

Shanghai Liangxin Electrical Co., Ltd.

(NDB2N-63 Miniature Circuit Breaker)

Product Specification

(IPD-ENG-DEV-T20 A1 2016-09-23)

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Revision History					
Version	Revision Reason/Content	Implementati on Date	Prepared by	Reviewe d by	Approve d by
0	New addition	20191202	Chen Debin	Yang Na	Tang Rui
1	External dimension update	20200318	Chen Debin	Zhang Yang	Tang Rui
2	External dimension update	20200422	Chen Debin	Zhang Yang	Tang Rui

1. Applicable Scope and Purpose

- Short circuit protection
- Overload protection
- Control
- Isolation
- DC system protection

The NDB2N-63 series of circuit breakers are applicable to the low-voltage terminal distribution in the industry, civil buildings, energy, communication, infrastructure and other fields.

2. Picture of the Product (Subject to specific physical effect)



1P



1P+N



2P



3P



3P+N



4P

3. Specification and Model Description

Circuit breaker: $\frac{\text{ND}}{1} \frac{\text{B}}{2} \frac{2}{3} \frac{\text{N}}{4} - \frac{63}{5} \frac{\text{C}}{6} \frac{16}{7} / \frac{1}{8}$

S.N.	Name	Specification, type code	Description
1	Enterprise code	"Nader" brand low-voltage apparatus	
2	Product code	Circuit breaker	
3	Design SN	2	
4	Derived model	N	
5	Shell frame level current (A)	63	

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6	Instantaneous trip characteristics	AC:B, C, D DC:B,C	
7	Rated current (A)	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 20, 25, 32, 40, 50, 63	
8	Number of poles	1=1P, 1PN=1P+N(With One Protective Pole,Switched N Pole), 2=2P, 3=3P, 3PN=3P+N(With Three Protective Pole,Switched N Pole), 4=4P	

4. Main Technical Parameters

● Functional parameters

Number of poles	1P	2P+N	2P	3P	3P+N	4P
Rated current (In) A	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 20, 25, 32, 40, 50, 63					
Rated working voltage (Ue)V	AC230/240/DC80		AC400/415/DC80	AC400/415		
Rated insulation voltage (Ui) V	500					
Rated impulse withstand voltage (Uimp) kV	4					
Power frequency withstand voltage	2500V 50Hz 1min					
Working frequency (f) Hz	50/60					
Reference setting temperature °C	30					
Instantaneous trip characteristics	AC B: 3In~5In C: 5In~10In D: 10In~14In DC B: 4In~7In C: 7In~ 15In					
Rated short-circuit breaking capacity (Icn) kA	AC: 6 DC: 10					
Operating short circuit capacity(Ics) kA	AC: 6 DC: 7.5					
Electric life (times)	Target value: 4,000 times in accordance with GB10963.1-2005; based on the verification method, the same product is tested with the mechanical life for 6,000 times after tested with the electrical life for 4,000 times, to meet the post-test verification.					
Mechanical life (times)	20,000					
Operating ambient temperature °C	-40~+70 (ultimate)					
Storage temperature °C	-40~+70					
Wet heat resistance	Class 2					
Protection class	IP20					
Screw size	M5					
Rated torque (Tn) N.m	2.5					

Ultimate torque (Tmax) N.m	3.5			
Mode of inlet wire	Upper or lower inlet wire			
Connection capacity mm ²	1~25			
Installation mode	Guide rail type: TH35-7.5			
Optional accessories	Auxiliary, alarm, shunt release, electric operation, U-shaped busbar, residual current release			
Maximum external dimensions: Width×Height ×Deep mm	17.8×81.9 ×72	35.5×81.9×73.8	53.2×81.9 ×73.8	70.9×81.9×73.8

- Product certification and implementation standards
 - Product certificates: CCC/CB/TUV/CE
 - Product certification standards: GB/T 10963.1, GB/T 10963.2, IEC60898-1, IEC 60898-2
- Isolating function
 - Practical breaking indication
 - The green identification in the inspection window indicates that the contact is in the disconnection position

- Characteristic curve

- Type B curve

- Protect the load with small short-circuit current (such as non-inductive or micro-inductive circuit)
 - Rated current: 1A~63A
 - Instantaneous tripping characteristics: AC 3In~5In, DC 4In~7In

- Type C curve

- Protect the conventional load and distribution cable
 - Rated current: 1A~63A
 - Instantaneous tripping characteristics: AC 5In~10In, DC 7In~15In

- Type D curve

- Protect the impact load with large starting current (such as motor, transformer, etc.)
 - Rated current: 1A~63A
 - Instantaneous tripping characteristics: 10In~14In

5. Normal Working Environment

- Ambient temperature: -40°C~+70°C
- Relative air humidity: ≤95%
- Elevation: ≤2000m
- Environment with the pollution level of 2
- Reference setting temperature: 30°C
- Working site without obvious vibration and shock
- 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	0.99 In	Ue	0.89	0.89	0.83	
4	0.96In	Ue	0.80	0.80	0.71	
5	0.94In	Ue	0.73	0.73	0.63	

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●Temperature Derating Parameter Table

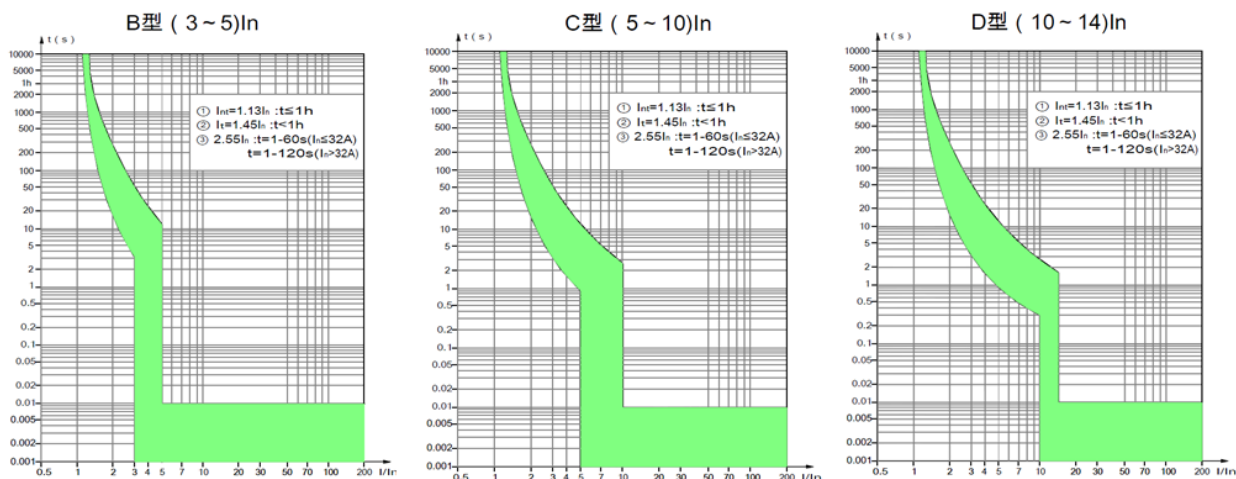
Correcting current (A) Rated current (A) Ambient temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
1	1.29	1.27	1.25	1.23	1.21	1.19	1.17	1.15	1.13	1.10	1.08	1.06
3	3.97	3.89	3.83	3.76	3.70	3.64	3.57	3.50	3.44	3.37	3.30	3.22
6	7.96	7.70	7.58	7.46	7.34	7.21	7.09	6.96	6.83	6.70	6.56	6.42
10	14.15	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 (A) 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	12.75
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

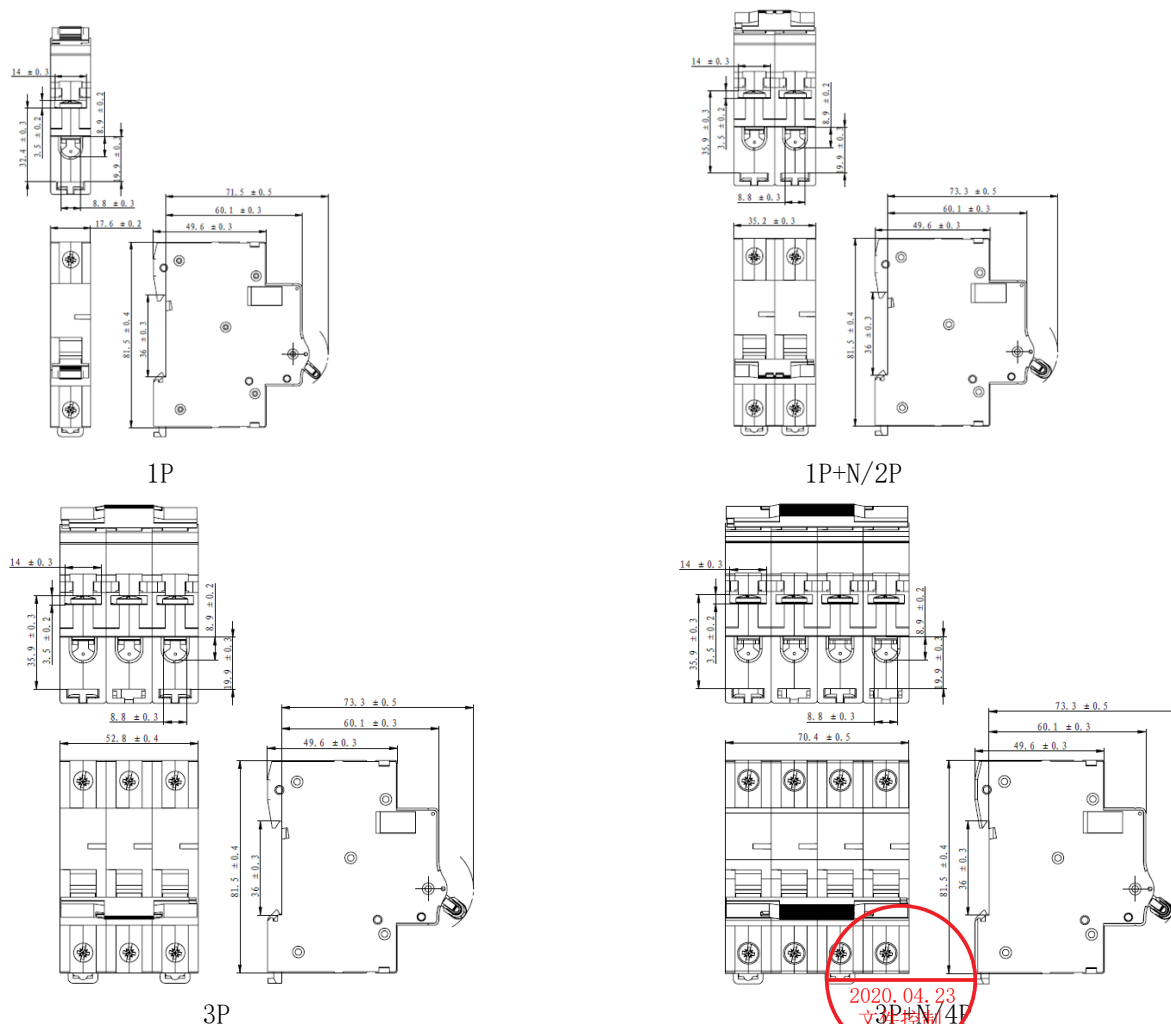
●Side-by-side volume reduction coefficient table

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

6. Tripping Characteristics



7. Product Outline and Installation Dimensions



8. Installation Mode

Based on the modular structure, it can be easily installed on the TH35mm×7.5 standard guide.

9. Packaging and Storage

Maximum packaging quantity: (1P product: 12 pieces/box, 1P+N product: 6 pieces/box, 2P product: 6 pieces/box, 3P product: 4 pieces/box, 3P+N product: 3 pieces/box, 4P product: 3 pieces/box). The packaged

products should be stored in a warehouse with the air ventilation and the relative humidity no more than 80% and the temperature between -40°C and +70°C. No acidic alkaline or other corrosive gas exists in the ambient air in the warehouse. Under the above conditions, the storage period shall be no more than three years since the manufacturing date.

10. Environmental Compliance

The product complies with the RoHS standards.

11. List of Accessories and Installation

- OF2 auxiliary contact: Install on the left side of the NDB2N-63 miniature circuit breaker for indicating the on-off state of the circuit breaker;
- SD2 alarm contact: Install on the left side of the NDB2N-63 miniature circuit breaker for indicating the fault tripping state of the circuit breaker;
- MX+OF2 shunt release: Install on the left side of the NDB2N-63 miniature circuit breaker for the remote control of the circuit breaker tripping;
- NDH1 series busbar: It is a modular accessory in the family of NDB2N-63 products, which can be applicable to connection between in-phase inlet wire ends of multiple circuit breakers or between in-phase terminal equipment as a universal standard accessory;
- Tm2 electric operating mechanism: Install on the left side of the NDB2N-63 miniature circuit breaker, which is applicable to the locking, local control and remote control for the circuit breaker products;
- Tm2GQ overvoltage/under-voltage automatic reclosing accessory: Install on the left side of the NDBN2-63 miniature circuit breaker, for the automatic detection of the line voltage, automatic disconnection of the fault line in case of the line overvoltage or under-voltage, automatic closing after the line voltage restores to the normal range;
- JS1-11Y/B2-63 mechanical interlocking: Applicable to the mechanical interlocking control of two circuit breakers.

12. Precautions

- Any quality problem due to disassembly without permission will be the liability of the user;
 - Under the energized operation state, do not touch the exposed portion of the uninsulated parts on the circuit breaker with bare hand;
 - Do not commission the characteristics of the circuit breaker randomly; the manufacturer shall not be responsible for any quality problem caused;
 - Wiring must be reliable to prevent the malfunction of the circuit breaker or terminal burning due to the abnormal heat generation on the terminal;
 - For assembling of accessories, be sure to remove the cover in which burrs and dents shall be avoided, so as to prevent the product from slipping abnormally;
- Refer to “OF, SD2 and MX+OF2 Accessories Manual” for details.