

# HYT3P Series Automatic Transfer Switching Equipment

## Functions and Characteristics



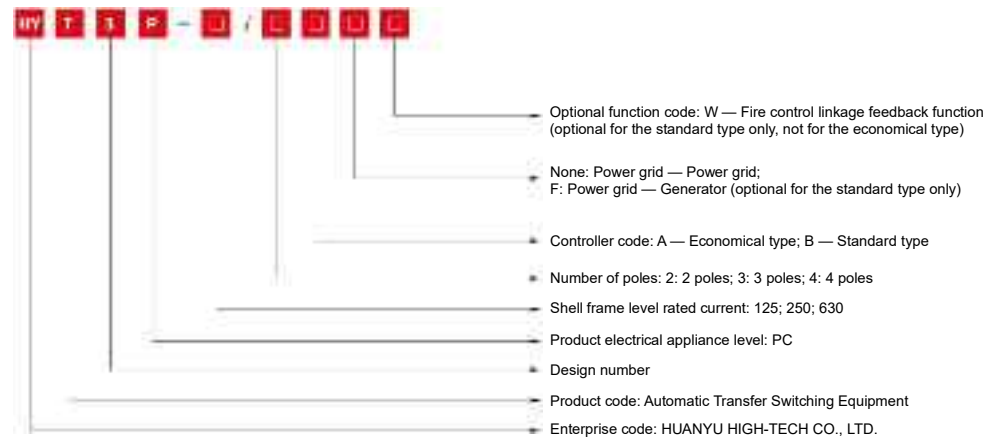
### Product Overview

This transfer switch is suitable for the dual-power supply system with AC 50 Hz, rated working voltage of 230 V (Level 2), 400 V (Level 3, 4) or below and rated current of 16 A to 630 A. It can simultaneously detect the two power supplies of the power supply system: the common power supply (N) and the standby power supply (R), and automatically (or manually) switch from the abnormal power supply to the normal power supply when the power supply is in undervoltage and phase failure, so as to improve the continuity, safety and reliability of the power supply system in the place of use.

This transfer switch is widely used in power systems, hospitals, posts and telecommunications, fire control, hotels, banks, airports, docks, residential quarters, television stations, military facilities, shopping malls and other important places with high requirements for power supply continuity.

The switching device complies with GB/T 14048.11 *Low-voltage Switchgear and Controlgear — Part 6-1: Multiple Function Equipment — Transfer Switching Equipment*, which is equivalent to IEC 60947-6-1.

### Model Description



### Normal Working Conditions

1. The ambient air temperature shall be  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ . The average temperature within 24 hours shall not exceed  $+35^{\circ}\text{C}$ .
2. The altitude of the installation location shall not exceed 2,000 m.
3. The relative air humidity at the installation site shall not exceed 50% when the ambient air temperature is  $+40^{\circ}\text{C}$ . A higher relative humidity is allowed at a lower temperature. For example, when the average minimum temperature in the wettest month is  $+20^{\circ}\text{C}$ , the monthly average maximum relative humidity of that month can reach 90%. Appropriate measures shall be taken to prevent condensation caused by temperature change.
4. Contamination grade: Grade 3. There is no explosion danger and no gas or conductive dust that corrodes metals or damages insulation in the surrounding air.
5. The installation category is Grade III.
6. Two power lines are connected to the upper terminal of the switching device, and the load line is connected to the lower terminal, which cannot be reversed.
7. The installation location shall be free of significant vibration and impact.

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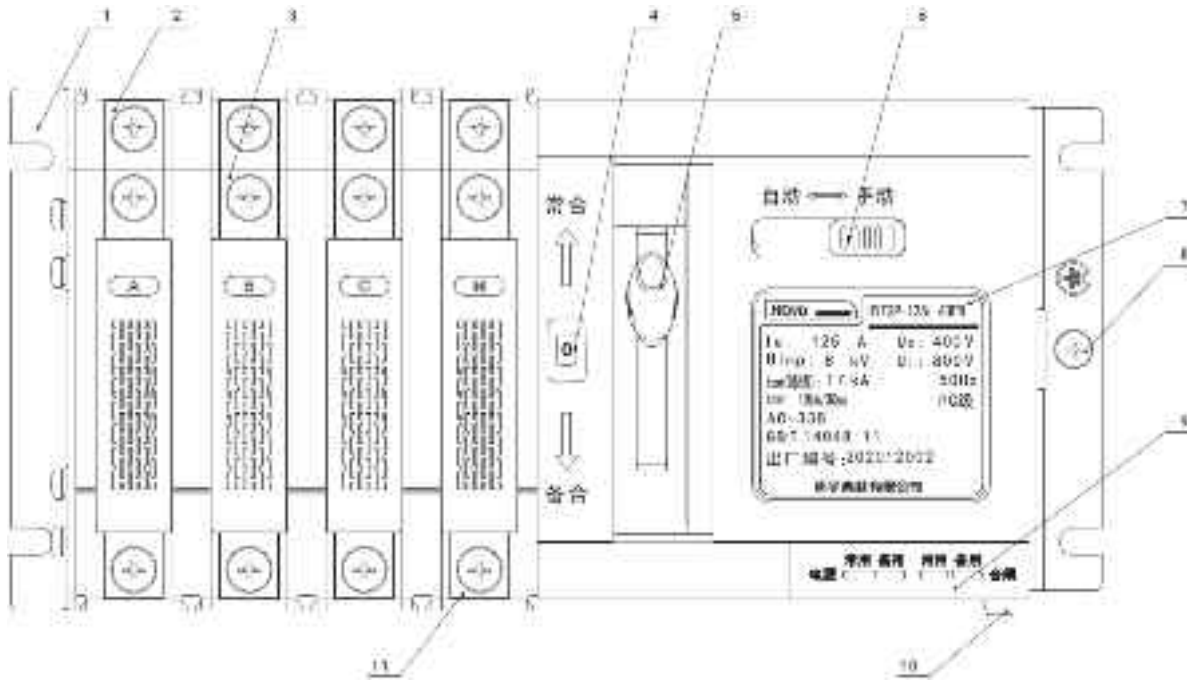
## Functions and Characteristics

### Main Technical Parameters

Technical parameter	Model & Specification	HYT3P-125	HYT3P-250	HYT3P-630
Rated working current $I_e$		16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A, 125A	125A, 140A, 160A, 180A, 200A, 225A, 250A	250A, 315A, 350A, 400A, 500A, 630A
Rated working voltage $U_e$		AC 230 V/50 Hz (Level 2), AC 400 V/50 Hz		AC 415V/50Hz
Rated insulation voltage $U_i$		800V		
Rated impulse withstand voltage $U_{imp}$		8kV		12kV
Rated short-circuit making capacity $I_{cm}$		17kA		52.5kA
Rated short-time withstand current $I_{cw}$		10kA/30ms		25kA/1s
Mechanical life		10,000	8,000	4,000
Electrical life		1,500	1,200	1,000
Use category		AC-33B		
Electrical appliance level		PC		
Contact transfer time		0.6s±20%		
Transfer operating time		1.3s±10%		
Return transfer time		1.3s±10%		
Power off time		0.6s±20%		
Electromagnetic compatibility environment		Environment B		
Contamination grade		3		
Number of poles		2P, 3P, 4P		3P, 4P
IP level		IP20		
Installation mode		Vertical fixed installation		
Wiring method		Screw wiring		
Operation mode		Automatic/Manual		
Screw tightening torque (N·m)		3.5N·m	8N·m	12N·m
Switch position		Common position (I), standby position (II), and disconnection position (0)		
Rated control power supply voltage $U_s$		AC 230V/50Hz		
Voltage deviation range of power supply		Undervoltage transfer: 160 V±10%		
Control characteristic		Voltage loss, undervoltage and phase failure transfer		

### Product Structure

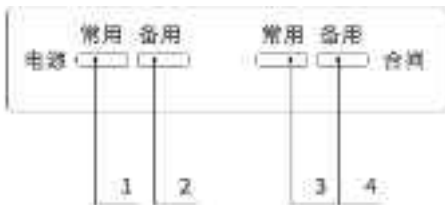
#### 1. Schematic diagram of the product structure



#### 2. Product structure description

1 — Bottom plate; 2 — Standby input terminal; 3 — Common input terminal; 4 — Transfer location indication; 5 — Handle; 6 — Automatic/Manual transfer switch; 7 — Sign; 8 — Grounding screw; 9 — Indicator light; 10 — Secondary control line terminal; 11 — Output terminal.

#### 3. Controller panel and description



Product status	1	2	3	4
Common power supply normal	Normally on			
Common power supply closed			Normally on	
Standby power supply normal		Normally on		
Standby power supply closed				Normally on
Product transfer fault	Flash		Flash	
Fire control open		Flash		Flash

### Related Functions

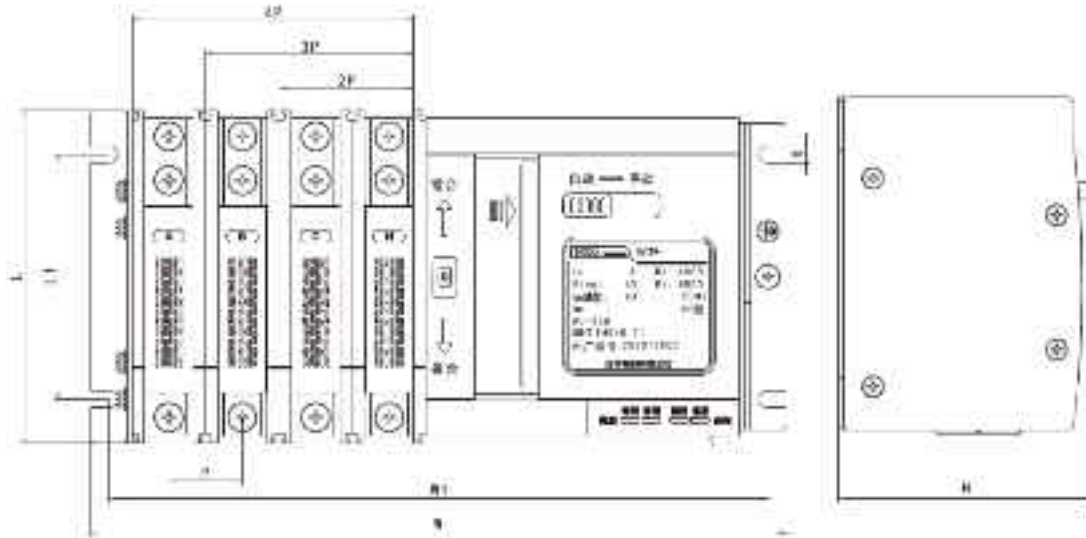
#### 1. Controller function table

Controller type	Type A (economical type)	Type B (standard type)
<b>Control functions</b>		
Automatic/Manual transfer mode	■	■
Dual-split	■	■
Power grid — Power grid	■	■
Power grid — Generator	—	□
Automatic charge and automatic recovery	■	■
Monitoring common power supply and fault conversion	■ Phase failure/voltage loss, undervoltage	
Monitoring standby power supply and fault conversion	■ Phase failure/voltage loss, undervoltage	
Fire control input (DC 24 V)	—	■
Fire control feedback output	—	□
<b>Indications</b>		
Common and standby closing indication	■	■
Common and standby power supply indication	■	■
Fault alarm	■	■
<b>Transfer functions</b>		
Undervoltage transfer	■	■
Voltage loss transfer	■	■
<b>Other functions</b>		
Communication function	—	—
Display module	LED	LED

Note: "■" indicates that this function is available. "—" indicates that this function is not available. "□" indicates that this function is optional.

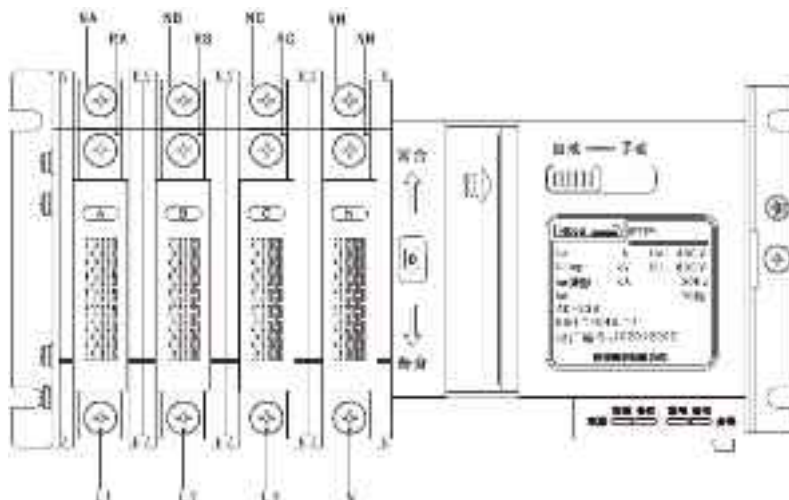
### Outline and Installation Dimensions

#### 1. Outline and installation dimension diagram



Model	W	W1	L	L1	H	X	P
HYT3P-125/4	284	269	136	100	104	7	30
HYT3P-125/3	254	239					
HYT3P-125/2	224	209					
HYT3P-250/4	387	368	170	125	129	8	45.5
HYT3P-250/3	341	323					
HYT3P-250/2	295	276					
HYT3P-630/4	595	567	255	187	194	13	68.2
HYT3P-630/3	527	499					

#### 2. 4P product main circuit wiring



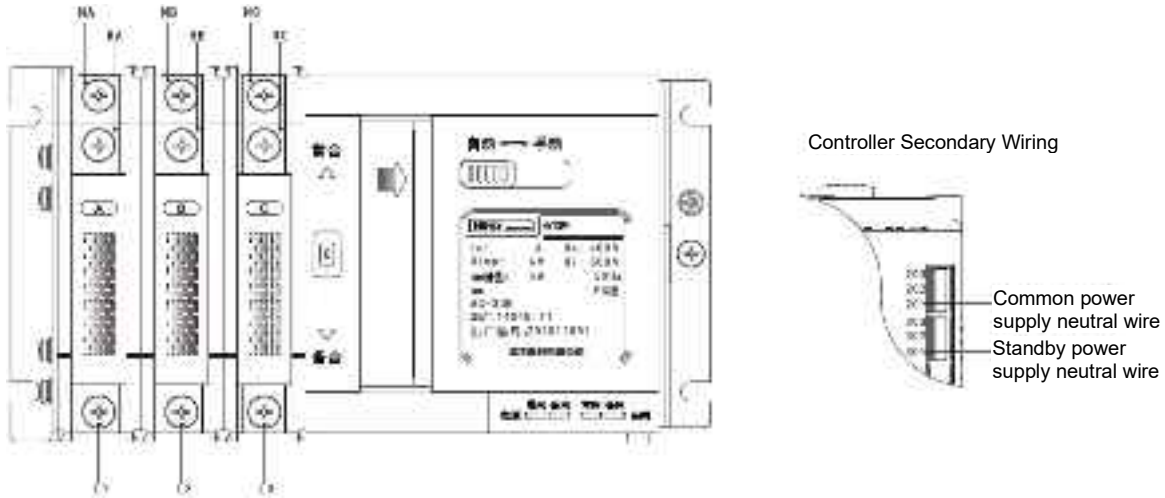
##### 8.2.1 Wiring instruction

1. NA, NB, NC and NN are common inputs A, B, C and N.
2. RA, RB, RC and RN are standby inputs A, B, C and N.
3. L1, L2, L3 and N are output terminals A, B, C and N.

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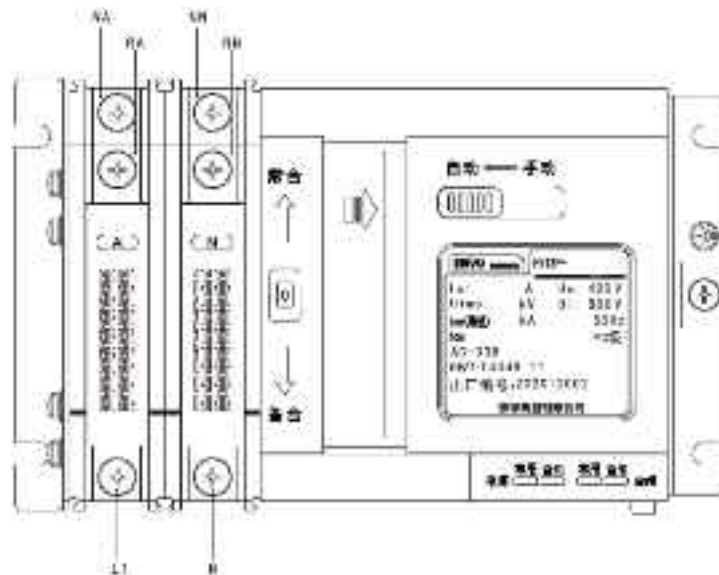
## 3. 3P product main circuit wiring



### 3.1 Wiring instruction

1. NA, NB and NC are common inputs A, B and C. 2. RA, RB and RC are standby inputs A, B and C. 3. L1, L2 and L3 are output terminals A, B and C.
4. 201 is the common power supply neutral wire. 5. 301 is the standby power supply neutral wire.

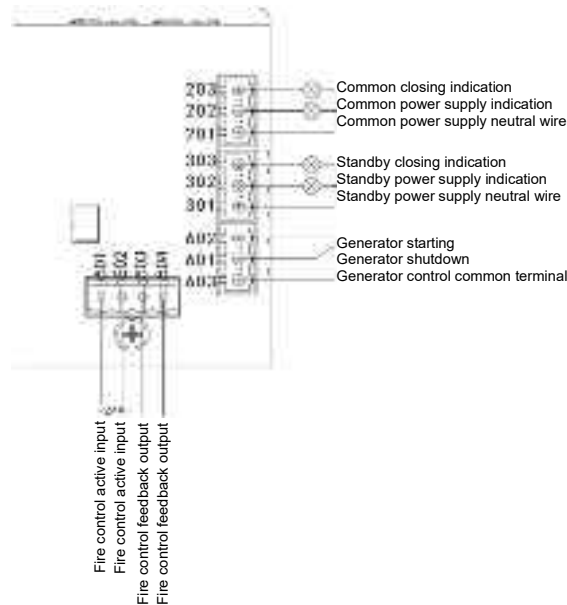
## 4. 2P product main circuit wiring



### 4.1 Wiring instruction

1. NA and NN are common inputs A and N. 2. RA and RN are standby inputs A and N.

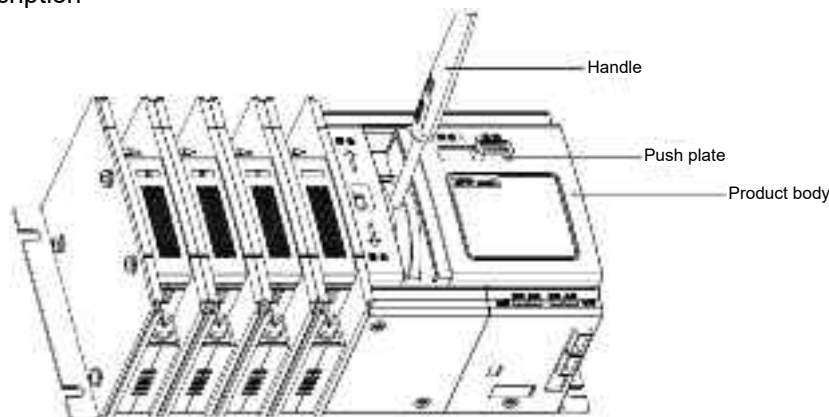
### 5. Controller secondary terminal wiring



#### 5.1. Wiring of the secondary terminal of the controller

- 203#, 201#: Common power supply closing external indicating signal output terminals (AC 220 V/0.5 A, active). The common neutral wire of the 3P product is connected to 201# terminal.
- 202#, 201#: Common power supply external indicating signal output terminals (AC 220 V/0.5 A, active).
- 303#, 301#: Standby power supply closing external indicating signal output terminals (AC 220 V/0.5 A, active). The common neutral wire of the 3P product is connected to 201# terminal.
- 302#, 301#: Standby power supply external indicating signal output terminals (AC 220 V/0.5 A, active).
- 603#, 602#, 601#: Passive output terminals of generator starting control signals, where 601# is the common terminal and 602# is the normally closed terminal. 603# is the normally open terminal. When the common power supply is normal, 601# and 603# are closed, and 602# and 603# are disconnected. When the common power supply is abnormal, 602# and 601# are closed, and 601# and 603# are disconnected.
- 501#, 502#: Active input terminals of fire control linkage signals. When this port is externally connected to the DC 24 V active signals, the controller immediately controls the switch to transfer to the open position to cut off the load power supply.
- 503#, 504#: Passive output terminals of fire control feedback signals. Under normal conditions, this port is normally open. 503# and 504# are closed when a fire control signal is input to the controller to transfer the switch to the opening position.

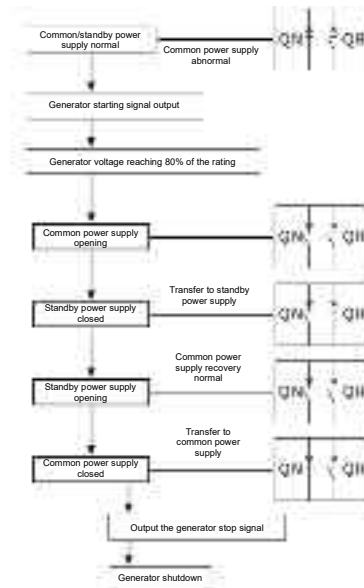
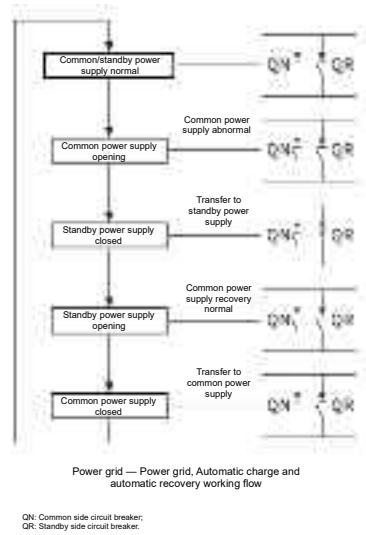
### 6. Handle function description



- Manual operation: Push the push plate of the transfer switch to the right for manual operation, and insert the handle into the body. Then you can manually operate the switch.
- Remove the handle and push the push plate left to the automatic state (which is the automatic transfer state) if needed.

### Operating Principle

#### 1. Description of the automatic transfer operation flow



### Use and Maintenance

#### 1. Product commissioning

After installation, the product shall be commissioned. Manual commissioning: Adjust the automatic/manual switching gear of the transfer switch to the manual gear, and then pull the handle to make the product in the state of common closing, dual-split, and standby closing, and check whether the product is reliably closed.

Power-on commissioning: Adjust the automatic/manual switching gear of the transfer switch to the automatic gear first, and then energize the two power supplies. Commission the product according to the Figures in the Operating Principle 1, and observe whether the product transfer and panel indicator light are normal and whether the output state of the secondary terminal is correct.

#### 2. Product fault analysis and maintenance

Fault	Cause analysis	Troubleshooting method
The indicator light on the controller panel is not on after energizing	Loose, falling off or poor contact of power supply sampling wire	Check and connect the conductors
	The 3P product neutral wire is not connected to the terminal	
	Phase failure of power supply	Check whether the power supply voltage is normal



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### Ordering Information

1. When ordering, please fill in according to the table below.

Order unit			Order quantity	Order date		
Model	Number of poles	Controller code	Rated operating current		Optional function code	Notes
<input type="checkbox"/> HYT3P-125	<input type="checkbox"/> 2P <input type="checkbox"/> 3P <input type="checkbox"/> 4P	<input type="checkbox"/> A (Economical type) <input type="checkbox"/> B (Standard type)	<input type="checkbox"/> 16A <input type="checkbox"/> 20A <input type="checkbox"/> 25A <input type="checkbox"/> 32A <input type="checkbox"/> 40A <input type="checkbox"/> 50A <input type="checkbox"/> 63A <input type="checkbox"/> 80A <input type="checkbox"/> 100A <input type="checkbox"/> 125A		Type B controller optional <input type="checkbox"/> F (Power grid — Generator) <input type="checkbox"/> W (Fire control feedback)	
<input type="checkbox"/> HYT3P-250			<input type="checkbox"/> 125A <input type="checkbox"/> 140A <input type="checkbox"/> 160A <input type="checkbox"/> 180A <input type="checkbox"/> 200A <input type="checkbox"/> 225A <input type="checkbox"/> 250A			
<input type="checkbox"/> HYT3P-630			<input type="checkbox"/> 250A <input type="checkbox"/> 315A <input type="checkbox"/> 350A <input type="checkbox"/> 400A <input type="checkbox"/> 500A <input type="checkbox"/> 630A			
Example	HYT3P-125/4 B F W 125 A indicates a 4-pole automatic transfer switching equipment with automatic charge and automatic recovery of power grid and generator, and rated working current of 125 A.					