QEED QUALITY ELECTRONIC DESIGN

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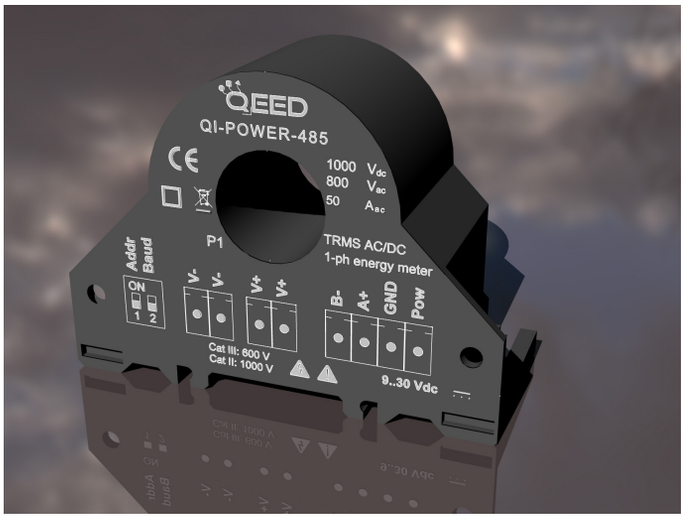
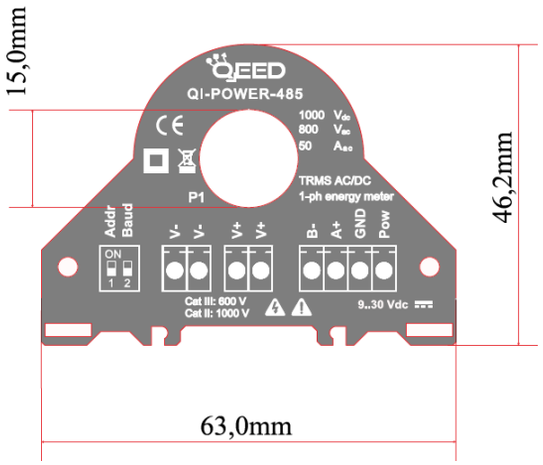
POWER / ENERGY METER SINGLE PHASE
AC/DC TRMS - RS485 MODBUS

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 and MAX of each measure.
TYPE OF MEASURE	**TRMS or DC**
RANGE	**Current: Up to 50 A AC/DC** **Voltage: up to 800 V AC or 1000V DC**
ACCURACY	Voltage, Current, Active Power : **< 0,5% F.S.** Frequency : **+/- 0,1 Hz** Energy : **+/- 1% of reading** Vpeak, I peak: **+/- 5% f.s.**
OUTPUT	**RS485 Modbus RTU**
BAUDRATE	from 1200...115200 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 CE	EN61000-6-4/2006 + A1 2011; EN64000-6-2/2005 ; EN61010-1/2010
OVERVOLTAGE CATEGORY	Cat III up to 600V ; Cat II up to 1000V
ISOLATION	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	46,1x 63x 26,4 mm (terminal excluded)
TERMINALS	Removable terminals 3,5mm, n°1 4 poles, n°2 2 poles
WEIGHT	80 g.
FILLING	Epoxy Resins
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.**





POWER / ENERGY METER SINGLE PHASE QI-POWER-485
AC/DC TRMS - RS485 MODBUS

Strengths:

- *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 hundredts*

The smallest Energy meter of the market !

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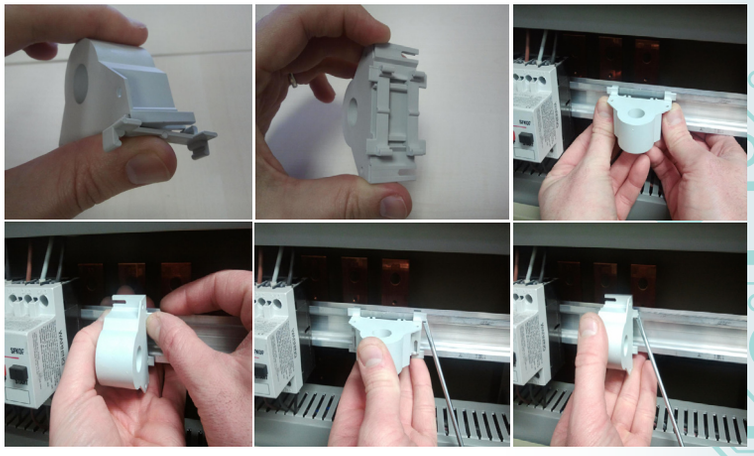
INSTRUCTION MANUAL QI-POWER-485

Using a serial link RS485-USB 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, baudrate, delay, the TV and TA ratio, to modify a filter in order to have fastest responce time instead of a more stable measurement (filter range from 1-speed to 5-accuracy) and to measure frequency on current channel instead of voltage channel . You can download the FACILE QI-POWER-485 free of charge from our website www.qeed.it (section Products / Download Software).

A second way to programming the QI-POWER-485 is by using the Modbus Register Map directly. Download it from our website: www.qeed.it (section Products / Dowload Software/ Facile QI-POWER-485 or section Products / Network Analyzers).

MOUNTING: The Power Meter QI-POWER-485 can be mounted in any position (see photo below), horizontal or vertical mounting, horizontal or vertical through the two



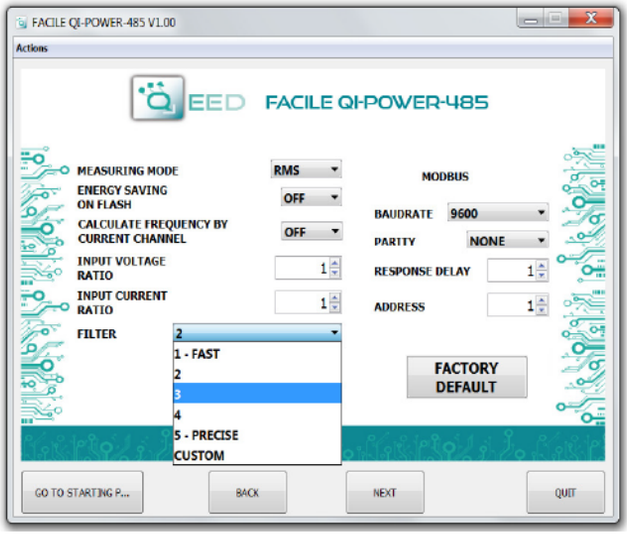
Energy storage data on flash memory : 4,5 years minimum, 45 years typical.
Minimum Current measurement (cut off): 100mA
Minimum Power measurement (cut off) : 1 W
Measurement refresh : every 50 cycles or 1 second (the faster), programmable by FACILE

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.**

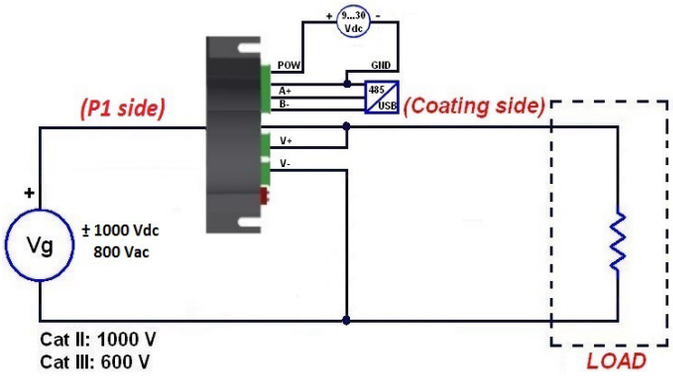
If you want to set the device by FACILE QI-POWER-485 set the dips in 0. If you want to set by RS485 directly, set the first dip to 1 (up) then use the second dip for baudrate setting (0 for 9600 or 1 for 38400). After the settings, please save the configuration by the COMMAND register, then switch off the power supply, before to switch on the power supply set the dips in 0.

Dip-switch settings	1	2
All setting from EEPROM	**0**	**0**
Set Address 1- Baud 9600	1	0
Set Address 1 -Baud 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 , if you want to restore the default configuration , just press the button FACTORY DEFAULT .
TYPE OF MEASURE : Allows the selection of the measure RMS or DC only to define the sign, positive or negative, of reading.
SAVE ON ENERGY FLASH: It is possible to activate the saving of the counters directly on the device's flash memory .
REPORT OF TRANSFORMATION : In case you would use the TA and / or TV , you can define the transformation ratio for the current input and voltage input , the default ratio is 1:1.
FILTER: Allows you to insert a filter on reading in order to get more speed in responding (value 1) or a more stable and accurate measurement (value 5), by default the value is set to 2. You can choose between intermediate values already set or manually enter the desired filter by choosing the CUSTOM option from the menu , in this case, you can set the following parameters : filtering in DC, filtering in AC (default value 5), Frequency measurement on Current channel.



Modbus Register Map

Download it from our website: ***www.qeed.it (section Products / Dowload Software/ Facile QI-POWER-485*** or section Products / Network Analyzers).

CAUTION: Magnetic fields of high intensity can vary the values measured by the transformer. Avoid installation near permanent magnets, electromagnets or iron masses that induce strong changes in the magnetic field. If any irregularity recommend reorient or move the transformer in the area most appropriate.

Disposal of electrical & electronic equipment (applicable throughout the EU and other countries wit 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, 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 it. 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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