EM1-DIN INSTRUCTION FOLDER

INTRODUCTION

EM1-DIN is a self-powered active energy meter for single phase systems. It's provided with a 6-digit indicator, with 0.1kWh resolution and two LED's. One of the LED's stating the presence of the power supply and the other one blinking according to the energy consumption on the line (640 pulses per kWh, so the higher is the consumption the faster is the blinking). EM1-DIN can be supplied with an open collector output to retransmit pulses proportionally to the consumed energy (kWh).

1. TECHNICAL FEATURES

Description		DIN-rail mounted, self-powered indicator with 6 digits for active energy measures on single-phase systems
Measure		Active energy
Accuracy on power measure		Class 2, according to EN 61036 / IEC 1036
Thermal drift		<300 ppm/°C (0.03%/K, according to EN61036 / IEC1036
Display		Mechanical, 5 + 1 digits, h 4mm
Resolution		0.1kWh
Maximum indication		99999.9
Inputs	Current (0.1 Ib)	1.5Aac (48 to 62Hz)
	Current (Ib)	15Aac (48 to 62 Hz)
	Current (Imax)	22.5Aac (48 to 62 Hz)
	Start-up current	50mAac
	Voltage	230Vac +10% -15%, 48 to 62Hz
	Type	Single-phase connection (direct insertion)
	Overcurrent	1.5 In permanent, 600A/10ms
	Wave form	Sinusoid and distorted (crest factor <2)
Pulse Outputs	N° of outputs	1, optional
	Rate	Fixed, 10 pulses/kWh
	Type	Open collector (NPN transistor); Von 1.2 max 40mA; Voff 30Vdc max
	Pulse duration	200ms ±5ms (on); ≥600ms (off)
	Insulation	By means of optocouplers, 2000 Vrms output to measuring input, 2000Vrms output to supply input
Led Pulse		Pulsing for consumption of the connected load (640 pulses/kWh)
Power supply		230Vac +10% -15%, 48 to 62Hz from the voltmetric input
Power consumption		9VA (capacitive); 1.5W
Operating temperature		-10° to +45°C (R.H. <90% non-condensing)
Storage temperature		-30° to +60°C (R.H. <90% non-condensing)
Insulation reference voltage		300 Vrms
Dielectric strength		4kV for 1 minute; pulse voltage 1.2/50ms 6kV
Metrological prescriptions		EN 61036, IEC 1036
Terminals		Screw terminals, maximum wire width: 6mm ^{2} (A)/1.5mm ^{2} (V)
Dimensions		58.5x89x35mm (2 DIN modules)
Casing Material		ABS, UL 94 V-0
Protection degree		IP40
Engineering unit		"kWh"

2. INSTALLATION

Fix EM1-DIN on the DIN-rail. Figure 1 shows the overall dimensions and the panel cut-out

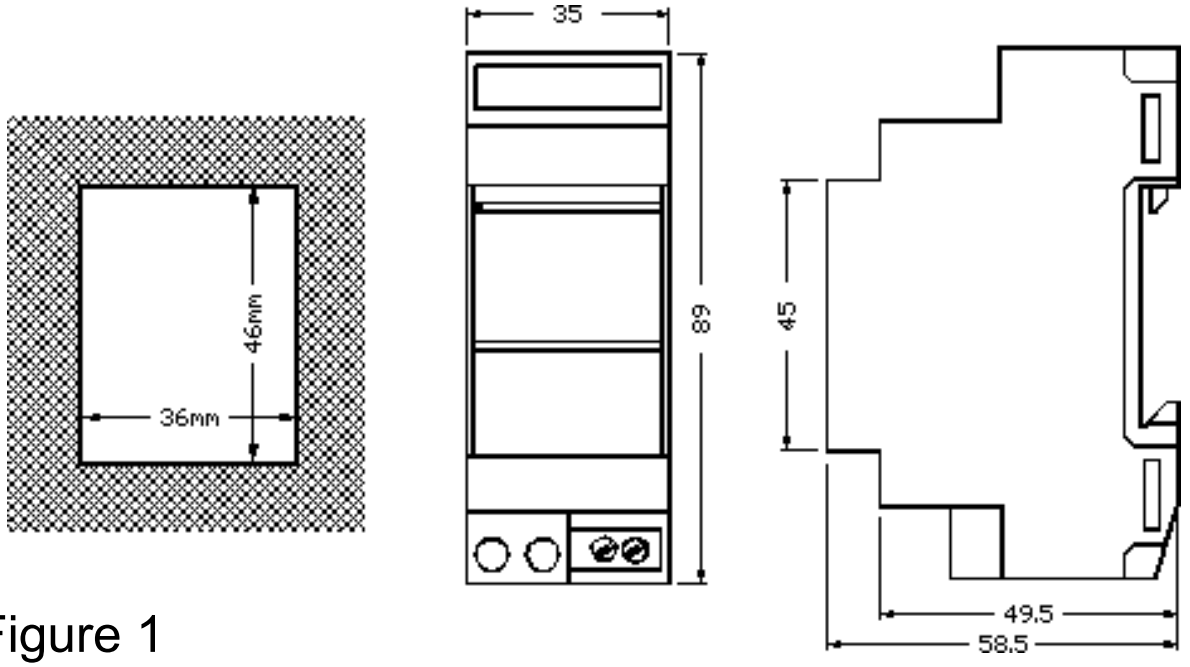
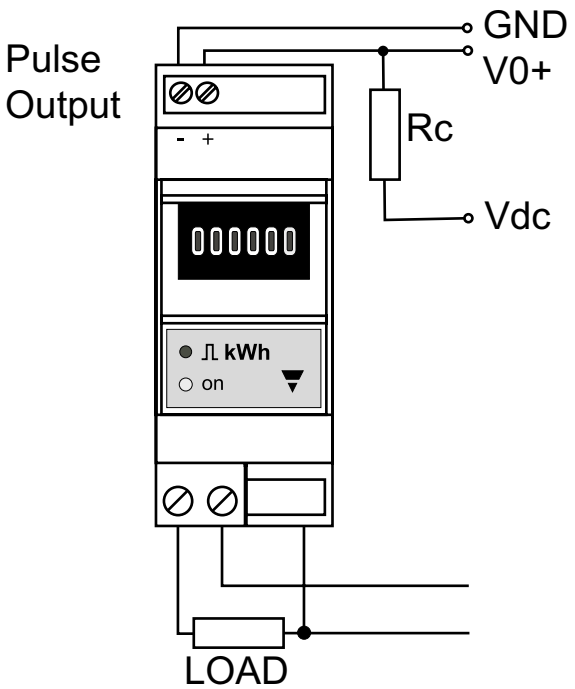


Figure 1

3. WIRING DIAGRAM

Please refer to the below figure for the electrical connection.



4. SWITCHING ON

After connecting the whole instrument, power the line; as soon as the power supply is present, the green LED in the front of the counter will switch on. The red LED will start blinking when the loads connected downstream on the line begin the energy consumption.

NOTE:
Inside the instrument there are some calibration potentiometers that are factory adjusted. To avoid any accuracy loss, please do not touch them.

WARNING

Do not touch the inside parts of the instrument when the measuring inputs have already been connected to an electrical installation and the latter has been powered.

WARNING

According to the IEC 1010-1 / EN 61010-1, permanently connected equipment shall employ a switch, a circuit breaker or a fuse as means for disconnection. The latter shall be in close proximity to the equipment, easily reachable and marked as disconnecting device of the equipment itself.