

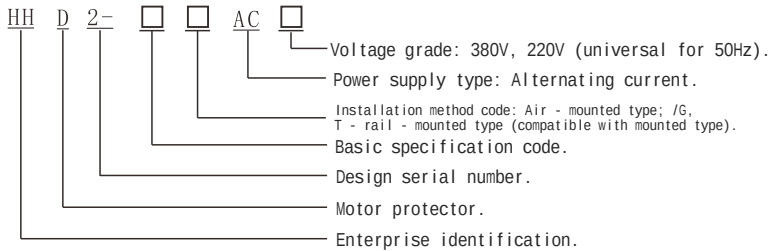
## I .Overview

1.The HHD2 series motor protector (hereinafter referred to as "protector") is suitable for circuits with an AC frequency of 50Hz and a rated operating voltage of AC 380V or AC 220V. It forms a motor control circuit together with switching devices such as AC contactors. When abnormal conditions (e.g., phase failure, overload) occur in the main circuit of the motor, it promptly opens the contacts of the switching devices and disconnects the three-phase power supply of the motor, so as to protect the motor quickly and reliably.

2.This series of protectors adopts current detection technology for power supply and sampling, and the output interface uses AC solid-state relays. It features simple structure, reliable operation, no power consumption, no spark, maintenance-free, and long service life.

3.This series of protectors meets the requirements of the GB/T 14048.4 standard.

## II .Model and Its Meanings



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## III.Normal Operating and Installation Conditions

- Altitude: Not exceeding 2000m.
- Ambient air temperature:  $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$ , and the 24-hour average temperature does not exceed  $+35^{\circ}\text{C}$ .
- Atmospheric conditions: When the maximum temperature is  $+40^{\circ}\text{C}$ , the relative humidity of air shall not exceed 50%. Higher relative humidity is allowed at lower temperatures (for example, the air humidity can reach 90% at  $+20^{\circ}\text{C}$ ). Special measures shall be taken for condensation occasionally caused by temperature changes.
- The inclination of the mounting surface from the vertical plane shall not be greater than  $\pm 5^{\circ}$ .
- Pollution degree: 3.
- In places without significant shaking, impact, or vibration.
- Degree of protection of enclosure: IP00.
- Tripping class: 10A.
- EMC environment: A.

## IV.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. Utilization category: AC-15,  $U_e$ : AC380V/1A, AC220V/1A. Type of short-circuit protective device (SCPD) for rated limited short-circuit current coordination: RT28-32, fuse core: 6A.

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Table 1

| Parameter                                               |                                                                                                  |                    |                    |                    |                    |                      |          |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|----------------------|----------|
|                                                         | HHD2-A<br>HHD2-A/G                                                                               | HHD2-B<br>HHD2-B/G | HHD2-C<br>HHD2-C/G | HHD2-D<br>HHD2-D/G | HHD2-E<br>HHD2-E/G | HHD2-F、T<br>HHD2-F/G | HHD2-G   |
| Rated Current Range                                     | 1A~2.5A                                                                                          | 2A~5A              | 4A~10A             | 8A~20A             | 16A~40A            | 32A~80A              | 64A~160A |
| Number of Turns Required for Each Phase on Primary Side | 4                                                                                                | 2                  | Straight-through   |                    |                    |                      |          |
| Phase Failure Operating Time                            | ≤6s (when any phase current in three-phase currents is zero)                                     |                    |                    |                    |                    |                      |          |
| Overload Protection                                     | 1.2 times overload operating time: 60s~180s (with inverse time-lag characteristic)               |                    |                    |                    |                    |                      |          |
| Control Circuit Operating Power Supply                  | AC380V 50Hz; AC220V 50Hz (optional, other voltages can be customized)                            |                    |                    |                    |                    |                      |          |
| Load Capacity of Output Interface                       | 1A AC380V (Resistive)                                                                            |                    |                    |                    |                    |                      |          |
| Reset Mode of Output Interface                          | Power-off reset of control circuit                                                               |                    |                    |                    |                    |                      |          |
| Mounting Method                                         | HHD2-A~F: Mounted type; HHD2-□/G, HHD2-G, T: Compatible with rail-mounted type and mounted type. |                    |                    |                    |                    |                      |          |

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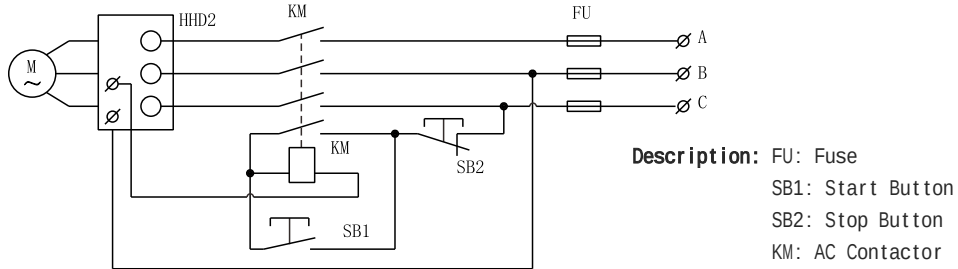
## V.Installation and Use Instructions

- The protector can be fixed on a flat surface with screws. Among them, HHD2-□/G, □/T and HHD2-G, T protectors can also be installed using 35mm mounting rails.
- Pass the three-phase AC power lines connected to the normally open contacts of the AC contactor and leading to the motor through the three perforations of the protector in the same direction (phase sequence is arbitrary); connect the two terminals of the protector in series in the coil circuit of the AC contactor.
- When the load is a constant load, adjust the current setting potentiometer of the protector clockwise to the maximum.

After checking that the circuit connection is correct, start the motor. The motor operates normally, and the three-phase indicator lights of the protector are on (the "Run" indicator light of HHD2-□/G type products is on). Then slowly adjust the current adjustment potentiometer counterclockwise until the overload indicator light changes from off to on at the critical state. Then make a fine adjustment clockwise to ensure the overload indicator light is off, and observe for 2 minutes to 3 minutes. If the overload indicator light remains off during this period, the current adjustment is completed.

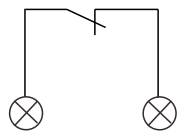
4.When the load is a variable load, directly perform static setting according to the rated current marked on the motor nameplate. Adjust the "Setting Current" knob to make its arrow align with the position corresponding to the motor's rated current marked on the panel's current scale. When starting the motor, the "Overload" indicator light of the protector is on. After the start-up is completed and the motor enters the normal operating state, the "Overload" indicator light of HHD2 type products goes out (for HHD2-□/G type products, the "Overload" indicator light goes out, and the "Run" indicator light remains on), and the adjustment is completed.

## VI.Application Circuit Example

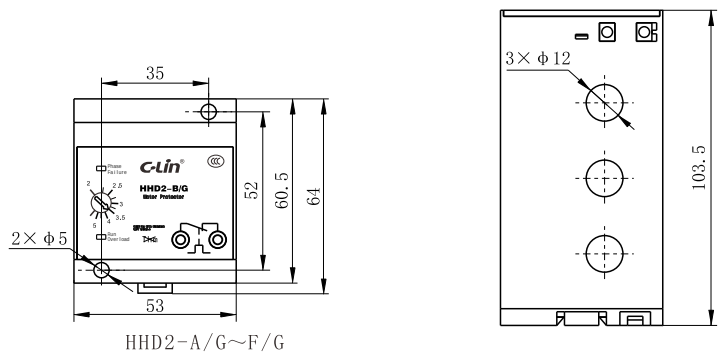


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VII.Wiring Diagram



VIII.Outline and Installation Dimensions (Unit: mm)



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IX.Precautions

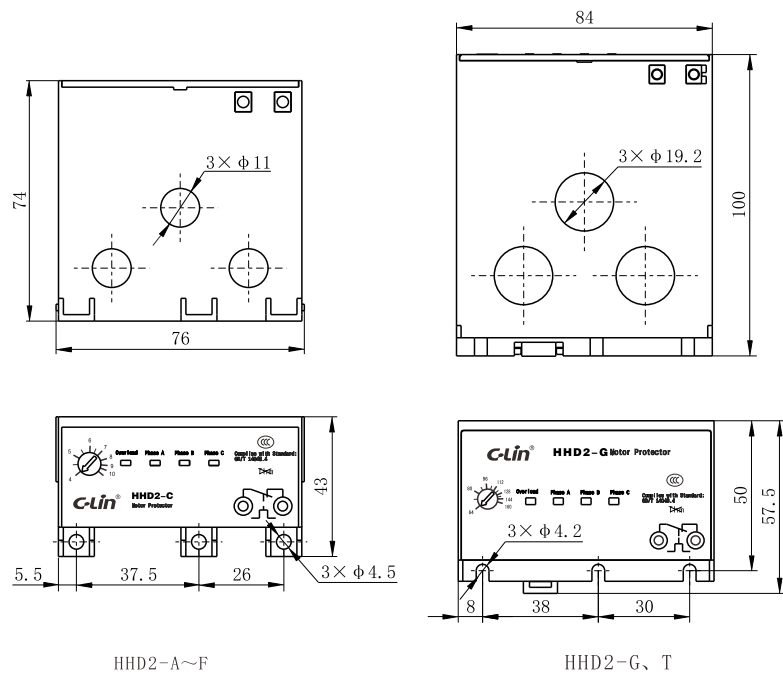
- 1.The output interface of the protector is a contactless solid-state AC electronic switch. When testing its on-off characteristics, the resistance range of a multimeter must not be used for measurement; for the reliability of the switch, the input current is not allowed to be less than 5mA.
- 2.The protector is suitable for automatic control circuits. After the protection action occurs, the control circuit must be powered off for reset; otherwise, it cannot be started.
- 3.The output interface of the protector cannot control devices such as DC contactors; if the coil voltage of the AC contactor used by the user is greater than 380V or the current is greater than 1A, an intermediate relay shall be used as a conversion interface.
- 4.Users should select the corresponding specification of the motor protector according to the rated operating current of the motor. Under special circumstances, a large-specification protector can be used to protect a low-power motor by increasing the number of turns passing through the protector; a small-specification protector can be used to protect a high-power motor by using the secondary current of a current transformer.

X.Ordering Information

When selecting a protector, the model specification, power supply voltage, and quantity should be specified.

**Example:** HHD2-A, AC380V, 10 pieces, indicating that the model is HHD2-A, the current specification is 1A~2.5A, the voltage of the control circuit is AC380V, and the quantity is 10 pieces.

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**C-Lin**  
欣灵电气股份有限公司  
XINLING ELECTRICAL CO., LTD.  
地址：浙江省乐清经济开发区纬十九路328号  
电话：0577-62735555 传真：0577-62722963  
Http://www.c-lin.cn E-mail:xl@xinling.com  
技术咨询：0577-62731236



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使用说明书  
Products Instructions

## HHD2

### Motor Protector

Thank you very much for using the C-Lin motor protector. Please read the instruction manual carefully before using the product!

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