

User's Manual

Complement to the "Manual of Installation, Maintenance and Assistance"



*Quality in Electronic
Manufacturing*

INDEX OF SUBJECTS IN THIS MANUAL

CHAP. 1 - INTRODUCTION	
- <i>Complementarity</i>	1 - 1
- <i>References</i>	1 - 2
- <i>Responsibility and validity</i>	1 - 3
- <i>Description of operation</i>	1 - 4
CHAP. 2 - OPERATOR / MACHINE INTERFACE	
- <i>Keyboard Description</i>	2 - 1
- <i>Inputs Description</i>	2 - 2
- <i>Outputs Description</i>	2 - 3
CHAP. 3 - STARTUP	
- <i>Programming (set-up)</i>	3 - 1
CHAP. 4 - USE	
- <i>Tables and Graphics of Operation</i>	4 - 1
CHAP. 5 - ASSISTANCE	
- <i>Diagnostic of inputs and outputs</i>	5 - 1
- <i>Instructions on How to Fill Up the Technical Assistance Fax</i>	5 - 2
- <i>Guarantee</i>	5 - 3

CHAPTER 1

INTRODUCTION

Complementarity

References

Responsibility and validity

Description of operation

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.

<i>User's Manual</i>	<i>Hardware Structure</i>	<i>Manual of installation, maintenance and assistance</i>
<i>Explanation of the software described</i>	<i>Basic information concerning the hardware of the series and possibility of customizations.</i>	<i>All what you need for Installation, Maintenance and Assistance.</i>
<p>It is the present manual, which shows all instructions for the comprehension and the use of the instrument described. It is a manual concerning the instrument's software; it shows all instructions for the comprehension, programming, calibrations and use of the instrument described.</p> <p>Once you install the instrument by following the instructions shown on the Manual of Installation, maintenance and assistance, with this User's Manual you are supplied with all necessary instructions for the correct use of the instrument and for its programming.</p>	<p>It is a sheet enclosed to this User's manual, describing the hardware configuration concerning the series of the instrument described. It also shows the electrical, technical and mechanical characteristics, of the series and also the possible hardware customizations according to the software version.</p>	<p>Further explanation of all necessary subjects for a correct installation and maintenance.</p> <p>This is made to allow us to supply valid and safe instructions which shall allow you to perform products with a recognized quality and safe reliability. It is also a valid support for all those who must face a technical assistance on an application which includes a QEM's instrument.</p>

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.

<i>Instrument's Release</i>	<i>Manual Release</i>	<i>Modifications made to the Manual</i>	<i>Modifications Date</i>
1	0	New manual	03 / 01 / 97

1 - 4 DESCRIPTION OF OPERATION

The instrument HB 235.28 represents maximum evolution in the field of low cost level displayers with characteristics which make it similar to products having a remarkably higher price. The instrument provides in the output the count which is displayed by codifying it in BCD, BINARY or GRAY and generating a signal of STROBE as an inhibition of the data acquisition. If the count exceeds maximum display allowed, all digits start to blink by intermittance

CHAPTER 2









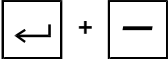
OPERATOR/MACHINE INTERFACE

Keyboard Description

Inputs Description

Outputs Description

2 - 1 KEYBOARD DESCRIPTION

Key	Function
	<p>Normal Operation: if in set-up the parameter "E" is set to "1" it allows to enter a value on the calculation.</p> <p>Data entering: it confirms the data displayed.</p>
	<p>Normal Operation: it sets to zero the data displayed or enables the related count according to the programming of set-up parameter "C".</p> <p>Data entering: it sets to zero the data displayed; when pressed twice it shows again the old value.</p>
	<p>Normal Operation: not used.</p> <p>Data entering: it increments impulsively or continuously the digit selected on the display (the blinking one).</p>
	<p>Normal Operation: not used.</p> <p>Data entering: it shifts to the right the selection of the digit on the display.</p>
	<p>It is ON during the programming of the set-up parameters.</p>
	<p>It is ON during the programming of the register PRS.</p>
	<p>It is ON when pressing ENTER, if in set-up the parameter "E" is set to "1". It indicates that you are introducing a value on the count; it goes OFF after confirmation of the value introduced.</p>
	<p>It is ON when pressing CLEAR, if in set-up the parameter "L" is set to "2". It indicates that the level displayed is relative, i.e. the zero of origin is provoked when pressing for the first time CLEAR; it goes OFF when pressing it for the second time in order to indicate that the level displayed is again the absolute one.</p> <p>It is ON during the introduction of the memory register Prs. The led lcf blinks to indicate that the data selected is the sign.</p>
	<p>Access to the functions protected by password.</p>

COUNT INPUTS



		<i>Description</i>
F1	N	Input "phase 1" incremental transducer.
F1	N	Input "phase 2" incremental transducer.
For the characteristics of count inputs please refer to the chapter "Electrical characteristics" of the software leaflet "Hardware structure" enclosed to this manual		

Legend

N= Transducer with logic NPN

2 - 3 OUTPUTS

Characteristics of outputs

Please refer to the chapter "Electrical Characteristics" of the leaflet "Hardware structure" enclosed to this manual.

TERMINAL	FUNCTION IN BCD	FUNCTION IN BINARY	FUNCTION IN GRAY
1	1	1	LSB
2	2	2	" +1
3	4	4	" +2
4	8	8	" +3
5	10	16	" +4
6	20	32	" +5
7	40	64	" +6
8	80	128	" +7
9	100	256	" +8
10	200	512	" +9
11	400	1024	" +10
12	800	2048	" +11
13	1000	4096	" +12
14	2000	8192	" +13
15	4000	16384	" +14
16	8000	32768	" +15
17	10000	65536	" +16
18	20000	131072	" +17
19	40000	262144	" +18
20	80000	524288	MSB
21	100000		
22	200000		
23	400000		
24	SIGN / COUNT DIRECTION	SIGN / COUNT DIRECTION	SIGN / COUNT DIRECTION
25	VDC	VDC	VDC
26	STROBE	STROBE	STROBE

N.B. The operation of the output sign/direction is programmable in set-up



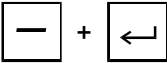


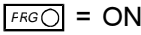
CHAPTER 3







STARTUP

Programming (set-up)


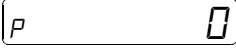
3 - 1 SET-UP





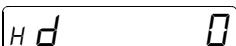
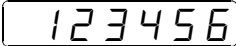
These parameters determine the operation mode of the instrument and therefore their access is reserved to the installer; for the programming we have forecast the introduction of a password as follows:

Description	Keyboard	Display
Access to the set-up programming.		
Enter the access code "235" and confirm with ENTER .		

FUNCTION	DISPLAY	DESCRIPTION
Function of key CLEAR		<p>0 = Operation inhibited.</p> <p>1 = It sets to zero the absolute count.</p> <p>2 = It enables the relative count (led  ON) or restores the absolute count (led  OFF).</p>
Function of key ENTER		<p>0 = Operation inhibited.</p> <p>1 = Entering from keyboard the count: pressing the key ENTER this led goes ON  and operating on keys "+" and "-" you enter a number with sign directly on the count, which is confirmed pressing ENTER.</p>
Display Mode		<p>0 = Count without sign (one under zero = 999999).</p> <p>1 = Count with sign (one under zero = -.....1).</p>

This display appears if the parameter "Display Mode" is set to 0

Choice of operation of output on terminal 24		<p>0 = The output of terminal 24 of the connector at 26 poles indicates the sign of the count (\pm) if the parameter "R" is set to "1".</p> <p>1 = The output of terminal 24 of the connector at 26 poles indicates the sign of the count (ON = up / OFF = down).</p>
Decimal digits Max. 3		<p>It specifies the number of digits after the comma, with which you wish to display the count (axis position).</p> <p>N.B. The introduction of the number of decimal digits conditions the DISPLAY of the count; the precision of the positionings depends upon the number of impulses supplied by the transducer.</p>

FUNCTION	DISPLAY	DESCRIPTION
Code of count output		<p>0 = No card installed.</p> <p>1 = Code BCD (max. ±799999).</p> <p>2 = Code BINARY (max. ±999999).</p> <p>3 = Code GRAY (max. ±999999).</p>
Time interval Min. 20 msec. Max. 999 msec.		Time interval for code updating.
Strobe Function		<p>It determines the duration of the impulse of strobe on pin 26 of the outputs.</p> <p>0 = 6 milliseconds.</p> <p>1 = 10 milliseconds.</p> <p>2 = 12 milliseconds.</p> <p>3 = 14 milliseconds.</p> <p>4 = 16 milliseconds.</p> <p>5 = 18 milliseconds.</p>
Encoder Resolution		<p>This parameter indicates by how much you must multiply the turn pulses of the encoder in order to provide the display of the lengths in the desired unit of measure. You may enter values from 0.00200 to 4.00000 bearing in mind that the frequency of the phases PH must not exceed the maximum count frequency of the instrument.</p> <p>N.B. Please refer to the "Manual of Installation, Maintenance and Assistance".</p>
Display Mode		<p>0 = Normal display.</p> <p>1 = Display with system HDR (High definition reading).</p> <p>N.B. Please refer to the "Manual of Installation, Maintenance and Assistance".</p>
PRS Memory Register		Introduction of the number with sign of the PRS memory register. The value introduced shall be loaded on the count upon the activation of input I1.
Once the programming of the last function is achieved, it is shown again the display of the first set-up parameter.		



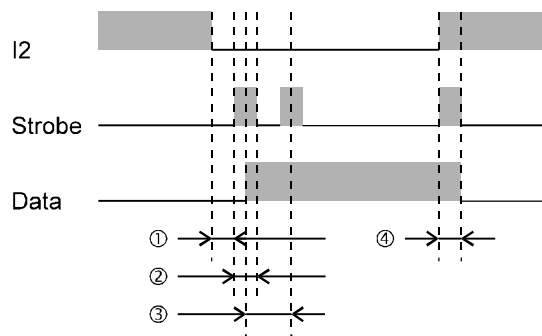
CHAPTER 4

USE

Tables and Diagrams of Operation

4 - 1 TABLES AND GRAPHICS OF OPERATION

OPERATION DIAGRAM



- ① Strobe time which was adjusted in set-up + 6 milliseconds.
- ② Strobe time.
- ③ Time interval adjusted in set-up.
- ④ Time elapsed before it is interrupted the strobe's and data transmission, since the moment in which it is released the enabling of outputs (20 milliseconds).

CHAPTER 5

ASSISTANCE


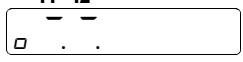
Diagnostic of inputs and outputs

*Instructions on How to Fill Up the
Technical Assistance Fax*

Guarantee

5 - 1 DIAGNOSTIC OF INPUTS

The instrument offers a diagnostic of the logical status of digital inputs; according to the segment of the display which are ON , it is possible to understand whether an input arrives to the instrument.
 Concerning the status of inputs, if it is displayed the upper segment of the first left display, it means that input 1 has been activated: if it is displayed the upper segment of the second left display, it means that input 2 has been activated and so on.

Description	Keyboard	Display
Access to the inputs' diagnostics function.	 × 3 sec.	
Status of inputs. The upper segments of the display On indicate the acquisition of the related inputs ("").		

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.



REMARKS



REMARKS



REMARKS