F&F Filipowski sp. j.
Konstantynowska 79/81 95-200 Pabianice
phone/fax: (+48 42) 215 23 83 / 227 09 71 POLAND
http://www.fif.com.pl e-mail: fif@fif.com.pl

ENERGY METER one-phase
[MID compliant]

LE-01M

WARRANTY. The F&F products are covered by a warranty of the 24 months from the date of purchase. Effective only with proof of purchase. Contact your dealeror directly with us. More information how to make a compliant can be found on the website:
www.fif.com.pl/reklamacje

5 903125943901

Do not dispose of this device to a garbage bin with other unsorted waste!
In accordance with the Waste Electrical and Electronic Equipment Act any household electro-waste can be turned in free of charge and in any quantity to a collection point established for this purpose, as well as to the store in the event of purchasing new equipment (as per the old for new rule, regardless of brand). Electro-waste thrown in the garbage bin or abandoned in the bosom of nature pose a threat to the environment and human health.

Accordance

MID 2004/22/EC Directive

Purpose

LE-01M is a static (electronic) indicator calibrated electricity single-phase alternating current in the system directly. It is used for readings and recordings taken of electrical energy for remote reading through a wired RS-485.

Functioning

LE-01M 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 (1600 pulse / kWh) and its value is determined by the LCD display. Decimals represent hundredths of kWh (0.01 kWh = 10 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.

Pulse output

The indicator has a pulse output SO+ - SO-. This allows you to connect another device pulse-reading (SO) pulses generated by the counter. For proper operation of the meter is not required to connect additional devices.

Address counter

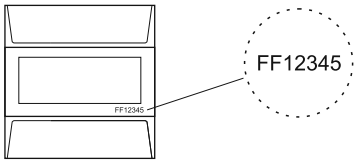
Counter make address changes via RS-485 using the Modbus RTU protocol command by setting the desired value in the register counter. The default address counter: 1.
ATTENTION! During the change of address indicator hold down the 9 button.

Sealing

The indicator has the possibility of sealing guards input and output terminals do to prevent circumvention of the counter.

Counter number

The counter is marked with an individual serial number to uniquely identify it. The marking is indelible (laser engraver).



Assembly

1. Disconnect the power supply.
2. The indicator mounted on a rail in the distribution box.
3. Phase input terminal connected to 1. N wire to the terminal 3.
4. Measuring circuit or a single receiver connected to terminal 2 (output phase L), and to terminal 4 (N).
5. Additional pulse receiver connected to terminals 6 (+) ÷ 5 (-).
6. Terminals 8 and 7 connected to the RS-485.

MODBUS RTU protocol communication parameters	
Protocol	MODBUS RTU
Operation mode	SLAVE
Port settings	bit/s: 9600 Data bits: 8; Parity: none Start bits: 1; Stop bits: 1
Network address range	1÷245
Command codes	3: Read the value of one and several registers (0×03 - Read Holding Register) 6: Setting the value of a single register (0×06 - Write Single Register)
Maximum frequency of queries	15Hz

Register parameters				
address	description	command	type	atr
0	read registry values (R0)	03	int	read
1	read registry values (R1)	03	int	read
2	read registry values (R2)	03	int	read
6	setting the counter number	06	int	write

Register values are stored as integers.
To get the result should be an indication of an algebraic transformation of the resulting three records in accordance with the formula:
(**R0 × 256² + R1 × 256 + R2**) / 100, where:
R0 - the number of register 0; R1 - the number of register 1; R2 - the number of register 2.

NOTE!

The need to read all three records together. Inability to read the value of a single register.

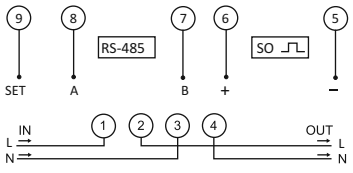
Pulse length SO+ SO- depends on the load of the counter:

5÷40A	80ms	65A	52ms	90A	38ms
45A	75ms	70A	48ms	95A	36ms
50A	68ms	75A	46ms	100A	34ms
55A	62ms	80A	42ms		
60A	57ms	85A	40ms		

Technical data

reference voltage	230V AC ±30%
base current	10A
maximum current	100A
minimum current	0.04A
accuracy in accordance with IEC61036	1st class
own power meter	<10VA; <2W
counter display range	0÷99999.99kWh
meter constant	(0.625Wh/pulse) 1600pulses/kWh
read-out signalling	red LED
SO+ SO- pulse output	open collector
SO+ SO- connection voltage	<27V DC
SO+ SO- current connection	<27mA
SO+ SO- constant	(0.625Wh/pulse) 1600pulses/kWh
SO+ SO- pulse time	34÷80ms
port	RS-485
communication protocol	MODBUS RTU
working temperature	-20÷55°C
terminal	25mm² screw terminals
dimensions	4.5 modules (75mm)
mounting	on TH-35 rail
protection level	IP20

Wiring diagram



D141028