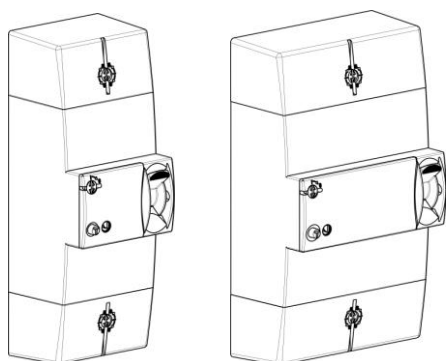


Ajustable BACO RCBO

Cat. N°(s): 4 011 31, 4 011 32, 4 011 33, 4 011 34, 4 011 35,
4 011 36, 4 011 37, 4 011 38



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1. DESCRIPTION - USE

General description :

Adjustable BACO residual current circuit breakers for workers protection

- . In accordance with NF EN 61009-1 standard
- . Comply with the requirements of the 14th of November 1988 French order about workers protection
- . Instantaneous residual current tripping
- . Sealable

Technology of the protection devices :

The adjustable BACO residual current circuit breakers for the protection of workers have several protection functions :

- . Overload protection made with an oleo-magnetic device
- . Earth leakage current protection made with a electro-mechanical tripping device (Magnetic core in association with a sensitive relay)

Device use:

The adjustable BACO residual current circuit breakers for the workers protection have several operating and adjustment parts

- The handling part of the operating system is a free tripping lever, with two steady ON and OFF positions marked with the symbols I and O.
- . The rated current on phase Ir is settable by moving a captive screw accessible under the current setting cover in the frontside.
- The earth leakage device can be tested by using the push-button marked "test" on the front side.

Product's reference :

Number of poles	Rated current (A)	30 mA RCBOs	300 mA RCBOs
2	10 - 16 - 20 - 25 - 32	4 011 31	4 011 32
2	32 - 40 - 50 - 63	4 011 33	4 011 34
4	10 - 16 - 20 - 25 - 32	4 011 35	4 011 36
4	32 - 40 - 50 - 63	4 011 37	4 011 38

1. DESCRIPTION – USE *(continued)*

Symbol :



Technology:

- . Limiting device
- . Simultaneous operation of all the poles at the closing and opening

2. RANGE

Polarity :

- . 2 poles : 2 poles disconnected with 1 protected pole (phase)
- . 4 poles : 4 poles disconnected with 3 poles protected (phases)

Rated current In :

- . 2 poles : from 10A to 63A according to references
- . 4 poles : from 10A to 63A according to references

Sensitivity – Operating time of residual current circuit breakers:

- . 30 mA - instantaneous
- . 300 mA - instantaneous

Rated voltage and frequency :

- . 2 poles : 250 V~ 50 Hz
- . 4 poles : 440 V~ 50 Hz

Maximum operating voltage :

- . 2 poles : 250 V~
- . 4 poles : 440 V~

2. RANGE (continued)

Threshold tripping :

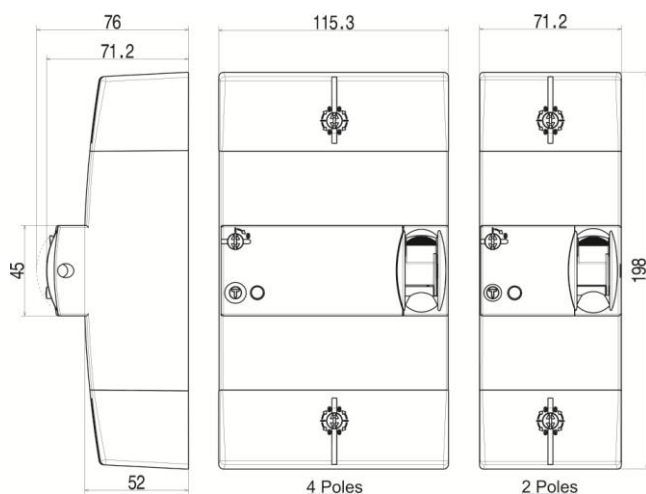
- See curves on page 4 and 5

Breaking capacity :

- in accordance with CEI 61 900-1 § 9.12

Number of poles	2	2	4	4
Max rated current	32A	63A	32A	63A
Breaking capacity: - rms value	4500A	4500A	4500A	4500A

3. OVERALL DIMENSIONS:



4. PREPARATION - CONNECTION

Mounting:

- On control board, wood or plastic panel, with two Ø 4mm screws of 40mm mini length under head (not included).

Operation position:

- Vertical working position exclusively.

Power supply:

- Top side

Connection:

- From 10° to 30° rotating terminals
- Terminal depths: from 14 to 17 mm
- Screw: Headless, 4mm CHC imprint
- Tightening torque:
 - Standard: 2.5 N.m to 4 N.m
 - Maxi: 6 N.m
- Max tensile force applicable on connected wire: 100N
- Terminals marking:
 - Not protected pole: on left, with blue cap, marked N
 - Protected poles: on right with grey cap

Conductor type :

- Copper cable
- Cable cross-section :
 - 1 to 25 mm² rigid wires, massive wires or connected
 - 1 to 16 mm² flexible wires with ferrule

4. PREPARATION - CONNECTION (continued)

Recommended tools :

- Allen key 4mm

Locking :

- Possible locking in the open position with Ø 5 mm padlock (Cat. No. 4 063 13) or Ø6 mm padlock (Cat. No. 227 97)

Sealing:

- Sealing with Ø 2 lead or plastic seals, on terminals screw cover and current setting protection screws.

Manual actuation of the device

- Ergonomic 2-position handle:

- « O » : Device open
- « I » : Device closed

Contact status display:

- By marking of the rating current cover:

- « O » : in black = contacts open
- « I » : in black = contacts closed

5. GENERAL CHARACTERISTICS

Rated voltage:

- 250 V~ 50 Hz between phase and neutral
- 440 V~ 50 Hz between phases

Insulation resistance :

- 2 MΩ between poles
- 5 MΩ between open contacts of the same pole

Test operating voltages :

- Δn according to CEI 61 900-1, between phase and neutral:
 - U mini : 200 V~
 - U maxi : 250 V~

Breaking capacity differential :

- 10 In with minimum value of 500A

Breaking capacity on 1 pole only (phase pole) :

- according to Icn1 EN 60898-1 : 4500 A

Isolation distance :

- The distance between the contacts is greater than 6 mm with the handle in the open position.

Insulation voltage:

- Ui = 4 kV

Degree of pollution :

- 2

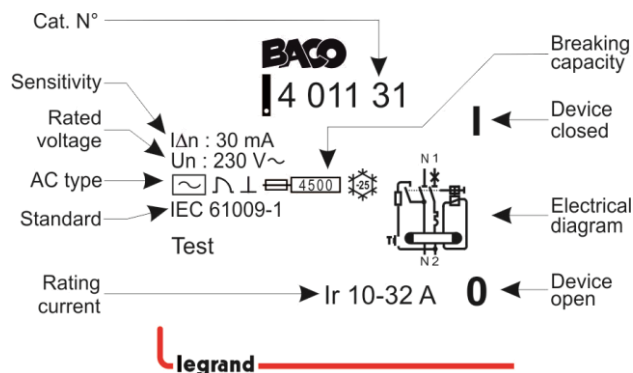
Dielectric strength :

- 2 kV between poles
- 2 kV between open contacts of the same pole
- 4 kV between live and accessible parts

5. GENERAL CHARACTERISTICS (continued)

Marking on the front side:

- By permanent ink pad printing



Rated impulse withstand voltage :

According to CEI 61 900-1 § 9.20 :

- 6 kV between poles (wave 1,2 / 50 μs)
- 8 kV between active poles and mass (wave 1,2 / 50 μs)

Degree or class of protection :

- Class III

Plastic materials :

- Polycarbonate and P.B.T.

Operating temperature :

- from -20 °C to + 55 °C

Stocking temperature :

- from - 40°C to + 70°C

Mechanical endurance :

- 20,000 operations with no load

Electrical endurance :

- 4 000 operations according to CEI 61 900-1 § 9.10

DC operation :

- Cannot be used with DC

Operation at 400Hz frequency:

- Cannot be used with 400Hz

Resistance to tremors :

- In accordance with CEI 61 900-1 § 9.13.1

Mechanical characteristics :

- Protection degree according to NF C 20 010 : IP40
- Protection degree against shocks :
 - NF C 20 010 degree 3
 - CEI 61 900-1 § 9.13.2

Voltage drop :

- According to CEI 61 900-1 : < 0,3 V

5. GENERAL CHARACTERISTICS (continued)

Overload protection :

- The neutral pole is not protected.
- Phases poles are protected. Typical tripping time are listed in the annex

Residual protection (depending on model) :

- General type : sensitivity 30 mA and 300mA AC type without delay

Electromagnetic compatibility (EMC) :

Immunity level for each type of perturbation is :

Type of perturbation	Standard	General type
Earth leakage current of capacitance	NF C 62-411	32mA
8/20 ps current wave	NF EN 61 009-1	250 A
HF induced voltage	CEI 1000-4-6	3 V
Electrical fast transien/burst	CEI 1000-4-4	4 kV
1,2/50 ps voltage shock wave	CEI 1000-4-5	Common mode : 5 kV differential mode : 4 kV
Electromagnetic field	CEI 1000-4-3	3 V/m
Electrostatic surge	CEI 1000-4-2	8 kV in air 6 kV in contact
Ring wave surge	CEI 61 543	200 A

Corrosion withstand:

According to CEI 61 900-1 § 9.22.1, 28 days in wet and hot conditions 55°C, 95% HR

Higher heating potential:

- The heat potential of a device is estimated at:
 - 2 poles = 6.95 MJ
 - 4 poles = 10.65 MJ

Packaged volume :

	Volume (dm ³)		Packaging
	2 poles	4 poles	
For all ratings	1.01	1.60	by 1

Enclosure color :

- Ivory white RAL 9010

5. GENERAL CHARACTERISTICS *(continued)*

Enclosure heat and fire resistance:

Used insulation materials resist to heat and fire according to their function in the product, if they support electrical parts or if they give external protection.

Type of part	Ball test	Heating finger	Incandescent wire	ITC progressing current	Oxygen index
support active part	125°C	500°C	960°C	250 V	28
Enclosure part	125°C	300°C	960°C	175 V	25

. Classification V0, in accordance with standard UL94

Product weight :

Catalogue numbers	Description	Weight (kg)
4 011 31	DG2 10 32 030 LEGRAND F 00	0,587
4 011 32	DG2 10 32 300 LEGRAND F 00	0,557
4 011 33	DG2 32 63 030 LEGRAND F 00	0,589
4 011 34	DG2 32 63 300 LEGRAND F 00	0,557
4 011 35	DG4 10 32 030 LEGRAND F 00	1,039
4 011 36	DG4 10 32 300 LEGRAND F 00	1.007
4 011 37	DG4 32 63 030 LEGRAND F 00	1.020
4 011 38	DG4 32 63 300 LEGRAND F 00	1.018

6. COMPLIANCE AND APPROVALS

In accordance with standards :

. CEI 61009-1 (2012)

Relevant standards :

Models with differential protection:

. CEI 61009-1 (2012) :

Residual current operated circuit breakers with integral overcurrent protection for household and similar uses.

Respect for the 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 27/07/04

6. COMPLIANCE AND APPROVALS *(continued)*

Plastic materials:

- . Halogen free plastic materials
- . Labelling of parts compliant with ISO 11469 and ISO 1043.

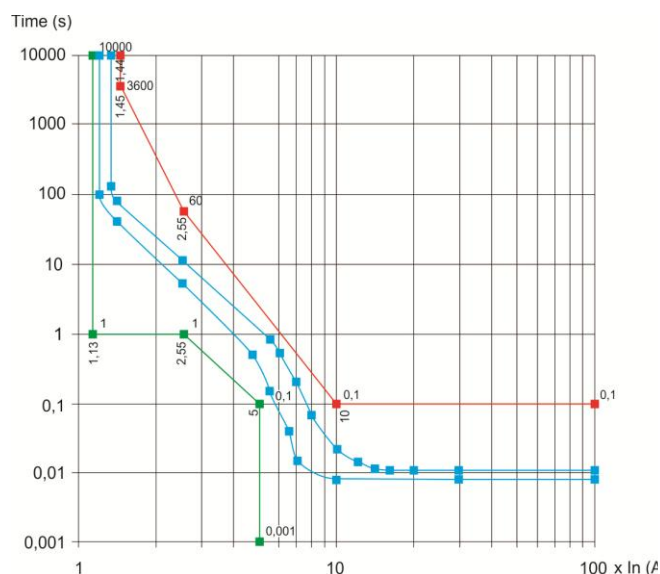
Packaging:

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

7. CURVES

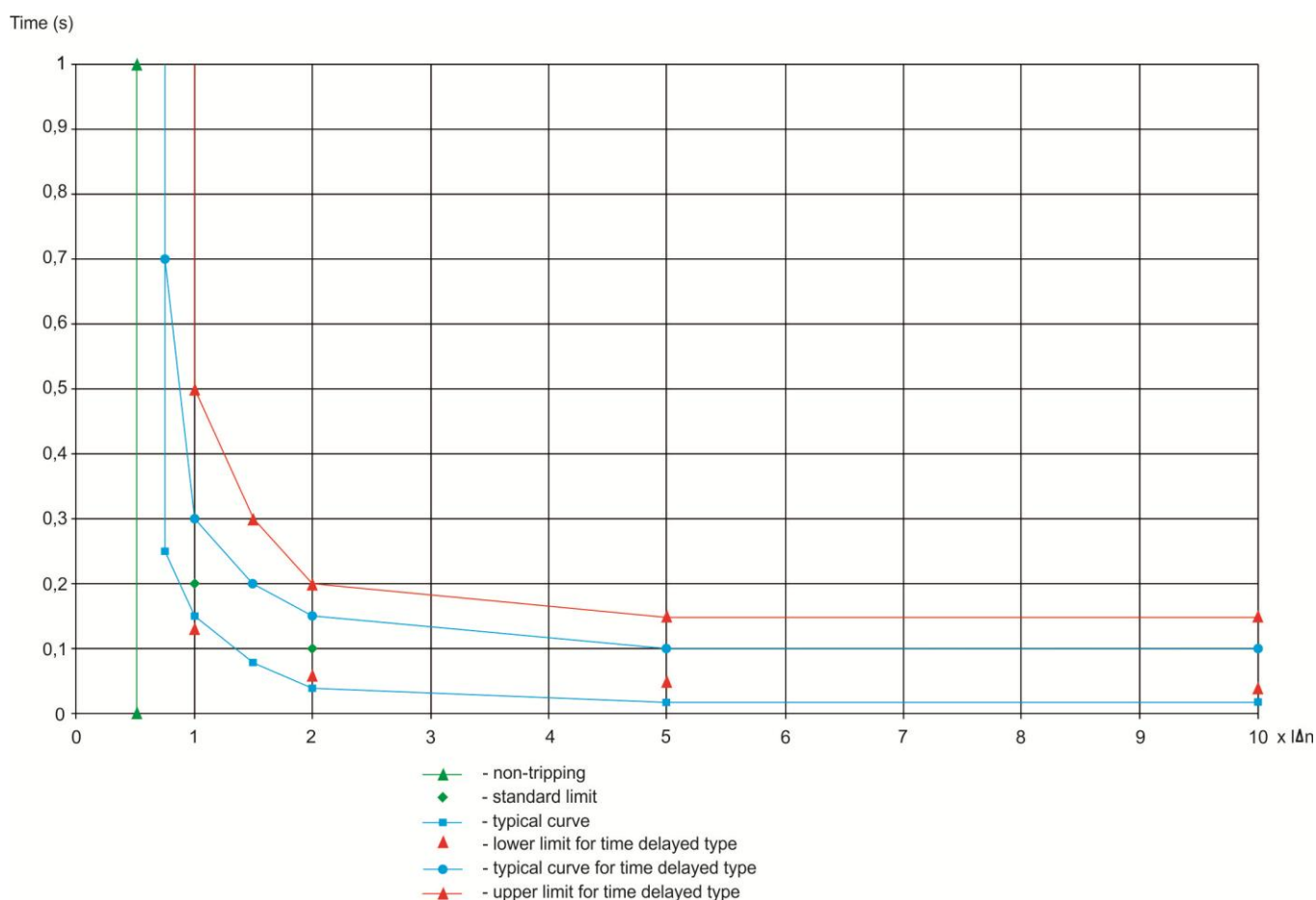
Overload tripping time :

. RCBOs



7. CURVES (continued)

Residual current protection tripping time:



8. AUXILIARIES AND ACCESSORIES

Locking options:

. Via padlock 5 mm in diameter (Cat. No. 4 063 13) or padlock 6 mm in diameter (Cat. No. 227 97)

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 the safety level of your installation has been reduced. The presence of residual current protection does not remove the need to observe all the precautions associated with using electrical energy