

## DX<sup>3</sup> RCCBs - ID B type

Cat. N°(s) : 4119 56, 4119 57, 4119 61, 4119 62, 4119 66,  
4119 67, 4119 71, 4119 72

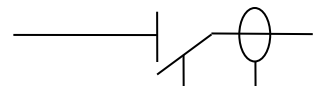


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### 1. DESCRIPTION - USE

RCCBs with positive contact indication for control, protection and isolation of electrical circuits, protecting people from direct and indirect contact and protecting installations from insulation faults.

#### Symbole :



#### Technology :

. Electromagnetic and electronic residual current function with current-sensing relay

### 2. RANGE

#### Polarity:

- . 2-pole
- . 4-pole

#### Width :

- . 4 modules (4 x 17,8 mm)

#### Nominal rating In :

- . 40 / 63 A

#### Residual current types:

- . AC (residual sinusoidal alternating currents)
- . A (residual alternating currents with a DC component)
- . F (residual currents at high frequency component)
- . B (residual sinusoidal alternating currents up to 1 kHz, smoothed pulsed and continuous residual currents)

#### Sensitivity:

- . 30 / 300 mA

#### Nominal voltage and frequency:

- . 2-pole: 230 V~, 50 Hz with standard tolerances
- . 4-pole: 400 V~, 50 Hz with standard tolerances

### 2. GAMME (suite)

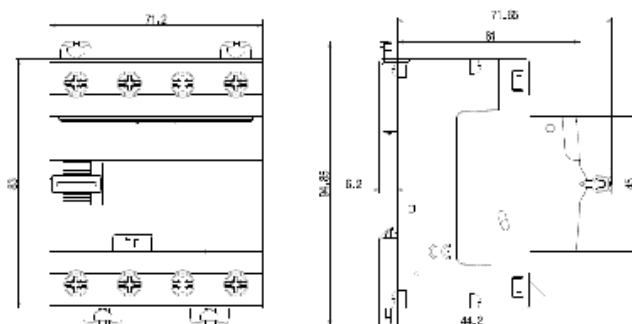
#### Maximum operating voltage:

- . 2-pole: 253 V~
- . 4-pole: 440 V~

#### Minimum operating voltage:

- . To detect differential currents of type A/AC : 0 V
- . To detect differential currents of type F/B : 50 V~

### 3. OVERALL DIMENSIONS



### 4. PREPARATION - CONNECTION

#### Mounting:

- . On symmetrical rail EN 60715 or DIN 35 rail

#### Operating positions:

- . Vertical, horizontal, flat, upside down



#### Power supply:

- . From the top or the bottom

#### Connection:

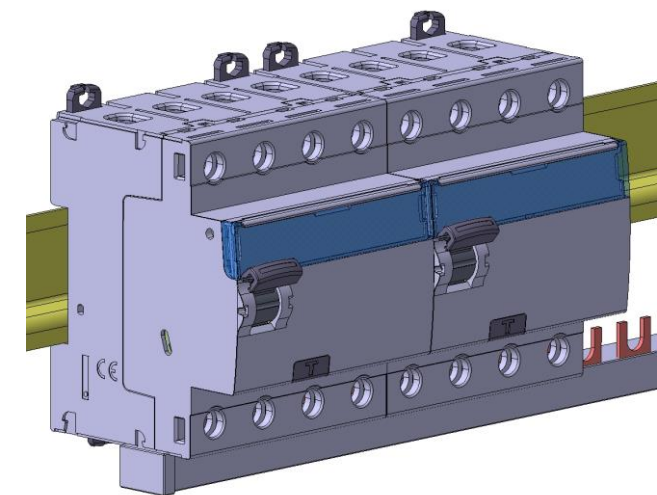
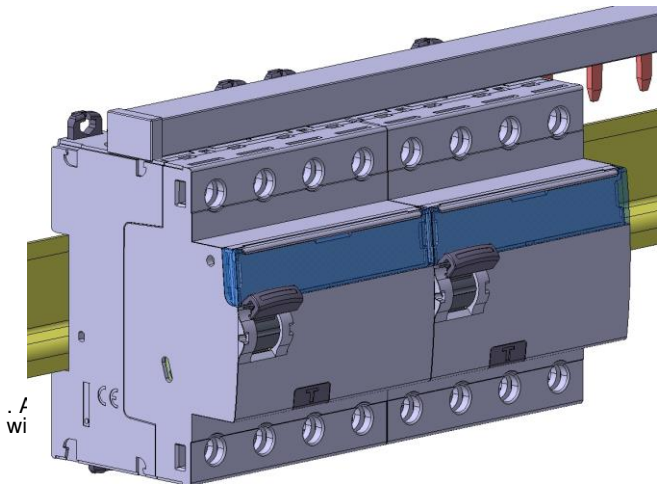
- . Inputs and outputs via screw terminals
- . Neutral on left

#### 4. PREPARATION - CONNECTION *(continued)*

##### Terminal arrangement :

- . Cage terminals, with disengageable and captive screws
  - . Cage terminals fitted with flaps preventing a cable being placed under the terminal, with the terminal partly open or closed
  - . Terminals protected against direct finger contact IP20, wired
  - . Alignment and spacing of the terminals permitting connection with the other products in the range via prong busbar
- A RCCB may be replaced in the middle of a row supplied with busbars without disconnecting the other products

##### Prong busbar



#### 4. PREPARATION - CONNECTION *(continued)*

##### Terminal arrangement : (continued)

- . Terminal depth: 14 mm
  - . Screw head: mixed head, slotted head and Philips / Pozidriv no. 2
- Tightening torques:
- Minimum / Maximum: 1.2 Nm / 3.5 Nm
  - Recommended: 2.5 Nm

##### Conductor types:

- . Copper cables at the top and bottom of the product
- Cable cross-section:

|                | Without ferrule                                                        | With ferrule                   |
|----------------|------------------------------------------------------------------------|--------------------------------|
| Rigid cable    | 1 x 0.75 to 50 mm <sup>2</sup><br>or<br>2 x 0.75 to 16 mm <sup>2</sup> | /                              |
| Flexible cable | 1 x 0.75 to 35 mm <sup>2</sup><br>or<br>2 x 0.75 to 16 mm <sup>2</sup> | 1 x 0.75 to 25 mm <sup>2</sup> |

##### Required tools:

- . For the terminals:
  - 5.5 mm / 6.5 mm blade screwdriver recommended
  - Pozidriv n°2 / Philips N°2 screwdriver recommended
- . For the latching:
  - 5.5 mm blade screwdriver recommended / 6 mm maximum
  - Pozidriv n°2 / Philips N°2 screwdriver recommended

##### Device handling:

- . Manual action via ergonomic 2 position handle:
  - I-On, device closed O-Off, device open

##### Contact status display:

- . By marking of the handle:
  - I-On, in white on a red background: closed contacts
  - O-Off, in white on a green background: contacts open

##### Residual current trip display:

- . Handle at the bottom position, the residual current is released

##### Sealing:

- . Possible in the open or closed positions

##### Labelling:

- . Circuit identification by way of a label inserted in the label holder situated on the front of the product



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## 5. GENERAL CHARACTERISTICS

### Neutral earthing system:

. IT, TT and TN

### Marking:

. "N" marking of the neutral  
. Marking on the "front side" by permanent ink pad printing  
. Marking on the "upper panel" by permanent ink pad printing

### Test operating voltage:

. 2-pole: from 120 V to 253 V~  
. 4-pole: from 220 V to 440 V ~ between pole 1/2 and pole 3/4

### Rated conditional short-circuit current:

. Inc = 10 kA, in accordance with EN/IEC 61008-1

### Rated conditional short-circuit residual current:

. IΔc = 10 kA, in accordance with EN/IEC 61008-1

### Rated residual breaking capacity:

. IΔm = 1000 A, in accordance with EN/IEC 61008-1

### Rated breaking and making capacity:

In accordance with EN/IEC 61008-1,

. In = 40 A : Im = 500 A  
. In = 63 A : Im = 630 A

### Power dissipated by the device:

| RCCB |        |             | Power dissipated by the device (In) |
|------|--------|-------------|-------------------------------------|
| Pole | Rating | Sensitivity | Type B                              |
| 2P   | 40 A   | 30 mA       | 3.2 W                               |
|      |        | 300 mA      | 3.2 W                               |
|      | 63 A   | 30 mA       | 8.2 W                               |
|      |        | 300 mA      | 8.2 W                               |
| 4P   | 40 A   | 30 mA       | 4.7 W                               |
|      |        | 300 mA      | 4.7 W                               |
|      | 63 A   | 30 mA       | 12.1 W                              |
|      |        | 300 mA      | 12.1 W                              |

### Temperature derating:

. Reference temperature: 30°C in accordance with standard IEC/EN 60947-2

| In (A) | Ambient Temperature/In |        |     |      |      |      |      |      |      |
|--------|------------------------|--------|-----|------|------|------|------|------|------|
|        | - 25°C                 | - 10°C | 0°C | 10°C | 20°C | 30°C | 40°C | 50°C | 60°C |
| 40 A   | 40                     | 40     | 40  | 40   | 40   | 40   | 40   | 25   | 25   |
| 63 A   | 63                     | 63     | 63  | 63   | 63   | 63   | 63   | 40   | 40   |

### Specific use:

. Appropriate to operate in humid atmosphere and polluted by a chlorine environment (pool type)

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## 5. GENERAL CHARACTERISTICS (continued)

### Weight per device:

| Catalogue Number | Description         | Weight (kg) |
|------------------|---------------------|-------------|
| 4119 56          | 2P 40A B type 30mA  | <b>0,28</b> |
| 4119 57          | 2P 63A B type 30mA  | <b>0,28</b> |
| 4119 61          | 2P 40A B type 300mA | <b>0,28</b> |
| 4119 62          | 2P 63A B type 300mA | <b>0,28</b> |
| 4119 66          | 4P 40A B type 30mA  | <b>0,35</b> |
| 4119 67          | 4P 63A B type 30mA  | <b>0,35</b> |
| 4119 71          | 4P 40A B type 300mA | <b>0,35</b> |
| 4119 72          | 4P 63A B type 300mA | <b>0,35</b> |

### Packaged volume and quantity:

|                           | Volume (dm <sup>3</sup> ) | Packaging       |
|---------------------------|---------------------------|-----------------|
| For all catalogue numbers | <b>0.70</b>               | <b>per unit</b> |

### Isolation distance: (distance between the contacts)

- Handle in open position - O-Off:
  - Neutral pole: greater than 4.5 mm
  - Phase pole: greater than 5.5 mm

### Rated insulation voltage:

- Ui = 500 V

### Insulation resistance:

- 2 MΩ

### Degree of pollution:

- 2

### Dielectric strength:

- 2000 V - 50 Hz

### Impulse withstand voltage:

- Uimp = 4 kV

### Protection from false tripping:

- 0.5 μs/100 kHz damped recurring wave = 200 A
- 8/20 μs wave:
  - B type = 3000 A, Short delayed, delay time minimum 10 ms

### Protection classes:

- Terminals protected against direct contact:
  - IP20 (wired device)
- Front side protected against direct contact:
  - IP40
- Class II in relation to metallic conductive parts
- Protection against impacts:
  - IK04

## 5. GENERAL CHARACTERISTICS (continued)

### Plastic materials used:

- Parts made of polyamide and P.B.T.

### Enclosure heat and fire resistance:

- Resistance to incandescent wire tests at 960°C, in accordance with standard IEC/EN 61008-1
- Classification V2, in accordance with standard UL94

### Device's upper heating value:

- Estimated heating value of a 4P 40A 30mA B type device:  
4.30 MJ

### Handle opening and closing forces:

- Force of 42 N for closing - (all ratings)
- Force of 13 N for opening - (all ratings)

### Mechanical endurance:

- Conforms to standard NF EN 61008-1
- Tested with 20,000 operations with no load

### Electrical endurance:

- Conforms to standard NF EN 61008-1
- Tested with 10,000 operations with load (at  $I_n \times \cos \phi$  0.9)
- Tested with 2,000 residual current trip operations using the test button or the fault current

### Operating ambient temperature:

- 25°C / + 60°C

### Storage temperature:

- 40°C / + 70°C

### DC operation:

- Cannot be used with DC

### Operation at 400 Hz:

- Cannot be used at 400 Hz

### Operation at 60 Hz :

- Cannot be used at 60 Hz

### Resistance to sinusoidal vibrations: (in accordance with IEC 68.2.6)

- Axes: x / y / z
- Frequency: 10 to 55 Hz
- Acceleration: 3 g (1 g = 9.81 m.s<sup>-2</sup>)

### Resistance to tremors :

- Conforms to standard NF EN 61008-1

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### 5. GENERAL CHARACTERISTICS *(continued)*

#### Derating of RCCBs function of the number of devices placed side by side:

When several RCCBs are installed side by side and operate simultaneously, the heat dissipation of one pole is limited. This results in an increased operating temperature for the RCCBs which may cause false tripping. Applying the following coefficients to the operating currents is recommended.

| Number of circuit breakers side by side | Coefficient |
|-----------------------------------------|-------------|
| 2 - 3                                   | <b>0.9</b>  |
| 4 - 5                                   | <b>0.8</b>  |
| 6 - 9                                   | <b>0.7</b>  |
| ≥ 10                                    | <b>0.6</b>  |

These values are provided by recommendation IEC 60439-1 and the standards NF C 63421 and EN 60439-1.

In order to avoid having to use these coefficients there must be good ventilation and the devices must be kept apart using the spacing elements Cat. No. 4 063 07 (0.5 module).

#### Impact of height:

|                           | 2,000 m        | 3,000 m        | 4,000 m        | 5,000 m        |
|---------------------------|----------------|----------------|----------------|----------------|
| Dielectric strength       | <b>2,000 V</b> | <b>2,000 V</b> | <b>2,000 V</b> | <b>1,500 V</b> |
| Maximum operating voltage | <b>400 V</b>   | <b>400 V</b>   | <b>400 V</b>   | <b>400 V</b>   |
| Derating at 30°C          | <b>none</b>    | <b>none</b>    | <b>none</b>    | <b>none</b>    |

### 6. COMPLIANCE AND APPROVALS

#### Reference product standards:

- . EN / IEC 61008-1
- . EN / IEC 61008-2-1
- . EN / IEC 62423
- . EN / IEC 60 529 (IP)

#### Environment:

- . Compliance with European Union Directives
- . Compliance with Directive 2002/95/EC of 27/01/03 known as "RoHS" which provides for a restriction on the use of dangerous substances such as lead, mercury, cadmium, hexavalent chromium and polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) brominated flame retardants from 1st July 2006
- . Compliance with the Directive 91/338/EEC of 18/06/91 and decree 94-647 of 27/07/94

#### Usage in special conditions:

- . Category C compliant (testing temperature of -25°C to +70°C, resistant to salt spray) in accordance with the classification defined in Appendix Q of standard IEC/EN 60947-1

#### Plastic materials:

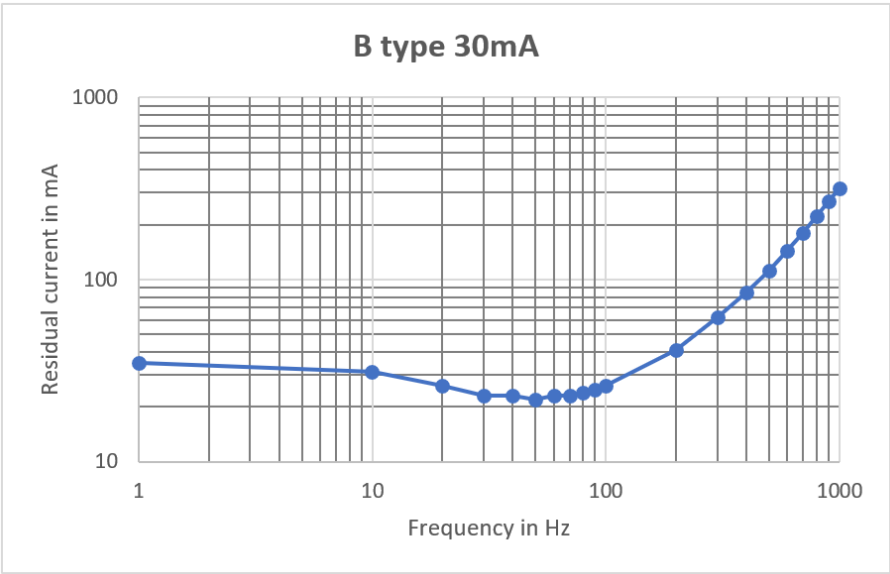
- . Zero halogen plastic materials.
- . Labelling compliant with ISO 11469 and ISO 1043.

#### Packaging:

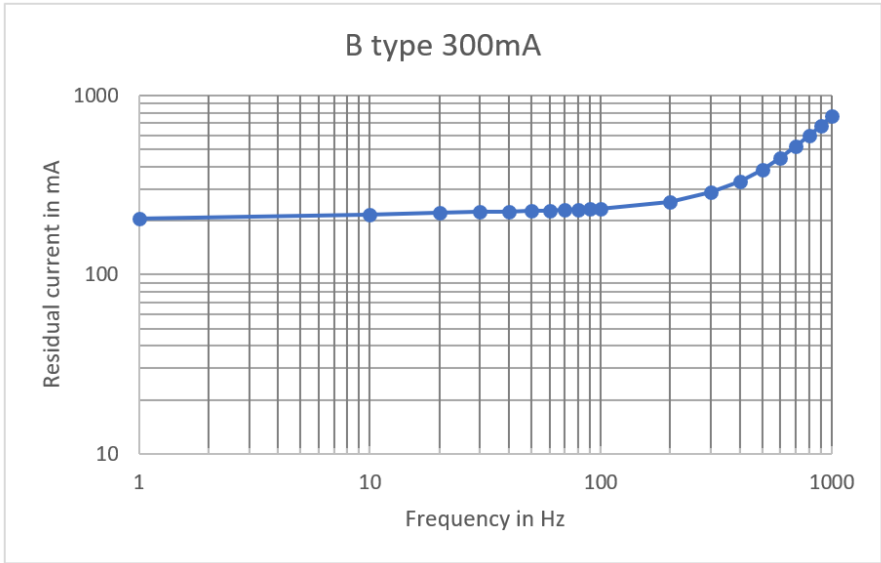
- . Design and manufacture of packaging compliant with decree 98-638 of 20/07/98 and Directive 94/62/EC

7. CURVES

Tripping current frequency response  
30mA



Tripping current frequency response  
30mA



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### 8. EQUIPEMENT ET ACCESSOIRES

#### Wiring accessories:

- . Sealable screw cover (Cat. No. 4 063 04)
- . Supply busbar: HX<sup>3</sup> 3/4-pole supply busbar
- . Terminal for aluminium cable with max. 50 mm<sup>2</sup> cross-section (Cat. No. 4 063 10)

#### Signalling auxiliaries:

- . Auxiliary contact (0.5 module, Cat. No. 4 062 58, 4 062 50)
- . Fault signalling contact (0.5 module, Cat. No. 4 062 60, 4 062 52)
- . Auxiliary contact that can be changed into fault signalling contact (0.5 module, Cat. No. 4 062 62, 4 062 56)
- . Auxiliary contact + fault signalling contact that can be changed into 2 auxiliary contacts (1 module, Cat. No. 4 062 66)

#### Control auxiliaries:

- . Shunt trip (1 module, Cat. No. 4 062 76, 2 78)
- . Undervoltage release (1 module, Cat. No. 4 062 80, 2 82)
- . Stand-alone release for N/C push-button (1.5 module, Cat. No. 4 062 87)

#### Motorised controls:

- . Motor-driven control (1 module, Cat. No. 4 062 91)
- . Motor-driven control with integrated automatic reset (2 modules, Cat. Nos. 4 062 93, 2 95)

#### Possible combinations of auxiliaries and RCCBs:

- . The auxiliaries are installed to the left of the RCCBs
- . Maximum number of auxiliaries = 3
- . Maximum number of 1 module signalling auxiliaries = 2
- . Maximum number of control auxiliaries (Cat. Nos. 4 062 76 to 4 062 87) = 1
- . The control auxiliary (trip Cat. Nos. 4 062 76 to 4 062 87) must mandatorily be placed to the left of the signalling auxiliaries (Cat. Nos. 4 062 58 to 4 062 66) where the auxiliaries from these 2 families are connected to the same RCCB

#### Sealing:

- . Possible in the open or closed positions

#### Lockout possibilities:

- . Via Ø 5 mm padlock (Cat. No. 4 063 13) or Ø 6 mm padlock (Cat. Nos. 227 97) and padlock support (Cat. No. 4 063 03)

#### Installation software:

- . XL PRO<sup>3</sup>

### 9. SAFETY

. For your safety your electrical installation is equipped with residual current protection and this must be tested periodically. In the absence of any national regulations on the time period required for this, Legrand recommends that this test be carried out every month: press the "T" test button, the device should trip. Please call an electrician immediately if this does not happen as your installation's safety level has been reduced

. The presence of residual current protection does not remove the need to observe all the precautions associated with using electrical energy