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LE-01MR v2

Electric energy meter,
1-phase



Do not dispose of this device in the trash along with other waste!

According to the Law on Waste, electro coming from households free of charge and can give any amount to up to that end point of collection, as well as to store the occasion of the purchase of new equipment (in accordance with the principle of old-for-new, regardless of brand). Electro thrown in the trash or abandoned in nature, pose a threat to the environment and human health.



Compliance

MID Directive
Certificate

2014/32/EU
0120/SGS0571

Purpose

The LE-01MR v2 is a static (electronic), calibrated AC single-phase electricity meter for direct current measurement in a 2-wire system.

Functioning

The meter provides 4-quadrant energy and power measurement as well as monitoring of many additional network parameters such as voltage, current, active power, reactive power, apparent power, frequency, power factor. The meter has additional, erasable active and reactive energy meters. It is also equipped with RS-485 communication interface with Modbus RTU protocol support for remote meter reading and configuration. The touch button located on the front panel of the meter allows you to select the displayed parameter and change the meter settings.

The backlit LCD display makes it easy to read the measured values.

The parameter is changed by default every 5 seconds or at the frequency set by the user and manually, using the touch button on the front of the casing of the meter.

The display is active when the indicator power is on.

Measured values

Total active energy		[kWh]
Active energy imported	AE+/AE-	[kWh]
Active energy exported		[kWh]
Total reactive energy		[kvarh]
Reactive energy	AE+	[kvarh]
Phase voltage	U	[V]
Phase current	I	[A]
Frequency	f	[Hz]
Active power	P	[W]
Reactive power	Q	[var]
Apparent power	S	[VA]
Power factor	$\cos\varphi$	
Demand active energy imported		[W]
Total demand active energy imported		[W]
Demand active energy exported		[W]
Total demand active energy exported		[W]
Demand reactive energy imported		[var]
Total demand reactive energy imported		[var]
Demand reactive energy exported		[var]
Total demand reactive energy exported		[var]

Modbus registers

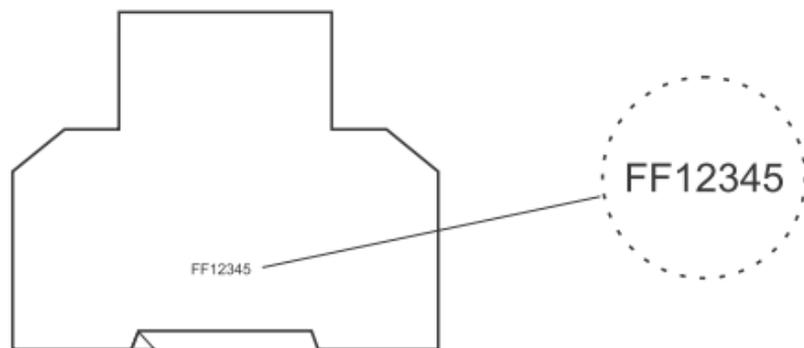
Description of measurement and configuration registers available on the website www.fif.com.pl (on the device's subpage).

Meter address

Change of meter address and connection parameters is done via the RS-485 using the touch button on the front of the casing of the meter.

Meter number

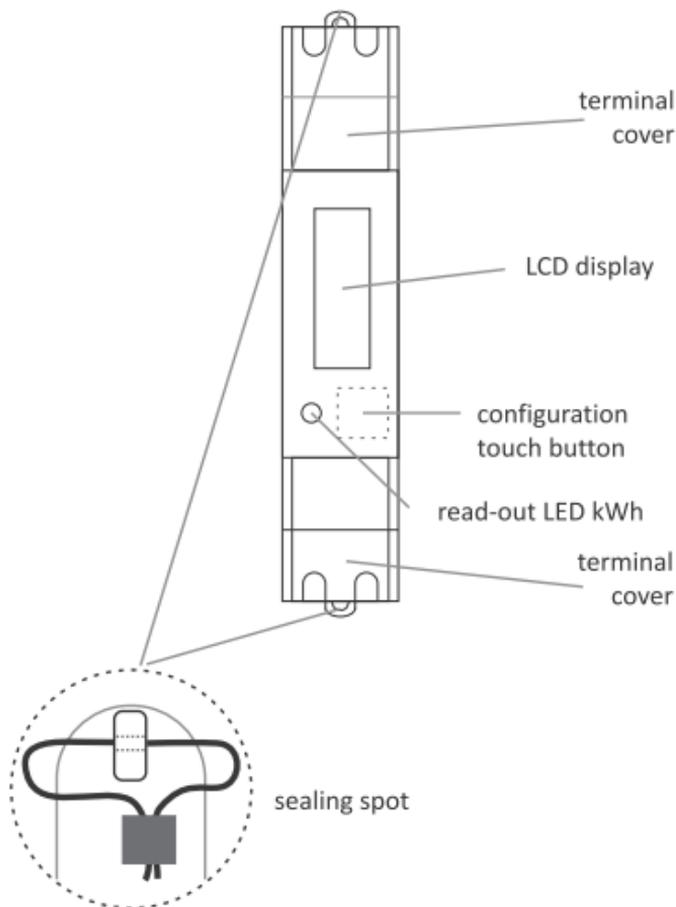
The meter is marked with individual serial number allowing its unambiguous identification. The marking is laser engraved and cannot be removed).



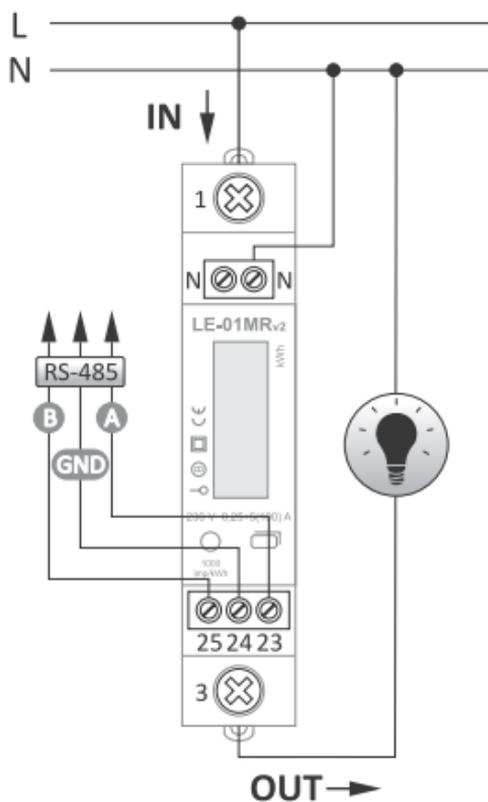
Sealing

The meter has sealable input and output terminal covers to prevent any attempts to bypass the meter.

Front panel



Wiring diagram



- 1 LIN power input
- 3 LOUT power output
- N N-wire neutral
- 23 RS-485 output (A)
- 24 RS-485 output (GND)
- 25 RS-485 output (B)

Mounting

1. Disconnect the power supply.
2. Mount the indicator on the rail in the distribution box.
3. Connect the neutral wire to terminal N.
4. Connect the input phase to terminal 1.
5. Connect the measured circuit or single receiver to terminal 3 (output phase L) and to N.
6. Connect terminals 23, 24 and 25 to the RS-485 network.

LE Config service programm

Program for test reading of the counted energy value and for basic settings of the meter parameters.

Available at www.fif.com.pl (on the device's subpage).

For communication of the meter with the computer, the USB converter CN-USB-485 or any RS-485/USB standard is required.

Technical data

installation	2-wire
rated voltage	230 V AC
minimum measured current	0.02 A
base current	5 A
maximum current	100 A
voltage measuring range	100÷289 V AC
measurement accuracy (EN50470-1/3)	class B
rated frequency	50 Hz
insulation protection class	II
housing	PC material
own power consumption	10 VA; 1 W
indication range	0÷99999 kWh
display	7-digits backlight LCD (blue color)

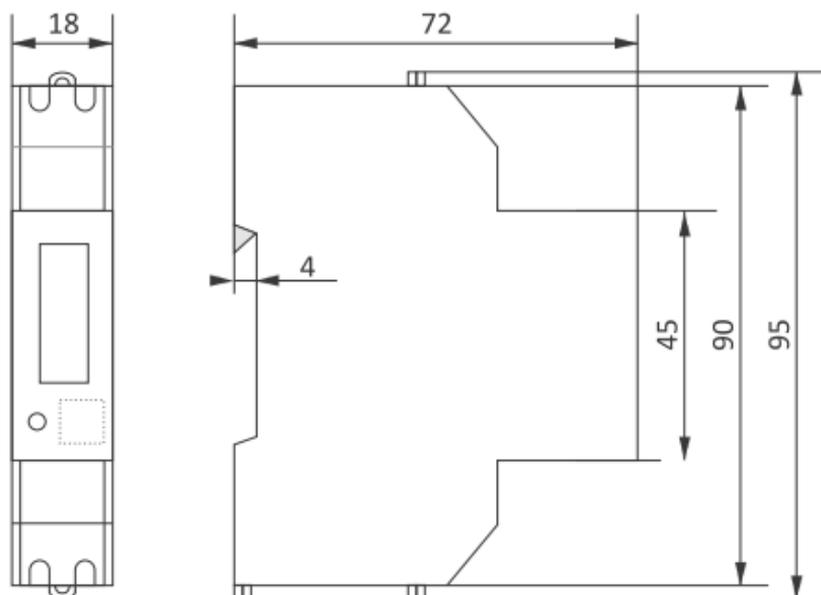
constant	1000 pulses/kWh
communication	
Modbus address	1*÷245
port	RS-485
communication protocol	Modbus RTU
transmission parameters	9600*, 19200, 38400, 115200 bps
parity	NONE*, ODD, EVEN
stop bits	1*
read-out signalling	red LED
working temperature	-25÷55°C
terminal	
100 A (1, 3 terminals)	25 mm ² screw terminals
neutral (N terminal)	1 mm ² screw terminals
communication (23, 24, 25 terminals)	1 mm ² screw terminals
dimensions	1 module (18 mm)
mounting	on TH-35 rail
ingress protection	IP20

* factory settings



A detailed user manual for the meter, together with a description of communication and a list of Modbus registers, is available for download from the product subpage at www.fif.com.pl.

Dimensions



Warranty

F&F products are covered by a 24-month warranty from the date of purchase. The warranty is only valid with proof of purchase. Contact your dealer or contact us directly.

CE declaration

F&F Filipowski L.P. declares that the device is in conformity with the essential requirements of The Low Voltage Directive (LVD) 2014/35/EU and the Electromagnetic Compatibility (EMC) Directive 2014/30/UE.

The CE and MID Declaration of Conformity, along with the references to the standards in relation to which conformity is declared, can be found www.fif.com.pl on the product subpage.