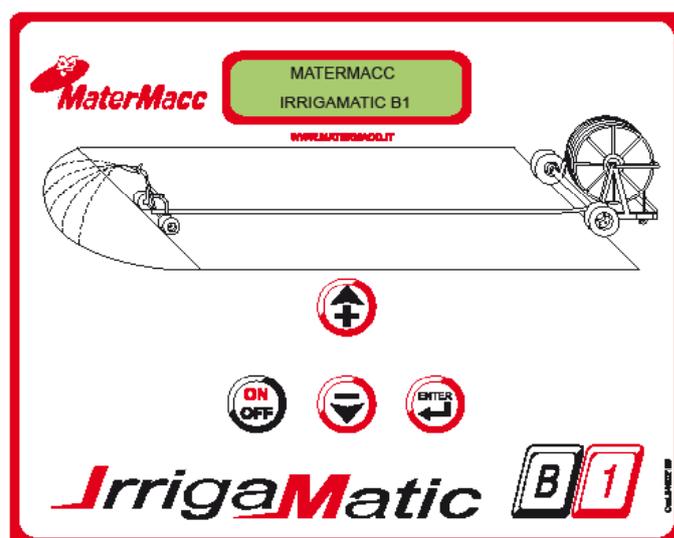
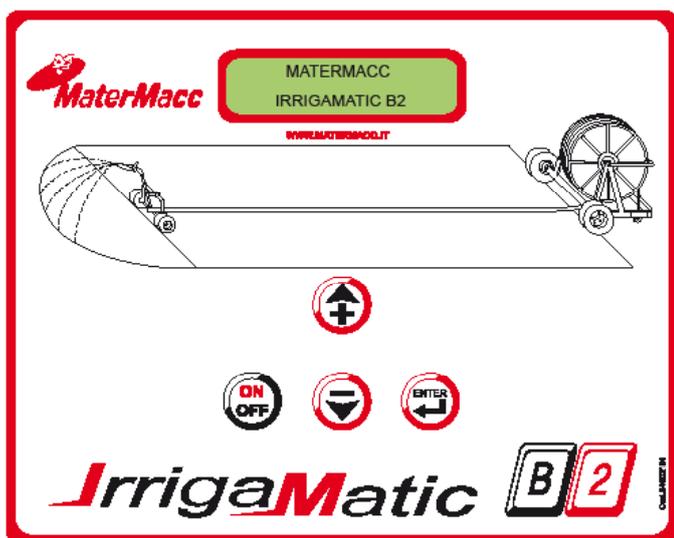




MaterMacc

MANUAL FOR USE AND MAINTENANCE

IRRIGAMATIC B1 - B2



Carefully read this Handbook before using the centraline



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INTRODUCTION

This manual guide contains a description of the work and the necessary instructions for performing basic operations and regular maintenance of the device.

This guide is for convenience divided into easily-defined chapters.

These instructions are intended for professional users only, who are to possess specific knowledge about how to use the device, special admittance and training.

It is recommended to use original spare parts and accessories. Non-original parts in addition to forfeiture of the guarantee can be dangerous and may affect the durability and specifications of the machine.



This symbol indicates that it is necessary to pay maximum attention to the discussed issue.

It is possible that some devices, described in the manual, will not be present in your device, depending on the selected equipment and the intended market .

UPDATING THE MANUAL

Information, descriptions and illustrations contained herein shall reflect the state of the equipment at the time of its sale. The manufacturer reserves the right to perform from time to time possible changes in the equipment for technical or commercial reasons. Such changes do not require the Producer to intervene in sold up devices and do not render this publication inappropriate.

Possible additions the manufacturer finds necessary to provide in the future should be kept together with this manual guide and shall be an integral part thereof.

COPYRIGHT

Copyright on this manual is owned by the manufacturer of the equipment. This guide contains texts, drawings and technical schedule, which can not be released or transferred to a third party in whole or in part without the written permission of the manufacturer of the device.

WARRANTY

- Verify on delivery that the equipment has not been damaged during the transport and that the accessories are integral and complete.
- Any claims must be made in writing within 8 days from reception.
- The warranty against any defect of the materials is valid one year from the delivery date of the equipment.
- The warranty does not include shipment expenses (the material travels at risk and danger of the addressee).
- Any damage caused to people or things are excluded from the warranty.
- The warranty is limited to the repair or free replacement of the faulty piece.
- The retailers and the users are not entitled to any indemnification from the manufacturer for any damages (costs for work, transport, defective job, direct or indirect incidents, no profit on harvests, etc).

WARRANTY DECLINE

Besides what is reported in the supply contract the warranty declines:

- In case the limits referred to in the technical data table or in other tables in the handbook are exceeded.
- In case the instructions described in this handbook have not been followed carefully.
- In case of wrong use, faulty maintenance or mistakes made by the client.
- In case of non original spare parts.
- The contractual guarantee is not applied if the cited conditions are not respected even only partially.
- The use of spare parts not approved by the Manufacturer invalidates every guarantee and releases the Manufacturer of Retailer from every liability due to malfunctioning or incidents.
- The removal or modification of the shelters and protections releases the Manufacturer from every liability due to damages to things and/or people.
- However, the Manufacturing Company is available to assure an immediate and accurate technical attendance and all that can be necessary for the better functioning maximum production of the equipment.

NOTES ON SAFETY

For the safe operation of the device first read carefully these notes.

Power supply

The device is designed to be powered at 12Vdc

Maintenance**Cleaning**

Before proceeding to cleaning, disconnect the power cord from the device.

Use specific multifunctional cleaning spray, since the use of other cleansers may result in breakage and possible incidents.

Electrical safety

Use only the power cord supplied with the equipment.

Do not put any objects on the device.

In the event of any of the below listed situations, immediately switch off the central control unit and disconnect the power cable.

- The device produces noise or an unusual smell.
- Power cable is damaged or worn.
- Where liquid has penetrated.
- Any part of the device is damaged.

Call the authorised support centre to resolve the issue.

Operational safety

Do not perform maintenance procedures, if they are not described in the documentation, or no training was provided to the operator by the authorized regional dealer.

Always follow all warnings and instructions marked on the device or supplied with it.

Always pay utmost care when moving or transferring the device.

Do not place the device near a source of heat.

Recycling and processing

In accordance with European standards electrical and electronic devices should not be recycled together with domestic waste.

In the member states of the European Union you are to take electrical appliances to special places free of charge. For further information please contact the local agency responsible for recycling.

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1 GENERAL FEATURES

FUNCTIONS: (Irrigamatic B1 - B2)

- Current date and time
- Measurement of unwound hose up to 1500m (4921ft).
- Tube to pull in (**B2 only**).
- Start pause (0....120 min.)
- Retrieval speed setting range 4...850m/h (13...2788ft/h)
- Current time and irrigation end time
- Operations of "end irrigation" (Bypass open). (**only B2**).
- Presetable automatic shut-off to save energy

2 GENERAL TECHNICAL DATA

Display: Back-lighted LCD 16x2

Keybuttons: 4 buttons, UP, DN, ENTER, ESC

Inputs:

Speed sensor (on roller or on pinion)

Irrigation end sensor.

Pressure switch

Outputs:

Bypass control

2 INTERFACE

The user interface is made up of a panel which features:

A back-lighted LCD 16x2 display.

Key  To switch on and switch off the central control unit.

Key  To increase the parameter value/to move forward through menu.

Key  To decrease the parameter value/to move backward through menu.

Key  To confirm a value.

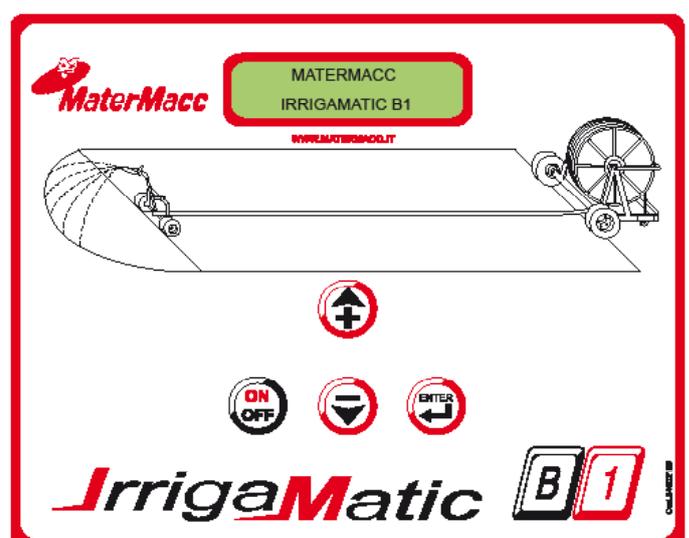
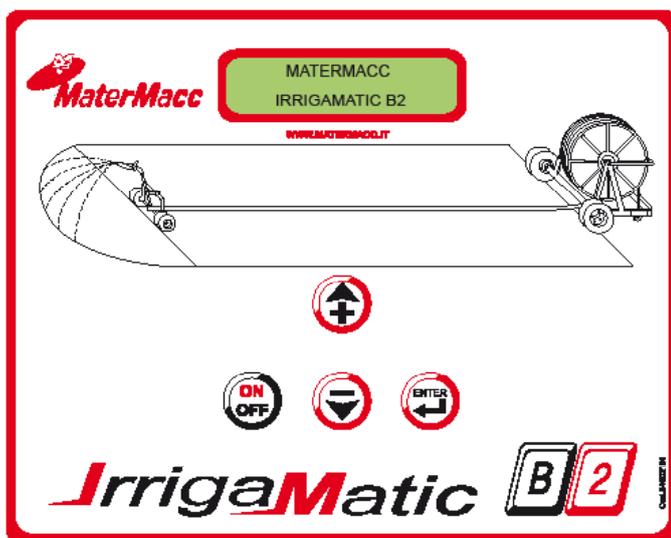
The display presents various values during the operational phases.

It displays relevant messages in the instance of abnormalities.

During device setting, the BKL of the LCD display is always on.

It automatically switches off where keys are not activated within a pre-set time.

Upon pressing a key, the BKL automatically switches itself back on.



3 INSTRUCTIONS FOR USE

3.1 START UP AND MAIN MENU

1. Connect power supply cables of the electronic console to a 12V d.c. voltage source.
2. When switching electronic console on the LCD will display firmware name and version.
3. The first message informs about the execution of the machine initialization.

3.2 MENU ACCESS (General Procedure)

To access the menus, follow the instructions below:

- Press the key  or  to access the desired menu.

- Press the key  to confirm.

10:00:00 12.0 V
1. OPERATION

3.3 MENU FUNCTIONS

OPERATION

10:00:00 12.0 V
1. OPERATION

To perform an irrigation cycle you have to set the following parameters:

P. OUT PE	Allows the user to set or correct the unwounded hose length.
HOSE TO PULL-IN (only IRRIG.B2)	Allows for the retrieve of fewer metres than those unwound.
START TIME	Shows the irrigation start time (NOT SETTABLE)
START PAUSE	Allows static irrigation of the initial header - THERE IS NO GUN CART RETURN - SET BY THE USER
SPEED	Displays the retrieval speed set-point - SET BY THE USER
END TIME	Displays the irrigation cycle end time

CALIBRATION

10:00:00 12.0 V
2. CALIBRATION

This menu allows to set the calibration parameters of the control unit.

NOTE: The calibration menu is PASSWORD protected. Accessible only to the irrigator machine manufacturer.

CONFIGURATION

10:00:00 12.0 V
3. CONFIGURATION

This menu allows to set the configuration parameters of the control unit.

NOTE: The calibration menu is PASSWORD protected. Accessible only to the irrigator machine manufacturer.

CALENDAR

10:00:00 12.0 V
4. CALENDAR

This menu allows to set the DATE/TIME of the control unit.

COUNTERS

10:00:00 12.0 V
5. COUNTERS

Allows menu to control the partial and total work COUNTERS.

TEST & MAN.

10:00:00 12.0 V
6. TEST & MAN.

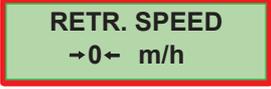
This menu allows to the user to verify the functionality and status of all inputs and outputs (BYP motor) of the console.

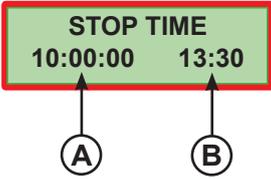
3.4 PROGRAMMING EXAMPLE OF AN IRRIGATION CYCLE

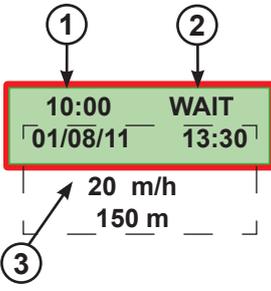
<ul style="list-style-type: none"> Enter the OPERATION section of the menu first of all. 	<p>10:00:00 12.0 V 1. OPERATION</p>
<p>1. The display shows the first parameter to be set (PULLED)-OUT PE hose - (IRRIGAMATIC B1 - B2).</p>	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: If the value is NOT set to 0 RESET the value as follows: 	<p>P-OUT PE 30 m</p>
<ul style="list-style-type: none"> Press the key . 	<p>P-OUT PE →30← m</p>
<ul style="list-style-type: none"> The following is an example of that which appears on the display: Press the key  to reset the value. The following is an example of that which appears on the display: 	<p>P-OUT PE → 0 ← m</p>
<ul style="list-style-type: none"> Press the key  to confirm. 	<p>P-OUT PE 0 m</p>
<p>After reset the length pull-out the hose. Before start check if the measured length correspond with the real length. If necessary (tolerances of 3-5% can depend from hose deformation) modify the value as described below:</p>	
<ul style="list-style-type: none"> To modify the number of metres of unwound tube, press the key . 	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: 	<p>P-OUT PE →200← m</p>
<ul style="list-style-type: none"> Modify the value if needed by acting on keys  or . The following is an example of that which appears on the display: 	<p>P-OUT PE →150← m</p>
<ul style="list-style-type: none"> Press the key  to confirm. 	<p>P-OUT PE 150 m</p>
<p>Press the key  to move onto the next parameter.</p>	

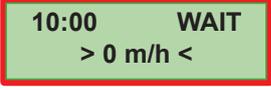
<p>2. Parameter - HOSE TO PULL IN (ONLY FOR IRRIGAMATIC B2)</p>	
<ul style="list-style-type: none"> With the parameter HOSE TO PULL IN available only with model B2, it is possible to pull in less hose than that pulled-out. 	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: 	<p>HOSE TO PULL-IN 0 m</p>
<ul style="list-style-type: none"> Press the key  to modify the value. The following is an example of that which appears on the display: 	<p>HOSE TO PULL-IN →0← m</p>
<ul style="list-style-type: none"> Modify the value if needed by acting on keys  or . The following is an example of that which appears on the display: 	<p>HOSE TO PULL-IN → 130 ← m</p>
<ul style="list-style-type: none"> Press the key  to confirm. 	<p>HOSE TO PULL-IN 130 m</p>
<p>Press the key  to move onto the next parameter.</p>	

<p>3. START TIME parameter (IRRIGAMATIC B1 - B2).</p>	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: 	<p>START TIME 15:15:20 15:15</p>
<ul style="list-style-type: none"> The parameter START TIME is NOT modifiable. 	
<p>Press the key  to move onto the next parameter.</p>	
<ul style="list-style-type: none"> Press the key  to modify the value. The following is an example of that which appears on the display: 	<p>START PAUSE →0← min</p>
<ul style="list-style-type: none"> Modify the value if needed by acting on keys  or . The following is an example of that which appears on the display: 	<p>START PAUSE →20← min</p>
<ul style="list-style-type: none"> Press the key  to confirm. The following is an example of that which appears on the display: 	<p>START PAUSE 20 min</p>
<p>Press the key  to move onto the next parameter.</p>	

4. RETR.(EIVAL) SPEED parameter (IRRIGAMATIC B1 - B2).	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: 	
<ul style="list-style-type: none"> Press the key  to modify the value. 	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: 	
<ul style="list-style-type: none"> Modify the value if needed by acting on keys  or . The following is an example of that which appears on the display: 	
<ul style="list-style-type: none"> Press the key  to confirm. The following is an example of that which appears on the display: 	
Press the key  to move onto the next parameter.	

5. STOP TIME parameter (IRRIGAMATIC B1 - B2).	
<ul style="list-style-type: none"> The parameter STOP TIME is NOT modifiable. The display shows: <ul style="list-style-type: none"> A) the current time. B) the scheduled stop time based upon the length of hose to retrieve and the set speed. 	

6. Performing the irrigation cycle (IRRIGAMATIC B1 - B2).	
<ul style="list-style-type: none"> Start the irrigation cycle by holding key  pressed for 5 seconds. 	
<ul style="list-style-type: none"> The following is an example of that which appears on the display: 	
1) The current time.	
2) the current work phase further to the right (for example "STANDBY" if it is waiting for the starting pause to elapse);	
3) if it is in standby, the bottom line will display alternately the hose length already unwound and the current retrieval speed:	
<ul style="list-style-type: none"> To lock the display at speed, residual length or time until end of work, press the  or  keys. 	

<ul style="list-style-type: none"> The display continuously shows the selected value between the symbols > <. 	
<ul style="list-style-type: none"> To change the retrieval speed during the irrigation cycle, press the key . 	
<ul style="list-style-type: none"> Change the value with keys  or  and confirm with the key . 	
<ul style="list-style-type: none"> Upon termination of the irrigation cycle, press the key  to return to the main menu. 	

3.4.1 DESCRIPTION OF THE IRRIGATION CYCLE

Below please find the description of the evolution of a typical irrigation cycle from pressing key .

1. BYP valve initialized to guarantee the starting speed is zero (BYP open).
2. Waiting for the irrigation start time
3. Initial pause: Irrigation starts with BYP valve open.
4. After the pause time has elapsed the gun cart is retrieved and the system begins adjustment.
5. The retrieval phase ends with the signal of end irrigation for model B2: the BYP valve is opened completely to guarantee ZERO speed and the electronic console displays "END"; for model B1 the cycle substantially ends with an error of "lost gun cart".
6. The IRRIGAMATIC 2K7-B1 or B2 electronic console goes to standby after a programmable lapse of time.

3.5 CALIBRATING THE MACHINE



!!!ATTENTION !!!
The calibration menu is password protected.
It is accessible only to the hose reel irrigator manufacturer.

3.6 CONFIGURING THE MACHINE



!!!ATTENTION !!!
The configuration menu is password protected.
It is accessible only to the hose reel irrigator manufacturer.

3.7 CALENDAR SETTINGS

- Access the CALENDAR menu using keys  or .
- Press the key  to confirm.
- Press key  to select the field to be modified
- The following is an example of that which appears on the display:
- Modify the value if needed by acting on keys  or .
- Once the editing is over hold key  pressed for 3 seconds.

DATE	01/01/01
TIME	12:00:→00←

3.8 COUNTER SETTINGS

- Access the COUNTERS menu using keys  or .
- Press the key  confirm.
- Once the editing is over hold key  pressed for 3 seconds.
- **NOTE:** TOTAL counters cannot be reset.

TOTAL	20:00
PARTIAL	08:00

TOTAL	20:00
PARTIAL	00:00

3.9 TEST & MAN"

This menu allows to perform the test of all peripherals of the console.

The top line of the display shows the symbols of the terminals:

- M2** = speed sensor
- M3** = end irrigation sensor (only B2)
- M6** = unwinding end sensor.
- M7** = pressure switch.

M2	M3	M6	M7	REG
0	0	0	0	0%

To activate/deactivate the digital inputs of the control unit, open and close the contacts.

The bottom line shows the state of the relative input:

- 0** = NOT ACTIVE
- 1** = ACTIVE

M2	M3	M6	M7	REG
0	0	0	0	0%

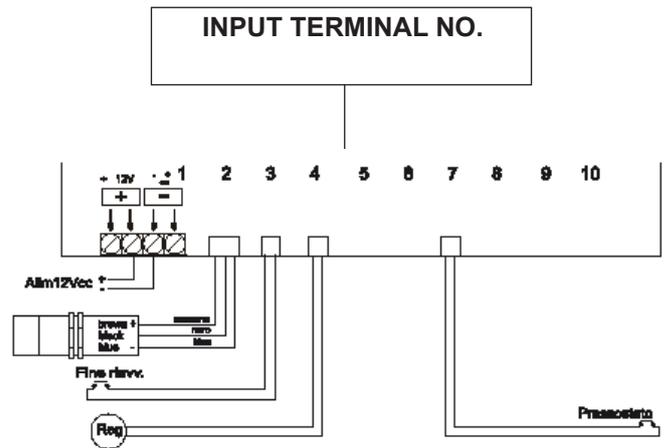
To activate the bypass valve motor, press the keys



The absorption percentage appears on the bottomline.

M2	M3	M6	M7	REG
0	0	0	0	0%

WIRING DIAGRAM



4. IRRIGAMATIC OPERATION

The device operation is connected with several factors characterizing the irrigation process.

4.1 LENGTH OF THE SECTORS

The IRRIGAMATIC 2K7-B1 and B2 electronic consoles permit to irrigate only a single sector. The length of the sector can be set by the user bearing in mind that:

L_{Tot} = total length of the pulled-out hose.

Generally speaking we shall consider that:

1. The console unit must be able to accept modifications to parameters even during the operational phase. Modifications, with the exception of those on time cycles in progress, are immediately effective.
2. The irrigation cycle is over when the sensor of end of winding up receives the right signal, in the negative it ends when the end of winding up has been reached.

4.2 USER'S PARAMETERS

4.2.1 USER'S CONTROL PARAMETERS

The control parameters the user can set at the beginning and/or during an irrigation cycle are the ones summarized in Tab.1

Nr.	Parameter	Description	M.U.	Range	Default
1	P-OUT PE	Length of pulled-out hose	m (ft)	0...1500m (0...4921ft)	
2	HOSE TO PULL-IN (only B2)	Length to pull-in (only B2)	m (ft)	0...P-OUT PE	
3	START TIME	Time when the irrigation cycle should begin	hh:mm	Current Time	
4	START PAUSE	Starting interval for irrigation on field edges (v = 0 => BYP open)	min	0...120	5
5	RETR. SPEED	Retrieval speed	m/h (ft/h)	4...850 (13...2788ft/h)	30m/h 98ft/h
6	END TIME	Time calculated based on 1), 3), 4) and 5)	hh:mm		**calculated CANNOT be modified

5. BASIC CONFIGURATION OF THE CONSOLE

The console must be configured before any operation conforming to the characteristics of the irrigation machine.

5.1 FUNCTION AND OPERATION OF THE BY-PASS VALVE

The adjustment is made by keeping the instantaneous and average speed into account.
The initial sequence includes valve opening in order to make sure the gun cart is still:

From "BYP -" to "BYP open"

While the adjustment is made "REGULATION" or "BYP +/-" will be displayed.

If during adjustment the end of stroke is reached an error warning shall be provided.

5.2 PRESSURE SWITCH FUNCTION

The pressure switch is NOT always provided.

This shall be kept into account when initially configuring the IRRIGAMATIC 2K7-B1 and B2 electronic consoles upon their installation on the irrigation machine.

The pressure switch is used to stop the irrigation cycle by opening the BYP valve if the pressure in the piping falls down to the preset value for more than 5s (std. Matermacc pressure switch is set at 2atm).

When the pressure rises above the preset value for more than 5s the irrigation cycle restarts.

6. ERROR MESSAGES

The electronic console keeps a list of the last 5 error conditions which might arise (i.e. low pressure occurs). The error message is removed from list when the error condition is removed (i.e. pressure rises above preset switch level). The error messages are displayed in a sequence on the first line of the LCD alternatively to the other messages being displayed such as for example:

1/2 ALL 04

2/2 ALL 06

These blinking messages indicate for instance that there has been a short circuit in the BYP control circuit and then the gun cart has been lost (no speed pulses from speed sensor).

The table below indicates the exceptions that might take place during an operating cycle and the relevant messages being displayed.

The list of the events aims at indicating a sequence of the errors which have taken place to help the servicing staff to understand the events that took place should the machine be out of order.

Nr.	Type	Description	Conditions	Action	Lock	Suspension
4	SC on BYP valve	CC value on BYP engine control valve			NO	NO
5	Timeout on BYP valve opening				YES	NO
6	Speed adjustment limit	The BYP valve end of stroke has been reached without reaching the preset speed.			NO	NO
7	Lost gun cart	No pulses for some time from speed sensor (par. C#8 and par. C#9)		BYP closing to accelerate	NO	YES
9	Zero pressure	Low pressure in the piping* *depends from pressure switch calibration (standard Matermacc 2 bar)	Only if the pressure sensor exists (par C#13)	Time isteresis of the relevant digital input is 5s	NO	Yes(waiting for pressure to return).



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