NB1 Miniature Circuit Breaker

1 Color coded contact position indicator provides visual indication of the device status and insulation function

2 Trip-free mechanism, device operation can not be defeated by holding the operator in the ON position

3 Breaking capacity up to 6000A

4 Magnetic trip elements provide Type B, C and D trip characteristics while bimetallic element protect against slight overload

5 Line and load side terminals accept bus bar connections for reduced costs and more efficient installation of multiple devices

6 Heat dissipation gap provides better cooling

7 Extendable DIN-rail holder for easy installation

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NB1 -63
Miniature Circuit Breaker

1. General

1.1 Function

protection of circuits against short-circuit currents,
protection of circuits against overload currents,
switch,isolation.
NB1 circuit-breakers are used in domestic installation, as well as in commercial and industry electrical distribution systems.

1.2 Selection

Technical data of the network at the point considered:
short-circuit current at the circuit-breaker installation point, which must always be less than the breaking capacity of this device,network normal voltage.
Tripping curves:
B curve (3-5In)
protection for people and big length cables in TN and IT systems.

C curve (5-10In)
protection for resistive and inductive loads with low inrush current.

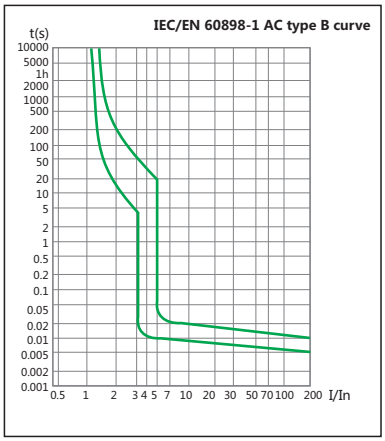
D curve(10-14In)
protection for circuits which supply loads with high inrush current at the circuit closing
(LV/LV transformers, breakdown lamps).

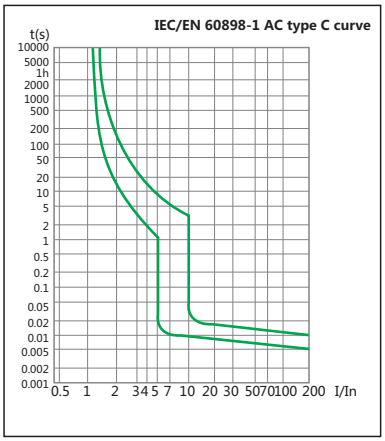
1.3 Approvals and certificates

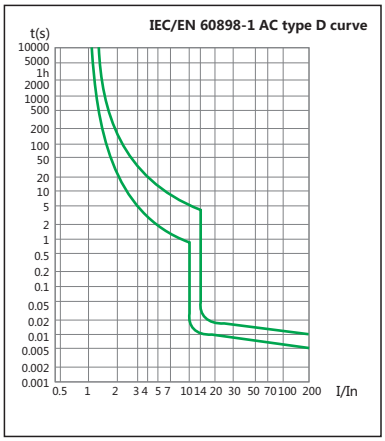
Detailed information, please refer to Certificates Table on the last page.

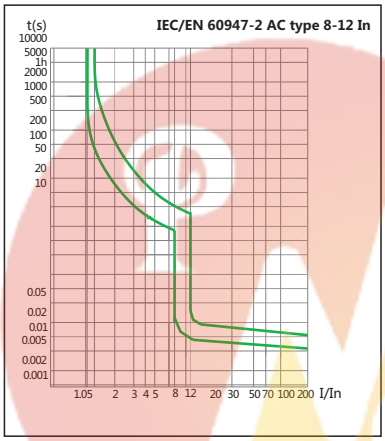
2. Technical data

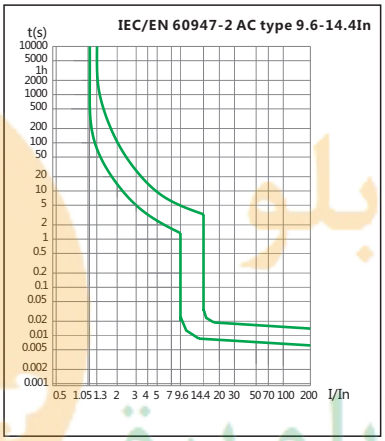
2.1 Curves

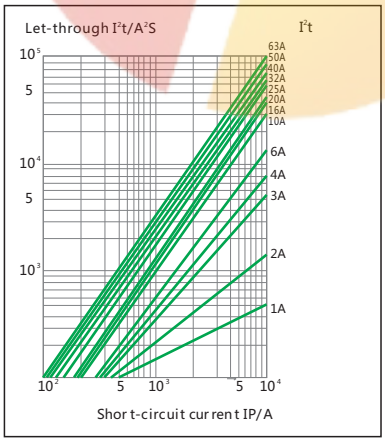












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2.2

	Standard		IEC/EN 60898-1	IEC/EN 60947-2	UL1077	
Electrical features	Rated current In	A	1, 2, 3, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63		1, 2, 3, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63	
	Poles		1P, 1P+N, 2P, 3P, 3P+N, 4P	1P, 2P, 3P, 4P	1P, 2P, 3P, 4P	1P, 2P
	Rated voltage Ue	V	230/400~240/415		277/480	110/125
	Insulation voltage Ui	V	500			
	Rated frequency		50/60Hz			DC
	Rated breaking capacity	A	6000	6000	5000	10000
	Energy limiting class		3			
	Rated impulse withstand voltage(1.2/50) Uimp	V	4000			
	Dielectric test voltage at ind. Freq. for 1 min	kV	2	1.890	2	
	Pollution degree		2			
	Power loss per pole		Rated current (A)		Max power loss per pole (W)	
			1, 2, 3, 4, 6, 10		2	
			16, 20, 25, 32		3.5	
			40, 50, 63		5	
	Thermo-magnetic release characteristic		B, C, D	(8-12)In	B, C, D	
Mechanical features	Electrical life		4, 000			
	Mechanical life		20, 000			
	Contact position indicator		Yes			
	Protection degree		IP20			
	Reference temperature for setting of thermal element	℃	30			
	Ambient temperature (with daily average≤35℃)	℃	-25...+60			
	Storage temperation	℃	-25...+70			
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar			
	Terminal size top/bottom for cable	mm^2	25			
		AWG	18-4			
	Terminal size top/bottom for busbar	mm^2	10			
		AWG	18-8			
	Tightening torque	N·m	2.0			
		In-lbs.	22			
	Mounting		On DIN rail EN 60715 (35mm) by means of fast clip device			
	Connection		From top and bottom			
Combination with accessories	Auxiliary contact		Yes			
	Shunt release		Yes			
	Under voltage release		Yes			
	Alarm contant		Yes			

2.3 Selectivity

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: RT36-00 (fuse)								
	20	25	36	50	63	80	100	125	160
	Is (kA)								
⩽2	1.2	4	> 12	> 12	> 12	> 12	> 12	> 12	> 12
3	0.7	1.2	3.8	5.3	6	6	6	6	6
4	0.6	0.9	2.5	3.8	6	6	6	6	6
6	0.5	0.8	1.9	2.5	4.5	5	6	6	6
10		0.7	1.4	2.2	3.2	3.6	6	6	6
16			1.2	1.8	2.6	3	5.6	6	6
20				1.5	2.2	2.5	4.6	6	6
25				1.3	2	2.2	4.1	5.5	6
32					1.7	1.9	3.8	4.5	6
40						1.7	3	4	5
50						1.5	2.6	3.5	4.5
63							2.4	3.3	4.5

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: NM8-100S/H/R								
	16	20	25	32	40	50	63	80	100
	Is (kA)								
≤10	0.19	0.19	0.3	0.4	0.5	0.5	0.5	0.63	0.8
16			0.3	0.4	0.5	0.5	0.5	0.63	0.8
20					0.5	0.5	0.5	0.63	0.8
25						0.5	0.5	0.63	0.8
32							0.5	0.63	0.8
40								0.63	0.8
50									0.8
63									

2.4 Backup protection

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: RT16 series						
	40	50	63	80	100	125	160
	Is (kA)						
1~6	40	40	40	40	40	40	40
8~10	40	40	40	40	40	40	40
13	40	40	40	40	35	35	35
16	40	40	40	40	30	30	30
20	40	40	40	40	30	30	30
25	40	40	40	40	30	30	30
32	40	40	40	40	30	30	30
40	40	40	40	40	30	30	30
50	30	30	30	30	30	30	30
63	20	20	20	20	15	15	15

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: NM8					
	NM8-125S	NM8-125H	NM8-125R	NM8-250S	NM8-250H	NM8-250R
	Is (kA)					
1~6	15	18	18	15	15	15
10~20	12	15	15	12	12	12
32~40	12	15	15	12	12	12
50~60	12	15	15	12	12	12

A

2.5 Temperature derating

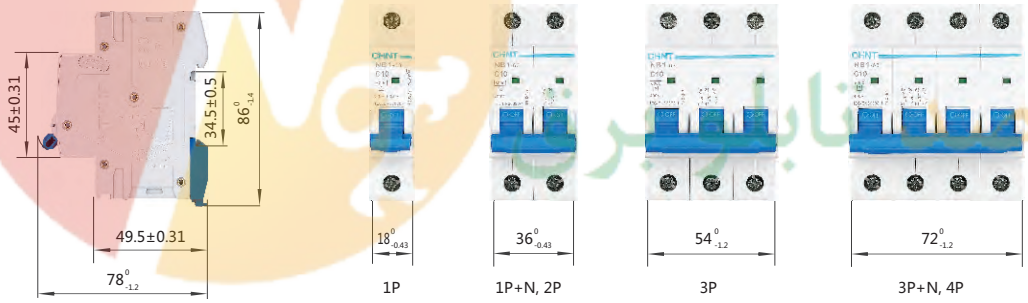
The maximum permissible current in a circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switchboard in which the circuit breakers are installed.

The reference temperature is 30℃

Ambient temperature → / Rated current(A) ↓	-25	-15	-5	0	10	20	30	40	50	60
1	1.26	1.23	1.19	1.15	1.11	1.05	1	0.96	0.93	0.88
2	2.52	2.46	2.38	2.28	2.2	2.08	2	1.92	1.86	1.76
3	3.78	3.69	3.57	3.42	3.3	3.12	3	2.88	2.79	2.64
4	5.04	4.92	4.76	4.56	4.4	4.16	4	3.84	3.76	3.52
6	7.56	7.38	7.14	6.84	6.6	6.24	6	5.76	5.64	5.28
10	12.7	12.5	12	11.5	11.1	10.6	10	9.6	9.3	8.9
16	20.48	20	19.2	18.4	17.76	16.96	16	15.36	14.88	14.24
20	25.6	25	24	23	22.2	21.2	20	19.2	18.6	17.8
25	32	31.25	30	28.75	27.75	26.5	25	24	23.25	22.25
32	41.28	40	38.72	37.12	35.52	33.92	32	30.72	29.76	28.16
40	51.2	50	48	46.4	44.8	42.4	40	38.4	37.2	35.6
50	65.5	63	60.5	58	56	53	50	48	46.5	44
63	81.9	80.01	76.86	73.71	70.56	66.78	63	60.48	58.9	55.44

When several simultaneously operating circuit breakers are mounted side by side in a small enclosure, the temperature rise inside the enclosure causes a reduction in current rating.
You must then assign the rating (already derated if necessary according to ambient temperatuer) a downrating factor of 0.8.

3. Overall and mounting dimensions (mm)



NB1-63H
Miniature Circuit Breaker

1. General

1.1 Function

protection of circuits against short-circuit currents,
protection of circuits against overload currents,
switch,isolation.
NB1-63H circuit-breakers are used in domestic installation, as well as in commercial and industry electrical distribution systems.

1.2 Selection

Technical data of the network at the point considered:
short-circuit current at the circuit-breaker installation point, which must always be less than the breaking capacity of this device,network normal voltage.
Tripping curves:

B curve (3-5In)

protection for people and big length cables in TN and IT systems.

C curve (5-10In)

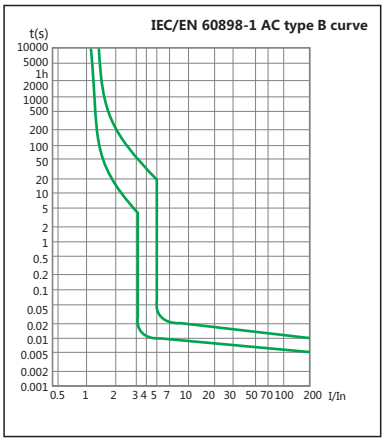
protection for resistive and inductive loads with low inrush current.

D curve(10-14In)

protection for circuits which supply loads with high inrush current at the circuit closing
(LV/LV transformers, breakdown lamps).

2. Technical data

2.1 curves



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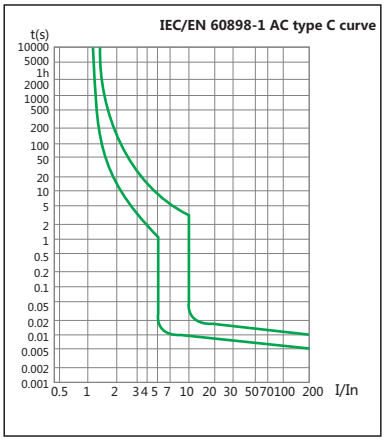
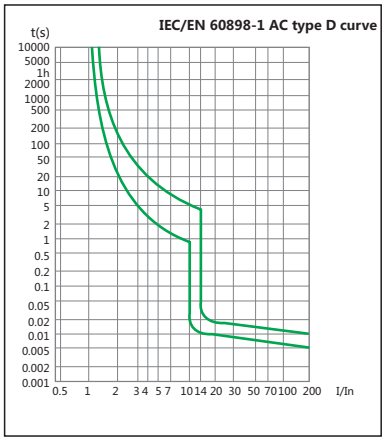
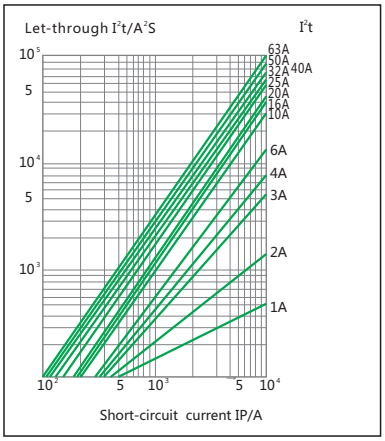






2.2

	Standard		IEC/EN 60898-1	
Electrical features	Rated current In	A	1, 2, 3, 4, 6, 10, 16,20, 25, 32, 40, 50, 63	
	Poles		1P, 1P+N, 2P, 3P, 3P+N, 4P	
	Rated voltage Ue	V	230/400~240/415	
	Insulation voltage Ui	V	500	
	Rated frequency		50/60Hz	
	Rated breaking capacity	A	10000	
	Energy limiting class		3	
	Rated impulse withstand voltage(1.2/50) Uimp	V	6000	
	Dielectric test voltage at ind. Freq. for 1 min	kV	2	
	Pollution degree		2	
	Power loss per pole		Rated current (A)	Max power loss per pole (W)
			1, 2, 3, 4, 5, 6, 10	2
			13, 16, 20, 25, 32	3.5
			40, 50, 63	5
	Thermo-magnetic release characteristic		B, C, D	
Mechanical features	Electrical life		4, 000	
	Mechanical life		20, 000	
	Contact position indicator		Yes	
	Protection degree		IP20	
	Reference temperature for setting of thermal element	℃	30	
	Ambient temperature (with daily average≤35℃)	℃	-25...+60(Special application please refer to P10 for temperature compensation correction)	
	Storage temperation	℃	-25...+70	
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar	
	Terminal size top/bottom for cable	mm^2	25	
		AWG	18-4	
	Terminal size top/bottom for busbar	mm^2	10	
		AWG	18-8	
	Tightening torque	N·m	2.0	
		In-lbs.	22	
	Mounting		On DIN rail EN 60715 (35mm) by means of fast clip device	
	Connection		From top and bottom	
Combination with accessories	Auxiliary contact		Yes	
	Shunt release		Yes	
	Under voltage release		Yes	
	Alarm contant		Yes	

2.3 Selectivity

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: RT36-00 (fuse)								
	20	25	36	50	63	80	100	125	160
	Is (kA)								
⩽2	1.2	4	> 12	> 12	> 12	> 12	> 12	> 12	> 12
3	0.7	1.2	3.8	5.3	6	6	6	6	6
4	0.6	0.9	2.5	3.8	6	6	6	6	6
6	0.5	0.8	1.9	2.5	4.5	5	6	6	6
10		0.7	1.4	2.2	3.2	3.6	6	6	6
16			1.2	1.8	2.6	3	5.6	6	6
20				1.5	2.2	2.5	4.6	6	6
25				1.3	2	2.2	4.1	5.5	6
32					1.7	1.9	3.8	4.5	6
40						1.7	3	4	5
50						1.5	2.6	3.5	4.5
63							2.4	3.3	4.5

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: NM8-100S/H/R								
	16	20	25	32	40	50	63	80	100
	Is (kA)								
≤10	0.19	0.19	0.3	0.4	0.5	0.5	0.5	0.63	0.8
16			0.3	0.4	0.5	0.5	0.5	0.63	0.8
20					0.5	0.5	0.5	0.63	0.8
25						0.5	0.5	0.63	0.8
32							0.5	0.63	0.8
40								0.63	0.8
50									0.8
63									

2.4 Backup protection

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: RT16 series						
	40	50	63	80	100	125	160
	Is (kA)						
1~6	40	40	40	40	40	40	40
8~10	40	40	40	40	40	40	40
13	40	40	40	40	35	35	35
16	40	40	40	40	30	30	30
20	40	40	40	40	30	30	30
25	40	40	40	40	30	30	30
32	40	40	40	40	30	30	30
40	40	40	40	40	30	30	30
50	30	30	30	30	30	30	30
63	20	20	20	20	15	15	15

Load side: NB1-63, NB1-63H Curve B, C

In (A)	Power supply side: NM8					
	NM8-125S	NM8-125H	NM8-125R	NM8-250S	NM8-250H	NM8-250R
	Is (kA)					
1~6	15	18	18	15	15	15
10~20	12	15	15	12	12	12
32~40	12	15	15	12	12	12
50~60	12	15	15	12	12	12

A

2.5 Temperature derating

The maximum permissible current in a circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switchboard in which the circuit breakers are installed.

The reference temperature is 30℃

Ambient temperature → / Rated current(A) ↓	-25	-15	-5	0	10	20	30	40	50	60
1	1.26	1.23	1.19	1.15	1.11	1.05	1	0.96	0.93	0.88
2	2.52	2.46	2.38	2.28	2.2	2.08	2	1.92	1.86	1.76
3	3.78	3.69	3.57	3.42	3.3	3.12	3	2.88	2.79	2.64
4	5.04	4.92	4.76	4.56	4.4	4.16	4	3.84	3.76	3.52
6	7.56	7.38	7.14	6.84	6.6	6.24	6	5.76	5.64	5.28
10	12.7	12.5	12	11.5	11.1	10.6	10	9.6	9.3	8.9
16	20.48	20	19.2	18.4	17.76	16.96	16	15.36	14.88	14.24
20	25.6	25	24	23	22.2	21.2	20	19.2	18.6	17.8
25	32	31.25	30	28.75	27.75	26.5	25	24	23.25	22.25
32	41.28	40	38.72	37.12	35.52	33.92	32	30.72	29.76	28.16
40	51.2	50	48	46.4	44.8	42.4	40	38.4	37.2	35.6
50	65.5	63	60.5	58	56	53	50	48	46.5	44
63	81.9	80.01	76.86	73.71	70.56	66.78	63	60.48	58.9	55.44

When several simultaneously operating circuit breakers are mounted side by side in a small enclosure, the temperature rise inside the enclosure causes a reduction in current rating.
You must then assign the rating (already derated if necessary according to ambient temperatuer) a downrating factor of 0.8.

3. Overall and mounting dimensions (mm)

NB1-63DC
DC Circuit Breaker

1. General

1.1 Certificates: CCC,CE,CB,TUV;

1.2 Standard: IEC/EN 60947-2 ,RoHS;

1.3 Rated voltage up to 1000V, Rated current up to 63A;

1.4 Protection of circuits against overload currents;

1.5 Protection of circuits against short-circuit currents;

1.6 NB1-63 DC circuit-breakers are used in communication systems and PV DC systems.

2. Features

2.1 Excellent breaking capacity

2.2 Double connection function of lead wire and bus bar

2.3 Stored energy operation, fast closing, long service life

2.4 Convenient installation, disassembly

2.5 Contact on-off indication, higher security

2.6 Green environmental protection and energy saving

3. Type designation

N B 1 - 63 DC

- DC — Direct Current
- 63 — Frame size rated current
- 1 — Designed sequence number
- B — MCB
- N — Company code

4. Operating conditions

4.1 Ambient temperature:-35℃~+70℃(Refer to 5.3)

4.2 The atmosphere condition:≤95%

4.3 Pollution degree:Ⅱ

4.4 Altitude:≤2000m(if exceed 2000m,Refer to 5.4)

5. Technical data

5.1 Classification

5.1.1 Rate Current In:
1A,2A,3A,4A,6A,10A,13A,16A,20A,25A,32A,40A,50A,63A

5.1.2 Number of poles: 1P,2P,4P

5.1.3 Tripping curves: C Type,(7~10)In

5.2 Parameters

5.2.1 Rated breaking capacity Icu

A

Rated current In (A)	Number of poles	Rated voltage Ue (V)	Rated breaking capacity Icu (A)
1~63	1	250	6000
	2	500	6000
	4	1000	6000

5.2.2 Electrical and mechancial life

a. Electrical life: > 1500

b. Mechancial life: > 20,000

5.2.3 Rated impulse withstand voltage Uimp:4KV

5.2.4 (28-32)℃ ambient temperature over-current protection features.

Test	Test current	Initial state	Time limit for tripping or not tripping	Expected result	Remarks
a	1.05In	Cold state	t≤1h	Not tripping	
b	1.30In	Right after test number a	t < 1h	Tripping	The current is rising within 5s
c	7In	Cold state	t≤0.2s	Not tripping	
d	10In	Cold state	t < 0.1s	Tripping	

Note: The terminology" Cold state" means that the test is performed at the base calibration temperature with no load prior to the test.

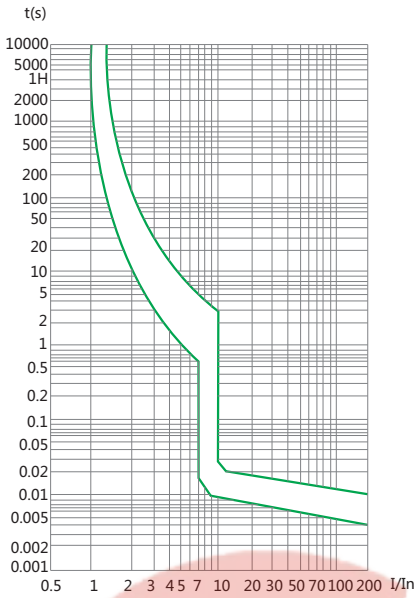
5.3 Temperature derating

Rated current (A)	Temperature compensation coefficient under various operational temperature.											
	-35℃	-30℃	-20℃	-10℃	0℃	10℃	20℃	30℃	40℃	50℃	60℃	70℃
1	1.3	1.26	1.23	1.19	1.15	1.11	1.05	1	0.96	0.93	0.88	0.83
2	2.6	2.52	2.46	2.38	2.28	2.2	2.08	2	1.92	1.86	1.76	1.66
3	3.9	3.78	3.69	3.57	3.42	3.3	3.12	3	2.88	2.79	2.64	2.49
4	5.2	5.04	4.92	4.76	4.56	4.4	4.16	4	3.84	3.76	3.52	3.32
6	7.8	7.56	7.38	7.14	6.84	6.6	6.24	6	5.76	5.64	5.28	4.98
10	13.2	12.7	12.5	12	11.5	11.1	10.6	10	9.6	9.3	8.9	8.4
13	17.16	16.51	16.25	15.6	14.95	14.43	13.78	13	12.48	12.09	11.57	10.92
16	21.12	20.48	20	19.2	18.4	17.76	16.96	16	15.36	14.88	14.24	13.44
20	26.4	25.6	25	24	23	22.2	21.2	20	19.2	18.6	17.8	16.8
25	33	32	31.25	30	28.75	27.75	26.5	25	24	23.25	22.25	21
32	42.56	41.28	40	38.72	37.12	35.52	33.93	32	30.72	29.76	28.16	26.88
40	53.2	51.2	50	48	46.4	44.8	42.4	40	38.4	37.2	35.6	33.6
50	67	65.5	63	60.5	58	56	53	50	48	46.5	44	41.5
63	83.79	81.9	80.01	76.86	73.71	70.56	66.78	63	60.48	58.9	55.44	52.29

5.4 Altitude derating

Tripping type	Rated current In (A)	Current correction factor			For example
		≤2000	2000~3000m	≥3000m	
C	1,2,3,4,6,10, 13,16,20,32, 40,50,63	1	0.9	0.8	Rated current of 10A products rated current derating 2500m:0.9×10=9A

5.5 Curves shown in Figure 1



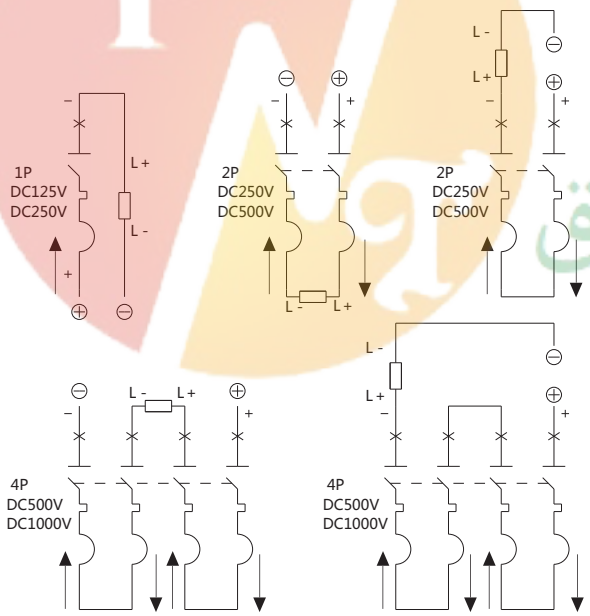
5.6 Wiring: Apply to 25 mm^2 wire connection terminals
Tightening torque 2.5N·m

Rated current In (A)	Copper wire nominal cross sectional area(mm^2)
1~6	1
10	1.5
13,16,20	2.5
25	4
32	6
40,50	10
63	16

5.7 Each pole power consumption of the circuit breaker

Rated current In (A)	Each pole maximum power consumption(W)
1~10	2
13~32	3.5
40~63	5

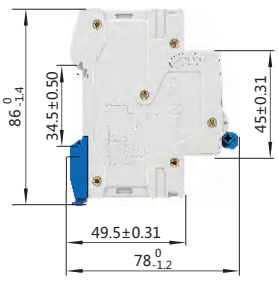
5.8 DC application wiring diagram shown in Figure 2

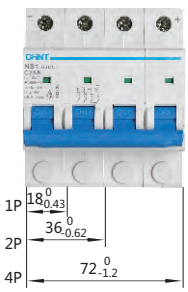


Wiring diagram description:

1. ⊕ Positive ⊖ Negative
2. L+ Load positive L- Load negative
3. Prohibit power reversed
4. Rated voltage: 1P:250V, 2P:500V, 4P:1000V
5. Strictly forbidden to remove the four poles products of sealing plug wiring operation.

6. Overall and mounting dimensions (mm)





A

NB7
Miniature Circuit Breaker

1. General

The NB7 series miniature circuit breaker is applicable to the circuit with an alternating current of 50Hz/60Hz, rated voltage of 240/415V, and rated current up to 63A for overload protection and short circuit protection, and also for not-frequent operational transformation in the circuit under normal condition.
This product can be applied to various places such as industrial, commercial, and tall buildings, and residential houses.
The product meets the standards of IEC60898-1.

2. Type designation

N B 7

- 7 — Design number
- B — Miniature circuit breaker
- N — Company code

3. Technical data

3.1 Main specifications

3.1.1 Graded according to the rated current In: 1A, 2A, 3A, 4A, 6A, 10A, 16A, 20A, 25A, 32A, 40A, 50A, 63A;

3.1.2 Classified as follows according to the type of instantaneous release: type B (3-5)In, type C (5-10)In, type D ((10-16)In;

3.1.3 Categorized as follows according to the number of poles:
a. Single pole
b. Two poles
c. Three poles
d. Four poles

3.2 Technical parameters

3.2.1 For the rated short circuit breaking capacity, see Table 1

Table 1

Rated current In (A)	Number of poles	Rated voltage Ue (V)	Rated short circuit capacity Icn (A)
B, C type: 1~40	1	240/415	6000
	2, 3, 4	415	
B, C type: 50 63	1	240/415	4500
	2, 3, 4	415	
D type: 1~63	1	240/415	
	2, 3, 4	415	

3.2.2 Mechanical/electrical Life
a. Electrical life: not less than 4,000 times
b. Mechanical life: not less than 10,000 times

3.2.3 For the over current protection characteristics, see Table 2

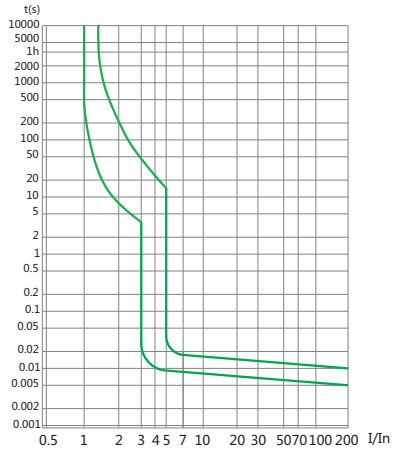
Table 2

Test	Type	Test current	Initial state	Time limit for tripping or not tripping	Expected result	Test environment temperature	Remarks
a	B, C, D	1.13 In	Cold state	t≤1h	Not tripping	30℃~35℃	The current is rising within 5s
b	B, C, D	1.45 In	Right after test number 1	t < 1h	Tripping		
c	B, C, D	2.55 In	Cold state	1s < t < 60s (In≤32A) 1s < t < 120s (In > 32A)	Tripping		
d	B	3In	Cold state	t≤0.1s	Not tripping		The power supply is turned on by closing the auxiliary switch
	C	5In					
	D	10In					
e	B	5In	Cold state	t < 0.1s	Tripping		The power supply is turned on by closing the auxiliary switch
	C	10In					
	D	16In					

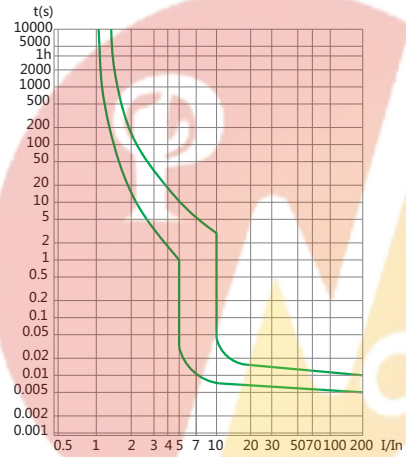
Note: The terminology "Cold state" means that the test is performed at the base calibration temperature with no load prior to the test.

3.2.4 For the tripping performance diagram, see Fig 1

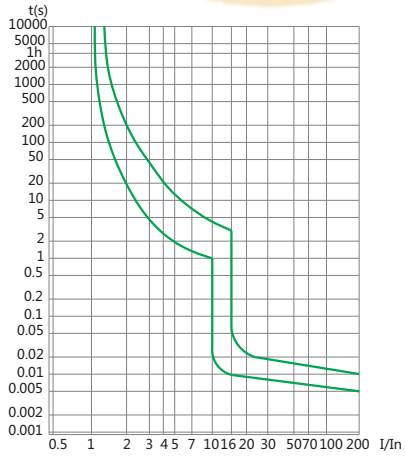
B Type



C Type



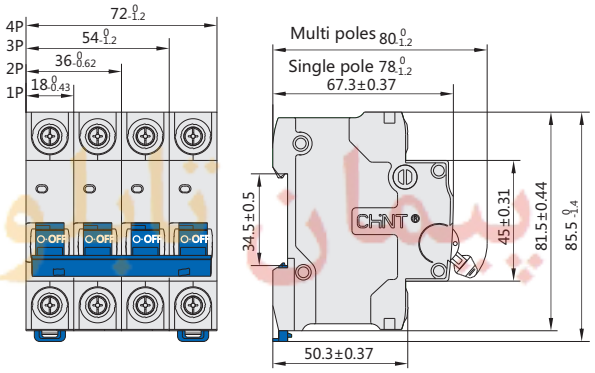
D Type



3.2.5 Wiring: good for connection of leads of less than 25mm^2 (see Table 3); wiring method: screw hold-down with a toque of 2N·m

Rated current In (A)	Nominal cross-sectional area of the copper conductor (mm^2)
1~6	1
10	1.5
16,20	2.5
25	4
32	6
40,50	10
63	16

4. Overall and mounting dimensions (mm)



5. Ordering information

5.1 When ordering the goods, the user shall indicate the following items:

5.1.1 Types and names of products, for example, NB7 miniature circuit breaker;

5.1.2 Instantaneous tripping type and rated current, for example, C25;

5.1.3 Number of poles: for example, 2P;

5.1.4 Amount on order, for example, 50 units;

5.2 Example for ordering: 50 units of the NB7 series miniature circuit breakers, 2P, C25.

A

eBC eB eBG
Miniature Circuit Breaker

1. General

1.1 Function

protection of circuits against short-circuit currents,
protection of circuits against overload currents,
switch,isolation.

1.2 Selection

Technical data of the network at the point considered:
the earthing systems (TNS, TNC),
short-circuit current at the circuit-breaker installation point, which must always be less than the breaking capacity of this device,network normal voltage.
Tripping curves:

B curve (3-5In)

protection for people and big length cables in TN and IT systems.

C curve (5-10In)

protection for resistive and inductive loads with low inrush current.

D curve(10-20In)

protection for circuits which supply loads with high inrush current at the circuit closing
(LV/LV transformers, breakdown lamps).

1.3 Approvals and certificates

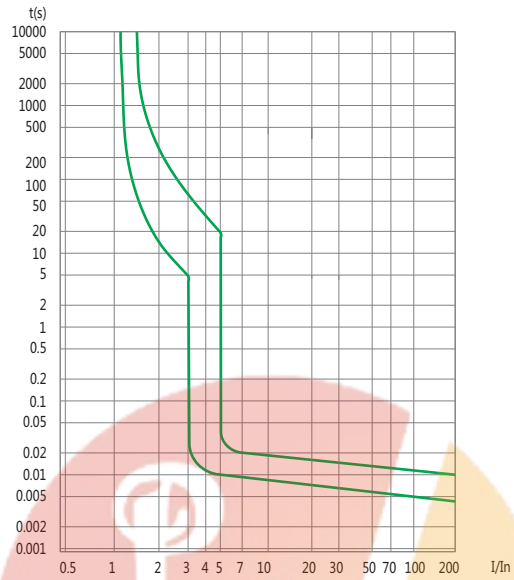
Detailed information, please refer to Certificates Table on the last page.

2. Technical data

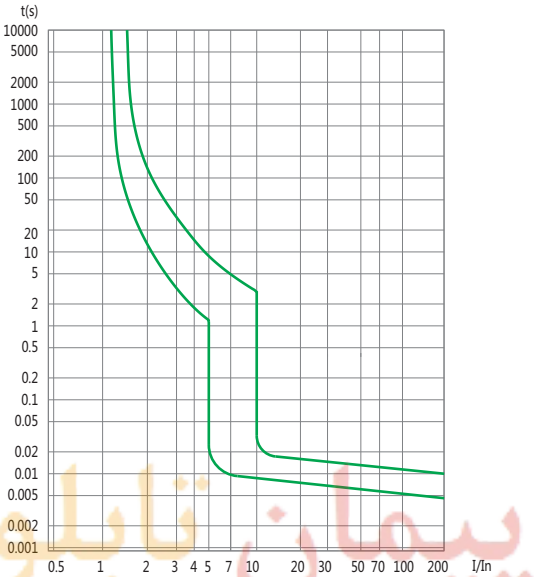
2.1 Curves

CBC CB CBG is of high current limiting performance to limit the destruction energy due to short circuit to the greatest extent.

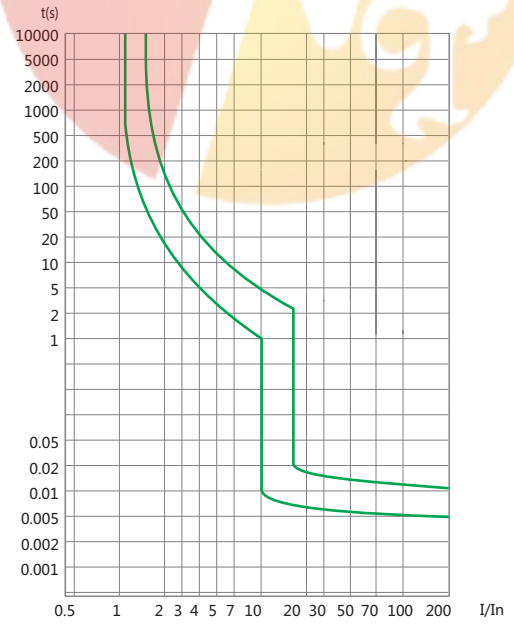
IEC/EN 60898-1 AC type B curve



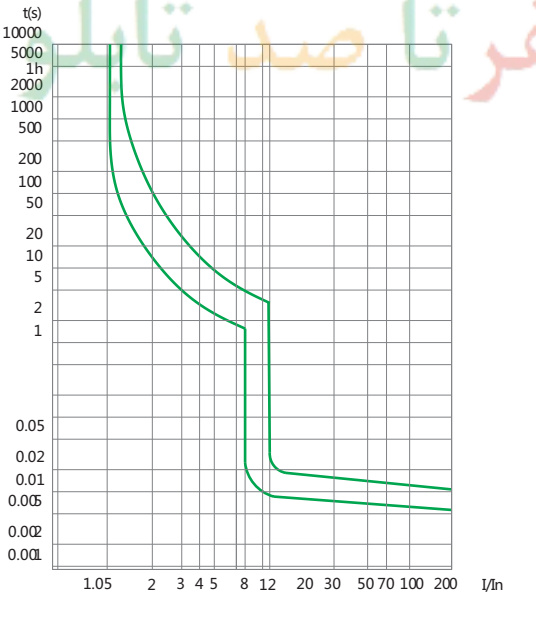
IEC/EN 60898-1 AC type C curve



IEC/EN 60898-1 AC type D curve



IEC/EN 60947-2 AC type 8-12 In



A

2.2

	Standard		IEC/EN 60898-1	IEC/EN 60947-2
Electrical features	Rated current In	A	1, 2, 3, 4, 5, 6, 10, 15, 16, 20, 25, 32, 40, 50, 60, 63	
	Poles		1P, 2P, 3P, 4P	
	Rated voltage Ue	V	230/400~240/415	
	Insulation voltage Ui		500	
	Rated frequency	Hz	50/60	
	Rated breaking capacity	kA	3 (1~63A) eBC 4.5 (1~63A) eB 6 (B,C 1~40A) eBG	
	Rated impulse withstand voltage(1.2/50) Uimp	V	4000	
	Dielectric test voltage at ind. Freq. for 1 min		2	
	Pollution degree		2	
	Thermo-magnetic release characteristic		B, C, D	8-12In
Mechanical features	Electrical life		4, 000	
	Mechanical life		10, 000	
	Protection degree		IP20	
	Reference temperature for setting of thermal element	℃	30	
	Ambient temperature (with daily average≤35℃)	℃	-5...+40	
	Storage temperation	℃	-25...+70	
Installation	Terminal connection type		Cable/Pin-type busbar	
	Terminal size top/bottom for cable	mm^2	1~25	
		AWG	17~3	
	Terminal size top/bottom for busbar	mm^2	1~10	
		AWG	17~7	
	Tightening torque	N·m	2	
		In-lbs.	18	
	Mounting		On DIN rail EN 60715 (35mm) by means of fast clip device	
	Connection		From top and bottom	

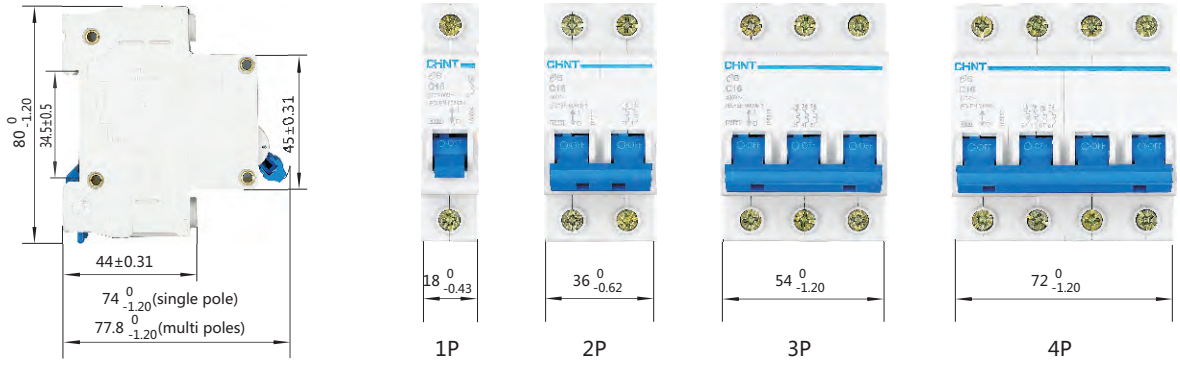
2.3 Temperature derating

The maximum permissible current in a circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switchboard in which the circuit breakers are installed.

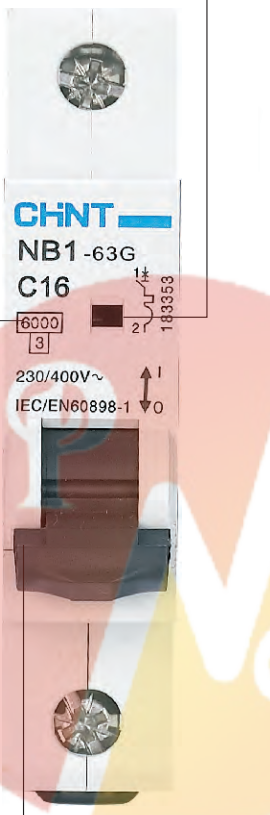
The reference temperature is 30℃

Rated current In (A)	Temperature compensation coefficient under various operational temperature								
	-10℃	0℃	10℃	20℃	30℃	40℃	50℃	55℃	60℃
1~6	1.20	1.14	1.09	1.05	1.00	0.96	0.80	0.75	0.70
10~32	1.18	1.12	1.08	1.04	1.00	0.96	0.92	0.88	0.84
40~60	1.16	1.12	1.07	1.03	1.00	0.97	0.87	0.83	0.80

3. Overall and mounting dimensions (mm)



NB1-63G Miniature Circuit Breaker



1 Color coded contact position indicator provides visual indication of the device status and insulation function

2 Trip-free mechanism, device operation can not be defeated by holding the operator in the ON position

3 Breaking capacity up to 6000A

4 Magnetic trip elements provide Type B and C trip characteristics while bimetallic element protect against slight overload

5 Line and load side terminals accept bus bar connections for reduced costs and more efficient installation of multiple devices

6 Heat dissipation gap provides better cooling

7 Extendable DIN-rail holder for easy installation

A

NB1-63G Miniature Circuit Breaker

1. General

1.1 Function

protection of circuits against short-circuit currents, protection of circuits against overload currents, switch,isolation.

NB1-63G circuit-breakers are used in domestic installation, as well as in commercial and industry electrical distribution systems.

1.2 Selection

Technical data of the network at the point considered: short-circuit current at the circuit-breaker installation point, which must always be less than the breaking capacity of this device,network normal voltage.

Tripping curves:

B curve (3-5In)

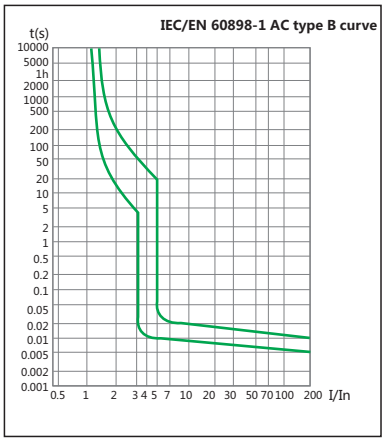
protection for people and big length cables in TN and IT systems.

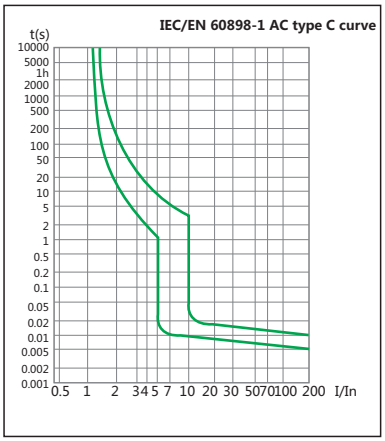
C curve (5-10In)

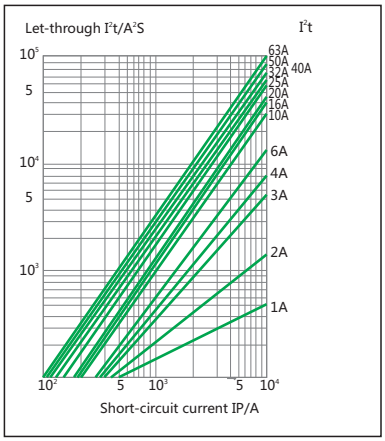
protection for resistive and inductive loads with low inrush current.

2. Technical data

2.1 Curves







2.2

	Standard		IEC/EN 60898-1	
Electrical features	Rated current In	A	1, 2, 3, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63	
	Poles		1P, 2P, 3P, 4P	
	Rated voltage Ue	V	230/400	
	Insulation voltage Ui	V	500	
	Rated frequency		50/60Hz	
	Rated breaking capacity	A	6000	
	Energy limiting class		3	
	Rated impulse withstand voltage(1.2/50) Uimp	V	4000	
	Dielectric test voltage at ind. Freq. for 1 min	kV	2	
	Pollution degree		2	
	Power loss per pole		Rated current (A)	Max power loss per pole (W)
			1, 2, 3, 4, 6, 10	2
			16, 20, 25, 32	3.5
			40, 50, 63	5
	Thermo-magnetic release characteristic		B, C	
Mechanical features	Electrical life		4, 000	
	Mechanical life		20, 000	
	Contact position indicator		Yes	
	Protection degree		IP20	
	Reference temperature for setting of thermal element	℃	30	
	Ambient temperature (with daily average≤35℃)	℃	-25...+60	
	Storage temperation	℃	-25...+70	
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar	
	Terminal size top/bottom for cable	mm^2	25	
		AWG	18-4	
	Terminal size top/bottom for busbar	mm^2	10	
		AWG	18-8	
	Tightening torque	N·m	2.0	
		In-Ibs.	22	
	Mounting		On DIN rail EN 60715 (35mm) by means of fast clip device	
	Connection		From top and bottom	
Combination with accessories	Auxiliary contact		Yes	
	Shunt release		Yes	
	Under voltage release		Yes	
	Alarm contant		Yes	

A

2.3 Selectivity

	In (A)	Power supply side: RT36-00 (fuse)								
		20	25	36	50	63	80	100	125	160
		Is (kA)								
Load side: NB1-63G	≤2	1.2	4	> 12	> 12	> 12	> 12	> 12	> 12	> 12
	3	0.7	1.2	3.8	5.3	6	6	6	6	6
	4	0.6	0.9	2.5	3.8	6	6	6	6	6
	6	0.5	0.8	1.9	2.5	4.5	5	6	6	6
	10		0.7	1.4	2.2	3.2	3.6	6	6	6
	16			1.2	1.8	2.6	3	5.6	6	6
	20				1.5	2.2	2.5	4.6	6	6
	25				1.3	2	2.2	4.1	5.5	6
	32					1.7	1.9	3.8	4.5	6
	40						1.7	3	4	5
	50						1.5	2.6	3.5	4.5
	63							2.4	3.3	4.5

	In (A)	Power supply side: NM8-100S/H/R								
		16	20	25	32	40	50	63	80	100
		Is (kA)								
Load side: NB1-63G	⩽10	0.19	0.19	0.3	0.4	0.5	0.5	0.5	0.63	0.8
	16			0.3	0.4	0.5	0.5	0.5	0.63	0.8
	20					0.5	0.5	0.5	0.63	0.8
	25						0.5	0.5	0.63	0.8
	32							0.5	0.63	0.8
	40								0.63	0.8
	50									0.8
	63									

2.4 Backup protection

	In (A)	Power supply side: RT16 series						
		40	50	63	80	100	125	160
		Is (kA)						
Load side: NB1-63G	1~6	40	40	40	40	40	40	40
	8~10	40	40	40	40	40	40	40
	13	40	40	40	40	35	35	35
	16	40	40	40	40	30	30	30
	20	40	40	40	40	30	30	30
	25	40	40	40	40	30	30	30
	32	40	40	40	40	30	30	30
	40	40	40	40	40	30	30	30
	50	30	30	30	30	30	30	30
	63	20	20	20	20	15	15	15

	In (A)	Power supply side: NM8					
		NM8-125S	NM8-125H	NM8-125R	NM8-250S	NM8-250H	NM8-250R
		Is (kA)					
Load side: NB1-63G	1~6	15	18	18	15	15	15
	10~20	12	15	15	12	12	12
	32~40	12	15	15	12	12	12
	50~60	12	15	15	12	12	12

2.5 Temperature derating

The maximum permissible current in a circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switchboard in which the circuit breakers are installed.

The reference temperature is 30℃

Ambient temperature → / Rated current(A) ↓	-25	-15	-5	0	10	20	30	40	50	60
1	1.26	1.23	1.19	1.15	1.11	1.05	1	0.96	0.93	0.88
2	2.52	2.46	2.38	2.28	2.2	2.08	2	1.92	1.86	1.76
3	3.78	3.69	3.57	3.42	3.3	3.12	3	2.88	2.79	2.64
4	5.04	4.92	4.76	4.56	4.4	4.16	4	3.84	3.76	3.52
6	7.56	7.38	7.14	6.84	6.6	6.24	6	5.76	5.64	5.28
10	12.7	12.5	12	11.5	11.1	10.6	10	9.6	9.3	8.9
16	20.48	20	19.2	18.4	17.76	16.96	16	15.36	14.88	14.24
20	25.6	25	24	23	22.2	21.2	20	19.2	18.6	17.8
25	32	31.25	30	28.75	27.75	26.5	25	24	23.25	22.25
32	41.28	40	38.72	37.12	35.52	33.92	32	30.72	29.76	28.16
40	51.2	50	48	46.4	44.8	42.4	40	38.4	37.2	35.6
50	65.5	63	60.5	58	56	53	50	48	46.5	44
63	81.9	80.01	76.86	73.71	70.56	66.78	63	60.48	58.9	55.44

When several simultaneously operating circuit breakers are mounted side by side in a small enclosure, the temperature rise inside the enclosure causes a reduction in current rating.
You must then assign the rating (already derated if necessary according to ambient temperatuer) a downrating factor of 0.8.

3. Overall and mounting dimensions (mm)