

Circuit breaker ICP-M

Cat. N° (s) : 6030 03 à 6030 13 - 6030 18 à 6030 28 -
6030 33 à 6030 43- 6030 48 à 6030 58- 6030 78 à 6030 88



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1. DESCRIPTION - USE:

Thermomagnetic circuit breaker with fully exposed cut-out for control, protection, isolation of electrical circuits and power limitation the electrical distributor in Spain.

Symbol:



Technology:

- . Limiting device
- . 1 Module (17,8) per pole

2. RANGE

Rated currents:

- . 5 / 7,5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 A

Polarity:

- . 1P, 1P+N, 2P, 3P, 4P.

Magnetic tripping curves:

- . ICP-M curve according to the UNESA 6101 C recommendation and UNE 20317 standard (between 5 and 8 In).

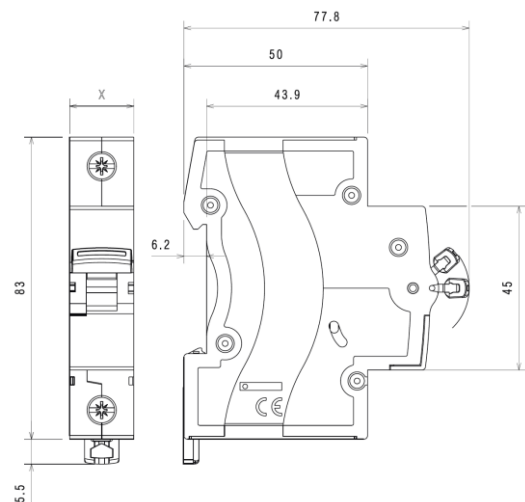
Thermal threshold:

- . Non-operating current (I_{nf}): 1,1 I_n
- . Operating current (I_f): 1.5 I_n

Rated voltage (50/60 Hz):

- . 1P & 1P+N 230 V ~
- . 2P, 3P, 4P 400 V ~

3 OVERALL DIMENSIONS



	X
1P	17.8 mm
1P+N / 2P	35.6 mm
3P	53.4 mm
4P	71.2 mm

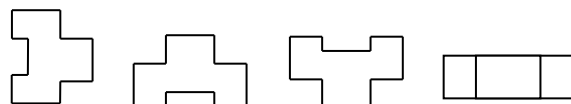
4. PREPARATION - CONNECTION

Fixing:

- . On symmetrical rail EN/IEC 60715 or DIN 35 rail.

Operating positions:

- . Vertical Horizontal Upside down On the side



Power supply:

- . From the top or from the bottom.

4. PREPARATION - CONNECTION *(continued)*

Connection:

- . Inputs and outputs via screw terminals
- . The location of the terminals allows supplying by traditional HX³ pin busbar.
- . Terminals protected against direct contact: IP20 wired device.
- . Cage terminals, with disengageable and captive screws.

Terminal depth:

- . 14 mm

Stripping length recommended:

- . 11 mm

Screw head:

- . Mixed, slotted and Pozidriv 2.

Tightening torque:

- . Recommended: 2.5 Nm.
- . Mini: 2 Nm. Maxi: 3 Nm.

Tools required:

- . For the terminals: Pozidriv n° 2 or flat screwdriver 5.5 mm (6 mm maximum).
- . For fixing: flat screwdriver 5.5 mm (6 mm maximum).

Connectable section:

	Copper cables	
	Without ferrule	With ferrule
Rigid cable	1 x 1.5 mm ² to 35 mm ² 2 x 1.5 mm ² to 16 mm ²	-
Flexible cable	1 x 1.5 mm ² to 25 mm ² 2 x 1.5 mm ² to 10 mm ²	1 x 1.5 mm ² to 25 mm ²

Manual actuation of the MCB:

- . Ergonomic 2-position handle: ON and OFF

Contact status display:

- . By front face marking:
 - "O-OFF" = contacts open
 - "I-ON" = contacts closed

Sealing:

- . Possible in "Open" position (OFF) or "Close" position (ON).

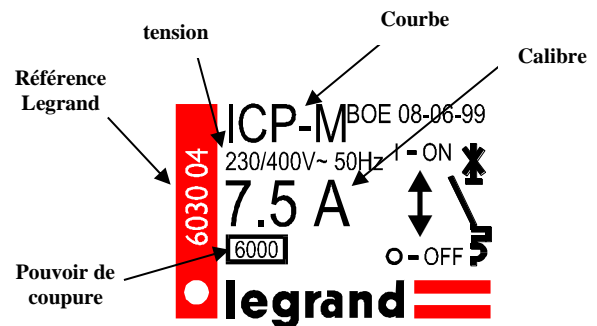
Locking:

- . By 5 mm padlock (cat. N° 4 063 13) or 6 mm padlock (cat. N° 0 227 97) with padlock support (cat. N° 4 063 03).

5. GENERAL CHARACTERISTICS

Marking on the front side:

- . By permanent ink pad printing:



Short-circuit breaking capacity:

- . In single-phase or three-phase 230V / 400V network (alternating current 50/60 Hz).
- . 6000 A according to UNE 20317 and RU 6101 C

Un		1P / 1P+N	2P	3P / 4P
110 V~	Icn	10000 A	12500 A	-
230V~		6000 A	10000 A	10000 A
400V~		-	6000 A	6000 A

110 V~	Ics	75% of Icn	75% of Icn	75% of Icn
230V~				
400V~				

Minimum operating voltage:

- . 12 V a.c. / d.c. per pole.

Pulse rated voltage:

- . Uimp = 4 kV

Insulation rated voltage:

- . Ui = 500 V

Pollution degree :

- . 2 in accordance with standard EN/IEC 60898-1.

Electric strength:

- . 2500 V

Load to close and to open by the handle:

- . 0.1 Nm per pole to close.
- . 0.075 Nm per pole to open.

5. GENERAL CHARACTERISTICS *(continued)*

Mechanical endurance:

- . according to UNE 20317:
- . 4,000 manoeuvres in charge for calibres from 5A to 25A
- . 3,000 manoeuvres in charge for calibres from 30A to 50A

Enclosure material:

- . Polyester.
- . Characteristics of this material: self-extinguishing, heat and fire resistant according to EN 60898-1, glow-wire test at 960° C for external parts made of insulating material necessary to retain in position current-carrying parts and parts of protective circuit (650° C for all other external parts made of insulating material).

Average weight per pole:

- . 0.130 kg.

Volume when packed:

	Volume (dm ³)
1P (packed per 10)	0.163
1P+N / 2P (packed per 5)	0.163
3P (packed per 1)	0.48
4P (packed per 1)	0.68

Ambient operating temperature:

- . Min. = -5° C. Max. = +70° C

Ambient storage temperature:

- . Min. = -40° C. Max. = +70° C

Degree or class of protection:

- . Terminal protection against touch: IP20 wired device.
- . Protection of the front face against touch: IP40
- . Index of resistance against mechanical shocks: IK 02 (according to EN / IEC 50102).

Neutral system:

- . IT, TT, TN

Isolating distance (distance between contacts):

- . more than 5 mm with the handle in open position O

Sectioning:

- . Circuit breaker suitable for sectioning according to EN / IEC 60898-1

Recognition:

- . Recognition of the circuits by label in the "label holder" on the front-side of the MCB

Power dissipated per pole (W) :

In	5 A	7,5 A	10 A	15 A	20 A	25 A
P (W)	2	1.5	1.1	1.5	1.7	2.4

In	30 A	35 A	40 A	45 A	50 A	
P (W)	3	3,5	4	4,3	4,5	

- . Impedance per pole (Ω) = $\frac{P \text{ dissipated}}{I_n^2}$

5. GENERAL CHARACTERISTICS *(continued)*

Derating of circuit-breakers according to ambient temperature:

A circuit breaker is set to operate under I_n at an ambient temperature of 22 ° C

Depending on the ambient temperature in the enclosure of the cabinet, it may be necessary to apply a derating to the circuit breaker (in Amperes):

I_n (A)	- 5° C	0° C	10° C	22° C	30° C	40° C	50° C	60° C	70° C
5	5,55	5,45	5,2	5	4,8	4,6	4,4	4,2	4
7,5	8,5	8,2	7,8	7,5	7,2	6,9	6,6	6,3	6,1
10	11,3	10,9	10,4	10	9,6	9,2	8,8	8,4	8,1
15	17	16,5	15,6	15	14,4	13,6	13	12,4	11,9
20	23	22	20,8	20	19,2	18,2	17,4	16,6	15,9
25	28	27,5	26	25	24	22,7	21,7	20,7	19,8
30	34	33,3	31,2	30	28,8	27	25,6	24	22,8
35	40	38,8	36,4	35	33,6	31,5	29,9	28,4	27,1
40	46	44,4	41,6	40	38,5	36,4	34,2	32	30
45	51,7	50,4	46,8	45	43,3	40,2	37,8	35,3	33,1
50	57,5	56	52	50	48	44,6	42	39,2	36,6

Derating of MCB for use with fluorescent lights:

Ferromagnetic and electronic ballasts have a high inrush current for a short time. These currents can cause the tripping of circuit breakers. At the time of the installation, it should take into account the maximum number of ballasts per circuit breaker that the manufacturers of lamps and ballasts indicate in their catalogues.

Influence of the altitude:

	≤2000 m	3000 m	4000 m
Dielectric holding	3000 V	2500 V	2000 V
Max operational Voltage	400 V	400 V	400 V
Derating at 22° C	aucun	aucun	aucun

Derating of MCBs function of the number of devices side by side:

When several MCBs are juxtaposed and operate simultaneously, the thermal evacuation of the poles is limited. This results in an increase in operating temperature of the circuit breakers which can cause unwanted tripping. It is recommended to apply the following coefficients to the rated currents.

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 given by the recommendation of EN/IEC 61439-1.

To avoid using these coefficients, it is necessary to allow a good ventilation and to separate the devices with 0.5 module spacing elements (cat. N° 4 063 07).

6. COMPLIANCE AND APPROVALS

In accordance with standards:

. ICP-M circuit breakers do not contain any of the materials covered by European Directive 2011/65 / EU of 08/06/11 (RoHS) and subsequent modifications and additions.

Precious metal:

. Silver: 0,04 g per pole $I_n \leq 32$ A; 0.08 g per pole $I_n \geq 40$ A
. No gold

Packaging:

. Design and manufacture of packaging in accordance with Directive 94/62/EC

7. EQUIPMENT AND ACCESSORIES

Wiring accessories:

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

Signal auxiliaries:

. 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 87).
. Motor driven control (1 module – cat n° 4 062 91)

Auxiliaries are clipped on the left of the m.c.b..

Possible combinations of m.c.b. and auxiliaries:

. Maximum number of auxiliaries for one circuit-breaker = 3.
. Maximum number of signalling auxiliaries = 2.
. Maximum number of control auxiliary = 1.
. 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

Note: *The motorized control module must not be associated with signalling auxiliaries.*