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LE-03M

Electric energy meter, 3-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 collections, as well as to store the occasion of
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Compliance

MID Directive 2014/32/EU Certificate number 0120/SGS0306

Purpose

The LE-03M is a static (electronic) calibrated electricity meter of three-phase alternating current in a semi-direct system.

It is used for reading and recording of consumed electric energy and mains parameters with remote readout via a wired RS-485 network

Functioning

The LE-03M under the influence of current flow and applied voltage makes precise measurement of the amount of consumed electricity. Energy consumption is indicated by a flashing LED (800 pulses/kWh). The sum of energy consumed by all three phases is converted into the total energy consumed by the three-phase system and its value is shown on the LCD.

The decimal digit represents the decimal parts of kWh (0.1 kWh = 100 Wh).

Communication with the rate of working as slave devices is carried out according to the standard Modbus RTU via RS-485. Read register values after conversion kWh give a result consistent with the indications on the display indicator.

Each of the indicators is identified by a unique address transmitted by the user.

Measured value

Active energy consumed AE+ [kWh]

Pulse output

The meter is equipped with pulse output open collector (OC type). This allows you to connect another pulse device (SO) that reads pulses generated by the meter.

No additional connected equipment is required for proper operation of the meter.

The length of the pulse depends on the load on the meter:

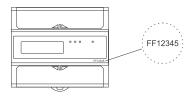
5÷40 A: 80 msec	65 A: 80 msec	90 A: 38 msec
45 A: 75 msec	70 A: 48 msec	95 A: 36 msec
50 A: 68 msec	75 A: 46 msec	100 A: 34 msec
55 A: 62 msec	80 A: 42 msec	
60 A: 57 msec	85 A: 40 msec	

Meter address

Change of meter address is done via the RS-485 port using the Modbus RTU protocol command to set the desired value in the meter register. The default meter address: 1.

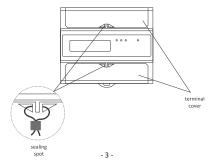
Meter number

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

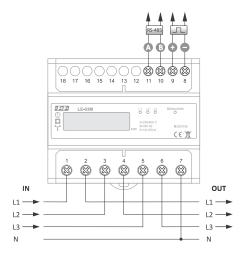


Sealing

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



Wiring diagram



- 1 L1IN phase wire
- 2 L1out phase wire
- 3 L2IN phase wire
- 4 L2out phase wire
- 5 L3IN phase wire
 - 6 L3out phase wire

- 7 N-wire neutral
- 8 pulse output (-)
- 9 pulse output (+)
- 10 RS-485 output (B)
- 11 RS-485 output (A)

Modbus RTU protocol parameters

Communication parameters				
Protocol	Modbus RTU			
Operation mode	Slave			
Port settings	Baud rate: 9600 bps Parity: NONE Stop bits: 1			
Modbus address (factory settings)	<u>1</u> ÷245			

Measurement registers					
address	description	com- mand	type	atr	
0	Active energy (R0)	03	int	R	
1	Active energy (R1)	03	int	R	
2	Active energy (R2)	03	int	R	
6	Meter address	06	int	W	

Legend:

R - read, W - write.

Register values are stored as integers.

To get a reading, the three received registers values should be transform algebraically in accordance with the following formula:

 $(R0 \times 256^2 + R1 \times 256 + R2) / 10,$

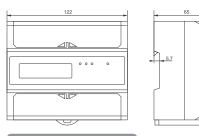
where:

R0 - register number 0:

R1 - register number 1;

R2 - register number 2

Dimensions



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 CN-USB-485 converter or any RS-485/USB standard is required.

Technical data

installation	4-wire
rated voltage	3×230/400 V
minimum measured current	0.04 A
base current	3×10 A
maximum current	3×100 A
voltage measuring range	160÷265 V
measurement accuracy (EN50470-1/3)	class B
rated frequency	50 Hz
insulation protection class	II
housing	PC+ABS material
own power consumption	<10 VA; <0.2 W
indication range	0÷99999.9 kWh
constant	800 pulses/kWh
signalling current consumption A, B, C phases	3× red LED
read-out signalling	red LED
communication	
port	RS-485
communication protocol	Modbus RTU
transmission parameters	9600 bps
parity	NONE
stop bits	1
pulse output	

open collector

27 V DC 27 mA

35÷80 ms*

type

maximum voltage

maximum current

pulse time

^{*} depends on the current consumption

working temperature -25÷55°C terminal 25 mm² screw terminals dimensions 7 modules (122 mm) mounting on TH-35 rail ingress protection IP20

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 sp. j. 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.

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