



Product overview

The circuit breaker is rated for insulation voltage up to 1000V, suitable for AC 50Hz, rated working voltage up to 400V, rated working current up to 1600A, used for distribution of Power and protection lines and power supply equipment from overload, short circuit, undervoltage and other faults. At the same time, it can also be used as infrequent starting and overload, short circuit and undervoltage protection of the motor.

The circuit breaker has the characteristics of small size, high breaking and short arcing, which is an ideal product for users. The circuit breaker can be installed vertically (i.e. vertically) or horizontally (horizontally).

This product complies with IEC60947-2, GB/T14048.2 and other standards.



Misk Technology Inc.

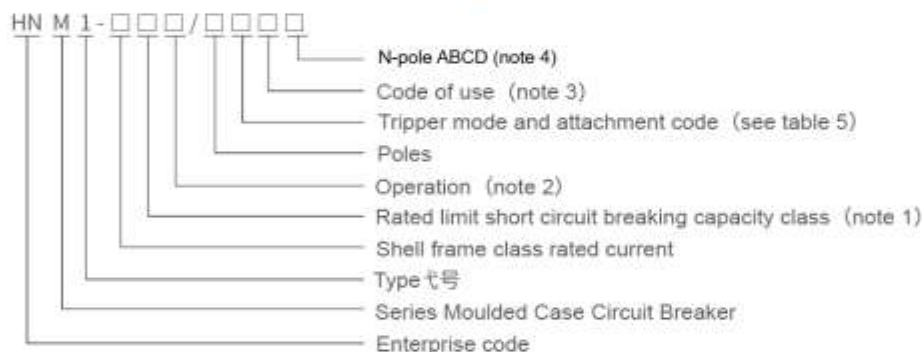
Southerland Way, Fremont, California 94539,

UNITED STATES OF AMERICA

Suitable working environment and installation condition

- Altitude less than 2000m
- Ambient medium temperature is from -50°C to +40°C (+45°C for shipping product)
- Can withstand moist air
- Can withstand mold
- Can withstand nuclear radiation
- Max inclination is 22.5°
- It can still work reliably if the product is subjected to the normal vibration from ships
- It can still work reliably if the product is subjected to the earthquake (4g)
- Put in the place where there is no explosion danger and conductive dust, cannot corrode metal and destroy the insulation sheet.
- Put in the place where there is no salt.

Circuit Breakers codes and Implications



Note:

1. According to the rated limit short circuit breaking capacity, it can be divided into L-type (standard type), M-type (relatively high fault type) and H-type (high fault type).
2. No code for direct operation of the handle: P for electric operation; Turning the handle is Z.
3. No code for distribution circuit breaker; the protection motor is represented by 2.
4. According to the number of product poles, there are three poles and four poles. In quadrupole products, there are four types of neutral pole (N pole):
 - Type A: the over-current tripper is not installed in N, and the N pole is always connected, not separated with the other three poles.
 - Type B: the over-current tripper is not installed in N, and the N pole is divided with other three poles (the N pole is closed first and then divided).
 - Type C: over-current tripper is installed on the N pole, and the N pole is divided with other three poles (the N pole is closed first and then divided).
 - Type D: over-current tripper is installed on the N pole, and the N pole is always connected, not separated with other three poles.

Releasing Mode & Accessory Code

Tripping mode & Inner Accessory (Table 5)



Table 5

Code	Accessory name	Model No. of Poles	HNH1-63 HNH1-125	HNH1-250	HNH1-400	HNH1-630	HNH1-800	HNH1-1600 (1250)
			3,4	3,4	3,4	3,4	3,4	3,4
208, 308	Alarm contact							
210, 310	Shunt release							
220, 320	Auxiliary contact							
230, 330	Under-voltage release							
240, 340	Shunt auxiliary contact							
250, 350	Shunt release UVT							
260, 360	Two groups auxiliary contacts							
270, 370	Auxiliary contact UVT							
218, 318	Shunt alarm contact							
228, 328	Auxiliary alarm contact							
238, 338	UVT alarm contact							
248, 348	Shunt auxiliary alarm contact							
268, 368	Two groups aux alarm contact							
278, 378	Aux contact UVT alarm contact							

Note:

- 200: Circuit breaker with electromagnetic release only; 300: Circuit breaker with thermal-magnetic release; 000: Circuit breaker without overcurrent release (disconnecter)
- For HNM1-125, 250 two-pole products there are only 210/310/201320/230/330; for HNM1-63/125/1250 four-pole circuit breakers, there is no 240/340/360 for N pole A and D 260/268/368;
- For HNM1-400, HNM1-630 and HNM1-800, the auxiliary contacts in the 248/348/278/378 specifications are a pair of contacts (ie, one normally open, one normally closed), and the auxiliary contacts in the 268/368 specifications There are three pairs of contacts (ie three normally open and three normally closed); the number of auxiliary contacts of other specifications HNM1-400 and above are two groups, and HNM1-250 and below are a group
- For HNM1-63, HNM1-125, HNM1-250, 220/32/240/340/270/370 specifications of the auxiliary contact can be used for two pairs of contacts (ie two normally open, two normally closed), 260/360 can For three pairs of contacts (ie three normally open, three normally closed), please specify when ordering.

Technical Data

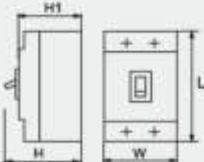
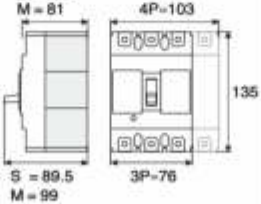
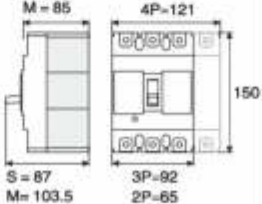
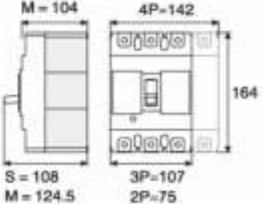
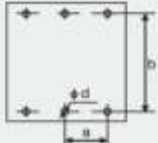
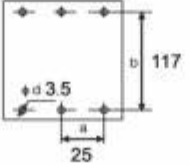
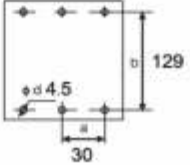
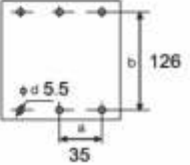
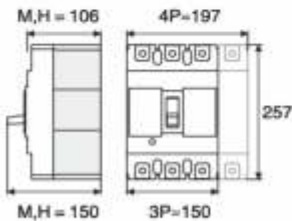
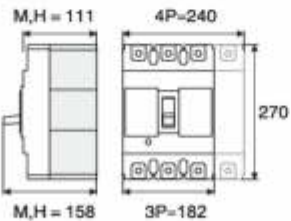
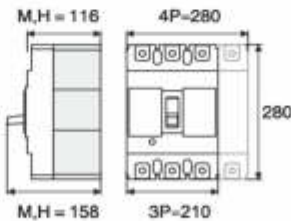
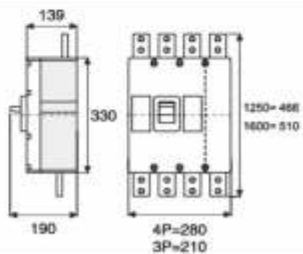
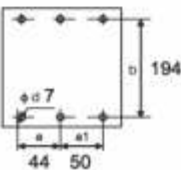
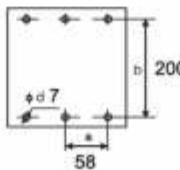
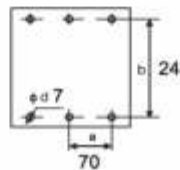
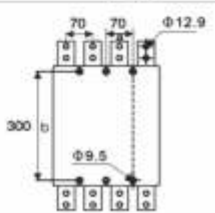
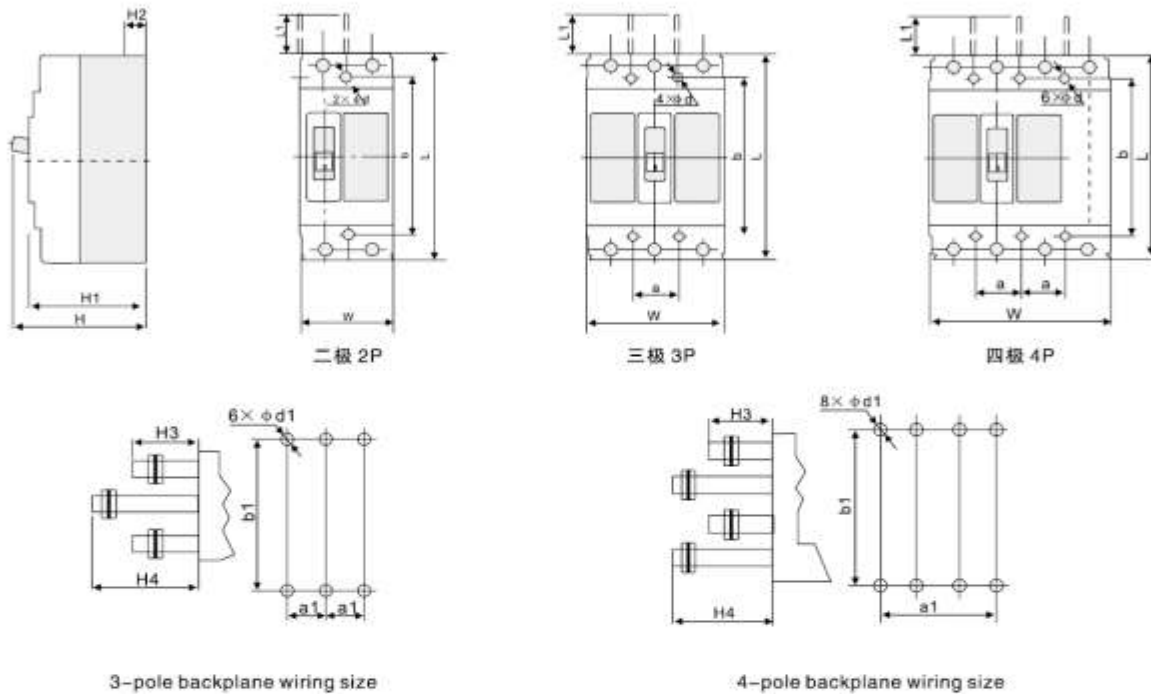
										
Type		HNM1-63			HNM1-125			HNM1-250		
Frame Inm (A)		63			125			250		
Rated current (A)		10, 16, 20, 25, 32, 40, 50, 63			16, 20, 25, 32, 40, 50, 63, 80, 100, 125			100, 125, 140, 160, 180, 200, 225, 250		
Rated voltage Ue (V)		AC400			AC400 (2P: 230V)			AC400 (2P: 230V)		
Rated insulation voltage Ui (V)		AC800			AC800			AC800		
Number of poles		3,4			2,3,4			2,3,4		
Rated limit short-circuit breaking capacity level		S		M	S		M	S		M
Rated limit short circuit breaking capacity	Icu (kA) AC400V	12	18	35	12	35	50	12	35	50
Rated short-circuit breaking capacity	Ics (kA) AC400V	6	12	22	6	22	35	6	22	35
Operation life (cycle)	NO	4500			3000			2500		
	OFF	8500			7000			6500		
Arcing distance (mm)		0, ≤ 50			0, ≤ 50			≤ 50		
Dimensions (mm)										
Installation Size (mm)										

Table 4

							
HNM1-400		HNM1-630		HNM1-800		HNM1-1600 (1250)	
400		630		800		1600	
225, 250, 315, 350, 400		400, 500, 630		630, 700, 800		800, 1000, 1250, 1600	
AC400		AC400		AC400		AC400	
AC800		AC800		AC800		AC1000	
3,4		3,4		3,4		3,4	
	M		M		M		
35	65	35	65	35	65	65	
22	45	22	50	22	50	50	
1500		1500		1000		500	
4000		4000		2500		2500	
≤ 100		≤ 100		≤ 100		≤ 120	
							
							

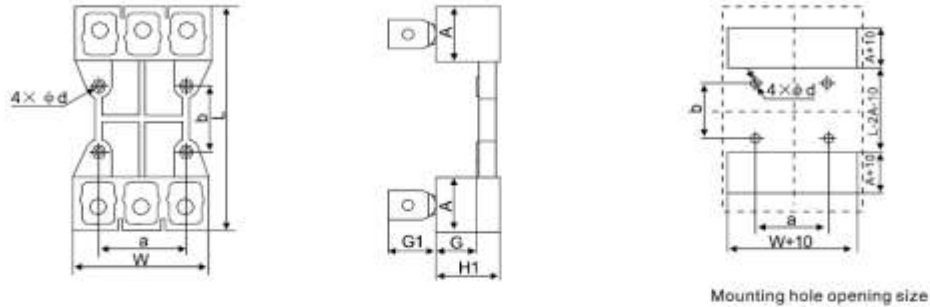
HNМ1 Shape and installation dimensions

The shape and installation size of the fixed front and back board wiring



Type	Pole	Dimensions (mm)						Installation size (mm)			(mm) Backplane wiring size				
		L	L1	W	H	H1	H2	a	b	Ø d	a1	b1	d1	H3	H4
HNМ1-63S	3	135	21	76	89.5	72	18	25	117	3.5	25	117	18	52	75
	4			103				50							
HNМ1-63M	3	135	21	76	99	81	28	25	117	3.5	25	117	18	52	75
	4			103				50							
HNМ1-125S	2	150	51	65	87	68	24	...	129	4.5	30	132	22	65	100
	3			92				30							
	4			121				60							
HNМ1-125M	2	150	51	65	103.5	85	23	...	129	4.5	30	132	22	65	100
	3			92				30							
	4			121				60							
HNМ1-250S	2	164	64	75	108	87	24	...	126	5.5	35	144	24	70	110
	3			107				35							
	4			142				70							
HNМ1-250M	2	164	64	75	124.5	104	24	...	126	5.5	35	144	24	70	110
	3			107				35							
	4			142				70							
HNМ1-400	3	257	105	150	153	106	38	44	194	7	48	224	32	48.5	108.5
	4			197				94							
HNМ1-630	3	270	105	182	157	111	43	58	200	7	58	234	40	70	120
	4			240				116							
HNМ1-800	3	280	105	210	158	116	42	70	243	7	70	243	48	75	125
	4			280				140							

Outline and installation dimensions of the wiring after the plug-in board

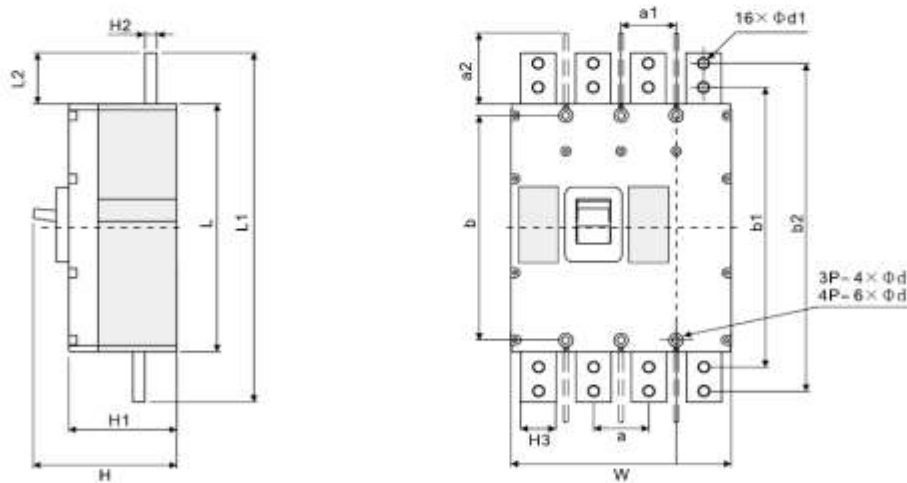


Unit: mm

Type	W	L	A	H1	G	G1	a	b	d
HNM1-63	75	135	18	28	18	16	50	60	5.5
HNM1-125	91	168	38	50	33	28	60	56	6.5
HNM1-250	107	186	46	50	33	37	70	54	6.5
HNM1-400	149	280	55	60	38	46	60	129	8.5
HNM1-630	182	300	65	60	39	50	100	123	8.5
HNM1-800	212	305	62	87	60	22	90	146	11

HNM1-1600 (1250) Shape and installation dimensions

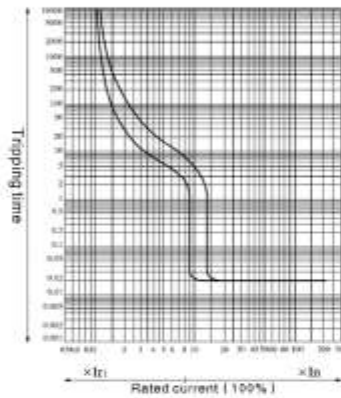
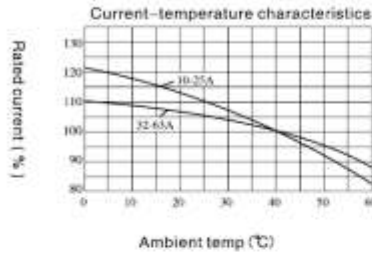
Outline and installation dimension of front wiring of circuit breaker board



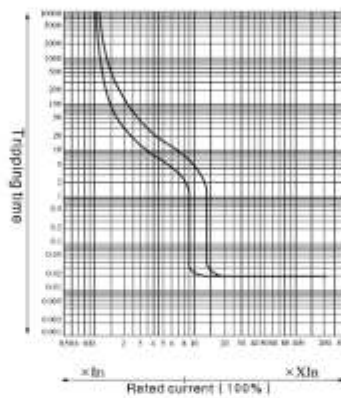
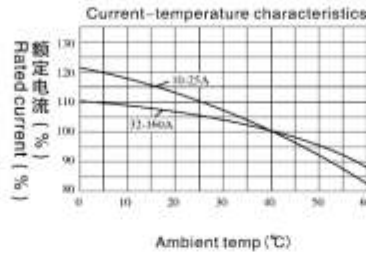
Type	Pole	Dimensions (mm)								Installation size (mm)							
		L	L1	L2	W	H	H1	H2	H3	a	a1	a2	b	b1	b2	Ø d	Ø d1
HNM1-1250	3	330	466	68	210	190	139	15	45	70	70	107	300	370	436	9.5	12.9
	4	330	466	68	280	190	139	15	45	70	70	107	300	370	436	9.5	12.9
HNM1-1600	3	330	510	90	210	190	139	16	45	70	70	107	300	390	470	9.5	12.9
	4	330	510	90	280	190	139	16	45	70	70	107	300	390	470	9.5	12.9

Tripping characteristics (curve)

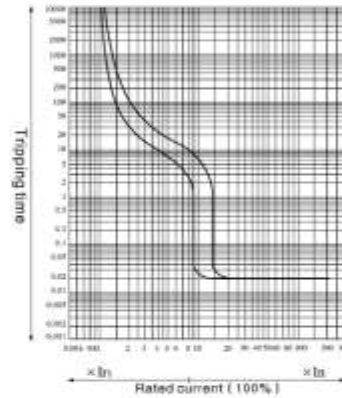
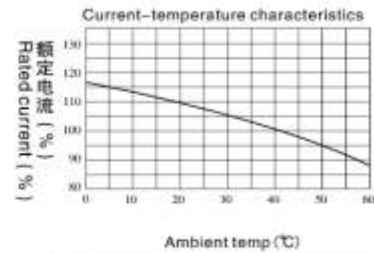
Note: The characteristic curve is measured under the cold state and three-phase load



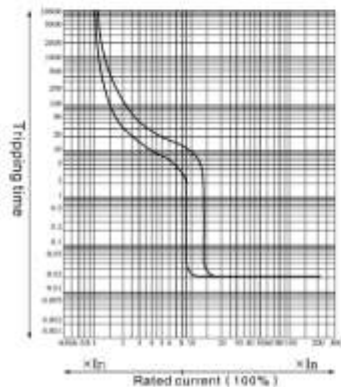
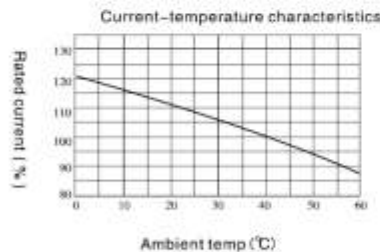
HNM1-63L, M Time / current characteristic curve



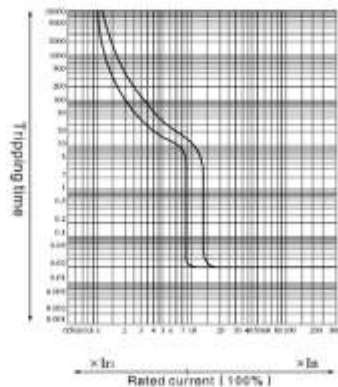
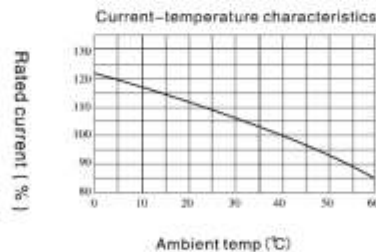
HNM1-125L, M, H Time / current characteristic curve



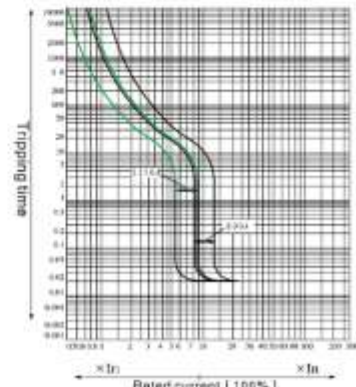
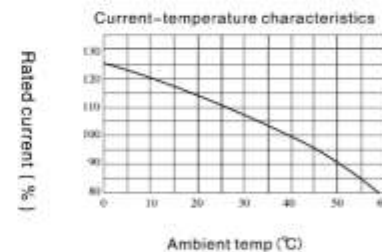
HNM1-250L, M, H Time / current characteristic curve



HNM1-400M, H Time / current characteristic curve



HNM1-630M, H Time / current characteristic curve



HNM1-800, 1250M, H Time / current characteristic curve

Protection characteristics

Trip performance For power distribution

Table 1

Release Rated Operating Current (A)	Thermal release (reference temperature 40°C)		Operating current of electromagnetic release (A)	Remark
	1.05 In (cold state) Inactivity time (h)	1.30 In (Hot state) Inactivity time (h)		
10 < In ≤ 63	≥ 1	< 1	10In±20%	Distribution protection type Note: 1250A for 7In±20%
63 < In ≤ 160	≥ 2	< 2	10In±20%	
160 < In ≤ 1250	≥ 2	< 2	5In±20% 7In±20% 10In±20%	

Note: the rated current is less than 160A, and there is no magnetic trip with 5in current

For motor protection

Release Rated Operating Current (A)	Thermal release (reference temperature 40°C)				Operating current of electromagnetic release (A)
	1.0 In (cold state) Inactivity time (h)	1.20 In (Hot state) Action time (h)	1.50 In (Hot state) Action time (h)	7.20 In (cold state) Inactivity time (h)	
10 ≤ In ≤ 630	≥ 2	≤ 2	8min	6S < Tp ≤ 20s	12In±20%

Power loss

Circuit breaker power loss

Table 2

Type	Electric current (A)	Three-pole total power loss (W)		
		Wiring before and after the board	Wiring in front of plug-in board	Wiring after plug-in board
HNM1-63 (S, M) (Direct heating) (10A~25A)	25	28	/	32
HNM1-125 (S, M) (Direct heating) (16A~25A)	25	40	42	45
HNM1-63 (S, M) (Interthermal type) (32A~63A)	63	20	/	24
HNM1-125 (S, M) (Interthermal type) (32A~100A)	125	35	37	40
HNM1-250 (S, M)	250	62	66	70
HNM1-400	400	115	120	125
HNM1-630	630	187	193	200
HNM1-800	800	262	/	300
HNM1-1600 (1250)	1250	386	/	/

Derating factor

Derating factor of circuit breaker ambient temperature change

Table 3

Type	Derating factor (In)				
	+40°C	+45°C	+50°C	+55°C	+60°C
HNM1-63	1	0.94	0.88	0.81	0.74
HNM1-125	1	0.96	0.91	0.85	0.78
HNM1-250	1	0.97	0.94	0.90	0.86
HNM1-400	1	0.95	0.89	0.82	0.75
HNM1-630	1	0.94	0.88	0.82	0.76
HNM1-800	1	0.94	0.87	0.80	0.72
HNM1-1600 (1250)	1	0.92	0.85	0.79	0.70

Note: The above derating factors are measured under the rated current through the shell

Use and maintenance

- Various characteristics and accessories of the circuit breaker shall be set by the manufacturer and shall not be adjusted arbitrarily during use. The user must understand the technical data of the product in detail before adjusting the relevant parameters of the circuit breaker.
- The handle of the circuit breaker can be in three positions, which respectively represent the three states of closing, opening and free tripping. When the handle is in the free tripping position, pull the handle in the opening direction. At this time, the circuit breaker can be closed only after it is pulled again.
- The user shall observe the storage and use conditions, which shall not exceed 12 months from the date of delivery by the manufacturer. If the product is damaged or cannot be used normally due to manufacturing quality problems, the manufacturer shall be responsible for repair or replacement.

Ordering instructions

- Please indicate the model specification and order quantity of the circuit breaker. When using undervoltage release, shunt release or electric operating mechanism, please indicate the voltage value of working voltage or control power supply voltage.
- For example: 10 sets of HNM1-125L/ 3300 rear board wiring (front board wiring can not be written) with rated working current of 80A.
- Please state that the ambient temperature is under the following conditions: the upper limit exceeds +40°C or the lower limit is lower than -5°C



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