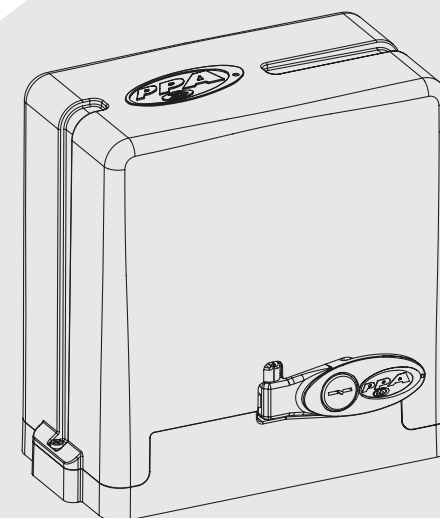




DZ STARK

Technical Manual



All images in this manual are for illustration purposes only.



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ATTENTION:

Do not use this equipment
without first reading the
User's Manual.

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IMPORTANT SAFETY INSTRUCTIONS



Recommendation:

The specialized PPA installer must follow all the instructions mentioned in this technical manual and the user's manual to install the operator.

With the USER's MANUAL, the installer must show the user the operator's information, applications, and safety items.



Before installing the operator, closely read and follow all the instructions in this manual.



- Before installing the operator, ensure the local electric power network is compatible with the one required on its identification label.

- Do not turn on the electric power network until completing installation or maintenance. Always make the control board electrical connections with the power supply turned off.

- Once installation is complete, ensure the gate parts do not extend into the path and public sidewalk.

- Using total shutdown devices when installing an operator is mandatory.

TECHNICAL FEATURES

	DZ STARK 400	DZ STARK 600	DZ STARK 700
TYPE OF OPERATOR	Sliding	Sliding	Sliding
MODEL	Single phase	Single phase	Single phase
RATED VOLTAGE	127 V / 220 V	127 V / 220 V	127 V / 220 V
NOMINAL FREQUENCY	60 Hz	60 Hz	60 Hz
RATED POWER	360 W / 480 W	290 W / 510 W	280 W / 460 W
MOTOR ROTATION	1740 RPM	1740 RPM	1740 RPM
NOMINAL CURRENT	2.8 A / 2.1 A	2.1 A / 2.5 A	2.2 A / 2.0 A
REDUCTION RATIO	1:23	1:23	1:23
LINEAR SPEED	13.3 m/min (Z14)	13.3 m/min (Z14)	13.3 m/min (Z14)
	17.1 m/min (Z18)	17.1 m/min (Z18)	17.1 m/min (Z18)
MANEUVERS	15 cycles/h	20 cycles/h	30 cycles/h
PROTECTION DEGREE	IPX4	IPX4	IPX4
TEMPERATURE RANGE	-5° C / +50° C	-5° C / +50° C	-5° C / +50° C
TYPE OF INSULATION	Class B, 130° C	Class B, 130° C	Class B, 130° C
LIMIT SWITCH	Analog or Digital	Analog or Digital	Analog or Digital
MAX. GATE LEAF MASS	400 Kg	600 Kg	700 Kg
MAX. GATE DIMENSIONS	HEIGHT = 2.5 m	HEIGHT = 2.5 m	HEIGHT = 2.5 m
	LENGTH = 3.0 m	LENGTH = 3.0 m	LENGTH = 3.0 m

	DZ STARK 350	DZ STARK 500	DZ STARK 600
TYPE OF OPERATOR	Sliding	Sliding	Sliding
MODEL	Legero	Legero	Legero
RATED VOLTAGE	127 V / 220 V	127 V / 220 V	127 V / 220 V
NOMINAL FREQUENCY	60 Hz	60 Hz	60 Hz
RATED POWER	460 W / 620 W	360 W / 515 W	335 W / 435 W
MOTOR ROTATION	3480 RPM	3480 RPM	3480 RPM
NOMINAL CURRENT	3.7 A / 3.0 A	2.8 A / 2.5 A	2.65 A / 1.95 A
REDUCTION RATIO	1:30	1:30	1:30
LINEAR SPEED	20.4 m/min (Z14)	20.4 m/min (Z14)	20.4 m/min (Z14)
	26.2 m/min (Z18)	26.2 m/min (Z18)	26.2 m/min (Z18)
MANEUVERS	15 cycles/h	20 cycles/h	30 cycles/h
PROTECTION DEGREE	IPX4	IPX4	IPX4
TEMPERATURE RANGE	-5° C / +50° C	-5° C / +50° C	-5° C / +50° C
TYPE OF INSULATION	Class B, 130° C	Class B, 130° C	Class B, 130° C
LIMIT SWITCH	Digital or Hybrid	Digital or Hybrid	Digital or Hybrid
MAX. GATE LEAF MASS	350 Kg	500 Kg	600 Kg
MAX. GATE DIMENSIONS	HEIGHT = 2.5 m	HEIGHT = 2.5 m	HEIGHT = 2.5 m
	LENGTH = 3.0 m	LENGTH = 3.0 m	LENGTH = 3.0 m

	DZ STARK 450	DZ STARK 650	DZ STARK 750
TYPE OF OPERATOR	Sliding	Sliding	Sliding
MODEL	JetFlex	JetFlex	JetFlex
RATED VOLTAGE	127 V / 220 V	127 V / 220 V	127 V / 220 V
NOMINAL FREQUENCY	60 Hz	60 Hz	60 Hz
RATED POWER	310 W / 290 W	250 W / 220 W	245 W / 210 W
MOTOR ROTATION	5800 RPM	5800 RPM	5800 RPM
NOMINAL CURRENT	3.5 A / 2.2 A	3.0 A / 1.9 A	3.4 A / 2.1 A
REDUCTION RATIO	1:30	1:30	1:30
LINEAR SPEED	34 m/min (Z14)	34 m/min (Z14)	34 m/min (Z14)
	43.7 m/min (Z18)	43.7 m/min (Z18)	43.7 m/min (Z18)
MANEUVERS	20 cycles/h	25 cycles/h	35 cycles/h
PROTECTION DEGREE	IPX4	IPX4	IPX4
TEMPERATURE RANGE	-5° C / +50° C	-5° C / +50° C	-5° C / +50° C
TYPE OF INSULATION	Class B, 130° C	Class B, 130° C	Class B, 130° C
LIMIT SWITCH	Hybrid	Hybrid	Hybrid
MAX. GATE LEAF MASS	450 Kg	650 Kg	750 Kg
MAX. GATE DIMENSIONS	HEIGHT = 2.5 m	HEIGHT = 2.5 m	HEIGHT = 2.5 m
	LENGTH = 3.0 m	LENGTH = 3.0 m	LENGTH = 3.0 m

TOOLS REQUIRED FOR INSTALLATION

Below are some of the tools required to install the operator:



ELECTRICAL INSTALLATION

The electrical network must have the following features for the electrical installation:

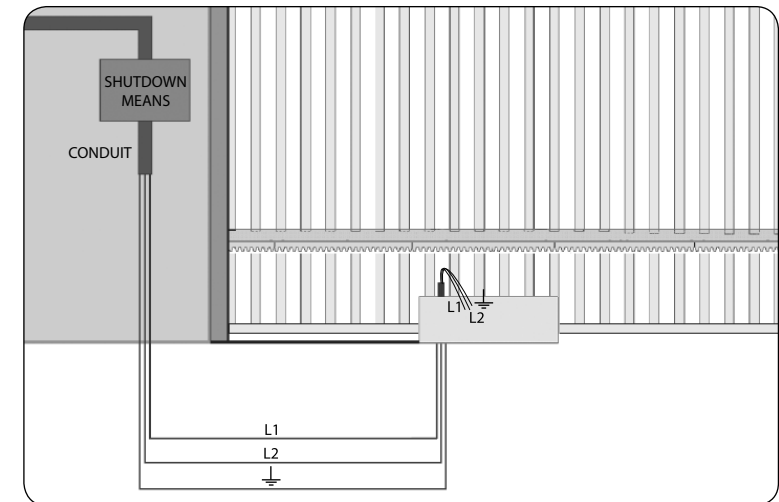
- Electrical network of 127 V or 220 V.
- 5-A circuit breakers in the electrical power network box.
- 3/4" diameter conduits between the electrical power distribution box and the total shutdown device.
- 3/4" diameter conduits between the total shutdown device and the operator connection point.
- 1/2" diameter conduits for external push-buttons and optional items.
- 1/2" diameter conduits for security photocells (optional).



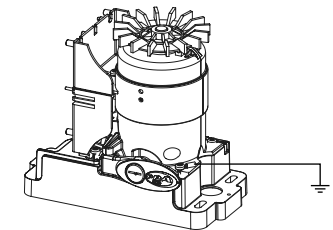
- The cable for fixed wiring must comply with NBR NM 247-3.
- The power supply conductor of an indoor-use product must be a 3 x 0.75mm² flexible cable, be 500 V, and comply with the NBR NM 247-5 standard.
- The power supply conductor of an outdoor-use product must be a 3 x 0.75 mm² flexible cable, be 500 V, and comply with the IEC 60245-57 standard.

PRECAUTIONS WITH THE ELECTRICAL INSTALLATION

To avoid damaging the wiring, all conductors must be secured correctly to the operator. The wiring must run in conduits that run internally through the ground base to ensure none wiring conduit is trapped or damaged.



The grounding terminal must be connected to the electrical network grounding cable.



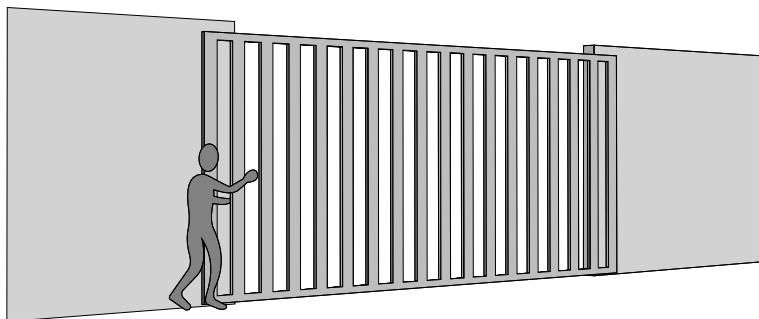
IMPORTANT

The device must be powered via a residual current device (RCD) with a rated residual operating current exceeding 30 mA.

PRECAUTIONS WITH THE GATE BEFORE ITS AUTOMATION

Before adapting the operator to the machine, check the gate sliding following the instructions below:

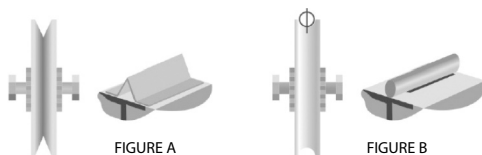
1st step: Before installing the operator, check if the gate is in good mechanical condition and if it is opening and closing properly. Open the gate manually and note the effort required. This effort must be minimal throughout the path length.



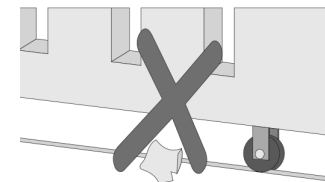
2nd step: Close the gate manually and check if the required effort was the same as the previous operation.

The gate must have a strong structure and, as far as possible, one that does not deform. The pulleys must have a diameter that matches the gate dimensions, be in perfect running conditions, and be mounted so the gate leaf is stable throughout its movement. We recommend pulleys with a 120-mm minimum diameter.

The figures below represent the two types of rails and pulleys used. The system using a straight section (Figure A – angle bracket) has greater friction and, consequently, more significant wear. The circular section (Figure B) allows for better gate movement and less friction for the operator.



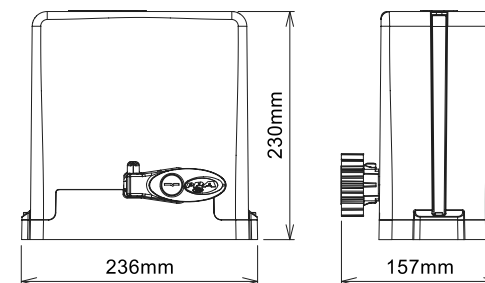
3rd step: Ensure the gate leaf does not get stuck when opening and closing. The gate sliding rail must be perfectly straight, level, and periodically cleared of any element or dirt that makes it difficult for the pulleys to slide along its entire length, as shown in the figure below.



OPERATOR INSTALLATION AND FASTENING

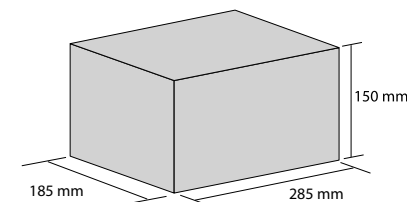
Before installing the operator, remove all unnecessary cables and disconnect any equipment or systems connected to the electrical network.

EQUIPMENT DIMENSIONS

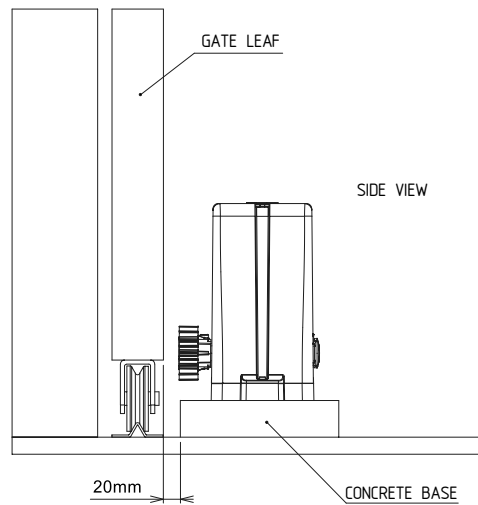


This equipment's perfect operation depends on the instructions of this manual. Proceed as follows to secure the equipment:

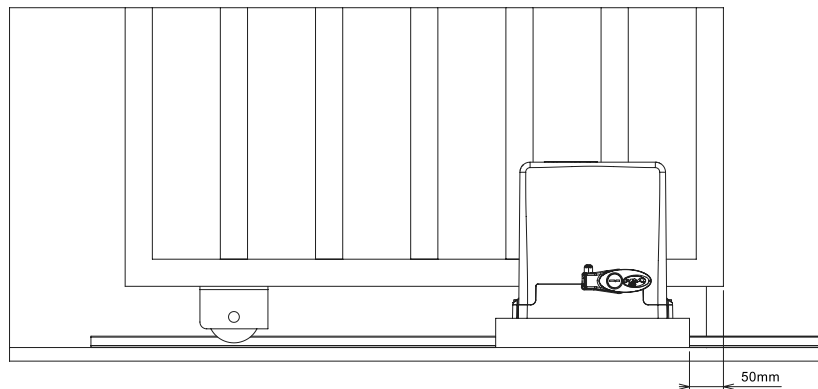
1st step: Ensure the ground is firm enough to screw down and level the equipment. If it does not satisfy this requirement, provide a concrete base, following the guidelines below:



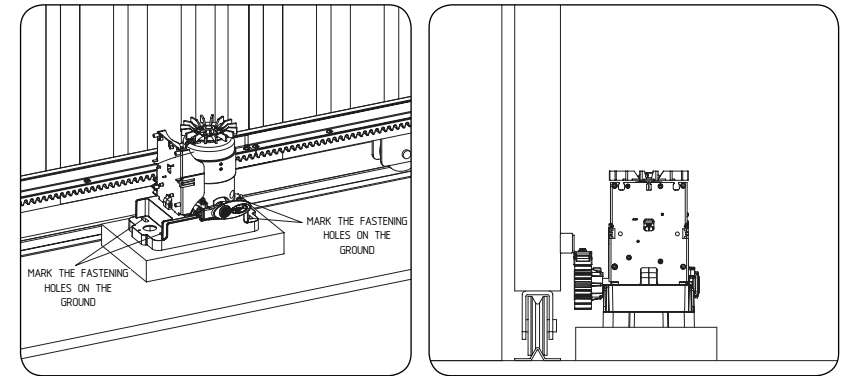
2nd step: The base dimensions must be appropriate for the operator dimensions. The concrete base must be approximately 25 mm from the gate leaf face.



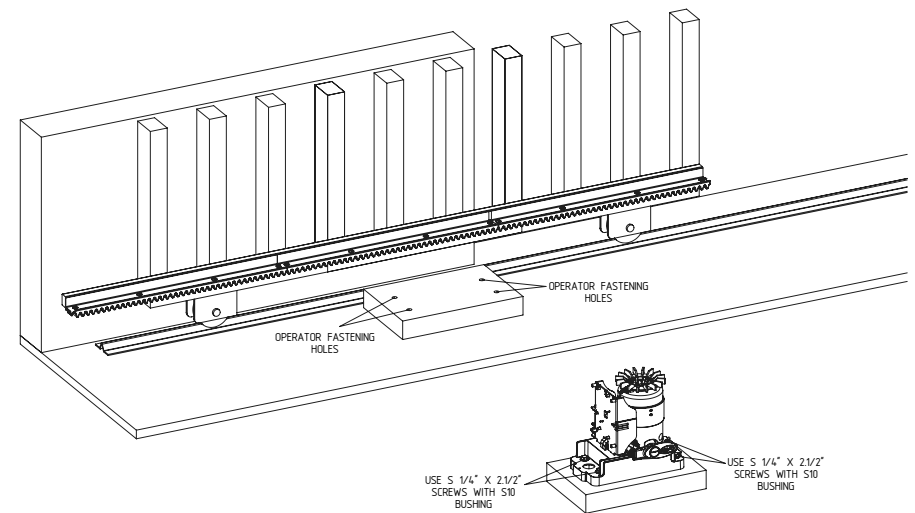
3rd step: Once the conditions are met, fully open the gate and position the operator close to the gate leaf face, observing the 50-mm measurement between the end of the leaf and the concrete base.



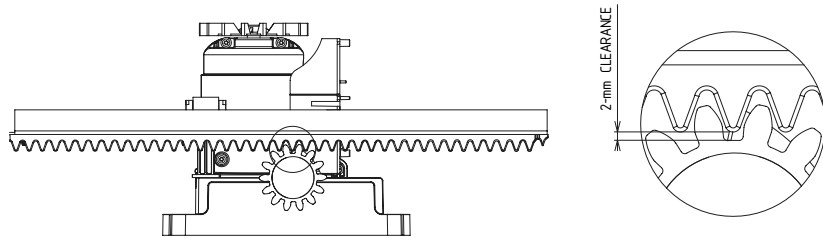
4th step: Pre-align the operator to the gate by positioning the rack over the gear and touching the set to the gate. Next, mark the fastening holes on the concrete floor or base.



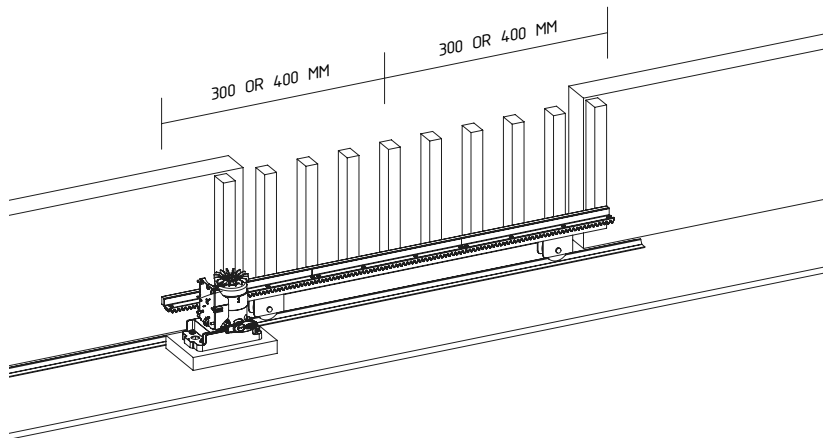
5th step: Drill the holes, positioning the operator aligned to the gate. Before tightening the S 1/4" x 2 1/2" screws, move the gate to make sure it does not touch the operator during its path. If it does, move the operator away.



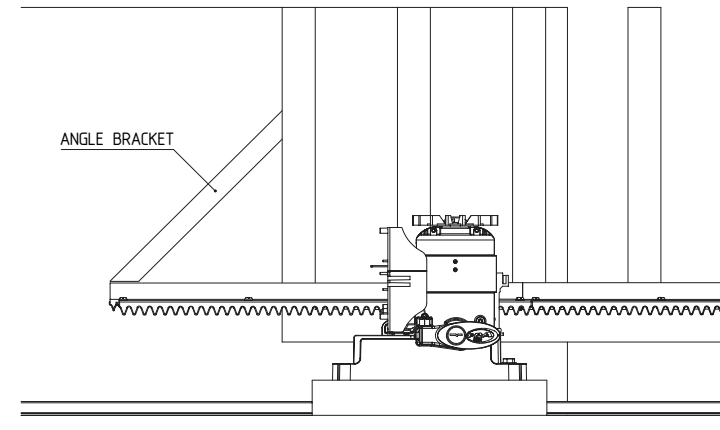
6th step: With the operator unlocked, position the rack bar over the gear and aligned with the gate. Leave approximately a 2-mm clearance between the gear tooth top and the rack tooth bottom.



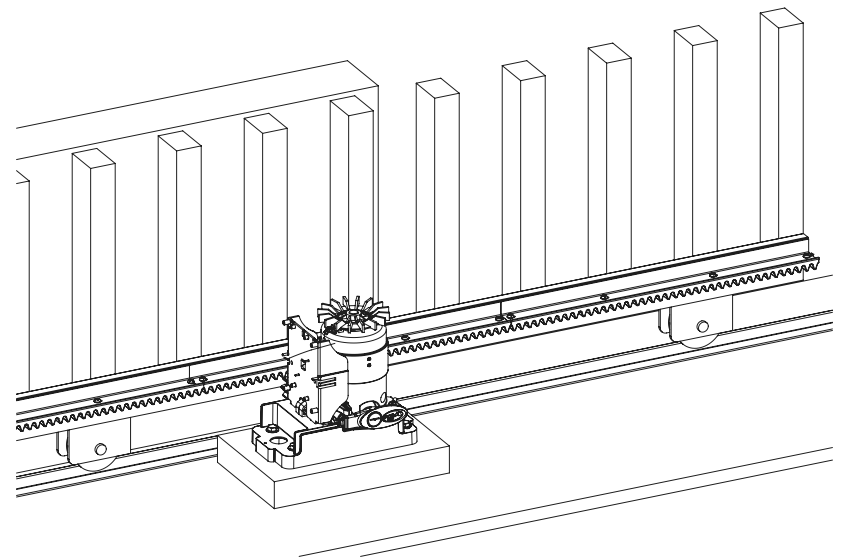
7th step: Secure the rack along the entire length of the gate leaf. Weld it or screw it every 300 or 400 mm.



8th step: If the gate leaf is warped, provide shims to ensure the rack alignment. There are cases in which the rack must exceed the leaf length. In that case, provide an angle brace so it does not skip the teeth when starting the machine.

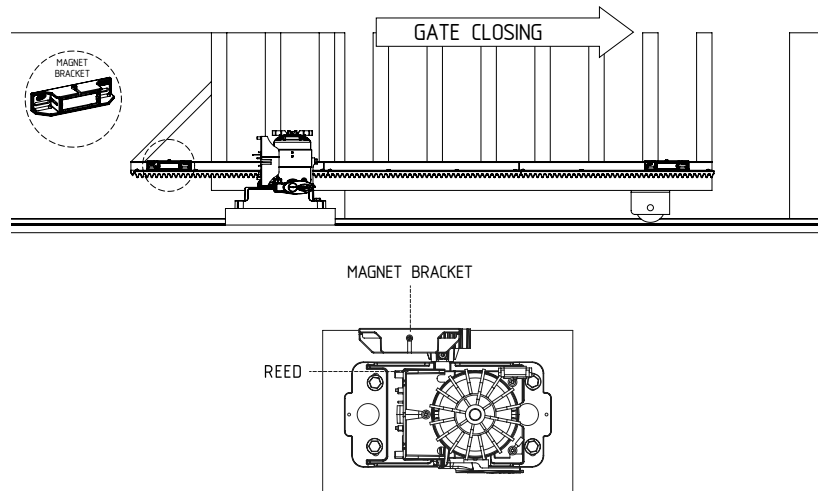


9th step: After fixing the rack, fix the operator on the floor or concrete base, and tighten the screws.

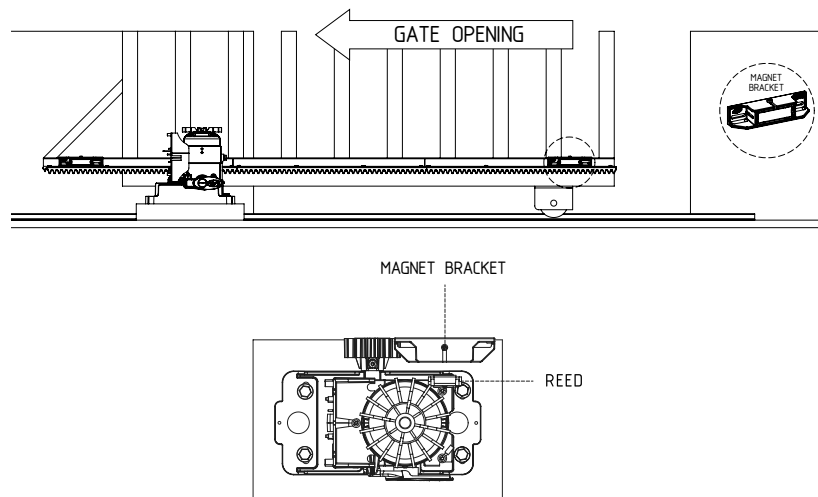


ANALOG LIMIT SWITCH INSTALLATION

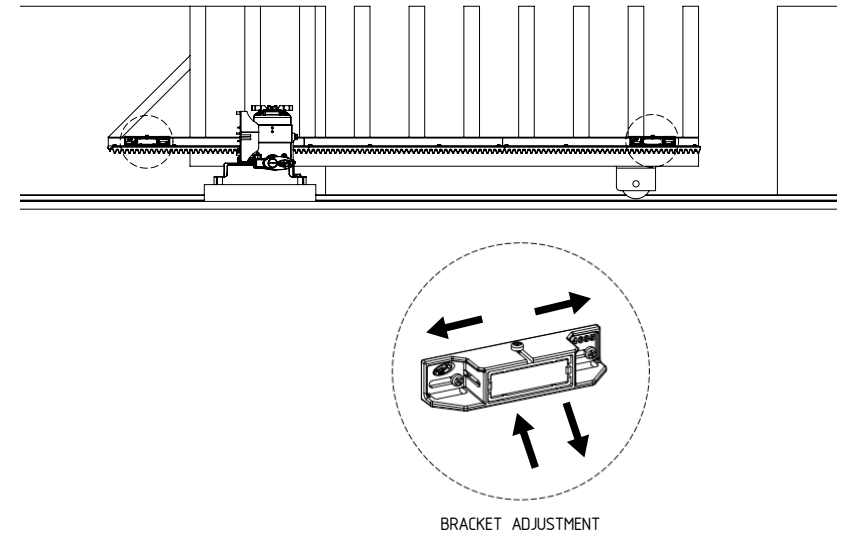
1st step: With the gate closed, place the magnet bracket on the rack, facing the operator's REED. This magnet will act as a closing limit switch.



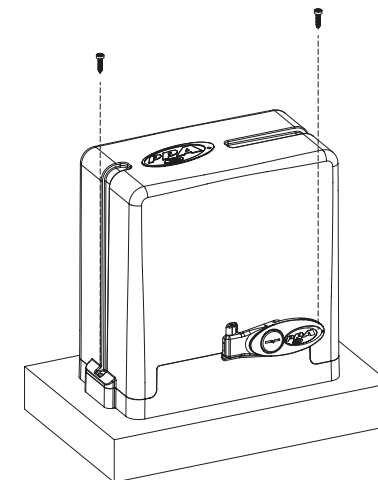
2nd step: Fully open the gate and place the other magnet bracket on the rack, facing the operator's REED. This magnet will act as the opening limit switch.



3rd step: Start the motor and observe if the REEDs are shutting down correctly. If necessary, invert the board connector. After fixing the magnet brackets, make the final adjustments, moving them to the right or to the left, according to the desired adjustment.



4th step: To finish installing the operator and before operating it, screw the cowl with 2 screws 3.5 x 16 mm (available in the kit).





CONTROL BOARD:

Check the operator control board on the product label (according to the model on the side). After that, refer to the control board manual available for download at **www.ppa.com.br** and make all the connections and configurations.

Lot:

Code:
Model:
Reduction ratio:
Technology:
Voltage:
Board:
Size:
Assembly:
Fairing:
Gear:



MAINTENANCE

The table below lists some PROBLEMS — DEFECTS, PROBABLE CAUSES, AND CORRECTIONS — that may occur in your operator. Before any maintenance, turn off the electrical power supply.

DEFECTS	PROBABLE CAUSES	CORRECTIONS
The motor does not turn on / does not move.	A) The power supply is off. B) The fuse is open / blown. C) The gate is locked. D) The limit switch is defective.	A) Make sure the electrical power supply is connected correctly. B) Replace the fuse with the same specification. C) Make sure no objects are blocking the garage door operation. D) Replace the limit switch system (analog and/or digital)
The motor is blocked.	A) The motor connection is inverted. B) The gate or the operator are locked.	A) Check the motor wires. B) Put in manual mode and check separately.
The electronic control board does not accept command	A) The fuse is blown. B) The electrical network is disconnected (power supply). C) There is a defect in the discharged remote control. D) Transmitter range (remote control)	A) Replace the fuse. B) Turn on the electrical network (power supply). C) Check and change the battery. D) Check the position of the receiver antenna and, if necessary, reposition it to ensure the range.
The motor only moves to one of the sides	A) The motor wires are inverted. B) The limit switch system is inverted. C) There is a defect in the control board.	A) Check the motor connection. B) Invert the limit switch connector (analog and/or digital). C) Replace the control board.