

Shanghai Liangxin Electrical Co., Ltd.

PRODUCT SPECIFICATION

NDB2LE-63

Residual Current Operated Circuit-breakers With Integral Overcurrent Protection

(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
0	First release	20160620	Xu Liang	Huo Zhiqiang	Yang Wei
1	Add accessory list	20190618	Xu Min	Huo Zhiqiang	Duan Hui
2	Format modification.1P+N to 1PN,3PN to 3P+N	20210318	XuGuoJun	DongMin	ZhangJing Yang
3	1.Add A type. 2.Add the note for 1PN with the wire	20220728	Guojun Xu	Min Xu	Hui Duan
4	Add “ Product certification and Executive Standards”	20220922	Guojun Xu	Min Xu	Hui Duan
5	Add “Standard wiring torque”	20221009	Guojun Xu	Min Xu	Hui Duan
6	Changed new format	20231122	Guojun Xu	Yu Hongbo	Huo Zhiqiang

1 Application

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

The NDB2LE-63 series of residual current action circuit breakers provide the ground leakage, direct or indirect electric shock by human body and other faults protection, which are applicable to the low-voltage terminal distribution in the industry, civil buildings, energy, communication, infrastructure and other fields.

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 E - 63 C 40 /2P /30mA /AC

1 2 3 4 5 6 7 8 9 10 11

Item	Parameter type	
1	Brand code	LAZZEN
2	Product code	B
3	Design code	2
4	Earth leakage protection	L
5	Electromagnetic type	E
6	Frame rating(A)	63
7	Instantaneous tripping characteristic	B,C,D
8	Rated current(A)	1,2,4,6,10,16,20,25,32, 40,50,63
9	Poles	1PN,2P,3P,3P+N,4P
10	Rated residual	Empty=30mA,50mA,100 mA,300 mA

	operating current(mA)	
11	Residual current operating characteristic	A type, Empty=AC type

4 Main technical parameters

4.1 Electrical parameters

Table1: NDB2LE-63 main electrical parameters

					
Product Name	NDB2LE-63				
Standard reference	GB/T16917.1,IEC61009-1				
Product certification	CCC,CB				
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)	440				
Rated impulse withstand voltage (kV)	4				
Instantaneous tripping characteristic	B,C,D				
Rated current In(A)	1,2,4,6,10,16,20,25,32, 40,50,63				
Rated residual current	30mA,50mA,100 mA,300 mA				
Residual current operating characteristic	A Type , AC Type				
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:1mm²~35mm²

○ Standard wiring torque:2.0N•m

5 Working conditions

5.1 Working conditions

- Altitude: $\leq 2000\text{m}$
- Ambient temperature: $-25^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- Resistant to moist air
- Resistant to salt mist and oil mist
- Service place without explosive media, gas and dust which are corrosive and conductive
- A place free from 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) 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

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	$0.97I_n$	U_e	0.89	0.89	0.83
4	$0.94I_n$	U_e	0.8	0.8	0.71
5	$0.90I_n$	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)

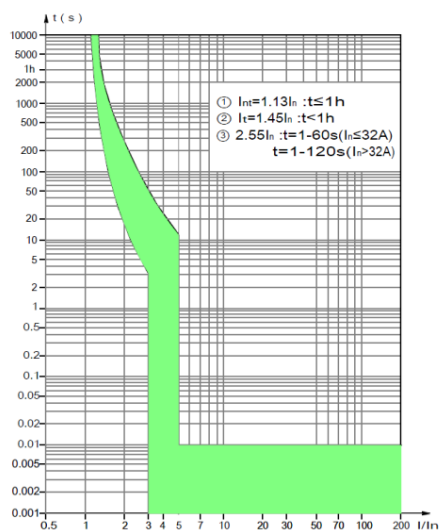
IP20

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 ($3I_n \sim 5I_n$)

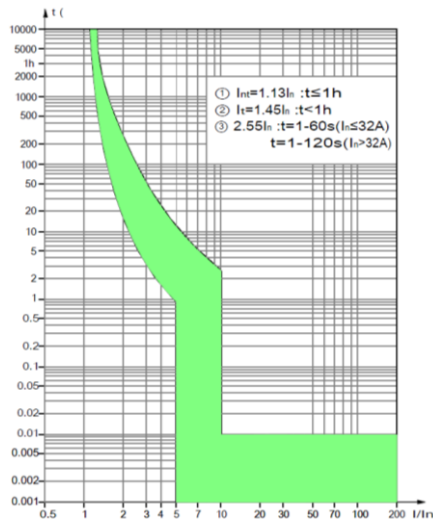
● C type curve

○ protect normal load and distribution wire cable

○ rated current: 1A~63A

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

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



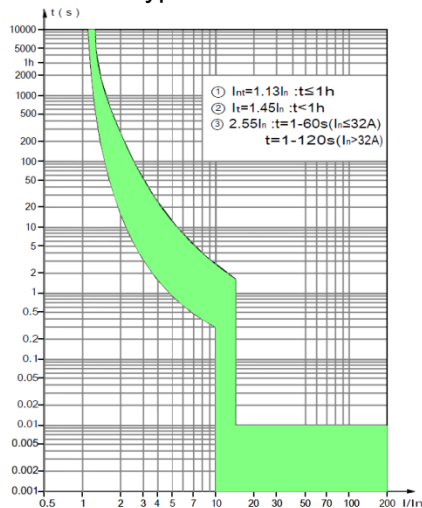
● D type curve

○ protect industrial distribution system

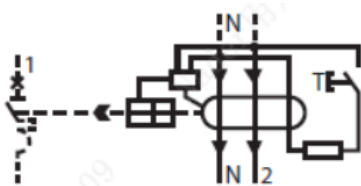
○ rated current: 1A~63A

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

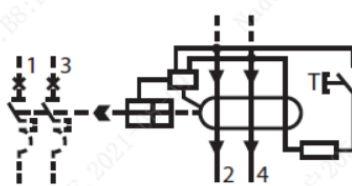
D type ($10I_n \sim 14I_n$)



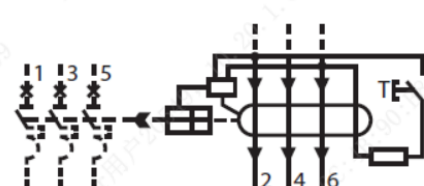
7 Electrical schematic diagrams



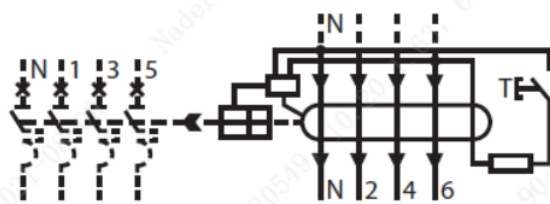
1PN



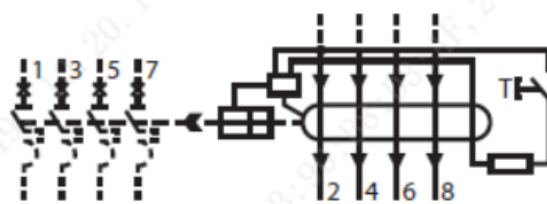
2P



3P

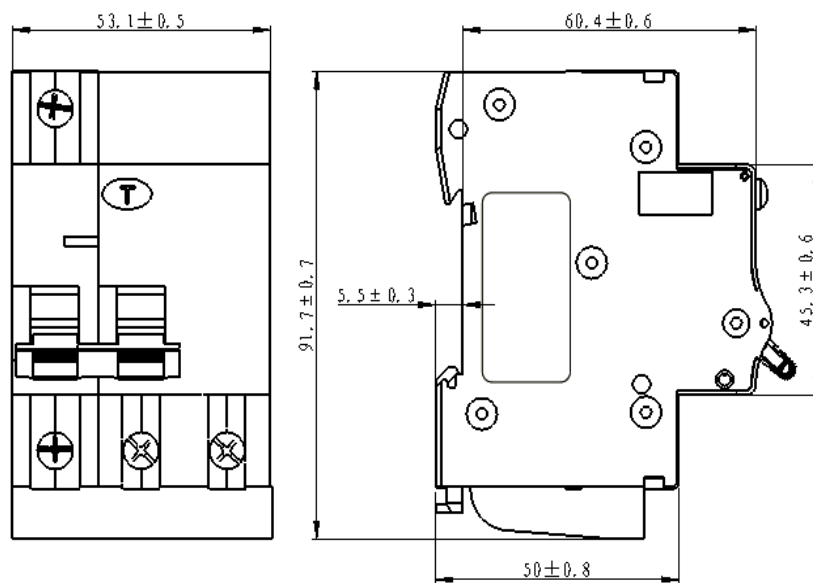


3P+N



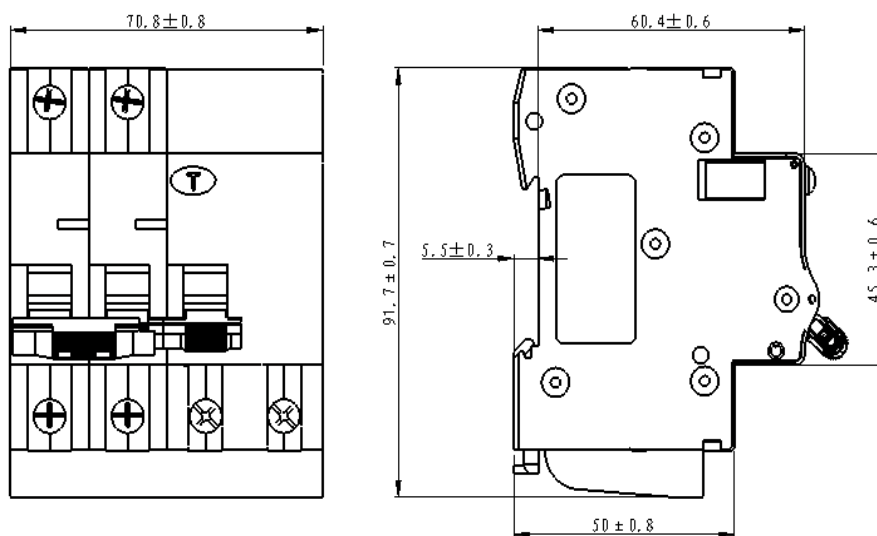
4P

8 Dimensions

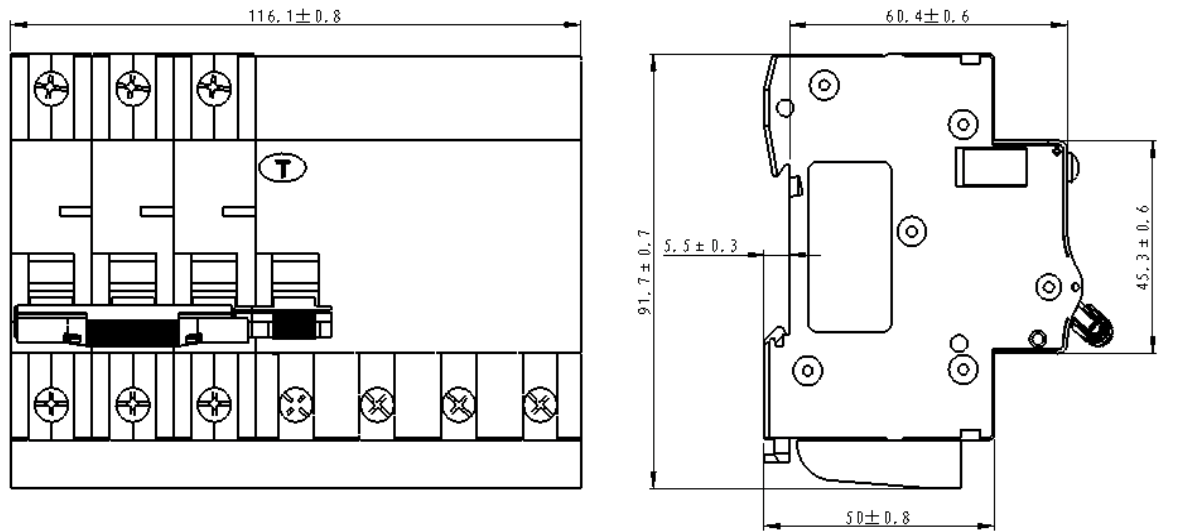


*The wire is about 30cm for the N pole.

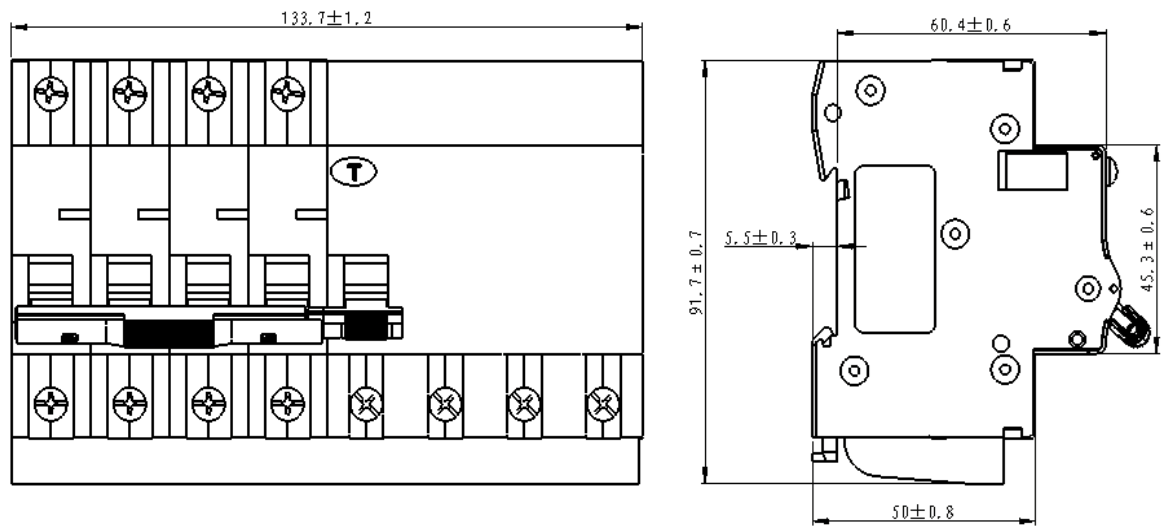
1PN



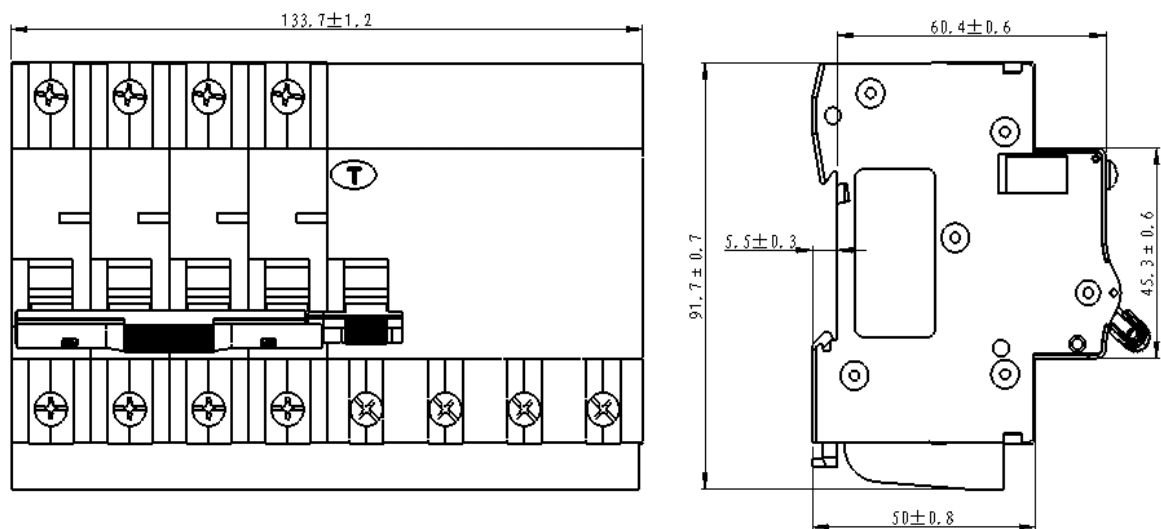
2P



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: NDB2LE-63 C40/2P/30mA/A 60PCS