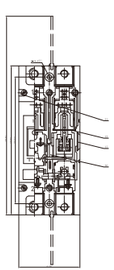
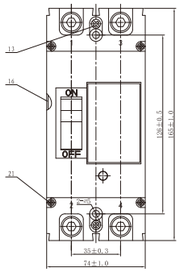
Outline and installation dimensions

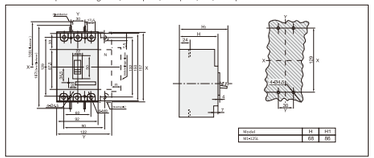


2P125

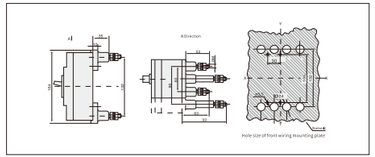


2P250

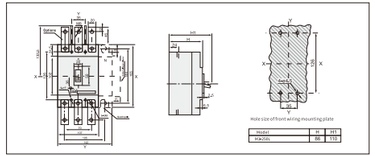
M1-125 front panel wiring size (three pole, four pole) X-X, Y-Y 3-pole circuit breaker center



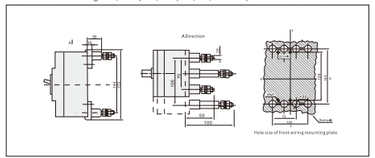
M1-125 board rear wiring size (three pole, four pole) X-X, Y-Y three pole circuit breaker center



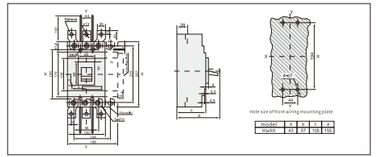
M1-250 front panel wiring size (three pole, four pole) X-X, Y-Y 3-pole circuit breaker center



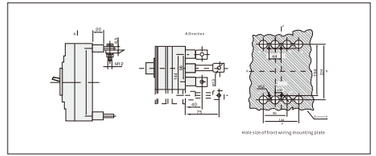
M1-250 board rear wiring size (three pole, four pole) X-X, Y-Y three pole circuit breaker center



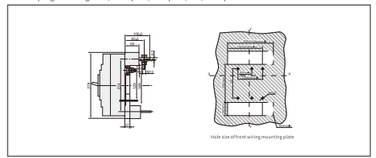
M1-400 front panel wiring size (three pole, four pole) X-X, Y-Y 3-pole circuit breaker center



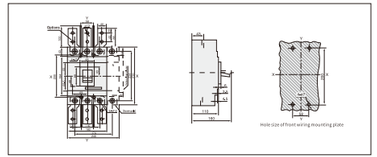
M1-400 board rear wiring size (three pole, four pole) X-X, Y-Y three pole circuit breaker center



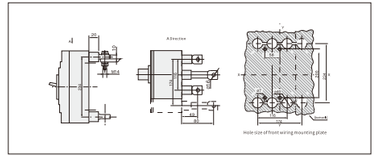
M1-400 plug-in wiring size (three pole, four pole) X-X, Y-Y 3-pole circuit breaker center



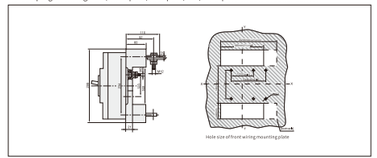
M1-630 front panel wiring size (three pole, four pole) X-X, Y-Y 3-pole circuit breaker center



M1-630 board rear wiring size (three pole, four pole) X-X, Y-Y three pole circuit breaker center



M1-630 plug-in wiring size (three pole, four pole) X-X, Y-Y 3-pole circuit breaker center



DC molded case circuit breaker for photovoltaic applications

Product certificate

Product mane: Molded case circuit breaker

Model : DC series

This product complies with GB/T14048.2-2020Standard passed the inspection and approved for delivery

examination clerk : X C003

Inspection date :

An Instruction Manual

Molded case circuit Breakers

1、Purpose and scope of use

With the development of the solar energy industry, solar photovoltaic power plants with large installed capacity are also developing rapidly. People are interested in equipmentThe performance of control and protection appliances in large solar photovoltaic power plants has also put forward higher and higher requirements. When a photovoltaic power plantWhen the power exceeds a certain level, a circuit breaker or isolating switch is required, especially for the protection and isolation of the inverterComponents pose new requirements. To this end, our company has developed a new generation of photovoltaic dedicated DC circuit breakers based on the original photovoltaic DC circuit breakersCurrent circuit breaker.

Photovoltaic dedicated DC circuit breakers (hereinafter referred to as circuit breakers) are used in DC power grid circuits with a rated voltage of DC250VD-C1000VD and a rated workflow of 63A-630A. This circuit breaker has an overload long delay short circuit instantaneous protection function to distribute electrical energy and protect lines and power supplies from overload, short circuit, and other fault hazards

This circuit breaker meets the following standards:

IEC 60947-1IEC 60947-2
GB 14048.1《Low-voltage switchgear and controlgear-Part 1: General principles》
GB 14048. 2《Low-voltage switchgear and controlgear-Part 2: Circuit breakers》

2、Normal operating conditions

1. The elevation of the installation site shall not exceed 2000m;
2. The allowable ambient temperature shall not exceed+70 °C and 5 °C
3. Atmospheric conditions: When the ambient temperature is 40 °C, the relative humidity of the atmosphere shall not exceed 50%. Higher relative humidity is allowed at lower temperatures, such as 90% at 20 °C, and condensation on the surface of the product due to temperature changes shall be considered;
4. The pollution level is Level 3;
5. The installation category is III;
6. The magnetic field at the installation position shall not exceed 5 times the geomagnetic field in any direction;
7. In a medium without explosion risk, and there is no gas or conductive dust in the medium that is sufficient to corrode metal and damage insulation;
8. In areas without wind and snow erosion;
9. Can withstand the influence of humid air;
10. Can withstand the influence of salt mist and oil mist;
11. Can tolerate the influence of mold;
12 Installation conditions:
a) Can be installed horizontally and vertically;
b) The installation site should have no significant impact or vibration, and should not be installed in flammable and explosive places.

Note: When the usage conditions of the product are more severe than the above conditions, capacity reduction should be considered, and the specific matters should be negotiated by the user with the manufacturer

3、Product classification

1 .Form of protection：Line protection, line isolation；
2 .Connection mode：Front panel wiring, rear panel wiring, plug-in wiring, and withdrawable wiring
3 .Accessories：With or without accessory devices：
4 .Operation mode：hand shank. motor-driven.
5 .Divided by series: 1 pole, 2 poles, 3 poles, 4 poles：

4、Model Explain

250 H PV / 4 3 00 B

- **250**: AF:125, AF:250, AF:400, AF:630
- **H**: Recommended use
- **PV**: Specializing for Solar PV
- **4**: Number of poles DC1000V
- **3**: Tripping mode — 2: Monomagnetic type; 3: Thermomagnetic type
- **00**: See Table 3 for accessory codes
- **B**: Wiring mode — Haven't：Plate front; B：Behind the board; C：plug-in; C2：Drawout type

P 250A DC1000V Y1

- **P**: External accessories — Haven't：Noumenon; P：Electric operation; Z：Manual operation
- **250A**: Rated current (63~630)
- **DC1000V**: Rated working voltage DC1000V
- **Y1**: Wiring mode — Haven't：Autonomous connection; Y1D：Up in and down out; Y2B：Down in and down out

Operating voltage of electric operation: AC110VAC220V DC24V DC220V
Note: The shell frame grade of Y2B ≥ 400A is not applicable to internal link, and the shell frame grade above 630A adopts independent connection
Note 1: There is no code for direct operation of the handle, and electric operation is represented by P (125A250A shell is an electromagnet 400A~630A shell is an electric motor mechanism); External accessory manual operation mechanism DZ3; Note 2: Attachment codes are shown in Table 3

5、Specification and Main Technical Parameters Table 1 . Negotiate with merchants for special requirements.

Table1

Model	125PV	250PV	400PV	630PV
Rated current In(A)	63,80 100,125	125,160 180,200 225,250	250,315 350,400	400,500 630
Rated insulation voltage Ui(V)	DC1000V			
Rated working voltage Ue(V)	DC250V(1P);DC500V(2P); DC750V(3P); DC1000V(4P)			
Arcing distance	50	50	100	100
Rated limit short-circuit breaking capacity: 20KA				
Operating current value of short circuit instantaneous release	10In	10In	10In	10In
Service Life (Number)	10000	8000	5000	5000
Operating frequency (OPS/ hour)	120	120	60	60

tip：Ics Indicates the rated operating short-circuit breaking capacity
Icu Indicates the rated limit short-circuit sectioning capacity

6、Protection characteristics

Table2

Test current	I/ In	Appointed time			Starting state
		In ≤ 63A	63A ≤ In ≤ 250A	In ≤ 250A	
Agreed non tripping time	1. 05	≥ 1h	≥ 2h	≥ 2h	Cold state
Agreed tripping time	1. 3	＜ 1h	＜ 2h	＜ 2h	Thermal state

7、Appendix

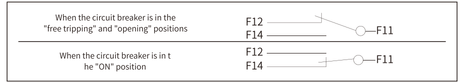
Table3

Name	Alarm contact	Shunt release	Auxiliary contact	Shunt assist	Second group assistance	Shunt alarm	Auxiliary alarm	Shunt auxiliary alarm	Second group of auxiliary alarms
code	08	10	20	40	60	18	28	48	68

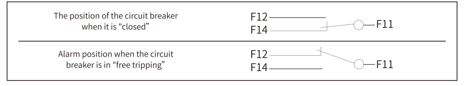
Technical data of accessory devices
Rating of auxiliary and alarm contacts Table 4。

Classify	Shell frame grade current A	Contracted fever current A	Rated working current A
Auxiliary contact	≤ 225	3	0. 26
	≥ 400	6	0. 3
Alarm contact	≤ 225	3	0. 26
	≥ 400	6	0. 3

When the circuit breaker operates normally, the auxiliary contact does not act, that is, F11F14 is turned on. When the circuit breaker is in the open or free tripping state, F11F12 is turned on.



During normal operation of the circuit breaker, the alarm contact does not act, but only after free tripping (or fault tripping), the alarm contact changes its original position, that is, from normally closed to normally open, F11F12 is turned on, and F11 F14 is turned off. After the circuit breaker is re tripped or closed, the alarm contact returns to its original state.



Shunt release

When the applied voltage of the shunt release is between 70% and 110% of the rated control power supply voltage, it can reliably open the circuit breaker. The rated values of the shunt release are shown in the following table

Classify	Rated voltage	Rated insulation voltage (V)
Shunt release	DC24V DC110V DC220V	400

8、Main technical indicators

The thermal release of circuit breaker has inverse time characteristics, and the electromagnetic release is instantaneous.
The characteristics are shown in Table 1 (for power distribution)

Table1

Rated current of release (A)	Ambient temperature of thermal release +40°C		Operating current of electromagnetic release (A)
	1.05In(Cold) inactivity time (h)	1.30In(Hot) action time (h)	
10≤In≤63	1	1	10In ±20%
63<In ≤ 100	2	2	50In ±20% and 10In ±20%
100<In ≤ 0	2	2	

tip：The motor protection circuit breaker 1,0In does not operate for 2h; The operating current is 1,20 In (hot state) and theoperating time is 2h. The operating current of the electromagnetic release is 12In ± 20% (A) with making and breakingcapacity (Icu). See Table 2

9、Technical data of accessory devices

1、See Table 2 for auxiliary contacts and alarm contacts and their ratings

Table2

Classify	Rated current of frame level	Agreed heating current Ith	Rated operating current Ie
Auxiliary contact	225A And below	3	030
	440A And above	6	1
Alarm contact	440A And below	220V1A	

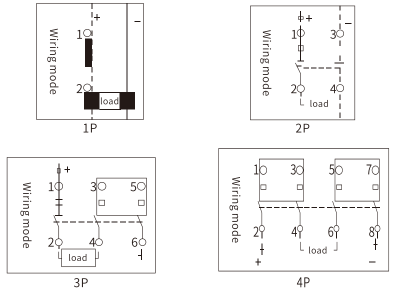
2. When the operating voltage of the shunt release is between 70% and 110% of the rated power supply voltage, it can reliably open the circuit breaker.
3. When the power supply voltage drops to within the range of 70% to 35% of the rated operating voltage of the undervoltage release. Under voltage release can reliably breakCircuit breaker; When the power supply voltage is lower than 35% of the rated working voltage of the undervoltage release, the undervoltage release can prevent the circuit breaker from closing; When the power supply is poweredWhen the voltage is higher than 85% of the rated working voltage of the undervoltage release, the undervoltage release can ensure the reliable closing of the circuit breaker.
4. See Table 3 for the connecting conductors and their cross-sectional area and corresponding rated current.

Table3

Rated current A	10	16 20	2.5	32	40 50	63	80	100	125 140	160	180 220 225	250	315 350	400
Wireway CSAmm²	1.5	2.5	4	6	10	16	25	35	50	70	95	120	185	240

Rated current value A	Wireway CSA		Bronze plate size	
	Number	CSA mm²	Number	Size mmxmm
500	2	150	2	30x5
630	2	185	2	40x5

5、Various characteristics and accessories of the circuit breaker are set by the manufacturer, and cannot be arbitrarily adjusted during use.
6、The handle of the circuit breaker can be in three positions, indicating three states: closed, open, and tripped. When the handle is in the tripped position, pull the handle downward to make the circuit breaker trip again, and then close.
7、Schematic diagrams of various types of wiring are as follows:

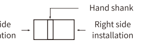


tip：The bus bar at the slot of the third stage circuit breaker cannot be disassembled, modified,and installed at will, otherwise, the responsibility for any adverse factors will be borne by oneself.

Release mode and accessory code

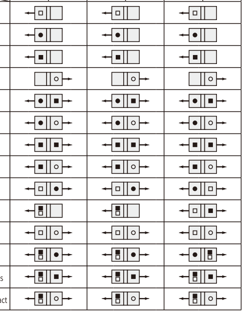
Release Mode / Enclosure Code / Attachment Name	haven't	Alarm Contact	Shunt Release	Auxiliary Contact	Undervoltage release	Auxiliary contact of shunt release	Shunt release undervoltage release	Second set of auxiliary contacts	Auxiliary contact undervoltage release	Shunt release alarm contact	Auxiliary contact alarm contact	Under voltage release alarm contact	Shunt release auxiliary contact alarm contact	Second group of auxiliary contacts Alarm contacts	Auxiliary contact undervoltage release alarm contact
瞬时脱扣器	200	208	210	220	230	240	25	260	27	218	228	238	248	268	278
复式脱扣器	300	308	310	320	330	340	35	360	37	318	338	338	348	368	378

10、Release mode and accessory code

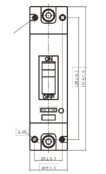


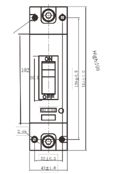
□ Alarm contact
■ Auxiliary contact
● Shunt release
○ Undervoltage release
→ Lead Direction

Model	Attachment Name	M1-125 (poles 3 / 4)	M1-250 (poles 3 / 4)	M1-400 M1-630 (poles 3 / 4)
208、308	Alarm contact			
210、310	Shunt release			
220、320	Auxiliary contact			
230、330	Undervoltage release			
240、340	Auxiliary contact of shunt release			
250、350	Shunt release undervoltage release			
260、360	Second set of auxiliary contacts			
270、370	Auxiliary contact undervoltage release			
218、318	Shunt release alarm contact			
228、328	Auxiliary contact alarm contact			
238、338	Under voltage release alarm contact			
248、348	Shunt release auxiliary contact alarm contact			
268、368	Second group of auxiliary contacts Alarm contacts			
278、378	Auxiliary contact undervoltage release alarm contact			



11、Outline and installation dimensions


1P125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