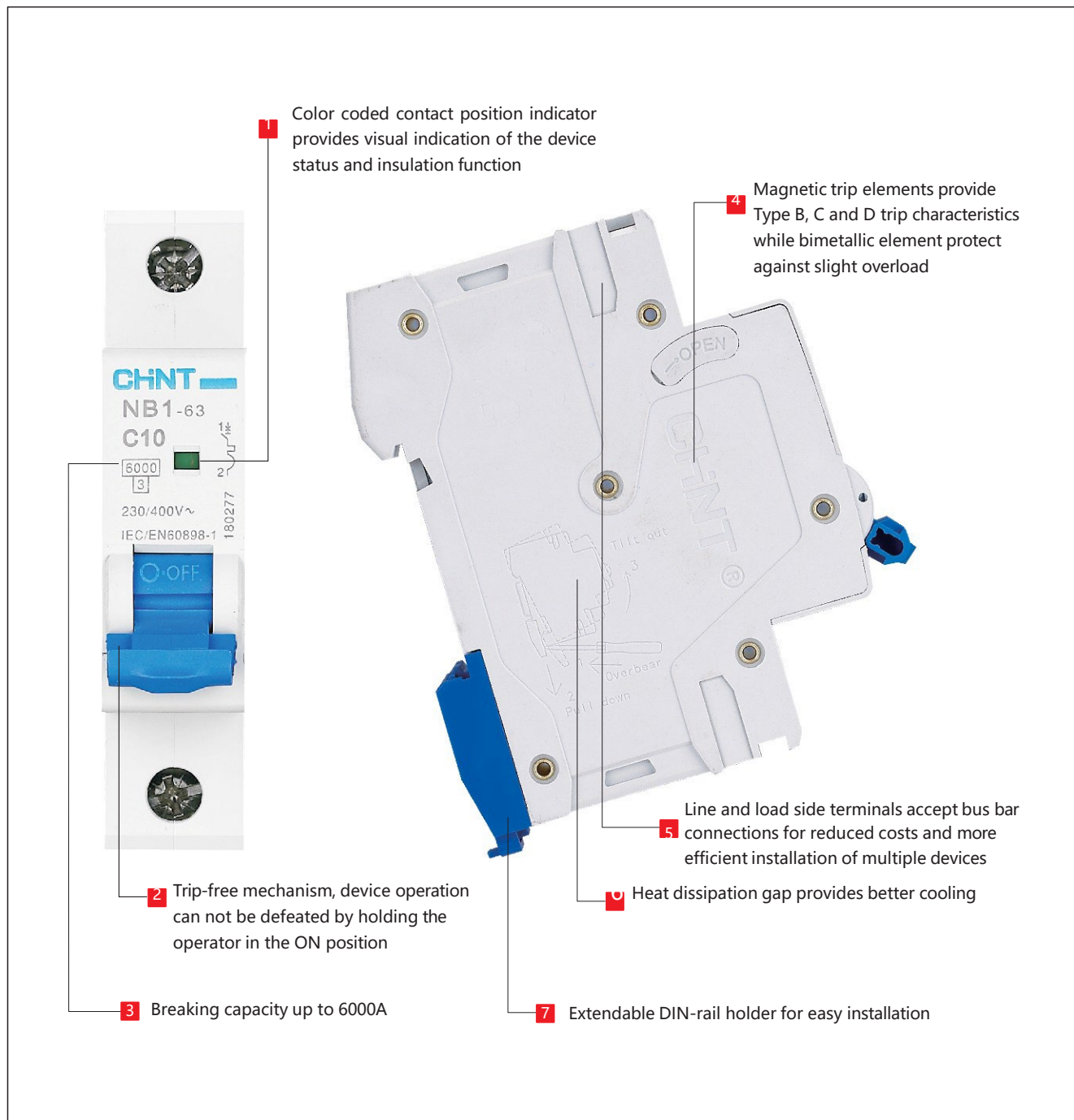


NB1 Miniature Circuit Breaker





NB1 Miniature Circuit Breaker

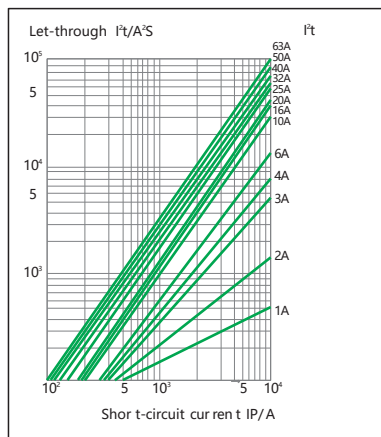
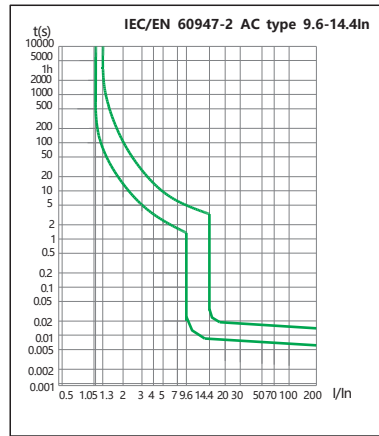
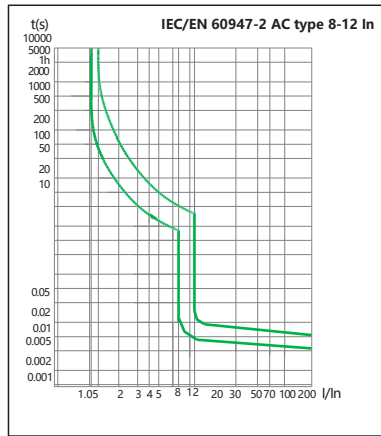
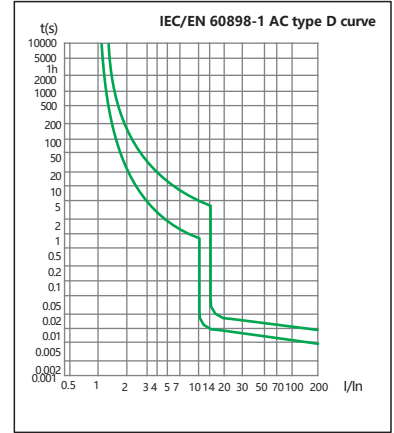
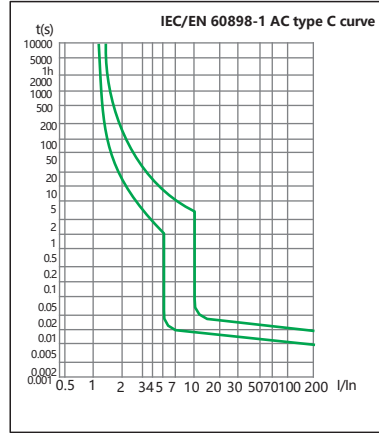
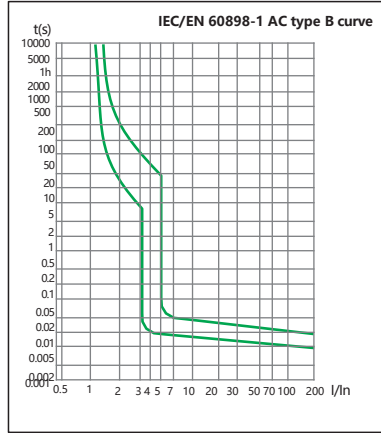
1. General

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.
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 (3-5I_n)
 protection for people and big length cables in TN and IT
 systems.
C curve (5-10I_n)
 protection for resistive and inductive loads with low inrush
 current.
D curve(10-14I_n)
 protection for circuits which supply loads with high inrush
 current at the circuit closing
 (LV/LV transformers, breakdown lamps).
3. Approvals and certificates
 Detailed information, please refer to Certificates Table
 on the last page.



2. Technical data

1. Curves



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	°C	30		
	Ambient temperature (with daily average≤35°C)	°C	-5...+40		
	Storage temperation	°C	-25...+70		
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar		
	Terminal size top/bottom for cable	mm²	25		
		AWG	18-4		
	Terminal size top/bottom for busbar	mm²	10		
		AWG	18-8		
	Tightening torque	N·m	2.5		
		In-lbs.	22		
Combination with accessories	Mounting		On DIN rail EN 60715 (35mm) by means of fast clip device		
	Connection		From top and bottom		
	Auxiliary contact		Yes		
	Shunt release		Yes		
	Under voltage release		Yes		
	Alarm contact		Yes		

2.3 Selectivity

	In (A)	Power supply side: RT36-00 (fuse)								
		20	25	36	50	63	80	100	125	160
		Is (kA)								
Load side: NB1-63, NB1-63H Curve B, C	≤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: NB1-63, NB1-63H Curve B, C	≤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: NB1-63, NB1-63H Curve B, C	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: NB1-63, NB1-63H Curve B, C	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°C

Ambient temperature Rated current(A) ↘	-35°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C
1	1.30	1.26	1.23	1.19	1.15	1.11	1.05	1.00	0.96	0.93	0.88	0.83
2	2.60	2.52	2.46	2.38	2.28	2.20	2.08	2.00	1.92	1.86	1.76	1.66
3	3.90	3.78	3.69	3.57	3.42	3.30	3.12	3.00	2.88	2.79	2.64	2.49
4	5.20	5.04	4.92	4.76	4.56	4.40	4.16	4.00	3.84	3.76	3.52	3.32
6	7.80	7.56	7.38	7.14	6.84	6.60	6.24	6.00	5.76	5.64	5.28	4.98
10	13.20	12.70	12.50	12.00	11.50	11.10	10.60	10.00	9.60	9.30	8.90	8.40
16	21.12	20.48	20.00	19.20	18.40	17.76	16.96	16.00	15.36	14.88	14.24	13.44
20	26.40	25.60	25.00	24.00	23.00	22.20	21.20	20.00	19.20	18.60	17.80	16.8
25	33.00	32.00	31.25	30.00	28.75	27.75	26.50	25.00	24.00	23.25	22.25	21.00
32	42.56	41.28	40.00	38.72	37.12	35.52	33.92	32.00	30.72	29.76	28.16	26.88
40	53.20	51.20	50.00	48.00	46.40	44.80	42.40	40.00	38.40	37.20	35.60	33.6
50	67.00	65.50	63.00	60.50	58.00	56.00	53.00	50.00	48.00	46.50	44.00	41.50
63	83.79	81.90	80.01	76.86	73.71	70.56	66.78	63.00	60.48	58.90	55.44	52.29

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 temperature) a downrating factor of 0.8.

3. Overall and mounting dimensions (mm)

