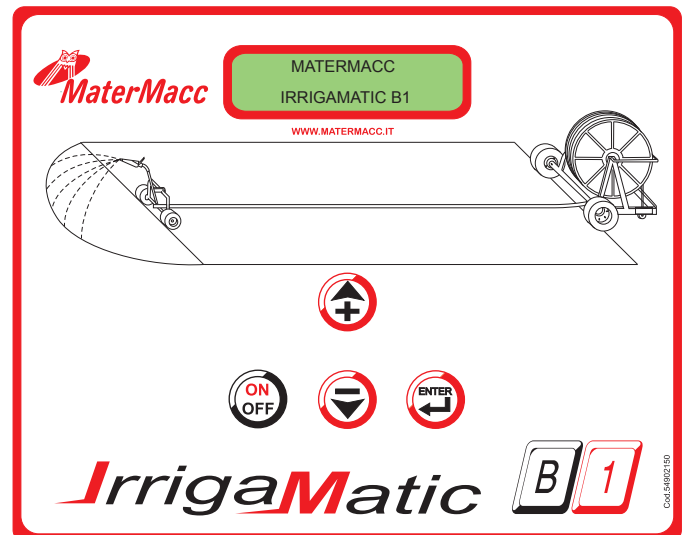
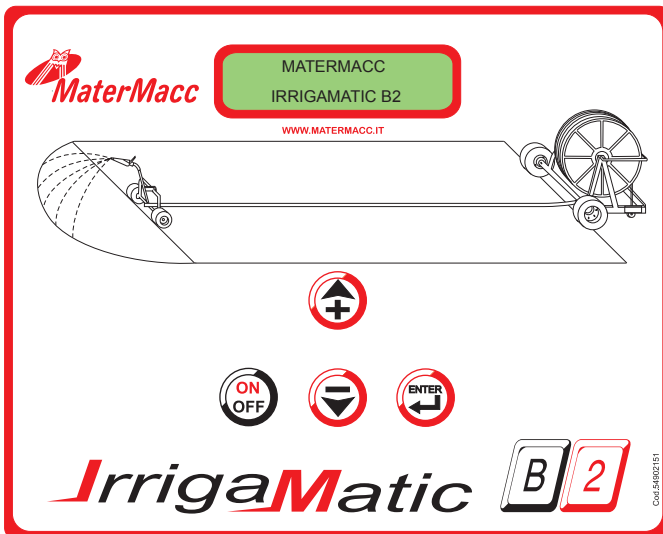




MaterMacc

ASSEMBLING INSTRUCTIONS

IRRIGAMATIC B1 - B2



Carefully read this Handbook before using



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 for the specified type of supply (12Vdc).

Maintenance

Maintenance procedures performed by the operator are described in the documentation supplied to the customer with the product.

Do not perform maintenance operations, which are not specified in the user documentation.

Cleaning

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

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

Electrical safety

Use cables of appropriate section supplied with the equipment.

Do not place the unit where there is a chance of stepping on the power wiring.

Do not put any objects on the device.

In the case of one of the below mentioned situations, immediately turn off the device and disconnect the power cord.

- The device produces noise or an unusual smell.
- Power cable is damaged or worn.
- Some liquid spilled into device.
- Any part of the device is damaged.

To resolve this issue, contact an authorized service center.

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.

Always install the device in a place where you can easily perform maintenance operations.

Do not place the device near a heat source.

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.

For further information, contact the local agency responsible for recycling, or ask for special instructions.

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INTRODUCTION

UPDATING THE MANUAL

COPYRIGHT

WARRANTY

WARRANTY DECLINE

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1 ELECTRONIC CONSOLE INSTALLATION

The electronic console must be installed on the irrigator frame in an accessible position, far from heat sources (for ex. engine) and away from vibrations.

It can be installed in a stainless steel optional protective case.

- Open the electronic console and bore the holes necessary to lead the cable through on the bottom and on the cable holder.
- Fix the electronic console bottom in the required position.
- Connect the motor cables and the sensor cables in their positions (see electric diagrams on pages 10-11) making sure not to make any mistakes.
- Connect the main cable bearing a ring with number **1** to terminal board **1**. Of the electronic console.

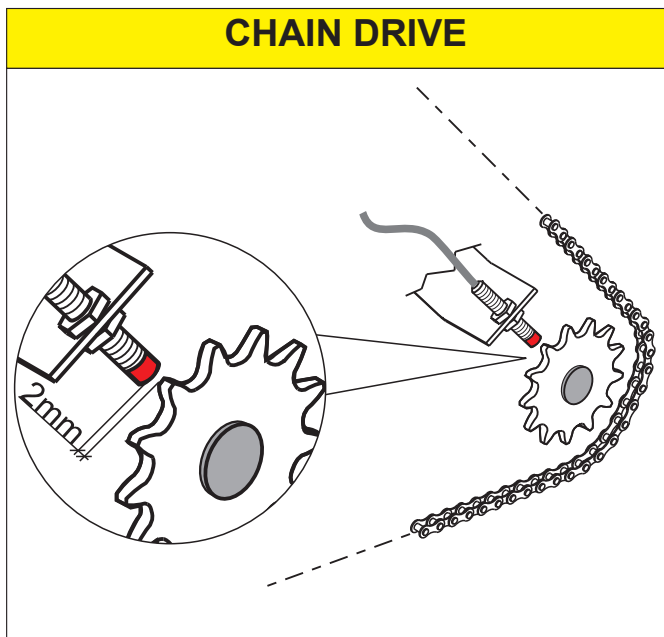
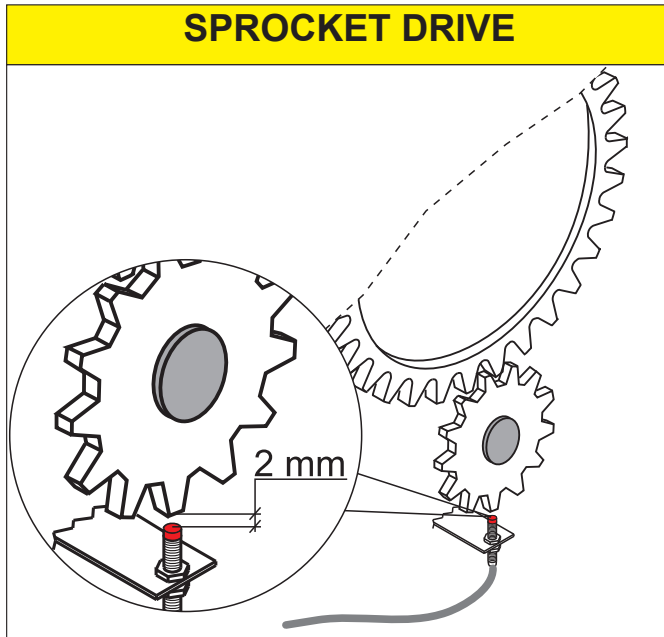
CHECK POLARITIES CONNECT RED CABLE WITH POLE + CONNECT BLACK CABLE WITH POLE -

- Fit the front and close the electronic console.
- **Connect the power supply cable to a 12V battery.**
- Fix the various cables by straps and cable holders.
- The system is now ready to operate.
- The average consumption of an Irrigamatic appliance is approx. 40-50 mA. This means that a 50 Ah battery should last approx 1000 h under normal conditions.
- Power supply to the battery can be obtained by an optional photovoltaic panel (OPTIONAL).

2 INSTALLATION OF THE SPEED SENSOR

2.1 INSTALLING AN INDUCTIVE SPEED SENSOR ON THE PINION

The inductive sensor has a maximum reading range of 4 mm and should be positioned on the bracket supplied in the kit, on the outlet pinion of the reduction gear, indifferently for crown or chain systems. Position the bracket and fix the sensor with nut and check nut at approx. 2 mm from pinion edge.



Should it be necessary to position the sensor on the crown, and should the crown not be perfectly circular, keep at higher distance. Then install a sensor with a wider reading range (optional up to 8mm)

Fix the sensor cable to the irrigator frame by straps or cable holders as far as the electronic gearcase.

The speed sensor cable bears a ring with number 2 and should be connected to gearcase connector 2, while the brown cable should be connected to the positive pole of terminal board 1 (electric diagram on page 9-10).



In the back side of the sensor there is a small light that turns on when the sensor detects the metal. Verify therefore, through this indication, that each tooth of the pinion is detected.

2.2 INSTALLATION OF THE MAGNETIC SPEED SENSOR WITH ROLLER

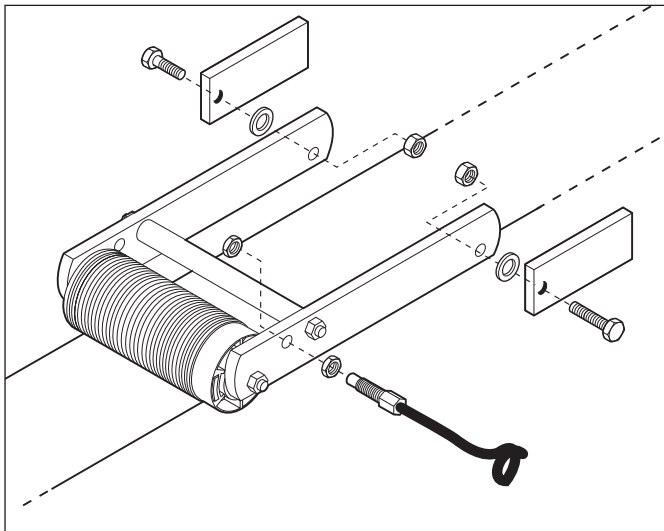
2.2.1 ROLLER INSTALLATION

The roller shall roll over the irrigation hose and shall be able to oscillate up and down in such a way as to keep in touch with the hose by its own weight. The arm spacer shall be mounted upwards not to scratch the hose. Connections can be welded or bolted on the hose guide. After mounting the roller, this shall be able to oscillate freely.

IMPORTANT: DO NOT PRESS ON THE ROLLER.

2.2.2 SENSOR INSTALLATION

- Insert the sensor in the arm hole from the magneto side and fix it with nut and check nut.
- Fix the spiralled cable to the roller arm and to the hose guide by straps or cable holders.
- Fix the cable to the irrigator frame, centrally over the hose guide in such a length as to allow the hose guide to slide from right to left with the cable still slightly twisted. Make sure the cable is in such a position as to avoid any damage during operation.
- For heavy duty conditions an optional speed sensor is available with a Rilsan cable.
- Fix the sensor cable to the irrigator frame by straps or cable holders as far as the electronic gearcase.
- The speed sensor cable bears a ring with number 2 and should be connected to gearcase connector 2.



3. INSTALLATION OF THE ADJUSTING VALVE

3.1 INSTALLATION OF THE BY-PASS VALVE

3.1.1 BY-PASS VALVE INFORMATION

- The by-pass valve is used to send more or less water to the turbine, thus allowing to adjust the trolley return speed.
- The valve is sized according to the irrigator characteristics.
- The following table shows the size of the valve generally used according to the irrigation hose diameter:

irrigation hose	by-pass valve
50 - 100 mm	2"
80 - 110 mm	2" ½
100 - 125 mm	3"
130 - 140 mm	4"

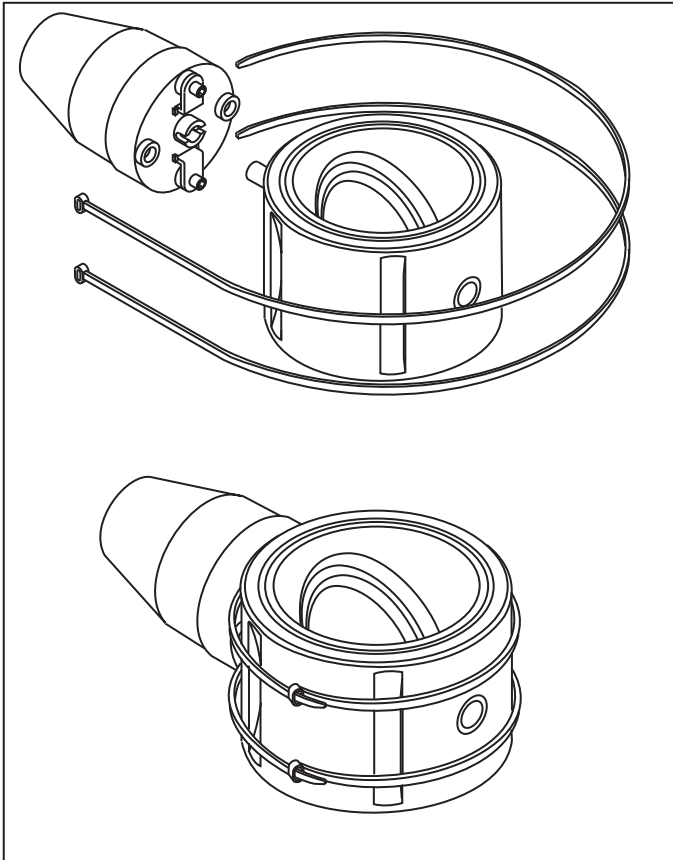
When the by-pass valve is fully open, the hose rewinding speed is zero even when the hose is partially rewound. For this reason, under specific conditions, it may be useful to install valves in a size different from standard ones. By-pass valves consist of a 100mm long body with female gas threading at the ends and a head gasket for wafer mounting. A butterfly valve with an elastic rim is mounted inside. The motor reduction gear is fitted on the valve shaft. The motor reduction gear is controlled by the gearcase for speed adjustment.

3.1.2 HOW TO MOUNT THE BY-PASS VALVE

Fit the by-pass valve in the by-pass duct of the turbine in such a position as to prevent the motor reduction gear from getting upside down to prevent water seepage. The duct with the by-pass valve should not be rigid, but at least with a section of rubber or plastic hose to prevent any damage to the valve.

3.1.3 MOTOR REDUCTION GEAR INSTALLATION

Insert the motor reduction gear in the valve shaft in such a way as to position the shaft plug in the motor reduction gear seat. Insert the locking pin of the motor reduction gear in the slot of the valve body, then lock the unit by straps as shown in the figure below.



Fix the motor reduction gear cable to the irrigator frame by straps or cable holders as far as the electronic gearcase.

The motor reduction gear cable bears a ring with number 4 and should be connected to gearcase connector 4.

3.2 INSTALLATION OF A BALL VALVE FOR PISTON IRRIGATORS

The rewinding speed adjustment for piston irrigators is obtained by means of a ball valve ($\frac{3}{4}$ ") with a female to female threading on which the motor reduction gear is applied.

The ball head valve is preferably installed in the delivery hose taking water to the piston, but it can be installed in the water drain as well.

For installation follow the instructions given for by-pass valve installation.



Each valve is supplied with a manual adjustment dial that can be very useful should the adjustment system be out of order, in that it permits to keep the valve approx. in a working position anyway.

4 INSTALLATION OF THE END-OF-WORK VALVE

4.1 SHUNT VALVE

The shunt valve is a 3-way motor-driven valve used to pilot a hydraulic valve to discharge pressure from the duct and stop the irrigation cycle. Choose the position for the shunt valve and fix it with its support vertical by two screws.

Fix the 3-way valve motor cable to the irrigator frame by straps or cable holders as far as the electronic gearcase. The 3-way valve motor cable bears a ring with number 5 and should be connected to gearcase connector 5.

Connect the shunt valve to the hydraulic valve as shown in the diagram below.

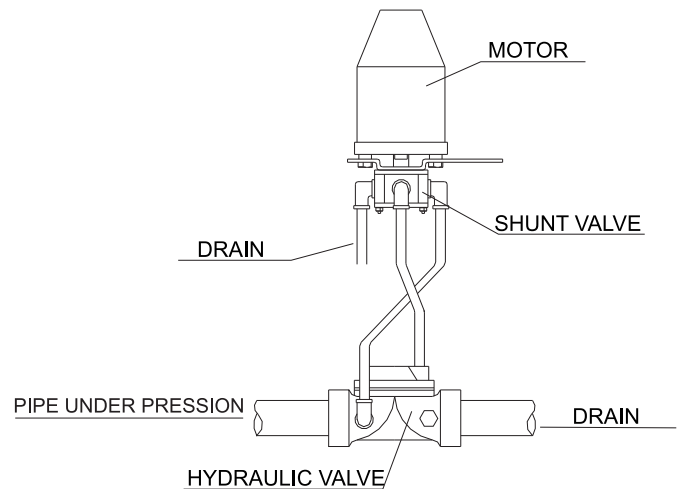
The hydraulic valve is usually fitted on the hose to the drain.

To connect the shunt valve to the hydraulic valve, use a plastic hose (6 or 8mm diameter) and fittings.

The shunt valve is a threaded 1/8" female.

Upon request a 5-way valve can be supplied to control a double-acting piston.

4.1.1 DIAGRAM OF THE HYDRAULIC VALVE TO THE DRAIN



4.2 SLOW-CLOSING VALVE

The slow-closing valve consists of a motor-driven butterfly valve. It can be mounted on the inlet (closing in approx. 4 minutes) to close the water delivery to the irrigator or on the drain (opening in approx. 1,5 minutes) to let pressure drop.

Two types of motor reduction gears are mounted:

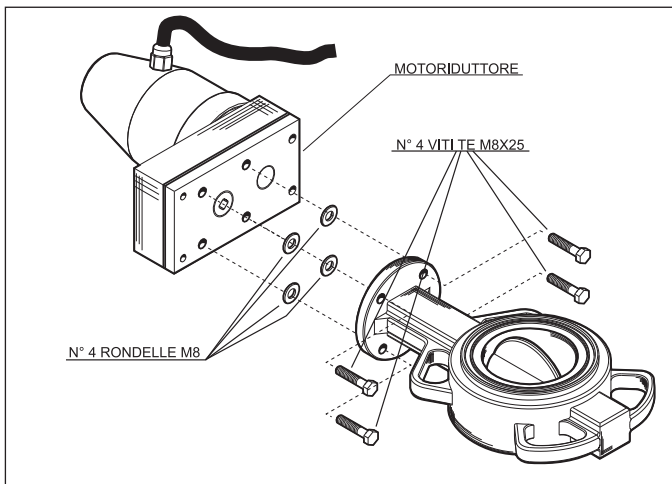
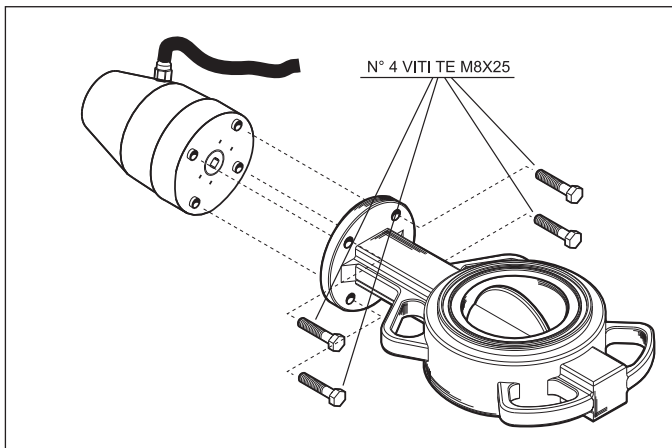
- one for valves (diameter up to 3")
- one for valves (diameter of 4" and over) (with an extra reduction gear).

4.2.1 HOW TO MOUNT THE BUTTERFLY VALVE

Fit the valve in the inlet or outlet duct to prevent the motor reduction gear from capsizing and avoiding water seepage.

4.2.2 MOTOR REDUCTION GEAR INSTALLATION

Fit the motor reduction gear in the valve square shaft and fix it to the valve body by means of 4 screws (see figure).



- Fix the valve motor cable to the irrigator frame by straps or cable holders as far as the electronic gearcase.
- **The valve motor cable bears a ring with number 5 and should be connected to gearcase connector 5.**

5 INSTALLATION OF THE END IRRIGATION SENSOR

The end irrigation sensor is used to give the gearcase consent to start the procedures of end of irrigation once the whole hose has been rewound.

Fix the magnet on the transmission rod at a maximum distance of 5 mm in front of the sensor.

The sensor should be fixed on the frame by means of a bracket to obtain the above described condition.

Make sure the distances are complied with and the magnet passes close to the sensor tip without damaging it.

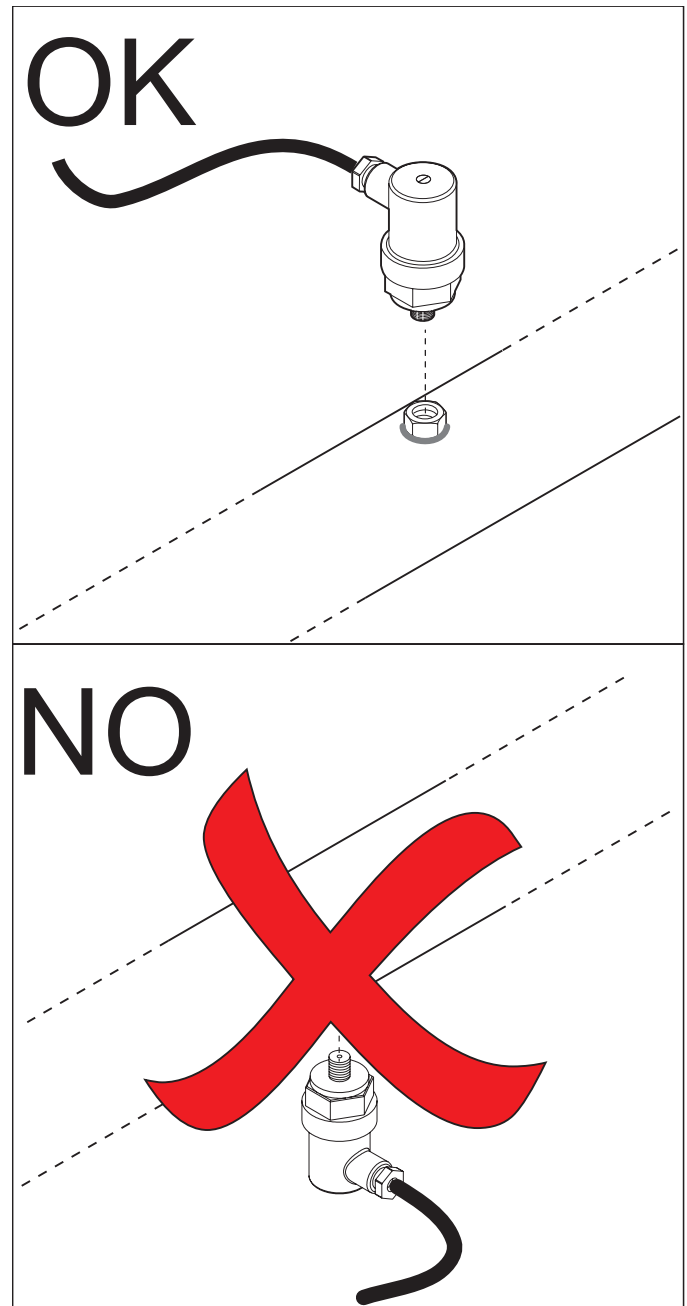
Fix the end irrigation sensor cable to the irrigator frame by straps or cable holders as far as the electronic gearcase.

The end-of-rewinding sensor cable bears a ring with number 3 and should be connected to gearcase connector 3.

6 OPTIONS

6.1 PRESSURE SWITCH INSTALLATION

The Irrigamatic machines are preset for direct connection to the electronic gearcase of a pressure switch used to inform the system about any leak of pressure in the duct. The supplied pressure switch has a male threaded 1/8" connection. The pressure switch should be installed at the top of the duct to prevent impurity from depositing on the bulb.



6.1.1 HOW TO CALIBRATE THE PRESSURE SWITCH

Upon supply, pressure switch calibration is random. To modify this value, remove the cover and act on the screw fitted on the pressure switch.

Tighten the screw to increase pressure, loosen the screw to reduce it.

The contacts are normally closed and open when the operating pressure is higher than the preset pressure.

The pressure switch cable bears a ring with number 7 and should be connected to gearcase connector 7.

6.2 OUTER ALARM

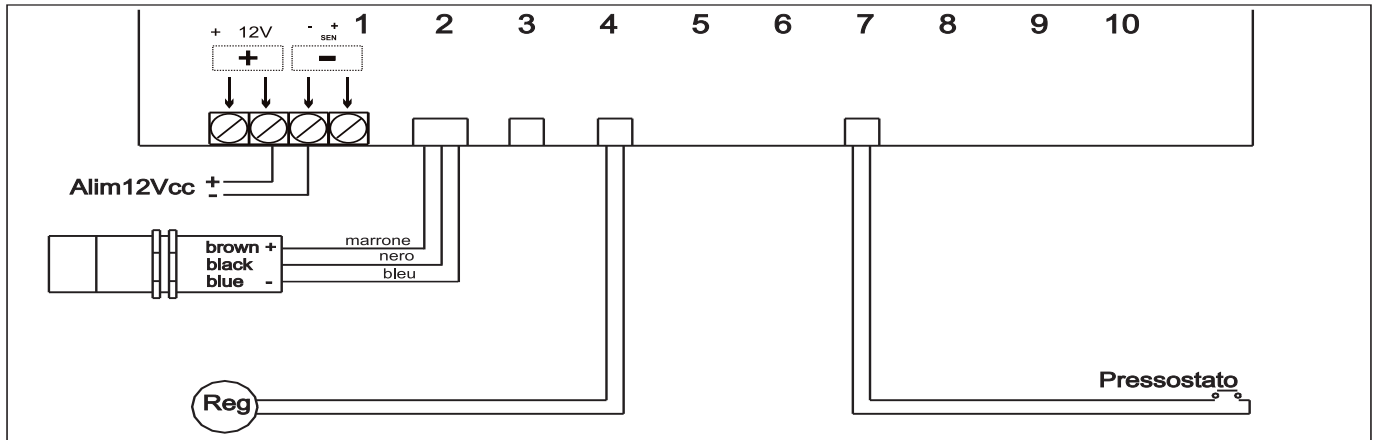
In B1 - B2 models (preset appliances) an outer alarm (beeper, flashing light or other) the power supply of which is obtained directly from the battery.

It is controlled by an outer gearcase relay that can stand a maximum current of 1A. The relay contacts close after unwinding (if the sensor is installed) and, for one minute, at the end of the irrigation cycle, or in case of trouble.

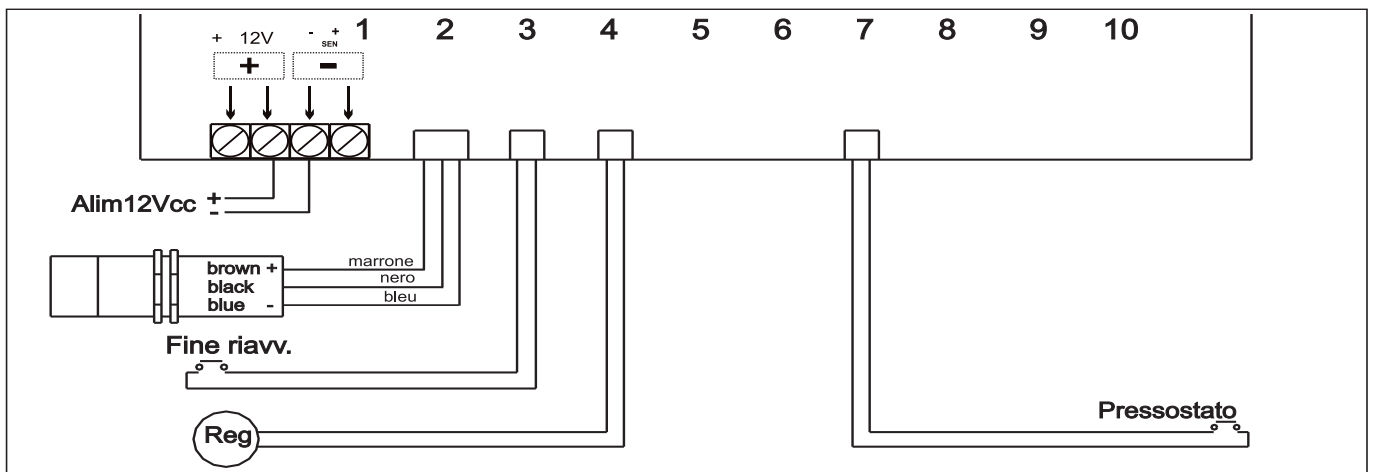
The outer alarm system should be connected to connector 10.

7 SCHEME

7.1 IRRIGAMATIC B1 AND B2 CONNECTION DIAGRAM

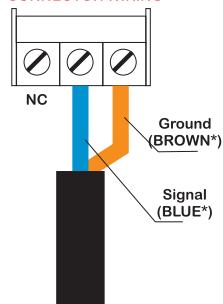


- 1 - POWER SUPPLY:12 Vdc
- 2 - INDUCTIVE PROXIMITY SPEED SENSOR (PINION)
- 4 - SPEED ADJUSTMENT MOTOR (BYPASS): 12Vdc
- 7 - PRESSURE SWITCH (OPTIONAL)



- 1 - POWER SUPPLY:12 Vdc
- 2 - INDUCTIVE PROXIMITY SPEED SENSOR (PINION)
- 3 - END IRRIGATION SENSOR
- 4 - SPEED ADJUSTMENT MOTOR (BYPASS): 12Vdc
- 7 - PRESSURE SWITCH (OPTIONAL)

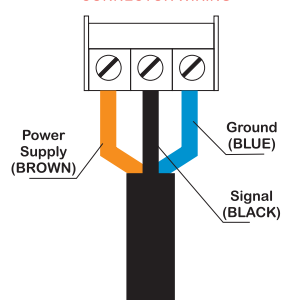
**MAGNETIC SPEED SENSOR
CONNECTOR WIRING**



* Color is indifferent (NOT polarized)

USED IN CASE OF SPEED SENSOR
ON ROLLER

**INDUCTIVE SPEED SENSOR
CONNECTOR WIRING**



USED IN CASE OF SPEED SENSOR
ON GEAR WHEEL

8 CONFIGURATION














You have to configure the IRRIGAMATIC by programming the parameters according to the hose reel features and relative equipment.









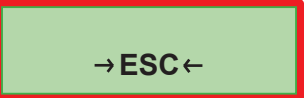
Possible mistakes in programming these parameters would jeopardize the operation of the irrigator badly.

To prevent non-authorized people from changing these parameters by mistake the configuration menu is password protected.

This access password is personalized for every manufacturer. It is entered by Matermacc and communicated only to the interested parties.

8.1 LOADING PROCEDURE FOR CONFIGURATION PARAMETERS

<ul style="list-style-type: none"> Press the  or  keys to be positioned on the "3.CONFIGURATION" menu". 	
<ul style="list-style-type: none"> Press the  key to access the selected menu. 	
<ul style="list-style-type: none"> "PASSWORD" will appear on the first line of the LCD and the characters making up the password must be introduced on the second line. 	
<ul style="list-style-type: none"> Press the  key: >0< will appear on the first character meaning that the character can be edited. 	
<ul style="list-style-type: none"> Modify the character using the  or  keys. 	
<ul style="list-style-type: none"> Confirm the pre-selected character using the  key: the cursor automatically positions itself on the second character in edit mode. 	
<ul style="list-style-type: none"> Repeat the same operations up to the last character. Press the  key for at least 3 seconds to confirm the password. 	
<ul style="list-style-type: none"> On entering menu 3 CONFIGURATION, press the  or  keys. The control unit will display the current parameter code on the first line and its value on the second, e.g.: 	

<ul style="list-style-type: none"> To modify the value of the current parameter, follow the operations given below: Press the  key. The value becomes editable meaning that the value can be modified: Modify the value using the  or  keys. Confirm using the  key. To escape the configuration menu position on the "ESC" parameter by pressing the  or  key. Press the  key. 	 
--	--

8.2 PARAMETERS RESERVED TO THE MANUFACTURER













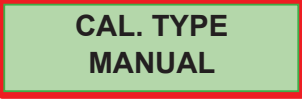
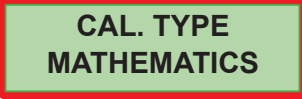
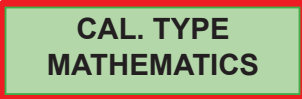
Configuration parameters are described by the table below.

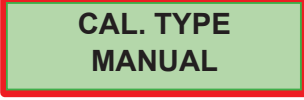

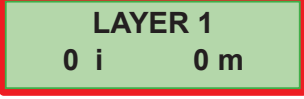








Parameter	Description	Range	Default	UM
#8	Multiplier of expected interval time between two pulses to start regulation by long pulses.	[1...10]	10	
#9	Multiplier of expected interval times between two pulses to trigger a "lost gun cart" alarm.	[10...200]	25	
#10	[10...200]	[30...360]	60	s
#11	Timeout (opening phase) bypass valve.	[30...360]	60	s
#13	Pressure-switch position	- none - present	none	
#14	Speed sensor position	- on roller - on pinion	on pinion	
#15	Pulse's decimator filter	[0...10]	0 if #14 = 0 2 if #14 = 1	
#16	End unwinding sensor.	- none - present	present	
#17	End irrigation sensor.	- none - present	present	
#24	Conversion factor in case of "on roller speed" sensor (mm/pulse).	[5...250]	100	mm/pulse
#47	Measuring units	- meter - feet		
#48	Language	- italian - english - german - french - spanish	italian	
#49	Drum diameter (used in case of math calibration).	[500...2500]	1400	mm
#50	Drum diameter (used in case of math calibration).	[1000...2500]	2000	mm
#51	Hose diameter (used in case of math calibration).	[40...250]	125	mm
#52	Hose length (used in case of math calibration).	[0...1500]	250	m
#53A	Hose geometric vertical deformation (used in case of math calibration).	[-20...-0]	0	%
#53B	Hose geometric horizontal deformation (used in case of math calibration).	[0...20]	0	%
#53C	Hose length deformation (used in case of math calibration).	[0...20]	0	%
#53D	Single turn percentage used to compensate loss in hose winding on the drum (used in case of math calibration).	[0...60]	25	
#54	Drum turn pulses (used in case of math calibration).	[10...1000]	60	%
#57	Auto-shutoff timer (triggered if no any active process). Visible also to the end user (password 1111).	0 or [5...240] (0 = disabled)	0	min

9 CALIBRATION

Accessible only if parameter #14="on pinion". The calibration menu is password protected. Accessible only through the passwords reserved to the irrigator's manufacturer.

9.1 LOADING PROCEDURE FOR CONFIGURATION PARAMETERS

<ul style="list-style-type: none"> Press the  or  keys to be positioned on the 2.CALIBRATION menu". 	
<ul style="list-style-type: none"> Press the  key to access the selected menu. 	
<ul style="list-style-type: none"> "PASSWORD" will appear on the first line of the LCD and the characters making up the password must be introduced on the second line. 	
<ul style="list-style-type: none"> To introduce the password: Press the  key: >0-< will appear on the first character meaning that the character can be edited. 	
<ul style="list-style-type: none"> Modify the character using the  or  keys. 	
<ul style="list-style-type: none"> Confirm the pre-selected character using the  key: The cursor automatically positions itself on the second character in edit mode. 	
<ul style="list-style-type: none"> Repeat the same operations up to the last character. Press the  key for at least 3 seconds to confirm the password. 	
<ul style="list-style-type: none"> Select the type of calibration to be performed using the  or  keys. 	
	
<ul style="list-style-type: none"> CAL. TYPE (MATHEMATICS) The Irrigamatic calculates automatically the length (m) and the ratio mm/pulse for each layer. 	

<ul style="list-style-type: none"> CALIBRATION TYPE (MANUAL) 	
<ul style="list-style-type: none"> Push the key , to activate the displayed calibration mode. The display shows: 	
<ul style="list-style-type: none"> Modify the value of the length of the retrieved hose acting as follow: Push the key , now you see the value between two arrows, you can modify the value: Modify the value by using the keys  or  Confirm the value by pushing the key  and prosecute pushing the key . Now push the key  the display shows the data of the next layer: Repeat the above operations for the other layers. To end the calibration procedure leave the length of a layer null and push the key  the 	
<ul style="list-style-type: none"> Irrigamatic returns to the main menu: 	

CALIBRATION PARAMETER TABLES

Manufactures..... **Model**.....

Serial Number..... **Date**.....

Mod. IRRIGAMATIC

B1

B2

Layer Number	Layer length (m)	PARAMETER	CONVERS. mm/IMPULSE	Layer Length (m)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				



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