

RCBOs Ex9BL-N, 6 kA



- Residual Current circuit Breakers with Overload protection according to EN 61009
- Rated breaking capacity I_{cn} 6 kA
- 1+N-pole version
- Rated residual current 30, 100, 300 mA
- Rated currents up to 40 A
- B and C tripping characteristics of installed circuit breaker
- AC and A type of RCBO
- 2-module width
- Suitable for applications from -25 to +40°C

Ex9BL residual current circuit breakers are suitable for domestic as well as industrial applications. They are based on combination of residual current device with permanent magnet principle and circuit breaker with thermal overload release and magnetic short circuit current release. It brings the advantage of voltage independent function of the residual current device. Adequate voltage is only necessary when testing the RCBO with the T test button. Magnetic RCBOs should be tested regularly with a period of one month.

Type Key

| | | | | | | | |
|----------------|----------|-------------------------|-------|--------------------------------|---------------|--------------------------------|---------------------------|
| Ex9 | BL | -N | 1PN | B | 16A | A | 30mA |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Product family | Product | Rated breaking capacity | Poles | Tripping characteristic of MCB | Rated current | Sensitivity to type of current | Rated residual current |
| Ex9 | BL: RCBO | -N: 6 kA | 1P+N | B C | 6 — 40 A | —: AC A: A | 30 mA 100 mA 300 mA |

RCBOs Ex9BL-N, 6 kA

AC type, characteristic C

- AC type of residual current circuit breaker sensitive on residual AC current
- C characteristic of installed circuit breaker
- Without time delay
- Surge current-proof 250 A
- Suitable for protection of people in case of direct and indirect contact with live parts and exposed conductive parts during a fault, respectively
- Selective with upstream installed S or S+A type RCCB



| Rated current | Rated residual current | MCB tripping char. | Article No. | Type | Packing |
|---------------|------------------------|--------------------|-------------|------------------------|---------|
| 6 A | 30 mA | C | 107627 | Ex9BL-N 1P+N C6 30mA | 1/6/72 |
| 10 A | 30 mA | C | 107628 | Ex9BL-N 1P+N C10 30mA | 1/6/72 |
| 13 A | 30 mA | C | 107629 | Ex9BL-N 1P+N C13 30mA | 1/6/72 |
| 16 A | 30 mA | C | 107630 | Ex9BL-N 1P+N C16 30mA | 1/6/72 |
| 20 A | 30 mA | C | 107631 | Ex9BL-N 1P+N C20 30mA | 1/6/72 |
| 25 A | 30 mA | C | 107632 | Ex9BL-N 1P+N C25 30mA | 1/6/72 |
| 32 A | 30 mA | C | 107633 | Ex9BL-N 1P+N C32 30mA | 1/6/72 |
| 40 A | 30 mA | C | 107634 | Ex9BL-N 1P+N C40 30mA | 1/6/72 |
| 6 A | 100 mA | C | 107659 | Ex9BL-N 1P+N C6 100mA | 1/6/72 |
| 10 A | 100 mA | C | 107660 | Ex9BL-N 1P+N C10 100mA | 1/6/72 |
| 13 A | 100 mA | C | 107661 | Ex9BL-N 1P+N C13 100mA | 1/6/72 |
| 16 A | 100 mA | C | 107662 | Ex9BL-N 1P+N C16 100mA | 1/6/72 |
| 20 A | 100 mA | C | 107663 | Ex9BL-N 1P+N C20 100mA | 1/6/72 |
| 25 A | 100 mA | C | 107664 | Ex9BL-N 1P+N C25 100mA | 1/6/72 |
| 32 A | 100 mA | C | 107665 | Ex9BL-N 1P+N C32 100mA | 1/6/72 |
| 40 A | 100 mA | C | 107666 | Ex9BL-N 1P+N C40 100mA | 1/6/72 |
| 6 A | 300 mA | C | 107691 | Ex9BL-N 1P+N C6 300mA | 1/6/72 |
| 10 A | 300 mA | C | 107692 | Ex9BL-N 1P+N C10 300mA | 1/6/72 |
| 13 A | 300 mA | C | 107693 | Ex9BL-N 1P+N C13 300mA | 1/6/72 |
| 16 A | 300 mA | C | 107694 | Ex9BL-N 1P+N C16 300mA | 1/6/72 |
| 20 A | 300 mA | C | 107695 | Ex9BL-N 1P+N C20 300mA | 1/6/72 |
| 25 A | 300 mA | C | 107696 | Ex9BL-N 1P+N C25 300mA | 1/6/72 |
| 32 A | 300 mA | C | 107697 | Ex9BL-N 1P+N C32 300mA | 1/6/72 |
| 40 A | 300 mA | C | 107698 | Ex9BL-N 1P+N C40 300mA | 1/6/72 |

General parameters

| |
|--|
| Combination of MCB and RCCB in one case - saves 50 % space in comparison to combination of stand-alone MCB and RCCB |
| Tripping characteristics of installed circuit breaker B and C |
| AC and A type of residual current device |
| 1+N-pole version |
| Suitable for household as well as industrial applications |
| Permanent magnet principle of residual current device - Voltage independent tripping function |
| Magnetic RCBOs should be tested regularly with a period of one month. This is a responsibility of the user of an installation given by law |
| Signaling of contacts status |

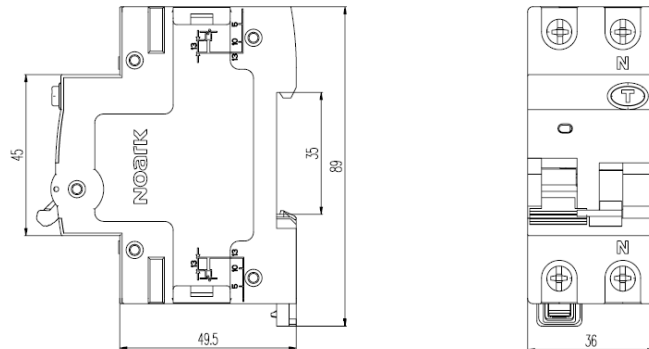
Electrical parameters

| | |
|---|--|
| Tested according to | EN 61009 |
| Rated operating voltage U_e | 230 V AC |
| Min. voltage for RCD function | voltage independent |
| Voltage range of the test button T | 195.5 — 253 V AC |
| Rated frequency f | 50/60 Hz |
| Rated breaking capacity I_{cn} | 6 kA |
| Rated current I_n | 6 — 40 A |
| Rated residual current $I_{\Delta n}$ | 30, 100, 300 mA |
| Sensitivity to residual current | AC type - AC residual current A type - residual AC and pulsating DC current |
| Time characteristic of RCD | undelayed type |
| Tripping characteristics of MCB | B, C |
| Rated impulse withstand voltage U_{imp} | 4 kV |
| Rated insulation voltage U_i | 500 V |
| Surge current proof | 250 A |
| Mechanical service life | 20 000 operation cycles |
| Electrical service life | 4 000 operation cycles |
| Selectivity class | 3 |
| Back-up fuse/breaker | max. 125 A gG |
| Line voltage connection | arbitrary above or below |

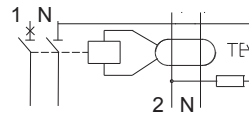
Mechanical parameters

| | |
|---------------------------------|---|
| Device width | 36 mm |
| Device height | 85 mm (including rail clip) |
| Frame size | 45 mm |
| Mounting | easy fastening onto 35 mm device rail (DIN) |
| Degree of protection | IP20 |
| Terminals | combined lift + open mouthed |
| Terminal capacity | 1 — 25 mm ² |
| Fastening torque of terminals | 1.5 — 2.5 Nm |
| Busbar thickness | 0.8 — 2 mm |
| Ambient temperature | -25 — +40 °C |
| Altitude | ≤ 2000 m |
| Relative humidity | ≤ 95 % |
| Resistance to humidity and heat | class 2 |
| Pollution degree | 2 |
| Installation class | III |
| Weight | 0.2 kg |

Dimensions



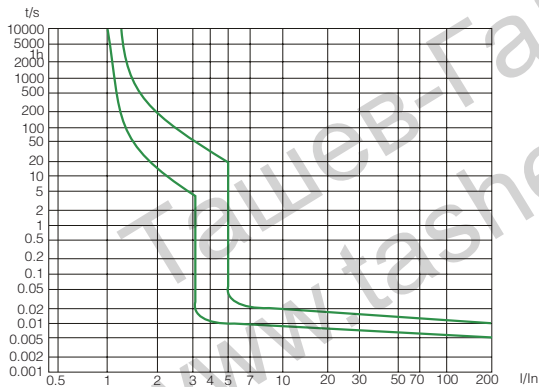
Wiring diagram



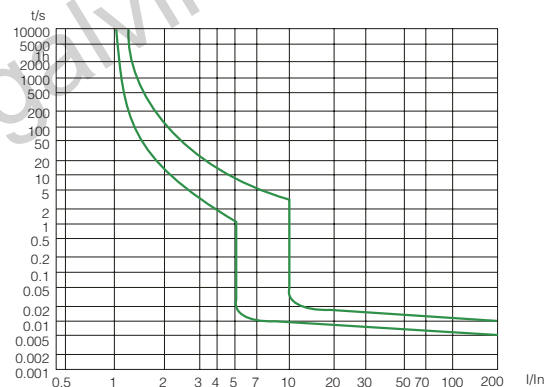
1P+N

Tripping characteristics of MCB

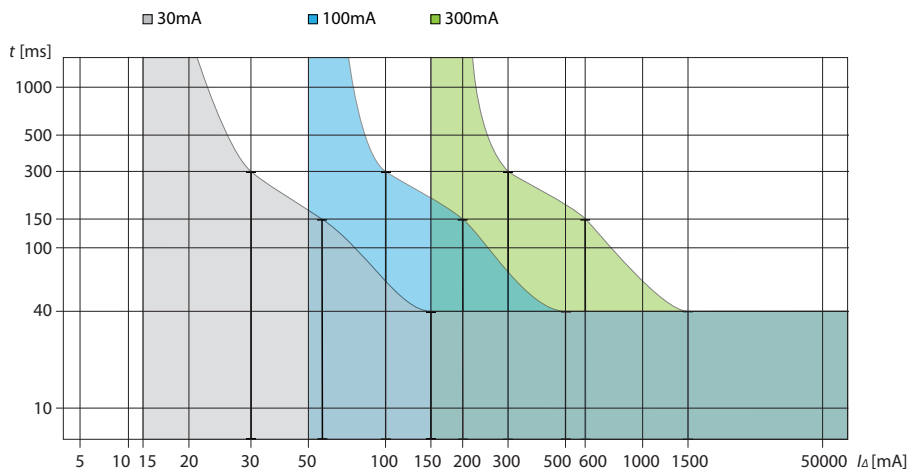
Characteristic B



Characteristic C



Tripping characteristics of RCD



Technical Data Ex9BL-N

Residual Current current Breakers with Overload protection Ex9BL-N, 6 kA

Dependence of Tripping Characteristics on Ambient Temperature

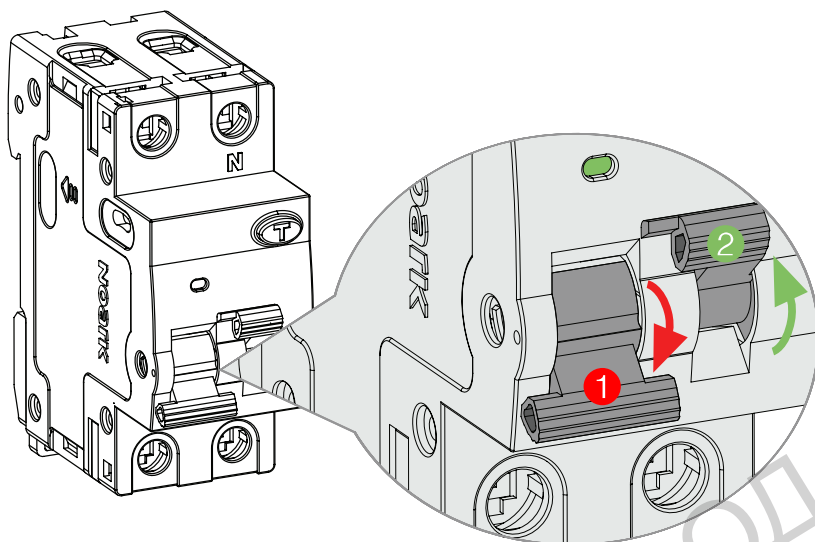
| T [°C] | I _n (T) [A] | | | | | | | |
|-----------|------------------------|------|------|------|------|------|------|------|
| | 6 A | 10 A | 13 A | 16 A | 20 A | 25 A | 32 A | 40 A |
| -20 | 8 | 13.5 | 17 | 20 | 24.5 | 29.8 | 39.5 | 50.5 |
| -15 | 7.8 | 13.3 | 16.8 | 19.8 | 24.3 | 29.7 | 39.3 | 50.4 |
| -10 | 7.6 | 13 | 16.5 | 19.5 | 24 | 29.5 | 39 | 50.2 |
| -5 | 7.3 | 12.7 | 16.1 | 19.2 | 23.8 | 29.3 | 38.8 | 50 |
| 0 | 7.2 | 12.5 | 15.8 | 19.1 | 23.7 | 29.2 | 38.6 | 48.8 |
| 5 | 7 | 12.3 | 15.5 | 18.8 | 23.5 | 29 | 38.4 | 48.6 |
| 10 | 6.8 | 12.1 | 15.2 | 18.6 | 23.3 | 28.8 | 38.2 | 48.4 |
| 15 | 6.6 | 12 | 14.9 | 18.5 | 23.1 | 28.6 | 38 | 48.1 |
| 20 | 6.4 | 11.8 | 14.7 | 18.3 | 22.8 | 28.4 | 37.8 | 47.8 |
| 25 | 6.2 | 11.5 | 14.1 | 18 | 22.6 | 28.2 | 37.5 | 47 |
| 30 | 6 | 10 | 13 | 16 | 20 | 25 | 32 | 40 |
| 35 | 6 | 9.9 | 12.8 | 15.7 | 19.7 | 24.6 | 31.5 | 39.2 |
| 40 | 5.9 | 9.8 | 12.5 | 15.4 | 19.3 | 24.3 | 31.1 | 38.8 |
| 45 | 5.83 | 9.8 | 12.2 | 15.1 | 18.8 | 24 | 30.8 | 38.3 |
| 50 | 5.72 | 9.6 | 11.7 | 14.9 | 18.5 | 23.8 | 30.1 | 38 |
| 55 | 5.65 | 9.5 | 11.5 | 14.7 | 18.2 | 23.5 | 29.5 | 36.5 |
| 60 | 5.5 | 9 | 11.2 | 14.5 | 17.8 | 23 | 28.5 | 35 |
| 65 | 5.4 | 8.6 | 11 | 14 | 17.5 | 22 | 27.5 | 34 |
| 70 | 5.2 | 8 | 10.8 | 13.8 | 17.3 | 21.5 | 27 | 32.5 |

Power loss

| I _n [A] | 6 A | 10 A | 13 A | 16 A | 20 A | 25 A | 32 A | 40 A |
|--------------------|-----|------|------|------|------|------|------|------|
| P [W] | 1.8 | 2.5 | 3.5 | 4 | 5 | 5.8 | 6.5 | 7.8 |

Breaker fault detection by toggle position

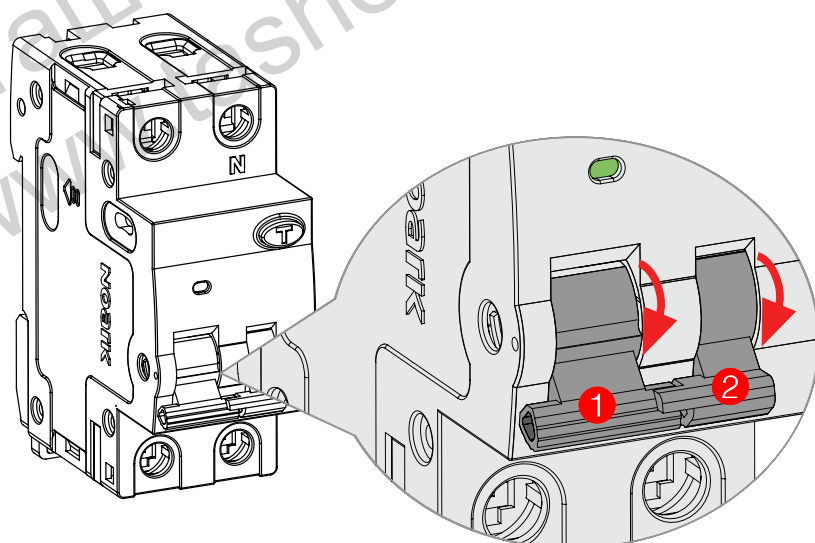
1. Overload or short-circuit detected



1 Toggle in the „OFF“ position

2 Toggle in the „ON“ position

2. Residual current detected



1 Toggle in the „OFF“ position

2 Toggle in the „OFF“ position