# DHC2X series protection relay manual

● **Main functions:**

1. Phase sequence protection
2. Phase loss protection
3. Phase voltage unbalance protection

● Adopt voltage sampling method, irrespective of device power
● DIN rail mounting screw type wiring. Easy to install, in line with international trends.
● Compared with other similar products, increased unbalance and action delay adjustment function.

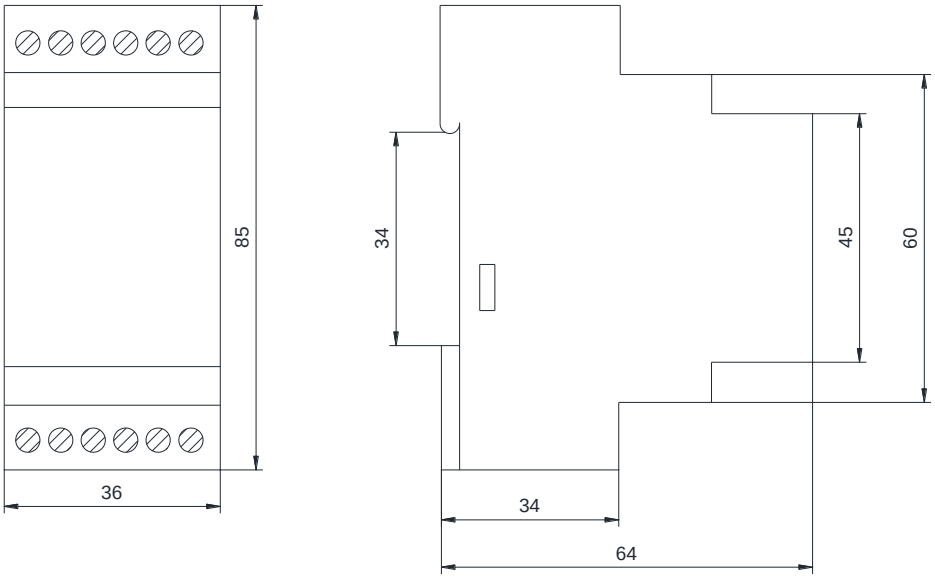
## ■ Model number and specification

| Model | Phase sequence error act | phase loss act | Connection type | Unbalance adjustment | Unbalanced delay action |
|---|---|---|---|---|---|
| DHC2X | √ | √ | Three phase three wire system | No adjustable(10%) | No adjustable(5S) |
| DHC2X-T | √ | √ | Three phase three wire system | Adjustable(5-20%) | Adjustable(0.2-10S) |
| DHC2X-N | √ | √ | Three phase four wire system | Adjustable(5-20%) | 0.2-10S |

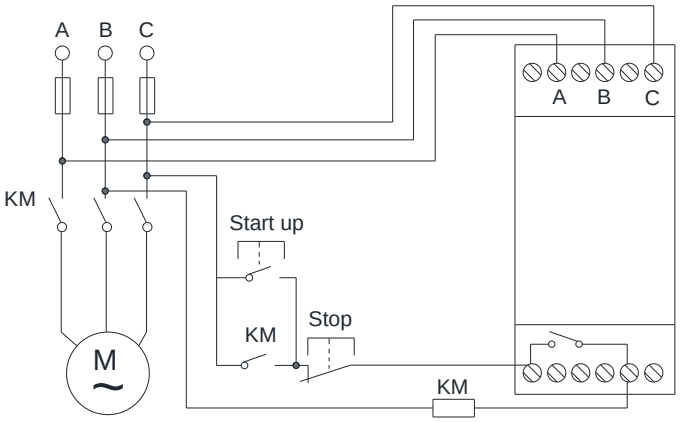
## ■ Technical parameters

● Voltage: AC 380V 50Hz
● Voltage range: 85% -110%
● Contact rating: 5A @ AC380V / 5A @ 250VDC
AC-15 1.5A @ 250V
● Repeatability: 2%
● Electrical life: 105
● Operational temperature: 5-40 ℃
● Installation: rail
● Standard: GB14048.5-2008
● Power consumption: 2VA
● Weight: about 130g
● Dielectric strength: AC4000V for 1 minute
(between input and output and their respective ground)
● Hysteresis voltage: 10V
● Protection: IP40 (panel) IP20 (wiring)
● Operational humidity 85% max no condensation
● Operating altitude: 2000m max

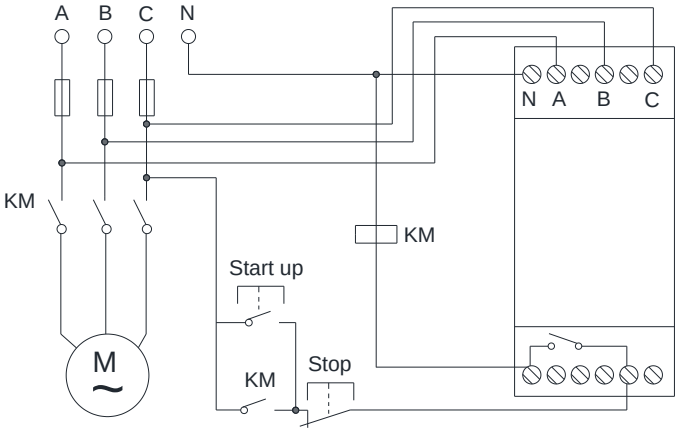
## ■ External dimensions



## ■ Wiring diagram




DHC2X, DHC2X-T




DHC2X-N

## ■ Use description

1. Phase sequence protection: When A, B, C wiring is correct, the green LED (RUN) light relay switch on, the protector is into normal working condition. If the red LED (FAIL) light, the relay switch off. At this time, as long as the exchange of A, B. C in any two lines, the protector can identify the phase sequence and work properly. When the protected equipment is running normally, if the relay switch off, should be regarded as outside line phase sequence error. Protector has anti-mis-connected function.

2. Phase loss protection: phase loss mean phase broken, divided into static phase broken and dynamic phase failure broken. Any phase broken occurs, will cause three-phase voltage of the extreme imbalance. When static phase broken, voltage unbalance will be 100%, the relay will switch off the circuit immediately, the red LED (FAIL) light. When dynamic phase broken, voltage unbalance will be more than 20% (As the motor running, the anti EMF make the voltage of this phase to be not zero)，At this time only through the detection of three-phase voltage unbalance to judge the way to carry out protection

3. Voltage unbalance protection: the voltage imbalance mean the negative sequence component is too large, generally 1% of the voltage imbalance will cause 3% -11% of the phase current imbalance, negative sequence component cannot do work, all to heat, So a serious power supply voltage imbalance will cause the motor overheating and burned. When the phase voltage unbalance (Eu) exceeds the set value (adjusted by the potentiometer on the front panel), when the delay time reached (via panel potentiometer adjustment), the relay will switch off the circuit

Relay action set the Hysteresis voltage (10V), enhanced anti-jamming capability to prevent malfunction. The unbalance of the protector Eu is equivalent to the percentage of the voltage difference between the A-line and the B-line and the BC-phase voltage (B-line voltage = line voltage) Expressed as:
△ U / U × 100% U mean the BC phase voltage, △ U mean the AB line voltage difference.

4. Protector should be used and stored in non-corrosive gases, none severe mold and dust place.

5. Protector should be avoided in the high temperature and humidity environment for long-term use.