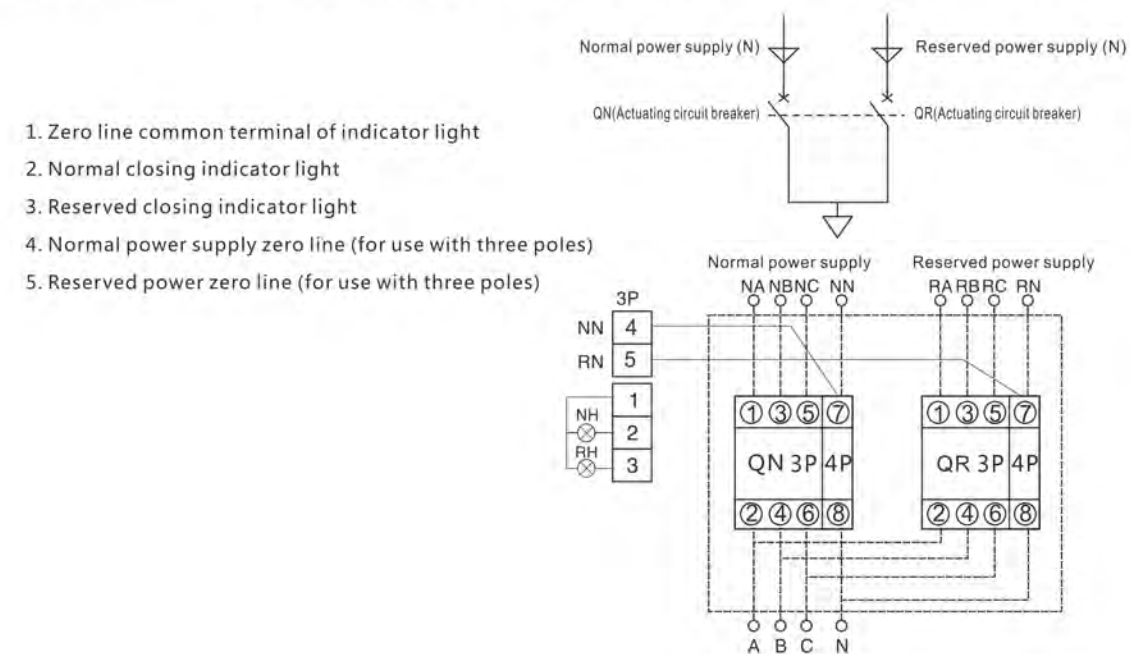
■ Overall and installation dimension (terminal type, intelligent split)



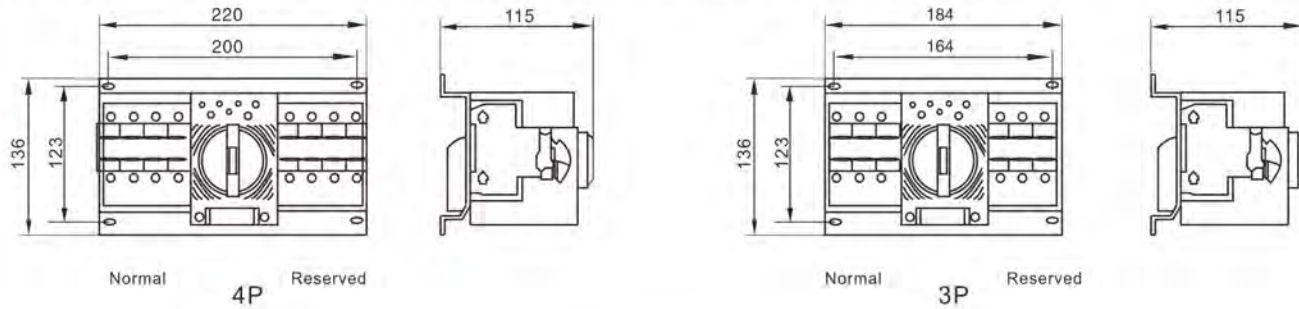
Specification	Dimension	W	L	W1	L1	(including handle)
63 / 3P、4P		290	240	255	220	150
125 / 3P、4P		320	200	285	180	150
250 / 3P、4P		370	210	338	190	170
400 / 3P、4P		525	330	465	300	200
630 / 3P、4P		650	330	585	300	255
800 / 3P		615	350	550	320	255
800 / 4P		685	350	630	320	255
1250 / 3P、4P		695	475	650	365	255
1600 / 3P、4P		695	515	650	365	255

■ Installation and use method (terminal type)

When installing and wiring, the normal power supply N should be connected to the normal power supply actuating circuit breaker QN, and the reserved power supply R should be connected to the reserved power supply actuating circuit breaker QR. When QN and QR are four pole circuit breakers, the wiring method follows the wiring diagram, where 1, 3, and 5 of QN and QR are the incoming terminals of the phase (A, B, C), 2, 4, and 6 are the three-phase outgoing terminals, 7 is the incoming terminal of the zero line (N), and 8 is the outgoing terminal of the zero line. If a three-pole circuit breaker is selected, the neutral line (NN) of the normal power supply N and the neutral line (NR) of the reserved power supply R must be connected to the dedicated three-pole neutral line terminal together. Please refer to the wiring diagram for specific operations. The working power supply of the dual power transfer switch automatic controller is taken from the incoming line A and zero line N of circuit breakers QN and QR. During the installation and wiring process of the automatic power transformer switch, do not forget to connect the sampling signal wire of the local controller that was originally connected to the passing line end of the circuit breaker, break or short-circuit, otherwise it cannot work normally.



Overall and installation dimension (miniature circuit breaker type)

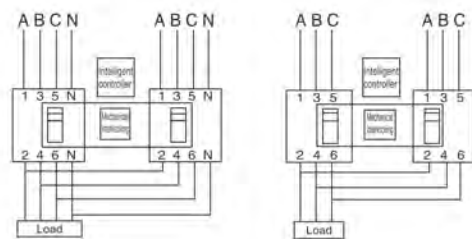


Installation and use method (micro-fracture type)

According to the actual needs of the designed circuit, connect the incoming and outgoing lines and zero lines of the normal supply and reserved power supply. Two circuit breakers are connected in parallel at the outgoing terminals, but the phase sequence is consistent (see wiring diagram).

When the circuit breaker is 3-pole, the zero line must be connected to the zero line terminal of the transfer switch (in Figure 2, the normally used zero line and the reserved two lines must be connected to the #2 and #4 terminals respectively).

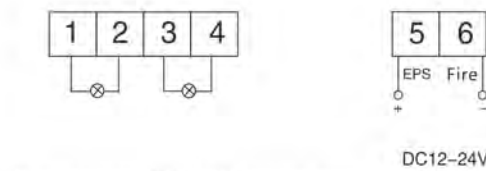
1. Main circuit wiring diagram



4P wiring diagram

3P wiring diagram

2. External power supply closing indication and fire power wiring diagram



Normal closing (AC220V) Reserved closing

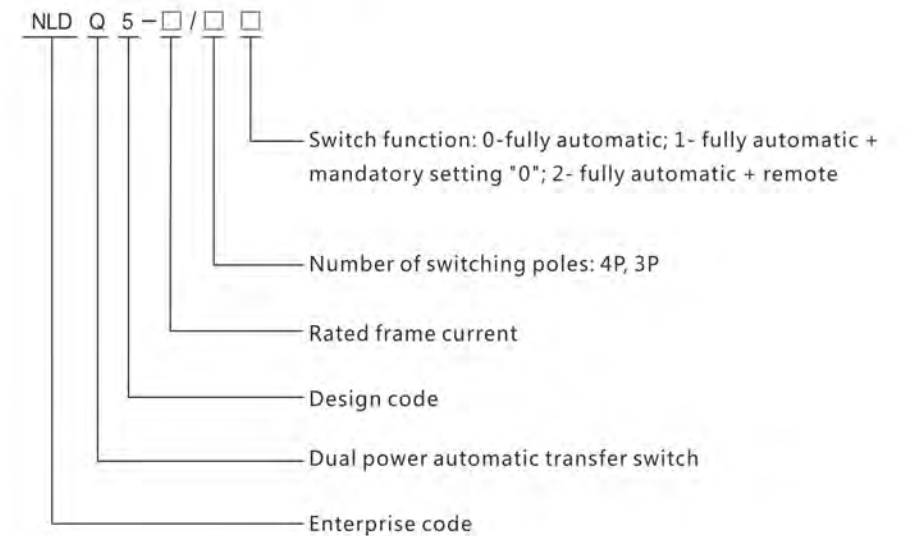


overview

Dual power automatic transfer switch is an automatic transfer switch that integrates switch and logic control, truly achieving mechanical-electrical integration. It is suitable for industrial and enterprise distribution equipment with frequency of AC 50Hz, rated voltage up to 440V and agreed current up to 1600A. It has functions such as voltage detection, communication interface, electrical and mechanical interlocking, etc; it can achieve full automation, remote control, mandatory setting of "0", emergency manual operation, and is widely used for automatic conversion of main power supply and backup power supply in power supply systems, or automatic conversion and safe isolation of two load devices. The switch is managed by various logic commands issued by the control circuit board to the motor, which drives the operating mechanism of the main part of the switch to quickly connect and disconnect the circuit or perform circuit conversion, achieving safe isolation through a clearly visible state.



Model and meaning

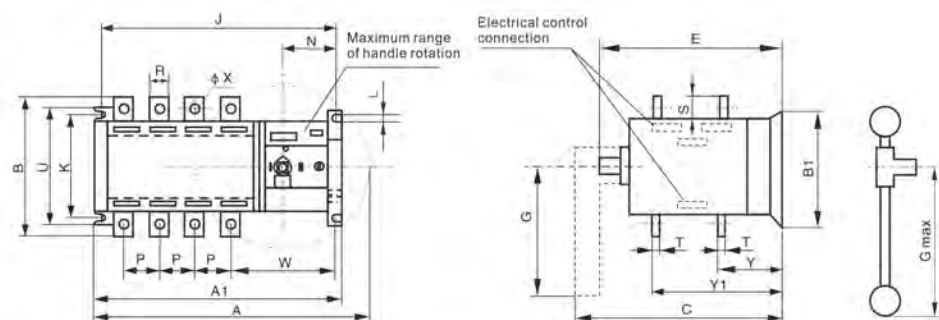


■ Main technical parameters

- 1. It complies with standards: IEC60947-6-1, GB/T14048.11
- 2. Rated operating voltage (Ue): AC400V
- 3. Rated short-circuit making capacity Icm (peak):  
100A frame: 17kA      630A frame: 63kA

Rated heating current (A)	100	160	250	400	630	1000	1250	1600	2000	2500	3200
Rated insulation voltage	AC690V					AC1000V					
Rated impulse withstand voltage	6kV					8kV					
Utilization category	AC-33iB										
Rated short-time withstand current	10kA	30kA			32kA			50kA			
Control supply voltage	DC24, DC48V, DC110V, AC220V										
Transfer time (s)	0.5	1	1.1	1.2	1.25			2.45			

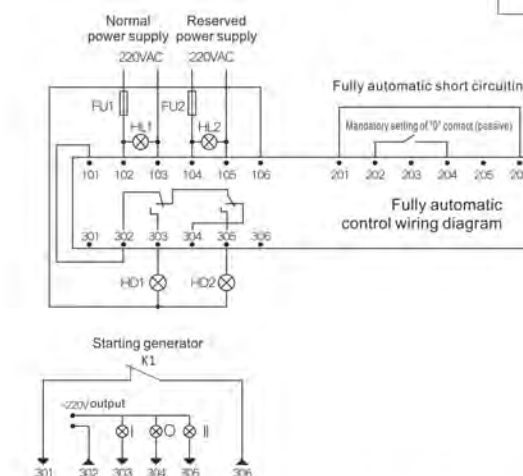
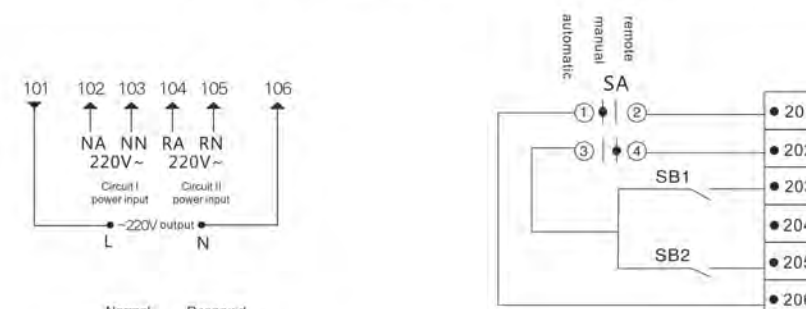
■ Overall and installation dimension



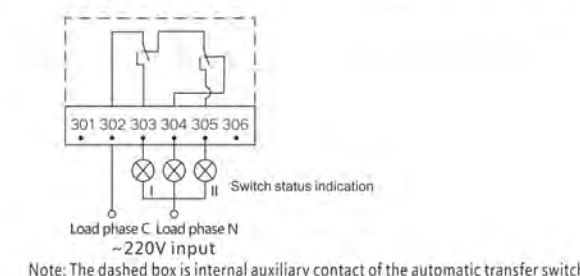
Specification	Overall and installation dimension (mm)																			
In	A	A1	B	B1	C	E	G	J	K	L	N	P	R	S	T	U	W	ΦX	Y	Y1
100/3	260	265	120	106	170	145	115	220	83	6	85	30	13	18	2.5	106	126	6	40	92
100/4	272	244	120	106	170	145	115	231	83	6	85	30	13	18	2.5	106	126	6	40	92
160/3	320	268	142	141	226	194	145	254	102	6.5	92	36	20	25	3.5	124	126	9	60	130
160/4	350	297	142	141	226	194	145	285	102	6.5	92	36	20	25	3.5	124	156	9	60	130
250/3	355	310	175	142	242	210	145	295	93	7	92	50	25	30	3.5	134	165	11	64	146
250/4	408	362	175	142	242	210	145	345	93	7	92	50	25	30	3.5	134	165	11	64	146
400/3	470	376	262	219	325	275	191	360	180	8.5	97	65	32	40	5	218	189	11	83	197
400/4	532	435	262	219	325	275	191	425	180	8.5	97	65	32	40	5	218	189	11	83	197
630/3	470	376	272	219	325	275	191	360	180	8.5	97	65	40	50	5	218	189	12	83	197
630/4	532	435	272	219	325	275	191	425	180	8.5	97	65	40	50	5	218	189	12	83	197
1000/3	870	520	345	250	374	325	443	495	220	11	90	120	60	54	8	250	180	11	110	252
1000/4	980	635	345	250	374	325	443	610	220	11	90	120	60	54	8	250	180	11	110	252
1250/3	870	520	370	250	374	325	443	495	220	11	90	120	80	68	8	250	180	12	110	252
1250/4	980	635	370	250	374	325	443	610	220	11	90	120	80	68	8	250	180	12	110	252
1600/3	870	520	370	250	374	325	443	495	220	11	90	120	80	68	10	250	180	12	112	252
1600/4	980	635	370	250	374	325	443	640	220	11	90	120	80	68	10	250	180	12	112	252
2000/3	870	520	405	250	544	495	443	610	220	11	90	120	80	100	10	250	180	12	224	169
2000/4	980	635	405	250	544	495	443	610	220	11	90	120	80	100	10	250	180	12	224	169
2500/3	870	520	410	250	544	495	443	610	220	11	90	120	80	105	12	250	180	12	226	174
2500/4	980	635	410	250	544	495	443	610	220	11	90	120	80	105	12	250	180	12	226	174
3200/3	870	520	430	250	544	495	443	610	220	11	90	120	80	115	15	250	180	12	230	179
3200/4	980	635	430	250	544	495	443	610	220	11	90	120	80	115	15	250	180	12	230	179



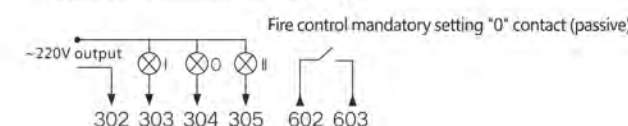
- 800-3200 fully automatic+ generator signal+ remote control wiring mode  
(Note: If this wiring method is used for 100 to 630 type, customization is required)



- Basic and convenient passive contact closing indicator light  
Secondary wiring diagram (passive, customized 100-630 type)



- Secondary wiring diagram of fire control mandatory setting "0" contact (passive, customized 100-630 type)



**Notes:**  
 (1) NA and NN respectively refer to the normal power supply live line and zero line, RA and RN respectively refer to the reserved power supply live line and zero line; HL1 refers to normal power supply indicator; HL2 refers to reserved power supply indicator; HD1 refers to normal power supply closing indicator; HD2 refers to reserved power supply closing indicator; FU1 and FU2 refer to 2A fuses;  
 (2) 101-106 refer to automatic transfer switch wiring terminals;  
 (3) 301-306 refer to external indicator light terminals for automatic transfer switches;  
 (4) 201-206 refer to terminals for automatic transfer switches (optional)  
 (5) The fully automatic wiring methods 201 and 206 must be short circuited;  
 (6) Mandatory setting "0" contact (passive);  
 (7) K1 refers to the output of the power generation signal (when there is no power for normal power supply);  
 (8) SA refers to the automatic/manual function selection switch, while SB1 and SB2 are respectively the manual switch-in buttons (passive contacts) for the normal power supply and reserved power supply.

■ Convenient high-end active (AC220V) closing indication

(Note: conventional wiring method for 100~630 type)

Fire control does not require additional intermediate relay (DC24V input)

Warning!  
This secondary wiring is strictly prohibited from connecting to an active power supply

