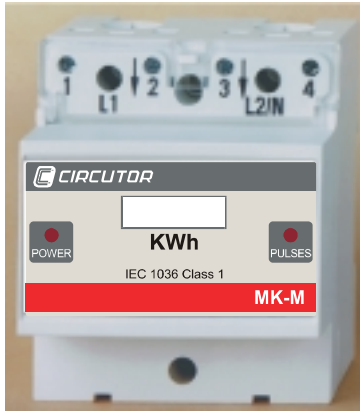


# SINGLE-PHASE ENERGY METER MK-30-M & MK-60-M



## 1.- MAIN FEATURES

Electronics-based, Class 1 rated, electrical energy meter, equipped with rotary mechanical display, for its use in L.V. single-phase networks. These energy meters are appropriate for any application that requires the monitoring of partial energy consumptions.

Additional relay output for pulse output usage.

## 2.- MK-M types.

Type	Currents (lb)	Code
MK.M	30A	771 231
	60A	771 235

## 3.- Installation



This manual contains information and warnings that must be followed for operating the ENERGY METER safely and maintaining the instrument in a safe operating condition.

Whether the instrument is not used as manufacturer's specifications, the protection of the instrument can be damaged.



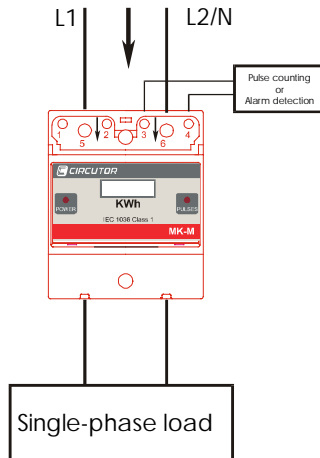
Mounting:

The instrument is to be mounted onto a DIN rail. All wiring connections keep inside the switchboard cabinet.

Note that with the instrument powered on, the terminals, cover opening actions or elements removal may allow accessing dangerous parts. The instrument must not be used until this is completely installed.

The monitored line should be provided with a circuit breaker or any equivalent element (fuses) to connect or disconnect the instrument from the power supply network. This switching device must be placed near the instrument and will be easily

accessible. The instrument is directly power supplied from the cables crossing the MK-M. The power supply and voltage-current measuring circuit must be wired with cables of appropriate cross-section according to the current flowing through the MK-M.



Terminal No.	Terminal description
1	No used
2	No used
3	Relay RL1 output
4	Relay common
5	Voltage/Current L1 input
6	Voltage N/L2 input

**Note:** To assure a proper installation please be aware of leds indications:

- CPU LED:
  - 1 blink each second: right operation
  - Quick blink: operation failure; please contact Technical Service.
- Pulse LED:
  - Blinking ratio of 100 pulse / kW: right operation.
  - A blink with a cadence higher than 1 pulse / s means that the meter is detecting the energy as a generated energy.

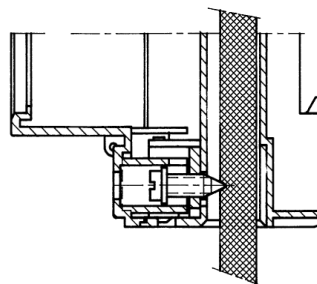
## 4.- MAINTENANCE

The MK-M does not require any special maintenance.

When any protection failure is suspected to exist, the instrument must be immediately put out of service. The instrument's design allow a quick replacement in case of any failure.

Before any adjustment, replacement, maintenance or repairing operation is carried out, the instrument must be disconnected from any power supply source.

In this case contact a qualified service representative.



DETAIL OF VOLTAGE MEASURING METHOD

## 5.- Specifications

### Power supply/measuring circuit:

- Single-phase : 110 V - 230 V a.c.
- Tolerance : -15 % / +20 %
- Frequency : 50 - 60 Hz
- Burden : <0.25VA
- Working temperature: 0 to 50 ° C

- Rated current (lb): According to type
- Permanent overload: 2 lb
- Start current: 0,1% lb

**Accuracy class :** Class 1

### Mechanical features :

- Case type: Modular self-extinguishing plastic
- Current cable entrance: Maximum Ø 11 mm
- Voltage connection: Metallic terminal with "pozidriv" No.2 / flat mixed screw
- Pulse output: Metallic terminal with flat headed screw.
- Mounting: Symmetric DIN 46277 (EN50022) rail
- Protection : Frontal cover: IP 51 Terminals: IP 20
- Dimensions : 70 x 80 x 75 mm (4-module relay – DIN 43 880)
- Weight : 0.200 kg.


### Display:

- Type: Mechanical rotary (6 digits) without reset
- Energy unit : kW·h
- Maximum count: 999999 kW·h

### Output relay characteristics :

- Type: opto-isolated transistor (open collector)
- Maximum switching voltage : 24 V c.c.
- Maximum switching current : 50 mA
- Maximum frequency : 1 pulse/s
- Energy output : 100 pulses/kW·h
- Pulse duration : 500 ms
- Safety ..... Class III – 300 V a.c. (EN-61010)

Protection against electric shock:

by class II double-isolation 

### Standards :

EN-61036, EN-61010

## 6.- TECHNICAL SERVICE

For any inquiry about the instrument performance or whether any failure happens, contact to technical service:



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