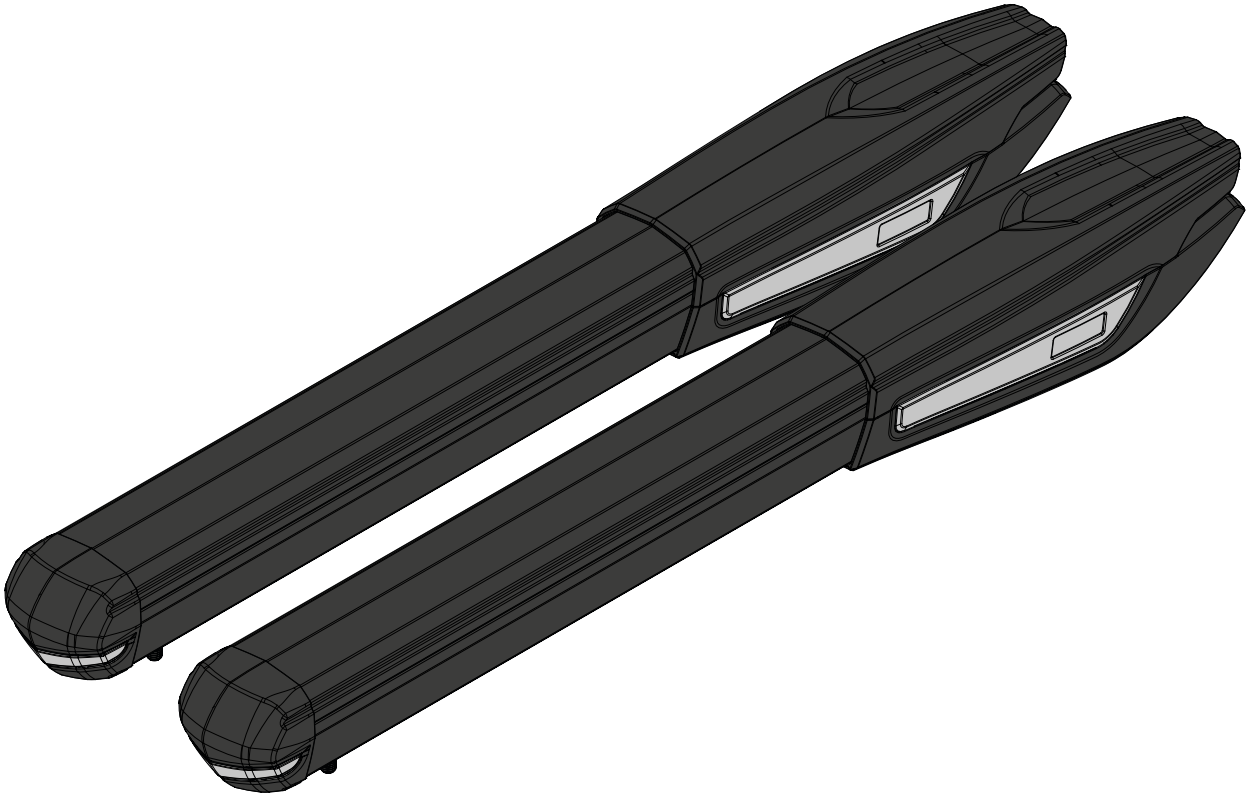
EN

PERSA 400

USER'S AND INSTALLER'S MANUAL



Motorline® PROFESSIONAL

V2.0
REV. 12/2016

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01. SAFETY INSTRUCTIONS

STANDARDS TO FOLLOW

ATTENTION:

Importance of the Manual:
- It is important for your safety that these instructions are followed.
- Keep these instructions in a safe place for future reference.

Responsibility:
- The **ELECTROCELOS S.A.** is not responsible for the improper use of the product, or other use than that for which it was designed.
- The **ELECTROCELOS S.A.** is not responsible if safety standards were not taken into account when installing the equipment, or for any deformation that may occur.
- The **ELECTROCELOS S.A.** is not responsible for insecurity and malfunction of the product when used with components that were not sold by the them.
- The **ELECTROCELOS S.A.** informs that, to guarantee greater compatibility and proper functioning, install only components MOTORLINE.

Mechanism use:
- This product was designed and manufactured strictly for the use indicated in this manual.
- This control board is not appropriate for inflammable or explosive environments.
- Any other use not expressly indicated may damage the product and / or can cause physical and property damages, and will void the warranty.
- Do not make any changes to the automation components and / or their accessories.
- Control board for indoor use.
- Keep remote controls away from children, to prevent the automated system from being activated involuntarily.
- The customer shall not, under any circumstances, attempt to repair or tune the automatism. Must call qualified technician only.

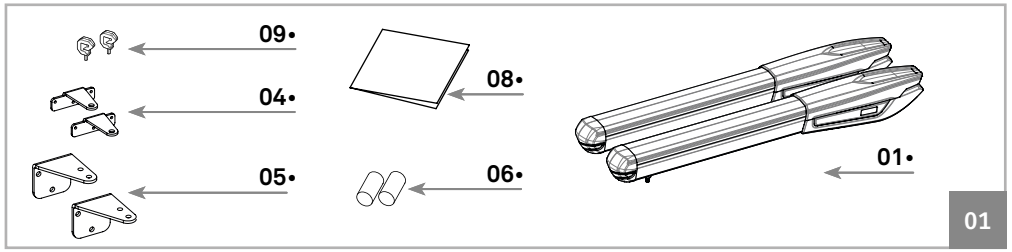
To Installer:
- The installer must have certified professional knowledge at the level of mechanical assemblies in doors and gates and control board programmation. He should also be able to perform electrical connections in compliance with all applicable regulations.
- The installer should inform the customer how to handle the product in an emergency and provide him the manual.

02. PACKAGE

INSIDE PACKAGE

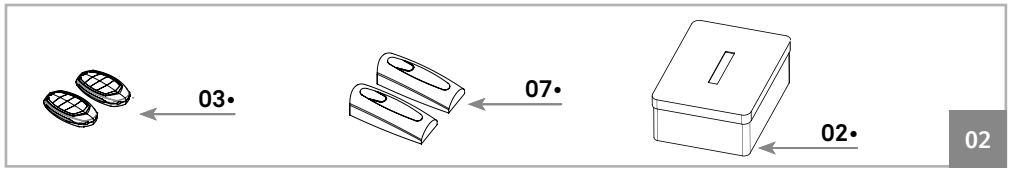
In the package you will find the following components:

01 • 02 Swing operators
02 • 01 Central de controlo
03 • 02 Remote controls (4 channels)
04 • 02 Front supports
05 • 02 Rear supports
06 • 02 Capacitors [12,5µF (230V) or 35µF (110V)]
07 • 01 Photocells
08 • 01 User's manual
09 • Release keys



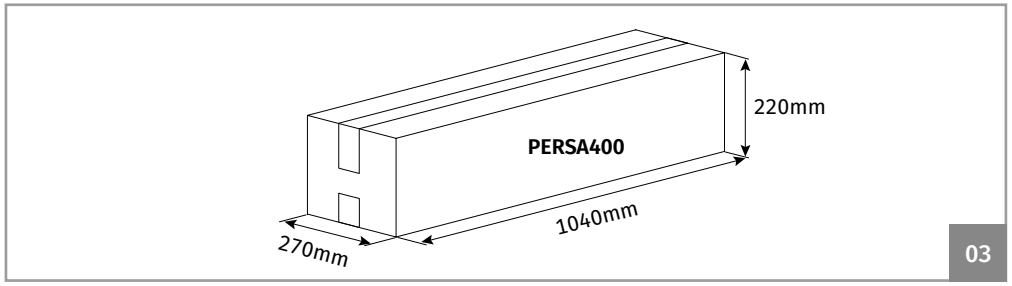
01

Electronic components in the kit:



02

Kit Package:



03

03. OPERATOR

TECHNICAL SPECIFICATIONS

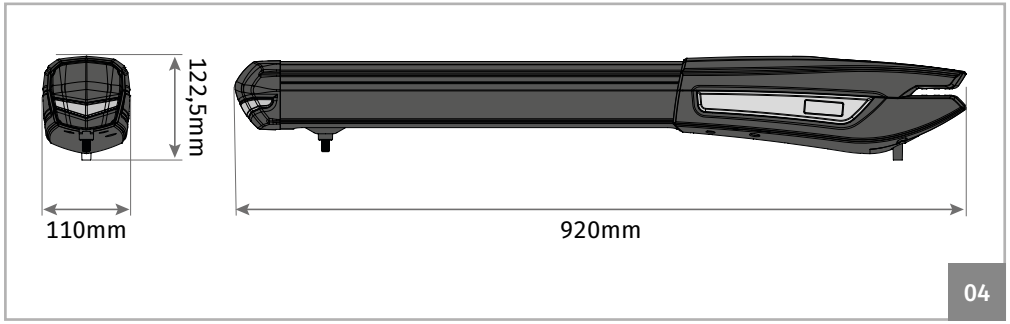
PERSA specifications are as follow:

		PERSA400
• Power Supply	230V	AC 230V 50/60Hz
	110V	AC 110V 50/60Hz
	24V	DC 24V
• Power	230/110V	300W
	24V	80W
• Current	230V	1,3A
	110V	2,5A
	24V	3A
• RPM	230/110V	1400 RPM
	24V	1650 RPM
• Noise level		<50dB
• Force		2800N
• Operating temperatures		-25°C a 75°C
• Thermal protection		120°C
• Protection class		IP23
• Working frequence	230/110V	25%
	24V	Intensive
• Course		400мм
• Max leaf lenght		<3000мм
• Capacitor	230V	12,5µF
	110V	35µF

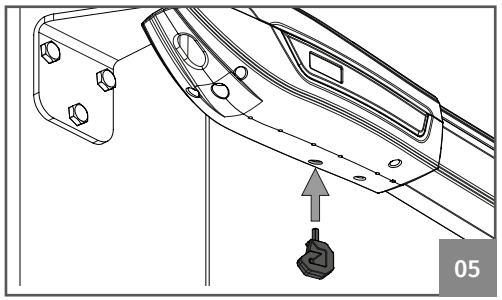
03. OPERATOR

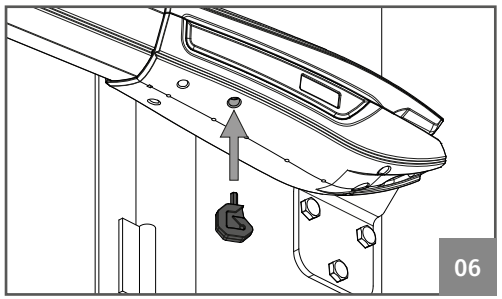
TECHNICAL SPECIFICATIONS

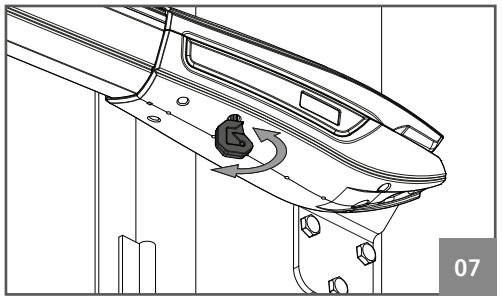
PERSA 400 dimensions are the following:



LOCK/UNLOCK MOTOR







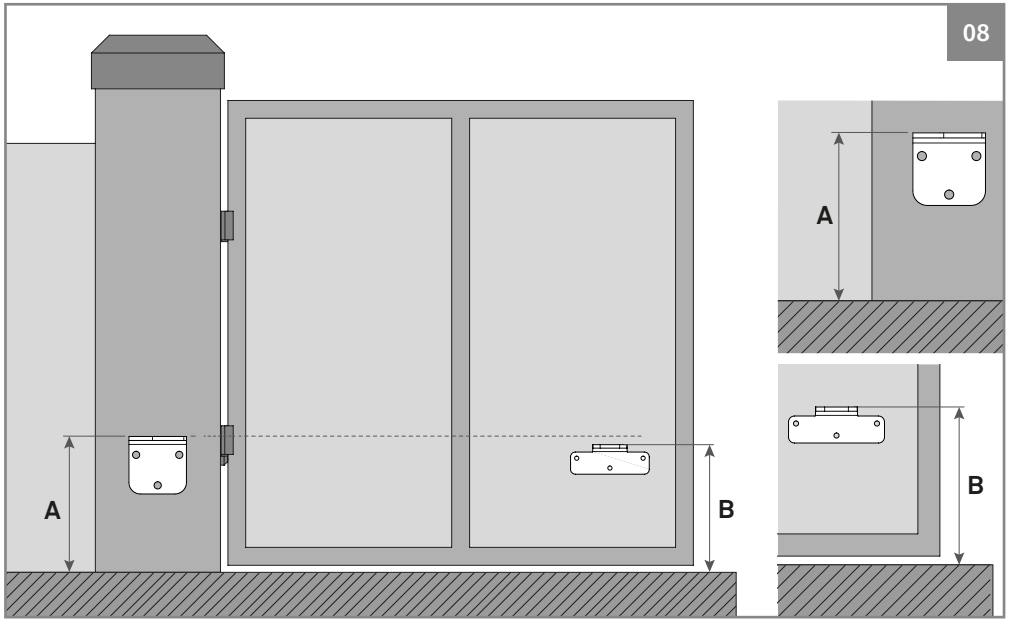
Place the unlocking key in the slot signed on image 05 (motor installed on the left) or 06 (motor installed on the right).

Turn the key to lock or unlock the motor.

04. INSTALLATION

VERTICAL INSTALLATION DIMENSIONS

PERS 400 operator must be installed with a small inclination , to prevent water infiltration through the extension arm.
For this, the front support must be fixed to the gate with a height lower than the height of the rear support. See example below:



Dimension A • *Vertical distance from the floor to the top of the rear support.*
Dimension B • *Vertical distance from the floor to the top of the front support.*

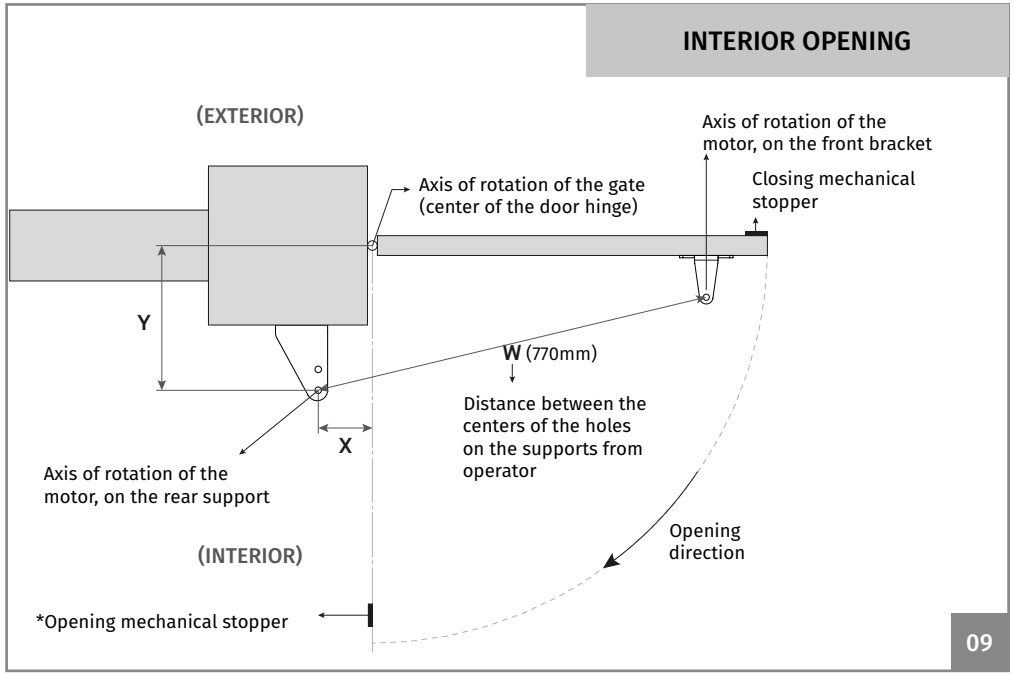
A	**??** mm	• Set **dimension A** (this can be any size of your choice).
B	**A -** 56mm	• After you set **dimension A**, subtract **56mm** to find **dimension B**.

Exemplo:
• If the height of the rear bracket (dimension A) is set at 600 mm, then the height of the front bracket (dimension B) will be 544 mm (600mm-56mm).

It is very important that these dimensions are respected! Only this way can be assured the correct functioning and durability of the operators!
It is also very important to have a levelled ground/terrain!

HORIZONTAL INSTALLATION DIMENSIONS

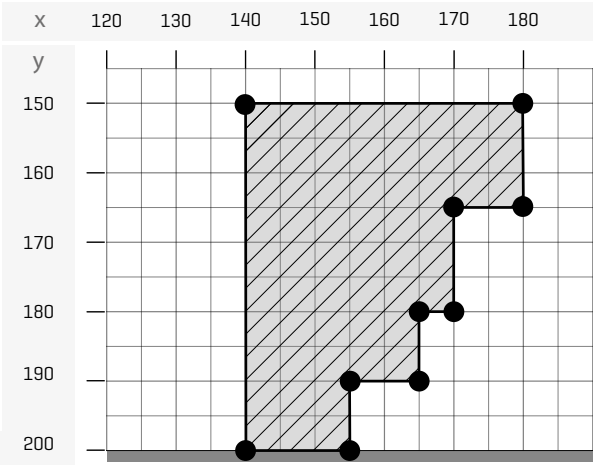
On the Illustrated diagrams below and on the next page, are the horizontal dimensions for the installation of the automated system.



* The installation of opening stopper is not mandatory.

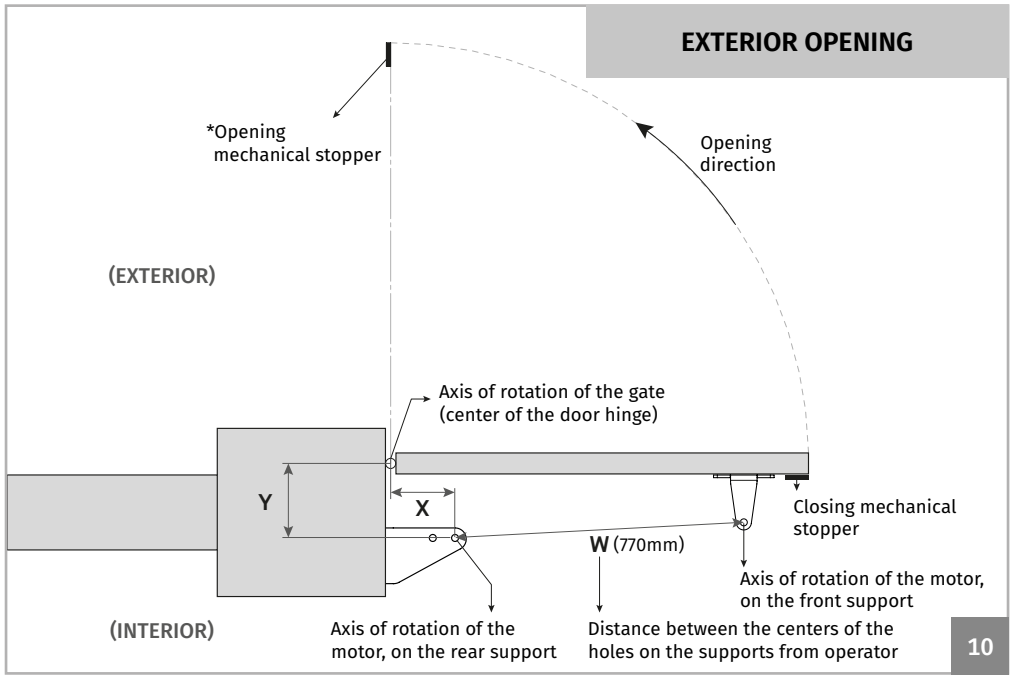
During the installation process, it is required to respect the dimensions that are within the highlighted area: (ex: y=170; x=140)

Legend:
Dimension X - Horizontal distance between hinge axis of the door and the rear axle of the motor.
Dimension Y - Vertical distance between hinge axis of the door and the rear axle of the motor.
Dimension W - Distance between axis of the motor brackets (770mm).



X and Y in (mm)

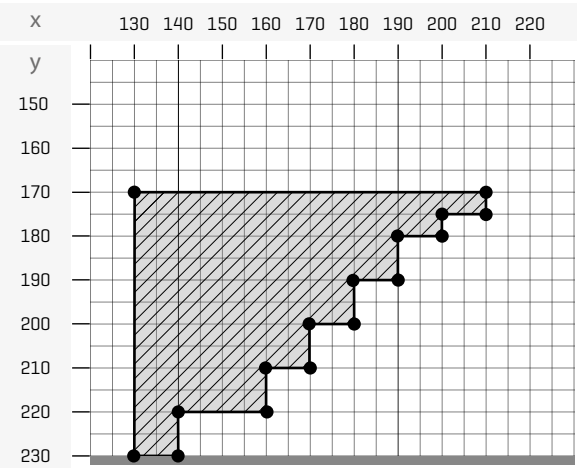
HORIZONTAL INSTALLATION DIMENSIONS



* The installation of opening stopper is not mandatory.

During the installation process, it is required to respect the dimensions that are within the highlighted area: (ex: y=190; x=180)

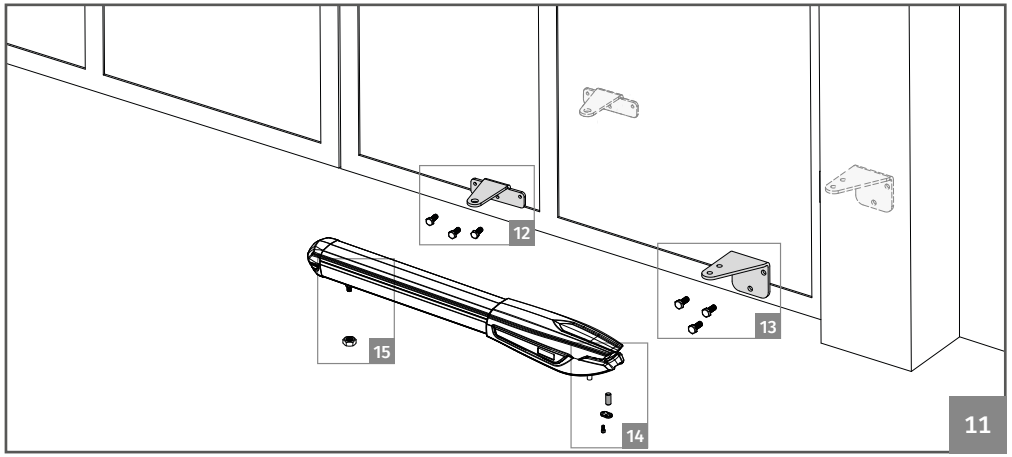
Legend:
Dimension X - Horizontal distance between hinge axis of the door and the rear axle of the motor.
Dimension Y - Vertical distance between hinge axis of the door and the rear axle of the motor.
Dimension W - Distance between axis of the motor brackets (770mm).



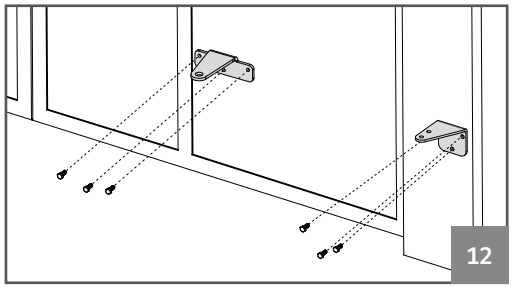
X and Y in (mm)

04. INSTALLATION

INSTALLATION STEPS

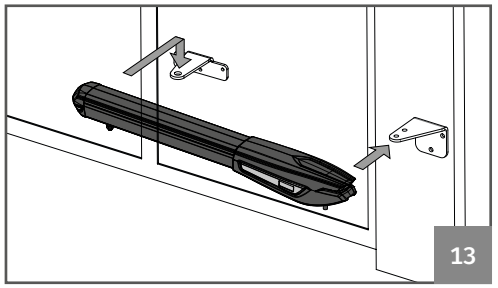


Pay attention to the installation dimensions mentioned on pages 03B, 04A and 04B!



01 • Fix the supports.

- The rear support must be fixed on the pillar or wall.
- The front support must be fixed on the gate. Respect the height and distance measures between the front and rear supports.
  It can be fixed by using screws with mechanical bushing or chemical welding process, because both provide an appropriate support.

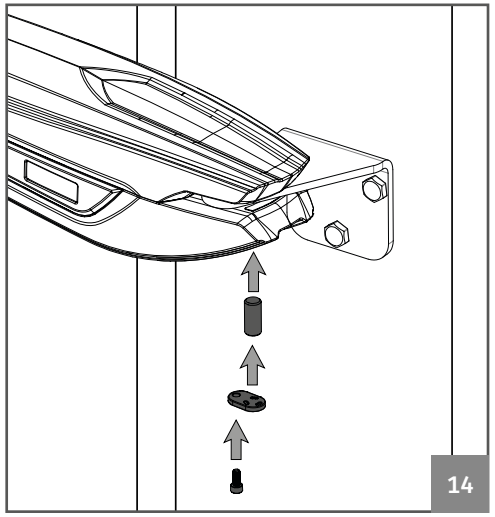


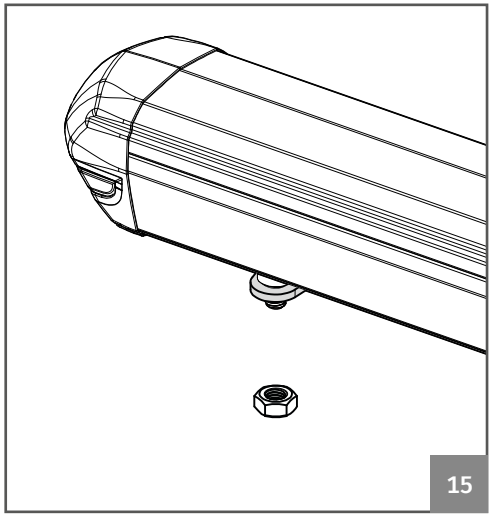
02 • Install the operator on the supports

- The operator must be placed on both supports the same time to avoid leaving the operator suspended by only one of the supports.
  To make the task easier, you should unlock the operator in order to be able to stretch/retract arm easily (see page 03B),to get the correct position for supports.

04. INSTALLATION

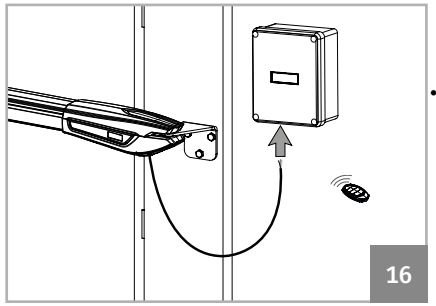
INSTALLATION STEPS





03 • Test the movement.

- Install the pins removed earlier on each side with a small amount of lubricant for less friction.
- Unlock the motor and move the door manually to see if the door opens and closes uniformly and correctly, without any irregular friction during its entire movement.
  This will ensure that the motor is not subjected to problems during operation.



04 • Connecting the motor to control board and configuring control devices.

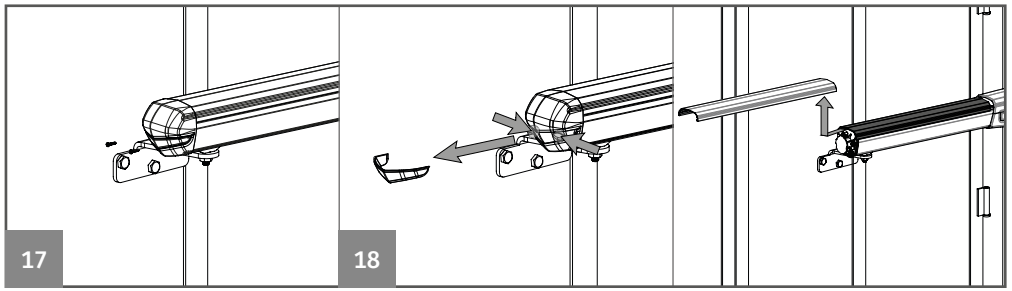
- With the motor installed, connect it to control board for system configuration (see control board user manual).
  It is important to configure the desired control devices (remote controls, wall switch, etc.) and other additional components such as antenna, flashing light, key selector, among others.

It is important to respect this installation order!
Otherwise, it is not possible to ensure correct installation and the motors may not work properly!

04. INSTALLATION

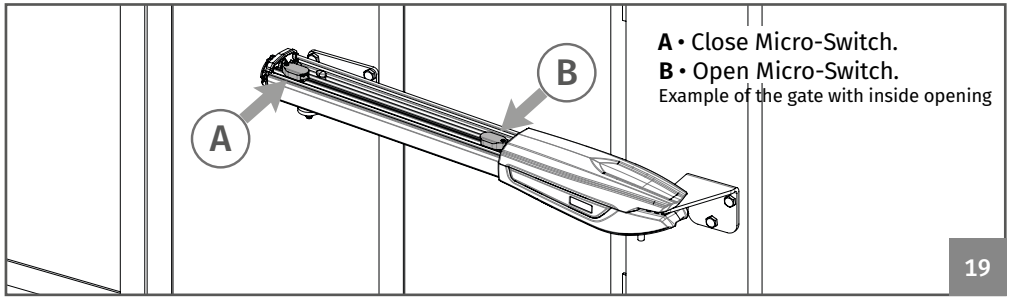
MICROS ADJUSTMENT

01 • Unlock the motor (see page 3A).

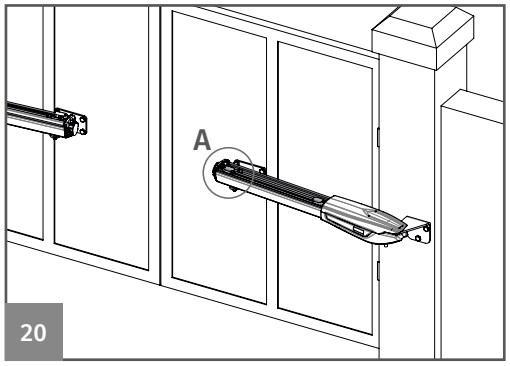


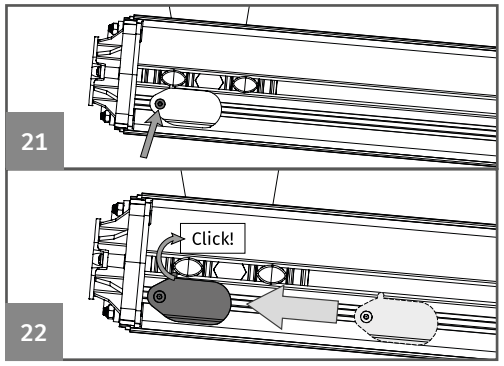
02 • Remove the chrome clip with a screwdriver.

03 • Unfasten the two front screws, remove the cover and the profile cover.



A • Close Micro-Switch.
B • Open Micro-Switch.
Example of the gate with inside opening

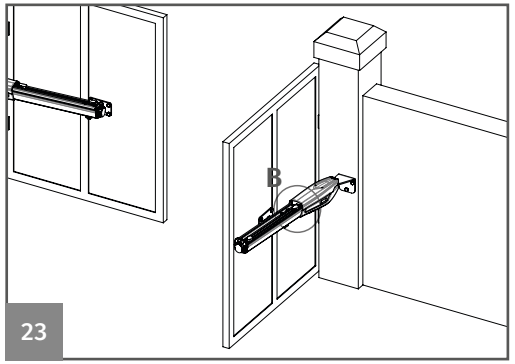


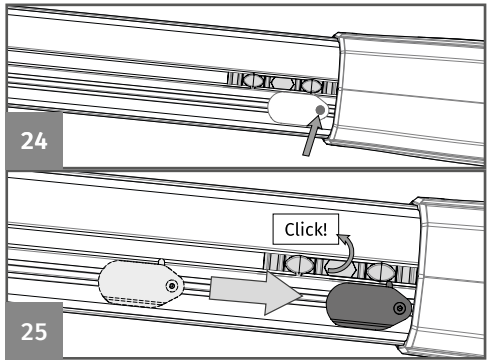


03 • Take the gate to the closed position.
04 • Loosen the screw shown in the image (21), so that it is possible to move the micro-switch in the profile.
05 • Adjust the closure micro-switch (A) until it makes *click* on the pressure piece. Tighten the screw to secure the micro in that position.

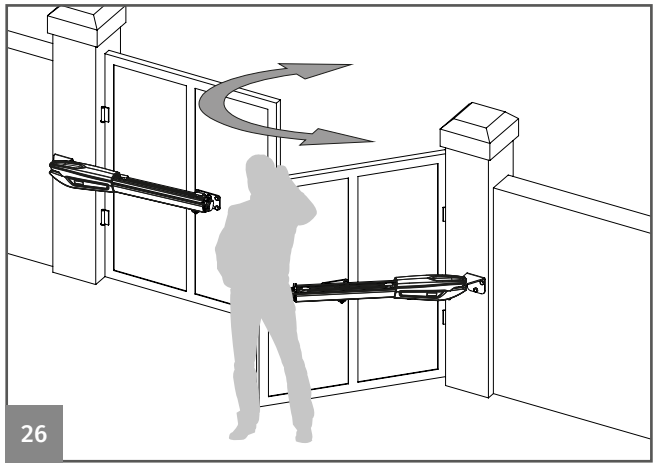
04. INSTALLATION

MICROS ADJUSTMENT





06 • Take the gate to the open position.
07 • Loosen the screw shown in the image (24), so that it is possible to move the micro-switch in the profile.
08 • Adjust the closure micro-switch (B) until it makes *click* on the pressure piece. Tighten the screw to secure the micro in that position.



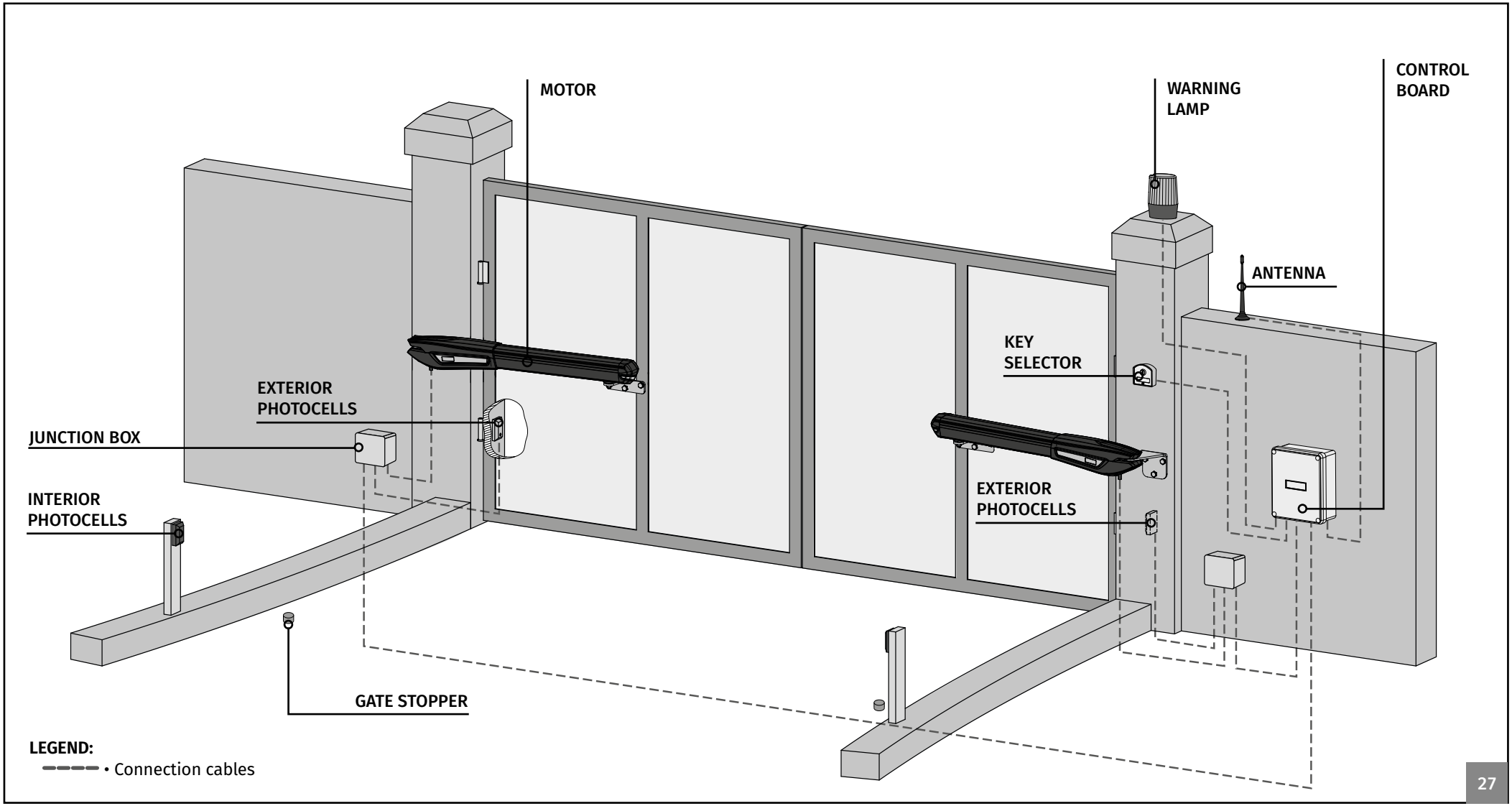
09 • Test the door manually and if necessary readjust the micros, as indicated in the previous paragraphs.

10 • When finished, place the profile cover and the plastic cover.

11 • Repeat the whole process for the other motor.

04. INSTALLATION

INSTALLATION MAP



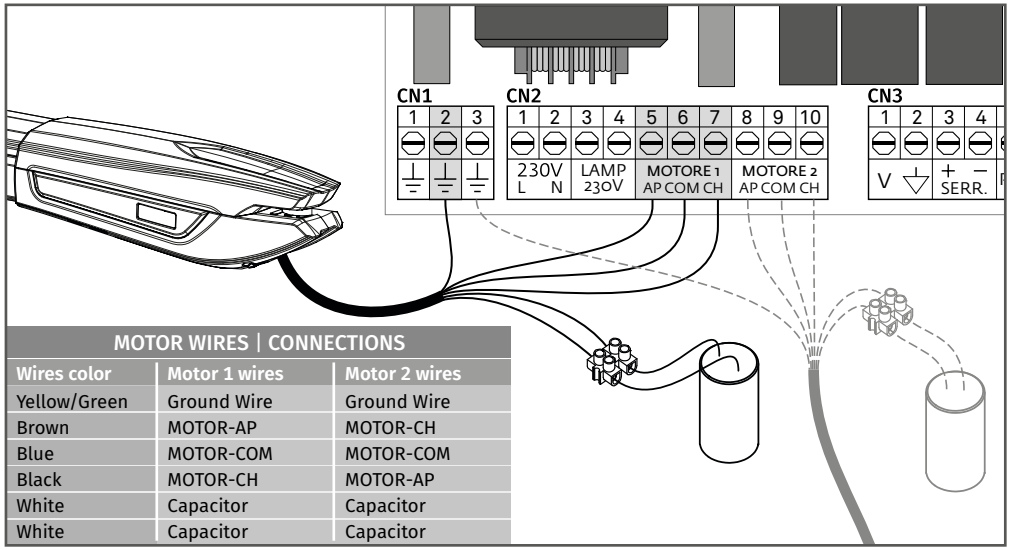
27

⚠ **It is important to use mechanical stoppers in the opening and closing position of the gate.** If not respected, components of the automation may suffer efforts for which they were not prepared, and as a result will be damaged.

⚠ It is important to use junction boxes for connections between motors, components and control unit. All cables must enter and exit on the bottom of the junction and control board box.

05. CONNECTION SCHEME

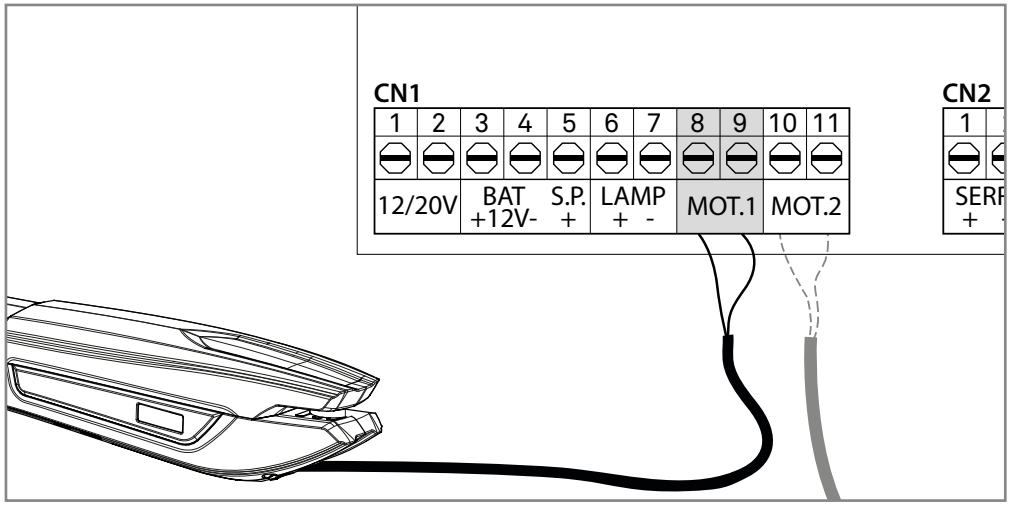
110V/230V MOTOR



MOTOR WIRES | CONNECTIONS		
Wires color	**Motor 1 wires**	**Motor 2 wires**
Yellow/Green	Ground Wire	Ground Wire
Brown	MOTOR-AP	MOTOR-CH
Blue	MOTOR-COM	MOTOR-COM
Black	MOTOR-CH	MOTOR-AP
White	Capacitor	Capacitor
White	Capacitor	Capacitor

Connections should be made as shown above, connecting the 6 motor wires to the appropriate inputs of the central and capacitor.
NOTE: The white motor wires are connected directly to the capacitor wires!

24V MOTOR

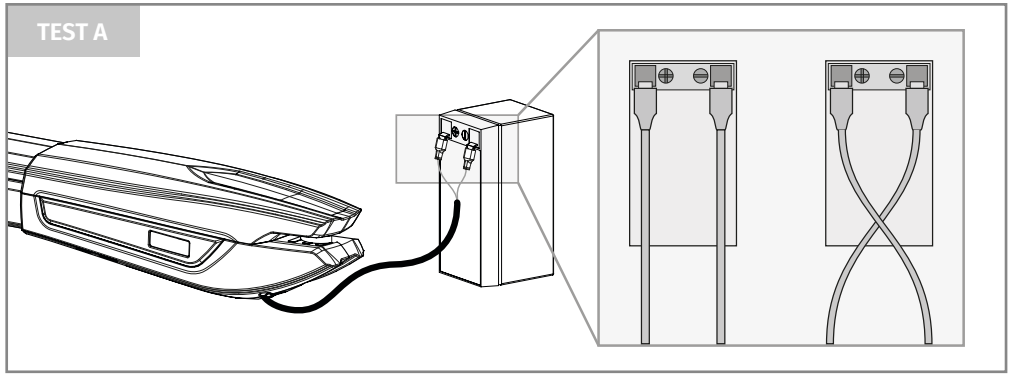


06. COMPONENTS TEST

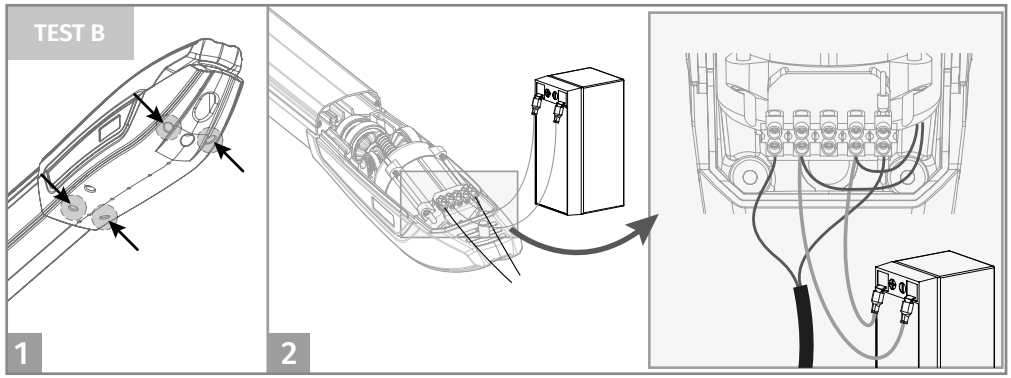
MOTOR A 24V

To detect which are the components with problems in a 24V PERSA automatism installation, it is necessary to conduct tests with a direct connection to a external power supply (bateria 24V). In the scheme below is shown how it should be done this link.

NOTES:
- Once you connect the wires to a 24V battery, the motor must work for one direction. To test the reverse movement, change the position of the wires connected to the battery.



Test A • Make the connections as indicated in the image.
If the motor works, the problem is in the control board. If it does not operate, do the test B.



Test B • Loosen the 4 screws to remove the cover and access the internal connections.
Make the connections as indicated in the image.
If the motor works, the problem is on the diode(s) or on the micro(s). If it does not operate, replace with a new 24V engine and re-test to ensure that all is ok.

06. COMPONENTS TEST

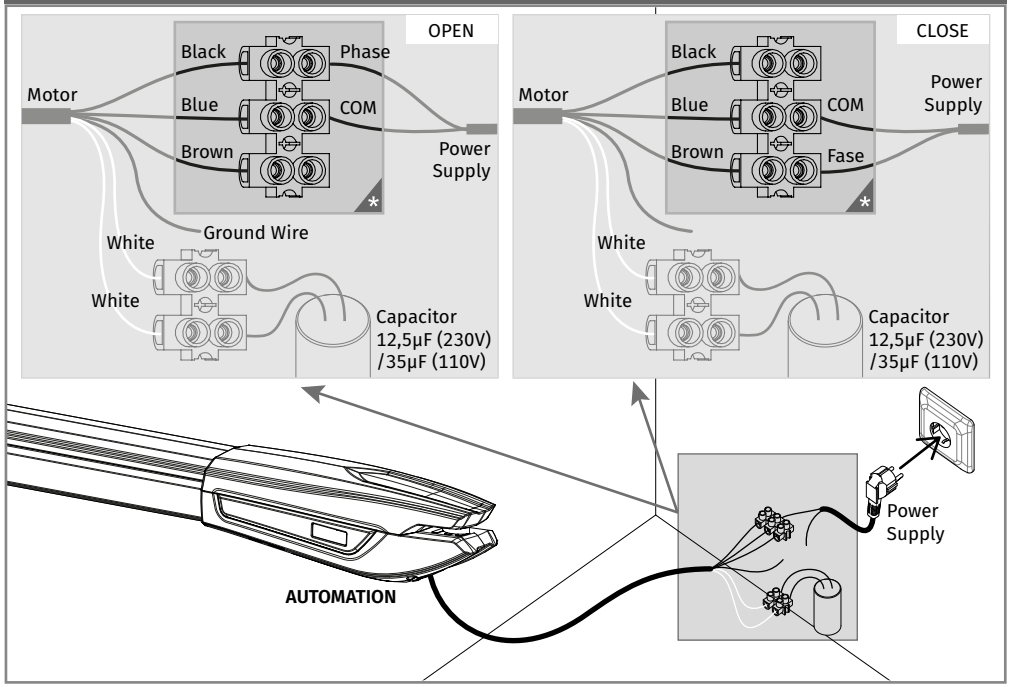
110V /230V MOTOR

To detect if the malfunction is on the control board or on the motor is, sometimes, necessary to perform tests with connection directly to a 110V/230V power supply.
For this, it is necessary to interpose a capacitor on the connection in order to the automatism to work (check the type of capacitor to be used in the product manual).
The diagram below, shows how to make that connection and how to merge the differentcomponents wires.

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

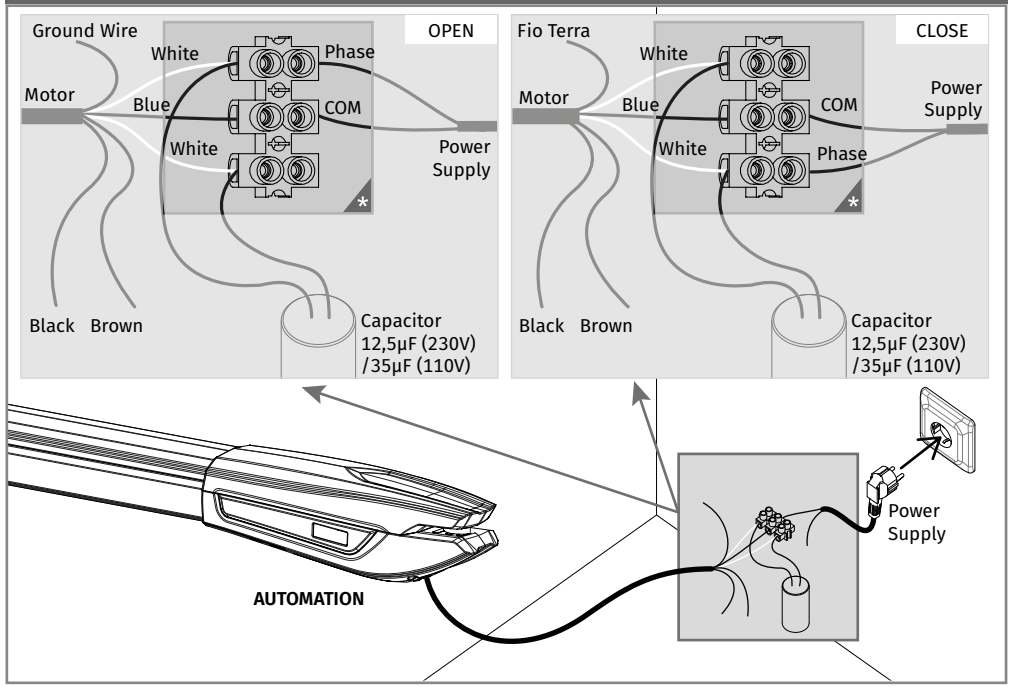
NOTES:
• To perform the tests, there is no need to remove the automatism from the place it is installed, because in this way, it is possible to understand if the automatism can function properly connected directly to the current.
• You should use a new capacitor during this test to ensure that the problem does not lie on it.

TEST 1 - CONTROL BOARD FUNCTIONING



01 • Connect the 3 automation wires in the terminal.
02 • Connect the two automation white wires with the capacitator wires.
03 • Connect the power supply wires in the opening the motor will rotate one way and during the closing, the motor will rotate the opposite way.
04 • Finally, connect it to a 230V or 110V plug, depending on the motor/control board in test.
If the motor works, the problem is in the control board.
If the motor does not, make the **TEST 2**.

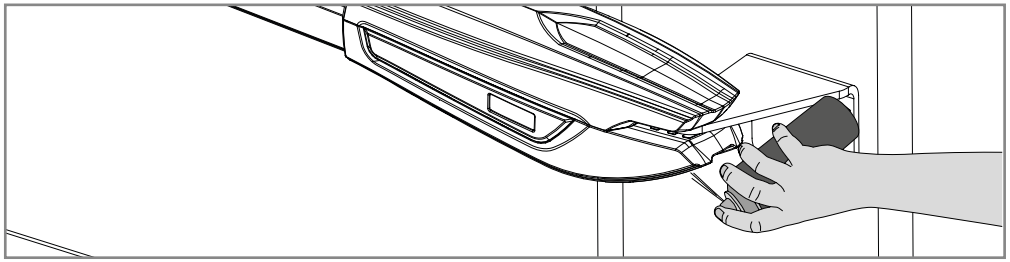
TEST 2 - MICROS FUNCTIONING



01 • Replace the brown and black wires by white wires and connect in the terminal.
02 • Connect the capacitor in the terminal, in the same white wires inputs.
03 • Connect the power supply wires in the opening the motor will rotate one way and during the closing, the motor will rotate the opposite way.
04 • Finally, connect it to a 230V or 110V plug, depending on the motor/control board in test.
If the motor works, the problem is in the microswitches.
If the motor does not work, normally the problem is on the motor. Replace it with a new one and test again.

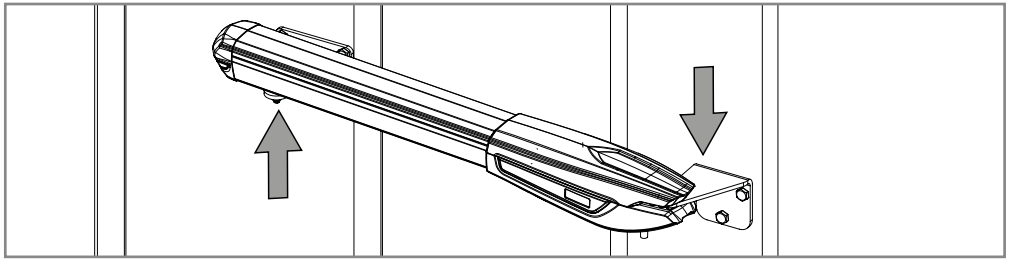
07. MAINTENANCE

MAINTENANCE



• Lubricate pins

• Place a small amount of lubricant on the holes that contains support pins.



• Check motor supports

• Make sure that supports remain well fixed on the pillars and gate to ensure proper functioning of the equipment.

> These maintenance measures must be applied every year in order to insure proper functioning of the automated system.

08. TROUBLESHOOTING

FINAL CONSUMERS INSTRUCTIONS

INSTRUCTIONS FOR SPECIALIZED INSTALLERS

Anomaly	Procedure	Behavior	Procedure II	Discovering the origin of the problem
• Motor doesn't work at all.	• Make sure you have power in the automation control board and if it is working properly.	• Still not working.	• Consult a qualified MOTORLINE technician.	1 • Open control box and check if it has 230V/110V/24V power supply; 2 • Check input fuses; 3 • Disconnect motors from control board and test them by connecting directly to power supply in order to find out if they have problems (see pages 8B/9). 4 • If the motors work, the problem is on the control board. Pull it out and send it to our MOTORLINE technical services for diagnosis; 5 • If the motors doesn't work, remove them from installation site and send to our MOTORLINE technical services for diagnosis.
• Motor doesn't move but makes noise.	• Unlock motor and move gate by hand to check for mechanical problems on the gate.	• Is the gate closed?	• Consult an experienced gate expert.	1 • Check all motion axis and associated motion systems related with gate and operators (pins, hinges, etc.) to find out what is the problem.
		• Gate moves easily?	• Consult a qualified MOTORLINE technician.	1 • Check capacitors, testing operator with new capacitors; 2 • If capacitors are not the problem, disconnect motors from control board and test them by connecting directly to power supply in order to find out if they have problems (see pages 8B/9); 3 • If the motors work, the problem is from control board. Pull it out and send it to our MOTORLINE technical services for diagnosis; 4 • If the motors doesn't work, remove them from installation site and send to our MOTORLINE technical services for diagnosis.
• Motor opens but doesn't close.	• Unlock motor and move gate by hand to closed position. Lock motor(s) again and turn off power supply for 5 seconds. Reconnect it and send order to open gate using transmitter.	• Gate opened but didn't close again.	1 • Check if there is any obstacle in front of the photocells; 2 • Check if any of the control devices (key selector, push button, video intercom, etc.) of the gate are jammed and sending permanent signal to control unit; 3 • Consult a qualified MOTORLINE technician.	All MOTORLINE control boards have LEDs that easily allow to conclude which devices are with anomalies. All safety devices LEDs (DS) in normal situations remain On. All "START" circuits LEDs in normal situations remain Off. If LEDs devices are not all On, there is some security systems malfunction (photocells, safety edges), etc. If "START" circuits LEDs are turn On, there is a control device sending permanent signal. **A) SECURITY SYSTEMS:** 1 • Close with a shunt all safety systems on the control board (check manual of the control board in question). If the automated system starts working normally check for the problematic device. 2 • Remove one shunt at a time until you find the malfunction device. 3 • Replace it for a functional device and check if the operator works correctly with all the other devices. If you find another one defective, follow the same steps until you find all the problems. **B) START SYSTEMS:** 1 • Disconnect all wires from START terminal input. 2 • If the LED turned Off, try reconnecting one device at a time until you find the defective device. **NOTE:** In case procedures described in sections A) and B) don't result, remove control board and send to our technical services for diagnosis.
• Motor doesn't make complete route.	• Unlock motor and move gate by hand to check for mechanical problems on the gate.	• Encountered problems?	• Consult an experienced gate expert.	1 • Check all motion axis and associated motion systems related with gate and operators (pins, hinges, etc.) to find out what is the problem.
		• Gate moves easily?	• Consult a qualified MOTORLINE technician.	1 • Check capacitors, testing with new capacitors; 2 • If capacitors are not the problem, disconnect motors from control board and test them by connecting directly to power supply in order to find out if they are faulty; 3 • If the motors doesn't work, remove them from installation site and send to our MOTORLINE technical services for diagnosis. 4 • If motors work well and move gate at full force during the entire course, the problem is from controller. Set force using trimmer on the board. Make a new working time programming , giving suffient time for opening and closing with appropriate force (see manual of the controller in question). 5 • If this doesn't work, remove control unit and send it to MOTORLINE technical services services. **NOTE**: Setting force of the controller should be sufficient to make the gate open and close without stopping, but should stop with a little effort from a person. In case of safety systems failure, the gate shall never cause physical damaged to obstacles (vehicles, people, etc.).