

## ISOLATION TYPE AUTOMATIC TRANSFER SWITCH OPERATING INSTRUCTION

### Product Certificate

Model :

Name : Dual power automatic transfer switch

The product is qualified after inspection and meets the standard GB/T 14048.11, and it is allowed to leave the factory.

Inspector :

Inspection date: see product packaging



Please read the instructions carefully, when product acceptance and installation, and retain it for future reference.

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# PREFACE

Dear user:

Thank you for using our products, we believe this product will give your work and life benefits and convenience, welcome your valuable suggestions and comments in the use course, we will continue to provide you with enthusiastic and attentive service. Or if you have any questions, please contact the manufacturer directly with our vendors.

This manual is for reference only. If the product or version upgrades to change without notice. Paid product to prevail. Thank you for your cooperation and support.

Control device: built in controller

Product structure: small volume, high current, simple structure, ATS integration

Features: fast switching speed, low failure rate, convenient maintenance and reliable performance

Wiring mode: front plate wiring

Conversion mode: power grid to power grid, power grid to generator, automatic switching and self recovery

Product frame: 100, 160, 250, 400, 630, 1000, 1250, 1600, 2000, 2500, 3200

Product current: 20, 32, 40, 63, 80, 100, 125, 160, 200, 225, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3200A

Product classification: load switch type

Pole No.: 3, 4

Standard: GB/T14048.11-2016

A T S E: PC class

### 1. General

Automatic transfer switch (ATSE) is set the switches and control logic integrated without additional controller, achieve integration of automatic electromechanical switch, voltage detection, frequency detection, electrical, mechanical interlocking functions, automatic, electric remote emergency manual control.

This is the logical control panel from various logical order to manage the machines, operate with the gearbox to achieve, switching spring motor storage, instantaneous release of the acceleration, rapid access to sub-circuit or circuits conversion, it is obvious by the state security confinement, greatly improved the performance of various electrical and mechanical properties.

The switches overall design for the metal shell, compact solid. Control of the switch is mental shell, the shell switching components used fiberglass unsaturated polyester resin manufacturing, with a strong dielectric properties, protection and reliability of the operational safety.

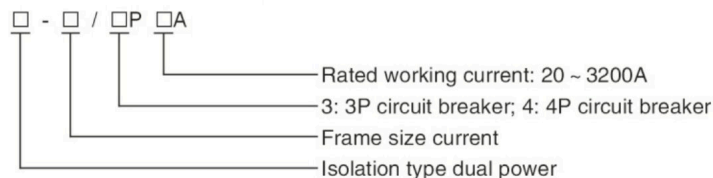
Switch power supply system applicable to changeover the main power supply and backup power supply automatically or two sets load equipment and safety isolation automatically.

Switch appearance is beautiful, creative, simple, small size, the entire function is an ideal choice in different occasions.

### 2. Meeting the standards

- IEC60947-1(1998)/GB/T14048.1-2002 " Low voltage switchgear and control equipment General rules"
- IEC60947-3(1999)/GB14048.3-2002 "Low voltage switchgear and control equipment, low voltage switch, isolator, disconnecter and fuse combination apparatus"
- IEC60947-6(1999)/GB14048.11-2016 "Low voltage switchgear and controlgear multifunction electrical apparatus part 1: automatic transfer switchgear"

### 3. Model and meaning



### 4. Application

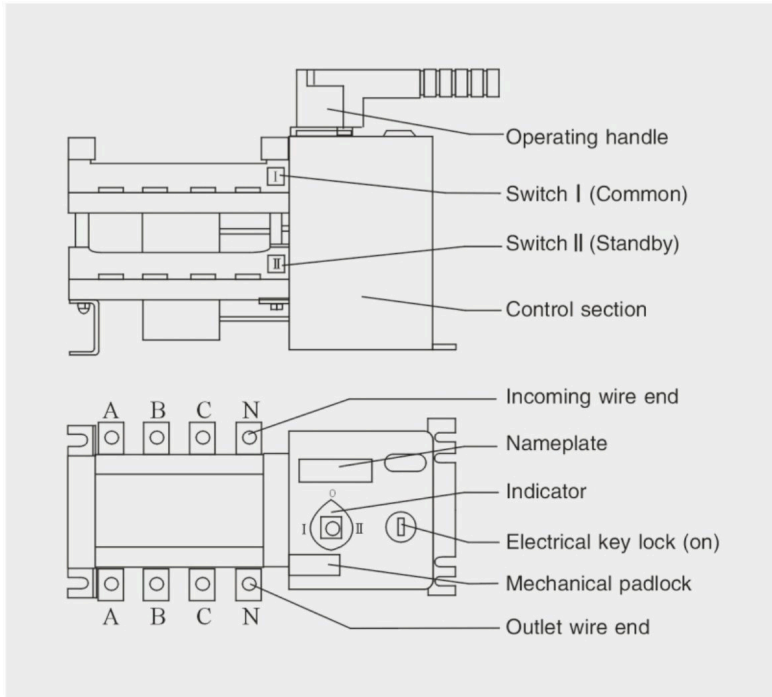
Dual power automatic transfer switch is mainly applicable to the AC 50 Hz, rated voltage AC400V, working voltage 220V, rated current 16A to 3200A distribution or generator network. There is a primary and standby power, or as the utility to generator in loading changeover. At the meanwhile, it can be used for isolation of infrequently connecting and breaking circuits and lines.

This products are widely used in hospitals, banks, high-rise architecture and so on, which are very important place disallow the failure to supply, distribution and automatic system.

### 5. Performance and characteristics

- Adopt the double row type composite contact, side pull institutions, micro motor prestore and microelectronics control technology, come true zero flashover(no arcing chamber).
- Reliable electrical and mechanical interlocking chain, the implement of the compon-ents independently with isolation switch, the use of safe and reliable.
- Using over zero technology, the state of emergency can be enforced under the zero(cut down the 2 ways in the meanwhile) to meet the needs of fire fighting.
- Executive load isolation switch using a single motor-driven, transfer reliable smooth, no noise, little impact.
- Operators drive only in the implementation of the electrical load isolation by switch-ing transient current, steady work without providing current, energy-saving significantly.
- Executive load disconnecter chain with a mechanical device used to ensure that reliable standby power of non-interference in each other.
- Obvious on-off position indication, padlocks and other functions, high reliability and service life of more than 8000 times.
- Mechatronics design, switching conversion accurate, flexible, smooth and adopt international advanced logic control technology, anti-interference capability, without external interference.
- Cooperation with the main power on and standby power off, or the main power off and standby on, the main power and standby power are both off, three kinds stability working(I-O-II).
- Easy installation, the control circuit return way adopt the connect and insert terminal connector.
- Four operator models: emergency manual operation, electric remote control operation, emergency disconnected operation under the automatic stating, auto-matic control operations.

### 6. Switch structure description



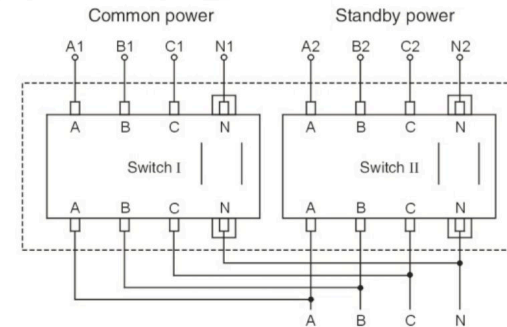
1. Electrical key lock: control switch internal control circuit power supply, when the electrical lock is opened, the switch can realize full-automatic, force '0' and remote operation. When the electric lock is closed, the switch can only be operated manually.
2. Operating handle: when using the operating handle for manual operation, the electric lock must be closed first.
3. Mechanical padlock: it is a special padlock mechanism for maintenance. When repairing, turn the switch to "0" position, and then pull up the padlock mechanism put on the padlock. It can prevent any accident (pulling up the padlock will cut off the internal control power supply of the switch, and the switch can not automatically. At the same time, it can prevent the handle from being covered).
4. Indicator: indicating the three states (I, 0, II) of the switch.

### 7. Main technical parameters

■ Electrical and mechanical properties of dual power automatic transfer switch

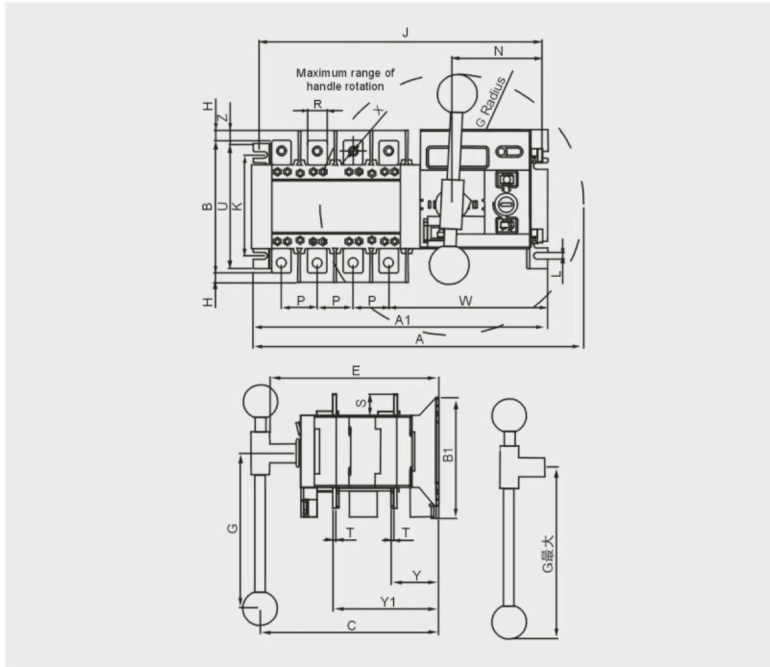
Rated current	20 A	40 A	63 A	80 A	100 A	125 A	160 A	250 A	400 A	630 A	800 A	1000 A	1250 A	1600 A	
Rated insulation voltage $U_i$	750V								1000V						
Rated impulse withstand voltage $U_{imp}$	8kV								12kV						
Rated working voltage $U_e$	AC400V														
Rated working current $I_e$	AC-31A	20	40	63	80	100	125	160	250	400	630	800	1000	1250	1600
	AC-35A	20	40	63	80	100	125	160	250	400	630	800	1000	1000	1600
	AC-33A	20	40	63	80	100	125	160	250	400	400	630	800	800	1000
Rated making capacity	10Ie														
Rated breaking capacity	8Ie														
Rated limited short circuit power supply $I_s$	50kA								70kA				100kA	120kA	
Rated short time withstand power supply $I_s$	7kA				9kA				13kA		26kA		50kA		
Conversion time I-II or II-I	0.45s								0.6s		1.2s				
Control voltage	DC24V、48V、110V								AC220V						
Motor energy consumption															
Rated power	Start	300W				325W				335W		400W		440W	
	Normal	55W				62W				74W		90W		98W	
Weight(kg)	7.0	7.2	7.2	7.2	7.5	7.5	8.8	9.0	16.5	17	32	36	40	43	

### 8. Main circuit wiring diagram

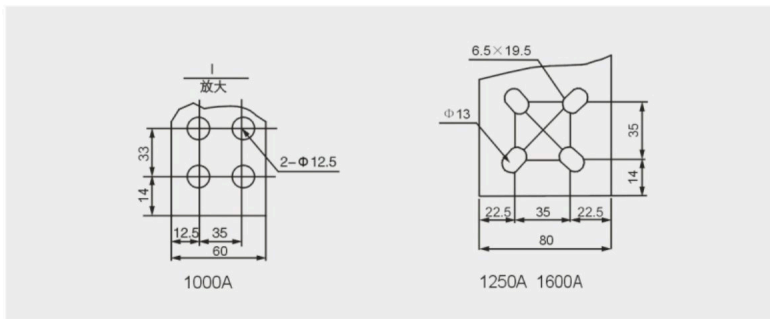


### 9. Overall and installation dimension of isolated dual power automatic transfer switch

■ Overall and installation dimension drawing(100 ~ 1600)



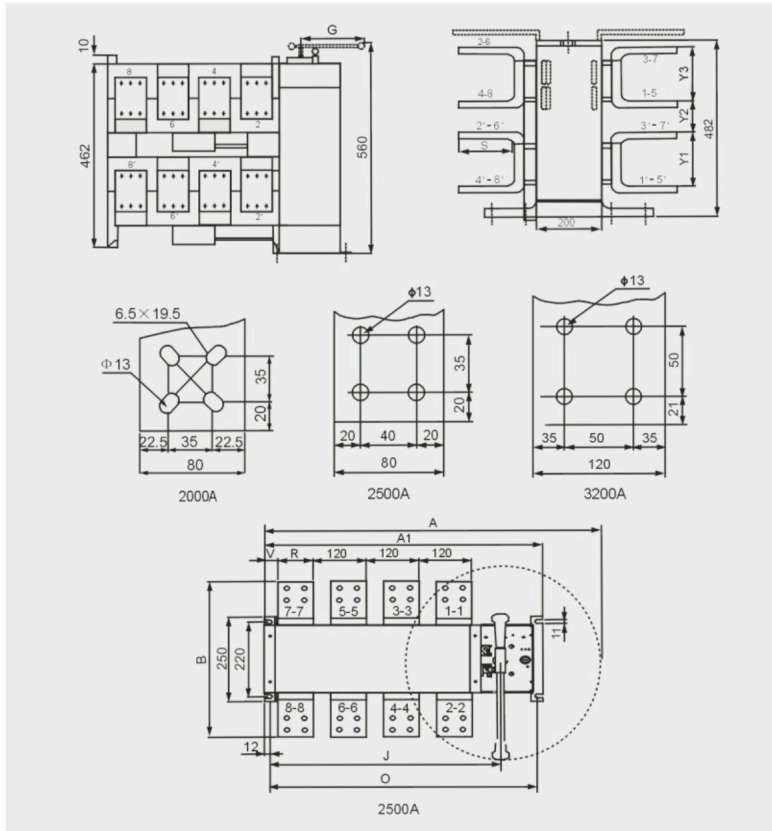
■ 1000 ~ 1600 Installation diagram



■ 100 ~ 1600 Installation dimension table

Spec.	Total size						Switch installation										Connecting terminal			
	A	A1	B	B1	C	E	G	J	K	L	N	P	R	S	T	U	W	φX	Y	Y1
100/3	235	232	118	107	141	140	115	221.5	84	7	74.5	30	13	18	2.5	107	126	6	39	92
100/4	247	244	118	107	141	140	115	233.5	84	7	74.5	30	13	18	2.5	107	126	6	39	92
125/3	292	267	146	142	230	193	145	251	102	7	91	36	20	25	3.5	126	158	9	57	127
125/4	322	300	146	142	230	193	145	284	102	7	91	36	20	25	3.5	126	158	9	57	127
160/3	292	267	146	142	230	193	145	251	102	7	91	36	20	25	3.5	126	158	9	57	127
160/4	322	300	146	142	230	193	145	284	102	7	91	36	20	25	3.5	126	158	9	57	127
250/3	356	305	179	142	230	193	145	287	102	7	91	50	25	29	3.5	135	168	11	58	129
250/4	406	360	179	142	230	193	145	343	102	7	91	50	25	29	3.5	135	168	11	58	129
400/3	487	375	245	220	274	263	189	356	180	9	93	65	32	37.5	5	220	203	11	82	186
400/4	552	433	245	220	274	263	189	416	180	9	93	65	32	37.5	5	220	203	11	82	186
630/3	487	375	265	220	274	263	189	356	180	9	93	65	40	48	5	220	203	12	82	186
630/4	552	433	265	220	274	263	189	416	180	9	93	65	40	48	5	220	203	12	82	186
800/3	670	515	353	250	321	308	443	495	220	11	87	120	60	64.5	8	250	207	13	107	240
800/4	760	636	353	250	321	308	443	616	220	11	87	120	60	64.5	8	250	207	12.5	107	240
1000/3	670	515	353	250	321	308	443	495	220	11	87	120	60	64.5	8	250	207	13	107	240
1000/4	760	636	353	250	321	308	443	616	220	11	87	120	60	64.5	8	250	207	12.5	107	240
1250/3	670	515	367	250	321	308	443	495	220	11	87	120	80	67.5	8	250	207	13	108	240
1250/4	760	636	367	250	321	308	443	616	220	11	87	120	80	67.5	8	250	207	13	108	240
1600/3	670	515	370	250	321	308	443	495	220	11	87	120	80	67.5	10	250	207	13	108	240
1600/4	760	636	370	250	321	308	443	616	220	11	87	120	80	67.5	10	250	207	13	108	240

2000 ~ 3200 Installation diagram



2000 ~ 3200 Installation dimension table

Spec.	Total size							Switch installation										Connecting terminal					
	A	A1	B	B1	C	E	G	J	K	L	N	P	R	S	T	U	W	X	Y	Y1	Y2	Y3	
2000/3	680	525	405	254	480	467	447	613	215	12	84.5	120	80	76	10	244	204.5	13	105	87	125	88	
2000/4	800	646	405	254	480	467	447	613	215	12	84.5	120	80	76	10	244	204.5	13	105	87	125	88	
2500/3	680	525	427	254	480	467	447	613	215	12	84.5	120	80	80	15	244	204.5	13	98	100	116	100	
2500/4	800	646	427	254	480	467	447	613	215	12	84.5	120	80	80	15	244	204.5	13	98	100	116	100	
3200/3	680	525	458	254	480	467	447	613	215	12	84.5	120	120	95	15	244	204.5	13	98	107	109	106	
3200/4	800	646	458	254	480	467	447	613	215	12	84.5	120	120	95	15	244	204.5	13	98	107	109	106	

10. Switch wiring method

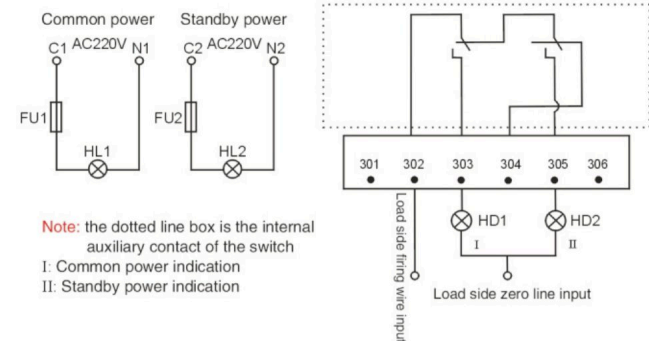
**Note:** The customers can choose one of the following 6 wiring methods, economical type users only need to import the copper power, then do not need another 2 lines, 302-305 is the indication of the switch, users can connect themselves if needed.

1. Wiring method of economic type (only below 100A)

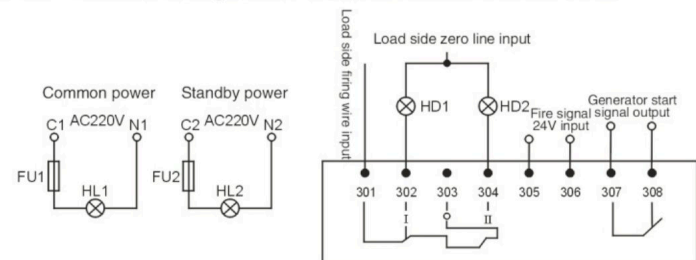
100A economic type automatic transfer switch, users connect the main power, standby power to the terminal rafts then it can work. When the two-way power switch are all normal access to the main power supply for the load. If the power supply is failure, then will transfer to standby power (standby power should be normal), it will change back to main power when the main power is normal again.

The economic type below 100A, Control power directly from the mains supply by the manufacturer within the introduction. If users need the main power supply, standby power switch on instructions, wiring method see as below:

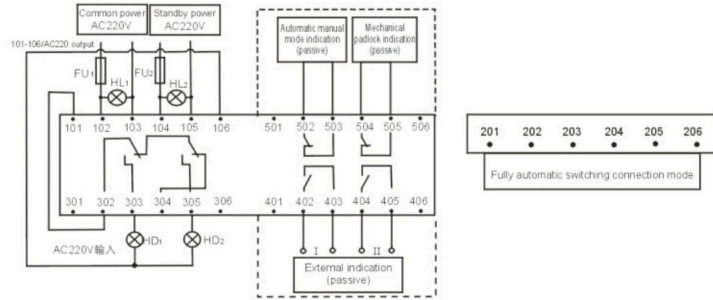
Terminal wiring method: Only a group of six terminal



2. 100 ~ 630 Passive signal + active fire terminal connection mode

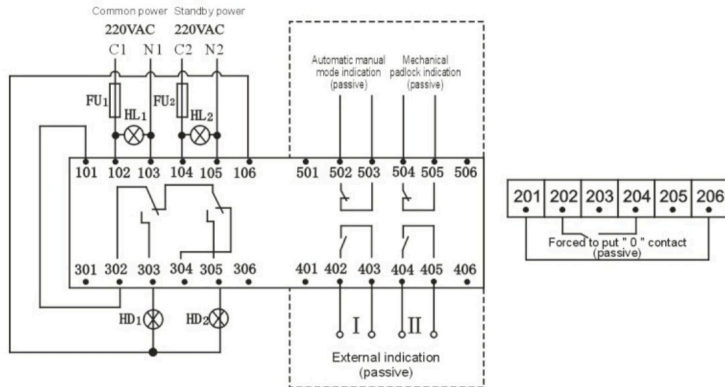


### 3. Fully automatic connection mode (applicable to rated current 160A ~ 3200A)

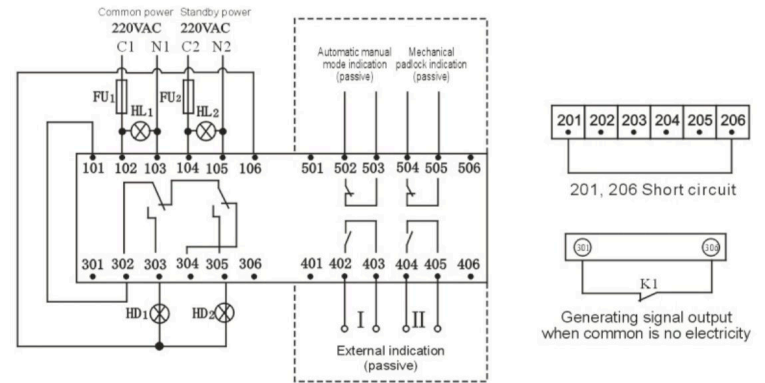


- HL1 is the indication of common power supply;
- HL2 is the indication of standby power supply;
- HD1 is the common power input indication;
- HD2 is standby power input indication.
- New type FU1/FU2 is 2A fuse.
- 101 ~ 106, 201 ~ 206, 301 ~ 306 are switch terminals
- 401 ~ 406, 501 ~ 506 switch terminals above 1000A can be selected.

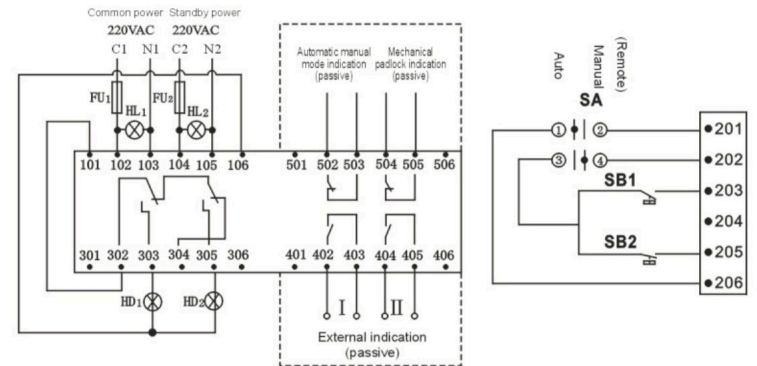
### 4. 100 ~ 3200 Full automatic + forced setting "0" (both power sources are disconnected) connection mode



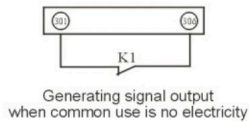
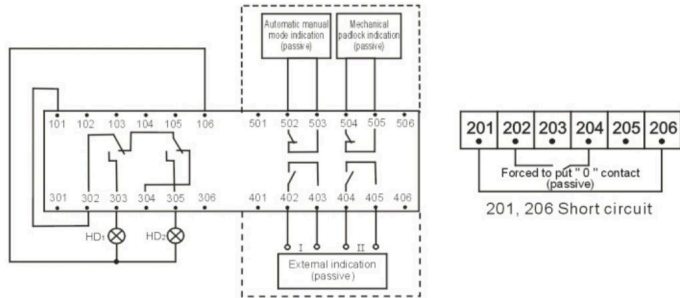
### 5. 100 ~ 3200 Fully automatic + generator signal output connection mode



### 6. Fully automatic + Manual (remote control) connection mode



## 7. 100 ~ 3200 Wiring mode with controller

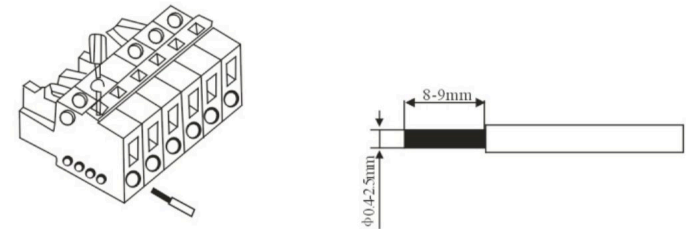


- Note:**
1. Products with controller 102, 103, 104, 105 do not need external power supply;
  2. 401-406, 501-506 switch terminals above 1000A can be selected.

## 8. Letters and compliance notes

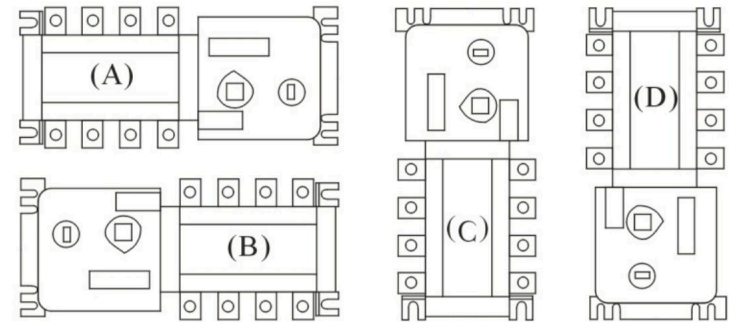
- (1) C1 and N1 are common power input firing line and zero line access, C2 and N2 are standby power input firing line and zero line access respectively. HL1 and HL2 are common power supply and standby power supply with electric indication. HD1 and HD2 are input indication of common power supply and standby power supply respectively. FU1 and FU2 are 2A fuses;
- (2) 101 ~ 106 and 201 ~ 206 are secondary terminals of automatic transfer switch;
- (3) 301 ~ 306 are external indicator light terminals of automatic transfer switch;
- (4) 401 ~ 406 and 501 ~ 506 automatic transfer switch terminals can be selected;
- (5) The fully automatic connection mode 201 and 206 must be short circuited;
- (6) The forced to put "0" contact (passive) can also input DC24 V power supply;
- (7) K1 is the output of power generation signal (when common use is no electricity);
- (8) SA is the automatic / manual function selection switch, SB1 and SB2 are the common power supply respectively, and the standby power supply manual input button (passive contact).

## 11. Method of terminal connection



Use the screw driver use force downwards as the picture indicated direction, the line imbedding as the picture shows

## 12. Correct installation method of switch



The above A.B.C is correct (A is the best), and D is incorrect.

### 13. Switch operating instructions

1. Please do not install it if you are not a professional. Do not disassemble it without permission of our company to avoid damage.
2. Please read this manual carefully before installation to avoid improper use.
3. The rated voltage of switch internal control power supply is 220V, which is taken from C1.N1 of common power supply and C2.N2 of standby power supply. In 85% – 110% of the rated control voltage range, the switch can work normally.
4. The power supply at the incoming end of the switch shall be protected against over-voltage to avoid damaging the internal circuit board or control motor due to high voltage.
5. The power supply at the outlet end of the switch shall be protected against short circuit, so as to avoid burning the switch body due to excessive current during short circuit.
6. When using and installing, please turn off the electric key lock and turn the switch to the "0" position.
7. When the switch is connected, please measure and distinguish the A.B.C.N of the power incoming line and connect it to the corresponding pole of the switch.

### 14. Ordering information

When ordering, please indicate: switch control type, switch pole No., switch current grade and order quantity, such as dual power automatic transfer switch 250A, 4 pole, fully automatic type.