

**Shanghai Liangxin Electrical Co., Ltd.**

# Product Specification of NDB1-63

(IPD-ENG-DEV-T20 A0 2016-04-20)

Product Name: Miniature Circuit Breaker

Product type: NDB1-63

Date: 20220719

Prepared	<u>Liu Xiangqian</u>	Date	<u>2022-07-19</u>
Reviewed	<u>Zhu Tongxiong</u>	Date	<u>2022-07-19</u>
Approved	<u>Duan Hui</u>	Date	<u>2022-07-19</u>

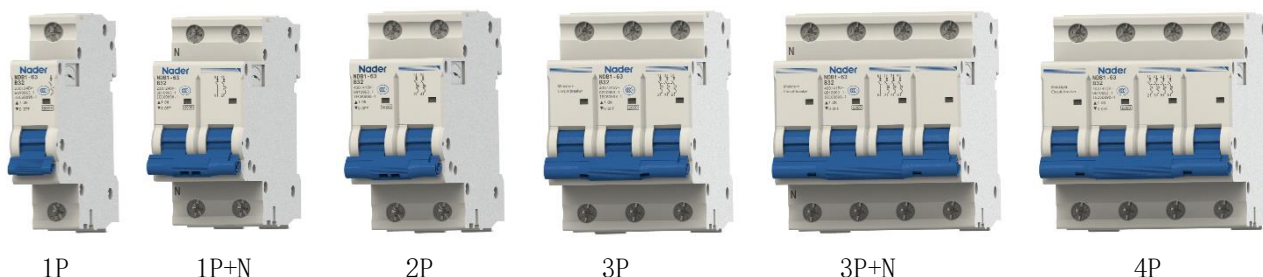
Revision information					
Version	Revised contents and reasons	Date	Prepared	Reviewed	Approved
0	Initial issue	20160420	Wang Fang	Zhang Yang	Duan Hui
1	Delete Rated Current:8A/12A/13A; Add Mounting Class IV; Change Time-Current curves and Postcode	20160624	Li Xiaozhen	Zhang Yang	Duan Hui
2	Add contents of Accessory	20170914	Li Xiaozhen	Yang Dongmei	Zhang Yang
3	Upgrade edition	20190416	Zhu tongxiong	Huo Zhiqiang	Duan Hui
4	Upgrade edition	20200316	Zhu tongxiong	Huo Zhiqiang	Zhang Yang
5	Upgrade edition	20220719	Liuxiangqian	Zhu tongxiong	Duan Hui

## 1、Application

- Short -circuit protection
- Over-load protection
- Isolation

NDB1-63 dedicated to the low voltage power distribution system of industrial, buildings, energy communications and infrastructure.

## 2、Product Pictures(The picture is for reference only,subject to the actual object)



1P

1P+N

2P

3P

3P+N

4P

## 3、Model and implication

ND	B	1	—	63	C	63	/	2
Nader	Breaker	Design code		Frame Rating(A)	Trip curve	Rated current(A)		Pole
				63	B	1,2, 3, 4,		1=1P,
					C	5,6,10,16,		1PN=1P+N
					D	20, 25,32,		2=2P, 3=3P
						40,50,63		3PN=3P+N,
								4=4P

## 4、Main technical parameters

- Electrical parameters
  - Number of Poles: 1P, 1P+N, 2P, 3P, 3P+N, 4P
  - Rated working Voltage: 1P: AC230/400V,AC240/415V,DC60/80V;  
1P+N:AC230/240V; 2P: AC400/415V,DC60/80V;  
3P:AC400/415V;3P+N:AC400/415V;4P:AC400/415V
  - Rated Current: 1A,2A,3A,4A,5A,6A, 10A, 16A,20A,25A,32A,40A,50A,63A
  - Rated Insulation Voltage: 500V
  - Rated Frequency: 50/60Hz
  - Rated Impulse Withstand Voltage: 4kV
  - Rated Frequency Withstand Voltage: AC2500V 50Hz 1min
  - Rated short-circuit breaking capacity (I<sub>cn</sub>): 6000A (AC);10000A(DC60/80V)
  - Service short-circuit breaking Capacity(I<sub>cs</sub>): 6000A (AC);7500A(DC60/80V)
  - Instantaneous Tripping Characteristic: B、C、D

- Mechanical and Electrical life

- Mechanical Life: 20000 times

- Electrical Life: 10000 times

- Isolation function

- Practical breaking instructions

- View window within the green identification said contact in the off position

- Protection Degree

- IP20

- Wire Feeding Mode

- Lines in for both up and down ends

- Use Category

- A

- Mounting Class

- II、III

- Tripping characteristic

B type curve

- Protection of short circuit current small load

- rated current: 1A~63A

- tripping characteristic: The instantaneous tripping range  $3I_n \sim 5I_n$

C type curve

- Protect normal load and distribution wire cable

- rated current: 1A~63A

- tripping characteristic: The instantaneous tripping range  $5I_n \sim 10I_n$

D type curve

- Protect starting current big impact load (Such as motor, transformer)

- rated current: 1A~63A

- tripping characteristic: The instantaneous tripping rang  $10I_n \sim 14I_n$

- Product certification and implementation standard.:

- Product certificate: CCC,CE,TUV;

- Product certification standard: GB/T 10963.1, IEC60898-1, GB/T 10963.2, IEC60898-2;

- Environmental requirements: RoHS

## 5、Normal Working conditions

- Ambient temperature:  $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$

- Stored ambient temperature:  $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

- Heat and humidity resistance: The relative air humidity  $\leq 95\%$  at the temperature of  $+55^{\circ}\text{C}$

- Altitude:  $\leq 2000\text{m}$ , if you want to apply it more than 2000m, you must refer to Miniature Circuit Breaker's reduced capacity table. Also you can refer to GB/T20645 the technological requirement of the low-voltage

electrical equipment when it is used on high altitude.

- Pollution degree: 3
- Free from obvious vibration or shock

#### 6、Lower capacity coefficient table above 2000 meters above sealevel

Height above sea level (km)	Rated current	Rated voltage	Rated frequency voltage tolerance	Breaking Capacity	Breaking Capacity and Electrical life	Remarks
2	In	Ue	1.00	1.00	1.00	
3	0.97In	Ue	0.89	0.89	0.83	
4	0.94In	Ue	0.80	0.80	0.71	
5	0.90In	Ue	0.73	0.73	0.63	

#### 7、Side-by-side volume reduction coefficient table

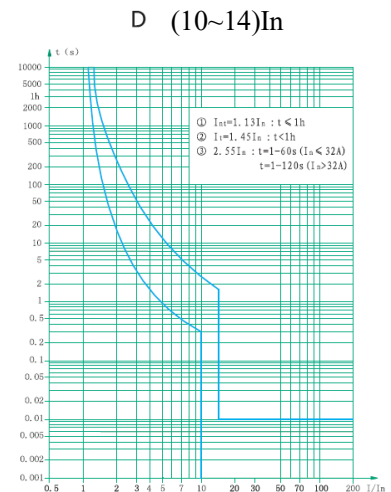
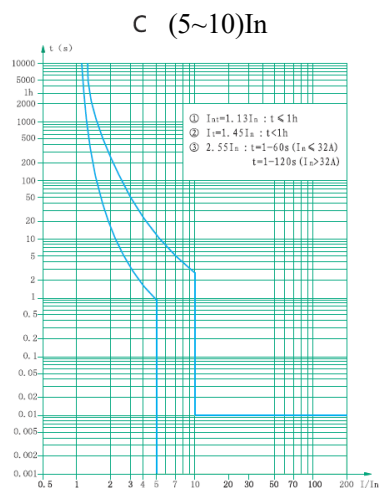
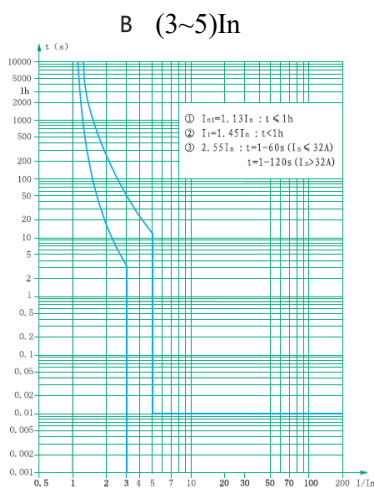
Number of products placed side by side	1	2~3	4~5	6~9	10
Current derated coefficient	1	0.9	0.8	0.7	0.6

#### 8、Temperature Derating

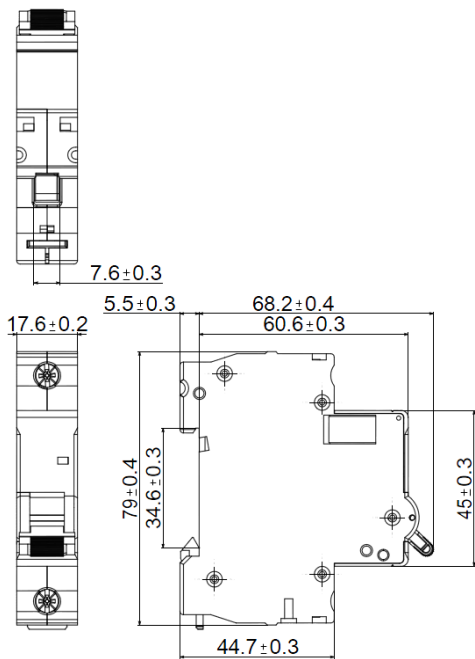
Correcting current (A) Rated current (A) Ambient temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
1	1.29	1.27	1.25	1.23	1.21	1.19	1.17	1.15	1.13	1.10	1.08	1.06
3	3.97	3.89	3.83	3.76	3.70	3.64	3.57	3.50	3.44	3.37	3.30	3.22
6	7.96	7.70	7.58	7.46	7.34	7.21	7.09	6.96	6.83	6.70	6.56	6.42
10	14.15	13.89	13.62	13.35	13.07	12.81	12.53	12.23	11.93	11.63	11.33	11.01
16	21.10	20.78	20.43	20.08	19.75	19.40	19.05	18.70	18.33	17.96	17.58	17.20
20	26.04	25.67	25.28	24.88	24.47	24.06	23.64	23.22	22.78	22.34	21.89	21.43
25	32.91	32.21	31.72	31.22	30.70	30.18	29.65	29.10	28.55	27.98	27.41	26.82
32	41.67	41.04	40.46	39.82	39.17	38.51	37.84	37.15	36.47	35.75	35.03	34.30
40	52.43	51.63	50.86	50.04	49.21	48.37	47.51	46.63	45.74	44.83	43.90	42.95
50	66.10	64.92	63.97	62.92	61.86	60.77	59.67	58.54	57.40	56.23	55.05	53.81
63	84.40	83.48	82.06	80.64	79.19	77.72	76.22	74.70	73.14	71.54	69.91	68.24

Correcting current Rated current (A)	Ambient temperature (°C)	20	25	30	35	40	45	50	55	60	65	70
1		1.05	1.02	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.80	0.77
3		3.14	3.06	3.00	2.92	2.84	2.76	2.67	2.58	2.49	2.38	2.27
6		6.27	6.14	6.00	5.84	5.68	5.52	5.36	5.19	5.01	4.83	4.64
10		10.67	10.34	10.00	9.63	9.24	8.85	8.45	8.01	7.55	7.06	6.55
16		16.80	16.40	16.00	15.55	15.11	14.66	14.20	13.71	13.21	12.70	12.15
20		20.96	20.47	20.00	19.47	18.95	18.42	17.87	17.30	16.71	16.10	15.47
25		26.22	25.61	25.00	24.33	23.67	23.00	22.28	21.56	20.80	20.02	19.21
32		33.54	32.77	32.00	31.17	30.34	29.48	28.60	27.69	26.75	25.78	24.77
40		41.98	40.99	40.00	38.93	37.85	36.75	35.61	34.43	33.21	31.95	30.63
50		52.56	51.28	50.00	47.82	46.24	44.81	43.33	41.81	40.23	38.58	35.77
63		66.53	64.78	63.00	60.11	58.19	56.21	54.16	52.03	49.81	47.50	43.05

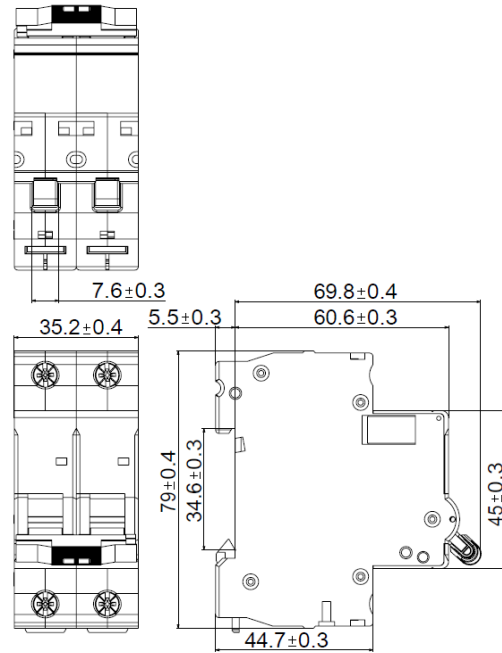
## 9、Time-Current curves



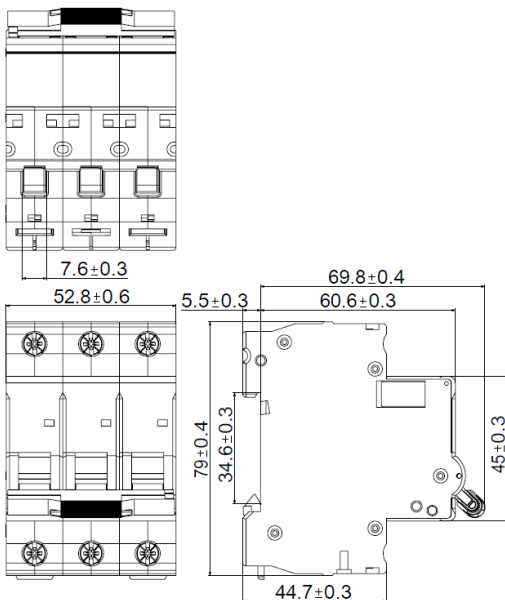
## 10、Outline and installation dimensions



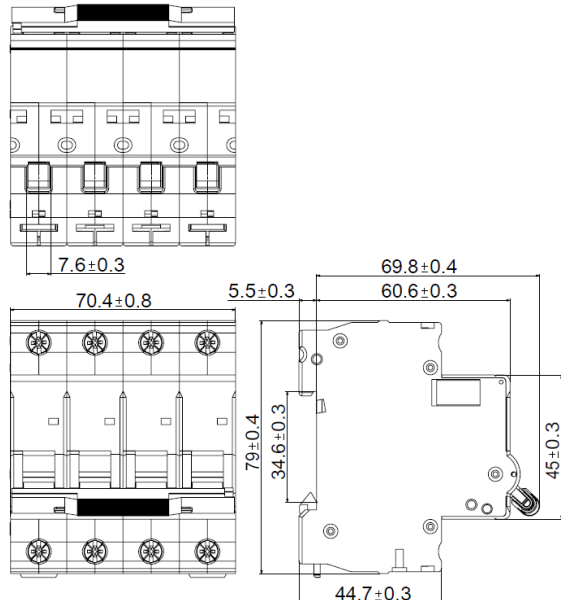
1P



1P+N, 2P



3P



3P+N, 4P

## 11、Installation method

Modular construction, can be installed in TH35mm x 7.5 standard guide rail.

## 12、Connect line requirements

The wire capacity: 1mm<sup>2</sup>~25mm<sup>2</sup> conducting wire

Terminal screw: M5; Recommended tightening torque : 2.0N.m

## 13、Packaging and storage

- Maximum packing quantity

1P: 12 pieces in a box, 12 boxes in an overwrap carton.

1P+N,2P: 6 pieces in a box, 12 boxes in an overwrap carton.

3P: 4 pieces in a box, 12 boxes in an overwrap carton.

3P+N,4P: 3 pieces in a box, 12 boxes in an overwrap carton.

- Products should be stored in the warehouse where there is ventilation. The relative humidity there should not exceed 80%, and the ambient temperature there is between -40℃ to +80℃. In addition, there should not be acidic, alkaline and corrosive gas in the air.

- Products should not be deposited more than 3 years in the above mentioned conditions since the producing date.

## 14、Accessory list and installation

- OF1 Auxiliary Contact Be installed to the left side of NDB1-63 to indicate the tripping status of the breaker.

- SD1 Alarm Contact Be installed to the left side of NDB1-63 to indicate the fault tripping status of the breaker.

- MX+OF1 Shunt Release Be installed to the left side of NDB1-63 , remotely controls the breaker opening and indicates the breaker tripping status.

- GQ1A Over&Under Voltage Tripping Device Be installed to the left side of NDB1-63 , used for circuit of work voltage less than AC 230V,which has defensive function such as over-voltage protection( G1A ), low-voltage protection( Q1A ), over&low-voltage protection( GQ1A ),at the same time,no-tripping when power down ;

- FF1 Double Auxiliary Contact Be installed to the left side of NDB1-63 to indicate the tripping status of the breaker

- FS1 Auxiliary and Alarm Contact Be installed to the left side of NDB1-63 to indicate the fault tripping status of the breaker.

- NDH1 series busbar is a kind of modulus accessory for NDB1-63, which applies to connecting the ends of the same phase incoming line of several breakers. It can also be used as a general standard accessory which connects the electric appliances of the same phase terminal.



## 15、 Notices

- 1、 The user should responsible for the quality problem caused by taking the products apart or adjust the tripping parameters without permission.
- 2、 Touch the uninsulated bare part is not allowed when breaker is energized state.
- 3、 Make sure reliable connection to prevent the abnormal heating of terminals. That can cause fault operation of breakers or terminal damage.
- 4、 Please remove the cover before installation, details please refer to Product Specification.