

# I. Overview

The HHD3E- P (JD-5) and HHD3E- P (JD-6) series motor protectors (hereinafter referred to as "the protector") are applicable to AC 50Hz power supply circuits with a rated operating voltage of AC 380V or below. They form a motor control circuit together with switching devices such as AC contactors.

When the motor's main circuit is in abnormal operating conditions (e.g., phase loss, overload, three-phase unbalance, locked rotor), the protector will promptly open the contacts of switching devices to cut off the motor's three-phase power supply, protecting the motor quickly and reliably.

The protector adopts a potentiometer quantitative setting method: its rated current is set directly according to the rated current marked on the motor nameplate, which is more convenient, intuitive and accurate than non-quantitative setting methods (that require starting the motor for adjustment). It also uses continuously adjustable start avoidance technology, and its overload function has excellent inverse time-limit performance, adapting to motors that need to start from light load to heavy load. This protector holds an invention patent.

This series of protectors complies with the requirements of the GB/T 14048.4 standard.

# II. Normal Operating and Installation Conditions

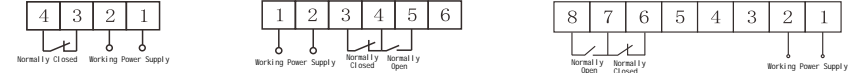
- Altitude: Not exceeding 2000m.
- Ambient air temperature: -5 to +40 , and the 24-hour average shall not exceed +35 .
- Atmospheric conditions: At a maximum temperature of +40 , the relative air humidity shall not exceed 50%. Higher relative humidity is allowed at lower temperatures (e.g., up to 90% at +20 ). Special measures shall be taken for occasional condensation caused by temperature changes.
- Inclination of the mounting surface (relative to the vertical plane): Not more than  $\pm 5^\circ$  .
- Pollution degree: 3.
- Installed in a location free from significant shaking, impact, and vibration.
- Enclosure protection rating: IP40.
- Tripping class: Class 10A.
- EMC Environment: Class A

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Table 2 Operation Time Table

Trip Class	Operation Time				
	1.05 times	1.2 times	1.5 times	2 times	3 times
2		$\leq 75s$	$\leq 32s$	$\leq 16s$	$\leq 6s \pm 20\%$
10A	No tripping within 2h	$\leq 180s$	$\leq 80s$	$\leq 38s$	
10		$\leq 350s$	$\leq 150s$	$\leq 80s$	
15		$\leq 500s$	$\leq 240s$	$\leq 120s$	
20		$\leq 700s$	$\leq 300s$	$\leq 160s$	
25		$\leq 850s$	$\leq 390s$	$\leq 200s$	
30		$\leq 1000s$	$\leq 470s$	$\leq 240s$	

# IV. Wiring Diagram

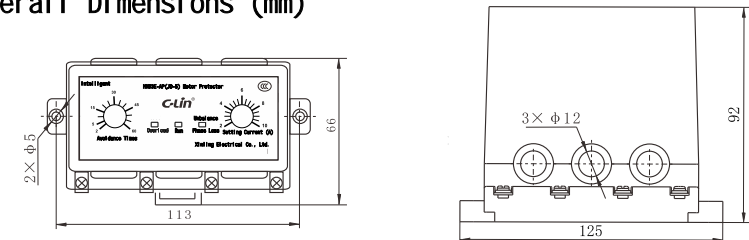


HHD3E-1P (JD-5) ~ CP (JD-5)

HHD3E-DP (JD-6)

HHD3E-EP (JD-6), FP (JD-6)

# V. Overall Dimensions (mm)



HHD3E-1P (JD-5) ~ CP (JD-5)

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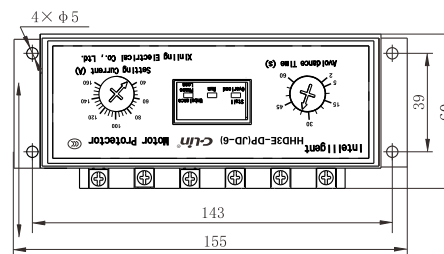
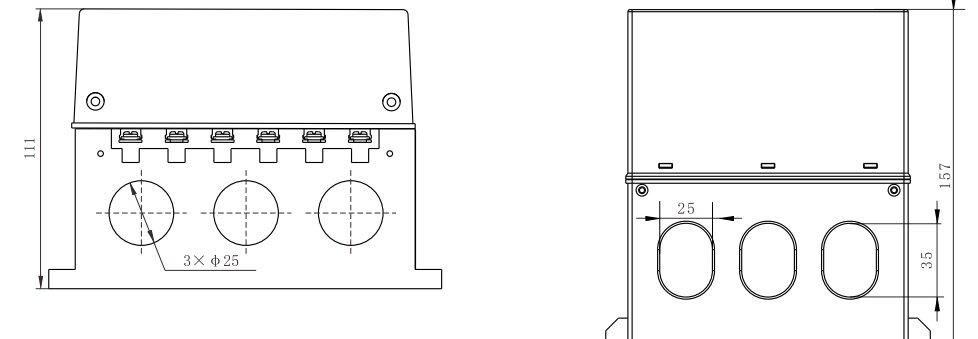
# III. Main Technical Parameters

- Main circuit: Rated insulation voltage  $U_i$ : AC400V, rated frequency 50Hz. Rated impulse withstand voltage  $U_{imp}$ : 4kV.
- Auxiliary circuit: Rated insulation voltage  $U_i$ : AC400V, rated frequency 50Hz. Usage category: AC-15,  $U_e$ : AC380V/3A, AC220V/3A. SCPD model for rated limited short-circuit current coordination: RT28-32 fuse core 16A.

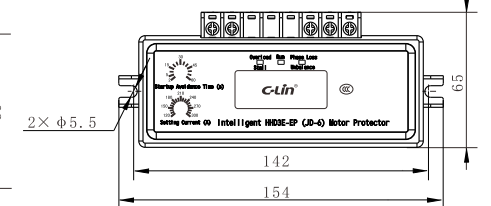
Table 1

Parameter	Model								
	HHD3E-1P (JD-5)	HHD3E-2P (JD-5)	HHD3E-ATP (JD-5)	HHD3E-AP (JD-5)	HHD3E-BP (JD-5)	HHD3E-CP (JD-5)	HHD3E-DP (JD-6)	HHD3E-EP (JD-6)	HHD3E-FP (JD-6)
Rated Voltage	AC380V AC220V 50Hz (Other voltage levels can be customized)								
Rated Current Setting Range	0.2A~1A	0.4A~2A	1A~5A	2A~10A	8A~40A	20A~100A	40A~160A	120A~300A	120A~400A
Start Avoidance Time	2s~60s adjustable (During the avoidance time, phase loss & three-phase unbalance protection are activated; other functions are not activated)								
Overload Operation Time	Class 10A (See Table 2 for details; other classes can be customized); overload indicator lights up								
Running Locked Rotor	6s $\pm 20\%$ (When operating current reaches 3 times or more of rated current); overload indicator flashes								
Phase Loss Operation Time	6s (When current of any phase in three-phase power supply is zero); phase loss indicator lights up								
Three-Phase Current Unbalance	6s (When current difference between any phase & the other two phases reaches 40%~60%); phase loss indicator flashes								
Reset Time	Power-off reset; interval before restarting shall be $\geq 10s$								
Contact Capacity	3A AC380V (resistive load)								
Installation Method	Both device type & rail type (rail type is optional)						Device type		

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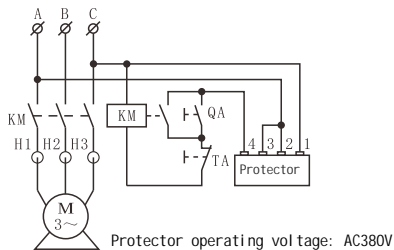
HHD3E-DP (JD-6)



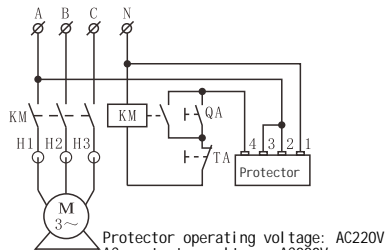
HHD3E-EP (JD-6), FP (JD-6)

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## VI. Application Circuit Examples

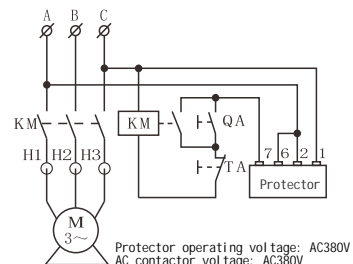


Protector operating voltage: AC380V  
AC contactor voltage: AC380V

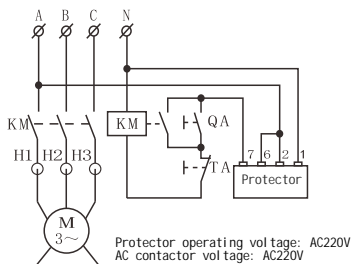


Protector operating voltage: AC220V  
AC contactor voltage: AC220V

HHD3E-1P (JD-5) ~ CP (JD-5)、DP (JD-6)



Protector operating voltage: AC380V  
AC contactor voltage: AC380V



Protector operating voltage: AC220V  
AC contactor voltage: AC220V

HHD3E-EP (JD-6)、FP (JD-6)

### Notes

KM: AC Contactor  
QA: Start Button  
TA: Stop Button  
H1-H3: Protector Threading Holes

**Note:** The control power supply of the protector and the AC contactor must be in the same phase.

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d) When starting the motor, the protector's "Run" indicator light and "Overload" indicator light will turn on. After the startup is completed and the motor enters the normal operation state, the "Overload" indicator light should go out, while the "Run" indicator light remains on. This completes the entire adjustment process.

### 2. Precautions:

- If the motor fails to start normally, the startup avoidance time can be extended; under the condition that normal startup is ensured, adjust it to the smallest possible avoidance time. (When you select "2", it means you set the startup avoidance time to 2s; the startup avoidance time is adjustable between 2s and 60s.)
- When the motor triggers fault protection, the motor can only be restarted after the fault cause is eliminated (the interval between the protector's protection action and the second startup must be 10s) to avoid losses.
- The protector should undergo regular manual tests for overload and phase-loss protection actions to verify whether the product functions normally.
- The rated current of the motor must fall within the rated current range of the selected protector.

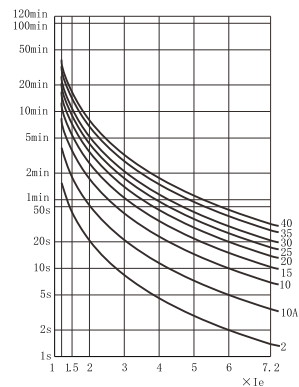
## IX. Ordering Information

1. When selecting the protector, specify the model specification, power supply voltage, and quantity.

**Example:** HHD3E-CP (JD-5), 20A~100A, AC380V, 10 units: this refers to 10 protectors of model HHD3E-CP (JD-5), with a current specification of 20A~100A and a voltage of AC380V.

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## VII. Inverse-Time Characteristic Diagram of Overload Protection



## VIII. Operating Instructions

### 1. Installation and Adjustment:

- Connect the protector to the control circuit correctly according to the application circuit examples, and pass the three-phase current wires through the three conduit holes of the protector in the same direction respectively.
- Perform static setting directly based on the rated current marked on the motor nameplate: Adjust the "Setting Current" knob so that its arrow aligns with the position (on the panel's quantified current calibration) corresponding to the motor's rated current.
- Adjust the avoidance time according to the allowable starting characteristics of the motor. When adjusting, take into account the time required for the motor to go from startup to normal operation, so as to avoid false protection action of the protector caused by the large starting current during motor startup.

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**C-lin**

欣灵电气股份有限公司  
XINLING ELECTRICAL CO., LTD.

Address: No. 328, 19th Wei Road, Yueqing Economic Development Zone, Zhejiang Province  
Tel: 0577-62735555 Fax: 0577-62722963  
Website: <http://www.c-lin.cn> E-mail: [lin@xlnl.com](mailto:lin@xlnl.com)  
Technical Consultation: 0577-62731236



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使用说明书  
Products Instructions

**HHD3E-□P(JD-5)**  
**HHD3E-□P(JD-6)**  
Motor Protector

Thank you very much for using the Xinling brand Motor Protector. Please read the user manual before using the product!

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