

Moulded Case Circuit Breaker Operation Instructions



Suggest send the instruction to final user
No.ZXM3EN21072806

Thank you for using the M3 series molded case circuit breaker of our company. Please read this operation instruction carefully before installation, circuit connected, operation, maintenance, to insure the proper use.

1. Installation attention

⚠ Warning

- Please do the operation according to the relevant provisions required, to avoid major accident.

⚠ Note

- Please according to relevant clause to operate, to avoid accident or matter breaker.

1.1 About install

⚠ Warning

- Please install it on the metal or some flame retardant things.
- Do not install it in the environment of containing gas explosion, otherwise it will explode danger.
- Do not install it in the moist environment.

⚠ Note

- Do not install it in the external magnetic field is 5 times large then the geomagnetic field place, otherwise the breaker can't work normally.
- Do not install it in the place of gas medium can corrode metal and destroy the insulation.
- Rotate the operating mechanism, it need order from our company to ensure quality.

If user buy the part by yourselfe, please select reliable Otherwise, the company can not be responsible for any adverse consequences after assembly.

1.2 Relevant wiring

⚠ Warning

- Must be wired by qualified personnel, Make sure that the input power is completely disconnected before you can perform wiring.
- Must be wired after install body.
- Circuit breaker wiring must comply with the rule of up input and down output, that is 1、3、5 wiring termination connect with power line, 2、4、6 wiring termination connect with Load line, No allowed to confuse.

1.3 Relevant operation

⚠ Warning

- Wet hands can not operate circuit breaker, or possible will happen he electric shock accident.

⚠ Note

- Do not operate the circuit breaker frequently, or will shorten the life of circuit breaker.
- The circuit breaker go with Under-voltage release, the release should be electricity, then allow the circuit break.
- If the circuit breaker installed with shunt release, the circuit breaker should be switch on, then supply the shunt release with rated voltage, circuit breakers should be reliable release.

1.4 Relevant maintenance and inspection and part change

⚠ Warning

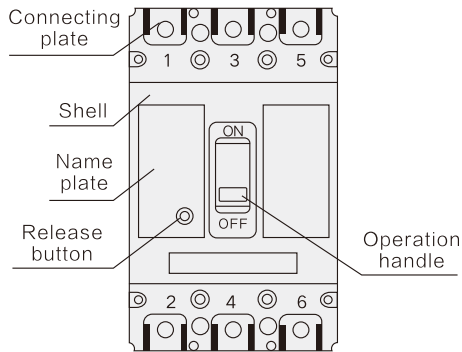
- Maintenance and inspection must need professional technicians to perform.
- User select the inside or outside part, it need buy form our company to quality assurance, if user buy the part from other company or modified products, The company will not be responsible.

2. Relevant matters of before using

2.1 Notes before you check the box

- When you received the circuit breaker you purchased, please check the following items. check the appearance whether there are some losses occurred in the course of the transport. such as the damaged shell, and so on.
- In the box, there are not only the circuit breaker body, working instructions, product certification, but also have the screws, nuts, and parts, please check one by one in the packing list.

2.2 The appearance of the product and the name of the parts



2.3 Storage environment

Item	Specification
Ambient temperature	-25°C~+55°C
Relative humidity	(When the environment temperature is 25) ≤95%

3. Installation

3.1 Insulation test

According to the standards, the circuit breaker need to take the insulation test before out of factory .Because the circuit breaker has the electronic circuit boards. If you want to retest, must according to the following steps:

- use 1000VDC megger. (M3-63, use 500VDC)
- Insulation resistance should be not less than 20MΩ .
- Link the under-voltage release of circuit breaker to the input line and the shell.

If the users do not have megger, can replace it with frequency voltage tester. add voltage 2000VImin.

3.2 Using environment

- The environmental requirement where the circuit breaker install

Ambient temperature	-5°C~ +40°C, and average of 24h is not more than 35°C.
Relative humidity	When the temperature is 40°C, do not more than 50%, in the most wet month, the average can not higher than 25°C, and also the biggest average relative humidity can not more than 90%, thinking the change of the temperature when the frost on surface of the products
Altitude	No more than 2000m
Pollution	3 Class

Tripping characteristics of switching MCCB

Rated current of release(A)	Thermodynamic release(ambient temp40°C±2°C)		Operational current of magnetic release(A)
	1.05I _n (Cold state) inoperative time (h)	1.3I _n (Cold state) inoperative time (h)	
I _n ≤ 63	≥ 1	< 1	10I _n ±20%
63 ≤ I _n ≤ 250	≥ 2	< 2	
250 ≤ I _n ≤ 800	≥ 2	< 2	5I _n ±20% 10I _n ±20%

Notes: The instantaneous action value of the rated operating current I_n=10A–40A of the circuit breaker is the same as that of I_n=50A

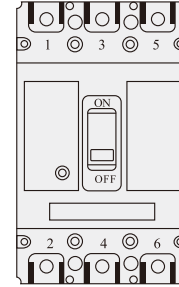
Tripping characteristics of overload protection MCCB

Rated current of release(A)	Thermodynamic release(ambient temp40°C)				Operational current of magnetic release(A)
	1.0I _n (Cold state) inoperative time (h)	1.2I _n (Cold state) inoperative time (h)	1.5I _n (Cold state) inoperative time (h)	7.2I _n (Cold state) inoperative time (h)	
I _n ≤ 250	≥ 2	< 2	< 4min	4s < T _p ≤ 10s	5I _n ±20% 10I _n ±20%
250 ≤ I _n ≤ 630			< 8min	4s < T _p ≤ 20s	

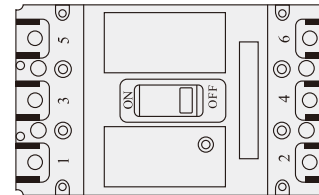
Notes: The instantaneous action value of the rated operating current I_n=10A–40A of the circuit breaker is the same as that of I_n=40A

3.3 Installation method

- Circuit breaker can be installed vertically, but also horizontally

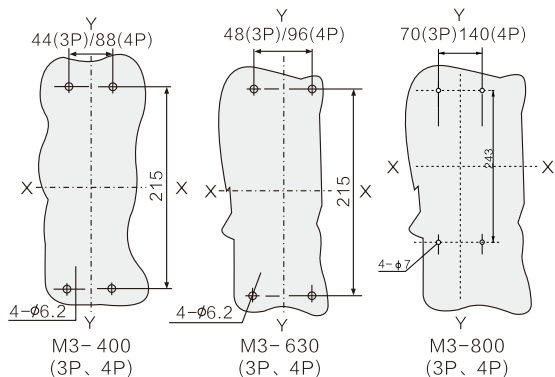
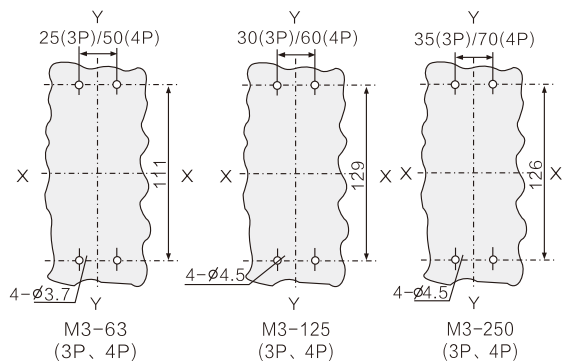


Installed vertically

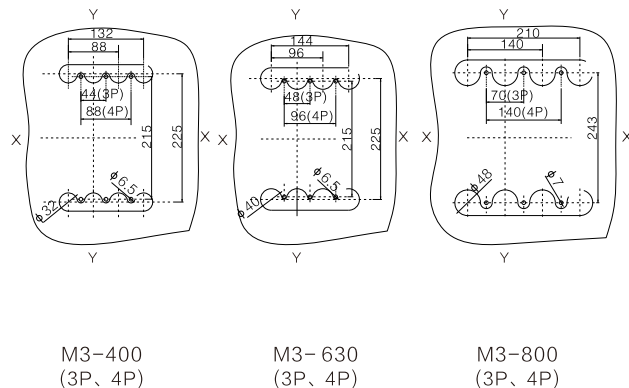
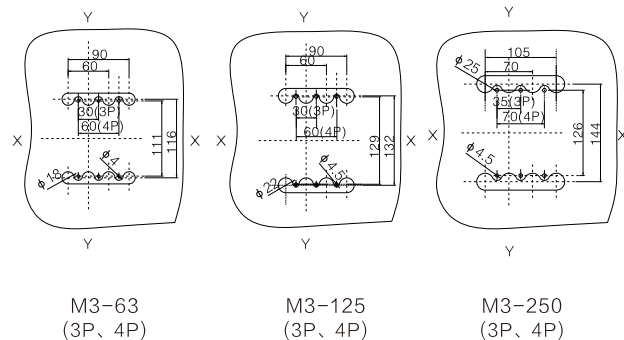


Installed horizontally

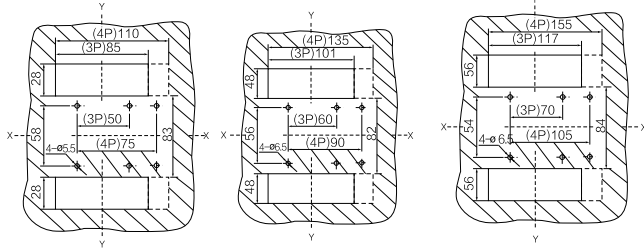
- The pening of Installation board
- Front board wiring
- X-X, Y-Y is the center of the circuit breaker



- Back board wiring
- X-X Y-Y is the center of the circuit breaker



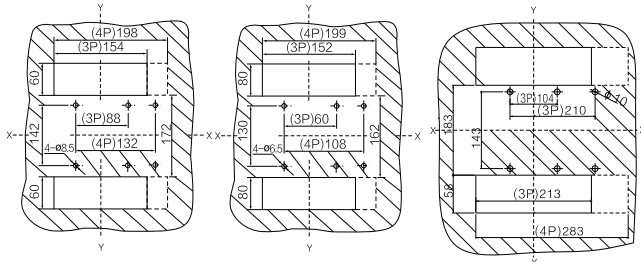
- Plug in type of front board wiring
X-X Y-Y is the center of the circuit breaker



M3-63
(3P、4P)

M3-125
(3P、4P)

M3-250
(3P、4P)



M3-400
(3P、4P)

M3-630
(3P、4P)

M3-800
(3P、4P)

- Fix the body of the circuit breaker master(back board wiring used) pedestal plug in wiring used on the installation board
- Connection with the main circuit

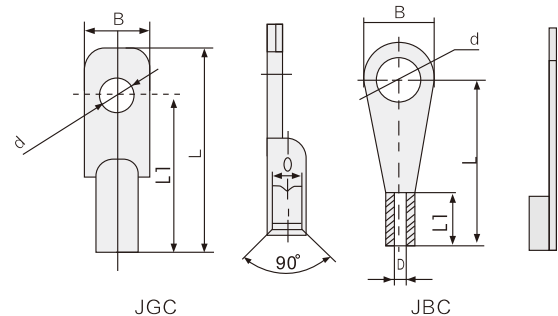
a. The cross-sectional area which used for the connect wires must be adapted to the rated current table

Rated Current(A)	10	16/20	25	32	40	63	80	100	63/140	125	180/200 225	315	400
Cross sectional Area(mm ²)	1.5	2.5	4	6	10	16	25	35	50	70	185	185	240

Rated current(A)	Cable		Copper row	
	Quantity	Section area (mm ²)	Quantity	Size(mm)
500	2	150	2	30X5
630	2	185	2	40X5
700/800	2	240	2	50X5

b. Select the connecting terminal

M3 circuit breaker has four types of connecting terminal: JGC type ,JBG type ,JBC type or JB type (Offered by users order), follows are the specifications.



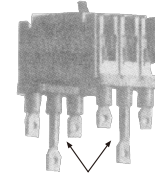
JGC

JBC

Model	Rated current (A)	Cross-sectional Area (mm ²)	Model of terminal	B	L	L1	D	d
M3-63	10/16/20	2.5	JBC2.5-8	15	24.5	8.5	Φ2.6	Φ8.2
	25	4	JBC4-8	13.4	20.4	9.2	Φ2.8	Φ8.2
	32	6	JBC6-8	15	24.5	10	Φ3.5	Φ8.2
	40/50	10	JBC10-8	15	24.5	11	Φ4.5	Φ8.2
	63	16	JBC16-8	12.5	41	33.5	Φ6	Φ8.2
M3-125	10/16/20	2.5	JBC2.5-8	15	24.5	8.5	Φ2.6	Φ8.2
	25	4	JBC4-8	13.4	20.4	9.2	Φ2.8	Φ8.2
	32	6	JBC6-8	15	24.5	10	Φ3.5	Φ8.2
	40/50	10	JBC10-8	15	24.5	11	Φ4.5	Φ8.2
	63	16	JBC16-8	12.5	41	33.5	Φ6	Φ8.2
	80	25	JBC25-8	14	46	38.5	Φ7	Φ8.2
	100	35	JBC35-8	15.5	52	44.5	Φ8	Φ8.2
	125	50	JBC50-8	17	54	45	Φ10	Φ8.2
M3-250	100	35	JBC35-8	15.5	52	44.5	Φ8	Φ8.2
	125/140	50	JBC50-8	17	54	45	Φ10	Φ8.2
	160	70	JBC70-8	21.6	61	52	Φ11	Φ8.2
	180/200/225	95	JBC95-8	22	66	57	Φ13	Φ8.2

Note: M3-63, M3-125 the Specification of current 10A, 16A, 20A adopt JBC2.5-8; Specification of 32A adopt JBC6-8; Specification of 40A, 50A adopt JBC10-8 Wiring terminal.

c. The insulating sleeve must be installed on the terminal when back board wiring

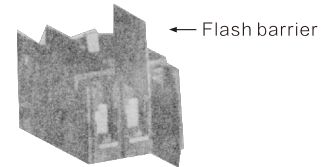


Insulating sleeve

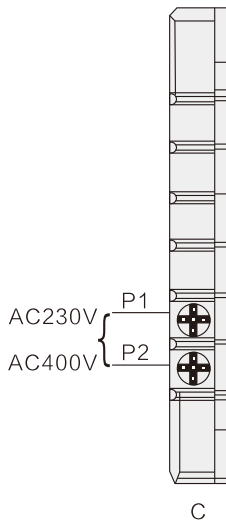
d. Use the bolts (bolts must be set into the flat pad and a spring washer) to connect with a well pressed wire and the conduct of circuit breaker, torque wrench and tighten the bolt, impose the size.

Model	Specification of the bolts	Torque (N.m)
M3-63	M8	6.0
M3-125	M8	6.0
M3-250	M8	6.0
M3-400	M10	10
M3-630	M12	14

Install the flash barrier between the circuit breaker.



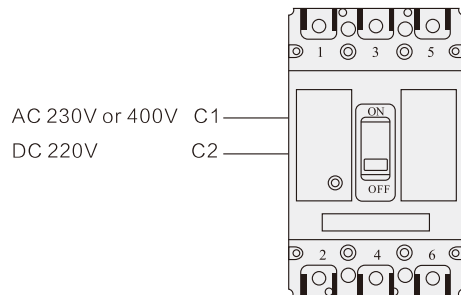
The electrical wiring of the internal accessories in the circuit breaker
a. Under-voltage release according to the number of the connecting terminal in the Plug-in model, then connect it to the power (No need to distinguish between positive and negative when it is DC power)



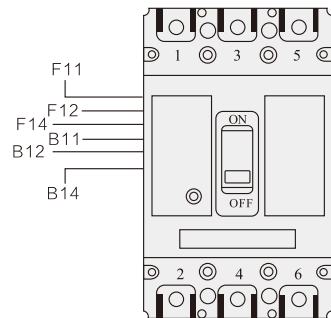
注：*用户采用DC24V分励脱扣器时，铜导线最大长度（两根导线中每根长度）须满足下表要求：

额定控制电源电压 U_s (DC24V)	输入功率	铜导线长度	
		1.5mm ²	2.5mm ²
100% U_s	50W	150m	250m
85% U_s	50W	100m	160m

b. Shunt release according to the number of the input wire, then connect it to the power. No need to distinguish between positive and negative when it is DC power)

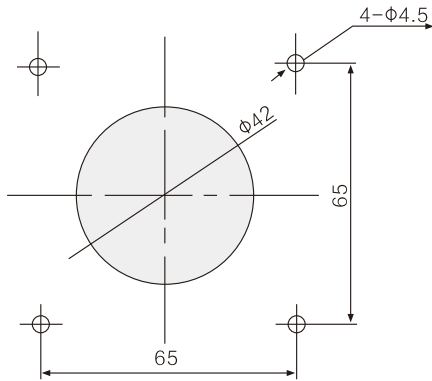


c. Auxiliary contact and Alarm contact according to the number of output wires, connect them to the correspond circuit of the external control.
Note: F11,F12,F14 are the connecting terminal of auxiliary connect;
B11,B12,B14 are the connecting terminal of Alarm contact.

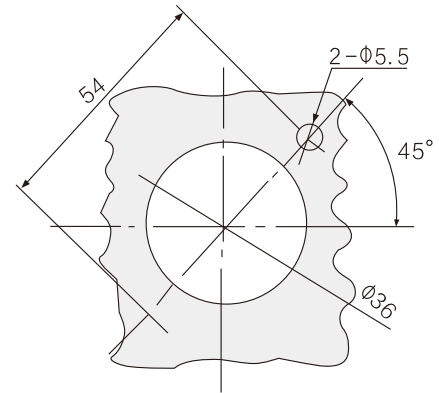


□ Install the Turning handle of operating mechanism

a. Before the Installation, there is already a hole for the door of operating handle switch, at the same time (the opening hinge distance from the center is not less than 100mm).



The opening size of F type door hand



The opening size of A type door hand

- b. Fix the circuit breaker which have already install the operating mechanism in the cover pass.
- c. Fix the side-axis joystick in the hole of the operating mechanism.
- d. Close the door which have already open the hole, adjust the location of the circuit breaker so that the center of the side-axis and the center of opening hole in the handle are in the same line.
- e. Close the switch board doors which have already installed the turning handle, try to operate the handle. The handle should be aglity, when it is setted in the position of horizontal, the circuit breaker should switch on .when it is setted in the position of vertical, the circuitbreaker should be Switch off.

4. Operation

4.1 Check the following item before running

- Check the wiring method if it is all correct.
Special check the input terminals(1,3,5) are connected with the power line, and the output terminals(2,4,6) are connected with the load line.
- Use the megger to test the circuit breaker between the phase-phase, phase-earth with insulation resistance.
- Confirm that the connecting terminal and the fixed screw are all Fasten without any loosen.
- Check if the circuit breaker has already installed the flash barrier.
- The circuit breaker go with Under-voltage release, the release should be electricity, then allow the circuit breaker switch in.

4.2 Trying to operate

- According to the each item of 4.1 are all confirmed without any abnormal situation,then you can try to operate the circuit breaker.
 - a. Pull the handles, the operation should be flexible.
 - b. The main circuit breaker must connect with the power, then press the botton of release, circuit breakers should release ,and the operation handle must in the release location

4.3 Running

If you can meet the second points of 4.2, then put into operation.

5. After-sales service

This product is manufactured under perfect quality management. In the event of a failure, the warranty period and future service special operations are described below.

5.1 Warranty

If the users comply the conditions of safekeeping and using and the seal of the circuit breaker is well. from the date of the product delivery, not more than 18 months. If it has the quality problems that caused damage or can not be used normally, our company have the responsibility for repair or replacement.

However, as a result of the following reasons for failures, even in the warranty ,it also must paid for repair or replacement.

- ① Due to the use error, inappropriate conversion and maintenance.
- ② Exceed the standard of requirement.
- ③ After purchased, the circuit breaker dropped down during the instalstion.
- ④ Earthquake, fire, lightning, abnormal voltage, and two other natural disasters.

5.2 After-sales service

- ① When the failure occurred, please contact with the supplier or the after-sales service department of the company.
- ② The repair and replacement in the warranty if it is the company' s manufacturing problems, that caused the failure, our company have the responsibility of free charge of repair, as well as replacement.
- ③ The repair or replacement after warranty, If the circuit break can still work, we can offer the customer repair and replacement with some charge.