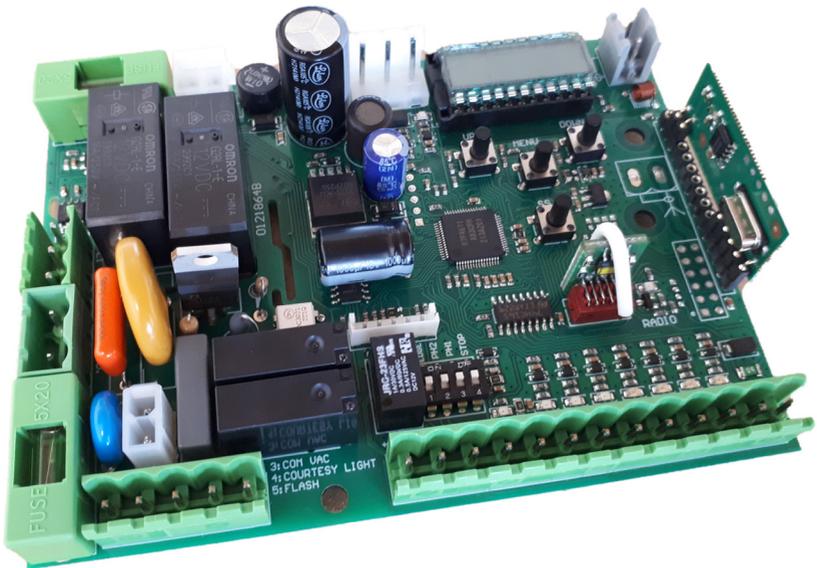


BIOS1 RNS

CONTROL UNIT FOR SLIDING GATES



INSTALLATION AND USE MANUAL

BIOS1 230V RNS
BIOS1 120V RNS

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1. GENERAL WARNINGS FOR THE INSTALLER

DANGER

RISK OF ELECTRIC SHOCK, EXPLOSION OR ELECTRIC ARC

- Shut down all equipment, including connected devices, before removing any lid or door, or before installing/uninstalling accessories, hardware, cables or wires, except for the conditions specified in the user manual for this equipment.
- To verify that the system is out of voltage, always use a correctly calibrated voltmeter at the rated voltage.
- Before returning the live unit, reassemble and secure all covers, hardware and cables. Make sure that the cable inlet is sealed to prevent insect entry and moisture formation.
- Use this equipment and all products connected only to the specified voltage.
- Where there is a risk of damage to personnel and/or equipment, use the necessary safety interlocks.
- Do not use this equipment for safety critical functions.
- Do not disassemble, repair or modify the equipment.
- This product is not suitable for installation in applications where it can come into contact with explosive or flammable atmosphere.

Failure to comply with these instructions will result in death or serious injury.



DANGER

RISK OF ELECTRIC SHOCK AND/OR FIRE

- Do not expose the equipment to liquid substances.
- Do not exceed the temperature and humidity ranges specified in the technical data and leave the slit area ventilated.
- Connect only compatible accessories to the device as reported in the user manual.
- Use only cables of appropriate cross-section as indicated in the section "GUIDELINES FOR ELECTRICAL CONNECTIONS". Tighten the connections in accordance with the technical specifications for the closing torques and verify the correct wiring.
- Electrical cables must not come into contact with parts that can become hot and with parts of the automation in motion.

Failure to comply with these instructions will result in death or serious injury.



WARNING

RISK OF OVERHEATING AND/OR FIRE

- Do not use with loads other than those indicated in the technical data.
- Do not exceed the maximum allowable current; in case of higher loads use a contactor of suitable power.
- Power lines and output connections shall be properly connected and protected by fuses when required by national and local regulatory requirements.

Failure to comply with these instructions may result in death, serious injury or damage to equipment.



WARNING

GENERAL ASPECTS OF SAFETY AND REGULATORY INCOMPATIBILITY

- Any use of this product other than the permitted use /intended use is prohibited.
- The manufacturer cannot be held responsible for any damage that occurs as a result of improper use or as a result of an installation that does not comply with the requirements of this manual.
- The liability of the manufacturer for damages resulting from accidents of any nature caused by defective products, are only those provided for by law.
- All the operations indicated in this manual must be carried out exclusively by experienced, qualified and trained personnel.
- Cable preparation, installation, connection and testing must be carried out in accordance with the rule of the art, in compliance with the rules, regulations and laws in force.
- During installation, testing and maintenance, properly delimit the entire site in order to avoid access by unauthorised persons, in particular minors and children.
- Before proceeding with the installation, check the mechanical goodness of the movable door and the support and guide structure.
- Keep this manual in the technical file together with the manuals of the other devices used for the realization of the automation system.
- Ensure that all equipment used and systems designed comply with all applicable local, regional and national regulations and standards.

Failure to comply with these instructions may result in death, serious injury or damage to equipment.

- The data included in this manual have been prepared and verified with the utmost care, however the manufacturer can not assume any responsibility for any errors, omissions or approximations due to technical or graphic requirements.
- The manufacturer recalls that this manual does not replace what is required by the rules that the manufacturer of the door/ motorized gate is required to comply.

The manufacturer assumes no responsibility for any consequences arising from the improper use of this material.



1.1 - GUIDELINES ON ELECTRICAL CONNECTIONS

Prepare cable ducts on the installation site.

The cables for the connection of the various devices in a typical plant are listed in the table below and must be suitable for the type of installation, for example we recommend a cable type H07RN-F for outdoor installation.

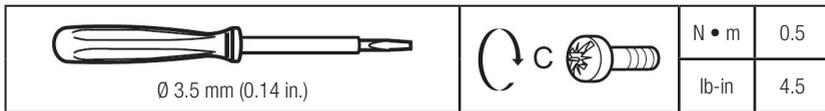
CONNECTION	CABLE	LENGTH
Power line	3 x 1,5 mm ²	< 10 m
	3 x 2,5 mm ²	10 ÷ 50 m
	3 x 3,5 mm ²	> 50 m
Flashing	2 x 0,5 mm ²	< 20 m
Photocell - transmitter	2 x 0,5 mm ²	< 20 m
Photocell - receiver	4 x 0,5 mm ²	< 20 m
Key selector	4 x 0,5 mm ²	< 20 m

Only use the supplied connectors:

CLAMP POSITION	TYPE CLAMP
All	PHOENIX BCP-500-2GN

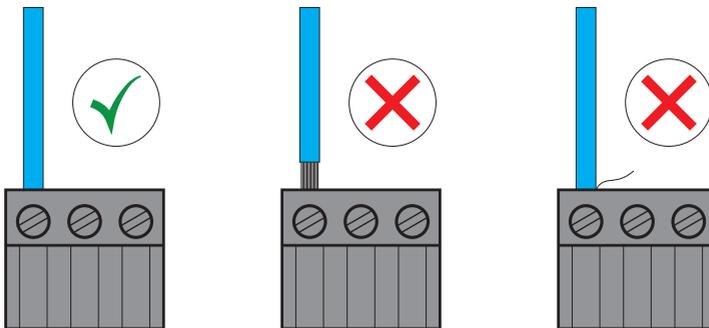
The following table shows the type and size of the allowable cables for the screw terminals of the above type and the closing torques:

mm ²	0.2 ... 2.5	0.2 ... 2.5	0.25 ... 2.5	2 x 0.2 ... 0.75	2 x 0.2 ... 0.75	2 x 0.25 ... 0.75	2 x 0.25 ... 0.75	2 x 0.5 ... 1.5
AWG	24 ... 14	24 ... 14	24 ... 14	24 ... 14	2 x 24 ... 18	2 x 24 ... 18	2 x 24 ... 18	2 x 20 ... 16



Use copper conductors (mandatory).

Avoid the presence of exposed copper wires or coming out of the clamp.



2. PRODUCT DESCRIPTION

Control unit for the management of two-phase motors dedicated to the movement of sliding gates.

The card has inputs for the connection of control and safety devices, and outputs for the management of flashing and courtesy light. The board is compatible with the connection of electro-mechanical limit switches.

Integrated radio receiver for control by 433,92 MHz remote controls.

2.1 - INTENDED USE

Control unit for gear motors with two-phase electric motors, installed on sliding gates.

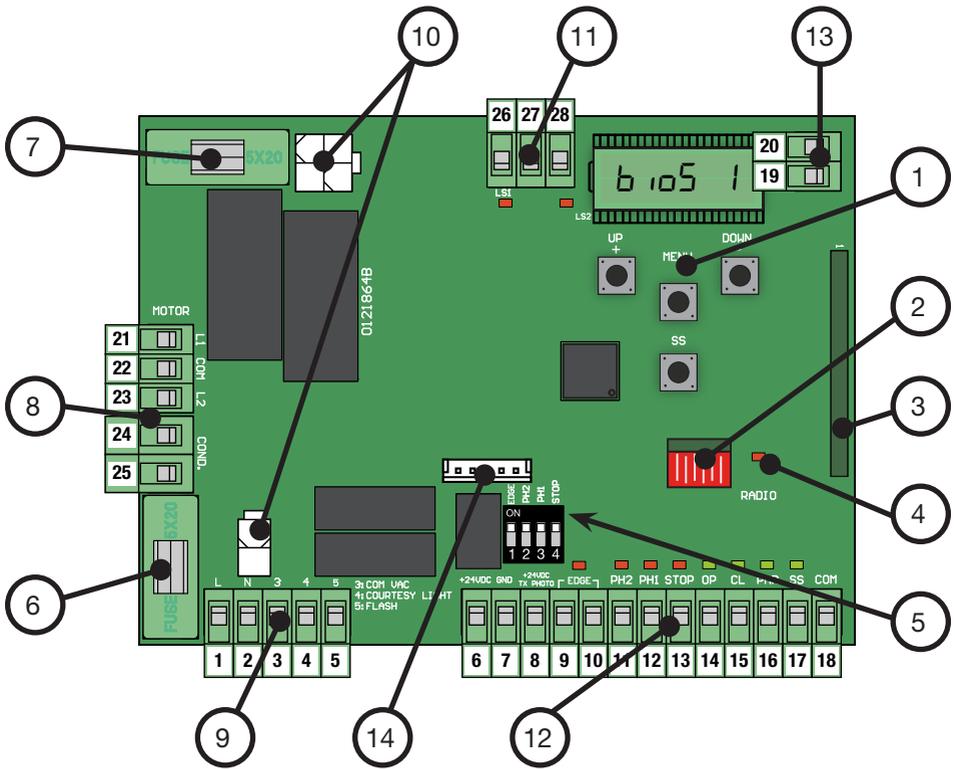
DANGER

Any installation or use other than as indicated in the following manual is prohibited.



2.2 - TECHNICAL CHARACTERISTICS

Commercial name	BIOS1 230V RNS	BIOS1 120V RNS
Construction of the device	Electronic control device to be incorporated	
Purpose of the device	Operating control device (non-safety)	
Software Class	A	
Power supply voltage (Valim)	230 Vac \pm 10% 50/60 Hz	120 Vac \pm 10% 50/60 Hz
Power consumption in standby mode	50 mA	90 mA
Motor output (Vout)	Vout = Valim MAX 700W	Vout = Valim MAX 350W
Auxiliary power supply output (Vaux)	24Vdc MAX 170mA (4W)	
Courtesy light output (3-4)	V(3-4) = Valim	
Flashing light output (3-5)	V(3-5) = Valim	
Insulation class	I	
Degree of pollution	2	
Frequency of radio communication	433,92 Mhz	
Compatible remote controls	Rolling Code, Allmatic protocol	
Number of remote controls that can be stored	1000	
Environmental operating conditions	TA: -20...+55 °C RH max 90% non-condensing	
Conditions of transport and storage	TA: -40...+70 °C RH max 90% non-condensing	



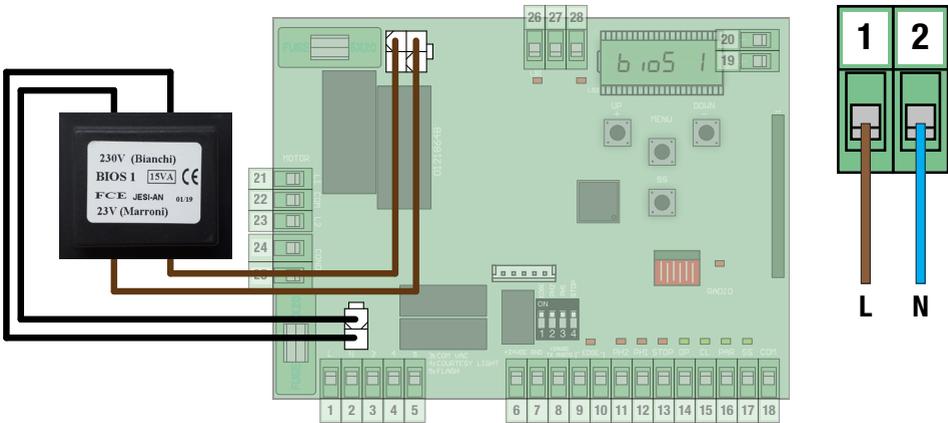
1. Display and buttons
2. Radio Memory
3. Radio Module
4. LED Radio
5. DIP-SWITCH selector for the exclusion of safety inputs
6. FUSE1 - Line Protection (6.3 A F)
7. FUSE2 - Protection 24 Vdc accessories (500 mA F)
8. Terminal block for motor connection
9. Terminal block for connection of main power supply and signalling devices
10. Terminals for transformer plug-in connection
11. Terminal block for the connection of electro-mechanical limit switches
12. Terminal block for connection of accessories
13. Terminal block for antenna connection
14. Port for UART communication

3. ELECTRICAL CONNECTION

3.1.1 - CONNECTION OF MAIN POWER SUPPLY AND TRANSFORMER (230V version)

# TERMINAL	FUNCTION	DESCRIPTION
1	L - Phase cable	Connect power from network distribution 230 Vac 10% 50/60 Hz
2	N - Neutral cable	

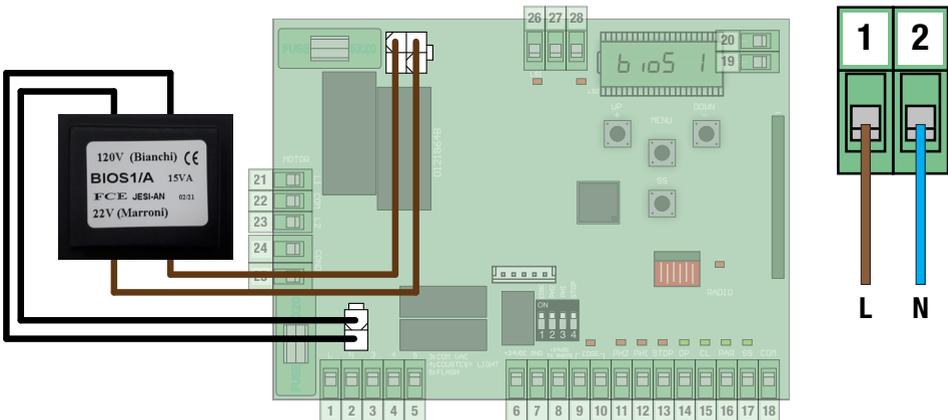
Connect the 230 / 23 Vac 15 VA transformer to the control board connectors.



3.1.2 - CONNECTION OF MAIN POWER SUPPLY AND TRANSFORMER (120V version)

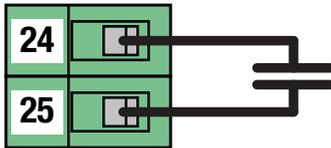
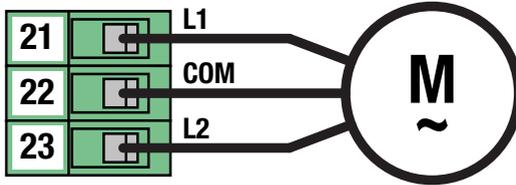
# TERMINAL	FUNCTION	DESCRIPTION
1	L - Phase cable	Connect power from network distribution 120 Vac 10% 50/60 Hz
2	N - Neutral cable	

Connect the 120 / 22 Vac 15 VA transformer to the control board connectors.



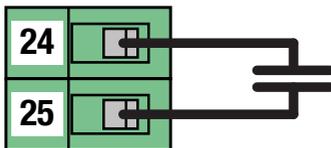
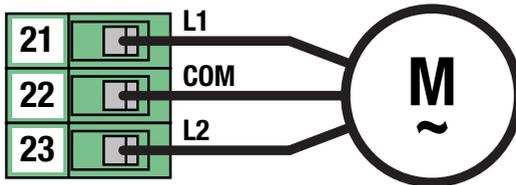
3.2.1 - MOTOR CONNECTION (230V version)

# TERMINAL	FUNCTION	DESCRIPTION
21	L1 - Phase 1 of the motor	Connect two-phase electric motor cables 230Vac MAX 700W.
22	COM - Neutral Phase of the motor	
23	L2 - Phase 2 of the motor	
24	Capacitor cable	Use a capacitor suitable for the type of electric motor in use.
25	Capacitor cable	



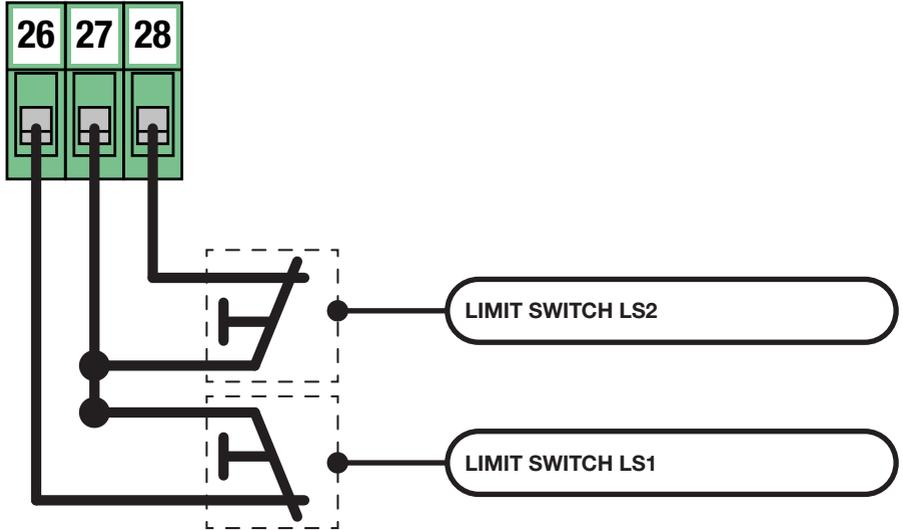
3.2.2 - MOTOR CONNECTION (120V version)

# TERMINAL	FUNCTION	DESCRIPTION
21	L1 - Phase 1 of the motor	Connect two-phase electric motor cables 120Vac MAX 350W.
22	COM - Neutral Phase of the motor	
23	L2 - Phase 2 of the motor	
24	Capacitor cable	Use a capacitor suitable for the type of electric motor in use.
25	Capacitor cable	



3.3 - CONNECTION OF ELECTRO-MECHANICAL LIMIT SWITCHES

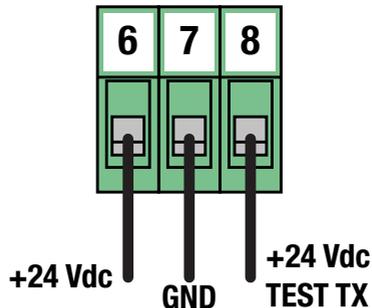
# TERMINAL	FUNCTION	DESCRIPTION
26	LS1 - Limit switch 1 contact	Connect a clean contact (voltage free) Normally Closed. LED indicator Normally ON.
27	Common contact of limit switches	
28	LS2 - Limit switch 2 contact	



3.4 - POWER SUPPLY CONNECTION FOR ACCESSORIES

# TERMINAL	FUNCTION	DESCRIPTION
6 - 7	24 Vdc power supply output	MAX 170 mA

Terminal 8 is reserved for the use of the function of TEST PHOTOCELLS and TEST SAFETY EDGE. Refer to advanced parameters for configuration and connections.



# TERMINAL	FUNCTION	DESCRIPTION
18	COMMON CONTACT	
14	OPEN	Connect a clean contact (voltage free) Normally Open. LED signal Normally OFF.
15	CLOSE	
16	PARTIAL OPENING	
17	STEP-BY-STEP	

STEP-BY-STEP function

At each activation it performs in sequence the OPEN-STOP-CLOSE-STOP functions.
Refer to the basic parameters to customize the way functions are performed.

PARTIAL OPENING function

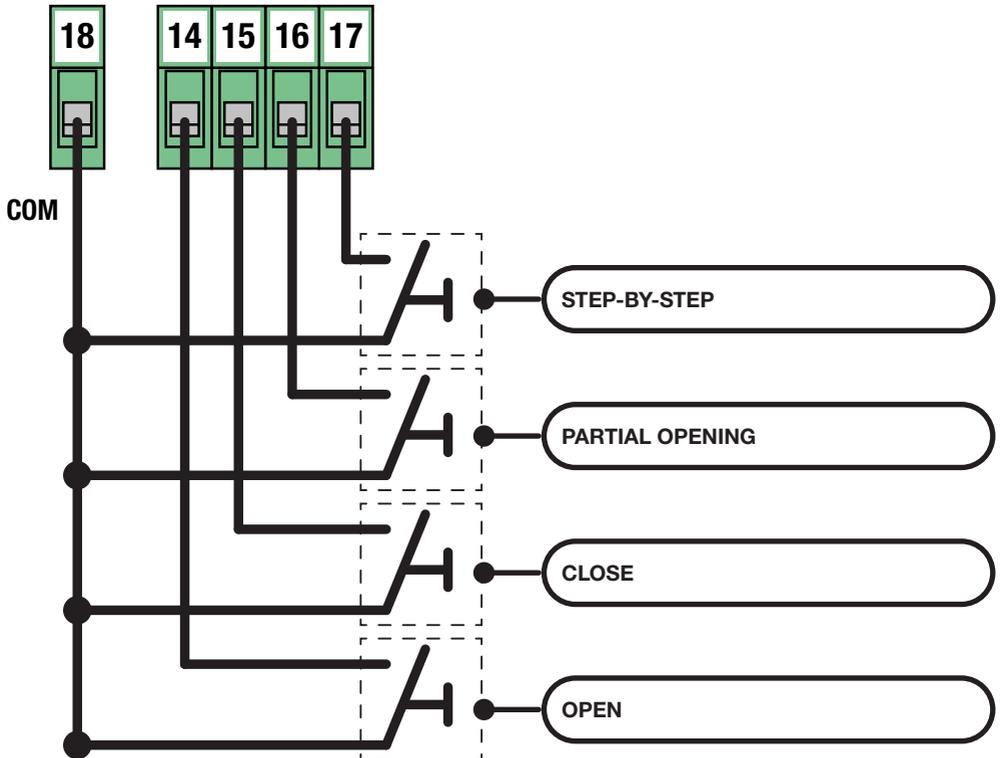
Performs a partial opening of the automation.
Refer to the basic parameters to customize the amplitude of the partial opening.

CLOSE function

Performs a complete closing.
If kept active, keep the gate in the "CLOSED GATE" position and ignore any other commands.

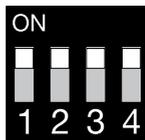
OPEN function

Performs a full opening.
If kept active, keep the gate in the "GATE OPEN" position and ignore any other commands.



NOTE

If *EDGE*, *PH2*, *PH1* and *STOP* contacts are not used, they must be disabled using the *DIP-SWITCH* selector.
This operation is possible by placing the corresponding selector in the *ON* position.



# TERMINAL	FUNCTION	DESCRIPTION
18	COMMON CONTACT	
11	PHOTOCELL INPUT PH2	Connect a clean contact (voltage free) Normally Closed. Signal LED Normally On.
12	PHOTOCELL INPUT PH1	
13	STOP	

STOP button

When it intervenes it completely stops the automation and prevents any automated or user command.

PHOTOCELL input PH1

During the closing movement, it stops the movement of the automation and performs a reversal until the gate reaches the OPEN GATE position.

Refer to the advanced parameters to configure the behavior of the photocell input.

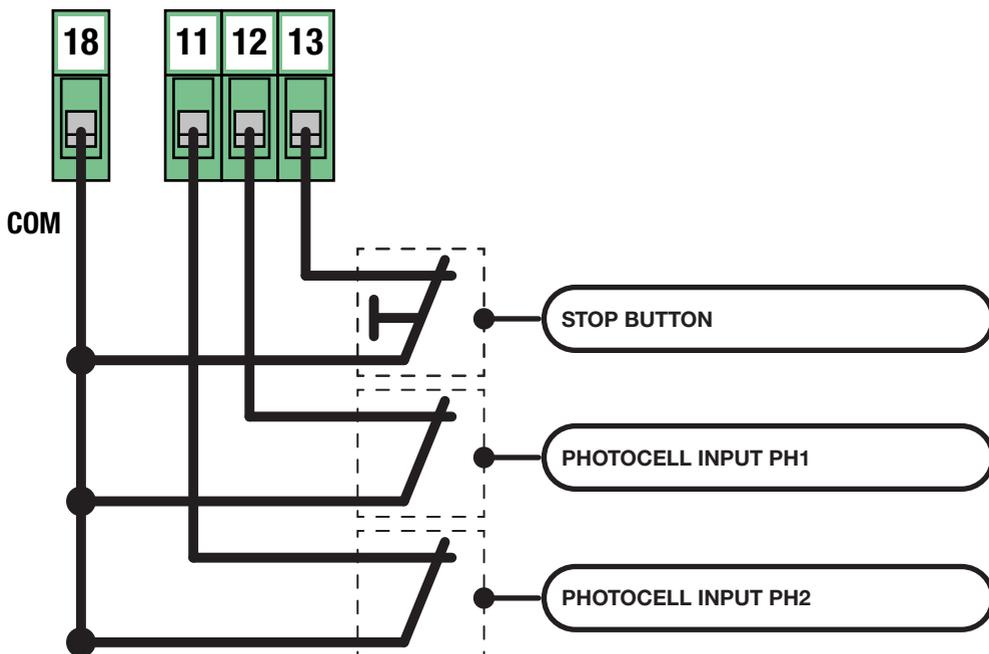
PHOTOCELL input PH2

During the opening movement, temporarily stops the motion for as long as the photocell is engaged.

During this phase the blinker cyclically performs 3 flashes.

Once restored the contact resumes movement in the direction of opening.

Refer to the advanced parameters to configure the behavior of the photocell input.

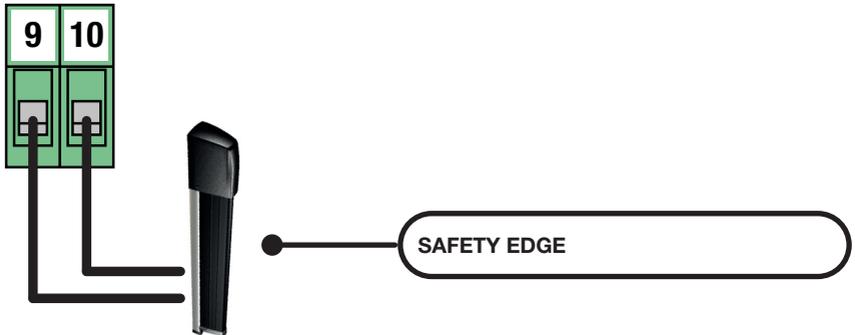


# TERMINAL	FUNCTION	DESCRIPTION
9 - 10	SAFETY EDGE	Connect mechanical (NC) or resistive (8.2 Kohm) sensitive edges. Signal LED Normally On.

SAFETY EDGE input

During the closing movement, it stops the movement of the automation and performs a reversal until the gate reaches the OPEN GATE position.

Refer to advanced parameters to configure the behavior of the sensitive edge input and the device type in use.



NOTE

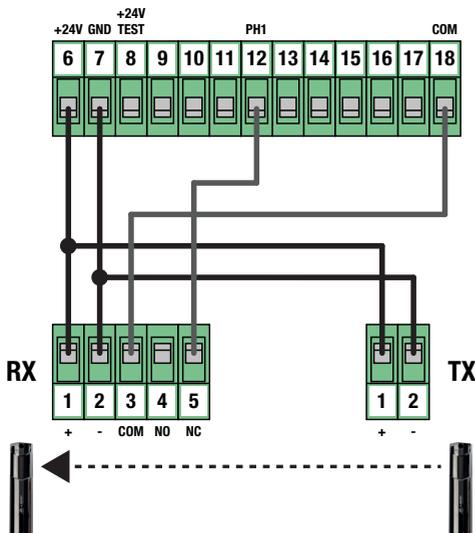
Once you have finished the connections, before starting the programming, check that all the red lights of the safeties are on.

If this does not happen, verify that the un-connected inputs are disabled and that the connected devices are properly powered and running.



Photocells Series FT / IRIS

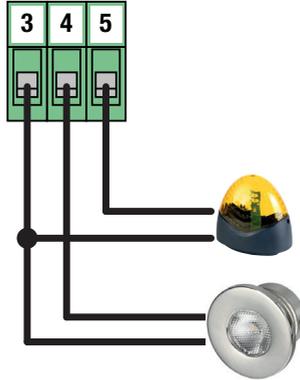
Standard connections.



3.7 - ELECTRICAL CONNECTIONS OF SIGNALLING DEVICES

# TERMINAL	FUNCTION	DESCRIPTION
3	Common courtesy and flashing light output	
4	Courtesy light	MAX 60 W
5	Flashing light	MAX 60 W

The outputs are active during the opening and closing phases of the automation.
Refer to the advanced parameters to configure the flashing mode and the lighting time of the courtesy light.



3.8 - ANTENNA CONNECTION AND RADIO COMMUNICATION

WARNING

- Do not place the control unit inside metal containers.
- The maximum range may vary significantly in the presence of metal parts, in the presence of shielding between the transmitter and the control unit or in the presence of other devices that communicate at the same radio frequency.



# TERMINAL	FUNCTION	DESCRIPTION
19	Antenna	Connect cable type RG58
20	Shield	

The board comes with a standard antenna already connected.

INSTALLATION TIPS

The LED RADIO present on the board, allows to have a visual feedback of the amount of radio noise present in the surroundings of the automation. The more the LED is fixed and the greater the disturbances present.



In susceptible installations it is advisable to install an antenna at 433Mhz.
Install the external antenna and its cables in a place protected from damage and/or vibration and where there are no obstacles between the transmitters and the antenna.



4. PROGRAMMING

DANGER

The operations described in this chapter to finalize the installation must be carried out in the presence of voltage, therefore they must be carried out only by experienced personnel, qualified and taking all necessary precautions to ensure safe execution.

Check that the operating area is free from any obstacles.



Once the electrical connections are finished, proceed with commissioning.

Give voltage and check that all the LEDs of safety are on.

Verify that the intervention of the safety switches off the corresponding LED.

If not, before continuing, turn off the automation and verify that the devices are properly connected and running.

4.1 - FUNCTION OF THE PROGRAMMING KEYS

1. UP button

The UP button allows you to perform the following operations:

- Start and finish the transmitter learning procedure.
- Navigate through the menu items.
- Increase a value.

2. MENU button

The MENU button allows you to perform the operations described below:

- Enter and exit the menu.
- Confirm a choice.

3. DOWN button

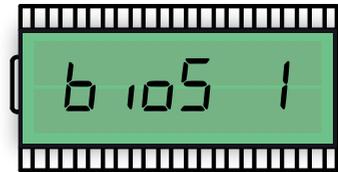
The DOWN button allows you to perform the operations described below:

- Change the display mode.
- Pause the learning of stroke to reverse the direction of movement.
- Navigate through the menu items.
- Decrease a value.

4. SS button (Step-by-Step)

The SS button allows you to perform the operations described below:

- Performs the STEP-BY-STEP function.



4.2 - DISPLAY MODE

The display available in the control unit allows you to view a lot of information such as the status of the automation, the number of movements performed, anomalies detected, etc.

There are 4 types of views available.

To switch from one type to another press the DOWN button.

VIEW 1: STANDARD

In this mode you can view the automation status and error messages.

Refer to the next chapter for more information about the message type.

VIEW 2: NUMBER OF MOVEMENTS CARRIED OUT

In this mode you can see the number of cycles (opening and closing) performed by the automation.

The control panel will alternate two values: the first, without dots, indicates the thousands; the second, with dots, indicates the units.

For example:

00 1 = 1 thousand

02.0 = 20 units

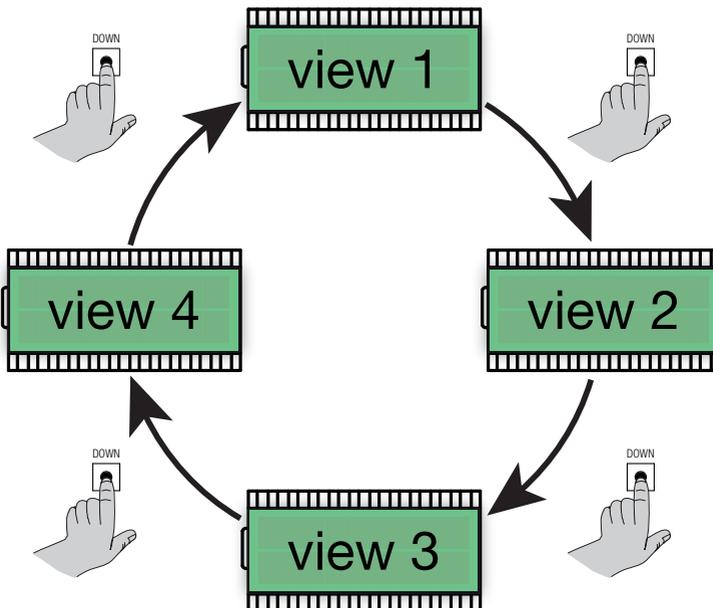
Total = 1020 cycles completed.

VIEW 3: CURRENT ABSORBED BY THE MOTOR (rms)

In this mode you can see the current absorbed by the motor (mA).

VIEW 4: CURRENT ABSORBED BY THE MOTOR (peak)

In this mode you can see the current absorbed by the motor (mA).



4.3 - STANDARD VIEW

DISPLAY	DESCRIPTION
--	Standing by after power supply connection. Automation in CLOSED GATE position.
<i>oP</i>	Automation stops in OPEN GATE position, without automatic closing.
<i>PE</i>	Automation stops in the PARTIAL OPENING position, without automatic closing.
<i>OP</i>	Automation in opening movement.
<i>CL</i>	Automation in closing movement.
<i>SO</i>	Opening movement stopped by a user command.
<i>SC</i>	Closing movement stopped by a user command.
<i>HA</i>	Movement stopped by a safety device (EDGE, PH1, PH2 and STOP inputs) or impact sensor.
<i>-tC</i>	Automation stops in OPEN GATE position, with automatic closing active. In the last 10 seconds the symbol " - " is replaced by the countdown.
<i>-tt</i>	Automation stops in OPEN GATE position, with automatic closing after transit active. In the last 10 seconds the symbol " - " is replaced by the countdown.
<i>-tP</i>	Automation stops in the PARTIAL OPENING position, with automatic closing active. In the last 10 seconds the symbol " - " is replaced by the countdown.
<i>LOP</i>	LEARNING OF THE STROKE - learning the opening movement.
<i>LCL</i>	LEARNING OF THE STROKE - learning the closing movement.
<i>L--</i>	LEARNING OF THE STROKE - stand-by process. Verify that all safety devices are in operation, properly configured and that limit switches are not engaged. Give a Step-By-Step command to resume the procedure from the beginning.
<i>rAd</i>	Waiting for a transmitter to be stored.
<i>don</i>	Procedure successfully completed.
<i>SEE</i>	Control unit waiting for a known radio command to display the memory position.
<i>Fnd</i>	Remote control already learned in the radio memory.
<i>CLr</i>	Cancellation of a remote control already learned happened successfully.
<i>toUt</i>	Output from the function in use for TIME-OUT.

4.4 - LEARNING OF A REMOTE CONTROL

The learning of a transmitter can be activated via the UP button of the control unit or via the hidden button of a transmitter already stored.

The control unit can store up to 1000 remote controls (with memory card) and each of them can associate up to 4 functions, no more than one function per key available. During the learning procedure a single function is stored in a transmitter button. To assign all 4 available functions you will need to repeat the procedure 4 times.

Functions are assigned in the following order:

- 1st stored key: STEP-BY-STEP function
- 2nd stored key: PARTIAL OPENING function
- 3rd stored key: OPEN function
- 4th stored key: CLOSE function

STANDARD LEARNING OF A TRANSMITTER

NOTE

- To store a new remote control or a new function on the same remote control, repeat the procedure from step 2.
- After 10 seconds of inactivity the control panel leaves the learning mode and the display shows "E00E".



1.	Make sure you are out of the programming menus. To exit, briefly press the MENU key until you see the status of the control panel.		
2.	While the automation is stopped, press and release the UP button. The words "rAd" appear on the display. The flashing light comes on.		
3.	Within 10 seconds, press the transmitter button to store.		
4.a	If the remote control is the first time it is learned, the word "don" appears in the display. The STEP-BY-STEP function is associated with the pressed button. The flashing light flashes 2 times.		
4.b	If the remote control was already stored in the control unit, the words "Fnd" appear in the display. The pressed key is associated with the function PARTIAL OPEN, OPEN or CLOSE depending on how many times this procedure has been repeated. The flashing light flashes 1.		
5.	After 2 seconds the display shows the memory position where the remote control was stored (for example "235").		

LEARNING WITH THE HIDDEN BUTTON OF A LEARNED TRANSMITTER

NOTE

- The use of the hidden button, if present, of a transmitter already learned involves the entry in learning mode of all the automations in which it is associated. Make sure that unwanted remote controls are not learned.
- This procedure is not available for all transmitter types. Please refer to your transmitter installation manual.



When automation is stopped you can press the hidden button of a transmitter already learned to open the radio memory of the control unit. This is equivalent to pressing the UP button on the control unit. Then follow the learning procedure from point 3 to 5 of the previous paragraph.

CANCELLATION OF A TRANSMITTER ALREADY LEARNED BY HIDDEN BUTTON

NOTE

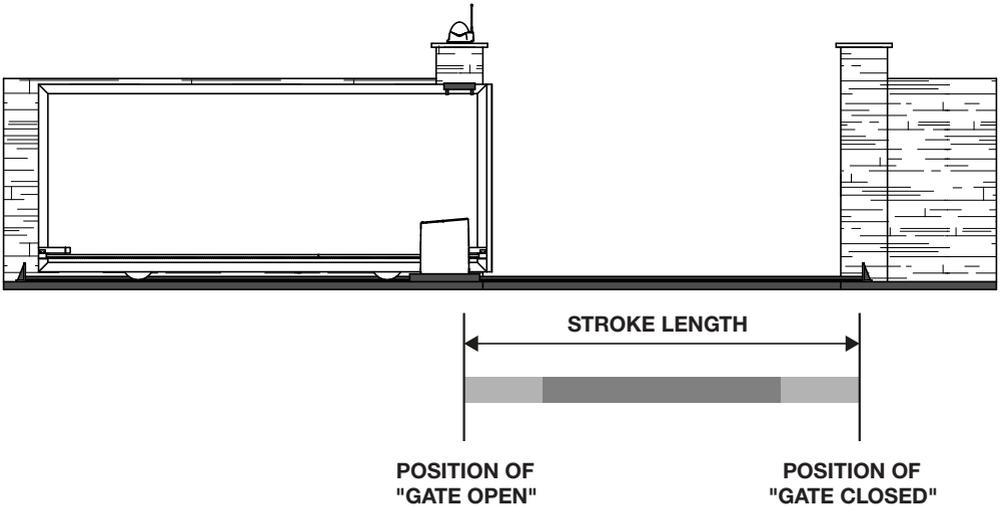
- The use of the hidden button, if present, of a transmitter already learned involves the entry in learning mode of all the automations in which it is associated. Make sure that unwanted remote controls are not learned.
- This procedure is not available for all transmitter types. Please refer to your transmitter installation manual.



1.	<p>Make sure you are out of the programming menus. To exit, briefly press the MENU key until you see the status of the control panel.</p>		
2.	<p>While the automation is stopped, press and release the UP button or the hidden button of a transmitter already learned. The words "rAd" appear on the display.</p>		
3.	<p>Within 10 seconds, simultaneously press the first button and the hidden button of the transmitter to be deleted.</p>		
4.	<p>If the cancellation is successful, the words "CLr" appear on the display. The flashing light flashes 4 times.</p>		
5.	<p>After 2 seconds the display shows the location of the erased memory (for example "235").</p>		

4.5 - LEARNING OF THE STROKE AND LIMIT ADJUSTMENT

At the first installation it is necessary to adjust the intervention position of the limit switches and perform a learning procedure to detect the total length of the stroke, the length of the slowdowns and all other areas of the installation necessary for the correct functioning of the automation.



	Handling area at slow speeds.
	Handling area at normal speed.

ADJUSTMENT OF LIMIT SWITCH POSITIONS

Perform some movements of the movable door to adjust the switching position of the electro-mechanical limit switches and verify the correct connection.

NOTE	
<ul style="list-style-type: none"> The selection of the direction of the opening and closing movement takes place during the learning procedure. 	

LED	DESCRIPTION	POSITION
LS1 LS2 <input type="checkbox"/> <input checked="" type="checkbox"/>	LS1 LIMIT SWITCH ACTIVE LED LS1 - OFF LED LS2 - ON	Gate in the position of "OPEN GATE" or "CLOSED GATE".
LS1 LS2 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	LIMIT SWITCHES NOT ACTIVE LED LS1 - ON LED LS2 - ON	Gate in intermediate position.
LS1 LS2 <input checked="" type="checkbox"/> <input type="checkbox"/>	LS2 LIMIT SWITCH ACTIVE LED LS1 - ON LED LS2 - OFF	Gate in the position of "OPEN GATE" or "CLOSED GATE".

STANDARD PROCEDURE FOR LEARNING

With standard learning, the control unit performs all the procedure and the calculation of slowdowns, which will be regulated with the same amplitude both in opening and closing (see basic parameter " L5I ").

DANGER

- Check that during the first movement the display displays "LOP" and the gate moves in the OPENING DIRECTION.

If necessary, press the DOWN button and then the SS button to reverse the movement.

- **In order for the automation and all the safety devices installed to function correctly, it is necessary to verify the correct direction of the automation movement.**



NOTE

- *If the procedure starts while the limit switches are active, or if a safety device is involved during movement, the procedure is stopped and the words "L - -" appear on the display. Carry out the appropriate checks and press the SS button to resume learning from step 3.*



1.	<p>Unlock the transmission of the gear motor and carry the gate by hand halfway. Then insert the motor transmission again.</p>	
2.	<p>Press the UP button and the MENU button simultaneously for at least 5 seconds until the display shows " LOP ". At this stage the gear motor moves in search of the opening limit switch. Verify that the automation moves in the opening direction.</p>	
3.	<p>Once the opening limit switch has been reached, the automation automatically moves to the closing limit switch. At this stage the display shows " LCL ".</p>	
4.	<p>Once the closing limit switch is reached, the automation automatically moves into the opening, until the opening limit switch is reached. At this stage the display shows " LOP ".</p>	
5.	<p>Once the opening limit switch has been reached, the automation moves into closing at full speed at the end of which it applies the calculated slowdown area.</p>	
6.	<p>After the procedure the control unit displays " LdonE "</p>	

LEARNING WITH PERSONALIZED SLOWDOWNS

With personalized learning, the amplitudes of the slowdowns are adjusted by the user during the learning procedure.

DANGER

- Check that during the first movement the display displays "LOP" and the gate moves in the OPENING DIRECTION.
If necessary, press the DOWN button and then the SS button to reverse the movement.
- **In order for the automation and all the safety devices installed to function correctly, it is necessary to verify the correct direction of the automation movement.**



NOTE

- *If the procedure starts while the limit switches are active, or if a safety device is involved during movement, the procedure is stopped and the words "L - -" appear on the display.
Carry out the appropriate checks and press the SS button to resume learning from step 3.*



1.	Unlock the transmission of the gear motor and carry the gate by hand halfway. Then insert the motor transmission again.		
2.	Set the P value to the L51 parameter in the base menu to enable the function.		
3.	Press the UP button and the MENU button simultaneously for at least 5 seconds until the display shows "LOP". At this stage the gear motor moves in search of the opening limit switch. Verify that the automation moves in the opening direction.		
4.	Once the opening limit switch has been reached, the automation automatically moves into closing. At this stage the display shows "LCL".		
5.	When the automation reaches the desired slowdown start position press the SS button. The automation continues the movement until the closing limit switch is reached and the flashing light remains fixed.		
6.	Once the closing limit switch is reached, the automation automatically moves to the opening. At this stage the display shows "LOP".		
7.	When the automation reaches the desired slowdown start position press the SS button. The automation continues the movement until the opening limit switch is reached and the flashing light remains fixed.		
8.	Once the opening limit switch has been reached, the automation moves in closing at full speed and with customized slowdowns.		
9.	After the procedure the control unit displays "LdonE"		

4.6 - MENU OF BASIC FUNCTIONS

To access the basic function menu, press and hold the MENU button for 1 to 3 seconds.

Use the UP and DOWN buttons to scroll through the available features.

While displaying a function, the control unit will alternate the display of the item to the value set in it.

To change the value of the parameter you are viewing proceed as follows:

- Press and hold the menu key for at least 3 seconds, the currently set value flashes.
- Use the UP and DOWN keys to select the desired value.
- Confirm the value by holding down the MENU key for at least 3 seconds.

To exit quickly press the MENU button.

PARAMETER LIST

Automatic Closing

NOTE	
<ul style="list-style-type: none">• If used together with the parameter "Automatic Closing after Transit", the latter is not considered.• This parameter does not affect if the gate reaches the position of "PARTIAL OPENING".	

Set an automatic closing time.

Once reached the position of "GATE OPEN" the control unit starts the countdown by displaying on the screen "- ECL" (the symbol "-" is replaced by a number in the last 10 seconds of the countdown).

In case the photocell input is active the countdown is restored and remains locked until the contact is restored.

PARAMETER	VALUES	DEFAULT
ECL	OFF = disabled from 1 to 900 seconds	OFF

Automatic Closing after Transit

NOTE	
<ul style="list-style-type: none">• When used together with the "Automatic Closing" parameter, the "Automatic Closing after Transit" parameter is not considered.• This parameter does not affect if the gate reaches the position of "PARTIAL OPENING".	

Set an automatic closing time after the passage.

Once reached the position of "GATE OPEN" the control unit is waiting and displays on screen "- EEL".

The countdown starts only after the engagement and subsequent disengagement of the PH1 photocell input.

The symbol "-" is replaced by a number in the last 10 seconds of the countdown.

In case the photocell input is active the countdown is restored and remains locked until contact is restored.

PARAMETER	VALUES	DEFAULT
EEL	OFF = disabled from 1 to 30 seconds	OFF

Sensitivity on obstacle at full speed

NOTE	
<ul style="list-style-type: none">• Too high a level of sensitivity could cause an abnormal behavior of the automation depending on the force that the gear motor needs to move the automation.• Adjust this parameter according to current regulations.	

Set the sensitivity level for the impact sensor to intervene during gate movement.
The impact sensor controls a short reversal of movement to free the obstacle.

PARAMETER	VALUES	DEFAULT
SEn	OFF = disabled from 1 to 100 %	OFF

Sensitivity on obstacle in slowdown

NOTE	
<ul style="list-style-type: none">• Too high a level of sensitivity could cause an abnormal behavior of the automation depending on the force that the gear motor needs to move the automation.• Adjust this parameter according to current regulations.	

Set the sensitivity level to make the impact sensor intervene during the movement of the gate during slowdown.
The impact sensor intervention during slowdown controls a short reversal of the movement to free the obstacle.

PARAMETER	VALUES	DEFAULT
SEL	OFF = disabled from 1 to 100 %	OFF

Normal speed

Set the speed of the motor movement during the movement phase at normal speed.

PARAMETER	VALUES	DEFAULT
SPn	1 = MIN 2 = LOW 3 = MED 4 = HIGH 5 = MAX	5 = MAX

Slowdown speed

Set the speed of the motor movement during the movement phase to slowdown speed.
This value cannot be higher than the set value of "Normal speed".

PARAMETER	VALUES	DEFAULT
SPL	from 1 to SPn	2

Configuration of the STEP-BY-STEP function

NOTE	
<ul style="list-style-type: none">• By setting the CONDOMINIUM functionality you must set an automatic closing time to make the gate close.	

Customize the action mode of the STEP-BY-STEP function.

Normal: ("OPEN" - "STOP" - "CLOSE" - "STOP" - ...)

Classic operation of the STEP-BY-STEP mode. During handling, a STEP-BY-STEP control involves stopping the automation.

Alternate STOP: ("OPEN" - "STOP" - "CLOSE" - ...)

Alternating operation with possibility of STOP during the opening movement. During the closing movement performs a reversal of motion.

Alternate: ("OPEN" - "CLOSE" - ...)

Performs only the opening or closing command of the automation. While moving, a STEP-BY-STEP command reverses the direction of travel.

Condominium (Timer): ("OPEN" - ...)

The STEP-BY-STEP control allows only a complete opening of the automation. If the command persists with the automation in the GATE OPEN position, you will wait for the release before starting the countdown to the automatic closing. Each press of the STEP-BY-STEP control restores the countdown.

Condominium with immediate closure: ("OPEN" - ...)

If the automation is not in the OPEN GATE position, the STEP-BY-STEP control allows a complete opening of the automation. When the automation is in the OPEN GATE position, a STEP-BY-STEP command immediately closes the automation, resetting the automatic closing timer if present.

PARAMETER	VALUES	DEFAULT
<i>Sbs</i>	0 = Normal 1 = Alternate STOP 2 = Alternate 3 = Condominium (timer) 4 = Condominium with immediate closure	0 = Normal

Behavior after Black-out

Allows to automatically execute a closing command to reset the main supply voltage, following a Black-out. This movement is always carried out at slow speed, until the "CLOSED GATE" position is reached.

PARAMETER	VALUES	DEFAULT
<i>bLb</i>	OFF = disabled ON = Automatically execute a "CLOSE" command	OFF

Width of the slowdown area

Adjusts the width of the opening and closing slowdown area as a percentage of the total stroke length.

With the value "P" you can set custom areas during the learning of the races (see paragraph LEARNING WITH PERSONALIZED SLOWDOWNS).

PARAMETER	VALUES	DEFAULT
<i>LS ,</i>	OFF = disabled 1 to 100 % of total length P = personalised areas	15 %

Anti-skid function (EXTRA TIME)

It allows you to add extra working time compared to that stored during the course learning procedure, so as to ensure the complete closure of the automation even if the working time learned is not sufficient to get to the position of "CLOSED GATE".

PARAMETER	VALUES	DEFAULT
<i>ASL</i>	OFF = disabled from 1 to 300 seconds	15 seconds

4.7 - MENU OF ADVANCED FUNCTIONS

To access the advanced features menu, press and hold the MENU button for longer than 5 seconds. Use the UP and DOWN buttons to scroll through the available features. While displaying a function, the control unit will alternate the display of the item to the value set in it.

To change the value of the parameter you are viewing proceed as follows:

- Press and hold the menu key for at least 3 seconds, the currently set value flashes.
- Use the UP and DOWN keys to select the desired value.
- Confirm the value by holding down the MENU key for at least 3 seconds.

To exit quickly press the MENU button.

PARAMETER LIST

Mode of intervention of the impact sensor

NOTE	
<ul style="list-style-type: none"> • Adjust this parameter according to current regulations. 	

Determines which areas of the stroke the impact sensor is in.

PARAMETER	VALUES	DEFAULT
<i>Sni</i>	OFF = disabled 1 = Normal speed area + Slowdown area 2 = Only normal speed area 3 = Only slowdown area	2 = Only normal speed area

Intervention time of the impact sensor

It determines how long the impact sensor takes after reaching the obstacle (blocked motor).

PARAMETER	VALUES	DEFAULT
<i>Sit</i>	from 1 to 10 multiplied by 100 ms	5 = 500 ms

Impact sensor disabling time at motor start

Determines how long the impact sensor is disabled at the start of handling.

PARAMETER	VALUES	DEFAULT
<i>Sdt</i>	from 0 to 30 multiplied by 100 ms	15 = 1500 ms

Duration of the acceleration ramp

Time it takes the gate to switch from stationary to moving speed.

PARAMETER	VALUES	DEFAULT
<i>Ura</i>	from 0 to 30 multiplied by 100 ms	15 = 1500 ms

Duration of the deceleration ramp

It takes the gate time to change from normal speed to slowdown speed.

PARAMETER	VALUES	DEFAULT
$d-r$	from 0 to 30 multiplied by 100 ms	20 = 2000 ms

Mode of intervention PH1 photocell input

During the closing movement the engagement of the connected photocell on the input PH1 always involves the reversal of the motion and consequent handling up to the position of "OPEN GATE".

Moreover, during the opening movement, the photocell input does not cause any intervention of the control unit.

With this parameter it is possible to customize the behavior of the control unit following the intervention of the photocell, in case the automation is stopped in the position of "CLOSED GATE".

Value 0: Automation does not start if PH1 input is engaged.

Value 1: The automation moves in opening even if the PH1 input is engaged.

PARAMETER	VALUES	DEFAULT
SPh	0 = Check input PH1 from "CLOSED GATE" 1 = Ignore input PH1 from "CLOSED GATE"	1

Mode of intervention PH2 photocell input

The engagement of the connected photocell on the PH2 input always involves the temporary stop of the movement, until the photocell is released. Once released, automation always moves in the direction of opening.

With this parameter you can customize when this behavior is enabled.

Value 0: Enabled during opening and closing movement.

Value 1: Only enabled during the opening movement.

PARAMETER	VALUES	DEFAULT
$Ph2$	0 = Enabled in both opening and closing 1 = Enabled only in opening	0

Auto-test function of the photocell input

WARNING

- Activation of the self-test function of the photocell input contributes to the achievement of safety standards throughout the connected control line. Refer to the instruction manual of the connected device for the degree of safety achieved.



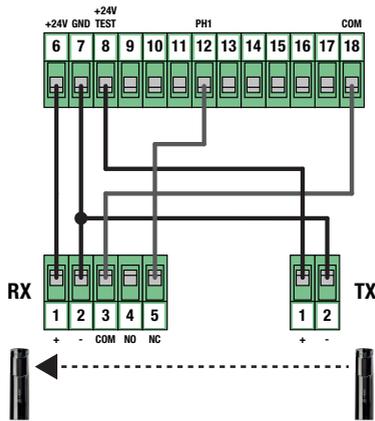
NOTE

- *To properly use this function you need to use terminal number 8 to power the transmitter photocell.*



By enabling this function, the control unit performs a functional test of the photocells before each movement. The test, if enabled, is not performed in case of fast reversals.

PARAMETER	VALUES	DEFAULT
tPh	OFF = disabilitato 1 = Abilitato per PH1 2 = Abilitato per PH2 3 = Abilitato per PH1 e PH2	OFF



Type of security edge installed

Select the type of safety edge connected to the EDGE input.

PARAMETER	VALUES	DEFAULT
<i>Edi</i>	0 = mechanical type (Contact Normally Closed) 1 = resistive type (8,2 Kohm)	0

Mode of intervention EDGE input

Customize the behavior of the control unit following the intervention of the device connected to the EDGE input.

Value 0: Only during the closing movement, performs a reversal of motion until reaching the position of "OPEN GATE".

Value 1: During any movement, it stops the automation and then a short reversal to free the obstacle.

PARAMETER	VALUES	DEFAULT
<i>iEd</i>	0 = Total reversal of motion (closing only) 1 = Stop and short reversal of motion	0

Slowdown ramp on EDGE input intervention

It determines how long the gear motor stops its movement following the stop caused by the intervention of the EDGE input.

PARAMETER	VALUES	DEFAULT
<i>Ebt</i>	from 0 to 10 multiplied by 100 ms	10 = 1000 ms

Reversal time on EDGE input intervention

Determines how long the gear motor performs the movement in the opposite direction following the stop caused by the intervention of the EDGE input (only with IED = 1).

PARAMETER	VALUES	DEFAULT
<i>ErE</i>	from 5 to 20 multiplied by 100 ms	10 = 1000 ms

Auto-test function of the EDGE input

WARNING

- Activation of the EDGE input auto-test function contributes to the achievement of safety standards throughout the connected control line. Refer to the instruction manual of the connected device for the degree of safety achieved.



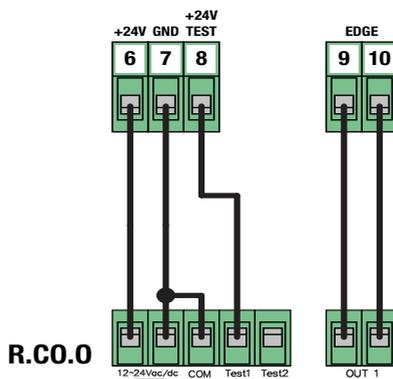
NOTE

- To use this function correctly it is necessary to connect a device with electronic test circuit (e.g. R.CO.O). Connect the device test contact to terminal 8 of the control unit, and enable the test with the low logic level 0Vdc.



By enabling this function, the control unit performs a functional test of the safety edge before each handling. The test, if enabled, is not performed in case of fast reversals (for example, reversal caused by the intervention of a photocell).

PARAMETER	VALUES	DEFAULT
tEd	OFF = disabled ON = enabled	OFF



Amplitude of the partial opening

Adjusts the amplitude of the partial opening as a percentage of the total stroke length.

Partial opening is possible only starting from the position of "CLOSED GATE", using the appropriate command. Once reached the position of "PARTIAL OPENING" the display shows "PE".

PARAMETER	VALUES	DEFAULT
LPo	OFF = disabled from 1 to 100 % of total length	30 %

Automatic Closing from Partial Opening

Set a waiting time before the control unit controls an automatic closing after reaching the "PARTIAL OPENING" position.

Once reached the position of "PARTIAL OPENING" the control unit starts the countdown by displaying on the screen "-tP" (the symbol "-" is replaced by a number in the last 10 seconds of the countdown).

In case the photocell input is active the countdown stops until the contact is restored.

PARAMETER	VALUES	DEFAULT
tPC	OFF = disabled from 1 to 900 seconds	OFF

Configuration of the flashing output

Customize the behavior of the flashing output according to the type of connected device.

PARAMETER	VALUES	DEFAULT
<i>FP_r</i>	0 = Flashing light with self-flashing circuit 1 = Flashing without self-flashing circuit	1

Flashing time before handling

Set how long the flashing output is activated before starting handling.

PARAMETER	VALUES	DEFAULT
<i>EP_r</i>	OFF = disabled from 1 to 10 seconds	OFF

Courtesy light output configuration

Customize the mode of action of the courtesy light output.

Value 0: The light goes out at the end of a maneuver, after waiting for the time set in the parameter *ECY*.

Value 1: The light turns off at automation in the position of "CLOSED GATE", after waiting for the time set in the parameter *ECY*.

Value 2: With each command received, the light remains lit only for the time set in the *ECY* parameter regardless of the position where the gate is located.

Value 3: Open automation light function. The light turns off when the automation reaches the position of "CLOSED GATE".

Value 4: Open automation indicator function with blink proportional to the state of the automation. In detail:

- Opening movement = slow flashing.
- Closing movement = fast flashing.
- Position of "OPEN GATE" = light on.
- Position of "CLOSED GATE" = light off.
- Gate stopped in intermediate position = alternates two flashes and a long pause.

PARAMETER	VALUES	DEFAULT
<i>FCY</i>	0 = light on during operation + TCY 1 = light off in "CLOSED" after TCY 2 = light on for TCY 3 = open gate spy 4 = proportional flashing	0

Time for courtesy light

Set a time to activate or wait for the courtesy light. To be used in combination with the parameter "Courtesy light output configuration".

PARAMETER	VALUES	DEFAULT
<i>ECY</i>	OFF = disabled from 1 to 900 seconds	180 seconds

Maintained control function (DEAD-MAN)

Enables the possibility to move the automation only by holding down the desired command. Once the command is released, the automation stops. Activating this function results in the following functional changes:

- The "Step-by-Step" and "Partial Opening" commands are disabled.
- All security inputs except "STOP" are disabled.
- All automatic operations set, including automatic closures and reversals are disabled.
- Remain active commands "OPEN" and "CLOSE" both radio and wired.

PARAMETER	VALUES	DEFAULT
<i>dER</i>	OFF = disabled ON = enabled	OFF

Cycle threshold for service request

It allows you to set a number of cycles, after which the control unit will signal the achievement of the threshold by replacing the normal flashing during movements, with a fast flashing.

This parameter shall be used in combination with the parameter "Flashing for service request".

PARAMETER	VALUES	DEFAULT
<i>SEr</i>	OFF = disabled from 1 to 200 multiplied by 1000 cycles	OFF

Flashing light for assistance request

Enable flashing for service request.

PARAMETER	VALUES	DEFAULT
<i>SEF</i>	OFF = disabled ON = enabled	OFF

Pressure frequency when closed

Enables the function that allows to execute a closing command lasting "MPT" seconds every "MPR" minutes.

This function is activated automatically once the gate reaches the position of "CLOSED GATE".

PARAMETER	VALUES	DEFAULT
<i>MPR</i>	OFF = disabled from 1 to 480 minutes	OFF

Pressure duration when closed

Determines the duration of the closing command used in the MPR function.

PARAMETER	VALUES	DEFAULT
<i>MPT</i>	from 1 to 10 seconds	1 second

Function of Mechanical Relaxation

It allows you to perform a short reversal, the duration of which is customized, once you reach the limit switch of opening or closing. This function is useful in case automation presses the mechanical blocks too hard and makes manual unlocking difficult.

PARAMETER	VALUES	DEFAULT
<i>MRÉ</i>	OFF = disabled from 1 to 30 multiplied by 100 ms	OFF

Function of Soft Stop

It allows to adjust the deceleration ramp in case of request of stop by user command or in case of intervention of the photocell inputs (PH1 and PH2). This parameter DOES NOT modify the deceleration ramp in case of intervention of the EDGE (safety coast) and STOP input.

PARAMETER	VALUES	DEFAULT
<i>Sft</i>	OFF = disabled from 1 to 20 multiplied by 100 ms	5 = 500 ms

Modbus Address

Address attribute to the control unit to establish a communication according to MODBUS protocol on the UART port available.

PARAMETER	VALUES	DEFAULT
<i>ModAdr</i>	OFF = disabled from 1 to 247	OFF

Reset Default Values (RESET)

It performs a reset of the control unit and sets the values of all the basic and advanced parameters, bringing them to the default ones.

This function DOES NOT cancel the learned stroke and DOES NOT erase the learned remotes.

To perform recovery follow below steps:

- Access the parameter by holding down the MENU button for 3 seconds.
- When the display displays the value " *d* " release the button.
- Press the MENU key and hold it until the countdown ends and the display displays " *don* ".
- The procedure was successfully completed.

PARAMETER	VALUES	DEFAULT
<i>dEF</i>	-	-

Viewer memory location of a learned transmitter

With this parameter you can view the memory location assigned to a transmitter by the control unit during learning.

To do this follow the following steps:

- Access the parameter by holding down the MENU button for 3 seconds.
- When the display displays the value " *SEE* " release the button.
- From this moment, the control unit is waiting for a known radio command. After 15 seconds without receiving any transmission, the control unit automatically exits the function displaying the message " *LOUt* ".
- Transmit with your own remote control, the display will show the memory position (eg " *245* ").
- More than one remote control can be displayed in the same session. To exit the function, briefly press the MENU button.

PARAMETER	VALUES	DEFAULT
<i>trS</i>		

Cancellation of a single transmitter learned

With this parameter you can erase a single transmitter already learned, using its memory location. If this value is not known, refer to the function "Viewer memory location of a learned transmitter".

Follow these steps to cancel:

- Access the parameter by holding down the MENU button for 3 seconds.
- When the display displays the value " \square " release the button and use the UP and DOWN keys to set the memory position of the remote to be deleted.
- Confirm by holding down the MENU key for 3 seconds.
- The display will show the message " \square " to indicate the correct deletion.
- If the memory location is empty, the message " *Err* " will be displayed.
- You can delete more than one remote control in the same session. To exit the function, press the MENU key briefly.

PARAMETER	VALUES	DEFAULT
\square		

Deletion of all radio memory

With this parameter you can restore the radio memory.

This results in the deletion of ALL learned remotes.

To perform total cancellation follow below steps:

- Access the parameter by holding down the MENU button for 3 seconds.
- When the display displays the value " \square " release the button.
- Press the MENU key and hold it until the countdown ends and the display shows " *don* ".
- The procedure was successfully completed.

PARAMETER	VALUES	DEFAULT
\square		

Setting PASSWORD

Allows you to set a 5-digit password for access to the menu.

The value "00000" disables the password and makes access to the menu free.

PARAMETER	VALUES	DEFAULT
<i>PASS</i>	"00000" = free access "XXXXX" = password set	"00000"

WARNING

- Carefully store the 5-digit sequence used to set the password.
- **If you lose your password, please contact your reseller to restore the system.**

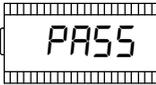
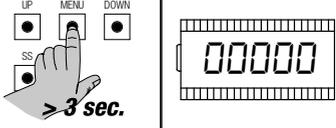
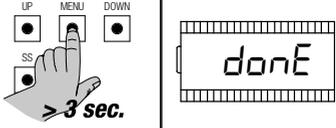


A 5-digit password can be set using the advanced PASS parameter.

Once the setting is made, access to all the parameter menus will always be preceded by the request to enter the password.

Using the sequence "00000" is equivalent to disabling the PASSWORD function.

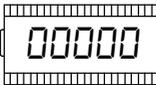
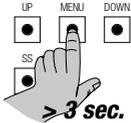
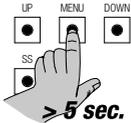
SET A PASSWORD

1.	Access the advanced menu and use the UP and DOWN keys until you find the "PASS" item.	
2.	Press and hold the MENU key for at least 3 seconds. The control unit offers the display "00000".	
3.	Use the UP and DOWN keys to change the digit value. Use the MENU key to move to the next digit to edit.	
4.	Once the desired password is set, press and hold the MENU key for at least 3 seconds. The control unit will display the word "done" to confirm the setting.	

Use this space as a password reminder.

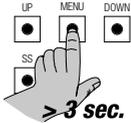
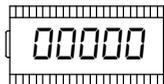
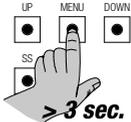
PASSWORD					
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ENTER THE PASSWORD TO ACCESS THE MENUS

1.	When you press the MENU button, the control panel prompts you to enter the password to access it. After 2 minutes of inactivity, the control panel automatically exits the password entry screen.		
2.	Use the UP and DOWN keys to change the digit value. Use the MENU key to move to the next digit to edit.		
3.a	To access the basic menu press and hold the MENU key for between 3 and 5 seconds.		ACCESS TO THE BASIC MENU
3.b	To access the advanced menu press and hold the MENU key for more than 5 seconds.		ACCESS TO THE ADVANCED MENU
3.c	In the case of incorrect insertion the control unit will display the message "Err" and exit the insertion window.		

REMOVE THE PASSWORD

To remove the password, simply access the advanced PASS menu and set the password "00000".

1.	Access the advanced menu and use the UP and DOWN keys until you find the "PASS" item.		
2.	Press and hold the MENU key for at least 3 seconds. The control unit offers the display "00000".		
3.	Press and hold the MENU key for at least 3 seconds. The control unit will display the word "done" to confirm the setting.		

5. ERROR MESSAGES

NOTE

Message reporting persists as long as the event persists or until the DOWN key is pressed or a handling command is executed.



DISPLAY	DESCRIPTION	SOLUTION
<i>ELS</i>	Limit switch error: Opening and closing limit switches occupied simultaneously or locked.	<ul style="list-style-type: none"> • Check that the limit switch is not blocked. • Check electrical connections and limit switch integrity. • Check the integrity of the fuses.
<i>EFD</i>	Movement stopped by the impact sensor. Effort too high to allow movement of the gate.	<ul style="list-style-type: none"> • Check the integrity and good condition of the entire gate and automation. • Remove any dirt or foreign matter that may hinder movement. • Adjust the sensitivity parameters of the impact sensor.
<i>EE_d</i>	Movement stopped by the intervention of the sensitive edge (EDGE input).	<ul style="list-style-type: none"> • EDGE input activated. • Verify that the device connected to the EDGE input is working properly and configured.
<i>EPH</i>	Photocell test error. The photocell test failed.	<ul style="list-style-type: none"> • Check the test connection of the photocells and the correct setting of the TPH parameter. • Verify that the photocells are working and replace them.
<i>E_{th}</i>	Thermal intervention to safeguard the board.	<ul style="list-style-type: none"> • Wait for the automation to cool down before performing further handling. • Please ensure that you do not exceed the use threshold indicated in this user manual.
<i>E_{TS}</i>	Electric motor error not connected or in thermal protection.	<ul style="list-style-type: none"> • Check the connections to the electric motor. • Wait for the electric motor to cool and make sure that you do not exceed the indicated operating threshold.
<i>E_{TE}</i>	Error in remote control memory. Memory not installed or not recognized.	<ul style="list-style-type: none"> • Remove and insert the remote control memory again. • Perform the remote control memory reset procedure (TRF parameter). • Replace the remote control memory with a new one.
<i>FUL</i>	Full remote control memory. It is no longer possible to learn more remote controls.	<ul style="list-style-type: none"> • Clear some remote controls. • Replace the remote control memory with a new one.
<i>E_{rr}</i>	Error in memory query during learning functions, position display or transmitter deletion.	<ul style="list-style-type: none"> • Incorrect selected memory location. • Replace the remote control memory with a new one.

6. MAINTENANCE

DANGER

- Before carrying out any cleaning, maintenance or replacement of parts, remove power to the automation.
- The following points are specific to the maintenance of the control panel. The list does not cover maintenance activities specific to the sliding gate/door.



Every 10,000 cycles and in any case every 6 months of activity, the following maintenance interventions are mandatory:

- Check and clean any dirt, insects and dust residues that have positioned themselves within the automation.
- Check the integrity of the cables and their connections and make the necessary replacements.
- Perform a general and complete check of the screws and bolts.
- Check the proper functioning of signalling and safety devices.
- Check the wear status of the moving mechanical parts and check their correct functioning.
- Perform the stroke learning procedure.

7. PRODUCT DISPOSAL

As for installation operations, the disassembly of this product must be carried out by qualified personnel. The symbol on the side indicates that the product should not be disposed of as unsorted waste, but should be sent to separate collection facilities for recovery and recycling. For disposal check the recycling or disposal systems provided by the territorial regulations in force for this category of product, or return the product to the seller.

WARNING - • This product consists of various types of materials: some parts of the product may contain pollutants or dangerous substances that, if dispersed, could cause harmful effects to the environment and health. • Local regulations may provide for heavy penalties in the event of incorrect disposal of this product.



8. WARRANTY

The manufacturer's warranty is valid by law from the date printed on the product and is limited to the free repair or replacement of parts recognized by the manufacturer as defective due to lack of essential qualities in the materials or for errors in the production process. The warranty does not cover damage or defects due to external agents, lack of maintenance, overload, normal wear, installation error, or other causes not attributable to the manufacturer. Tampered products will not be covered by warranty. The manufacturer is not responsible for malfunctions or degradation of performance due to environmental interference, such as electromagnetic disturbances; therefore, the warranty expires in these situations.



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