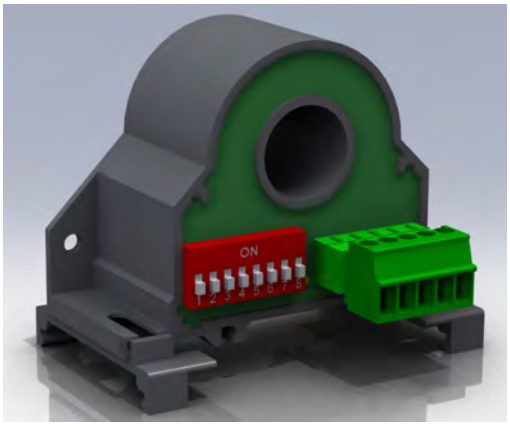
CURRENT TRANSFORMER
AC/DC TRMS - RS485 MODBUS

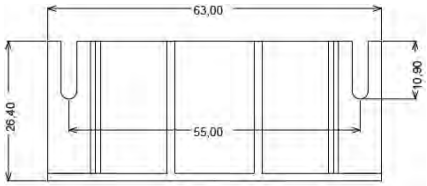
QI-50-V-485

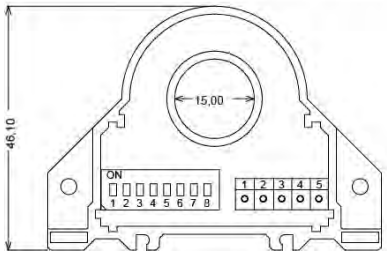
PATENT PENDING

POWER SUPPLY	12...30Vdc, Protection against polarity reversal and overtemperature.
ABSORPTION	Max 20mA
PROTECTION INDEX	IP20
ACCURACY	**0,5% F.S.**
RESOLUTION	12 bit
TEMPERATURE COEFFICIENT	< 200 ppm/°C
WORKING TEMPERATURE	-15...+65°C
STORAGE TEMPERATURE	-40°C... +85°C
RESPONSE TIME	1000 ms on analog output, 30ms on serial output
TYPE OF MEASURE	**TRMS (monopolar)**
RANGE	**50 Arms o 25 Arms** dip-switch setting, bipolar (+/- 50A DC o +/-25A DC), RS485 customize setting
OUTPUT	**0...10V and RS485**
BAND WIDTH AT -3dB	DC or 20...2000 Hz
ISOLATION	3 kV on bare wire
OVERLOAD	2000A pulse, 300A continuos
CREST FACTOR	2
HYSTERESIS	0,15% f.s.
HUMIDITY	10...90% not condensing
ALTITUDE	Up to 2000 m s.l.m.
WEIGHT	72 g.
FILLING	Epoxy Resins
BOX MATERIAL	PBT, grey
MOUNTING	Screw predisposition for vertical/ horizontal mounting, DIN rail clips (included) for vertical/horizontal mounting.
TERMINALS	Removable terminals 3,5mm, 5 poles
DIP-SWITCH	8 poles
LED	N°1 yellow, Power on fixed, data communication blinking
STANDARDS CE	EN55022: 2010-12; EN55024: 2010-11;
DIMENSIONS	46,1x 63x 26,4 mm (terminal excluded)

The **QI-50-V-485** is a AC/DC current transformer, galvanically isolated from the measuring circuit. The device is in the function and appearance is very similar to a standard active TA, however, able to measure the DC component and AC **TRMS**. The transformer is equipped with **RS485 Modbus serial output and an analog output 0-10V**. Through the serial port can be configured freely span and zero and assign the Modbus address.

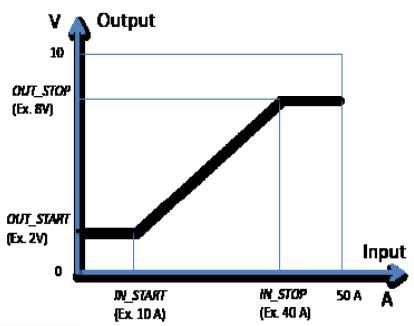






ISOLATION AND CONNECTIONS

QI-50-V-485 Input / Output (Esempio)



It's possible to connect via serial RS485 to the QI-50-V-48 through a converter USB/232-485 for setting the parameters of zero and span and configuration of the Modbus addresses directly from your system of supervision, or using the free FACILE QI-50-V-485 software. You can download our software on www.qeed.it

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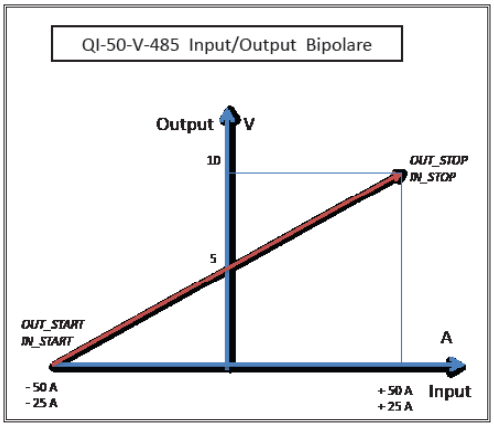


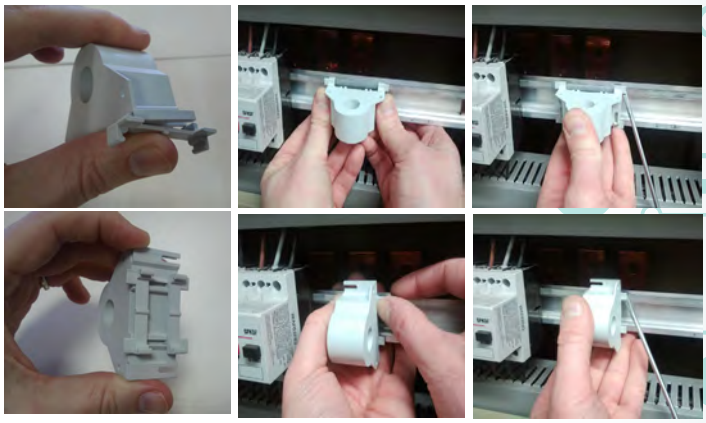
Via the serial link RS485-USB you can connect to the QI-50-V-485 via the interface program FACILE QI-50-V-485. Using this software, free download from www.qeed.it, allows you to configure the processor by setting the START and STOP input and output (see diagram), you can set the Modbus address of the PC to which the query transformer and decide whether to make monopolar (only positive or negative values) or bipolar (see diagram). If you are using bipolar function on AC current, the value read will be 0 A (5 V) because you are reading the average value.
By means of dip-switch can configure the QI-50-V-485 to set the scale to 25 or 50A, the function monopolar (TRMS) or bipolar (mean value), the Modbus address (see register map below) up to a maximum of 15 addresses.

MOUNTING: The current transformer QI can be mounted in any position (see photo below), horizontal or vertical mounting, horizontal or vertical through the two hooks for DIN rail included in the box.

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.

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;
- Dip Switch Settings: the setting is not enabled if the first fourth dip-switches are set to 0000, the rest of dip-switch are disabled. All settings coming from EEPROM.
- Modbus functions supported: 3 (Read multiple registers, max 4), 6 (Write single).



Modbus register table:

Register Name	Comment	Register Type	R/W	DEFAULT Value	Range	Modbus Address
machine_ID	ID Machine	Unsigned 16 bits	R	4		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= 4800 / 3= 9600 4= 19200 / 5= 38400 6= 57600 / 7= 115200	Unsigned 16 bits	R/W	1	0...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 (A)	Floating 32 bits	R/W	0		40007 (LO) 40008 (HI)
In_stop	Stop Input (A)	Floating 32 bits	R/W	50		40009 (LO) 40010 (HI)
Out_start_V	Start Output (mV)	Unsigned 16 bits	R/W	0	0...10000	40011
Out_stop_V	Stop Output (mV)	Unsigned 16 bits	R/W	10000	0...10000	40012
filt1	n° of samples for mobile average (1= 100ms)	Unsigned 16 bits	R/W	1	1...32	40013
filt	Second level filter for ripple problems on AC measurement	Unsigned 16 bits	R/W	4096	1000... 20000	40014
Cutoff	Cutoff Value (mA)	Unsigned 16 bits	R/W	250		40029
RMS_A	RMS Current Value (A)	Floating 32 bits	R			40037 (LO) 40038 (HI)
Command	0xC1C0: Save Flash Settings 0xC1A0: Reset (software)	Unsigned 16 bits	R/W			40040
status	Status Register bit 0 =1 : Error flash settings bit 1=1 : Error flash calibration 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 (A) 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 16bits	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

Dip-switch table:

DESCRIPTION	1	2	3	4	5	6	7	8
All settings 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	
50 A								0
25 A								1

Dip-Switch Settings

Example : if you want to set the measure range from 0...50 A to 0... 25A, please, put ON the dip-switch n°8 and put ON also one of the first four dip-switch (if you don't do that it continue to take the EEPROM setting).

If you want to modify from Monopolar (default) to Bipolar function by dip-switch, please, put ON the dip n°7 and put ON also one of the first dip-switch (if you don't do that it continue to take the EEPROM setting).

Any changes made by dip-switch required to switch off the power supply. It's a safety condition in order to prevent any manumission on the device.

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