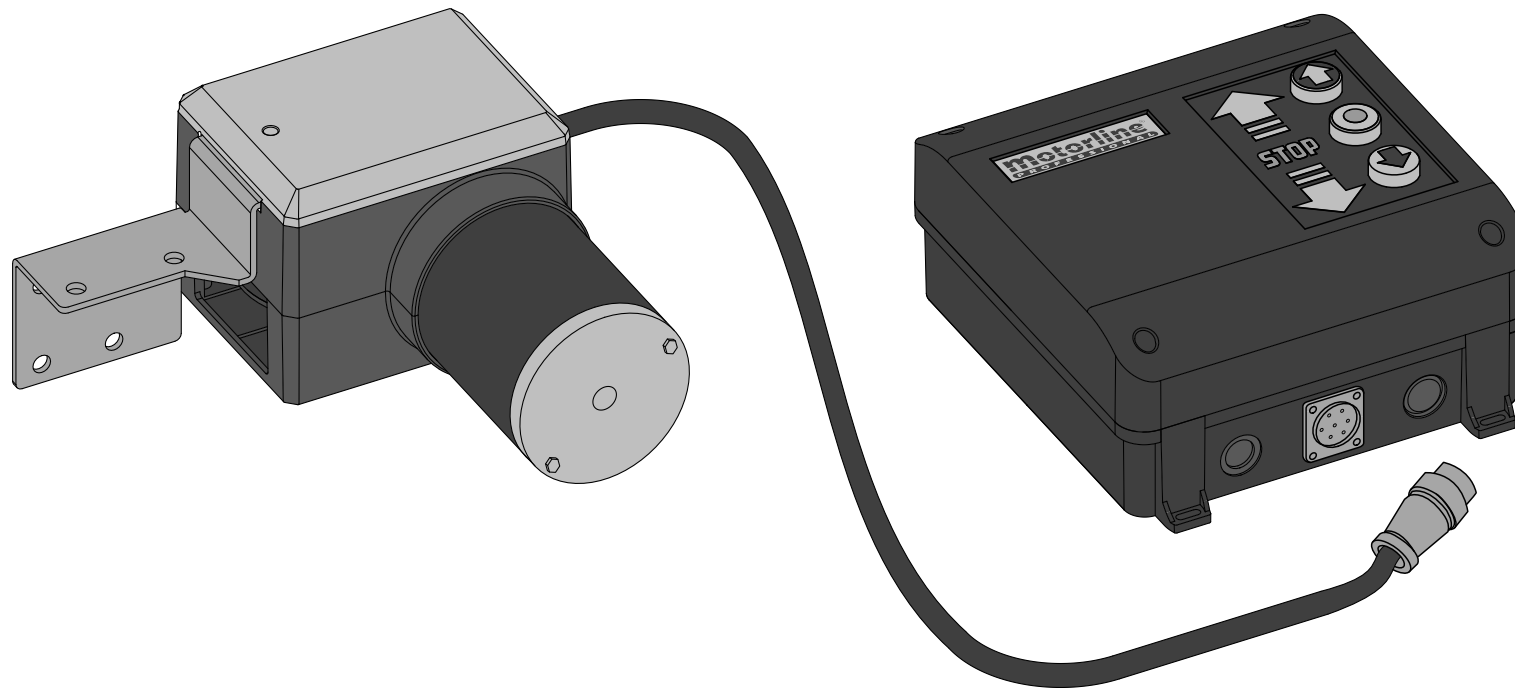




USER'S AND INSTALLER'S MANUAL









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01. SAFETY INSTRUCTIONS

	This product is certified in accordance with European Community (EC) safety standards.
	This product complies with Directive 2011/65/EU of the European Parliament and of the Council, of 8 June 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment and with Delegated Directive (EU) 2015/863 from Commission.
	(Applicable in countries with recycling systems). This marking on the product or literature indicates that the product and electronic accessories (eg. Charger, USB cable, electronic material, controls, etc.) should not be disposed of as other household waste at the end of its useful life. To avoid possible harm to the environment or human health resulting from the uncontrolled disposal of waste, separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Home users should contact the dealer where they purchased this product or the National Environment Agency for details on where and how they can take these items for environmentally safe recycling. Business users should contact their vendor and check the terms and conditions of the purchase agreement. This product and its electronic accessories should not be mixed with other commercial waste.
	This marking indicates that batteries should not be discarded like other household waste at the end of their useful life. Batteries must be delivered to selective collection points for recycling.
	The different types of packaging (cardboard, plastic, etc.) must be subject to selective collection for recycling. Separate packaging and recycle it responsibly.
	This marking indicates that the product and electronic accessories (eg. charger, USB cable, electronic material, controls, etc.) are susceptible to electric shock by direct or indirect contact with electricity. Be cautious when handling the product and observe all safety procedures in this manual.

01. SAFETY INSTRUCTIONS

GENERAL WARNINGS

- This manual contains very important safety and usage information. Read all instructions carefully before beginning the installation/usage procedures and keep this manual in a safe place that it can be consulted whenever necessary.
- This product is intended for use only as described in this manual. Any other enforcement or operation that is not mentioned is expressly prohibited, as it may damage the product and put people at risk causing serious injuries.
- This manual is intended firstly for specialized technicians, and does not invalidate the user's responsibility to read the "User Norms" section in order to ensure the correct functioning of the product.
- The installation and repair of this product may be done by qualified and specialized technicians, to assure every procedure are carried out in accordance with applicable rules and norms. Nonprofessional and inexperienced users are expressly prohibited of taking any action, unless explicitly requested by specialized technicians to do so.
- Installations must be frequently inspected for unbalance and the wear signals of the cables, springs, hinges, wheels, supports and other mechanical assembly parts.
- Do not use the product if it is necessary repair or adjustment is required.
- When performing maintenance, cleaning and replacement of parts, the product must be disconnected from power supply. Also including any operation that requires opening the product cover.
- The use, cleaning and maintenance of this product may be carried out by any persons aged eight years old and over and persons whose physical, sensorial or mental capacities are lower, or by persons without any knowledge of the product, provided that these are supervision and instructions given by persons with experienced in terms of usage of the product in a safe manner and who understands the risks and dangers involved.

- Children shouldn't play with the product or opening devices to avoid the motorized door or gate from being triggered involuntarily.
- If the power cable is damaged, it must be replaced by the manufacturer, after-sales service or similarly qualified personnel to avoid danger.
- The device must be disconnected from the electrical network when removing the battery.
- Ensure that blocking is avoided between the actuated part and its fixed parts due to the opening movement of the actuated part.

WARNINGS FOR TECHNICIANS

- Before beginning the installation procedures, make sure that you have all the devices and materials necessary to complete the installation of the product.
- You should note your Protection Index (IP) and operating temperature to ensure that is suitable for the installation site.
- Provide the manual of the product to the user and let them know how to handle it in an emergency.
- If the automatism is installed on a gate with a pedestrian door, a door locking mechanism must be installed while the gate is in motion.
- Do not install the product "upside down" or supported by elements do not support its weight. If necessary, add brackets at strategic points to ensure the safety of the automatism.
- Do not install the product in explosive site.
- Safety devices must protect the possible crushing, cutting, transport and danger areas of the motorized door or gate.
- Verify that the elements to be automated (gates, door, windows, blinds, etc.) are in perfect function, aligned and level. Also verify if the necessary mechanical stops are in the appropriate places.
- The control board must be installed on a safe place of any fluid (rain, moisture, etc.), dust and pests.
- You must route the various electrical cables through protective tubes, to protect them against mechanical exertions, essentially on

01. SAFETY INSTRUCTIONS

the power supply cable. Please note that all the cables must enter the control board from the bottom.

- If the automatism is to be installed at a height of more than 2,5m from the ground or other level of access, the minimum safety and health requirements for the use of work equipment workers at the work of Directive 2009/104/CE of European Parliament and of the Council of 16 September 2009.
- Attach the permanent label for the manual release as close as possible to the release mechanism.
- Disconnect means, such as a switch or circuit breaker on the electrical panel, must be provided on the product's fixed power supply leads in accordance with the installation rules.
- If the product to be installed requires power supply of 230Vac or 110Vac, ensure that connection is to an electrical panel with ground connection.
- The product is only powered by low voltage safety with control board (only at 24V motors).
- Parts/products weighing more than 20 kg must be handled with special care due to the risk of injury. It is recommended to use suitable auxiliary systems for moving or lifting heavy objects.
- Pay special attention to the danger of falling objects or uncontrolled movement of doors/gates during the installation or operation of this product.

WARNINGS FOR USERS

- Keep this manual in a safe place to be consulted whenever necessary.
- If the product has contact with fluids without being prepared, it must immediately disconnect from the power supply to avoid short circuits, and consult a specialized technician.
- Ensure that technician has provided you the product manual and informed you how to handle the product in an emergency.
- If the system requires any repair or modification, unlock the automatism, turn off the power and do not use it until all safety

conditions have been met.

- In the event of tripping of circuits breakers or fuse failure, locate the malfunction and solve it before resetting the circuit breaker or replacing the fuse. If the malfunction is not repairable by consult this manual, contact a technician.
- Keep the operation area of the motorized gate free while the gate in in motion, and do not create strength to the gate movement.
- Do not perform any operation on mechanical elements or hinges if the product is in motion.

RESPONSABILITY

- Supplier disclaims any liability if:
 - Product failure or deformation result from improper installation use or maintenance!
 - Safety norms are not followed in the installation, use and maintenance of the product.
 - Instructions in this manual are not followed.
 - Damaged is caused by unauthorized modifications
 - In these cases, the warranty is voided.

MOTORLINE ELECTROCELOS SA.

Travessa do Sobreiro, nº29
4755-474 Rio Côvo (Santa Eugénia)
Barcelos, Portugal

SYMBOLS LEGEND:



• Important safety notices



• Useful information



• Programming information



• Potentiometer information



• Connectors information



• Buttons information

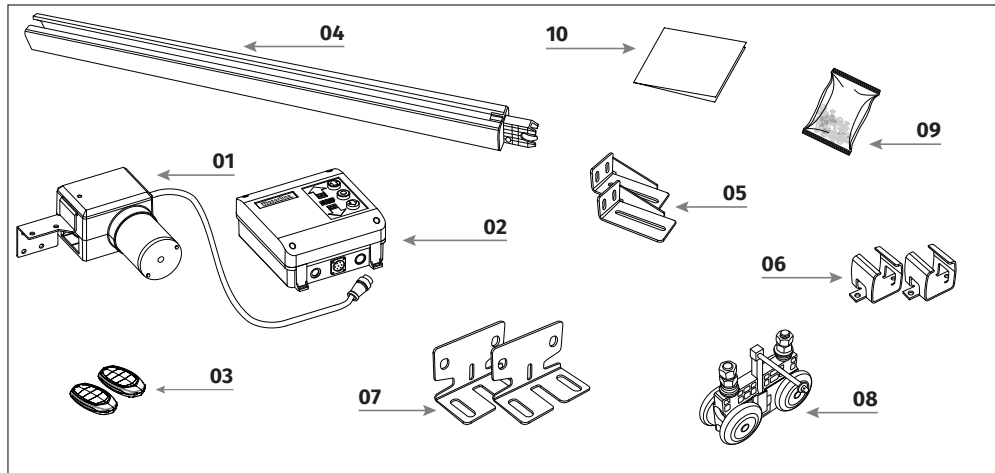
02. PACKAGE

INSIDE PACKAGE

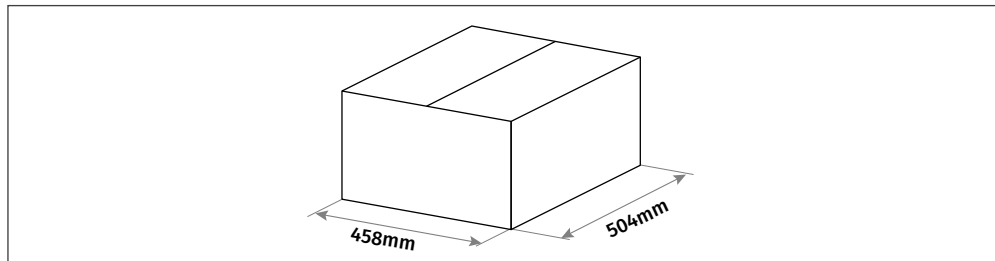
Elements in the package of 1 motor:

- 01 • 01 Motoreducer
- 02 • 01 Motor's control board
- 03 • 02 4-Channel remote controls
- 04 • 01 Rail
- 05 • 04 Rail supports A
- 06 • 04 Rail supports B
- 07 • 02 Gate trolley fixing supports
- 08 • 01 Trolley with unlocker
- 09 • Mounting accessories
- 10 • 01 User's manual

Kit components:



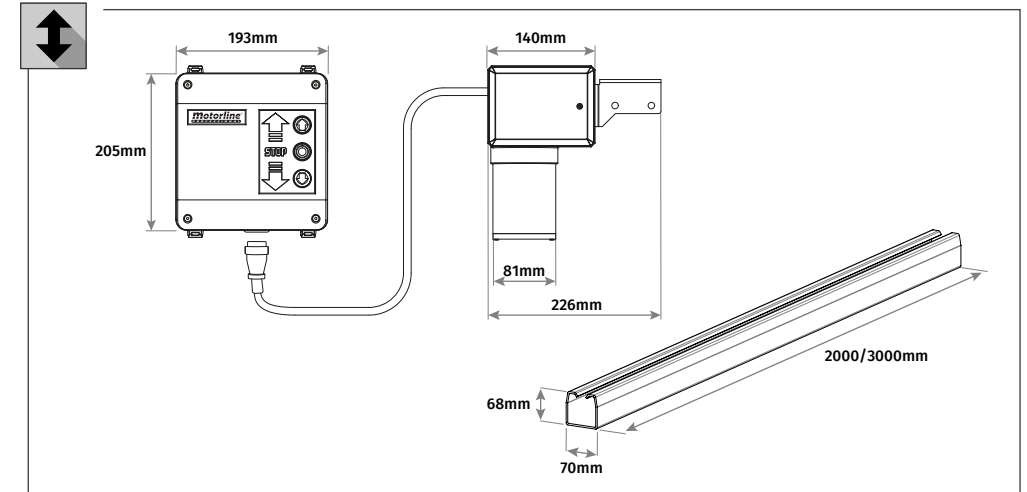
Kit package:



03. AUTOMATION

DIMENSIONS

KFM and rail dimensions are the following:



TECHNICAL SPECIFICATIONS

• Motor	24Vdc
• Power Supply	220/110Vac 10% 50/60Hz
• Operating temperature	-25° C a 55° C
• Relative humidity	≤90%
• Opening and closing force	2000N
• Memory	20 transmitters
• Frequency	433.92Mhz
• Code type	Rolling Code
• Flashing lamp	LED
• Courtesy light time	3 minutes
• Noise	LpA ≤ 50dB (A)
• Working frequency	80%
• Protection grade	IP20
• Maximum weight supported by the rail	500kg
• Auxiliary accessories output	24Vdc 200mA

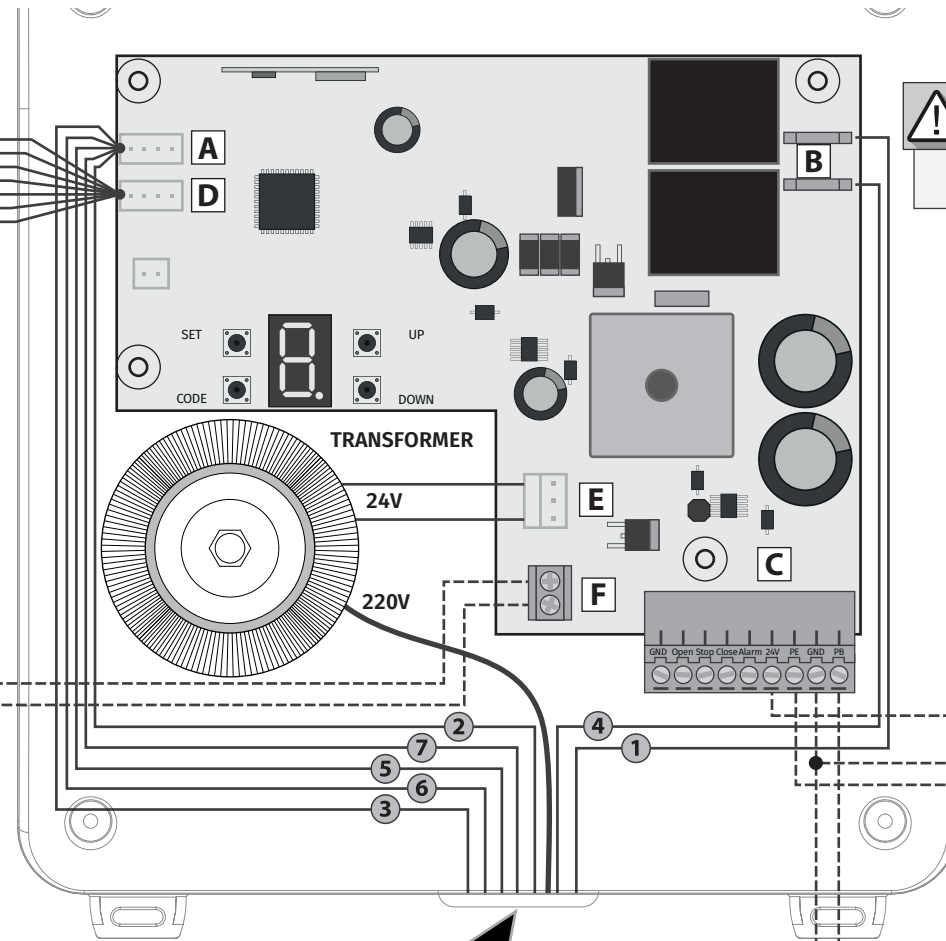
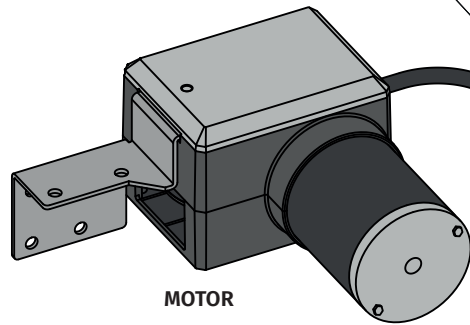
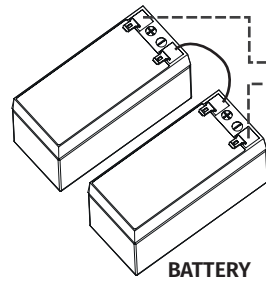
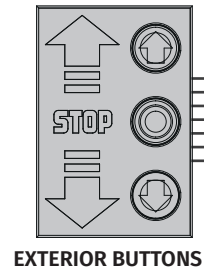


This automation can be applied to both folding gates and to sectioned gates.

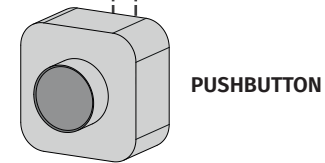
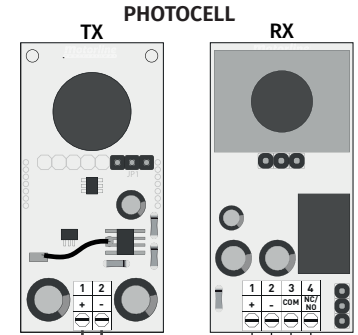
04. INSTALLATION

CONNECTION SCHEME

A	1 • Motor 2 • Encoder (GND) 3 • LED (+) 4 • Motor 5 • Encoder (+5V) 6 • LED (-) 7 • Encoder (Signal)
B	
C	PB • Pushbutton PE • Photocells GND • Common +24V • 24V Power supply
D	External buttons connections (on the box door)
E	Transformer
F	Battery



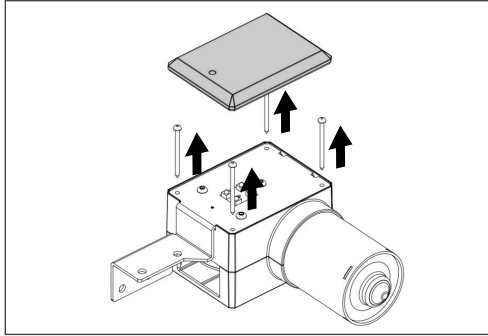
! Do not change the position of the wires!
See menu 8 to invert the motor direction.



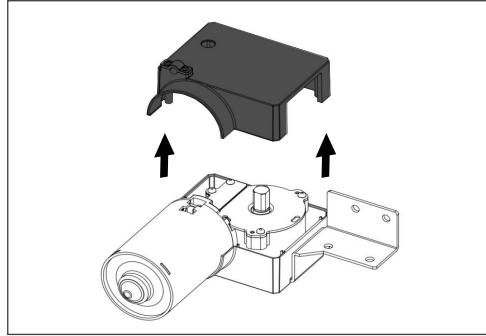
! Do not connect to the control board when it is on.

04. INSTALLATION

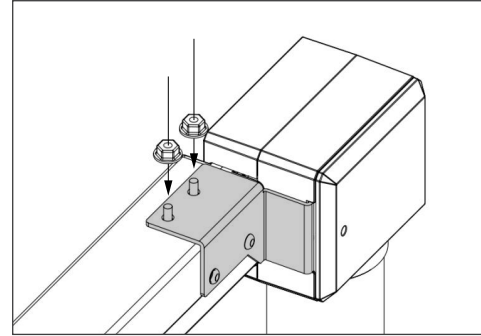
ENGINE'S INSTALLATION IN THE RAIL



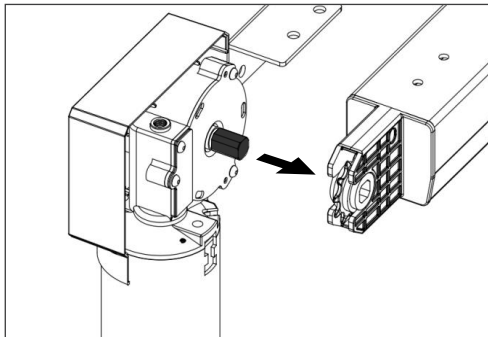
1 • Remove the automation cover and loosen the screws.



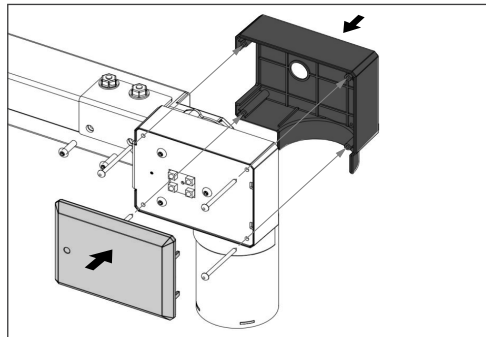
2 • Turn the automation over and open it by pulling the casing up.



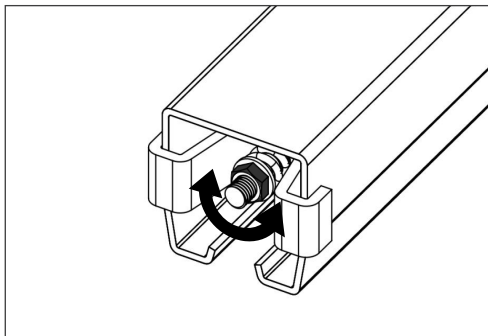
7 • Tighten the motor fixation screws to the plate.



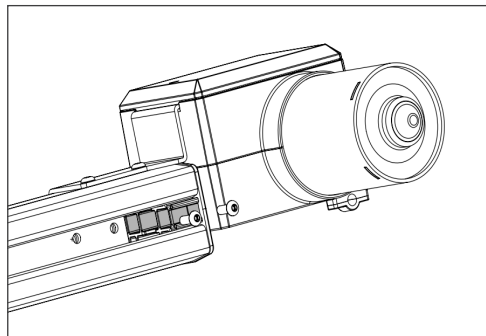
3 • Place the motor in the rail by inserting the output shaft into the rail's hexagon fitting.



4 • Close the automation by reassembling the cover and the casing.



5 • Adjust the chain tension by tightening or loosening the nut.



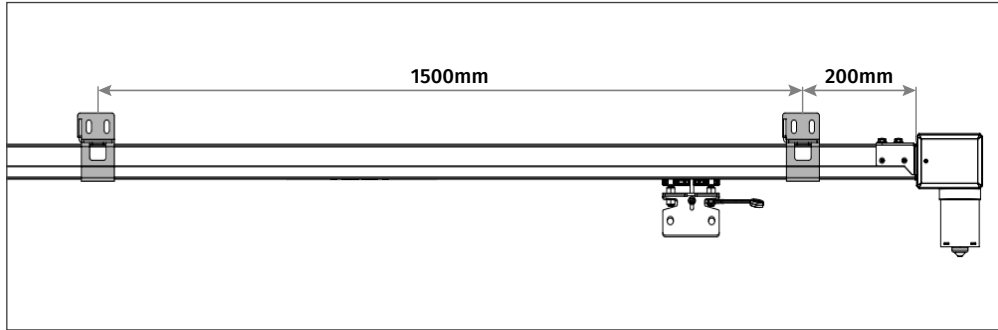
6 • When finished, insert the fixation screws.

04. INSTALLATION

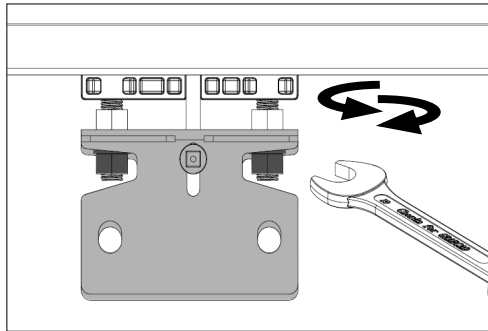
INSTALLATION TYPES

Installation parallel to the gate

To use the motor fixed to the top of the sliding gate or bellow, apply it as follows:



The recommended space to be used between the rail supports is **1500mm**, counting from the center of the holes of each support.



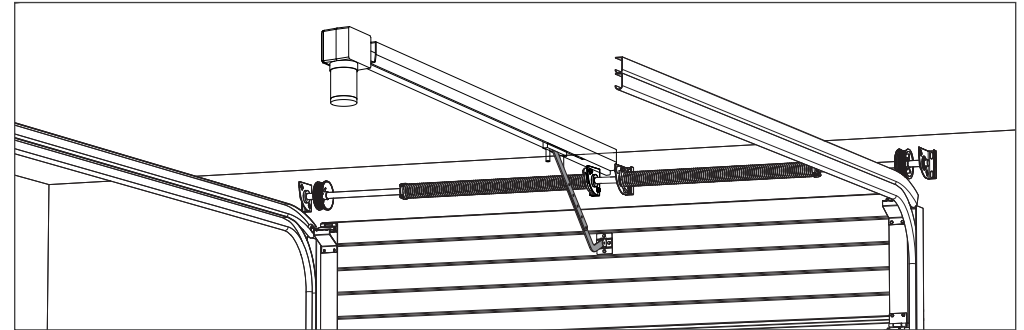
1 • To adjust the mounting bracket installation position, turn the adjusting nuts.



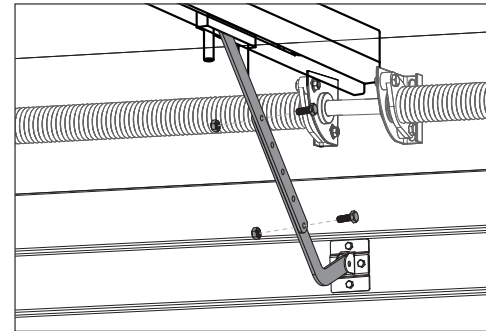
Use the screws that are inside the assembly accessory bag.

Installation perpendicular to the gate

To use the motor on Tilt Garage Doors or Sectional gates, apply it as follows:



Apply the connection arm between the trolley and the gate.

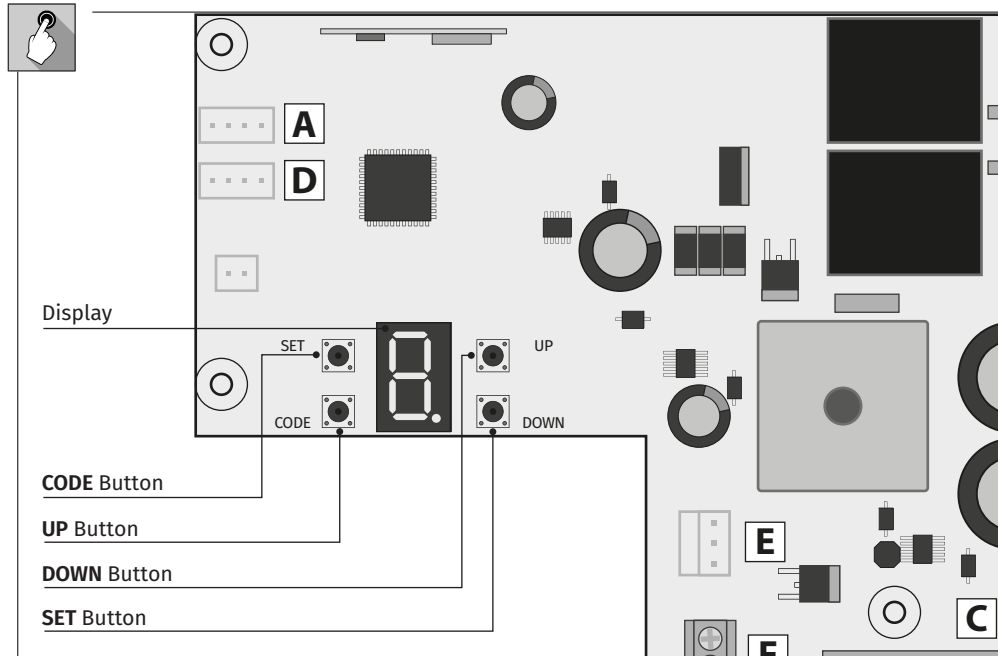



Connection arm is not included.

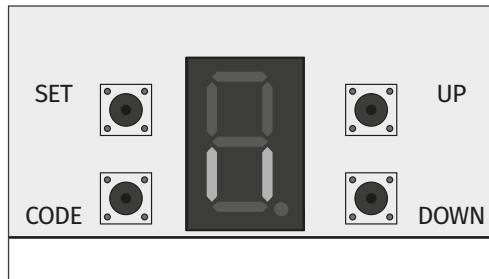
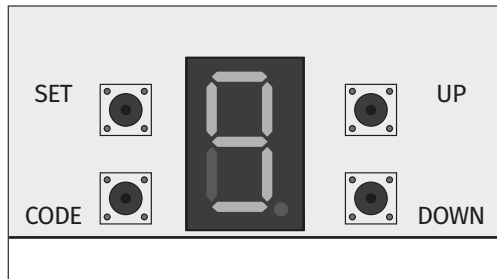
05. PROGRAMMING

PREPARATION

In the diagram below you can see the automation control board, as well as the legend of the buttons to be used for programming.



 Keep the trolley locked, pull and push the door manually. Make sure the trolley is connected to the power supply.

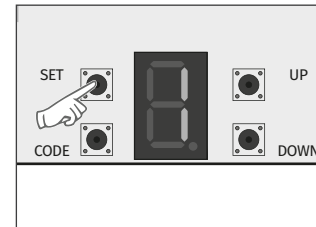


1 • When turning on the power, the courtesy light will be active for a few seconds and the display will show a value ranging from "9" to "0". Then, the automation enter in stand-by mode.

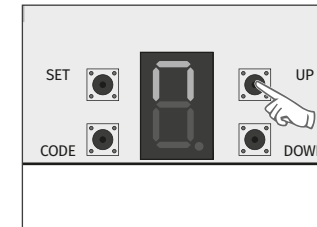
2 • At the end the display will show the signs "r" or "-" signs. The automation is ready to be programmed.

05. PROGRAMMING

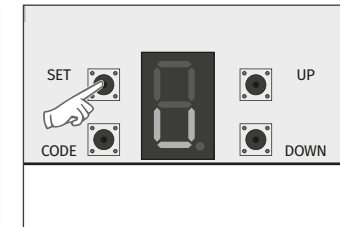
PROGRAMMING THE MOTOR COURSE



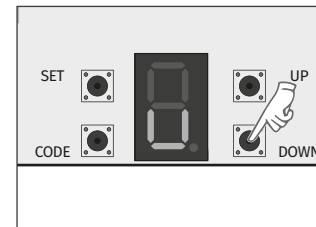
1 • Press and hold the **SET** button until **menu 1** appears.



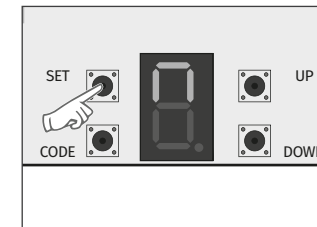
2 • Then press and hold the **UP** button. The display will flash with "r".



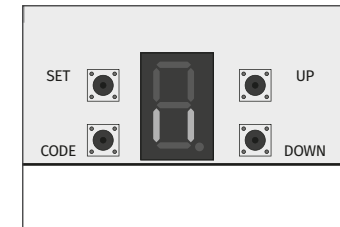
3 • When the door fully opens, click the **SET** button and th "r" will appear.



4 • Press and hold the **DOWN** button. The display will be flashing as shown in the figure.

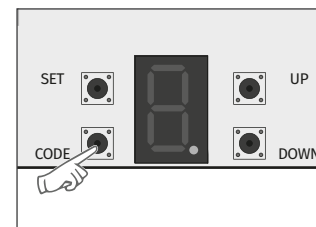


5 • When the door closes, click **SET**. The door will automatically open and close to set forces and sensitivities.

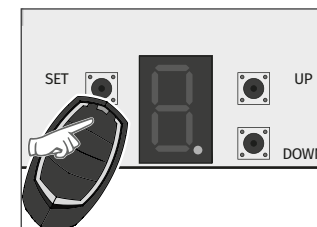


6 • When the configuration is complete, the function "r" will appear on the display.

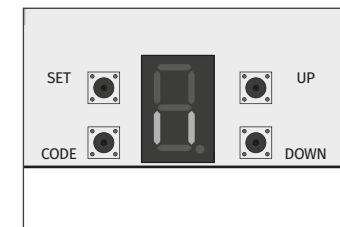
PROGRAMMING REMOTE CONTROLS




1 • Click on the **CODE** button. The display will show "•".



2 • Click on a button of the transmitter and then click on the button of the remote control again. The display will show "•" flashing.

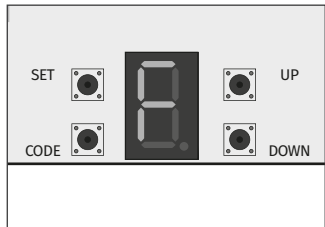


3 • When the configuration is complete, the function shown in the figure will appear on the display.

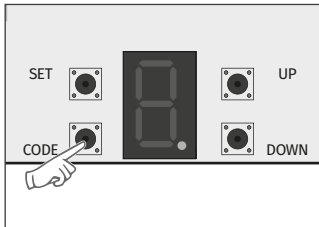
 To avoid coding errors, it is recommended not to exceed the maximum limit of 20 stored codes.

05. PROGRAMMING

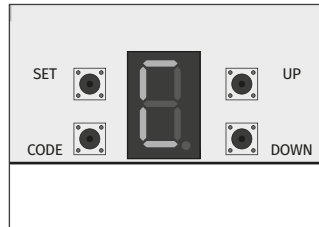
DELETE REMOTE CONTROLS



1 • When the control board reaches the maximum limit of 20 codes stored, the "F" function flashes.

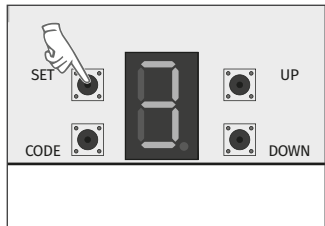


2 • Press and hold the **CODE** button for 8 seconds "●" will appear on the display.

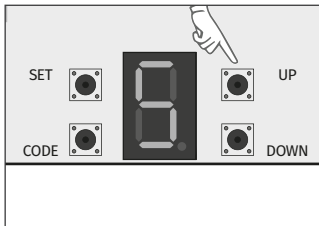


3 • The "C" function will flash. All codes have been eliminated.

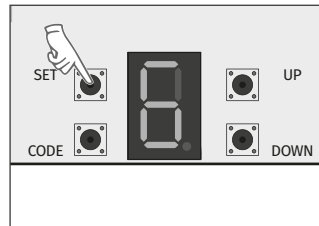
FORCE ADJUSTMENTS



1 • Press and hold the **SET** button until the **menu 3** appears. Click **SET** again to enter the menu.



2 • The current force value is displayed. By default the value is "5". Click **UP** to increase or **DOWN** to decrease.



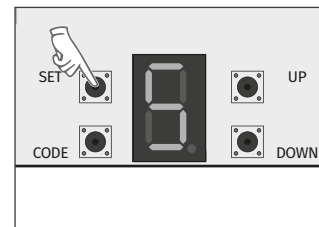
3 • Click **SET** to confirm the selected value. Force values range from "1" to "9".



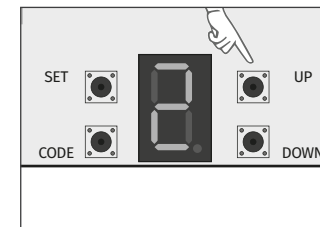
After completing this configuration, for safety, you should verify that the configured force is correct. If "b" appears, you must program the motor course again, with the desired force.

05. PROGRAMMING

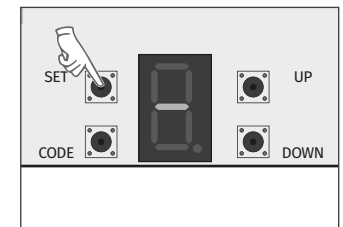
SLOWDOWNTIME TIME SETTING



1 • Press and hold the **SET** button until the **menu 5** appears. Click **SET** to enter.



2 • Click **UP/DOWN** to change the value between "1" and "6" (each value represents a 5% variation of the slowdown time).

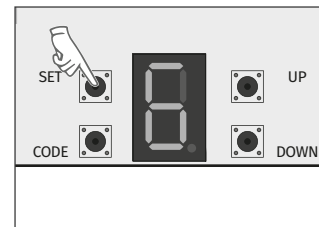


3 • Click on **SET** to confirm the value you have set and then "-" starts flashing while the course is fully recognized. This action occurs whenever you change the value of this parameter.

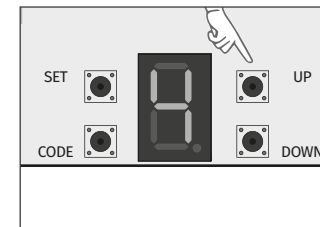


The higher the selected value, the greater the slowdown distance.

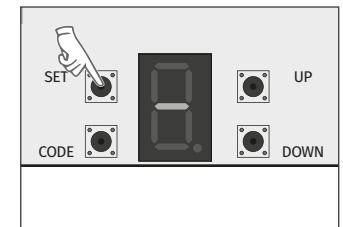
STOP SPEED/DECELERATION RAMP SETTING



1 • Press and hold the **SET** button until the **menu 6** appears. Click **SET** to enter.



2 • Click **UP/DOWN** to change the value between "4" and "7" (each value represents a 10% change in total speed).



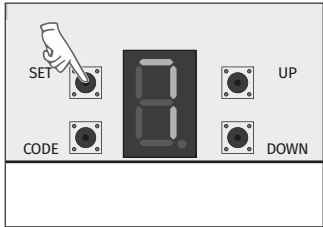
3 • Click on **SET** to confirm the value you have set and then "-" starts flashing while the course is fully recognized. This action occurs whenever you change the value of this parameter.



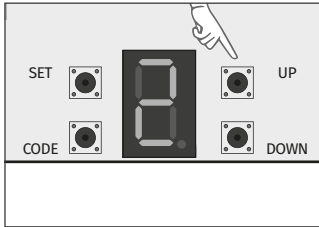
The lower the selected value, the lower the stopping speed.

05. PROGRAMMING

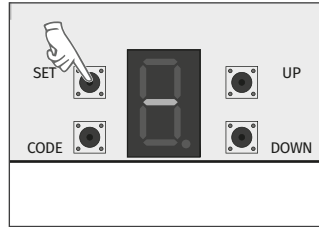
SLOWDOWN SPEED SETTING



1 • Press and hold the **SET** button until the **menu 7** appears. Click **SET** to enter.



2 • Click **UP/DOWN** to change the value between "0" and "9". Select the appropriate deceleration time.

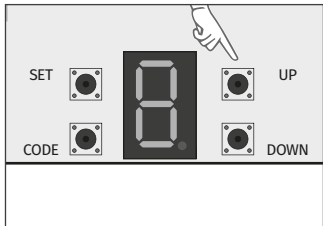


3 • Click on **SET** to confirm the value you have set and then "-" starts flashing while the course is fully recognized. This action occurs whenever you change the value of this parameter.

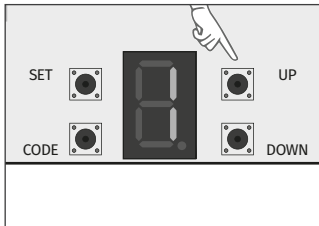


The lower the selected value, the shorter the deceleration time.
The higher the selected value, the longer the deceleration time, working smoother.

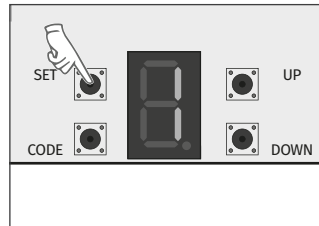
REVERSE MOTOR DIRECTION



1 • Press and hold the **SET** button until **menu 8** appears. Click **SET** to enter.



2 • If the motor movement direction does not match what you want, change between (0 or 1).

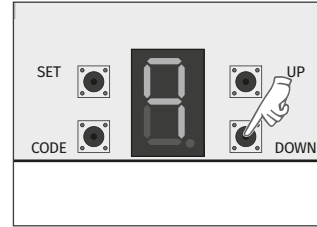


3 • Click **SET** to confirm the value you set.

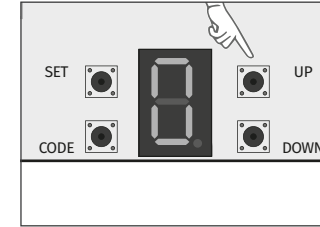
4 • Reprogram **menu 1** and **2**.

05. PROGRAMMING

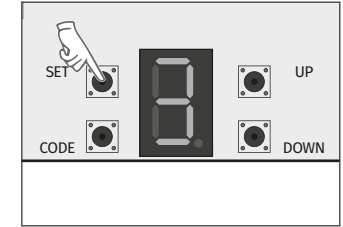
"FOLLOW ME"



1 • Press and hold the **SET** button until **menu 9** appears. Click **SET** to enter.



2 • Click **UP/DOWN** to change the value between "0" and "A".

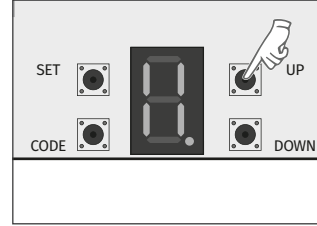


3 • Click **SET** to confirm the value you set.

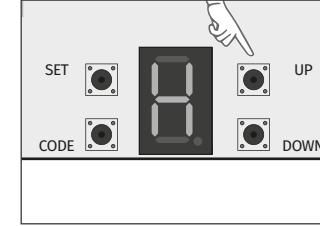


0 = Invalid function;
1 to A = 1 to 10 seconds;
This function only works when using automatic closing and photocells.

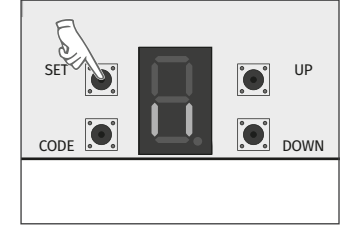
ENABLE/DISABLE PHOTOCELLS



1 • Press and hold the **DOWN** button until "H." appears. Click **SET** to enter the menu.



2 • To enable the photocells select "H." (**UP** button). To disable photocells, select "!" (**DOWN** button).



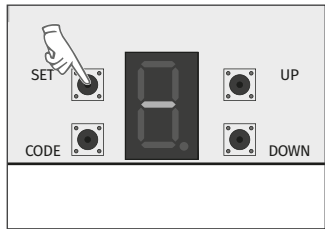
3 • Click **SET** to confirm the selected value and exit.



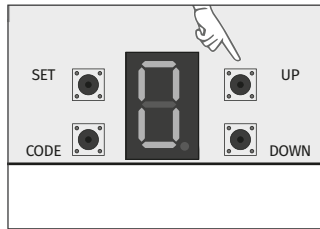
If you do not use photocells, make sure the display is showing "H." in order to keep this function inactive. When the photocell function is active and you try to close the door, the display will show "r" flashing, if they are obstructed.

05. PROGRAMMING

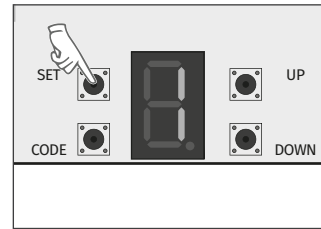
ENABLE/DISABLE AUTOMATIC CLOSE



1 • Press and hold the **UP** button until "0" appears. Click **SET** to enter the menu.



2 • Click **UP** to increase the auto-close time or click **DOWN** to decrease it. To disable the function, select "0".

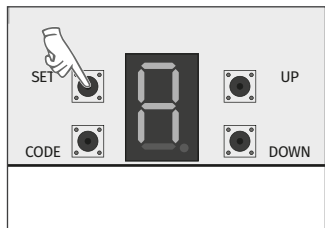


3 • Click **SET** to confirm the selected value and exit

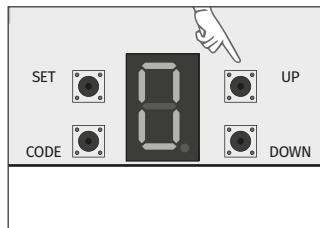


0= Automatic closing inactive; 1 = 10 sec.; 2 = 20 sec.; 3 = 30 sec.; 4 = 40 sec.; 5 = 50 sec.; 6 = 60 sec.; 7 = 90 sec.; 8 = 120 sec. and 9 = 180 sec.
This function works when the door is completely open.

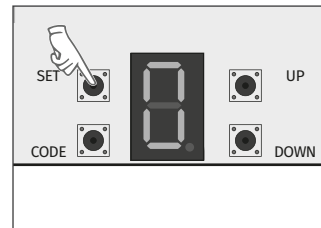
OPERATING LOGIC



1 • Press and hold the **SET** button until the A menu appears. Click **SET** to enter.



2 • Click **UP/DOWN** to change the value between "0" and "2".
"0" - step by step;
"1" - automatic;
"2" - condominium.



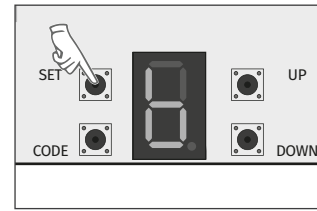
3 • Click **SET** to confirm the value you selected.



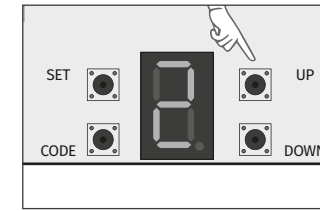
You can use remote controls and push buttons.

05. PROGRAMMING

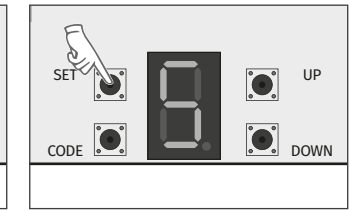
AUXILIARY LIGHT CONNECTOR



1 • Press and hold the **SET** button until "b" appears. Click **SET** to enter.



2 • Click **UP/DOWN** to change the value between "0" and "9".

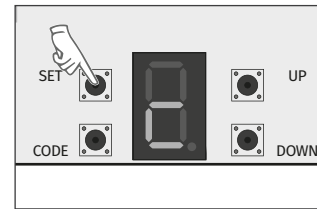


3 • Click **SET** to confirm the selected value and exit.

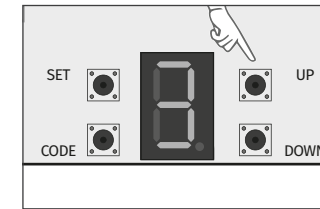


0 = auxiliary light mode; 1 = alarm light on when the engine is running; 2-9 = flashing light frequency. The higher the selected value, the slower the alarm light flashes and the longer the interval.
If the light is not strong enough, you can use an external auxiliary light.

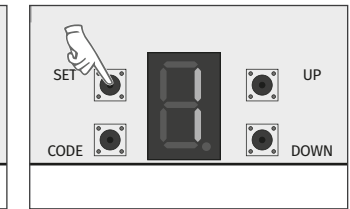
HUMAN PRESENT



1 • Press and hold the **SET** button until function "c" appears. Press **SET** again to enter the menu.

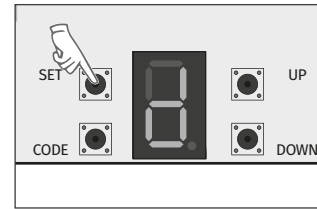


2 • Click **UP/DOWN** to select a value between "0-3".
"0" disables the function, "1" for remote control, "2" for push button and "3" to use both.

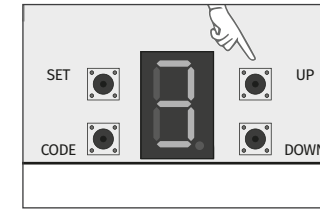


3 • Click **SET** to confirm the selected value and exit.

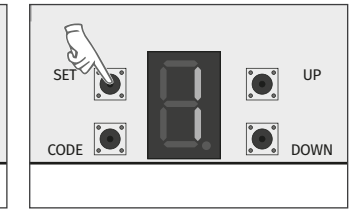
PRE-FLASHING LIGHT



1 • Press and hold the **SET** button until function "c". appears. Press **SET** again to enter the menu



2 • Click **UP/DOWN** to select a value between "0-9".
"0" indicates the light does not flash, it gives steady light. Each number shown on the display (1 to 9)



3 • Click **SET** to confirm the selected value and exit.

05. PROGRAMMATION

ERROR CODES

	Automatic closing on
	Automatic lock on
	System blocked
	Emergency STOP
	Exceeded working time
	Blocked
	End of superior course reached
	Lower inferior of stroke reached
	The red and black wires are connected in opposite positions
	Abnormal element/encoder detected
	Obstructed photocells
	Upper and lower limit switches are swapped
	The set motion range is too short
	Voltage is too low
	Overcurrent protection

06. COMPONENTS TEST

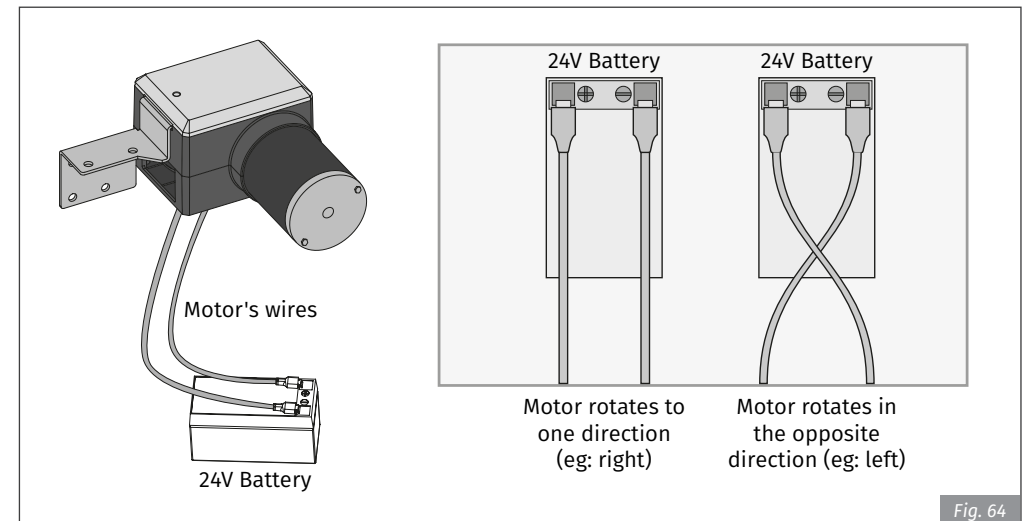
24V MOTOR

To detect which is the component with problems in a **KFM** automation install, it is sometimes necessary to run a test directly to an external power supply (another 24V battery). The scheme below shows how to connect the motor to the battery.



NOTES:

- To make these tests it isn't necessary to remove it from the location where it is installed, because in this way, you can understand if the automation works properly directly connected to the external battery.
- Once you connect the wires to a battery 24V, the motor must work for one direction. To test the opposite movement, change the position of the wires connected to the battery.



All tests must be performed by qualified technicians due to serious danger associated with the misuse of electrical systems!

07. TROUBLESHOOTING

INSTRUCTIONS FOR FINAL CONSUMERS

INSTRUCTIONS FOR FINAL TECHNICIANS

Anomaly	Cause	Solution
When I turn on the power, the light and motor do not work	There is a problem with the power supply	Check that the plug is working
	The fuse is damaged	Replace the fuse (make sure you use the proper fuse)
After doing course recognition, the motor does not work	The pressure screw of the limit switch may be loose	Tighten the limit switch screw
	Course recognition was performed poorly or an error occurred during the process	Start by make the recognition of the course. First the opening and then the closing
The motor opens but does not close	Photocell function is enable	Cancel settings, align photocells and receivers, check for obstacles in front of photocells
	Accessories are not connected	
	Photocell misalignment or blocked light	
If the push button is pressed, the motor runs normally, but if a remote control is pressed, the motor does not start.	The remote control is not memorized	Memorize the remote control
The remote control only works close to the central	The remote control battery is running low	Change the battery (use the battery indicated for the remote control)
Remote control light is dark		
"A" appears on the display	Automatic door closing on	Cancel automatic closing according to the "ENABLE/DISABLE AUTOMATIC CLOSE" menu, page 11A
	Overcurrent protection	Check if the door is stuck or replace with a higher power motor
"b" appears on the display	Blocked	Adjust the force, page 9A, to reprogram the course
"d" appears on the display	The ascent and descent limit is reversed	Adjust the direction, page 10A
"F" appears on the display	System blocked	Press SET 6 times (fast) and the display shows a value of "9 to 0" and the program will restore the factory settings
"h" appears on the display	The motor wires, red and black, are connected in reverse	Change the order of the motor wires
"H" appears on the display	Abnormal speed	Check if the control board connections are ok
"P" appears on the display	Low voltage	Check if the input voltage is normal
"r" appears on the display	Photocell is enable	Deactivate photocell protection, according to the "ENABLE/DISABLE PHOTOCELLS" menu, page 10B
"S" appears on the display	The course is too short	Reset course according to the menu "PROGRAMMING THE MOTOR COURSE", page 8B
	Emergency Stop	Check the emergency button

07. TROUBLESHOOTING

INSTRUCTIONS FOR FINAL CONSUMERS

INSTRUCTIONS FOR FINAL TECHNICIANS

Anomaly	Cause	Solution
"t" appears on the display	Operating timeout	Reset course according to the menu "PROGRAMMING THE MOTOR COURSE", page 8B
⏸ appears on the display	Run motor to the superior Limit	Press the close button
⏸ appears on the display	Run motor to inferior Limit	Press the open button
⏸ appears on the display	No spill	Reset course according to the menu "PROGRAMMING THE MOTOR COURSE", page 8B
⏸ appears on the display	Ineffective programming	
LC	Cable disconnected/poorly connected	Reconnect the motor cable to the control board