



## NB1L 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

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

$I_{\Delta n} \leq 300$  mA: preventative fire protection in the case of ground fault currents.

##### Tripping class

##### AC class

Tripping is ensured for sinusoidal, alternating currents, whether they be quickly applied or slowly increase.

##### 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.

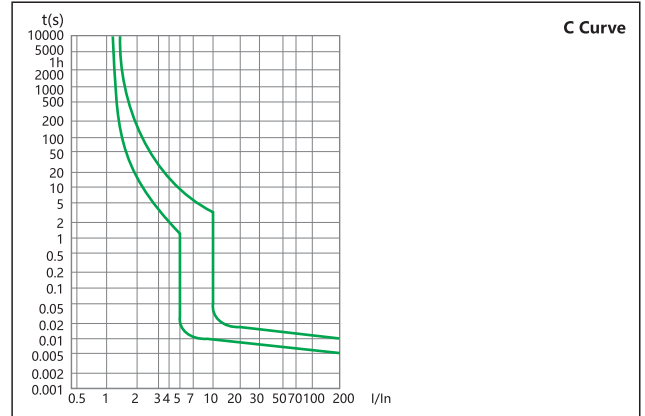
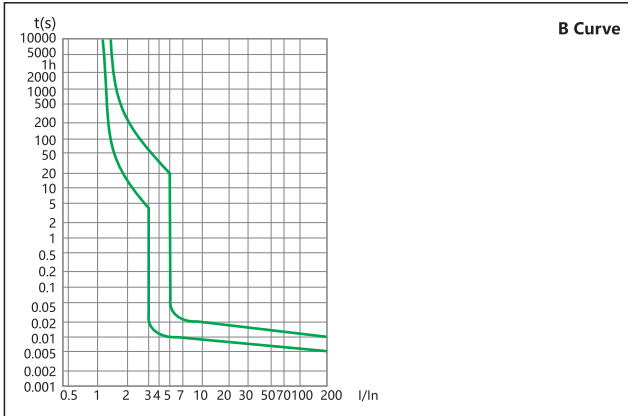
C curve (5-10  $I_n$ ) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

#### 1.3 Approvals and certificates

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

## 2. Technical data

### 2.1 Curves



### 2.2

Standard		IEC/EN 61009-1			
Electrical features	Type (wave form of the earth leakage sensed)		A	AC, A	A
	Thermo-magnetic release characteristic		B, C	B, C	B, C
	Rated current $I_n$	A	1, 2, 3, 4, 6, 10, 13, 16, 20, 25	2, 4, 6, 10, 13, 16, 20, 25, 32, 40	6, 10, 13, 16, 20, 25, 32, 40
	Poles		1P+N(N left)	1P+N( N right)	2P
	Rated voltage $U_e$	V	220/230/240~	220/230/240~	220/230/240~
	Rated sensitivity $I_{\Delta n}$	A	0.03	0.03, 0.1, 0.3	0.03
	Rated residual making and breaking capacity $I_{\Delta m}$	A	500	3,000	500
	Rated short-circuit capacity $I_{cn}$	A	6,000	6,000/10,000	10,000
	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 1min	kV	2		
	Insulation voltage $U_i$	V	500		
	Pollution degree		2		
Mechanical features	Electrical life		2,000		
	Mechanical life		20,000		
	Contact position indicator		Yes		
	Protection degree		IP20		
	Ambient temperature (with daily average ≤35°C)	°C	-5...+40		
Storage temperature	°C	-25...+70			
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar		
	Terminal size top/bottom for cable	mm <sup>2</sup>	25		
		AWG	18-3		
	Terminal size top/bottom for busbar	mm <sup>2</sup>	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

2.4 Dissipation power in W

Nominal current (A)	1	2	3	4	6	10	13	16	20	25	32	40
NB1L 6 kA	2.41	2.16	2.18	2.45	2.52	2.57	4.34	5.2	6.92	9.11		
NB1L 10 kA					2.41	2.15	3.29	3.58	4.74	6.94	5.44	8.36

3. Overall and mounting dimensions (mm)

Combined

