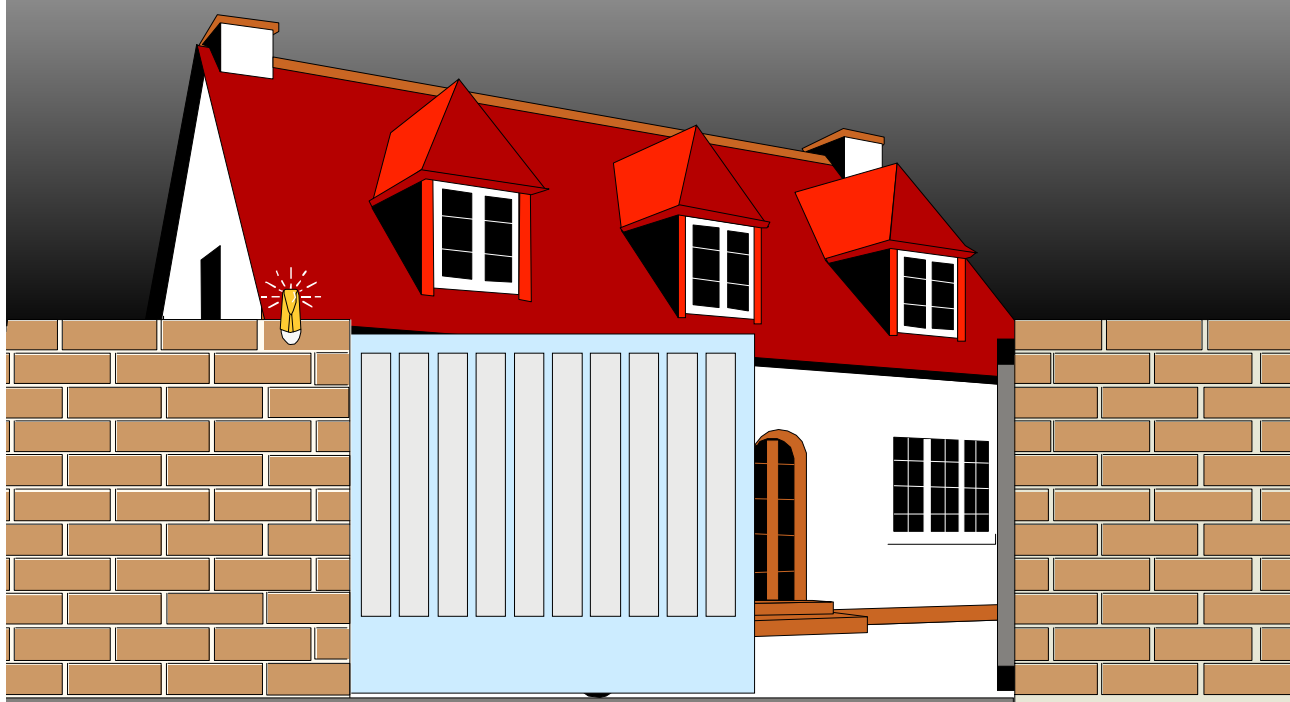


***motostar***



# ***AUTOMATION FOR SLIDING GATES***

**LINESTAR**



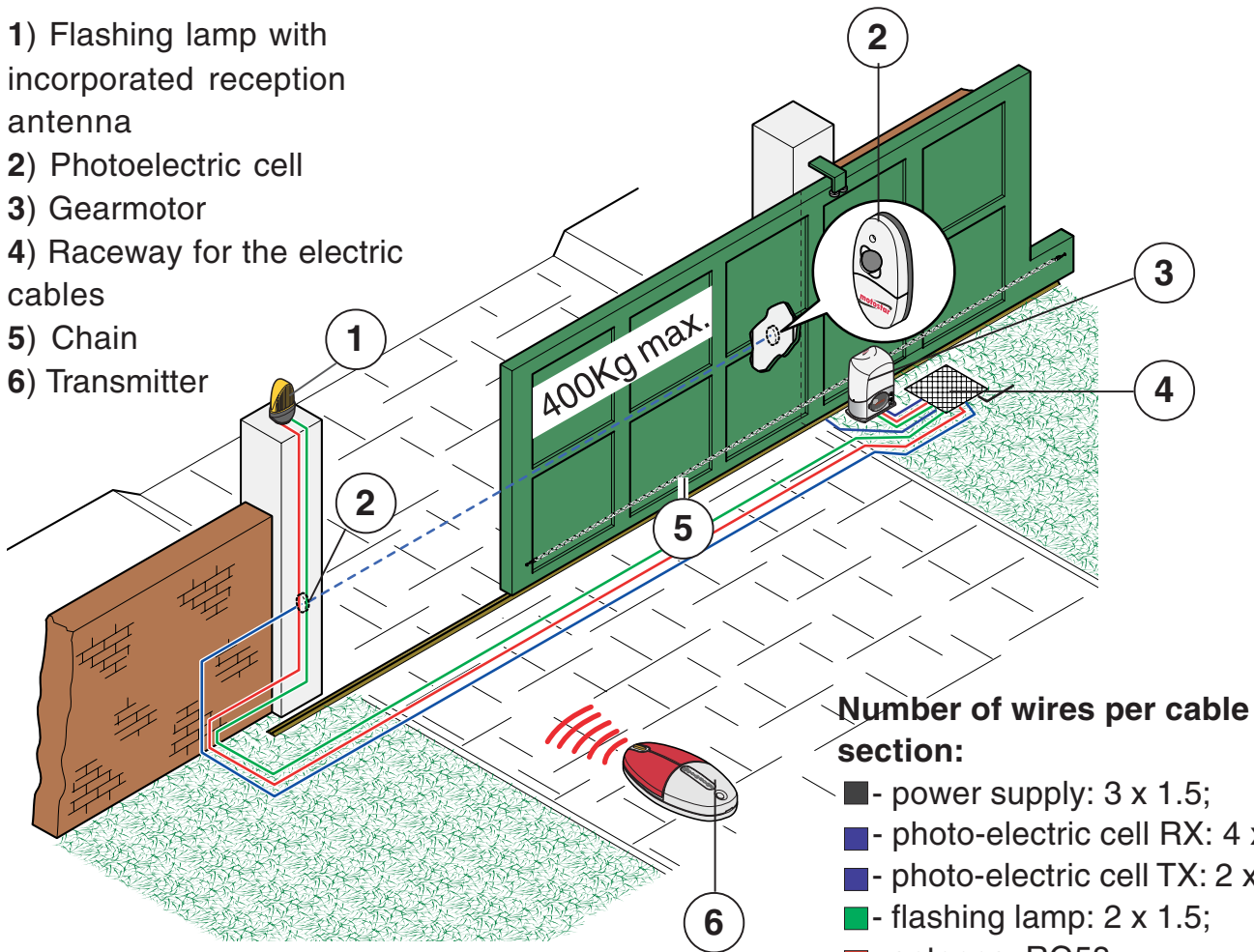
**INSTALLATION MANUAL**

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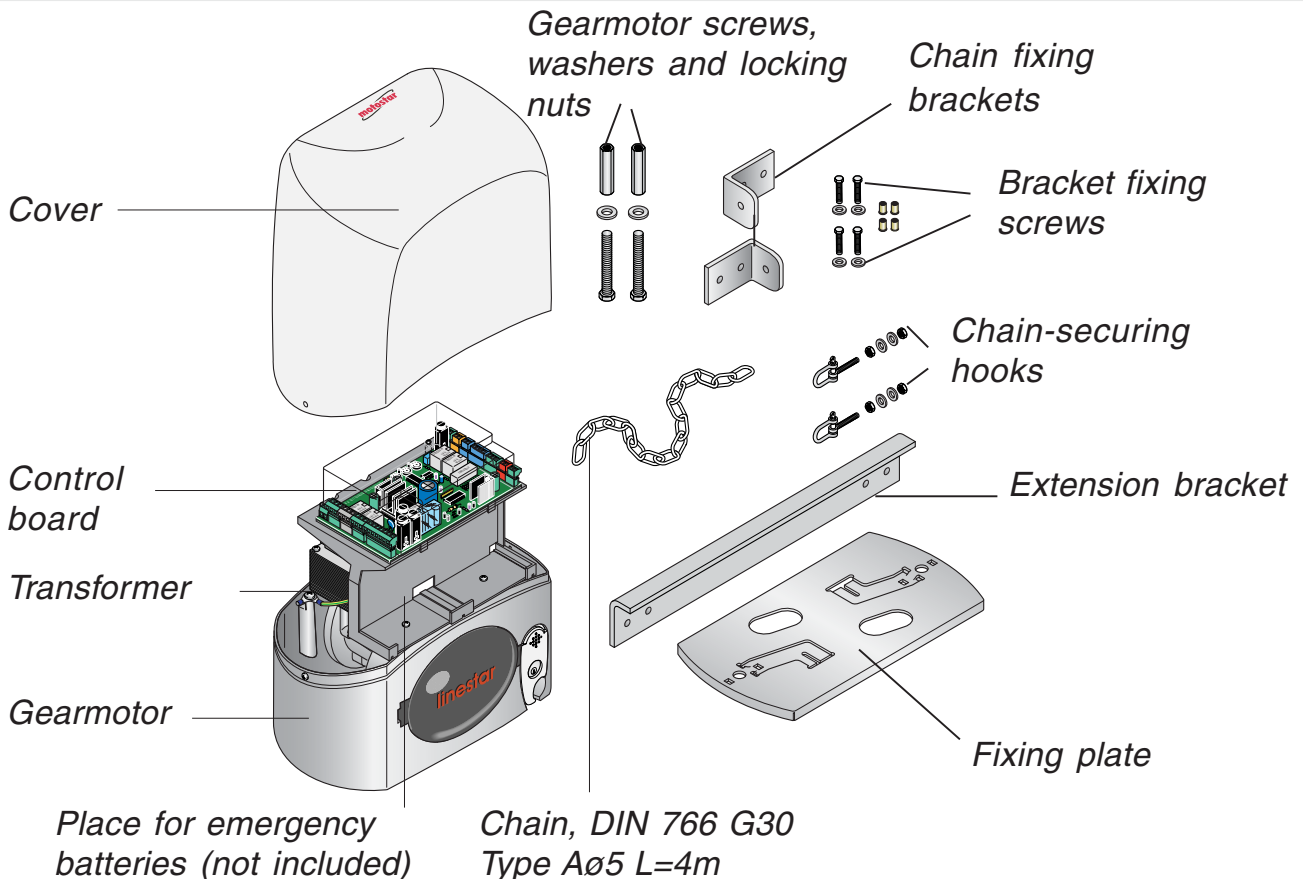
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## 1.0 STANDARD SYSTEM DESCRIPTION

- 1) Flashing lamp with incorporated reception antenna
- 2) Photoelectric cell
- 3) Gearmotor
- 4) Raceway for the electric cables
- 5) Chain
- 6) Transmitter



## 1.1 DESCRIPTION OF THE GEARMOTOR UNIT COMPONENTS



## 2.0 GENERAL CHARACTERISTICS

Automation for residential-use sliding gates with IP54 protection, equipped with:

- self-learning of the code between transmitter and radio receiver;
- adjustable end-stop unit in the automation;
- control board positioned horizontally in the upper part of the gearmotor to facilitate electric cabling; completely insulated with protection cover;
- adjustable amperometric detector that, when encountering an obstacle, reverses the movement of the wing during closure and stops it during opening;
- colored terminal boards to identify the various accessories and simplify the connections;
- Signalling LEDs: power present, programming and safety tests;
- Green LED that signals the power mains supply or red with emergency batteries inserted;
- emergency release with personalized wrench.

## 2.1 TECHNICAL CHARACTERISTICS OF THE GEARMOTOR

24V irreversible single-phase electromechanical gearmotor under power continues with incorporated control panel powered at 230V AC.. Gearmotor casing in die-cast aluminium inside which works an irreversible-reduction system with worm screw and helical crown. Lubrication is by permanent grease fluid.

**Power supply voltage:** 230V AC - 50/60Hz

**Max. absorbed power:** 170W

**Absorbed current:** 7A max

**Thrust:** 300N

**Max. velocity:** 10 m/min

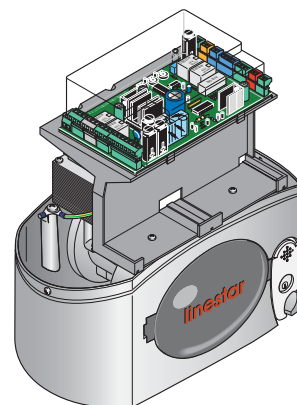
**Max. use frequency:** 48 cycles/h with 5 m gate.

**Operative intermittence:** 50%

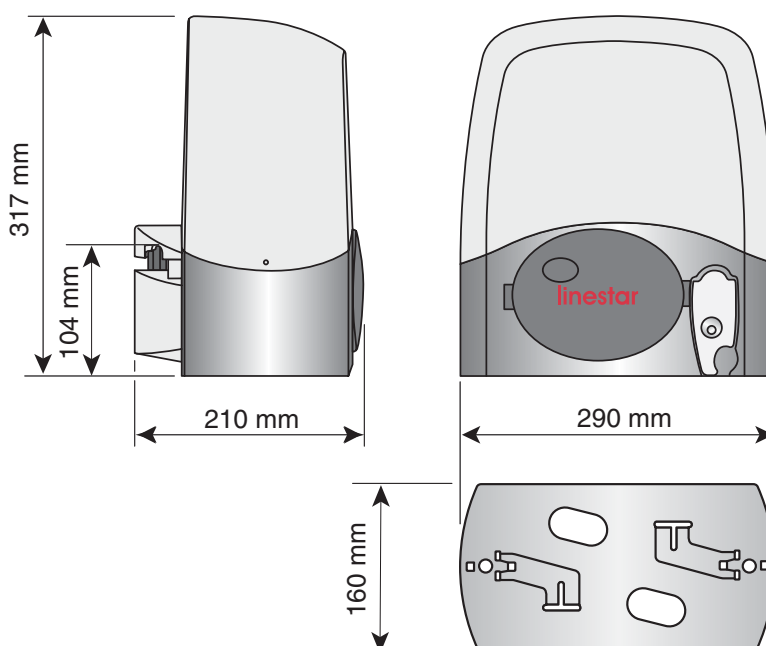
**Reduction ratio:** 1/50

**Operation environment temperature:** from -20° to +70°C

**Weight:** 15 kg



## 2.2 DIMENSIONS OF THE AUTOMATION

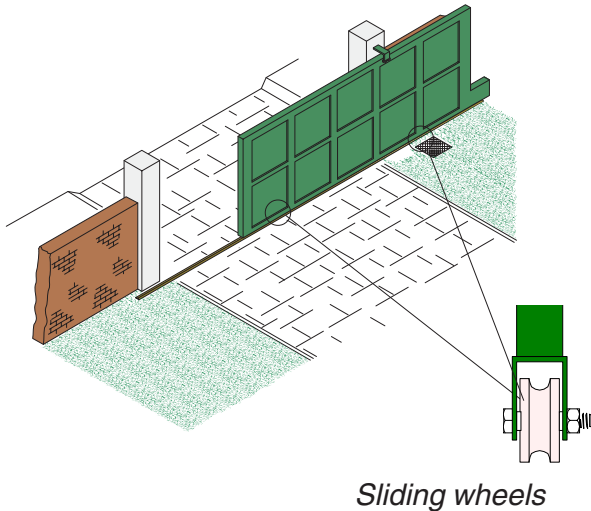




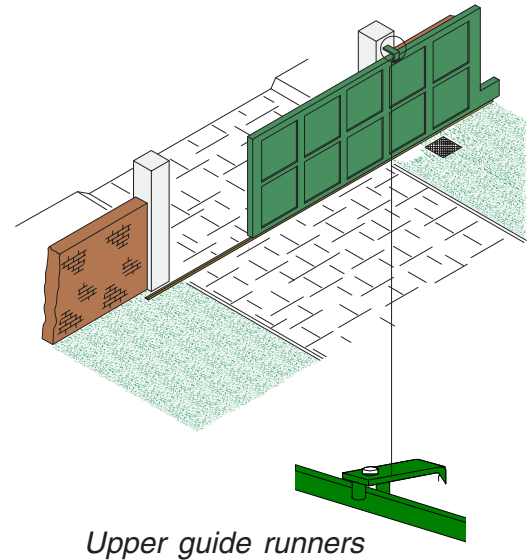
### 3.0 ASSEMBLY OF THE UNIT

#### INSPECTIONS OF THE GATE BEFORE INSTALLATION

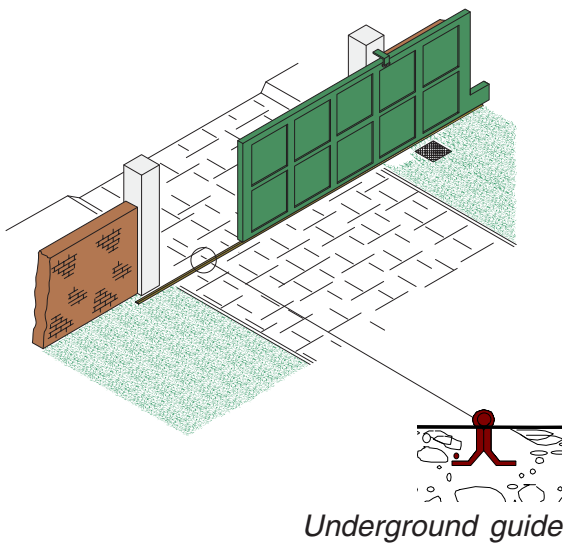
- Check that the *sliding wheels* are efficient.



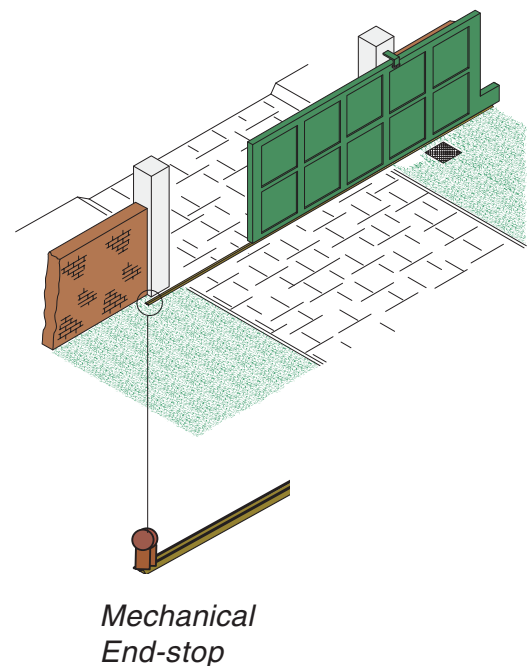
- The *upper guide runners* must not cause friction.



- The *underground guide* must be well fixed to the ground, completely on the surface along all its length and have no bends/kinks to hinder gate movement.

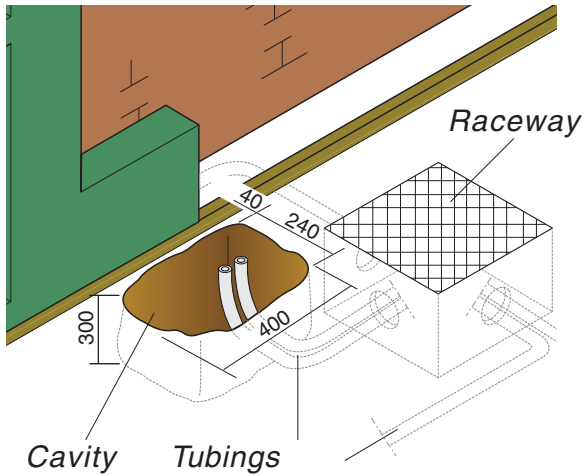


- Check the presence of an *mechanical end-stop* during opening and closing, or make provision for it.

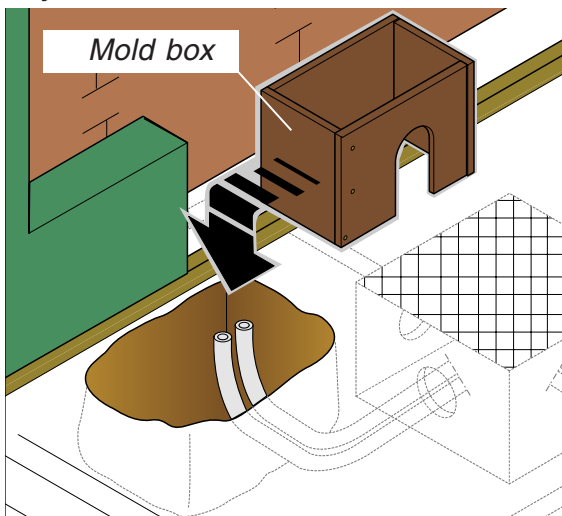


## PREPARING AND FIXING THE ANCHORING PLATE

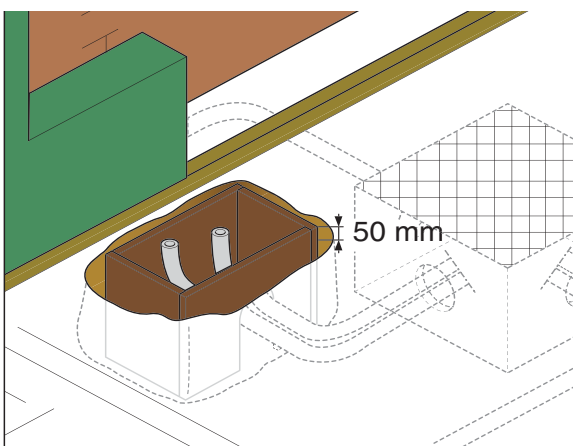
- Prepare a cavity at a distance (see settings) from the end of the gate. Prepare the power sheath tubings and accessories in the raceway, in the same way as for the raceway and cavities.



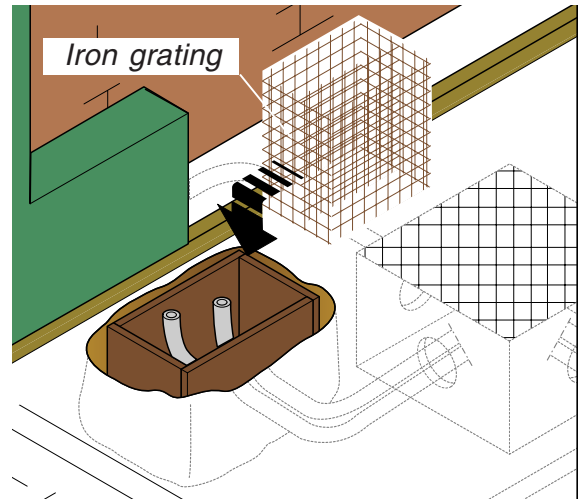
- Prepare a mold box that is larger than the anchoring bracket and insert it into the cavity.



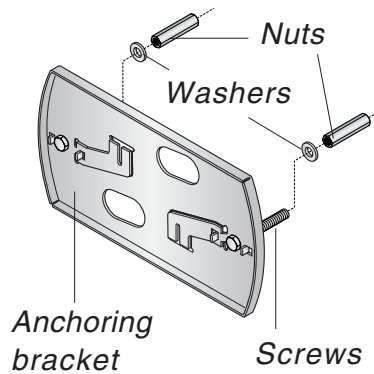
- The mold box must emerge 50 mm above ground level.



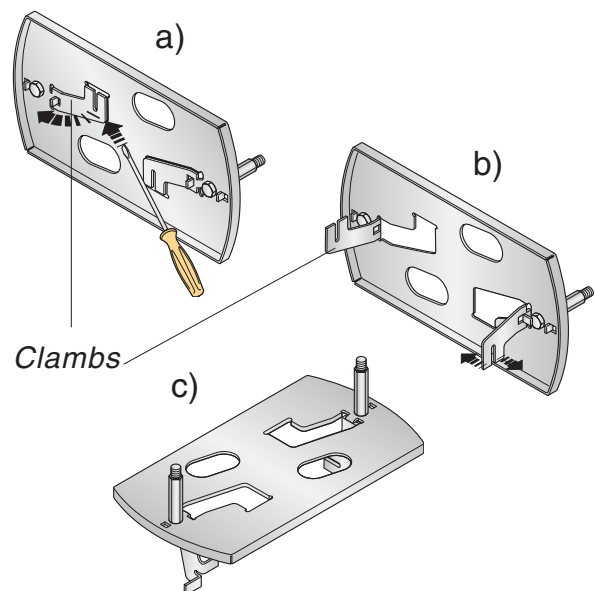
- Insert an iron grating to reinforce the cement and consolidate the anchoring bracket.



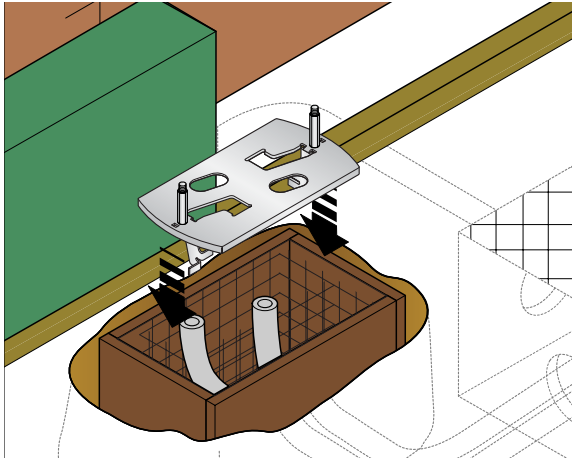
- Prepare the anchoring bracket, insert the screws to secure the unit, tightening them with the nuts provided, as in the figure.



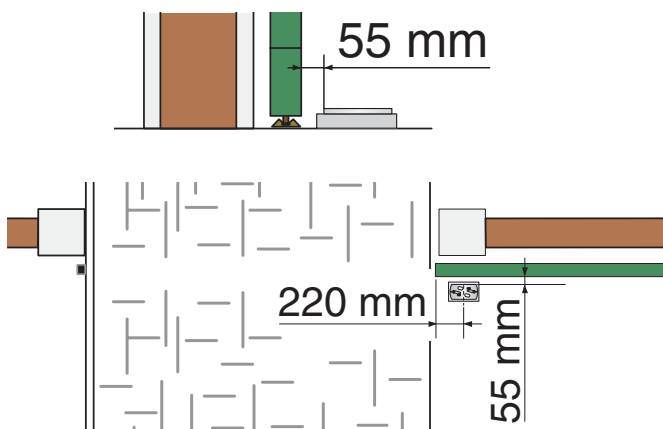
- Extract the plate's pre-formed clamps with a screwdriver or gripper as in the figure.



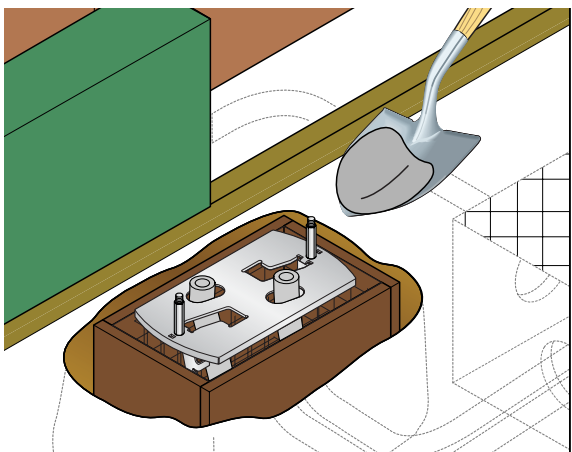
- Resting the fixing plate over the iron grating, being careful of the sheath tubings that must pass through the holes already drilled on the plate.



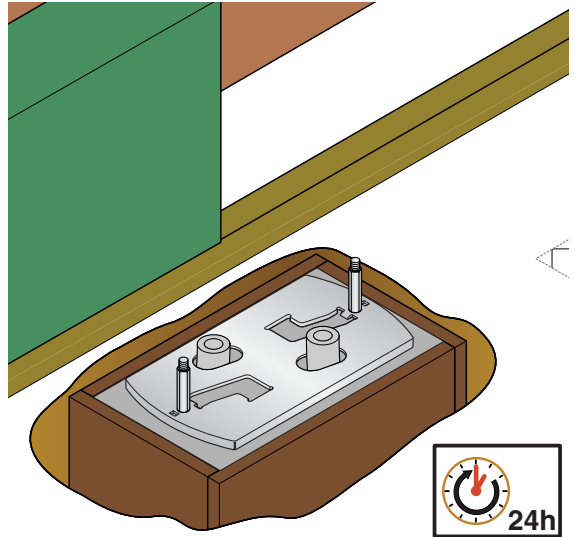
- Position the fixing plate at 55 and 220 mm from the gate when fully-open (see figure).



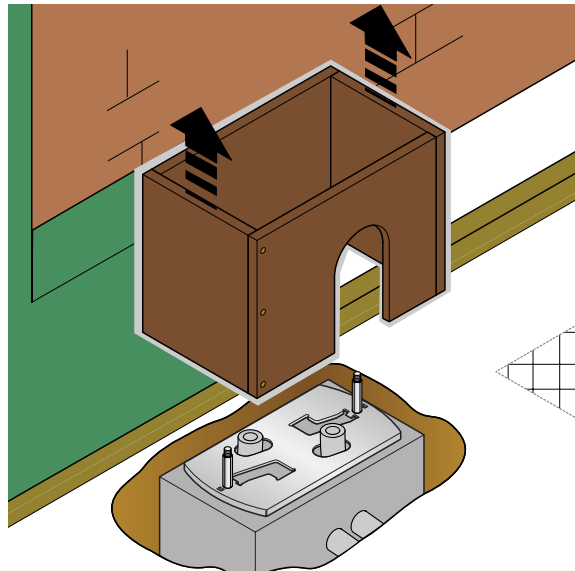
- Fill the mold box with cement. The plate must be perfectly level, clean in all its ends, with the screw threads fully on the surface.



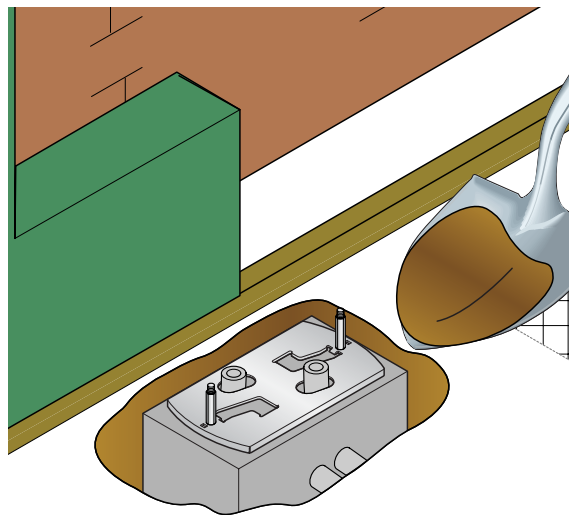
- Wait for everything to solidify for at least 24 hours.



- Remove the box.

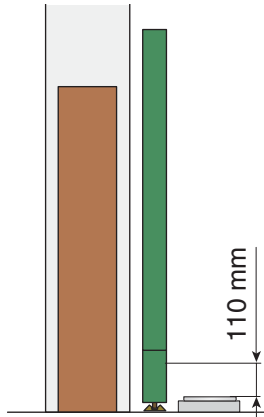


- Fill the cavity around the concrete block, leaving the plate clean.

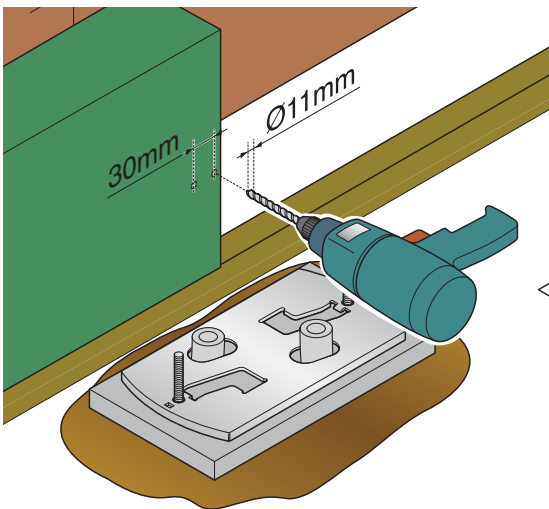


## FIXING THE CHAIN

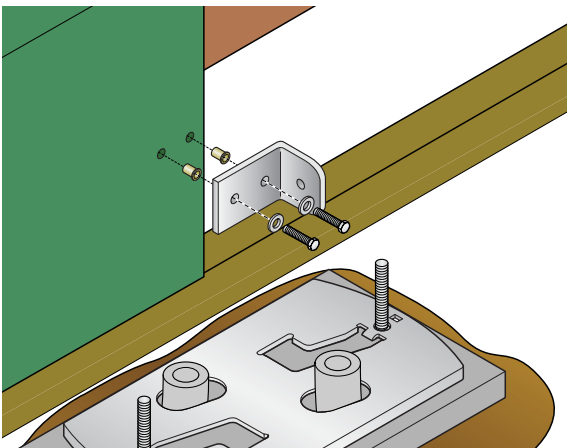
- On the gate, mark the distance of 110 mm between the anchoring base surface and the bracket-securing holes.



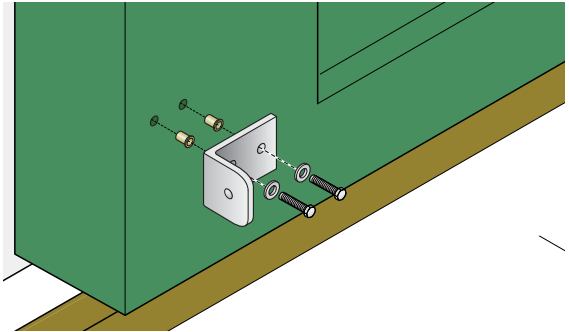
- Make two 11 mm-diameter horizontal holes with 30 mm between them.



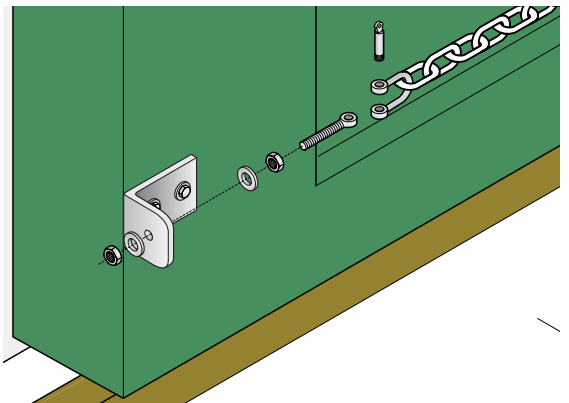
- Insert the bushings into the holes and secure the bracket with screws and washers.



- Secure the second bracket from the other end of the gate, following the procedures above.



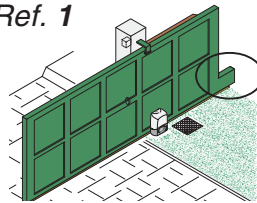
- Secure the chain onto the bracket using the tie rods, nuts, washers and the hooks supplied.



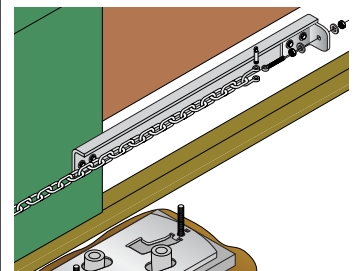
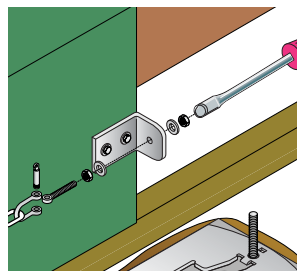
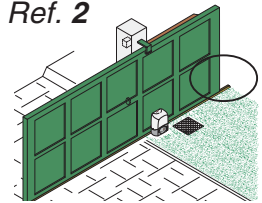
- Secure the other end of the chain or, as described above, cutting off any excess. Pre-tension the chain with a 13 mm wrench (Ref. 1).

**N.B.:** should the gate not have a suitable end (tail) to allow the gate to complete its closing run, use the extension bracket (Ref. 2) supplied.

Ref. 1

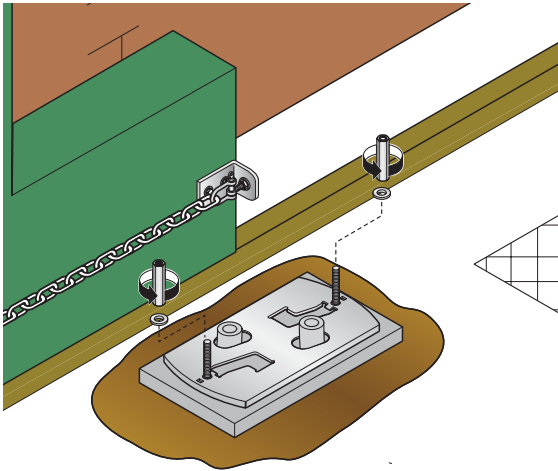


Ref. 2

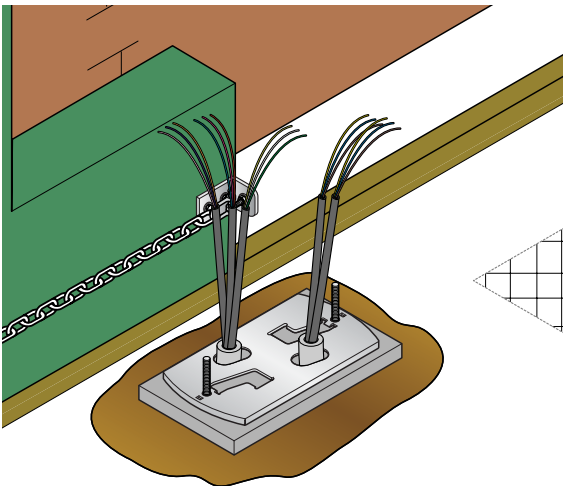


## LAYING THE UNIT

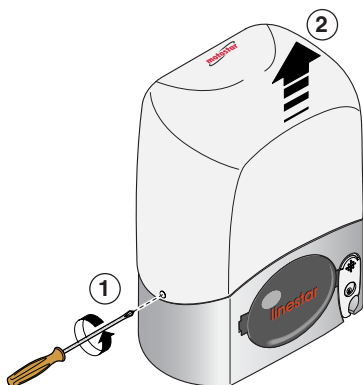
- Remove the nuts and the washers from the gearmotor fixing screws.



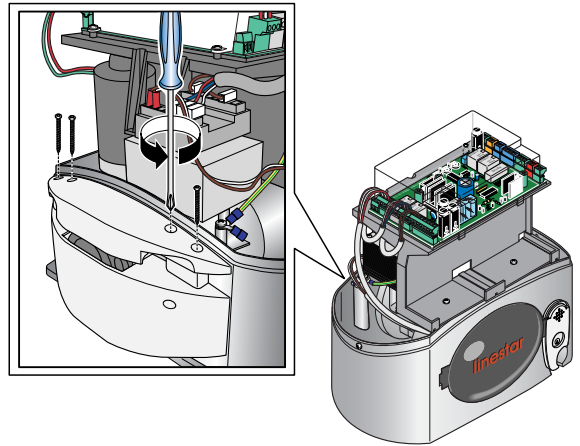
- Insert the cables for the electrical connections into the sheath tubings until they extend about 400 mm from the tube.



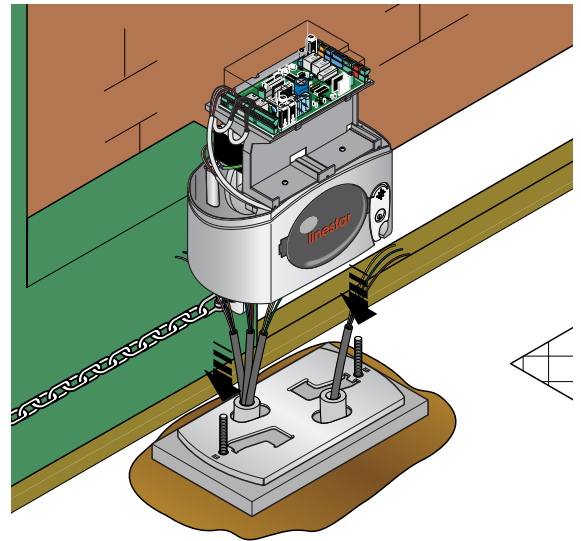
- Loosen the side screws and lift up the cover.



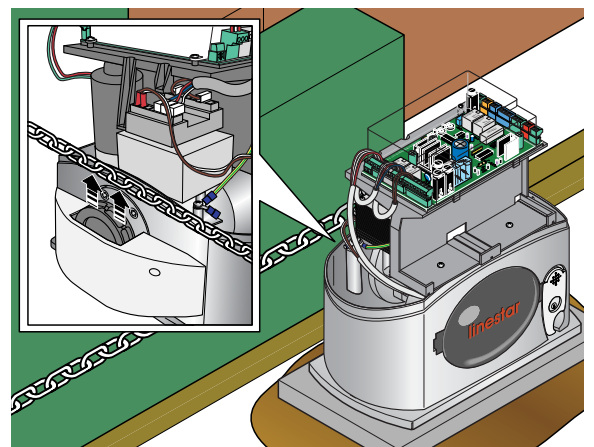
- Unscrew the pulley's four upper-support screws.



- Position the gearmotor over the anchoring bracket with the screws in their slots and insert the electric cables into the gearmotor case unit.



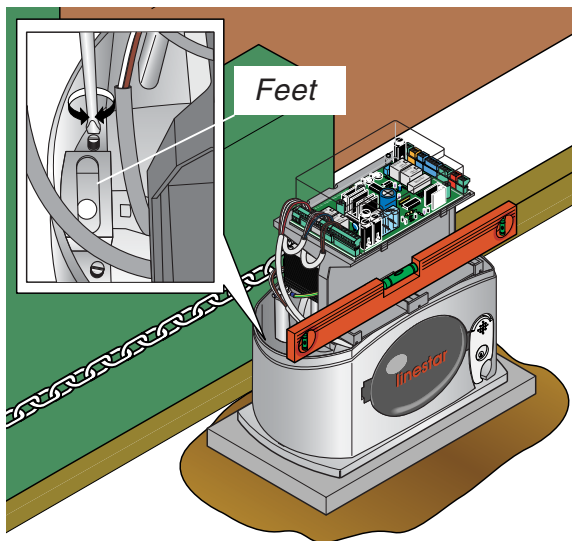
- Align the gearmotor pulley with the chain using the overall-adjustment system.



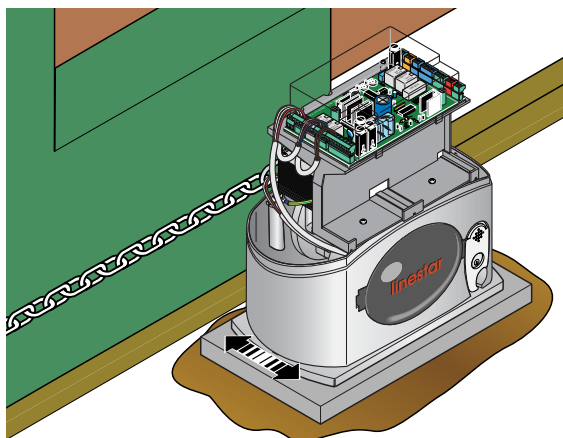


- The overall-adjustment system is made up of:

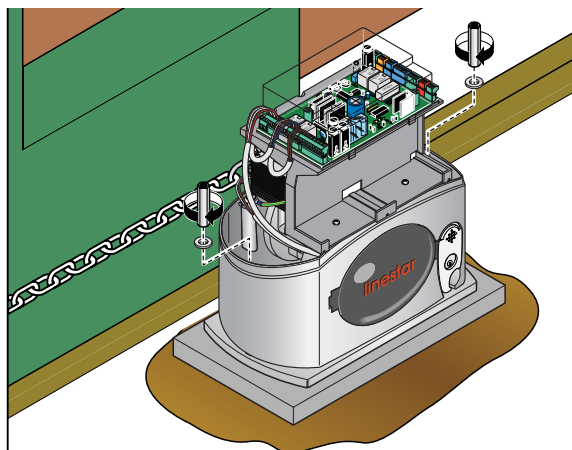
- threaded steel feet allow for vertical adjustment and levelling;



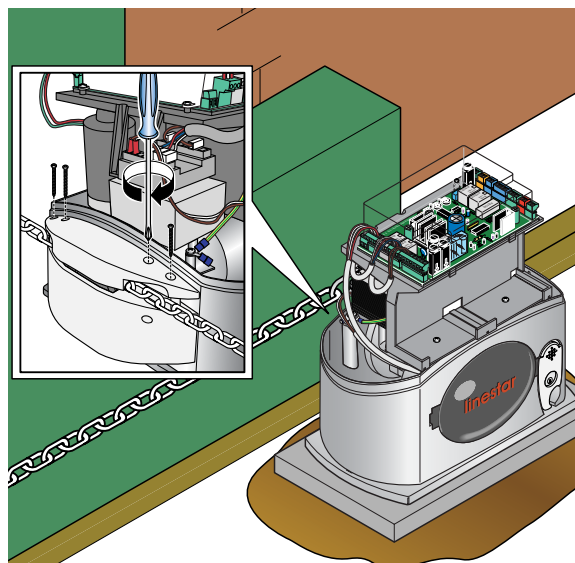
- slots, allow for horizontal adjustment.



- Secure the gearmotor unit with the washers and nuts to make the unit hitch to the plate in an integral manner.

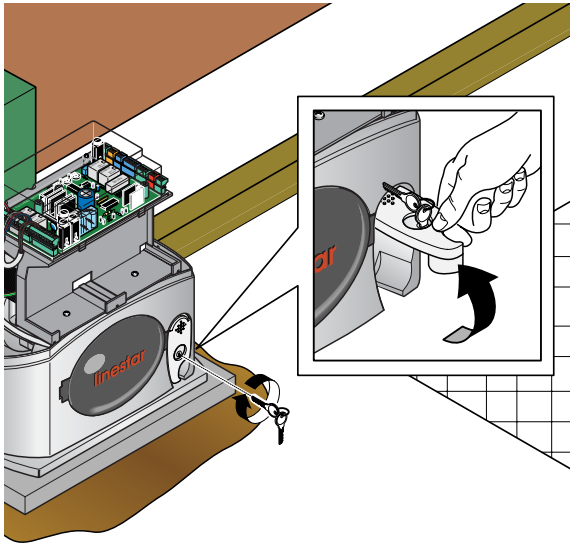


- Insert the pulley support and secure it.

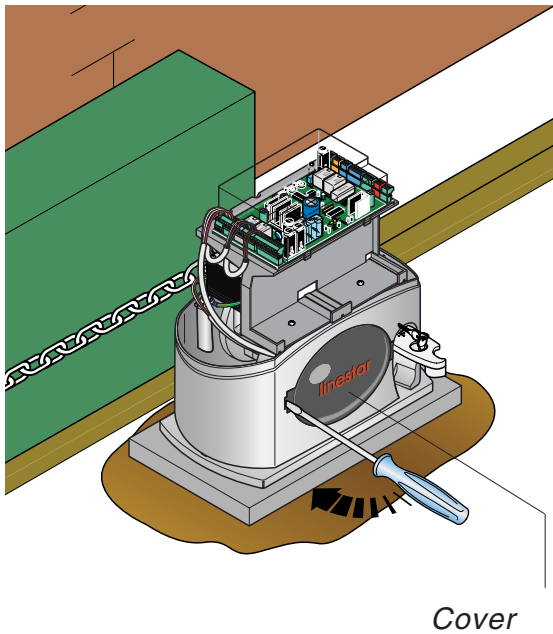


## RELEASING THE GEARMOTOR AND ADJUSTING THE END-STOP UNIT

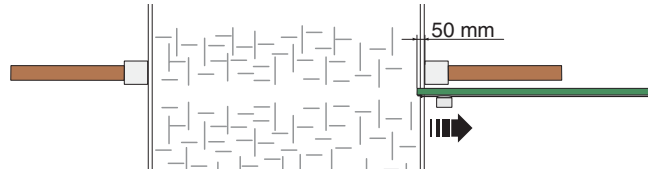
- Insert the key, turn clockwise and lift the door for release the gearmotor.



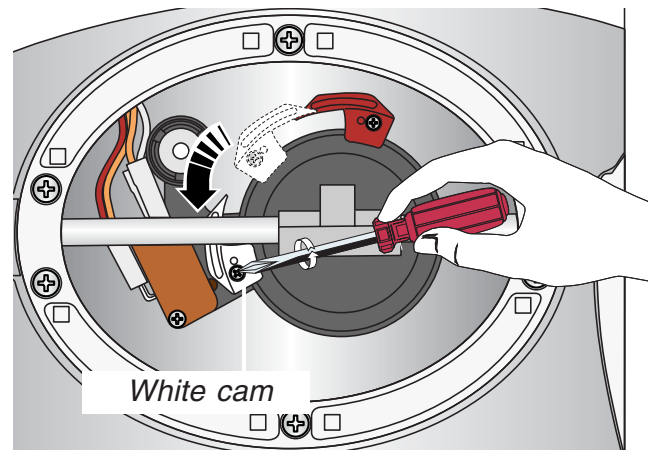
- Use a screwdriver to remove the end-stop unit cover.



- Position the gate at 50 mm from full opening.



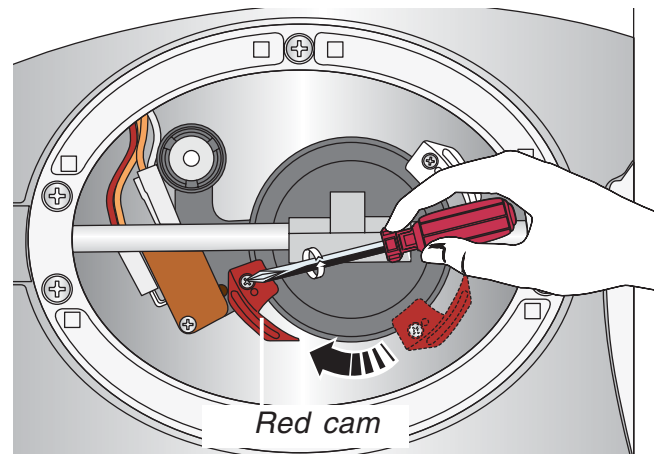
- Move the white cam anticlockwise until the opening microswitch switches and tighten it.



- Position the gate at 50 mm from the fully closed position.



- Move the red cam clockwise until the closure microswitch switches, and tighten it.





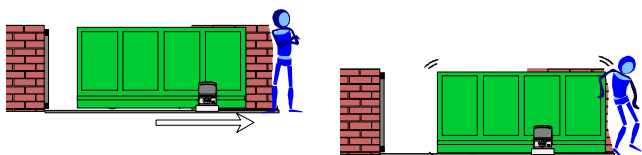
## 4.0 DESCRIPTION OF THE CONTROL BOARD

The control board is powered at 230V (AC.) in the L-N terminals and is protected in input with a 1A mains fuse. The control devices are low-voltage type, and protected with a 3.15mA fuse. The overall rated power of the 24V accessories, protected with a 1.6A fuse, must not exceed 37W.

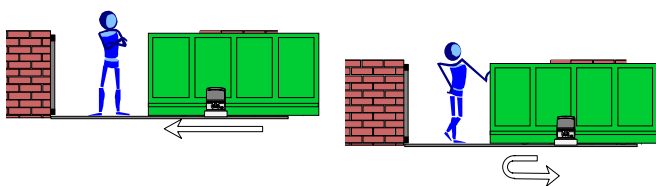
### Control and safety logic

The control unit has an amperometric device. It allows constant checking of the motor force, which can be adjusted through the *Trimmer Sensibility*, see adjustments. When an obstacle is encountered, the amperometric device causes the following events:

a) the gate to stop during opening, with subsequent automatic closing (if enabled);



b) reversal of the movement direction if closing.



**Caution:** in case b, after the obstacle is detected 3 times consecutively, the gate is stopped at open position and the automatic closing is excluded; to resume the movement, you must press the command pushbutton or use the remote-control.

The board has these functions:

- opening-closure command, button connected to G-Ps or by radio-control, gate opening and closing, see dip switches 2 and 3 (function selections);
- partial opening command, pushbutton connected to G-Pp, opening for pedestrian passage, see adjustments;
- total stop, pushbutton connected to the ST-G terminals, gate stop with exclusion of the automatic closing cycle;
- “maintained action” function, see dip switch 6 (function selections);
- pre-flashing, see dip switch 4 (function selections);
- automatic closing, see dip switch 1 (function selections) and adjustments;
- obstacle detection, see dip switch 5 (function selections);
- photoelectric cells check test, see dip switch 10 (function selections).

The photoelectric cells may be pre-set to:

- re-open during closure, see dip switch 7 (function selections);
- partial stop, see dip switch 8 (function selections).

The board includes trimmers for adjusting:

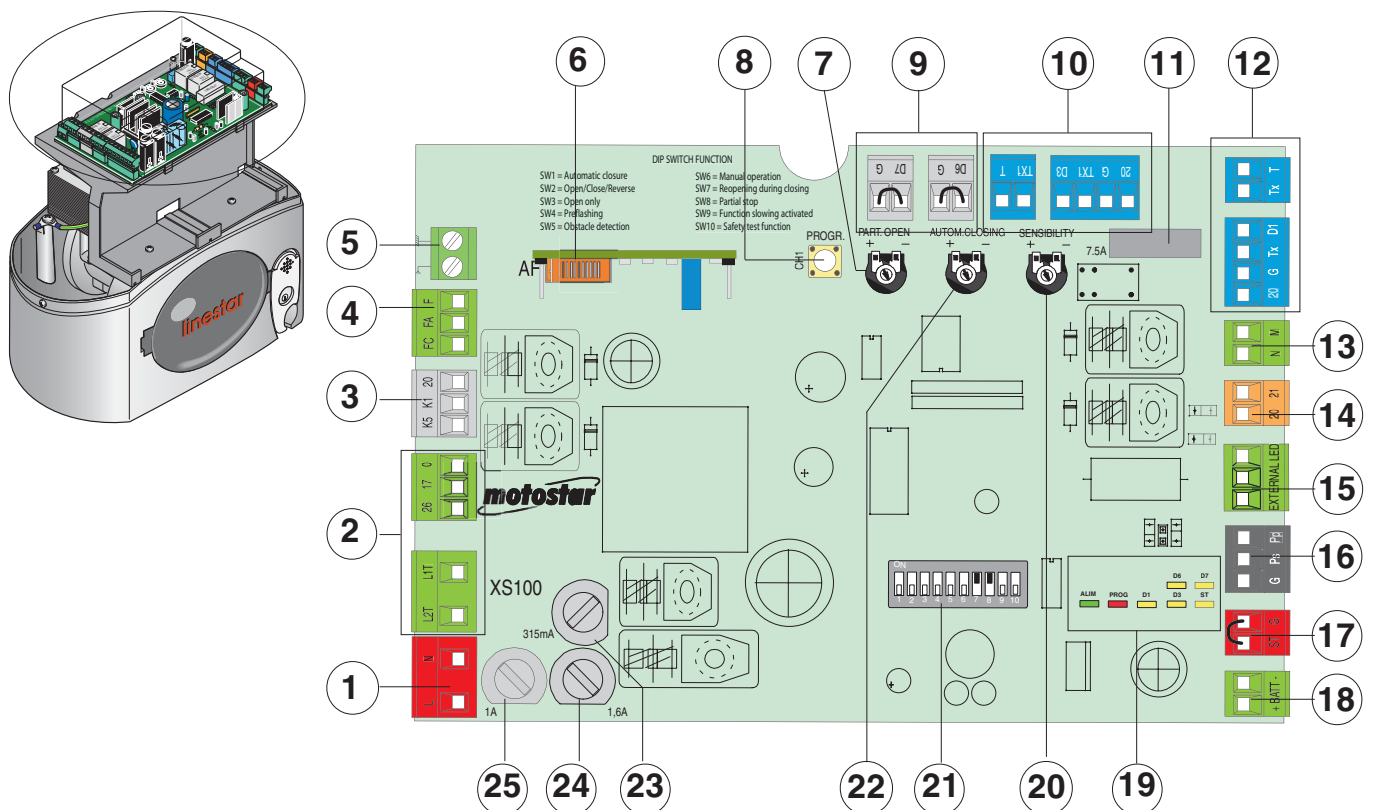
- partial opening;
- automatic closing time;
- amperometric sensitivity.



**Caution!** Shut off the mains power and disconnect the batteries before servicing the inside of the unit.

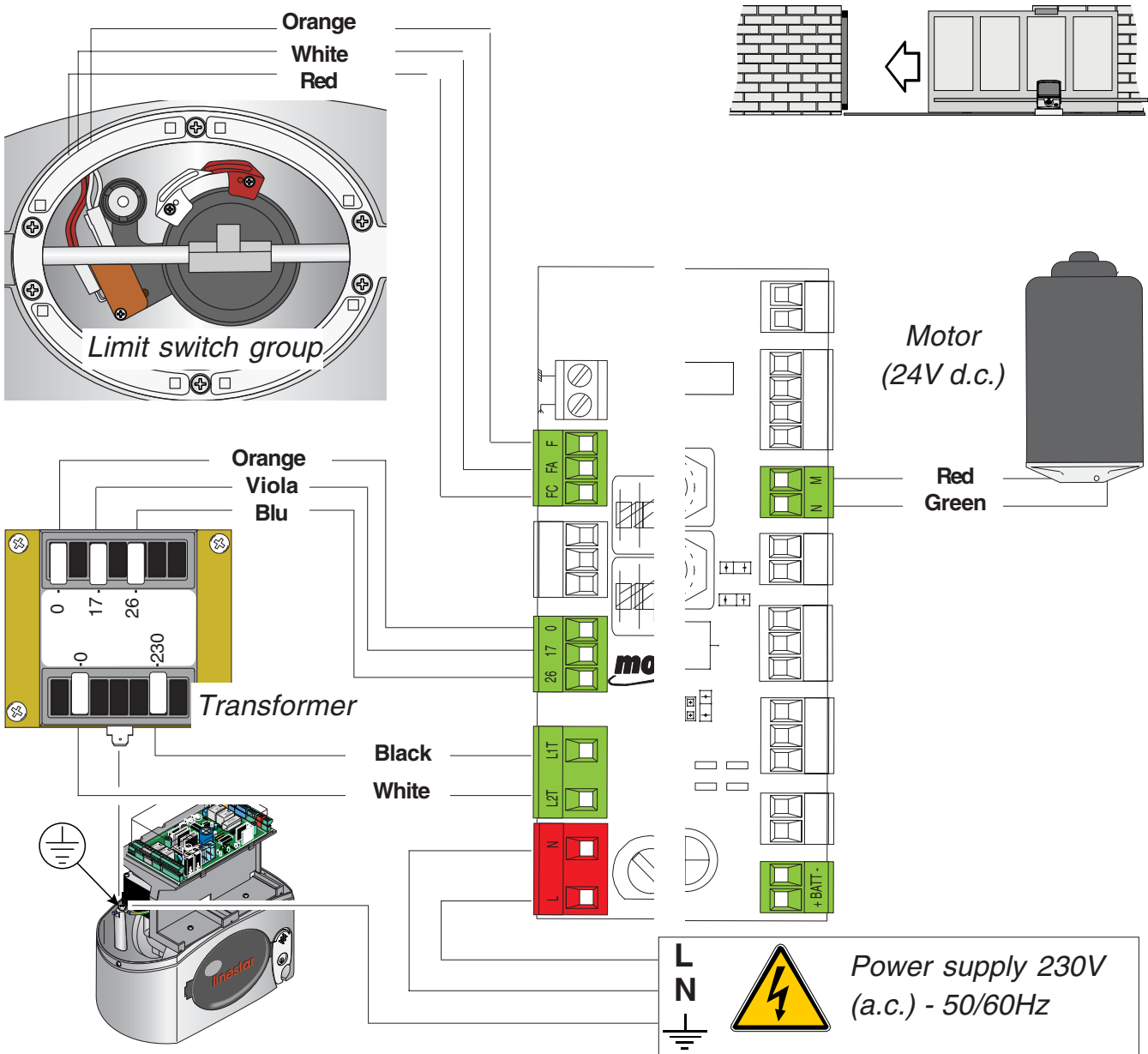
## 4.1 MAIN COMPONENTS OF THE CONTROL BOARD

- 1 - Terminal board for connecting the 230V (AC.) power supply
- 2 - Terminal boards for connecting the transformer
- 3 - Terminal board for connecting signalling accessories
- 4 - Terminal board for connecting the end-stop unit
- 5 - Terminal board for connecting the RG58 cable for the antenna
- 6 - Radiofrequency board for remote control
- 7 - Trimmer for adjusting partial opening
- 8 - Pushbutton for memorizing the radio code
- 9 - Terminal boards for connecting the safety ribs
- 10 - Terminal boards for connecting the photoelectric cells in partial stop position
- 11 - Motor fuse 7.5A
- 12 - Terminal boards for connecting the photoelectric cells during re-opening
- 13 - Terminal board for connecting the motor
- 14 - Terminal board for connecting possible accessories
- 15 - Terminal board for connecting the “voltage presence” notifying LED
- 16 - Terminal board for connecting the command buttons
- 17 - Terminal board for connecting the stop button
- 18 - Terminal board for connecting the emergency batteries
- 19 - Functions control LED
- 20 - Trimmer for obstacle-detection sensitivity adjustment
- 21 - “Dip-switch” - Functions selector
- 22 - Trimmer for automatic closing-time adjustment
- 23 - Control unit fuse 630mA
- 24 - Accessories fuse 1.6A
- 25 - Line fuse 1A

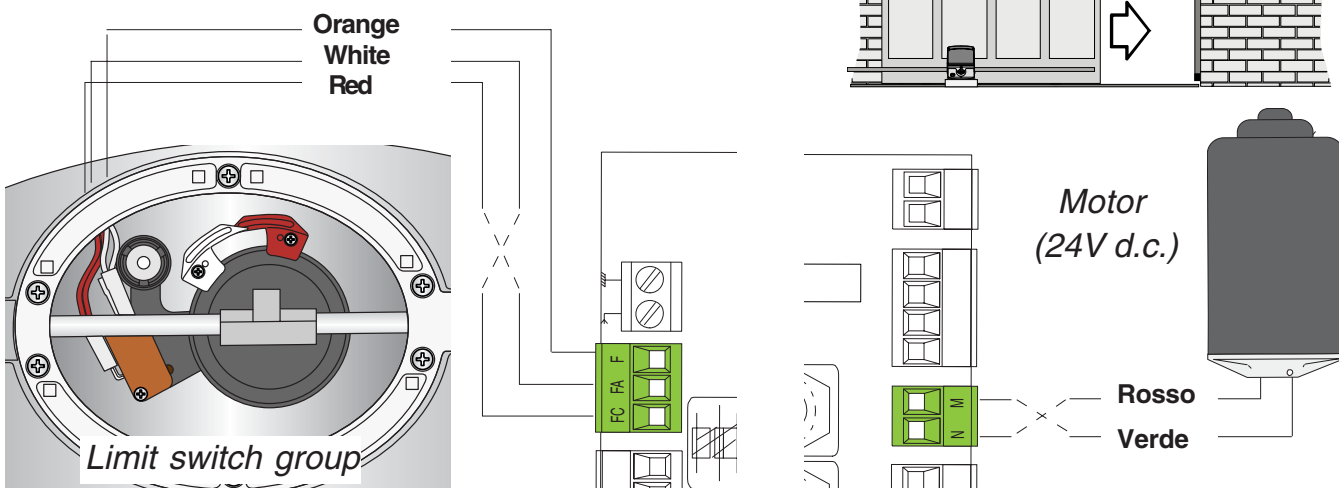


## 4.2 ELECTRIC CONNECTIONS

### GEARMOTOR, TRANSFORMAR, POWER SUPPLY AND LIMIT SWITCH



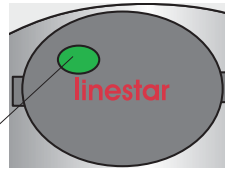
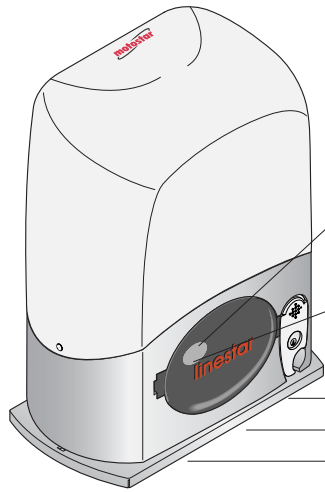
If assembly has to be on the right, invert the end-stop FA-FC electric wire and M-N motor phases.



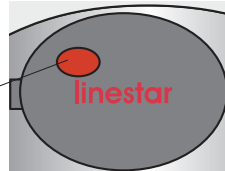
## SIGNALLING AND LIGHTING DEVICES

### Voltage signalling LED.

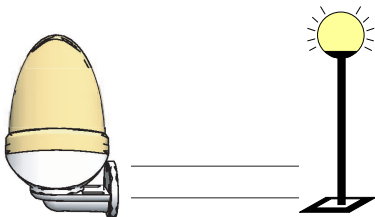
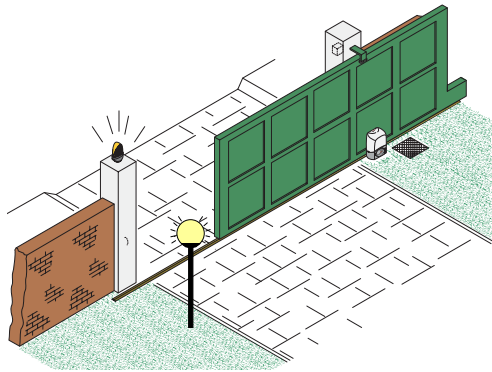
It signals voltage in the electric panel.



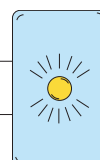
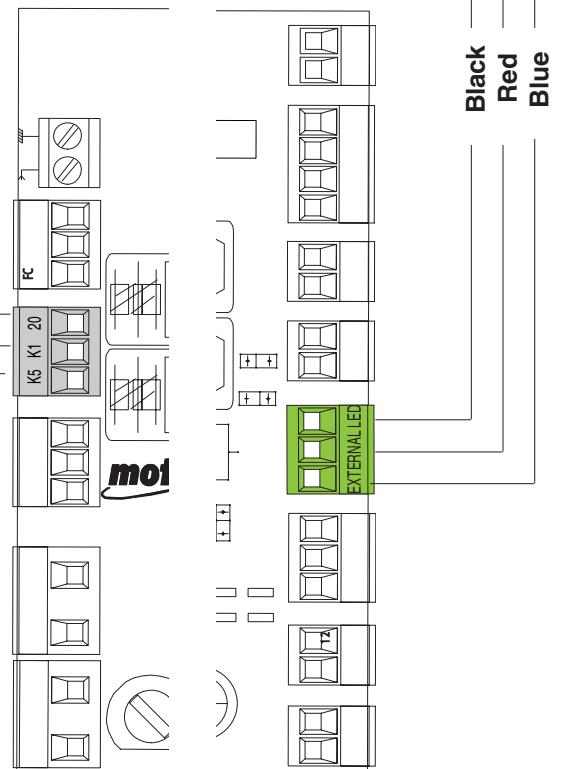
Green **LED** indicates that the panel is powered by mains voltage.



Red **LED** indicates that the panel is powered with emergency batteries.



**Flashing lamp** (24V-25W), signals, with the intermittent flashing, the gate movement with possibility of pre-flashing while opening and closing (see function selections dip switch 4 ON) or **cycle lamp** (24V-25W). It remains on during the opening and closing manoeuvre (with automatic closing and detection of obstacle functions enabled, dip switch Nos. 1 and 5 ON).



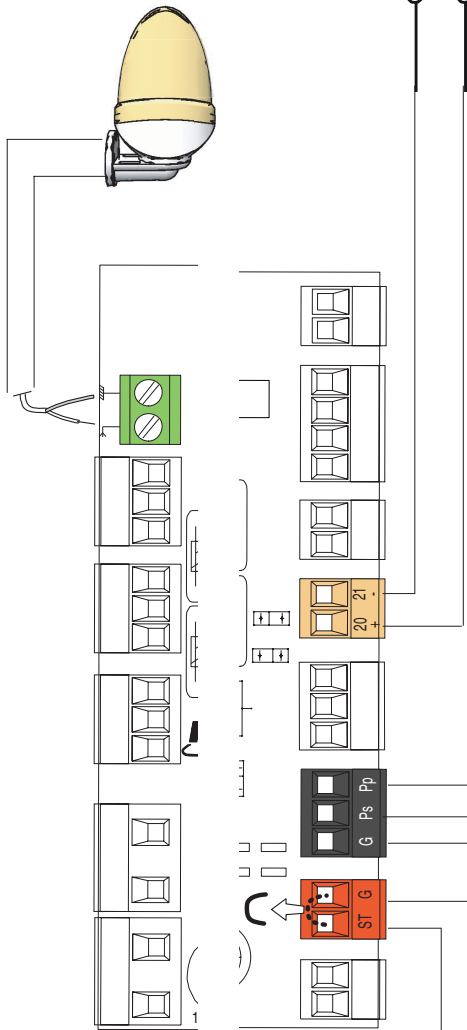
**Lamp pilot light** (24V-3W), remains on to indicate «gate open».

## COMMAND DEVICES

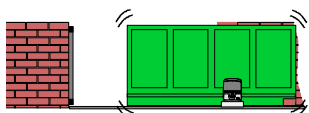
**Caution:** all the contacts and push-buttons normally closed (N.C.) not used, must be disabled by dip-switch or short-circuited.

**Incorporated reception antenna**  
for remote radio-control use.

**Additional accessories power supply**  
24V (AC. - DC.), max 40W.

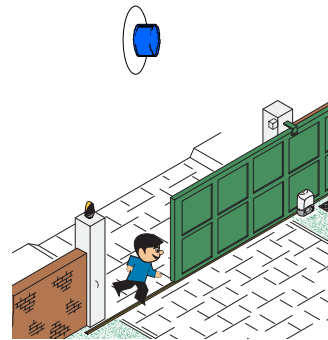


**«Stop» pushbutton**  
N.C. contact (remove the bridge wire). It stops the gate with the exclusion of the automatic closing cycle. To resume movement, use the control button or remote control.

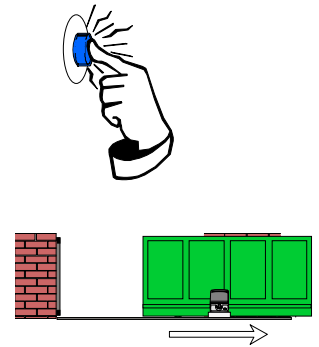


**Pedestrian opening pushbutton**  
N.O. contact, partial opening of the gate for pedestrian passage or **opening in maintained action**, gate opening keeping pressed the pushbutton (dip switch 6 in ON).

*Pedestrian passage*

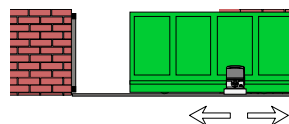


*Maintained action opening*

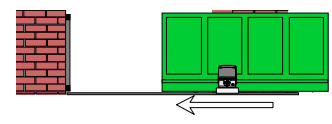
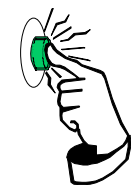


**Pushbutton for «Commands»**  
contact N.O., for gate opening and closing (see dip switch 2) or **closing in operation with maintained action**, gate closure keeping constantly pressed the pushbutton (dip switch 6 ON).

*For commands*

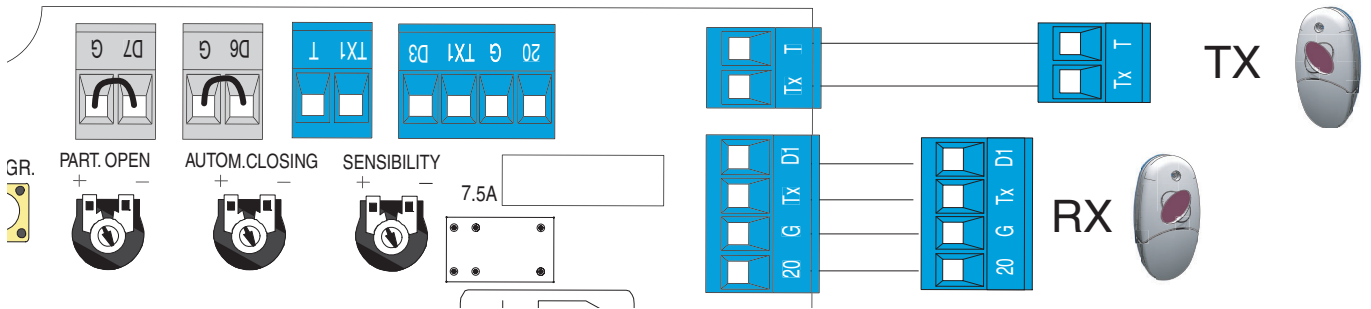


*Maintained action closure*

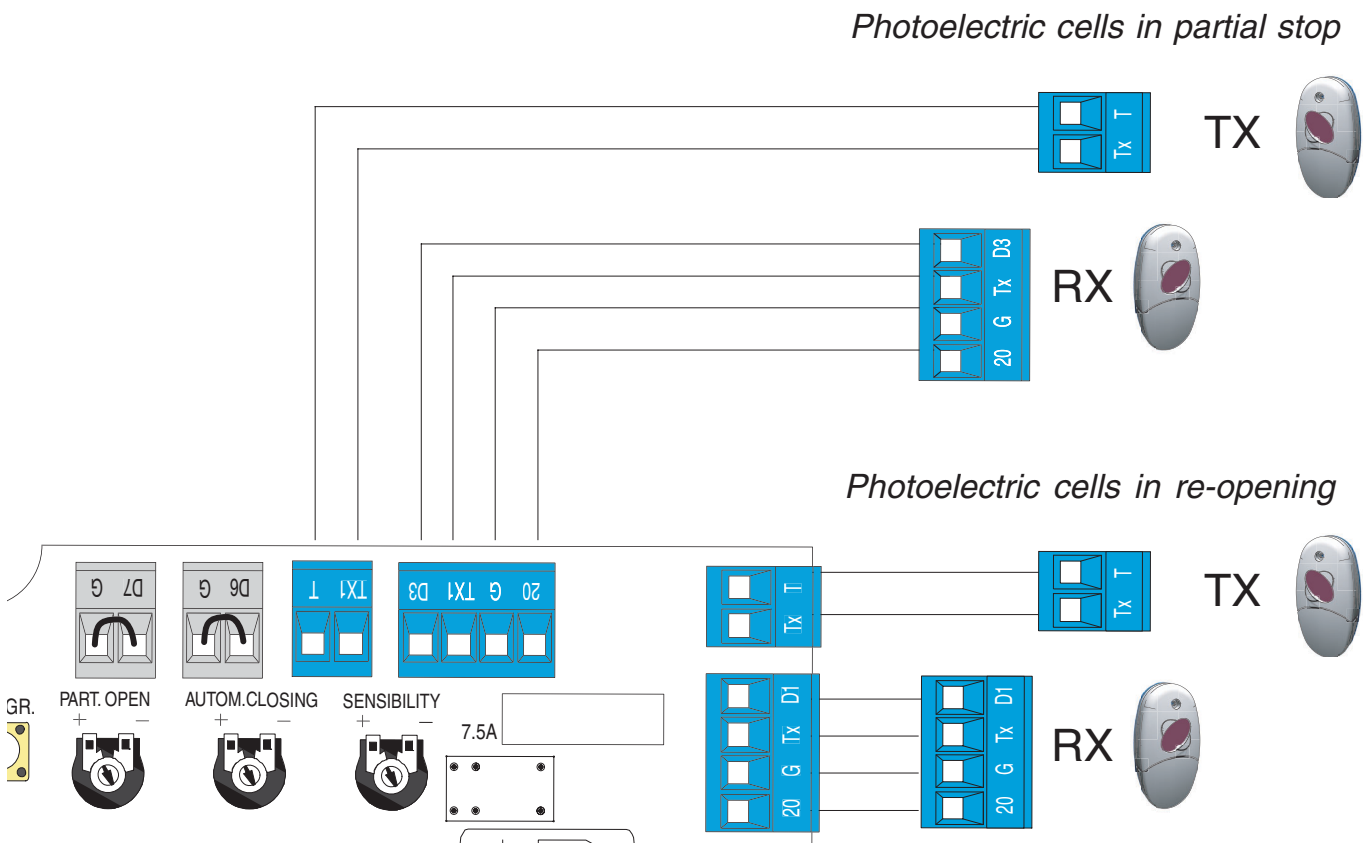


## SAFETY DEVICES

Connecting of a pair of photoelectric cells in **re-opening** during the gate-closure phase (dip switch 7 OFF and 8 ON).

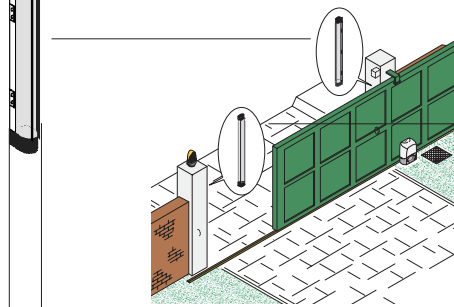


Connection of a pair of photoelectric cells in **re-opening** during the closure phase and one in **partial stop** (dip switches 7 and 8 OFF).



Connecting a pair of photoelectric cells in **re-opening** and in **partial stop**, with possible connecting of a safety rib **in reopening** during gate closure and one in **re-closing** during opening.

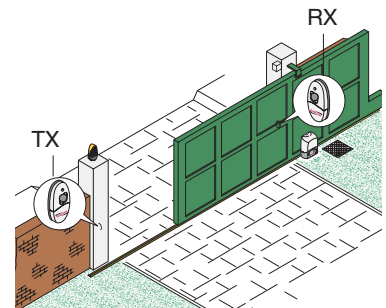
Safety rib in re-closing,  
N.C. contact. (remove the  
bridge wire)



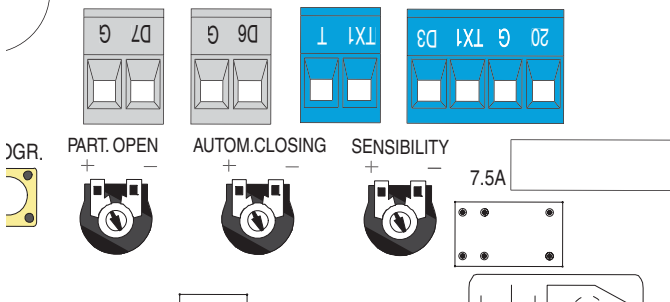
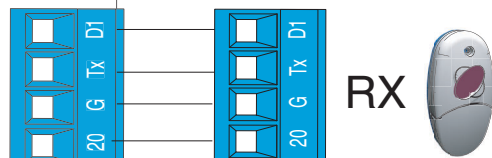
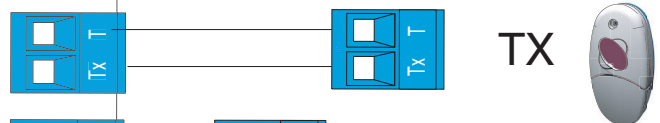
Safety rib in re-opening,  
N.C. contact. (remove the  
bridge wire)



Photoelectric cells in partial stop



Photoelectric cells in re-opening





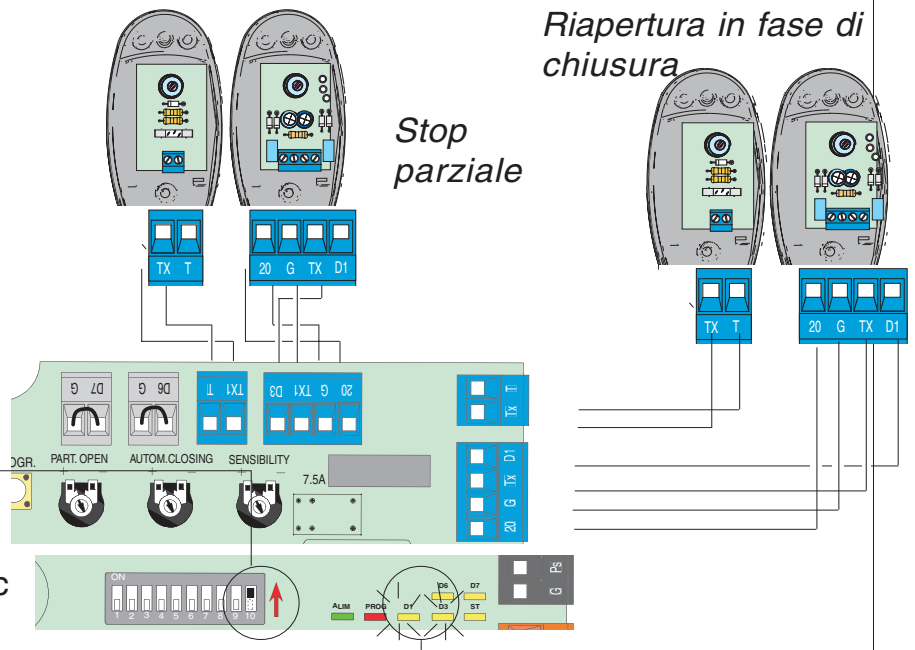
### 4.3 CHECK TEST OF THE PHOTOELECTRIC CELLS OPERATION

Allows the control unit to check the efficiency of the safety devices (photoelectric cells) at every opening or closure command.

To activate this function, move dip switch 10 to ON (see page 23 for the LED signalings).

**DIP «10»** activation of the test function

**LED «D1 or D3»** photoelectric cells malfunction warning



### 4.4 RADIO CODE PROGRAMMING

If the motherboard is replaced or the Radiofrequency board is reprogrammed, perform the programming operation (memorizing) of the radio code again.

#### Radiofrequency board insertion

The radiofrequency board should ALWAYS be inserted when the power is off because the motherboard only recognizes it when it is powered.

#### Code storage

Keep the "CH1/PROG" key pressed on the base card (the signal LED will flash), and with a key on the transmitter the code is sent, the LED will remain lit to signal the successful saving of the code.

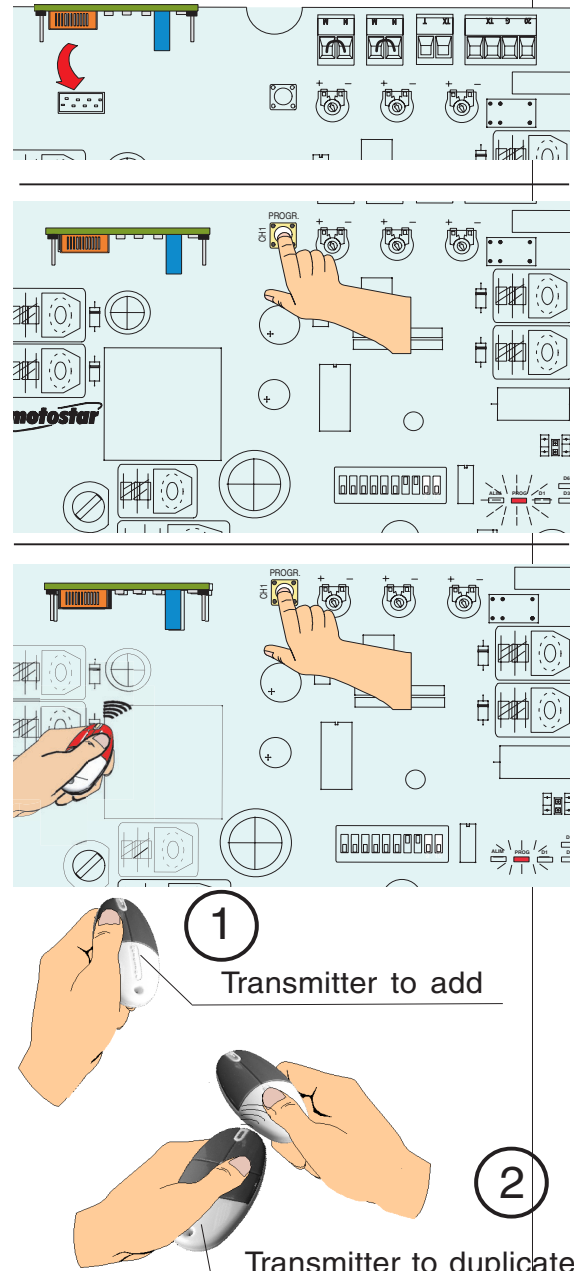
#### transmitters duplication

Clikstar is already coded. To add transmitters to the ones supplied, follow the following duplication procedure:

- 1) Press the button to code until after 7" of flashing, the Red signalling LED comes on (1);
- 2) Within 10", place the transmitter to duplicate on the rear part and for a few seconds press the button to copy (2).

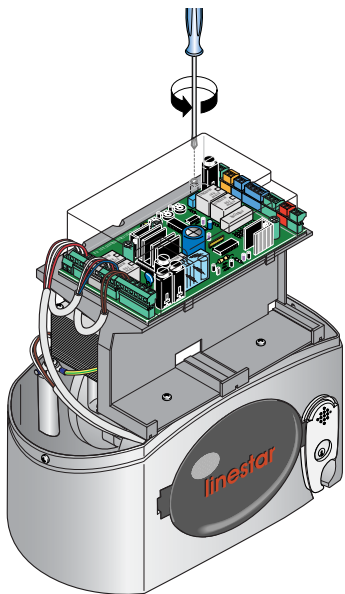
After memorizing, the LED will flash 3 times and the transmitter will be ready for use.

If necessary, repeat 1 and 2 for the other buttons (which can be used for other automations).



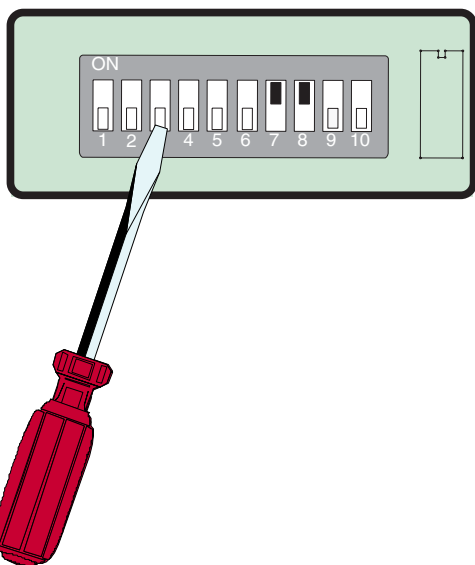
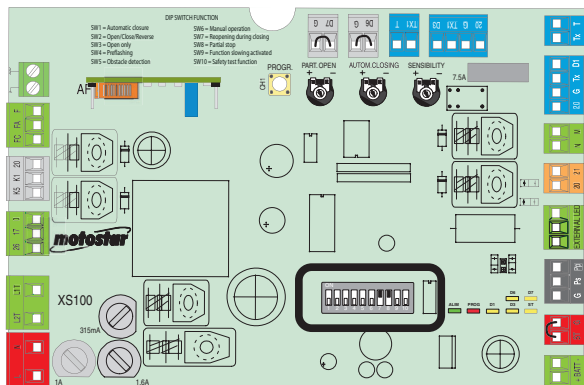
## 4.5 FUNCTION SELECTIONS

Remove the board protection, removing the two screws as shown in the figure.

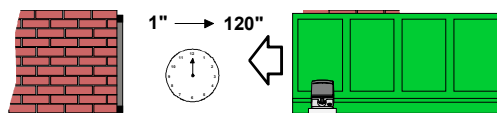


Select the functions by setting the dip switch to ON or OFF, using a screwdriver as indicated in the figure.

By default, dip switches 7 and 8 are set to "ON".

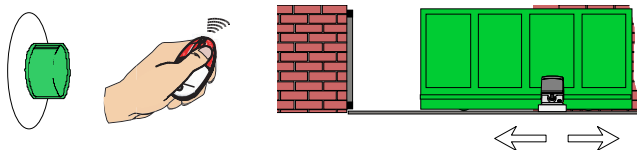


**1 ON** Automatic closure; the automatic-closure timer self-powers at the end of the opening movement time. The adjustable pre-set time however depends on the intervention of any safety accessories and it is cut out after a "stop" intervention or in the event of a power failure;

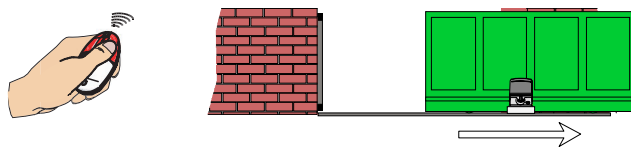


**2 ON - 3 OFF** "Open-stop-close-stop" with pushbutton (G-Ps) and remote control (radio board inserted);

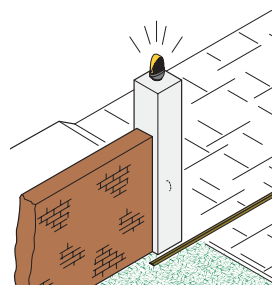
**2 OFF - 3OFF** "Open-close" with pushbutton (G-Ps) and remote control (radio board inserted);



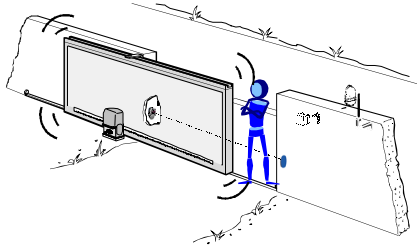
**3 ON** "Open only" with remote control (radio board inserted);



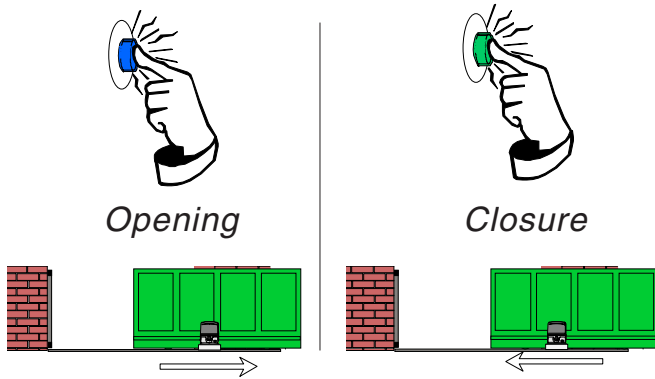
**4 ON** "Pre-flashing during opening and closing; after an opening or closing command, the flashing lamp connected to 20-K1 flashes for 5 seconds before beginning the manoeuvre;



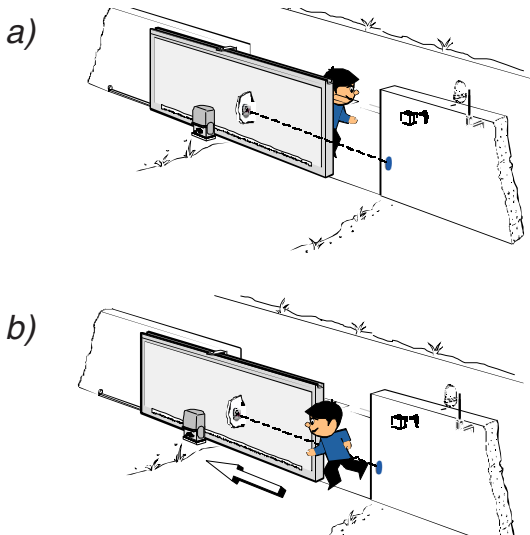
**5 ON** Obstacle detection with motor at limit switch; with motor not running (door closed, open or after a total stop command), hinders any movement if the safety devices (e.g. photoelectric cells) detect an obstacle;



**6 ON** "Maintained Action", door operation while keeping the pushbutton pressed excludes the remote control function;



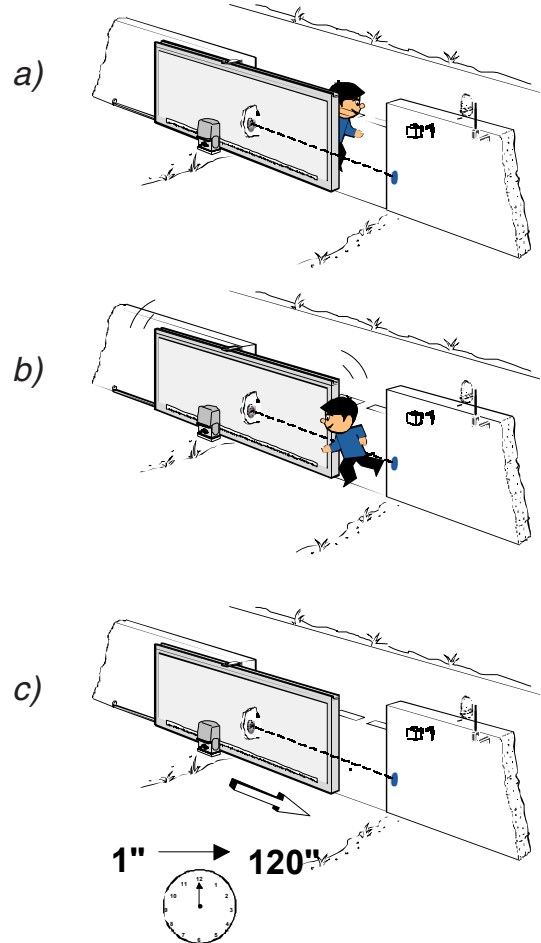
**7 OFF** Re-opening during closure; insert the photoelectric cells (see safety devices); when detecting an obstacle during the gate-closure phase, the photoelectric cells cause the direction to reverse until full opening (if the device used, set the dip switch to ON);



**8 OFF** Partial stop (only with connected photoelectric cells, otherwise leave the dip set to ON).

If an obstacle is detected during movement, the gate stops.

*NB: with the automatic closing function on (dip switch 1 ON), the gate closes automatically **ref. c)**, or use the transmitter or the pushbutton*

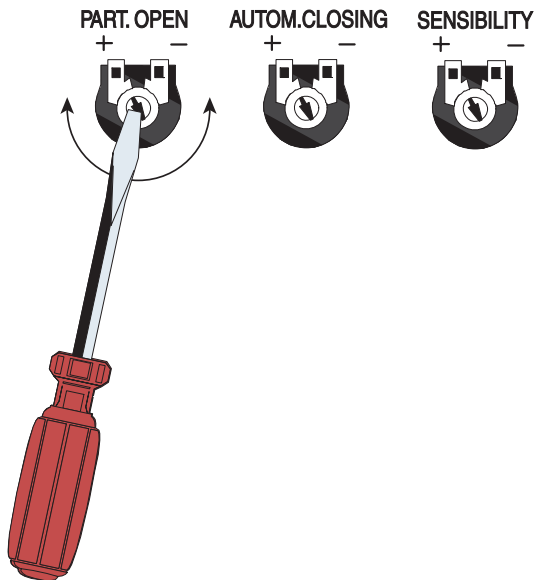
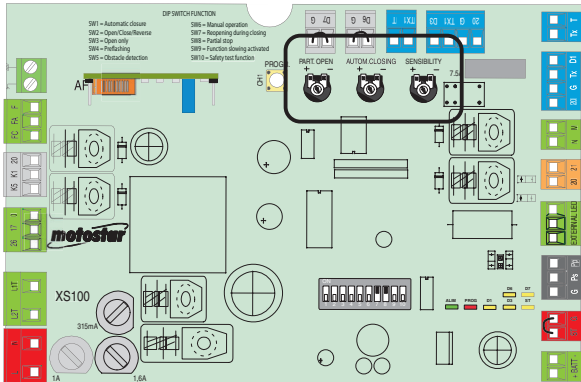


**9** - Dip switch not used, leave it "OFF";

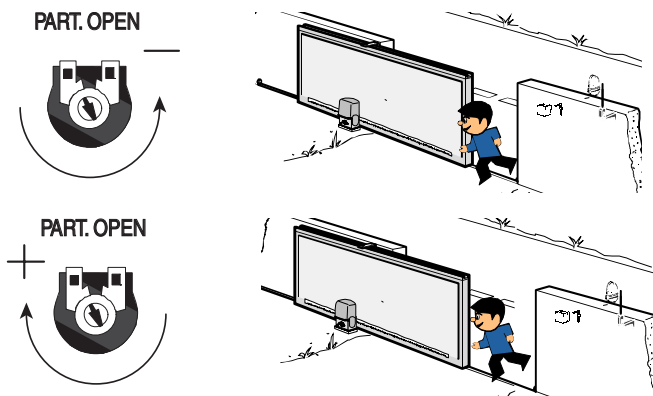
**10 ON** Photoelectric cell test; at every gate opening and closure command, the control unit checks the efficiency of the photoelectric cells (*see page 19*).

## 4.6 ADJUSTMENTS

Adjust the gate opening, the automatic closing or the sensitivity of the motor force, turning the trimmer + or - using a screwdriver as indicated in the figure.

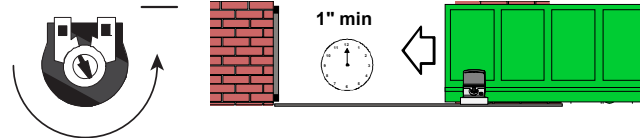


**Trimmer PART. OPEN** = Partial opening. Adjusts gate opening for pedestrian passage.

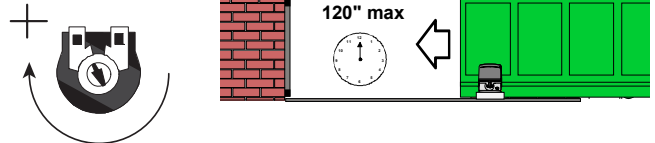


**Trimmer AUTOMATIC CLOSING** = Automatic closure time. Adjusts the gate's waiting time at while opening before it begins to close automatically.

AUTOM. CLOSING

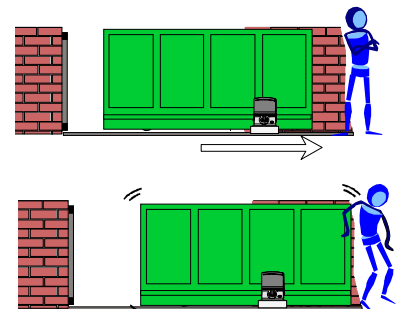


AUTOM. CLOSING

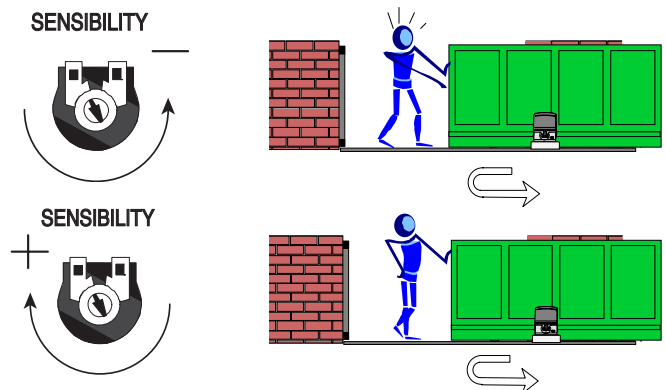


**Trimmer SENSIBILITY** = Sensitivity of the amperometric sensor. Adjusts the sensitivity of the sensor that constantly checks the force developed by the motor during the opening and closing phases; if the pre-set level is exceeded, it intervenes by stopping during opening or inverting the gate's direction when closing.

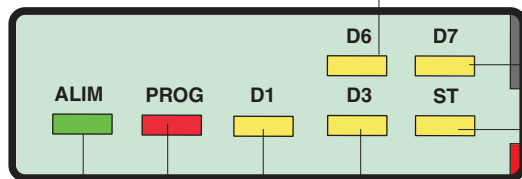
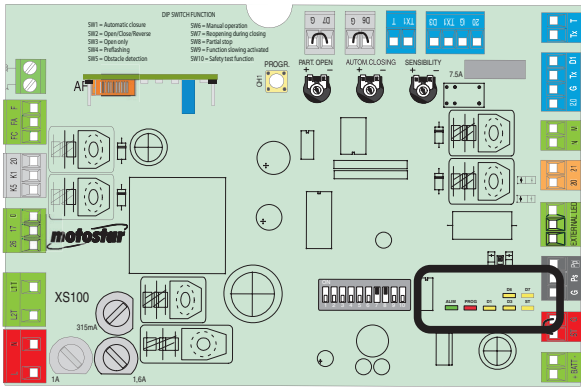
OPENING



CLOSURE



## 4.7 LED CONTROL FUNCTIONS



### YELLOW LED «D6»

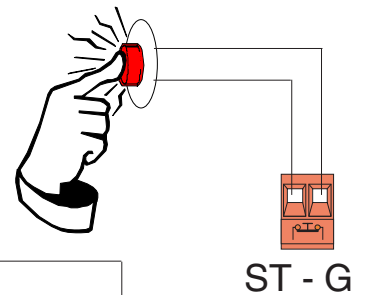
Signals the intervention of the rib with gate during close.

### YELLOW LED «D7»

Signals the intervention of the rib with gate during opening

### YELLOW LED «ST»

Comes on every time the total stop button is pressed.



### GREEN LED «ALIM\*\*\*»

Signals the power supply in the control board.

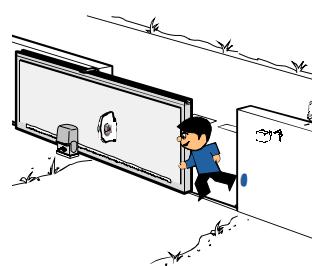


### RED LED «PROG»

With slow, intermittent flashing, signals that the radio code has been stored. With rapid flashing and LEDs D1/D3/D6/D7/ST on, it signals the presence of an obstacle and/or a malfunctioning of the safety devices and stop button.

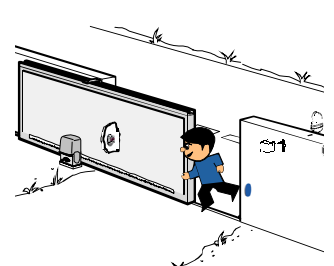
### YELLOW LED «D1»

Signals the presence of an obstacle between the safety photoelectric cells connected during re-opening.



### YELLOW LED «D3»

Signals the presence of an obstacle between the safety photoelectric cells connected during partial stop.

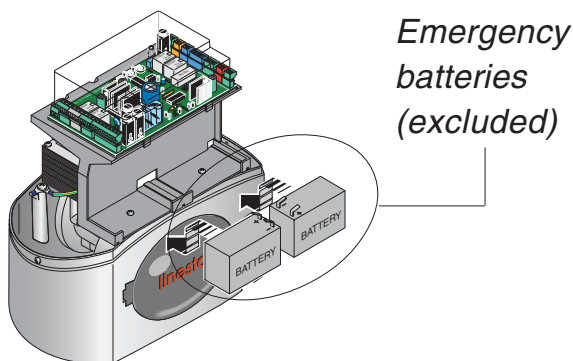


## 4.8 CONNECTION FOR THE EMERGENCY BATTERIES

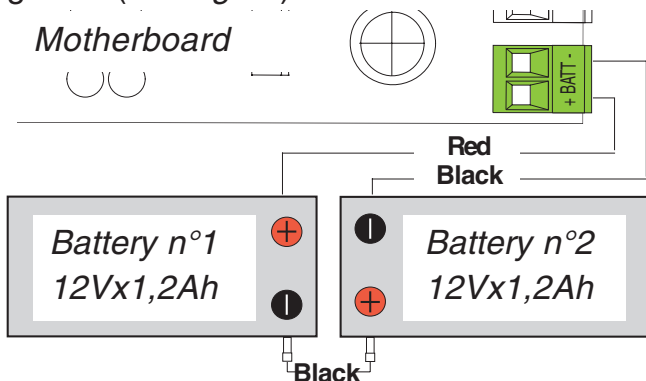
• When power is unavailable, the control board allows electricity to be supplied to the automation by emergency batteries. When mains power comes back on, it also recharges the batteries.

**Caution: the procedures for connecting the batteries must be performed with the power turned OFF!**

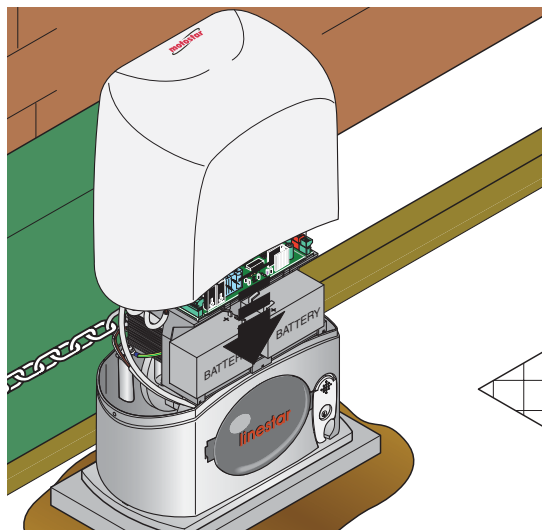
• Position the emergency batteries under the control board.



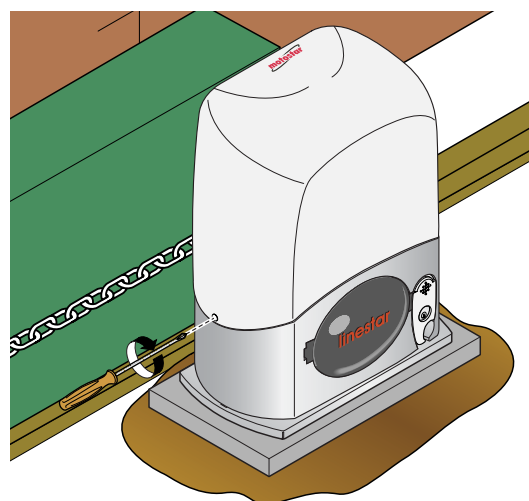
• Connect the positive (+) of battery 1 on the + terminal of the control board, the negative (-) of battery 2 on terminal - and connect the two remaining poles (+,-) together (see figure).



• After performing all the connections, adjustments and settings (see chapter 4). Insert the gearmotor cover, the protection of the end-stop unit, and block the gearmotor by locking the door.



• Secure the cover with the side screws.



## 5.0 MAINTENANCE

### Periodical checks:

- whether the electric cables are intact;
- wheels, guide pads, underground guide and the stop blocks (see page 5);
- chain tension (see page 8);
- fixing the gearmotor (see page 10).

