

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 various places such as residential, industrial and commercial 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

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

C curve

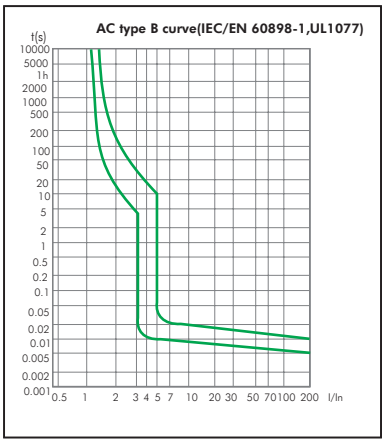
protection for resistive and inductive loads with low inrush current.

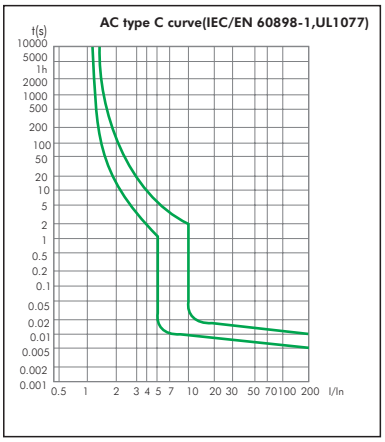
D curve

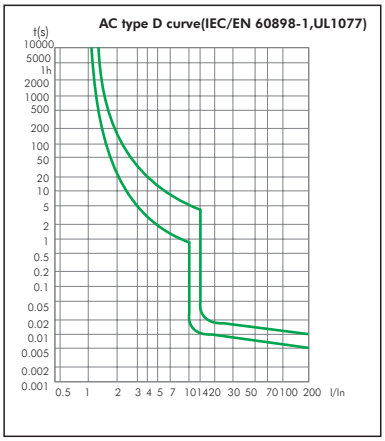
protection for circuits which supply loads with high inrush current at the circuit closing
(LV/LV transformers, breakdown lamps).

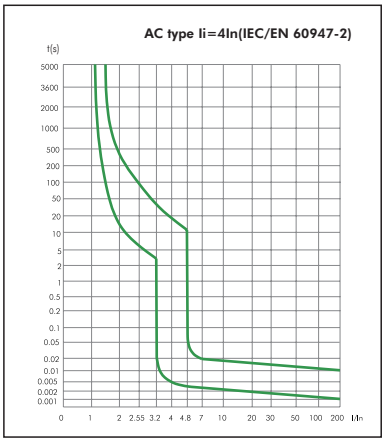
2.Technical data

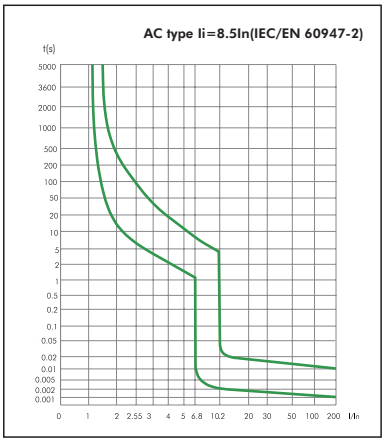
2.1 curves

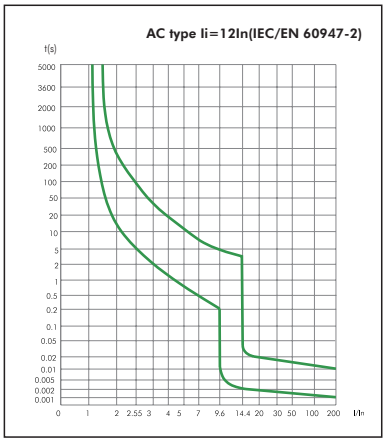




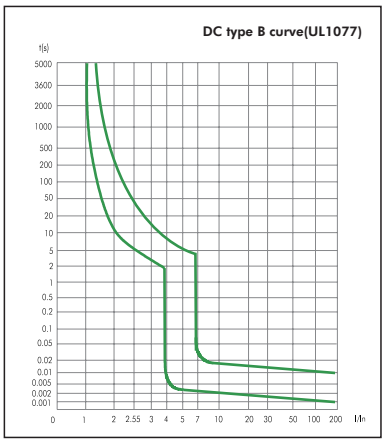


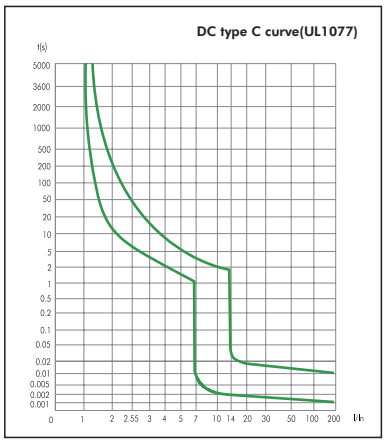


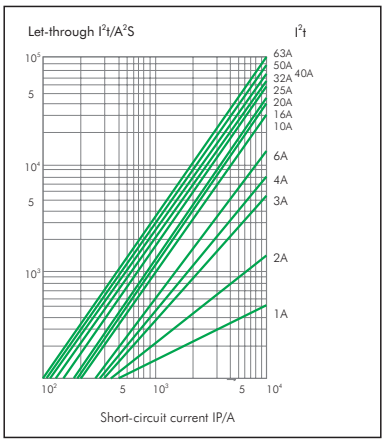




CE | Intertek | RoHS | REACH | Carbon Footprint







2.2

			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		1,2,3,4,6,10,16,20,25,32,40,50,63			
	Poles		1P, 1P+N, 2P, 3P, 3P+N, 4P	1P, 2P, 3P, 4P	1P	2P, 3P, 4P	1P	2P
	Ralated voltage Ue	V	230/400~240/415 AC		277 AC	480 AC	110 DC	125 DC
	Minimum voltage	V	12 AC				12 DC	
	Rated frequency		50/60Hz					
	Rated breaking capacity	A	10000 @ IEC/EN 60898-1 15000 @ IEC/EN 60947-2(1-32A) 10000 @ IEC/EN 60947-2(40-63A)	10000	5000		10000	
	Energy limiting class		3	/	/			
	Rated impulse withstand voltage(1.2/50) Uimp	V	4000	6000				
	Dielectric test voltage at ind. Freq. for 1 min	KV	2	1.89	2			
	Pollution degree		2					
	Power loss per pole	Rated current (A)	Max power loss per pole (W)					
		1, 2, 3, 4, 5, 6, 10	3					
		13, 16, 20, 25, 32	6					
		40, 50, 63	13					
	Thermo-magnetic release characteristic		B (3-5In) C (5-10In) D (10-14In)	Ii=4In(1±20%) Ii=8.5In(1±20%) Ii=10In(1±20%) Ii=12In(1±20%)	B (3-5In) C (5-10In) D (10-14In)		B (4-7In) C (7-14In)	
Mechanical features	Electrical life		10, 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℃)	℃	-35~+70					
	Storage temperation	℃	-35~+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 or bottom					
	Weight	kg	0.11/per pole					
Combination with accessories	Auxiliary contact		Yes					
	Shunt release		Yes					
	Under voltage release		Yes					
	Alarm contant		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: NB1-63H 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: NB1-63H 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: NB1-63H 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)						
		NM8-125S	NM8-125H	NM8-125R	NM8-250S	NM8-250H	NM8-250R
		Is (kA)					
Load side: 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℃

Ambient temperature(℃) → / Rated current(A) ↓	-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	7.80	7.56	7.38	7.14	6.84	6.6	6.24	6	5.76	5.64	5.28	4.98
10	13.20	12.7	12.5	12	11.5	11.1	10.6	10	9.6	9.3	8.9	8.40
16	21.12	20.48	20	19.2	18.4	17.76	16.96	16	15.36	14.88	14.24	13.28
20	26.40	25.6	25	24	23	22.2	21.2	20	15.36	18.6	17.8	16.80
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	33.92	32	30.72	29.76	28.16	26.88
40	53.20	51.2	50	48	46.4	44.8	42.4	40	38.4	37.2	35.6	33.60
50	67	65.5	63	60.5	58	56	53	50	48	46.5	44	41.50
63	83.79	81.9	80.01	76.86	73.71	70.56	66.78	63	60.48	58.9	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 temperatuer) a downrating factor of 0.8.

3. Overall and mounting dimensions (mm)

