Sommario

MDO_P1P20F - 022 : Operator Manual

1. Informations

1.1 Release

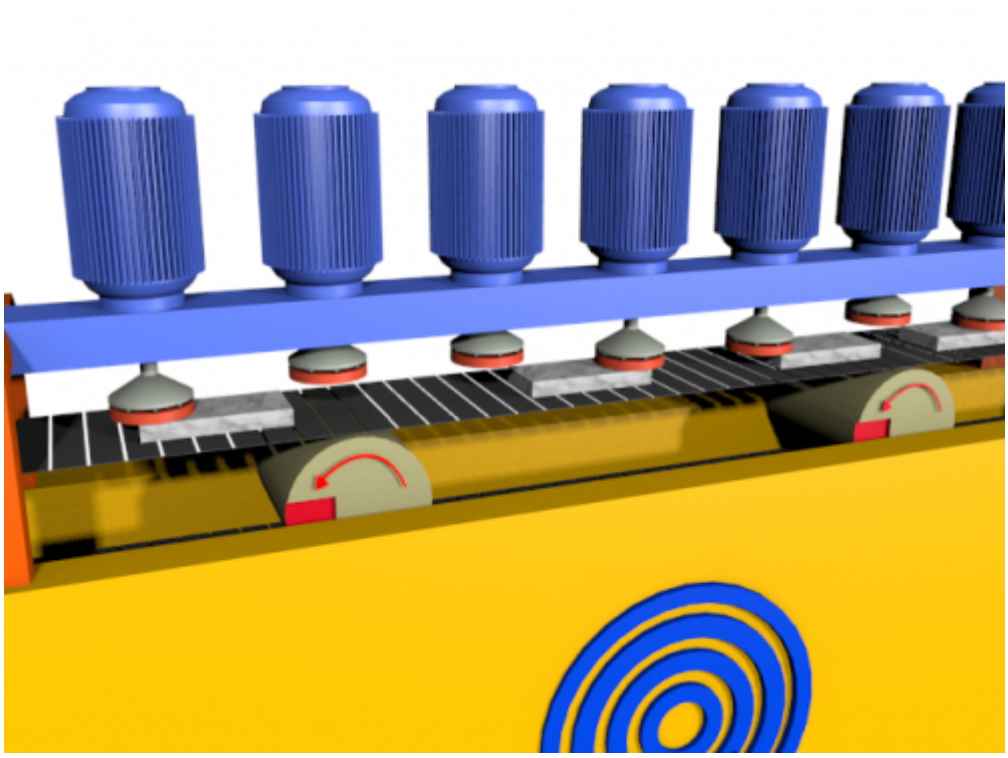
This document is valid except for errors or omissions.

Document:	**mdo_p1p20fh20-001**
Description:	Manual Operator p1p20f-022
Editor:	Omar Sbalchiero
Approver	Gabriele Bazzi
Link:	https://www.qem.eu/doku/doku.php/en/strumenti/qmoveplus/j1p20/p1p20f-022/mdo_p1p20f-022
Language:	English

Document release	Description	Note	Data
01	New manual		31/08/2021

1.1.1 Specifications

2. Description



The **P1P20F - 022** software, controls the automation of machines **sanders/edge-sanders**.

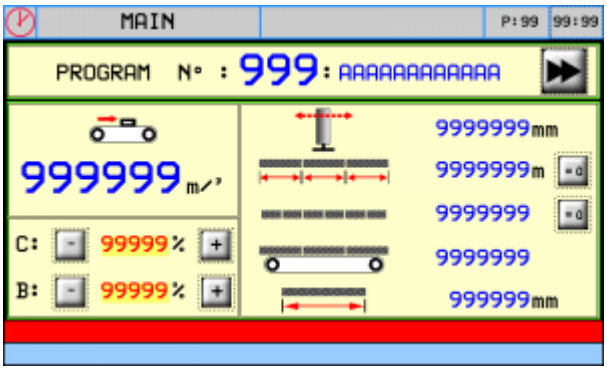
Main features

- control of **20 heads**
- control the **sequential start of motors** (to limit excessive power demand)
- can manages the **bridge movements**
- for each machining head, you can set **processing advances/delays** at the **beginning/end** of the piece
- the ascent/descent controls of the sanding heads, are calculated **automatically as the speed** of the conveyor belt change
- counts the **processed meters** and can work up to **30 pieces** simultaneously

Other features

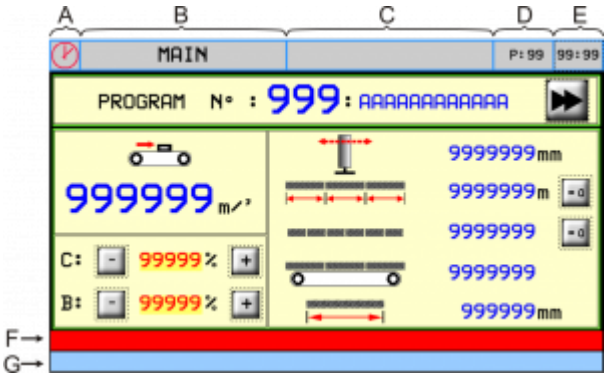
- HMI with touchscreen
- Function keys
- Working program
- Alarm messages
- Warning messages
- Reset defective pieces
- Reset of all workpieces
- Compensation of the offset of the piece presence limit switch
- Mode of heads processing
    1. Smoothing
    2. Milling
    3. Grinding
    4. Brushing
    5. Water jet

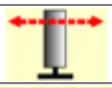
3. Main page



3.1 Control bars and informations

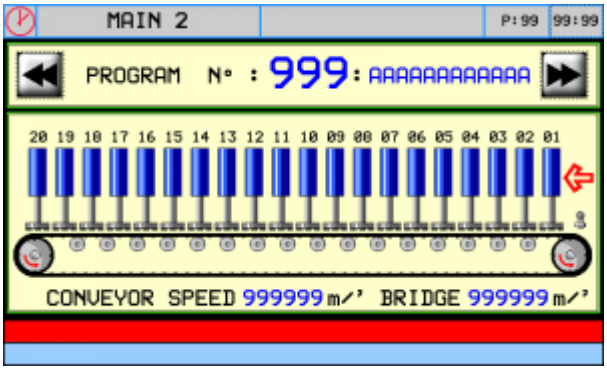
The bars at the top and bottom of each page provide the following informations:



A	Machine status
B	Page name
C	Additional page description
D	Page number
E	Clock
F	Active alarm (red background)
G	Warning (azure background)
	Current conveyor belt speed
N:	Setting the conveyor belt speed
P:	Setting the bridge speed
	Bridge position. **N.B.** The position of the Bridge is enabled only if the encoder is present on the axis of the Bridge
	Machined linear meters
	Total number of pieces machined
	Number of parts currently being machined
	Last workpiece length

3.2 Main Page 2

Pressing the key  , you can access the second main page:



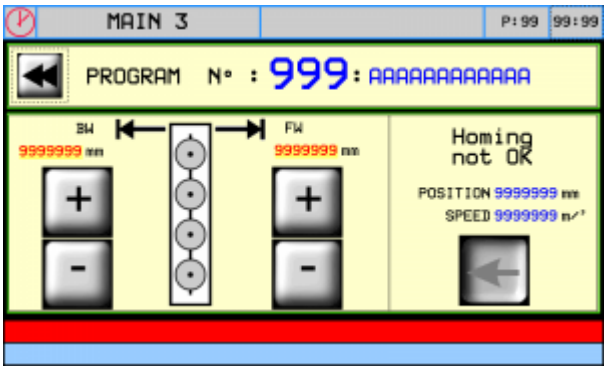
in addition to the information on the main page, you can see:

- Heads status
- The current speeds of the conveyor belt and the bridge.
  N.B. The the speed of the Bridge can be showed, only if the encoder is present on the axis of the Bridge
- The status of the part presence input

Pressing the key  , for return to the main page.

3.3 Main Page 3

From the main page 2, pressing the key  , you can access the third main page:



In addition to the information on the main page, are showed:

- The bridge speed and position.
- With the keys  and  you can to vary the back and forward limits of the Bridge.
- With the key  you can to start the search for homing of the Bridge

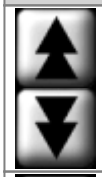
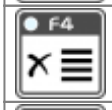
Pressing the key  , you can return to the main page 2.

N.B. The Main Page “3” is enable only if is present the encoder on the Bridge axis.

- ## 3.4 Machine status

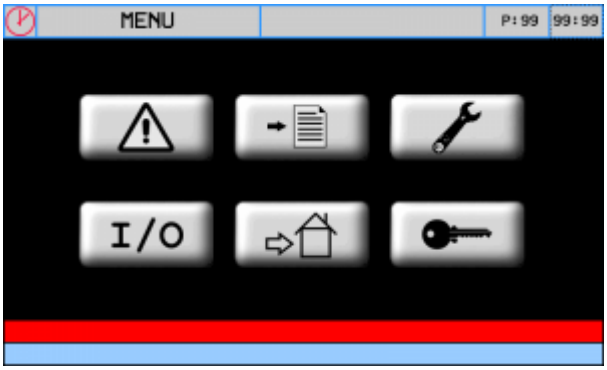
Simbols	Descriptions
	Manual
	Emergency
	Automatic
	Mode of operation
	Calibration
	Not initialized

3.5 Common keys

Simbol	Description
	Scroll through programs
	Save and exit: the setup values are saved in the internal memory and run
	open the program
	Forward page
	Backward page
	Exit without saving: the setup values entered are not saved and the values in the internal memory are reloaded.
	Access to the MENU page
	Access to the SETUP (protected with password)
	Access to the WORKING PROGRAMS
	Access to the TOTAL PIECES RESET
	Access to the PARTIAL PIECES RESET
	Access the the ALARMS
	Exit from the page

4. Main menu

For access from the **MAIN PAGE** press the key 

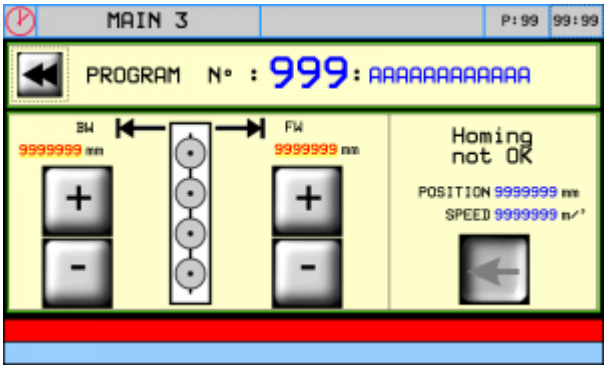


	Alarms
	Access to programs
	Functions menu
	Diagnostics
	Bridge homing
	Access to the setup

5. Utilization

5.1 Startup

If the Bridge encoder is installed and enabled, when switched on, the instrument show the Main Page 3 and and it is requested to start the homing search to calibrate the position of the Bridge Axis.



Pressing the key  for start the homing search.

To the end of the homing search, the instrument show directly the Main Page.

5.2 Working program

For access to the “Working program” section:

1. press the **F3** funcion key 

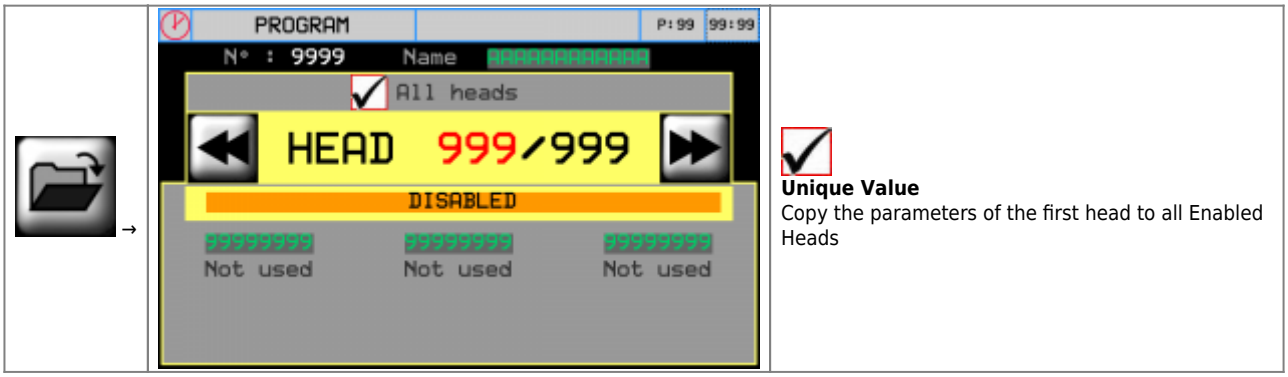
2. or access the MENU page, pressing the **F1** key 

than press the key 

To select one of the work programs listed, you must tap on the corresponding line.

 and 	To scroll through the list of work programmes. Each page can display 5 programs at a time. It is possible to move directly to the desired page by editing it on the title bar.
	Switching to the Work Cycle Editing Function.
	Opens the selected work program to edit it.

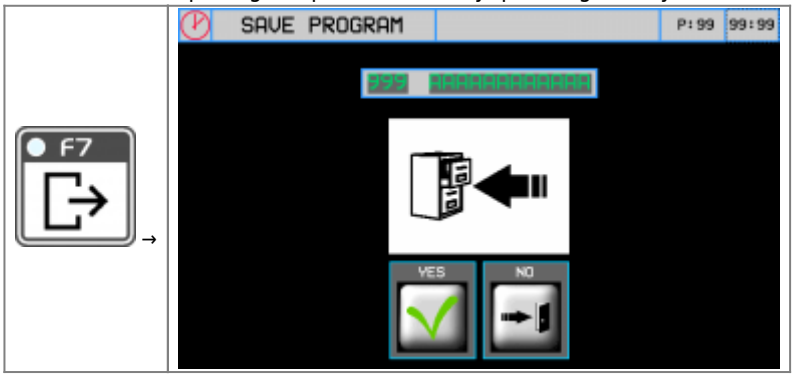
- **5.2.1 Edit Workin Program**



Unique Value
Copy the parameters of the first head to all Enabled Heads

Automatic program: execute the points **1 - 2 - 3 - 4** :

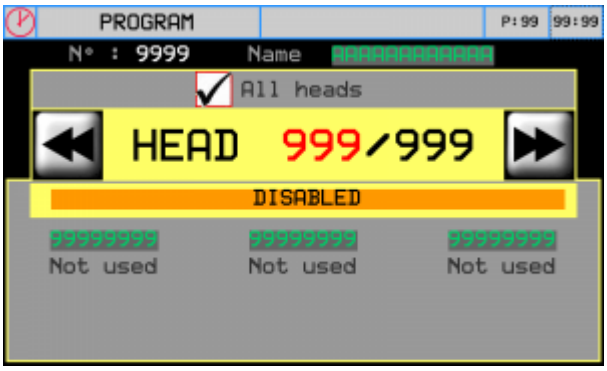
1. To change the program enter the values in the various fields, using the virtual **keyboard**.
2. Type on the field " UNIQUE VALUE" for copy the parameters of the first head on the all heads
3. Set machining parameters
4. After completing the parameter entry, pressing **F7** key and the **save the program** are show



Notes:

- 1 = **sander**, 2 = **milling machine**, 3 = **grind**, 4 = **brush**, 5 = **water jet**
- if the heads are **all of type 1 - 4 - 5**, or **all of the type 2**, or **all of the type 3**, you can set " **all heads** ", or " **single head** "
- if are set **mix of types 1 - 2 - 3** then the choice **"single heas" are disable**.

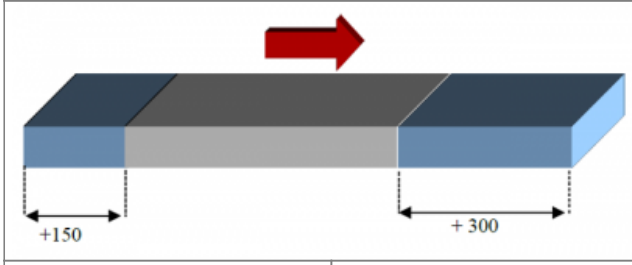
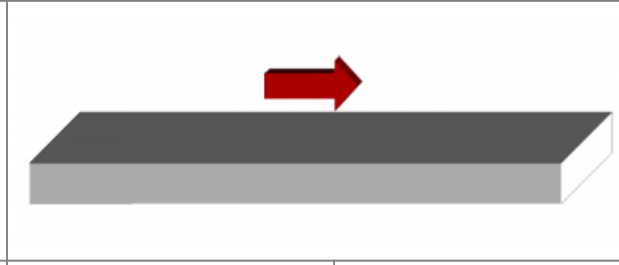
- **5.2.2 Sander machine parameters**



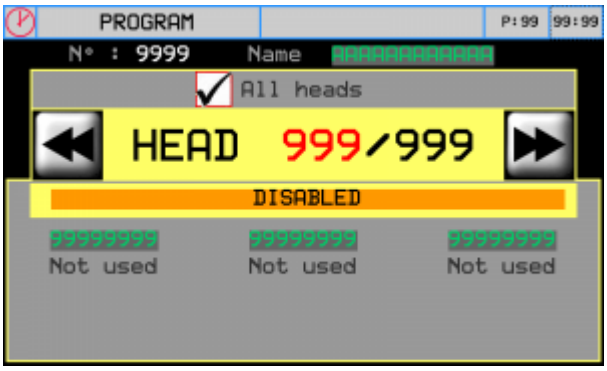
By default the machining parameters are all at 0.

Parameter name	***Units of measurement***	***Range***	***Description***	
Advance(-)/Delay (+) head descent	mm	0 ÷ 99999.0	Advance or delay space	**head descent** from the **beginning of the piece** .
Advance(+)/Delay (-) head ascent	mm	0 ÷ 99999.0		**head ascent** from the **end of the piece**.

.

Polished piece only in the **central part**		Piece **entirely** polished	
			
Advance(+)/Delay (-) **head ascent = +150**	Advance(-)/Dealy (+) **head descent = +300**	Advance(+)/Dealy (-) **head ascent = 000**	Advance(-)/Delay (+) **head descent = 000**

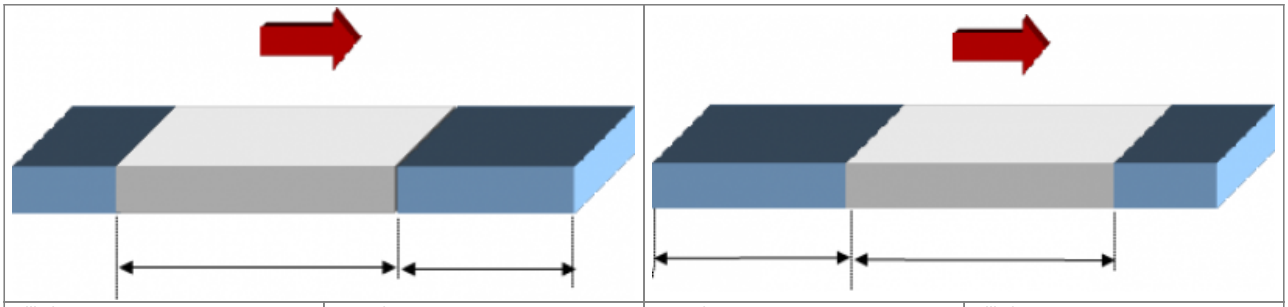
5.2.3 Milling machine parameters



Parameter name	***Units of measurement***	***Range***	***Description***
99999999 Advance (-)	mm	0 ÷ 99999.0	**Distance piece beginning / milling**. It is the space between the **beginning of the piece** and the **beginning of the milling process**.
99999999 Advance (+)	mm	0 ÷ 99999.0	**Distance piece ending / milling**. It is the space between the **end of the piece** and the **end of the milling working**.
99999999 Length	mm	0 ÷ 99999.0	**Milling length**. It's the milling space.

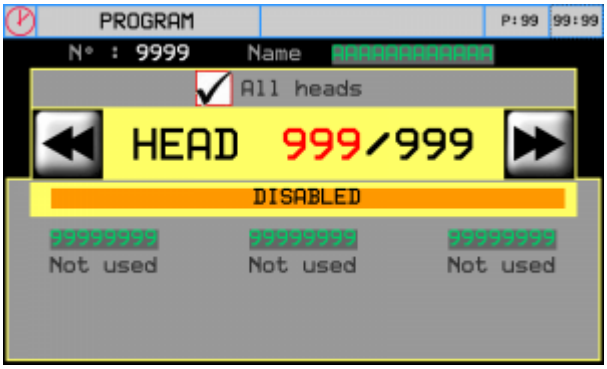
NB: If one of the two distance parameters is greater than zero, the other is automatically set to -1 (parameter value disabled).

Milling with reference from **begin of workpiece**	Milling with reference from the **end of the workpiece**



Milled space Parameter: **milling length**	Unsead space Parameter: **starting piece distance**	Unsead space Parameter: **end piece distance**	Milled space Parameter: **milling length**

5.2.4 Grinding wheel parameters



Parameter name	*Units of measurement*	*Range*	*Description*
99999999 Meters	mm	0 ÷ 99999.0	**Worked linear meters**. Space beyond which the grinding wheel wear compensation is activated.
99999999 Time	sec.	0 ÷ 99999.0	**Head activation time**. Activation time, the head performs a forward shift to compensate for the wear of the grinding wheel.

5.2.5 Brush parameters

The parameters are similar to the **sander** processing.

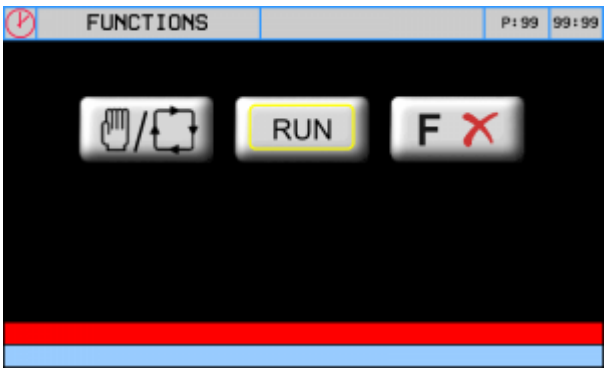
5.2.6 Water jet parameters

The parameters are similar to the **sander** processing.

6. Work functions

To select the desired work functions, press the key 

e poi sul tasto 

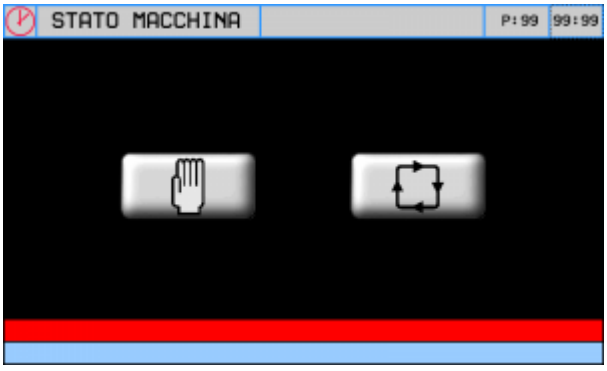


	**Manual/Automatic** page
	* **Start**: Automatic machine start-up **with** heads rotation * **Stop**: Automatic machine start-up **without** heads rotation
	Go to the **Piece Reset** page

6.1 Manual / Automatic

To select the function of choosing the working mode, presse the key 

The following page is showed:

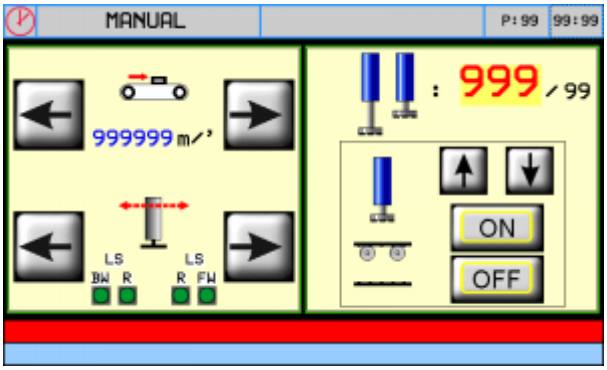


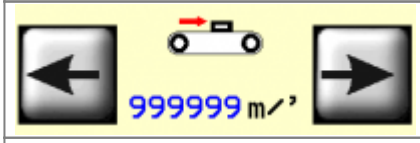
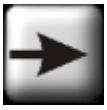
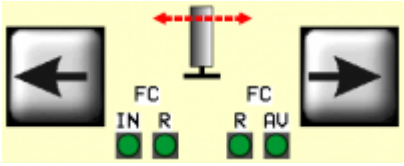
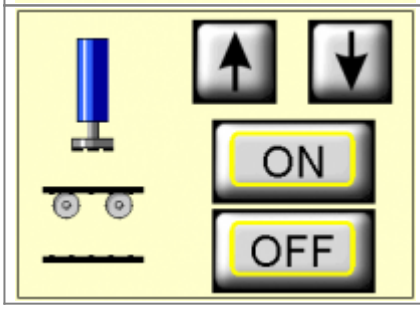
	Operation mode selection **MANUAL**
	Operation mode selection **AUTOMATIC**

6.1.1 Manual

To select the MANUAL mode operation, press the key 

The following page is Showed:



Description of possible operations in manual mode	
	Press the keys  and  you can move the conveyor belt.
	Pressing the keys  and  it's possible to move the Bridge.  –> Back Limit Switch and Back Slowdown.  –> Slowdown Forward and Limit Switch Forward. **N.B.** Bride jog (MP-04 = 1)
	Selection of the Head to be moved **N.B.** In manual it is possible to move only one head at a time
	Pressing the keys  and  it is possible to go up and descend the selected head Pressing the keys  and  you can turn on/off the spindle rotation of the selected head

- ### 6.1.2 Automatic

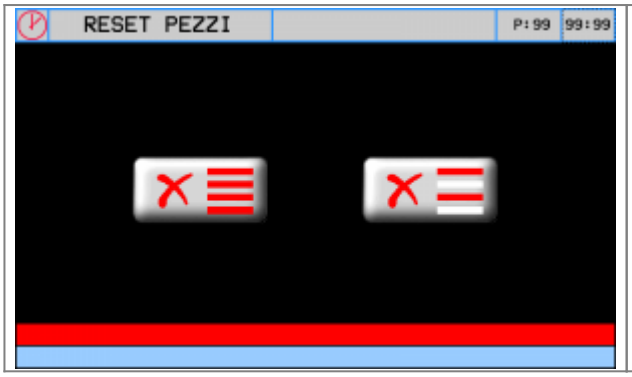
To select the AUTOMATIC mode operation, press the key 

The instrument goes to the Main Page and is ready to acquire the parts in the machine.

6.2 Pieces reset

To select the pieces RESET, press the key 

The following page is showed:



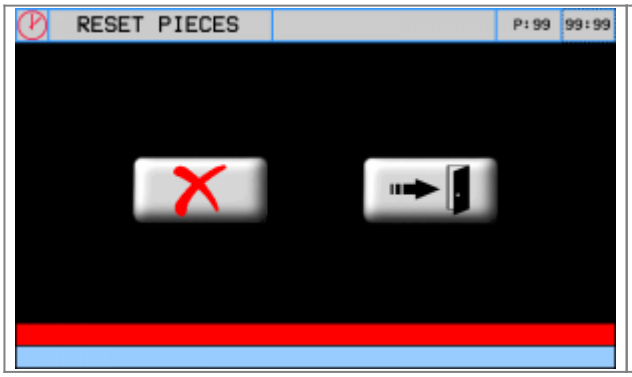

Reset of **all pieces**

Reset of **selected pieces**

6.2.1 Reset of all pieces

To select the pieces RESET, press the key 

The following page is showed:

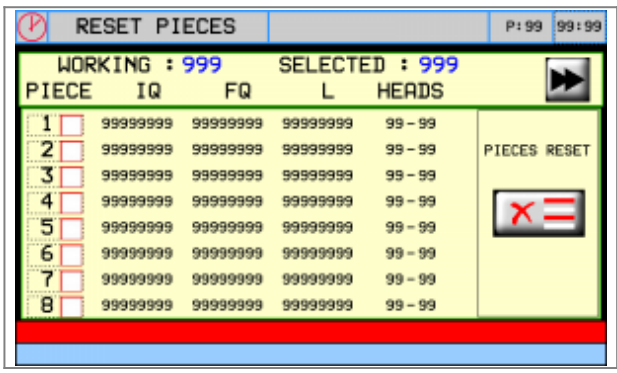



Reset of all pieces
Note :
wait until the function is complete

6.2.2 Reset of parts selections

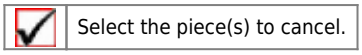
To select the RESET of parts selection, press the key 

The following page are showed:



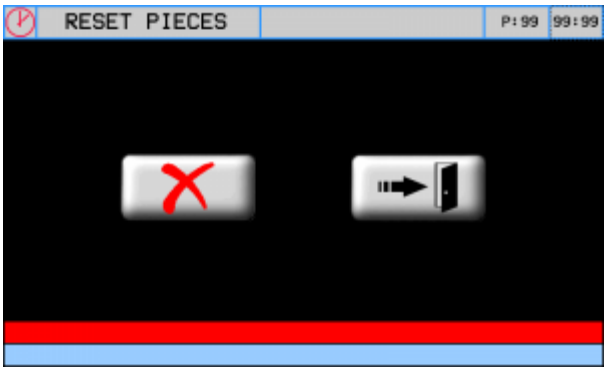
IN PROGRESS –> Pieces inside the machine.
SELECTED –> Sum of selected pieces.
QI –> Space between the piece detection sensor (INP_09) and the **start of the piece**.
QF –> Space between the piece detection sensor (INP_09) and the **end of the piece**.
L –> Piece length.
HEADS –> <> The piece is between the two heads.

Press the key  to select the pieces present in the heads beyond the nr. 08.



Press the key 

The following page are showed:

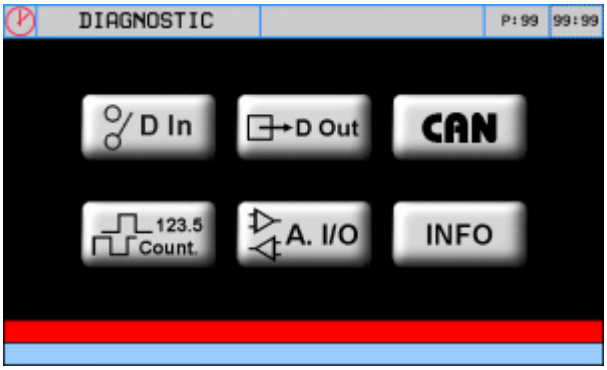


Press the key  , for reset the piece(s) to cancel.

Note: wait until the Reset is complete.

7. Diagnostic

For access to diagnostic, from the **MENU** page press the key 



From this page you can access the various diagnostic sections:

	Digital inputs
	Digital outputs
	Counters
	Analog inputs/outputs
	CAN connection informations
	System informations

To return on the **MENU** press the key 

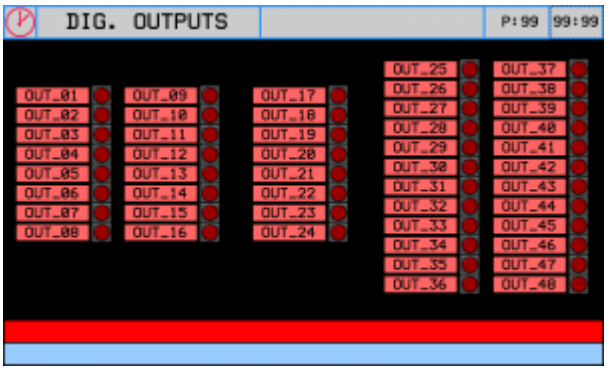
- ## 7.1 Digital inputs

For acces to the diagnostic page of the **Digital Inputs**, press the key 

For return to the **DIAGNOSTIC** menu, press the key 

7.2 Digital outputs

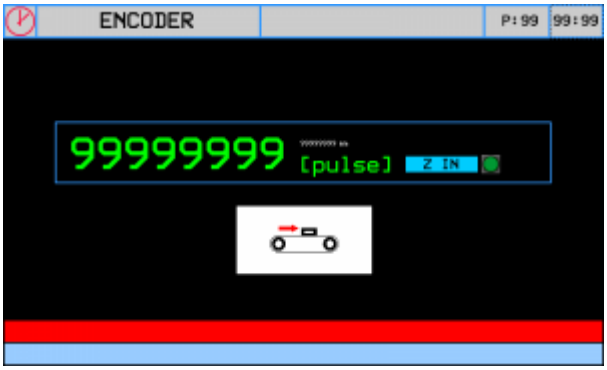
For access to the diagnostic page of the **Digital Outputs**, press the key 



For return to the **DIAGNOSTIC** menu, press the key 

7.3 Counters

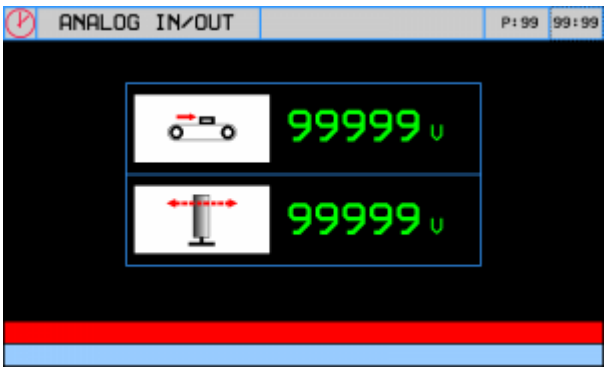
For acces to the diagnostic page of the **Counters**, press the key 



For return to the **DIAGNOSTIC** menu, press the key 

7.4 Analog outputs

For access to the Diagnostic page of the **Analog Outputs**, press the key 

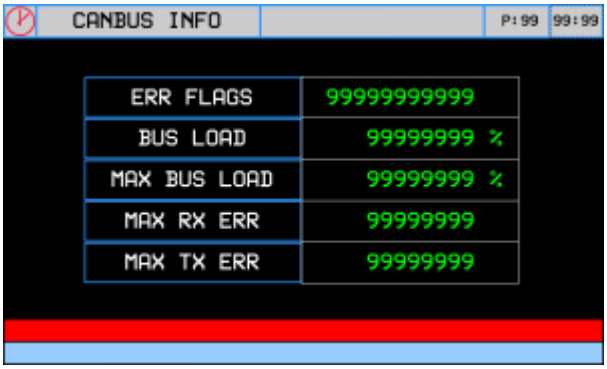


The analog output is indicated in Volt.

For return to the **DIAGNOSTIC** menu, press the key 

7.5 CAN Connection Informations

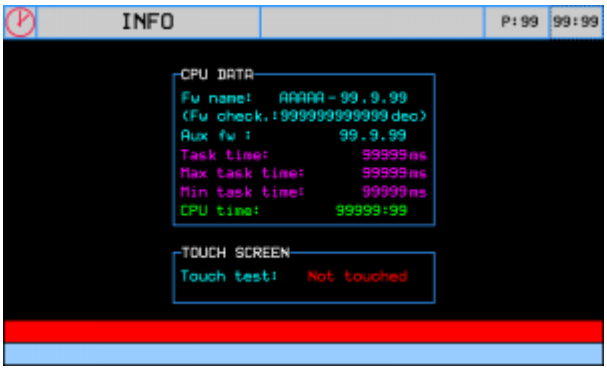
For access to the diagnostic page of the **CanOpen Connection**, press the key 



For return to the **DIAGNOSTIC** menu, press the key 

- ## 7.6 System Informations

For access to the diagnostic page of the **“System Informations”**, press the key 



Fw name	firmware and checksum
Aux fw	firmware of the I/O module
Task time	CPU cycle time : **Minimum, Middle, Maximum**
CPU time	CPU time in Run state (hh:mm)
Touch screen	Test touch

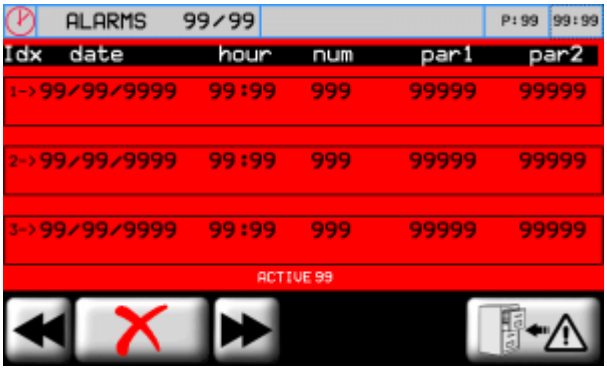
For return to the **DIAGNOSTIC** menu, press the key 

8. Warning messages

Message	Description
Too many parts in the machine	In the machine there are more than 30 pieces
Waiting for auxiliary activation…	Waiting for auxiliary activation (with parameter *MP-08* enable)(I4 = ON)
Abrasive replacement dimension positioning…	The bridge is controlled in the abrasive replacement position
Auxiliaries disabled	Auxiliaries disabled (I4 = OFF)
Attenzion!!! Motors off.	Conveyor belt Start attempt with motors off

9. Alarms

For access to the **ALARMS** page, press the key 



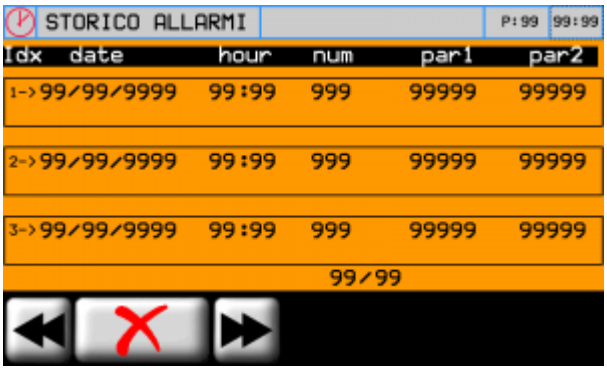
Press the key  for cancel the alarm

Message	Cause	Input
Pressed emergency	Check the emergency line	I01
Fault Inverter	Check inverter	I12
Conveyor belt encoder break	Check conveyor belt encoder (Active only with parameter *MP-03* > 2).	
Thermal protections	Check thermal protections	I06
Carter	Check perimeter protections	I07
Lack of air	Check the pressure switch	I08

The "**Conveyor belt encoder break**" message is automatically generated, if within 5 seconds a space of more than 2 units of measurement has not been cover,
the message is generated if the instrument detects a speed of less than 60mm per minute

9.1 Storico allarmi

Per accedere, dalla pagina di **ALLARMI** premere il tasto 



Dopo aver **rimosso le cause** che provocano l'allarme, premere (x 3 sec.) il tasto  per cancellare

Massimo 60 allarmi.

10. Assistance

For supplying you fast service, at the lowest cost, we need your support.

	
Follow all instructions provided in the MIMAT manual	If the problem remains, fill out the “Request Form for assistance” on the page Contacts at www.qem.it site. Our technicians will get elements essential for the understanding of your problem.

Repair

To provide you with an efficient service, please read and adhere to the instructions given here

Shipping

It is recommended to pack the instrument with materials that are able to cushion any falls.

		
Use the original package: it must protect the instrument during transport.	Attach: 1. A description of the anomaly; 2. A part of the electric scheme where the equipment is inserted 3. The planning of the equipment (set up, quotas of job, parameters...). 4. Request a quote for repair; if not required, the cost will be calculated in the final balance.	A full description of the problem, will help identify and resolve your problems fast. A careful packaging will avoid further inconveniences.