



FXM3 SERIES

Molded Case Circuit Breakers



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Product Overview

PN	FXM3-150					FXM3-250					FXM3-400							
																		
Rated Current(In)	16A ~ 125A	16A、20A、25A、32A、40A、 50A、63A、80A、100A、125A、 140A、150A、160A				100A、125A、140A、160A、180A、 200A、225A、250A					225A、250A、315A、350A、400A							
Poles(P)	3、4	3、4	3、4		3、4	3	3、4	3、4		3、4	3、4	3、4	3、4	3、4	3	3	3	3
Breaking Capacity Level	C	L	M		H	C	L	M		H	L	M		H				
Rated Operating Voltage Ue(VAC)	415V	415V	415V	690V	415V	415V	415V	415V	690V	415V	415V	415V	690V	415V	690V	800V	1000V	1140V
Rated Ultimate Short Circuit Breaking Capacity Icu(kA)	35	50	70	20	100	35	50	70	20	100	50	70	20	100	80	50	35	10
Rated operating short-circuit breaking capacity Ics(kA)	25	35	50	10	70	25	35	50	10	70	50	70	15	75	80	52	20	10
N P Form In 4P Products	4A、4B、4C、4D																	
Certificate	CCC、CE、CB(UL489:FXM3-250Series)																	

Product Overview

型号	FXM3-630								FXM3-800			FXM3-1250			
															
Rated Current(In)	400A、500A、630A								630A、700A、800A			800A、1000A、1250A			
Poles(P)	3、4	3、4	3、4	3、4	3	3	3	3	3、4	3、4	3、4	3、4			
Breaking Capacity Level	L	M		H					M			H		M	H
Rated Operating Voltage Ue(VAC)	415V	415V	690V	415V	690V	800V	1000V	1140V	415V	690V	415V	415V	690V	415V	690V
Rated Ultimate Short Circuit Breaking Capacity Icu(kA)	50	70	20	100	80	50	35	10	75	20	100	75	35	100	20
Rated operating short-circuit breaking capacity Ics(kA)	50	70	15	75	80	50	20	10	75	10	75	55	25	75	20
N P Form In 4P Products	4A、4B、4C、4D														
Certificate	CCC、CE、CB														

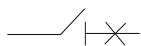


Scope of application and useage

- ◆ FXM3 Series Molded Case Circuit Breakers (MCCB) ,
The product is suitable for infrequent switching and infrequent starting of motors in circuits with 50/60Hz, rated operating voltage up to AC690V, and rated operating current up to 1250A
- ◆ And the MCCB has the function of overload alarm and non-tripping. When the line is overloaded, the MCCB with this function will not trip the public output signal to ensure the continuity of power supply. The product can be used for a long time with an overload of 1.3 times the rated current for 8 hours, and the performance of the product remains the same after cooling. The MCCB can replace the thermal relay solution. The circuit breaker has overload, short circuit and undervoltage protection functions, which can protect the circuit and power supply equipment from damage.

Electrical Symbol

The MCCB has an isolation function, and its corresponding symbol is:



Applicable environment

Ambient temperature

-35°C~+70°C, the average value of 24 hours does not exceed +35°C. When the temperature is higher than +40°C, the user needs to derate for use. For the derating coefficient, please refer to the FXM3 table.

Storage temp

-40°C~+75°C

Altitude

The altitude temperature of the installation site is ≤2500m, and the derating coefficient at high altitude is shown in the table.

Relative temperature in use/relative storage temperature

When the ambient temperature is +40°C, the relative humidity doesn't exceed 50%, and the lower temperature can have a higher temperature, such as: when the relative humidity is 20°C, the relative humidity can reach 90%. Take corresponding measures for frosting caused by temperature changes.

Pollution level:

III

Features

Design Features

MCCB are divided into C type (basic type), L type (standard type), M type (higher breaking type) and H type (high breaking type) according to the base rated limit short-circuit breaking capacity. The circuit breaker has the characteristics of small size, high breaking capacity, short flashover and anti-vibration.

Standards Compliant

- ◆ GB/T 14048.1 Low-voltage switchgear and controlgear Part 1: General
- ◆ GB/T 14048.2 Low-voltage switchgear and controlgear Part 2: Low-voltage circuit breakers
- ◆ IEC 60947-1 Low-voltage switchgear and controlgear-Part1:General rules
- ◆ IEC 60947-2 Low-voltage switchgear and controlgear-Part 2:Circuit-breakers

Environmental Protection

All components meet the latest EU RoHS environmental protection requirements.

Application range

Type of installation

The installation category of the circuit breaker connected to the main circuit is: Category III (power distribution and control level)

The installation category where the circuit breaker is not connected to the main circuit is: Category II (load level level)

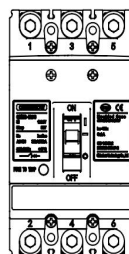
Installation Environment

The product is installed in a non-explosive medium, and the medium isn't enough to corrode the metal and destroy the insulating gas and conductive dust, and avoid using it in the place where rain and snow invade.

Installation direction

The product is installed vertically, and the inclination between the installation surface and the vertical surface is ≤±22.5°

Horizontal installation of the product.



Specification and Model Description

FX

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Item	Serial Name	Type Meaning
1	Enterprise code	FX: Weltrus
2	Product Code	M: Molded Case Circuit Breakers
3	Design Number	3
4	Frame Level	150, 250, 400, 630, 800, 1250
5	Breaking Capacity Level	C: Basic Type
		L: Standard Type
		M: Higher Breaking Type
		H: High breaking type
6	Actuator	None: Handle direct operation
		P: Electric operation
		Z: Rotating handle operation
7	Poles	2: 2 Poles
		3: 3 Poles
		4: 4 Poles
8	Type of trip	0: No Release
		2: Instantaneous release only
		3: Duplex release (overload alarm non-trip product is not available)
9	Accessory Code	(see Table 2)
10	Usage type	None: Power Distribution
		2: Motor protection
11	N pole (Neutral pole) Form (4-pole product)	A: N No overcurrent trip, always on
		B: N No overcurrent trip, N pole can be opened and closed together
		C: N pole with current release,N pole can be opened and closed together
		D: N pole with current release, N pole always connected
12	Current Rating (A)	16A 20A 25A 32A 40A 50A 63A 80A 100A 125A 140A 150A 160A
		180A 200A 225A 250A 300A 315A 350A 400A 500A 630A 700A 800A



Table1 Main Performance Technical Parameters of Circuit Breaker

Product Technical Features																			
Case grade rated current(A)		150				250				400									
Poles(P)		3、4	3、4	3、4		3、4	3	3、4	3、4		3、4	3、4	3、4	3、4	3	3	3	3	
Breaking Capacity Level		C	L	M		H	C	L	M		H	L	M		H				
Rated Operating Voltage Ue(VAC)		415V	415V	415V	690V	415V	415V	415V	690V	415V	415V	415V	690V	415V	690V	800V	1000V	1140V	
Rated Current(In)		16A、20A、25A、32A、40A、50A、63A、80A、100A、125A、140A、150A、(160A)				100A、125A、140A、160A、180A、200A、225A、250A				225A、250A、315A、350A、400A									
Rated ultimate short-circuit breaking capacity Icu(kA)		35	50	70	20	80	35	50	70	20	100	50	70	35	100	37	37	15	15
Rated operating short-circuit breaking capacity Ics(kA)		25	35	50	10	70	25	35	50	10	70	35	50	25	75	37	37	15	15
Rated insulation voltage Ui		AC 1000V																	
Rated impulse withstand voltage Uimp		8kV				8kV				12kV									
Mechanical life		20000									10000			10000					
Electrical life		10000									7500			1500					
Arcing distance		≥50mm									≥100mm								
Dimensions (W*L*H)	W	75/100	92/122			107	107/142			150/198									
	L	133	150			165	165			257									
	H	65	88			88	105			113									

Table 2 Main Performance Technical Parameters of Circuit Breakers (Continued)

Product Technical Features																	
Case grade rated current(A)		630							800							1250	
Poles(P)		3、4	3、4	3、4	3、4	3	3	3	3	3、4	3、4	3、4	3、4	3、4	3、4		
Breaking Capacity Level		L	M		H				M			H		M		H	
Rated Operating Voltage Ue(VAC)		415V	415V	690V	415V	690V	800V	1000V	1140V	415V	690V	415V	415V	690V	415V	690V	
Rated Current(In)		400A、500A、630A							630A、700A、800A				800A、1000A、1250A				
Rated ultimate short-circuit breaking capacity Icu(kA)		50	70	35	100	37	37	15	15	75	30	100	75	30	100	30	
Rated operating short-circuit breaking capacity Ics(kA)		50	70	25	75	37	37	15	15	55	20	75	55	20	75	20	
Rated insulation voltage Ui		AC 1000V															
Rated impulse withstand voltage Uimp		12kV							12kV				12kV				
Mechanical life		10000				10000				10000				2500			
Electrical life		7500				1500				1500				500			
Arcing distance		≥100mm							≥100mm				≥100mm				
Dimensions (W*L*H)	W	182/240							210/280				210/280				
	L	270							280				330				
	H	117							124				137				



FXM3 Temperature Change Derating Factor

Item	PN	Temperature corresponding product derating factor						
		40°C	45°C	50°C	55°C	60°C	65°C	70°C
1	FXM3-150C	1	0.977	0.957	0.936	0.915	0.894	0.873
2	FXM3-150L/M/H	1	0.959	0.918	0.877	0.835	0.794	0.752
3	FXM3-250C	1	0.985	0.968	0.952	0.935	0.919	0.887
4	FXM3-250L/M/H	1	0.985	0.968	0.952	0.935	0.919	0.887
5	FXM3-400L/M/H	1	0.978	0.957	0.936	0.915	0.894	0.873
6	FXM3-630L/M/H	1	0.978	0.957	0.936	0.915	0.894	0.873
7	FXM3-800M/H	1	0.978	0.957	0.936	0.915	0.894	0.873
8	FXM3-1250M/H	1	0.96	0.92	0.87	0.82	0.76	0.7

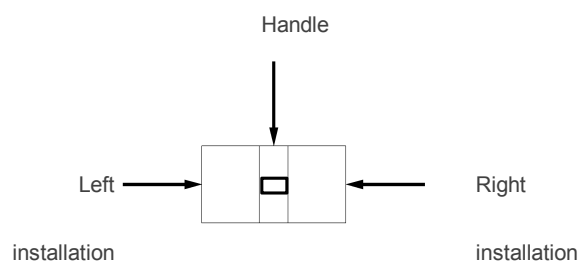
Note: When the ambient temperature is lower than 40°C, the product can be used normally without derating.

FXM3 High Altitude Derating Factor

Altitude (m)	2000	2500	3000	4000	4500	5000
Working current correction factor	1	1	0.985	0.95	0.94	0.93
Max operating voltage (V)	690	690	620	540	500	460
Power frequency voltage (V)	3000	3000	2500	2200	2100	2000
Insulation Voltage (V)	800	800	720	630	580	530



Annex Code Comparison Table



Icon :

	Alarm Contact
	Dual Auxiliary Contacts
	Single Auxiliary Contact
	Undervoltage Release
	Shunt Release
	Auxiliary alarm contact (Auxiliary and alarm function)

Table 2 Comparison Table Of Accessory Codes

Code	Position Accessory Name	FXM3-125		FXM3-250		FXM3-400		FXM3-630		FXM3-800	
		3	4	3	4	3	4	3	4	3	4
00	None	—	—	—	—	—	—	—	—	—	—
10	Shunt Release										
20	Dual Auxiliary Contacts										
21	Single Auxiliary Contact										
30	Undervoltage Release										
40	Shunt Release /Double Auxiliary Contacts										
41	Shunt Release /Single Auxiliary Contact										
50	Shunt Release Undervoltage Release										
60	Two Sets Of Dual Auxiliary Contacts										
61	Two Sets Of Single Auxiliary Contacts										
62	Dual Auxiliary/Single Auxiliary Contact										
70	Undervoltage Release/ Double Auxiliary Contacts										
71	Undervoltage Release/ Single Auxiliary Contact										
08	Alarm Contact										
18	Shunt Release /Alarm Contact										
28	Double Auxiliary Contact/ Alarm Contact										
38	Undervoltage Release/ Alarm Contact										
48	Shunt Release Auxiliary /Alarm Contact										
58	Auxiliary Alarm Contact										
68	Double Auxiliary / Alarm contact										
78	Undervoltage release Auxiliary alarm contact										

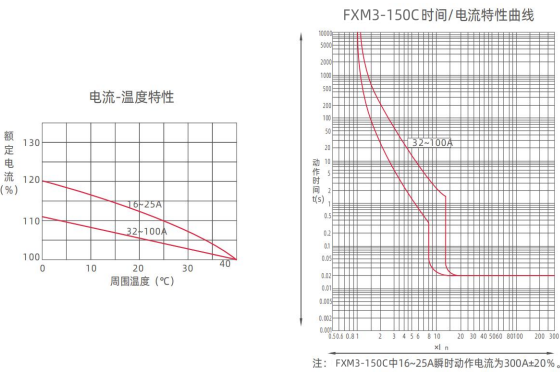


Product Trip Curve

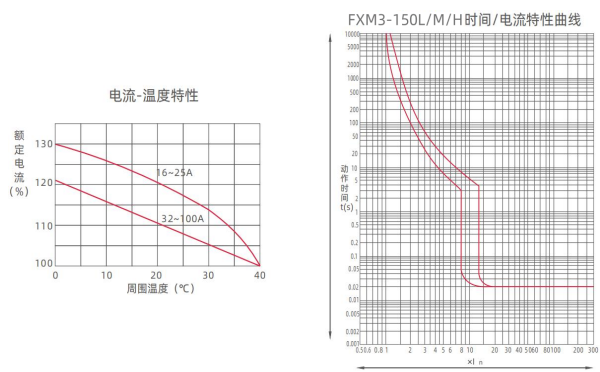
Product Protection Requirements

Rated current of the release (A)	Thermal release (ambient temperature +40°C)		Electromagnetic release action Current (A)	Remark
	1.05In (cold state) no action time (h)	1.3In (thermal state) no action time (h)		
10 ≤ In ≤ 63	1	1	10In×(1±20%)	Power distribution
63 ≤ In ≤ 1250	2	2	10In×(1±20%)	
10 ≤ In ≤ 1000	1.0In (cold state) non-action time (h)	1.2In (hot state) non-action time (h)	12In×(1±20%)	Motor protection
	2	2		

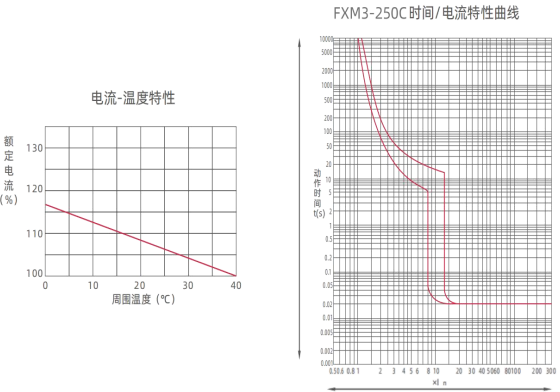
FXM3-150 series C type



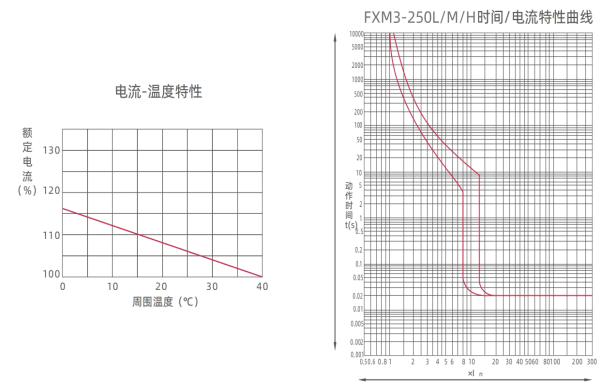
FXM3-150 series L/M/H type



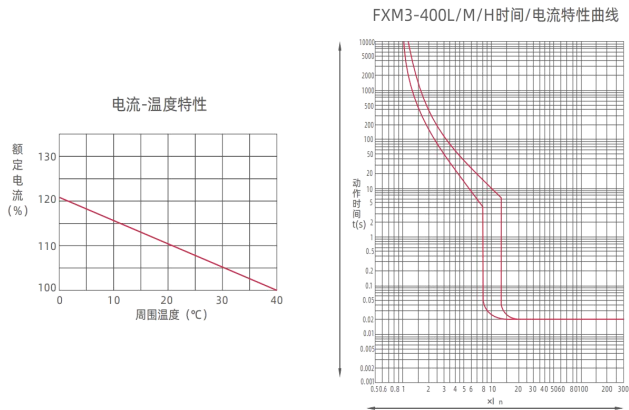
FXM3-250 series C type



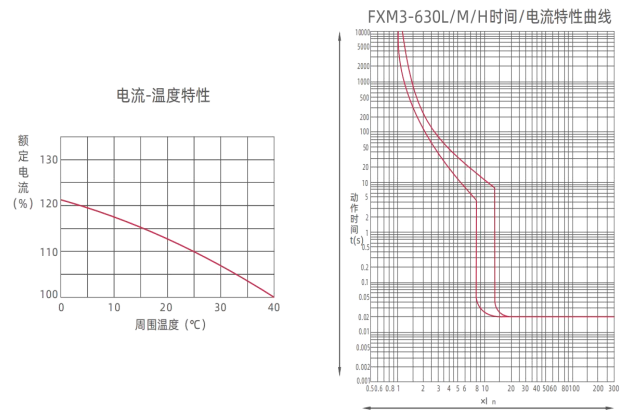
FXM3-250 series L/M/H type



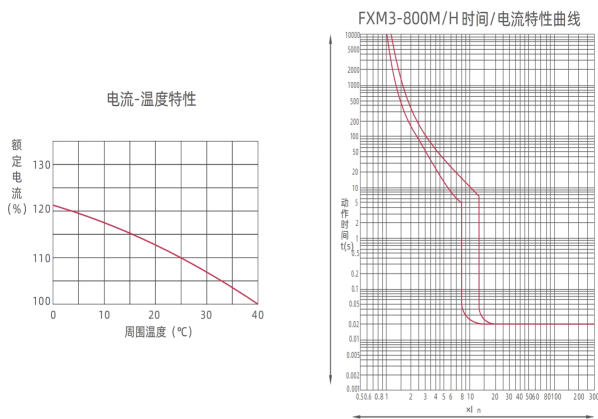
FXM3-400 series L/M/H type



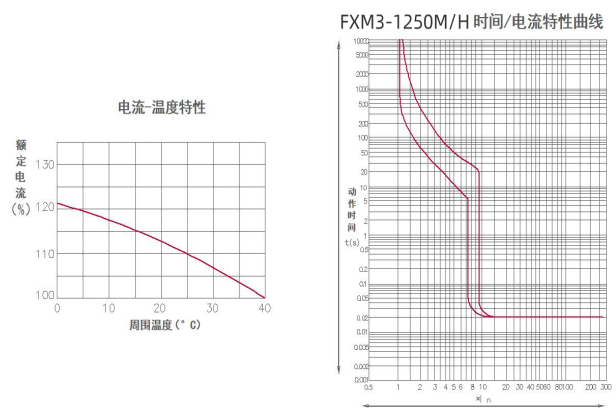
FXM3-630 series L/M/H type



FXM3-800 series M/H type

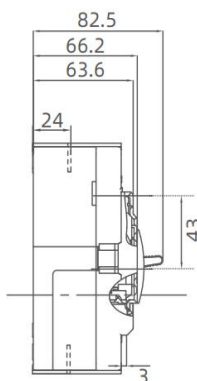
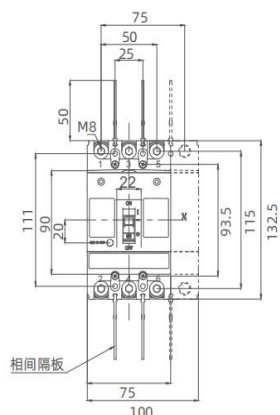


FXM3-1250 series M/H type

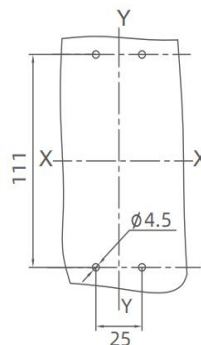


Installation Dimensions

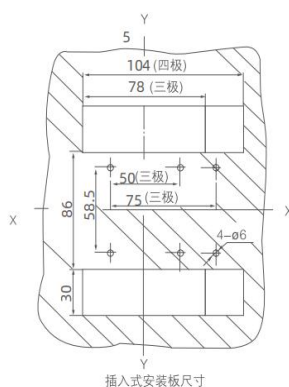
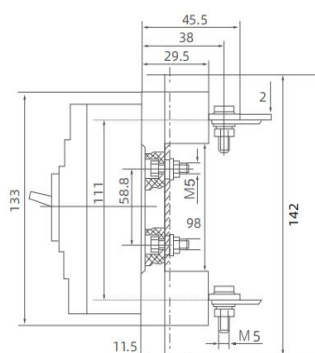
FXM3-150 series C type front connection



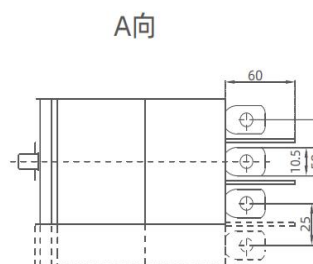
X-X, Y-Y are the center of the three-pole circuit breaker



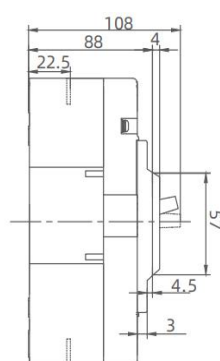
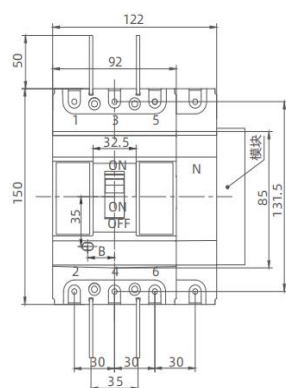
FXM3-150 series C-type plug-in front wiring



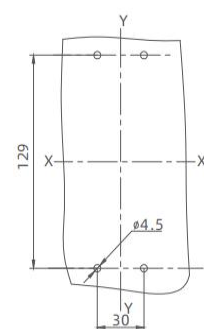
X-X, Y-Y are the center of the three-pole circuit breaker



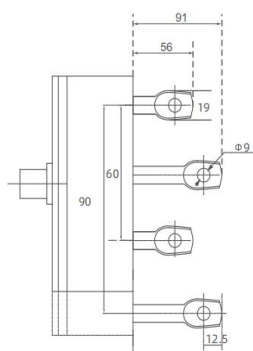
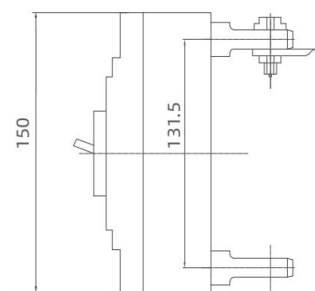
FXM3-150 series L M H type front wiring



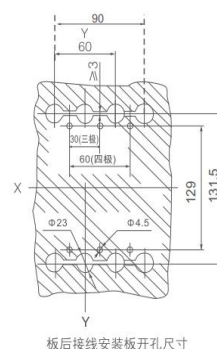
X-X, Y-Y are the center of the three-pole circuit breaker



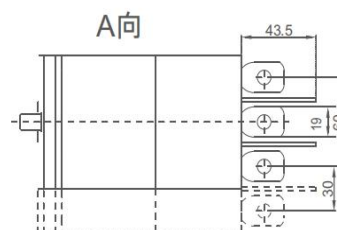
FXM3-150 series L M H type rear connection



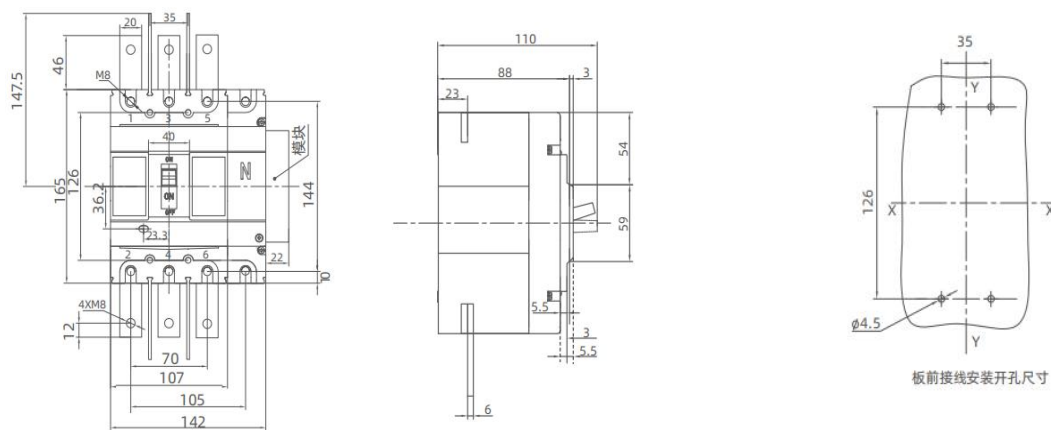
X-X, Y-Y are the center of the three-pole circuit breaker



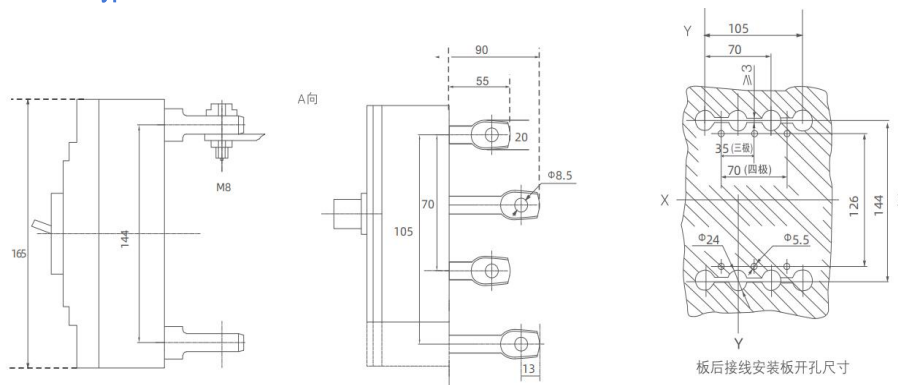
X-X, Y-Y are the center of the three-pole circuit breaker



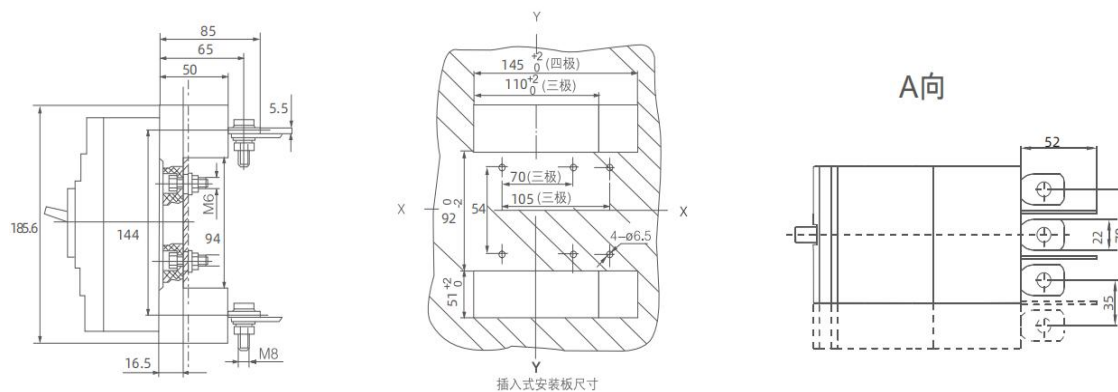
X-X, Y-Y are the center of the three-pole circuit breaker



X-X, Y-Y are the center of the three-pole circuit breaker

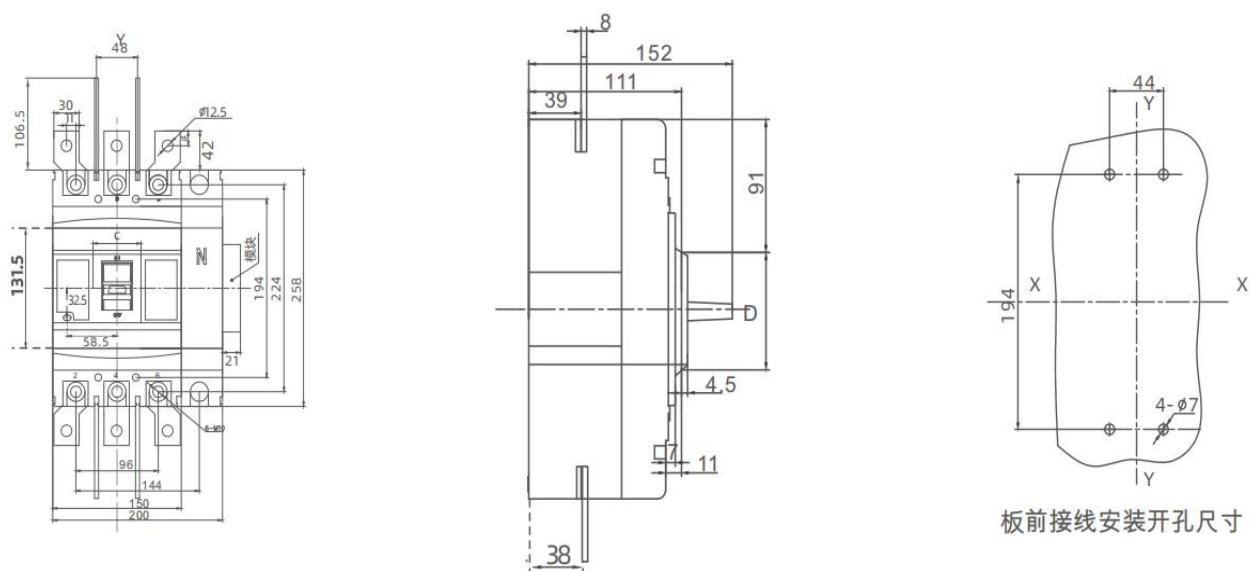


X-X, Y-Y are the center of the three-pole circuit breaker



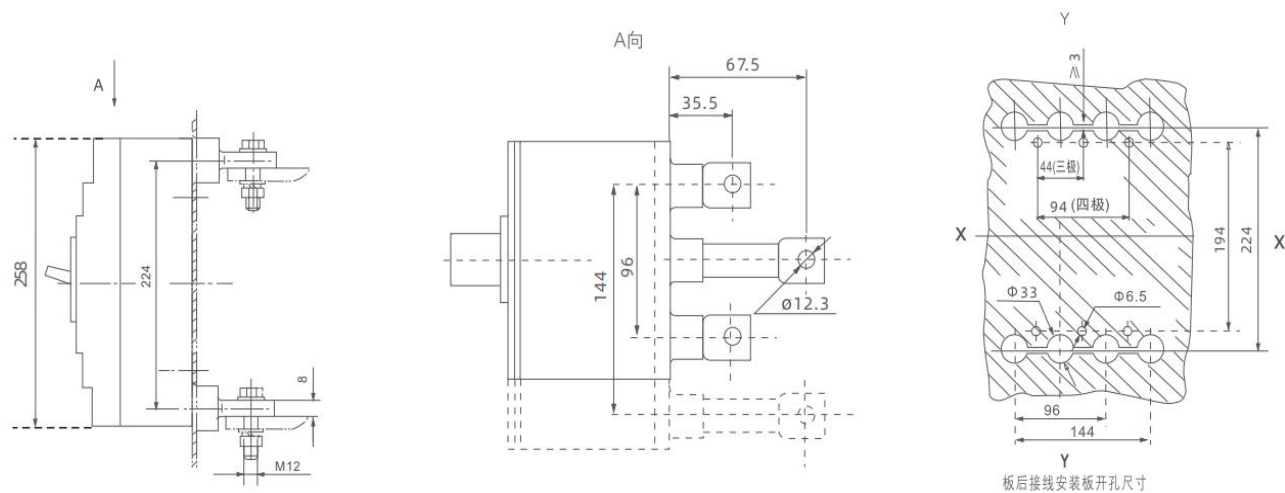
FXM3-400 series L M H type front wiring

X-X, Y-Y are the center of the three-pole circuit breaker



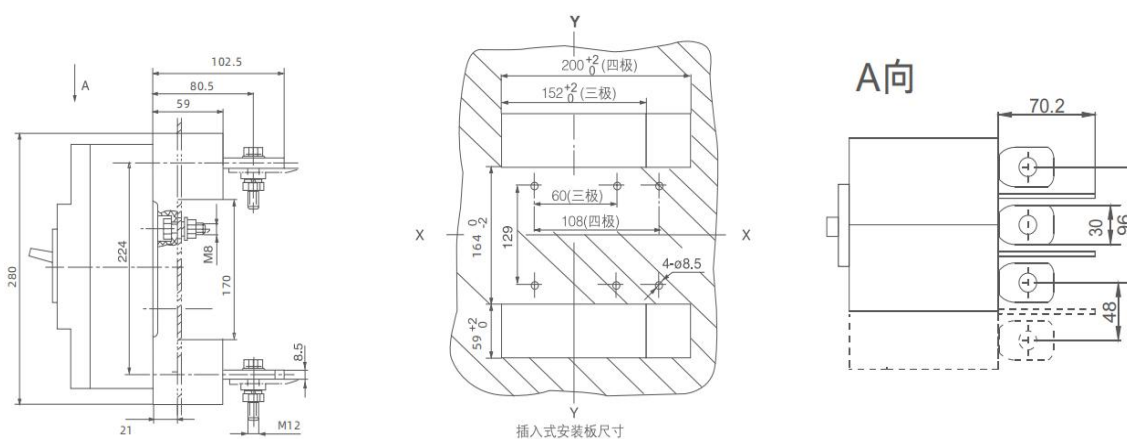
FXM3-400 series L M H type rear connection

X-X, Y-Y are the center of the three-pole circuit breaker

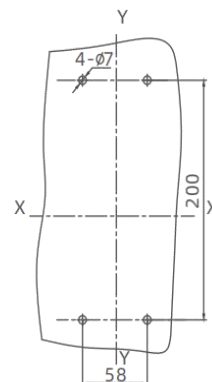
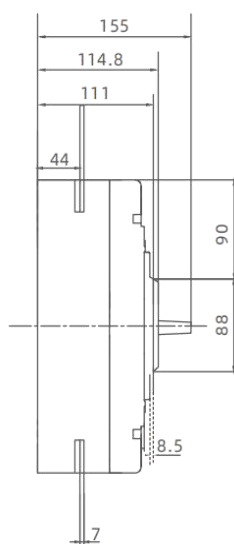


FXM3-400 series L M H type plug-in type rear panel wiring

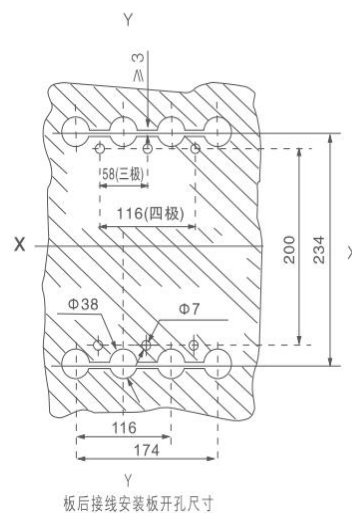
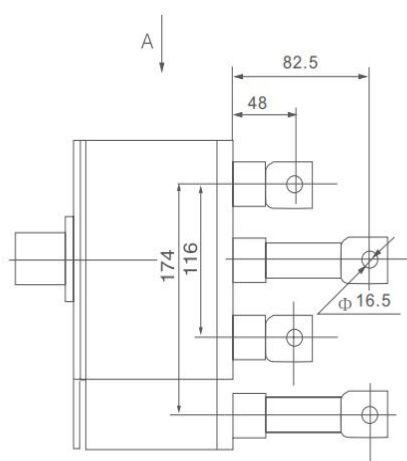
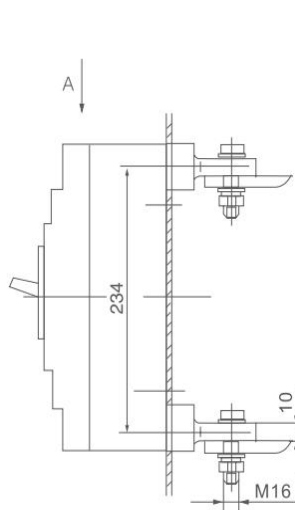
X-X, Y-Y are the center of the three-pole circuit breaker



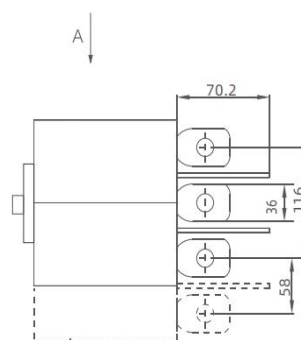
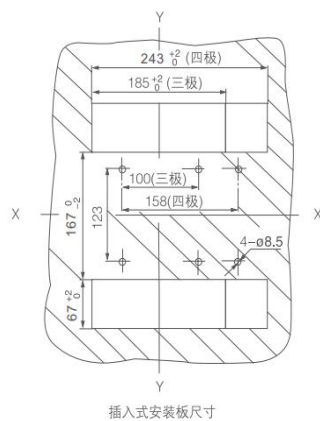
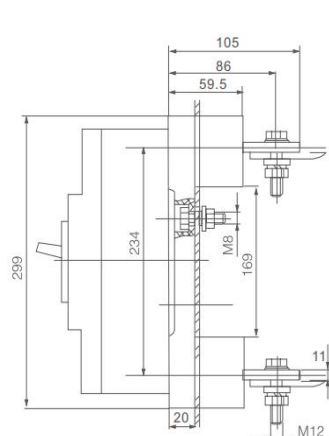
X-X, Y-Y are the center of the three-pole circuit breaker



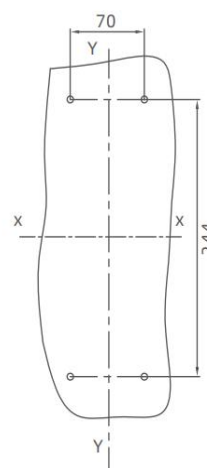
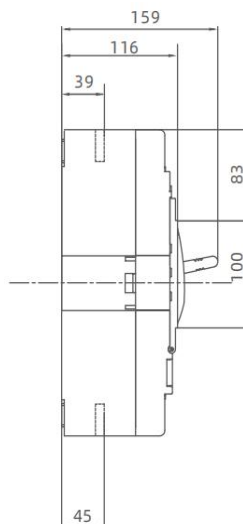
X-X, Y-Y are the center of the three-pole circuit breaker



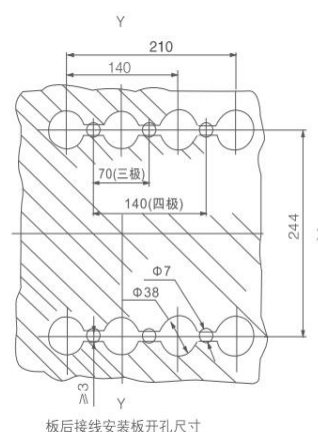
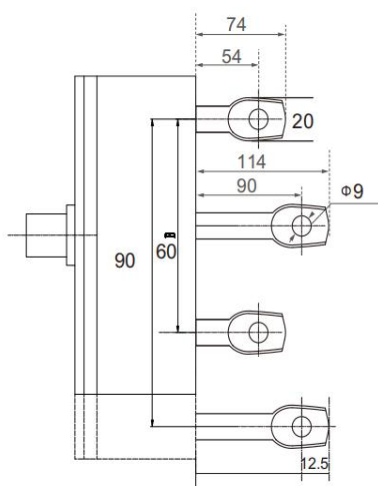
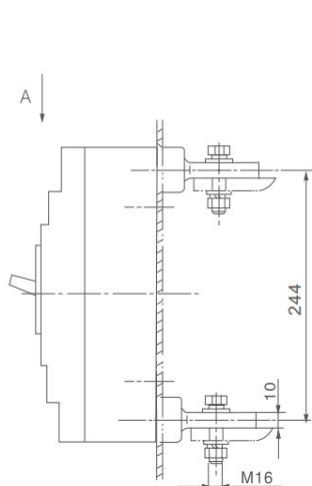
X-X, Y-Y are the center of the three-pole circuit breaker



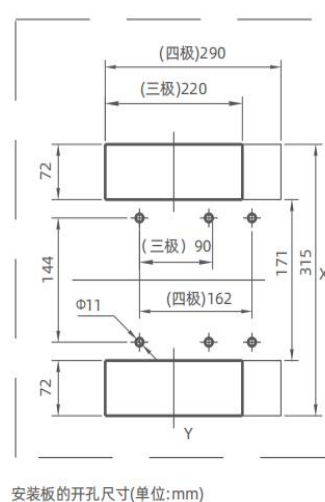
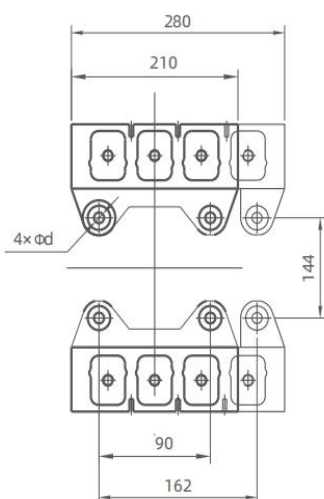
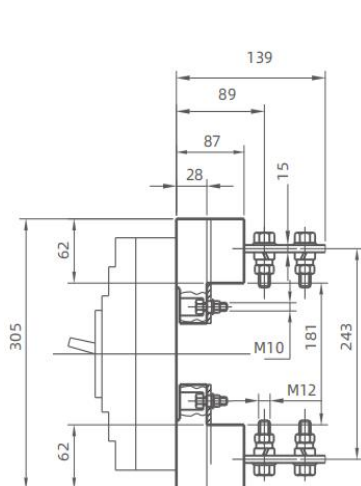
X-X, Y-Y are the center of the three-pole circuit breaker



X-X, Y-Y are the center of the three-pole circuit breaker

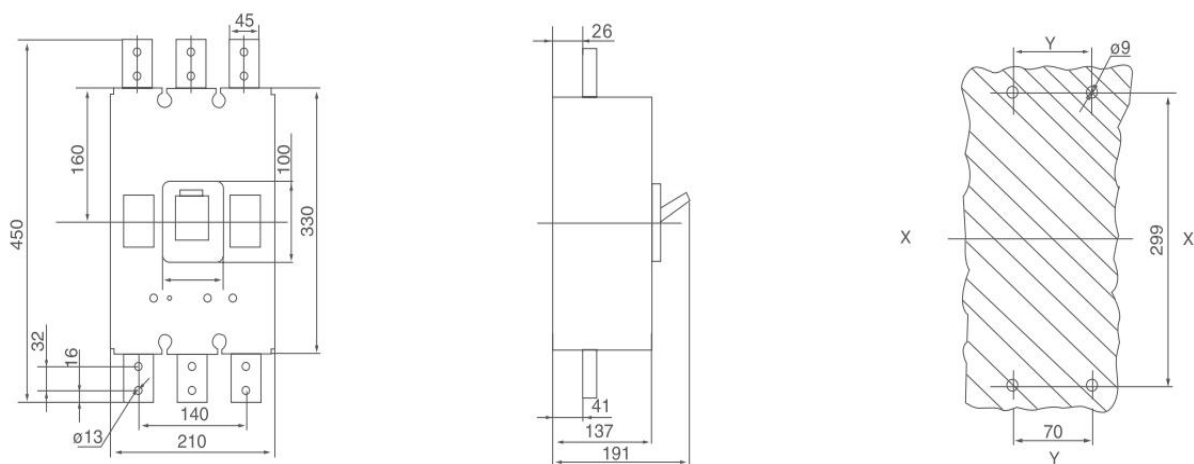


X-X, Y-Y are the center of the three-pole circuit breaker



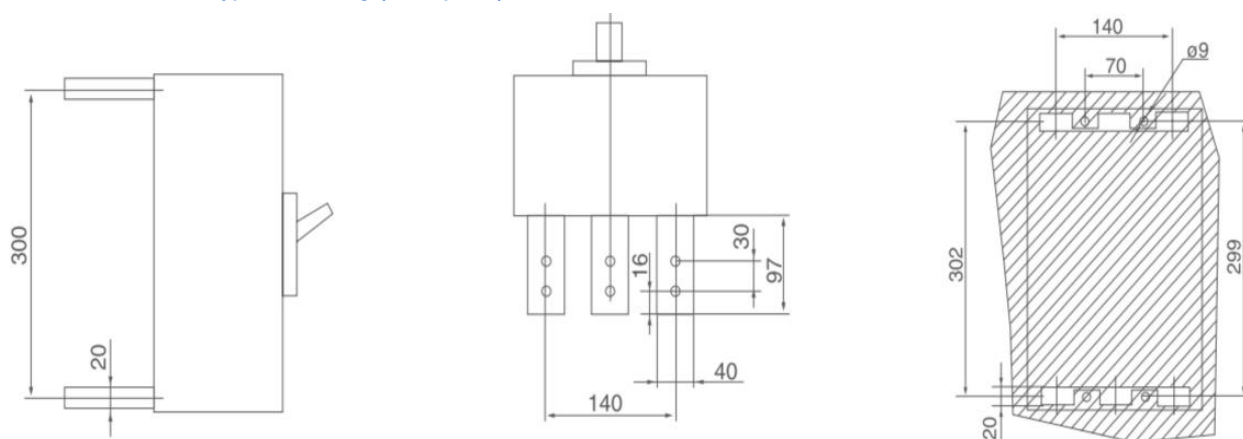
FXM3-1250 series M H type front panel wiring (three poles)

X-X, Y-Y are the center of the three-pole circuit breaker



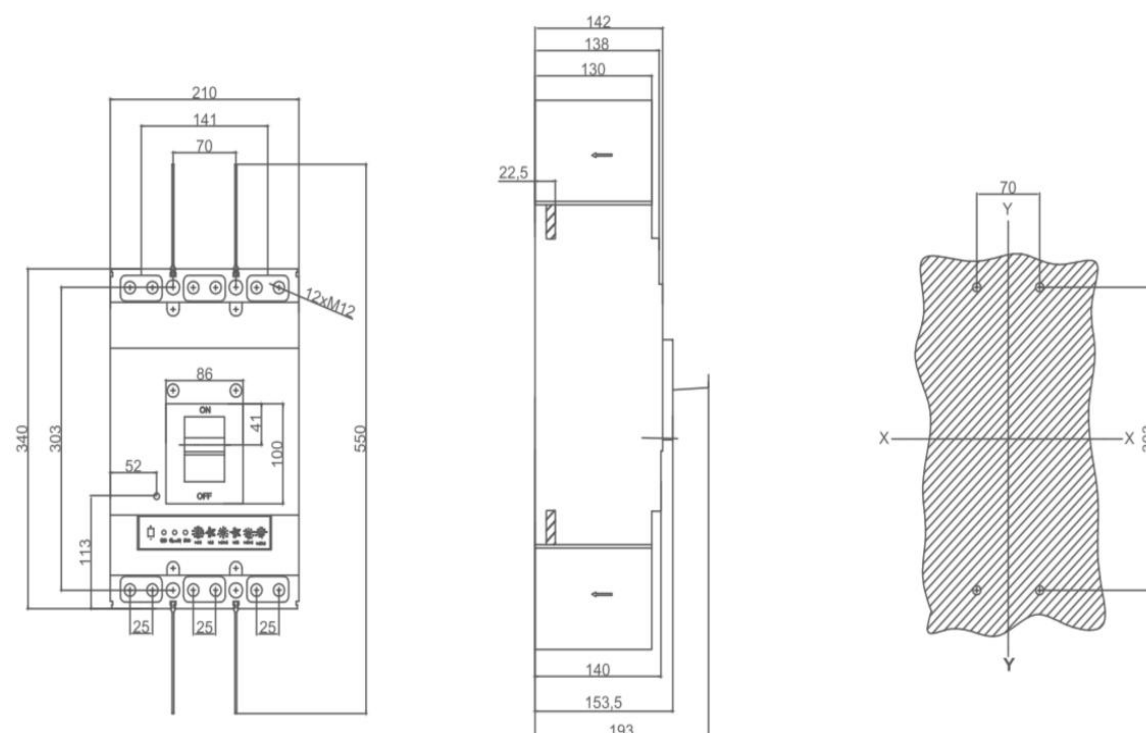
FXM3-1250 series M H type rear wiring (three poles)

X-X, Y-Y are the center of the three-pole circuit breaker



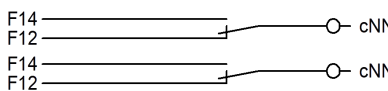
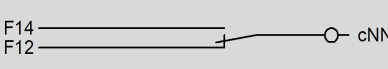
FXM3-1250 series M H type plug-in rear panel wiring (three poles)

X-X, Y-Y are the center of the three-pole circuit breaker



Accessories

Auxiliary Contact

The circuit breaker is "open" or "Trip free" position	F14 F12 F14 F12 	Frame level current 400A and above circuit breakers (A group is four pairs of contacts)
	F14 F12 	Frame level current 250A and below circuit breakers (A group is two pairs of contacts)
The circuit breaker is in the "closed" position	The "normally closed" contacts (F11~F12) turn from "closed" to "open" The "normally closed" contacts (F11~F12) turn from "open" to "closed"	
Note: For circuit breakers of 400A and above, two or four pairs of contacts can be installed in one group according to user needs.		

Technical parameters of auxiliary contacts

Auxiliary Contact Current Parameters

Frame	Promised Fever Wave lth	Rated Operating Current at AC 400V
Inm≤250	3A	0.30A
Inm≤400	3A	0.30A

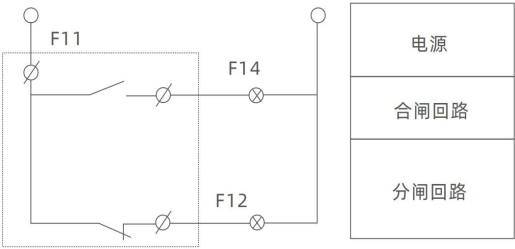
Electrical life of auxiliary contacts

Use class	Connect			Division			Times	operating frequency (T/h)	Power-on time
	I/le	U/Ue	COSΦ	I/le	U/Ue	COSΦ			
AC-15	16	1	0.3	1	1	0.3	6050	360	≥0.05S
AC-13	1	1	6Pe	1	1	6Pe			≥T0.95

Make and Break Capacity of Auxiliary Contacts

Use class	Connect			Division			Times	operating frequency (T/h)	Power-on time
	I/le	U/Ue	COSΦ	I/le	U/Ue	COSΦ			
AC-15	10	1.1	0.3	10	1.1	0.3	10	360	≥0.05S
AC-13	1.1	1.1	6Pe	1.1	1.1	6Pe			≥T0.95

Auxiliary Contact Wiring Diagram



辅助触头接线图



Alarm Contact

Alarm contacts and their combinations

Alarm contact $U_e=230V$, $I_{th}=3A$

The position of the circuit breaker in "open" and "closed"



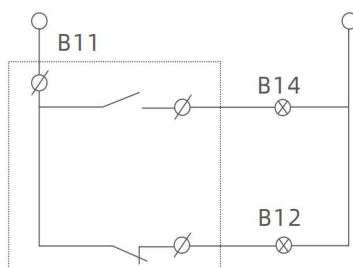
The position of the circuit breaker when it is in "partial free trip"



The agreed heating current of the alarm contact is 3A, and when the rated working voltage is AC400V, the rated working current is 0.3A.

Alarm contact wiring diagram

When the circuit breaker closes and closes normally, the contacts do not move, and only after free tripping (or fault tripping), the contacts change the original state, that is, normally open becomes closed, normally closed becomes open, and after the circuit breaker is buckled again, The contacts return to their original positions.



Shunt Release

报警触头接线图

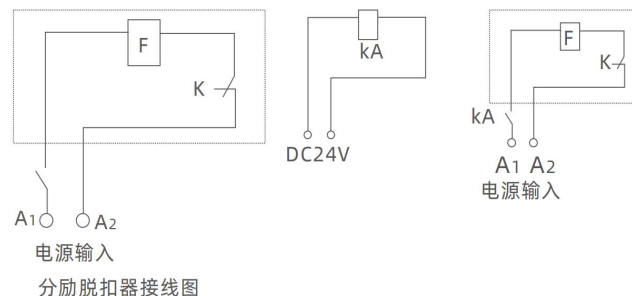
Generally installed on phase C of the circuit breaker. When the rated control power supply voltage is between 70% and 110%, the shunt releaser should be farther away to make the circuit breaker reliably trip under all operating conditions.

Control voltage: AC 50Hz 230V 400V DC 24V 220V

Note: When the power supply of the control loop is DC24V, it is recommended to use the diagram on the right to design the shunt control loop.

KA: DC24V intermediate relay, contact current capacity is 1A

K: The micro-switch connected in series with the coil inside the shunt release is a normally closed contact. When the circuit breaker is opened, the contact is automatically disconnected and closed when the circuit breaker is closed.

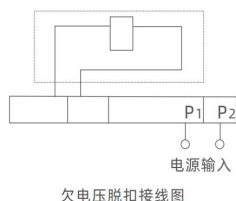


分励脱扣器接线图

Undervoltage Release

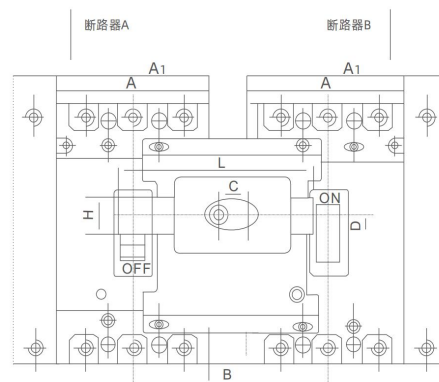
When the rated control power supply voltage is 35%~70%, the under-power release should act reliably and disconnect the circuit breaker. When it is less than 35% of the rated voltage, the circuit breaker should be reliably prevented from closing. When the power supply voltage is equal to or greater than 85% of the rated voltage, ensure that the circuit breaker can be closed.

Control voltage: AC 50Hz 230V 400V DC 110V 220V



欠电压脱扣接线图

联锁机构及相关尺寸



Warning: The circuit breaker must be energized before the under-power release can be released and closed, otherwise the circuit breaker will be damaged



Usage and Maintenance

- ◆ The various characteristics and accessories of the circuit breaker are set by the manufacturer. Only trained or certified professionals can adjust, install and maintain the circuit breaker, trip unit or other accessories with reference to the circuit design parameters;
- ◆ The handle of the circuit breaker can be in three positions, which respectively represent the three states of closed, disconnected and self-test trip. When the handle is in the free trip position, the handle should be pulled in the direction of disconnection. Only then can the gate be closed;
- ◆ Ensure that the power supply is in a judged state before installing or removing any device;
- ◆ Users are requested to abide by the storage and use conditions. The date of delivery from the manufacturer shall not exceed 36 months. If the product is damaged or cannot be used normally due to manufacturing quality problems, the manufacturer shall be responsible for free repair or replacement.

