

## Direct single-phase meter

**MK-M**

Electromechanical single-phase meter with direct connection energy for DIN rail mounting

**Description**

- Active energy meter (kW·h).
- 6-digit rotary mechanical display
- Metering verification LED
- It can meter up to 120 A, depending on the type
- It has a digital output with an optoisolated transistor

**Application**

- In applications with severe temperature conditions. The working life of the unit's mechanical display is not affected by high temperatures.
- Control of partial consumption in homes, commercial areas, etc. where it is important to know the consumption in each room or plot and produce accurate information during a determined period.

**Features**

<b>Power circuit / Measurement</b>	Single-phase 110 V - 230 Vac (-15...+10%)
Consumption	3 V·A
Frequency	50..0.60 Hz
Nominal current	depending on the type
Minimum current	0.1 % $I_n$
Overload (permanent)	2 $I_n$
<b>Maximum meter value</b>	<b>999,999 kW·h (Minimum resolution of the display 100 w.h)</b>
<b>Class/Accuracy</b>	Class 1
<b>Output transistor</b>	Optoisolated (collector open) NPN
Maximum switching voltage	24 V dc
Maximum switching current	50 mA
Maximum Impulse frequency	1 impulse / s
Impulse duration	500 ms
Energy output	100 impulses / kW·h
<b>Build features</b>	
Type of box	Self-extinguishing plastic
Degree of protection	Fitted unit (frontal): IP 51 Terminals: IP 20
Dimensions	70 x 80 x 75 mm (4 modules)
Weight	200 g
<b>Ambient conditions</b>	
operating temperature	0 ... +50 °C
<b>Safety</b>	
Category III-300 Vac <b>EN 61010</b> . Protection to electric shock class II	
<b>Standards</b>	
<b>EN 61036, EN 61010</b>	

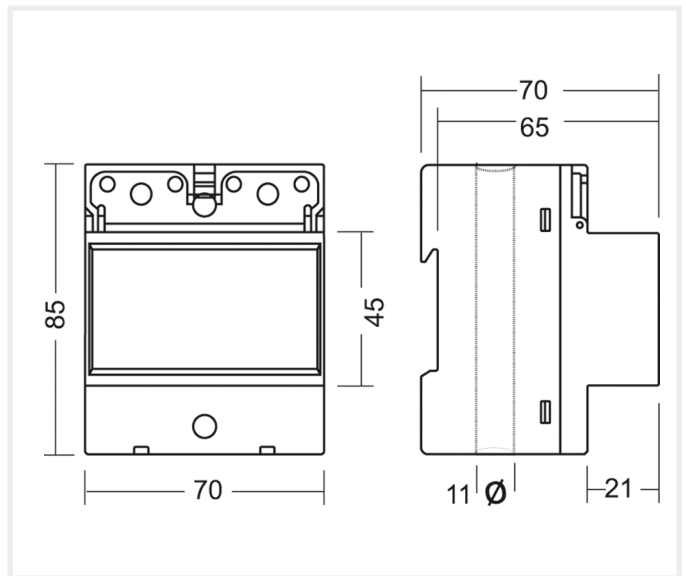
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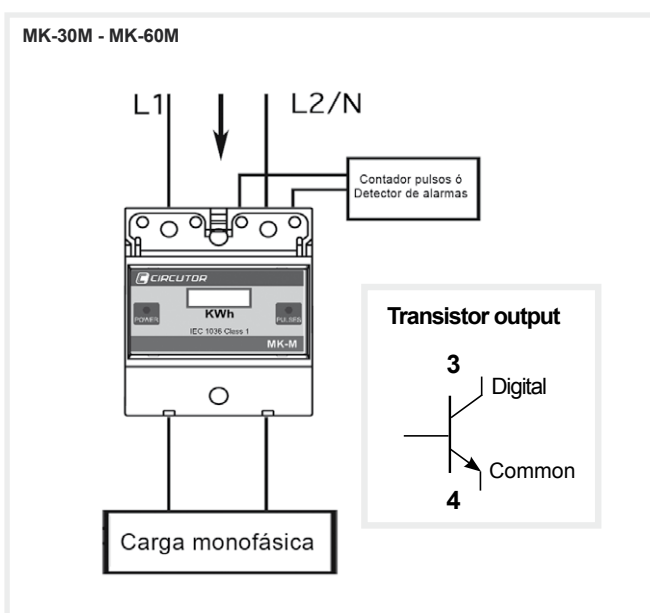
**Dimensions**



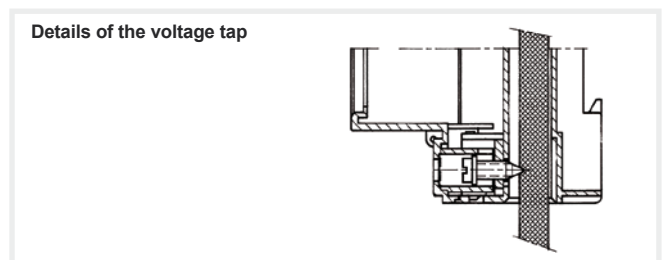
**References**

Parameters measured	input range	Quadrants	Rates	Digital output	DIN Modules	Type	Code
kW-h	0.3..0.60 A	2	1	1	4	MK-30 M	M30110
kW-h	0.6...120 A	2	1	1	4	MK-60 M	M30210

**Connections**



**Diagram**



**Description of terminals**

No. of Terminals	Description of terminals
1	Not used
2	Not used
3	RL1 Relay Output
4	Common Relay
5	L1 Voltage/Current input
6	N/L2 Voltage input

## Direct single-phase meter

**MK-LCD**

Electronic single-phase meter with direct connection energy for DIN rail mounting

**Description**

Electronic single-phase meter for active energy, with direct connection for DIN rails.

Other features include:

- Connection error indicator Current up to 120 A (depending on the type)
- RS-485 Communications, (depending on the type)
- 1 digital output with optoinsulated transistor
- Partial meters
- Displays instant parameters, such as the voltage, current and power.

**Application****Features**

<b>Power circuit / Measurement</b>	Single-phase: 110 V - 230 V ac (-15...+20%)
Consumption	3 V·A
Frequency	50...60 Hz
Nominal current	Depending on the type
Minimum current	0.1 % $I_n$
Overload (permanent)	2 $I_n$
<b>Maximum meter value</b>	<b>999,999 kW·h (Minimum resolution of the display 10 W·h)</b>
<b>Class/Accuracy</b>	Class 1
<b>Output transistor</b>	Optoinsulated (collector open) NPN
Maximum switching voltage	24 Vdc
Maximum switching current	50 mA
Maximum Impulse frequency	1 impulse / s
Duration of the Impulse	500 ms
Energy output	100 impulses / kW·h
<b>Build features</b>	
Type of box	Self-extinguishing plastic
Degree of protection	Fitted unit (frontal): IP 51 Terminals: IP 20
Dimensions	70 x 80 x 75 mm (4 modules)
Weight	200 g
<b>Ambient conditions</b>	
operating temperature	0 ... +50 °C
<b>Safety</b>	
Category III-300 Vac <b>EN 61010</b> . Double-insulated electric shock protection class II	
<b>Standards</b>	
<b>EN 61010</b>	

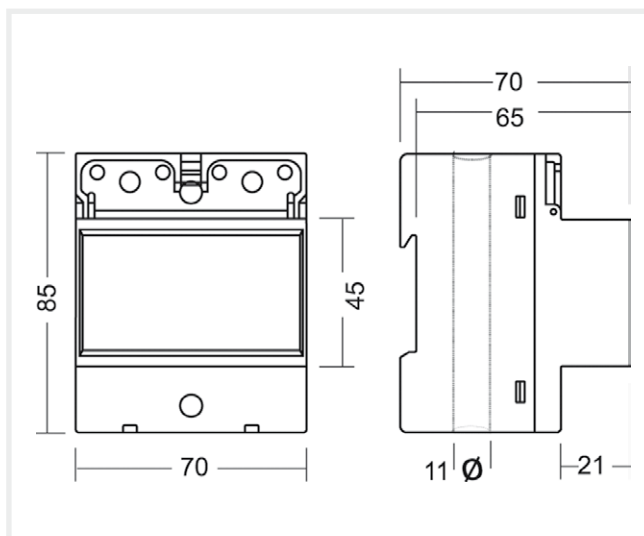
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**MK-LCD**

Electronic single-phase meter with direct connection energy for DIN rail mounting



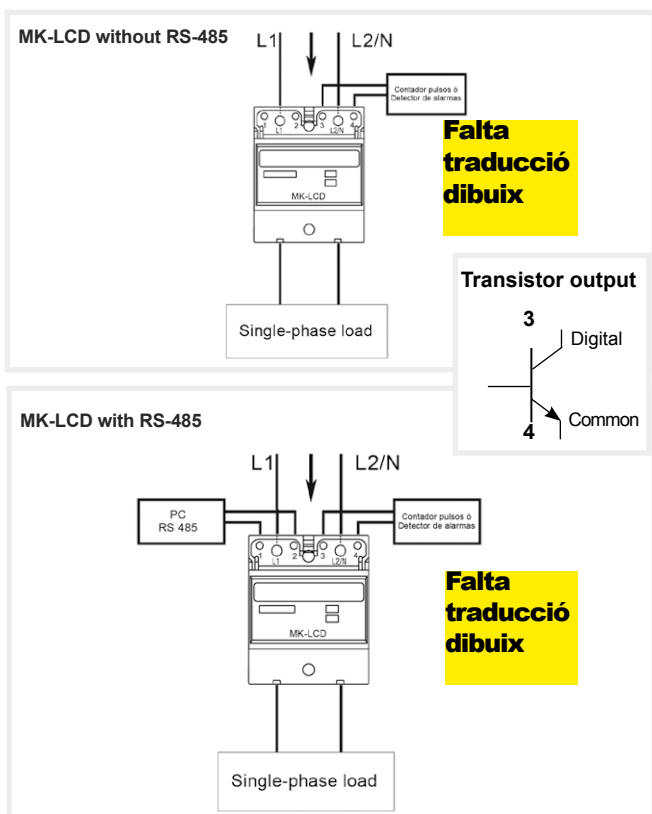
Dimensions



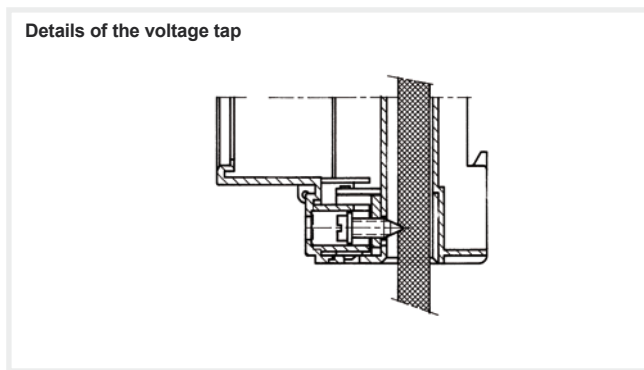
References

Parameters measured	Input range	Partial meters	Quadrants	Communications with the MODBUS (RTU) protocol	Rates	Digital output	DIN Modules	Type	Code
kW-h, V, A, W	0.3..0.60 A	Yes	2	-	-	1	4	MK-30 LCD	M30120
kW-h, V, A, W	0.6...120 A	Yes	2	-	-	1	4	MK-60 LCD	M30220
kW-h, V, A, W	0.3..0.60 A	Yes	2	RS-485	-	1	4	MK-30 LCD-RS485	M30121
kW-h, V, A, W	0.6...120 A	Yes	2	RS-485	-	1	4	MK-60 LCD-RS485	M30221

Connections



Diagram



Description of terminals

No. of Terminals	Description of terminals	
	MK-LCD without RS-485	MK-LCD with RS-485
1	Not used	RS-485 (B)
2	Not used	RS-485 (A)
3	RL1 Relay Output	RL1 Relay Output
4	Common Relay	Common Relay
5	L1 Voltage/Current input	L1 Voltage/Current input
6	N/L2 Voltage input	N/L2 Voltage input