



## 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.

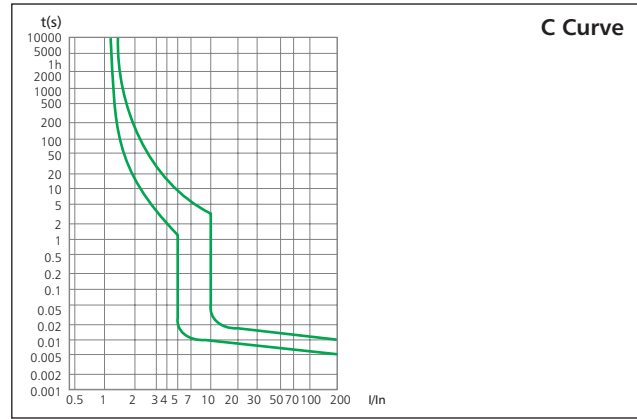
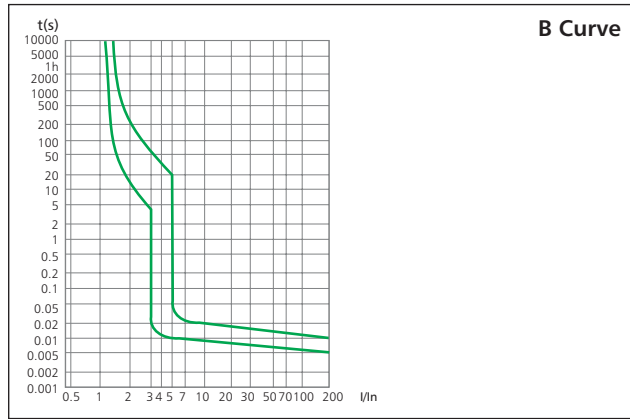
C curve (5-10  $I_n$ ) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

### 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		
Type (wave form of the earth leakage sensed)		AC, A		
Thermo-magnetic release characteristic		B, C		
Rated current $I_n$	A	MCB+add-on RCCB block	1, 2, 3, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40	50, 63
		Combined	1-25/6-40	
Poles		MCB+add-on RCCB block	1P+N, 2P, 3P, 3P+N, 4P	
		Combined	1P+N, 2P	
Rated voltage $U_e$	V	230/400~240/415		
Rated sensitivity $I_{\Delta n}$	A	0.03, 0.1, 0.3		
Rated residual making and breaking capacity $I_{\Delta m}$	A	500 ( $I_n \leq 40A$ )		
		630 ( $I_n > 40A$ )		
Rated short-circuit capacity $I_{cn}$	A	6,000/10,000		
Break time under $I_{\Delta n}$	s	$\leq 0.1$		
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 $\leq 35^\circ C$ )	$^\circ C$	-5...+40	
	Storage temperature	$^\circ C$	-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 (for combined type)		
		From top (MCB+add-on RCCB block)		

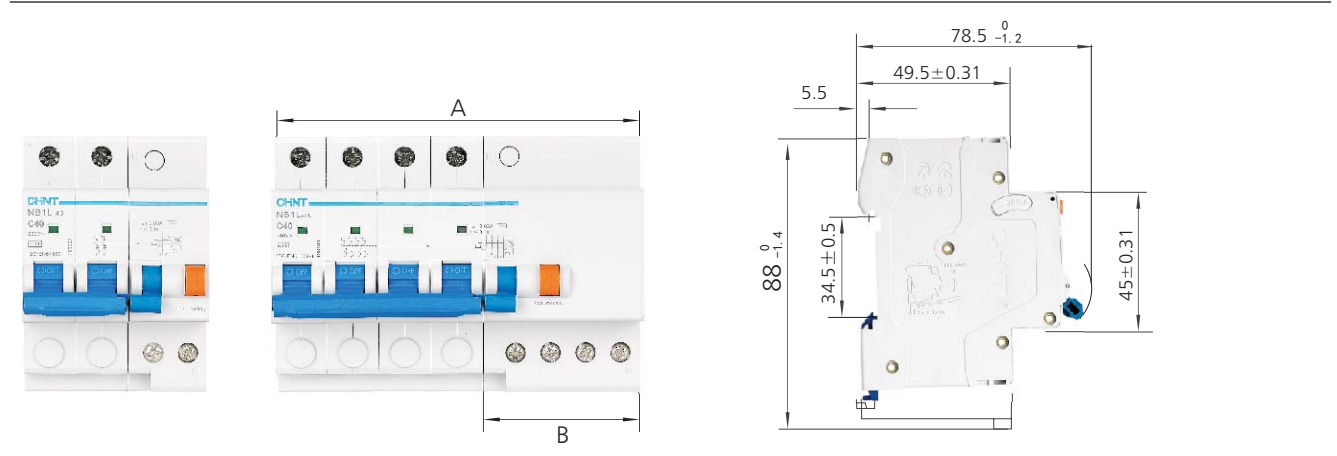
2.3 Temperature derating

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)

MCB+add-on RCCB block



Number of poles	Overall dimensions A (mm)	
	1~40A	50~63A
1P+N	45 <sup>0</sup> <sub>-0.62</sub>	54 <sup>0</sup> <sub>-0.74</sub>
2P	63 <sup>0</sup> <sub>-0.74</sub>	72 <sup>0</sup> <sub>-0.74</sub>
3P	108 <sup>0</sup> <sub>-1.4</sub>	117 <sup>0</sup> <sub>-1.4</sub>
3P+N	108 <sup>0</sup> <sub>-1.4</sub>	117 <sup>0</sup> <sub>-1.4</sub>
4P	126 <sup>0</sup> <sub>-1.6</sub>	135 <sup>0</sup> <sub>-1.6</sub>
	B(mm)	
1P+N	27 <sup>0</sup> <sub>-0.52</sub>	36 <sup>0</sup> <sub>-0.62</sub>
2P	27 <sup>0</sup> <sub>-0.52</sub>	36 <sup>0</sup> <sub>-0.62</sub>
3P	54 <sup>0</sup> <sub>-1.20</sub>	63 <sup>0</sup> <sub>-1.2</sub>
3P+N	54 <sup>0</sup> <sub>-1.20</sub>	63 <sup>0</sup> <sub>-1.2</sub>
4P	54 <sup>0</sup> <sub>-1.20</sub>	63 <sup>0</sup> <sub>-1.2</sub>

Combined

