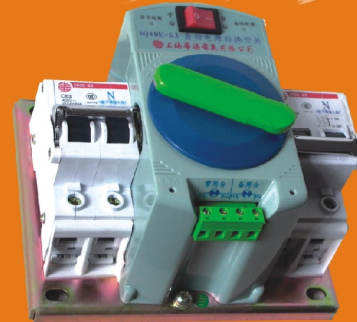


State High-tech Enterprise  
State exemption Products  
Shanghai Famous Brand



## SQ40E series

Super small volume  
automatic transfer power switch



The super small volume ATSE  
products in China;  
with many state patents,  
with intelligent controller,  
single motor operational mechanism,  
high reliable performances,  
suitable in terminal ends  
dual-loop power supply systems  
for auto-transferring..



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# Catalogue

## 3 SQ40E series super small volume auto-transfer power switch

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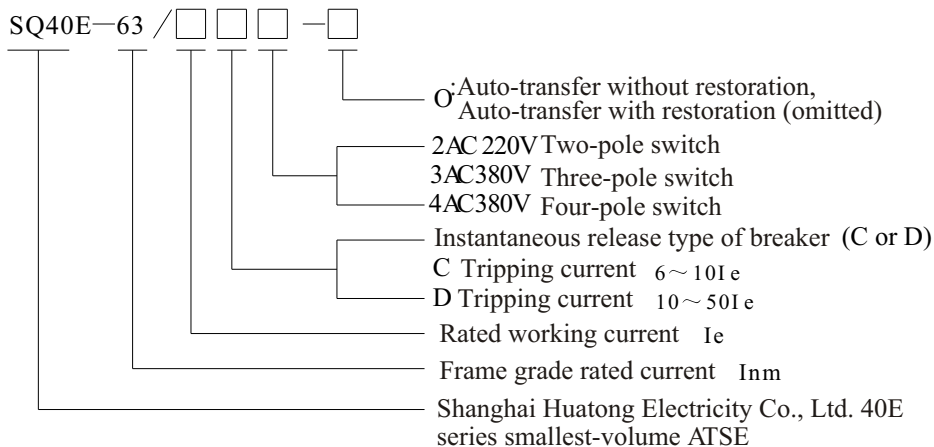
## Outline

SQ40E-63 series smallest-volume auto-transfer power switch (ATSE for short hereinafter) is the outspread products of Sq40 series, mainly consists of two ZB30 series MCB and single motor operational mechanism in dual-interlockings of machinery and electrodynamic, and intelligent controller. It is of super small volume, high reliability, full protective functions, convenient to operate, honored with many state patents. It is suitable in the dual-loop power supply system of terminals. However if the higher short-circuit breaking capacity is needed, the SQ40-63 series is better.

And it is widely used in high building, hospital, marketplace, bank, fire protection, chemical industry, metallurgy and so on where needs incessant power-supply by auto-transfer the power in the circuits of dual-loop power-supply systems. It conforms to standards of IEC60947-6-1-1998 《Automatic Transfer Switchgear and Equipments》 and GB/T14048.11-2002 《Automatic Transfer Switchgear and Equipments》 (Both of them belongs to auto-transfer with restoration type standards)

Meanwhile, we can provide with "auto-transfer without restoration" type of ATSE to our users.

## Model and Meaning



Example of model : SQ40E- 63/32C4

Shanghai Huatong Electricity Co., Ltd. 40E series super small volume ATSE switch, frame grade rated current 63A, rated working current is 32A, instantaneous release type of breaker is C, four-pole, auto-transfer with restoration

## Characteristic of products

- 1) Super small volume best for the installation of small distribution boxes.
- 2) Suitable in the dual-loop of power supply systems of net to net or net to generator.
- 3) Set up with intelligent controller in EMC design and of a high reliability compliant to any environment condition.
- 4) Divided into 2 types of manual-control and auto-control by the working mode..
- 5) It can monitor working state of the stand-by power and the one in common use.
- 6) Equipped with the auxiliary wiring terminal which is set on power for switching-on indication, it can be connected directly outwards to the indicator light.



## Normal working and mounting condition

- 1) Ambient temperature within  $-5^{\circ}\text{C}$ 。  $\sim +40^{\circ}\text{C}$ ;
- 2) The installation elevation not over 2000m
- 3) Pollution grade 3
- 4) Installation type III
- 5) Installation mode:  
Vertically or horizontally

## Main technical parameters

The main technical parameters see parameters table.

Rated working current $I_e$ (A)	6、10、16、20、25、32、40	50、63
Appliance grade	CB level	
Category of utilization	AC-33B	
Rated working voltage $U_e$	220V (2-pole)、380V (3-pole、4-pole)	
Rated frequency	50Hz	
Under-voltage transfer value	72.5% $U_e$	
Under-voltage return-value	83.5% $U_e$	
Over-voltage transfer value	125.5% $U_e$	
Over-voltage return-value	120% $U_e$	
Transfer delay-time	2s	
Return delay-time	5s	
Rated short-circuit making capacity	9.18kA	6.615 kA
$I_{cm}$ (Peak value)		
Rated short-circuit breaking capacity	6 kA	4.5 kA
$I_{cn}$ (Effective value)		
Electric operation life (times cycle)	1000	
Machanical operation life (times cycle)	6000	
Capacity of indicator light outwards	Rated voltage AC220V, maximum current 0.2A	

Notes: C type suitable for mixed load, D type suitable for motor load or mixed load.  
Please notice the different meanings of C, D between SQ40E and Sq40!

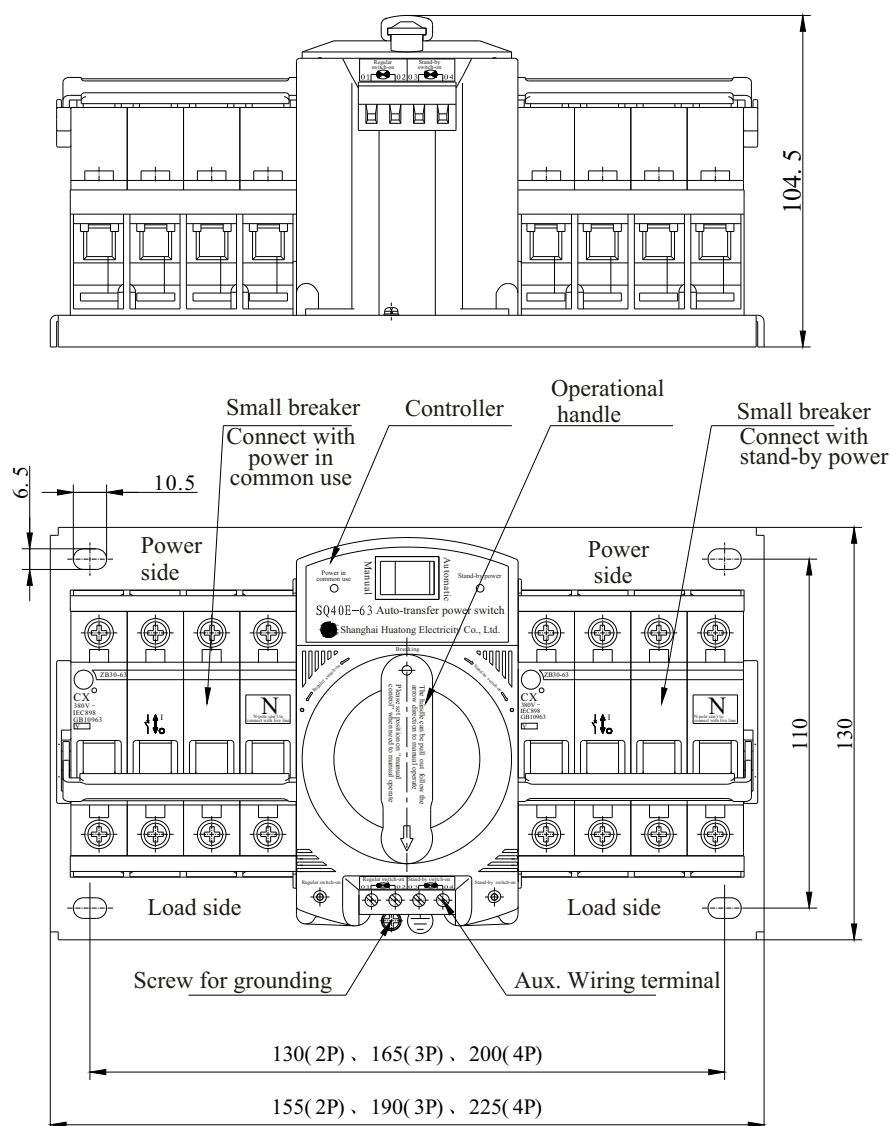
## Overall and mounting dimensions

The overall and mounting dimensions see the external figure

## Installation and wiring

The ATSE can be directly installed in the power control cabinet (box). The wiring can be started after the ATSE installation finished. (refer to the graphic symbols and the application of design). According to the ATSE rated current value to select suitable wire to connect the power side (upper connection) with the load side (bottom connection) of the power in common use and stand-by one. Meanwhile, pay attention to the phase sequence of them (By A, B, C, N sequence connection). To the three-pole ATSE, it must be attached to a wire (the cross-section area not less than  $0.3 \text{ mm}^2$ ) to connect those “Neutral line N” between the power and the ATSE aux. Terminal.. The N-line must be connected well without mistake to assure the ATSE working properly. To four-pole or two-pole ATSE, the N-pole of the power in common use and stand-by one must be connected properly with the one of breaker. Furthermore there should be reliable grounding for ATSE's installation at its grounding marks.

The auxiliary wiring terminal is with live connecting sign, and just for connected directly outwards with the indicator to show the switching-on state, it is not allowed to put power in from the auxiliary wiring terminal (for there-pole ATSE should add conductor (cross-section area not less than  $0.3 \text{ mm}^2$ )) to connect with the neutral lines of the power and the ATSE aux. Terminal, Otherwise the ATSE would not work properly.



External figure



## Utilization

1) For normal use, the controller switch should be set on position of “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(2S); 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 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.

2) It should be set on position of “Manual control” when the automatic function of transferring is unnecessary or need to re-buckle the breaker or need other manual operation. Under the working mode of “manual control”, the controller stop working, manual operation can make the breaker making or breaking or re-buckled without automatic switching.

3) When ATSE's load is in short-circuit or over-load, the ATSE miniature breaker will protectively be tripping. If the power indicates normal, the miniature breaker’s handle will be on “switch-on” position; if the switching-on indicator light goes out , it means the miniature breaker has already being protectively tripping. At this moment. Users should set the controller on position of “manual control” and find out the reason of tripping, and after the break-down fixed, turn the breaker on position of “automatic control” to re-start in operation.

4) When ATSE setting from “manual control” to “automatic control” and both the power in common use and the stand-by one are normal, both the type of auto-transfer without restoration and the one of auto-transfer with restoration of ATSE will connect the load in priority with the power in common use. (Even the load was connected with the stand-by one before).

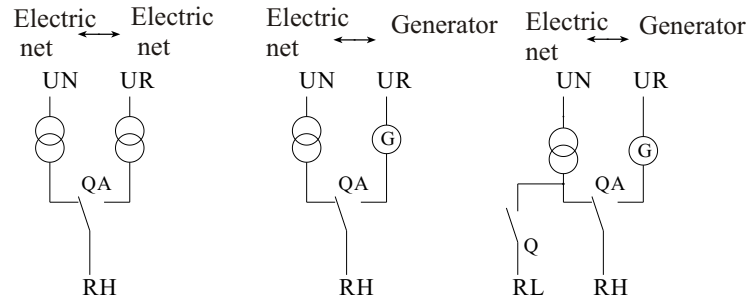
## Attention

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 properly, even the controller and motor will be damaged.
- 2)The protective grounding of ATSE must be reliable to assure safety.
- 3)The sampling signal for detection of the controller’s working power and main circuit’s power is directly taken from the power side of automatic circuit; However the auxiliary wiring terminal’s working power for indicator light is taken from the load side of automatic circuit, therefore it is not allowed to have voltage-withstand test among these wiring terminals ( except to dismantle these secondary conductors)! The frequency voltage withstand test can be done between the main circuit and the enclosure or between the secondary aux. terminal and the enclosure.
- 4)It is forbidden to manual operate the electric operational mechanism handle when the ATSE's working mode is on position of “Automatic control”.

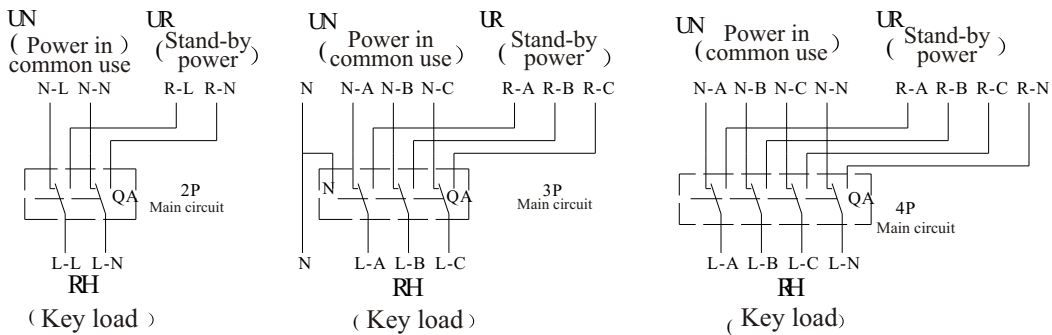


## Graphic symbols and Application of design:



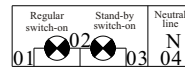
QA: Smallest volume auto-transfer switch SQ 40E

UN: Power in common use    UR: Power in common use    RH: Key load    RL: Subordinate load



2P,4P auxiliary wiring terminal  
(Connecting point with power,  
to AC200V indicator light)

3P auxiliary wiring terminal  
(Connecting point with power,  
to AC220V indicator light  
and neutral line-N)



## Ordering notice

1. If need asymmetric current for regular stand-by breaker, please note at order.
2. Remember the sign of “-O” is for auto-transfer without restoration, if no special note at order, the factory settings will be auto-transfer with restoration.
3. The function of fire control re-setting should be noted according to the needs when ordering.
4. The products will be offered with free after-sales service of the quality problem within 18 months from the date of ex-works.(only for domestic users)