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

Ex9	NLE	EL	1PN	B	16A	30mA	A
Product family	Product	Detection principle	Poles	Tripping characteristic of MCB	Rated current	Rated residual current	Sensitivity to type of current
Ex9	NLE: 1M RCBO	EL: electronic	1P+N	B C	6 — 40 A	30 mA	_: AC A: A

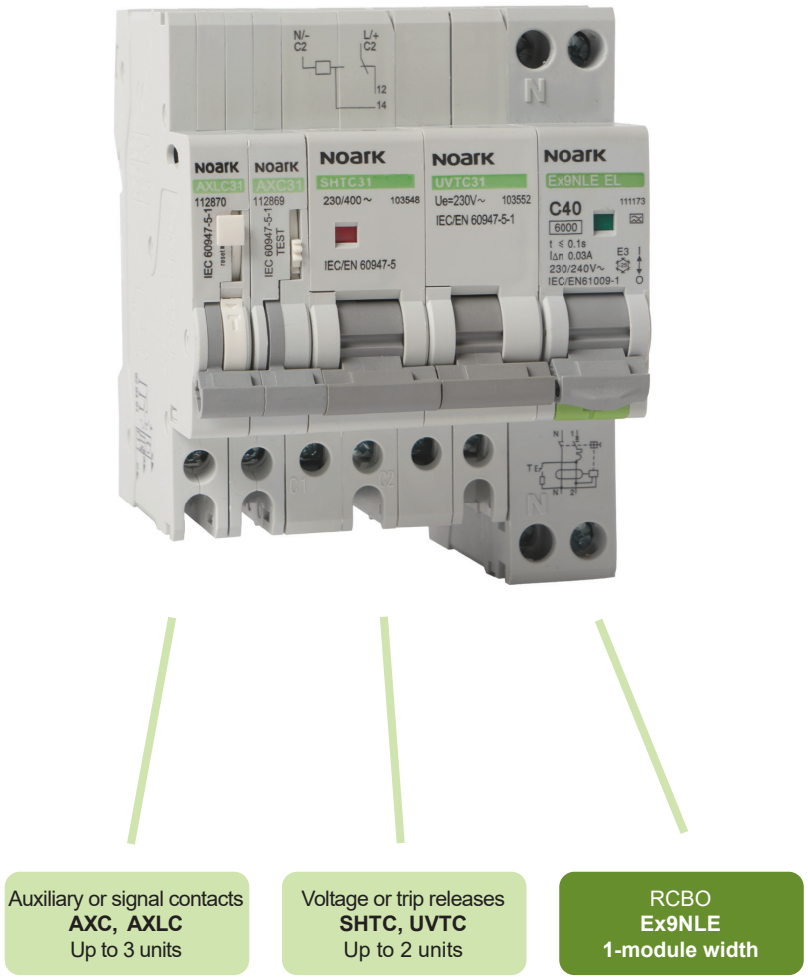
Certification marks

CE

Noark

One-module RCBOs Ex9NLE, 6 kA

Accessories



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

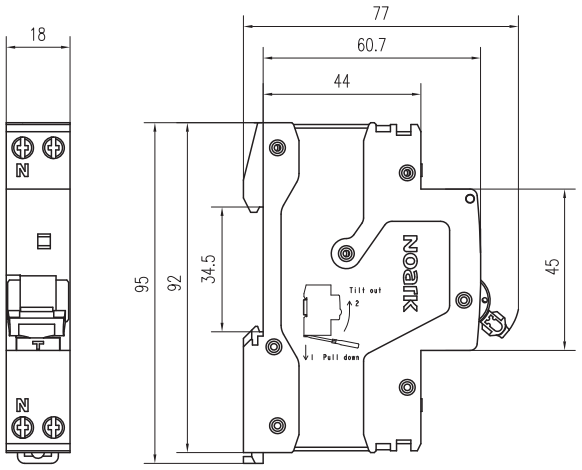
Mechanical parameters

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

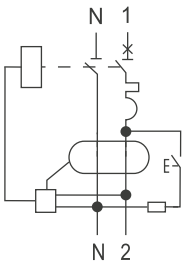
Technical Data Ex9NLE

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

Dimensions

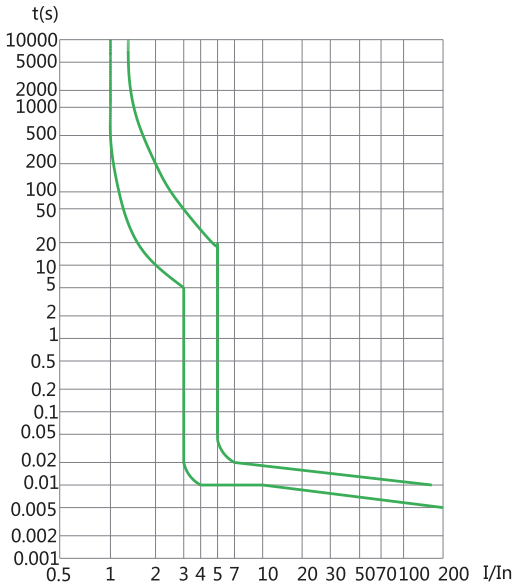


Wiring diagram

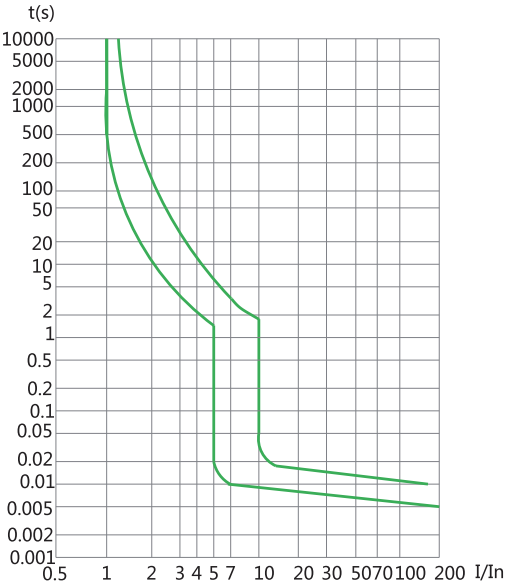


Tripping characteristics of MCB

Characteristic B



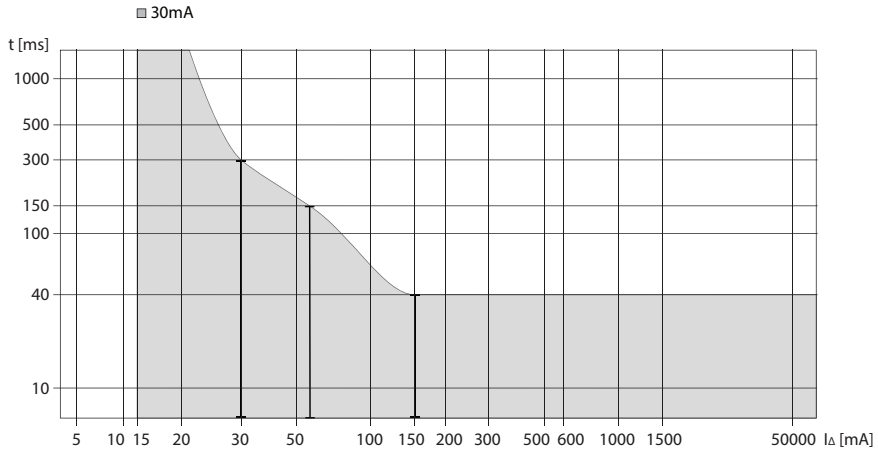
Characteristic C



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