

POWER /ENERGY METER SINGLE PHASE AC/DC TRMS - RS485 MODBUS

QI-POWER-485



POWER SUPPLY 9...30 Vdc, protection against polarity reversal and overtemperature.

ABSORPTION < 1,3 W

MEASUREMENT Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequency, Cosφ, Energy bidirectional, THD, min e MAX of each measure

TYPE OF MEASURE TRMS or DC

RANGE

Current: up to 50 A AC/DC

Voltage: up to 800 VAC or 1000 VDC

ACCURACY @25 °C up to 200 Hz

Voltage, Current, Active Power: < 0,5% F.S.

Frequency: ± 0,1 Hz

Energy: ± 1% of reading

Vpeak, Ipeak: ± 5% F.S.

OUTPUT RS485 Modbus RTU

BAUDRATE From 1.200 a 115.200 baud

CREST FACTOR 1,8 (on current measurement)

WORKING FREQUENCY DC or 1...400 Hz

SAMPLING RATE 11k samples per second

INPUT IMPEDENCE 1 Mohm ± 1%

STANDARDS UL EN IEC 61000-6-4:2019; EN IEC 61000-6-4:2019; EN IEC 61326-1:2021

OVERVOLTAGE CATEGORY Cat III up to 600V; Cat II up to 1000V

INSULATION

3 kV on bare wire for Current measure.

4 kV for Voltage measure (reinforced insulation to power supply and serial output)

PROTECTION INDEX IP20

TEMPERATURE COEFFICIENT < 200 ppm/°C

WORKING TEMPERATURE -15...+65°C

STORAGE TEMPERATURE -40°C... +85°C

HUMIDITY 10...90% not condensing

ALTITUDE Up to 2000 m s.l.m.

DIMENSIONS 46,1 x 63 x 26,4 mm (terminal excluded)

TERMINALS Removable terminals 3,5 mm, n°1 of 4 poles, n°2 of 2 poles

WEIGHT 80 g

FILLING Epoxy resin

BOX MATERIAL PBT, grey

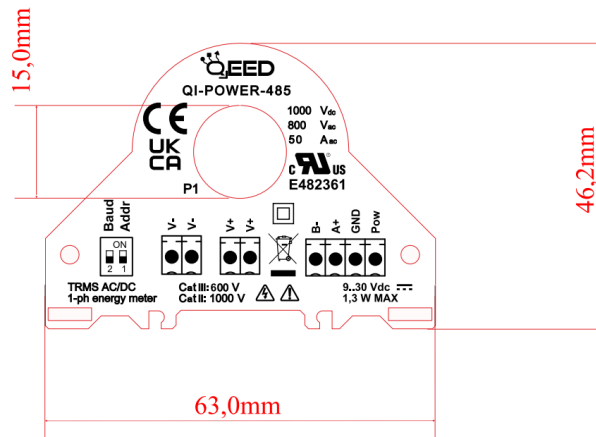
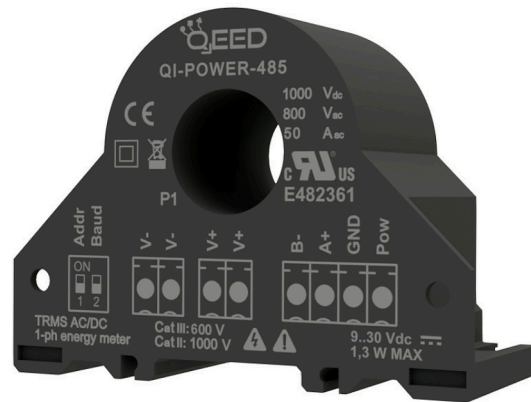
LED N°1 yellow, power on fixed, data communication blinking

DIP-SWITCH 2 poles

MOUNTING

Screw predisposition for vertical/horizontal mounting, DIN rail clips (included) for vertical/horizontal mounting.

The **QI-POWER-485** is a Single-phase Power meter able to measure the **TRMS AC/DC Current and Voltage**. On the RS485 Modbus are available: **Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequency, Cosφ, Energy bidirectional and THD**. The device is fully configurable by RS485, DIN rail mounting, 4kV galvanic isolation for Voltage input.



The images/schemes proposed are to be considered indicative and not binding

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LEGEND OF SYMBOL ONTO PAD PRINTING

	It indicates that all the accessible parts of the object, are separated from the live parts by double or reinforced insulation
	High Voltage warning
	General warning
P1	Insertion of the cable

CHARACTERISTICS:

- TRMS Measure, THD available;
- 0,5 % Accuracy;
- RS485 Modbus integrated;
- Bidirectional energy metering;
- DIN rail mounting in both side;
- OEM'S design, low cost;
- Fully configurable by free interface software FACILE QI-POWER-485;
- Bootloader for updating firmware;
- Available measure register: MSW first LSW first or hundredths.





INSTRUCTION MANUAL

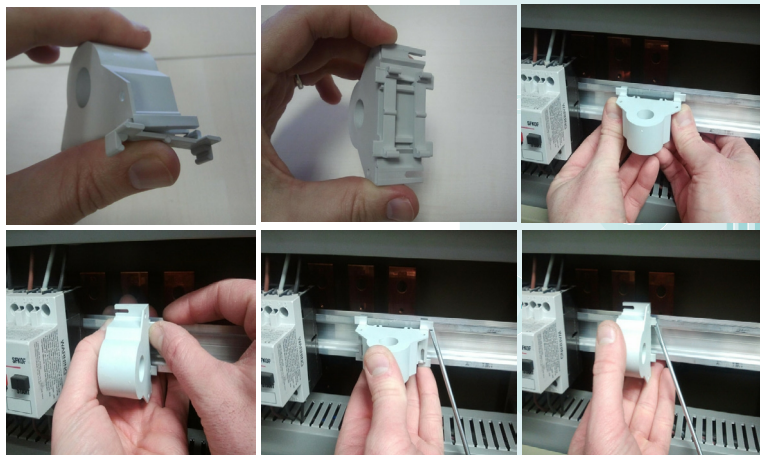
QI-POWER-485

Using a serial link RS485 you can connect the QI- POWER-485 with the interface program FACILE QI- POWER-485. Using this software, allows you to set the Modbus address, baud rate, delay, the TV and TA ratio, modify the measuring filter type (from fastest response time to better accuracy) and the frequency measurement on current channel instead of voltage channel. You can download the FACILE QI-POWER-485 free of charge from our website <https://qeed.it/en/software-drivers/>.

Alternatively, it is possible to program QI-POWER-485 via RS485 Modbus RTU accessing the **MODBUS Register Map** directly. (Available from the page of the product or from <https://qeed.it/en/documents-manuals/>).

MOUNTING:

the Power Meter QI-POWER-485 can be mounted (see photo on the right) horizontally or vertically using the screws or by means of the provided DIN rail clips.



Energy storage data on flash memory: 4,5 years minimum, 45 years typical.

Measurement refresh: every 50 cycles or 1 second (the faster), programmable by FACILE.

Minimum value of Current / Power measured (cut off): configurable with FACILE¹⁾ tool in range [0...1020 mA] / [0...1020 W]²⁾ (see register map³⁾ - register 40013 - for more details).

1) Not allowed values entered with FACILE tool are automatically rounded to the closed lower admissible value
 2) [0...255 mA] / [0...255 W] for products with FW prior to FW37
 3) For FW prior FW37 refer to OLD_register_map, starting from FW37 refer to NEW_register_map

REMARKS:

- Modbus connections: A+ and B- as per Modbus RTU standards
- Modbus Register reference: with reference to the logical address, for ex. 40010, corresponds to physical address n°9 as per Modbus RTU standard;
- Modbus functions supported: 3 (Read multiple registers, max 100), 6 (Write single), 16 (Write multiple);
- **Any changes made by dip-switch required to switch off the power supply or sending reset command.**

If you want to configure the device with FACILE set the dip-switches to 0 (down). In order to configure the device via RS485 directly, set "DIP 1" to 1 (up) then the adjust "DIP 2" for baudrate setting. Save the configuration using the COMMAND register. Restore default dip switches setting (down 0) to use the EEPROM configuration.

BAUDRATE SETTING	DIP 1	DIP 2
All setting from EEPROM	0	X
Set address 1 - 9600	1	0
Set address 1 - 38400	1	1

FACILE QI-POWER-485

The free interface program FACILE QI-POWER-485 is the fastest way to configure the device. There is only one configuration screen (see picture shown). The changes made to the program act on the register of the QI-POWER-485. To restore the default configuration, press the button FACTORY DEFAULT.

MEASURING MODE: allows selection between RMS or DC to define the sign, positive or negative, of measure.

ENERGY SAVING ON FLASH: it is possible to activate the saving of the counters directly on the device's flash memory.

FREQUENCY MEASURING CHANNEL: possibility to select current or voltage channel to calculate the frequency.

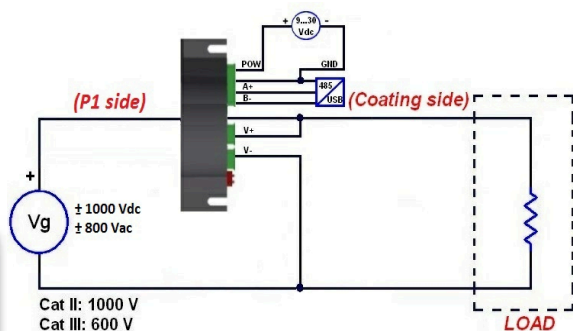
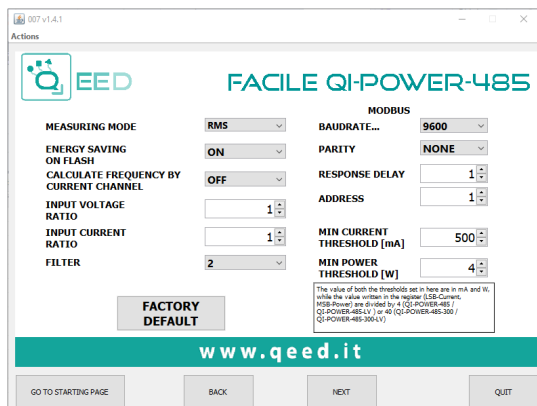
TRANSFORMATION RATIO: in case of use of CT or VT, you can define the transformation ratio for the current input and voltage input; default ratio is 1:1.

FILTER: allows to set a filter on measurement reading in order to get faster response time (value 1) or a more stable and accurate measurement (value 5). Default value is set to 2.

MIN CURRENT THRESHOLD (mA): Allow you to set the minimum current value (Cut off). Under this value the device measure zero. For more details, refer to box above.

MIN POWER THRESHOLD (W): Allow you to set the minimum power value (Cut off). Under this value the device measure zero. For more details, refer to box above.

CAUTION: magnetic fields of high intensity can vary the values measured by the transformer. Avoid installation near permanent magnets, electromagnets or iron masses that induces strong changes in the magnetic field. If case of anomalies it is recommend orienting or moving the transformer in a more suitable area.



The protection offered by the device can be compromised in case it is not used according to the instructions.

Disposal of Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collection programs) This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of this product, please contact your local city office, waste disposal service or the retail store where you purchased this product.

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INSTRUCTION MANUAL

