

Shanghai Liangxin Electrical Co., Ltd.

PRODUCT SPECIFICATION

NDB2LM-63

Residual Current Operated Circuit-breakers blocks

(IPD-ENG-DEV-T22 A2 2023-03-14)

Prepared	_____	Date	_____
Reviewed	_____	Date	_____
Approved	_____	Date	_____

Revision information					
Version	Revised contents and reasons	Date	Prepared	Reviewed	Approved
7	Format modification.1P+N to 1PN,3PN to 3P+N	20210318	XuGuoJun	DongMin	ZhangJing Yang
8	Add“Product certification and Executive Standards”	20220922	Guojun Xu	Min Xu	Hui Duan
9	Add“Standard wiring torque”	20221009	Guojun Xu	Min Xu	Hui Duan
10	Change outline drawing	20230209	Guojun Xu	Hongbo Yu	Zhiqiang Huo
11	Corrected	20230409	Guojun Xu	Hongbo Yu	Zhiqiang Huo

1 Application

- Short circuit protection
- Overload protection
- Isolation
- Earth leakage

NDB2LM-63 series residual current operated circuit-breakers blocks is used for protecting earth leakage, direct or indirect electric-shock on body and applied in low-voltage terminal distribution field, including Industry, Civil Building, Energy, Communication and Infrastructure etc.

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



1PN



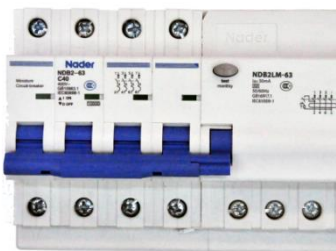
2P



3P



3P+N



4P

3 Product model

ND B 2 L M - 63 C 40 /2P /30mA /AC /S

1 2 3 4 5 6 7 8 9 10 11 12

Item	Parameter type	
1	Brand code	LAZZEN
2	Product code	B
3	Design code	2
4	Earth leakage protection	L
5	Electromagnetic type	M
6	Frame rating(A)	63
7	Instantaneous tripping characteristic	B,C,D

8	Rated current(A)	1,2,3, 4,5,6, 10,16,20,25,32, 40,50,63
9	Poles	1PN,2P,3P,3P+N,4P
10	Rated residual operating current(mA)	30,100,300
11	Residual current operating characteristic	A type, AC type
12	Level of sensitivity	Empty= regular , S

4 Main technical parameters

4.1 Electrical parametes

Table1: NDB2LM-63 main electrical parametes

					
Product Name	NDB2LM-63				
Standard reference	GB/T16917.1, IEC61009-1, EN61009-1				
Product certification	CCC, CB, CE, TUV				
Number of poles	1PN*	2P	3P	3P+N*	4P
Rated working voltage Ue(V)	AC110/120, AC230/240		AC380/400V/415		
Rated frequency(Hz)	50/60				
Rated insulation voltage Ui(V)	500				
Rated impulse withstand voltage (kV)	4				
Instantaneous tripping characteristic	B, C, D				
Rated current In(A)	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63				
Rated residual current	regular: 30mA, 100 mA, 300 mA with time-delay: 100mA, 300mA (In≥25A)				
Residual current operating characteristic	AType, ACType				
Level of sensitivity	Empty= regular , S				
Rated breaking capacity (kA)	10				
Rated service short-circuit breaking capacity (kA)	7.5				
Electrical life	10000 times				
Mechanical life	10000 times				

*1PN:1 protected pole with a uninterrupted neutral pole

3P+N:4 protected pole with a switched neutral pole

4.2 Other parameters

- Isolation function
- Leakage is visible
- Wiring
- Tunnel type of wiring terminal, the wiring depth is 14mm, the strip length is (8~12)mm.
- Connection area: $1\text{mm}^2 \sim 35\text{mm}^2$
- Standard wiring torque: $2.0\text{N}\cdot\text{m}$

5 Working conditions

5.1 Working conditions

- Height: $\leq 2000\text{m}$, 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.
- Ambient temperature: $-25^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- Stored ambient temperature: $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$
- Humidity requirement: The humidity is less than 95% at 55°C
- Magnetic requirement: magnetic field should be 5 times less than geomagnetic field in any directions
- Sine wave distortion: less than 5%
- Tolerate the influence of salt mist and oil mist
- Used in the place without explosion danger and the medium can't have the corrosive action on metals and damage the insulation gas and conductive dust. Used in the place without rain and snow.

5.2 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 (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

5.3 Altitude derating

Height above sea level (km)	Rated current	Rated voltage	Rated frequency voltage tolerance	Breaking capacity	Breaking Capacity and Electrical life
2	I_n	U_e	1	1	1
3	$0.97 I_n$	U_e	0.89	0.89	0.83
4	$0.94 I_n$	U_e	0.8	0.8	0.71
5	$0.90 I_n$	U_e	0.73	0.73	0.63

5.4 Pollution degree

Pollution degree 2

5.5 IP code (Degree of protection provided by enclosures)

IP20

6 Time-current curves

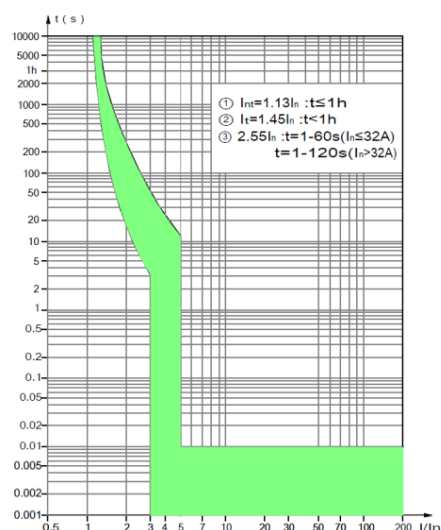
● B type curve

○ protect the non-inductive or micro-sense circuit

○ rated current: 1A~63A

○ tripping characteristic: instantaneous tripping range is $3I_n \sim 5I_n$

B type ($3I_n \sim 5I_n$)



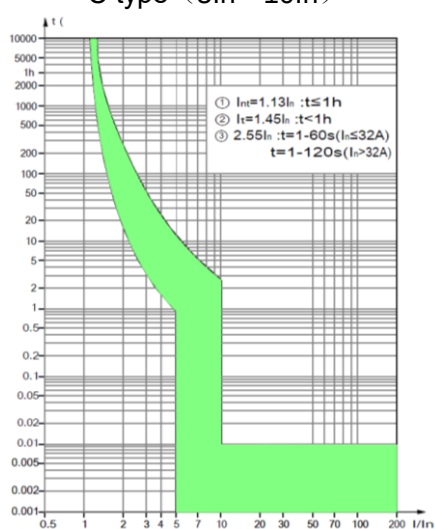
● C type curve

○ protect normal load and distribution wire cable

○ rated current: 1A~63A

○ tripping characteristic: instantaneous tripping range is $5I_n \sim 10I_n$

C type ($5I_n \sim 10I_n$)



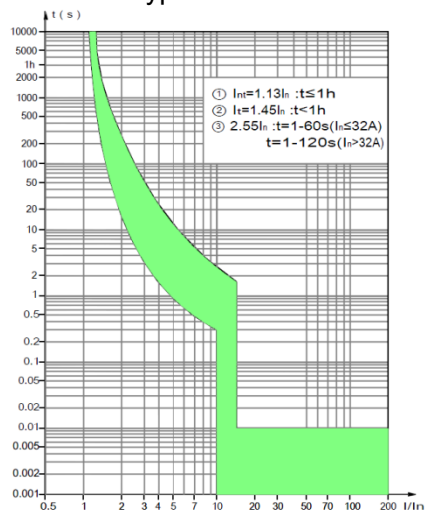
● D type curve

○ protect industrial distribution system

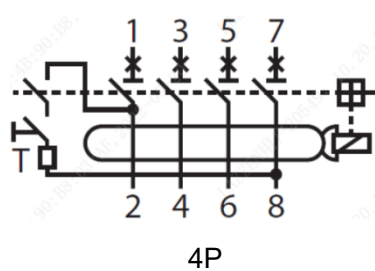
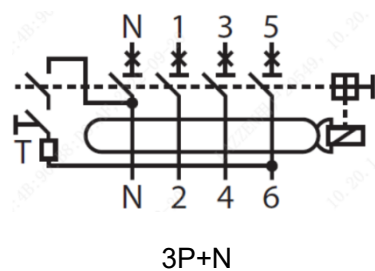
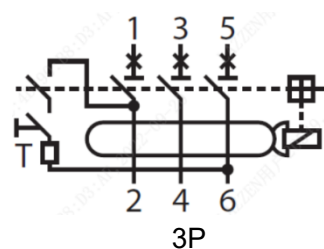
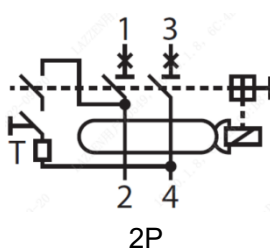
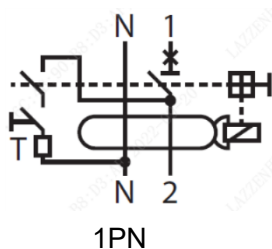
○ rated current: 1A~63A

○ tripping characteristic: instantaneous tripping range is $10I_n \sim 14I_n$

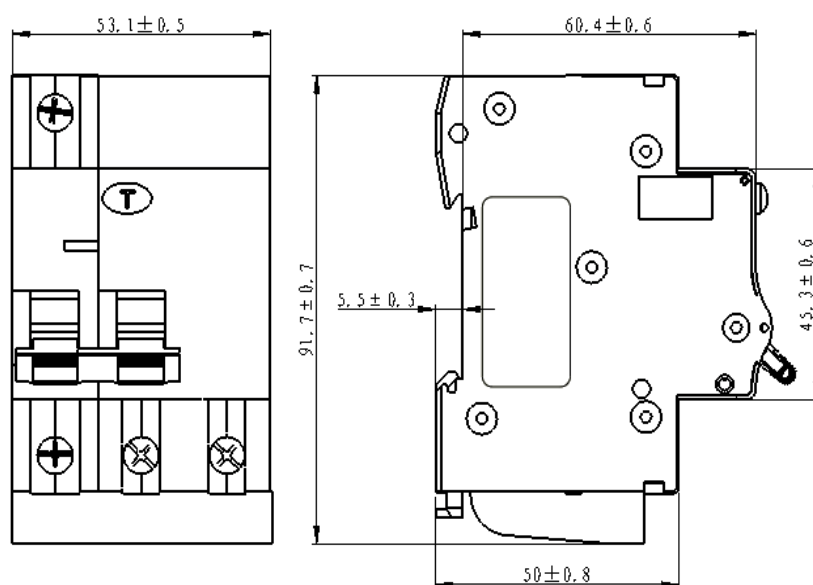
D type ($10I_n \sim 14I_n$)



7 Electrical schematic diagrams

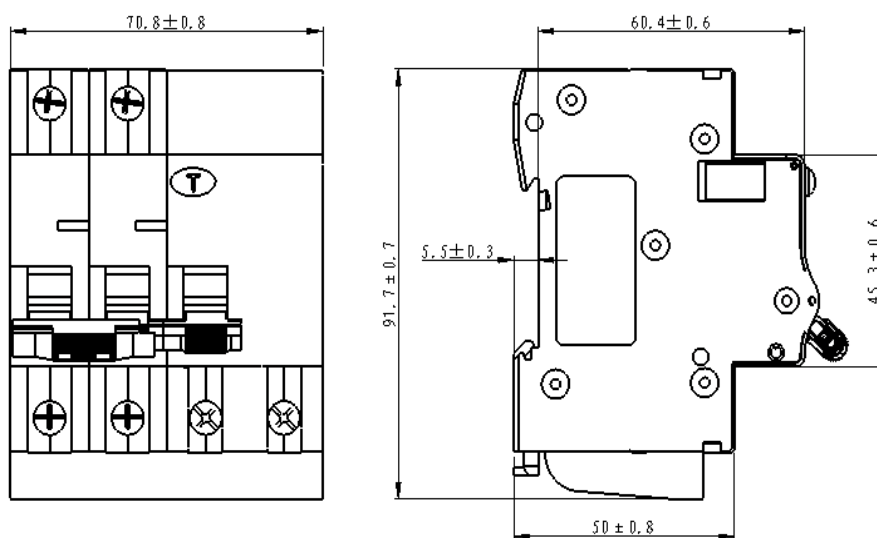


8 Dimensions

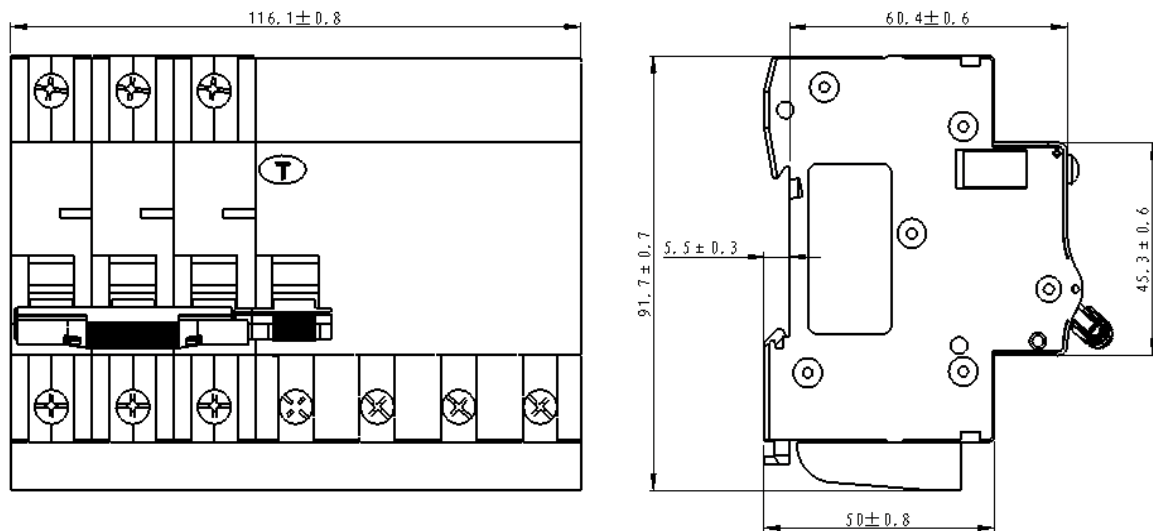


*The wire is about 30cm for the N pole.

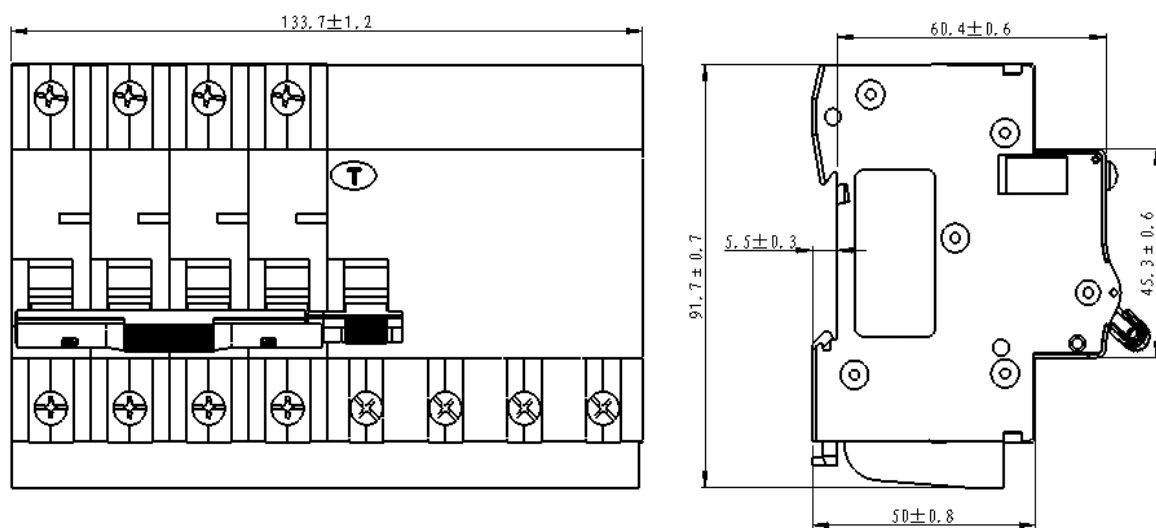
1PN



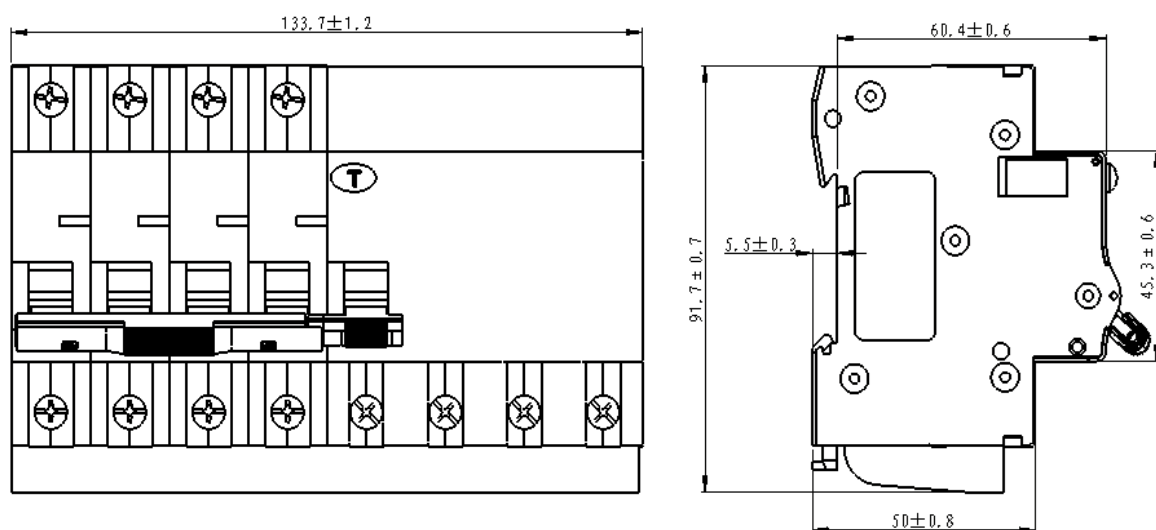
2P



3P



3P+N



4P

9 Installation

Installed in TH35mm x 7.5 standard guide rail

10 Packaging and storage

1PN: 4pcs per box; 2P:3 pcs per box, 3P: 2pcs per box, 3P+N or 4P:1 pcs per box. Packing cartons should be stored where air circulation and relative humidity is not more than 50% and the temperature is not higher than + 80℃ and not less than - 40℃, and also without acidic,alkaline and other corrosive gas. In the above conditions, the storage period since the production date is not more than three years.

11 RoHS compliance

Meeting RoHS requirement

12 Accessories

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

13 Utilization and maintenance

The operations of install the residual current protection circuit breaker are followed as: vertically install the RCD ,turn the hand shank to the position “I”, then the RCD is closed; turn the hand shank to the position “O”, then the RCD is opened.The product should be installed, used and tested normally. If the product cannot normally work or be damaged due to manufacture quality within 3 years, we will replace it for you for free.

14 Notice

- No responsibility for problems caused by disassembling privately;
- RCD can't provide protection in the cases that touch two phase line synchronously;
- Please don't perform insulating resistance test or voltage-withstand test on the product directly or indirectly by megohmmeter or similar test devices. If you need, we can offer validated proof regarding this item;
- When testing insulating resistance of the engineering circuit, the RCD should not be connected to avoid misunderstanding on the products' quality or damage its PCB;
- Please make sure reliable connection to avoid fault tripping or damage of terminals caused by exceptional heat;
- Simulating test should be made once a month by pressing the test button to check whether the circuit breaker works normally. If RCD is abnormal, it should be replaced.
- If the RCD trip automatically, you must timely analyze the fault reason of the line or the device.

15 Guidance of order-placing

Please specify the model, specification, poles, residual operating current, residual operating current type and quantity when placing the order.

For example: NDB2LM-63 C40/2P/30mA/A 60PCS