

# AC / DC "CT" STYLE RS485 MODBUS RTU OUTPUT ENERGY METER

PRODUCT  
GROUP  
**Z**

**TYPES: QI-POWER-485      50 Amps AC/DC, 800VAC or 1000VDC**  
**QI-POWER-485-LV      50 Amps AC/DC, 80VAC or 100VDC**

## ■ FEATURES

- Primary current 0-50 Amps
- Voltage up to 800VAC or 1000VDC
- Voltage up to 80VAC or 100VDC (LV version)
- Universal AC 1-400Hz or DC measurement
- Output RS485 MODBUS RTU
- Measures Volts, Current, Watts, VAr, VA, Voltage Peak Current Peak, Hz, COS, KWh import, KWh export, THD
- Class 0.5 accuracy (voltage, current, active power)
- TRMS measurement
- Screw mounting or Din rail mounting
- Fast response time

## ■ DESCRIPTION

The **QI-POWER-485** and **QI-POWER-485-LV** are moulded case high accuracy "CT" style **universal DC or AC** multi parameter energy meters and are galvanically isolated from the measuring circuit. The "CT's" have a primary current range of 0-50 Amps AC/DC and for voltage up to 800VAC or 1000VDC (LV version 80VAC or 100VDC).

The "CT's" are equipped with **RS485 MODBUS RTU communications**. Measuring parameters include **Volts, Peak Volts, Current, Peak Current, Watts, VAr, VA, Hz, COS, KWh import, KWh export & THD**.

Via the RS485 the "CT's" are fully configurable with the aid of free software supplied, for example response / filtering times can be configured, along with minimum current and power thresholds (below these values the device cuts off and the measured value is zero. The Baudrate is selected via dip-switches.

The "CT's" require a supply voltage of 9 to 30VDC and has an internal aperture size of 15mm Dia.

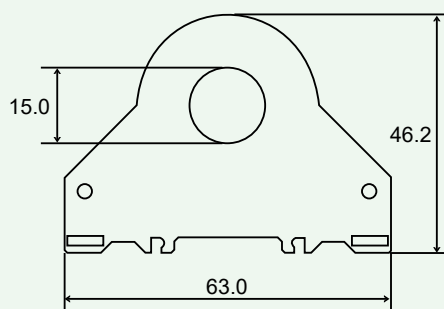
The principle of putting in primary turns on CT's to reduce the primary current range also applies to these current transformers.

## ■ SPECIFICATIONS

Supply voltage:	9 to 30VDC
Power consumption:	<1.3 W
Accuracy:	@ 25°C up to 200 Hz Class 0.5 (I, V, W) Frequency +/-0.1Hz
Resolution:	12 bit
Temp coefficient:	<200 ppm/°C
Operating temp:	-15 to +65°C
Humidity:	10-90 %RHt
Output:	RS485 MODBUS RTU
Baudrate:	1200....115200 Baud
Sampling rate:	11K samples per second
Input impedance:	1M Ohm +/-1%
Mounting:	Screw or Din rail
Dip switch:	2 way
Max measurement range:	50 Amps AC/DC 800VAC or 1000VDC 80VAC or 100VDC (LV version)
AC frequency range:	1-400Hz
Measuring parameters:	Volts, Peak Volts, Current, Peak Current, Watts, VAr, VA, Hz, COS, KWh import & export, THD min & max each reading
Isolation:	3KV current measurement 4KV voltage measurement On an uninsulated conductor
Indication:	Via yellow LED Supply voltage present - steady Data communicating – flashing
Terminals:	4 way & 2 way removable plug



### DIMENSIONS



## ■ DIP SWITCH TABLE

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

## ■ ORDERING INFORMATION

P/No. **QI-POWER-485**  
**QI-POWER-485-LV (Low Voltage version)**

## QI MODBUS REGISTER TABLE & DIP SWITCH TABLE

PRODUCT  
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REGISTER NAME	COMMENT	REGISTER TYPE	R/ W	DEFAULT VALUE	RANGE	MODBUS ADDRESS
Machine_ID	ID machine	Unsigned 16 bits	R	16		40001
FW_VERSION	Firmware Release	Unsigned 16 bits	R			40002
addr	MODBUS ADDRESS	Unsigned 16 bits	R/W	1	1 ...250	40003
Delay	Answer Delay	Unsigned 16 bits	R/W	1	1 ...1000	40004
Baudrate	Baudrate 0=1200 / 1=2400 2=48000 / 3=9600 4=19200 / 5=38400 6=57600 / 7=115200	Unsigned 16 bits	R/W	1	1 ...7	40005
parity	Type of parity 0=8,N,1 1=8, O, 1(ODD) 2=8, E, 1(EVEN)	Unsigned 16 bits	R/W	0	0 ...2	40006
In_start	Start Input	Floating 32 bits	R/W	0		40007 (LO) 40008 (HI)
In-Stop	Stop Input	Floating 32 bits	R/W	300 AC/DC		40009 (LO) 40010 (HI)
Out_start_V	Start Output (mV)	Unsigned 16 bits	R/W	0	1 ...10000	40011
Out_stop_V	Stop Output (mV)	Unsigned 16 bits	R/W	10000	0 ...10000	40012
flit1	nº of samples for mobile average (1=100ms)	Unsigned 16 bits	R/W	1	1 ...32	40013
flit	Second level filter for ripple problems on AC measurement	Unsigned 16 bits	R/W	4096	1000... 20000	40014
Cutoff	Cutoff value (A)	Unsigned 16 bits	R/W	1500		40029
RMS_A	RMS Current Value	Floating 32 bits	R			40037 (LO) 40038 (HI)
status	Status Register bit 0=1: Error flash setting bit 1=1: Errorflashcalibration bit 2=1: Over Range bit 3=1: Under Range	Unsigned 16 bits	R			40048
RMS_100	RMS Value of Current (A x 100)	Signed 16 bits	R			40050
RMS_sw	RMS Current Value @ swapped	Floating 32 bits	R			40051 (HI) 40052 (LO)
Ah	Ah counting (resettable)	Floating 32 bits	R/W			40053 (LO) 40054 (HI)
A_MAX	Max current value/100 (resettable)	Signed 16 bits	R/W			40055
A_min	min current value/100 (resettable)	Signed 16 bits	R/W			40056
Data High	Calibration Data (yy,mm)	Unsigned 16 bits	R			40057
Data Medium	Calibration Data (day, hour)	Unsigned 16 bits	R			40058
Data Low	Calibration Data (min, sec)	Unsigned 16 bits	R			40059

DISCRIPTION	1	2	3	4	5	6	7	8
All setting from EEPROM	0	0	0	0				
ADD= 1	0	0	0	1				
ADD= 2	0	0	1	0				
ADD= 15	1	1	1	1				
2400 BAUDRATE					0	0		
9600 BAUDRATE					0	1		
38400 BAUDRATE					1	0		
57800 BAUDRATE					1	1		
MONOPOLAR (TRMS)							0	
BIPOLAR (MEAN VALUE)							1	
300 A AC/DC								0
150 A AC/DC								1

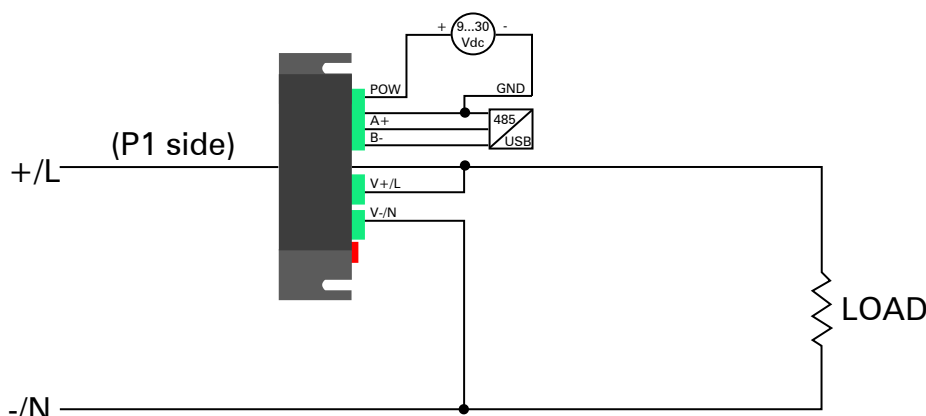
### Dip-Switch Settings

**Example :** if you want to set the measured range from 0...300 A AC/DC to 0... 150A AC/DC, switch ON the dip-switch n°8 and switch ON also one of the first four dip-switches (if you don't do that it will continue to take the EEPROM setting).

If you want to change from uni-polar (default) to bi-polar function by dip-switch, switch ON the dip n°7 and switch ON also one of the first dip-switches (if you don't do that it will continue to take the EEPROM setting).

**Any changes made by the dip-switches it is required to switch off the power supply. It's a safety condition in order to prevent any damage to the device.**

## CONNECTION DIAGRAM FOR QI-POWER-xxx



## SOFTWARE DOWNLOADS

To enable programming, setup and configuration the following two free software downloads are available from [www.ceed.it](http://www.ceed.it) (section products/download software). **Java required.**

### Software Download

FACILE-QI-50-V-485  
FACILE-QI-POWER-485

### Product Type

For QI-50-V-485 & QI-300-V-485  
For all QI-POWER-xxx variants

## STANDARDS

EN61000-6-4/2006 + A1 2011;  
EN64000-6-2/2005 ; EN61010-1/2010  
EN55022: 2010-12; EN55024: 2010-11;  
EN61000-6-4/2006 + A1 2011;  
EN64000-6-2/2005 ; EN61010-1/2010  
CE Marked and UL pending on (some types)