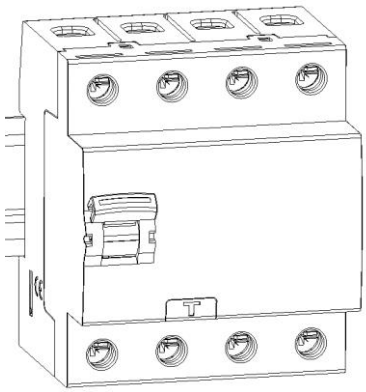
87045 LIMOGES Cedex
Telephone number: +33 (0)5 55 06 87 87 – Fax: +33 (0)5 55 06 88 88

XC³ RCCBs
4P Neutral left side - up to 63A

Cat. N°(s): 4 031 90, 91, 92, 94, 95, 96
4 032 32, 33, 34, 36, 37, 38



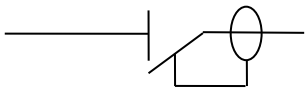
CONTENTS PAGE

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 9
9. Safety 9

1. DESCRIPTION - USE

Residual current circuit breaker (RCCB) 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 A

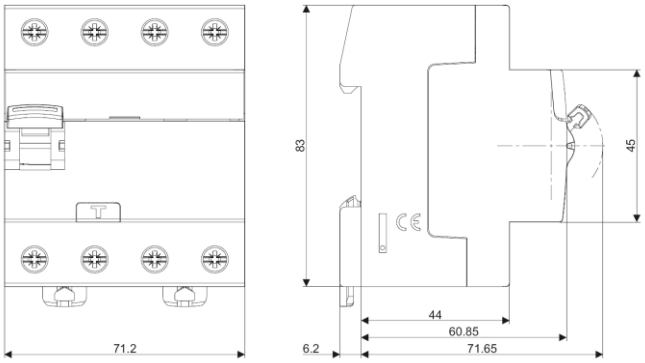
Residual current types:
. AC (sinusoidal differential alternating currents)
. A (residual currents with a DC component)

Sensitivity:
. 30/300 mA

Nominal voltage and frequency:
. 400 V~ / 415 V~, 50 Hz with standard tolerances

Maximum operating voltage:
. 440 V ~, 50 Hz

3. OVERALL DIMENSIONS

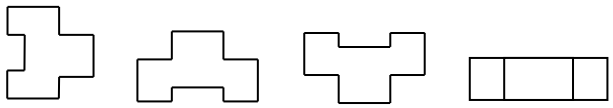


4. PREPARATION - CONNECTION

Mounting:
. On symmetrical rail EN 60715 or DIN 35 rail

Operating positions:

. Vertical Horizontal Upside down 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 (fitted with flaps preventing a cable being placed under the terminal, with the terminal partly open or closed)
. Neutral on left

4. PREPARATION - CONNECTION *(continued)*

Terminal arrangement:

. Terminals protected against direct finger contact IP20, wired device
. Alignment and spacing of the terminals permitting shutters with the other products via toothed 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 mm²** **or** **2 x 0.75 to 16 mm²**	**/**
Flexible cable	**1 x 0.75 to 35 mm²** **or** **2 x 0.75 to 16 mm²**	**1 x 0.75 to 25 mm²**

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

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 : open contacts

Residual current trip display:

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

Lockout:

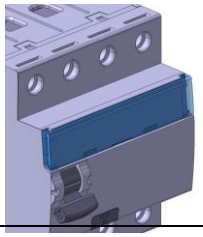
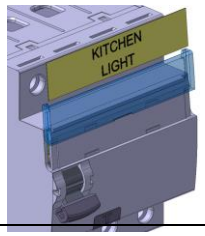
. Padlocks possible in the open or closed positions with padlock support (Cat. No. 4 063 03) and Ø5 mm padlock (Cat. No. 4 063 13) or Ø6 mm padlock (Cat. No. 227 97)

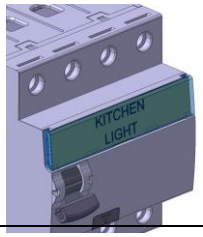
Sealing:

. 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



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:

. 30 mA AC / A type: from 320 V to 440 V~
. 300 mA AC / A type: from 220 V to 440 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

Specific use:

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

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				
		DX³ 4500 / 6 kA 3P / 4P 3 mod	DX³ 6000 / 10 kA	DX³ 10000 / 16 kA	DX³ 25 kA	DX³ 36 kA
Downstream RCCB XC³	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 63 A	**6 kA**	**10 kA**	**16 kA**	**25 kA**	**36 kA**

		Upstream circuit breaker	
		XS³ 4500 3 P	XG³ 6000 3P/4P
Downstream RCCB XC³	Curves	B & C	B & C
	In	≤ 63 A	≤ 63 A
4P - 400 V~	25 A to 63 A	**10 kA**	**16 kA**

		Upstream circuit breaker				
		DX³ 50 kA	DPX³ 160 / DPX³ 160 + residual current			
			16 kA	25 kA	36 kA	50 kA
Downstream RCCB XC³	Curves	B, C & D				
	In	≤ 63 A	≤ 160 A	≤ 160 A	≤ 160 A	≤ 160 A
4P - 400 V~	25 A to 63 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 Icc of a single pole

Downstream RCCB XC³	Circuit breaker upstream		
	DX³ 3P / 4P 3 mod	DX³ 3P / 4P 3 mod	DX³ 1P / 2P / 3P / 4P
	4500 A / 6 kA	6000 A / 10 kA	
At 400 V	**3 kA**	**3 kA**	**3 kA**

5. GENERAL CHARACTERISTICS *(continued)*

Protection against short circuits (continued):
. Association with a circuit breaker:

Downstream RCCB	Circuit breaker upstream			
	DX³ 1P / 2P / 3P / 4P	DX³ 1P / 2P / 3P / 4P	DX³ 1P / 2P / 3P/ 4P	DX³ 1P / 2P / 3P / 4P
	10,000 A / 16 kA	25 kA	36 kA	36 kA
At 400 V	**4 kA**	**6.25 kA**	**9 kA**	**12.5 kA**

. Association with a fuse:

Downstream	Upstream			
RCCB XC³	gG or aM type fuse			
Rating	≤ 50 A	63 A	80 A	≥ 100 A
25 A to 63 A	**100 kA**	**50 kA**	**15 kA**	**10 kA**

Power dissipated by the device:

RCCB		Power dissipated by the device (In)
Rating	Sensitivity	AC type
25 A	30 mA	**6 W**
25 A	30 mA	**1,9 W**
40 A	30 mA	**15,3 W**
40 A	300 mA	**4,8 W**
63 A	30 mA	**11,8 W**
63 A	300 mA	**11,8 W**

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

	Ambient Temperature/In								
In (A)	- 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**

5. GENERAL CHARACTERISTICS *(continued)*

Weight per device:

Catalogue N°	Description	Weigh (kg)
4 031 90 / 4 032 32	25 A AC/A type 30mA Fork Busbar	**0,34**
4 031 91 / 4 032 33	40 A AC/A type 30mA Fork Busbar	**0,33**
4 031 92 / 4 032 34	63 A AC/A type 30mA Fork Busbar	**0,36**
4 03194 / 4 032 36	25 A AC/A type 300mA Fork Busbar	**0,32**
4 031 95 / 4 032 37	40 A AC/A type 300mA Fork Busbar	**0,32**
4 031 96 / 4 032 38	63 A AC/A type 300mA Fork Busbar	**0,32**

Packaged volume and quantity:

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

5. GENERAL CHARACTERISTICS *(continued)*

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:
- AC type = 250 A

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.

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 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)

5. GENERAL CHARACTERISTICS *(continued)*

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 In x Cos φ 0.9)
. Tested with 2,000 residual current trip operations using the test button or the fault current

Ambient temperatures:
. Operating : - 25°C / + 60°C
. Storage : - 40°C / + 70°C

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 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).

Influence of the altitude:

	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, AC end A type, with sensitivity 30mA.

5. GENERAL CHARACTERISTICS *(continued)*

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 NF EN 61008-1

6. COMPLIANCE AND APPROVALS

In accordance with standards:
. NF EN 61008-1/IEC 61008-1
. EN/IEC 60 529 (IP)

Environment: respect – Compliance with EEC directives:
. 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.

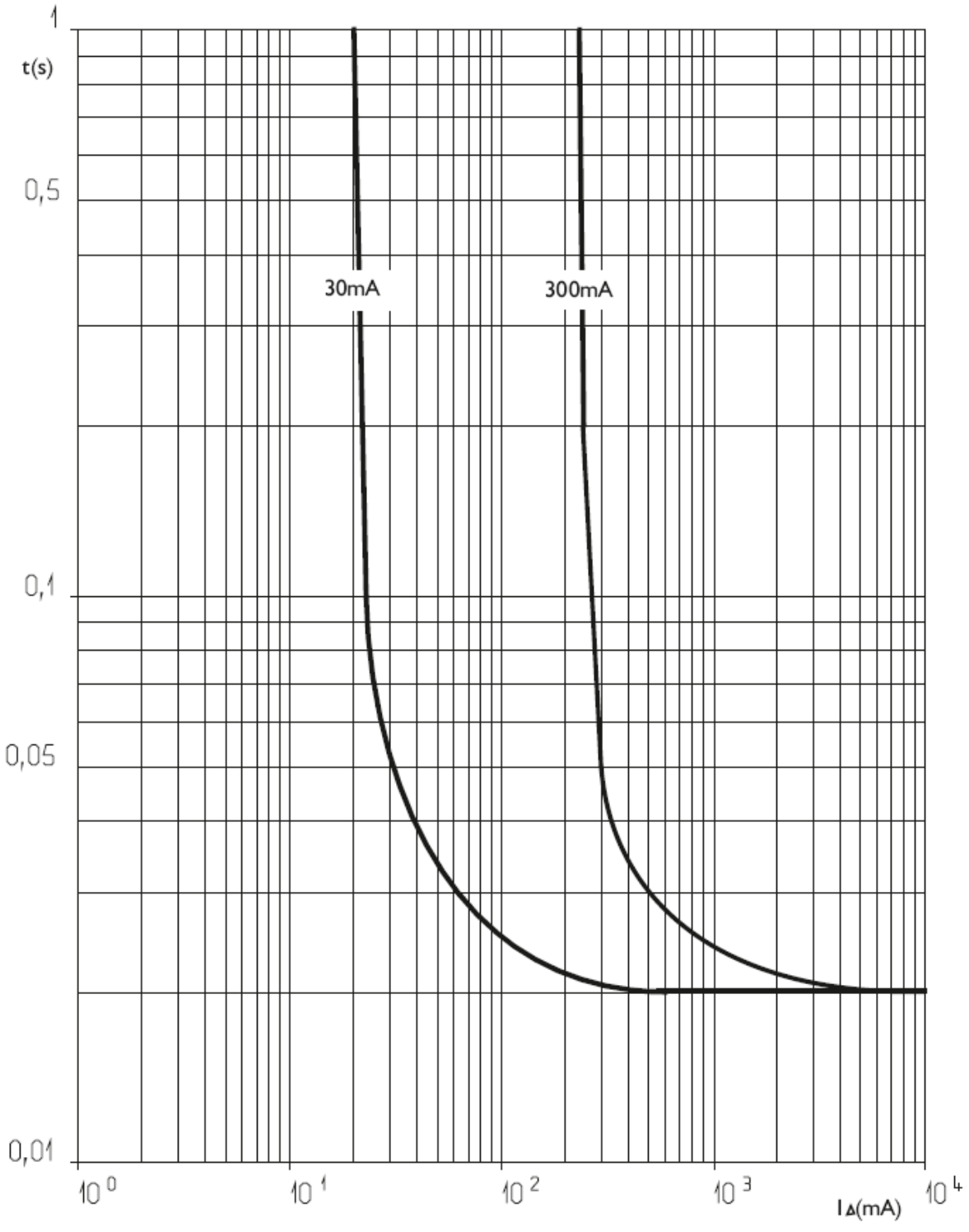
Packaging:
. Design and manufacture of packaging compliant with decree 98-638 of 20/07/98 and Directive 94/62/EC

7. CURVES

Tripping current curves:

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

AC / A TYPE



AC type

8. AUXILIARIES AND ACCESSORIES

Wiring accessories:

. Sealable screw cover (Cat. No. 4 063 04)
. Terminal for aluminium cable with max. 50 mm² cross-section (Cat. No. 4 063 10)

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 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