

# User and installation manual

Complement to the "Manual of installation, maintenance and assistance"

*Technical issue DQ004001*



This product is an electronic instrument and is thus not to be considered as a machine. Consequently, it is not subject to the requirements stated in EEC Directive 89/392 (Machines Directive). It is hereby specified that, if the QEM instrument is used as a component part of a machine, it must not be switched on if the machine does not comply with the Machines Directive.

***The instrument mark does not absolve the Customer from the fulfilment of his or her legal obligations regarding the finished product.***

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## CHAPTER 1

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# INTRODUCTION

*Complementarity*

*References*

*Responsability and validity*

## 1 - 1 COMPLEMENTARITY

This manual is to be considered as a complement to the "Manual of installation, maintenance and assistance" which supplies the indications for the performance of wirings, troubleshooting, procedures for startup and maintenance. This manual contains indications for the instrument's use and for a correct programming.

We recommend therefore a careful reading and, in case of misunderstandings, please contact QEM for any further explanation, by sending the Assistance Fax which you find enclosed to the manual.

## 1 - 2 REFERENCES

The documentation concerning the instruments which are designed and sold by QEM has been divided into various sheets in order to allow an effective and quick reading according to the information being sought.

In this manual all basic instructions for the instrument's installation and use are described. In the "Manual of installation, maintenance and assistance" further explanations of all necessary subjects for a correct installation and maintenance are provided

**1 - 3 RESPONSIBILITY AND VALIDITY**

**RESPONSIBILITY**

QEM is free from any responsibility for damages to people or things due to unobservance of the instructions and prescriptions contained in this manual and in the "Manual of installation, maintenance and assistance". We also state that the customer/purchaser must use the instrument according to the instructions supplied by QEM and in case of doubt he must send a written application to QEM. Any authorization for further use and replacement shall be deemed as valid by QEM, in case of contestation, only if it has been written by QEM.

No reprinting or republishing or delivery to third parties of this manual or of its parts is authorized unless a written authorization is provided by QEM. Any infraction shall provoke a request of indemnization for damages on behalf of QEM.

All rights generated by patents or models are reserved.

QEM reserves the right to partially or integrally modify the characteristics of the instrument described and the enclosed documentation.

**Purpose**

The purpose of this manual is to indicate the general rules to use the instrument described.

**Indication**

Write down and carefully store all parameters concerning the settings and programming of the instrument in order to make easier the eventual operations of replacement and assistance.

**VALIDITY**

This manual can be applied to all designed instruments, built and tested by QEM and having the same ordering code. This document is integrally valid except for mistakes or omissions.

<b>Manual Release</b>	<b>Modifications made to the Manual</b>	<b>Modifications Date</b>
0	0 New manual	21 / 03 / 00

**Issued by the Person in Charge for the Documentation:** .....

**Approved by the Person in Charge for the Product:** .....

## CHAPTER 2

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### DESCRIPTION

*Instrument presentation*

*Technical, electrical and mechanical features*

## 2 - 1 INSTRUMENT PRESENTATION

The IQ004 is a serial interface designed and realised to be used in all applications where a connection between different serial ports is needed (RS232C - RS422 or RS232C - RS485).

In case of interface with option MDX (interface RS232C - RS485, where X defines the transmission speed - see ordering code), it is necessary to define some instrument's features.

Case A: IQ004 receives in RS485 and trasmits in RS232C: no limitation.

Case B: IQ004 receives in RS232C and transmits in RS485: it is necessary to introduce a delay time between one character and the following, the delay being function of the transmission speed (refer to table).

Option	Speed [baud]	Delay time
MD1	4800	250 $\mu$ S
MD2	9600	100 $\mu$ S
MD3	19200	50 $\mu$ S
MD4	38400	30 $\mu$ S

For a correct functionality of the interface, the equipments connected to serial port RS485, once received the data, must wait before transmit.

**N.B.** The instrument has passed levels required by the norms E.M.C. (valuation criterium "B"). With noise at maximum level, it is not guaranteed the transmission for more than 95% of total time; it may happen one interruption every 3 seconds of transmission.

## 2 - 2 TECHNICAL, ELECTRICAL AND MECHANICAL FEATURES

### **Working enviroment**

Temperature:..... 0÷50 °C  
 Umidity:..... 90% without condensation  
 Max altitude:..... 2000 m s.l.m.  
 Atmosphere:..... No corrosive gas

Storing and transport temperature:..... -25÷70 °C

Protection rate of container:..... IP41 (EN 60529)

Vibration resistance:..... IEC 68-2-6 (Teoretical)  
 Impact resistance:..... IEC 68-2-27 (Teoretical)  
 Noise immunity:..... EN 50082-2  
 Emission level:..... EN 50081-2

**Technical specifications features are valid if all the indications explained in the "Manual of installation, maintenance and assistance" have been respected.**

### **Ac power supply IQ004**

Instrument power supply:..... 24 or 110 or 220 Vac +/- 15% 50/60 Hz  
 Absorption in the maximum hardware configuration:..... 3 VA

### **Dc power supply IQ004 (versione V)**

Instrument power supply:..... 9÷18 Vdc  
 Max current:..... 150 mA (power supply = 15 Vdc)

### **Serial ports**

Corresponding to electrical standards defined by the serial type. Transmissio speed in RS232C - RS485 configuration is defined by the ordering code.

Instrument type: ..... Closed container, dimensions 44 x 92 x 99 mm

Electrical connections: .... Extractible and polarised terminals with screws.  
 Ø of wire: 0.2÷2.5 mm<sup>2</sup>

Weight:..... 280 gr



**CHAPTER 3**

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**OPERATOR / MACHINE INTERFACE**

*Inputs and outputs description*

### 3 - 1 INPUTS AND OUTPUTS DESCRIPTION

1	<b>XXX</b>	Power supply voltage (Vac)
2	<b>XXX</b>	Power supply voltage (Vac)
3	<b>GND</b>	Ground connection
4	<b>N.C.</b>	Not connected
5	<b>TX</b>	Transmission RS 232C
6	<b>RX</b>	Reception RS 232C
7	<b>GND</b>	Ground RS 232C
8	<b>TX/A</b>	Transmission RS422 or channel A RS 485 (DO/RI)
9	<b>TX/B</b>	Negative transmission RS 422 or channel B RS 485 (DO/RI)
10	<b>RX</b>	Reception RS 422
11	<b>RX</b>	Negative reception RS 422

#### *Connections with DC power supply*

1	<b>+</b>	<b>Positive power supply voltage Vdc (9 ÷ 18 Vdc).</b>
2	<b>-</b>	<b>Negative power supply voltage Vdc (9 ÷ 18 Vdc).</b>
3	<b>GND</b>	Ground connection
4	<b>N.C.</b>	Not connected
5	<b>TX</b>	Transmission RS 232C
6	<b>RX</b>	Reception RS 232C
7	<b>GND</b>	Ground RS 232C
8	<b>TX/A</b>	Transmission RS422 or channel A RS 485 (DO/RI)
9	<b>TX/B</b>	Negative transmission RS 422 or channel B RS 485 (DO/RI)
10	<b>RX</b>	Reception RS 422
11	<b>RX</b>	Negative reception RS 422



#### **NOTE**

Power supply voltage polarities (+ / -), must respect what is written on the terminals 1 and 2. Inversion of polarities does not cause any kind of damage.

## CHAPTER 4

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# INSTALLATION

*Mechanical installation*

*Electrical installation*

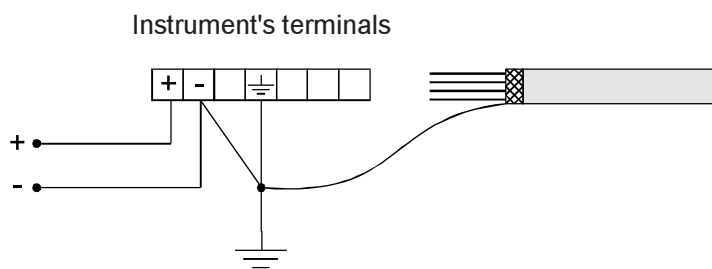
## 4 - 1 MECHANICAL INSTALLATION

For the IQ004 position refer to the "Manual of installation, maintenance and assistance".  
Mounting must be on guide Omega.

## 4 - 2 ELECTRICAL INSTALLATION

For electrical connections of IQ004 refer to the "Manual of installation, maintenance and assistance".  
Cabling must be made by specialized people with the appropriate anti-static care.

### *Note for DC power supply connections*



Connect the power supply (0 V) to the ground and to the metal mass.

Cable braiding must be connected to ground. Please refer to the "Manual of installation, maintenance and assistance".

Do not use the ground connection for current return.

### ATTENTION

- Before make any operation on connectors or instrument, turn off the power and wait at least 2 minutes to allow the discharge of internal energy.
- It is specific to execute connections as displayed above.

## CHAPTER 5

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# ASSISTANCE

*Instructions on how to fill up the Technical Assistance Fax*

*Guarantee*

*Ordering code*

## 5 - 2 INSTRUCTIONS ON HOW TO FILL UP THE FAX FOR TECHNICAL ASSISTANCE

*In order to be able to provide a quick, specific and quality assistance, we need your help.*

*If you need QEM's assistance to face the eventual troubleshooting in your applications and even though you performed all instructions indicated in the manual of "Installation, maintenance and assistance", the problem still continues, please fill up every blank of the fax enclosed to the manual of Installation, maintenance and assistance and send it to QEM's Assistance Department.*

*In this way you shall allow our technicians to get the necessary elements to understand your problem (avoiding thus expensive telephone calls).*

*We thank you for your cooperation and here at QEM's we really wish you a good job.*

### **REMARK**

If you must send an instrument to be repaired, please strictly follow our instructions indicated here below:

- If possible, use the original packaging; in any case the packaging must protect the instrument against shocks due to transport.
- Insert into the package a detailed description of the malfunction you found and the part of wiring diagram which includes the instrument. In case the problem you discovered concerns data storage, please also include the instrument's programming (set-up, working levels, auxiliary parameters, etc.).
- If you need it, please explicitly require the quotation of charges for the repairing: if you do not ask for it, the charges shall be calculated as a whole.
- Our technicians shall give priority to the repairing of those instruments which have been sent according to the items listed above.

## 5 - 3 GUARANTEE

The guarantee is conform to the definitions of the general sales conditions.

## 5 - 3 ORDERING CODE

 IQ004  /  / 

Power supply voltage:      24 = 24 Vac.  
    110 = 110 Vac.  
    220 = 220 Vac.

Interface RS232C/RS485:    MD1 = Transmission speed 4800 baud  
    MD2 = Transmission speed 9600 baud  
    MD3 = Transmission speed 19200 baud  
    MD4 = Transmission speed 38400 baud

V = Interface power supply 9÷18 Vdc

The empty box indicates an option not required.

The box with an abbreviation indicates options that are **necessary** in the ordering code.

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**REMARKS**