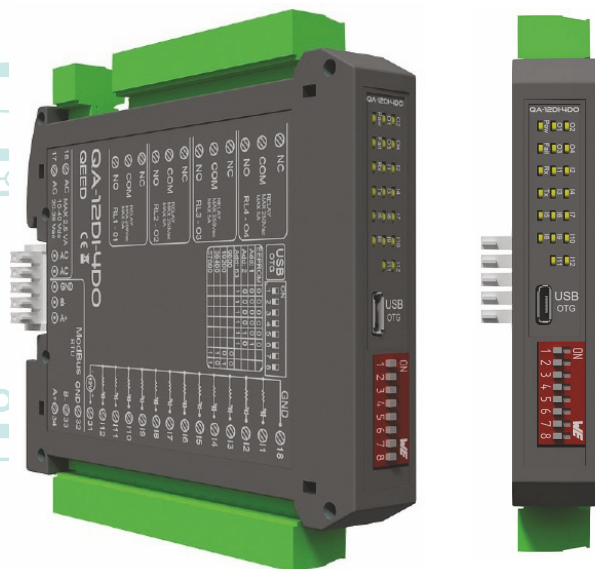


**I/O DIGITAL INTERFACE - 12 INPUT / 4 RELAYS OUTPUT**
RS485 MODBUS Slave**QA-12DI-4DO**MADE IN
ITALY

I/O Digital Modbus Slave Interface, USB configurable, DIN rail mounting, 4-way galvanically isolated, universal power supply AC/DC, n°12 DIGITAL INPUT and n°4 OUTPUT RELAYS SPDT 5A.



The images/schemes proposed are to be considered indicative and not binding

DIGITAL INPUTS:**DIGITAL INPUTS:** n°12.**TYPES:** PNP with common negative, n°12 counter/totalizer inputs at 32 bit, max frequency 10kHz.

Output 12 Vdc for detecting the presence of optomos contacts.

DIGITAL AND SERIAL OUTPUTS:**DIGITAL OUTPUTS:** n°4 Relays SPDT 5A / 250 VAC;**SERIAL OUTPUT:**

- RS485 Modbus Slave;
- Bus connection on the base of module by adapter (option) or on terminals. Dip-switch for setting address and baudrate;
- Configuration by RS485.

N°12 DIGITAL INPUTS:

All the inputs could be Totalizer or free contact

N°4 RELAYS OUTPUT:**SPDT RELAYS**
5 A / 250 VAC**USB for**
configuration**MASTER MODBUS:**
PLC - HMI - PC**POWER SUPPLY** 10..40 Vdc, 20-28 Vac, 50-60 Hz**OUTPUT** n°4 relays output SPDT 5 A / 250 VAC, n°1 RS485 Modbus Slave**ABSORPTION** Maximum 2,5 VA**PROTECTION INDEX** IP 20**WORKING TEMPERATURE** -15...+65°C**STORAGE TEMPERATURE** -40°C... +85°C**ISOLATION** 4 way: Digital inputs, Digital output, serial output RS485 and Power supply, are galvanically isolated at 1,5 kV. Output insulated relays 4 kV**HUMIDITY** 10...90% not condensing**ALTITUDE** Up to 2000 m s.l.m.**MOUNTING** DIN rail mounting with removable terminals, RS485 bus and Supply connection ready on the base of module (connector not included, on request)**CONNECTIONS** Removable terminals 5,08 mm**CE STANDARDS**

EN61000-6-4/2006 + A1 2011;

EN64000-6-2/2005;

EN61010-1/2010

DIMENSIONS 17,5 x 100 x 112 mm (terminals excluded)**CONFIGURATION** By free software FACILE QA-12DI-4DO to configure all of the conversion parameters like span, zero, alarm contact via USB port or via RS485. Dip-switch for setting modbus address and baudrate**HOT SWAPPING** The module QA-12 DI-4DO has HOT SWAPPING technology, this enables the module to be inserted and removed from the system without the need to restart the device Modbus Master connected to it**4-WAY GALVANIC ISOLATION****DIGITAL**
INPUT &
USB**RELAYS**
OUTPUT**POWER**
SUPPLY**RS485**I/O DIGITAL INTERFACE - 12 INPUT / 4 RELAYS OUTPUT
QA-12DI-4DO
RS485 MODBUS Slave



INSTRUCTION MANUAL

QA-12DI-4DO

DESCRIPTION:

The QA-12DI-4DO is a slave module with n°12 optically isolated digital inputs and n°4 relays output. Thanks to the presence of the RS485 serial port can perform advanced functions such as I/O module with Modbus RTU protocol. The QA-12DI-4DO behaves as slave device providing an output at 12 V for the detection of Optomos contact. It also features n°4 digital output relays SPDT 5A - 230V.

ELECTRICAL CONNECTIONS:

QA-12DI-4DO

INSTRUCTION MANUAL

16 ⌀ AC
17 ⌀ AC
MAX 2,5 VA
10-40 Vdc
20-28 Vac

POWER SUPPLY:

10...40 Vdc or 20...28 Vac - Connectors 16 and 17, or by T-BUS connector (optional tool) on the base of the module.

⌀ NC	RELAY MAX 250Vac MAX 5A
⌀ COM	
⌀ NO	RL4 - O4
⌀ NC	RELAY MAX 250Vac MAX 5A
⌀ COM	
⌀ NO	RL3 - O3
⌀ NC	RELAY MAX 250Vac MAX 5A
⌀ COM	
⌀ NO	RL2 - O2
⌀ NC	RELAY MAX 250Vac MAX 5A
⌀ COM	
⌀ NO	RL1 - O1

DIGITAL OUTPUT:

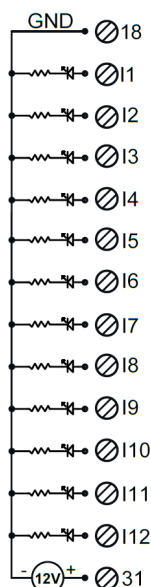
n°4 relays SPDT 5 A / 250 VAC.

RL1 - O1: digital output n°1.

RL2 - O2: digital output n°2.

RL3 - O3: digital output n°3.

RL4 - O4: digital output n°4.



DIGITAL INPUTS:

the QA-12DI-4DO accepts the input pulses until 10 kHz, from mechanical contact, REED, 24 V, PNP.

ModBus GND ⌀ 32
RTU
B- ⌀ 33
A+ ⌀ 34

SERIAL OUTPUT RS485:

available on connectors 32 (GND), 33 (B-), 34 (A+), or by T-BUS connector to be mounted on the module.



T-BUS CONNECTION (OPTION), needs T-BUS connector:

it may be affixed to the accessory T-BUS based on the module to bring both power and serial communication. The number of modules supported by the bus is a function of the power supply used (check the absorption of the modules).



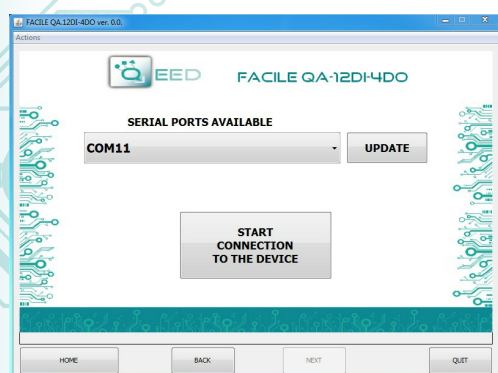
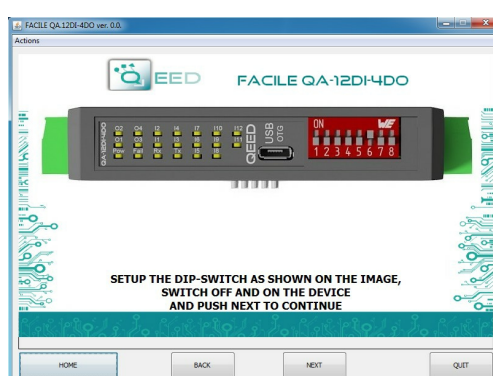
**PROGRAMMING THE DEVICE BY SOFTWARE****QA-12DI-4DO**

The programming of the module QA-12DI-4DO may be performed in two different ways:

- via the interface program free FACILE QA-12DI-4DO through the micro USB port on the module or via RS485 connection;
- by connecting a PLC with RS485 serial connection (from terminal or T-Bus).

it is possible to configure the module by connecting it to the USB port of your PC without powering, this is possible because the QA-12DI-4DO is equipped with a microprocessor that manages the configuration and it is powered directly from the USB port.

To use the program FACILE QA-12DI-4DO, go on our website www.qeed.it section DOWNLOAD / SOFTWARE AND DRIVERS / I/O MODBUS SYSTEM / QA-12DI-4DO: CONFIGURATION SOFTWARE, you can install the program on your PC. Once downloaded, install it in the desired directory and run the program.



It is possible to use the program without connecting to the module, in this mode you can **SAVE** the configuration on your PC, which can then be sent to the QA-12DI-4DO at a later time.

SERIAL PORTS AVAILABLE:

check the available COM ports, press the **UPDATE** button. Your PC will assign a virtual COM connection with the QA-12DI-4DO. Press **START CONNECTION WITH THE DEVICE**. It will confirm you the connection was successful with the module. If the connection does not happen, please check the RS485 serial connection (A +, B-), the position of the dip-switches (switching off and on the device) and the COM generated automatically by the device.

After connecting, you can proceed with the configuration of the device.



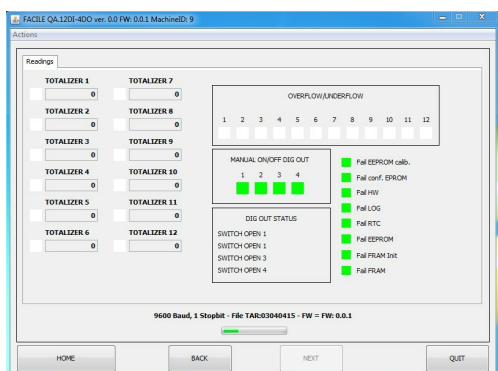
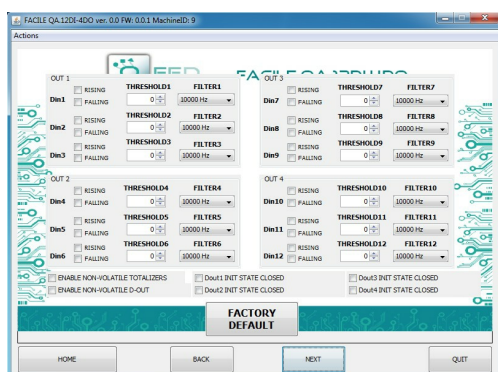


PROGRAMMING THE DEVICE BY SOFTWARE

QA-12DI-4DO

QA-12DI-4DO

PROGRAMMING THE DEVICE BY SOFTWARE

**FALLING:**

you can enable the function "FALLING" with the selection of the relative box to the corresponding digital input (for the default the count is "rising").

THRESHOLD (*):

leaving to "0" the field, the thresholds are excluded. Imposing a desired value, to the attainment of that threshold, there will be the enabling of the corresponding output.

FILTER:

you can select n°6 filter levels to set the sampling rate (to filter any bounces of contacts).

DOWN:

selecting this field, the count is enabled on backwards (default is forward).

ENABLE NON-VOLATILE TOTALIZERS:

enabling this field, the totalizers are maintained even when turned off (non-volatile memory).

ENABLE NON-VOLATILE D-OUT:

enabling this field, the outputs state is stored in non-volatile memory. At power up, the outputs will take this state.

D-OUT INIT-STATE:

It's the state of the outputs when the instrument is powered up (if the option isn't enabled **ENABLE NON-VOLATILE D-OUT**).

MODBUS COMMUNICATION:

This is the last window of the device configuration. The left column contains the parameters to be set for the communication speed BAUDRATE (from 1200 to 115200), the PARITY (None, Odd, Even), the STOP BIT (1 or 2), the Modbus address to be assigned to the device.

TOTALIZER:

shows the number of counts for the respective digital input (n° maximum of counting up to 2^{32}). It's possible to insert a value of arbitrary start.

The laterals "flag status digital input" indicate whether the corresponding digital input is active.

OVERFLOW / UNDERFLOW:

When one of the totalizers reaches the maximum allowed, the indicator turns YELLOW.

MANUAL / DIGITAL OUTPUT:

by selecting the relative commands you can manually commute the relays.

DIGIT OUT STATUS:

shows the exact status of the relays.

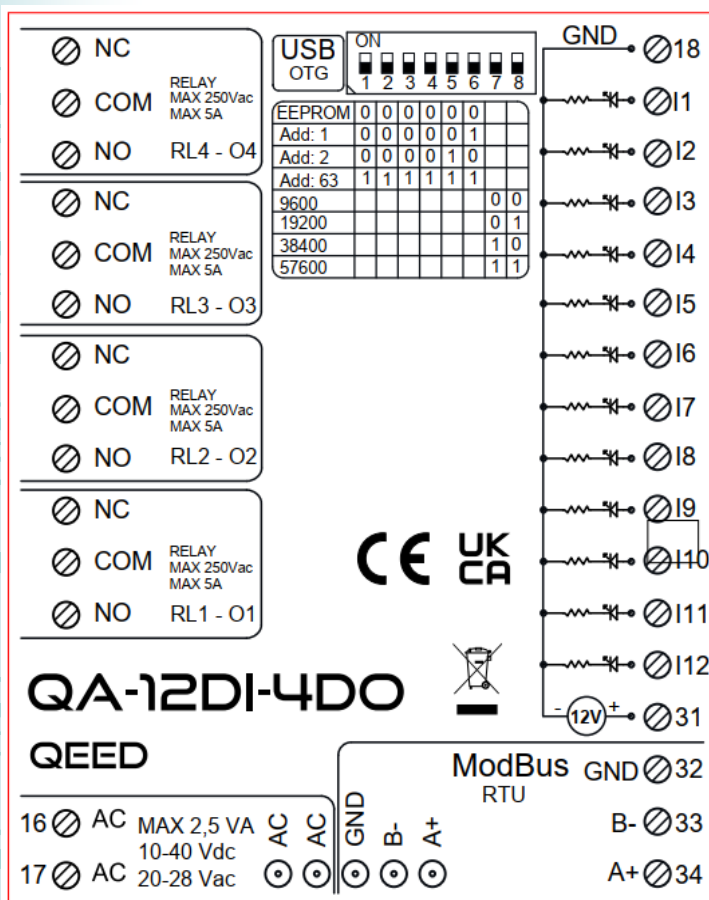
LED FAIL:

shows any malfunctions of the device.

(*): option available for future use.

QUICK GUIDE

QA-12DI-4DO



MODBUS ADDRESS CONFIGURATION AND BAUD RATE BY DIP-SWITCH

Through the dip-switch on the front panel of the module, you can change the Modbus address and baud rate. In the case in which all the dip switches are set to zero, the module will take the calibration from EEPROM, otherwise it will take parameters from a dip-switch. In order to assign addresses more than 62 assignments you need to take advantage of the interface software FACILE QA-12DI-4DO. In order to assign values of baud rates different from those selectable dip you should take advantage of the interface software FACILE QA-12DI-4DO.

POWER SUPPLY by TERMINALS:

10...40 Vdc or 20...28 Vac - Connectors 16 and 17, or by T-BUS connector (optional tool) on the base of the module.

POWER SUPPLY by T-BUS CONNECTION (T-BUS connector required):

it is possible to mount the accessory T-BUS to carry both power and serial communication. The number of modules supported by the function of the power supply bus is used (check the absorption of the modules).

INTERFACE PROGRAM FACILE QA-12DI-4DO

FACILE QA-12DI-4DO is the configuration software for QA-12DI-4DO module.

The software is free and downloadable from the website: www.qeet.it

To communicate with the module you have to connect via USB port directly on your PC.

It is possible to configure the module via RS485

LEDS - FRONT SIGNALS:

Power: power presence on the device.

Fail: presence of a failure/error on the device. It is activated in the case have been activated by FAIL messages on FACILE QA-12DI-4DO. One or more events FAIL are active.

Rx, Tx: the module is communicating via RS485 (LED blinking).

O1...O4: digital output active.

I1...I12: digital input active..

MOUNTING INSTRUCTIONS:

To mount the card on DIN rail, we recommend to place the top of the form on the edge of the bar omega, then pushing the bottom until it clicks. The module is equipped with a slider fastening that will be pushed forward in order to ensure the perfect fastening of the module on the bar.

NOTE: through the hole on the case of QA-12DI-4DO (shown in the figure), you can access an internal DIP SWITCH. Turning up the "DIP 1" you can activate the dynamic terminating of the Modbus.

