

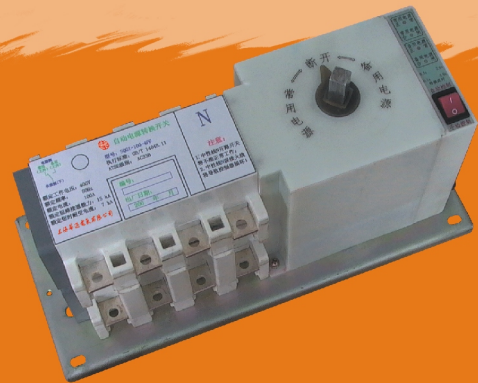
State High-tech Enterprise
State Exemption Products
Shanghai Famous Brand



SQG1 series

Auto-transfer switch

(Intelligent)



- △Conformed standards of GB/T 14048.11-2002
《Automatic Transfer Switchgear and Equipments》
- △New PC-level with own advanced know-how
- △The main contact is with big capacity and able to switch with 6 times of rated current
- △With intelligent controller, of high ability of antijamming, stable operation .
- △Small volume, compact structure, reliable mechanism;
- △With isolating function.



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Catalogue

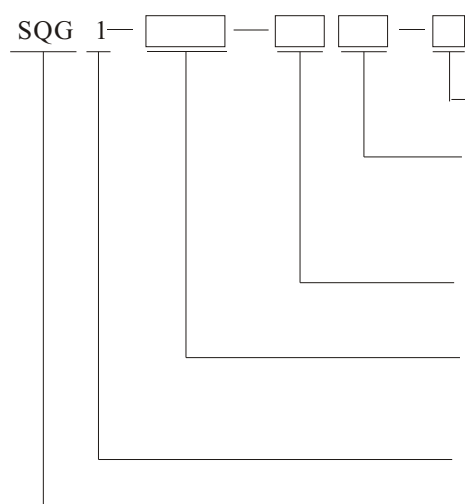
3 SQG1 series auto-transfer power switch

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Utilization

SQG1 series auto-transfer power switch (SQG1 for short hereinafter) is a new PC-level auto-transfer power-switch developed with our own advanced know-how. It is applicable to the circuit of AC 50Hz, rated insulating voltage 690V, rated working voltage 400V and below, rated current from 63A (or below) to 1600A, And widely used in high building, hospital, marketplace, bank, fire protection, chemical industry, metallurgy and so on where needs incessant power-supply by auto-switching-on the dual-loop power-supply systems. And conforms to standards of GB/T14048.11-2002 《Automatic transfer switchgear and equipments》

Product model and meaning



O: Auto-transfer without restoration,
(auto-transfer with restoration (omitted))

Controller installation type: H or F

H-type: controller and main switch are installed together on a motherboard
F-type: controller is panel-installation type, to connect with main switch through special cable

Pole type of main contact of switch: 2P、3P or 4P;
2P: AC230V; 3P or 4P: AC400V.

Rated working current (A) :
63、100、125、160、200、250、315、
400、500、630、800、1000、1250、1600

Serial number of design

Shanghai Huatong Electricity Co.,Ltd isolation-switch-type transfer switch

Example of the Model and meaning

Model: SQG1-200-4PF

Meaning: SQG1 series auto-transfer switch appliance, rated working current 200A

(suitable in the circuit of load current 200A and below of power supply system),

4-pole, split-type.

Product characteristic

- 1) Of ATSE products whose manufacture and design are in conformity with standards of GB/T14048.11 《Automatic transfer switchgear and equipments》
- 2) Suitable in the dual-loop power system of electric net $\leftarrow \rightarrow$ net、net $\leftarrow \rightarrow$ generator.
- 3) Of a high reliability compliant to any environment condition.
- 4) The main contact system of SQG1 is composed of two isolating switches, and set with high-reliable structure of interlock mechanism so as to prevent getting through the two power circuits at same time with stable operation system of single-motor in dual-way.
- 5) The main contact is with big capacity and able to switch with 6 times of rated current
- 6) Divided into 2-pole、3-pole、4-pole.
- 7) Divided into 2 types of manual-control and auto-control by the working mode. Manual-control can disconnect the mothball power and power in common use with the load at same time, and may up to “0” orientation in operation and with isolation function.
- 8) Mounting type: integrate type and split-type.
- 9) SQG1 is attached with dual-couple transferring auxiliary contacts which operate isochronously with the main one. The auxiliary contacts can be attached outwards to an indicator to indicate the position of the main contact, and can be used to load or unload the subordinate burden, and can be used to send signals of the switch position to a computer through transmissible appliances.
- 10) Easy and convenient to be use without rectifying the working parameters since the controllers auto-control by an embedded-SCM. The delay-time conversion is adjustable if necessary.
- 11) The controller can monitor lively both the mothball power and the power in common use, and indicates The results on the monitoring display.



- 12). Set up with indicator light on display panel to indicate the switch position of the stand-by power or power in common use.
- 13). It displays lively the data of various phase and power voltage automatically by turns through an embedded digital voltage-meter.(integrated type 63A、100A is not available).

Main technical parameters

Main technical parameters see table 1

Model	SQG1-63 SQG1-100	SQG1-125 SQG1-160 SQG1-200 SQG1-250	SQG1-315 SQG1-400	SQG1-500 SQG1-630 SQG1-800	SQG1-1000 SQG1-1250 SQG1-1600
Appliance level	PC Level				
Category of utilization	AC -33B				
Rated working voltage	230V (2 -pole) 、 400V(3 -pole、 4 -pole)				
Rated frequency	50 Hz				
Under-voltage transfer value	70%Ue				
Under-voltage return-value	80%Ue				
Over-voltage transfer value	120%Ue				
Over-voltage return-value	115%Ue				
Transfer delay-time	0.1s 、 0.5s 、 2.0s 、 5s Adjustable, factory settings 2.0 S				
Return delay-time	5s				
Voltage (U_{LN}) Indication accuracy	2.5 Level				
Rated making/breaking capacity	600 A	1500 A	2400 A	4800A	9600A
Rated short-time withstand current (effective value)	7 KA	10 KA	13 KA	16 KA	30 KA
Rated short-circuit making capacity (peak value)	15KA	17 KA	25 KA	27 KA	50 KA
Electric operational life (times cycle)	1000	1000	1000	500	500
Mechanical operational life (times cycle)	5000	5000	3000	2500	2500
The capacity of aux. Contact	3 A AC250V			3 A AC400V	

Normal working condition and installation condition

- 1) Ambient temperature within -5°C 。 $\sim +40^{\circ}\text{C}$;
- 2) The installation elevation not over 2000m
- 3) Pollution grade 3
- 4) Installation type III
- 5) The category of utilization of main circuit is AC-33B (6Ie) ,motor load or mixed load.
- 6) Installation condition: the main body of switch can be installed by vertically or horizontally into the section.. Split-type controller is in panel-installation type, to connect with the main body through 1.8m cable which if is not 1.8m please annotate when ordering.

Overall and mounting dimensions

The overall of products see figure 1、figure2, dimensions see table 2. Integrated type and split-type have same overall and mounting dimensions. The specs of split-type controller and its special cable are general in use.

Notes: The two isolation switches of 1000A、1250A、1600A are lined on left and right side;
The power in common use is on left side while the stand-by one is on right side.

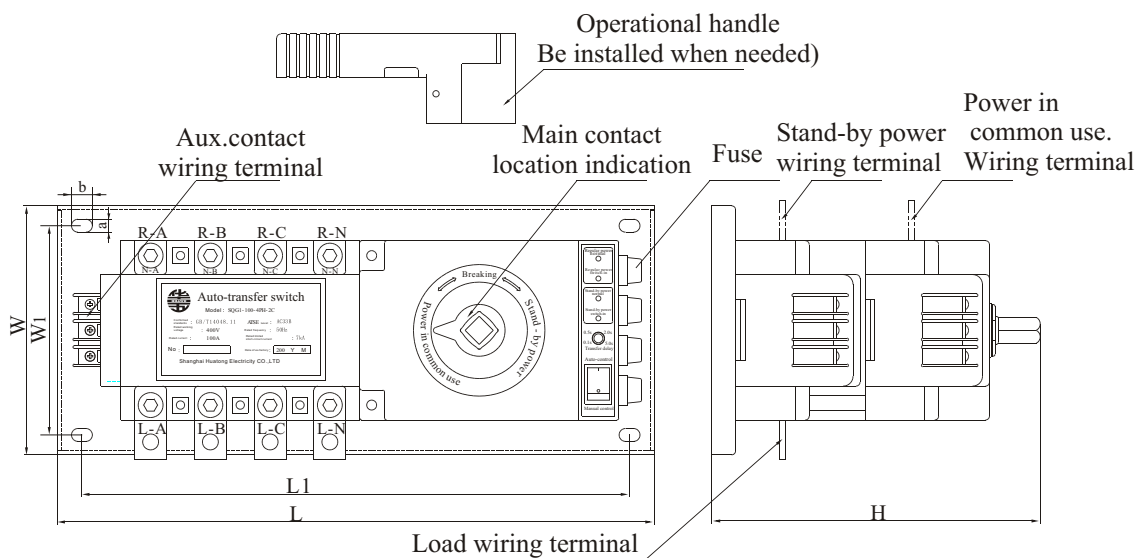
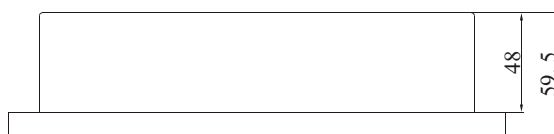


Figure 1 integrated type



Mounting hole (With SF4-8 × 10 Screw)

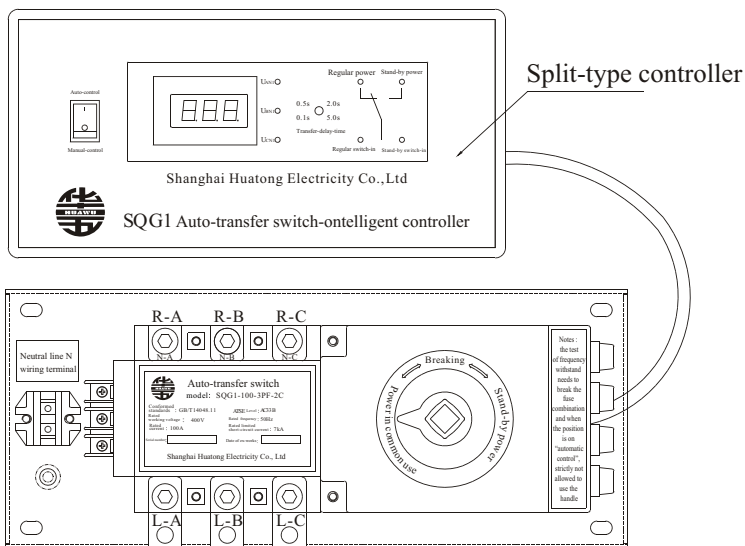
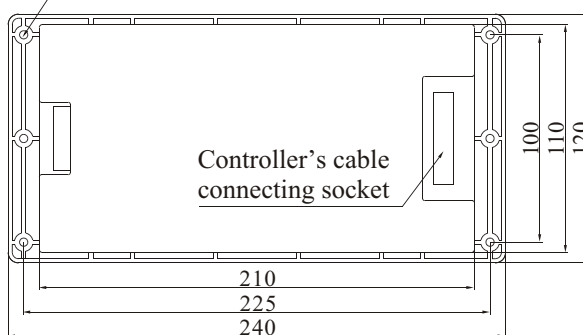


Figure 2 split-type



Rated current	Pole type	Overall dimensions (L)×(W)×(H)	Mounting dimensions (L1)×(W1)	Mounting hole a × b
63A 、 100A	4P 、 3P 、 2P	300×125×170	275×105	6.5 × 10.5
125A 、 160A 、 200A 、 250A	4P 、 3P 、 2P	330×145×175	305×125	
315A 、 400A	4P、 3P	410×240×240	370×220	9 × 20
500A 、 630A 、 800A	4P	500×240×270	440×220	9 × 20
	3P	450×240×270	410×220	9 × 20
1000A、 1250A 1600A	3P	850×330×250	790×300	11 × 20

Installation

1) The integrate type ATSE can be directly installed in the power control cabinet (box) according to its overall dimensions; While the main body of split-type is installed in the cabinet (box) and is fixed by some screws., its intelligent controller is fixed in the opening drill panel by 4 (or 2 or 6) ST4.8 screws, with special cable to connect with the main body. Pay attention to the connector at the ends of cable that it must be inserted and fastened tightly.

2) The wiring can be started after the ATSE installation finished. According to the ATSE rated current value to select suitable wire to connect the power in common use to power side (upper connection), stand-by power to stand-by power side (bottom connection upper row) , load to load side (bottom connection bottom row). Meanwhile, pay attention to the phase sequence of them (By A, B, C, N sequence connection). To the three-pole breaker, it must be attached to a wire (the cross-section area not less than 0.5 mm² to connect those Neutral line N between the power supply and the ATSE main body motherboard. The N-line must be connected well without mistake to assure the ATSE working properly. To four-pole breaker, the N-pole of the power in common use and stand-by one must be connected properly with the one of ATSE , and after confirmation of the wiring, then it is the time to electrify it to put in normal operation.

Utilization

1) For normal use, the controller switch should be on position “Automatic control”. For “Automatic control” working mode, ATSE controller monitors the power in common use and the stand-by one at same time and indicates ATSE running status. When there are faults of power-cut, under-voltage, over-voltage, phase-shortage occurring, ATSE will automatically switch over the power in common use to the stand-by one after “transferring-delay” time; If the power in common use recover well, it will automatically turns back from the later one to the previous one after “return delay” time (5s). (However, the auto-transfer without restoration type of ATSE, at the same situation, even the power in common use recovers normal, if the stand-by one is normal, it will remain the connection between the load and stand-by power, no restoration back to power in common use , except the stand-by one runs into abnormal, then it will automatically restore back to power in common use). There is set with LED indicator on the control panel to indicate the situation of the switch and power, and indicate the voltages of phases of the power in common use in turn. There are “transferring delay” adjustable holes on the controller. Users can change ATSE transferring delay time according to the practical needs. (the factory setting is 2s). The shorter time of “transferring delay” is beneficial to minus general motion time, while the longer time of it is beneficial to avoid the status of short-time under-voltage, voltage-loss occurring in the equipment activation or network interference. For example, when the load of motor (Large fans, pump, lift) is activated, or dozens of computers are activated at same time, it may occur short-time under-voltage; When the lightning happens, the high-voltage breaker automatically switch-on after break, it may occur short-time power-cut and so on.

2) It should be set on position of “Manual control” when the automatic function of transferring is unnecessary or need to manual operate the handle. . Under the working mode of “manual control”, the controller stops working , the switch won't auto-transfer, and the ATSE main contact keeps former status whatever the power situation is.

Using the manual operational handle can force the load connect to the regular power or stand-by one, also can break the load with two of them. Remember to remove the mechanical operational handle after manual operation.

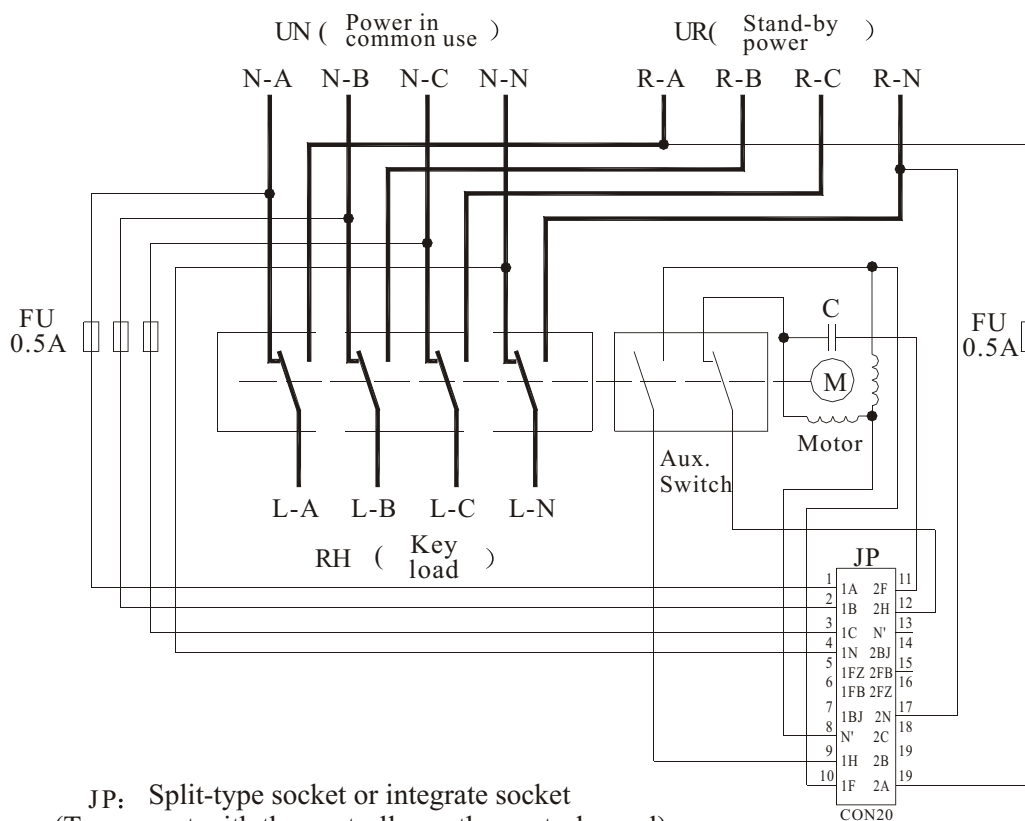
Notice:

Users must follow the related rules and pay attention to the items below when having those operations so as to proper use our products of ATSE.

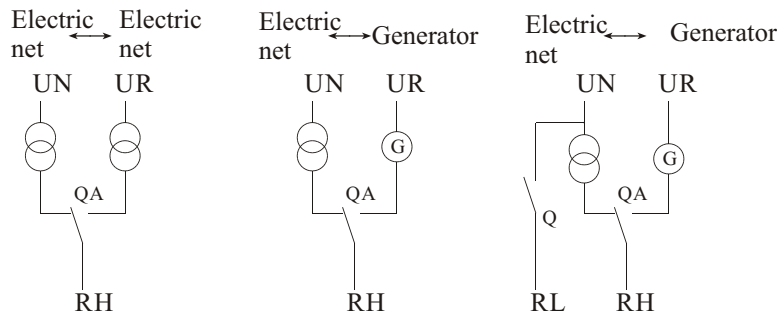
- 1) The neutral line-N must be wired correctly and reliably, otherwise ATSE won't work normally, even the controller and motor will be damaged.
- 2) The metal motherboard of ATSE's main body must have protective grounding reliably to assure safety.
- 3) During the test of frequency of voltage withstand, all the fuse combination of ATSE must be break
- 4) It is forbidden to manually operate the handle when the ATSE's working mode is on position of "Automatic control" unless it is on position of "Manual control". To operate manual operational handle, set the right position and operate it quickly with unload or light load so as to minus the affection for the main contact by the manual operation speed
- 5) It is strictly forbidden to pull or insert the socket head between the controller which is in power-on and motherboard when ATSE is electrified from the power supplying system so as to avoid accidents. The action can be taken when the power in common use and the stand-by one of ATSE are cut, However if it is a must to do as mentioned above, the working mode should be set on position of "manual control", then break the fuse before insert or pull the socket head with much attention.

Electric wiring graph of main body

The main body of switch is connected as following figures when ex-works. It is only for reference of maintenance and understanding theory. (The figure is of AC motor operational circuit, 400A and above is using DC motor to operate, the circuit theory is same)



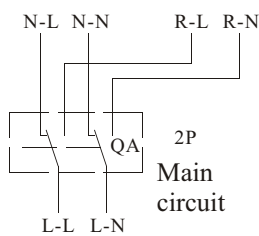
Graphic symbols and application of design:



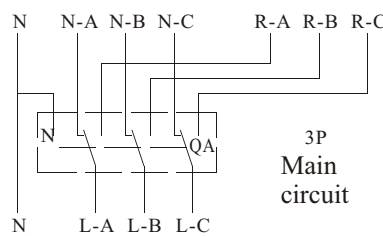
QA : Auto-transfer power switch SQP1-XXX.

UN: Power in common use UR: Stand-by power RH: Key load RL: Subordinate load

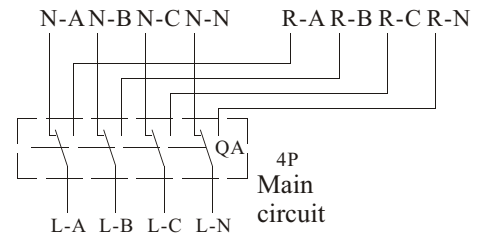
UN (Power in common use) UR (Stand-by power) UN (Power in common use) UR (Stand-by power)



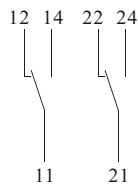
RH (Key load)



RH (Key load)



RH (Key load)



Aux.(transfer-type) contact

11、12、14 Be synchronous with regular main contact

21、22、24 Be synchronous with stand-by contact

ORDERING NOTICE

Please give the notation of the model of ATSE in detail at order, including:

- 1) Rated current;
- 2) Pole type (2-pole、3-pole or 4-pole) ;
- 3) Installation type (H or F) ;
- 4) Special requirement(Such as auto-transfer without restoration) ;
- 5) Free after-sales service in any quality problem within 18 months from the date of ex-works (for domestic customers only).