


YCQ1F series(PC class)

Automatic transfer switch

OPERATION INSTRUCTION

Standard: IEC 60947-6

CNC Deliver
Power For Better Life

 Before installing and using this product, please read this manual carefully and pay more attention to safety.

YCQ1F series

Automatic transfer switch

Dear use

Thank you for using the YCQ1F series automatic transfer switch produced by our company. We sincerely hope that this product can bring convenience and benefits to your work and life. We welcome your valuable opinions and suggestions during use. We will continue to provide you with warm and thoughtful service. In order to ensure your personal and property safety and use this series of products correctly and rationally to avoid unnecessary losses, please read this manual carefully before installation, circuit connection, operation, maintenance and inspection. This instruction manual introduces the structure, working principle, service conditions, installation and commissioning of the automatic transfer switch, which is helpful for you to use the product correctly and reasonably. If you have any questions, please consult our company. The user shall be responsible for any adverse consequences caused by failure to operate in accordance with the instruction manual.

Precautions

1. Please read this manual carefully before use, and operate in strict accordance with the operating specifications of the manual to avoid unnecessary losses.
2. The YCQ1F series is a professional intelligent electrical product. Non-professionals are prohibited from operating and maintaining it, otherwise it may cause electric shock or product damage.

3. The dielectric performance test of this series of products has been carried out according to the standard before leaving the factory. If the test is repeated, the controller must be removed to prevent damage to the electronic components in the controller.
4. The neutral wires of the four-pole automatic transfer switch should be connected to the corresponding incoming wires of the N poles of the "normal power supply" and "standby power supply"., otherwise the automatic transfer switch cannot work normally.
5. For three-pole automatic transfer switch appliances, the neutral wire of the system must be connected to the neutral wire auxiliary terminal of the automatic transfer switch. Do not connect wrongly and the wiring must be reliable, otherwise the automatic transfer switch will not work.
6. The casing of the automatic transfer switch must be reliably grounded to ensure the safety of the operator.
7. Do not install the automatic transfer switch in outdoor, humid, direct sunlight, high temperature, large vibration shock, conductive dust, etc., otherwise it will shorten the service life of the product or cause adverse reactions.
8. When both the normal power supply and the standby power supply fail, manual closing is prohibited.
9. In order to ensure the reliability of the automatic transfer switch, a switching test should be carried out regularly to confirm the normal operation of the

switch and ensure the continuity of power supply for important loads.

10. When carrying out normal maintenance and troubleshooting of the load circuit, the automatic control function of the automatic transfer switch must be turned off, so that the automatic transfer switch is in a double-point state, and the power supply of the load is cut off to avoid unnecessary property loss and personal injury.

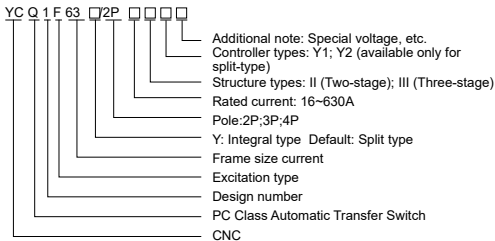
11. Please use the "manual" mode for debugging when the automatic transfer switch is overhauled or regularly checked.

12. Products that are not used for a long time should be protected from moisture and dust. Before use, they must be debugged according to the specified content, and they can be put into operation after normal operation.

1. Applications

The YCQ1F series automatic transfer switch is suitable for single-phase two-wire/three-phase four-wire dual power supply networks with AC 230V/AC 400V rated operating voltage and rated current up to 630A. It is used to disconnect the load circuit from one power source and connect it to another power source. The transfer switch has self-action and optional manual operation features.

2. Type designation



3. Standard

IEC 60947-6

4. Normal operating conditions

4.1 Ambient air temperature: the upper limit of the ambient air temperature is +40° C, the lower limit is -5° C, and the average temperature within 24 hours does not exceed +35° C;

4.2 Altitude: the altitude of the installation site does not exceed 2000m;

4.3 Atmospheric conditions: The relative humidity of the atmosphere does not exceed 50% when the ambient maximum temperature is +40° C. It can have a higher relative humidity at a lower temperature, for example, it can reach 90% at +20° C. Special measures should be taken for occasional condensation caused by temperature changes;

4.4 Pollution degree: Degree 3.

5. Technical data

Type	YQ1F-63	YQ1F-125	YQ1F-250	YQ1F-400	YQ1F-630	
Positions	II					
Insulation Voltage(V)	AC690V					
Rated voltage Ue(V)	AC400V					
Structure Type	Y: Integral type Default: Splice type					
Pole	2P/3P/4P					
Rated current(A)	16,20,25,32,40,50,63	80,100,125	125,140,160,180,200,225,250	225,250,315,350,400	400,500,630	
Rated control current (A)	5		7			
Control power voltage (V)	AC120V/AC230V					
Rated short circuit current (kA)	10					
The rated impulsewithstand voltage (kV)	8					
Contact transfer time (ms)	≤ 50					
Operating transfer time (ms)	300-500					
Usingzation Category	AC33B					
Auxiliary switch	I, IIpower;2normalopen;2normalclosed;Capacity:10A/AC250V					
Service life	Mechanical	20000	20000	17000	17000	17000
	Electric	6000	6000	6000	6000	6000

Type	YQ01F-63	YQ01F-125	YQ01F-250	YQ01F-400	YQ01F-630	YQ01F-63	YQ01F-125	YQ01F-250	YQ01F-400	YQ01F-630	
Positions	III					III					
Insulation Voltage(V)	AC690V					AC690V					
Rated voltage(UeV)	AC400V					AC400V					
Structure Type	Y: integral type					Y: integral type					
Pole	2P/3P/4P					2P/3P/4P					
Rated current(A)	16/20/25/32 40/50/63	80/100/125	125/140/160/180 200/225/250	225/250/315 350/400	400/500/630	16/20/25/32 40/50/63	80/100/125	125/140/160/ 180/200/ 225/250	225/250/315, 350/400	400/500/630	
Rated control current (A)	6					8					
Control power voltage (V)	AC120V/AC230V					AC120V/AC230V					
Rated short circuit current(kA)	10		126			5		10		126	
The rated impulse with-stand voltage (kV)	8					8					
Contact transfer time (ms)	≤ 150					≤ 150					
Operating transfer time (ms)	300-500					300-500					
Usage Category	AC33B					AC33B					
Auxiliary switch	I, II power 2 normal open & 8 normal closed Capacity: 10A/AC250V					I, II power 2 normal open & 8 normal closed Capacity: 10A/AC250V					
Service life	Mechanical	20000	20000	20000	4000	4000	20000	20000	20000	4000	4000
	Electric	6000	6000	6000	1000	1000	6000	6000	6000	1000	1000

6.Features

The product consists of two parts: the switch body and the intelligent ATS controller. The switch body with an electrical and mechanical interlock. The product used solenoid actuate, double wire loop DC pulse operation, The operation power of the conversion controller adopts the line voltage 220V of main standby power supply.No additional control power.

7. Introduction of Intelligent Controller

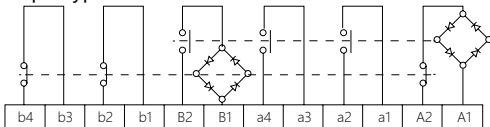
According to the market demand, our company has developed a variety of product controllers. N/C series products can be equipped with Y1, Y2 controllers. For the functions and wiring modes of the controllers, see the controller instructions.

Controller function

Products Type	Y1	Y2
Installation method	Split type	
Display mode	Indicator light	Display mode
Rated duty	Uninterruptd duty	
Self-input and self restore	■	■
Self-input and without self restore	■	■
Normal port and standby port share to each other	■	■
Generator auto-start function	■	■
Normal power detect	Four-phase lacking phase detection,three-phase over-voltage/under-voltage detection	
Standby power detect	Four-phase lacking phase detection,three-phase over-voltage/under-voltage detection	
Passive fire protection input	■	■
Active fire protection input(DC9-36V)	■	■
Active fire control input	■	■
Voltage real-time display	□	■
Normal power and standby power indication	■	■
Normal power and standby power over-voltage/under-voltage adrust-able	■	■
Generator start and stop time adjustable	■	■ (F/F1)
Programmable output	□	■
RS485 communicating function	□	■

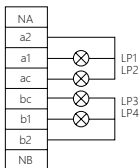
8.Wiring diagram

II Split type

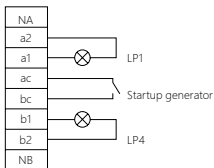


Note: In the absence of a dedicated ATS controller, the two power sources in the controller circuit can not be simultaneously energized.

II Integral type



a:Power grids to Power grids

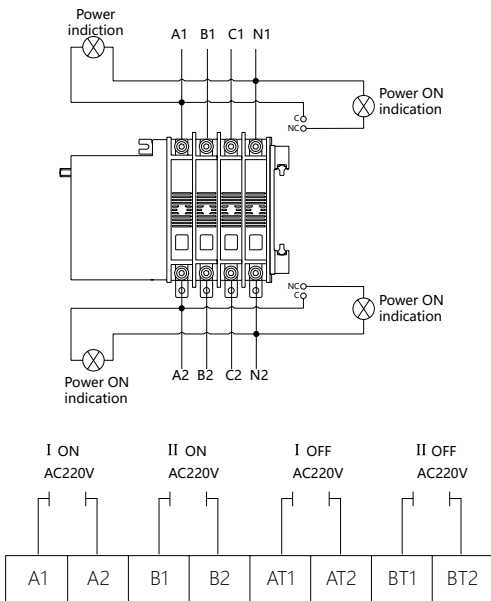


b :Power grids to generator

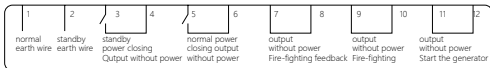
- ① . NA:It is neutral terminal of normal power for 3poles ATS;
- ② . LP1:Normal Power supply indicator light;
- ③ . LP2:Normal Power indicator light;
- ④ . LP3:Standby Power indicator light;
- ⑤ . LP4:Standby Power supply indicator light;
- ⑥ . NB:It is neutral terminal of standby power for 3 poles ATS;

III Splice type

Connection diagram of power indication and power ON indication



III Integral type



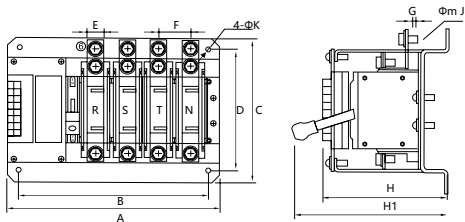
- ① .Start generator: when fault occurs in the normal power, this port will connect after delaying some time.
- ② .Fire-fighting: Connect the fire-fighting port, double disconnecting light is on, the ATS double disconnect. Remove the connection, push the automatic/manual pushbutton to reset.
- ③ .Fire-fighting feedback: When ATS is in double-disconnecting state, the fire-fighting port connects.
- ④ .Normal close: When the normal power of ATS is in closing state, closing signal without power is output from this port.
- ⑤ .Standby close: When the standby power of ATS is in closing state, closing signal without power is output from this port.
- ⑥ .Normal earth wire: When ATS are 3 phases, the normal earth wire is connected into this port.
- ⑦ .Standby earth wire: When ATS are 3 phases, the standby earth wire is connected into this port.

Remark: The normal earth wire and standby earth wire is just suitable for ATS of 3 phases.

9. Overall and mounting dimensions(mm)

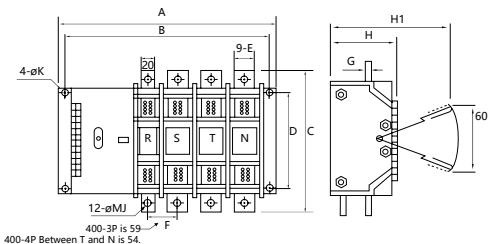
II Split type

63A、125A Product Installation Dimension



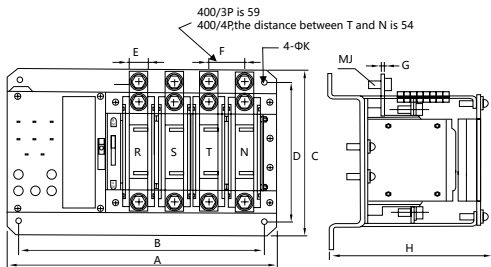
Dimension Type	A			B			C	D	E	F	G	H	H1	J	K
	2P	3P	4P	2P	3P	4P									
63A															
125A	191	228	265	171	208	245	184	167	20	37	3	110	155	8	9

250A、400A、630A Product Installation Dimension



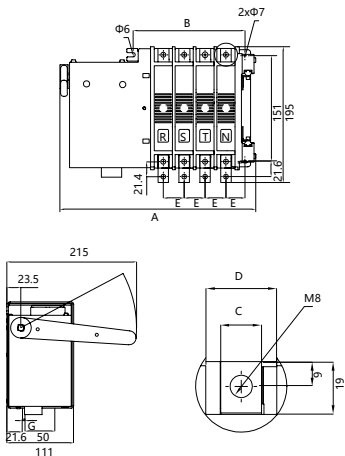
Dimension Type	A		B		C	D	E	F	G	H	H1	J	K
	3P	4P	3P	4P									
250A	372	302	302	352	294	200	20	49	5	146	295	8	10
400A	402	332	332	382	294	200	30	59	6	146	295	10	10
630A	412	332	332	392	294	200	35	59	6	146	295	12	10

II Integral type



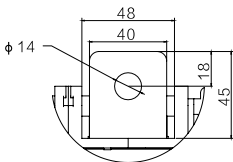
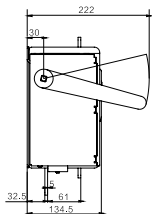
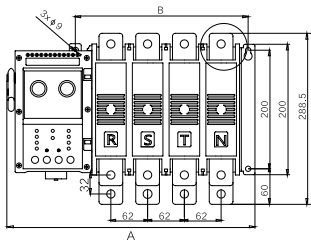
Dimension Type	A			B			C	D	E	F	G	H	J	K
	2P	3P	4P	2P	3P	4P								
63A	216	243	270	196	223	250	184	167	12	27	3	110	5	9
125A	237	274	311	217	254	291	184	167	20	37	3	110	8	9
250A		322	372		302	352	290	200	20	49	5	146	8	10
400A		352	402		332	382	294	200	30	59	6	146	10	10
630A		352	412		332	392	294	200	35	59	6	146	12	10

III Split type 63A, 125A, 250A Product Installation Dimension



Dimension \ Type	A			B			C	D	E	F	G	I
	2P	3P	4P	2P	3P	4P						
63A	205	225	245	91	111	131	12	20	15	33.5	2	M5
125A	223	253	283	100	130	160	15	30	26	27.5	4	M8
250A	231	266	301	111	146	181	20	35	31	30	4	M8

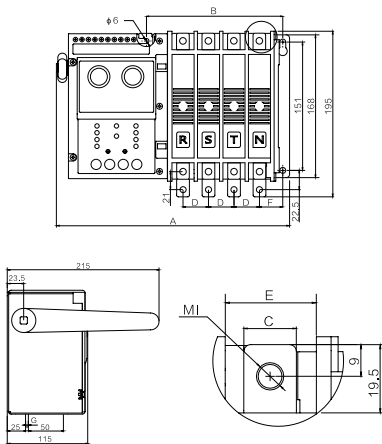
400A、630A Product Installation Dimension



Type	Dimension	A			B		
		2P	3P	4P	2P	3P	4P
400A		295	357	419	168	230	292
630A		295	357	419	168	230	292

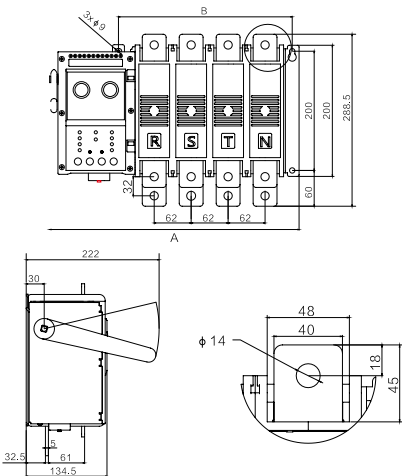
III Integral type

63A、125A、250A Product Installation Dimension



Type	Dimension A			Dimension B			C	D	E	F	G	I
	2P	3P	4P	2P	3P	4P						
63A	205	225	245	91	111	131	12	20	15	33.5	2	M5
125A	223	253	283	100	130	160	15	30	26	27.5	4	M8
250A	231	266	301	111	146	181	20	35	31	30	4	M8

400A、630A Product Installation Dimension



Type	Dimension	A			B		
		2P	3P	4P	2P	3P	4P
400A		295	357	419	168	230	292
630A		295	357	419	168	230	292

10.Product installation and wiring

The work in the installation and commissioning of the product shall be carried out by professionals or those who have knowledge of the switchgear. Corresponding protection and precautions must be taken into account during operation. The main circuit of the switch must be wired in such a way that the leads are not subjected to any pressure or force. Before installation and commissioning, checking that the switch is not damaged or any other hazardous environmental impact, and it also should check whether the thread is loose due to transportation. Remove dirt, especially the dirt on the surface of the insulation parts. When connecting the primary circuit, it should be noted that the phase sequence of the normal power and standby power must be the same. When connecting the secondary circuit control loop, it should be strictly in accordance with the wiring diagram in instruction manual, while paying attention to the control power supply voltage level, the switch must be installed with good grounding.

11.Pre-commissioning of products

Considering personal safety and switching speed, the debugging handle is only used for debugging. Users is not allowed use the debugging handle with load operation. And it is not allowed use when the arc extinguishing device is not installed. When debugging, the switch is operated with the debugging handle. To observe the close of the main contact and running conditions. All are no abnormal situation, then the ATS

switch can be work.

- 11.1 After debugging controller and part of mechanical ,the controller and electrical part can be adjusted of the power-on debugging, the load is prohibited during the debugging process.
- 11.2 Put in the normal power into the products, the normal power indicator is light up, and then put in the standby power ,the standby power indicator is light up. and press the “Manual/Auto” button is placed in the manual position,Then press the “main power manual ” button,The ATS will transfer to Main power quickly,The normal power indicator and external connecting indicator lamp is light up.Press the “standby power Manual” , The ATS will transfer to Standby power quickly,The standby power indicator and external connecting indicator lamp is light up.
- 11.3 The “Manual/Auto” button is placed in the automatic position , delay time of normal power and standby power are adjusted to the appropriate value. The normal power supply is disconnected first, and the indicator of normal power Switch on is flashed on.When reached the setting of delay time value, The ATS will quickly switch to standby power supply automatically.The standby power indicator and external connecting indicator lamp is light up.When the main power is return,the ATS will switch to Normal power supply, the indicator of standby power switch on is flashes, When reached the setting of delay time value,the ATS

will quickly transfer to the normal power supply, The normal power indicator and external connecting indicator lamp is light up.

12. Use of products

- 12.1 In normal using, the controller should be placed in the automatic position, The ATS is in the automatic control mode, The controller monitors both the main power and the backup power simultaneously and displays status. When the main power source has failure, such as power cut, under-voltage, over-voltage, or phase loss, The ATS will transfer to Standby power automatically. The power delay time is in 0~30 second. When the main power return, the ATS will transfer from Standby power to Main power automatically. The controller is provided with a light-emitting diode to indicate condition of switch and power supply.
- 12.2 If you do not want the ATS switch automatically, or When other manual operations are required, you should set the controller in Manual position. When it is in Manual mode, the ATS is not transfer automatically.
- 12.3 When the ATS is in automatic mode, if the main power supply and the standby power supply are in normal condition. The ATS will give priority to connecting the main power supply to the load.

13.Common faults and solutions

When the product does not work or work abnormally, first check the following points:

- a. Is the switch body and the controller connected good or not? Is the connection correct?
- b. Is the power turned on?
- c. Is the controller in manual mode?
- d. Is the voltage normal?
- e. Is the switch body and the controller of main and standby power inputs opposite?
- f. Is the fuse intact?
- g. Is the debug line too long when debugging? Is the wire diameter too thin?
- h. Whether to distinguish between neutral line N , phase line and PE ground line during debugging?

14.After-sales service

This series of dual power automatic switch is a high-tech product developed by our company using the latest technology .It is high reliability and guarantee,In the operation, abnormal phenomena may occur. If the problem cannot be solved according to the above points, please contact our after-sales service department.



CERTIFICATE

Product Model : YCQ9 series (PC class)

Standard : IEC 60898-1

Inspector : CNC 001

Production date: Printed on the product
or package.

This product is qualified according
to the delivery inspection

CNC ELECTRIC

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