

**RX<sup>3</sup> RCCBs**  
**2P up to 80A**

Cat. N°(s) : 4 020 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 36,  
4 020 37, 38



CONTENTS	PAGE
1. Description, use.....	1
2. Range .....	1
3. Overall dimensions.....	1
4. Preparation - Connection.....	1
5. General characteristics.....	3
6. Compliance and approvals .....	7
7. Curves.....	8
8. Auxiliaries and accessories .....	10
9. Safety.....	10

**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.

**Symbol:**



**Technology:**

. Electromagnetic residual current function with current-sensing relay

**2. RANGE**

**Poles:**

. 2-pole

**Width:**

. 2 modules (2 x 17.8 mm)

**Rated currents:**

. 25 / 40 / 63 / 80 A

**Residual current types:**

. AC (sinusoidal differential alternating currents)  
. A (residual currents with a DC component)

**Sensitivity:**

. 30 / 100 / 300 mA

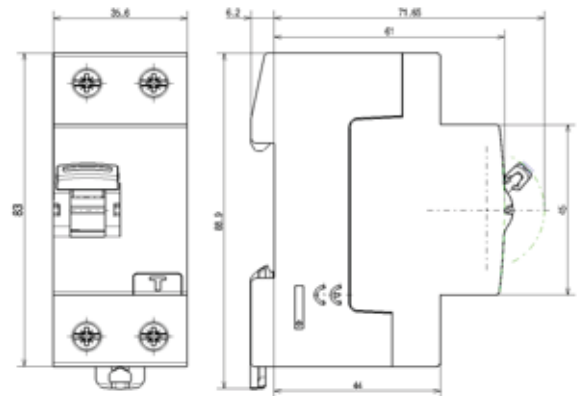
**Rated voltage and frequency:**

. 230 V~ / 240 V~, 50 Hz with standard tolerances

**Maximum operating voltage:**

. 250 V ~, 50 Hz

**3. OVERALL DIMENSIONS**



**4. PREPARATION - CONNECTION**

**Mounting:**

. On symmetrical rail EN 60715 or DIN 35 rail

**Operating positions:**

. Vertical      Horizontal      Upside down      On the side



**Power supply:**

. From the top or the bottom

**Connection:**

. Inputs and outputs via screw terminals  
. Cage terminals, with disengageable and captive screws  
. Terminals protected against direct finger contact IP20, wired

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

**Connection:** *(continued)*

- . Alignment and spacing of the terminals enabling to supply the products via prong supply busbars
- . Terminal depth: 14 mm
- . Terminal capacity: 60 mm<sup>2</sup>
- . 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

**Type of wire:**

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

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

**Tools required:**

- . 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

**Manual actuation:**

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

**Contact status display:**

- . By marking of the product:
  - I-On : closed contacts
  - O-Off : contacts open

**Residual current tripping display:**

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

**Lockout:**

- . Possible in the open or closed positions with padlock support (Cat. No. 4 063 03) and Ø5 mm padlock (Cat. No. 4 063 13) or Ø6 mm padlock (Cat. No. 0 227 97)

**Sealing:**

- . Possible in the open or closed positions

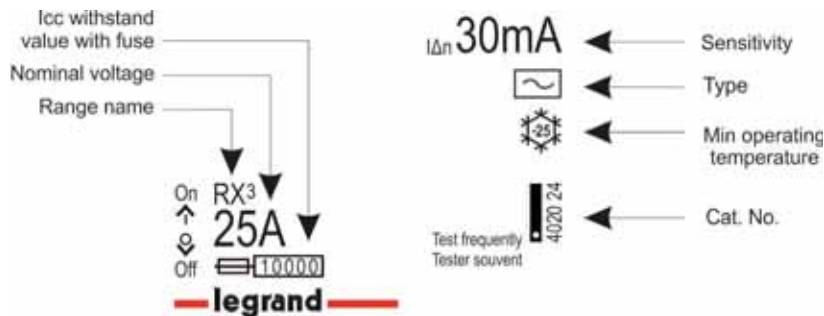
**5. GENERAL CHARACTERISTICS**

**Neutral earthing system:**

. IT, TT and TN

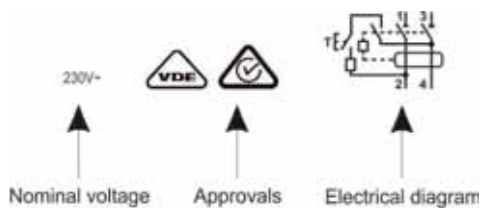
**Marking on the front side:**

. By permanent ink pad printing



**Marking on the upper side:**

. By permanent ink pad printing



**Test operating voltage:**

- . 30 mA, all types : from 180 V to 250 V~
- . 100 mA AC type : from 110 V to 250 V ~
- . 300 mA AC type : from 115 V to 250 V ~

**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 = 25 / 40 A : Im = 500 A
- . In = 63 A : Im = 630 A
- . In = 80 A : Im = 800 A

**Protection against overloads:**

. The RCCB must be protected against overloads (either upstream or downstream) by a circuit breaker or a fuse which has a maximum of the same nominal current as the residual current switch

# RX<sup>3</sup> RCCBs

## 2P up to 80A

Cat. N°(s) : 4 020 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 36,  
4 020 37, 38

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

#### Protection against short-circuits:

. The RCCB must be protected upstream against short circuits using a circuit breaker or a fuse. Its resistance to short circuits when associated with a Legrand circuit breaker or fuse is compliant with the values stated in the tables below.

. Association with a fuse:

Downstream	Upstream			
RCCB	gG or aM type fuse			
Rating	≤ 50 A	63 A	80 A	≥ 100 A
25 A to 80 A	<b>100 kA</b>	<b>50 kA</b>	<b>15 kA</b>	<b>10 kA</b>

. Association with a circuit breaker:

Downstream RCCB	Upstream circuit breaker
	RX <sup>3</sup> 4500 / 6 kA
25 A to 80 A	Curves B & C
	In ≤ 40 A
	<b>10 kA</b>

#### Temperature derating:

. Reference temperature: 30°C in accordance with standard IEC/EN 61008-1

In (A)	Ambient Temperature/In								
	- 25°C	- 10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C
25 A	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	25	<b>25</b>	<b>25</b>	<b>25</b>
40 A	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>	40	<b>40</b>	<b>25</b>	<b>25</b>
63 A	<b>63</b>	<b>63</b>	<b>63</b>	<b>63</b>	<b>63</b>	63	<b>63</b>	<b>40</b>	<b>40</b>
80 A	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>	80	<b>80</b>	<b>63</b>	<b>63</b>

#### Specific use:

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

#### Volume and packaging:

	Volume (dm <sup>3</sup> )	Packaging
For all catalogue numbers	<b>0.35</b>	<b>per unit</b>

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

**Dissipated Power:**

RCCB		Total power dissipated by a 2 poles RCCBs (In)	
In	Sensitivity	AC type	A type
25 A	30 mA	<b>3,1 W</b>	<b>3,1 W</b>
25 A	100 mA	<b>1 W</b>	
25 A	300 mA	<b>1 W</b>	
40 A	30 mA	<b>8 W</b>	<b>8 W</b>
40 A	100 mA	<b>2,6 W</b>	
40 A	300 mA	<b>2,6 W</b>	
63 A	30 mA	<b>6,2 W</b>	<b>6,2 W</b>
63 A	100 mA	<b>6,2 W</b>	
63 A	300 mA	<b>6,2 W</b>	
80 A	30 mA	<b>10 W</b>	

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

. Handle in open position - O-Off: greater than 4.5 mm

**Rated insulation voltage:**

.  $U_i = 250 \text{ V}$

**Insulation resistance:**

.  $2 \text{ M}\Omega$

**Degree of pollution:**

. 2

**Dielectric strength:**

. 2000 V - 50 Hz

**Impulse withstand voltage:**

.  $U_{imp} = 4 \text{ kV}$

**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

**Plastic materials used:**

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

**Protection from unwanted tripping:**

- . 0.5  $\mu\text{s}/100 \text{ kHz}$  damped recurring wave = 200 A
- . 8/20  $\mu\text{s}$  wave: A - AC type = 250 A

**DC operation:**

. Cannot be used with DC

**Operation at 400 Hz:**

. Cannot be used at 400 Hz

**Operation at 60 Hz:**

. Can be used at 60Hz. Except ratings 63A/80A, A and AC type, with sensitivity 30mA

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

**Weight:**

Référence	Catalogue Number	Weight (kg)
4 020 24	25 A AC type 30 mA	<b>0,19</b>
4 020 25	40 A AC type 30 mA	<b>0,19</b>
4 020 26	63 A AC type 30 mA	<b>0,23</b>
4 020 27	80 A AC type 30 mA	<b>0,23</b>
4 020 28	25 A AC type 100 mA	<b>0,21</b>
4 020 29	40 A AC type 100 mA	<b>0,21</b>
4 020 30	63 A AC type 100 mA	<b>0,21</b>
4 020 32	25 A AC type 300 mA	<b>0,19</b>
4 020 33	40 A AC type 300 mA	<b>0,19</b>
4 020 34	63 A AC type 300 mA	<b>0,19</b>
4 020 36	25 A A type 30 mA	<b>0,19</b>
4 020 37	40 A A type 30 mA	<b>0,19</b>
4 020 38	63 A A type 30 mA	<b>0,23</b>

**Enclosure heat and fire resistance:**

- . Resistance to glow 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 25 or 40A 30mA AC device: 2.41 MJ

**Handle opening and closing forces:**

- . Force of 23 N for closing - (all ratings)
- . Force of 8 N for opening - (all ratings)

**Mechanical endurance:**

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

**Electrical endurance:**

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

**Operating ambient temperature:**

- . - 25°C / + 60°C

**Storage ambient temperature:**

- . - 40°C / + 70°C

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

- . Axis: 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 EN 61008-1

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

**Derating of RCCBs in terms of the number of devices installed 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. 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:**

	2000 m	3000 m	4000 m	5000 m
Dielectric strength	<b>2000 V</b>	<b>2000 V</b>	<b>2000 V</b>	<b>1500 V</b>
Maximum operating voltage	<b>230 V</b>	<b>230 V</b>	<b>230 V</b>	<b>230 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 61008-1/IEC 61008-1
- . 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:**

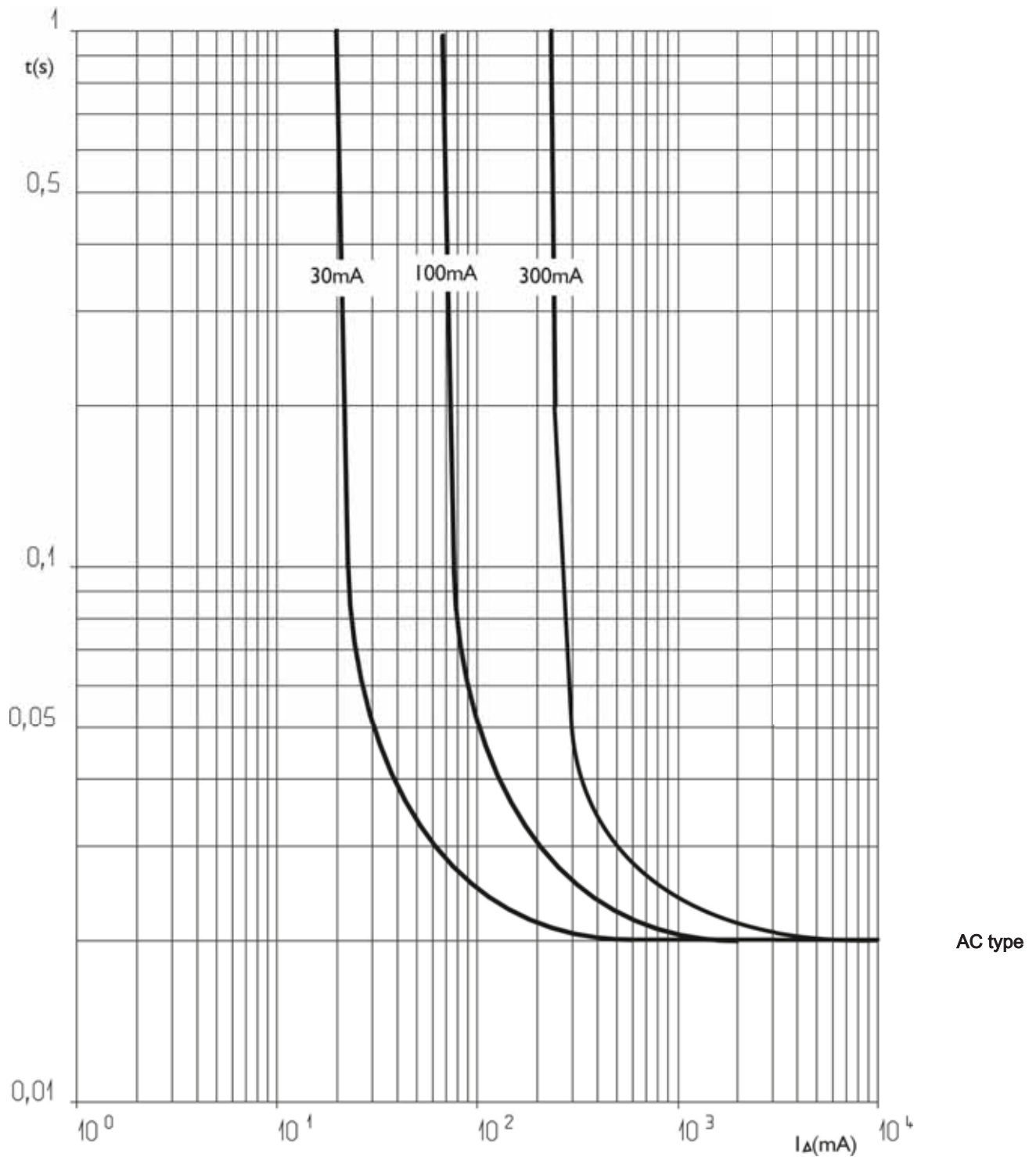
- . Design and manufacture of packaging compliant with decree 98-638 of 20/07/98 and Directive 94/62/EC

**7. CURVES**

**Tripping current curves:**

. Tripping time curve depending on the value of the fault current:

**AC TYPE**



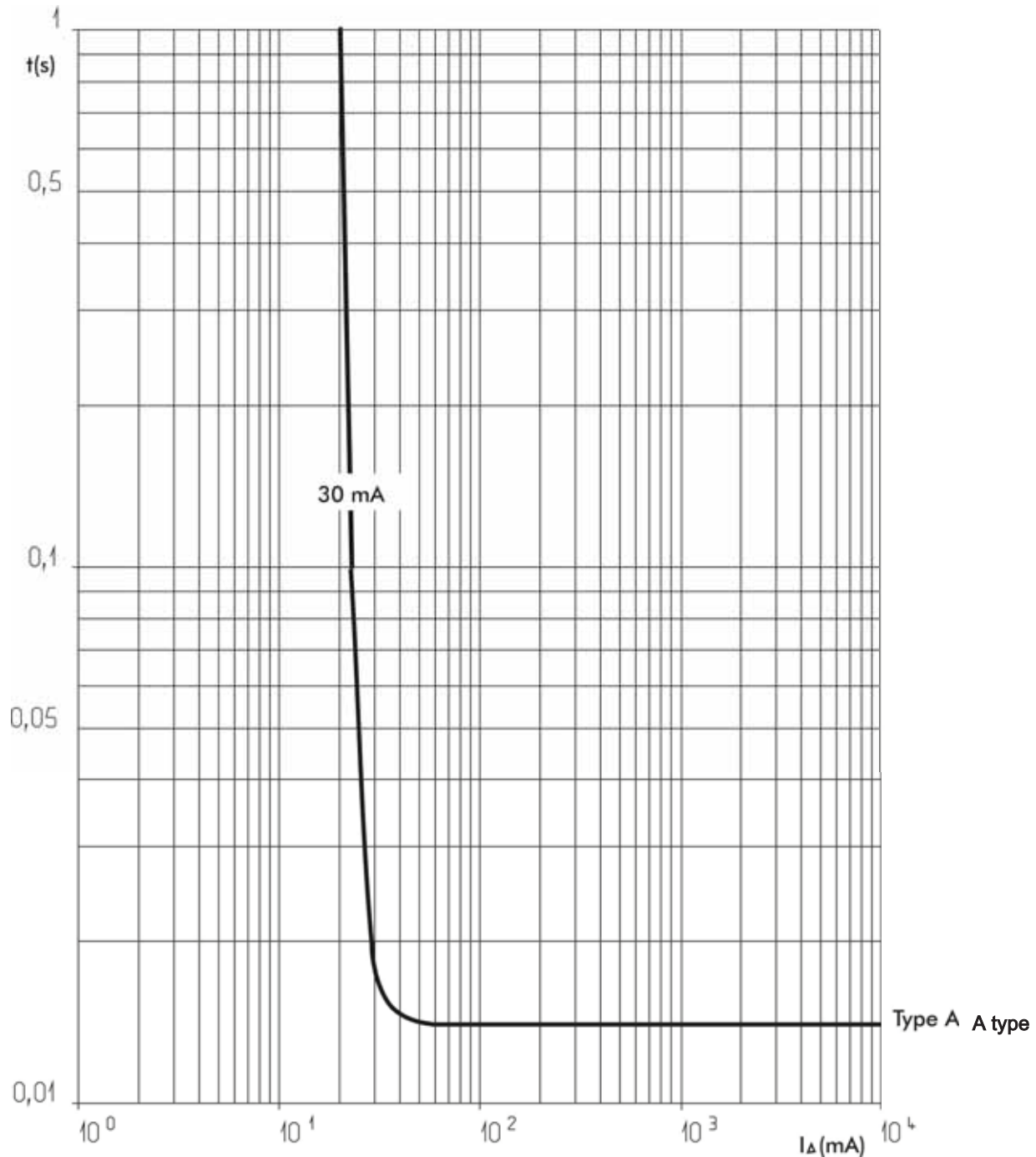


**7. CURVES (continued)**

**Tripping current curves:**

. Tripping time curve depending on the value of the fault current:

**A TYPE**



## 8. AUXILIARIES AND ACCESSORIES

### Wiring accessories:

- . Sealable screw cover (Cat. No. 4 063 04)

### 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. 0 227 97) and padlock support (Cat. No. 4 063 03)

## 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