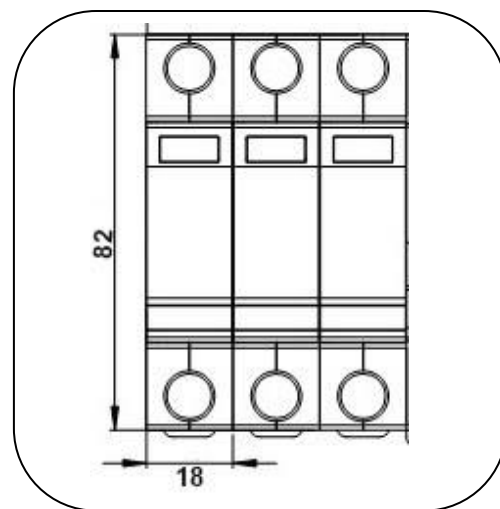
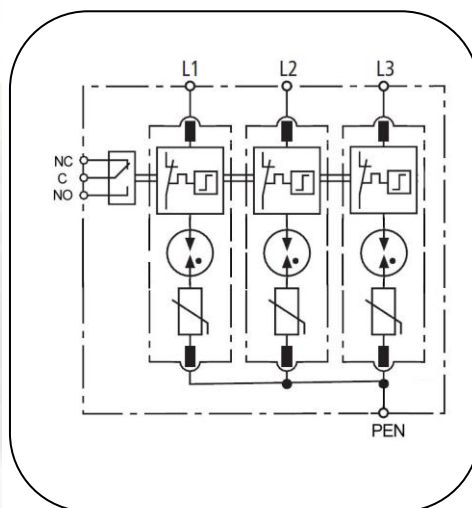




Type 2+3 overspenningsvern spesielt laget for beskyttelse mot overspenninger i lavspenningsanlegg.

- Type 2+3, maksimal avlederstøtstrøm 40kA 8/20.
- Pluggbart design, laget for enkel utskifting av patroner.
- VT-beskyttelse (patentert teknologi) i overspenningsvernet.
- Høy motstandsdyktighet mot langvarige overspenninger, spesielt laget for områder med ustabile spenningsnivåer.
- Spesielt tilpasset IT/TT anlegg uten distribuert jord (Kan også brukes i anlegg med distribuert jord)
- Ingen følgestrøm eller lekkasjestrøm.

Artikkelnummer	CV057684
Standard	IEC61643-11:2011; UL1449 4th
Kategori	II+III/C+D
Maksimal kontinuerlig spenning (AC/DC) Uc	385/505
Nominell utladning støtstrøm (8/20) In	20kA
Maksimal avlederstøtstrøm (8/20) Imax	40kA
Sikkerhetsnivå / Up @In	<2.0kV
Reaksjonstid	≤100 ns
Følgestrøm / lekkasjestrøm	Nei
Største forankoblede sikring	125A gL/gG
Motstandsdyktighet overspenning	700V/120min
Omgivelsestemperatur under drift	- 40°C - + 80°C
Tverrsnitt	Enkjernet 4-35mm ² . Flertrådet/mangetrådet med endehylse 4-25mm ²
Montering	35mm DIN, i henhold til EN 50022/DIN46277-3
Kapslingsmateriale	Termoplast, UL94 V-0. Selvslukkende.
IP-grad	IP20
Installasjonsbredde	3 moduler, DIN 43880
Termisk frakobler (intern loddessikring)	Indikasjon flaggvindu: Grønn – normal. Rød – feil, bytt plugg.
Signalkontakt	Ja
Informasjon signalkontakt	
Type signalkontakt	Potensialfritt kontaktsett NO/NC
Nominell spenning/strøm Un/In	AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A
Største tverrsnitt signalkontakt	Maks. 1.5mm ² (eller # 16AWG)



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.

NB1-63H also can be used in DC application:125VDC/pole.

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.

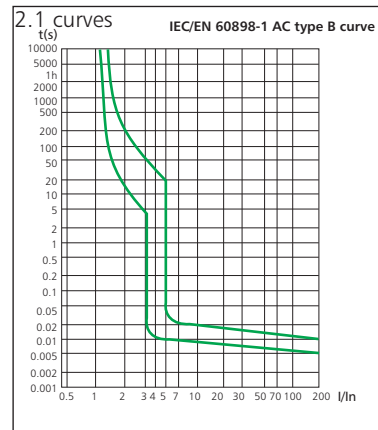
C curve (5-10In)

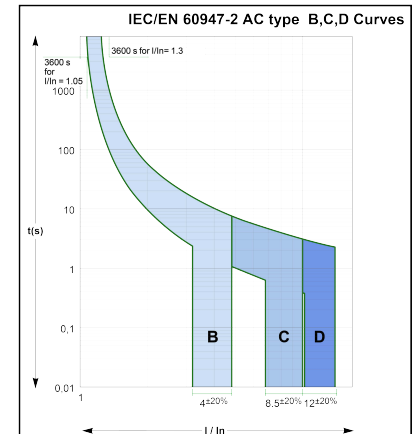
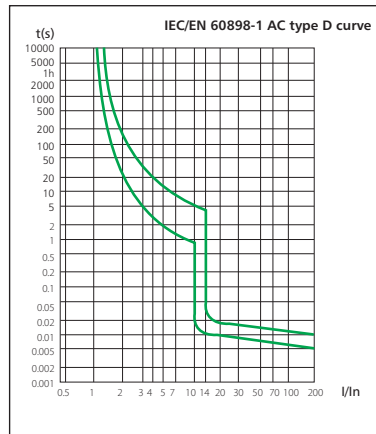
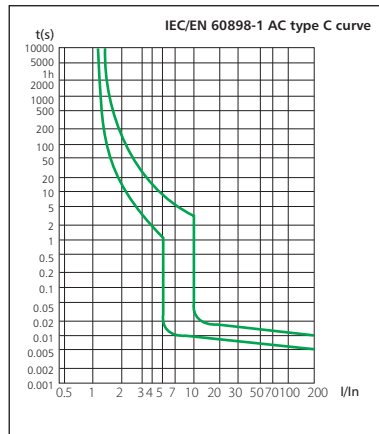
protection for resistive and inductive loads with low inrush current.

D curve(10-14In)

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

2. Technical data





2.2

	Standard		IEC/EN 60898-1	IEC/EN 60947-2
Electrical features	Rated current I_n	A	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
	Rated voltage U_e	V	230/400~240/415	
	Insulation voltage U_i	V	500	
	Rated frequency		50/60Hz	
	Rated breaking capacity	A	10000	
	Energy limiting class		3	
	Rated impulse withstand voltage(1.2/50) U_{imp}	V	6000	
	Dielectric test voltage at ind. Freq. for 1 min	kV	2	1.890
	Pollution degree		3	
	Power loss per pole		Rated current (A)	Average 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		10, 000	
	Mechanical life		20, 000	
	Contact position indicator		ON/OFF indicate RED/GREEN	
	Protection degree		IP20	
	Reference temperature for setting of thermal element	℃	30	
	Operating Temperature	℃	-35...+70(Special application please refer to P4 for temperature compensation correction)	
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar	
	Terminal size top/bottom for cable	mm ²	25 (flexible cable) , 35(rigid cable)	
		AWG	18-2	
	Terminal size top/bottom for busbar	mm ²	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	
	Bus-bar Connection		Both 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)								
≤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)								
≤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)						
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)					
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)



4. Ordering information

Order code	Description and sepcification
179781	NB1-63H 1P C1 10kA
179782	NB1-63H 1P C10 10kA
179783	NB1-63H 1P C13 10kA
179784	NB1-63H 1P C16 10kA
179785	NB1-63H 1P C2 10kA
179786	NB1-63H 1P C20 10kA
179787	NB1-63H 1P C25 10kA
179788	NB1-63H 1P C3 10kA
179789	NB1-63H 1P C32 10kA
179790	NB1-63H 1P C4 10kA
179791	NB1-63H 1P C40 10kA
183220	NB1-63H 1P C5 10kA
179792	NB1-63H 1P C50 10kA
179793	NB1-63H 1P C6 10kA
179794	NB1-63H 1P C63 10kA
179795	NB1-63H 1P D1 10kA
179796	NB1-63H 1P D10 10kA
179797	NB1-63H 1P D13 10kA
179798	NB1-63H 1P D16 10kA
179799	NB1-63H 1P D2 10kA
179800	NB1-63H 1P D20 10kA
179801	NB1-63H 1P D25 10kA
179802	NB1-63H 1P D3 10kA
179803	NB1-63H 1P D32 10kA
179804	NB1-63H 1P D4 10kA
179805	NB1-63H 1P D40 10kA
179806	NB1-63H 1P D50 10kA
179807	NB1-63H 1P D6 10kA
179808	NB1-63H 1P D63 10kA
181106	NB1-63H 1P D8 10kA
181069	NB1-63H 1P+N C10 10kA
181070	NB1-63H 1P+N C13 10kA
181071	NB1-63H 1P+N C16 10kA
181072	NB1-63H 1P+N C20 10kA
181073	NB1-63H 1P+N C25 10kA
181074	NB1-63H 1P+N C32 10kA
181075	NB1-63H 1P+N C40 10kA
181076	NB1-63H 1P+N C50 10kA
181068	NB1-63H 1P+N C6 10kA
181077	NB1-63H 1P+N C63 10kA
179809	NB1-63H 2P B1 10kA
179810	NB1-63H 2P B10 10kA
179811	NB1-63H 2P B13 10kA
179812	NB1-63H 2P B16 10kA
179813	NB1-63H 2P B2 10kA
179814	NB1-63H 2P B20 10kA
179815	NB1-63H 2P B25 10kA

Order code	Description and sepcification
179816	NB1-63H 2P B3 10kA
179817	NB1-63H 2P B32 10kA
179818	NB1-63H 2P B4 10kA
179819	NB1-63H 2P B40 10kA
179820	NB1-63H 2P B50 10kA
179821	NB1-63H 2P B6 10kA
179822	NB1-63H 2P B63 10kA
179823	NB1-63H 2P C1 10kA
179824	NB1-63H 2P C10 10kA
179825	NB1-63H 2P C13 10kA
179826	NB1-63H 2P C16 10kA
179827	NB1-63H 2P C2 10kA
179828	NB1-63H 2P C20 10kA
179829	NB1-63H 2P C25 10kA
179830	NB1-63H 2P C3 10kA
179831	NB1-63H 2P C32 10kA
179832	NB1-63H 2P C4 10kA
179833	NB1-63H 2P C40 10kA
179834	NB1-63H 2P C50 10kA
179835	NB1-63H 2P C6 10kA
179836	NB1-63H 2P C63 10kA
179837	NB1-63H 2P D1 10kA
179838	NB1-63H 2P D10 10kA
179839	NB1-63H 2P D13 10kA
179840	NB1-63H 2P D16 10kA
179841	NB1-63H 2P D2 10kA
179842	NB1-63H 2P D20 10kA
179843	NB1-63H 2P D25 10kA
179844	NB1-63H 2P D3 10kA
179845	NB1-63H 2P D32 10kA
179846	NB1-63H 2P D4 10kA
179847	NB1-63H 2P D40 10kA
179848	NB1-63H 2P D50 10kA
179849	NB1-63H 2P D6 10kA
179850	NB1-63H 2P D63 10kA
181107	NB1-63H 2P D8 10kA
179851	NB1-63H 3P B1 10kA
179852	NB1-63H 3P B10 10kA
179853	NB1-63H 3P B13 10kA
179854	NB1-63H 3P B16 10kA
179855	NB1-63H 3P B2 10kA
179856	NB1-63H 3P B20 10kA
179857	NB1-63H 3P B25 10kA
179858	NB1-63H 3P B3 10kA
179859	NB1-63H 3P B32 10kA
179860	NB1-63H 3P B4 10kA
179861	NB1-63H 3P B40 10kA

Order code	Description and sepcification
179862	NB1-63H 3P B50 10kA
179863	NB1-63H 3P B6 10kA
179864	NB1-63H 3P B63 10kA
179865	NB1-63H 3P C1 10kA
179866	NB1-63H 3P C10 10kA
179867	NB1-63H 3P C13 10kA
179868	NB1-63H 3P C16 10kA
179869	NB1-63H 3P C2 10kA
179870	NB1-63H 3P C20 10kA
179871	NB1-63H 3P C25 10kA
179872	NB1-63H 3P C3 10kA
179873	NB1-63H 3P C32 10kA
179874	NB1-63H 3P C4 10kA
179875	NB1-63H 3P C40 10kA
179876	NB1-63H 3P C50 10kA
179877	NB1-63H 3P C6 10kA
179878	NB1-63H 3P C63 10kA
179879	NB1-63H 3P D1 10kA
179880	NB1-63H 3P D10 10kA
179881	NB1-63H 3P D13 10kA
179882	NB1-63H 3P D16 10kA
179883	NB1-63H 3P D2 10kA
179884	NB1-63H 3P D20 10kA
179885	NB1-63H 3P D25 10kA
179886	NB1-63H 3P D3 10kA
179887	NB1-63H 3P D32 10kA
179888	NB1-63H 3P D4 10kA
179889	NB1-63H 3P D40 10kA
179890	NB1-63H 3P D50 10kA
179891	NB1-63H 3P D6 10kA
179892	NB1-63H 3P D63 10kA
181078	NB1-63H 3P+N C10 10kA
181079	NB1-63H 3P+N C13 10kA
181080	NB1-63H 3P+N C16 10kA
181081	NB1-63H 3P+N C20 10kA
181082	NB1-63H 3P+N C25 10kA
181083	NB1-63H 3P+N C32 10kA
181084	NB1-63H 3P+N C40 10kA
181085	NB1-63H 3P+N C50 10kA
181884	NB1-63H 3P+N C6 10kA
181086	NB1-63H 3P+N C63 10kA
179893	NB1-63H 4P B1 10kA
179894	NB1-63H 4P B10 10kA
179895	NB1-63H 4P B13 10kA
179896	NB1-63H 4P B16 10kA
179897	NB1-63H 4P B2 10kA
179898	NB1-63H 4P B20 10kA

Order code	Description and sepcification
179899	NB1-63H 4P B25 10kA
179900	NB1-63H 4P B3 10kA
179901	NB1-63H 4P B32 10kA
179902	NB1-63H 4P B4 10kA
179903	NB1-63H 4P B40 10kA
179904	NB1-63H 4P B50 10kA
179905	NB1-63H 4P B6 10kA
179906	NB1-63H 4P B63 10kA
179907	NB1-63H 4P C1 10kA
179908	NB1-63H 4P C10 10kA
179909	NB1-63H 4P C13 10kA
179910	NB1-63H 4P C16 10kA
179911	NB1-63H 4P C2 10kA
179912	NB1-63H 4P C20 10kA
179913	NB1-63H 4P C25 10kA
179914	NB1-63H 4P C3 10kA
179915	NB1-63H 4P C32 10kA
179916	NB1-63H 4P C4 10kA
179917	NB1-63H 4P C40 10kA
179918	NB1-63H 4P C50 10kA
179919	NB1-63H 4P C6 10kA
179920	NB1-63H 4P C63 10kA
179921	NB1-63H 4P D1 10kA
179922	NB1-63H 4P D10 10kA
179923	NB1-63H 4P D13 10kA
179924	NB1-63H 4P D16 10kA
179925	NB1-63H 4P D2 10kA
179926	NB1-63H 4P D20 10kA
179927	NB1-63H 4P D25 10kA
179928	NB1-63H 4P D3 10kA
179929	NB1-63H 4P D32 10kA
179930	NB1-63H 4P D4 10kA
179931	NB1-63H 4P D40 10kA
179932	NB1-63H 4P D50 10kA
179933	NB1-63H 4P D6 10kA
179934	NB1-63H 4P D63 10kA



NB310L Residual Current Operated Circuit Breaker with over-current protection (Magnetic)

1. General

1.1 Function

Personnel and fire protection: Cable and line protection against overload and short-circuits.

1.2 Selection

Rated residual operating current

$I_{\Delta n} = 30 \text{ mA}$: additional protection in the case of direct contact.

Tripping class

A class

Tripping is ensured for sinusoidal, alternating residual currents as well as for pulsed DC residual currents, whether they be quickly applied or slowly increase.

Tripping curve

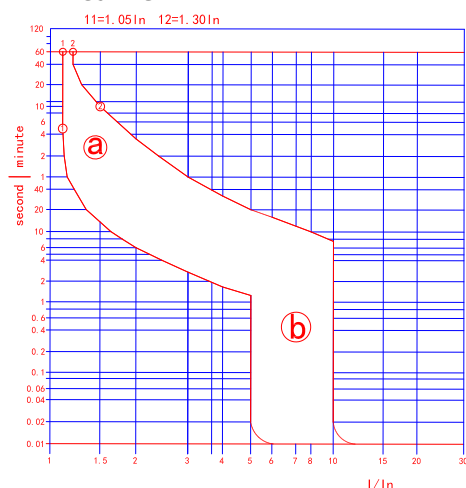
B curve ($3-5 I_n$) protection and control of the circuits against overloads and short-circuits; protection for people and big length cables in TN and IT systems.

C curve ($5-10 I_n$) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

K curve ($5-10 I_n$) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

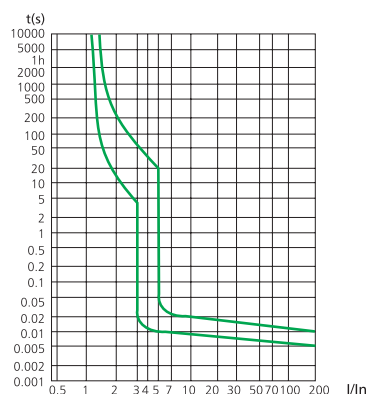
I2 value reduced ($I_n = 1,3$)

K-curve

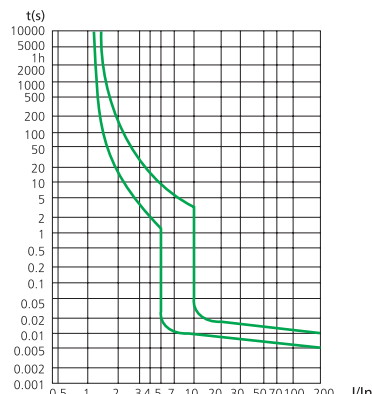


2. Technical data

2.1 Curves



B Curve



C Curve

1.3 Approvals and certificates

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

2.2

	Standard		IEC/EN 61009-1
Electrical features	Type (wave form of the earth leakage sensed)		A
	Thermo-magnetic release characteristic		B, C
	Rated current I_n	A	6, 10, 13, 16, 20, 25, 32
	Poles		2P
	Rated voltage U_e	V	230/240
	Rated sensitivity $I_{\Delta n}$	A	0.03
	Rated residual making and breaking capacity $I_{\Delta m}$	A	3000
	Rated short-circuit capacity I_{cn}	A	6,000
	Break time under $I_{\Delta n}$	s	≤ 0.1
	Rated frequency	Hz	50/60
	Rated impulse withstand voltage (1.2/50) U_{imp}	V	6,000
	Dielectric TEST voltage at ind. Freq. for 1 min	kV	2
	Insulation voltage U_i		500
	Pollution degree		2
Mechanical features	Electrical life		2,000
	Mechanical life		2,000
	Contact position indicator		Yes
	Protection degree		IP20
	Ambient temperature (with daily average $\leq 35^\circ\text{C}$)	$^\circ\text{C}$	-5...+40
	Storage temperature	$^\circ\text{C}$	-25...+70
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar
	Terminal size top/bottom for cable	mm ²	25
		AWG	18-3
	Terminal size top/bottom for busbar	mm ²	10
		AWG	18-8
	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

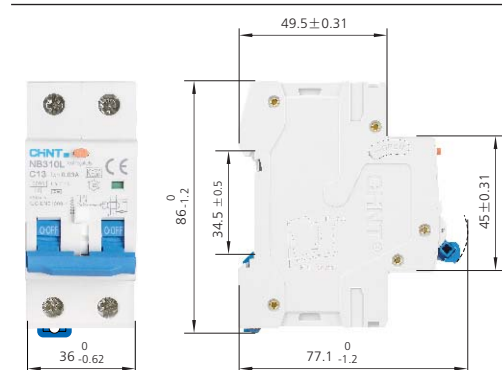
2.3 Temperature derating

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°C

Temperature	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C
Temperature compensation coefficient of rated current	1.20	1.15	1.10	1.05	1.00	0.95	0.90	0.85

3. Overall and mounting dimensions (mm)





NB310L Residual Current Operated Circuit Breaker with over-current protection (Magnetic)

1. General

1.1 Function

Personnel and fire protection: Cable and line protection against overload and short-circuits.

1.2 Selection

Rated residual operating current

$I_{\Delta n} = 30 \text{ mA}$: additional protection in the case of direct contact.

Tripping class

A class

Tripping is ensured for sinusoidal, alternating residual currents as well as for pulsed DC residual currents, whether they be quickly applied or slowly increase.

Tripping curve

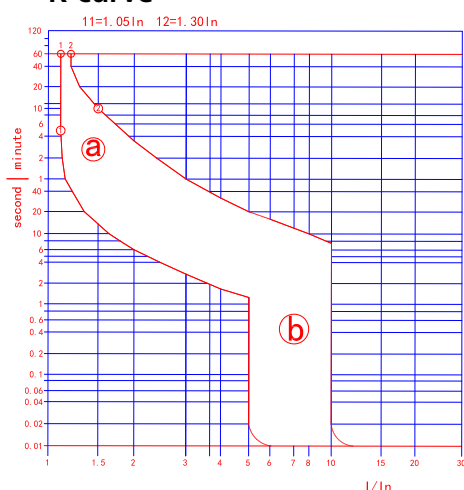
B curve ($3-5 I_n$) protection and control of the circuits against overloads and short-circuits; protection for people and big length cables in TN and IT systems.

C curve ($5-10 I_n$) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

K curve ($5-10 I_n$) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

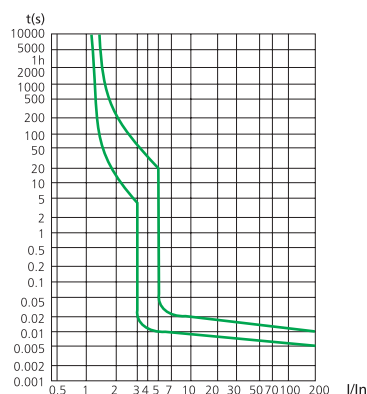
I2 value reduced ($I_n = 1,3$)

K-curve

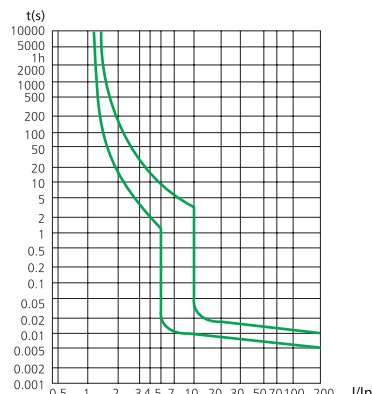


2. Technical data

2.1 Curves



B Curve



C Curve

1.3 Approvals and certificates

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

2.2

	Standard		IEC/EN 61009-1
Electrical features	Type (wave form of the earth leakage sensed)		A
	Thermo-magnetic release characteristic		B, C
	Rated current I_n	A	6, 10, 13, 16, 20, 25, 32
	Poles		2P
	Rated voltage U_e	V	230/240
	Rated sensitivity $I_{\Delta n}$	A	0.03
	Rated residual making and breaking capacity $I_{\Delta m}$	A	3000
	Rated short-circuit capacity I_{cn}	A	6,000
	Break time under $I_{\Delta n}$	s	≤ 0.1
	Rated frequency	Hz	50/60
	Rated impulse withstand voltage (1.2/50) U_{imp}	V	6,000
	Dielectric TEST voltage at ind. Freq. for 1 min	kV	2
	Insulation voltage U_i		500
	Pollution degree		2
Mechanical features	Electrical life		2,000
	Mechanical life		2,000
	Contact position indicator		Yes
	Protection degree		IP20
	Ambient temperature (with daily average $\leq 35^\circ\text{C}$)	$^\circ\text{C}$	-5...+40
	Storage temperature	$^\circ\text{C}$	-25...+70
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar
	Terminal size top/bottom for cable	mm ²	25
		AWG	18-3
	Terminal size top/bottom for busbar	mm ²	10
		AWG	18-8
	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

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