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# LE-03MQ CT

Electric energy meter,
3-phase

5 908312 599821

**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

| | |
|---|---|
| Directive MID | 2014/32/EU |
| Certificate number | 0120/SGS0216 |

## Purpose

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

It is used for reading and recording of imported electricity and parameters of the power supply with the ability of remote reading through a wired RS-485 network.

The meter works with current transformers (CT) with a secondary current of 1 A or 5 A.

Configuration of the meter is done through the configuration menu accessible from the front panel and through the communication port according to the software features of the Modbus RTU.

## Operation and programming manual

Detailed PDF instructions can be downloaded from the website: www.fif.com.pl from the product subpage.

## Functions

» 1-phase or 3-phase system (3- and 4-wire);
» 2-way (4-quadrant) measurement;
» Transformers 1 A or 5 A;
» Current transformer 1÷9999;
» Display of kWh/kvar (consumed/generated);
» Network parameter indications;
» MID compliance;
» RS-485 port;
» Modbus RTU protocol;
» SO pulse output (×2);
» Backlit, multifunction LCD display;
» Password protection for the meter configuration.

## Measured values

| | | | |
|---|---|---|---|
| Consumed and supplied active energy | | AE+/AE- | [kWh] |
| Inductive and capacitive reactive energy | | RE+/RE- | [kvarh] |
| Phase voltages | | U1, U2, U3 | [V] |
| Phase currents | | I1, I2, I3 | [A] |
| Frequency | F | [Hz] | |
| Active power | | P | [W] |
| Reactive power | | Q | [var] |
| Apparent power | | S | [VA] |
| Power factor | | cosφ | |

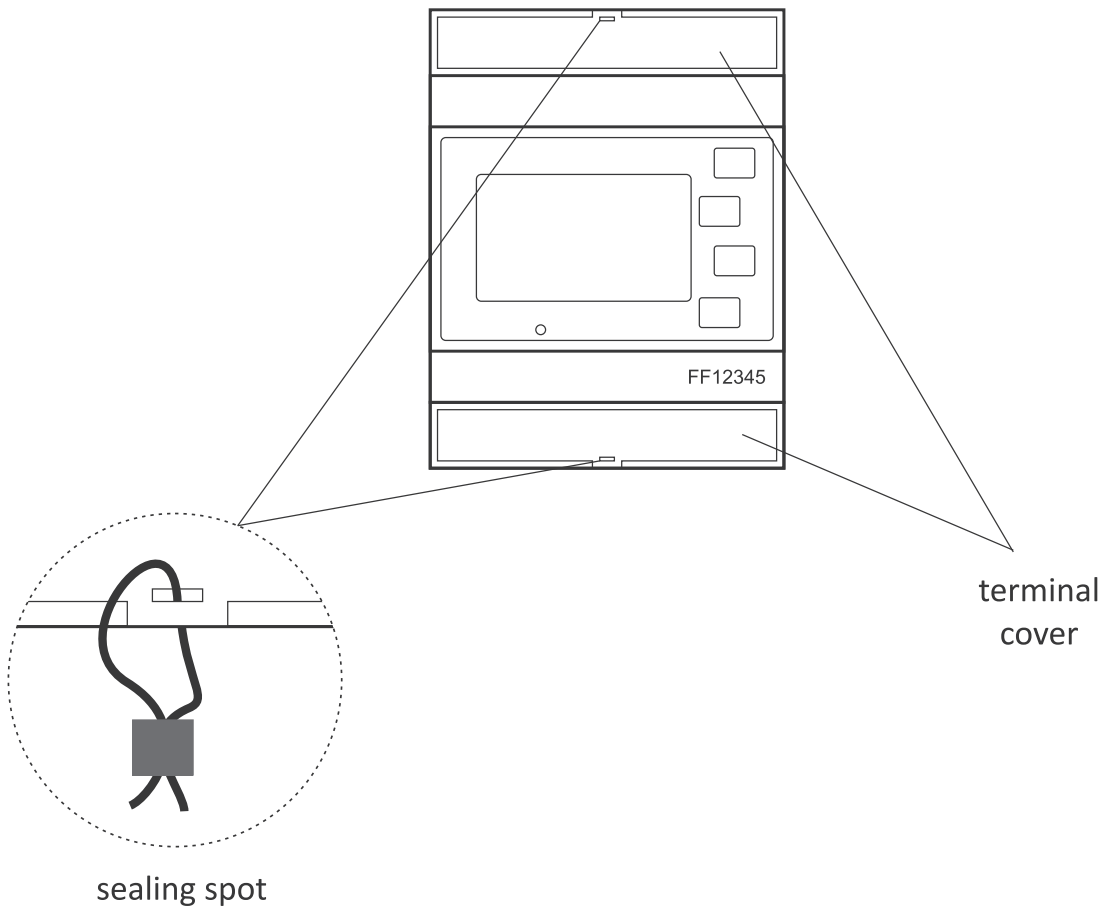
| | |
|---|---|
| THD harmonic | % |
| Demand for power and electricity | kW, kvar, kVA, I |

## Pulse output

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

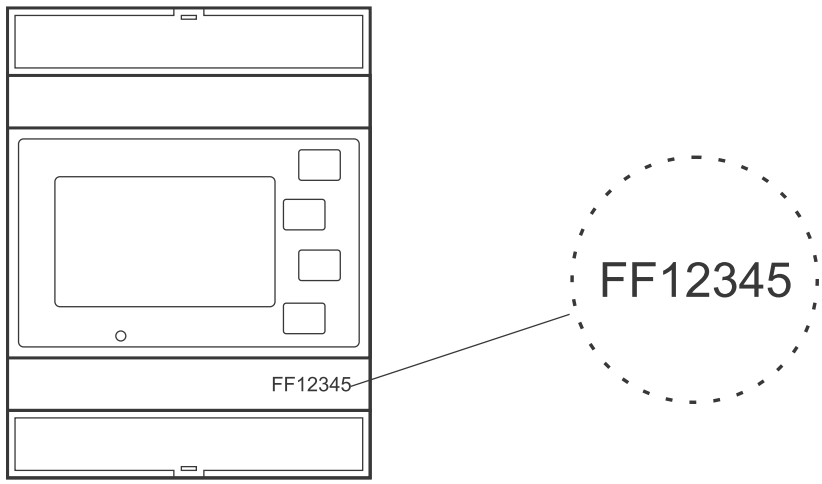
## Sealing

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

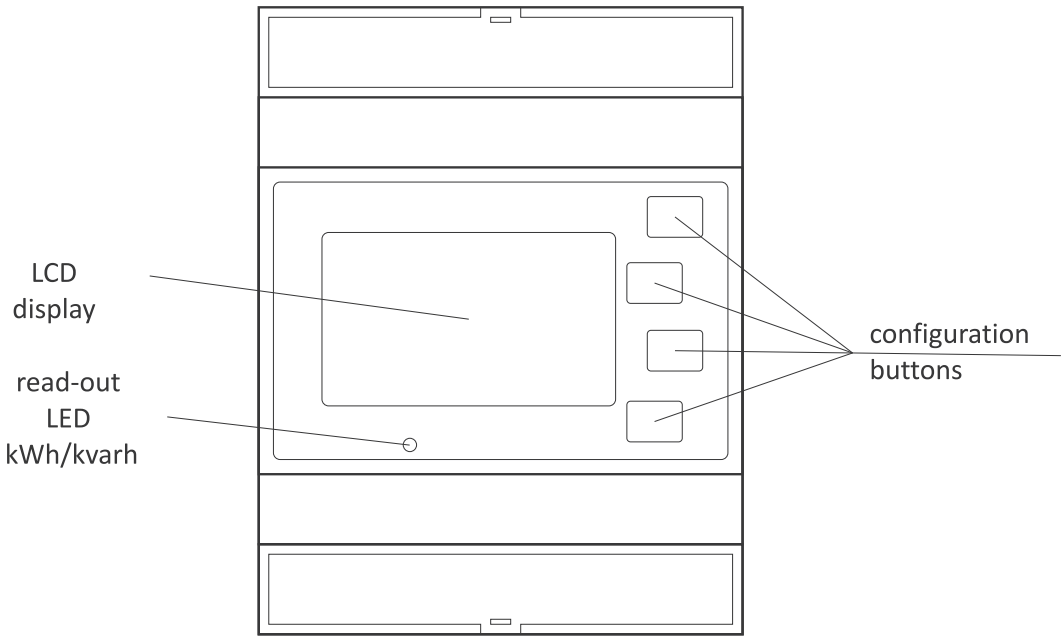


## Meter number

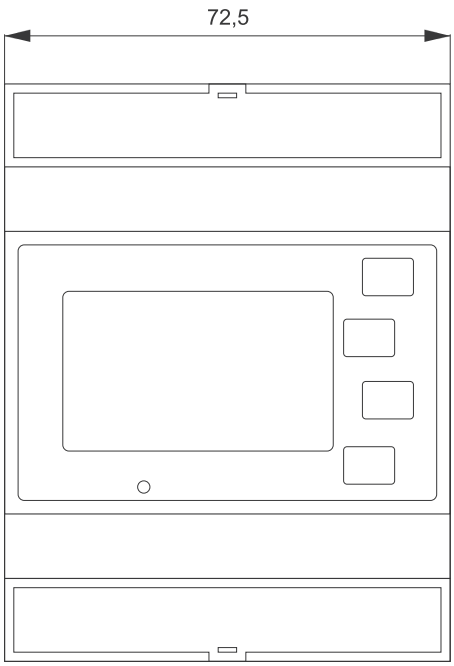
The meter is marked with individual serial number allowing its unambiguous identification. The marking is laser engraved and cannot be removed).

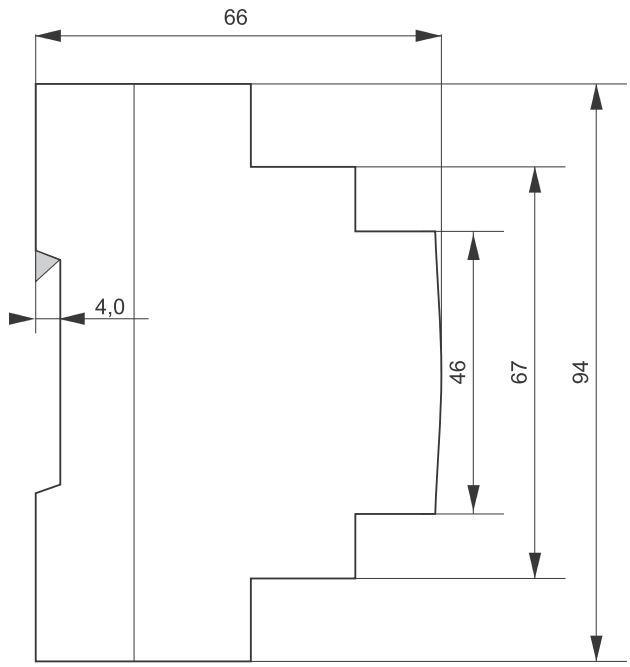



## Front description



## Dimensions




## Mounting

1. Disconnect the power supply.
2. The indicator mounted on a rail in the distribution box.
3. Connect the power in accordance with the markings to the terminals 1 (L1), 3 (L2), 5 (L3).
4. Connect the measured circuit or a single receiver to the terminals in accordance with the markings to the terminals 2 (L1), 4 (L2), 6 (L3).
5. N-wire connect to terminal 7.
6. Additional pulse receiver connected (optional) to terminals of the first pulse output 9(+) and 10(–) or the second pulse output 11(+) and 10(–).

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Additional pulse receiver is not required.

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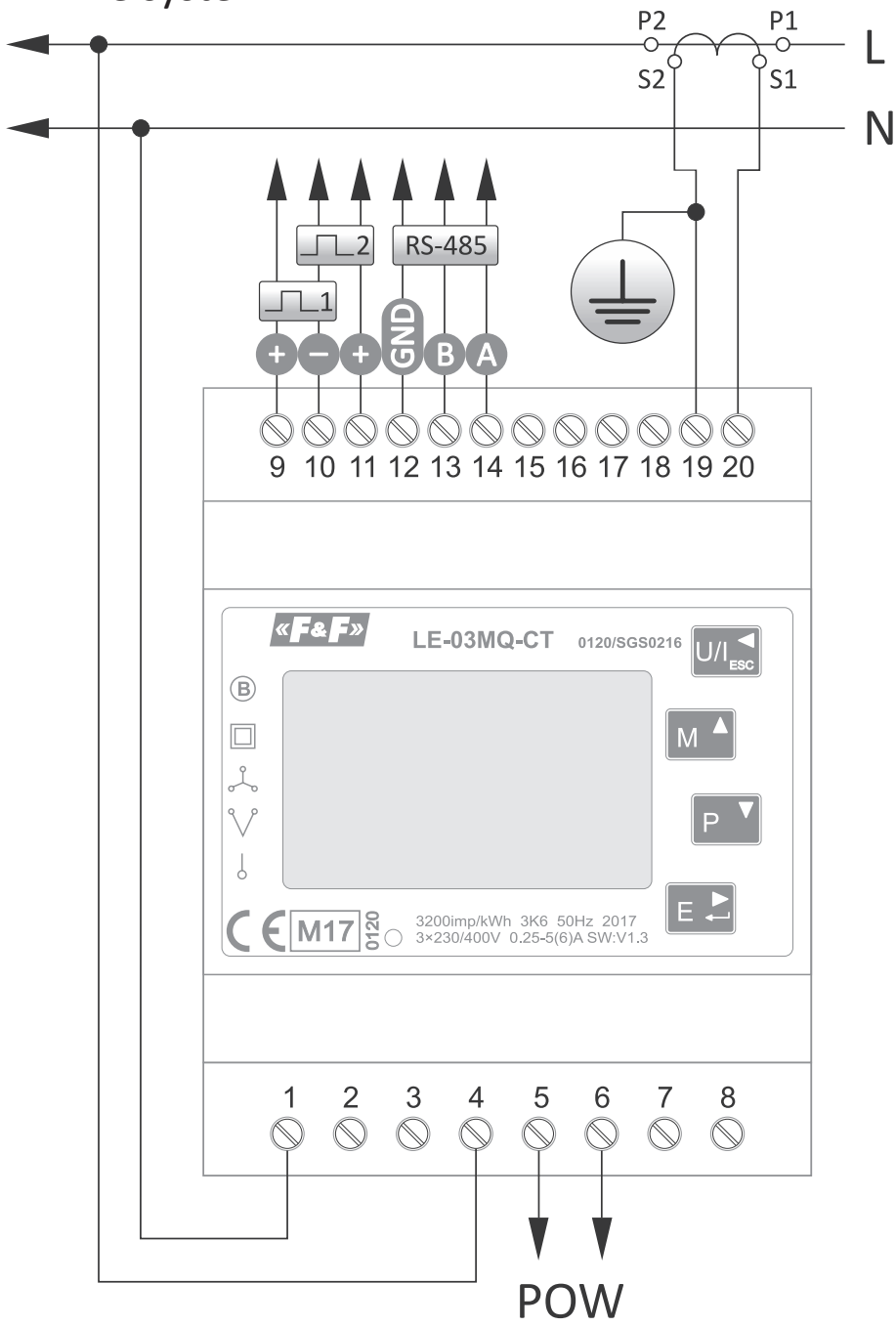
7. Put the meter terminals covers.

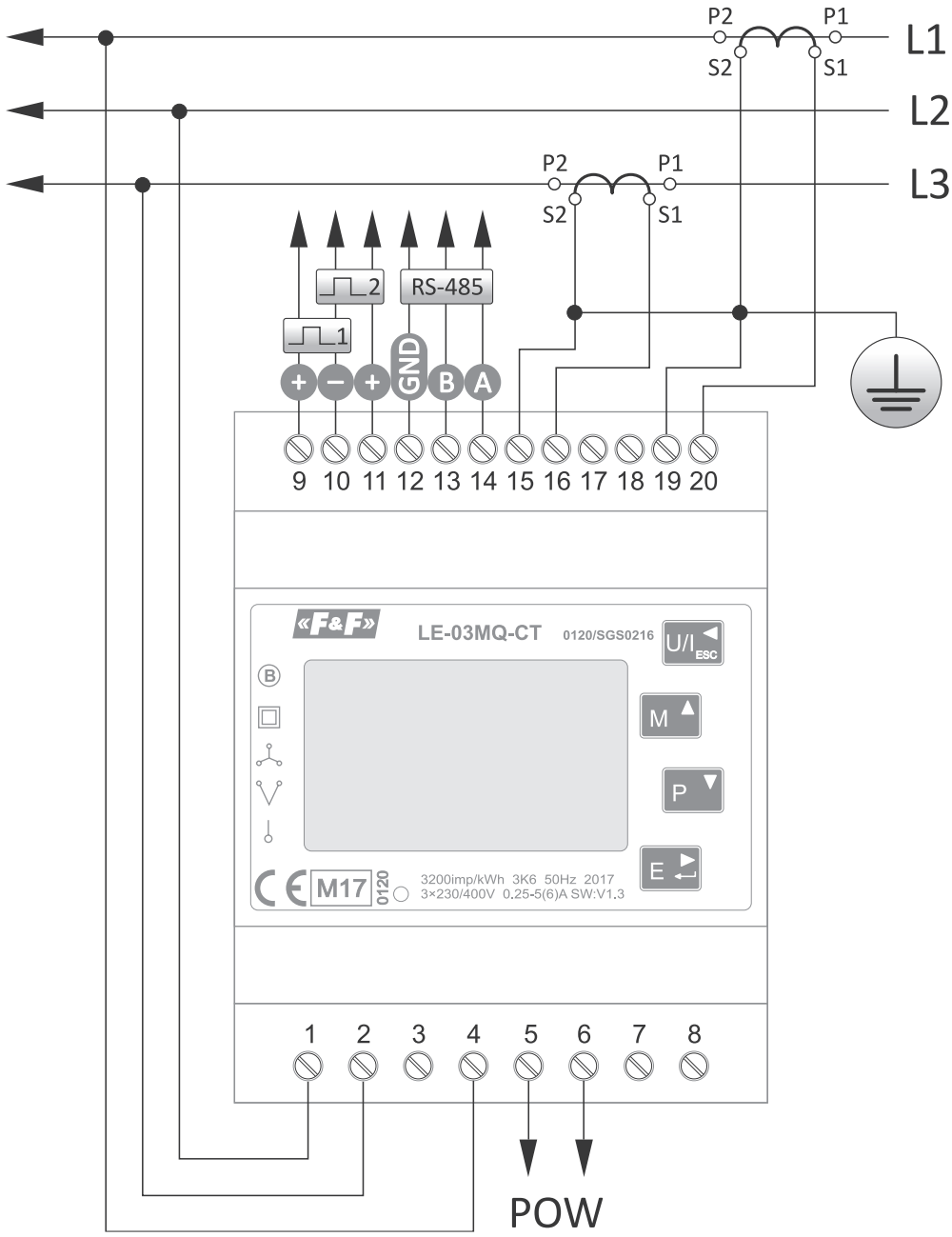
## Wiring diagram

1-phase 2-wire system



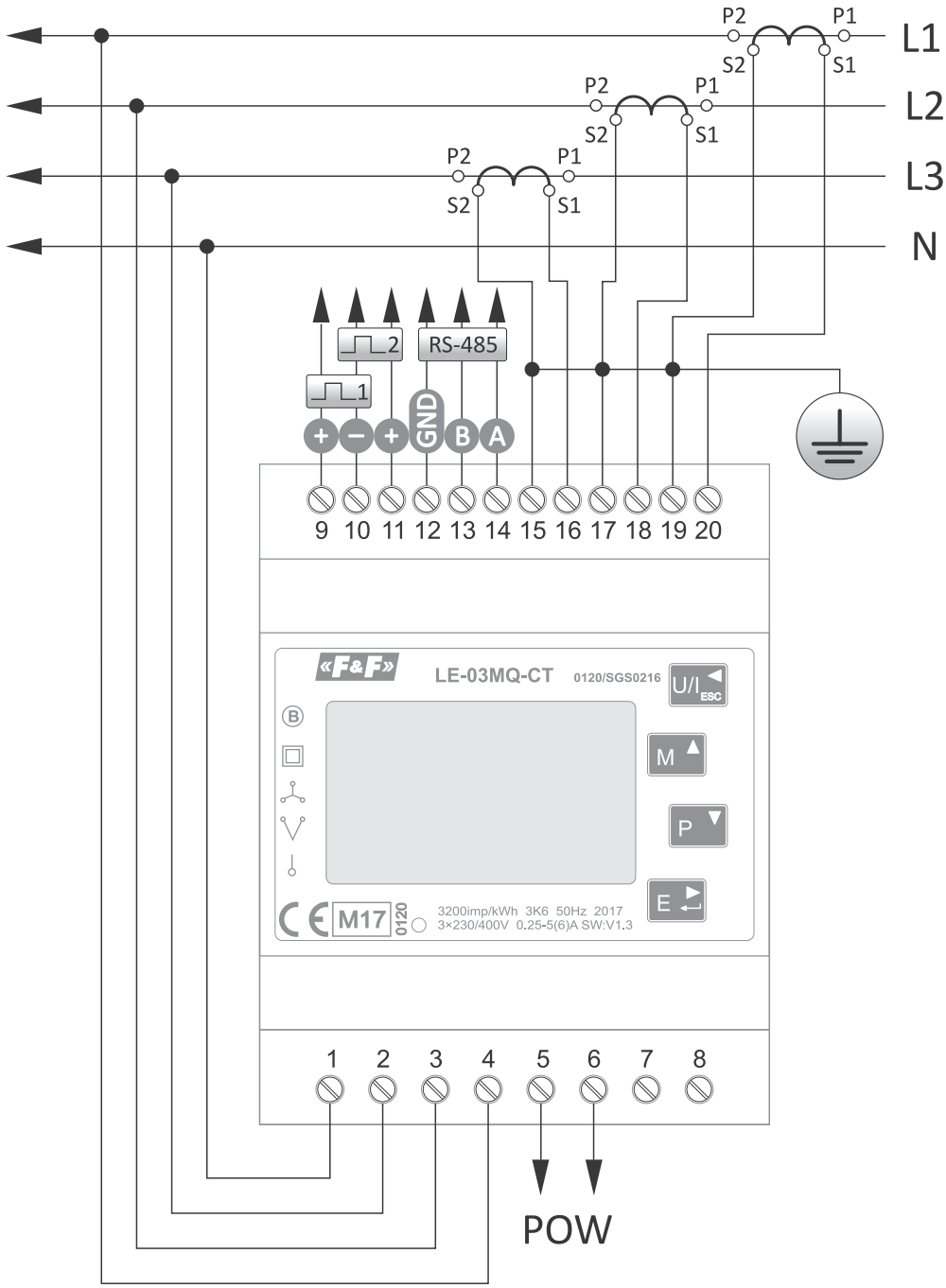

| | |
|---|---|
| 1÷4 | voltage inputs |
| 5, 6 | meter supply (POW) |
| 9, 10, 11 | pulse outputs 1 and 2 |
| 12, 13, 14 | RS-485 (GND, B, A) |
| 15÷20 | current inputs |

# 3-phase 3-wire system (without netral wire)




| | |
|---|---|
| 1÷4 | voltage inputs |
| 5, 6 | meter supply (POW) |
| 9, 10, 11 | pulse outputs 1 and 2 |
| 12, 13, 14 | RS-485 (GND, B, A) |
| 15÷20 | current inputs |

# 3-phase 4-wire system




| | |
|---|---|
| 1÷4 | voltage inputs |
| 5, 6 | meter supply (POW) |
| 9, 10, 11 | pulse outputs 1 and 2 |
| 12, 13, 14 | RS-485 (GND, B, A) |
| 15÷20 | current inputs |

## Technical data

| | |
|---|---|
| rated voltage | 3×230/400 V |
| minimum measured current | 0.02 A |
| base current | 3×5 A |
| maximum current | 3×6 A |
| measurement accuracy (EN50470-1/3) | B class |
| voltage measurement range | |
| phase (1p2w and 3p4w) | 100÷289 V AC |
| phase-to-phase (3p3w) | 173÷500 V AC |
| overload | 30×Imax/10 ms |
| insulation | 4 kV/1 min.; 6 kV/1.2 µs |
| rated frequency | 50 Hz |
| own power consumption | <10 VA; <2 W |
| current input power | <1 VA |
| meter supply voltage | 85÷275 V AC |
| | 120÷380 V DC |
| indication range | 0÷9999999.9 kWh |
| meter constant [kWh] | 3200 pulses/kWh |
| meter constant [kvarh] | 0.01; 0.1; 1; 10; 100 pulses/kvarh |
| read-out signalling | red LED |
| communication | |
| port | RS-485 |
| communication protocole | Modbus RTU |
| baud rate | 9600 bps |
| parity | NONE |
| stop bits | 1 |
| pulse output | |
| type | open collector |
| maximum voltage | 27 V DC |
| maximum current | 27 mA |
| pulse time | 60, 100, 200 ms |

| | |
|---|---|
| working temperature | -25÷55°C |
| terminal | 2.5 mm² screw terminals |
| dimensions | 4 modules (72 mm) |
| mounting | on TH-35 rail |
| ingress protection | IP51 |

## 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.

## General work safety conditions

» Please read the instructions carefully before installation.
» The device should be installed and operated by qualified personnel who are familiar with its design, operation, and associated risks.
» Do not install a meter that is damaged or incomplete.
» The user is responsible for proper grounding of the system, proper selection, installation, and efficiency of other devices connected to the meter, including safety devices such as overcurrent, residual current and overvoltage circuit breakers.
» Before connecting the power supply, make sure that all cables are connected correctly.
» It is essential to observe the operating conditions of the meter (supply voltage, humidity, temperature).
» To avoid electric shock or damage to the meter, turn off the power supply whenever the connection is changed.
» Do not make any changes to the unit yourself. Doing so can result in damage to or improper operation of the device, which in turn can pose a threat to people operating it. In such cases, the manufacturer is not responsible for the resulting events and may refuse the provided warranty in the event of a complaint.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