

One-module RCBOs Ex9NLE, 6 kA

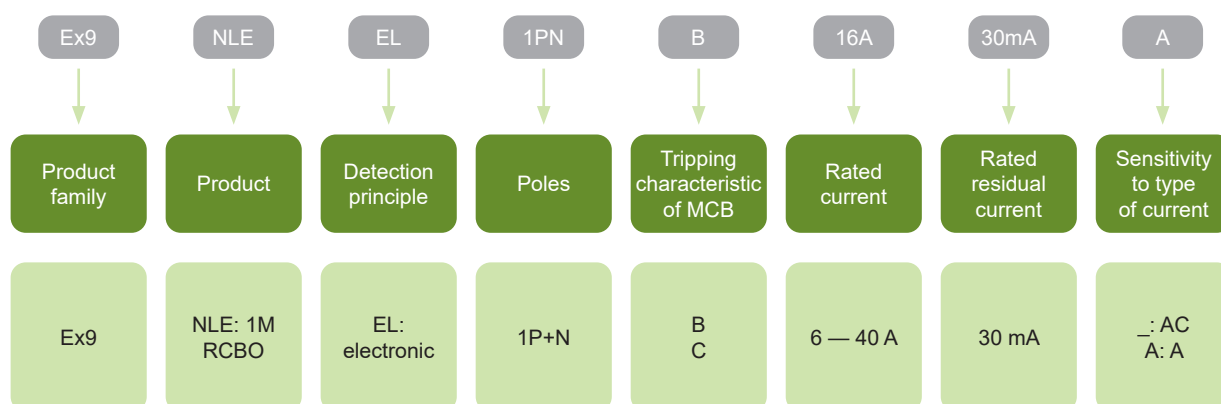


- One-module Residual Current circuit Breakers with Overload protection according to EN 61009-1
- Rated breaking capacity I_{cn} 6 kA
- 1P+N-pole version
- Rated residual current 30 mA
- Rated currents up to 40 A
- B and C tripping characteristics of integrated circuit breaker
- AC and A type of RCBO
- 1-module (18 mm) width
- Suitable for applications from -35 to +70°C

Voltage dependent Residual Current circuit Breakers with Overload protection Ex9NLE have only 1 module, so they can save one modular space in enclosure comparison to classical RCBO. They are based on electronic evaluation principle - more accurate measuring of residual current. These devices also do not suffer with magnetization of the tripping unit. Thus, there is no mandatory testing period, but they must be tested regularly. Local law or regulations may apply on utilization and testing period. The recommendation is to test it every 6 months in fair environment and every month in heavy condition.

The insulation test must be performed in the top terminals and with the device in the OFF position.

Type Key

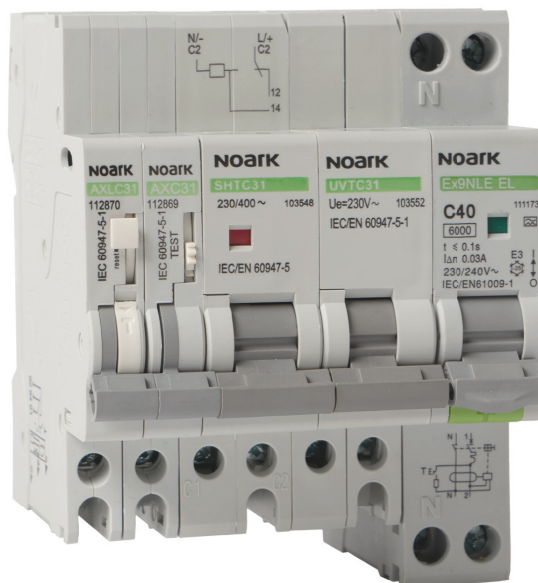


Certification marks



One-module RCBOs Ex9NLE, 6 kA

Accessories



Auxiliary or signal contacts
AXC, AXLC
Up to 3 units

Voltage or trip releases
SHTC, UVTC
Up to 2 units

RCBO
Ex9NLE
1-module width

- Auxiliary contact AXC31
- Signal contact AXLC31
- Shunt trip release SHTC31
- Undervoltage releases UVTC31

All accessories are mounted to the Ex9NLE from the left side.

One-module RCBOs Ex9NLE, 6 kA

AC type, characteristic B

- AC type of residual current circuit breaker sensitive on residual AC current
- B characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 3000 A
- Suitable for protection of people in case of direct and indirect contact with live parts and exposed conductive parts during a fault, respectively



| Rated current | Rated residual current | MCB tripping char. | Article No. | Type | Packing |
|---------------|------------------------|--------------------|-------------|------------------------|----------|
| 6 A | 30 mA | B | 111146 | Ex9NLE EL 1PN B6 30mA | 1/12/144 |
| 10 A | 30 mA | B | 111147 | Ex9NLE EL 1PN B10 30mA | 1/12/144 |
| 16 A | 30 mA | B | 111148 | Ex9NLE EL 1PN B16 30mA | 1/12/144 |
| 20 A | 30 mA | B | 111149 | Ex9NLE EL 1PN B20 30mA | 1/12/144 |
| 25 A | 30 mA | B | 111150 | Ex9NLE EL 1PN B25 30mA | 1/12/144 |
| 32 A | 30 mA | B | 111151 | Ex9NLE EL 1PN B32 30mA | 1/12/144 |
| 40 A | 30 mA | B | 111152 | Ex9NLE EL 1PN B40 30mA | 1/12/144 |

AC type, characteristic C

- AC type of residual current circuit breaker sensitive on residual AC current
- C characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 3000 A
- Suitable for protection of people in case of direct and indirect contact with live parts and exposed conductive parts during a fault, respectively



| Rated current | Rated residual current | MCB tripping char. | Article No. | Type | Packing |
|---------------|------------------------|--------------------|-------------|------------------------|----------|
| 6 A | 30 mA | C | 111153 | Ex9NLE EL 1PN C6 30mA | 1/12/144 |
| 10 A | 30 mA | C | 111154 | Ex9NLE EL 1PN C10 30mA | 1/12/144 |
| 16 A | 30 mA | C | 111155 | Ex9NLE EL 1PN C16 30mA | 1/12/144 |
| 20 A | 30 mA | C | 111156 | Ex9NLE EL 1PN C20 30mA | 1/12/144 |
| 25 A | 30 mA | C | 111157 | Ex9NLE EL 1PN C25 30mA | 1/12/144 |
| 32 A | 30 mA | C | 111158 | Ex9NLE EL 1PN C32 30mA | 1/12/144 |
| 40 A | 30 mA | C | 111159 | Ex9NLE EL 1PN C40 30mA | 1/12/144 |

One-module RCBOs Ex9NLE, 6 kA

A type, characteristic B

- A type of residual current circuit breaker sensitive on residual AC and pulsating DC current
- B characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 3000 A
- Suitable for protection of people in case of direct and indirect contact with live parts and exposed conductive parts during a fault, respectively



| Rated current | Rated residual current | MCB tripping char. | Article No. | Type | Packing |
|---------------|------------------------|--------------------|-------------|--------------------------|----------|
| 6 A | 30 mA | B | 111160 | Ex9NLE EL 1PN B6 30mA A | 1/12/144 |
| 10 A | 30 mA | B | 111161 | Ex9NLE EL 1PN B10 30mA A | 1/12/144 |
| 16 A | 30 mA | B | 111162 | Ex9NLE EL 1PN B16 30mA A | 1/12/144 |
| 20 A | 30 mA | B | 111163 | Ex9NLE EL 1PN B20 30mA A | 1/12/144 |
| 25 A | 30 mA | B | 111164 | Ex9NLE EL 1PN B25 30mA A | 1/12/144 |
| 32 A | 30 mA | B | 111165 | Ex9NLE EL 1PN B32 30mA A | 1/12/144 |
| 40 A | 30 mA | B | 111166 | Ex9NLE EL 1PN B40 30mA A | 1/12/144 |

A type, characteristic C

- A type of residual current circuit breaker sensitive on residual AC and pulsating DC current
- C characteristic of integrated circuit breaker
- Without time delay
- Surge current-proof 3000 A
- Suitable for protection of people in case of direct and indirect contact with live parts and exposed conductive parts during a fault, respectively



| Rated current | Rated residual current | MCB tripping char. | Article No. | Type | Packing |
|---------------|------------------------|--------------------|-------------|--------------------------|----------|
| 6 A | 30 mA | C | 111167 | Ex9NLE EL 1PN C6 30mA A | 1/12/144 |
| 10 A | 30 mA | C | 111168 | Ex9NLE EL 1PN C10 30mA A | 1/12/144 |
| 16 A | 30 mA | C | 111169 | Ex9NLE EL 1PN C16 30mA A | 1/12/144 |
| 20 A | 30 mA | C | 111170 | Ex9NLE EL 1PN C20 30mA A | 1/12/144 |
| 25 A | 30 mA | C | 111171 | Ex9NLE EL 1PN C25 30mA A | 1/12/144 |
| 32 A | 30 mA | C | 111172 | Ex9NLE EL 1PN C32 30mA A | 1/12/144 |
| 40 A | 30 mA | C | 111173 | Ex9NLE EL 1PN C40 30mA A | 1/12/144 |

Technical Data Ex9NLE

One-module Residual Current circuit Breakers with Overload protection Ex9NLE, 6 kA

General parameters

| |
|---|
| Saves one modular space in comparison to classical RCBO |
| Tripping characteristics of integrated circuit breaker B and C |
| AC and A type of residual current device |
| 1+N-pole version |
| Electronic evaluation principle - more accurate measuring of residual current |
| Voltage dependent RCBO |
| The insulation test must be performed in the top terminals and with the device in the OFF position |
| Device must be tested regularly. Local law or regulations may apply on utilization and testing period. Recommend is a testing period of 6 months in normal condition, 1 month in heavy conditions |

Electrical parameters

| | |
|--|--|
| Tested according to | EN 61009-1 |
| Rated operating voltage U_e | 230 V AC |
| Min. voltage for RCD function | 50 V AC |
| 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 mA |
| Rated residual non-operating current $I_{\Delta no}$ | 15 mA |
| Sensitivity to residual current | AC type - AC residual current A type - residual AC and pulsating DC current |
| Time characteristic of RCD | no time delay |
| Tripping characteristics of MCB | B, C |
| Rated impulse withstand voltage U_{imp} | 4 kV |
| Rated insulation voltage U_i | 500 V |
| Surge current proof | 3000 A |
| Mechanical service life | 10 000 operation cycles |
| Electrical service life | 4 000 operation cycles |
| Selectivity class | 3 |
| Line voltage connection | from top or bottom connection |

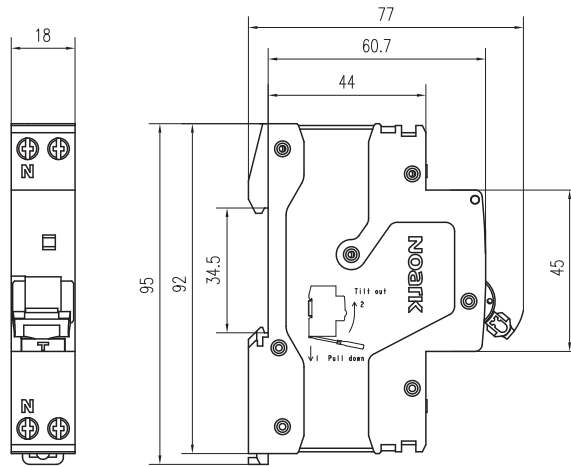
Mechanical parameters

| | |
|---------------------------------|---|
| Device width | 18 mm |
| Device height | 95 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 — 16 mm ² |
| Fastening torque of terminals | 1.5 Nm |
| Busbar thickness | 0.8 — 1 mm |
| Ambient temperature | -35 — +70 °C |
| Altitude | ≤ 2000 m |
| Relative humidity | ≤ 95 % |
| Resistance to humidity and heat | class 2 |
| Pollution degree | 2 |
| Installation class | III |
| Weight | 0.12 kg |

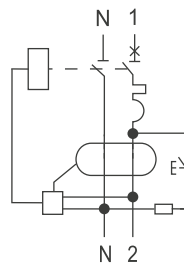
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Dimensions

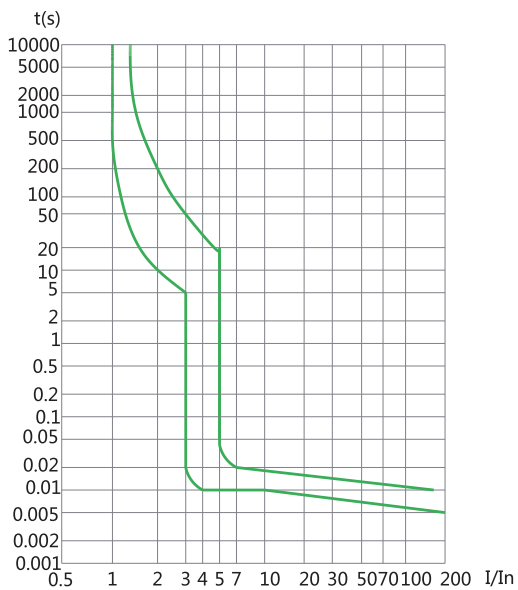


Wiring diagram

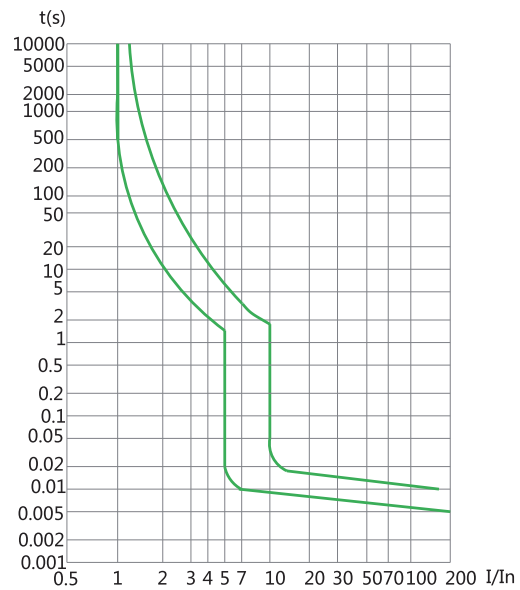


Tripping characteristics of MCB

Characteristic B



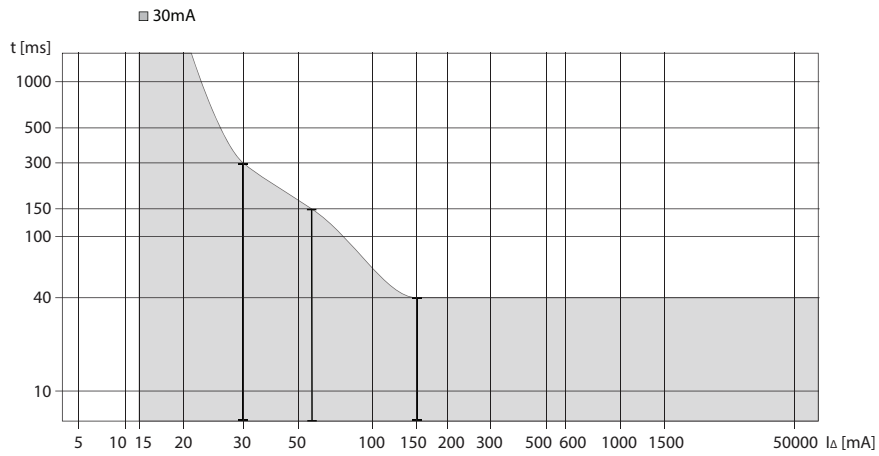
Characteristic C



Technical Data Ex9NLE

One-module Residual Current circuit Breakers with Overload protection Ex9NLE, 6 kA

Tripping characteristics of RCD



Dependence of tripping characteristics on ambient temperature

| T [°C] | I _n (T) [A] | | | | | | |
|-----------|------------------------|------|-------|------|-------|-------|------|
| | 6 A | 10 A | 16 A | 20 A | 25 A | 32 A | 40 A |
| -35 | 7.68 | 12.7 | 20.32 | 25.4 | 31.75 | 40.64 | 51.6 |
| -20 | 7.5 | 12.4 | 19.84 | 24.8 | 31 | 39.68 | 50.4 |
| -10 | 7.08 | 11.9 | 19.04 | 23.8 | 29.75 | 38.08 | 48.4 |
| 0 | 6.78 | 11.3 | 18.08 | 22.6 | 28.25 | 36.16 | 46 |
| 10 | 6.48 | 10.7 | 17.12 | 21.4 | 26.75 | 34.56 | 44 |
| 20 | 6.18 | 10.2 | 16.32 | 20.4 | 25.5 | 32.96 | 42 |
| 30 | 6 | 10 | 16 | 20 | 25 | 32 | 40 |
| 40 | 5.76 | 9.6 | 15.52 | 19.4 | 24 | 31.04 | 38.8 |
| 50 | 5.46 | 9.1 | 15.04 | 18.8 | 22.75 | 29.76 | 36.8 |
| 60 | 5.22 | 8.7 | 14.4 | 18 | 22 | 28.16 | 35.2 |
| 70 | 7.92 | 8.2 | 14.08 | 17.6 | 21.25 | 26.56 | 33.2 |

Power loss

| I _{cn} [A] | 6 A | 10 A | 16 A | 20 A | 25 A | 32 A | 40 A |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| L / N [W] | 1.94 / 0.06 | 1.83 / 0.08 | 2.09 / 0.22 | 2.44 / 0.37 | 2.93 / 0.86 | 5.58 / 3.55 | 5.58 / 3.55 |