

STEP 1

CAUTION - Important safety instructions. Observe all the instructions as improper installation may cause serious damage

CAUTION - Important safety instructions. It is important to comply with these instructions to ensure personal safety. Store these instructions

- Before commencing the installation, check the "Product technical specifications", in particular whether this product is suitable for automating your guided part. Should it be unsuitable, DO NOT proceed with the installation
- The product cannot be used before it has been commissioned as specified in the "Testing and commissioning" chapter

CAUTION - According to the most recent European legislation, the implementation of an automation system must comply with the harmonised standards set forth in the Machinery Directive in force, which allow for declaring the presumed conformity of the automation. On account of this, all operations regarding connection to the mains electricity, as well as product testing, commissioning and maintenance, must be performed exclusively by a qualified and skilled technician!

- Before proceeding with the product's installation, check that all materials are in good working order and are suitable for the intended applications
- The product is not intended for use by persons (including children) with reduced physical, sensory or mental capacities, nor by anyone lacking sufficient experience or familiarity with the product
- Children must not play with the appliance
- Do not allow children to play with the control devices of the product. Keep the remote controls out of reach of children

CAUTION - In order to avoid any danger from inadvertent resetting of the thermal cut-off device, this appliance must not be powered through an external switching device, such as a timer, or connected to a supply that is regularly powered or switched off by the circuit

- Provide a disconnection device (not supplied) in the plant's mains power supply, with a contact opening distance that ensures complete disconnection under the conditions envisaged by Overvoltage Category III
- Handle the product with care during installation, taking care to avoid crushing, knocks, falls or contact with liquids of any kind. Keep the product away from sources of heat and open flames. Failure to observe the above can damage the product and increase the risk of danger or malfunctions. If this should happen, stop installation immediately and contact the Customer Service
- The manufacturer assumes no liability for damage to property, items or persons resulting from non-compliance with the assembly instructions. In such cases the warranty does not cover material defects
- The weighted sound pressure level of the emission A is lower than 70 dB(A)
- Cleaning and maintenance to be carried out by the user must not be effected by unsupervised children
- Before intervening on the system (maintenance, cleaning), always disconnect the product from the mains power supply
- Check the system periodically, in particular all cables, springs and sup-

ports to detect possible imbalances, signs of wear or damage. Do not use if repairs or adjustments are necessary, because a failure with the installation or an incorrectly balanced automated system may lead to injury

- The packaging materials of the product must be disposed of in compliance with local regulations
- Keep persons away from the gate when it is moved through the control elements
- When performing a manoeuvre, keep an eye on the automated mechanism and keep all bystanders at a safe distance until the movement has been completed
- Do not operate the automation if anyone is working on it; disconnect the power supply before permitting any work to be carried out

INSTALLATION PRECAUTIONS

- Prior to installing the drive motor, check that all mechanical components are in good working order and properly balanced, and that the automation moves correctly
- If the door being automated has a pedestrian door, the system must include a control device inhibiting the operation of the motor when the pedestrian door is open
- Make sure that the controls are kept at a safe distance from moving parts, while allowing a good view of these.
- Unless a selector is used, the controls should be installed at least 1.5 m from the ground and must not be accessible
- If the opening movement is controlled by a fire-prevention system, make sure that any windows larger than 200 mm are closed by the control elements
- Prevent and avoid any form of trapping between the moving and fixed parts during manoeuvres
- Permanently affix the manual operation label next to the element enabling the manoeuvre itself
- After installing the drive motor, make sure that the mechanism, protective system and all manual manoeuvres operate properly

PRODUCT DESCRIPTION

STEP 2

2.1 - INTENDED USE

AVIO500 is a set of components designed for the automation of sectional or overhead doors in residential applications.

Any applications other than those described above or in different conditions from those specified in this manual are forbidden.

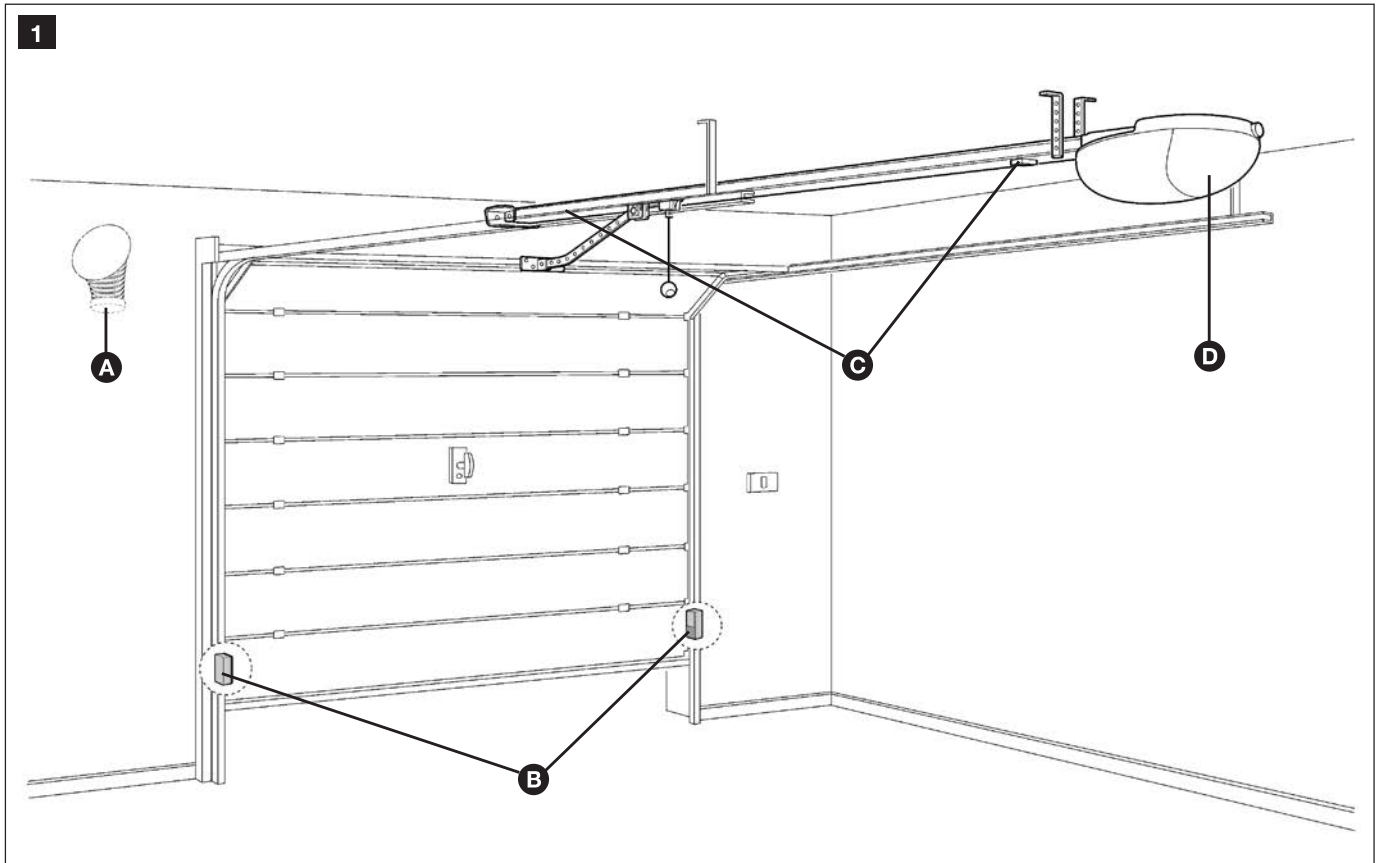
AVIO500 operates with electric power. In the event of a power failure, the gearmotor can be released using a suitable cord in order to move the door manually.

2.2 - DESCRIPTION OF AUTOMATION

To clarify a few terms and aspects of a sectional or overhead door automation system.

In Figure 1 we provide an example of a typical AVIO500 application:

- A) FL200 flashing light with incorporated aerial (optional)
- B) Pair of PHR00 photocells (optional)
- C) Mechanical stops
- D) AVIO500 gearmotor



2.3 - DESCRIPTION OF EQUIPMENT

AVIO500 can consist of the devices shown in figure 2; immediately make sure that they correspond to the contents of the package and verify the integrity of the devices.

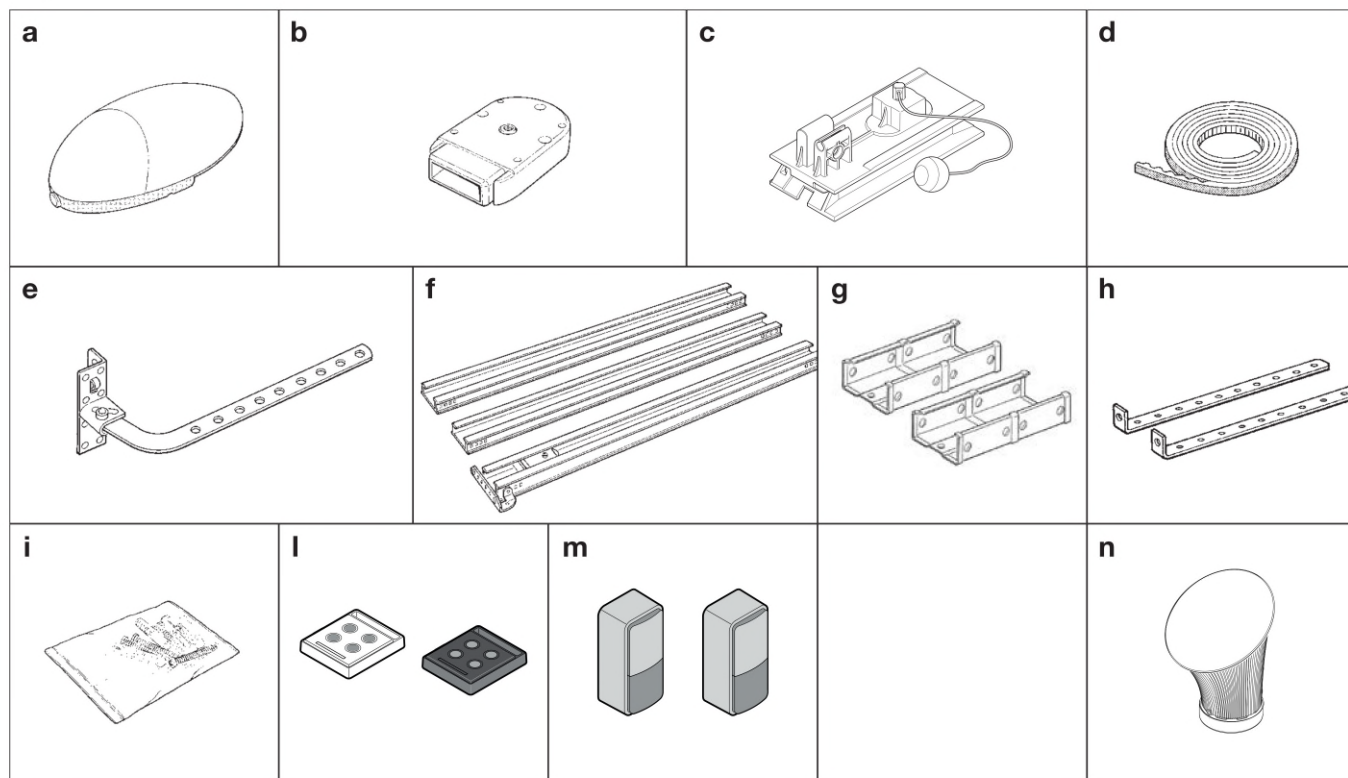
N.B.: to adapt the AVIO500 to local regulations, the contents of the package may vary; an exact list of the contents is shown on the outside of the package. Anyhow, please consult the sales manager.

Component and accessory list:

- A) 1 AVIO500 electromechanical gearmotor with incorporated control unit
- B) head with pinion
- C) carriage and release cord
- D) 6 m belt
- E) leaf bracket
- F) 1 guide, 3 meters long, in 3 section
- G) 2 coupling profiles
- H) 2 ceiling brackets
- I) Miscellaneous small parts: mechanical stops, fasteners, etc.; see tables 1, 2, 3 and 4 (*)
- L) 2 ECCO5... radio transmitters
- M) PHR00 pair of wall-mounted photocells
- N) FL200 flasher with integrated antenna

* The screws required for mounting AVIO500 are not supplied as they depend on the type of material and its thickness.

2



2.3.1 – AVIO500 electromechanical gearmotor

AVIO500 is an electromechanical gearmotor consisting of a 24V direct current motor. It features a mechanical release mechanism with cord that allows you to move the door manually in the event of a power failure.

The gearmotor is fixed to the ceiling with the relative mounting brackets.

The control unit actuates the gearmotor and provides for the control of the supply of the different components; it features an electronic board with incorporated radio receiver.

The control unit can actuate the gearmotor with two speeds: "slow" or "fast".

The three P1, P2 and P3 buttons [B] and the corresponding LEDs are used to program the control unit.

A numbered terminal block is present for the electrical connections [A]. A LED status signal is present in correspondence with the STOP input.

Hookup to the mains couldn't be easier - simply fit the plug into a mains socket.

3

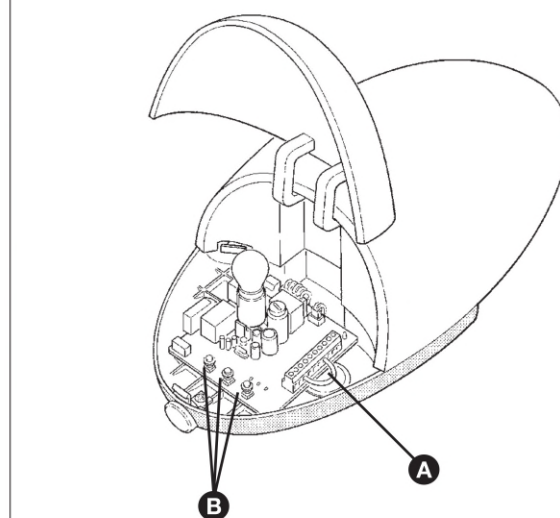


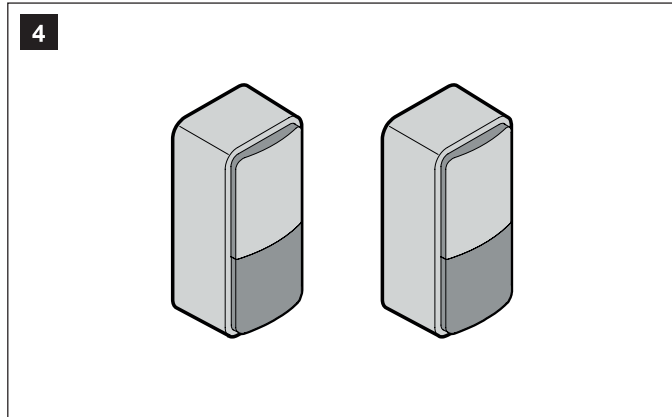
TABLE 1

List of small parts for a AVIO500	Q.ty
M6 self-tapping nuts	Pcs 4
M6 x14 screws	Pcs 2
6.3x38 tcei screws	Pcs 4
4.2x9.5 screws	Pcs 2
6x18 screws	Pcs 1
R05 washers	Pcs 2
Cable membrane	Pcs 1
Mechanical stops	Pcs 2

2.3.2 – PHR00 photocells (optional)

The pair of PHR00 wall-mounted photocells, once they are connected to the control unit, enables the detection of obstacles found on the optical axis between the transmitter (TX) and the receiver (RX).

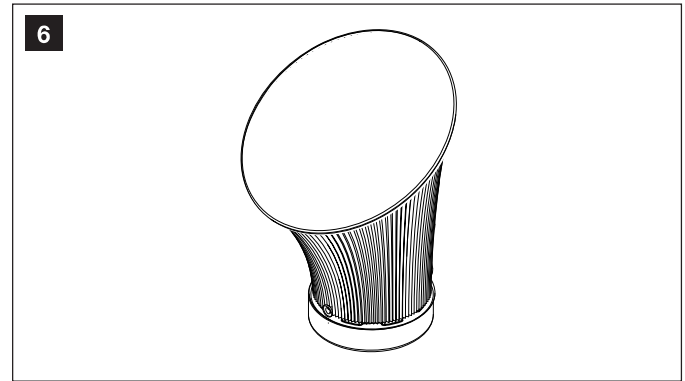
TABLE 2	
List of small parts for PHR00	Q.ty
HI LO 4X9,5 screw	Pcs 4
3.5X25 self-tapping screw	Pcs 4
s 5 c nylon screw anchor	Pcs 4



2.3.4 – FL200 flasher with integrated antenna (optional)

The flashing light is controlled by the control unit and signals danger when the door is moving. Inside the flashing light there is also the aerial for the radio receiver.

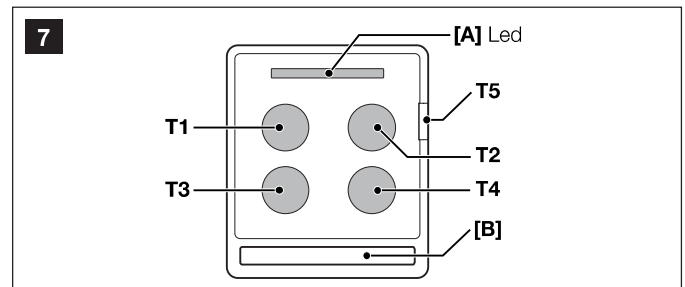
TABLE 4	
List of small parts for FL200	Q.ty
4.2X32 self-tapping screw	Pcs 4
s 6 c nylon screw anchor	Pcs 4



2.3.5 – ECC05... radio transmitter

The radio transmitter is used for the remote control of the door opening and closing manoeuvres. It features four buttons that can all be used for the 4 types of command to a single automation unit, or to control up to 4 different automation units.

The transmission of the command is confirmed by the LED [A]; an eyelet [B] allows them to be hung on a keyring.



INSTALLATION

STEP 3

⚠ The installation must be carried out by qualified and skilled personnel in compliance with the directions provided in chapter 1 “WARNINGS”.

3.1 - PRELIMINARY CHECKS

AVIO500 must not be used to power a door that is not efficient and safe. It cannot solve defects resulting from incorrect installation or poor maintenance of the door.

CAUTION: incorrect installation can cause serious damage.

Before proceeding with the installation you must:

- Make sure that the door movement does not hinder roads or public footpaths.
- After the motor has been installed, remove unnecessary cables or chains and turn off any unneeded equipment.

- Make sure that the weight and dimensions of the door fall within the specified operating limits (Chapter 3.1.1). If they do not, AVIO500 cannot be used.

- Make sure that the structure of the door is suitable for automation and in compliance with regulations in force.

- Make sure that there are no points of greater friction in the opening or closing stroke of the door.

- Make sure that the mechanical structure of the door is sturdy enough and that there is no risk of it derailing out of the guides.

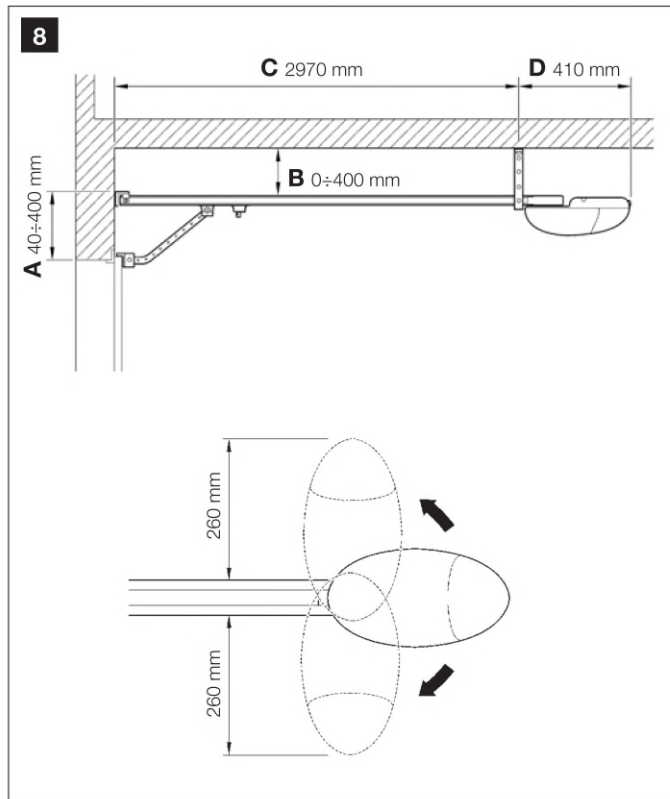
- Make sure that the door is well balanced: it must not move by itself when it is placed in any position.

- Make sure that the installation area is compatible with the size of the gearmotor and that it is safe and easy to release.

- Make sure that the mounting positions of the various devices are protected from impacts and that the mounting surfaces are

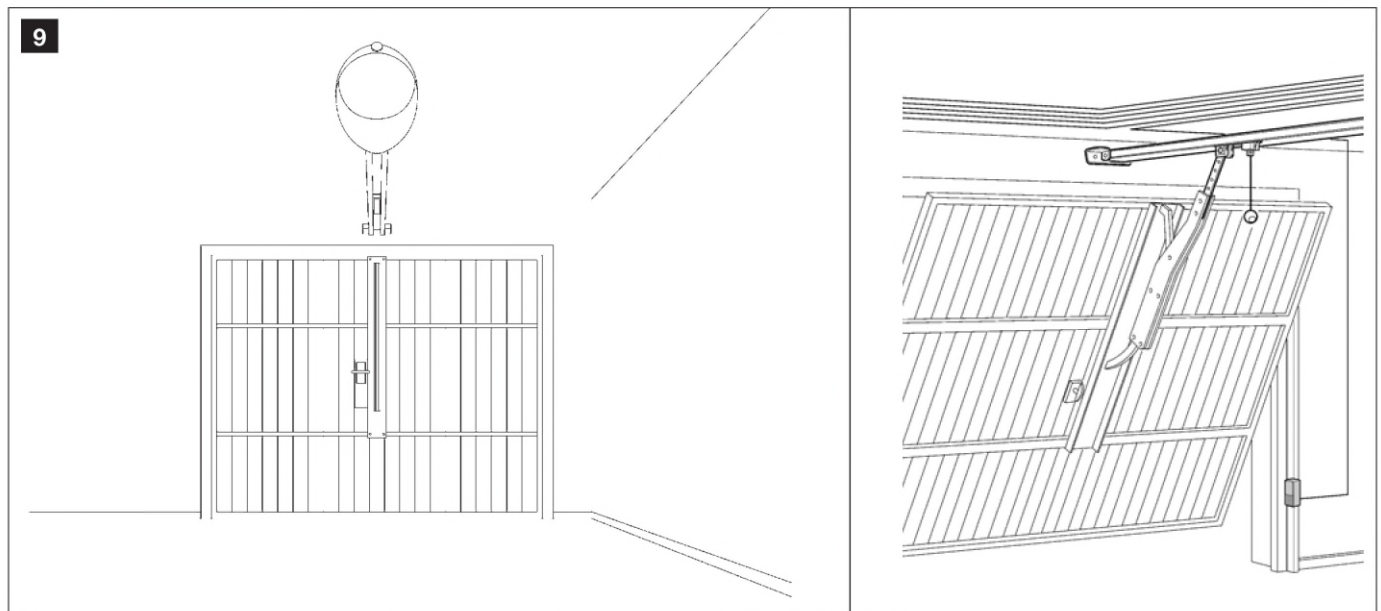
sufficiently sturdy.

- Make sure that the mounting surfaces of the photocells are flat and that they enable the proper alignment between TX and RX.
- Make sure that the minimum and maximum clearances specified in fig. 8 are observed.



• Pay attention in particular to the methods for securing the head of the guide and the brackets to the ceiling. The head of the guide will have to bear all the strain of opening and closing the door; the ceiling-mounted brackets will have to bear all the weight of AVIO500. In both cases, the wear and deformations which may occur in time must be taken into consideration.

• The gearmotor should be mounted at the centre of the door, but a small deviation from this position is permissible. This may be required to mount the OSCILLATING ARM to the side of the handle (Figure 9).

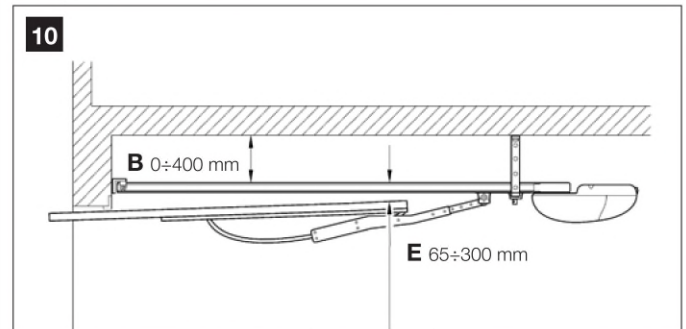


- Make sure that, in the position corresponding to the door, or slightly to the side, (see positions “A” and “B”) the conditions are suitable for mounting the head of the guide; in particular, the material should be sufficiently sturdy and compact.

Make sure that AVIO500 can be mounted on the ceiling along position “C” using the mounting brackets.

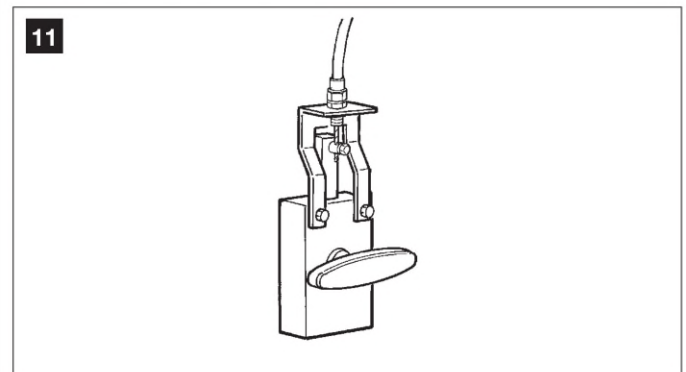
If the door to be automated is an overhead type with springs or counterweights, it will be necessary to install an OSCILLATING ARM, which must be mounted next to the handle (Figure 9).

- Make sure that distance [E] in Figure 10, i.e. the minimum distance between the upper side of the guide and the maximum point reached by the upper edge of the door, is no shorter than 65 mm and no longer than 300 mm. Otherwise AVIO500 cannot be installed.



If the door closes a room that has no other means of access, we recommend installation of the EXTERNAL RELEASE KIT (figure 11 and 11a). In fact, in this situation, a simple power failure may prevent access to the area.

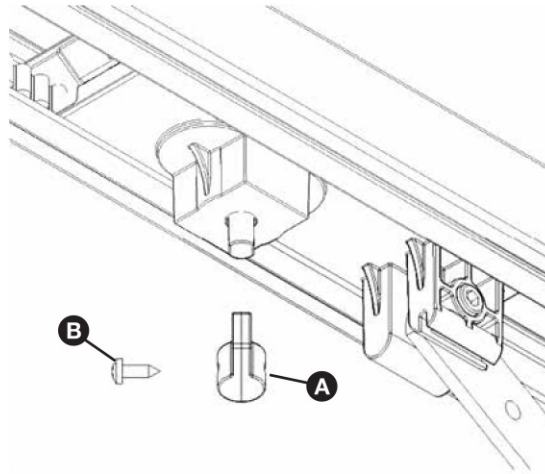
N.B.: the oscillating arm and external release kit are supplied with the related assembly instructions.



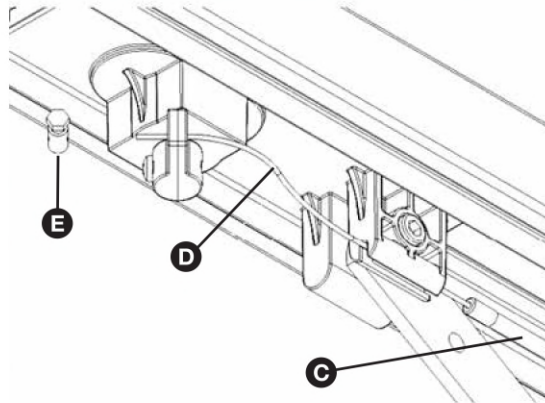
11a

EXTERNAL MANUAL RELEASE

- 1) Fit the lever
- [A] Lever
- [B] Black screw



- 2) Fit the steel cable
- [C] Sheath
- [D] Steel cable
- [E] Clamp



3.1.1 – Operating limits

Chapter 6 "Technical characteristics" gives the basic data required to evaluate the suitability of the AVIO500 unit's components to the installation conditions.

The AVIO500 can automate residential sectional and swing doors up to the following sizes:

Sectional doors: max height 240 cm - max width 370 cm (8.8 m²) - max force 55 kg.

SWING doors, non-protruding: max height 220 cm - max width 350 cm (7.7m²) - max force 55 kg.

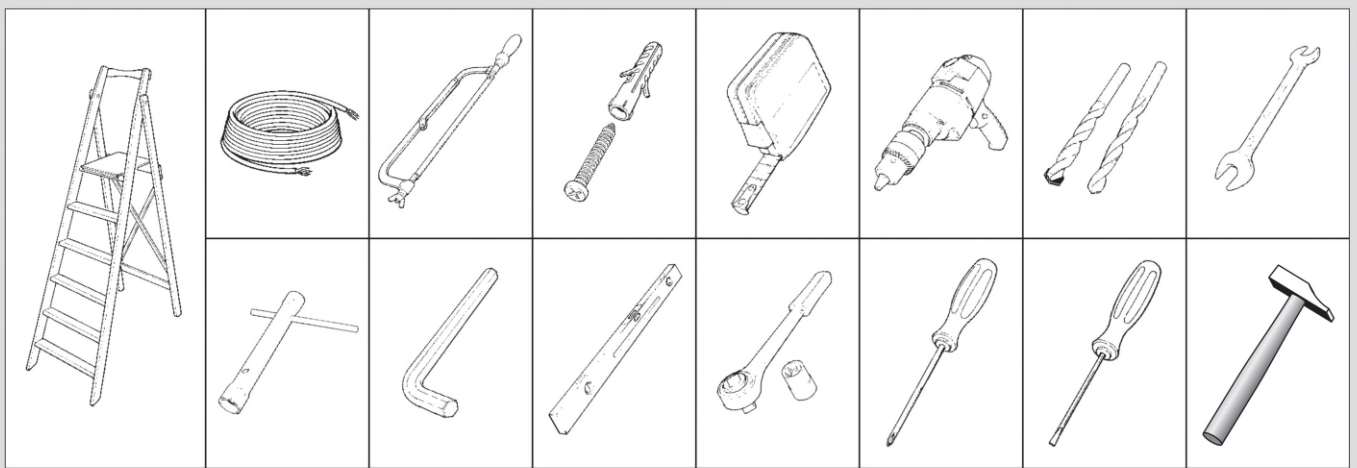
SWING doors, protruding: max height 280 cm - max width 350 cm (9.8 m²) - max force 55 kg.

The shape of the door and weather conditions, such as the presence of strong winds, can reduce the above maximum values. In these cases it is important to measure the force required to move the door in the worst conditions and compare these with the technical specifications of the AVIO500 gearmotor.

3.1.2 – Tools and materials

⚠ Make sure you have all the tools and materials required for the installation; check that they are in good condition and conforming to safety regulations. Figure 12 gives some examples.

12



3.1.3 – List of cables

The cables required for the installation of AVIO500 may vary depending on the type and quantity of devices to be installed; figure 13 shows the cables needed for a typical installation; no cable is supplied with AVIO500.

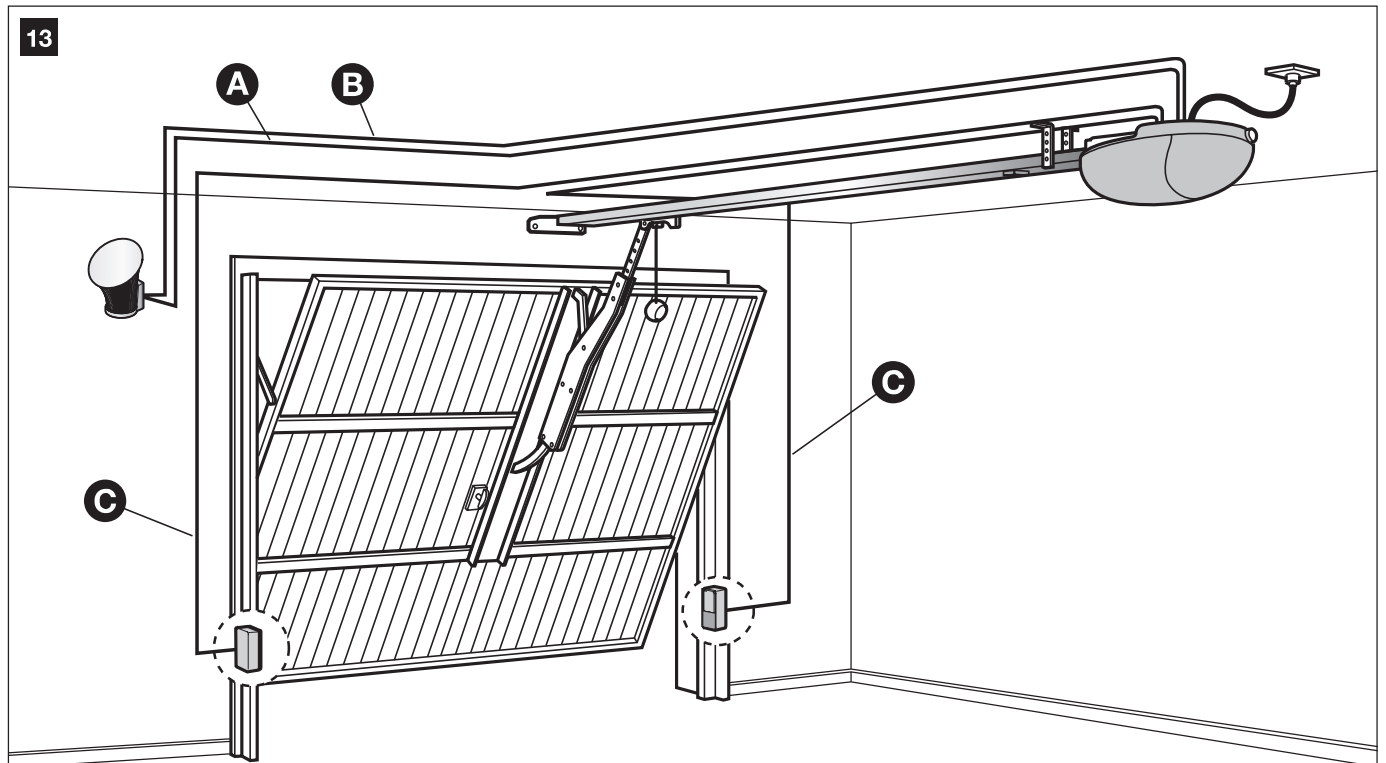


Table 5: List of cables

Connection	Cable type	Maximum length allowed
[A] Output flashing light FLASH	Cable 2 x 0,25 mm ²	20 m
[B] Radio aerial	RG58 type shielded cable	20 m (recommended less than 5 m)
[C] Input PHOTO	TX = Cable 2 x 0.25 mm ² RX = Cable 3 x 0.25 mm ²	20 m (note 1)

Note 1 – For the PHOTO, STOP and Step-by-Step cables, there are no special contraindications to the use of a single cable that groups together multiple connections.

WARNING: – the cables used must be suitable for the type of installation; for example, an H03VV-F type cable is recommended for indoor applications.

3.2 - PREPARING THE ELECTRICAL SYSTEM

With the exception of the plug and the power cable, the rest of the system uses extra-low voltage (approx. 24V); the wiring can therefore be done by personnel that is not properly qualified, provided that all the instructions in this manual are carefully observed.

After selecting the position of the various devices (refer to figure 13) you can start preparing the conduits for the electrical cables connecting the devices to the control unit.

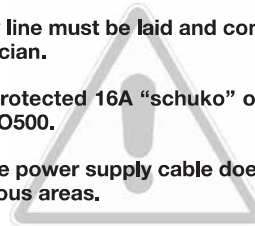
The shock-resistant conduits are designed to protect the electrical cables and prevent accidental breakage.

Install any fixed control close to the door but away from moving parts and at a height of 1.5m.

3.2.1 – Connection to the Electrical Mains

Although the connection of AVIO500 to the electrical mains is beyond the scope of this manual, we wish to remind you that:

- The power supply line must be laid and connected by a qualified professional electrician.
- Have a suitably protected 16A “schuko” outlet installed, where you can plug in AVIO500.
- Make sure that the power supply cable does not hang over moving parts or hazardous areas.



3.3 - INSTALLATION OF OTHER EQUIPMENT

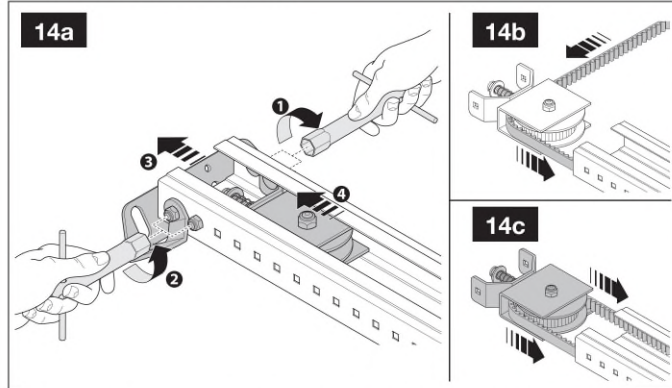
The AVIO500 installation is made up of three parts:

- Guide assembly (see paragraph 3.3.1).
- Fixing of the gearmotor to the guide (see paragraph 3.3.2).
- Fixing of the gearmotor to the ceiling (see paragraph 3.3.3).

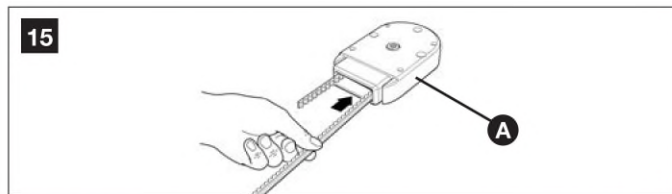
3.3.1 - Assembling the guide

The guide supplied with the AVIO500 must be assembled as follows:

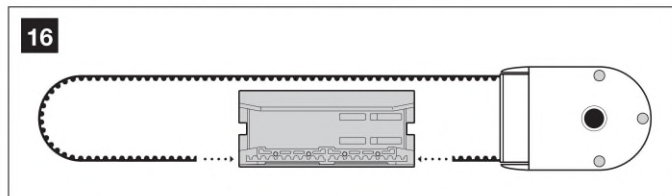
1. Referring to figure 14, remove the belt tensioner device (14a); insert one end of the belt into the pulley (14b); reintroduce the belt tensioner device into the guide (14c).



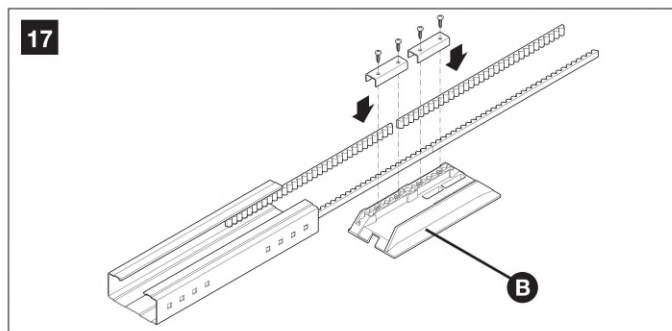
2. Pass the same end of the belt through the head [A], as in figure 15. *NB - Make sure that the belt is correctly positioned: it must be with the teeth facing inwards, straight and without twists.*



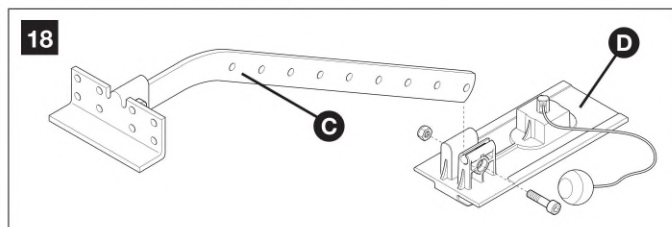
3. Turn the lower section of the carriage so that the grooves correspond with the two ends of the belt, as in figure 16.



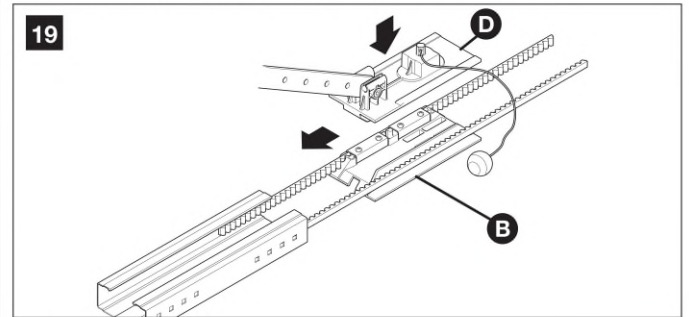
4. Place both ends of the belt into all the shaped slots of the lower carriage [B]. Secure the ends of the belt with the 2 screws (V4.2x9.5) and 2 washers (R05), as in figure 17.



5. Fix the belt guide [C] to the upper carriage [D] with the V6x18 screw and related M6 nut, as in figure 18.

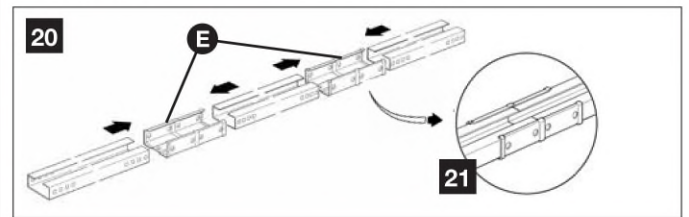


6. Insert the upper carriage [D] into the lower carriage [B] and place the entire carriage assembly inside the guide, as in figure 19.

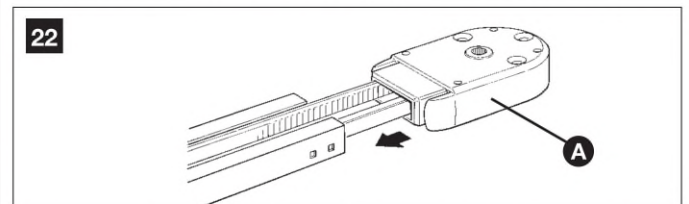


7. With the aid of a hammer, assemble the three pieces of the guide engaging them into the connection brackets [E], using the hammer, per figures 20 and 21.

Important - the guides must slide inside the brackets until they click firmly into place.

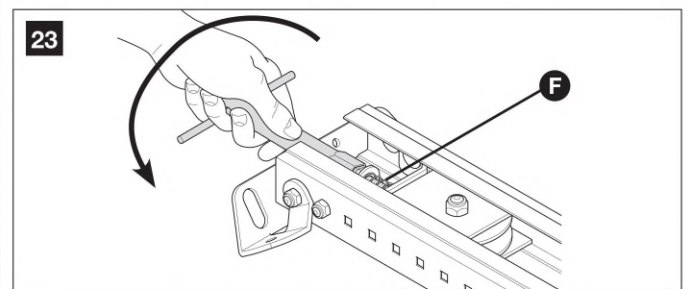


8. Carefully position the belt into the guide, making sure that it is not twisted.
9. Fix the head [A] into the free end of the guide with force, as in figure 22.



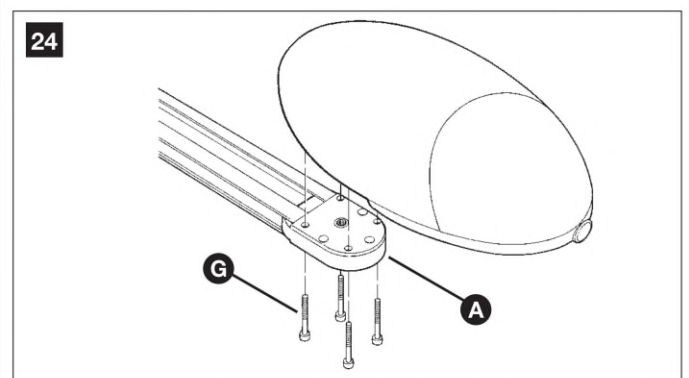
10. Finally, tension the belt with the adjustment screw [F] of the belt tensioner device. See fig. 23.

Caution - the gearmotor could break if the belt is TAUT, and it could cause unpleasant noise if it is too SLACK.

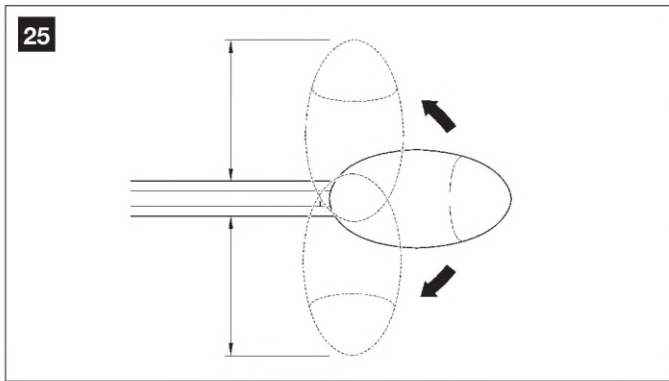


3.3.2 - Fixing the gearmotor to the guide

- 1 Couple the AVIO500 gearmotor's shaft extension with the head of the guide [A]; then secure them using the four M6.3x38 screws [G].

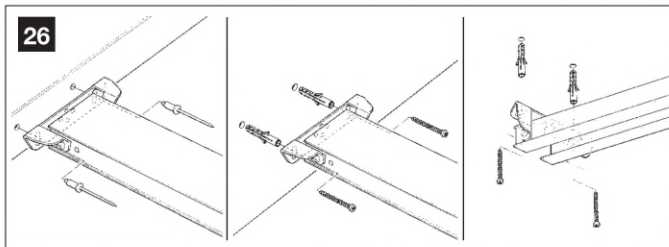


The gearmotor can be rotated in three different positions.



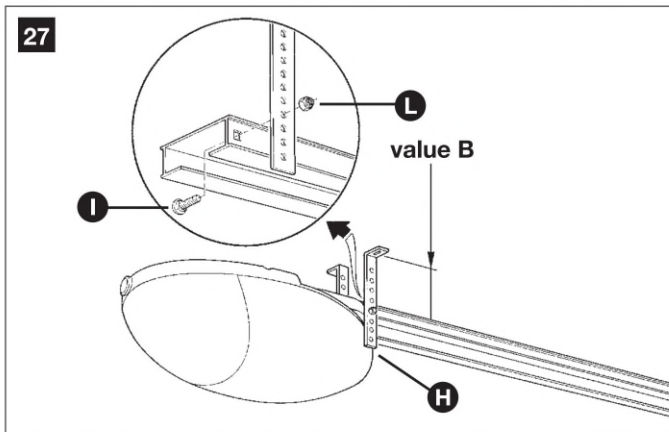
3.3.3 – Fixing the gearmotor to the ceiling

1 Observing the A, B and C positions shown in Figure 8, mark the 2 fastening points for the guide's front bracket in the centre of the garage door (or slightly off-centre – Figure 11). Depending on the type of material, the front bracket can be fastened using rivets, anchors or screws (Figure 26). If positions A, B, and C (figure 8) allow it, the bracket can be fastened directly to the ceiling.

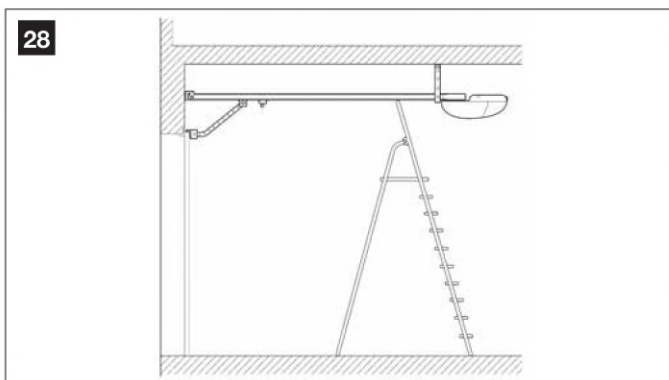


2 After drilling the holes, leave the head of the gearmotor on the ground, lift the guide from the front and secure it with two screws, anchors or rivets depending on the type of surface.

3 Secure the brackets **[H]** with bolts **[I]** and nuts **[L]** in the hole which allows the closest match for dimension B (see figure 8).

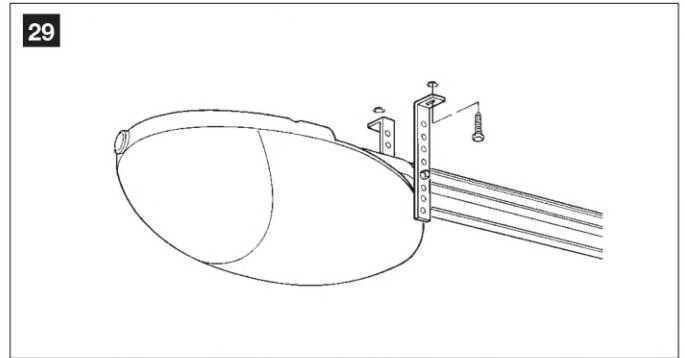


4 Using a ladder, lift the gearmotor and position the brackets against the ceiling. Mark the drilling points, then put the gearmotor back on the ground.

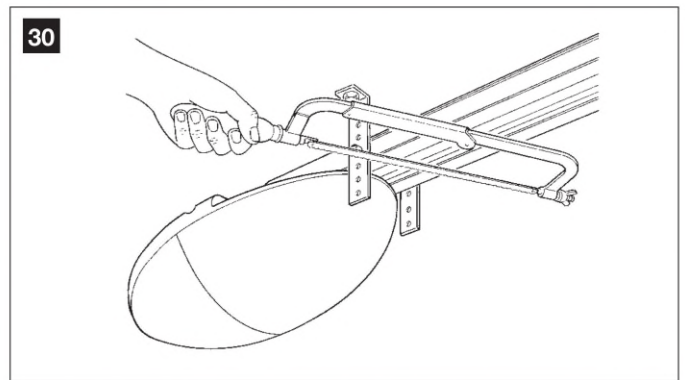


5 Using a ladder, drill the marked positions and place the brackets over

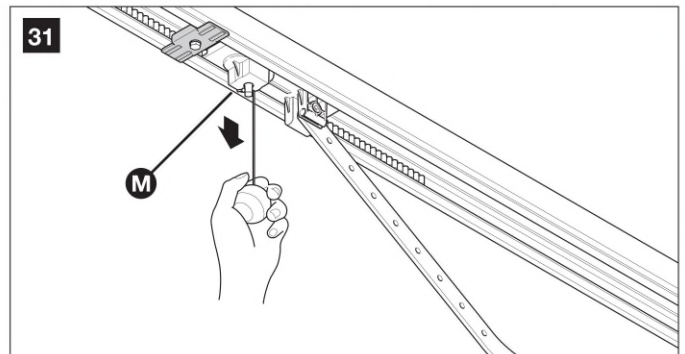
the holes which have just been drilled and, using suitable screws and plugs, secure the brackets.



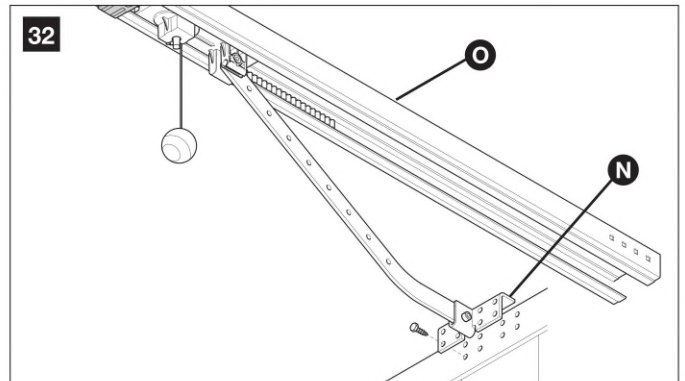
6 Make sure that the guide is perfectly horizontal, then cut the excess of the brackets using a hacksaw.



7 With the door closed, pull the cord and release the carriage **[M]** from the guide.

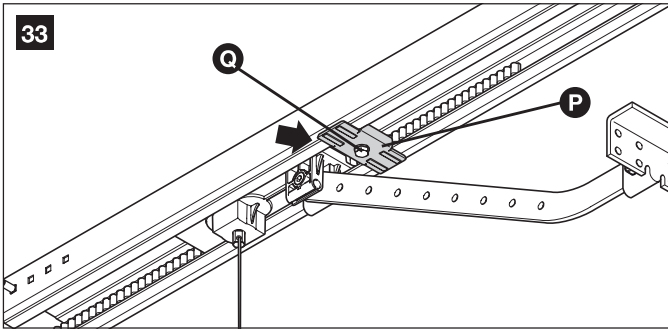


8 Slide the carriage until the door mounted bracket **[N]** shown in Figure 32 is positioned on the upper edge of the door, exactly perpendicular to the guide **[O]**.

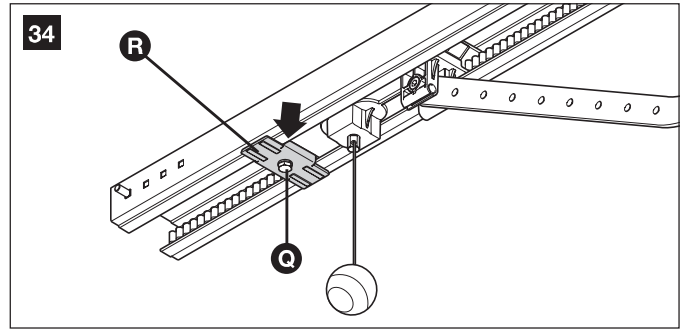


Secure door mounting bracket **[N]** with bolts or rivets. Use screws or rivets that are suitable for the door material, making sure that they are capable of bearing all the strain resulting from opening and closing the door.

9 Loosen the screws in the two mechanical stops, then place the front mechanical stop **[P]** before the carriage (Figure 33). Push the carriage hard in the closing direction and, in the reached position, tighten the screw firmly **[Q]**.



10 Open the door manually to the desired open position, then place the rear mechanical stop **[R]** near the carriage (Figure 34) and secure it by tightening the screw firmly **[Q]**.



11 Make sure that the release cord can be activated at a height less than 1.8 m.

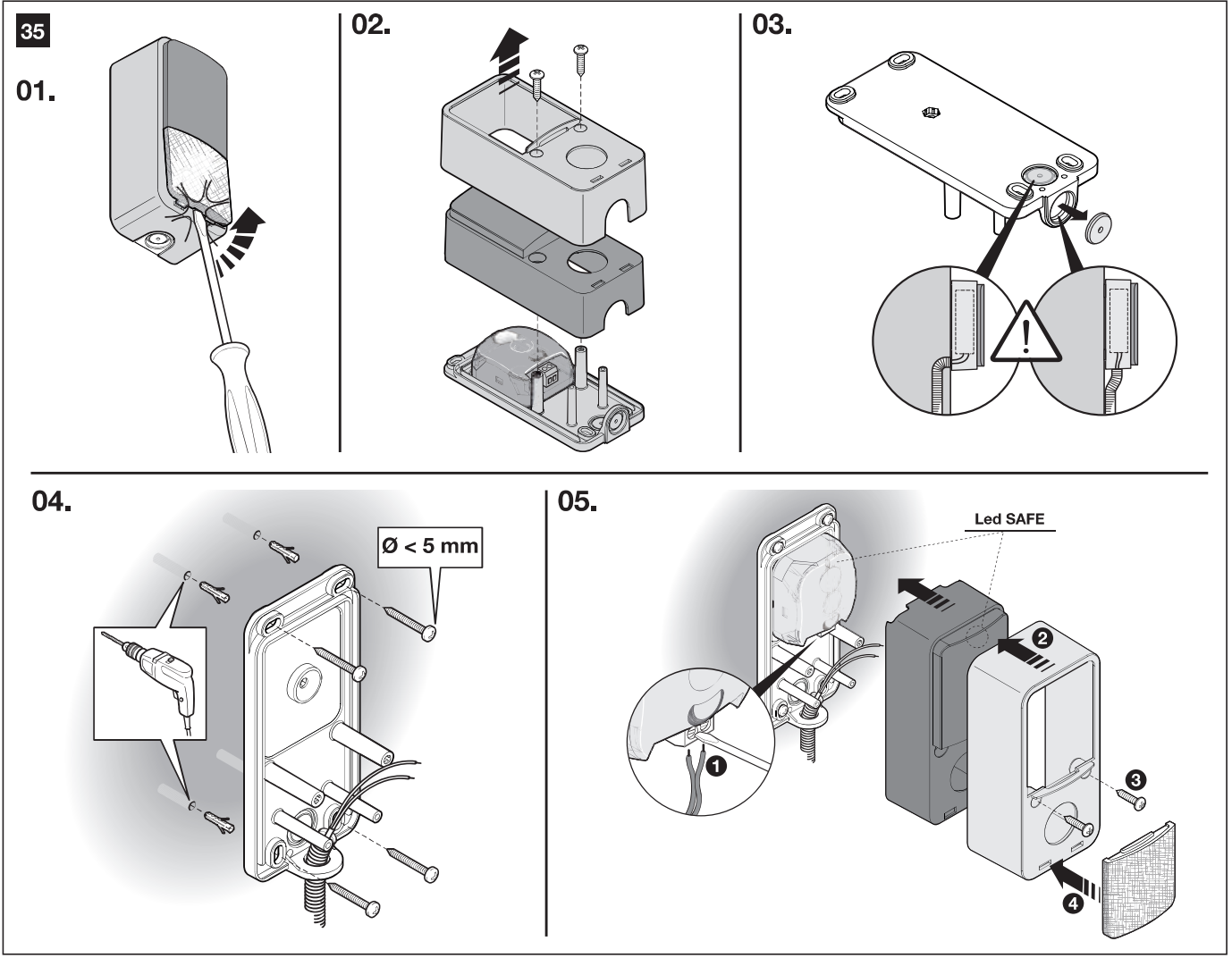
3.3.4 – PHR00 photocells (optional)

Caution: disconnect the power supply to the system before performing any installation operations.

▲ • position each photocell 40/60 cm above the ground • position them on the opposite sides of the zone to be protected • position them as close as possible to the door (maximum distance = 15 cm) • a tube for passing the cables must be present in the fastening point • orient the TX transmitter towards the central zone of the RX receiver (allowed misalignment: maximum 5°)

01. Remove the front glass (Phase 01 - Fig. 35)
02. Remove the upper casing then the internal casing of the photocell (Phase 02 - Fig. 35)
03. Perforate the lower casing in the point where the cables should pass (Phase 03 - Fig. 35)

04. - Position the lower casing in the point where the tube for the passage of the cables arrives and mark the perforation points (Phase 04 - Fig. 35)
 - Use a percussion drill to drill the wall with a 5 mm bit. Insert the 5 mm wall plugs (Phase 04 - Fig. 35)
 - Pass the electrical cables through the relevant holes and fasten the lower casing with the screws (Phase 04 - Fig. 35)
05. - Connect the electric cable to the relative terminals on the TX and RX units (Fig. 35-5). Make the electrical connections based on the function required and to the Fig. 42.
 - Put back in place, in the following order, the inner casing followed by the upper casing to be fastened with the two screws then, lastly, insert the cover and exert slight pressure to close it (Phase 05 - Fig. 35).



3.3.6 – FL200 flasher (optional)

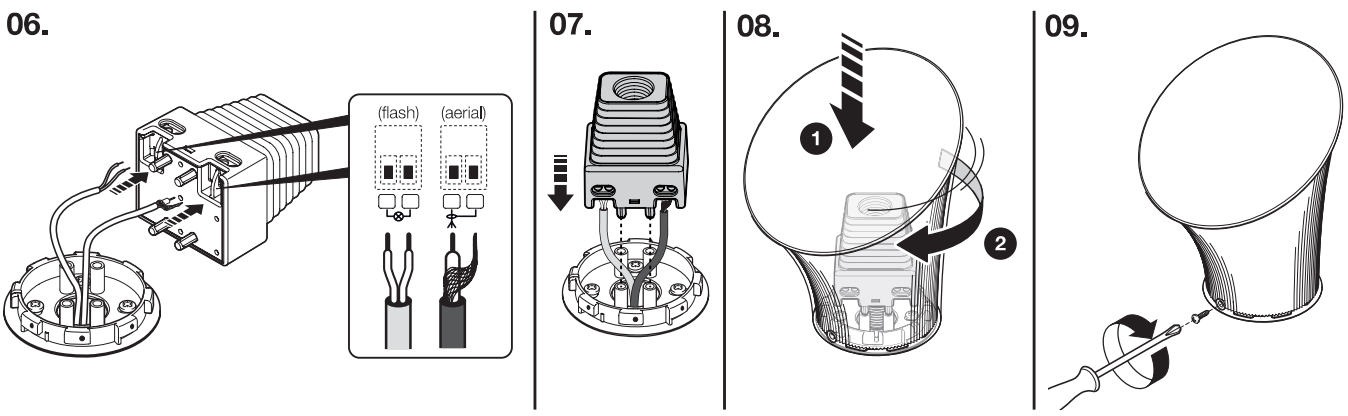
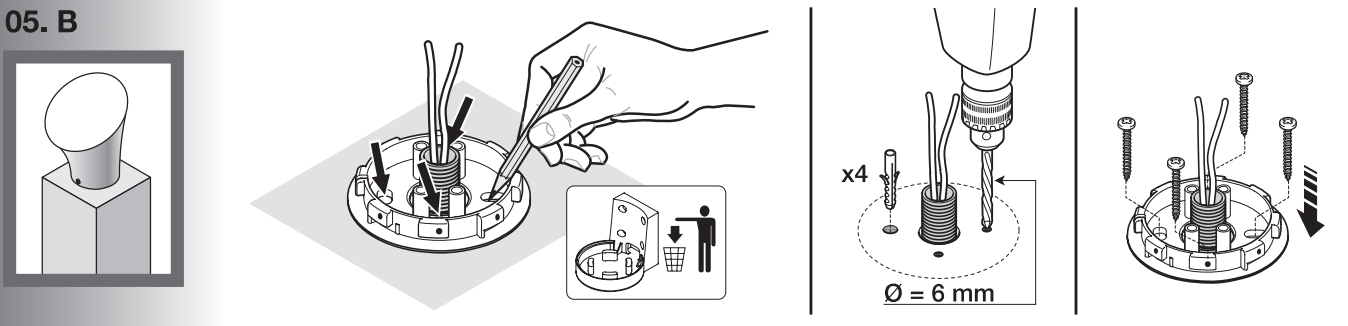
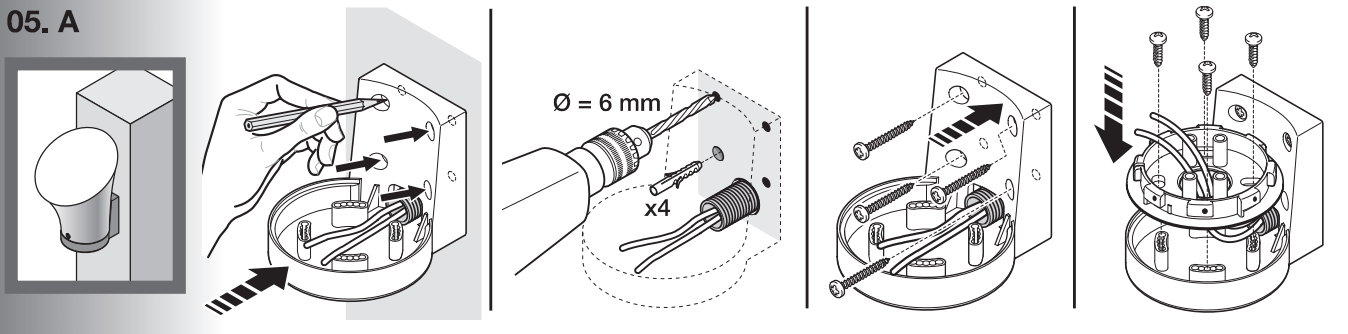
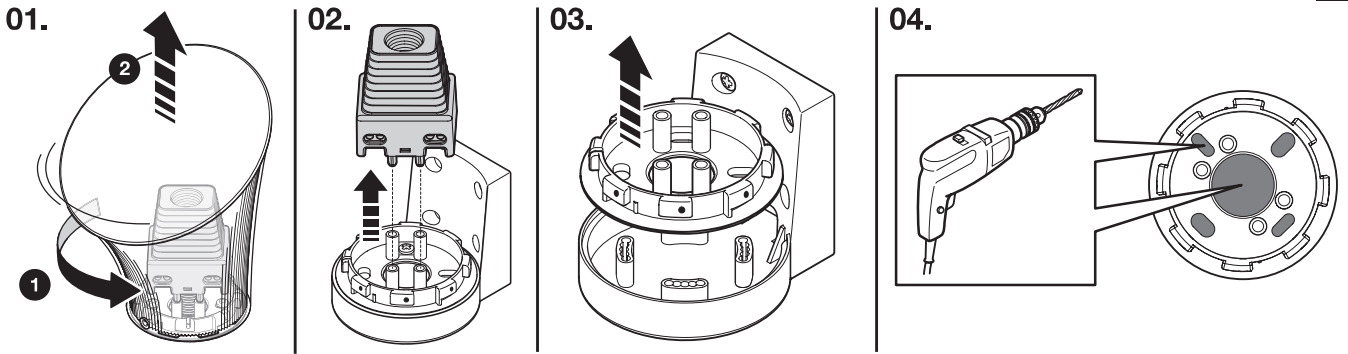
⚠ • The flashing light must be positioned near the door in a clearly visible position. It can be fasted to a horizontal or vertical surface.

• For connection to the Flash terminal, no polarity needs to be observed; instead for connection of the shielded aerial cable, it is necessary to connect the cable and sheath as shown in Fig. 37(06) and Fig. 42.

Choose the most suitable position in which to install the flashing light: it must be positioned near the door in a clearly visible position. It can be fasted to a horizontal or vertical surface.

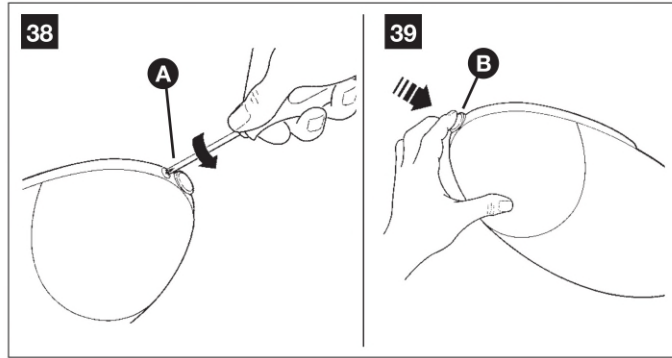
For the installation procedure see Fig. 37.

37

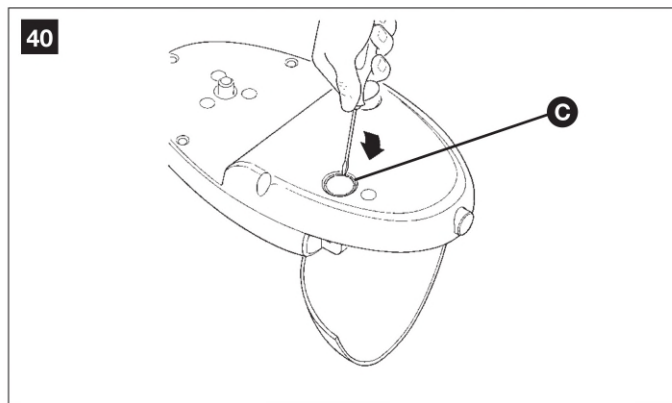


3.3.7 – Electrical connections to the AVIO500 control unit

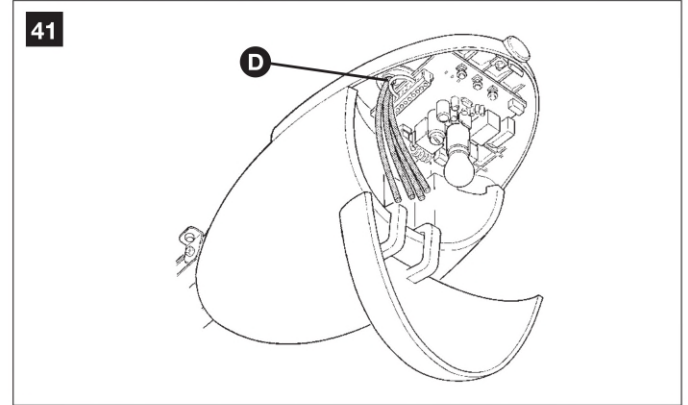
1 Open the cover by undoing bolt **[A]** (Fig. 38) and pressing button **[B]** (Fig. 39).



2 Remove the circular part **[C]** with a screwdriver, as in fig. 40.



3 Cut the rubber membrane **[D]** (Fig. 41) so as to route the cable through it and fit it in hole **[C]** (Fig. 40).



4 Use Fig. 42 and the connection description in Table 6 as reference.

- if using the PHR00 photocells, remove the small piece of wire between terminals 3 and 7 and make the connections as in Fig. 42.
- if using the flashing light aerial, remove the piece of wire, which is connected to terminal 2, and connect the RG58 type shielded cable.

5 When the connections have been completed, secure the cables using suitable clamps.

6 To close the cover, turn and push until a click is heard. Tighten down screw **[A]**.

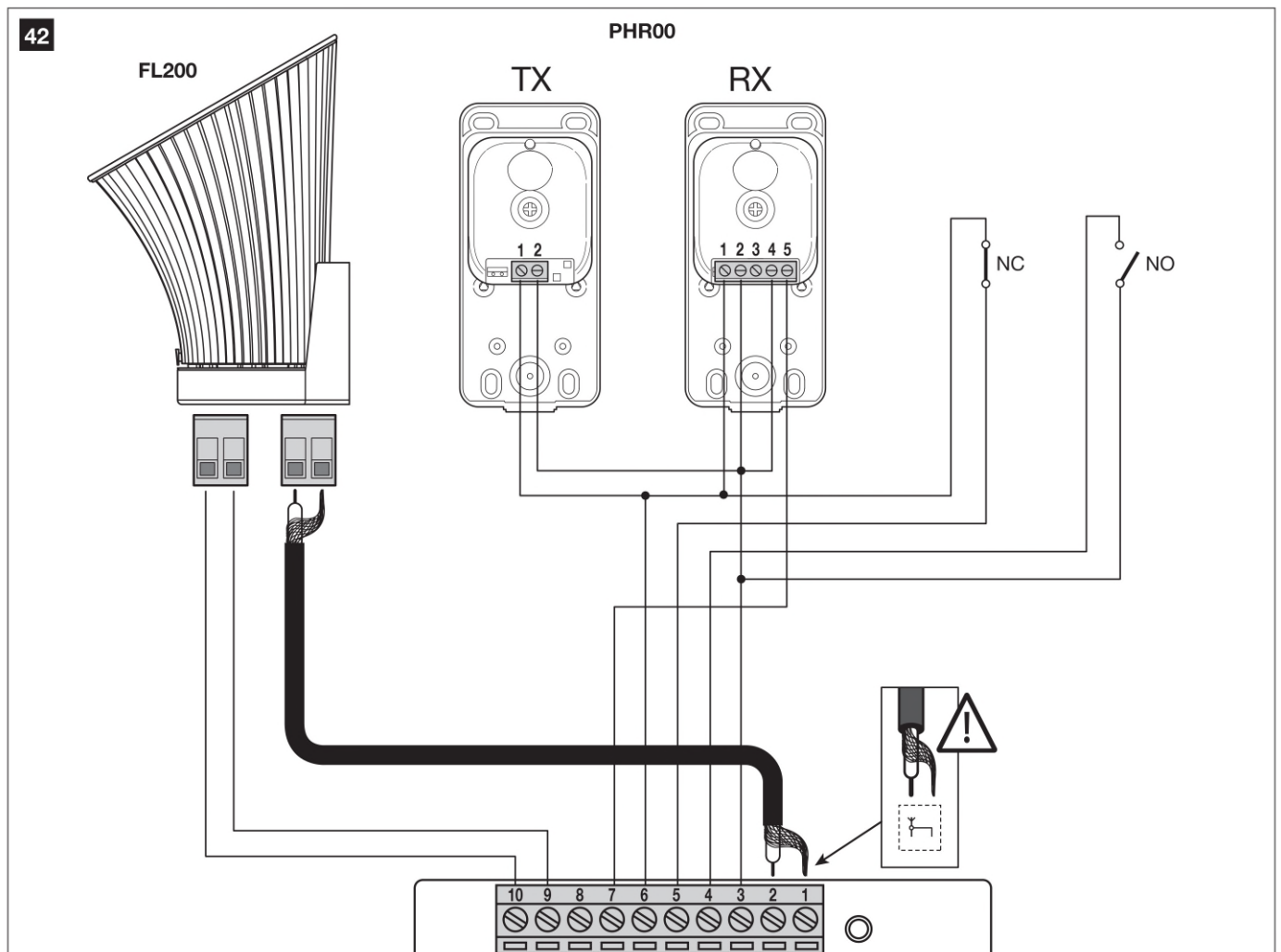


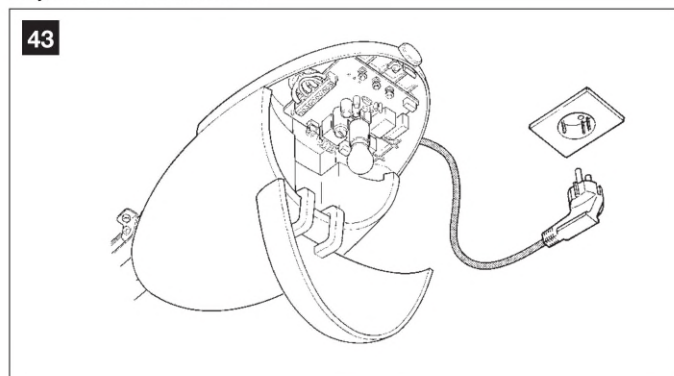
TABLE 6

Terminals	Function	Description
1-2	Aerial	Radio receiver aerial connection input. The FL200 has a built-in aerial, alternatively an external aerial can be used or the small piece of wire that is already connected to the terminal can be left, which acts as an aerial.
3-4	Step-by-Step	Input for manoeuvre control devices; "Normally Open" type contacts can be connected.
5-6	STOP	Input for the devices which block or eventually stop the manoeuvre in progress. Contacts like "Normally Closed", "Normally Open" or constant resistance devices can be connected using special procedures on the input. Additional information on STOP can be found in paragraph "5.3.2 STOP input".
3-7	PHOTO	Input for safety devices such as PHR00 photocells. Cut-in during closure, inverting the manoeuvre. "Normally Closed" contacts can be connected. The PHOTO input is factory set, short-circuited by means of a jumper between inputs 3 and 7 of the terminal. Additional information on PHOTO can be found in paragraph "3.3.4 PHR00 Photocells (optional)".
6-8	Phototest	All safety devices are controlled each time a manoeuvre is performed and the manoeuvre is only performed if the test has a positive outcome. This is possible by means of a special connection type; the "TX" photocell transmitters are powered separately in respect to the "RX" receivers. Additional information on connections can be found in paragraph "5.3.1 Phototest output".
9-10	Flashing light	An FL200 flashing light with a 12V 21W car bulb can be connected to this output. During the manoeuvre it flashes at intervals of 0.5s.

3.4 - MAIN HOOKUP

⚠ The connection of the AVIO500 control unit to the mains must be made by a qualified electrician.

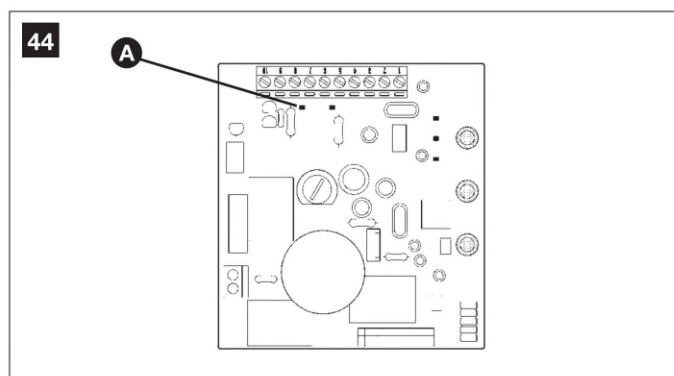
To carry out tests, insert the plug for AVIO500 in a power outlet; if necessary, use an extension cord.



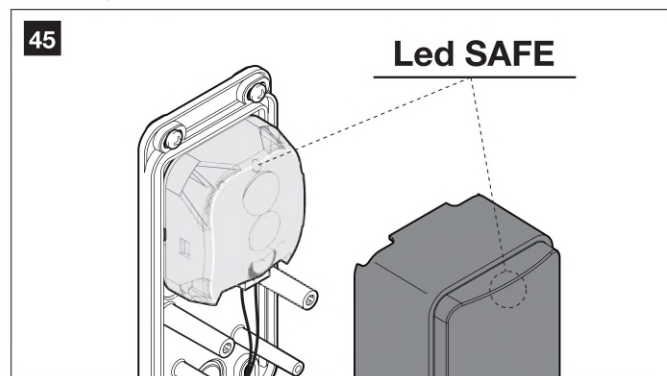
3.5 - INITIAL CHECKS

As soon as the control unit is energised, you should check the following:

1 Make sure that the LED **[A]** flashes regularly, with about one flash per second.



2 If the system is equipped with the PHR00 photocells, make sure that the SAFE LED (**fig. 45**) flashes (on both TX and RX). The type of flashing is irrelevant, it depends on other factors; what matters is that it is not always off or always on.

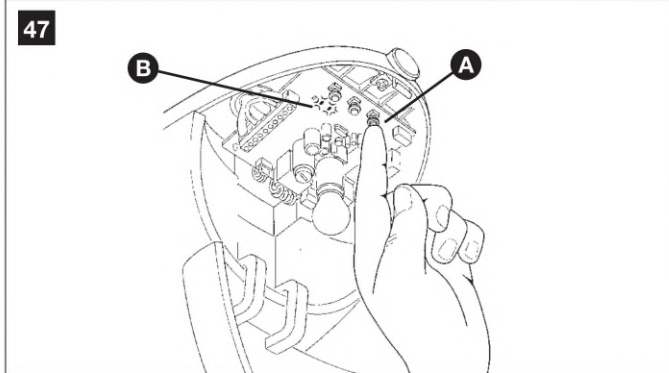


3 If the above conditions are not satisfied, you should immediately switch off the power supply to the control unit and check the cable connections more carefully. For more useful information see also chapters 5.5 "Troubleshooting" and 5.6 "Diagnostics and Signals".

3.5.1 – Recognition of the door open and closed positions

The control unit must be made to recognize the opening and closing positions of the door. In this phase, the door stroke from the closing mechanical stop to the opening mechanical stop is detected. In addition to position, the STOP input configuration is detected and memorised in this phase as well as the existence or non-existence of the PHOTO input "Phototest".

- 1 Make sure the carriage is engaged.
- 2 On the control unit, press the P3 button **[A]** for at least three seconds, then release the button (Fig. 47).



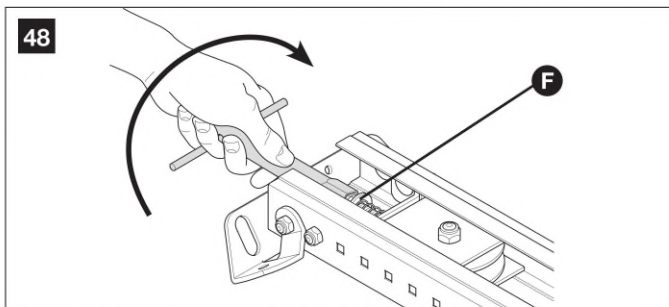
- Wait for the control unit to complete the recognition stage: closing, opening and closing again of the door.
- If during the recognition phase any device trips or P3 is pressed, the cycle is immediately interrupted. You then have to start again from the beginning.
- During the recognition procedure, the courtesy lamp flashes like the flasher itself.

3 If the P2 and P3 LEDs **[B]** flash at the conclusion of the recognition process, it means that an error has occurred; see section 5.5 ("Troubleshooting").

4 Press button T1 on the ECCO5... transmitter to open the door. Then press it again to close it. During these cycles the controller memorises the force required at each point of the door's travel.

Do not interrupt these two cycles.
If this occurs, the recognition process described in point 1 must be repeated.
The recognition stage of the positions can be repeated again at any time, even after the installation (for example, if one of the mechanical stops is moved); just repeat the procedure starting from step 1.

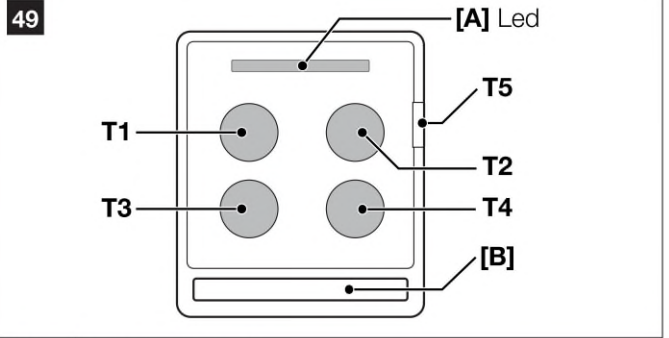
⚠ IMPORTANT: During the position search process, if the belt is not sufficiently tensioned, it may slip on the pinion. If this happens, interrupt the process by pressing button P3 and tension the belt by screwing in nut **[F]**. Now repeat the process from step 1.



3.5.2 – Checking the radio transmitter

To check the transmitter, simply press any of its 4 buttons and check that the red LED flashes and the automation does the commanded action.

The command assigned to each button depends on how it was memorised (see par. 5.4 "Memorising radio transmitters"). The supplied transmitter is already memorised and its buttons have the following functions:



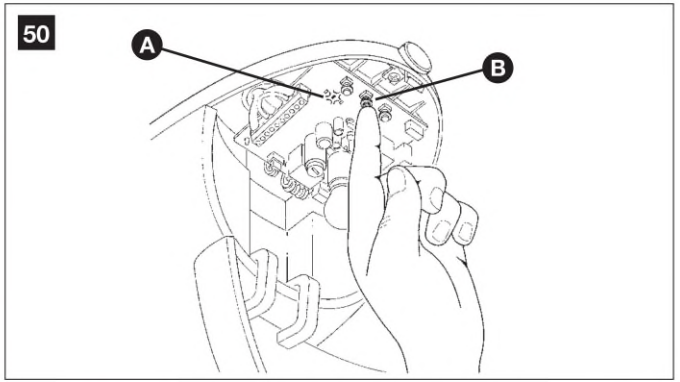
Keys	Paired command
T1	Step-by-Step (SbS)
T2	Partial open
T3	Open only
T4	Close only
T5	Auxiliary function: not present

3.6 - ADJUSTMENTS

3.6.1 – Setting the door speed

The door opens and closes at two speeds: "slow" or "fast".

To go from one speed to the other, press button P2 **[B]** briefly; LED P2 **[A]** turns on or off to indicate fast and slow respectively.

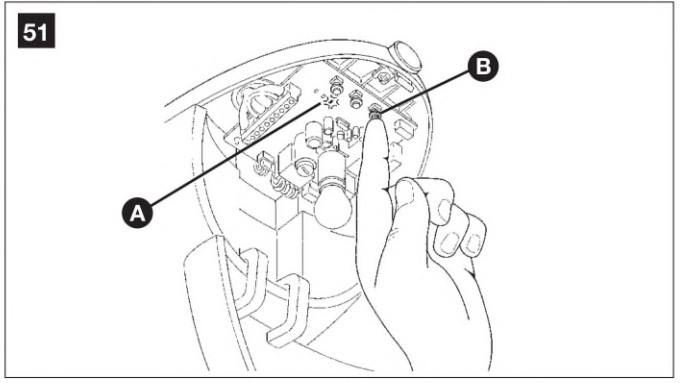


3.6.2 – Setting the operating mode

The door opens and closes in two ways:

- single cycle (semi-automatic): the first command opens the door; it stays open until the next command closes it.
- full cycle (automatic close): the first command opens the door; it closes automatically after a short time (see par. 5.1.1 "Setting parameters with the radio transmitter").

To go from one mode to the other, press button P3 **[B]** briefly; LED P3 **[A]** turns on or off to indicate full and single cycle respectively.



3.7 - TESTING AND COMMISSIONING

These are the most important operations, designed to guarantee the maximum safety and reliability of the automation system.

The testing procedure can also be used as a periodic check of the devices that make up the automation.

⚠ CAUTION! – The system must be tested by skilled and qualified personnel, who is responsible for defining the tests adopted in relation to the risks present, and for ensuring observance of all legal provisions, standards and regulations, with particular reference to all requirements of the EN 13241-1, EN 12445 and EN 12453 standards which defines the test methods for testing gate automations.

3.7.1 – Testing

⚠ 1 Make sure that the provisions contained in chapter 1 “WARNINGS” have been carefully observed.

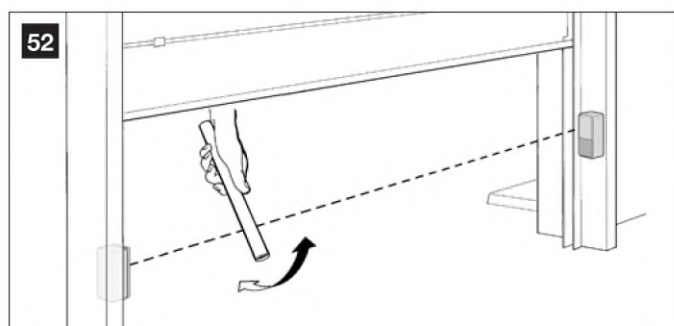
2 Using the radio transmitter, test the opening and closing of the door and make sure that the door moves in the intended direction.

The test should be carried out a number of times to make sure that the door moves smoothly, that there are no points of excessive friction and that there are no defects in the assembly or adjustments.

3 Check the proper operation of all the safety devices, one by one (photo-cells, sensitive edges, etc.). In particular, each time a device is activated, the “OK” LED on the control unit flashes for a longer time, confirming that the control unit recognises the event.

4 To check the photocells (if provided), pass a 5 cm diameter, 30 cm long cylinder on the optical axis, first near TX, then near RX and finally at the mid-point between them and make sure that in all these cases the device is triggered, switching from the active to the alarm status and vice-versa; finally, that it causes the intended action in the control unit, for example: when closing, it reverses the motion.

5 Measure the impact force according to EN standard 12445. If “motor



force” control is used to assist the system for the reduction of the impact force, try to find the adjustment that gives the best results.

6 Ensure that the entire mechanism is correctly adjusted and that the automation system inverts the manoeuvre when the door collides with a 50 mm high object on the floor.

7 Ensure that the automation prevents or blocks the opening manoeuvre when the door is loaded with a mass of 20 Kg, fixed in the middle of the door's lower edge.

3.7.2 – Commissioning

The commissioning operations can be performed only after all the tests have been successfully carried out. Partial commissioning or implementation of “temporary” conditions are not permitted.

1 Draw up the technical file which must include, as a minimum: assembly drawing (e.g. figure 1), wiring diagram (e.g. figure 56), analysis of hazards and solutions adopted, manufacturer's declaration of conformity of all the devices installed. For AVIO500 use Annex 1 “CE Declaration of Conformity of the AVIO500 components”.

2 Post a label on the door providing at least the following data: type of automation, name and address of manufacturer (person responsible for the “commissioning”), serial number, year of manufacture and “CE” marking.

3 Fill out the declaration of conformity and deliver it to the owner of the automation system; for this purpose you can use Annex 2 “CE Declaration of Conformity”.

4 Prepare the operating guide and deliver it to the owner of the automation system; Annex 3 “USER GUIDE” can be used as an example.

5 Prepare the maintenance schedule and deliver it to the owner of the automation system; it must provide directions regarding the maintenance of all the automation devices.

6 Post a permanent label or sign near the door detailing the release and manual manoeuvre operations (refer to the figures in Annex 3 “User guide”).

7 Before commissioning the automation, ensure that the owner is adequately informed of all associated risks and hazards.

8 Post a permanent label or sign with this image on the door (minimum height 60 mm) with inscription **WARNING – RISK OF CRUSHING**.



MAINTENANCE

STEP 4

⚠ The maintenance operations must be performed in strict compliance with the safety directions provided in this manual and according to the applicable legislation and standards.

The devices used for the AVIO500 automation system do not require any special maintenance. However, periodically make sure (at least once every

six months) that all the devices are perfectly efficient.

To this end, carry out all the tests and checks described in paragraph 3.7.1 “Testing” and the operations described in paragraph 7.3.3 “Maintenance operations to be performed by the user”.

If other devices are present, follow the directions provided in the corresponding maintenance schedule.

PRODUCT DISPOSAL

This product constitutes an integral part of the automation system, therefore it must be disposed of along with the latter.

Likewise for installation operations, when the product reaches its end-of-life decommissioning operations must be performed by qualified personnel.

This product is made up of different types of material, some of which can be recycled while others must be disposed of. Seek information on the recycling and disposal systems available in your area for this product category.

Caution! – some parts of the product may contain pollutant or hazardous substances which, if disposed of into the environment, may cause serious damage to the environment or physical health.

As indicated by the adjacent symbol, it is strictly forbidden to dispose of this product together with domestic waste. Therefore, implement separate waste collection criteria for disposal according to the regulations in force in your area, or return the product to the dealer when purchasing a new equivalent version.

Caution! – Local legislation may envisage serious fines in the event of abusive disposal of this product.



STEP 5

The following chapters cover the customisation of AVIO500 to specific user requirements.

5.1 - ADVANCED ADJUSTMENTS

5.1.1 – Setting parameters with the radio transmitter

The transmitter can be used to set certain controller parameters: there are

four such parameters, each of which has 4 different values:

- 1) Pause time: time for which the door remains open (in automatic close mode).
- 2) "Step-by-Step" function: sequence of movements associated with each "Step-by-Step" command.
- 3) Motor force: maximum force over which the controller recognises an obstacles and reverses the door's movement.

TABLE 7

Parameters	N.	Setting	Action: operation to be performed at point 3 in the adjustment phase
Pause time	1	15s	Press button T1 once
	2	30s (*)	Press button T1 twice
	3	60s	Press button T1 three times
"Step-by-Step" function	1	"Open"- "Stop"- "Close"- "Stop"	Press button T2 once
	2	"Open"- "Stop"- "Close"- "Open" (*)	Press button T2 twice
	3	"Open"- "Open"- "Open" (opening only)	Press button T2 three times
Motor force	1	Low	Press button T3 once
	2	Medium	Press button T3 twice
	3	High (*)	Press button T3 three times

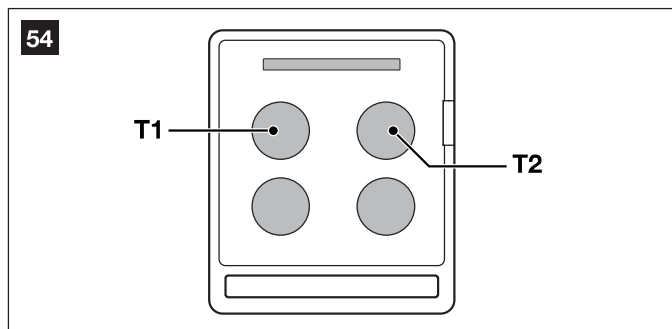
(*) Factory setting

Parameters can be set with a radio transmitter memorised in mode 1, like the provided unit.

If no transmitter is memorised in mode 1, you can memorise one just for this purpose and cancel it afterwards (see par. 5.4.1 "Memorisation mode 1" and par. 5.4.4 "Deleting a radio transmitter").

ATTENZIONE: when using the transmitter to make adjustments you need to give the control unit time to recognise the radio command; this means that the buttons must be pressed and released slowly, held down for at least one second, then released for one second and so on.

1 Press buttons T1 and T2 on the radio transmitter simultaneously for at least 5s.



2 Release both buttons.

3 Within 3 seconds, perform the action described in Table 7 based on the parameter to be modified

Example: to set the pause time to 60 s.

- 1 - Press buttons T1 and T2 and hold them down for at least 5s
- 2 - Release T1 and T2
- 3 - Press button T1 three times

All the parameters can be adjusted as required without any contraindication; only the adjustment of the "motor force" requires special care:

- Do not use high force values to compensate for points of abnormal friction on the door. Excessive force can compromise the operation of the safety system or damage the door.
- If the "motor force" control is used to assist the impact force reduction system, measure the force again after each adjustment in compliance with EN standard 12445.
- The weather conditions may affect the movement of the door, therefore

periodic re-adjustments may be necessary.

5.1.2 – Checking adjustments with the radio transmitter

With a radio transmitter memorised in Mode 1 you can check the values set for each parameter at any time by following the sequence described below:

1 Press buttons T1 and T2 on the radio transmitter simultaneously for at least 5s.

2 Release both buttons.

3 Within 3 seconds, perform the action described in Table 8 based on the parameter to be checked.

4 Release the button when the flashing light starts flashing.

5 Count the flashes and, based on their number, check the corresponding value in table 7.

TABLE 8

Parameter	Action
Pause time	Press button T1 and hold it down
"Step-by-Step" function	Press button T2 and hold it down
Motor force	Press button T3 and hold it down

Example: If the flashing light flashes three times after you have pressed T1 and T2 for 5s and then button T1, the pause time is set at 60s.

5.2 - OPTIONAL ACCESSORIES

In addition to the devices featured in AVIO500, other ones are available as optional accessories designed to enhance the automation system and improve its safety and performance.

GA2: OSCILLATING ARM accessory that enables the system to open overhead-type doors

GU2: MANUAL RELEASE KIT accessory that enables the manual opening of the door even in the event of power failures.

For information on the new accessories, refer to the Nice Home catalogue or visit the website www.niceforyou.com.

5.3 - ADDING OR REMOVING DEVICES

Devices can be added to or removed from the AVIO500 automation system at any time.

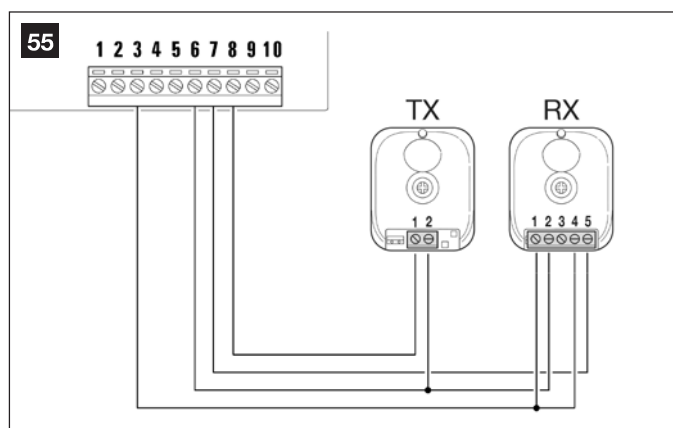
⚠ Do not add any devices until you have made sure that they are perfectly compatible with AVIO500; for further information contact Nice Customer Service.

5.3.1 – Phototest output

This control unit is equipped with the “Phototest” function that increases the reliability of the safety devices, making it possible to achieve an safety category adequate, regarding the control unit and safety photocells.

Whenever a manoeuvre is begun, the relative safety devices are checked and only if everything is in order will the manoeuvre start. If the test has a negative outcome (photocell blinded by the sun, short-circuited cable etc.), the fault is recognised and the manoeuvre is not performed.

To add a pair of photocells, remove the jumper and connect as follows.

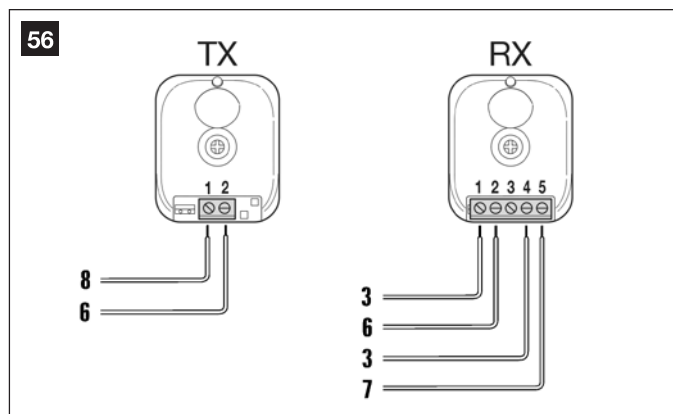


The photocell transmitter power is taken between terminals 8-6 of the “Phototest” output and not from the services output. The maximum current that can be used on the “Phototest” output is 100mA.

Activate the synchronism as described in the Photocell instructions, in the event there are two pairs of photocells that could interfere with one another.

5.3.2 – STOP input

STOP is the input that causes the immediate interruption of the manoeuvre (with a short reverse run). Devices with output featuring normally open “NO” contacts and devices with normally closed “NC” contacts, as well as devices with 8,2kΩ constant resistance output, like sensitive edges, can be connected to this input. Multiple devices, even of different type, can be connected to the STOP input if suitable arrangements are made.



To do this, proceed as described in the following table:

TABLE 9

		1st device type:		
		NA	NC	8.2kΩ
2nd device type:	NA	In parallel (<i>note 2</i>)	(<i>note 1</i>)	In parallel
	NC	(<i>note 1</i>)	In series (<i>note 3</i>)	In series
	8.2kΩ	In parallel	In series	(<i>note 4</i>)

Note 1. The NO and NC combination can be obtained by placing the two contacts in parallel, and placing in series to the NC contact an 8.2kΩ resistance (therefore, the combination of 3 devices is also possible: NA, NC and 8.2kΩ).

Note 2. Any number of NO devices can be connected to each other in parallel.

Note 3. Any number of NC devices can be connected to each other in series.

Note 4. Only 1 device with 8,2kΩ constant resistance output can be connected; if needed, multiple devices must be connected “in cascade” with a single 8,2kΩ termination resistance.

Important: if the STOP input is used to connect devices with safety functions, only devices with 8,2kΩ constant resistance output guarantee the fail-safe category 3.

During the recognition stage of the opening and closing positions of the door, the control unit recognises the type of device connected to the STOP input; subsequently it commands a STOP whenever a change occurs in the recognised status.

5.4 - MEMORISATION OF RADIO TRANSMITTERS

The control unit contains a radio receiver for ECCO5... transmitters; the one included in the package is pre-memorised and operative. If you wish to memorise a new radio transmitter you have two choices:

• **Mode 1:** in this “mode” the radio transmitter is used to its fullest extent, i.e. all the buttons execute a pre-established command (the transmitter supplied with AVIO500 is memorised in Mode 1). It is obvious that in Mode 1 a radio transmitter can be used to command just one automation, i.e.:

Keys	Paired command
T1	Step-by-Step (SbS)
T2	Partial open
T3	Open only
T4	Close only
T5	Auxiliary function: not present

• **Mode 2:** one of the four commands available can be associated to each button. This mode, used properly, allows you to command 2 or more different automations; for example:

Button T1	“Open only” command automation N° 1
Button T2	“Close only” command automation N° 1
Button T3	“Step-by-Step” command automation N° 2
Button T4	“Step-by-Step” command automation N° 3

Obviously, each transmitter is a separate unit, and while some are memorised in mode 1 others can be memorised in mode 2 on the control unit.

The overall memory capacity is 150 units; memorisation in mode 1 takes up one unit for each transmitter while mode 2 takes up one unit for each button.

Caution: since the memorisation procedures are timed (10s), you must read the instructions in the following paragraphs before you proceed with their execution.

5.4.1 – Memorisation Mode 1

1 Press P1 [B] for at least 3s (Fig. 57).

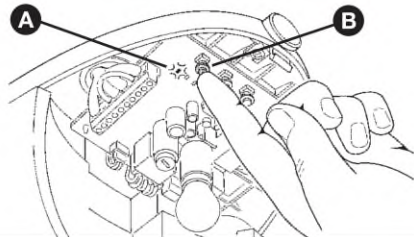
When the P1 LED [A] illuminates, release the button.

2 Within 10s, press any button on the radio transmitter to be memorised and hold it down for at least 3s

If the memorisation procedure is successful, the “P1” LED will flash 3 times.

3 If there are other transmitters to be memorised, repeat step 2 within the

57



next 10s, otherwise the memorisation stage will terminate automatically.

5.4.2 – Memorisation Mode 2

With the memorisation in mode 2 of the radio transmitter, any one of the four commands can be associated to each button: “Step-by-Step”, “Open partially”, “Open only” and “Close only”.

In Mode 2 each button requires a separate memorisation stage.

1 Press button P1 (figure 71) on the control unit as many times as the number corresponding to the desired command, according to the following table:

1 time	“Step-by-Step” command
2 times	“Partial open” command
3 times	“Open only” command
4 times	“Close only” command

2 Make sure that the P1 LED makes as many quick flashes as the number corresponding to the selected command.

3 Within 10 s, press the desired button on the radio transmitter to be memorised, and hold it down for at least 2 s. If the memorisation procedure is successful, the “P1” LED will flash 3 times slowly.

4 If there are other transmitters to be memorised for the same type of command, repeat step 3 within the next 10s, otherwise the memorisation stage will terminate automatically.

5.4.3 – Remote memorisation

A new radio transmitter can be memorised in the control unit without directly operating the buttons on it. You need to have an “OLD” pre-memorised operational radio transmitter. The “NEW” radio transmitter to be memorised will inherit the characteristics of the OLD one, i.e. if the OLD radio transmitter was memorised in Mode 1, the NEW one will also be memorised in Mode 1. In this case, during the memorisation stage you can press any key on the two transmitters. If, on the other hand, the OLD transmitter was memorised in Mode 2 you must press the button on the OLD transmitter which corresponds to the desired command, and the button on the NEW transmitter to which you wish to associate that command.

Holding the two transmitters, position yourself within the operating range of the automation and perform the following operations:

- 1 Press the button on the NEW radio transmitter and hold it down for at least 5s, then release it.
- 2 Press the button on the OLD radio transmitter 3 times slowly.
- 3 Press the button on the NEW radio transmitter once slowly.

At this point the NEW radio transmitter will be recognised by the control unit and will assume the characteristics of the OLD one.

If there are other transmitters to be memorised, repeat all the steps above for each new transmitter.

5.4.4 – Deleting a radio transmitter

Only if the system features a radio transmitter, you can delete it from the memory by proceeding as follows.

If the transmitter is memorised in Mode 1, only one deletion procedure will be needed and at step 3 you can press any button. If the transmitter is memorised in Mode 2, one deletion procedure will be needed for each key memorised.

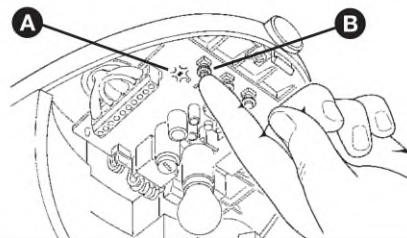
- 1 Press the P1 button [B] (Figure 58) on the control unit and hold it down.
- 2 Wait until the P1 LED [A] lights up, then, within three seconds:
- 3 Press the key on the radio transmitter to be deleted and hold it down for at least three seconds. If the deletion procedure is successful, the P1 LED will flash rapidly five times. If the P1 LED flashes only once slowly, it means that the deletion procedure has not been successful because the transmitter is not memorised.
- 4 If there are other transmitters to be deleted, press the P1 key and repeat step 3 within ten seconds, otherwise the deletion procedure will be terminated automatically.

5.4.5 – Deleting all the radio transmitters

With this operation all the memorised transmitters are deleted.

- 1 Press the P1 button [B] on the control unit and hold it down.

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2 Wait until the P1 LED [A] lights up, then wait until it goes off, then wait until it has flashed 3 times.

3 Release the P1 button precisely upon the third flash.

4 Wait approximately 4s for the deletion process to be completed; during this time the P1 LED will flash very quickly.

If the procedure is successful, after a few moments the P1 LED will flash slowly 5 times.

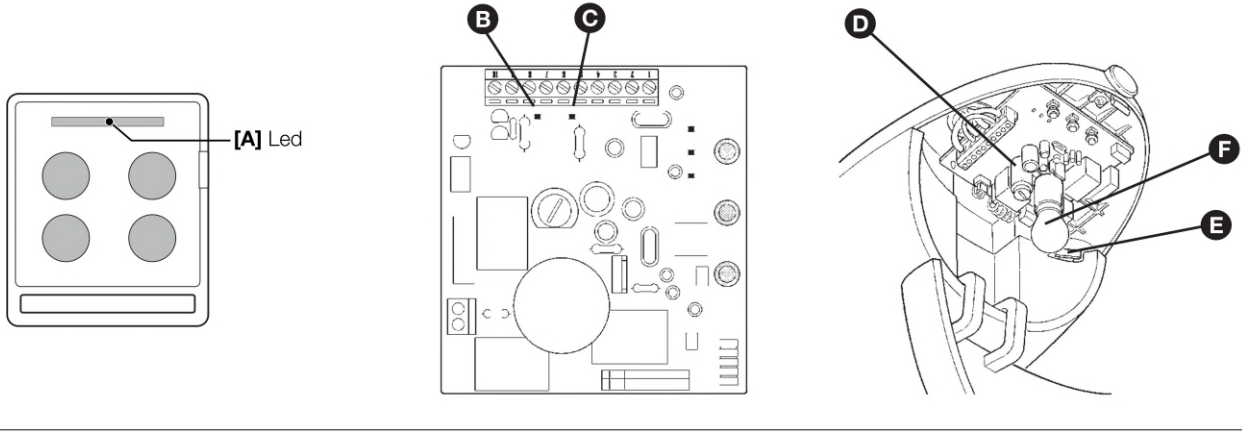
5.5 - TROUBLESHOOTING

The following table contains instructions to help you solve malfunctions or errors that may occur during the installation stage or in case of failure.

TABLE 10 - fig. 59

Symptoms	Probable cause and possible solution
The radio transmitter does not emit any signal (the LED [A] does not light up)	<ul style="list-style-type: none"> • Check to see if the batteries are exhausted, if necessary replace them (Paragraph 7.3.4 “Replacing the remote control battery”).
The manoeuvre does not start and the OK LED [B] does not flash	<ul style="list-style-type: none"> • Make sure that the power cord is properly plugged into the mains outlet • Check to see if the fuses [D] or [E] are blown; if necessary, identify the reason for the failure and then replace the fuses with others having the same current rating and characteristics.
The manoeuvre does not start and the courtesy light [F] is off.	<ul style="list-style-type: none"> • Make sure that the commands are actually received. If the command correctly arrives to the control unit, the “OK” LED will make two long flashes.
The manoeuvre does not start and the courtesy light flashes a few times	<ul style="list-style-type: none"> • Make sure that the STOP input is active, i.e. that the “STOP” LED [C] comes on. If this does not happen, check the device connected to the STOP input. • The photocell test which is performed at the start of each manoeuvre is not successful; check the photocells, also according to Table 11 (Paragraph 5.6.1 Photocells).
The manoeuvre starts but inverts immediately	<ul style="list-style-type: none"> • The selected force is too low to move the door. Check for possible obstacles and if necessary select a higher force as described in chapter 5.1 “Advanced adjustments”.
The manoeuvre is carried out but the flashing light does not work	<ul style="list-style-type: none"> • Check that there is voltage at terminals 9 and 10 of the flasher when operating (since it is intermittent, the value is not so important, it must be in the range 10-30V\sim); if there is, the problem is due to the lamp, which must be replaced with an equivalent unit.
The manoeuvre is carried out but the courtesy light does not work.	<ul style="list-style-type: none"> • Replace the lamp [F] with one having the same characteristics.

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5.6 - DIAGNOSTICS AND SIGNALS

A few devices issue special signals that allow you to recognise the operating status or possible malfunctions.

5.6.1 – Photocells

The photocells are equipped with a “SAFE” LED (fig. 60) that allows you to check the operating status at any time.

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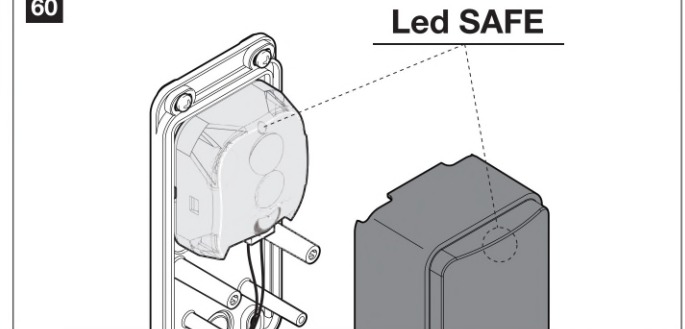


TABLE 11

“SAFE” LED	MEANING	STATUS OF OUTPUT	ACTION
Always off	Signal OK= No obstacle	Active	All OK
Slow flash	Weak signal = No obstacle	Active	Improve centring
Quick flash	Signal very bad = No obstacle	Active	Check centring, cleanliness and surroundings
Always on	No signal = Obstacle present	Alarm	Remove obstacle

5.6.2 – Flasher and courtesy light

During the manoeuvre the flashing light flashes once every second, while the courtesy light is always on; when something is wrong the flashes are more frequent (half a second); the light flashes twice with a second's

pause between flashes. The diagnostic flashing itself is signalled by the courtesy light.

TABLE 12

Quick flashes	Status	Action
2 flashes 1 second pause 2 flashes	Photocell activated	At the start of the manoeuvre, one or more photocells do not enable it; check to see if there are any obstacles. If there is an obstacle impeding the movement no action is required.
3 flashes 1 second pause 3 flashes	Activation of the “motor force” limiting device	During the movement, the door experienced excessive friction; identify the cause.
4 flashes 1 second pause 4 flashes	STOP input activation	At the start of the manoeuvre or during the movement, the STOP input was activated; identify the cause.

5.6.3 – Control unit

On the control unit there is a set of LEDs, each of which can give special indications both during normal operation and in case of malfunctions.

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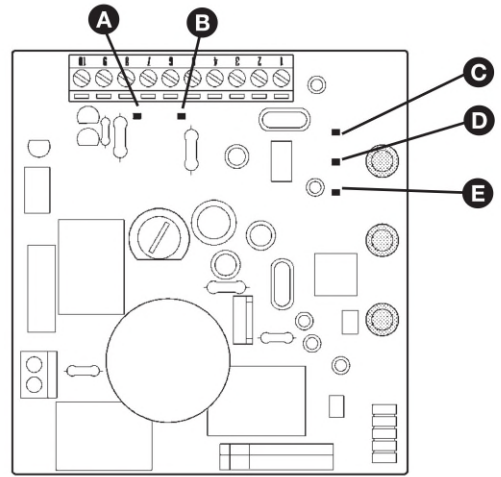


TABLE 13

LED OK [A]	Status	Action
Off	Malfunction	Make sure there is power supply; check to see if the fuses are blown; if necessary, identify the reason for the failure and then replace the fuses ones of the same type.
On	Serious malfunction	There is a serious malfunction; try switching off the control unit for a few seconds; if the condition persists, it means there is a malfunction and the circuit board has to be replaced.
One flash every second	All OK	Normal operation of control unit.
2 long flashes	The status of the inputs has changed	This is normal when there is a change in one of the inputs: SbS, STOP, triggering of photocells or the radio transmitter is used.
Series of flashes separated by a pause	It corresponds to the flashing light or the courtesy signal (see table 12).	
LED STOP [B]	Status	Action
Off	STOP input activation	Check the devices connected to the STOP input.
On	All OK	STOP Input active.
One flash every second	No device recognised or malfunction of recognised devices	Some equipment may be faulty; check and repeat the recognition process (see par. 3.5.1 "Recognition of the door open and closed positions").
LED P1 [C]	Status	Action
Off	All OK	No memorisation under way
On	Mode 1 memorisation	Normal during Mode 1 memorisation which lasts at most 10s
Series of flashes, from 1 to 4	Mode 2 memorisation	Normal during Mode 2 memorisation which lasts at most 10s
LED P2 [D]	Status	Action
Off	All OK	Select speed "slow"
On	All OK	Select speed "fast"
1 flash every second	The recognition process has not been run or the data in memory is incorrect	Run position recognition again (see par. 3.5.1. "Recognition of the door open and closed positions").
2 flashes every second	Device recognition process under way	Indicates that the controller is searching for connected devices (lasts a few seconds).
LED P3 [E]	Status	Action
Off	All OK	Cycle operation
On	All OK	Full cycle operation
1 flash every second	The recognition process has not been run or the data in memory is incorrect	Run position recognition again (see par. 3.5.1. "Recognition of the door open and closed positions").
2 flashes every second	Position recognition process under way	

TECHNICAL CHARACTERISTICS

STEP 6

AVIO500 is manufactured by Nice S.p.a. (TV) IT. Nice S.p.a., in order to improve its products, reserves the right to modify their technical characteristics at any time without prior notice. In any case, the manufacturer guarantees their functionality and fitness for the intended purposes. N.B.: all technical characteristics refer to a temperature of 20°C.

Model AVIO500	
DESCRIPTION	DATE
Type	Electromechanical gearmotor for automated sectional and overhead doors incorporating a control unit complete with radio receiver for "ECCO5..." transmitters.
Adopted technology	24V === motor, helical teeth reduction gear; drive guide with timing belt and mechanical release. A transformer inside the motor but separated from the control unit reduces mains voltage to the nominal voltage of 24V === used by the automation system.
Peak thrust [corresponds to the force necessary to move a leaf]	9,9 Nm [550 N]
Nominal torque [corresponds to the force necessary to keep a leaf moving]	4,95 Nm [275N]
Speed under no load [corresponding, if "Fast" speed is programmed]	103 rpm [corresponds to if "Fast" speed is programmed] [0,14m/s] The control unit allows 2 speeds to be programmed equal to approx. 100% - 60%
Nominal torque speed [corresponding, if "Fast" speed is programmed]	52 rpm [corresponds to if "Fast" speed is programmed] [0,07 m/s]
Maximum frequency of cycles	30 complete cycles per day (the control unit allows up to a maximum of 10 cycles per hour)
Maximum continuous cycle time	4 minutes (the control unit limits the continual function to 4 minutes at nominal torque)
Operating Limits	Its structural characteristics make it suitable for use on sectional and overhead doors with counterweights within the following parameters: Sectional doors: max height 240 cm - max width 370 cm (8,88 m ²) max force 55 kg Overhead doors: max height 280 cm - max width 350 cm (9,8 m ²) max force 55 kg
Power supply AVIO500	230V~ (±10%) 50/60 Hz.
Max. absorbed power	200 W
Insulation class	1 (a safety grounding system is required)
Emergency power supply	---
Flashing light output	For Led visual signalling (mod. FL200)
Courtesy light	12 V max 10 W lamp with BA15 fitting (automotive type), remains on for 60 s after door operation
"PHOTO" input	For safety devices such as the PHR00 photocells.
"SbS" input	For normally open contacts (the closing of the contact causes the "Step-by-Step" command)
"STOP" input	For normally open contacts and/or for 8,2kΩ constant resistance, or normally closed contacts with recognition of the "normal" status (any variation from the memorised status causes the "STOP" command)
Radio aerial input	52 Ω for RG58 or similar type of cable
Maximum cable length	Mains power supply: 30m; inputs/outputs: 20m with aerial cable preferably shorter than 5m (observe the directions regarding the minimum gauge and type of cable)
Remote control possibility	With ECCO5... transmitters, the control unit can receive one or more of the following commands: "Step-by-Step", "Open partially", "Open only" and "Close only"
ECCO5... transmitters memorised	Up to 150 if memorised in mode 1
Range of ECCO5... transmitters	From 10 to 50 m without aerial, from 50 to 100 m with aerial incorporated in the FL200 flashing light. The range can vary if there are obstacles or electromagnetic disturbances, and is affected by the position of the receiving aerial incorporated in the flashing light.
Programmable functions	"Cycle" or "Complete cycle" operation (automatic closing) "Slow" or "fast" motor speed The pause time in the "complete cycle" mode can be set at 15, 30, 60 seconds The sensitivity of the obstacle detection system can be selected from 3 levels The operation of the "Step-by-Step" command can be selected from 3 modes
Self-programmed functions	Recognition of the type of "STOP" device (NO or NC contact or 8,2 kΩ resistance). Automatic detection of door length and calculation of deceleration points.
Operating ambient temperature	-20°C...+50°C
Assembly	Horizontal
Protection rating	IP40
Dimensions / weight	390 x 210 x h 130 mm / 3 kg

CE declaration of conformity and declaration of incorporation for a “quasi-machine”

Declaration in accordance with Directives: 1999/5/EC (R&TTE), 2014/30/EC (EMC); 2006/42/EC (MD) annex II, part B

Note - The content of this declaration corresponds to the declaration made in the official document filed in the offices of Nice S.p.a., and particularly the latest version thereof available prior to the printing of this manual. The text herein has been re-edited for editorial purposes. A copy of the original declaration can be requested from Nice S.p.a. (TV) IT.

Number: 582/AVIO **Revision:** 0 **Language:** EN

Name of manufacturer: Nice s.p.a.

Address: Via Pezza Alta 13, 31046 Rustignè, Oderzo (TV) Italy

Person authorised to provide technical documentation: Nice s.p.a.

Product type: Gearmotor 24Vdc assembled, with incorporated control unit and receiver

Model / Type: AVIO500C, AVIO600C, AVIO1000C, AVIO500CC

Accessories: GA2, GU2, PR100, KS200KIT, ECCO5BO, ECCO5WO

The undersigned Roberto Griffa, as Chief Executive Officer, hereby declares under his own responsibility that the products specified above comply with the provisions of the following directives:

- DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL of 9 March 1999 regarding radio equipment and communications terminals and the mutual recognition of their conformity in accordance with the following harmonised standards:
 - Health and safety: EN 62479:2010
 - Electrical safety: EN 60950-1:2006 + A11:2009 + A12:2011 + A1:2010 + A2:2013
 - Electromagnetic compatibility: EN 301 489-1 V1.9.2:2011; EN 301 489-3 V1.6.1:2013
 - Radio spectrum: EN 300 220-2 V2.4.1:2012
- DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (recast), according to the following standards: EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006 + A13:2008 + A14:2010 + A15:2011; EN 60335-2-95:2015 + A1:2015, EN 62233:2008

The product also complies with the following directive in accordance with the requirements for “quasi-machines”:

Directive 2006/42/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL of 17 May 2006 regarding machines and amending directive 95/16/EC (consolidated text)

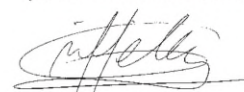
- I declare that the pertinent technical documentation has been prepared in accordance with Annex VII B to Directive 2006/42/EC and that the following essential requirements have been met: 1.1.1 - 1.1.2 - 1.1.3 - 1.2.1 - 1.2.6 - 1.5.1 - 1.5.2 - 1.5.5 - 1.5.6 - 1.5.7 - 1.5.8 - 1.5.10 - 1.5.11
- The manufacturer agrees to send the national authorities pertinent information on the “quasi-machine” in response to a motivated request without affecting its intellectual property rights.
- If the “quasi-machine” is operated in a European country with an official language other than the language used in this declaration, the importer must associate a translation with this declaration.
- The “quasi-machine” must not be operated until the final machine in which it is to be incorporated is declared to conform to the provisions of Directive 2006/42/EC, if applicable to it.

The parts of the product which are subject to the following standards comply with them:

EN 13241-1:2003 + A1:2011; EN 12445:2000; EN 12453:2000; EN 12978:2003 + A1:2009

Oderzo, 28 July 2016

Eng. **Roberto Griffa**
(Chief Executive Officer)



STEP 7

⚠ This user guide should be stored and handed to all users of the automation.



7.1 – WARNINGS

- Keep at a safe distance from the moving door until it is completely open or closed; do not transit through the door until it is completely open and has come to a standstill.
- Do not let children play near the door or with its commands.
- Keep the transmitters away from children.
- Suspend the use of the automation immediately as soon as you notice something abnormal in the operation (noises or jolting movements); failure to follow this warning may cause serious danger and accidents.
- Do not touch moving parts.
- Regular maintenance checks must be carried out by qualified personnel according to the maintenance plan.
- Maintenance or repairs must only be carried out by qualified technical personnel.
- Send a command with the safety devices disabled:

If the safety devices do not work properly or are out of order, the door can still be operated.


01. Command the door with the transmitter. If the safety devices give the enable signal, the door opens normally; otherwise, reattempt within 3 seconds and keep the control activated.
02. After approximately 2 seconds the door will start moving in the “man present” mode, that is, so long as the control is kept activated the door will keep moving; as soon as the control is released the door will stop.

If the safety devices are out of order, arrange to repair the automation as soon as possible.

7.2 – Manually  releasing and locking  the gearmotor

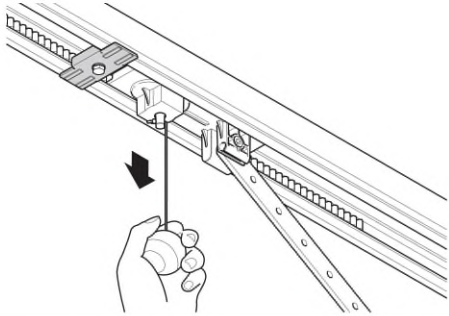
The gearmotor is equipped with a mechanical system that allows for opening and closing the door manually.

Manual operation must be performed in the case of a power outage or in the event of anomalies affecting the system.



1 Pull the release cord down until you hear the carriage being released.
2 The door can now be moved manually.

The activation of the manual release may cause an uncontrollable movement of the door if the springs are weak or broken, or if the door is off-balance.





To restore the functionality of the automation system, move the door back in position until you hear the carriage being engaged.

In the event of a gearmotor fault, it is still possible to try release the motor to check whether the fault lies in the release mechanism.

7.3 – User-admissible maintenance operations

The operations that the user must carry out periodically are listed below:

- **Cleaning of the surfaces of the devices: use a slightly damp (not wet) cloth. Do not use substances containing alcohol, benzene,**

thinners or other flammable substances; the use of these substances may damage the devices and cause fires or electric shocks.

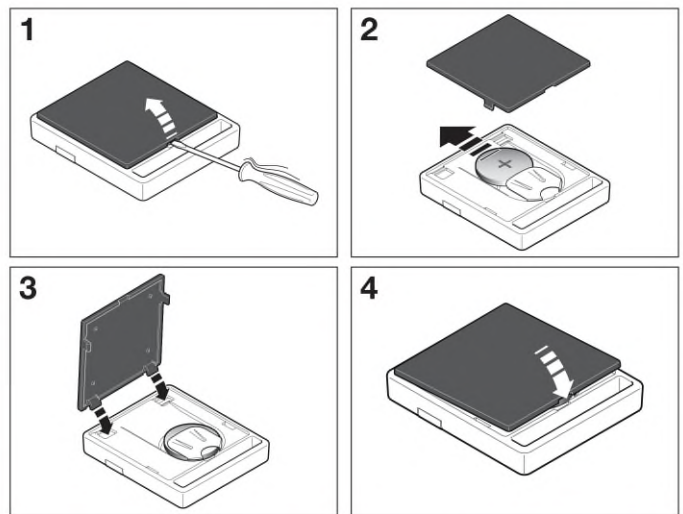
- **Removal of leaves and stones: disconnect the power supply before proceeding, so as to prevent anyone from moving the door.**

7.4 – Replacing the transmitter battery

When the battery is flat, the transmitter capacity is significantly reduced. If, when a button is pressed, the relevant Led turns on then immediately fades and turns off, it means that the battery is completely flat and should be immediately replaced.

If instead the Led turns on only for a moment, it means that the battery is partially flat; the button must be kept pressed for at least half a second for the transmitter to attempt to send the command.

However, if the battery level is too low to complete the command (and possibly wait for the response), the transmitter will turn off and the relevant Led will fade. In these cases, normal transmitter operation can be restored by replacing the battery with another of the same type, while observing the relevant polarity. To replace the battery, proceed as shown below.

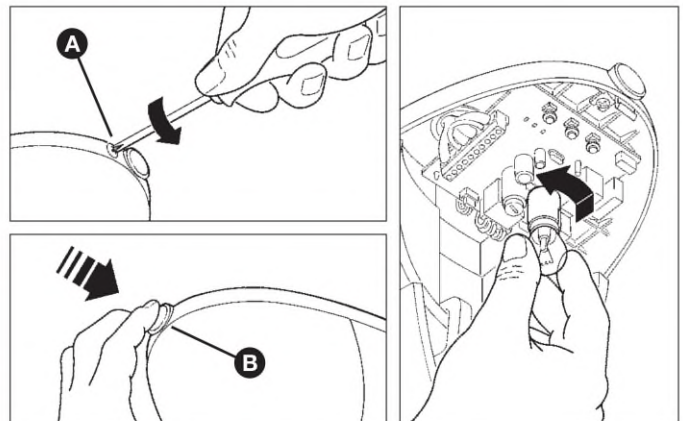


⚠ Batteries contain polluting substances: do not dispose of them together with common waste but use the methods set forth in the local regulations.

7.5 – Lamp replacement

Before proceeding, disconnect AVIO500 from the power supply.

- 1 Unscrew screw [A] and push button [B], to open the lid.
- 2 Push the lamp up and rotate to remove. Insert a new 12V / 10W lamp with BA15 socket.



EC DECLARATION OF CONFORMITY

In conformity to Directive 2006/42/EC, ANNEX I, Part A (EC declaration of conformity for machinery)

The undersigned / company (name or company name of the subject who/that commissioned the motor-driven door):

.....

Address:

.....

Hereby declares under its/his/her sole responsibility that:

- **The automation:** motorized sectional door motorized overhead door

- **Serial N°:**

- **Year of manufacture:**

- **Location (address):**

.....

Complies with the essential requirements of the following directives:

2006/42/EC "Machines" Directive

and as provided for in the following harmonised standards:

EN 12445 "Industrial, commercial and garage doors and gates, Safety in use of Power-operated doors and gates – Test Methods"

EN 12453 "Industrial, commercial and garage doors and gates, Safety in use of Power-operated doors and gates – Requirements"

Name: Signature:

Date:

Place:

