



# HYT3P Series PC-level Automatic Transfer Switching Equipment

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## Installation and Operation Instruction

Before installing and using the product, please read the instruction carefully and well keep it for future reference.

### Product Certificate

This product has passed the inspection and meets the requirements of GB/T14048.11, and therefore is allowed to leave the factory.

Inspector:



Date of inspection: See the product or packaging.

**HUANYU HIGH-TECH CO., LTD.**

# Considerations in Use

## Dear users:

To use this product correctly and reasonably and avoid unnecessary losses, please read this instruction carefully before installation, use, circuit connection, operation and maintenance inspection. This instruction introduces the structure, working principle, use conditions, installation, commissioning, etc. of the automatic transfer switching device (hereinafter referred to as the "transfer switch"), which is conducive to your correct and reasonable use of this product. If you have any questions, please consult our company. The user shall be responsible for the adverse consequences caused by not operating according to this instruction.

## Attention:

1. Please read this instruction carefully before use, and operate in strict accordance with the guidelines.
2. Non-professionals are prohibited from maintenance operation, otherwise it will lead to electric shock or product damage.
3. Before energizing or configuring the product, check whether the specification of the transfer switch meets the use requirements, and use appropriate voltage measuring equipment to determine the voltage condition.
4. Measure the insulation resistance of the main circuit with a 500 V megger before use (the secondary circuit must be disconnected during measurement, otherwise the intelligent controller will be damaged), and the resistance shall not be less than 1.5 MΩ at the ambient temperature of 20°C ± 5°C and the relative humidity of 50% ~ 70%. Otherwise, the transfer switch shall be dried until the insulation resistance meets the specified requirements.
5. This product has been tested for the dielectric performance according to the standard before leaving the factory. If the retest is carried out, the controller must be removed to avoid damage to the product.
6. Wiring must be carried out according to the phase sequence identification of the incoming terminal of the transfer switch body, the phase sequence of the incoming terminals of the two power supplies must be consistent, and the neutral wire must not be mistakenly connected to the phase wire.
7. 4-pole and 2-pole transfer switches connect the neutral wires of two power supplies to the corresponding incoming terminals of "common power supply" and "standby power supply" respectively. 3-pole switching devices must have the neutral wires of two power supplies connected to the corresponding auxiliary terminals. Do not share the neutral wires, and the wiring shall be reliable, otherwise the transfer switch will not work normally.
8. The shell of the transfer switch must be reliably grounded to ensure the safety of operators.
9. Do not install the transfer switch outdoors in damp, direct sunlight, high temperature, large vibration impact and conductive dust, otherwise the service life of the product will be shortened or adverse reactions will be caused.
10. When the transfer switch is in the automatic transfer state, do not use the handle for transfer operation, otherwise the control circuit will be partially damaged.
11. In the cases of the failure of common power supply and standby power supply, manual closing is prohibited.
12. To ensure the reliability of the transfer switch, it is required to conduct the switching test regularly to confirm that the switch works normally and ensure the continuity of power supply for important loads.
13. Before the normal maintenance and troubleshooting of the system circuit, all power supplies must be turned off, the switching device shall be switched to the "0" position, and then the "No Closing" sign shall be placed in the prominent position for maintenance, so as to avoid unnecessary property loss and personal injury.
14. When the transfer switch is in maintenance or regular inspection, please commission it in the "Manual" mode.
15. Products that are not used for a long time shall be moisture-proof and dust-proof, and must be commissioned according to the specified contents before use to ensure that the transfer switch can work normally before being put into operation.

## 1 Scope of Application

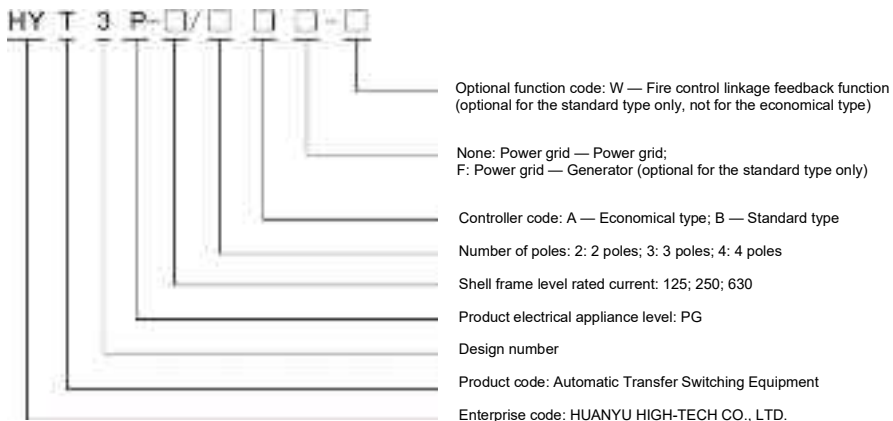
This transfer switch is suitable for the dual-power supply system with AC 50 Hz, rated working voltage of 230 V (Level 2), 400 V (Level 3, 4) or below and rated current of 16 A to 630 A. It can simultaneously detect the two power supplies of the power supply system: the common power supply (N) and the 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.

## 2 Standard Followed

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.

## 3 Model Description



## 4 Normal Working Conditions

- 4.1 The ambient air temperature shall be  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ . The average temperature within 24 hours shall not exceed  $+35^{\circ}\text{C}$ .
- 4.2 The altitude of the installation location shall not exceed 2,000 m.
- 4.3 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.
- 4.4 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.
- 4.5 The installation category is Grade III.
- 4.6 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.
- 4.7 The installation location shall be free of significant vibration and impact.

## 5 Main Technical Parameters

Table 1

Model & specification Technical parameter	HYT3P-125	HYT3P-250	HYT3P-630
Rated working current Ie	16A, 20A, 25A, 32A, 40A, 50A, 63A, 80A, 100A, 125A	125A, 140A, 160A, 180A, 200A, 225A, V250A	250A, 315A, 350A, 400A, 500A, 630A
Rated working voltage Ue	AC 230 V/50 Hz (Level 2), AC 400 V/50 Hz		AC 415V/50Hz
Rated insulation voltage Ui	800 V		
Rated impact withstand voltage Uimp	8 kV		12 kV
Rated short-circuit making capacity Icm	17 kA		52.5 kA
Rated short-time withstand current Icw	10 kA/30 ms		25 kA/1 s
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 Us	AC 230V/50Hz		
Voltage deviation range of power supply	Undervoltage transfer: 160 V±10%		
Control characteristic	Voltage loss, undervoltage and phase failure transfer		

## 6 Schematic Diagram of Product Structure

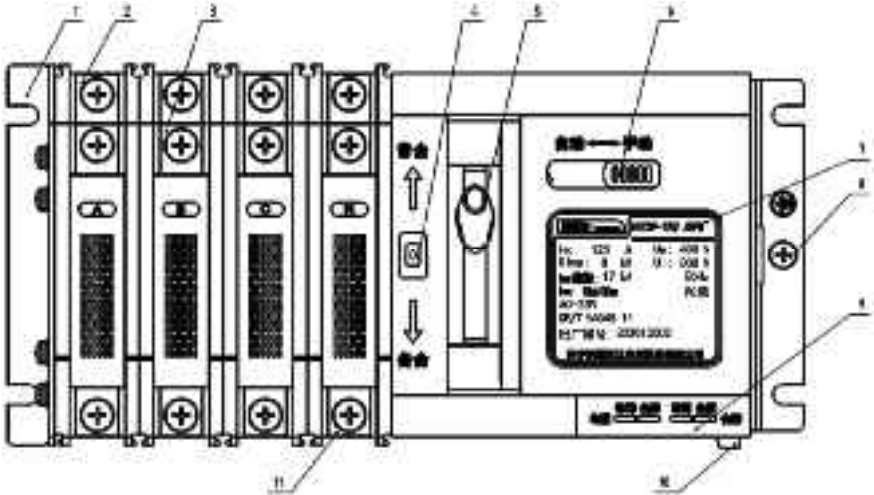


Figure 1

### 6.1 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.

### 6.2 Controller panel and description

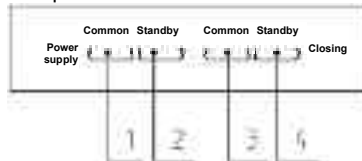


Figure 2

Table 2

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

## 7 Controller Function

Table 3

Controller type	Type A (economical type)	Type B (standard type)
Control functions		
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	-	□
Indications		
Common and standby closing indication	■	■
Common and standby power supply indication	■	■
Fault alarm	■	■
Transfer functions		
Undervoltage transfer	■	■
Voltage loss transfer	■	■
Other functions		
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.

## 8 Product Installation

### 8.1 Outline and installation dimension diagram

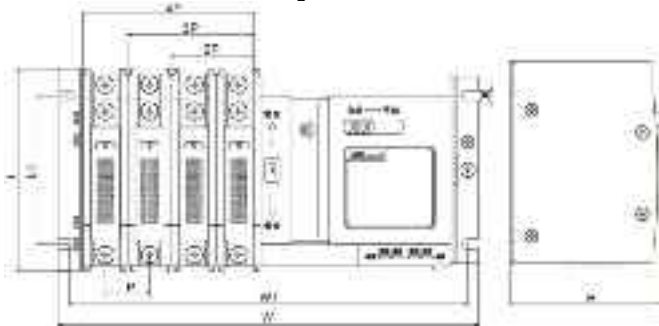


Figure 3

Table 4

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					

### 8.2 4P product main circuit wiring

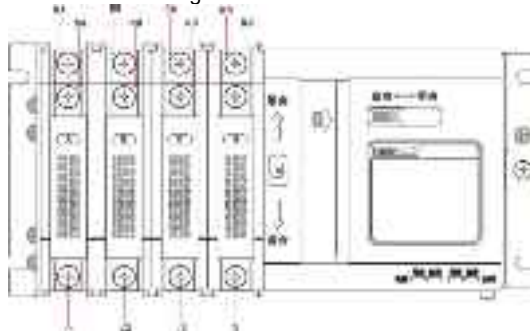


Figure 4

#### 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.

### 8.3 3P product main circuit wiring

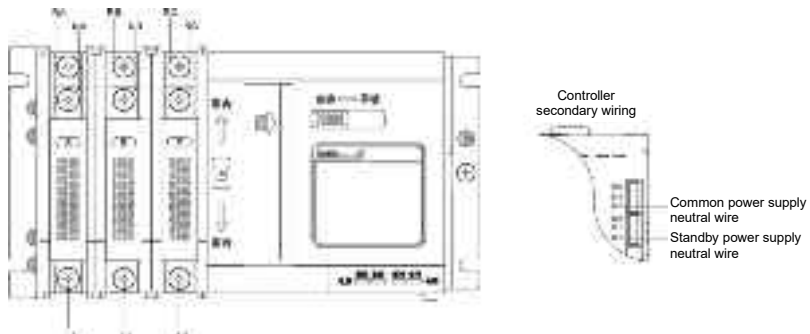


Figure 5

#### 8.3.1 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.

### 8.4 2P product main circuit wiring

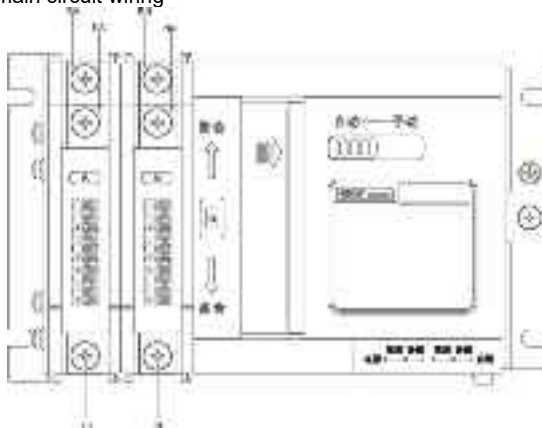


Figure 6

#### 8.4.1 Wiring instruction

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



## 8.5 Controller secondary terminal wiring

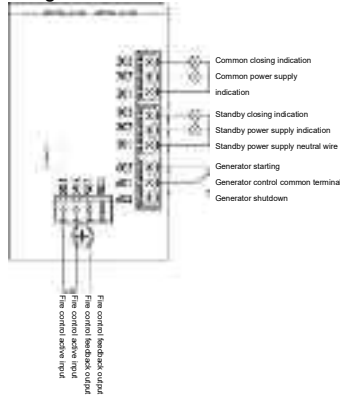


Figure 7

### 8.5.1 Wiring of the secondary terminal of the controller

1. 203#, 201#: Common power supply closing external indicating signal output terminal (AC 220 V/0.5 A, active). The common neutral wire of the 3P product is connected to 201# terminal.
  2. 202#, 201#: Common power supply external indicating signal output terminal (AC 220 V/0.5 A, active).
  3. 303#, 301#: Standby power supply closing external indicating signal output terminal (AC 220 V/0.5 A, active). The common neutral wire of the 3P product is connected to 301# terminal.
  4. 302#, 301#: Standby power supply external indicating signal output terminal (AC 220 V/0.5 A, active).
  5. 603#, 602#, 601#: Passive output terminals of generator starting control signals, where 601# is the common terminal, 602# is the normally closed terminal, and 603# is the normally open terminal. When the common power supply is normal, 601# and 603# are closed, and 602# and 601# are disconnected. When the common power supply is abnormal, 602# and 601# are closed, and 601# and 603# are disconnected.
  6. 501#, 502#: Active input terminal of fire control linkage signal. 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.
  7. 503#, 504#: Passive output terminals of fire control feedback signal. Under normal conditions, this port is normally open, and 503# and 504# are closed when a fire control signal is input to the controller to transfer the switch to the opening position.
- 8.6 Handle function description:

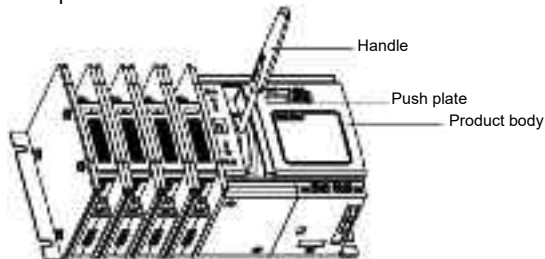
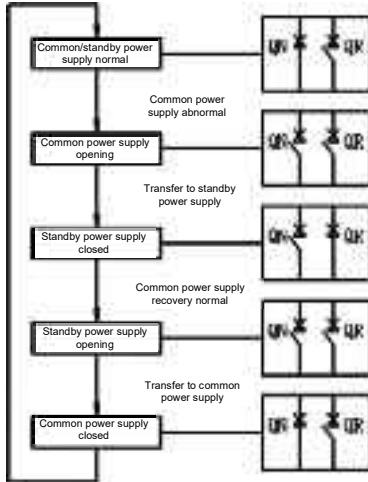


Figure 8

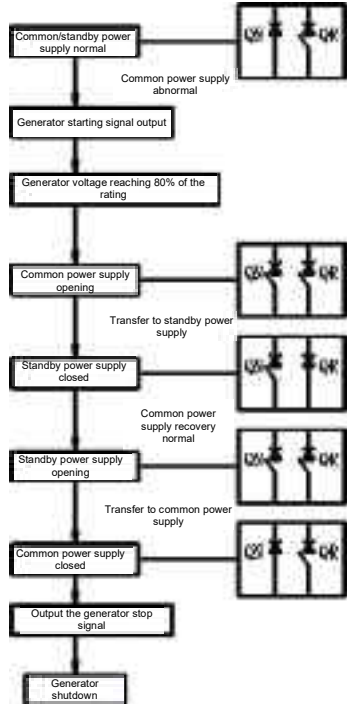
1. Manual operation: Push the push plate of the transfer switch to the right for manual operation, and insert the handle into the body. Then you can manually operate the switch.
  2. Remove the handle and push the push plate left to the automatic position (which is the automatic transfer state) if needed.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

**Power grid — Power grid, Automatic charge and automatic recovery mode**



QN: Common side circuit breaker;  
 QR: Standby side circuit breaker.

**Power grid — Generator, Automatic charge and automatic recovery**



**9 Use and Maintenance**

**9.1 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 product transfer process in Article 8.7, and observe whether the product transfer and panel indicator light are normal and whether the output state of the secondary terminal is correct.

**9.2 Product fault analysis and maintenance**

Table 5

Fault	Cause analysis	Troubleshooting method
The indicator light on the controller panel is not on after power-on	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

## 10 Ordering Information

10.1 When ordering, please fill in according to Table 6.

Table 6

Order unit			Order quantity	Order date				
Model	Number of poles	Controller code	Rated working 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	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"/> 40A	<input type="checkbox"/> 50A	<input type="checkbox"/> 63A	<input type="checkbox"/> 80A		
<input type="checkbox"/> HYT3P-630	<input type="checkbox"/> 3P <input type="checkbox"/> 4P		<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"/> 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.							

## 11 Ordering Information

On the premise that users abide by the use and storage conditions and the product seals are intact, if the product is damaged or cannot be used normally due to manufacturing quality problems within 18 months from the production date of the product, our company will be responsible for the repairing or replacement free of charge. If the warranty period expires, users shall pay for the repair. However, if the damage is caused by the following circumstances, the fees for repair still shall be charged even within the warranty period:

- (1). Misuse, self-modification, improper maintenance, etc.
- (2). Use beyond the standard specification requirements.
- (3). Falling, damage during transportation, etc. after purchase.
- (4). Earthquake, fire, lightning strike, abnormal voltage, other natural disasters and secondary disasters, etc.

In case of any questions, please contact the dealer or our customer service department.

### Dear customers:

To protect our environment, please recycle the product or its components when the product is scrapped. For materials that cannot be recycled, please handle them properly. Thank you very much for your cooperation and support.

**Address: Wenzhou Bridge Industrial  
Zone, Yueqing City, Zhejiang Province  
Service hotline: 400-887-5757  
Switchboard: 0577-62889999  
Fax: 0577-62885588  
Website: [www.huyu.com.cn](http://www.huyu.com.cn)**