

TX³ RCCBs 4P (N on right), up to 100 A

Cat. N°(s): 4 117 07 to 10, 17 to 20, 27 to 30, 37 to 40, 4 117 42, 43, 48, 49, 52, 53, 56, 57, 4 117 64 to 68, 4 117 74 to 78, 84 to 88, 94 to 98, 4 118 03 to 09, 14 to 17, 4 118 21

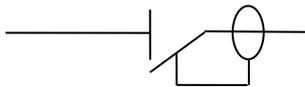


CONTENTS	PAGE
1. Description, use.....	1
2. Range	1
3. Overall dimensions.....	1
4. Preparation - Connection.....	1
5. General characteristics.....	3
6. Compliance and approvals	8
7. Curves.....	9
8. Auxiliaries and accessories	10
9. Safety.....	10

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

Polarity:

. 4-pole

Width:

. 4 modules (4 x 17.8 mm)

Nominal rating In:

. 25 / 40 / 63 / 80 / 100 A

Residual current types:

- . AC (sinusoidal differential alternating currents)
- . A (residual currents with DC component)
- . A-S and AC-S
- . AC-G (immunised against false tripping)
- . F (additional immunity to unwanted tripping and detection of high frequency fault currents). F products are also A type.

Sensitivity:

. 30 / 100 / 300 / 500 mA

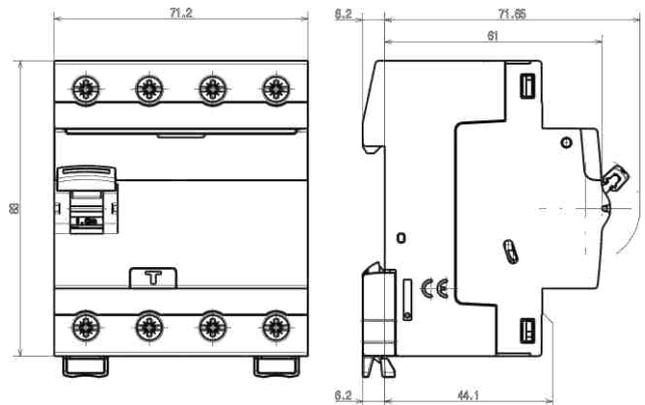
Nominal voltage and frequency:

. 415 V~, 50 Hz with standard tolerances

Maximum operating voltage:

. 440 V ~, 50 Hz

3. OVERALL DIMENSIONS



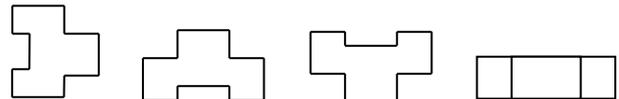
4. PREPARATION - CONNECTION

Mounting:

. On symmetrical rail EN 60715 or DIN 35 rail

Operating positions:

. Vertical horizontal upside down flat



Power supply:

. From the top or the bottom

Connection:

. Inputs and outputs via screw terminals
. Neutral on right

Terminal arrangement:

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

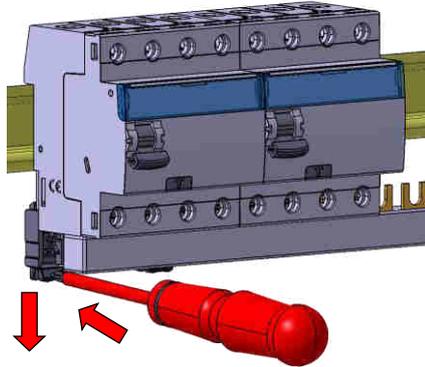
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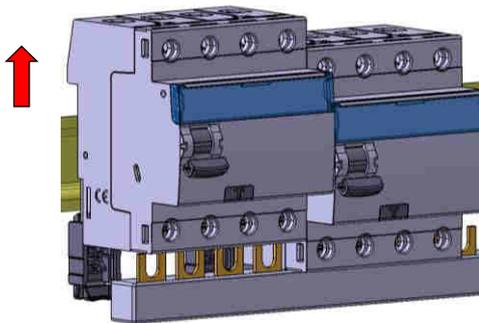
4. PREPARATION - CONNECTION (continued)

. A circuit breaker may be replaced in the middle of a row supplied with busbars without disconnecting the other products

Unscrew the terminals completely

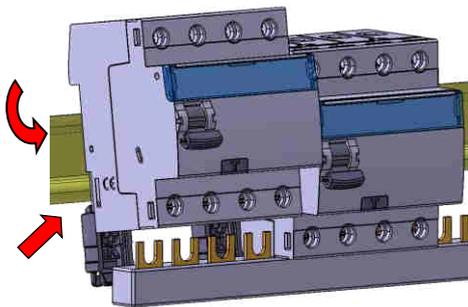


Put the clamp in the unlocking position with a screwdriver



Pull the device upward

Pull the device downward in order to release it completely from the prongs of the busbar. Then pull the device forward



Connection:

- . Terminals protected against direct finger contact IP20, wired device
- . Cage terminals, with disengageable or captive screws
- . Terminals fitted with flaps preventing a cable being placed under the terminal, with the terminal partly open or closed
- . Alignment and spacing of the terminals permitting connection with the other products in the range via fork supply busbars

4. PREPARATION - CONNECTION (continued)

Terminal arrangement: (continued)

- . Alignment and spacing of the terminals permitting shutters with the other products via fork supply busbars
- . Terminal depth: 14 mm
- . Terminal capacity: 60 mm²
- . 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 ² or 2 x 0.75 to 16 mm ²	/
Flexible cable	1 x 0.75 to 35 mm ² or 2 x 0.75 to 16 mm ²	1 x 0.75 to 25 mm ²

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

Lockout:

- . Padlocks 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. 227 97)

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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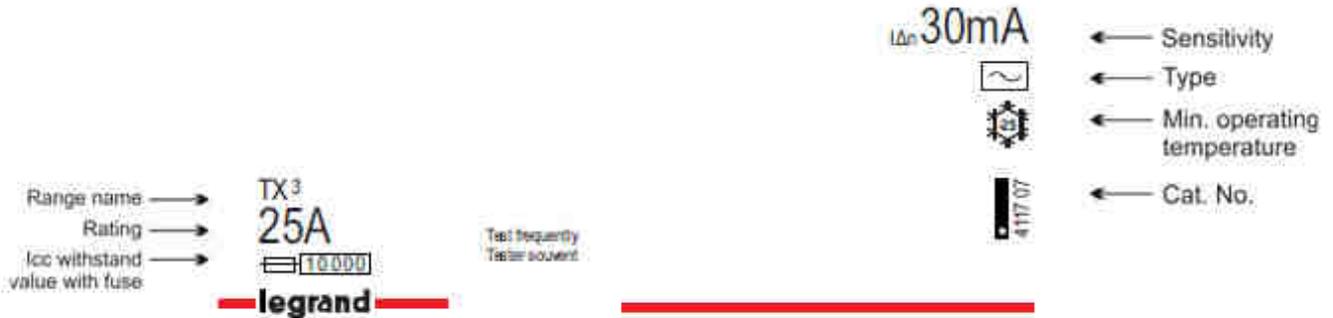
5. GENERAL CHARACTERISTICS

Neutral earthing system:

. IT, TT and TN

Marking:

. "N" marking of the neutral
. Marking on the "front side": (by permanent ink pad printing)

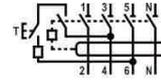


Marking on the upper panel:

. By permanent ink pad printing

Ue 415V~
Im=500A
IΔm=1000A

Rated voltage
Im and IΔm



Electrical diagram

Test operating voltage:

30mA all types : from 320V to 440V
100mA all types : from 230V to 440V
300mA A/AC types : from 215V to 440V
300mA A-S/AC-S types : from 230V to 440V
300mA F/AC-G type : from 190V to 440V
500mA A/AC type : from 295V to 440V
500mA A-S type : from 230V to 440V

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 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
. In = 100 A : Im = 1,000 A

Rated residual breaking capacity:

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

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5. GENERAL CHARACTERISTICS (continued)

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

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 circuit breaker:

		Upstream circuit breaker	
		TX ³ 6000 A	TX ³ 10 000A
Downstream TX ³ RCCB 4P	Curves	B, C & D	B, C & D
	In	≤ 63 A	≤ 63 A
2P - 230 V~	16 A à 100 A	10 kA	16 kA

		Upstream circuit breaker				
		DX ³ 4500 / 6 kA 3P / 4P 3 mod	DX ³ 6000 / 10 kA	DX ³ 10000 / 16 kA	DX ³ 25 kA	DX ³ 36 kA
Downstream TX ³ RCCB 4P	Curves	C	B, C & D	B, C & D	B, C & D	C
	In	≤ 32 A	≤ 63 A	≤ 125 A	≤ 125 A	≤ 80 A
4P - 400 V~	25 A to 100 A	6 kA	10 kA	16 kA	25 kA	36 kA

		Upstream circuit breaker				
		DX ³ 50 kA	DPX ³ 160 / DPX ³ 160 + residual current			
			16 kA	25 kA	36 kA	50 kA
Downstream TX ³ RCCB 4P	Curves	B, C & D				
	In	≤ 63 A	≤ 160 A	≤ 160 A	≤ 160 A	≤ 160 A
4P - 400 V~	25 A to 100 A	50 kA	16 kA	25 kA	25 kA	25 kA

. Association with circuit breakers: case of a double fault, in IT system – Resistance to the lcc of a single pole

Downstream TX ³ RCCB 4P	Circuit breaker upstream			Circuit breaker upstream			
	DX ³ 3P / 4P 3 mod	DX ³ 3P / 4P 3 mod	DX ³ 1P / 2P / 3P / 4P				
	4500 A / 6 kA	6000 A / 10 kA		10,000 A / 16 kA	25 kA	36 kA	36 kA
At 230 V	4.5 kA	6 kA	10 kA	16 kA	25 kA	36 kA	50 kA
At 400 V	3 kA	3 kA	3 kA	4 kA	6.25 kA	9 kA	12.5 kA

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5. GENERAL CHARACTERISTICS (continued)

Protection against short circuits (continued):

Association with a fuse:

Downstream	Upstream			
TX ³ RCCB 4P	gG or aM type fuse			
Rating	≤ 50 A	63 A	80 A	≥ 100 A
25 A to 100 A	100 kA	50 kA	15 kA	10 kA

Power dissipated by the device:

TX ³ RCCB 4P		Power dissipated by the device (In)					
Rating	Sensitivity	AC type	AC-S type	AC-G type	A type	A-S	F type
25 A	30 mA	6 W			6 W		1.77 W
25 A	100 mA	1.9 W			1.9 W		
25 A	300 mA	1.9 W			1.9 W	1.9 W	
25 A	500 mA	1.9 W			1.9 W		
40 A	30 mA	15.3 W		4.5 W	15.3 W		4.5 W
40 A	100 mA	4.8 W	4.8 W	4.8 W	4.8 W		
40 A	300 mA	4.8 W	4.8 W		4.8 W	4.5 W	
40 A	500 mA	4.8 W			4.8 W	4.8 W	
63 A	30 mA	11.8 W		11.8 W	11.8 W		11.3 W
63 A	100 mA	11.8 W	11.8 W	11.8 W	11.8 W		
63 A	300 mA	11.8 W	11.3 W		11.8 W	11.8 W	11.8 W
63 A	500 mA	11.8 W			11.8 W	11.8 W	
80 A	30 mA	19.1 W			19 W		19 W
80 A	100 mA	19.1 W			19.1 W		
80 A	300 mA	19.1 W			19 W	19 W	
80 A	500 mA	19.1 W			19.1 W	19.1 W	
100 A	30 mA				28.3 W		
100 A	100 mA				28.3 W		
100 A	300 mA				28.3 W		
100 A	500 mA				28.3 W		

Temperature derating:

Reference temperature: 30°C in accordance with standard IEC 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
25 A	25	25	25	25	25	25	25	25	25
40 A	40	40	40	40	40	40	40	25	25
63 A	63	63	63	63	63	63	63	40	40
80 A	80	80	80	80	80	80	80	63	63
100 A	100	100	100	100	100	100	100	80	80

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5. GENERAL CHARACTERISTICS (continued)

Catalogue Number	Description	Weight (kg)
4 117 07	25 A AC type 30 MA	0.34
4 117 08	40 A AC type 30 MA	0.34
4 117 09	63 A AC type 30 MA	0.36
4 117 10	80 A AC type 30 MA	0.36
4 117 17	25 A AC type 100 MA	0.38
4 117 18	40 A AC type 100 MA	0.38
4 117 19	63 A AC type 100 MA	0.38
4 117 20	80 A AC type 100 MA	0.38
4 117 27	25 A AC type 300 MA	0.32
4 117 28	40 A AC type 300 MA	0.32
4 117 29	63 A AC type 300 MA	0.32
4 117 30	80 A AC type 300 MA	0.32
4 117 37	25 A AC type 500 MA	0.38
4 117 38	40 A AC type 500 MA	0.38
4 117 39	63 A AC type 500 MA	0.38
4 117 40	80 A AC type 500 MA	0.38
4 117 42	40 A ACS type 100 MA	0.38
4 117 43	63 A ACS type 100 MA	0.38
4 117 48	40 A ACS type 300 MA	0.37
4 117 49	63 A ACS type 300 MA	0.37
4 117 52	40 A ACG type 30 MA	0.38
4 117 53	63 A ACG type 30 MA	0.38
4 117 56	40 A ACG type 100 MA	0.38
4 117 57	63 A ACG type 100 MA	0.38
4 117 64	25 A A type 30 MA	0.33
4 117 65	40 A A type 30 MA	0.33
4 117 66	63 A A type 30 MA	0.36
4 117 67	80 A A type 30 MA	0.41
4 117 68	100 A A type 30 MA	0.37
4 117 74	25 A A type 100 MA	0.38
4 117 75	40 A A type 100 MA	0.38
4 117 76	63 A A type 100 MA	0.38
4 117 77	80 A A type 100 MA	0.38
4 117 78	100 A A type 100 MA	0.38

5. GENERAL CHARACTERISTICS (continued)

Weight per device:

Catalogue Number	Description	Weight (kg)
4 117 84	25 A A type 300 MA	0.32
4 117 85	40 A A type 300 MA	0.33
4 117 86	63 A A type 300 MA	0.39
4 117 87	80 A A type 300 MA	0.33
4 117 88	100 A A type 300 MA	0.33
4 117 94	25 A A type 500 MA	0.38
4 117 95	40 A A type 500 MA	0.38
4 117 96	63 A A type 500 MA	0.38
4 117 97	80 A A type 500 MA	0.38
4 117 98	100 A A type 500 MA	0.38
4 118 03	25 A AS type 300 MA	0.32
4 118 04	40 A AS type 300 MA	0.33
4 118 05	63 A AS type 300 MA	0.39
4 118 06	80 A AS type 300 MA	0.33
4 118 07	40 A AS type 500 MA	0.38
4 118 08	63 A AS type 500 MA	0.38
4 118 09	80 A AS type 500 MA	0.38
4 118 14	25 A F type 30 MA	0.36
4 118 15	40 A F type 30 MA	0.40
4 118 16	63 A F type 30 MA	0.36
4 118 17	80 A F type 30 MA	0.36
4 118 21	63 A F type 300 MA	0.38

Packaged volume and quantity:

	Volume (dm ³)	Packaging
For all catalogue numbers	0.70	per unit

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:

- . U_i = 500 V

Insulation resistance:

- . 2 MΩ

Degree of pollution:

- . 2

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5. GENERAL CHARACTERISTICS (continued)

Dielectric strength:

. 2000 V - 50 Hz

Impulse withstand voltage:

. U_{imp} = 4 kV

Protection from false tripping:

. 0.5 μs/100 kHz damped recurring wave = 200 A
. 8/20 μs wave:
- AC type = 250 A
- S, F, AC G type = 3000 A

Plastic materials used:

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

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

Enclosure heat and fire resistance:

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

Device's upper heating value:

. Estimated heating value of a 40A 30mA AC 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 EN/IEC 61008-1
. Tested with 20,000 operations with no load

Electrical endurance:

. Conforms to standard EN/IEC 61008-1
. Tested with 10,000 operations with load (at $I_n \times \cos \varphi$ 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

Specific use:

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

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	0.9
4 - 5	0.8
6 - 9	0.7
≥ 10	0.6

These values are provided by recommendation IEC 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	2,000 V	2,000 V	2,000 V	1,500 V
Maximum operating voltage	400 V	400 V	400 V	400 V
Derating at 30°C	none	none	none	none

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 60 Hz, except ratings 40A/63A/80A, A and AC types, with sensitivity 30mA, which can be replaced by F types of equivalent ratings and sensitivity.

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⁻²)

Resistance to tremors :

. Conforms to standard EN/IEC 61008-1

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6. COMPLIANCE AND APPROVALS

Reference product standards:

- . EN/IEC 61008-1
- . NF EN 62423 / IEC 62423 (F type)
- . 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 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

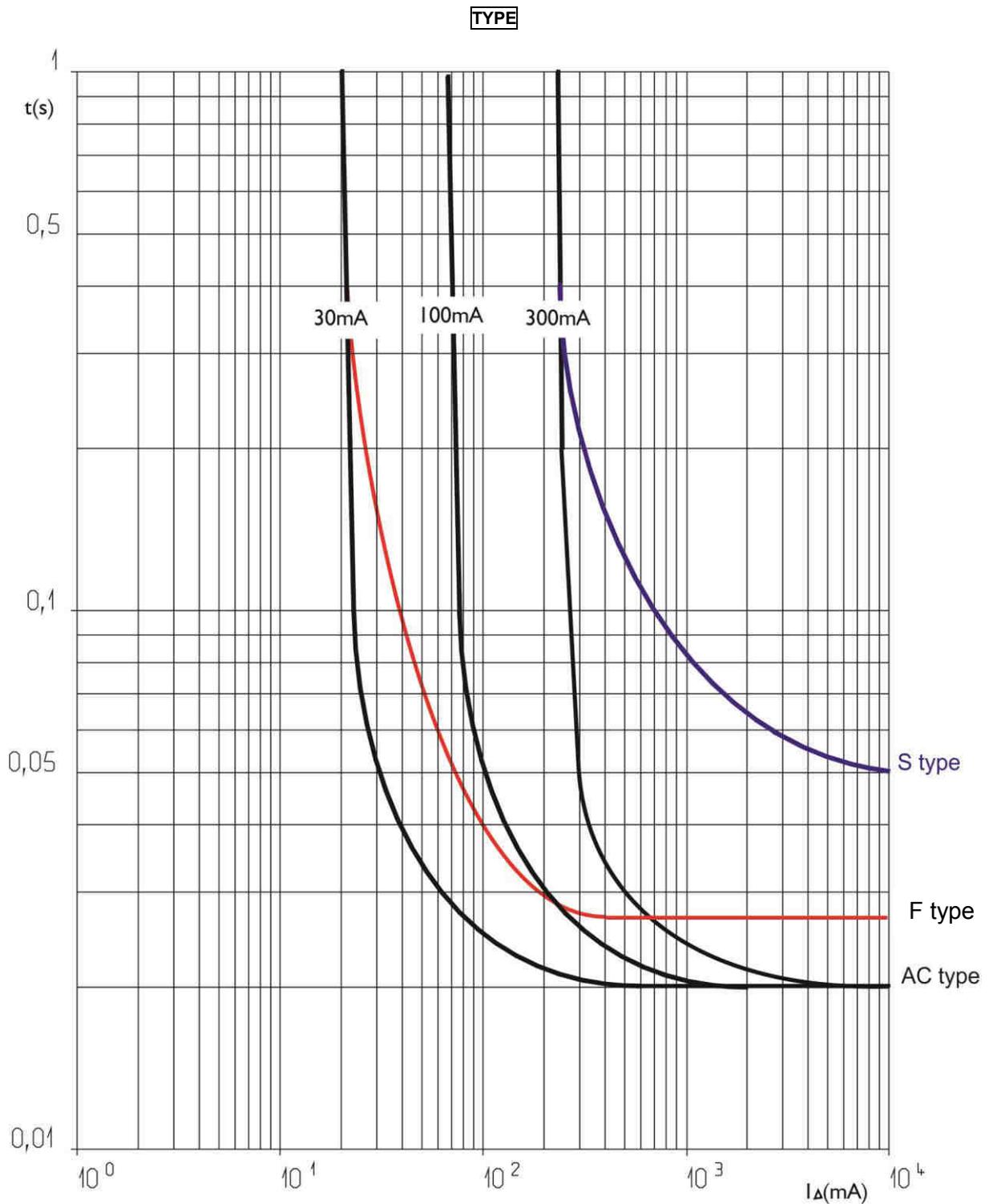
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7. CURVES

Tripping current curves:

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



8. AUXILIARIES AND ACCESSORIES

Wiring accessories:

- . Fork busbar
- . Pin busbar HX³ traditional.
- . Sealable screw cover (cat n° 4 063 04).
- . Insulating shields (cat n° 4 063 05)

Signalling auxiliaries - fork busbar adapted:

- . Auxiliary contact (½ module – cat n° 4 062 50).
- . Fault signalling changeover switch (½ module – cat n° 4 062 52).
- . Auxiliary contact modifiable in default signal (½ module – cat n° 4 062 56).
- . Auxiliary contact + fault signalling switch - can be modified to 2 auxiliary contacts (1 module - cat n° 4 062 64)

Signalling auxiliaries - prong busbar adapted:

- . Auxiliary contact (½ module – cat n° 4 062 58).
- . Fault signalling changeover switch (½ module – cat n° 4 062 60).
- . Auxiliary contact modifiable in default signal (½ module – cat n° 4 062 62).
- . Auxiliary contact + fault signalling switch - can be modified to 2 auxiliary contacts (1 module - cat n° 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)

Front external rotary handle

- . Black handle (cat nat n° 4 063 19)
- . Yellow and red handle (cat n° 4 063 20)

Possible combinations of rccb and auxiliaries:

- . Auxiliaries are clipped on the left of the RCCB.
- . Maximum number of auxiliaries for one circuit-breaker: 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).
- . One remote control or Stop & Go motor driven remote control
- . If signalling and control auxiliaries are associated on the same circuit breaker, the command auxiliary must be placed to the left of the signal auxiliary

Installation software:

- . XL PRO³

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