

Sommario

MDO_P1P20F - 022 : Operator Manual	3
1. Informations	3
1.1 Release	3
1.1.1 Specifications	3
2. Description	4
3. Main page	5
3.1 Control bars and informations	5
3.2 Main Page 2	5
3.3 Main Page 3	6
3.4 Machine status	7
3.5 Common keys	7
4. Main menu	8
5. Utilization	9
5.1 Startup	9
5.2 Working program	10
5.2.1 Edit Workin Program	11
5.2.2 Sander machine parameters	12
5.2.3 Milling machine parameters	12
5.2.4 Grinding wheel parameters	13
5.2.5 Brush parameters	13
5.2.6 Water jet parameters	13
6. Work functions	14
6.1 Manual / Automatic	14
6.1.1 Manual	14
6.1.2 Automatic	16
6.2 Pieces reset	16
6.2.1 Reset of all pieces	16
6.2.2 Reset of parts selections	16
7. Diagnostic	18
7.1 Digital inputs	19
7.2 Digital outputs	19
7.3 Counters	19
7.4 Analog outputs	20
7.5 CAN Connection Informations	20
7.6 System Informations	21
8. Warning messages	22
9. Allarmi	23
9.1 Storico allarmi	23
10. Assistance	24
Repair	24
Shipping	24

MDO_P1P20F - 022 : Operator Manual

1. Informations

1.1 Release

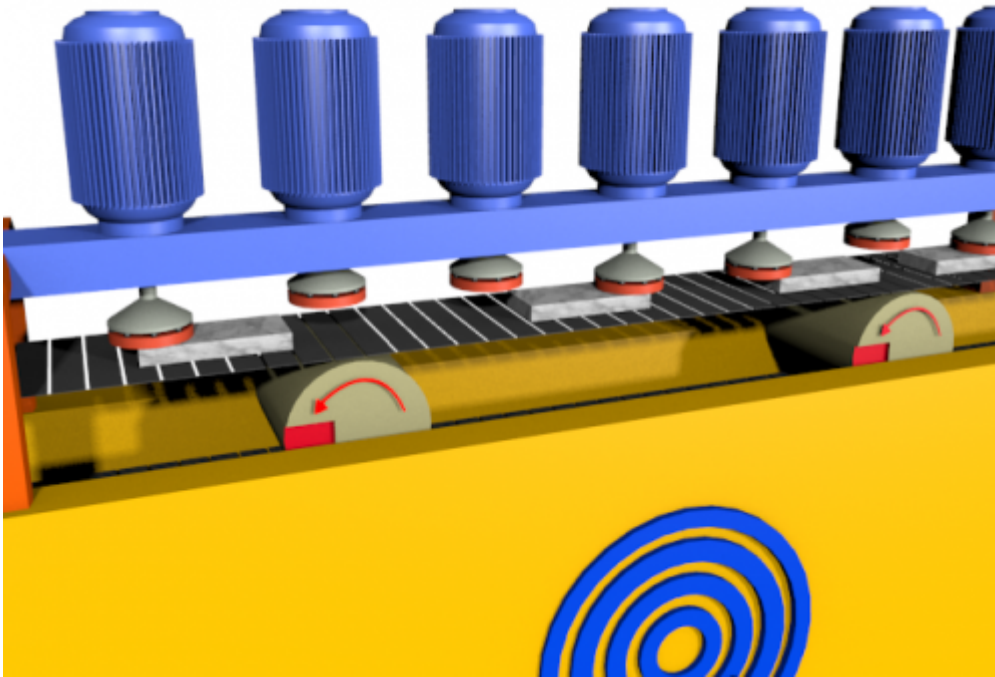
This document is valid except for errors or omissions.

			
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1.1.1 Specifications

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2. Description



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

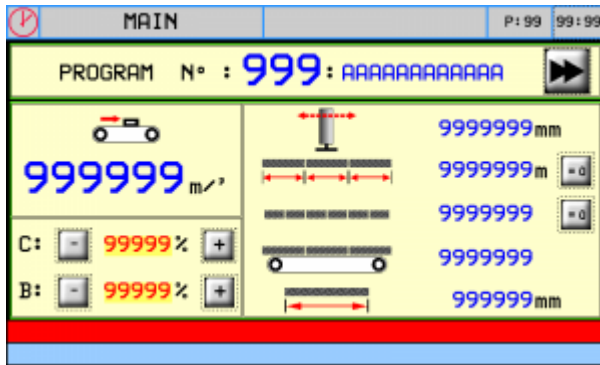
Main features

- 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

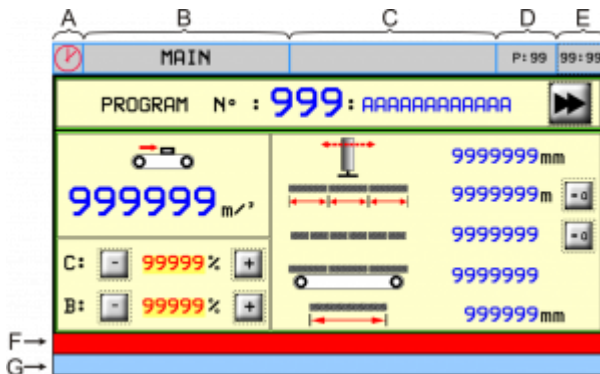
- HMI with touchscreen
- Function keys
- Working program
- Alarm messages
- Warning messages
- Reset defective pieces
- Reset of all workpieces
- Compensation of the offset of the piece presence limit switch
- Mode of heads processing
 1. Smoothing
 2. Milling
 3. Grinding
 4. Brushing
 5. Water jet

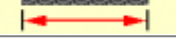
3. Main page



3.1 Control bars and informations

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

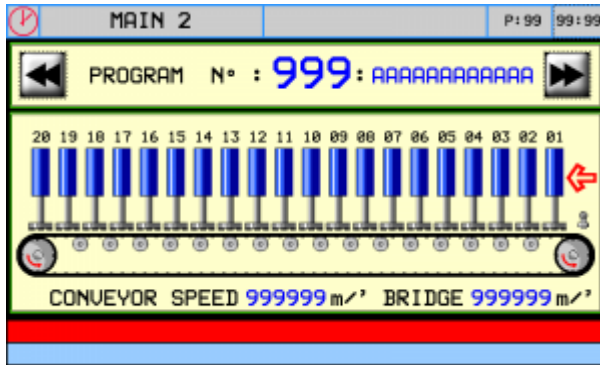


A	Machine status
B	Page name
C	Additional page description
D	Page number
E	Clock
F	Active alarm (red background)
G	Warning (azure background)
	Current conveyor belt speed
N:	Setting the conveyor belt speed
P:	Setting the bridge speed
	Bridge position. N.B. The position of the Bridge is enabled only if 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

Symbols	Descriptions
	Manual
	Emergency
	Automatic
	Mode of operation
	Calibration
	Not initialized

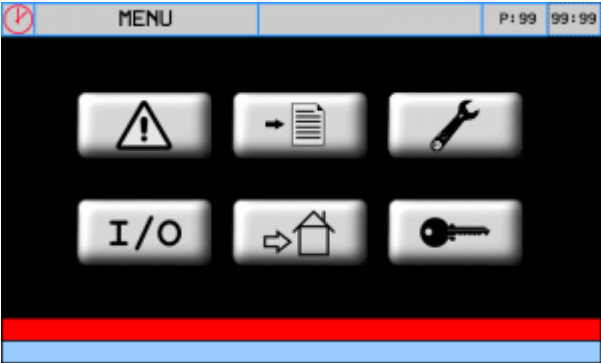
3.5 Common keys

Symbol	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:

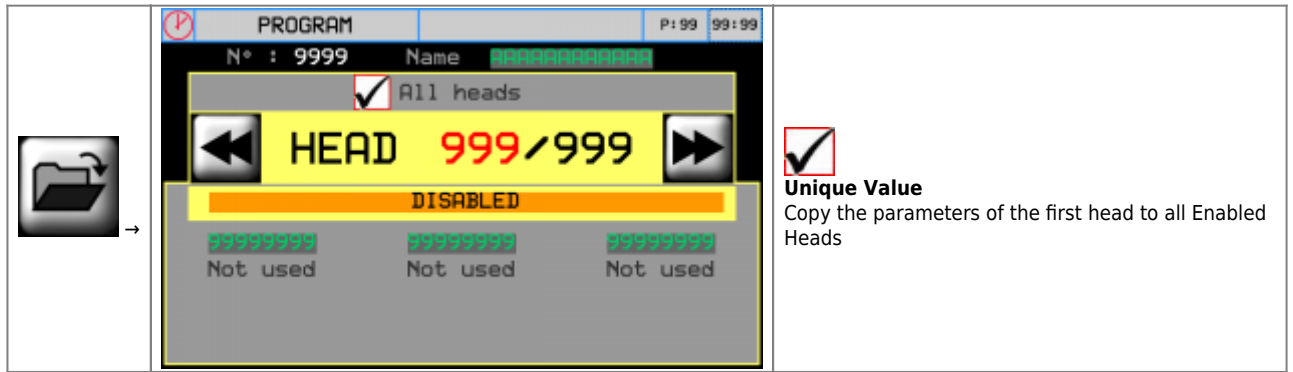
1. press the **F3** function key 
2. or access the MENU page, pressing the **F1** key  than press the key 



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

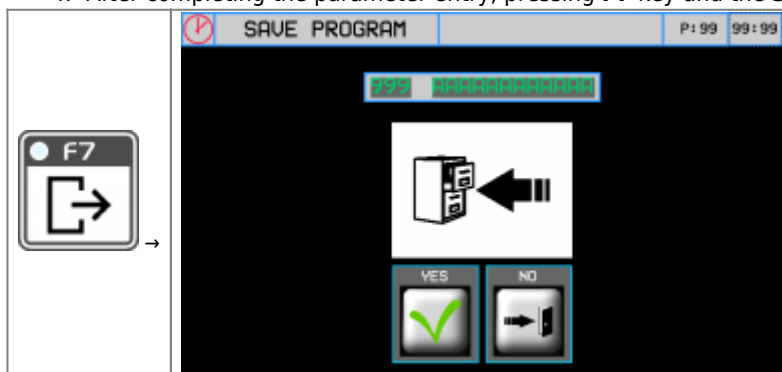
 and 	To scroll through the list of work programmes. Each page can display 5 programs at a time. It is possible to move directly to the desired page by editing it on the title bar.
	Switching to the Work Cycle Editing Function.
	Opens the selected work program to edit it.

• 5.2.1 Edit Workin Program



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

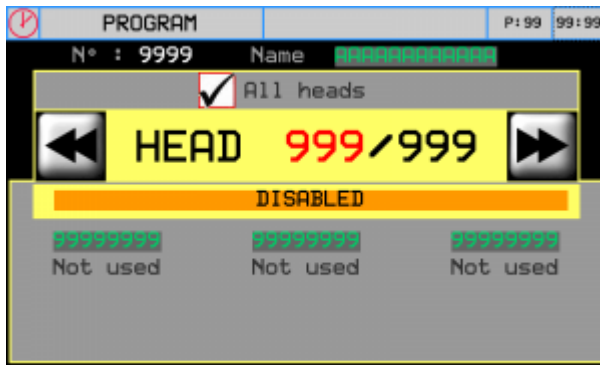
1. To change the program enter the values in the various fields, using the virtual **keyboard**.
2. Type on the field " UNIQUE VALUE" for copy the parameters of the first head on the all heads
3. Set machining parameters
4. After completing the parameter entry, pressing **F7** key and the **save the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

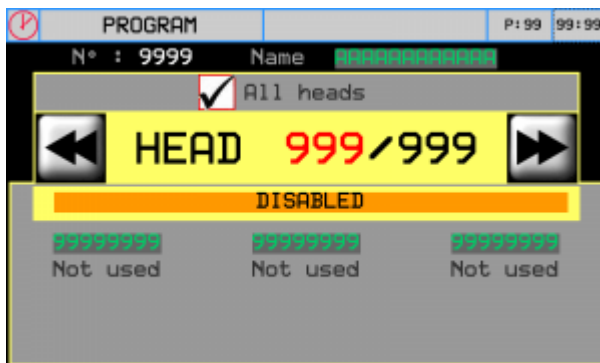


By default the machining parameters are all at 0.

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

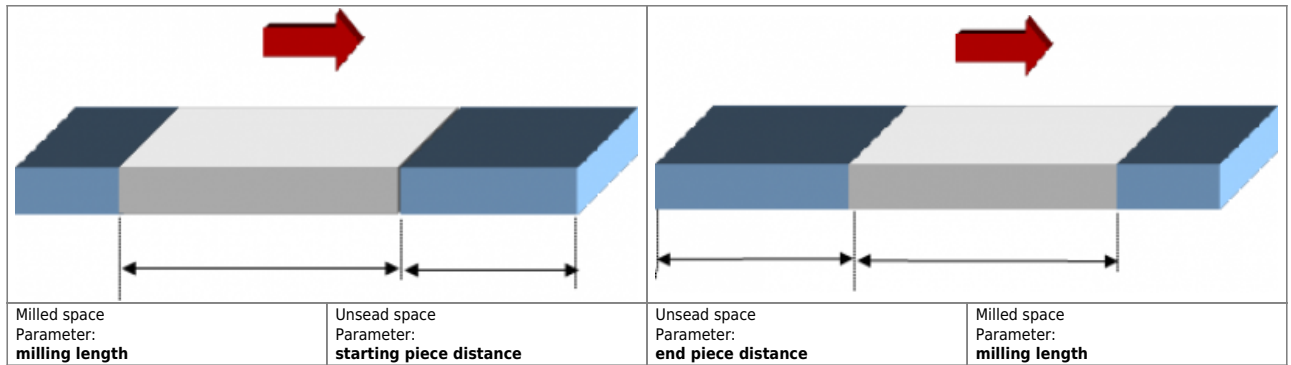
5.2.3 Milling machine parameters



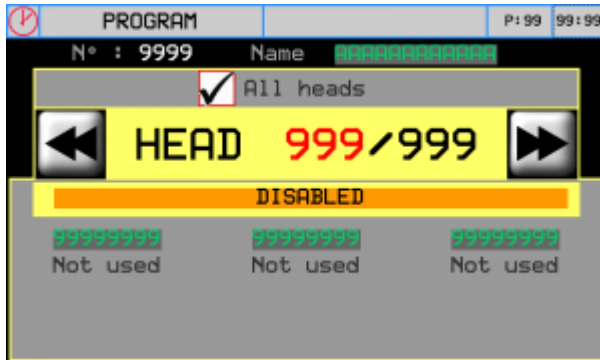
Parameter name	Units of measurement	Range	Description
99999999 Advance (-)	mm	0 ÷ 99999.0	Distance piece beginning / milling. It is the space between the beginning of the piece and the beginning of the milling process .
99999999 Advance (+)	mm	0 ÷ 99999.0	Distance piece ending / milling. It is the space 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
---	---



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

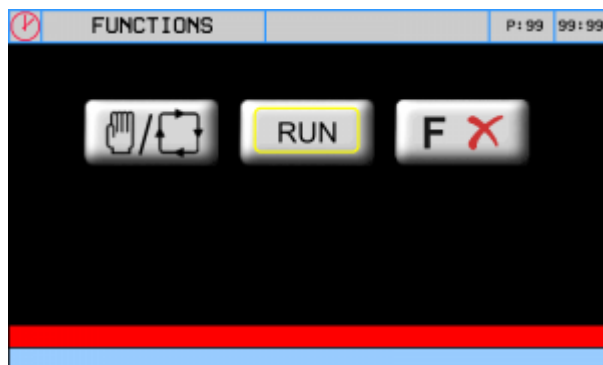
The parameters are similar to the **sander** processing.

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:

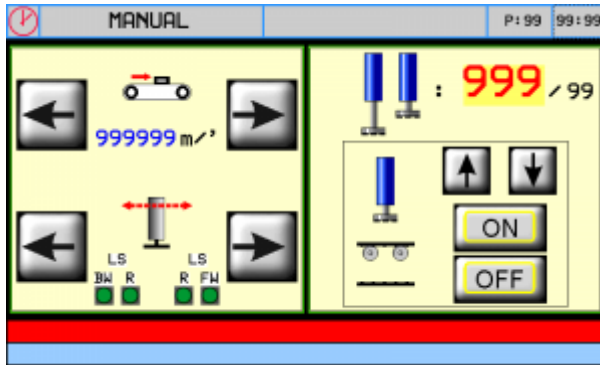


	Operation mode selection MANUAL
	Operation mode selection AUTOMATIC

6.1.1 Manual

To select the MANUAL mode operation, press the key 

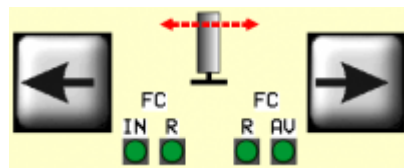
The following page is Showed:



Description of possible operations in manual mode

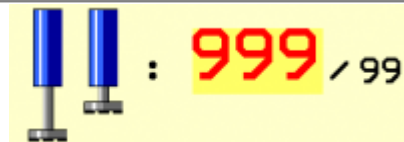


Press the keys  and  you can move the conveyor belt.

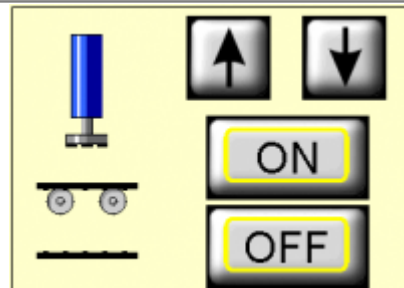


Pressing the keys  and  it's possible to move the Bridge.

IN R
  -> Back Limit Switch and Back Slowdown.
R AU
  -> Slowdown Forward and Limit Switch Forward.
N.B. Bridge 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

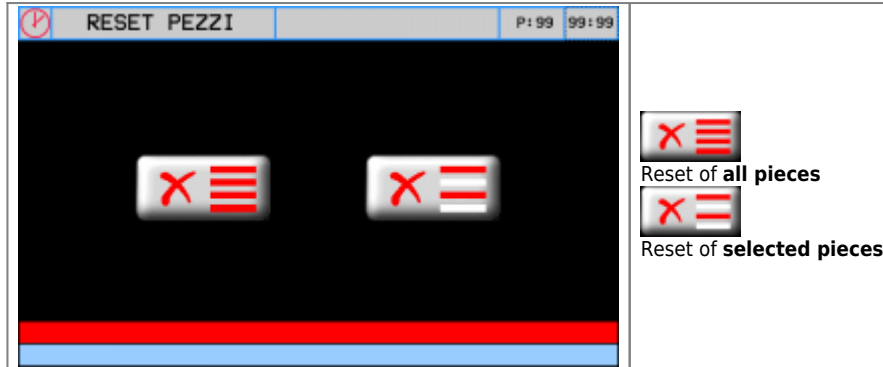
The instrument goes to the Main Page and is ready to acquire the parts in the machine.

6.2 Pieces reset



To select the pieces RESET, press the key

The following page is showed:

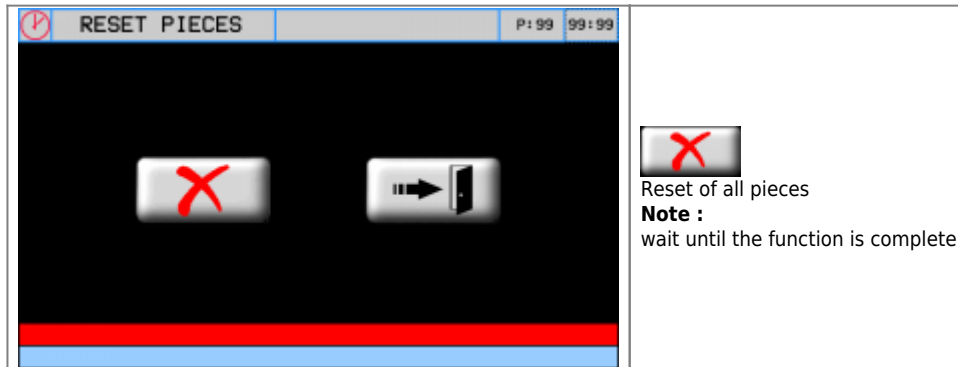


6.2.1 Reset of all pieces



To select the pieces RESET, press the key

The following page is showed:

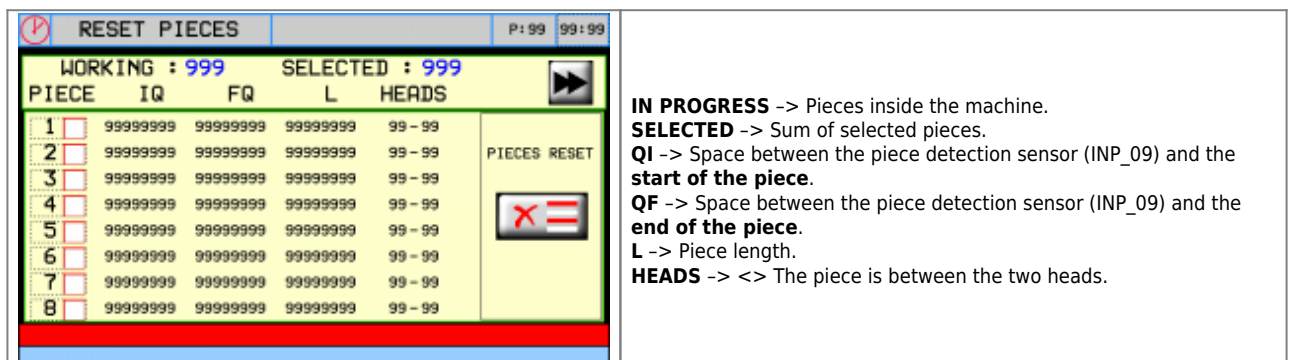


6.2.2 Reset of parts selections



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.

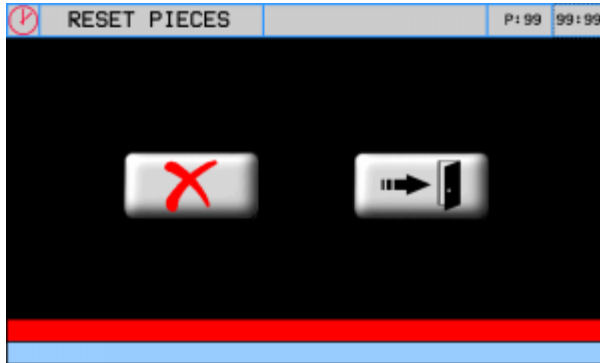


Select the piece(s) to cancel.



Press the key 

The following page are showed:



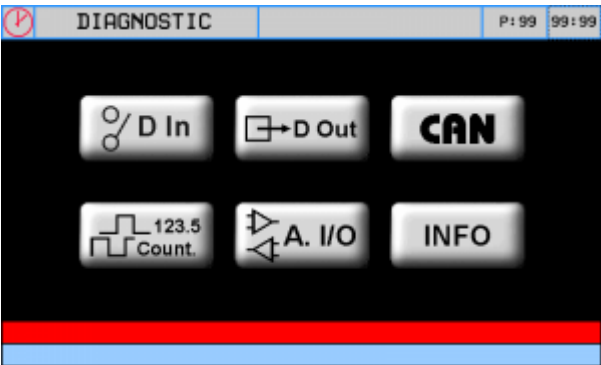
Press the key , for reset the piece(s) to cancel.

Note: wait until the Reset is complete.

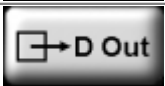
• 7. Diagnostic



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

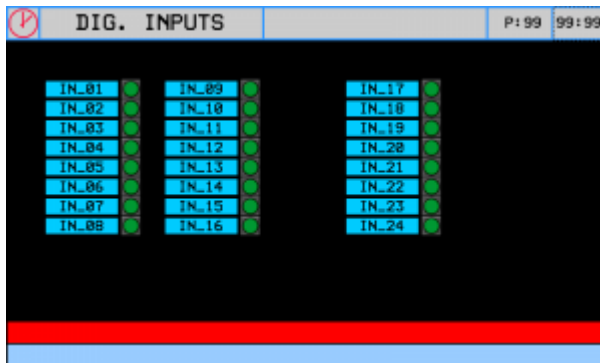


To return on the **MENU** press the key

• 7.1 Digital inputs



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

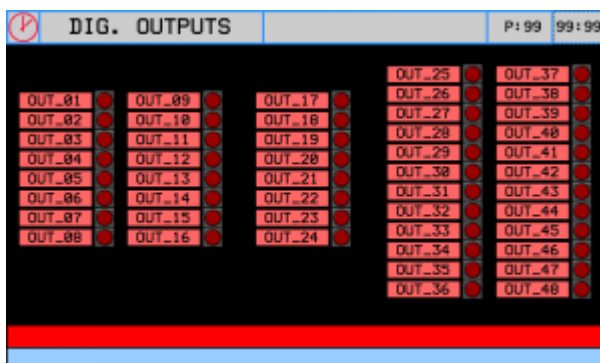


For return to the **DIAGNOSTIC** menu, press the key

7.2 Digital outputs



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

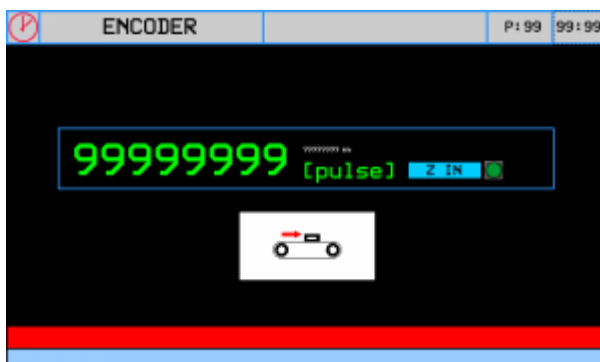


For return to the **DIAGNOSTIC** menu, press the key

7.3 Counters



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



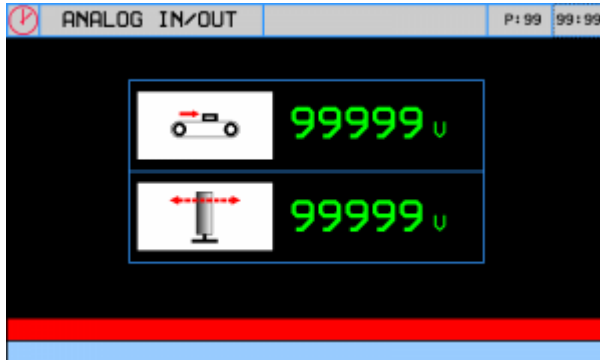


For return to the **DIAGNOSTIC** menu, press the key

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

ERR FLAGS	9999999999
BUS LOAD	99999999 %
MAX BUS LOAD	99999999 %
MAX RX ERR	99999999
MAX TX ERR	99999999

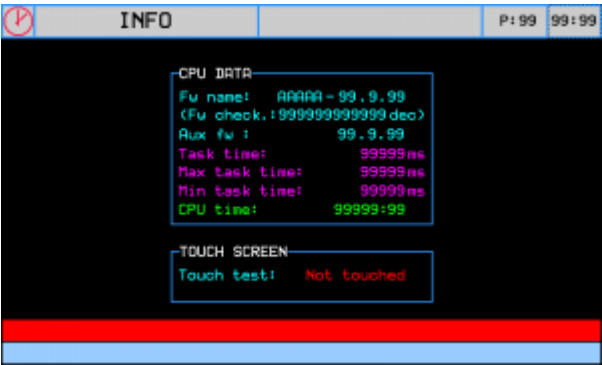


For return to the **DIAGNOSTIC** menu, press the key

• 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 <i>MP-08</i> enable)(I4 = ON)
Abrasive replacement dimension positioning...	The bridge is controlled in the abrasive replacement position
Auxiliaries disabled	Auxiliaries disabled (I4 = OFF)
Attenzione!!! Motors off.	Conveyor belt Start attempt with motors off

• 9. Allarmi



Per accedere alla pagina della visualizzazione degli **ALLARMI**, premere il tasto



Premere il pulsante per cancellare l'allarme

Messaggio	Causa	Ingresso
Emergenza premuta	Controllare la linea dell'emergenza	I01
Fault Inverter	Controllare inverter	I12
Rottura encoder nastro	Controllare encoder nastro trasportatore (Attivo solo con <i>MP-03</i> > 2).	
Protezioni termiche	Controllare le protezioni termiche	I06
Carter	Controllare le protezioni perimetrali	I07
Mancanza aria	Controllare il pressostato	I08



Il messaggio "**Rottura encoder nastro**" viene generato automaticamente, se entro 5 secondi non è stato compiuto uno spazio superiore a 2 unità di misura in altre parole, il messaggio viene generato se lo strumento rileva una velocità inferiore a 60mm al minuto

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.

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