

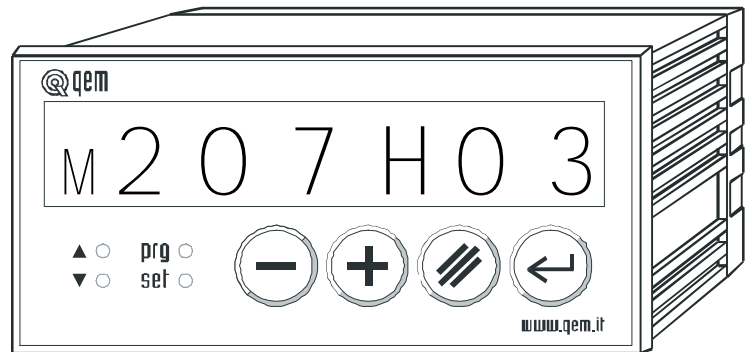
HM 207.03A

User's Manual

Quality in Electronic
Manufacturing

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QEM



DOUBLE PULSE COUNT FOR SMAL SAWS

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
- <i>Calibrations</i>	3 - 2
CHAP. 4 - USE	
- <i>Work programmes and auxiliary functions</i>	4 - 1
- <i>Tables and Graphics of Operation</i>	4 - 2
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

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.

User's Manual

Explanation of the software described

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. 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.

Hardware Structure

Basic information concerning the hardware of the series and possibility of customizations.

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.

Manual of installation, maintenance and assistance

All what you need for Installation, Maintenance and Assistance.

Further explanation of all necessary subjects for a correct installation and maintenance. 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.

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>
2	0	New manual	23 / 04 / 04

Emesso dal Responsabile Documentazione:








Approvato dal Responsabile di Prodotto:

1 - 4 DESCRIPTION OF OPERATION

The instrument HM 207.03A displays the speed of a system sending an ON/OFF reading signal of its own speed (Fmin. 1 Hz, Fmax. 5 KHz). The speed that is read is compared with the preset set-point and the increase or decrease outputs are activated to adjust the system's speed. The instrument is available by the RS232 serial port for PC communication (option).

CHAPTER 2
OPERATOR/MACHINE INTERFACE

2 - 1 KEYBOARD DESCRIPTION

Key	Function
	Normal operation: pressed for one second gives access to work speed programming. Data input: confirms data input.
	Normal operation: pressed during normal functions, it displays the input and output status. Data input: resets to zero the displayed data.
	Normal operation: It increases the set-point in impulse or continuous mode. Data input: Impulse or continuous increase of the figures selected on the display (the one that flashes).
	Normal operation: decreases the set-point in impulse or continuous mode. Data input: it shifts to the right the digit selection on the display.
prg ○	This is on while you are programming the set-up parameters.
set ○	Lighted while programming the work speed.
▲ ○	Lighted when reaching the Vmax. reading or during the adjustment phase.
▼ ○	Lighted when reaching the Vmin. reading.
	Lighted while programming the speed table.
	Access to the functions protected by password.
	Access to the fselection speed table.

2 - 2 INPUTS DESCRIPTION

Inputs characteristics

Please refer to the chapter "Electrical characteristics" of the software leaflet "Hardware structure" enclosed to this manual

Terminal block	Name	Logical status of activation	Activation mode	Polarization terminal	Description
4	I1	ON	C	3	RUN / WAIT. With input I1=ON speed adjustment is enabled. If input I1=OFF the instrument is regulated by the preset data; a variation in preset will give start to a new run.
5	I2	ON	I	3	CLOCK. Input signal for reading system speed (encoder or proximity signal); max frequency 5 KHz.
6	I4	ON	I	3	TICK. Its functions are enabled with the presence of inputs/outputs expansion (E). With input I5=ON it is the synchronism signal for a speed transmission code (SET-POINT) with TE=2. With TE=1 it becomes the weight 22 in the choice of speed table in binary code. Its activation time must be more than 50 ms.

Legend

I = Impulsive input

C = Continuous input

Name	Terminal block	Description
+	1	Positive of transducers' power supply. Positive of voltage supplied by the instrument for the supply of the instruments' inputs and of the transducers
-	2	Negative of transducers' power supply. Negative of voltage supplied by the instrument for the supply of the instruments' inputs and of the transducers.
Vac	11	Voltage of instrument's power supply. Alternated voltage according to the code of your order.
Vac	12	Voltage of instrument's power supply. Alternated voltage according to the code of your order.
GND	13	Ground Connection. We recommend a conductor with Ø 4 mm.

Inputs expansion characteristics (option E)

Refer to the "Electrical characteristics" chapter of the "Hardware structure" file enclosed to this manual.

Terminal block	Name	Logical status of activation	Activation mode	Polarization terminal	Description
15	I5	ON	P	14	ABL / +. Enabled, when in SET-UP the parameter TE=2, this is the enabling command for reading transmission speed (SET-POINT). The signal must remain active during the whole transmission; if de-activated during the transmission it aborts the transmission itself. If in SET-UP the parameter TE=0 this is the command for acceleration with functions programmed in SET-UP. With TE=1 it becomes the weight 21 in choosing the speed table with binary code.
16	I6	ON	P	14	DATA / -. Enabled, when in SET-UP the parameter TE=2, this is the signal that in synchronism with input I4 receives the numerical speed value (SET-POINT). The data is read if input I5=1 and when input I4 is activated. If in SET-UP the parameter TE=0 it is the command for deceleration with the functions programmed in SET-UP. With TE=1 it becomes weight 20 in the choosing the speed table with binary code.

Legend

P = Programmable

2 - 3 OUTPUTS

Characteristics of outputs

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

Terminal bloach	Name	Logical status of activation	Polarization terminal	Activation mode	Description
9	U1	ON	P	8	INCREASE. Increases the system speed. Its duration is proportional to the speed error.
10	U2	ON	P	8	DECREASE. Decreases the system speed. Its duration is proportional to the speed error .

Legend

P = Programmable

Outputs expansion characteristics (option E)

Refer to the "Electrical characteristics" chapter of the "Hardware structure" file enclosed to this manual.

Terminal bloach	Name	Logical status of activation	Activation mode	Polarization terminal	Description
18	U3	ON	C	17	FAST. Activated when the error between set-point and real speed is greater than the activation range of U3 (SET-UP).
19	U4	ON	C	17	MAXIMUM SPEED LIMIT / ADJUSTMENT RANGE. Set as a speed limit, it remains active until the speed read by the instrument is equal or superior to the maximum limit set in SET-UP. Set as a range of adjustment (only with the parameter "Programming output U4"=0 in SET-UP), it is activated when the error between the set-point and ral speed is less than the percentage set in parameter FI.
20	U5	ON	C	17	MINIMUM SPEED LIMIT. Activated when the speed read by the instrument is equal or inferior to the minimum limit set in SET-UP.

Legend

C = Countinuos signal

RS232 serial port expansion characteristics (option RS)

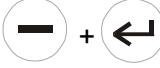

Refer to the "Electrical characteristics" chapter of the "Hardware structure" file enclosed to this manual.

Terminal bloach	Name	Description
24	GND	Common of connection serial port
25	RX	Input of reception instrument
26	TX	Output of tramission instrument

CHAPTER 3 SETTING FOR OPERATION

3 - 1 PROGRAMMING (SET-UP)

As these parameters set the operating mode of the instrument, access is restricted to the installer only. A password must be entered to access the programming, with the following procedure:

Description	Keyboard	Display
Access to the set-up programming.		<div style="border: 1px solid black; padding: 2px; display: inline-block;">H 000</div>
Enter the access code "207" and confirm with ENTER . Disables speed adjustment and outputs U1, U2.		<div style="border: 1px solid black; padding: 2px; display: inline-block;">prg ○ = ON</div>

(On completion of the data input for each function, press **ENTER** to confirm and proceed to the next step.)

FUNCTION	DISPLAY	DESCRIPTION
Decimal digits	<div style="border: 1px solid black; padding: 2px; display: inline-block;">c 0</div>	0 = Maximum display 999999 1 = Maximum display 99999,9 2 = Maximum display 9999,99 3 = Maximum display 999,999
Maximum frequency	<div style="border: 1px solid black; padding: 2px; display: inline-block;">F 400000</div>	This indicates the value that the instrument displays at maximum frequency. (Chaper "Setting the Tachometer").
Maximum speed	<div style="border: 1px solid black; padding: 2px; display: inline-block;">n 99999</div>	Indicates the value that the instrument displays at maximum frequency. It is the maximum threshold of speed above which U4 is activated. It is the maximum programmable speed. To exploit the resolution of the system, enter the maximum speed value reachable in real work conditions.
Minimum speed	<div style="border: 1px solid black; padding: 2px; display: inline-block;">u 99999</div>	The minimum speed threshold over which output U5 is activated. This is the minimum programmable speed
Reading averages	<div style="border: 1px solid black; padding: 2px; display: inline-block;">i 99</div>	This indicates every how many readings the speed to display (Calibration) is calculated. The higher the number of readings, the slower the speed updating time.
Minimum speed limit for automatic adjustment	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Ar 99999</div>	= 0 adjustment is always enabled in automatic. > 0 adjustment is enabled only if the speed detected in input exceeds this value. In mechanical adjusters this parameter is stated by the manufacturer to avoid mechanical breakages in the system
Minimum time of activation for outputs U1	<div style="border: 1px solid black; padding: 2px; display: inline-block;">t1 99</div>	This is the time, expressed in milliseconds for activating output U1 within which the system does not undergo any change in speed. Each unit is equal to 5 ms.
Minimum time of activation for outputs U2	<div style="border: 1px solid black; padding: 2px; display: inline-block;">t2 99</div>	This is the time, expressed in milliseconds for activating output U2 within which the system does not undergo any change in speed. Each unit is equal to 5 ms.
System reply time	<div style="border: 1px solid black; padding: 2px; display: inline-block;">tr 999</div>	This is the time, expressed in milliseconds, in which the system, starting from zero speed, reaches the maximum speed consented with the increase command (U1) always active.

FUNCTION	DISPLAY	DESCRIPTION
Output U3 range of activation	u 3 0000	This parameter is to be programmed when the instrument is provided with input/output expansion (order code E). It determines the activation range of output U3. The error speed is compared with the programmed value. If the error is > the activation range, output U3 is activated and used to increase the speed variations (greater oil flow). If the value introduced is less than the current range, the instrument adjusts output U3 according to the range determined by the current band (gain)
Transmission set-point with expansion	t E 0	This parameter is programmed when the instrument is provided with input/output expansion (order code E). 0 = The programmed speed can be modified from inputs I5 and I6. The first variation of speed occurs after 750 ms. 1 = With inputs I4, I5, I6 it is possible to set a speed programmed in the instrument table (values from 1 to 7). 5 = With inputs I4, I5, I6 it is possible to set a speed with a value transmitted from an external unit (PLC).
Type of variation from input I5 or I6 or from keys + -	H 0	0 = The variation of the system's speed set-point is in continuous mode. 1 = The variation of the system's speed set-point is in impulse mode.
Hysteresis time outputs U4, U5	t i 999	It is the minimum time, expressed in seconds, for activating or deactivating outputs U1 and U2 in comparison to the system speed
Programming output U4	u 4 0	0 = The output functions as a maximum speed limit. 1 = The output functions as a sensor for the adjustment range
If parameter "Program output U4"=1 is present, this display will also be shown		
Adjustment range	F i 999	Indicates the percentage (+, -) of error between the set-point and the real speed. If the error is negative, output U4 is activated.
RS-232C enabled	r 5 0	0 = RS-232C transmission disabled. The option is not used for RS 232C transmission (order code RS). 1 = RS-232C transmission enabled.
If parameter " RS-232Cenabled"=1 is present, these displays will be shown		
Transmission speed RS-232-C	b r 4800	110 baud 150 baud 300 baud 600 baud 1200 baud 2400 baud 4800 baud 9600 baud
		Transmission speeds available; if the speed is incorrect the default takes the value of 9600

FUNCTION	DISPLAY	DESCRIPTION
Number of data bits	<input type="text" value="db 7"/>	7 stop bit 8 stop bits Number of bits available; if the number of bits is incorrect the default takes the value of 8
Number of stop bits	<input type="text" value="sb 2"/>	1 stop bit 2 stop bits Number of stop bits available; if the number of bits is incorrect, the default takes the value of 2
Address code	<input type="text" value="cl 00"/>	This is the code to be assigned to the unit when wishing to connect the instrument to others in a DAISY-CHAIN arrangement. If the address is reset to zero, every command will be obeyed and it is not necessary to send the address code
After programming the last function the screen will return to the display in use before entering SET-UP and the PRG led goes out		

3 - 2 SETTING

SETTING THE TACHOMETER

To facilitate the installation and the inputting of the SET-UP values that establish how the speed is displayed, you can display the frequency meter (Hz) and the total count of the clock pulses by proceeding as follows:

Description	Keyboard	Display
Access to setting the tachometer.	+ x 1 sec.	H 0 0 0
Input the value "456". On confirms with ENTER this disables speed adjustment and outputs U1and U2; the frequencymeter is displayed. This value is then input in SET-UP in the parameter "Maximum frequency".		F 1 2 3
Every 2 second display the clock pulse (the count is zeroed every time you access the tachometer setting mode).		c 1 2 3 4 5 6

To obtain a correct display it is essential to define the maximum frequency, maximum frequency display and duty cycle parameters. To establish the maximum frequency (pulses per second) that the transducer transmits, simply bring the transducer up to maximum speed and, in tachometer setting mode, (-) + (ENTER) + (Password 456), read the frequency that the instrument displays. This value is then input in SET-UP in the parameter "Maximum frequency". This is the frequency at which the value you want to display is calculated. You consequently have to establish the value of each clock pulse in engineering units. Said figure may be already known to the installer, or it can be calculated by experiment; to do so, access the tachometer setting mode again, make the system turn so that the actuator elements are moved to a measurement known to the installer (e.g. 1 m, 10 m, 100 mm, etc.) and make a record of the number of clock pulses read by the instrument.

No. of measurements = F. max. / No. pulses read

Max. display = No. of measurements x Known measurement

The value of the max. display calculated as above is input in the corresponding SET-UP parameter, adapting it to the time unit adopted.

N.B. The calculated value must be adapted to the number of decimal figures that you want to display.

E.g. F. max. = 1638.4 Hz

At 100 mm, the count acquired equates to 200 pulses, so $1638.4 / 200 = 8.192$ (No. of measurements per second).

In the interval of one second the system covers $8.192 \times 100 = 819.2$ mm.

The value to input in SET-UP for maximum display can be converted into:

mm/minute = 49152



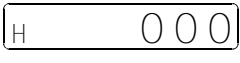



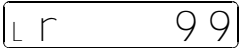



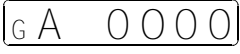



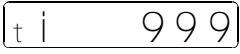



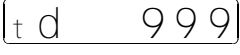







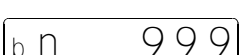
m/second = 0.8192

m/minute = 49.152

N.B. If the system is moving at a rate of 0.2 m/second (real speed), the input frequency will be:



















(F. max. / Vis. max.) x V. reale = $(1638,4 / 0,8192) \times 0,2 = 400$ Hz

CALIBRATING THE ADJUSTMENT PARAMETERS

Description	Keyboard	Display
Access to the calibrating the adjustment parameters.	 +  x 1 sec.	
Introduce the code "123". On confirm with ENTER , the display will show the number of readings to use in calculating the system speed used for speed regulation.	  	
Introduce the number of read. The higher the value introduced and the slower the speed update time will be. On confirm with ENTER , the display will show increment of instrument is in PID adjustment.	  	
Introduce the gain value. The value introduced is the error multiplication factor. On confirm with ENTER , the display will show the overall time.	  	
Introduce the overall time (expressed in seconds). On confirm with ENTER , the display will show the time of derived time.	  	
Introduce the derived time (expressed in seconds). On confirm with ENTER , the display will show the dead centring band.	  	
Introduce the dead centring band (expressed as a percentage of the adjustment output value max. 200%). On confirming with ENTER , the screen returns to showing the displays currently in use.	  	

DETERMINING THE MINIMUM INTERVENTION TIMES FOR OUTPUTS U1 AND U2

For soundness calibrating, the base speed will be at the central strais.

Description	Keyboard	Display
Access to the calibrating of the minimum intervention time U1 e U2.	 +  x 1 sec.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">H 000</div>
Introduce the code "100". On confirm with ENTER this disables speed adjustment and outputs U1 and U2. The display will show the speed currently read.	  	<div style="border: 1px solid black; padding: 2px; display: inline-block;">F 123</div>
Press key "+", to access introduction of the ON time required for the increase output.	 x 1 sec.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">A 0001</div>
Press key "+", to access introduction of the ON time required for the decrement output.	  	
Press key "-", to access introduction of the ON time required for the decrement output.	 x 1 sec.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">d 0001</div>
NOTE: The unit entered is equal to 5 ms.	  	
Press key description, you obtain the decrease impulse in output.	 + 	
Press key description, you obtain the increase impulse in output.	 + 	
To exit calibration, press the key CLEAR .		

CHAPTER 4 USE

4 - 1 WORK PROGRAMMES AND AUXILIARY FUNCTIONS

INTRODUCING MINIMUM AND MAXIMUM TARGHETS POSITIONS

Description	Keyboard	Display
<p>Access the function for the work speed. On confirming with ENTER the display shows the work speed.</p> <p>N.B. The work speed can be varied with keys + and - or with inputs I4 or I5 (input/output expansion) when not in the programming phase. In normal functions, by pressing the key + or - the instrument displays the work speed set-point that varies. During normal functions the instrument displays the detected speed (tachometer)</p>	x 1 sec. 	<div style="border: 1px solid black; padding: 2px; display: inline-block;">P 1 2 3 4 5</div> set <input type="radio"/> = ON set <input type="radio"/> = OFF

PROGRAMMING THE SPEED TABLE

Description	Keyboard	Display
<p>Access the speed table.</p>	+ x 1 sec.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">H 0 0 0</div> set <input type="radio"/> = ON
<p>Introduce the code "789". On confirm with ENTER this disables speed adjustment and outputs U1 and U2, and display will show the first speed in the table (max.7).</p>		<div style="border: 1px solid black; padding: 2px; display: inline-block;">1 1 2 3 4 5</div>
<p>Program the first speed in the table. On confirm with ENTER, the display shows the second speed table (max.7).</p>		<div style="border: 1px solid black; padding: 2px; display: inline-block;">2 3 7 8</div>
<p>Program the first speed in the table. On confirm with ENTER, the display shows 3th speed in the table and so up to the 7th speed in the table.</p>		<div style="border: 1px solid black; padding: 2px; display: inline-block;">3 7 2 1</div>
<p>On confirming with ENTER the 7th speed in the table, the Set led goes out and the screen returns to the displays currently in use.</p>		set <input type="radio"/> = OFF

CHOOSING THE SPEED FROM THE TABLE

Description	Keyboard	Display
<p>Access the chose the speed from the table.</p>	+	<div style="border: 1px solid black; padding: 2px; display: inline-block;">1 1 2 3 4 5</div>
<p>Choose the work speed, selecting the number that corresponds with the programmed table (max. 7). On confirming with ENTER, the speed will be executed immediately and the screen will return to the displays currently in use.</p>		

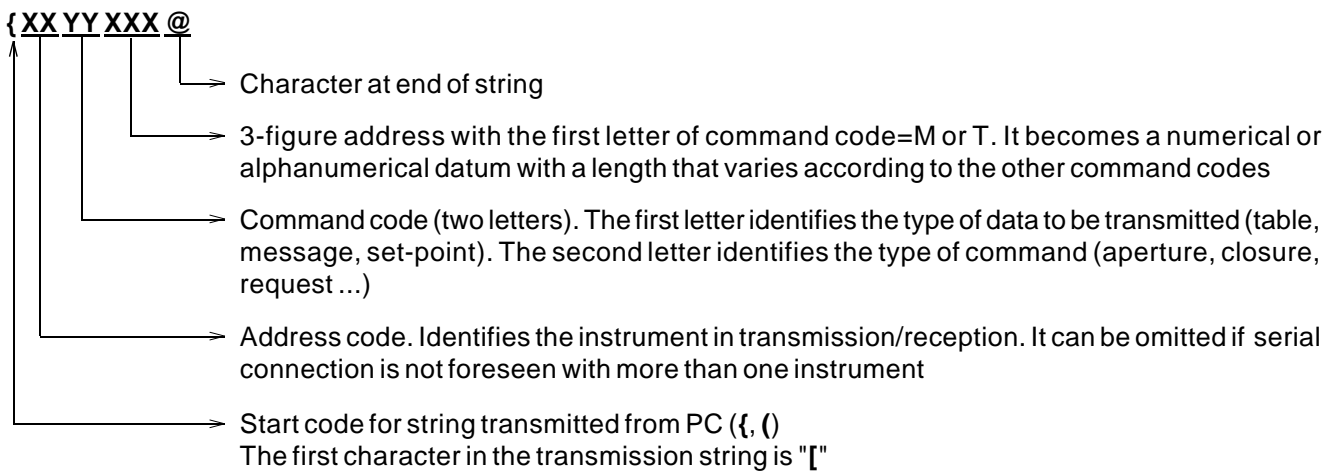
DISPLAYING

Description	Keyboard	Display
Speed read.		1 2 3 4 5 6

COMMANDS IN RS232

If the instrument is provided with the option RS 232-C and transmission is enabled in SET-U, it is possible to transmit write and read commands from a PC. Every string of commands sent to the PC must always start from the character "{" (ascii value=123) for command code or from the character "(" (ascii value=40) for numerical series. The first 2 characters opening transmission or of the single commands transmitted must be numerical because they are the address code to which the message is destined or from which information is arriving. If the address "00" is sent, this means that the information is destined to all the instruments on line. The following 2 characters must be 2 capital letters to identify the operative code of the instruction. The operative code is followed by the operand, that is the numerical value of the variable concerned with the operative code. Characters sent without first placing "{" and @ at the end generally are retransmitted as an "ECO" effect but do not cause any reaction by the instrument receiving them. Each string sent by the instrument begins with the character "[" (ascii value=91). The instrument is always a slave and can transmit only on request from the PC (master).

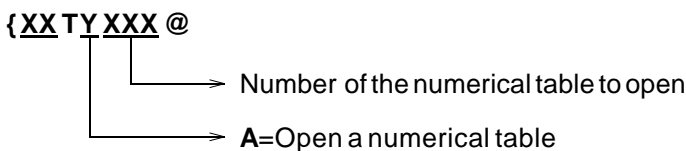
Main command syntax:



--	--	--	--	--

 Indicates the strings to be used in transmission. The empty string indicates that the command is not implemented in the instrument

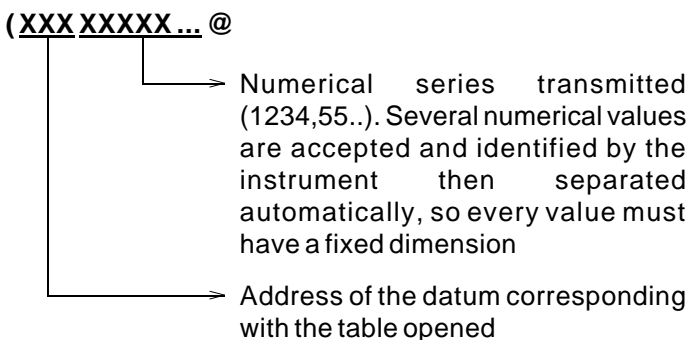
Command code letter "T":



{ 0 1 T A 0 0 1 @

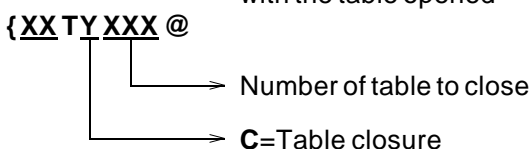
The command T allows composition of the speed table (number 001)

Writing in the instrument's memory:



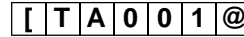
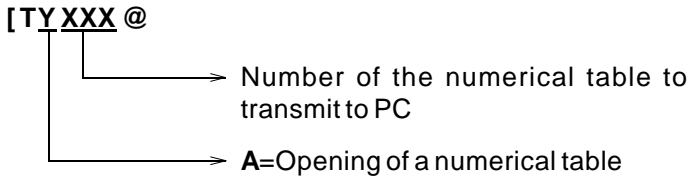
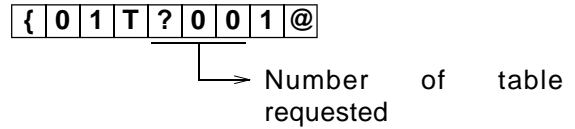
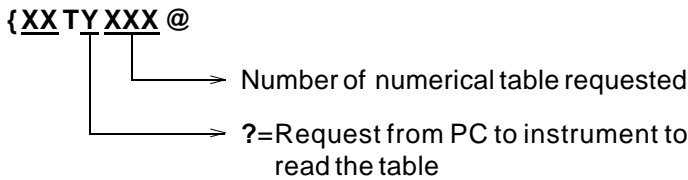
(0 0 1 1 2 3 . 5 @

Register number (Set-point)
Value number (max. 7)

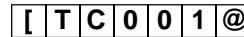
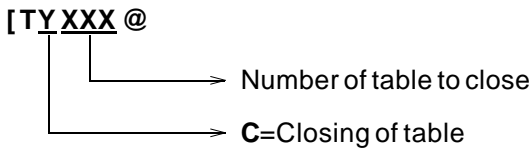
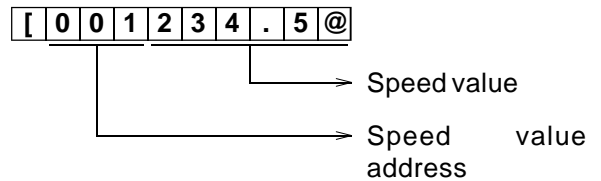
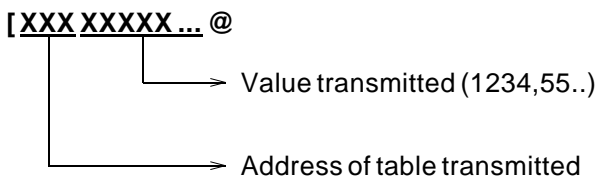


{ 0 1 T C 0 0 1 @

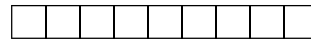
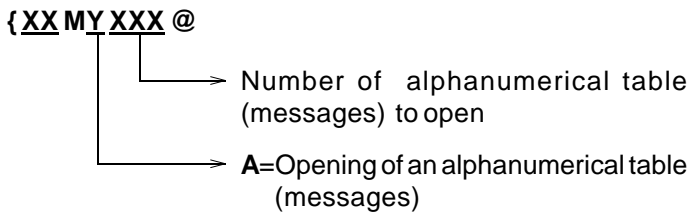
Closure of the speed table composition



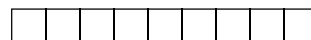
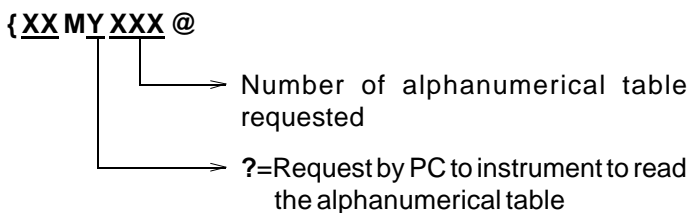
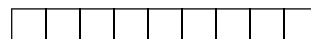
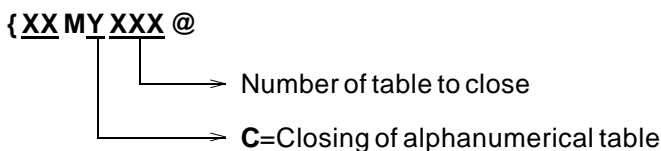
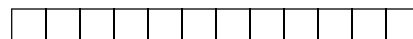
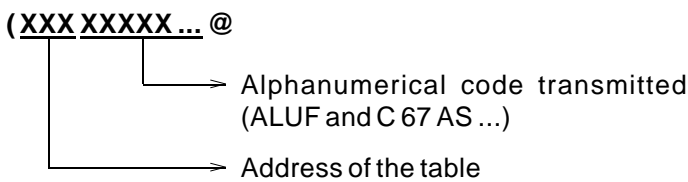
Writing operation in PC memory:



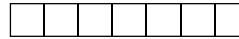
Command code letter "M":



Writing operations in the instrument memory:



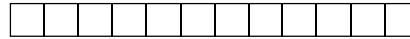
[MY XXX @



- Number of alphanumerical table to transmit to PC
- A=Opening of an alphanumerical table

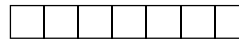
Writing operations in PC memory:

[XXX XXXXX... @



- Alphanumerical code transmitted (CRS IDEA 1 ...)
- Address of the alphanumerical table transmitted

[MY XXX @

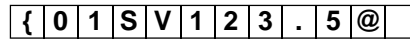


- Number of the table to close
- C=Closing table transmission

Command code letter "S":

Writing operations in instrument memory:

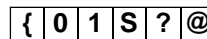
{XX SY XXX... @



- Numerical series transmitted (123,5345,7)
- V=Successive characters are not an address but a series of numbers. The letter (any) identifies the variable transmitted

- Value of set-point
- Speed write command code

{XX SY @

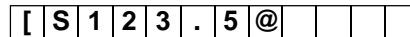


- ?=Request from PC to instrument to read the numerical series. The instrument will transmit all the variables

Request for transmission of the variables present in the instrument (set-point and speed)

Write operations in PC memory:

[Y XXXXX... @



- Numerical series transmitted (123,5345,7). Max. 32 characters
- V= The letter identifies the variable transmitted

- Value transmitted(set-point or processor variable)
- S= Set-point
- U=Speed (processor variable)

Command code letter "P":

Writing operations in the instrument memory:

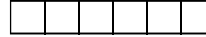
{ **XX PY XXX ...** @

→ Alphanumerical series transmitted (ABC,5*ER9,7). Max. 32 characters
 → **V**=The successive characters are not an address but an alphanumerical series



{ **XX PY** @

→ **?**=Request by PC to instrument to read the alphanumerical series



Writing operation in PC memory:

[**XXXXX ...** @

→ Alphanumerical series transmitted by the instrument. Max. 32 characters



Command code letter "C":

Used in the on-line commands

{ **XX CY XXX** @

→ Number of command code composed of one letter followed by two numbers
 → **E**=The successive characters are not an address but a letter followed by two numbers

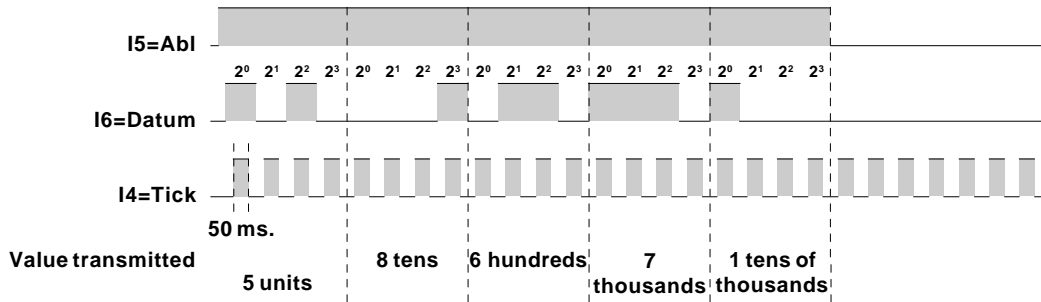


Speed table address

The table value (set-point) transmitted is executed and recalled with the transmitted address

4 - 2 OPERATION GRAPHS AND TABLES

DIAGRAMMA TRASMISSIONE VELOCITÀ CON TE=2



Speed value transmitted=17685

Minimum speed transmission time=2 seconds

Minimum transmission time of table number=0,4 seconds

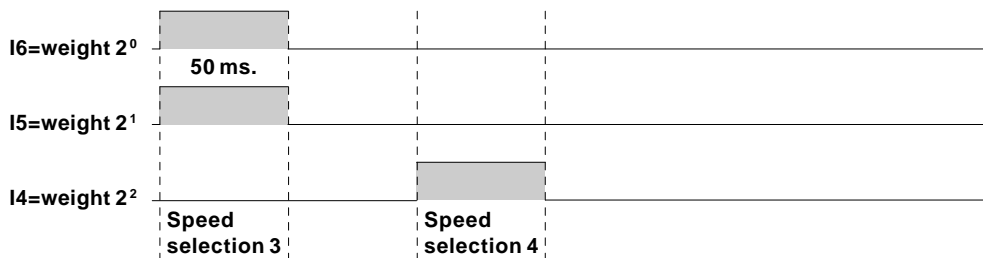
The transmission of speed or the table to the instrument can be made when input and output expansion is present (order code E).

To acquire the data, transmission must be made in succession of the presence or otherwise of the weight of the single bit, starting from the least significant number.

When transmitting the speed, all five numbers of the value must be transmitted

N.B. If input ABL is de-activated, the data and the tick will be ignored

DIAGRAM OF SPEED CHOICE TRANSMISSION FROM TABLE WITH TE=1



N.B. It must have a duration of more than 50 ms. for the transmitted data to be accepted.


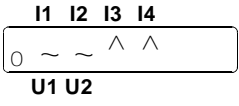
CHAPTER 5 ASSISTANCE

5 - 1 DIAGNOSTIC OF INPUTS AND OUTPUTS

The instrument offers a diagnostic of the logical status of digital inputs and outputs; according to the segments of the display which are ON, it is possible to understand whether an input arrives to the instrument and whether the output has been energised.

As for the status of the inputs, if it is displayed the upper segment of the first display from the left, it means that the input 1 has been activated; if it is displayed the upper segment of the second display from the left, it means that the input 2 has been activated, and so on.

As for the digital outputs, please consider as valid the description made for the inputs, but consider the lower segments of the display

Description	Keyboard	Display
<p>Access to the display of the diagnostic for inputs/outputs.</p> <p>Status of inputs and outputs. When the upper segments of the display are ON it indicates the acquisition of the related inputs ("^"). When the lower segments of the display are On it indicates the energising of the related outputs ("_").</p>	 X 2 sec.	

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.

NOTE



This product is an electronic instrument and, therefore, should not be considered a machine. As a consequence, it is not subject to the requirements of EEC Directive 89/392 (Machine Directive). For this reason, we affirm that if the QEM instrument is used as a component of a machine, it may not be turned on if the machine does not satisfy the requirements of the Machine Directive.

The instruments marking does not relieve the customer from fulfilling the obligations of the law relative to the finished product.