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# MDO\_P1P20F - 022 : Operator Manual

## 1. Informations

### 1.1 Release

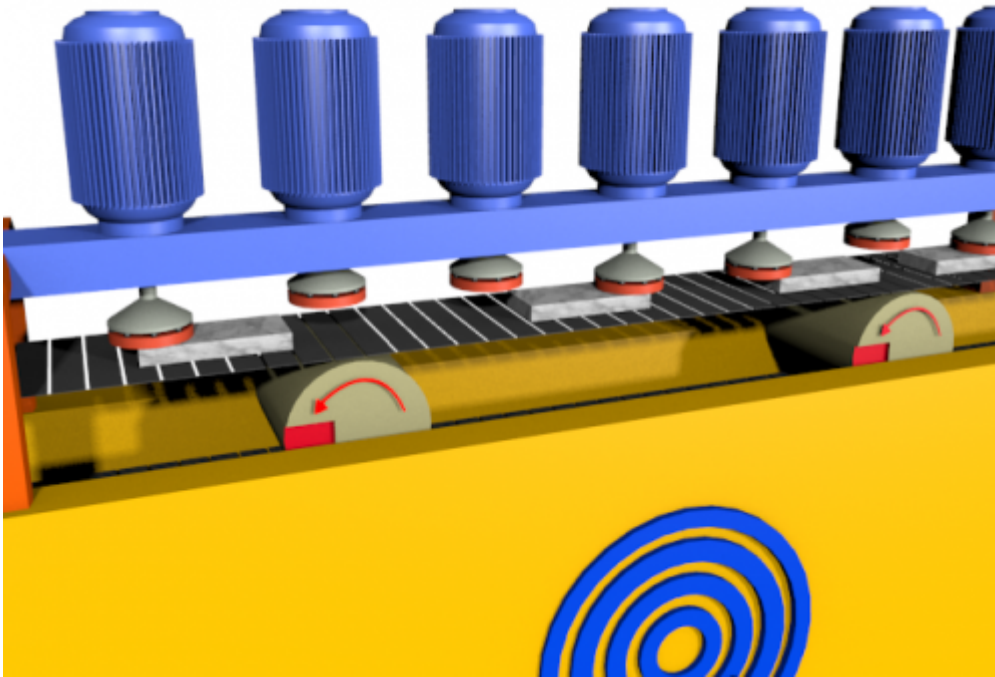
This document is valid except for errors or omissions.

|                                                                                   |                                                                                                                                                                                               |             |             |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|
|  |                                                                                                                                                                                               |             |             |
| <b>Document:</b>                                                                  | <b>mdo_p1p20fh20-001</b>                                                                                                                                                                      |             |             |
| <b>Description:</b>                                                               | Manual Operator p1p20f-022                                                                                                                                                                    |             |             |
| <b>Editor:</b>                                                                    | Omar Sbalchiero                                                                                                                                                                               |             |             |
| <b>Approver</b>                                                                   | Gabriele Bazzi                                                                                                                                                                                |             |             |
| <b>Link:</b>                                                                      | <a href="https://www.qem.eu/doku/doku.php/en/strumenti/qmoveplus/j1p20/p1p20f-022/mdo_p1p20f-022">https://www.qem.eu/doku/doku.php/en/strumenti/qmoveplus/j1p20/p1p20f-022/mdo_p1p20f-022</a> |             |             |
| <b>Language:</b>                                                                  | English                                                                                                                                                                                       |             |             |
| <b>Document release</b>                                                           | <b>Description</b>                                                                                                                                                                            | <b>Note</b> | <b>Data</b> |
| 01                                                                                | New manual                                                                                                                                                                                    |             | 31/08/2021  |

#### 1.1.1 Specifications

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## 2. Description



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

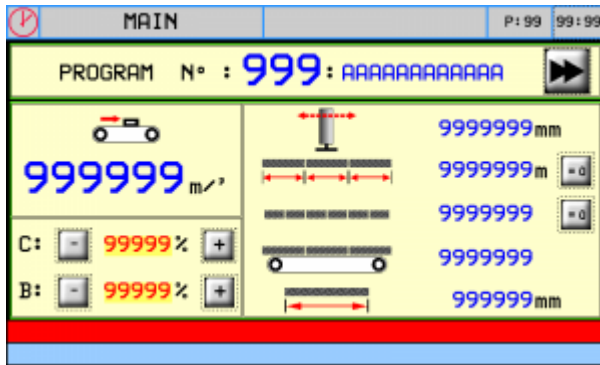
### Main features

- 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

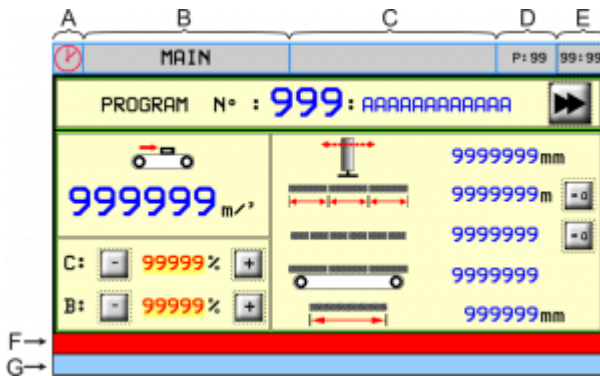
- HMI with touchscreen
- Function keys
- Working program
- Alarm messages
- Warning messages
- Reset defective pieces
- Reset of all workpieces
- Compensation of the offset of the piece presence limit switch
- Mode of heads processing
  1. Smoothing
  2. Milling
  3. Grinding
  4. Brushing
  5. Water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

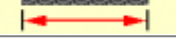
### 3. Main page



#### 3.1 Control bars and informations

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

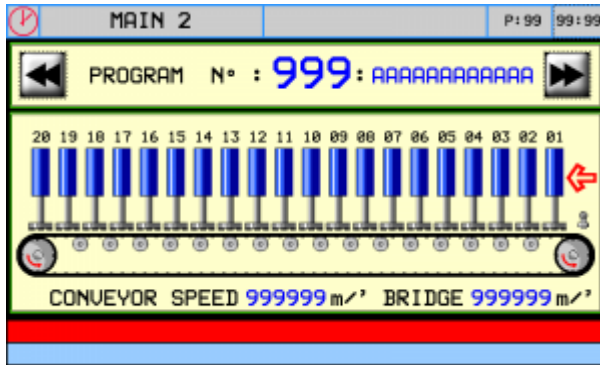


|                                                                                     |                                                                                                                                |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b>                                                                            | Machine status                                                                                                                 |
| <b>B</b>                                                                            | Page name                                                                                                                      |
| <b>C</b>                                                                            | Additional page description                                                                                                    |
| <b>D</b>                                                                            | Page number                                                                                                                    |
| <b>E</b>                                                                            | Clock                                                                                                                          |
| <b>F</b>                                                                            | Active alarm (red background)                                                                                                  |
| <b>G</b>                                                                            | Warning (azure background)                                                                                                     |
|  | Current conveyor belt speed                                                                                                    |
| <b>N:</b>                                                                           | Setting the conveyor belt speed                                                                                                |
| <b>P:</b>                                                                           | Setting the bridge speed                                                                                                       |
|  | Bridge position.<br><b>N.B.</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   |

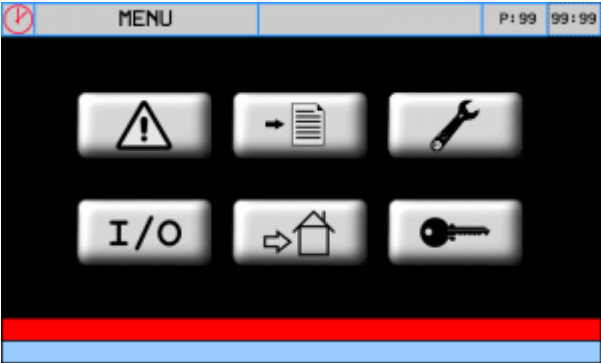
### 3.5 Common keys

| 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.



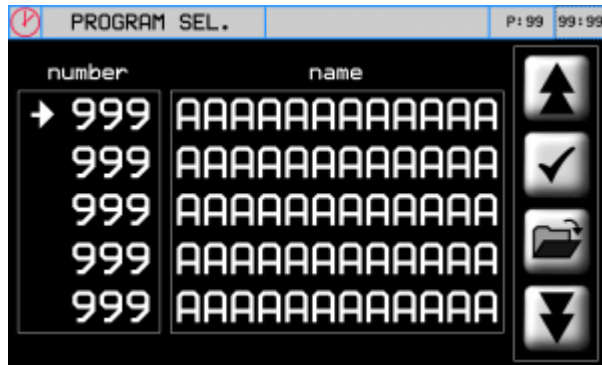
Pressing the key  for start the homing search.

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:

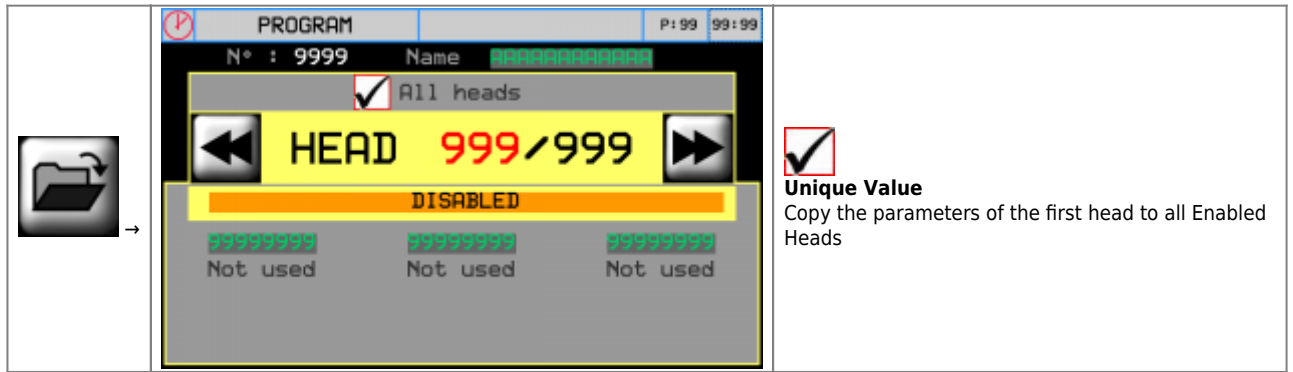
1. press the **F3** function key 
2. or access the MENU page, pressing the **F1** key  than press the key 



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

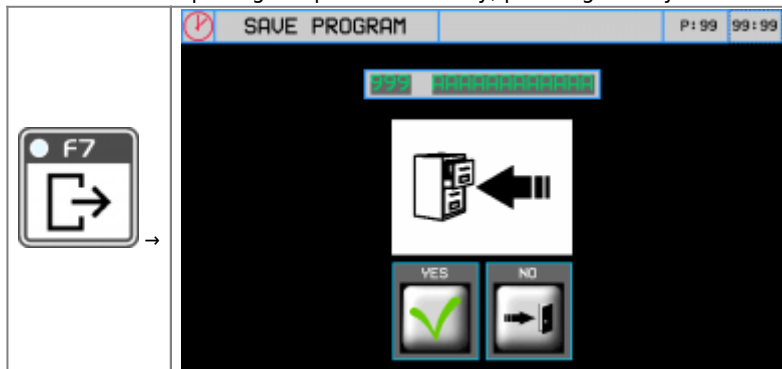
|                                                                                                                                                                         |                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  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** :

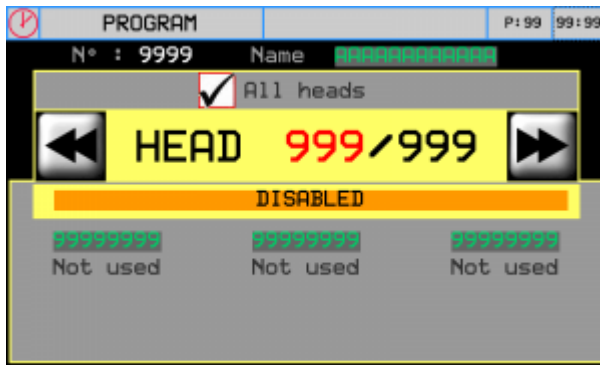
1. To change the program enter the values in the various fields, using the virtual **keyboard**.
2. Type on the field „ **UNIQUE VALUE**“ for copy the parameters of the first head on the all heads
3. Set machining parameters
4. After completing the parameter entry, pressing **F7** key and the **save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

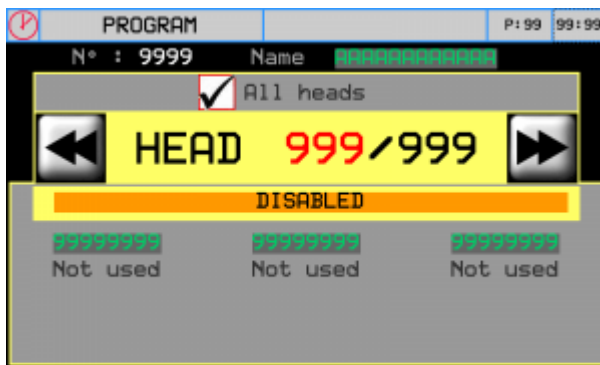


By default the machining parameters are all at 0.

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

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

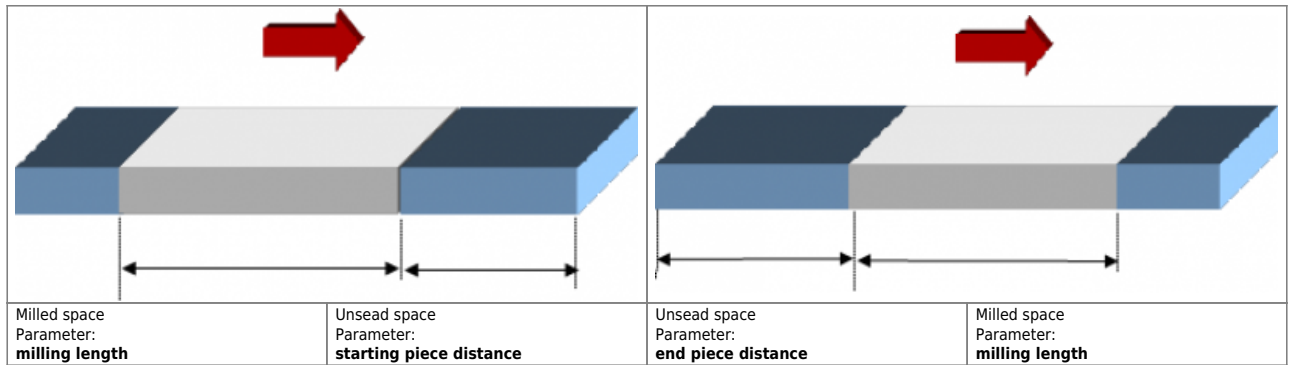
### 5.2.3 Milling machine parameters



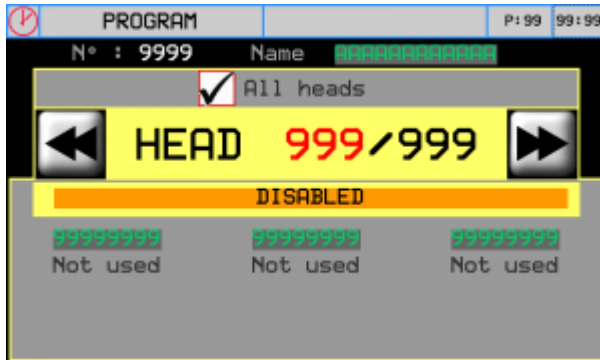
| Parameter name                 | Units of measurement | Range       | Description                                                                                                                                            |
|--------------------------------|----------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>99999999</b><br>Advance (-) | mm                   | 0 ÷ 99999.0 | <b>Distance piece beginning / milling.</b> It is the space between the <b>beginning of the piece</b> and the <b>beginning of the milling process</b> . |
| <b>99999999</b><br>Advance (+) | mm                   | 0 ÷ 99999.0 | <b>Distance piece ending / milling.</b> It is the space between the <b>end of the piece</b> and the <b>end of the milling working</b> .                |
| <b>99999999</b><br>Length      | mm                   | 0 ÷ 99999.0 | <b>Milling length.</b> 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 <b>begin of workpiece</b> | Milling with reference from the <b>end of the workpiece</b> |
|-------------------------------------------------------|-------------------------------------------------------------|



### 5.2.4 Grinding wheel parameters



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

### 5.2.5 Brush parameters

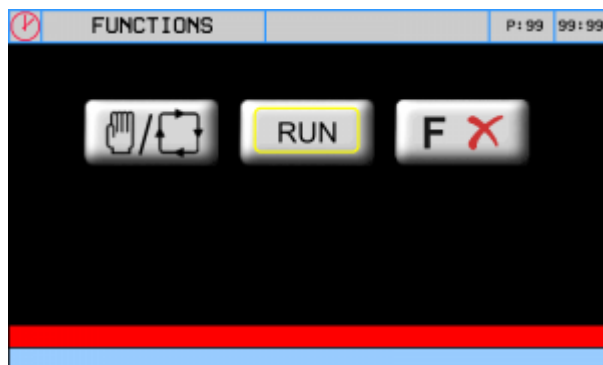
The parameters are similar to the **sander** processing.

### 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 



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

### 6.1 Manual / Automatic

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

The following page is showed:

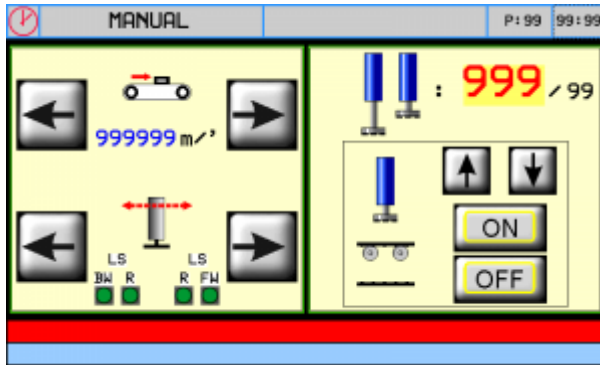


|                                                                                     |                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------|
|  | Operation mode selection <b>MANUAL</b>    |
|  | Operation mode selection <b>AUTOMATIC</b> |

#### 6.1.1 Manual

To select the MANUAL mode operation, press the key 

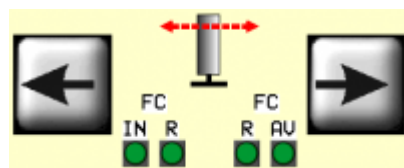
The following page is Showed:



#### Description of possible operations in manual mode



Press the keys  and  you can move the conveyor belt.

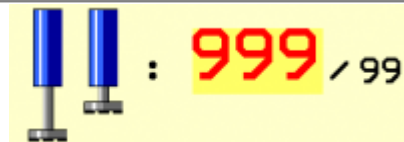


Pressing the keys  and  it's possible to move the Bridge.

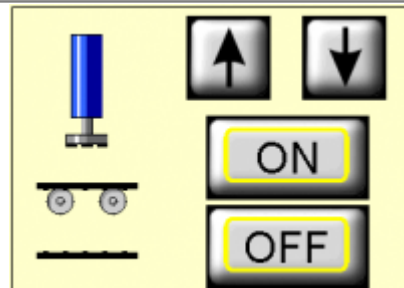
**IN R**  
  -> Back Limit Switch and Back Slowdown.

**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

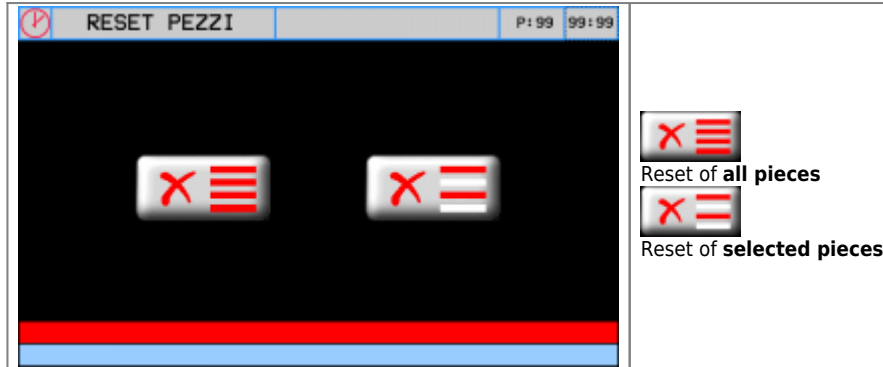
The instrument goes to the Main Page and is ready to acquire the parts in the machine.

## 6.2 Pieces reset



To select the pieces RESET, press the key

The following page is showed:

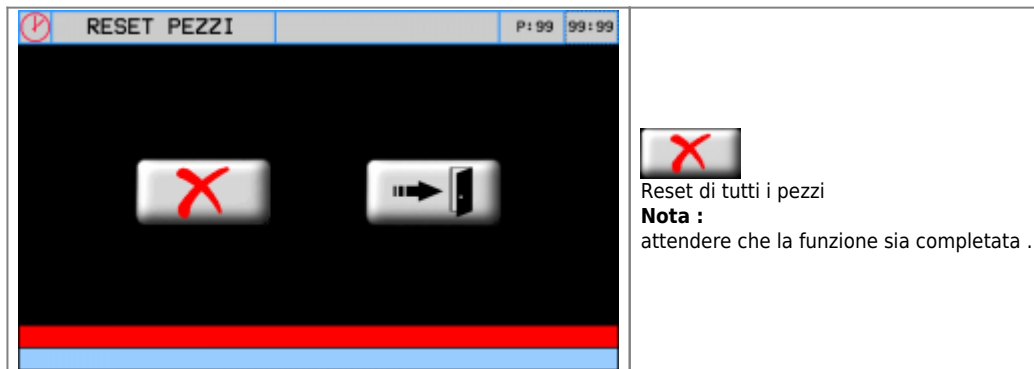


### 6.2.1 Reset di tutti i pezzi



Per selezionare il RESET dei pezzi , premere il tasto

Viene visualizzata la seguente pagina:



### 6.2.2 Reset di una selezione di pezzi



Per selezionare il RESET di una selezione di pezzi , premere il tasto

Viene visualizzata la seguente pagina:







Premere il tasto per selezionare i pezzi presenti nelle teste oltre la nr. 08.

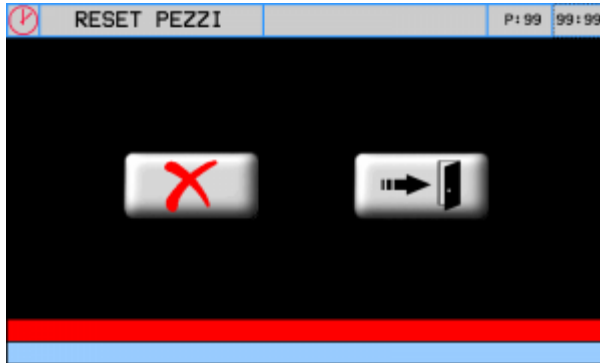


Selezionare il/i pezzo/i che si intende/ono cancellare.



Premere il tasto

Viene visualizzata la seguente pagina.

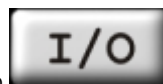


Premere il tasto , per azzerare il/i pezzo/i da cancellare.

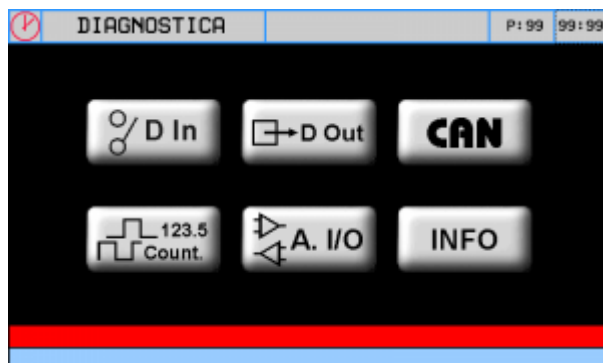
**Nota**

attendere che il Reset sia completato.

## • 7. Diagnostica



Per accedere alla diagnostica, dalla pagina di **MENU** premere il tasto



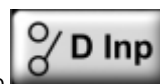
Da questa pagina è possibile accedere alle varie sezioni di diagnostica presenti:

|  |                              |
|--|------------------------------|
|  | Ingressi digitali            |
|  | Uscite digitali              |
|  | Conteggi                     |
|  | Ingressi/uscite analogiche   |
|  | Informazioni connessione CAN |
|  | Informazioni di sistema      |

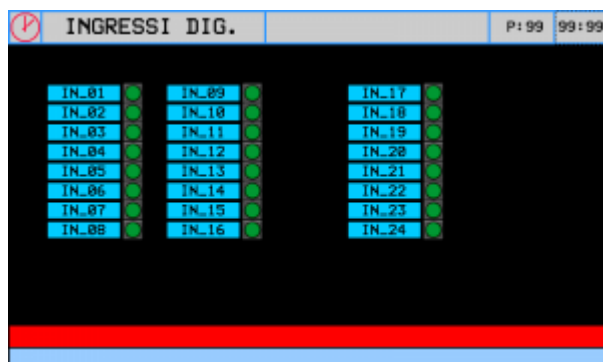


Per tornare al **MENU** premere il tasto

## • 7.1 Ingressi digitali



Per accedere alla pagina di diagnostica degli **Ingressi Digitali**, premere il tasto

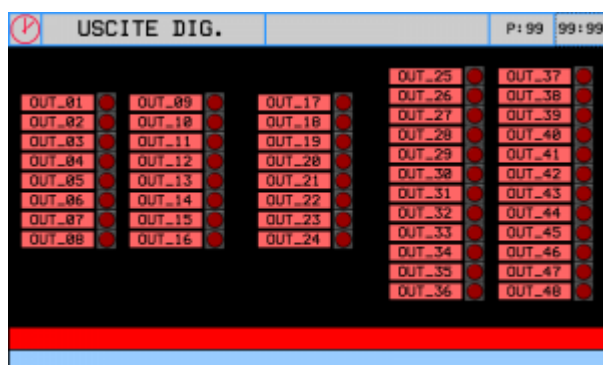


Per tornare al menù di **DIAGNOSTICA** premere il tasto

## 7.2 Uscite digitali

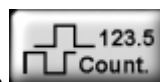


Per accedere alla pagina di diagnostica delle **Uscite Digitali** premere il tasto

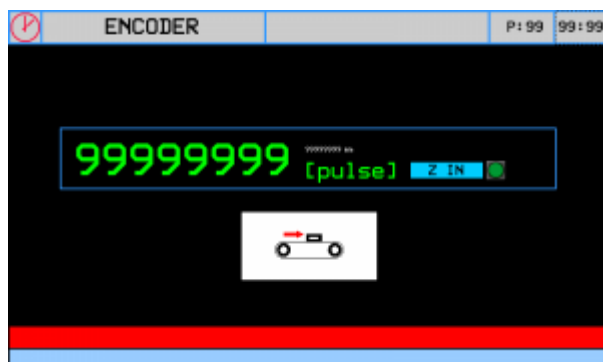


Per tornare al menù di **DIAGNOSTICA** premere il tasto

## 7.3 Conteggi



Per accedere alla pagina di diagnostica dei **Conteggi**, premere il tasto



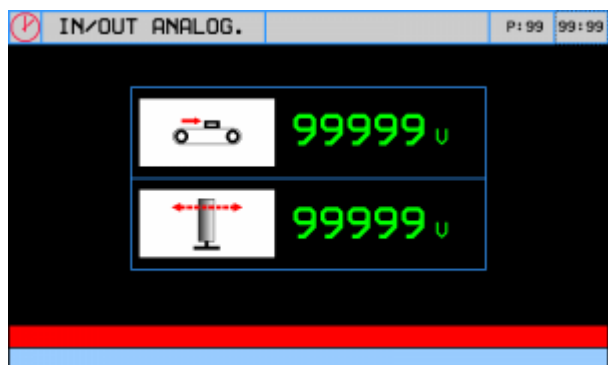


Per tornare al menù di **DIAGNOSTICA** premere il tasto

## 7.4 Uscite analogiche



Per accedere alla pagina di Diagnostica delle **Uscite analogiche**, premere il tasto



L'uscita analogica è espressa in Volt.

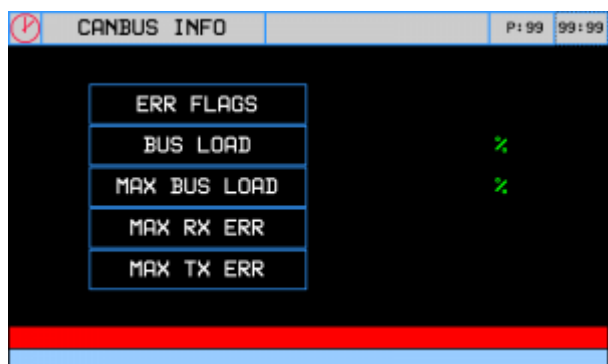


Per tornare al menù di **DIAGNOSTICA** premere il tasto

## 7.5 Informazioni connessione CAN



Per accedere alla pagina di diagnostica della **Connessione CanOpen**, premere il tasto

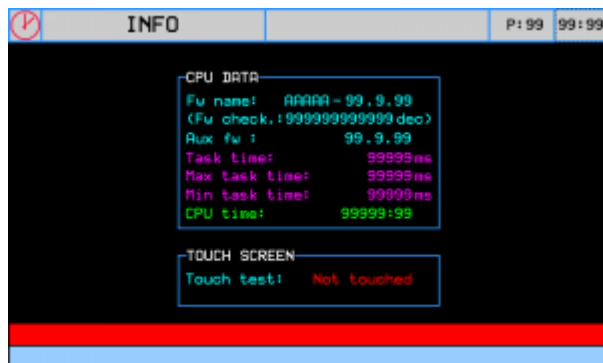


Per tornare al menù di **DIAGNOSTICA** premere il tasto

## • 7.6 Informazioni di sistema



Per accedere alla pagina di diagnostica delle „**Informazioni del sistema**“, premere il tasto



|                     |                                                 |
|---------------------|-------------------------------------------------|
| <b>Fw name</b>      | firmware e checksum                             |
| <b>Aux fw</b>       | firmware del modulo I/O                         |
| <b>Task time</b>    | tempo ciclo CPU : <b>Minimo, Medio, Massimo</b> |
| <b>CPU time</b>     | tempo CPU nello stato di Run (hh:mm)            |
| <b>Touch screen</b> | Test touch                                      |



Per tornare al menù di **DIAGNOSTICA** premere il tasto

## • 8. Messaggi di warning

| Messaggio                                      | Descrizione                                                         |
|------------------------------------------------|---------------------------------------------------------------------|
| <b>Troppi pezzi in macchina</b>                | In macchina ci sono più di 30 pezzi                                 |
| <b>Attesa attivazione ausiliari...</b>         | Attesa abilitazione ausiliari (con <i>MP-08</i> abilitato)(I4 = ON) |
| <b>Posizionamento quota cambio abrasivo...</b> | Il ponte viene comandato nella posizione di cambio abrasivo         |
| <b>Ausiliari disabilitati</b>                  | Ausiliari disabilitati (I4 = OFF)                                   |
| <b>Attenzione!!! Motori spenti.</b>            | Tentativo di Start nastro con motori spenti                         |

## • 9. Allarmi



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



Premere il pulsante per cancellare l'allarme

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

Per poterti fornire un servizio rapido, al minimo costo, abbiamo bisogno del tuo aiuto.

|                                                                                   |                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                                                                                                                                                                            |
| <p>Segui tutte le istruzioni fornite nel manuale <a href="#">MIMAT</a></p>        | <p>Se il problema persiste, compila il „Modulo richiesta assistenza“ nella pagina <a href="#">Contatti</a> del sito <a href="http://www.qem.it">www.qem.it</a>.<br/>I nostri tecnici otterranno gli elementi essenziali per comprendere il tuo problema.</p> |

## Riparazione

Per poterVi fornire un servizio efficiente, Vi preghiamo di leggere e attenerVi alle indicazioni qui [riportate](#)

## Spedizione

Si consiglia di imballare lo strumento con materiali in grado di assorbire eventuali cadute.

|                                                                                           |                                                                                                                                                                                                       |                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                                                                                      |                                                                                                   |
| <p>Utilizzare l'imballo originale: deve proteggere lo strumento durante il trasporto.</p> | <p>Allega:<br/>1. Una descrizione dell'anomalia;<br/>2. Parte dello schema elettrico in cui è inserito lo strumento<br/>3. Programmazione dello strumento (setup, quote di lavoro, parametri...).</p> | <p>Una descrizione approfondita del problema ci consentirà di identificare e risolvere rapidamente il tuo problema.<br/>Un accurato imballaggio eviterà ulteriori inconvenienti.</p> |

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