

Shanghai Liangxin Electrical Co., Ltd.

NDB2LM-40

Residual Current Action Circuit Breaker

Product Specification

(IPD-ENG-DEV-T22 A1 2016-09-23)

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Approved	霍志强	Date	2024.09.05

Revision information					
Version	Revised contents and reasons	Date	Prepared	Reviewed	Approved
0	New addition	2020-01-02	Dong Min	Yang Na	Zhao Chuan
1	Add some parameters: Rated insulation voltage; Rated impulse withstand voltage; etc.	2020-05-19	Dong Min	Xu Guo Jun	Zhang Yang
2	Increase the reduction coefficient of altitude and temperature.	2024-09-04	Wang Zhoushi	Ni Qiaobo	Huo Zhiqiang

1、Application

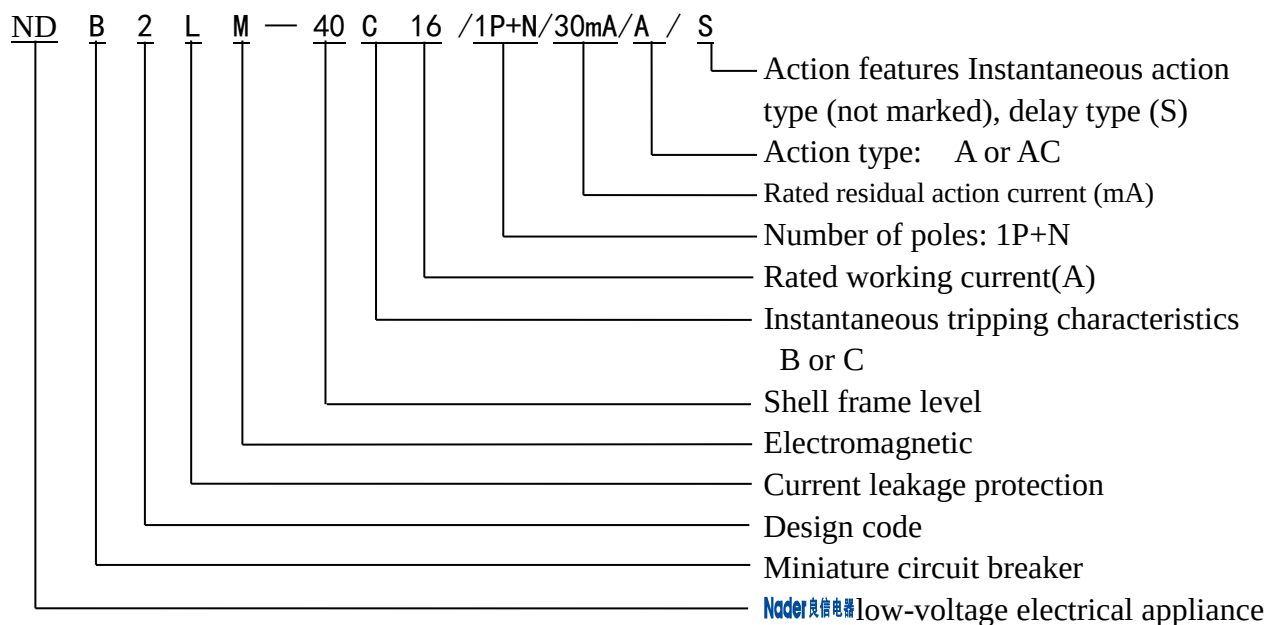
The NDB2LM-40 series of residual current action circuit breakers (RCBO) are applicable to the domestic and similar places and some places with a high sensitivity, which are also applicable to laboratories, service industries and small industrial places. They can cut phase and neutral wires at the same time. The neutral line doesn't provide protection, but can provide:

- Short circuit protection
- Overload protection
- Isolating function
- Provide personal protection for indirect contact
- Provide additional personal protection for direct contact
- Provide the insulation fault protection for the electrical equipment
- Upper and lower wiring

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



3、Model and implication



4、Main technical parameters

Electrical parameters

λ Residual current protection mode: Electromagnetic

λ Number of poles: 1P+N

λ Rated working voltage (Ue): AC230V/240V

λ Rated working frequency: 50/60Hz

λ Rated working current (In): 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A

λ Rated insulation voltage: 500V

λ Rated impulse withstand voltage: 4kV

λ Power frequency withstand voltage: AC2500V 50Hz 1min

λ Instantaneous tripping characteristics: B, C

Rated residual action current (In): 30mA, 100mA, 300mA;

λ Rated residual current action characteristics:

Instantaneous action type: Rated current includes 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A

Residual current includes 30mA, 100mA, 300mA;

Action time: ≤100ms

Delay type: Rated current includes 25A, 32A, 40A

Residual current includes 100mA, 300mA

Action time: 130 ms ≤ t ≤ 500 ms

λ Residual current action type:

Type AC: Ensure tripping of the residual sinusoidal AC current suddenly applied or rising slowly. Symbol: AC类  Type AC

Type A: Ensure tripping of the residual sinusoidal AC current and residual impulse DC current suddenly applied or rising slowly.

Symbol: A类  Type A

λ Rated short-circuit capacity (Icn): 10kA

λ Operating short circuit capability (Ics): 7.5KA

λ Rated residual making and breaking capacity (I Δ m): 3000A

λ Mechanical endurance: 20,000 times

λ Electrical endurance: 10,000 times

λ Protection class: IP20 for the body protection class

λ Product certification and Executive Standards:

CCC, CB, TUV, CE; IEC 61009-1:2012; GB/T 16917.1-2014; GB/T 16917.21-2008

Other parameters

λ Contact position indication: OFF = green; ON = red

λ Storage temperature: Storage ambient temperature: -40℃ ~ + 80℃; storage relative humidity: 20℃ Relative humidity ≤ 80%;

λ Conductor: (1~16) mm²

λ Busbar thickness: (0.8~ 2) mm

λ Nominal diameter of screw: 5mm

λ Tightening screw torque: Maximum wiring torque: 3.5N•m;

λ Standard wiring torque: 2.0N•m

λ 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	0.97 In	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	

λ 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

λ Temperature Derating Parameter Table:

Correcting 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

Correcting 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

5、Working conditions

λAltitude: ≤2000m; For a high altitude, refer to our company's derating factor table of the

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miniature circuit breaker;

λ Ambient temperature: $-25^{\circ}\text{C} \sim +60^{\circ}\text{C}$, relative humidity $\leq 95\%$ at 20°C ; relative humidity $\leq 50\%$ at 40°C (reference ambient air temperature: 30°C , for the temperature exceeding the reference, refer to the temperature derating table of Nader's miniature circuit breaker);

λ The product can withstand the effects of salt mist and oil mist;

λ The product can be disposed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust;

λ The product should be installed free from snow and rain.

6、Time-Current curves

B type curve

λ Protect the load with small short-circuit current (such as non-inductive or micro-inductive circuit)

λ Rated current: 2A~40A

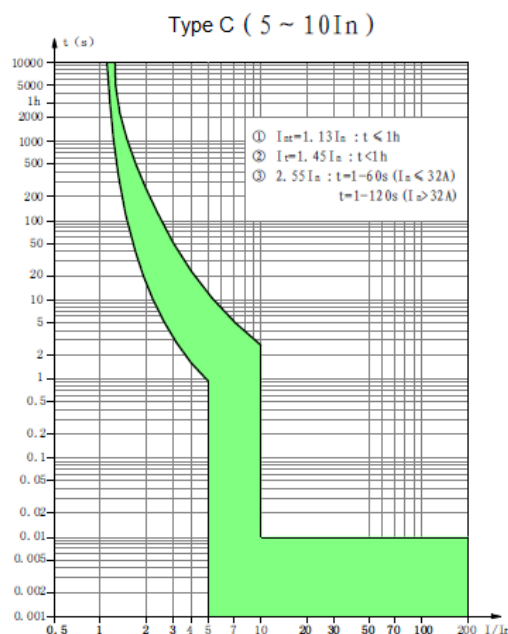
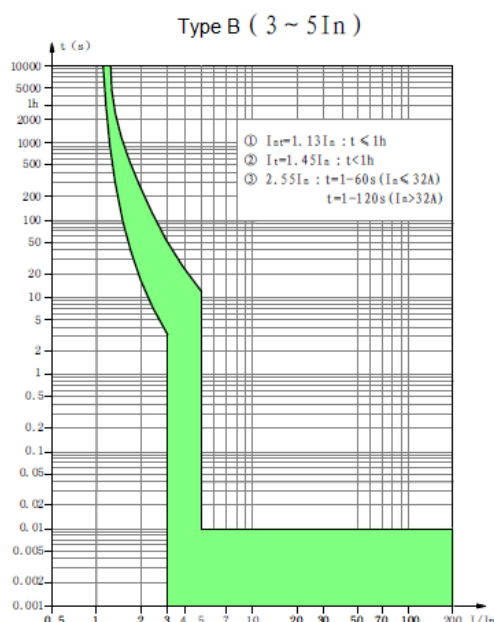
λ Tripping characteristics: Instantaneous tripping range $3I_n \sim 5I_n$

C type curve

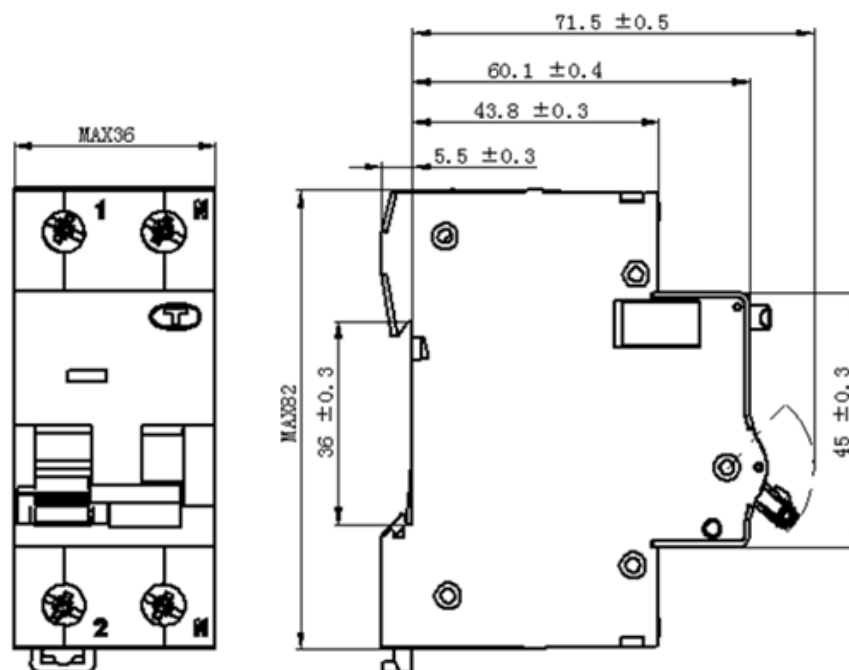
λ Protect the conventional load and distribution cable

λ Rated current: 2A~40A

λ Tripping characteristics: Instantaneous tripping range $5I_n \sim 10I_n$



7、Outline and installation dimensions



8、Installation method

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

9、Packaging and storage

Maximum packaging quantity (7 sets/box, 6 pieces/box). The packaged products should be stored in a warehouse with the air ventilation where the air is relatively dry and the relative air humidity no more than 80% at 20°C and the temperature between -40°C and +80°C. The products shall be stored with the external magnetic field no more than 5 times the geomagnetic field in any direction (no strong magnetic field appears around it). No acidic, alkaline or other corrosive gas exists in the ambient air. Under the conditions above, the storage period shall be no more than three years since the manufacturing date.

10、Environment

All parts meet the RoHS requirements

11、Accessory list and installation

- λ OF2 auxiliary contact: mount on the left side of MCB to indicate the tripping status of the associated MCB.
- λ SD2 alarm contact: mount on the left side of MCB to indicate the fault tripping status of the associated MCB
- λ MX+OF2 shunt tripping device: mount on the left side of MCB to remotely control MCB
- λ NGQ2 (A) Undervoltage tripping device: mount on the left side of MCB, realize single-phase overvoltage, undervoltage, under-voltage protection function
- λ Tm2 electric operating mechanism: mount on the left side of MCB to breaker on-off control
- λ Tm2GQ Since multiple undervoltage: mount on the left side of MCB ,when in the light over-voltage or under-voltage, on line protection
- λ Busbar: It is a modular accessory in the family of NDB2LM-40 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.

12、Notices

- λA user must be responsible for addressing a product issue that occurs because the user disassembles the product without approval;
- λWiring must be reliable to prevent the malfunction of the leakage circuit breaker or terminal burning damage due to the abnormal heat generation on the terminal;
- λUnder the energized operation state, do not touch the exposed portion of the uninsulated parts on the circuit breaker with bare hand;
- λDo not commission the characteristics of the circuit breaker randomly; the manufacturer shall not be responsible for any quality problem caused;
- λCarry out a monthly stimulated test on the current leakage. Namely, press the test button to make the circuit breaker act so as to test proper operation of the circuit breaker, and replace the abnormal products in a timely manner.