

Fineco - EM115-MOD Manual

Single Phase 1-Module Energy Meter with Serial Modbus Interface

Features & Benefits

- MID approved with module B & D certification.
- Bi-directional energy metering 1DIN modules, 230V AC 50/60Hz.
- Display of Voltage, Ampere, kW, PF, Hz, +kWh, -kWh, Σ kWh
- Total energy usage can be calculated via 5 different modes.
- Display Modbus RTU Interface data: baud rate, Modbus id, Parity
- Reactive power and reactive energy available through interface
- S0 pulse output, transmission of measured values via pulses
- LCD display, 5integer, 1decimal
- Clear green backlight display
- Accuracy class B according to EN50470-3
Accuracy class 1 according to IEC62053-21
- Memory back-up (EEPROM)
- The meter is intended to be installed in a Mechanical Environment 'M1', with Shock and Vibrations of low significance, as per 2014/32/EU Directive and should be installed in Electromagnetic Environment 'E2', as per 2014/32/EU Directive.



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1 Meter specification

Voltage/current inputs

Nominal Voltage(v)	230V AC
Voltage range	(85-275)V
Power consumption	0.5W 2VA
Primary Current (A)	100A
Second Input (A)	5A
RS485 cable	AWG18
Terminal flexible 1xmm2	0-2.5mm2

General data

Frequency	50 or 60 Hz
Accuracy	Cl.1

Mechanical

Material	ABS+PC
Weight	100g

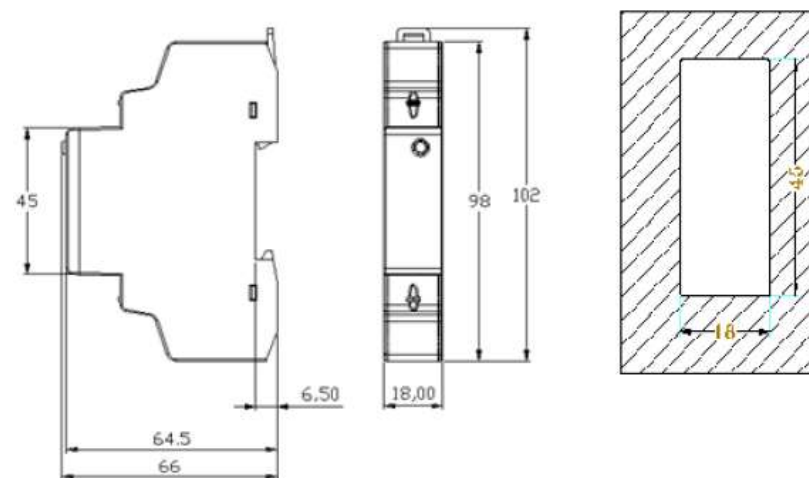
Environmental

Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Humidity	75% yearly average, 95% on 30 days/year, non-condensing

Dimension

Width (mm)	18
Height (mm)	104.5
Depth (mm)	88

2 Dimensions and panel cut-out



3 Main functions

3.1 Measuring Functions

EM115-MOD can measure import active energy, export active energy, total active energy.

Import reactive and export reactive energy available through interface

3.2 Electricity parameters measurement

Measured parameters from mains:

Voltage	0.5% of range maximum
Current	0.5% of nominal FS solid-core sensor
Current	1.0% of nominal FS open-core sensor
Frequency	0.2% of MID-frequency
Power factor	1.0% of unity (0.01)
Active power (W)	± 1.0% of range maximum

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Reactive power (VAr) ± 2.0% of range maximum
 Apparent power (VA) ± 1.0% of range maximum
 Active energy (kWh) Class B EN50470-3
 Reactive energy (kvarh) ± 2.0% of range maximum

3.3 Display Function

When the power on, the smart meter will initialize and do self-checking.

1		Full screen It will last for 3 seconds
2		Software version It will last for 3 seconds

EM115-MOD has two display functions: cycle display status and button press. When pressing the button, total active energy, import active energy, export active energy, voltage, current, active power, frequency, power factor, Modbus id, baud rate, parity are displayed.

LCD Content

1		Total active energy
2		Import active energy

3		Export active energy
4		Voltage (V)
5		Current (A)
6		Active power(W)
7		Frequency
8		Power factor (PF)
9		Modbus id (default 001)

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5 Register Map

Instantaneous Values

No	Parameter	Read	Write	Bytes	Starting address
1	Voltage	Y	N	4	0002/0010
2	Frequency	Y	N	4	0004/004E
3	Current	Y	N	4	0006/0052
4	Active power	Y	N	4	0008/0092
5	Apparent power	Y	N	4	000A/00D2
6	Reactive power	Y	N	4	000C/ 0112
7	Power factor	Y	N	4	000E/0152

Total Energy Accumulator

8	Import active energy	Y	N	4	0160/0800
9	Import reactive energy	Y	N	4	0162/0A00
10	Reserve(default 0)	Y	N		0164
11	Export active energy	Y	Y	4	0166/0900
12	Export reactive energy	Y	Y	4	0168/0B00
13	Total active energy	Y	N	4	016A/0700/0618

Production data and identification

No	Parameter	Read	Write	Bytes	Starting address
14	Serial number	Y	Y	4	FF00
15	Manufacture code	Y	Y	4	FF02 (SHFQ ASCII)
16	Type code	Y	Y	2	FF04
17	Hardware version	Y	Y	2	FF05
18	Software version	Y	Y	2	FF06
19	Reference voltage	Y	N	2	FF07
20	Reference current	Y	N	2	FF08
21	SO1 constant	Y	N	2	FF09
22	SO2 output mode 0000:kWh 0001 kvarh	Y	Y	2	FF0A
23	SO1 output 0000 0.001kWh/imp 0001 0.01kWh/imp 0002 0.1kWh/imp 0003 1kWh/imp(default)	Y	Y	2	FF0B
24	SO1 pulse width 0000 60ms 0001 100ms 0002 200ms (default)	Y	Y	2	FF0C

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25	Active energy measurement type	Y	Y	2	FF19 01: Total = Import 04: Total = Export 05: Total = Import + Export 06: Total = Export - Import 09: Total = Import - Export
26	Modbus id	Y	Y	2	0524
27	Baud rate Hex(04B0) 1200bps Hex(0960) 2400bps Hex(12C0) 4800bps Hex(2580) 9600bps Hex(4B00) 19.2kbps	Y	Y	2	0525
28	Network Parity Stop 0000 None parity 0001 Even parity	Y	Y	2	0526
29	Clear energy	N	Y	2	0565

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