





# NDM1GQ Series

## Under-voltage and Over-voltage Protective Breaker

2019 Edition

## 1. Product Overview

				
Model	NDM1GQ-50	NDM1GQ-63	NDM1GQ-50	NDM1GQ-63
Rated Voltage	AC380/400/415V(4P)	AC230/ 240V(1PN、2P)	AC380/400/ 415V(4P)	AC230/ 240V(1PN、2P)
Rated Current	1、2、3、4、5、 6、10、16、20、 25、32、40、50	1、2、3、4、5、 6、10、16、20、 25、32、40、 50、63	1、2、3、4、5、 6、10、16、20、 25、32、40、50	1、2、3、4、5、 6、10、16、20、 25、32、40、 50、63
Adaptive Breaker	NDM1-63	NDM1-63	NDB1C-63	NDB1C-63

## 2. Product Features

### ● Applicable Scope

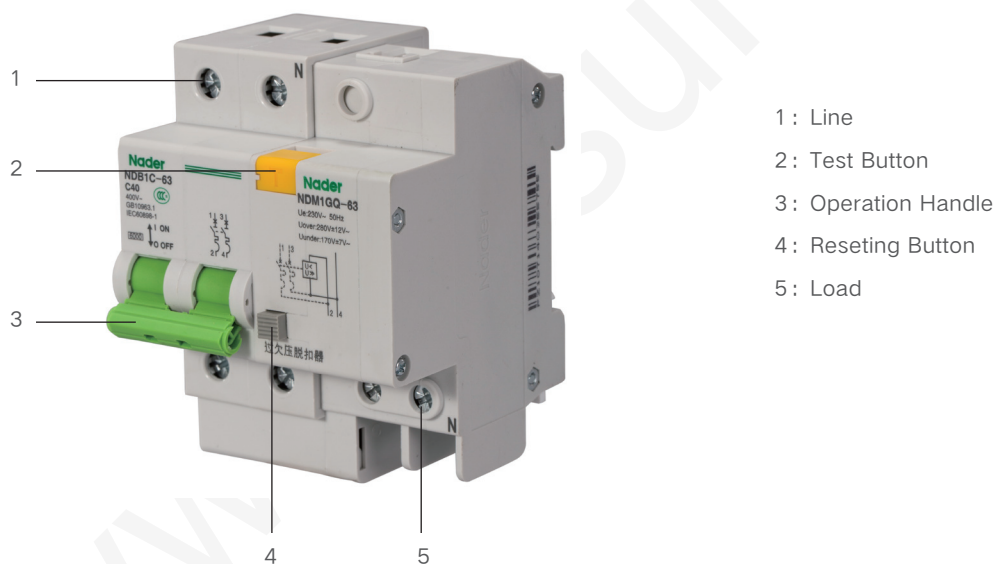
NDM1GQ Series Product adopts the assemble structure( between MCCB and under-voltage&over-voltage protective breaks) to do the protection against over voltage,over current and short circuit. It is a kind of multi-functional breakers and widely used in Low-voltage distribution of industry,civil building ,energy,telecommunication and infrastructure etc.

### ● Design Features

- ◆ Visual window's design: Make the product's switching-closing status more clearly to see.
- ◆ Modulation Structure:Easily to assemble and diversify

### ● Structure Features

- ◆ NDM1GQ External Diagram



### ● Standard

- ◆ The Subjected MCB's Complied Standards
  - ★ GB 16917.1 Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses(RCBOs)-Part 1 : General rules
  - ★ IEC 61009-1 Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses(RCBOs)-Part 1 : General rules
- ◆ NDM1L-100 Standards as Follow:
  - ★ GB 14048.2 Low-voltage switchgear and controlgear-Part 2: Circuit-breakers
  - ★ IEC 60947-2 Low-voltage switchgear and controlgear-Part 2: Circuit-breakers

## 3. Working Condition

### ● Applicable Condition

- ◆ Ambient Usage Temperature and Storage Temperature

Ambient Usage Temperature:  $-25^{\circ}\text{C}\sim+55^{\circ}\text{C}$ , Standard Temperature:  $+30^{\circ}\text{C}$ , correction factor of different ambient usage temperature refer to sheet 1

Storage Temperature:  $-30^{\circ}\text{C}\sim+70^{\circ}\text{C}$ .

- ◆ Altitude

The altitude of the mounting site  $\leq 2000\text{m}$

- ◆ Relative Usage Humidity and Relative Storage Humidity

The relative humidity shouldn't exceed 50% when the ambient air temperature is  $+40$  degrees, higher humidity can be allowed in lower temperature. For example, the humidity can be 90% when the ambient temperature is  $+20$  degrees. Necessary measures should be acted for the condensation produced by the changed temperature.

### ● Pollution Degree

2

### ● Protection Level

Level of Product Protection: IP20

### ● Mounting Method

Mounted on TH35mm x 7.5 Standard Rail.

### ● Mounting Direction

- ◆ Vertical Mounting: The inclination between mounting plane and vertical plane should  $\leq \pm 5$  degrees
- ◆ Horizontal Mounting

### ● Environmental Requirement

Comply with RoHS

## 4. Product Technical Characteristic

### 4.1 Model and Implication

No.	Implication	Instruction	
1	Brand Code	ND: <b>Nader</b>	
2	Code	M	
3	Design Code	1	
4	Over-Voltage and Under-Voltage Functional Code	GQ: Indicates over-voltage and under-voltage protective function G: Indicates over-voltage protective function Q: Indicates under-voltage protective function	
5	Frame Rating	50	63
6	Instantaneous Tripping Characteristics	B: Instantaneous Tripping Range: $3I_n \sim 5I_n$ ; C: Instantaneous Tripping Range: $5I_n \sim 10I_n$ ; D: Instantaneous Tripping Range: $10I_n \sim 14I_n$ ;	B: Instantaneous Tripping Range: $3I_n \sim 5I_n$ ; C: Instantaneous Tripping Range: $5I_n \sim 10I_n$ ; D: Instantaneous Tripping Range: $10I_n \sim 14I_n$ ;
7	Rated Current (A)	1、2、3、4、5、6、10、16、20、25、32、40、50、63	1、2、3、4、5、6、10、16、20、25、32、40、50、63
8	Number of Poles	4P	1PN, 2P

## 4.2 Technical Parameters

	NDM1GQ-50	NDM1GQ-63
Rated Voltage (V)	AC380/400/415V	AC230/240V
Number of Poles	4P	1PN,2P
Rated Current In(A)	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63
Rated Insulated Voltage Ui(V)	AC500V	AC500V
Rated Impulse Withstand Voltage (Uimp)	4kV	4kV
Rated Ultimate Short Circuit Breaking Current (Icu)	6kA (B、C1A~40A); 4.5kA (B、C50A, 63A, D)	6kA (B、C1A~40A); 4.5kA (B、C50A, 63A, D)
Rated Short-Circuit Operation Breaking Current (Ics)	6kA (B、C1A~40A); 4.5kA (B、C50A, 63A, D)	6kA (B、C1A~40A); 4.5kA (B、C50A, 63A, D)
Over-voltage Operation Value and Time (Uover)	AC280V ± 12V /0.1s	AC280V ± 12V /0.1s
Under-voltage Operation Value and Time (Uover)	AC170V ± 7V /1s	AC170V ± 7V /1s
Rated Working Frequency (Hz)	50/60	50/60
Mechanical and Electric Life	20000次	20000次
Connection and Wiring Capacity	<ul style="list-style-type: none"> <li>◆ Tunnel Connecting Terminal</li> <li>◆ Terminal Connecting Area: 1~16 mm<sup>2</sup> cable is applicable</li> <li>◆ Connecting Screw is M4, Torque is 2.0N.m</li> </ul>	<ul style="list-style-type: none"> <li>◆ Tunnel Connecting Terminal</li> <li>◆ Terminal Connecting Area: 1~16 mm<sup>2</sup> cable is applicable</li> <li>◆ Connecting Screw is M4, Torque is 2.0N.m</li> </ul>

● Temperature Correction Factor Sheet (1)

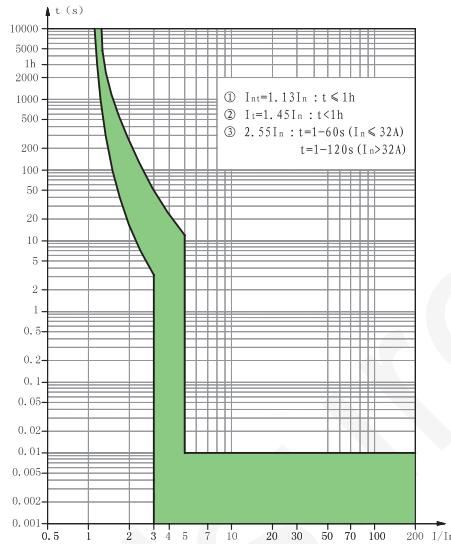
Ambient Temperature (°C) Correction Current (A) Rated Current (A)	-35	-30	-25	-20	-15	-10	-5	-0	5	10	15
1	1.27	1.25	1.23	1.21	1.19	1.17	1.15	1.13	1.10	1.08	1.06
3	3.89	3.83	3.76	3.70	3.64	3.57	3.50	3.44	3.37	3.30	3.22
6	7.70	7.58	7.46	7.34	7.21	7.09	6.96	6.83	6.70	6.56	6.42
10	13.89	13.62	13.35	13.07	12.81	12.53	12.23	11.93	11.63	11.33	11.01
16	20.78	20.43	20.08	19.75	19.40	19.05	18.70	18.33	17.96	17.58	17.20
20	25.67	25.28	24.88	24.47	24.06	23.64	23.22	22.78	22.34	21.89	21.43
25	32.21	31.72	31.22	30.70	30.18	29.65	29.10	28.55	27.98	27.41	26.82
32	41.04	40.46	39.82	39.17	38.51	37.84	37.15	36.47	35.75	35.03	34.30
40	51.63	50.86	50.04	40.21	48.37	47.51	46.63	45.74	44.83	43.90	42.95
50	64.92	63.97	62.92	61.86	60.77	59.67	58.54	57.40	56.23	55.05	53.81
63	83.48	82.06	80.64	79.19	77.72	76.22	74.70	73.14	71.54	69.91	68.24

Ambient Temperature (°C) Correction Current (A) Rated Current (A)	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

## 4.3 Tripping Curve

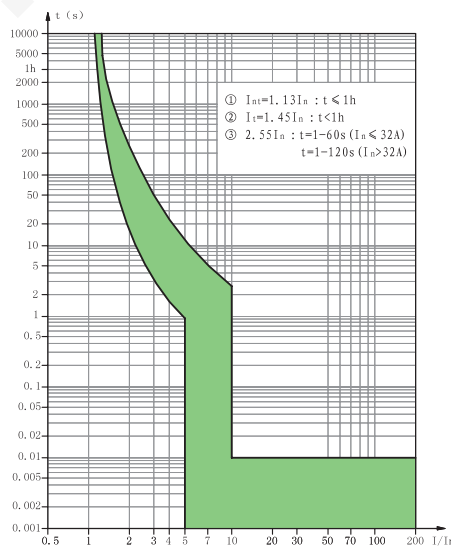
### ● B Curve

- ★ Protect non-inductive and micro inductive circuits
- ★ Rated Current: 1A-63A
- ★ Tripping Characteristics: Instantaneous tripping range:  $3I_n$ - $5I_n$



### ● C Curve

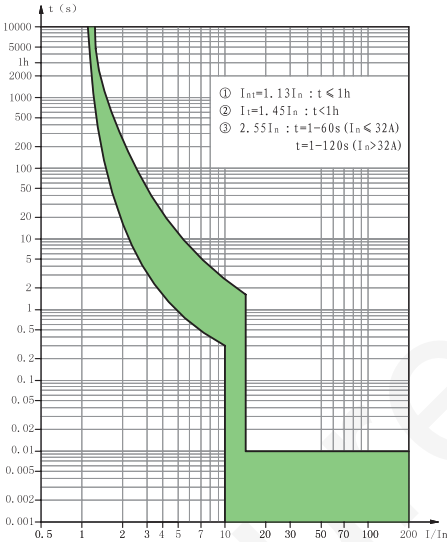
- ★ Protect Nominal Load and Distribution Cables
- ★ Rated Current: 1A-63A
- ★ Tripping Characteristics: Instantaneous tripping range:  $5I_n$ - $10I_n$





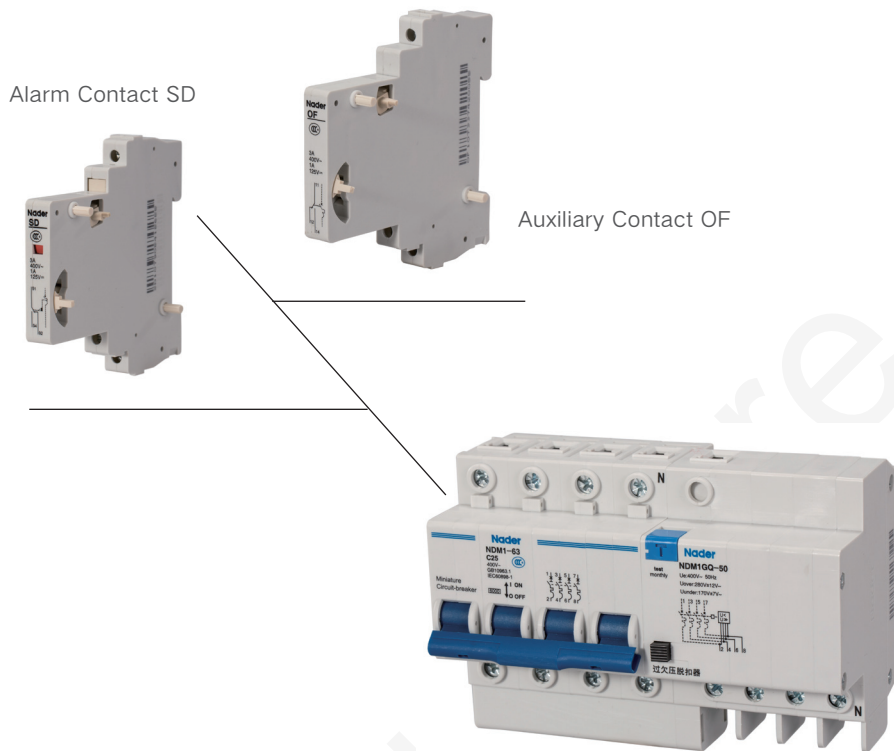
● D Curve

- ★ Protect industrial distribution systems
- ★ Rated Current: 1A-63A
- ★ Tripping Characteristics: Instantaneous tripping range:  $10I_n-14I_n$



## 5. Accessory

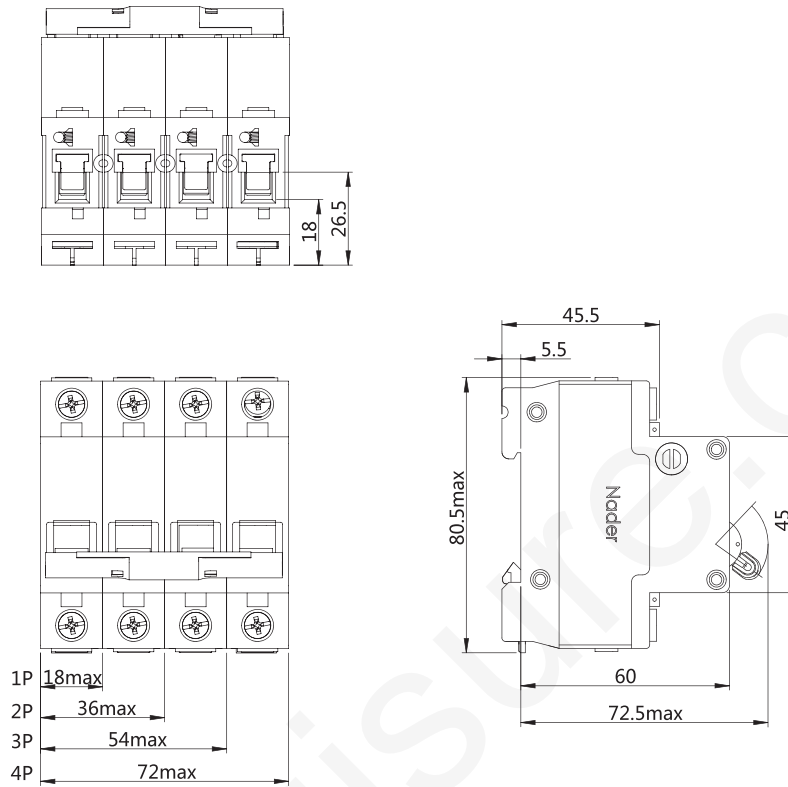
### 5.1 Accessory Sheet



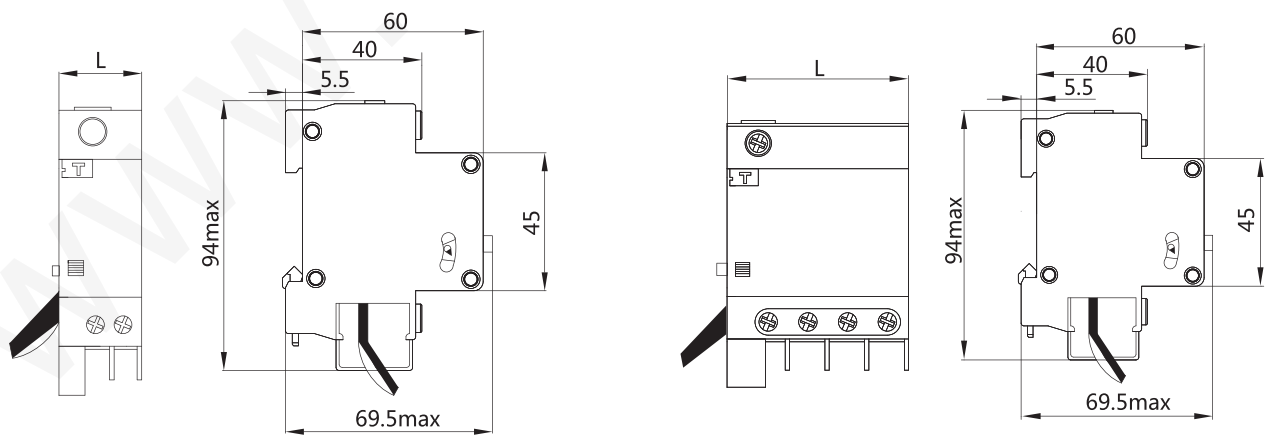
### 5.2 NDM1GQ-50、63 Accessory Types

No.	Name	Accessory Code	Function and Matched Quantity
1	Auxiliary Contact	OF	Linked to the left side of MCB to indicate OPEN or CLOSE status of the associated breaker. Matched quantity :Max 3 Pcs
2	Alarm Contact	SD	Linked to the left side of MCB to indicate the accidental tripping status of the associated breaker. Matched quantity:3 Pcs Max.

## 6. Outline and Mounting Dimension



Subject Dimension of MCB



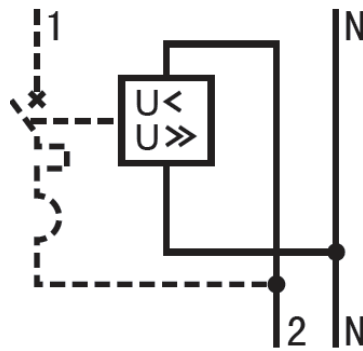
1PN、2P L=37max

4P L=64max

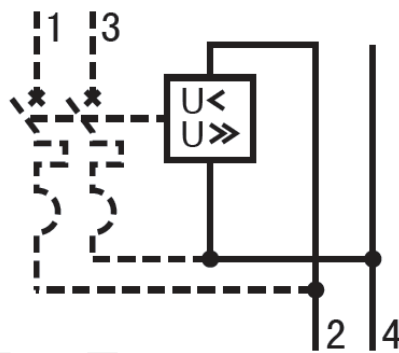
Over-Voltage and Under-Voltage Release Dimension

## 7. Wiring Diagram

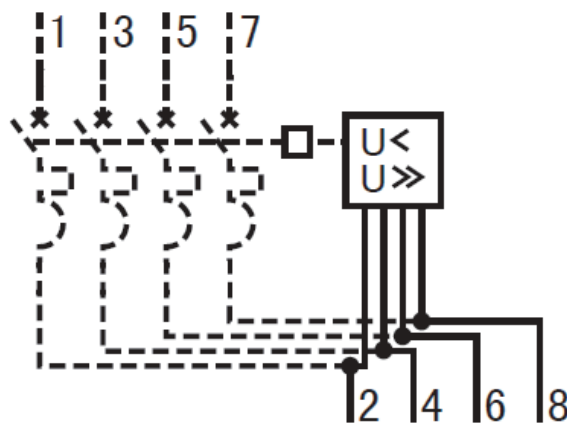
- 1PN Wiring Diagram



- 2P Wiring Diagram



- 4P Wiring Diagram



## 8. Ordering Types and Specifications (Tick ✓ in )

Customer		Ordering Quantity:	Ordering Date:
Frame Rating	<input type="checkbox"/> NDM1GQ-50	<input type="checkbox"/> NDM1GQ-63	
Number of Poles	<input type="checkbox"/> 4P	<input type="checkbox"/> 1PN <input type="checkbox"/> 2P	
Rated Working Voltage(V)	<input type="checkbox"/> AC380/400/415	<input type="checkbox"/> AC230/240	
Rated Working Current(A)	1、 2、 3、 4、 5、 6、 10、 16、 20、 25、 32、 40、 50	1、 2、 3、 4、 5、 6、 10、 16、 20、 25、 32、 40、 50、 63	
Instantaneous Tripping Characteristics	<input type="checkbox"/> B: Instantaneous tripping range: 3In-5In, protect non-inductive and micro inductive circuits <input type="checkbox"/> C: Instantaneous tripping range: 5In-10In, protect Nominal Load and Distribution Cables <input type="checkbox"/> D: Instantaneous tripping range: 10In-14In, protect industrial distribution systems		
Over-Voltage and Under-Voltage Functional Code	<input type="checkbox"/> GQ: Indicates over-voltage and under-voltage protective function <input type="checkbox"/> G: Indicates over-voltage protective function <input type="checkbox"/> Q: Indicates under-voltage protective function		
Tie Breaker	<input type="checkbox"/> NDM1-63 <input type="checkbox"/> NDB1C-63		