87045 LIMOGES Cedex
Telephone: +33 5 55 06 87 87 – FAX: +33 5 55 06 88 88

DX³ RCBO with solid neutral 10000A (1P)

Cat N° (s):

4 189 56/ . ⋯ .. / 4 189 63
4 189 72/ . ⋯ .. / 4 189 95



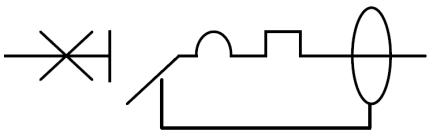
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1. DESCRIPTION - USE

Residual Current Circuit Breaker with Over Current Protection (RCBO) with positive contact indication for control, protection against short-circuits and overloads, and isolation of electrical circuits, protecting people from direct and indirect contact and protecting installations from insulation faults.

Symbol:



Technology:
. Current limiting device.
. Electronical residual current (Voltage Dependent).

Type :
. A (alternating and pulsating direct currents).

Rated Voltage / Frequency:
. 240 V ~, 50/60 Hz with standard tolerances.

Operating voltage~ 50/60 Hz:

U mini	**170 V ~**
U maxi	**264 V ~**

Breaking capacity:
. 10000A according to IEC /EN 61009-1
. 10 kA according to IEC/EN 60947-2

Limitation class:
. 3

Residual breaking capacity IΔm:
. In accordance with standard IEC/EN 61009-1
(IΔm: short-circuit to ground) IΔm = 6000A

2. RANGE

Number of poles:
. 1 pole.

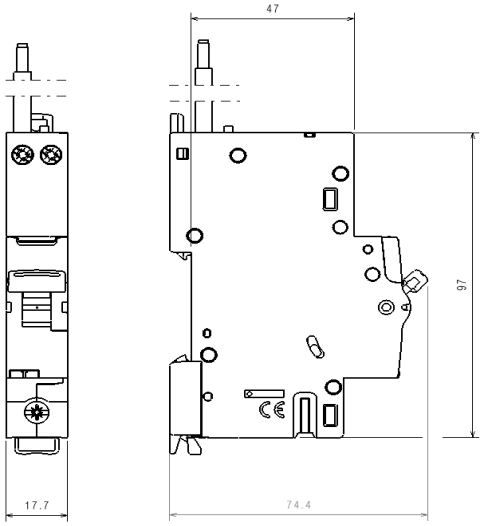
Rated currents:
. 6 / 10 / 16 / 20 / 25 / 32 / 40 / 45A.

Tripping characteristics and magnetic tripping calibrations:
. Curve B (between 3 and 5 In) - C (between 5 and 10 In)

Thermal threshold:
according to IEC/EN 61009-1
. Non operating current (Inf): 1.13 In.
. Operating current (If): 1.45 In.

Sensitivity - Operating time:
. 10 mA instantaneous
. 30 mA instantaneous.
. 100 mA instantaneous.

3. OVERALL DIMENSIONS



DX³ RCBO with solid neutral 10000A (1P)

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4. PREPARATION - CONNECTION

Fixing:

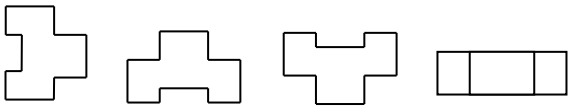
. On symmetric rail IEC/EN 60715 or DIN 35.

Supply:

. From the bottom.

Operating position:

. Vertical, Horizontal, backwards, on the side



Screw terminals:

Main terminal (L IN):
Connection mode: Fork busbar
Capacity:

	Without ferrule	With ferrule
Rigid cable	1 x 1,5 mm² to 35 mm² 2 x 1,5 mm² to 16 mm²	-
Flexible cable	1 x 1,5 mm² to 25 mm² 2 x 1,5 mm² to 10 mm²	1 x 1,5 mm² to 25 mm²

Depth: 14 mm
Sealable: yes (with cover CatNo 406304)
Screw head: PZ2
Torque: 2 to 2.5 Nm

Terminals (L OUT) and (N OUT)
Capacity:

	Without ferrule	With ferrule
Rigid cable	1 x 0,75 mm² to 16 mm² 2 x 0,75 mm² to 6 mm²	-
Flexible cable	1 x 0,75 mm² to 10 mm² 2 x 0,75 mm² to 4 mm²	1 x 0,75 mm² to 10 mm²

Depth: 12 mm
Sealable: no
Screw head: PZ2
Torque: 2 to 2.5 Nm

Recommended tools:

. For the main terminal (L IN): screwdriver Pozidriv n° 2 or flat screwdriver 5,5 mm (6,5 mm maximum).
. For the terminals (L OUT) and (N OUT): screwdriver Pozidriv n° 2 or flat screwdriver 4 mm (5,5 mm maximum).

. For fixing on the DIN rail: flat screwdriver 5 mm (from 4 to 5 mm).

Manual actuation of the circuit-breaker:

. By the 2-position ergonomic handle:
I / ON: Closed circuit.
0 / OFF: Opened circuit.

Display of contact status:

. By marking on the handle
- "O-OFF" = contacts open
- "I-ON" = contacts closed

4. PREPARATION – CONNECTION *(continued)*

Sealing:

. Possible in "Open" position (OFF) or "Close" position (ON).

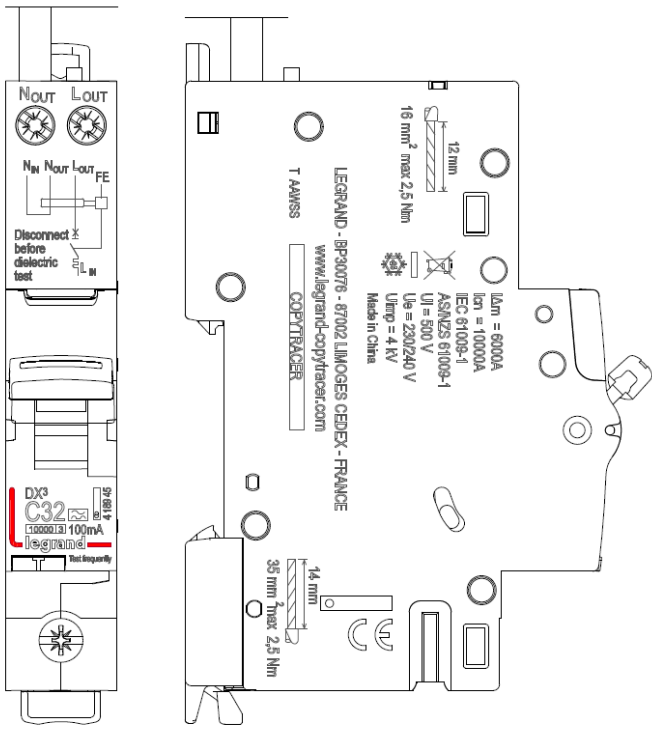
Lockout:

. By 5 mm padlock (cat. N° 406313) or 6 mm padlock (cat. N° 227 97) with padlock support (cat. N° 044 42)

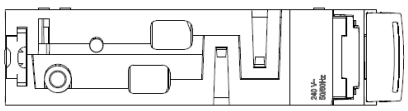
5. GENERAL CHARACTERISTICS

Front and lateral side marking:

. By permanent ink pad printing and laser marking.



Top side

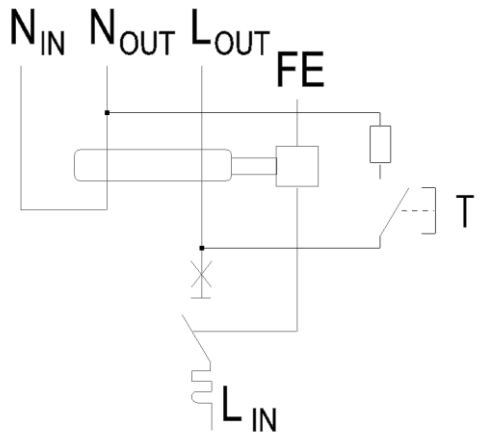


5. GENERAL CHARACTERISTICS *(continued)*

"Test" key operating voltages:

U test	
U mini	**170 V ~**
U maxi	**264 V ~**

Electrical scheme:



Neutral system:
TN.

Insulation rated voltage:
. Ui = 500 V according to IEC/EN 61009-1

Pollution degree:
. 2.

Dielectric strength:
. 2500 V

Pulse rated voltage:
. Uimp = 4 kV (wave 1.2 / 50 µs).

Earthing resistance:
. 100 Ohms max.

Mechanical endurance:
. 20000 operations without load.
. 10000 operations with load.
. 750 differential tripping operations by the Test key.
. 750 differential tripping operations for fault current.

Specific use:
. Appropriate to be used in humid environment and polluted by chlorine (pool-type)

5. GENERAL CHARACTERISTICS *(continued)*

Force to close and to open a RCBO by the handle:
. 0,5 Nm per pole to close.

. 0,3 Nm per pole to open.

Protection against nuisance tripping:
. Damped recurrent wave – 0.5 µs/10kHz : 200A
. Wave 8/20 µs: 250A

Resistance to sinusoidal vibrations:
. According to IEC 60068-2-6.
. Axis : x, y, z.
. Frequency range: 5÷100 Hz ; duration 90 minutes
. Displacement (5÷13,2 Hz) : 1mm
. Acceleration (13,2÷100 Hz) : 0,7g (g=9,81 m/s²)

Ambient operating temperature:
. Min. = -25° C. Max. = +70° C

Ambient storage temperature:
. Min. = -40° C. Max. = +70° C

Protection class:
. Protection index of terminals against solid and liquid bodies:
IP 20 (according to , IEC/EN 60529 et NF C 20-010).
. Protection index of the box against solid and liquid bodies:
IP 40 (according to , IEC/EN 60529 et NF C 20-010).
. Class II compared to conductive parts.
. Protection index against mechanical shocks:
IK 02 (according to EN 50102 et NF C 20-015).

Enclosure material:
. Polyamide
. Characteristics of this material: self extinguishing, heat and fire resistant in accordance with standard EN IEC/61009-1, glow-wire test at 960° C for external parts made of insulating material necessary to retain in position current-carrying parts and parts of protective circuit (650° C for all other external parts made of insulating material).

Packed volume:
. 0,43 dm³ per device.

Average weight per device:
. 0,220 kg

5. GENERAL CHARACTERISTICS *(continued)*

Derating of circuit-breakers according to ambient temperature :

. The nominal characteristics of a circuit breaker are modified according to the ambient temperature inside the cabinet or the enclosure where the circuit breaker is located.

. Reference temperature: 30° C in accordance with EN/IEC 60898-1

	Ambient Temperature / In									
In (A)	- 25° C	- 10° C	0° C	10° C	20° C	30° C	40° C	50° C	60° C	70° C
6	**7.5**	**7.0**	**6.6**	**6.4**	**6.2**	**6.0**	**5.8**	**5.6**	**5.4**	**5.3**
10	**12.5**	**11.5**	**11.1**	**10.7**	**10.3**	**10.0**	**9.7**	**9.3**	**9.0**	**8.7**
16	**20.0**	**18.7**	**18.0**	**17.3**	**16.6**	**16.0**	**15.4**	**14.7**	**14.1**	**13.5**
20	**25.0**	**23.2**	**22.4**	**21.6**	**20.8**	**20.0**	**19.2**	**18.4**	**17.6**	**16.8**
25	**31.5**	**29.5**	**28.3**	**27.2**	**26.0**	**25.0**	**24.0**	**22.7**	**21.7**	**20.7**
32	**41.0**	**37.8**	**36.5**	**34.9**	**33.3**	**32.0**	**30.7**	**29.1**	**27.8**	**26.5**
40	**51.0**	**48.0**	**46.0**	**44.0**	**42.0**	**40.0**	**38.0**	**36.0**	**34.0**	**32.0**
45	**57.6**	**54.0**	**51.8**	**49.5**	**47.3**	**45.0**	**42.8**	**40.5**	**38.3**	**36.0**

Derating of RCBOs function of the number of devices side by side:

When several RCBOs are juxtaposed and operate simultaneously, the heat dissipation of the poles is limited. This results in an increase in operating temperature of the circuit breakers which can cause nuisance tripping. It is recommended to apply the following coefficients to the rated currents.

Number of circuit breakers side by side	Coefficient
2 – 3	**0.9**
4 – 5	**0.8**
6 – 9	**0.7**
≥ 10	**0.6**

These values are given by the recommendation of IEC/EN 60439-1 and NF C 63421 standards.
To avoid having to use these coefficients, it is necessary to allow a good ventilation and to keep the devices apart with 0.5 module spacing elements (cat. N° 406 307).

6. CONFORMITIES AND APPROVALS

In accordance with standards:
. IEC/EN 61009-1.
. IEC/EN 60947-2.
. Compliance with Directives 2014/35/UE (LVC), subsequent modifications and additions.
. Compliance with Directives 2014/30/UE (EMC), subsequent modifications and additions.

Environment respect – Compliance with CEE directives:
. Compliance with Directive 2011/65/UE called "RoHS" provides the banishment of hazardous substances, subsequent modifications and additions.
. Compliance with Directives 91/338/CEE of 18/06/91 and decree 94-647, subsequent modifications and additions.

Plastic materials:
. Halogen-free plastic materials.
. Marking of parts according to ISO 11469 and ISO 1043.

Packaging:
. Design and manufacture of packaging in accordance with decree 98-638 and Directive 94/62/EC, subsequent modifications and additions.

7. AUXILIARIES AND ACCESSORIES

Wiring accessories:
. Single-pole prong type supply busbar (Cat. No.4 049 26 / 28 / 37).
. Three-pole prong-type supply busbar (Cat. No.4 049 42 / 43).
. Single-pole fork type supply busbar (Cat. No.4 049 11 / 12).
. Three-pole fork-type supply busbar (Cat. No.4 049 17 / 18).
. Sealable screw cover (cat n° 4 063 04).

Signalling auxiliaries:
. Auxiliary contact (½ module – cat n° 4 062 50 - 4 062 58).
. Fault signalling changeover switch
(½ module – cat n° 4 062 52 – 4 062 60).
. Auxiliary contact fault signalling switch (allows the choice between the two functions)
(½ module – cat n° 4 062 56 – 4 062 62).
. Auxiliary contact + fault signalling switch - can be modified to 2 auxiliary contacts (1 module - cat n° 4 062 64 – 4 062 66).

Control auxiliaries:
. Shunt releases (1 module - cat n° .4 062 76 / 78).
. Under voltage release (1 module - cat n° 4 062 80 / 82).
. Autonomous shunt trip for NC push-button
(1 module - cat n° . 4 062 84).
. Power Overvoltage Protection (1 module – cat n° 4 062 86)

Motor driven control modules
. Motor driven control module (1 module – cat n° 4 062 91)
. Motor driven control module with automatic resetting integrated
(2 modules – cat n° 4 062 93 / 95)

Possible combinations of RCBO and auxiliaries:
. Auxiliaries are clipped to the left of the RCBO.
. Maximum number of auxiliaries for one RCBO: 3.
. Two signalling auxiliaries max. (cat. n° 4 062 58 / 60 / 62 / 66).
. Only one control auxiliary (cat. n° 4 062 76 / 78 / 80 / 82 / 84).
. If signalling and control auxiliaries are associated on the same RCBO, the command auxiliary must be placed to the left of the signal auxiliary (ref. 4 062 5x / 6x).