

Conform to IEC 60947-2/EN 60947-2

# WCM6 Series

## Moulded Case Circuit Breaker

### OPERATION INSTRUCTION MANUAL



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Please read the operation instruction manual before installing and using the product

## 1. Application

WCM6 series moulded case circuit breaker (hereinafter referred to as breaker) is a new type breaker developed by our company with international advanced technology. The breaker is mainly used in distribution network of AC 50Hz/60Hz, rated voltage up to 690V, rated operating current up to 1600A to distribute electric power and to protect the line and the equipment from being damaged due to overload, short circuit and under-voltage. It can also be used for infrequent motor start and for motor overload, short circuit and under-voltage protections. The circuit breakers are available with either thermal-magnetic or Micrologic electronic trip units. Electronic trip units provide highly accurate protection with wide setting ranges. They can be combined with the front LCD module to display the various settings and measurements providing Long-Time Protection against overloads with an adjustable current pick-up  $I_r$  and time delay  $T_r$ , Short-circuit protection with an adjustable pick-up  $I_{sd}$  and adjustable time delay  $T_{sd}$ , and Instantaneous protection with adjustable pick-up  $I_i$ . The devices can be equipped with the communication port RS485 (MODBUS-RTU protocol). When integrated in a Modbus communication network, many selective functions are available as following: remote status indication of open/close, tripping, alarm, or fault, remote control of open, close or resetting, and remote measurement of current of three- phases, neutral or earthing. It also includes the memory of operating histories of latest three trippings. These functions ensure a good protection of equipment and a high level of reliability and continuity of service. The isolation function is also provided by the circuit breaker. The product is in conformity with the standard IEC60947-2.

## 2. Working and mounting conditions

- 2.1 Ambient temperature: -5°C ~ +40°C; the average temperature within 24h shall not exceed +35°C. (please contact with us if temperature at the mounted site beyond above values)
- 2.1 Altitude: The not exceed 2000m
- 2.3 Atmosphere condition: At mounting site, relative humidity not exceed 50% Cat the max temperature of +40°C, higher relative humidity is allowable under lower temperature. The maximum month- average relative humidity is 90% in the most humid month with a minimum month-average temperature is +25°C. The factor that dew may occur on the product surface due to temperature change shall be taken into consideration.
- 2.4 Pollution grade: Level 3;
- 2.5 Installation category: III;
- 2.6 Mode of mounting:

## 3. Structure and operation

### 3.1 Circuit breaker body and accessories:

The WCM6-250S/3P/4P-5.0A circuit breaker is composed of four parts: an insulating enclosure, an operating mechanism, a contact system (including an arc extinguishing device) and a trip unit. It has a quick closing and open mechanism and a free tripping mechanism.

The trip unit consists of an electromagnetic trip unit with instantaneous action, a thermal trip unit with a delay (inverse time) action, and an intelligent trip unit. The circuit breaker has internal accessories such as auxiliary contacts, alarm contacts, shunt releases, and under-voltage releases, as well as external accessories such as external rotary operating handles, motor-driven mechanism, mechanical locks, and terminal covers.

The under-voltage release is used for under-voltage protection of the circuit and the motor; the shunt release is used for remotely control of the circuit breaker; the motor-driven mechanism is used for remote close and open of the circuit breaker.

The extended rotary handle is used to operate outside the switch cabinet door. It has the function of "interlocking" with the cabinet door. Auxiliary contacts will operate correspondingly with the action of the circuit breaker.

After the circuit breaker trips due to a fault, the alarm contact will give a signal alarm (connect to the indicator light or buzzer).

The circuit breaker handle can assume any of three positions, ON, tripped or OFF. The center tripped position provides positive visual indication that the circuit breaker has tripped. The circuit breaker can be reset by first pushing the handle to the extreme "OFF" position. Power can then be restored to the load by pushing the handle to the "ON" position.

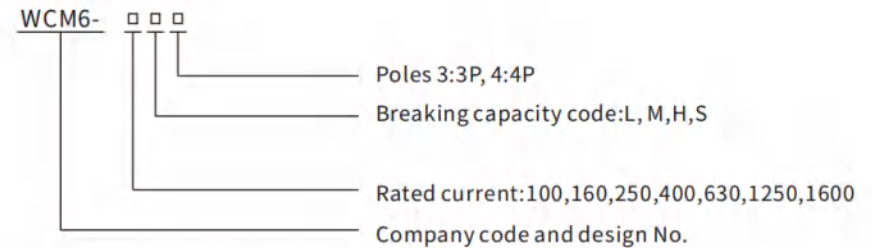
3.2 See Table 1 for the standard cross-sectional area of copper wires or copper bars corresponding to the rated current of the circuit breaker.

**Table 1**

| Rated current A                      |             | 12.5<br>20 | 25 | 32 | 45<br>50 | 63 | 80 | 100 | 125 | 160 | 200<br>225 |
|--------------------------------------|-------------|------------|----|----|----------|----|----|-----|-----|-----|------------|
| Cross-sectional area mm <sup>2</sup> | Copper wire | 2.5        | 4  | 6  | 10       | 16 | 25 | 35  | 50  | 70  | 95         |
|                                      | Copper bar  | 2.5        | 4  | 6  | 10       | 16 | 25 | 35  | 50  | 70  | 95         |

| Rated current A                      |             | 250 | 315<br>350 | 400 | 500   | 630   | 700<br>800 | 1000  | 1250  | 1600  |
|--------------------------------------|-------------|-----|------------|-----|-------|-------|------------|-------|-------|-------|
| Cross-sectional area mm <sup>2</sup> | Copper wire | 120 | 185        | 240 | 2x150 | 2x185 | 2x240      | —     | —     | —     |
|                                      | Copper bar  | 120 | 185        | 240 | 2x150 | 2x200 | 2x250      | 2x300 | 2x400 | 2x500 |

## 4. Type designation



Note: When ordering, other requirements need to add for the following units Trip units

Types of trip units are divided into thermal magnetic trip and electronic trip

1. Thermal-magnetic trip units are divided into two types according to their protection types: power distribution protection code: TM; motor (single magnetic) protection code: MA.

2. Electronic trip units are divided into three types according to their functions: normal type, LCD type and voltage detection type. Ordinary type codes are distinguished by frame: code 2.2, 2.3 or 2.0. The code of 5.0A is for LCD types of all frame sizes. The code for units with voltage detection is 5.0E.

**Table 2 Accessories Codes**

| Name<br>Codes<br>Release type | no accessories                   | Alarm contact (AL) | Shunt release(SHT) | SHT + Alarm | Single auxiliary (AX) | AX+Alarm | Under-voltage(UVT) | UVT +Alarm | AX+SHT | SHT+AX+Alarm | Double Auxiliaries | Double AX+Alarm | UVT +AX | UVT+AX+Alarm |
|-------------------------------|----------------------------------|--------------------|--------------------|-------------|-----------------------|----------|--------------------|------------|--------|--------------|--------------------|-----------------|---------|--------------|
|                               | Instantaneous magnetic trip only | 200                | 208                | 210         | 218                   | 220      | 228                | 230        | 238    | 240          | 248                | 260             | 268     | 270          |
| Thermal magnetic trip         | 300                              | 308                | 310                | 318         | 320                   | 328      | 330                | 338        | 340    | 348          | 360                | 368             | 370     | 378          |
| Electronic trip               | 400                              | 408                | 410                | 418         | 420                   | 428      | 430                | 438        | 440    | 448          | 460                | 468             | 470     | 478          |

5. Technical data

- 5.1 The basic parameters of the circuit breaker are shown in Table 3.
- 5.2 The operating characteristics of the circuit breaker's overload long delay and short circuit instantaneous protection are shown in Table 4 and Table 5.
- 5.3 See Table 6 for the current setting range of the circuit breaker.

Table 3-1 Basic Parameters

| Type                                                         |                                  | WCM6-100                                    |     |            |     | WCM6-160                                      |     |            |     | WCM6-250                    |    |
|--------------------------------------------------------------|----------------------------------|---------------------------------------------|-----|------------|-----|-----------------------------------------------|-----|------------|-----|-----------------------------|----|
| Poles                                                        |                                  | 3P,4P                                       |     |            |     | 3P,4P                                         |     |            |     | 3P,4P                       |    |
| Max.Frame Current<br>Inm(A)                                  |                                  | 100                                         |     |            |     | 160                                           |     |            |     | 250                         |    |
| Rate current<br>In (A)                                       |                                  | 12.5,16,<br>20,25,32<br>40,50,63,<br>80,100 | 100 |            |     | 16,20,2<br>32,40,50,<br>63,80,100,<br>125,160 | 160 |            |     | 100,160,180<br>200,225,250  |    |
| Rated Voltage Ue(V)                                          |                                  | AC415/500/690                               |     |            |     | AC415/500/690                                 |     |            |     | AC415/500/690               |    |
| Rated Insulation<br>voltage Ui (V)                           |                                  | 1000                                        |     |            |     | 1000                                          |     |            |     | 1000                        |    |
| Rated impulse<br>withstand<br>voltage Uimp (kV)              |                                  | 8                                           |     |            |     | 8                                             |     |            |     | 8                           |    |
| Breaking capacity code                                       |                                  | L                                           | M   | H          | S   | L                                             | M   | H          | S   | L                           | M  |
| Rated service<br>breaking<br>capacity Ics(kA)<br>Ics=100%Icu | 415V                             | 50                                          | 85  | 100        | 150 | 50                                            | 85  | 100        | 150 | 50                          | 85 |
|                                                              | 500V                             | 35                                          | 50  | 60         | 65  | 35                                            | 50  | 60         | 65  | 35                          | 50 |
|                                                              | 690V                             | 6                                           |     | 8          | 10  | 6                                             |     | 8          | 10  | 6                           |    |
| Utilization category                                         |                                  | A                                           |     |            |     | A                                             |     |            |     | A                           |    |
| Trip type                                                    |                                  | Thermal-magnetic                            |     | Electronic |     | Thermal-magnetic                              |     | Electronic |     | Thermal-magnetic            |    |
| Earth Leakage Protection                                     |                                  | Add-on Earth Leakage Module                 |     |            |     | Add-on Earth Leakage Module                   |     |            |     | Add-on Earth Leakage Module |    |
| Number of<br>cycling<br>operations                           | Mechanical life                  | 20000                                       |     |            |     | 20000                                         |     |            |     | 20000                       |    |
|                                                              | Electric life                    | 10000                                       |     |            |     | 8000                                          |     |            |     | 8000                        |    |
| Operation mode                                               | Manual                           | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |
|                                                              | Rotary handle                    | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |
|                                                              | Motor-driven                     | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |
| Mounting Mode                                                | Fixed type<br>(Front connection) | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |
|                                                              | Fixed type<br>(Rear connection)  | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |
|                                                              | Plug-in<br>(Front connection)    | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |
|                                                              | Plug-in<br>(Rear connection)     | ✓                                           |     |            |     | ✓                                             |     |            |     | ✓                           |    |

Table 3-2 Basic Parameters

| Type                                                   |                               | WCM6-250                    |     | WCM6-400                    |    |     |     | WCM6-630                    |    |     |     | WCM6-1250/1600        |    |
|--------------------------------------------------------|-------------------------------|-----------------------------|-----|-----------------------------|----|-----|-----|-----------------------------|----|-----|-----|-----------------------|----|
| Poles                                                  |                               | 3P,4P                       |     | 3P,4P                       |    |     |     | 3P,4P                       |    |     |     | 3P,4P                 |    |
| Max.Frame Current Inm(A)                               |                               | 250                         |     | 400                         |    |     |     | 630                         |    |     |     | 1600                  |    |
| Rate current In (A)                                    |                               | 250                         |     | 250,315<br>350,400          |    | 400 |     | 400,500<br>630              |    | 630 |     | 800,1000<br>1250,1600 |    |
| Rated Voltage Ue(V)                                    |                               | AC415/500<br>/690           |     | AC415/500/690               |    |     |     | AC415/500/690               |    |     |     | AC415/500<br>/690     |    |
| Rated Insulation voltage Ui (V)                        |                               | 1000                        |     | 1000                        |    |     |     | 1000                        |    |     |     | 1000                  |    |
| Rated impulse withstand voltage Uimp (kV)              |                               | 8                           |     | 8                           |    |     |     | 8                           |    |     |     | 8                     |    |
| Breaking capacity code                                 |                               | H                           | S   | L                           | M  | H   | S   | L                           | M  | H   | S   | L                     | H  |
| Rated service breaking capacity Ics(kA)<br>Ics=100%Icu | 415V                          | 100                         | 150 | 50                          | 85 | 100 | 150 | 50                          | 85 | 100 | 150 | 50                    | 65 |
|                                                        | 500V                          | 60                          | 65  | 35                          | 50 | 60  | 65  | 35                          | 50 | 60  | 65  | 35                    | 45 |
|                                                        | 690V                          | 8                           | 10  | 10                          |    | 15  | 20  | 10                          |    | 15  | 20  | 20                    | 30 |
| Utilization category                                   |                               | A                           |     | A                           |    |     |     | A                           |    |     |     | A                     |    |
| Trip type                                              |                               | Electronic                  |     | Electronic                  |    |     |     | Electronic                  |    |     |     | Electronic            |    |
| Earth Leakage Protection                               |                               | Add-on Earth Leakage Module |     | Add-on Earth Leakage Module |    |     |     | Add-on Earth Leakage Module |    |     |     | —                     |    |
| Number of cycling operations                           | Mechanical life               | 20000                       |     | 10000                       |    |     |     | 10000                       |    |     |     | 10000                 |    |
|                                                        | Electric life                 | 8000                        |     | 6000                        |    |     |     | 5000                        |    |     |     | 15000                 |    |
| Operation mode                                         | Manual                        | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |
|                                                        | Rotary handle                 | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |
|                                                        | Motor-driven                  | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |
| Mounting Mode                                          | Fixed type (Front connection) | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |
|                                                        | Fixed type (Rear connection)  | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |
|                                                        | Plug-in (Front connection)    | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |
|                                                        | Plug-in (Rear connection)     | ✓                           |     | ✓                           |    |     |     | ✓                           |    |     |     | ✓                     |    |

Table 4

| NO. | Circuit breaker for power distribution |                                                           |                              | Ambient temperature   |
|-----|----------------------------------------|-----------------------------------------------------------|------------------------------|-----------------------|
|     | Tesing current                         | Action Time                                               | Start status                 |                       |
| 1   | 1.05In                                 | Not trip within 1h(In<63A)<br>Not trip within 2h (In>63A) | cold status                  | +40℃±2℃               |
| 2   | 1.3In                                  | Trip within 1h(In≤63A)<br>Trip within 2h (In>63A)         | Following<br>No. 1 operation |                       |
| 3   | 10In                                   | Trip within 0.2s                                          | Cold status                  | Any propertemperature |

**Table 3-1 Basic Parameters**

| NO. | Circuit breaker for motor protection |                    |                                            | Ambient temperature   |
|-----|--------------------------------------|--------------------|--------------------------------------------|-----------------------|
|     | Tesing current                       | Action Time        | Start status                               |                       |
| 1   | 1.05In                               | Not trip within 2h | cold status                                | +40°C±2°C             |
| 2   | 1.2In                                | Trip within 2h     | Following No. 1                            |                       |
| 3   | 1.5In                                | Trip within 4min   | After heat balance under the current No. 1 |                       |
| 4   | 7.2In                                | Trip within 2~10s  | Cold status                                |                       |
| 5   | 12In                                 | Trip within 0.2s   | Cold status                                | Any propertemperature |

**Table 6**

| Type of circuit breaker | Overload long-time protection trip unit current pickup adjustable value Ir (A) | Short-circuit short-time protection trip unit current pickup adjustable value Isd(A) | short-circuit instantaneous protection trip unit current pickup adjustable value Ii(A) | Remarks                              |
|-------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------|
| WCM6-100                | 0.8~1In                                                                        | —                                                                                    | 10In                                                                                   | Thermal-magnetic (single adjustable) |
| WCM6-160                | 0.8~1In                                                                        | —                                                                                    | 10In                                                                                   |                                      |
| WCM6-250                | 0.8~1In                                                                        | —                                                                                    | 10In                                                                                   |                                      |
| WCM6-100                | 0.8~1In                                                                        | —                                                                                    | 10In                                                                                   | Thermal-magnetic (Double adjustable) |
| WCM6-160                | 0.8~1In                                                                        | —                                                                                    | (5~10)In                                                                               |                                      |
| WCM6-250                | 0.8~1In                                                                        | —                                                                                    | (5~10)In                                                                               |                                      |
| WCM6-100                | 0.4~1In                                                                        | (1.5~10)Ir                                                                           | 10In                                                                                   | normal electronic(2.2)               |
| WCM6-160                | 0.4~1In                                                                        | (1.5~10)Ir                                                                           | 10In                                                                                   |                                      |
| WCM6-250                | 0.4~1In                                                                        | (1.5~10)Ir                                                                           | 10In                                                                                   |                                      |
| WCM6-100                | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               | LCD Smart electronic (5.0)           |
| WCM6-160                | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               |                                      |
| WCM6-250                | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               |                                      |
| WCM6-400                | 0.7~1In                                                                        | —                                                                                    | (5~10)In                                                                               | Thermal-magnetic (Double adjustable) |
| WCM6-600                | 0.7~1In                                                                        | —                                                                                    | (5~10)In                                                                               |                                      |
| WCM6-400                | 0.4~1In                                                                        | (1.5~10)Ir                                                                           | 10In                                                                                   | normal electronic (2.3)              |
| WCM6-400                | 0.4~1In                                                                        | (2~10)Ir                                                                             | 10In                                                                                   |                                      |
| WCM6-630                | 0.4~1In                                                                        | (1.5~10)Ir                                                                           | 10In                                                                                   |                                      |
| WCM6-400                | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               | LCD Smart electronic (5.0A)          |
| WCM6-630                | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               |                                      |
| WCM6-1250               | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | 10In                                                                                   | normal electronic (2.0)              |
| WCM6-1600               | 0.4~1In                                                                        | (1.5~10)Ir                                                                           | 10In                                                                                   |                                      |
| WCM6-1250               | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               | LCD Smart electronic (5.0A)          |
| WCM6-1600               | 0.4~1In                                                                        | (1.5~12)Ir                                                                           | (2~15)In                                                                               |                                      |

## 6.WCM6Smart circuit breaker controller part

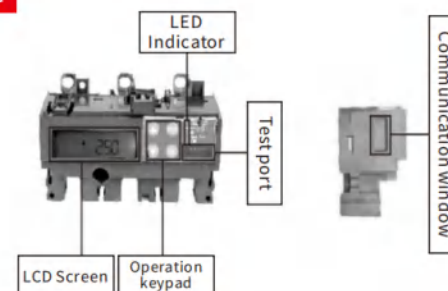
### WCM6 Electronic LCD

#### WCM6 Series ElectronicLCD Circuit Breaker



The manufacturer will not be held responsible for the adverse consequences caused by operation not in accordance with the requirements of this manual.

### Operation interface



### LED status indicator

#### ● Operating status indicator

Green The green "Ready" LED blinks slowly when the electronic trip unit is ready to provide protection. It indicates the trip unit is operating correctly. A minimum current of 30 to 50 A, depending on the device, is required for this function. (For such ready function, a minimum current 30A for SDM6-250, and 50A for SMD6-400 and SDM6-630)

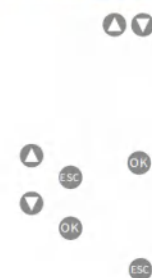
#### ● Pre-alarm indicator

Yellow The yellow pre-alarm LED is steady on when  $I > 90\% I_r$ . A minimum current of 30 to 50 A, depending on the device, is required for this function. (For such function, a minimum current 30A for SDM6-250, and 50A for SMD6-400 and SDM6-630)

#### ● Overload indicator Red

The red overload LED: steady on when  $I > 105\% I_r$

### Operation keypad



#### <Arrow Keys>

1. In the normal working state, press the "△" key to enter the menu of parameters; press the "□" key to enter the menu of faults.
2. When in the editing mode of a parameter, scroll up and down to increase or decrease the modified value. When the key is pressed for a long time, the modified value changes continuously and rapidly. ESCOK

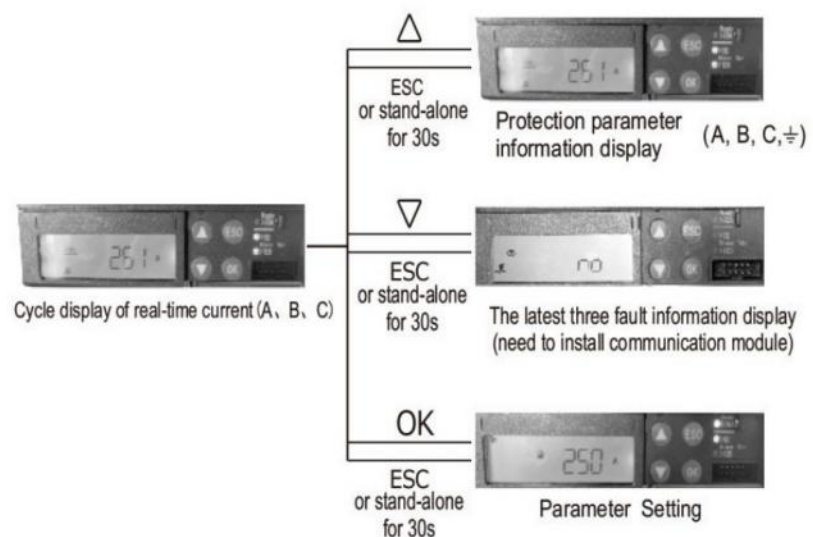
#### <Confirm Key>

1. Enter the parameter setting menu in the normal working interface.OK
2. Confirm and save a modified value under the parameter editing mode.

#### <Back Key>

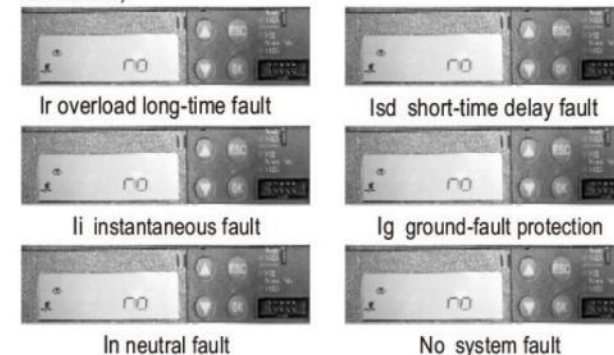
1. Return to the standard display interface.
2. In parameter editing mode, give up parameter modification.

## Main Menu



## Fault Info Display

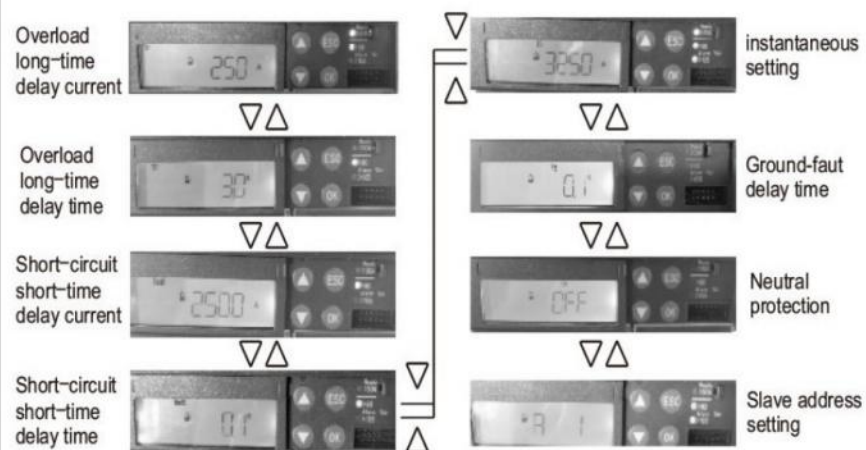
When the following faults occur, you can press keypad up and down to view the last three times of the faults (press ▽ for more than 3 seconds to delete the fault record)



### Notes:

1. Three-pole circuit breaker can be installed with an external neutral line transformer to achieve neutral protection; for four-pole circuit breakers, neutral line protection can be set by pressing the keypad.
2. The above fault information needs to be equipped with our company's communication module, so that the product can record, view and delete the fault information, otherwise, the fault information cannot be viewed.

## Protection Info Display



## Symbol Designation

|  |                                                                                  |  |                                                          |
|--|----------------------------------------------------------------------------------|--|----------------------------------------------------------|
|  | Indicates the data is the measured value                                         |  | Indicates a trip fault (the latest 3 histories viewable) |
|  | Indicates a viewing function is being carried out (current or fault)             |  | Indicates that the data is locked and saved              |
|  | Indicates that the measured value exceeds the first alarm threshold (>90% Ir);   |  | Indicates that the data is unlocked for editing          |
|  | Indicates that the measured value exceeds the second alarm threshold (>105% Ir); |  | Indicates entering the system parameter setting          |

7.1 The dimensions for WCM6-100,160,250 are shown in Figure 1

Current cycling display menu

Adjust parameter up or down by the button  $\Delta$  or  $\nabla$   
Save data by OK button, cancel data by ESC button

|                                     |    |                    |                                          |
|-------------------------------------|----|--------------------|------------------------------------------|
| Overload long-time delay current    | OK | Ir edit            | Adjustable range<br>0.4-1 Ir             |
| Overload long-time delay time       | OK | tr edit            | Adjustable range<br>0.5-24s              |
| Short-time short-time delay current | OK | Isd edit           | Adjustable range<br>1.5-12 Ir or OFF     |
| Short-time short-time delay time    | OK | tsd edit           | Adjustable range<br>0.1-0.4s             |
| Short-time instantaneous current    | OK | Ii edit            | Adjustable range<br>2-15 In or OFF       |
| Ground-fault protection delay time  | OK | tg edit            | Adjustable range<br>0.1-0.4s             |
| Neutral protection current          | OK | In edit            | Adjustable range<br>50%Ir, 100%Ir or OFF |
| Communication slave address         | OK | Slave address edit | Adjustable range<br>1-247                |

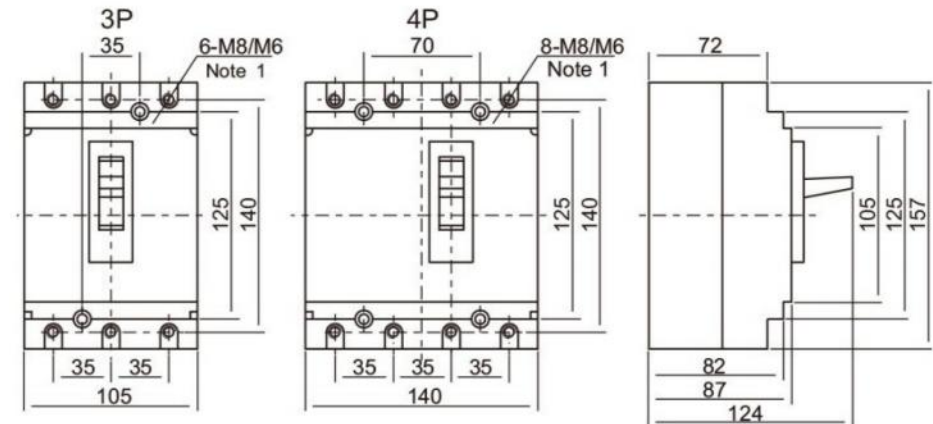
1. For a three-pole circuit breaker, the neutral line protection can be achieved by installing an external neutral line transformer, otherwise, select OFF the function; for a four-pole circuit breaker, the neutral line protection can be set by pressing the keypad.

2. After confirming the setting of each parameter value, you can use the ESC key to return to the main menu (real-time current cycle display) or automatically return after stand-alone for 30s.

**Remarks**

When using electronic trip units, please pay attention to the following points:

- 1.WCM6 electronic trip unit is suitable for 50Hz/60Hz, rated voltage below 690V power grid.
2. The power supply of the electronic trip unit is powered by the built-in current transformer. When the main circuit current is greater than or equal to  $0.4I_n$ , the electronic trip unit can work.
3. The working temperature is  $-10^{\circ}\text{C}$ ~ $+70^{\circ}\text{C}$ , the average working temperature within 24 hours does not exceed  $+35^{\circ}\text{C}$ , and the storage temperature is  $-25^{\circ}\text{C}$ ~ $+85^{\circ}\text{C}$ .
4. The altitude of the installation site should not exceed 2000m.
5. The relative humidity of the air at the installation site does not exceed 50% when the maximum temperature is  $+40^{\circ}\text{C}$ , and a higher relative humidity is allowed at a lower temperature. The monthly average maximum humidity of the highest humidity month does not exceed 90%, and the minimum monthly average temperature of the month does not exceed  $+25^{\circ}\text{C}$ .
6. The pollution degree is level 3.



Note1: When  $I_n > 100\text{A}$ , the connecting bolt is M8, when  $I_n = 100\text{A}$ , the connecting bolt is M6.

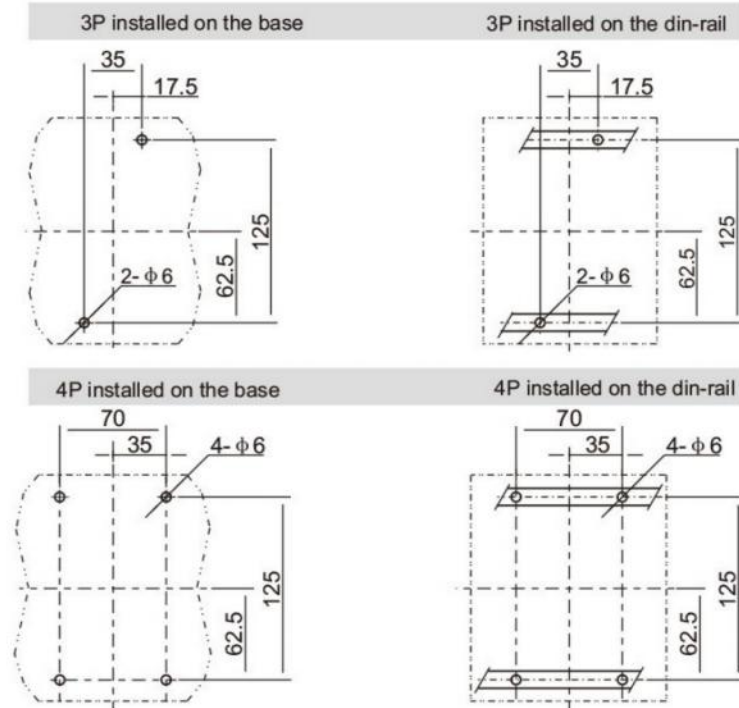
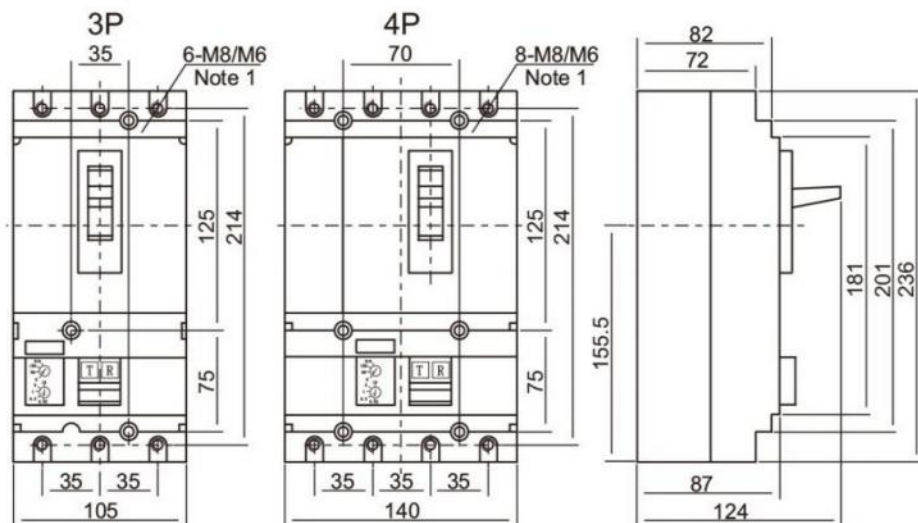
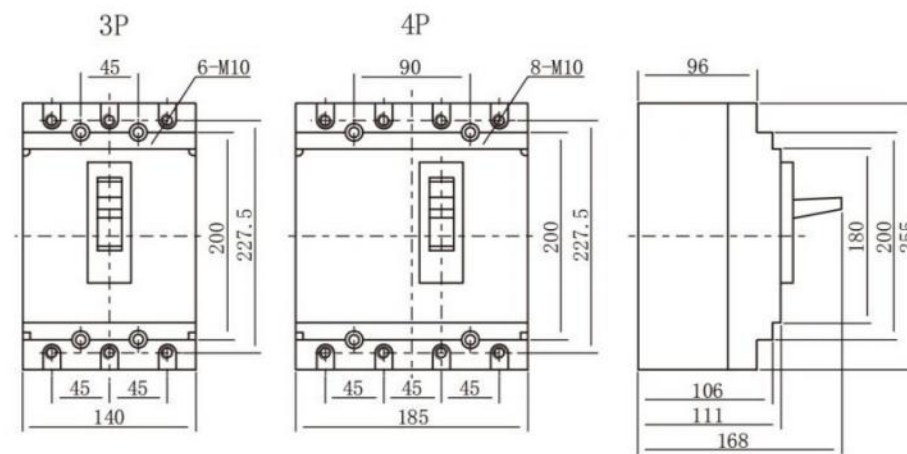


Figure 1. WCM6-100, 160, 250

7.1 The dimensions for WCM6-100,160,250(with earth leakage protection)are shown in Figure 2



7.1 The dimensions for WCM6-400,630are shown in Figure 3

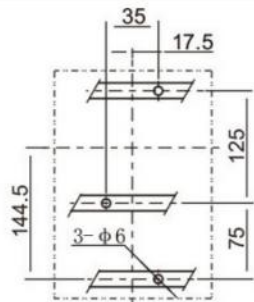
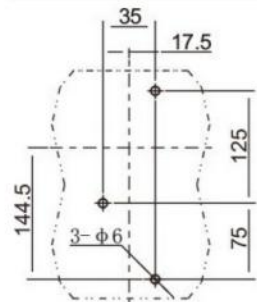


3P installed on the base

3P installed on the din-rail

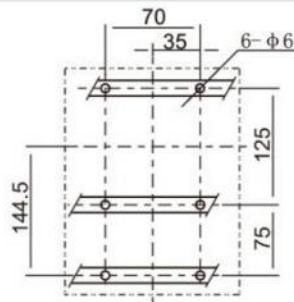
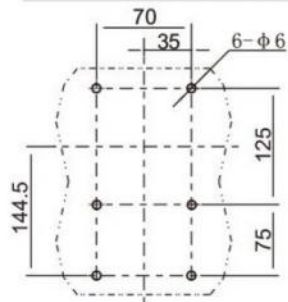
3P installed on the base

3P installed on the din-rail



4P installed on the base

4P installed on the din-rail



4P installed on the base

4P installed on the din-rail

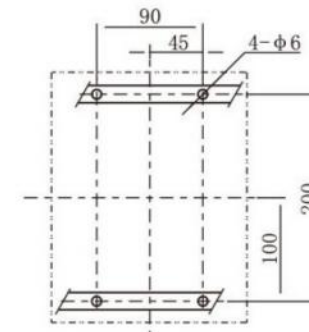
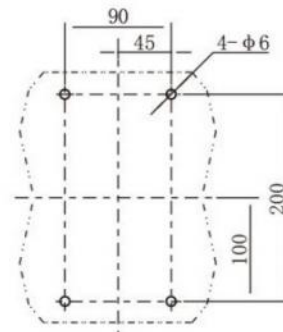
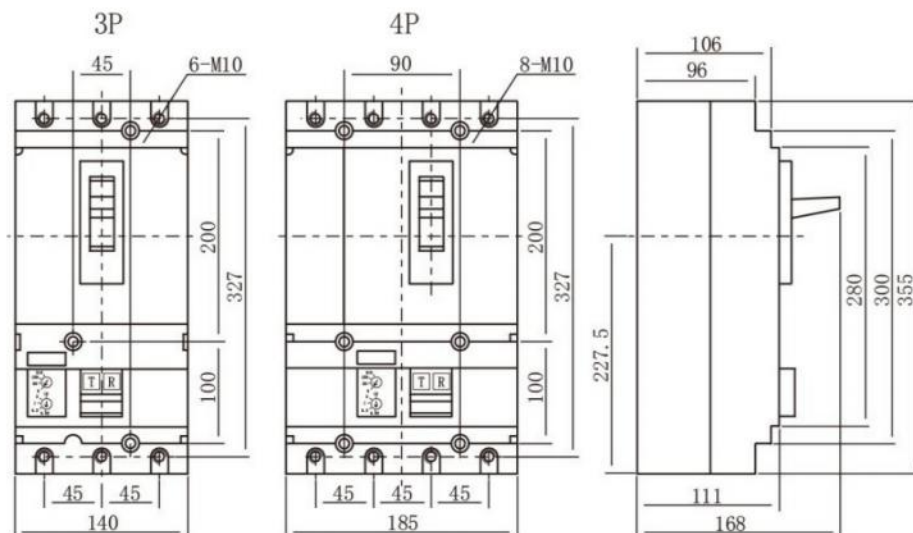


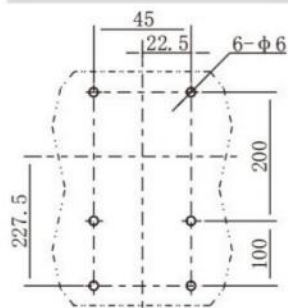
Figure 2. WCM6-100, 160, 250(with earth leakage protection)

Figure 3.WCM6-400, 630

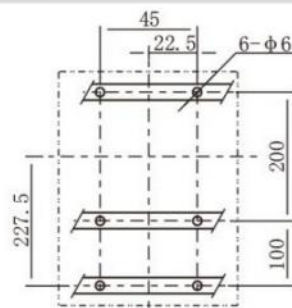
7.4 The dimensions for WCM6-400,630 (with earth leakage protection) are shown in Figure 4



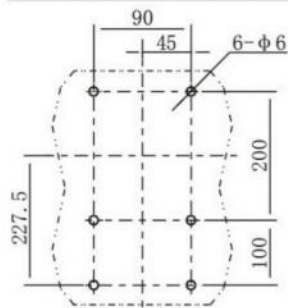
3P installed on the base



3P installed on the din-rail



4P installed on the base



4P installed on the din-rail

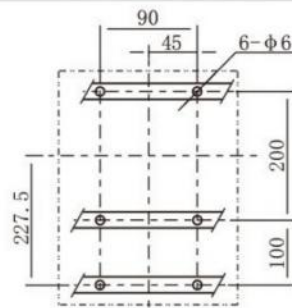
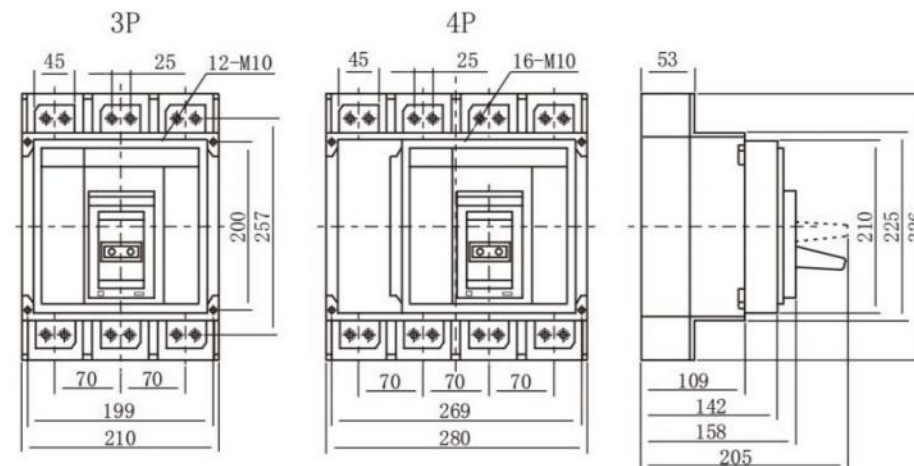
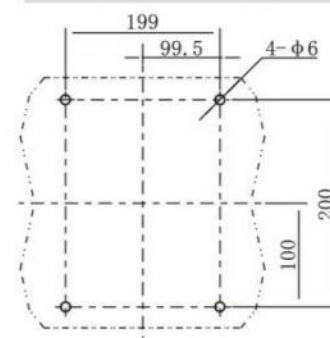


Figure 4. WCM6-400, 630(with earth leakage protection)

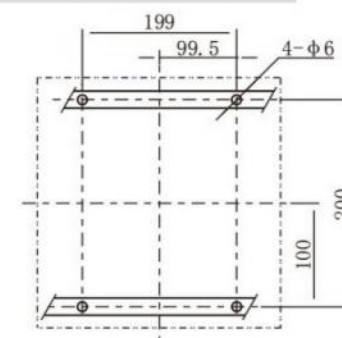
7.1 The dimensions for WCM6-1250,1600 are shown in Figure 5



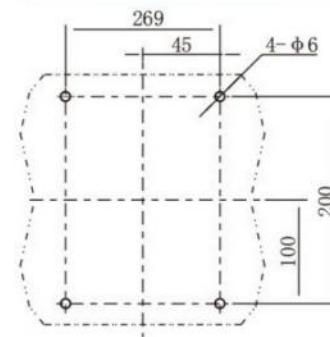
3P installed on the base



3P installed on the din-rail



4P installed on the base



4P installed on the din-rail

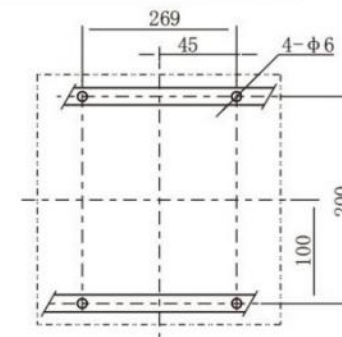


Figure 5. WCM6-1250, 1600

## 8. Accessories

The internal accessories of the circuit breaker are installed in the inner cavity of the cover, and the shunt release, under-voltage release, auxiliary contact and alarm contact are all made into separate modules. Therefore, the installation is simple, convenient, safe and reliable, and users can install the circuit breaker in the corresponding position which can be found in the following for more details.

| Name                                                                                                            | Rated voltage               | Applicable frame |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------|------------------|
| <br>Shunt release              | AC220/230V                  | WCM6-100         |
|                                                                                                                 | AC380/400V                  | WCM6-160         |
|                                                                                                                 | DC220V                      | WCM6-250         |
|                                                                                                                 | DC110V                      | WCM6-400         |
|                                                                                                                 | DC110V                      | WCM6-630         |
| <br>Under-voltage release      | AC220/230V                  | WCM6-1250/1600   |
|                                                                                                                 | AC380/400V                  |                  |
|                                                                                                                 | DC220V                      |                  |
|                                                                                                                 | DC110V                      |                  |
|                                                                                                                 | DC110V                      |                  |
| <br>Auxiliary contact          | AC220/230V                  | WCM6-100         |
|                                                                                                                 | AC380/400V                  | WCM6-160         |
|                                                                                                                 | DC220V                      | WCM6-250         |
|                                                                                                                 | DC110V                      | WCM6-400         |
|                                                                                                                 | DC110V                      | WCM6-630         |
| <br>Alarm Contact              | AC220/230V                  | WCM6-1250/1600   |
|                                                                                                                 | AC380/400V                  |                  |
|                                                                                                                 | DC220V                      |                  |
|                                                                                                                 | DC110V                      |                  |
|                                                                                                                 | DC110V                      |                  |
| <br>Earth leakage module EL6 | Sensitivity $I\Delta n$ (A) | WCM6-100         |
|                                                                                                                 | 0.03, 0.3, 1, 3, 10.        | WCM6-160         |
|                                                                                                                 |                             | WCM6-250         |
|                                                                                                                 |                             | WCM6-400         |
|                                                                                                                 |                             | WCM6-630         |

Note: When the users need, the circuit breaker  
Earth leakage module EL6 can be provided as an alarm only without tripping.

| Name                                                                                                                                   | Rated voltage | Applicable frame |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------|
| <br>Motor-driven mechanism                          | AC220/230V    | WCM6-100         |
|                                                                                                                                        | AC380/400V    | WCM6-160         |
|                                                                                                                                        | DC220V        | WCM6-250         |
|                                                                                                                                        | DC110V        | WCM6-400         |
|                                                                                                                                        | DC110V        | WCM6-630         |
| <br>Motor-driven mechanism                          | AC220/230V    | WCM6-400         |
|                                                                                                                                        | AC380/400V    | WCM6-630         |
|                                                                                                                                        | DC220V        | WCM6-100         |
|                                                                                                                                        | DC110V        | WCM6-160         |
|                                                                                                                                        | DC110V        | WCM6-250         |
| <br>Economic extended rotary handle                 |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |
|                                                                                                                                        |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
| <br>Extended rotary handle                          |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |
|                                                                                                                                        |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
| <br>Direct rotary handle                           |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |
|                                                                                                                                        |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
| <br>Direct rotary handle                          |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |
|                                                                                                                                        |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
| <br>a. WCM6-100,160,250<br>Outer connection plate |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |
|                                                                                                                                        |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
| <br>b.WCM6-400,630<br>Outer connection plate      |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
|                                                                                                                                        |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |
| <br>c.WCM6-1600<br>outer connection plate         |               | WCM6-100         |
|                                                                                                                                        |               | WCM6-160         |
|                                                                                                                                        |               | WCM6-250         |
|                                                                                                                                        |               | WCM6-400         |
|                                                                                                                                        |               | WCM6-630         |

Note: The outline and installation dimensions and accessories of the thermal magnetic type and the electronic type are exactly the same.

### 8.1 Shunt release

Shunt releases operate according to electrical signals, enabling remote control and automatic control of circuit breakers. When the supply voltage is equal to any voltage between 70% and 110% of the rated control power supply voltage, the shunt release should enable the circuit breaker to operate reliably. The unit should not be powered for a long time ( $\approx 5s$ ).

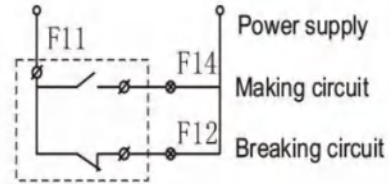
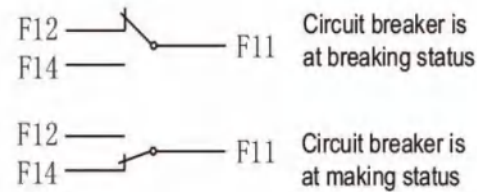
#### 8.1 Under-voltage release

When the supply voltage drops to 70% to 35% of the rated control supply voltage, the under-voltage release trips and the breaker should open the circuit breaker reliably. When the supply voltage is equal to or greater than 85% of the rated control voltage of the under-voltage release, the circuit breaker should be guaranteed to close.

When the voltage is less than 35% of the rated control voltage of the under-voltage release, the under-voltage release should prevent the circuit breaker from closing.

#### 8.2 Auxiliary contact

Remotely indicate the circuit breaker's making (on) or breaking (OFF) status, connected to the auxiliary circuit of the circuit breaker.

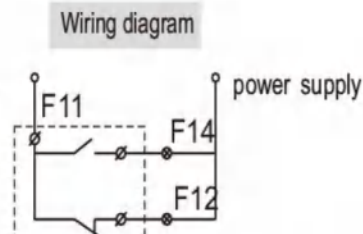
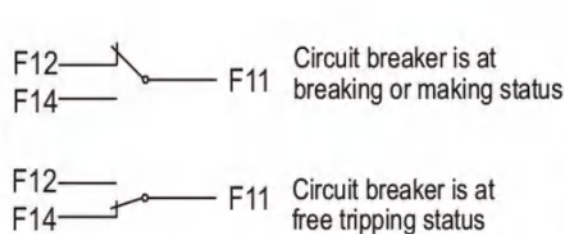


### 8.4 Alarm contact

The reasons for the failure of the alarm signal are:

a: overload; b: short-circuit; c: ground-fault; d: Under-voltage trip; e: free trip

It is mainly used to provide a signal when the load of the circuit breaker is overloaded, short-circuited or undervoltage, or tripped.



Note 1: The same circuit breaker cannot be equipped with under-voltage release and shunt release at the same time;

Note 2: wCM6-400, wCM6-630, wCM6-1600 can install up to three sets of auxiliary contacts.

## 9. Tips for Installation, operation and maintenance

9.1 This circuit breaker must be wired and installed by qualified personnel, and it is strictly prohibited to unpack it without authorization, otherwise you will be responsible for the consequences.

9.2 It is strictly forbidden to operate the circuit breaker with wet hands, otherwise an electric shock may occur.

9.3 When the circuit breaker opens due to a fault, the cause must be found out, and the closing operation can only be carried out after the fault is eliminated.

9.4 In order to prevent the phase-to-phase arc short circuit, the bare wires and copper bus bars at the inlet end should be insulated. When the circuit breaker is installed, the connecting wire should be the wire that can bear the corresponding current carrying capacity.

9.5 The circuit breaker should be inspected every six months. The power supply should be cut off during the inspection, and the handle should be operated to close and open the circuit breaker 3 times to check whether the mechanism is reliable; check the insulation resistance of the circuit breaker and the mounting plate, and remove the dust on the surface of the casing. Keep good insulation, if the insulation resistance is less than 10MO, the circuit breaker should be replaced in time.

9.6 When selecting a circuit breaker, the technical parameters on the circuit breaker should be consistent with actual requirements. Various characteristics and accessories of the circuit breaker are set by the manufacturer, and cannot be adjusted arbitrarily during use.

9.7 Prevent the breaker from being damped and bumped in the process of operation, store and transportation.

9.8 Various defects of the breaker may take place in the process of operation. For example, fasteners are loose, wires are not well connected, and mechanism is blocked. The corresponding technical parameters are reasonably selected and accord with the demands. These defects will be examined and removed by special technician of users. The special technician of the manufacturer is responsible for the analysis of the cause of other defects, and for the removal of them, and for the replacement of the parameters..