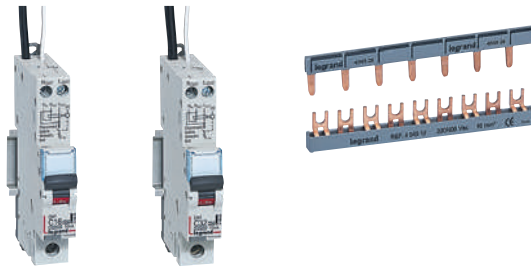


## RCBOs DX<sup>3</sup> 10000 - black neutral lead

residual circuit breakers from 6 to 40 A - A type



4 189 26

4 189 29

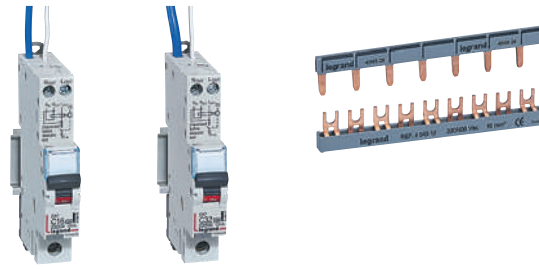
Conform to IEC 61009-1 and BS/NZS 61009-1  
Compatible with both prong-type and fork type supply busbars  
Voltage dependent tripping

Breaking capacity:  
10000 - IEC 61009-1

- A type : detect AC and DC component faults
- Solid neutral (not switched)
- Functional earth (FE) cable ensuring RCD protection in case of neutral interruption
- Downstream connection top side
- Can be equipped with DX<sup>3</sup> signalling and remote tripping auxiliaries and motorised controls (p. 72)

## RCBOs DX<sup>3</sup> 10000 - blue neutral lead

residual circuit breakers from 6 to 45 A - A type



4 189 74

4 189 77

Conform to IEC 61009-1 and BS/EN 61009-1  
Compatible with both prong-type and fork type supply busbars  
Voltage dependent tripping

Breaking capacity:  
10000 - IEC 61009-1

- A type : detect AC and DC component faults
- Solid neutral (not switched)
- Functional earth (FE) cable ensuring RCD protection in case of neutral interruption
- Downstream connection top side
- Can be equipped with DX<sup>3</sup> signalling and remote tripping auxiliaries and motorised controls (p. 72)

Pack	Cat.Nos	Single pole - 230 V~		Number of modules
	<b>N</b>	<b>A Type  10 mA</b>	Nominal rating In (A)	
1	4 189 24	C curve	6	1
1	4 189 25		10	1
1	4 189 26		16	1
1	4 189 27		20	1
1	4 189 28		25	1
1	4 189 29		32	1
1	4 189 30		40	1
		<b>A Type  30 mA</b>		
1	4 189 32		6	1
1	4 189 33		10	1
1	4 189 34		16	1
1	4 189 35		20	1
1	4 189 36		25	1
1	4 189 37		32	1
1	4 189 38		40	1
		<b>A Type  100 mA</b>		
1	4 189 40		6	1
1	4 189 41		10	1
1	4 189 42		16	1
1	4 189 43		20	1
1	4 189 44		25	1
1	4 189 45		32	1
1	4 189 46		40	1

Pack	Cat.Nos	Single pole - 230 V~		Number of modules
	<b>N</b>	<b>A Type  10 mA</b>	Nominal rating In (A)	
1	4 189 72	C curve	6	1
1	4 189 73		10	1
1	4 189 74		16	1
1	4 189 75		20	1
1	4 189 76		25	1
1	4 189 77		32	1
1	4 189 78		40	1
1	4 189 79		45	1
		<b>A Type  30 mA</b>		
1	4 189 56	B curve	6	1
1	4 189 57	C curve	10	1
1	4 189 58		16	1
1	4 189 59		20	1
1	4 189 60		25	1
1	4 189 61		32	1
1	4 189 62		40	1
1	4 189 63		45	1
		<b>A Type  100 mA</b>		
1	4 189 88	C curve	6	1
1	4 189 89		10	1
1	4 189 90		16	1
1	4 189 91		20	1
1	4 189 92		25	1
1	4 189 93		32	1
1	4 189 94		40	1
1	4 189 95		45	1

# DX<sup>3</sup> RCBO with solid neutral 10000A (1P)

**Cat N° (s):**  
4 189 24/ . . . . / 4 189 47

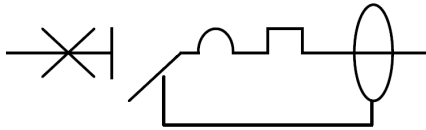


CONTENTS	PAGE
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5. General characteristics .....	2-4
6. Conformities and approvals .....	5
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## 1. DESCRIPTION - USE

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 I $\Delta$ m:**

- . In accordance with standard IEC/EN 61009-1 (I $\Delta$ m: short-circuit to ground) I $\Delta$ m = 6000A

## 2. RANGE

**Number of poles:**

- . 1 pole.

**Rated currents:**

- . 6 / 10 / 16 / 20 / 25 / 32 / 40A.

**Tripping characteristics and magnetic tripping calibrations:**

- . Curve B (between 3 and 5 I<sub>n</sub>) - C (between 5 and 10 I<sub>n</sub>)

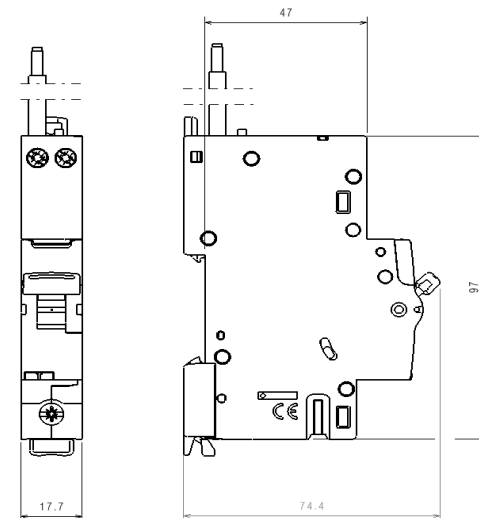
**Thermal threshold:**

- according to IEC/EN 61009-1
- . Non operating current (I<sub>nf</sub>): 1.13 I<sub>n</sub>.
- . Operating current (I<sub>f</sub>): 1.45 I<sub>n</sub>.

**Sensitivity - Operating time:**

- . 10 mA instantaneous
- . 30 mA instantaneous.
- . 100 mA instantaneous.

## 3. OVERALL DIMENSIONS



# DX<sup>3</sup> RCBO with solid neutral 10000A (1P)

Cat N° (s):

4 189 24/ . ... .. / 4 189 47

## 4. PREPARATION - CONNECTION

### Fixing:

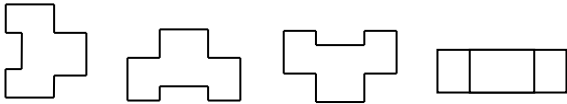
. On symmetric rail IEC/EN 60715 or DIN 35.

### 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 mm <sup>2</sup> to 35 mm <sup>2</sup> 2 x 1,5 mm <sup>2</sup> to 16 mm <sup>2</sup>	-
Flexible cable	1 x 1,5 mm <sup>2</sup> to 25 mm <sup>2</sup> 2 x 1,5 mm <sup>2</sup> to 10 mm <sup>2</sup>	1 x 1,5 mm <sup>2</sup> to 25 mm <sup>2</sup>

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

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

	Without ferrule	With ferrule
Rigid cable	1 x 0,75 mm <sup>2</sup> to 16 mm <sup>2</sup> 2 x 0,75 mm <sup>2</sup> to 6 mm <sup>2</sup>	-
Flexible cable	1 x 0,75 mm <sup>2</sup> to 10 mm <sup>2</sup> 2 x 0,75 mm <sup>2</sup> to 4 mm <sup>2</sup>	1 x 0,75 mm <sup>2</sup> to 10 mm <sup>2</sup>

Depth: 12 mm  
Sealable: no  
Screw head: PZZ  
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:
  - 1 / 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).

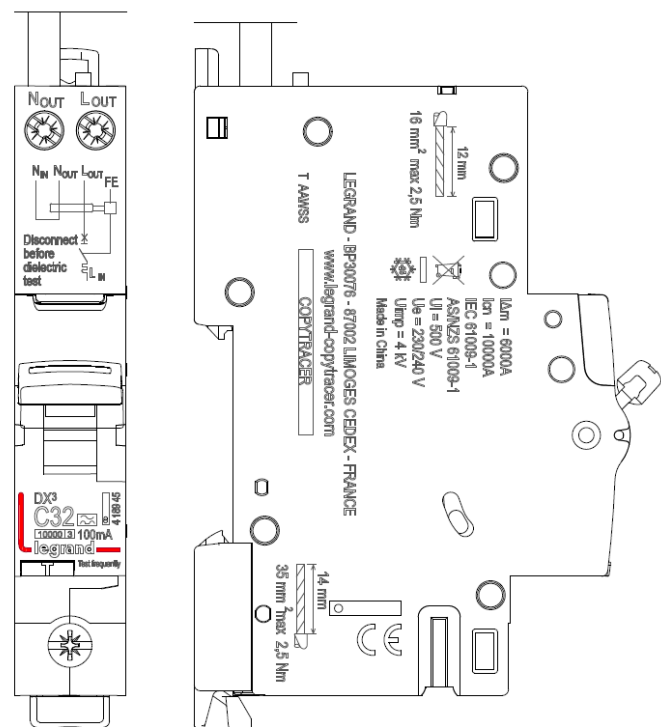
### Lockout:

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

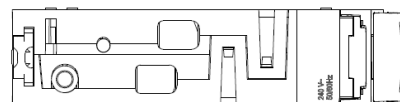
## 5. GENERAL CHARACTERISTICS

### Front and lateral side marking:

. By permanent ink pad printing and laser marking.



### Top side



# DX<sup>3</sup> RCBO with solid neutral 10000A (1P)

Cat N° (s):

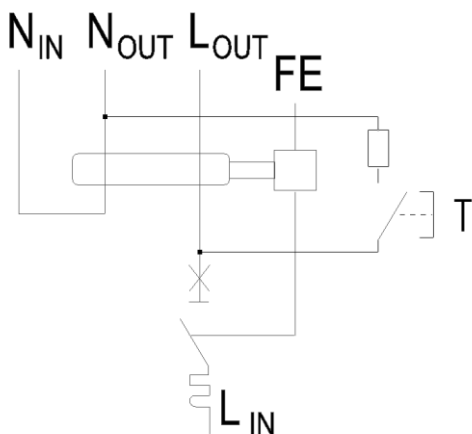
4 189 24/ . ... .. / 4 189 47

## 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:**

. U<sub>i</sub> = 500 V according to IEC/EN 61009-1

**Pollution degree:**

. 2.

**Dielectric strength:**

. 2500 V

**Pulse rated voltage:**

. U<sub>imp</sub> = 4 kV (wave 1.2 / 50 μs).

**Earthing resistance:**

. 100 Ohms max.

**Mechanical endurance:**

. 20000 operations without load.

. 10000 operations with load.

**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/s<sup>2</sup>)

**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 dm<sup>3</sup> per device.

**Average weight per device:**

. 0,220 kg

# DX<sup>3</sup> RCBO with solid neutral 10000A (1P)

Cat N° (s):

4 189 24/... / 4 189 47

## 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

In (A)	Ambient Temperature / In									
	- 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

### 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:

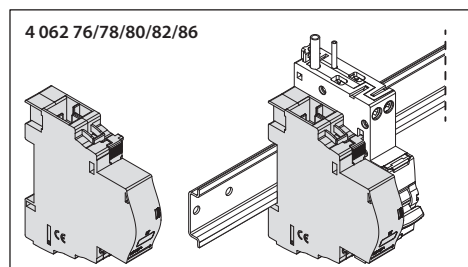
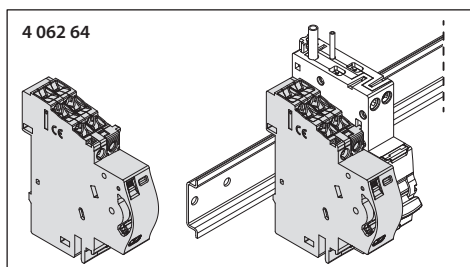
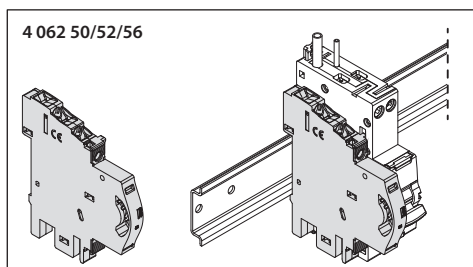
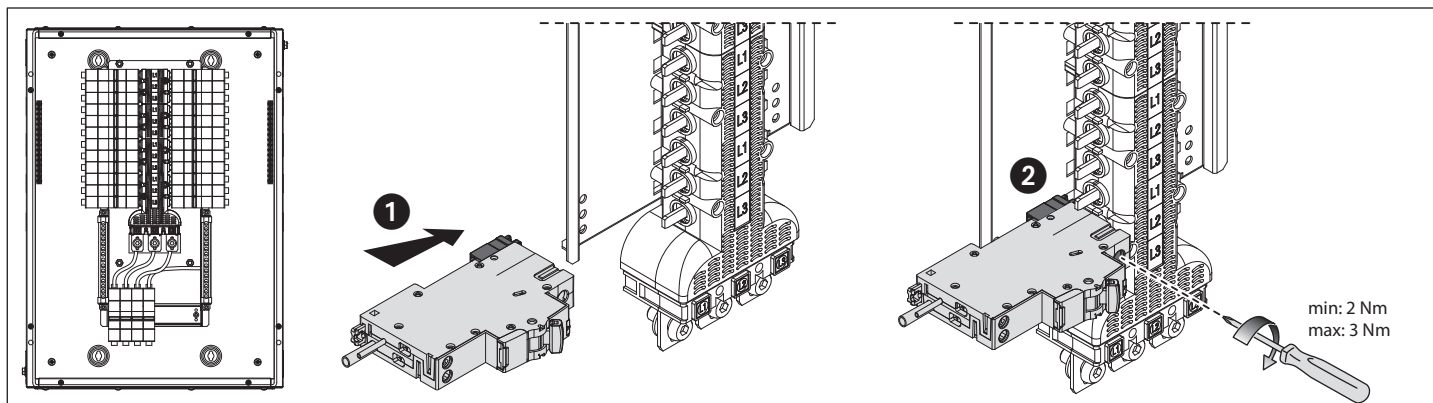
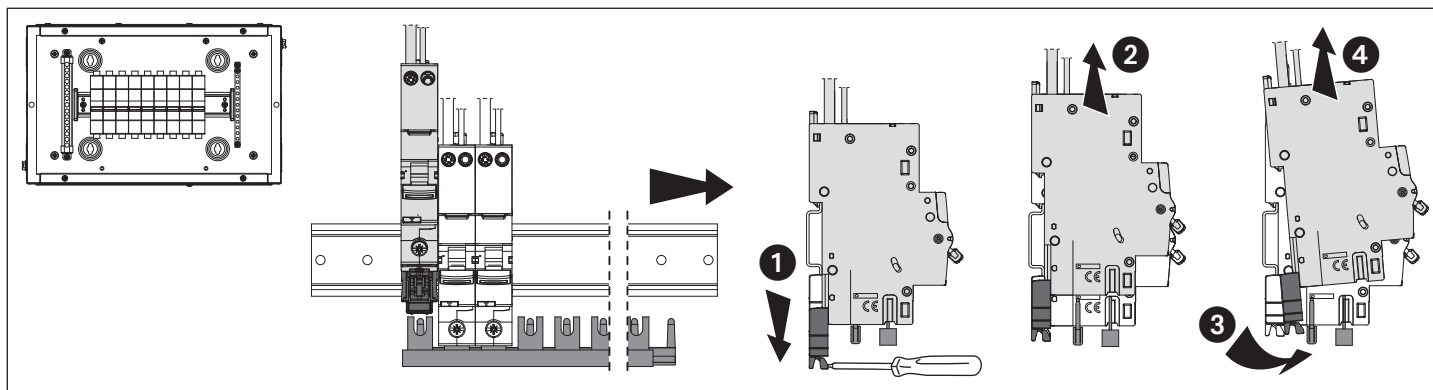
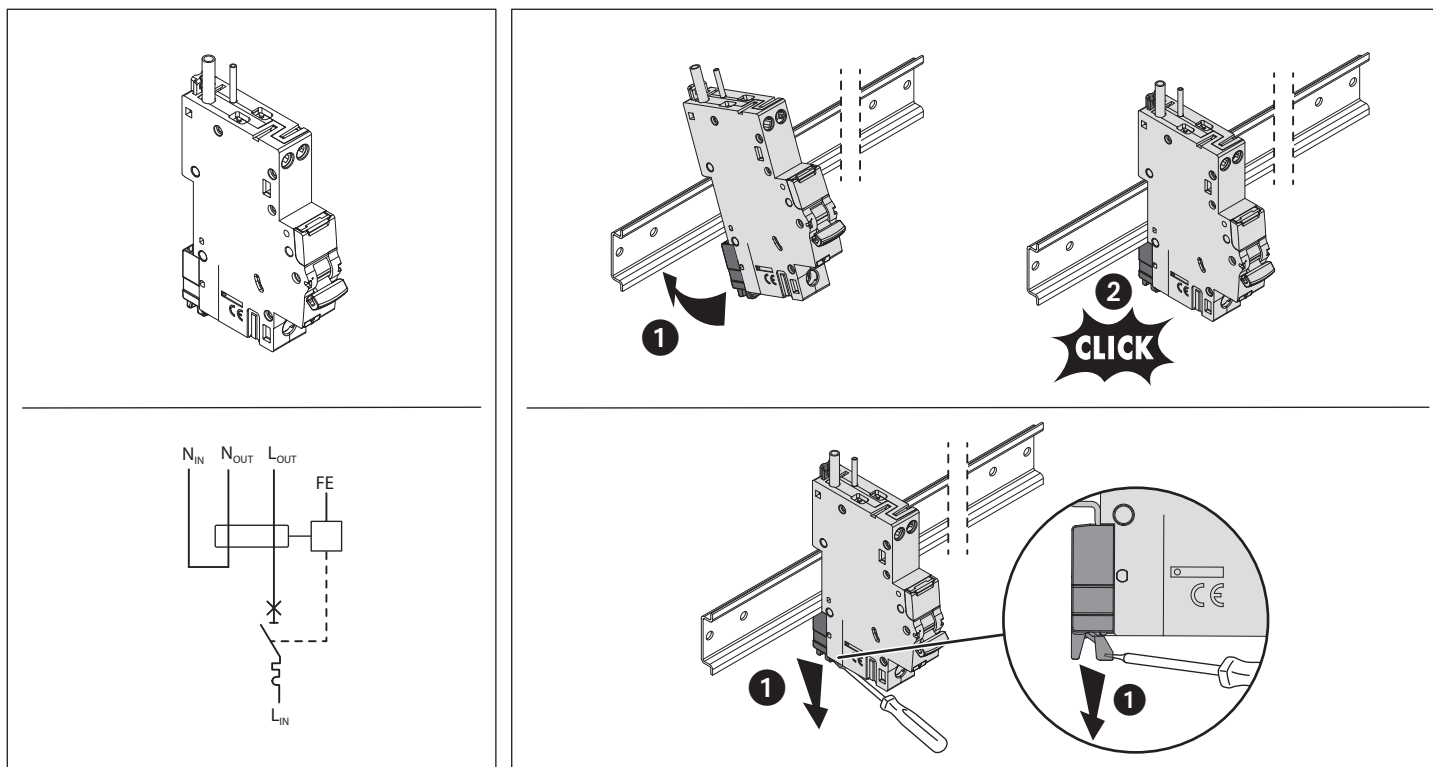
- . Shunt releases (1 module - cat n° .4 062 76 / 78).
- . Under voltage release (1 module - cat n° 4 062 80 / 82).
- . Autonomous shunt trip for NC push-button (1 module - cat n° . 4 062 84).
- . Power Overvoltage Protection (1 module – cat n° 4 062 86)

### Motor driven control modules

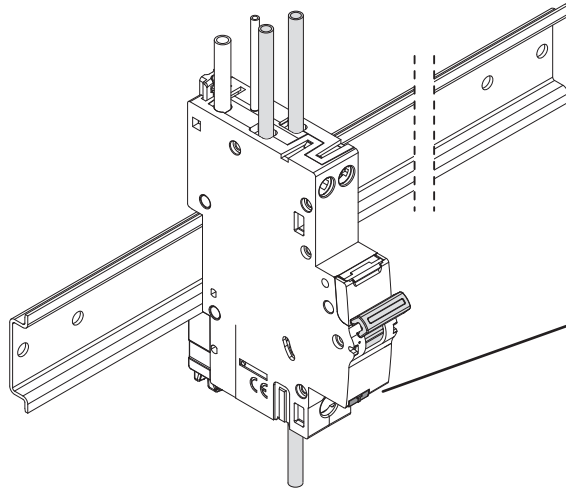
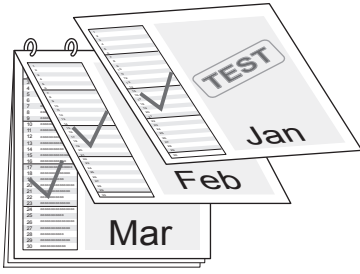
- . Motor driven control module (1 module – cat n° 4 062 91)
- . Motor driven control module with automatic resetting integrated (2 modules – cat n° 4 062 93 / 95)

### Possible combinations of RCBO and auxiliaries:

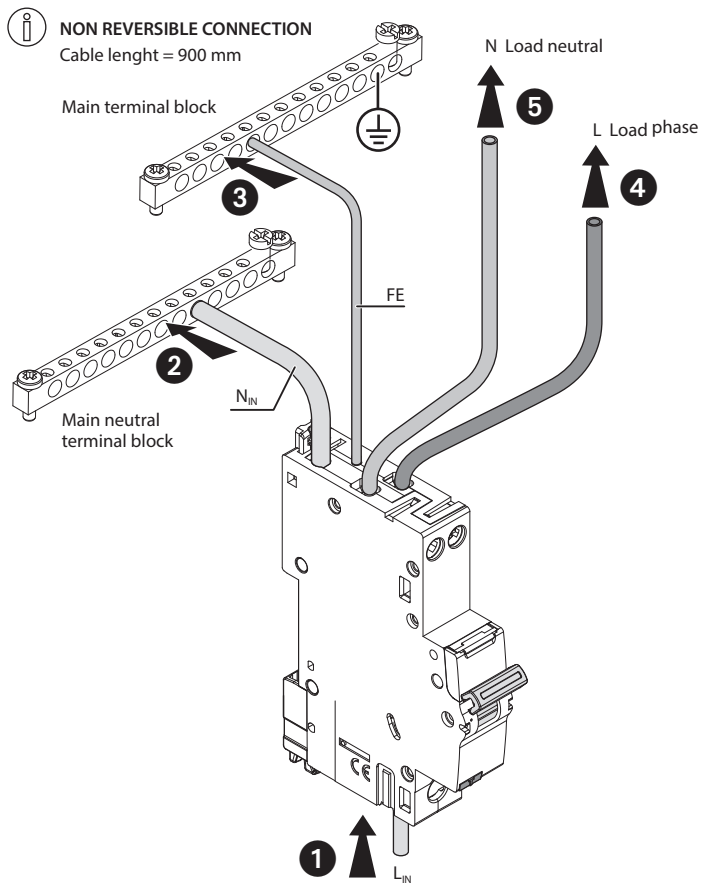
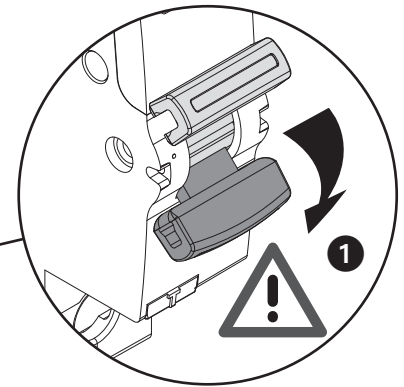
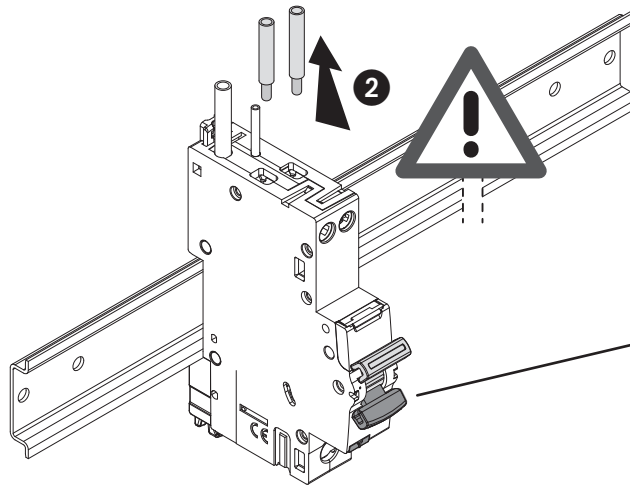
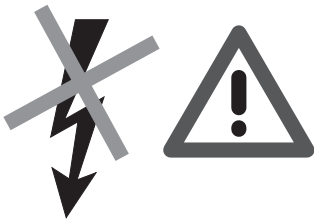
- . Auxiliaries are clipped to the left of the RCBO.
- . Maximum number of auxiliaries for one RCBO: 3.
- . Two signalling auxiliaries max. (cat. n° 4 062 58 / 60 / 62 / 66).
- . Only one control auxiliary (cat. n° 4 062 76 / 78 / 80 / 82 / 84).
- . If signalling and control auxiliaries are associated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



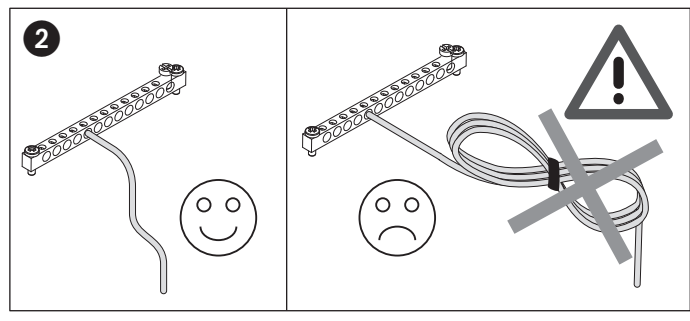
PERIODIC TEST



INSULATION TEST



5.5 mm max PZ 2	12 mm 0,75 - 16 mm <sup>2</sup>  12 mm 0,75 - 10 mm <sup>2</sup>
6.5 mm max PZ 2 mini : 2 Nm maxi : 3 Nm	14 mm 0,75 - 35 mm <sup>2</sup>  14 mm 0,75 - 25 mm <sup>2</sup>



The instructions for installation and use must be strictly observed in order to avoid the risk of electric shock or fire.

