Specification of NDB5 series CBE

Product Name: Circuit breaker for equipment

Models: NDB5

Date: 20190319

Made	Checked	Approved
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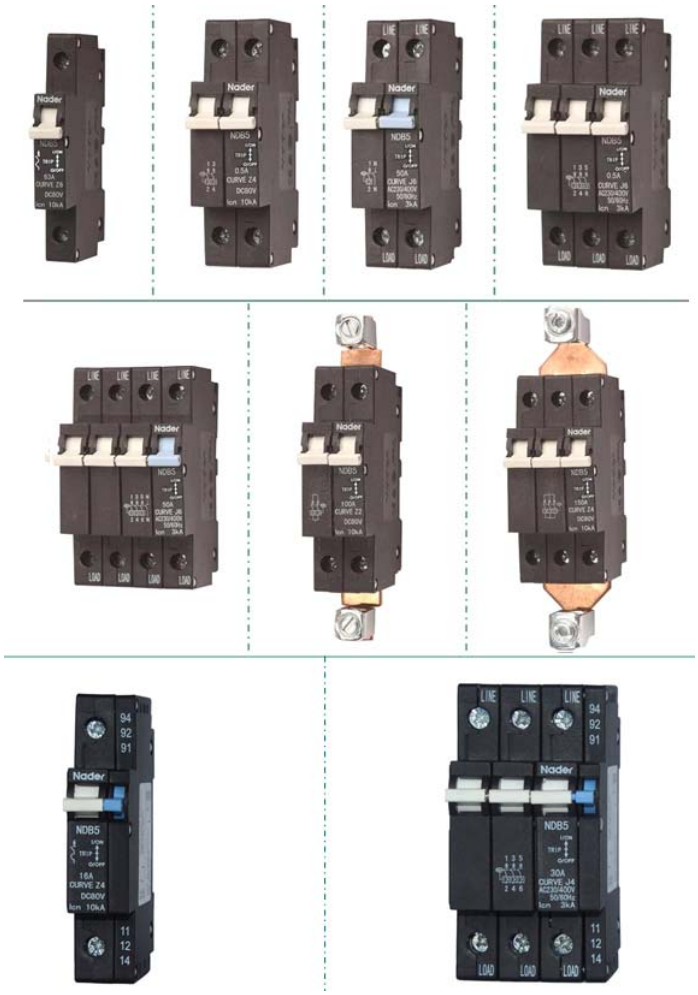
Revision			
Edition	**Revised contents and reasons**	**Date**	**Revision**
0	First edition publication	20130730	Kang Fan
1	1. Add type indication for accessory to 2nd item; 2. Add electrical parameter for accessory to 3rd item; 3. Add Configuration & Installation Dimension image for accessory and circuit breaker to 6th item; 4. Add indication and wiring diagram for accessory.	20150422	Kang Fan
2	Delete infrequently used auxiliary functions	20160614	Zhang Jian
3	1.Change the Logo “Nader” 2.Change the technical parameters	20170620	Zhang Jian
4	Unified updated version according to the requirements of company	20181030	Kang Fan
5	1 Auxiliary contact 改为 Auxiliary Alarm contact	20190319	Yang qing ting

Nader 良信电器	File name	Product specification	File number	NDT500473
	Product Name	Circuit breaker for equipment	Edition	5 version
			Implementation date	20190319

1 Application

NDB5 series circuit breaker for equipment （hydraulic-magnetic circuit breaker） is applied in electrical system, of which the rated current is from 0.5A to 63A and the rated voltage is AC230/400V, AC250V, AC480/277V (50/60Hz) or up to DC125V, to protect the circuit against the overload current and short-circuit current. It is also can be used to make and break the circuit infrequently. The product is widely used in computer and its peripheral equipment, industrial automation devices, telecommunication equipments, power supply for telecommunication, UPS equipments, railway-engine, marine electrical systems, aerospace electrical power system, elevator control systems and mobile power equipments.

2 Product Photos



3 Model and Implication

ND B 5 Z4 80 / 2 P U 0 - W - R XXXXX
1 2 3 4 5 6 7 8 9 10 11 12

Sr. No.	Illustration /Code	NDB5
1	Enterprise code	ND "Nader" brand
2	Product code	B Circuit Breaker for Equipment
3	Design code	5
4	Tripping curve	Z2 DC short delay Z4 DC medium delay Z6 DC long delay J2 AC 50/60Hz Short delay J4 AC 50/60Hz Medium delay J6 AC 50/60Hz Long delay
5	Rated current （A）	0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.5, 2, 2.5, 3 ,3.5, 4, 4.5, 5, 5.5 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50, 55, 60, 63, 70, 80, 90, 100, 105,110, 120, 125, 150
6	Number of Poles	1 One-pole 2 Two-pole 3 Three-pole
7	Neutral-Pole	P N/A N With neutral-pole (1N or 3N)
8	Connection type	U With parallel connection busbar, for 2 poles in parallel or 3 poles in parallel Empty for not parallel
9	Accessories	0 Without accessory 1 Auxiliary contact; 2 single auxiliary contact
10	Outline type	Empty for 45mm W 57mm
11	Certification	R - CCC、UL 1077、TUV、CE L - CCC、UL 489A、TUV、CE
12	Customer Code	Upon customers' requests

Note：

(1) The maximum rated current for 1-pole is 63A.

(2) 1P + N, 3P and 3P+N breakers are only available for AC type breaker.

(3) Parallel connected products only available for DC breakers. Furthermore, 2 pole parallel is minimum for 20A, the maximum for 100A; 3 pole parallel is minimum for 105A, and maximum for 150A

(4) NDB5 series HMCB can attach with auxiliary and alarm contact;

There are two types of accessories available, auxiliary alarm contact and single auxiliary contact.

1：Auxiliary alarm contact is consisted by a set of auxiliary contact（1NO+1NC） and a set of alarm contact（1NO+1NC）.

2：Single auxiliary contact is consisted by a set of auxiliary contact（1NO+1NC）;

Accessary is assembled on the right pole of circuit breaker

Auxiliary contact is used to indicate the breaking-closing status of circuit breaker;

Alarm contact indicates circuit breaker`s fault tripping status;

Auxiliary and alarm contact should be bought with circuit breaker.

NDB5 series circuit breaker for equipment with accessories products comply with CCC certification requirements.

(5) Above table lists are common types. The tripping curve, rated current, etc. can be made according to the client's requirements. Special type will be made for those products which are made according to client's requirement and won't be listed in the above table.

4 Main Specifications

Number of Poles	1P		1N	2P		3P	3N	2PU	3PU
Rated Voltage	AC230/240/250V	DC80/125V	AC230/240/250V	AC400/415V AC480/277V	DC80/125V	AC400/415V AC480/277V		DC80V	
Rated Current (A)	0.5,0.6,0.7,0.8,0.9,1,1.5,2,2.5,3,3.5,4,4.5,5,5.5,6,6.5,7,7.5,8,8.5,9,9.5,10,12,15,16,20,24,25,30,32,35,40, 45,50,55,60,63		0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.5，2, 2.5,3，3.5, 4, 4.5, 5, 5.5, 6，6.5, 7 ,7.5，8，8.5, 9, 9.5, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50					20,30,40,50,60,63,70,80,90,100	105,110,120,125,135,150
Installation	35mm DIN Rail & Miniature Rail								
Tripping Curve	J2,J4,J6	Z2,Z4,Z6	J2,J4,J6	J2,J4,J6	Z2,Z4,Z6	J2,J4,J6		Z2,Z4,Z6	

- **Comply with standards: IEC/EN 60934, IEC/EN 60947-2, GB/T 17701, GB/T 14048.2, UL1077, UL489A**
- **Rated working voltage: DC80V, DC125V,AC230/240/250V, AC400/415V,AC480/277V**
- **Frequency: 50/60Hz**
- **Mechanical endurance: 10000 times (including electrical endurance: 6000 times)**
- **Auxiliary/alarm contact technical parameters:**

  Auxiliary contact: DC125V 0.5A, AC 250V 6A；Alarm contact：DC250V 0.25A, AC250V 5A；

  Mechanical & electrical life：15000 times（electrical life 10000 times）;

  Working frequency withstand voltage：1500V;
- **Certificates: CCC, UL1077, UL489A, TUV, CE**
- **Cable Capacity：0.5～25mm², up to 35 mm²(2P in parallel:), up to 70 mm²(3P in parallel)**

- **Rated interrupting capacity:**

Rated current (A)	Rated voltage (V)	Interrupting Capacity (kA)				
		CCC	UL		TUV/CE	
		GB/T 17701	UL 1077	UL 489A	EN60934	EN60947-2
0.5～63	DC80	10	10，U1	10	10	10
	DC125	6	/	/	6	/
	AC230/400	6	/	/	6	/
	AC480/277	/	6，U1	/	/	/
	AC250	/	6，U1	/	/	/
20～150（Multi pole in parallel）	DC80	/	10，U1	10	/	/

5 Normal condition for operation

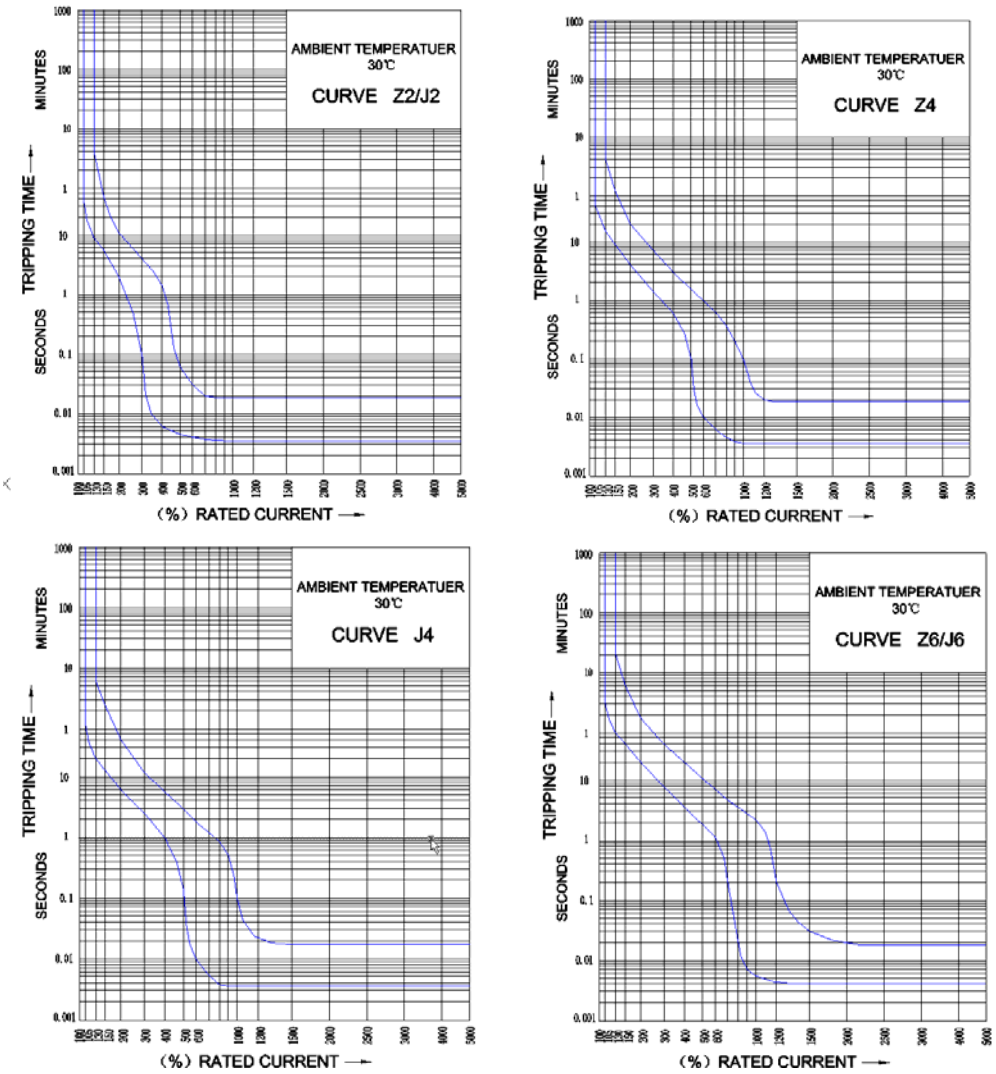
- **Altitude：≤2000m**
- **Ambient temperature:：-40℃~+85℃**
- **Relative humidity：The relative humidity of the air does not exceed 50% at the maximum temperature of +40℃. Higher relative humidities may be permitted at lower temperature, e.g. 90% at +20℃.**
- **Pollution degree: 2**
- **Installation type: Ⅱ**
- **Service place should be without explosive media, gas and dust which are corrosive and conductive.**
- **The product should be mounted free from rain and snow.**

6 Tripping characteristic

6.1 Tripping times in second (tested under cold status)

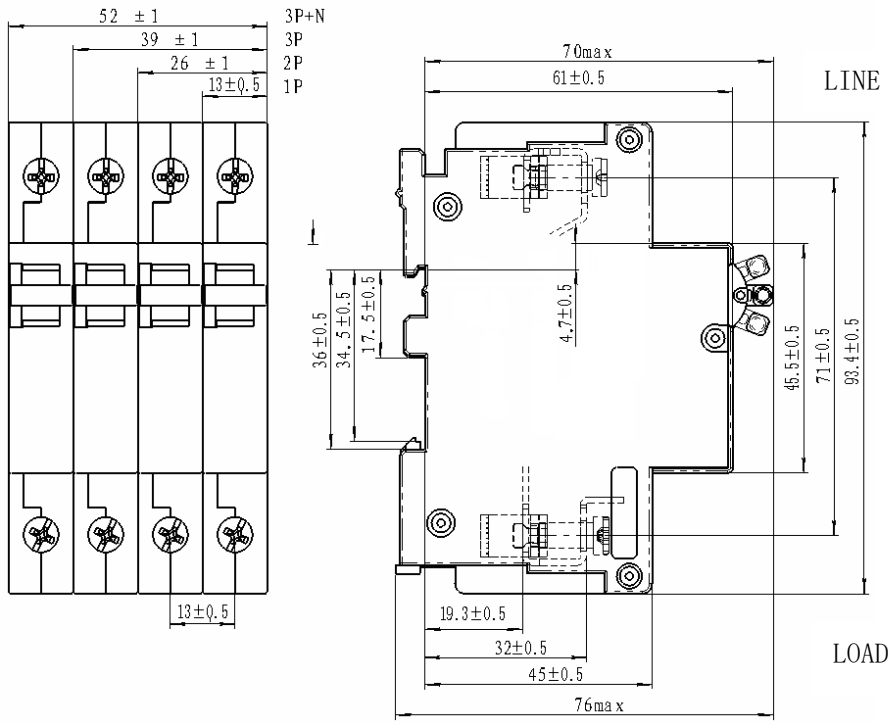
Current / Curve	1.05In	1.3 In	2 In	6 In	10 In
Z2/J2	No trip	9-240	2-12	0.004-0.03	0.0035-0.018
Z4	No trip	15-240	4-20	0.01-1	0.0035-0.1
J4	No trip	20-360	6-40	0.01-1.8	0.0035-0.1
Z6/J6	No trip	60-1200	20-100	1.2-7	0.0055-2.2

6.2 Tripping curve

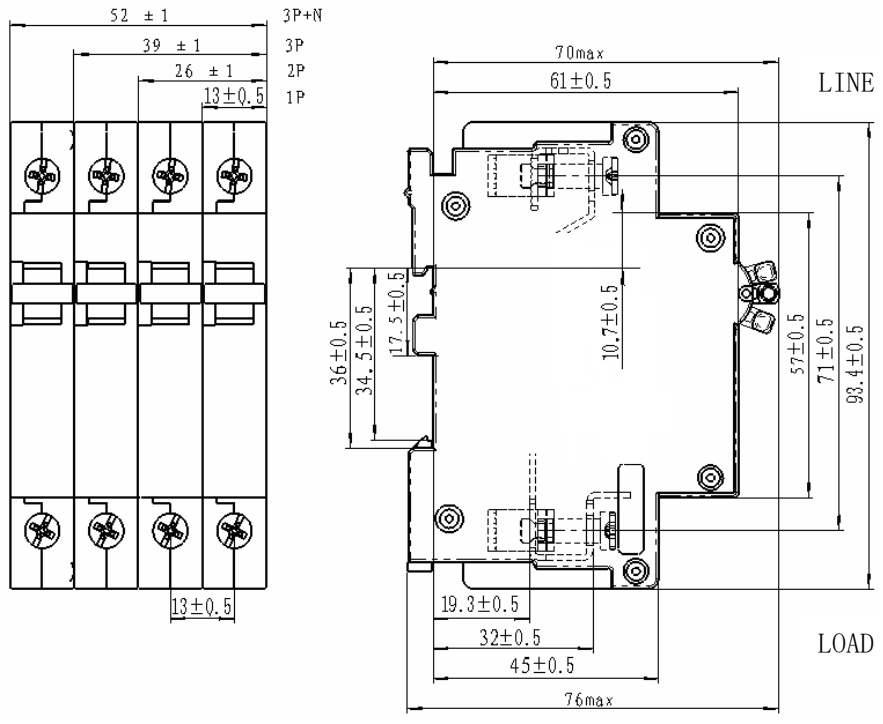


7 Pruduct Configuration & Installation Dimension

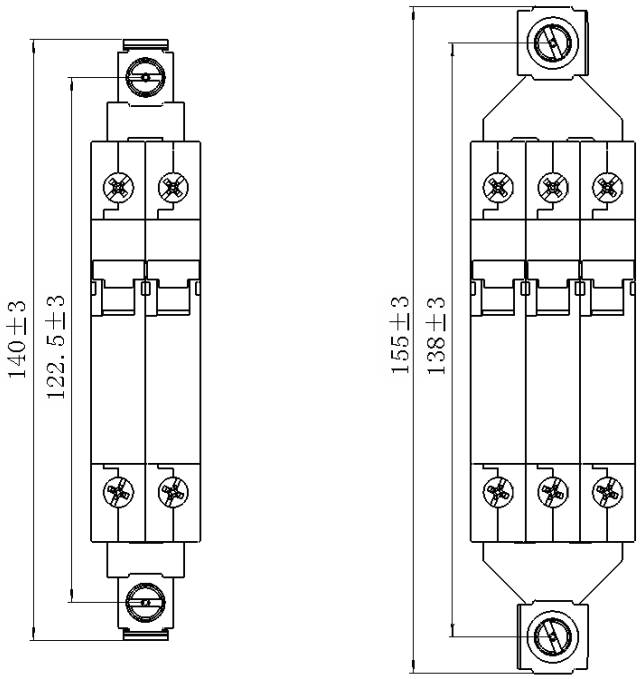
1）Configuration & Installation Dimension of the product with 45mm operation face



2）Configuration & Installation Dimension of the product with 57mm operation face

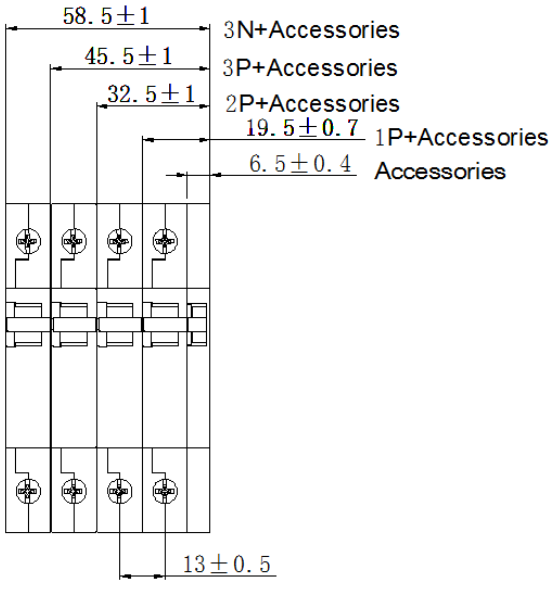


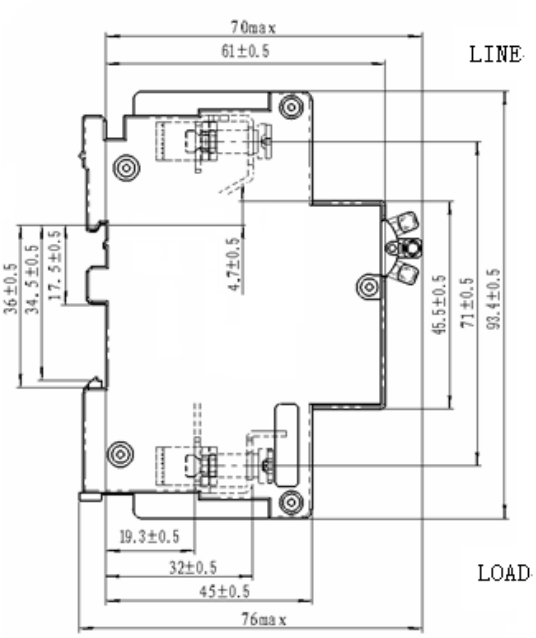
3）Configuration and Dimension of parallel connection product



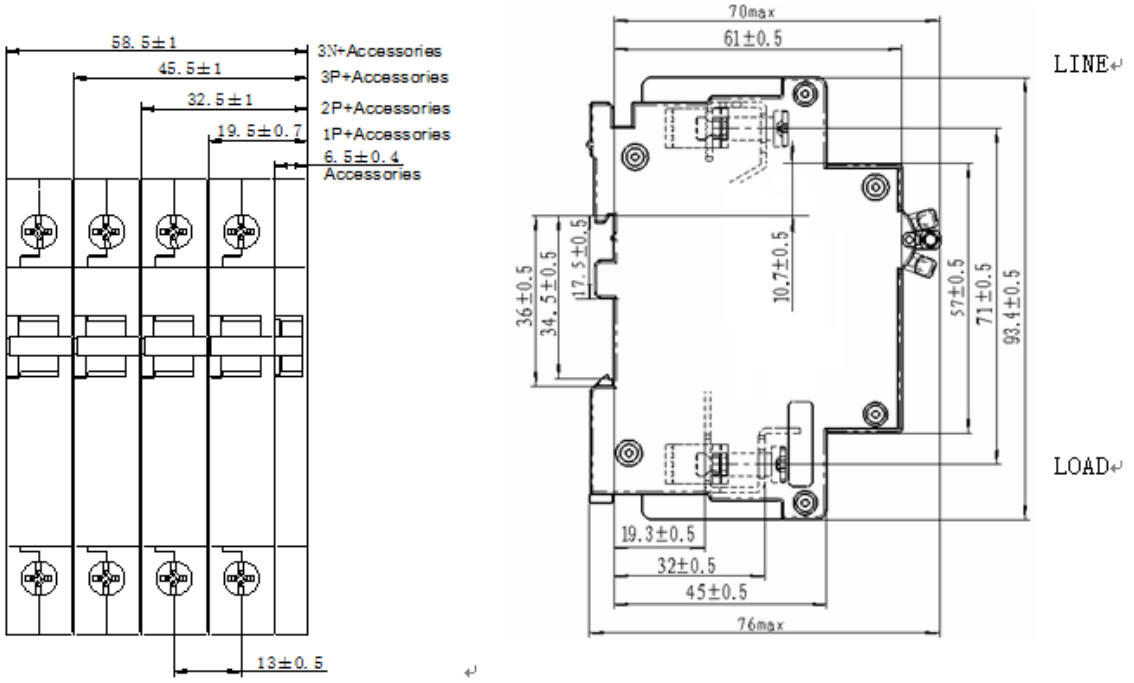
4) Configuration & Installation Dimension of the product with Auxiliary/alarm contact:

a:

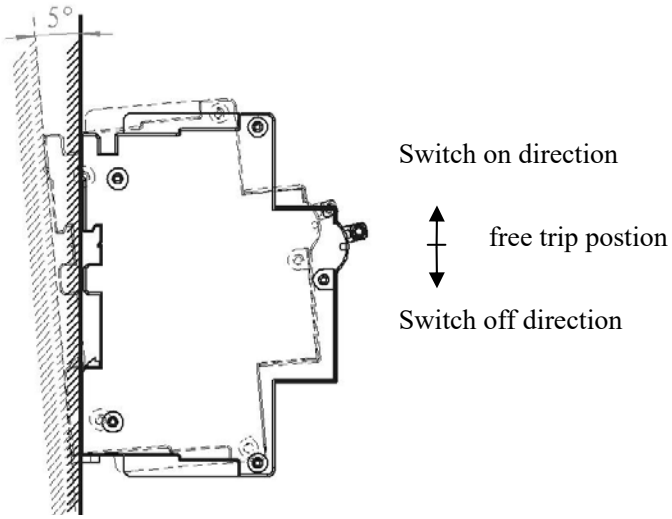




b:



8 Installation and operation requirements



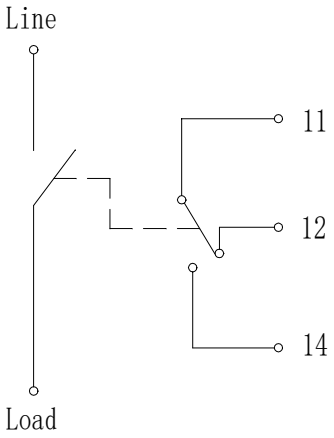
DIN Rail Installation. The breaker should be mounted within 5° of the mounting plane in case the characters of the product are affected.

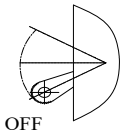
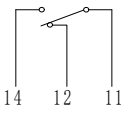
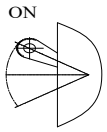
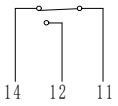
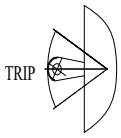
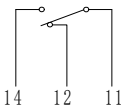
Operation method ： The product handle can stay in three position, which will indicate three working status of the product accordingly. When the handle stay in free trip position, the product handle should be turned off to the end of the switch off direction and kept at the position for at least one second firstly so that the machanism can be relatched. Then the product can be switched on to fulfill the function of loading and protecting. When the handle is at the switch off postion, the product can be switched on by turning the handle to fulfill the function of loading and protecting. When the handle is at the switch on positon, the product can be switched off either by turning the handle to cut off the load or automatical tripping to

free trip position in specific time when the loading increase to conventional tripping current.

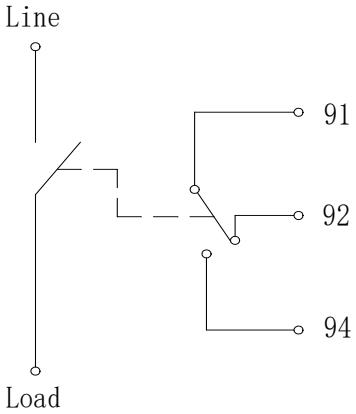
9、The wiring diagram of accessary

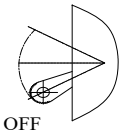
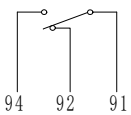
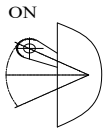
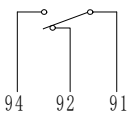
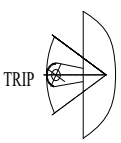
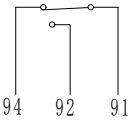
1) The wiring diagram of Auxiliary Alarm contact



The status diagram for handle`s position		
CB status	**Handle position**	**Auxiliary contact status**
OFF		
ON		
Electrical tripping		

2) The wiring diagram for alarm contact

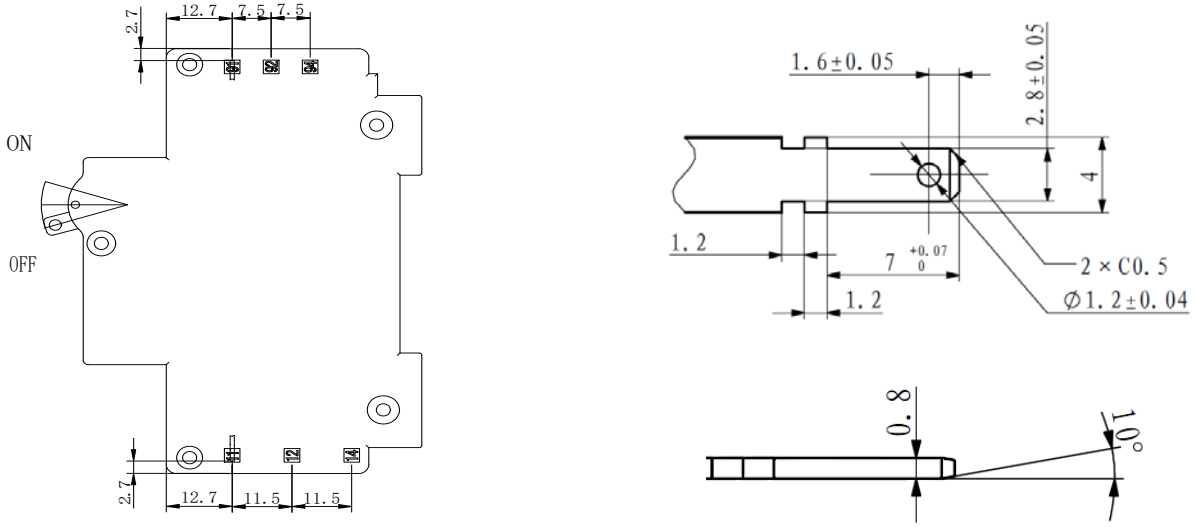


The status diagram for handle`s position		
CB status	**Handle position**	**Alarm contact status**
OFF		
ON		
Electrical tripping		

10、Accessory list and installation

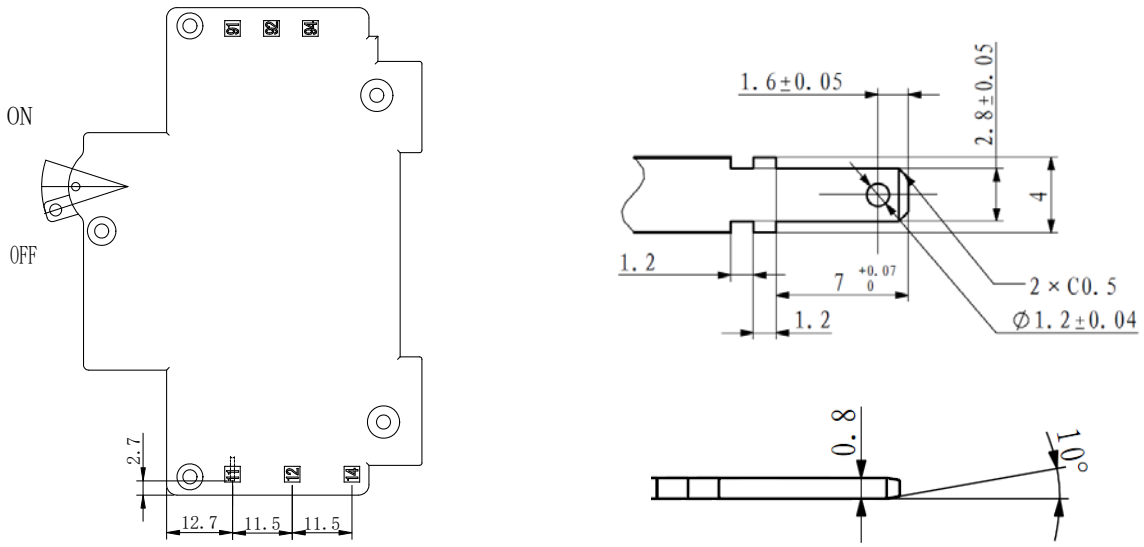
10.1 NDB5 series HMCB can attach a pair of auxiliary contact and a pair of alarm contact at the same time. The terminal of auxiliary and alarm contact is pluggable connection strap.

Please refer below picture. "11,12,14"are auxiliary contact number,"91,92,94" are alarm contact number.



10.2 NDB5 series HMCB can attach only one pair of auxiliary signal function, which terminal is pluggable connection strap.

Please refer below picture for auxiliary contact，"11,12,14" are auxiliary contact terminal number.



11 Packing and Storing

Max packing capacity（1P product：12 pcs/box，2P、1N product：6 pcs/box，2PU product：3 pcs/box，3P product：4 pcs/box，3PU product：2 pcs/box，3N product：3 pcs/box；1P product with accessary：8 pcs/box，2P、1N product：4 pcs/box，2PU product：2 pcs/box，3P product：3 pcs/box，3PU product：2 pcs/box，3N product：2 pcs/box）；

The product should be transited and deposited free from rain and snow. The products

should be stored in the warehouse where there are ventilation. The relative humidity there should not exceed 90%（20±5℃）, and the ambient temperature there is between -40℃ to +85℃. In addition, there should not be acidic, alkaline and corrosive gas in the air. The products should not be deposited more than 3 years in the above mentioned conditions since the producing date.

12 Safety notice

1） Do not disassemble the product with permission.

2） Attention to live part when the breaker is energized and avoid touching them.

3） Please make sure reliable connection to avoid fault tripping or terminal damager caused by exceptional heas resulting from unsuitable connection. During installation，the fasten torque of the body screw should be 2N.m, it should be 3.5 N.m fasten torque for the busbar screw of the two pole parallel product and 10 N.m for the three pole parallel product.

4） Please maitain the distance of 30mm from the arc jet slot of the product during installation to avoid short current.