QEED
QUALITY ELECTRONIC DESIGN
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CURRENT TRANSFORMER
AC/DC TRMS - RS485 MODBUS

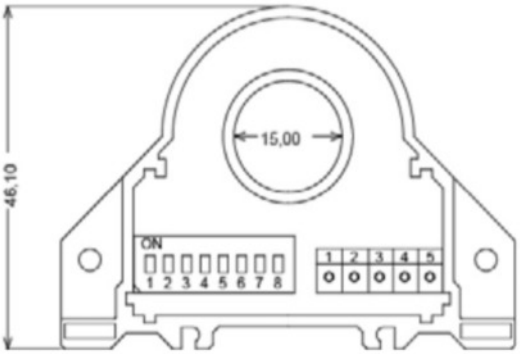
QI-50-DO-485

MADE IN ITALY CE

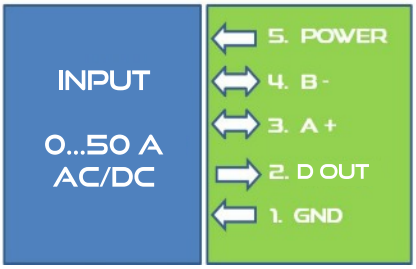
POWER SUPPLY	12...30 Vdc, protection against polarity reversal and overtemperature
ABSORPTION	Max 20 mA
TYPE OF MEASURE	**RMS (monopolar) or DC**
RANGE	**50 A AC/DC,** bipolar for DC measurement, RS485 customize setting
ACCURACY	**0,5% F.S.**
RISOLUTION	12 bit
OUTPUT	**digital output (max 30 Vdc, max 50 mA) clean contact and RS485**
CREST FACTOR	1,4
HYSTERESIS	0,2 F.S.
BAND WIDTH	at -3 dB DC or 20…2000 Hz
RESPONSE TIME	1000 ms on analog output, 30 ms on serial output
OVERLOAD	2 kA pulse, 50 A continuous
STANDARDS CE	EN61000-6-4/2006 + A1 2011; EN61010-1/2010
ISOLATION	3 kV son bare wire
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, 5 poles
WEIGHT	72 g
FILLING	Epoxy resins
BOX MATERIAL	PBT, grey
LED	N°1 yellow, power on fixed, data communication blinking
DIP-SWITCH	8 poles
MOUNTING	Screw predisposition for vertical/horizontal mounting, DIN rail clips (included) for vertical/horizontal mounting

LEGENDA SIMBOLI DELLA TAMPOGRAFIA	
⚠	General warning
P1	Insertion of the cable

The QI-50-DO-485 is a direct and alternating **current transformer**, galvanically isolated from the measuring circuit. The device, however, can measure the continuous and alternating **RMS** component. The transformer is equipped with **RS485 Modbus serial output and a clean contact digital output**. Through the serial port it is possible to freely configure the alarm threshold and assign the Modbus address.



ISOLATION AND CONNECTIONS



QI-50-DO-485
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INSTRUCTION MANUAL QI-50-DO-485

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);

Through the RS485-USB serial connection it is possible to connect to the QI-50-DO-485 via the EASY Interface Program QI-50-DO-485. Dip-switches can configure the QI-50-DO-485 to set the bottom scale to 25 A or 50 A, monopolar (RMS) or bipolar (average value), Modbus address (see register map below) up to a maximum of 15 addresses. Use in bipolar mode is intended for DIRECT current measurements. The use of this software, which can be downloaded free of charge from the www.qeed.it site, allows you to configure the transformer by setting the START and STOP input and output stop (see diagram), you can set from PC the Modbus address to which to query the transformer and decide whether to make it monopolar (only positive or negative values) or bipolar (see diagram).

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

Example: if you want to set the measure range from 0...50 A AC/DC to 0... 25 A AC/DC, 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.

DIN rail mounting:

Dip-switch Table:

DESCRIZIONE	DIP 1	DIP 2	DIP 3	DIP 4	DIP 5	DIP 6	DIP 7	DIP 8
Configurazione da EEPROM	0	0	0	0				
ADD = 1	0	0	0	1				
ADD = 2	0	0	1	0				
ADD = 15	1	1	1	1				
BAUDRATE - 2400					0	0		
BAUDRATE - 9600					0	1		
BAUDRATE - 38400					1	0		
BAUDRATE - 57800					1	1		
MONOPOLARE (TRMS)							0	
BIPOLARE (VALORE MEDIO)							1	
50 A AC/DC								0
25 A AC/DC								1

Modbus Register Table:

Register Name	Comment	Register Type	R/W	Default Value	Range	Modbus Address
Machine_ID	ID Machine	Unsigned 16 bits	R	50		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...65535	40004
Baudrate	0=1200 / 1= 2400 (da DIP) (def da FLASH) / 2= 4800 / 3= 9600 / 4= 19200 / 5= 38400 / 6= 57600 / 7= 115200	Unsigned 16 bits	R/W	1	7	40005
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 AC/DC		40009 (LO)
						40010 (HI)
Configuration register	Bit 0: Digital Output Enable 0 → Disabled 1 → Enabled Bit 1: NA or NC 0 → NC output 1 → NA output Bit 2..3: Output switch condition 0 → Closed condition 1 → Open condition 2 → Within Threshold 3 → Outside Threshold	Unsigned 16 bits	R/W	1		40011
Alarm Hyst hysteresis	Alarm hysteresis (1000 = 10 A)	Unsigned 16 bits	R/W	0	0-1000	40012
Alarm activation Delay	Alarm activation delay (100 = 1 sec)	Unsigned 16 bits	R/W	0	0-65535	40013
Alarm trip value	Alarm threshold (1000 = 10 A)	Unsigned 16 bits	R/W	0	0-5000	40014
Alarm trip value 2	Alarm threshold 2	Unsigned 16 bits	R/W	0	0-5000	40015
Filt 1	N° of samples for mobile average (RMS_mA) (1)	Unsigned 16 bits	R/W	1		40016
Filt	Second level filter for for TRMS calculation (4096)	Unsigned 16 bits	R/W	4096		40017
Data L	Calibration data (year, month)	Unsigned 16 bits	R/W			40034
Data M	Calibration data (day, hour)	Unsigned 16 bits	R/W			40035
Data H	Calibration data (min, sec)	Unsigned 16 bits	R/W			40036
RMS_A	RMS Current Value (A)	Floating 32 bits	R/W			40045 (LO)
						40046 (HI)
Dout value	Output switch open, 1 output switch closed					40047
Command	Comand register: C1A0 = reset; C1C0 = save setting	Unsigned 16 bits	R/W			40048

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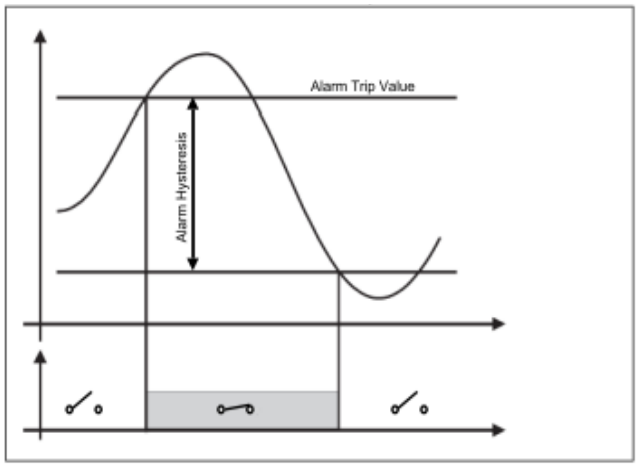
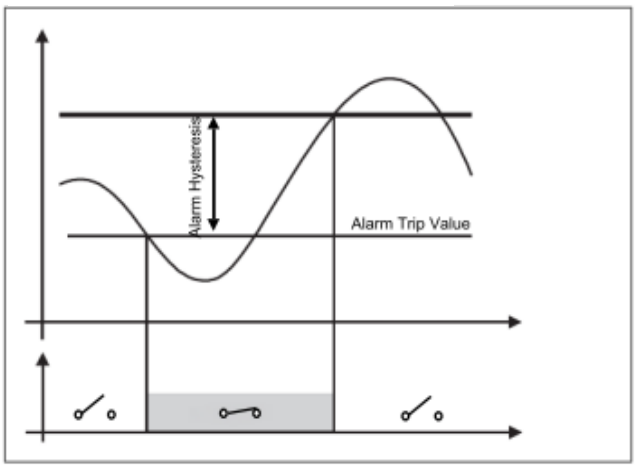
ALARM ON DIGITAL OUTPUT QI-50-DO-485

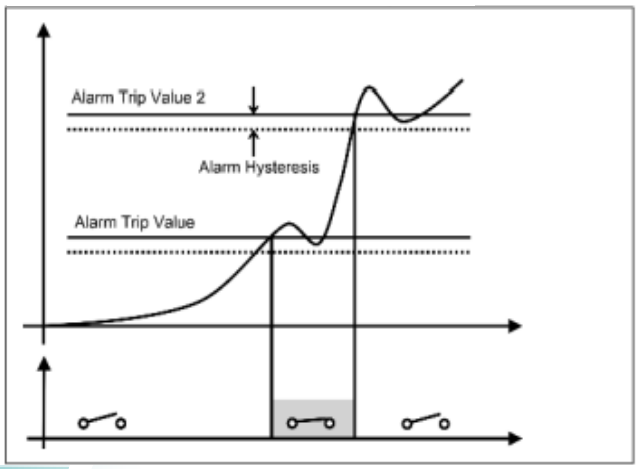
Rising: Normally open contact



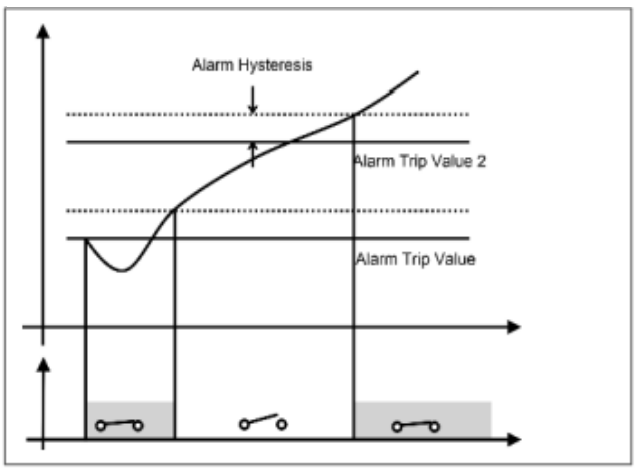
Falling: Normally closed contact



On Window: contact closed between thresolds



On Window: contact closed outside thresolds



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.