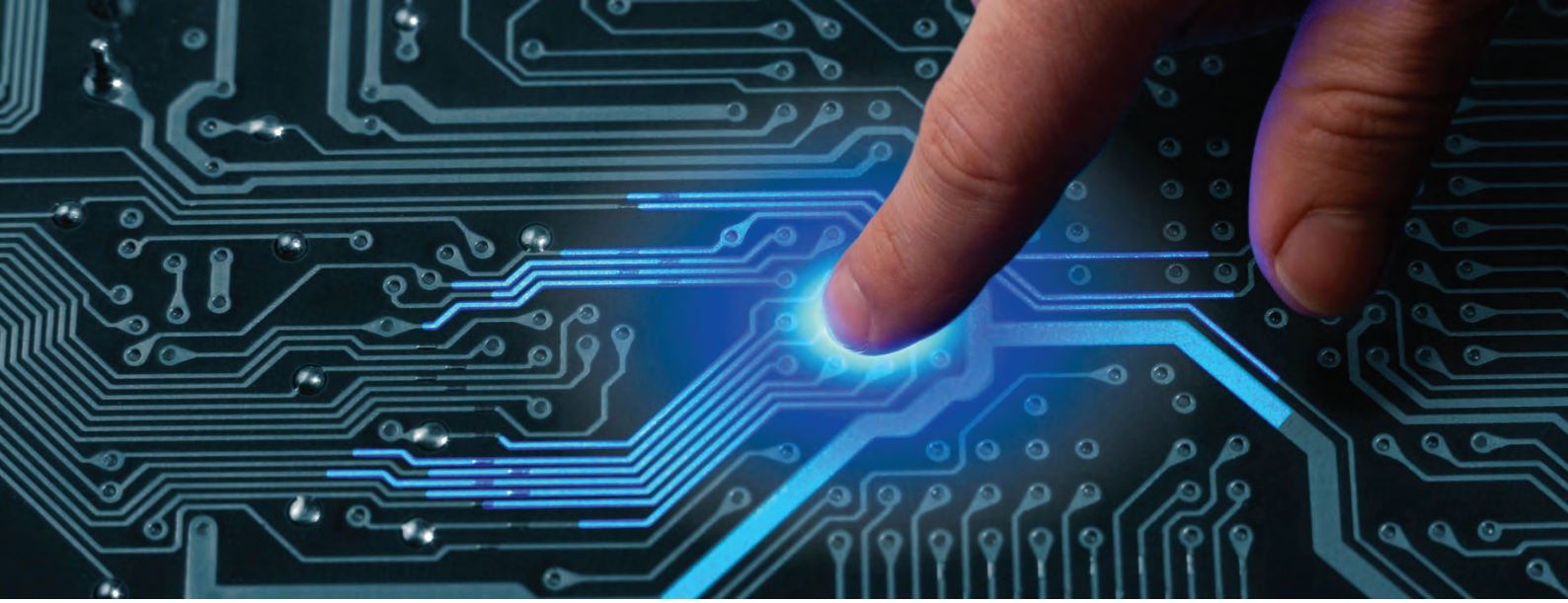


# Catalog 2017

## Modules and Interfaces for Automation

QEED

QUALITY ELECTRONIC DESIGN

MADE IN ITALY

www.qeed.it

## THE DEM's ELECTRONIC DEPARTMENT

**QEED is the electronic division of DEM spa, we are specialises in effective, tailor made solutions by developing and producing electronic boards, dedicated to the world of industrial automation. Our ideas are the result of a team with extensive experience in the field of advanced automation. Our aim is to produce products with tangible results and competitive benefits for our customers.**

For years DEM has been the market leader in the design and manufacturing of suppression filters for radiofrequency interference (RFI) for home appliances and similar devices. It did so thanks to shared development to provide the best and cheapest reliable solution.
Our ideas are the result of a team with extensive experience in the field and advanced specialisation: we all share the common aim of producing tangible results and competitive benefits for our customers.

The development of effective, tailored solutions is a fundamental aspect of our work.
We succeed in this because we co-operate closely with our customers, by listening to their requests and working with them to improve our own performance.
DEM is determined to deliver the best possible service – before, during and after the sale of any of its products – by offering its know-how, experience and technology.
This commitment allows us to be a dependable and reliable partner now and in the future.


## QEED offers :

# CURRENT TRANSFORMERS and CURRENT PROBES

# QI

QEED offer several solutions to cover your needs for Current measurement:

- Current Transformers with secondary at 1 A / 5 A
- Split Core Current Transformers with secondary at 5 A
- Flexible Rogowski probes
- Hall's effect AC/DC Current Transformers with Analog output and RS485 Modbus integrated
- Split Core Current Transformers with secondary at 333mV
- Universal Current /Voltage Converter with Analog Output, Alarm contact and RS485 Modbus RTU


**QI-50-I / QI-300-I**
Loop powered (4-20mA)

**QI-300-I / QI-300-V-485**
analog output 0...10 V and RS485

**QI-xxx/5 o QI-xxx/1**
with secondary at 1 A o 5 A
From 50 A to 5000 A


**QI-SC-xx-xxx/5**
Split core CTs with secondary at 5A
From 100 A  up to 1000 A

Available also with secondary at 333mV

**QI-ROG-xxx**
Flexible Rogowski probes
Output 100mV @ 1000 A
Available with different lenght

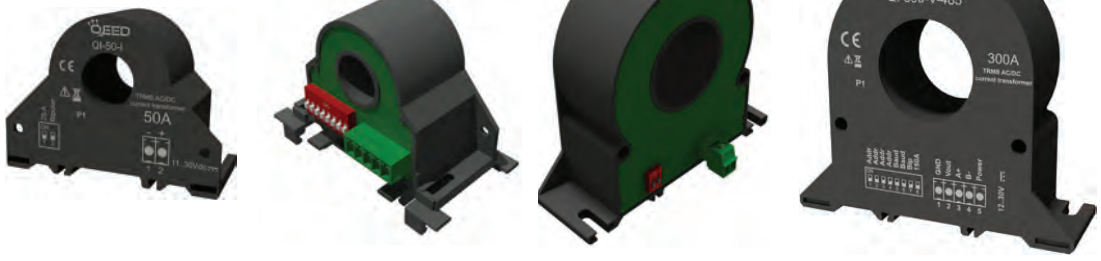

**QE-CURRENT-485**
Universal Current /Voltage Converter and Analyzer.
Analog output, Digital Output, RS485 Modbus.
Current probes reader

# QI
## HALL's EFFECT AC/DC CURRENT TRANSFORMERS

## QI-50-I QI-50-V-485 QI-300-I QI-300-V-485

Compliant to the CE standards:
CE EN61000-6-4/2006+A1 2011;
EN 64000-6-2005;
EN 61010-1/2010

MADE IN ITALY CE




| | QI-50-I | QI-50-V-485 | QI-300-I | QI-300-V-485 |
|---|---|---|---|---|
| **Measurement Range** | **50 A AC/DC** | | **300 A AC/DC** | |
| **Power Supply** | from loop (11-30Vdc) | 12...30 Vdc | from loop (11-30Vdc) | 12...30 Vdc |
| **Accuracy on F.S.** | **0,5%** | | | |
| **Measurement type** | RMS ( monopolar) o DC | | | |
| **Output** | 4-20mA | 0...10V e RS485 | 4-20mA | 0...10V e RS485 |

### Electrical features :

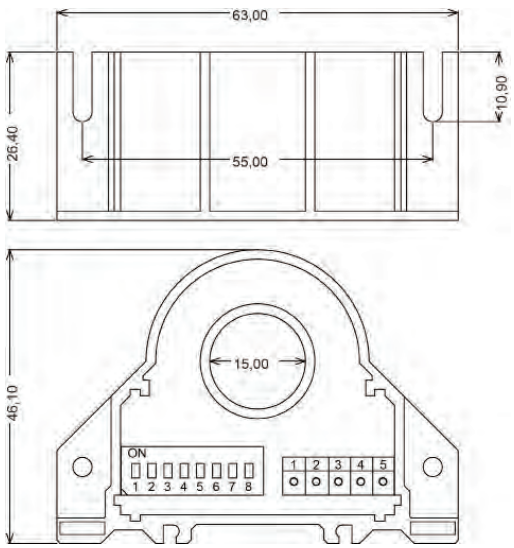
| | | | | |
|---|---|---|---|---|
| Absorption | less then 3,5mA | 20mA max | less then 3,5mA | 20mA max |
| Resolution | 12 bit | | | |
| Working Temperature | -15°C...+65°C | | | |
| Storage Temperature | -40°C...+85°C | | | |
| Temperature Coefficient | < 200 ppm/°C | | | |
| Humidity | 10...90 % not condensing | | | |
| Band Width | DC or 20...2000 Hz | | | |
| Crest Factor | 2 | | 1,4 | |
| Overload | 2000 A pulsed / 300 A continuos | | 2000 A pulsed / 500 A continuos | |
| Isolation | 3 kV on bare wire | | | |
| Hysteresis | 0,15% | | 0,2% | |
| Response Time | 1000ms | 1000ms on analog<br>30ms on RS485 | 1000ms | 1000ms on analog<br>30ms on RS485 |
| Protection index | IP20 | | | |

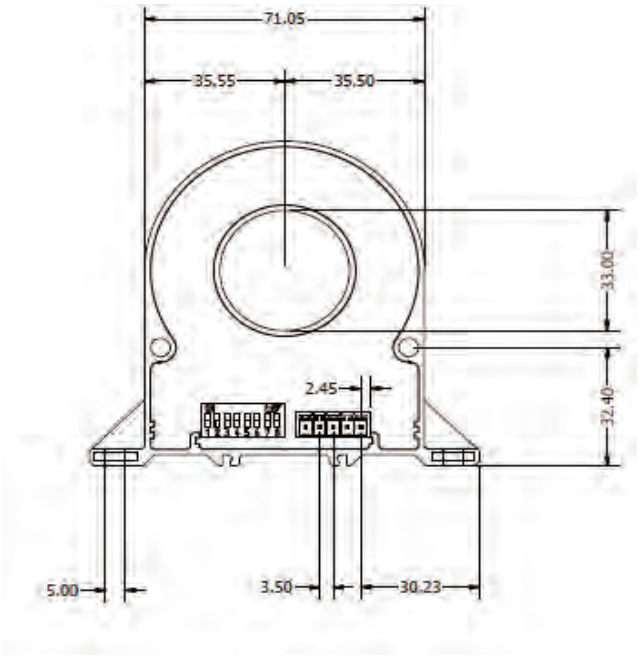
### Mechanical features:

| | | | | |
|---|---|---|---|---|
| Dimensions | 46,1x 63x 26,4 mm (terminal excluded) | | 89,1x 99,25x 28,5 mm (terminal excluded) | |
| Weight | 72gr | | 370gr | |
| Filling | Epoxy resin | | | |
| Terminals | n°1 removable, 2 poles step 3,5mm | n°1 removable, 5 poles step 3,5mm | n°1 removable, 2 poles step 3,5mm | n°1 removable, 5 poles step 3,5mm |
| Dip-switch | 2 poles | 8 poles | 2 poles | 8 poles |
| Led | N°1 yellow, fixed Power on | N°1 yellow, fixed Power on, blinking in communication | N°1 yellow, fixed Power on | N°1 yellow, fixed Power on, blinking in communication |
| Enclosure material | Nylon vitrified V0 | | | |
| Mounting | Ready to be mounted on din rail, vertical or horizontal by plastic braket (included) | | | |

Measure available :

| | QI-50-I | QI-50-V-485 | QI-300-I | QI-300-V-485 |
|---|---|---|---|---|
| **Analog Output** | RMS or DC Current | RMS or DC Current | RMS or DC Current | RMS or DC Current |
| **Serial Output RS485 Modbus** | | min/Max Current | | min/Max Current |
| | | Ah | | Ah |
| | | RMS or DC Current ( Float / Swapped / Hundreths ) | | RMS or DC Current ( Float / Swapped / Hundreths ) |



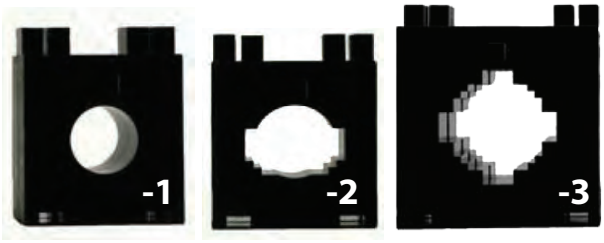

Configurable Parameters:

| | QI-50-I | QI-50-V-485 | QI-300-I | QI-300-V-485 |
|---|---|---|---|---|
| **via Dip-Switch** | Monopolar or Bipolar | Monopolar or Bipolar | Monopolar or Bipolar | Monopolar or Bipolar |
| | Span 25 or 50 A | Span 25 or 50 A | Span 150 or 300A | Span 150 or 300 A |
| | | Modbus address: 1...15 | | Modbus address: 1...15 |
| | | Baudrate: 2400...58600 | | Baudrate: 2400...58600 |
| **via Software FACILE or RS485** | | Zero and Span for Current input | | Zero and Span for Current input |
| | | Zero and Span for Analog output | | Zero and Span for Analog output |
| | | Modbus Address | | Modbus Address |
| | | Baudrate: 2400...115200 | | Baudrate: 2400...115200 |
| | | Measurement Filter | | Measurement Filter |
| | | Cut off on current measurement | | Cut off on current measurement |
| | | Delay answer setting | | Delay answer setting |

# CURRENT TRANSFORMERS SECONDARY AT 5 A

Class 0,5/1

## QI-xxx/5-x




20mm 23mm 30mm

Ready to be mounted on din rail

| TECHNICAL FEATURES | |
|---|---|
| ENCLOSURE | ABS Self-extinguishing case |
| CURRENT TO THE SECONDARY | **5 A** (other on request) |
| WORKING FREQUENCY | 40-60 Hz |
| DYNAMIC NOMINAL CURRENT OF SHORT CIRCUIT (Idin) | 2,5 I ter per 1 sec - Max peak value that the CT can bear having the secondary in short circuit |
| THERMAL NOMINAL CURRENT OF SHORT CIRCUIT (Iter) | 40-80 Ipn per 1 sec - Max effective value with secondary in short circuit |
| STANDING OVERCURRENT | 1,2 In |
| VOLTAGE INSULATING REFERENCE | 0,72kV maximum Voltage value |
| TESTING VOLTAGE | 3kV at 50 Hz per 1 min., max voltage value, between primary and secondary |
| SAFETY VALUE | N <= 5<br>Saturation Factor (Sf) or ratio between primary current value (that cause the magnetic core saturation), and the nominal current value. The lower is the N value the higher is the instrument protection |
| WORKING TEMPERATURE | -25°...+50°C |
| STORAGE TEMPERATURE | -40°...+80°C |
| MAX TEMP OF THE PASSING CABLE | 70°C |
| RELATIVE HUMIDITY | 90% max, not condensing |
| INSULATION | on air, E class |
| PROTECTION DEGREE | IP 30 |
| CONSTRUCTION | Compliant to the CEI 38-1, IEC 185, VDE 0414, EN60044-1, EN60044-1A |

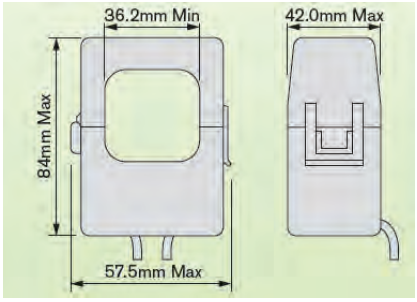
# FLEXIBLE ROGOWSKI PROBES

**QI-ROG-300**
**QI-ROG-400**

**Other lenght on request**

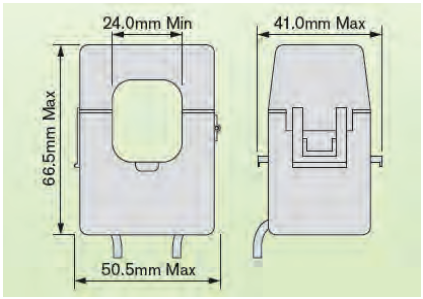
| TECHNICAL FEATURES | |
|---|---|
| TRANSDUCER O.D (coil cross section) | 12mm |
| TRANSDUCER LENGHT | 300 or 400mm (other on request) |
| CAP COUPLING O.D. | 17mm (max) |
| MAX DIAMETER OF CONDUCTOR OR BUS BAR | for QI-ROG-300 : 84mm<br>for QI-ROG-400 : 115mm |
| MATERIALS | Transducer & Cable: Thermoplastic Rubber, flame retardant UL94 V0 rated |
| ENVIROMENTAL CONDITIONS: | |
| WORKING TEMPERATURE | -20°C...+70°C |
| RELATIVE HUMIDITY | 85% max without condensation |
| POLLUTION DEGREE | 2 |
| MAXIMUM ALTITUDE | 2000 m |
| ELECTRICAL DATA : | |
| MAXIMUM MEASURABLE CURRENT | 100kA @ 50/60Hz |
| ACCURACY | +/- 1% |
| LINEARITY | +/- 0,2 % |
| OUTPUT SIGNAL | 100mV/ 1000A @ 50Hz |
| FREQUENCY RANGE | 20Hz... 5 KHz |
| POSITION SENSITIVITY : | |
| MEASURED BUS | +/- 2% maximum on closing unit |
| EXT. FIELD INFLUENCE | +/-0,5% maximum |
| TEMPERATURE SENSITIVITY | +/- 0,07% per °C |
| SAFETY: | |
| WORKING VOLTAGE MAX | 1000V @ 50/60Hz ( CAT III) |
| HI POT TEST (Transducer & Output Cable) | 7400 Vac @ 50/60 Hz for a minute. |

# QI-SC-xx-xxx/5
# QI-SC-DPBxx-xxx/5

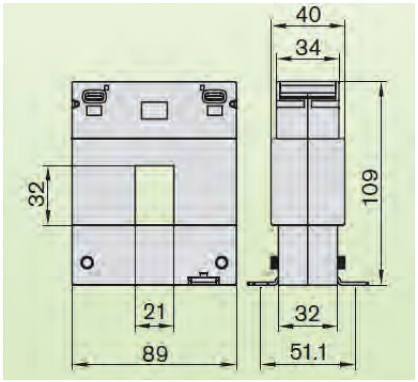

Split Core Current Transformer with secondary at 5 A, 1 mt of integrated cable, class 1, diameter 36mm. Available for 300 A, 400 and 600 A measurement

**QI-SC-36-300/5**
**QI-SC-36-400/5**
**QI-SC-36-600/5**

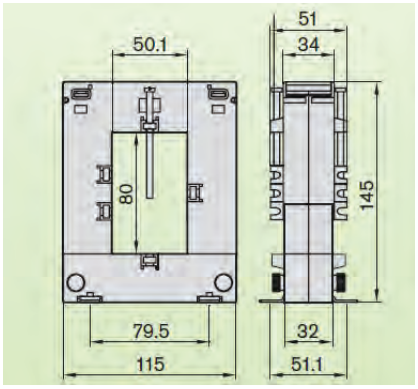

Split Core Current Transformer with secondary at 5 A, 1 mt of integrated cable, class 1, diameter 24mm. Available for 100 A, 200 and 300 A measurement

**QI-SC-24-100/5**
**QI-SC-24-200/5**
**QI-SC-24-300/5**




Split Core Current Transformer with secondary at 5 A, class 1, diameter 20x30mm. Available for 100, 200, 300 and 400 A measurement

**QI-SC-DBP23-100/5**
**QI-SC-DBP23-200/5**
**QI-SC-DBP23-300/5**
**QI-SC-DBP23-400/5**




Split Core Current Transformer with secondary at 5 A, class 1, diameter 50x80mm. Available for 400, 500, 600, 800 and 1000 A measurement

**QI-SC-DBP58-400/5**
**QI-SC-DBP58-500/5**
**QI-SC-DBP58-600/5**
**QI-SC-DBP58-800/5**
**QI-SC-DBP58-1000/5**



Split Core Current Transformers with secondary at 0...333mV, 1 mt of integrated cable, available with different diameter hole: 6mm, 10mm, 16mm

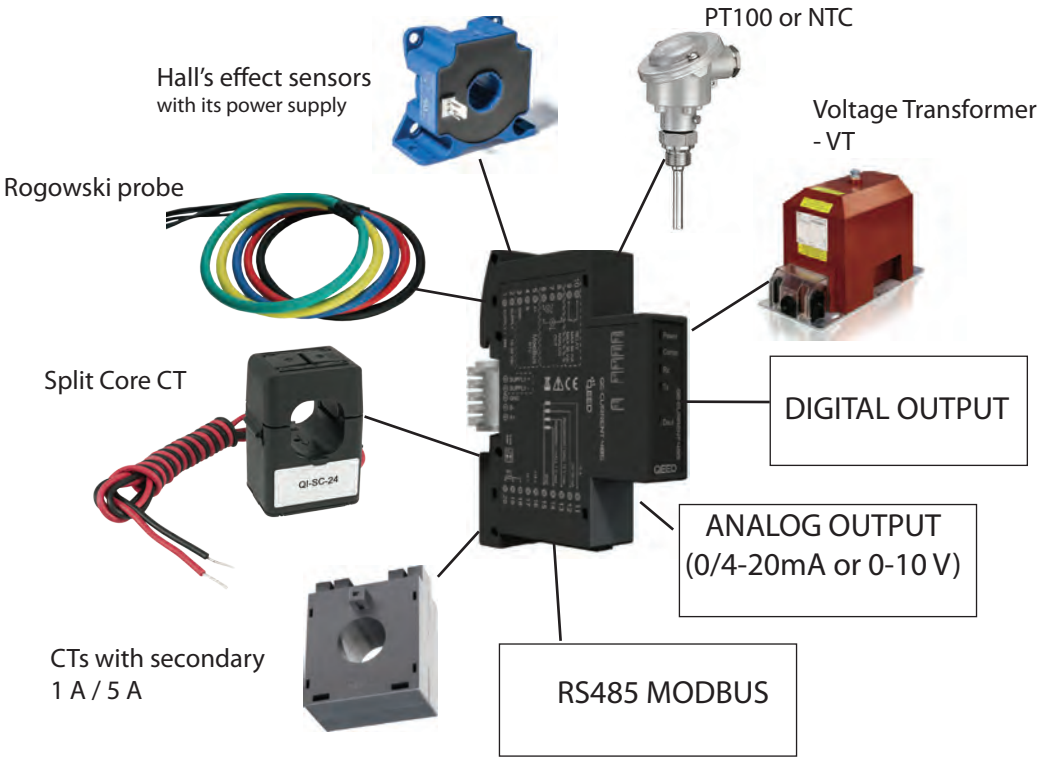
**QI-SC-06-xx/333**
**QI-SC-10-xxx/333**
**QI-SC-16-xxx/333**

# UNIVERSAL CURRENT / VOLTAGE CONVERTER and ANALYZER QE-CURRENT-485

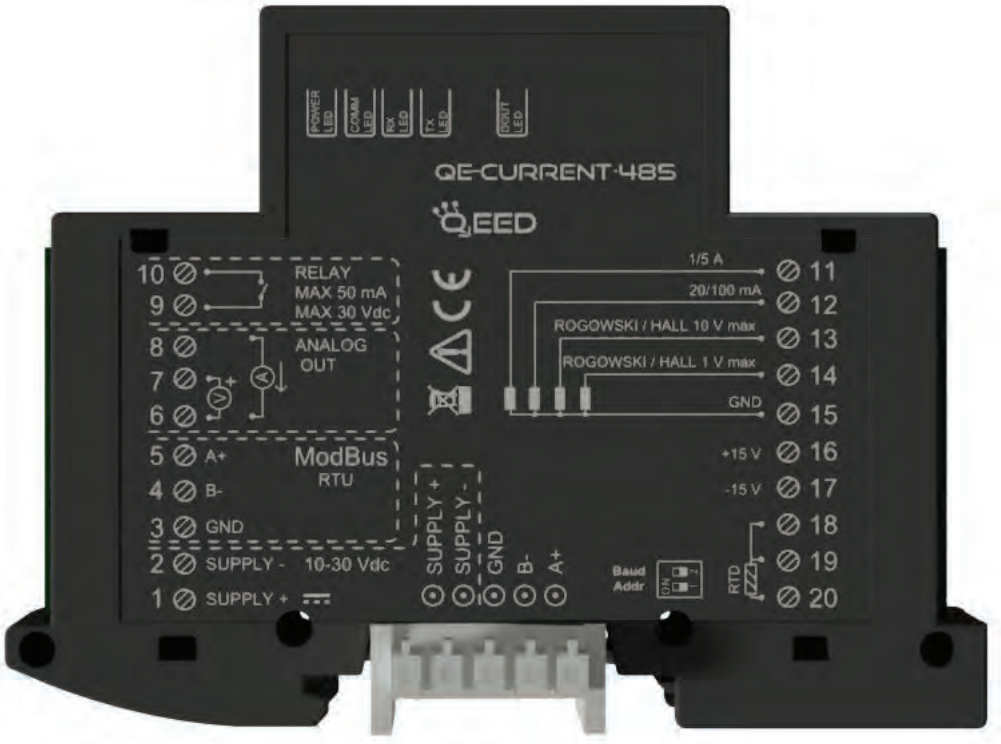

The **QE-CURRENT-485** is the first **ALL IN ONE UNIVERSAL CURRENT AND VOLTAGE CONVERTER and ANALYZER** of the market.
It is able to interface with any primary current sensor or voltage transformer isolated.
Enclosure of just a DIN, ideal for distribution panels.
It's equipped with Analog Output and RS485 Modbus RTU for reading all the parameters. Configuration using free software.
The module provides the dual power supply for Hall sensor.

| | QE-CURRENT-485 | QE-CURRENT-485-H |
|---|---|---|
| n° of CURRENT / VOLTAGE INPUT | 1 | |
| CURRENT /VOLTAGE probe supported | • **ROGOWSKI probes;**<br>• **CURRENT TRANSFORMER with secondary at 1A / 5A;**<br>• **CURRENT / VOLTAGE TRANSFORMER with secondary at +/-1V pk o +/- 10 V pk;**<br>• **CURRENT TRANSFORMER with secondary at 100mA ac/dc;**<br>• **HALL's EFFECT SENSOR, with its Power supply (+/-15V dc)** | |
| n° of TEMPERATURE INPUT | 1 | |
| TEMPERATURE PROBES SUPPORTED | **PT100 2-3 wires or NTC (10k/ 100k ohm, or custom) NOT ISOLATED** | |
| OUTPUT | • **RS485 MODBUS RTU**<br>• **0...10V / 0...20mA (fully Configurable by Software )**<br>• **Free Contact (Alarm) 50mA max, 30 Vdc** | |
| AVAILABLE MEASUREMENT (for Voltage too) | **I rms, I dc, I ac** | |
| | **I rms max, I rms min, I rms average** | |
| | **I dc max, I dc min, I dc average** | |
| | **I ac max, I ac min, I ac average** | |
| | **Ah on I rms, Ah on I dc, Ah on I ac** | |
| | **Frequency** | |
| | **Crest Factor** | |
| | **Temperature** | |
| | **Resistence** | |
| | | **I pk** |
| | | **THD** |
| | | **Harmonics analysis up to 63th** |
| | | **Internal temperature measurement** |
| SAMPLING RATE | 6400 Hz @ 50Hz | |
| THERMAL DRIFT | < 100ppm/°C | |
| ACCURACY ON ANALOG OUTPUT | < 0,1% F.S. | |
| BAUDRATE | from 1200...115200 Baud (standard 9600 ) | |

# UNIVERSAL CURRENT / VOLTAGE CONVERTER and ANALYZER QE-CURRENT-485




The QE-CURRENT-485 is fully configurable via RS485 by the free software FACILE QE-CURRENT-485 (dowload it from www.qeed.it site) or directly via Modbus commands.
Through the T-BUS connector (optional) it is possible to bring the power supply and connect multiple RS485 devices without cables.





WATER INDUSTRIES


PF CORRECTIONS


STEEL MILLS


PAPER MILLS


ELECTRIC POWER DISTRIBUTION SYSTEM


ELECTRIC MOTORS

| Other: | QE-CURRENT-485 / QE-CURRENT-485-H |
|---|---|
| WORKING TEMPERATURE | -10°C...+60°C |
| STOCK TEMPERATURE | -40°C...+85°C |
| RELATIVE HUMIDITY | 10... 90% not condensing |
| ALTITUDE | Up to 2000 m s.l. |
| FIXING SYSTEM | On DIN rail , ready to be mounted on T-BUS system |
| CONNECTIONS | n°2 removable connectors of 10 poles 3,5mm step |
| DIMENSIONS | 93 x 17,5 x 68,3 mm (without connectors ) |
| WEIGHT | 55 gr. |
| ENCLOSURE | PBT, grey |
| DIP-SWITCH | 2 poles ( Baudrate and Address) for connection with the configuration software FACILE |
| LED | N°5 : Power (Green), Comm (Yellow), TX e RX (Red), Digital contact (Green) |
| STANDARD REFERENCES | EN 61000-6-3; EN61000-4-2; EN61000-4-3; EN61000-4-4; EN61000-4-5; EN61000-4-6; EN61010-1 |

| Accuracy | QE-CURRENT-485 / QE-CURRENT-485-H |
|---|---|
| Channel 1/5 A | Crest Factor : 4 (@ 5 A )<br>Range 50mA < I < 250mA : Maximum error 1%<br>Range 250mA < I 5 A: Maximum error 0,5%<br>Temperature coefficient : < 100 ppm/°C<br>Band Width : > 2kHz |
| Channel 20/100mA | Crest Factor : 4 (@ 100mA )<br>Range 1mA < I < 5mA : Maximum error 1%<br>Range 5mA < I < 100mA : Maximum error 0,5%<br>Temperature coefficient : <100ppm/°C<br>Band Width: > 2kHz |
| Channel +/- 1Vpk | Range 10mV< V < 50mV : Maximum error 1%<br>Range 50mV< V < 1V : Maximum error 0,5%<br>Temperature coefficient: <100ppm/°C<br>Band Width : > 2kHz |
| Channel +/- 10Vpk | Range 100mV < V < 500mV : Maximum error 1%<br>Range 500mV < V < 10V : Maximum error 0,5%<br>Temperature coefficient: <100ppm/°C<br>Band Width: > 800Hz |
| Temperature Channel | |
| PT100 | Range: -200°C...600°C<br>Error : +/- 1,2°C on the reading<br>Temperature coefficient: <100ppm/°C |
| NTC | Range 200ohm... 20kohm: +/- 1,2°C on the reading<br>Range 20kohm... 300kohm: +/- 1,6°C on the reading<br>Temperature coefficient: <100ppm/°C |

MADE IN ITALY CE

Standard reference:
CE EN61000-6-4/2006+A1 2011;
EN 64000-6-2005;
EN 61010-1/2010

# SINGLE and THREE PHASE POWER METERS

**QEED** offer several solution to cover your needs for Power and Energy measurement:

- **AC/DC Single Phase POWER METER** developed in a CT enclosure with RS485 Modbus output;
- **AC/DC Single Phase POWER METER** for direct connection or with external CT, with Analog and Digital output, **Datalogger via USB and RS485 Modbus;**
- **Single phase AC POWER METER with direct connection, display and RS485 Modbus**
- **Three phase POWER METER for external CTs or passing CTs,** with RS485 Modbus;
- **Three phase POWER METER/ NETWORK ANALYZER in only ONE DIN width, RS485**;
- **Bidirectional Three phase POWER METER - 3 DIN width, with RS485 Modbus**
- **Panel meter 96x96mm, with Harmonics analysis, THD and RS485 Modbus**
- **MID APPROVAL** Single and Three phase **Power meter** with RS485 Modbus ( in partnership with INEPRO ).


**QI-POWER-485 / QI-POWER-485-LV**
single phase measurement for AC/DC Current up to 50 A and Voltage up to 800 V AC/ 1000 V DC or 80V AC/ 100 V DC for -LV (Low Voltage) version.

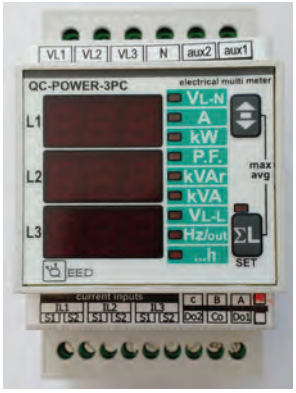
**QI-POWER-485-300/ QI-POWER-485-300-LV**
single phase measurement for Current up to 300 A AC /400 A DC and Voltage up to 800 V AC/ 1000 V DC or 80V AC/ 100 V DC for -LV (Low Voltage)


**QC-POWER-T-485 / QC-POWER-T-TA**
for external CTs with secondary at 5A or passing CTs up to 90A, RS485 Modbus output.


**QE-POWER-T**
for all external CTs (ALL IN ONE), RS485 Modbus output or digital contact.
ONE DIN RAIL
Three versions available : STANDARD, PLUS, PROFESSIONAL.
Compliant to Power Quality requirement.

# SINGLE and THREE PHASE POWER METERS

**INEPRO PRO1 - PRO380 - MID**
MID APPROVAL Single and Three phase Power meter with RS485 Modbus.
Direct connection, 45A for Single phase, 100A for Three phase.




**QC-POWER-3PC**
Bidirectional three phase power meter for external CTs with secondary at 5A or three single phase meters.
3 DIN width, RS485 Modbus RTU.


**QC-POWER-P96**
96x96mm Three phase Power meter and Network analyzer. For external CTs with secondary at 1/5A, RS485 Modbus and Digital contact available.
Harmonics analysis up to 31st and THD measurement

**QC-PM485**
Single phase Power meter for direct connection up to 100A. Backlighted Display, RS485 Modbus.

# AC/DC Single Phase POWER METER

## QI-POWER-485

Compliant to the CE standards:
EN61000-6-4/2006+ A1 2011;
EN61000-6-2/2005
EN61010-1/2010



| | QI-POWER-485 | QI-POWER-485-300 | QI-POWER-485-LV | QI-POWER-485-300-LV |
|---|---|---|---|---|
| Current Measurement | 50 A AC/DC | 300 A AC<br>400 A DC | 50 A AC/DC | 300 A AC<br>400 A DC |
| Voltage Measurement | 800 V AC<br>1000 V DC | | 80 V AC<br>100 V DC | |
| Power Supply | 9...30 V DC<br>Protection against polarity reversal and overtemperature | | | |
| Accuracy | @ 25°C up to 400Hz<br>Voltage, Current, Active Power: < 0,5% f.s.<br>Frequency: +/- 0,1 Hz on the reading<br>Energy: +/- 1% on the reading<br>Vpk, Ipk: +/- 5% f.s. | | | |
| Type of measure | RMS ( monopolar) o DC | | | |
| Output | RS485 MODBUS RTU | | | |

| | |
|---|---|
| AVAILABLE MEASUREMENT via RS485 | I rms, V rms |
| | I pk, V pk |
| | P: Active Power ( W ) |
| | Q: Reactive Power (VAR) |
| | S: Apparent Power (VA) |
| | Frequency |
| | Cosφ |
| | THD |
| | Energy ( kWh) |
| | Bidirectional Energy Totalizer (kWh), positive and negative |
| | min and MAX of all rms value |
| WORKING FREQUENCY | DC or 1...400 Hz |
| SAMPLING RATE | 12 kHz @ 50Hz |
| CREST FACTOR | QI-POWER-485/ -LV : 1,8<br>QI-POWER-485-300/ -LV : 1,4 |
| INPUT IMPEDENCE | 1 Mohm +/- 1% |
| OVERVOLTAGE PROTECTION | Category III up to 600V, category II up to 1000V<br>Low Voltage version -LV : Category IV up to 100 V |
| ABSORPTION | < 1,3 W |
| BAUDRATE | da 1200...115200 Baud (standard 9600 ) |

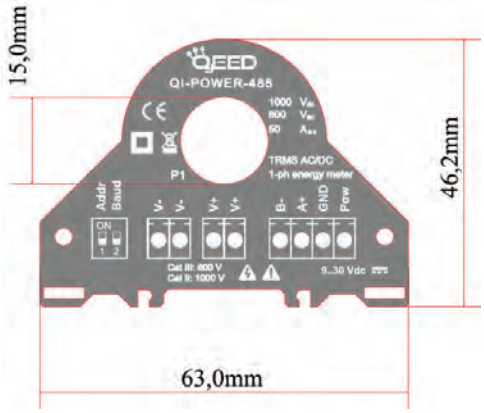
# AC/DC Single Phase POWER METER

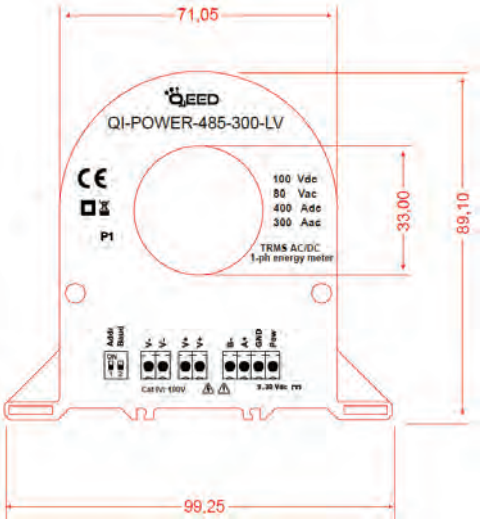
## QI-POWER-485

Other features :

| | |
|---|---|
| Resolution | 12 bit |
| Working Temperature | -15°C...+65°C |
| Storage Temperature | -40°C...+85°C |
| Temperature Coefficient | < 200 ppm/°C |
| Humidity | 10...90 % not condensing |
| Isolation | 3 kV on bare wire for Current measurement<br>4 kV on Voltage input (reinforced isolation between Power supply and RS485) |
| Altitude | Up to 2000 m s.l. |
| Dimensions | 46,1 x 63 x 26,4 mm (terminal excluded) |
| Terminals | Removable step 3,5mm (n°1 of 4 poles, n°2 of 2 poles) |
| Weight | 80 gr. / 370 gr. |
| Filling | Epoxy resin |
| Protection Index | IP20 |
| Enclosure Material | Nylon vitrified V0 |
| LED | n°1 Yellow (fixed = Power on, blinking= in communication) |
| Dip-switch | n°2 (for address and baudrate for configuration software FACILE connection) |

Dimensions:




Configurable parameters:

| | QI-POWER-485<br>QI-POWER-485-LV | QI-POWER-485-300<br>QI-POWER-485-300-LV |
|---|---|---|
| **via Dip-Switch** | Modbus Address: 0 or 1 (Address 1 for communication with configuration software) | |
| | Baudrate: 9600 or 38400 | |
| **via Software** | Energy measurement saved on Flash memory | |
| | Frequency measurement on Current channell | |
| | Modbus Address | |
| | Baudrate: 2400...115200 | |
| | CT and VT ratio setting | |
| | Cut off on Current measurement (default 250mA) | Cut off on the current measurent (default 1,5A) |
| | Cut off on Power measurement (default 0 W ) | |
| | Measurement Filter ( Fast...Accurate) | |
| | Modbus Delay answer setting | |

# AC/DC Single Phase POWER METER

## QI-POWER-485

Applications:

**PV PLANTS :**

***Strings Current and Voltage measurement.***

The QI-POWER-485 can measure both the DC side and the AC side ( inverter control efficiency). Together with the QI-50-V-485 is possible to measure the current on each strings. The bigger QI-POWER-485-300 is used to measure the complete box (combiner) thanks to the 400A DC and 1000 V DC range . By the RS485 you can transmit all the information directly to the Logger/PLC without any other hardware .

**VARIABLE FREQUENCY MEASUREMENT (Inverters ) :**

The QI-POWER-485 is suitable to measure with variable frequency from DC up to 400 Hz. This features allow it to be used under Inverter because can guarantee you its accuracy also during the frequency modulations.

**AC/DC MOTORS MEASUREMENT:**

The QI-POWER-485 is able to work in AC or DC, so the device is suitable to measure on brushless motors or AC motors the Absorption of Power (Active, Reactive, Apparent), the Power Factor, the THD, the peak of Voltage and Current, etc.

**TELECOM SHELTERS - RADIO BASE STATIONS :**

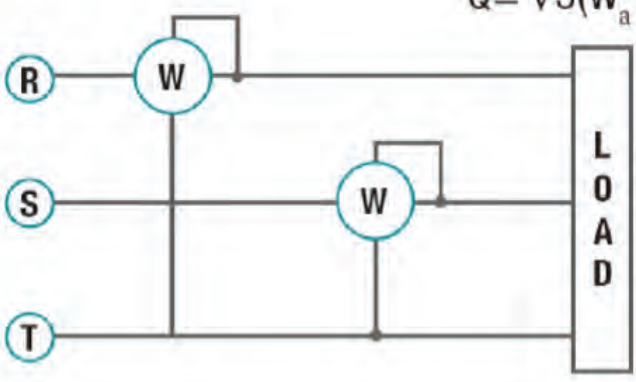
The Low Voltage version of the device is suitable to measure both DC current and DC voltage at 24/48 V DC for batteries chargers monitorings for DATA CENTERS, Telecom SHELTERS and UPS.
The QI-POWER-485 can be also used for AC measurement (e.g. Power supply at 24 V AC) together with a DC measurement ( 50 A DC of batteries).

**ARON CONNECTION:**

for the three-phase applications without neutral, balanced or unbalanced, using only two QI-POWER-485 you can estimate the total power. To do this you need to have a master Modbus device that are able to make the formula below.


Three phase ARON connection formula:

$$Q = \sqrt{3}(W_a - W_b)$$



# AC/DC Single Phase POWER METER VOLTAGE/ CURRENT CONVERTER

## DATALOGGER, ANALOG OUTPUT, DIGITAL OUTPUT, RS485

# QA-POWER-M

Compliant to the CE standards:
EN61000-6-4/2006+ A1 2011;
EN61000-6-2/2005
EN61010-1/2010

MADE IN ITALY

CE

**AC/DC Single Phase Power Meter**
**Direct connection (10 A - 600V AC/1000V DC)**
**Isolated Voltage / Current Converter.**
Fully Configurable via USB, Analog Output, Digital output (Pulse or Alarm contact).
RS485 Modbus RTU
**DATALOGGER via USB on standard pen-drive** stick memory in .csv o excel compliant.
**Integrated RTC Real Time Clock.**

| | QA-POWER-M | QA-POWER-M-LV |
|---|---|---|
| POWER SUPPLY | 10...40V DC / 20...28V AC - 50/60Hz | |
| **INPUT** (fully configurable ) | **VOLTAGE : up to 600V AC / 1000 VDC** | **VOLTAGE : up to 60V AC / 100V DC** |
| | **CURRENT up to 10 A AC/DC** (for higher current please use an external CT) | |
| **ANALOG OUTPUT** (fully configurable) | **CURRENT : 0...20mA** (max load resistence 600 ohm ), Active or Passive<br>**VOLTAGE: 0...10V** (min load resistence 2k ohm)<br>Matched to: Vrms, Irms, Active Power, Reactive, Apparent, Cosφ and Frequency<br>Power supply on transmitted analog output @ 13V DC, 30mA max | |
| **SERIAL OUTPUT** | **RS485 Modbus RTU** (from terminals and T-Bus connection) | |
| **DIGITAL OUTPUT** | **Free Contact, NA** for pulse output or contact alarm (matched with every parameters) .<br>Fully configurable. | |
| **AVAILABLE MEASURE VIA RS485** | **I rms, V rms** | |
| | **I pk, V pk** | |
| | **P: Active Power ( W )** | |
| | **Q: Reactive Power (VAR)** | |
| | **S: Apparent Power (VA)** | |
| | **Frequency** | |
| | **Cosφ** | |
| | **THD** (on Current channel) | |
| | **Energy ( kWh)** | |
| | **Bidirectional Energy Totalizer (kWh), positive and negative** | |
| | **min and MAX of all rms value** | |
| SETTINGS via USB or RS485 | via FACILE QA-POWER-M software (free download from Qeed website)<br>or directly by RS485 via Modbus registers | |
| ACCURACY CLASS | **0,5% f.s.** for all the measurement value | |
| WORKING FREQUENCY | DC or 1...400 Hz | |
| SAMPLE RATE | 6400 sample per second | |
| ISOLATION | 3 way : 4kV for Voltage input, 1,5kV between Power supply and Output | |
| FRONTAL DIP-SWITCH | Only for manual Modbus address and Baudrate setting | |
| ABSORPTION | Max 2,5 VA | |
| WORKING TEMPERATURE | -15°C... +65°C | |
| STORAGE TEMPERATURE | -40°C... +85°C | |
| THERMAL STABILITY @ 25°C | < 100ppm | |

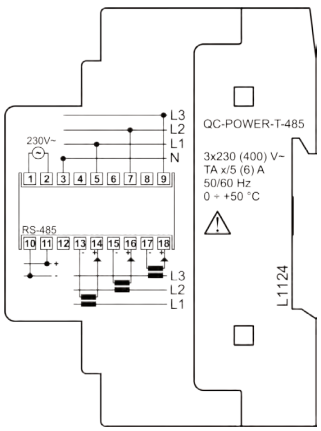
# THREE PHASE POWER METER

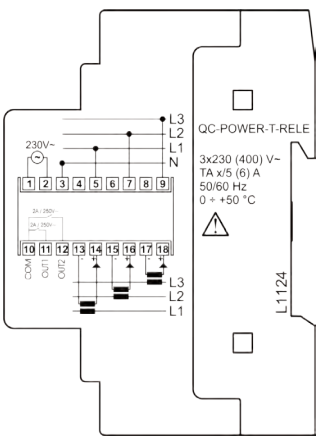
# QC-POWER-T

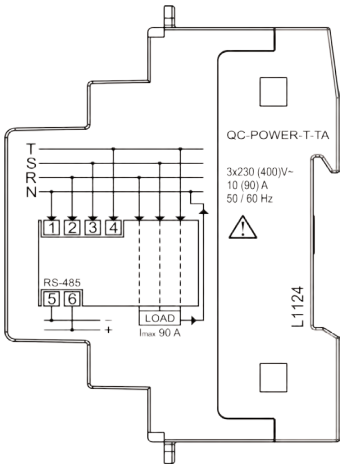



| | QC-POWER-T-485 | QC-POWER-RELE | QC-POWER-T-TA |
|---|---|---|---|
| POWER SUPPLY | 230 V AC (-15%...+10%) | | 400 V AC (-15%...+10%) |
| WORKING FREQUENCY | 50/60 Hz | | |
| ABSORPTION | 4 VA | 7 VA | On Voltage channel: < 2,5VA<br>On Current channel: < 2,5VA<br>Power Supply : < 4 VA |
| CURRENT INPUT | TA x/5 (6) A | | IN=10A; Imax= 90A |
| VOLTAGE INPUT | Direct connection up to 550V RMS max (47...63Hz) | | V max= 440V rms (phase-phase)<br>Vmax= 3x253V rms (phase-neutral) |
| ACCURACY: | | | |
| VOLTAGE | 0,5% f.s. ( 10%...100%); min 10V | | |
| CURRENT | 0,5% f.s. (10%...100%); min 20mA | | 0,5% f.s. 10%...100%) |
| ACTIVE POWER | 1% f.s. | | 1% f.s. configurable |
| REACTIVE POWER | 1% f.s. | | 1% f.s. configurable |
| POWER FACTOR | +/-1% | | |
| FREQUENCY | +/- 0,1Hz (47...63Hz) | | |
| ACTIVE ENERGY | CLASS 2 | | CLASS 1 |
| REACTIVE ENERGY | CLASS 3 | | |
| CURRENT /VOLTAGE RATIO (CT / VT ) | Configurable by DISPLAY | | |
| OUTPUT | RS485 Modbus RTU | n°2 RELAYS OUTPUT 2A-250VAC | RS485 Modbus RTU |
| PEAK MEMORY | On Display with Date and Time | | Not Availalble |
| WORKING TEMPERATURE | 0...50°C | | -10°C...45°C |
| STORAGE TEMPERATURE | -20°C...60°C | | -10°C...60°C |
| DIMENSIONS | 4 DIN | | 7 DIN |
| PROTECTION INDEX | Frontal IP54/ Enclosure IP20 | | Frontal IP51/Enclosure IP20 |
| HUMIDITY | 10...90% not condensing | | |

Compliant to the Community directives:
2006/95/CE (Low Voltage - LVD);
2004/108/CE (EMC) is declared with reference to the following standards: Safety EN61010-1, E.M Compability EN61000-6-2, EN61000-6-4, EN62052-21 and



# Single and Three phase POWER METER MID APPROVAL

# PRO1 -PRO380

**Single phase Power meter Direct Connection -RS485 mod. PRO1**

**Three phase Power meter Direct Connectio -RS485 mod. PRO380**

**Three phase Power meter with external CTs -RS485 mod. PRO380-CT**

Available measurement : Current, Voltage, Active Power, Reactive Power, Apparent Power, Total Energy and bidirectional Energy, Frequecy, Power Factor , Totalizer for every Power measurement, bright Pulse output S0

| | PRO1-MOD | PRO380-DC-MOD | PRO380-CT-MOD |
|---|---|---|---|
| DIMENSIONS | 116x63x17,5 mm | 140x63x70 mm | |
| MOUNTING | DIN Rail | | |
| ACCURACY : | Compliant to EN50470-3 | | |
| ACTIVE ENERGY | +/- 1 % | | |
| MIN CURRENT MEASUR. | 0,05 Ib | | |
| BASE CURRENT (Ib) | 5 A | | 1,5 A |
| MAX CURRENT (Imax) | **45 A** | **100 A** | **6 A** |
| WORKING CURRENT | 0,4% Ib....Imax | | |
| OVERCURRENT | 30 I max per 0,01 sec | | |
| NOMINAL VOLTAGE (Un) | 230V AC | 230/400V AC | |
| WORKING VOLTAGE | 100/173V...270/468V | | |
| OVERVOLTAGE | 4KV for 1 minute | | |
| PULSE OUTPUT S0 | Configurable (T-on: 45ms, T-off: 270ms, T-t: 140us) | | |
| FREQUENCY | 45...60Hz | | |
| HUMIDITY | <= 75% (< 95% for storage) | | |
| WORKING TEMPERATURE | -25°C...55°C | -40°C...70°C | -25°C...55°C |
| STORAGE TEMPERATURE | -30°C...70°C | -40°C...70°C | -30°C...70°C |
| ABSORPTION | <2W...<10VA | | |
| PROTECT INDEX | 51 | | |
| CONFIGURATION | Via INFRARED | | |

**MID DIRECTIVE :**
Implemented at national level with the Legislative Decree no. 22/2007 is one of the new approach directives adopted by the European community. The aim of this approach is the definition of technical requirements and shared common, that allow you to move freely within the community tools.
**Instruments which fit into this rule, have the CE mark, and it is important to mark that the Directive relates solely to the design and manufacture of measuring instruments.**

# THREE PHASE NETWORK ANALYZER - 17,5 mm

## Compliant to POWER QUALITY REQUIREMENT
## ALL-IN ONE Current Transformers Input

## QE-POWER-T

**The smallest three phase network analyzer for all current probes.**
Ready to be connected with your Monitoring/Datalogger system.
RS485 Modbus RTU and digital contact available.
All in one Current Transformers input and three versions to cover all of your needs.





| Model | QE-POWER-T | | |
|---|---|---|---|
| CURRENT INPUT | 1/5 A<br>0...333mV<br>Rogowski probe | | |

| Versions | STD | PLUS | PRO |
|---|---|---|---|
| POWER SUPPLY | 10...40 V DC o 19...28 V AC - 50/60Hz | | |
| VOLTAGE INPUT | Direct connection up to 500V RMS maximum (40...70Hz) | | |
| | Transform Ratio for CT and VT available | | |
| OUTPUT | RS485 Mobus RTU and<br>Digital Contact (<40 V, <100mA) | | |
| AVAILABLE MEASURE | **I rms, V rms**<br>**I pk, V pk per phase**<br>**P, $P_1$, $P_2$, $P_3$ : Active Power ( W )**<br>**Q, $Q_1$, $Q_2$, $Q_3$ : Reactive Power (VAR)**<br>**S, $S_1$, $S_2$, $S_3$ : Apparent Power (VA)**<br>**Frequency**<br>**Power Factor total and per phase (Inductive / Capacitive)**<br>**Energy ( kWh) total and per phase**<br>**Bidirectional Energy (kWh), positive and negative per phase and total**<br>**Active and Reactive Energy (kVARh) - ( Inductive / Capacitive ) total and per phase**<br>**Crest Factor total and per phase** | | |
| | | **Tanφ, per phase and average (inductive/Capacitive)**<br>**Power Factor average, total and per phase** | |
| | | **Power Factor Distortion (inductive/Capacitive) per phase/avg** | |
| | - | **THD (V, I )** | |
| | | **Power measurement : min, average and max per phase and total** | |
| | - | **Monitoring phase sequence** | |
| | | **Max Demand over 15minutes, total and per phase**<br>**Time at which arises max demand (per month), total and per phase**<br>**Time above a threshold, total and per phase** | |
| | | **K Factor ( IEEE Standard 1100-1992)** | |
| | - | - | **Harmonics Analisys up to 63$^{th}$** |
| | - | - | **InterHarmonics Analysis up to 63$^{th}$** |
| | - | - | **SAG / SWELL -Voltage interruption** |

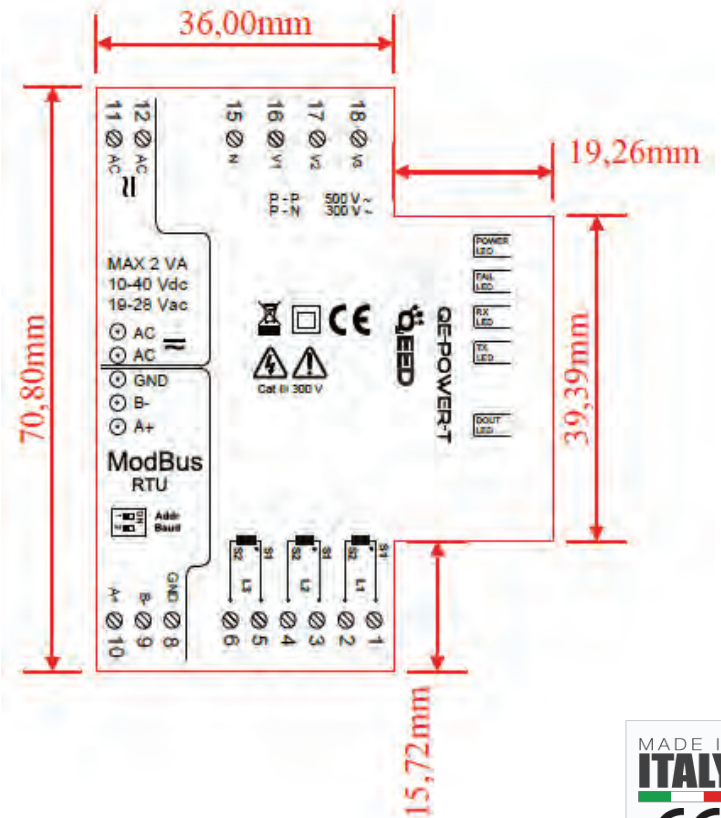
# THREE PHASE NETWORK ANALYZER - 17,5 mm

## Compliant to POWER QUALITY REQUIREMENT
## ALL-IN ONE Current Transformers Input

## QE-POWER-T

| **Accuracy** (@ 25°C, 50Hz ) | | QE-POWER-T |
|---|---|---|
| VOLTAGE | (Un: 230/400 V) | +/- 0,5% RDG ( 10...100% Un ) |
| CURRENT | (In= 5A) | +/- 0,5% RDG ( 5...100% In ) |
| FREQUENCY | | +/- 0,1 Hz from 40...70Hz; |
| POWER | | **ACTIVE** : +/- 0,5% RDG ; **REACTIVE** : +/- 0,5% RDG |
| ENERGY | | **ACTIVE:** Class C according to EN50470-1/3 or Class 0,5 S according to EN62053-22 |
| | | **REACTIVE:** Class 0,5 S according to EN62053-24 |

| **Other features:** | |
|---|---|
| ABSORPTION | < 500mW @ 24V DC |
| SAMPLING RATE | 6400 Hz @ 50Hz |
| BAUDRATE RS485 | from 1200...115200 Baud (standard 9600 ) |
| THERMAL DRIFT | < 100ppm/°C |
| WORKING TEMPERATURE | -10°C...+60°C |
| STOCK TEMPERATURE | -20°C...+85°C |
| RELATIVE HUMIDITY | 10... 90% not condensing |
| ALTITUDE | Up to 2000 m s.l. |
| FIXING SYSTEM | On DIN rail , ready to be mounted on T-BUS system |
| CONNECTIONS | n°4 removable connectors: 2, 3, 6 poles 3,5mm step, 4 poles 5,08mm step |
| DIMENSIONS | 93 x 17,5 x 68,3 mm (without connectors ) |
| WEIGHT | 60 gr. |
| DIP-SWITCH | 2 poles ( Baudrate and Address) for connection with the configuration software FACILE |
| LED | N°5 : Power (Green), Comm (Yellow), TX e RX (Red), Digital contact (Green) |
| STANDARD REFERENCES | EN 61000-6-2; EN61000-6-4; EN61000-4-2; EN61000-4-3; EN61000-4-4; EN61000-4-5; EN61000-4-6; EN61010-1; EN61010-2-30 |

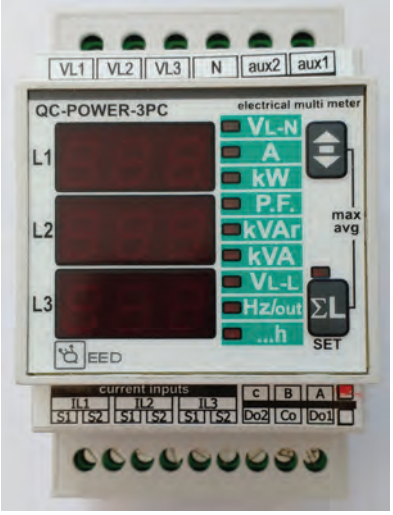


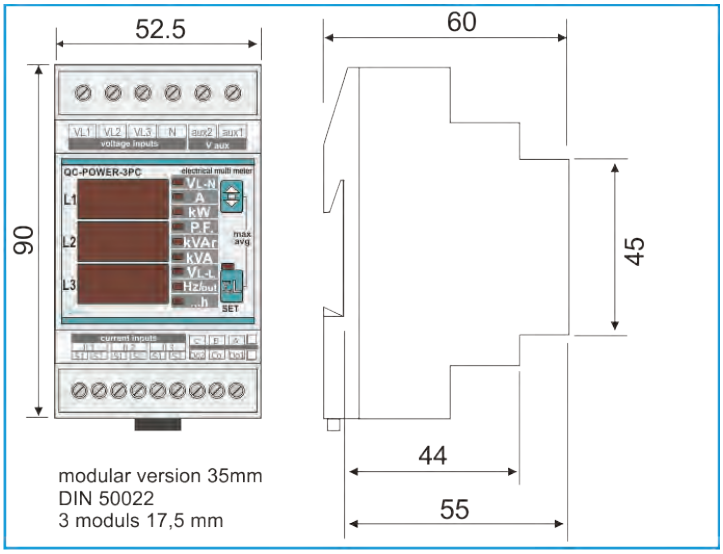

MADE IN ITALY CE

# THREE PHASE POWER METER

## Bidirectional Energy - RS485 - 3 DIN Width

# QC-POWER-3PC




MADE IN ITALY CE

Compliant to the Community directives:
2006/95/CE (Low Voltage - LVD);
2004/108/CE (EMC) is declared with reference to the following standards:
Safety EN61010-1, E.M Compability EN61000-6-2, EN61000-6-4, EN62052-21 and EN62053-23

| | QC-POWER-3PC |
|---|---|
| POWER SUPPLY | 230 V AC (+/- 15%) |
| WORKING FREQUENCY | 50/60 Hz |
| ABSORPTION | max 3 VA |
| CURRENT INPUT | True rms value of phase currents and three phase system value<br>Range of measure: 0,02÷5A trms digit – 40÷100Hz |
| VOLTAGE INPUT | True rms value of the phases voltages and phase to phase in a three phase system<br>Total range of measure: 20÷500V trms phase to phase- 380V rms phase-neutral – 40÷100Hz |
| **ACCURACY:** | |
| VOLTAGE | 0,5% f.s. ( 10%...100%); min 20V - maximum values management |
| CURRENT | 0,5% f.s. (10%...100%); min 20mA - average and maximum values management |
| ACTIVE POWER | 1% f.s. Maximum, average and instantaneous values management |
| REACTIVE POWER | 1% f.s. Maximum, average and instantaneous values management |
| POWER FACTOR | +/-1% |
| FREQUENCY | +/- 0,5% (30...500 Hz) |
| ACTIVE ENERGY | Bidirectional CLASS 2 ( IEC 1036) accuracy: ±1% |
| REACTIVE ENERGY | Bidirectional CLASS 2 ( IEC 1036) accuracy: ±1% |
| HOUR METER | Time metering in hours and decimal of hours<br>Range of measure 0,0 ÷ 99999.9 h / accuracy ±0,5% |
| CURRENT /VOLTAGE RATIO (CT / VT ) | Configurable by DISPLAY |
| OUTPUT | RS485 Modbus RTU (4800...19200 Baudrate) |
| DISPLAY / KEYS | 3 display with red LED 7,5mm each of 3 digits 7 segments<br>2 keys for selecting measures and programming , LED bar 10 points |
| WORKING TEMPERATURE | -10°C...60°C |
| STORAGE TEMPERATURE | -25°C...70°C |
| DIMENSIONS | 3 DIN |
| PROTECTION INDEX | Frontal IP52/ Enclosure IP20 |
| HUMIDITY | 10...90% not condensing |

# PANEL 96x96mm POWER METER

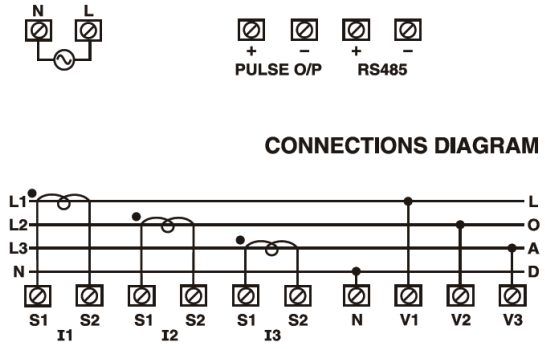
## Network Analyzer - RS485 Modbus

## QC-POWER-P96


**Panel mounting 96x96mm Power meter and Network analyzer. RS485 Modbus RTU**
Current secondary at 1 and 5 A
Class 1 accuracy for Energy measurement
**THD and Harmonics analysis up to the 31st**
Bidirectional Power and Energy measurement
Pulse output
Power supply 100-240V AC @ 50-60Hz

| | QC-POWER-P96 |
|---|---|
| POWER SUPPLY | 100…230 V AC (-15%…+12%) @ 50/60Hz ( +/- 5%) |
| ABSORPTION | less then 8 VA |
| CURRENT INPUT | Nominal 5A AC (minimum 11mA -max 6 A) |
| VOLTAGE INPUT | 11...300V AC (L-N) ; 19...519V AC (L-L) - Category III |
| ACCURACY : | |
| VOLTAGE | 0,5% f.s. |
| CURRENT | 0,5% f.s. |
| ACTIVE POWER | 1% |
| REACTIVE POWER | 1% |
| POWER FACTOR | +/- 0,1% |
| FREQUENCY | +/- 0,1% (45...65Hz) |
| ACTIVE ENERGY | CLASS 1 |
| REACTIVE ENERGY | CLASS 1 |
| TRANSFORM RATIO (TA / TV ) | Primary from 1/5 A to 10000 A and from 100 V to 500kV configurable |
| OUTPUT | RS485 Modbus RTU and Pulse (24V DC max) |
| BAUDRATE RS485 | From 300...19200 configurable |
| WORKING TEMPERATURE | -10°C...55°C |
| STORAGE TEMPERATURE | -20°C...75°C |
| DIMENSIONS | Panel mounting 96x96x55mm |
| PROTECTION DEGREE | Frontal IP54/ Enclosure IP20 |
| HUMIDITY | 10...90% not condensing |
| WEIGHT | 318 gr |


Suitable to be used with Split Core current transformers QI-SC with secondary at 5A.




Suitable for 3 phases measurement and 3 phases + Neutral and single pahse with two wires.

# SINGLE PHASE POWER METER - DIRECT CONNECTION

## RS485 Modbus

## QC-PM485

**Single Phase Power Meter for direct connection up to100 A.**
**Serial output RS485 Modbus**
Class 1 Accuracy
Measure available : **VRMS, IRMS, Active Power, Reactive Power, Apparent Power, Power Factor, Energy, Frequency.**
Metering for time slots
Light pulse output 1000 imp/1kW
Power supply from the network

| | QC-PM485 |
|---|---|
| POWER SUPPLY | 230 V AC (from measurement input) |
| ABSORPTION | ≤8VA ≤0.4Wh |
| CURRENT INPUT | Direct connection, 10 A typical, max 100 A |
| MINIMUM CURRENT MEASURAMENT | 0,004 $I_b$ |
| AVAILABLE MEASUREMENT : | |
| | VRMS, IRMS, Frequency, Active Power, Reactive Power, Apparent Power, Power Factor, Energy |
| SERIAL OUTPUT | RS485 Modbus RTU |
| BAUDRATE RS485 | from 1200 up to 9600 configurable (default 9600) |
| PULSE OUTPUT K | Led, 1000 pulse/kWh (lenght 90ms) |
| WORKING TEMPERATURE | -20°C...65°C |
| DISPLAY | 5+1 digit : 99999,9 kWh |
| DIMENSIONS | DIN RAIL mounting 44,6x72x18,2mm |
| PROTECTION DEGREE | IP51 |
| HUMIDITY | 10...90% not condensing |
| WEIGHT | 100 gr |
| STANDARDS | IEC62052-11, IEC62053-21 |
| CONFIGURATION | free configuration Software available on our website |

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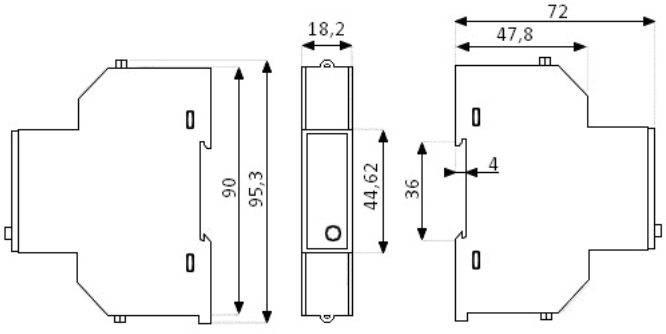
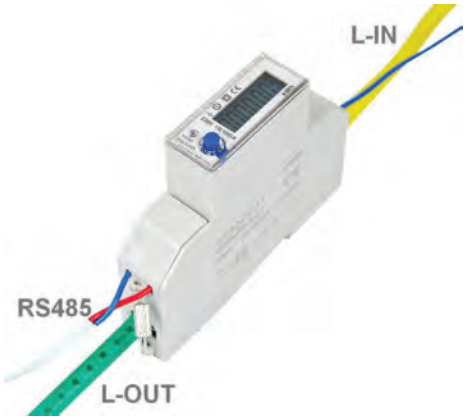


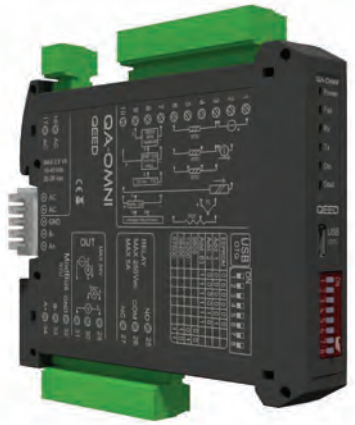



# ISOLATED SIGNAL CONVERTERS
# I/O SLAVE MODBUS RTU SYSTEMS

QA

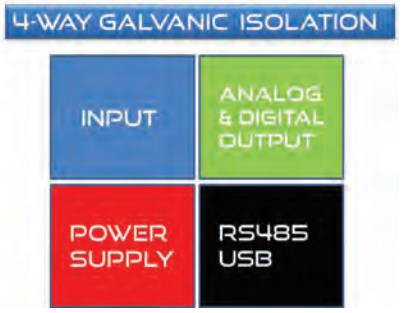
**QEED** offer several solutions to cover your need to **ISOLATE and CONVERT** signals and to **ACQUIRE signals from field by MULTICHANNEL Slave Modbus I/O**:

- **QA-OMNI** : Universal Signal Converter (Voltage, Current, Temperature, Resistence, Potentiometr, Universal Digital input);
- **QA-TEMP** : Universal Temperature Converter ( RTD, TC, Potentiometer, Resistence );
- **QA-VI**: Voltage /Current Converter;
- **QA-I** : Current Isolator;
- **QA-12DI-4DO** : I/O Slave Modbus for 12 Digital input and 4 Relays output;
- **QA-8DO**: I/O Slave Modbus with 8 Relays output.




## QA-OMNI / QA-TEMP / QA-VI

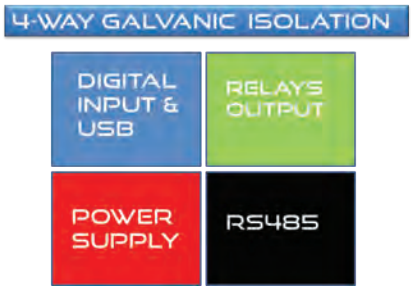
Common features for all these model:
- **DATALOGGER** via USB by standard pen-drive stick memory;
- **ANALOG OUTPUT** fully configurable;
- **DIGITAL OUTPUT**, SPDT 5A 250V AC Relay fully configurable;
- Ready to be mounted on T-BUS connection system;
- FREE CONFIGURATION SOFTWARE "FACILE" available, by USB or RS485 connection.





## QA-12DI-4DO / QA-8DO

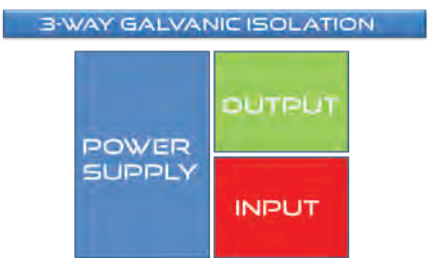
Common features for all these model:
- **HOT SWAPPING**, to install o replace the module without switch off the power supply;
- RS485 Modbus RTU;
- Ready to be mounted on T-BUS connection system;
- **DIGITAL OUTPUT**, SPDT 5A 250V AC Relay fully configurable;
- FREE CONFIGURATION SOFTWARE "FACILE" available, by USB or RS485 connection.





## QA-I

- **CURRENT ISOLATOR** (0...20mA/0...20mA)
- Current INPUT and OUTPUT can be ACTIVE or PASSIVE ;
- Ready to be mounted on T-BUS connection system (only for power supply)
- NO NEED ANY CONFIGURATION.



# ISOLATED SIGNAL CONVERTERS

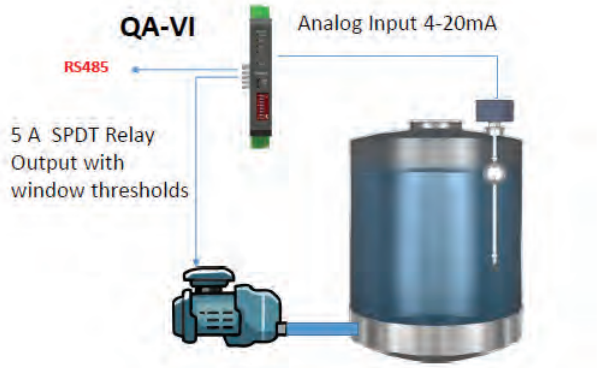
# QA

## DATALOGGER via USB, SPDT Alarm Contact, RS485 Modbus

Compliant to the CE standards:
EN61000-6-4/2006+ A1 2011;
EN61000-6-2/2005
EN61010-1/2010

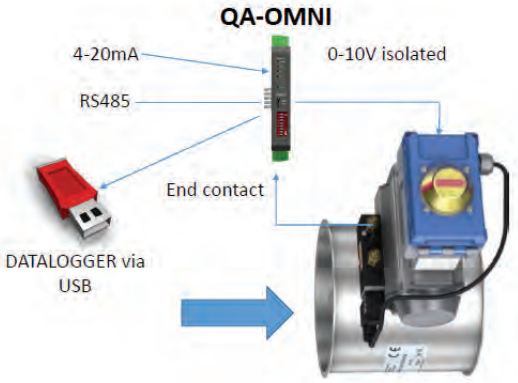
MADE IN ITALY CE

| | QA-OMNI | QA-TEMP | QA-VI |
|---|---|---|---|
| POWER SUPPLY | 10...40V DC, 20...28 V AC @ 50/60Hz | | |
| **ANALOG INPUT** (fully configurable) | **Voltage (up to 10 V DC)** resolution 1mV, input impedance 100K Ohm | | **Voltage (up to 10 V DC)** resolution 1mV, input impedance 100K Ohm |
| | **Current ( up to 20mA)**, max risolution 2 uA, input impedance 20 Ohm | | **Current ( up to 20mA)**, max risolution 2 uA, input impedance 20 Ohm |
| | **Temperature /Resistence**<br>**RTD** : PT100, PT500, PT1000, Ni100 (2, 3 or 4 wires)<br>**TC** : J, K, R, S, T, B, E, N (-10mV... +70mV)<br>Automatic detection of cable interruption | **Temperature /Resistence**<br>**RTD** : PT100, PT500, PT1000, Ni100 (2, 3 or 4 wires)<br>**TC** : J, K, R, S, T, B, E, N (-10mV... +70mV)<br>Automatic detection of cable interruption | |
| | **Potentiometer : 1K... 10K Ohm** | **Potentiometer : 1K... 10K Ohm** | |
| **DIGITAL INPUT** (at the same time with analog input) | **Frequency: 0,001Hz...9,99KHz**<br>**Mechannical contact**<br>**NPN 2 and 3 wires**<br>**3wires PNP with Power supply 24V**<br>**Namur**<br>**Photoelectric**<br>**Hall's Sensors**<br>**Variable Reluctance**<br>**Pulsed at 24V**<br>**TTL** | | |
| **ANALOG OUTPUT** (Fully configurable) | **Current : 0...20mA** (max load resistance 600ohm )<br>**Voltage: 0...10V** (min load resistance 2k Ohm)<br>Power supply on transmitted output: 13V DC, 30mA max | | |
| **SERIAL OUTPUT** | RS485 Modbus RTU (from terminals and T-Bus) | | |
| **DIGITAL OUTPUT** | **5A - 250 V AC SPDT RELAY** fully configurable | | |
| ACCURACY CLASS | 0,1% F.S. | | |
| RESOLUTION | 16 bit ( 15 + sign for TC) | | 16 bit |
| REJECTION | 50/60 Hz | | |
| THERMAL STABILITY @ 25°C | < 100ppm | | |
| ISOLATION | a 4 vie - 1,5kV | | |
| DATALOGGING | via standard USB stick memory | | |
| CONFIGURATION | Software FACILE QA-OMNI | Software FACILE QA-TEMP | Software FACILE QA-VI |
| WORKING TEMPERATURE | -15°C...+65°C | | |
| STORAGE TEMPERATURE | -40°C...+85°C | | |
| HUMIDITY | 10%...90% not condensing | | |
| FRONTAL DIP-SWITCH | Only for manual setting of Modbus address and Baudrate | | |
| DIMENSIONS | 17,5 x 100 x 112mm (terminal excluded) | | |



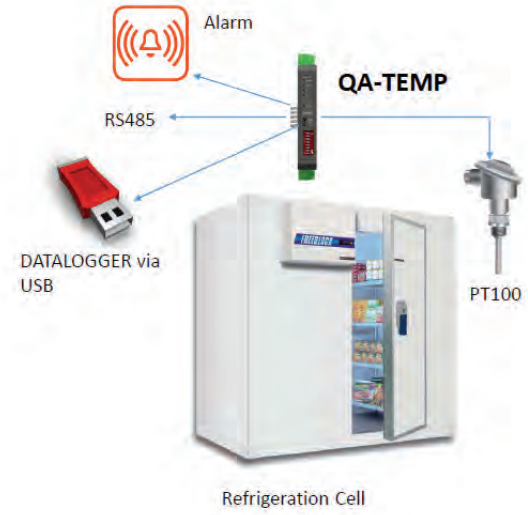

### MANAGEMENT OF A TANK FILLING

Using a QA-VI module is possible to acquire tha analog output from a Level probe. The relay output of the QA-VI is an SPDT contact that allow you to set the working window ( hysteresis included ) of the Level probe.
The SPDT relay will manage the start and the stop of the pump once the level probe will reach the upper limit setted on the module.
The QA-VI is ready to be connected via RS485 with an existing Remote Monitoring System .
No need of other Logics!




### MONITORING AND MANAGEMENT OF AN ELECTRIC ACTUATOR

Using a QA-OMNI module is possible to acquire in the same time one analog input and one digital input.
For this application the customer required us to convert and isolate the drive signal for the actuator from 4-20mA to 0-10V. We connected also the end contact of the actuator to the digital input of the board in order to TOTALIZE and LOG, on a USB stick memory, the cycles of the valve.
The QA-OMNI is ready to be connected via RS485 with an existing Remote Monitoring System, so the customer can plan in a better way the mainteinance activites of the plant.




Refrigeration Cell

### TEMPERATURE MONITORING ON COLD STORE

Using the QA-TEMP module is possible to acquire and isolate the signal coming from a temperature probe. It is possible to LOG the temperature on a standard USB stick memory (as norms require ) in a .csv standard and then can be download them on your PC. Is possible to set the relay contact in order to fix an alarm linked to a GPRS modem. The QA-TEMP is ready to be connected via RS485 with an existing Remote Monitoring System.


THE CONFIGURATION SOFTWARE **"FACILE"** ALLOW TO SET ALL THE PARAMETERS ON QA MODULES ( THE INPUT AND OUTPUT MEASUREMENT RANGE, THE MODBUS SETTINGS, THE DIGITAL OUTPUT SETTINGS, THE LOG, etc ) .

THE SOFTWARES ARE FREE AND CAN BE DOWNLOAD FROM OUR WEBSITE : **www.qeed.it**

# I/O SLAVE MODBUS RTU SYSTEMS

## MULTICHANNEL INPUT and OUTPUT with SPDT 5A RELAYS, RS485

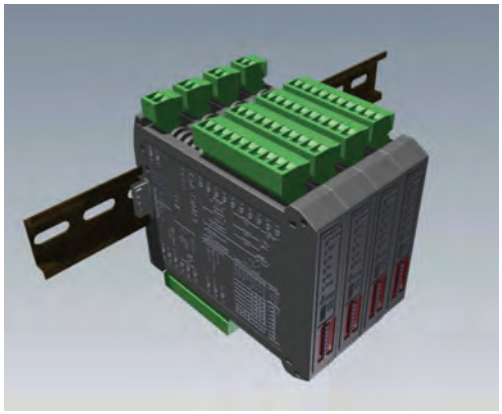
# QA

Compliant to the CE standards:
EN61000-6-4/2006+ A1 2011;
EN61000-6-2/2005
EN61010-1/2010

The I/O Slave Modbus QA are suitable to be used like expansions for the Input /Output in a Master device (PLC, Industrial PC and Controllers, HMI, Panel PC ).

All the QA models can be connected with the T-Bus connectors, it allow you the connection for Power Supply and RS485 with the other devices.
HOT SWAPPING (no need to switch off the system).

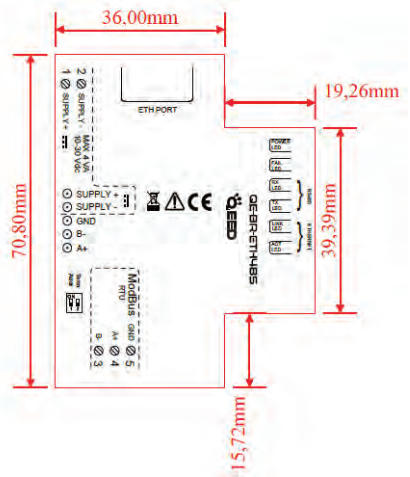
| | QA-12DI-4DO | QA-8DO |
|---|---|---|
| POWER SUPPLY | 10...40 V DC, 20...28 V AC @50/60Hz | |
| **ANALOG INPUT** | n.d. | n.d. |
| **DIGITAL INPUT** | **n°12**<br>**PNP with common negative**<br>**32 bit Totalizer**<br>**Max Frequency 10 KHz** | n.d. |
| **ANALOG OUTPUT** | n.d. | n.d. |
| **DIGITAL OUTPUT** | **n°4**<br>**SPDT 5A -250V AC Relays** | **n°8**<br>**SPDT 5A -250V AC Relays** |
| **SERIAL OUTPUT** | **RS485 Modbus RTU**<br>on Terminals or by T-BUS connection (on the bottom) | |
| ABSORPTION | 2,5 VA max | |
| ISOLATION | 4 way ( 1,5kV) | |
| WORKING TEMPERATURE | -15°C... +65°C | |
| STORAGE TEMPERATURE | -40°C... +85°C | |
| HUMIDITY | 10%... 90% not condensing | |
| ALTITUDE | up to 2000m s.l. | |
| MOUNTING | Din rail mounting | |
| TERMINALS | Removable, step 5,08mm | |
| DIMENSIONS | 17,5 x 100 x 112mm (terminal excluded) | |
| HOT SWAPPING | No need to swith off the system for the installation | |
| CONFIGURATION | By software FACILE QA-12DI-4DO<br>or by Modbus registers | By Software FACILE QA-8DO<br>or by Modbus registers |




**MODULI SLAVE MODBUS**

# ISOLATED SERIAL CONVERTER
## MODBUS RTU / TCP-IP

# QE-BR-ETH485




The QE-ETH485 is a bridge Modbus RTU to Modbus TCP. The module is available in only one din rail and can be supplied by using the T-BUS connection on the bottom

| | QE-BR-ETH485 |
|---|---|
| POWER SUPPLY | 10...30 V DC |
| NETWORK INTERFACE | 10/100Base-T |
| RTU BAUDRATE | up to 115200 |
| MAX Modbus nodes allowed | 247 |
| STANDARDS | Compliant to ETHERNET IEEE 802.3 and RS485 |
| SERIAL PORT | - **RS485 Modbus RTU** (on Terminals or by T-BUS connection (on the bottom)<br>- **ETHERNET** Modbus TCP-IP(RJ45) |
| ABSORPTION | < 4 W |
| LED | Link/Act Ethernet, RX-TX, Fail, Power Supply |
| WORKING TEMPERATURE | -20°C... +60°C |
| STORAGE TEMPERATURE | -40°C... +85°C |
| HUMIDITY | 10%... 90% not condensing |
| CONFIGURATION | by Web page |

# ISOLATED SERIAL CONVERTER
## RS485-USB

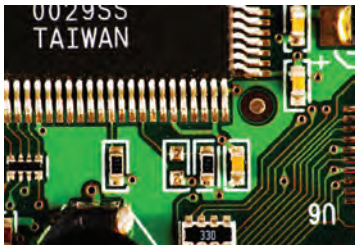
# Q-USB485

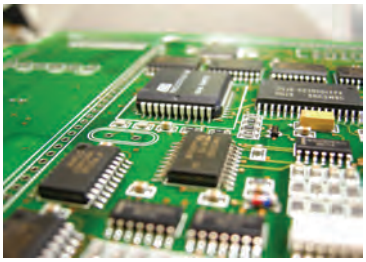
The **Q-USB485** is a Serial Converter Isolated **up to 5 kV**, based on chip USB FTDI. The simple use is guarantee by the Windows validation drivers that you download automatically when you have your PC connected to the network . This device allow you to connect in safety way to any Modbus devices on RS485.

**Features:**
Max baud rate 500KBit/sec;
Max common mode voltage (A-B inputs- outputs) –60V +60V;
Removable connectors;
Transparent housing to view led indicators :TX, RX, Supply

To download the driver directly from our web site please link to : **http://www.qeed.it/category/software**

# TURNKEY CUSTOM ELECTRONIC BOARDS
# EMS ( Electronics Manufacturing Services)



DEM spa is right partner to develop and produce your electronic boards.

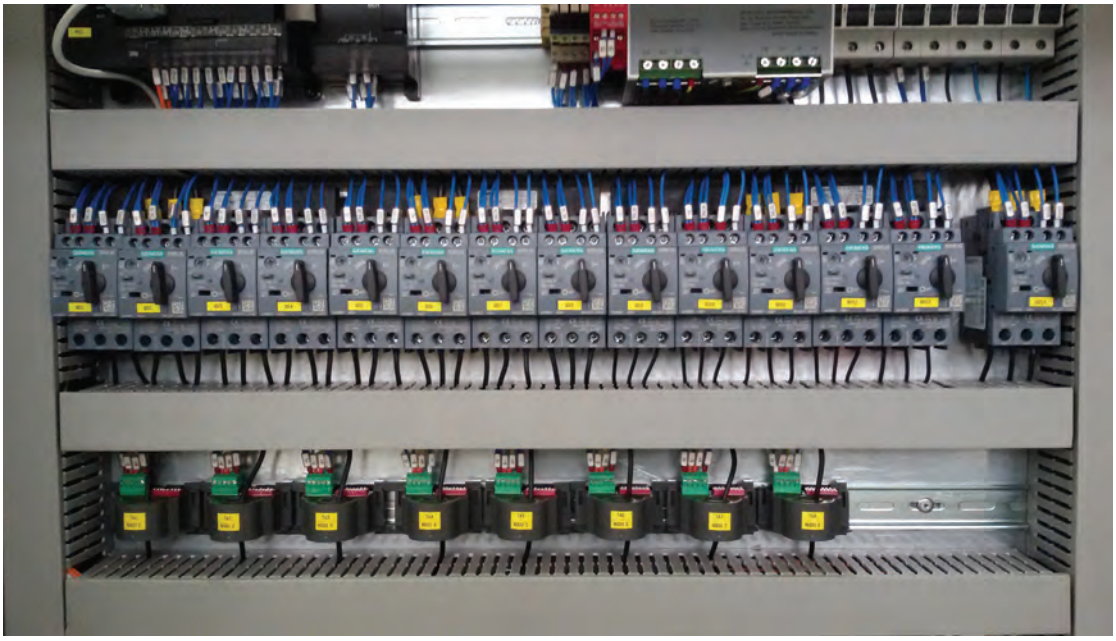
The project needs 4 steps to do : Development, Production of CE Omologation, Production and Post Sales Support.

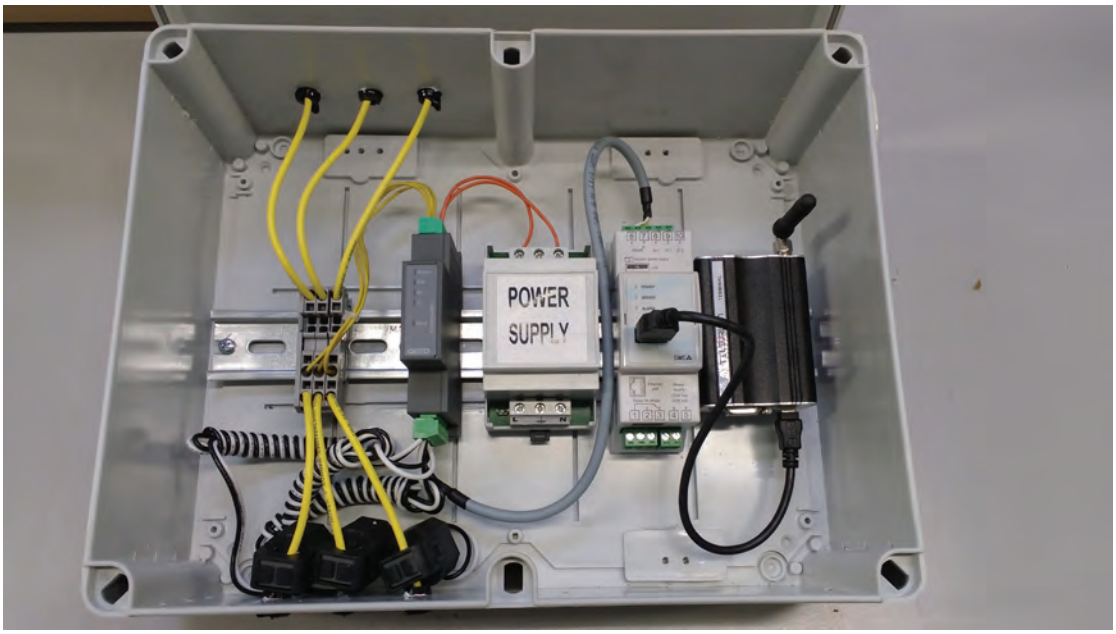
**1 – Development**
- Find all technical informations; Fixing the technical specification of the project .
- Drafting of a circuit diagram.
- Design and production of printed circuit board prototypes.
- Writing firmware
- Internal functional tests (to approval the technical specification).

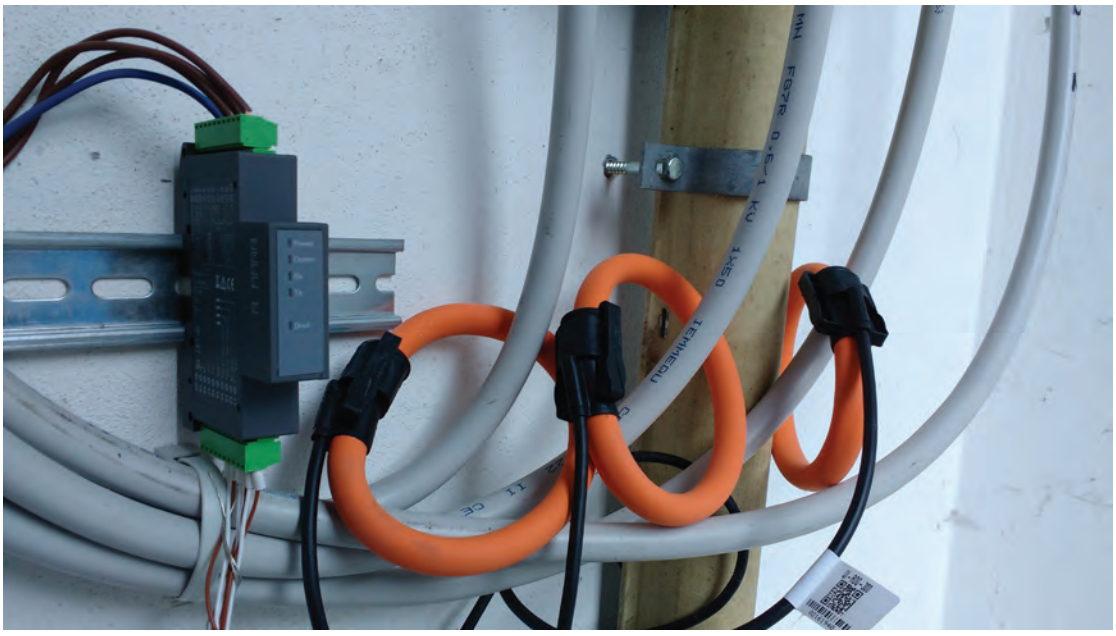
**2 – Consulting for the certification**
DEM will provide the complete package for the CE type-approval of the board.

**3 – Production**
DEM are able to produce up to 50k pcs/week of electronic boards, we have several SMD machines in our plant in Longarone, we can be supported also by our Croatian plant based in Pakrac.

**4 – Post Sales Support**
DEM support the customers in all their needs, we train the customer to understand and manage all the situations with the electronic board.




POWER
SUPPLY



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QUALITY ELECTRONIC DESIGN


**www.qeed.it** info@qeed.it

Sales department..... sales@qeed.it

Technical department.....technical@qeed.it

D.E.M. S.p.A.

Z.I. Villanova, 20 - 32013 Longarone (BL), Italia

Ph. +39 0437 761021
Fax +39 0437 760024


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