MhouseKit SL1S-SL10S

For the automation of sliding gates

Instructions and warnings for installation and user manual

ISTSL1S-EN.4865 - Rev.00 - 11-09-2010

CONTENTS

GENERAL SAFETY WARNINGS AND PRECAUTIONS

— STEP 1 —

Safety warnings

- **CAUTION! - This manual contains important instructions and warnings for personal safety.** Incorrect installation could cause serious physical injury. Carefully read all parts of this manual before starting any work. If in doubt, suspend installation immediately and contact the Mhouse Technical Assistance.
- **CAUTION! - Important instructions: keep this manual in a safe place to enable future product maintenance and disposal procedures.**
- **CAUTION! – According to the most recent European legislation, the production of a power-operated door or gate must comply with the standards envisaged in the Directive 2006/42/EC (Machinery Directive) and in particular standards EN 12445; EN 12453; EN 12635 and EN 13241-1, which enable declaration of presumed conformity of the automation. In consideration of this, all mains connection, testing commissioning and maintenance operations must be performed exclusively by a qualified and skilled technician.**
  All preliminary set-up, installation and programming operations may be performed by personnel with standard skills, provided that all instructions and the relative sequences in this manual are strictly observed, with particular reference to the warnings in this STEP 1.

Installation warnings

While reading this manual, take care to observe all instructions marked with the following symbol:

These symbols indicate subjects that may be the source of potential hazards and therefore the prescribed operations must be performed exclusively by qualified and skilled personnel, in observance of these instructions current safety standards.

- Before installation, ensure that this product is suitable for automation of your gate or door (see STEP 3 and chapter “Technical Specifications”). If not suitable, do NOT proceed with installation.
- On the system power mains install a device for disconnection (not supplied), to guarantee a gap between contacts and complete disconnection in the conditions of overvoltage category III.
- **All installation and maintenance operations must be performed with the automation disconnected from the power supply**. If the power disconnect device is not visible from the location of the automation, before work a notice should be affixed on the disconnect device, with the text “CAUTION! MAINTENANCE IN PROGRESS” on the disconnect device.
- **CAUTION! - Never power up the motor before fully installed on the column and leaf of the gate.**
- During installation, handle the automation with care, avoiding the risk of impact, dropping or contact with any type of liquid. Never place the product near to sources of heat and never expose to naked flames. This may damage product components and cause malfunctions, fire or hazardous situations. If this occurs, suspend installation immediately and contact the MhouseTechnical Assistance.
- Never apply modifications to any part of the product. Operations other than as specified can only cause malfunctions. The manufacturer declines all liability for damage caused by makeshift modifications to the product.
- If the power cable is damaged, it must be replaced exclusively by a qualified technician, to avoid potential risks.
- Connect the control unit to an electric power line equipped with an earthing system.
- This product is not designed to be used by persons (including children) whose physical, sensorial or mental capacities are reduced, or with lack of experience or skill, unless suitable instructions regarding use of the product have been provided by a person responsible for safety.
- The key-operated selector switch must be positioned in sight of the automation, but far from moving parts and at a height of at least 1.5 m from the ground, not accessible by the public. If this is used in “hold-to-run” mode, ensure that there are no persons in the vicinity of the automation.
- Any children located in the vicinity of the automation must be supervised to ensure that they do not play with the device.
- Ensure that there are not points of entrapment or crushing with fixed parts when the gate leaf is in the maximum opening or closing position; protect parts if necessary.
- The product may not be considered an efficient system of protection against intrusion. If an efficient protection system is required, the automation must be integrated with other safety devices.
- The automation must not be used before performing the commissioning procedure as specified in the chapter “Testing and commissioning”.
- Check the automation frequently to ensure there is no imbalance, signs of wear or damage to electrical or mechanical parts. Do not use the automation if adjustments or repairs are necessary.
- In the event of periods of disuse, to avoid the risk of leaks of harmful substances from the optional battery (PR1) disconnect it from the automation and store in a dry location.
- Never allow children to play with fixed control devices. Keep all control devices (remote) out of the reach of children.
- The product packaging material must be disposed of in full observance of current local legislation governing waste disposal.

Operation warnings

- For cleaning the product surfaces, use a soft damp cloth. Use water only; never use detergents or solvents for cleaning.

KNOWLEDGE OF THE PRODUCT AND PREPARATION FOR INSTALLATION

NOTES TO MANUAL

- **This manual describes how to set up a complete and optimal automation, such as that shown in fig. 3, using all Mhouse devices that are part of the automation system named “SL1S-SL10S”. Some of these devices are optional and may not be present in the kit. For a complete overview of the devices, refer to the MHouse product catalogue.**
- **This manual has been drawn up as a step-by-step guide. Therefore, to ensure safe and facilitated assembly and programming procedures, perform all operations described in the same order as specified in this document.**

— STEP 2 —

2.1 - PRODUCT DESCRIPTION AND INTENDED USE

The devices in this kit, plus other accessories (some optional and not included in the pack), form the automation system named “SL1S-SL10S”, designed for the automation of a “residential” sliding gate. **Any other use than as specified herein or in environmental conditions other than as stated in this manual is to be considered improper and is strictly prohibited!**

The main part of the automation comprises an electromechanical gearmotor, fitted with a 24 V dc motor with helical teeth gear; it is fitted with a mechanical key release which enables manual movement of the gate in the event of a power failure. The gearmotor is equipped with a control unit that manages operation of the entire automation. The control unit comprises a board and incorporated radio receiver which receives the com-

mands sent by the user via a transmitter. It can memorise up to 256 TX4 transmitters (if memorised in "Mode I") and up to 6 pairs of PH1 photocells. Connection of the control unit with the various devices is by means of a single 2-wire cable ("ECSbus" system). The control unit can also be mains-powered (230 V) or alternatively by the Mhouse PF photovoltaic system.
If mains-powered, it can house a buffer battery (mod. PR1, optional accessory) which guarantees a number of manoeuvres, during the hours following a mains power failure). During the power failure, or at any other time, the gate leaf can be moved manually if required, by first releasing the gearmotor using the relative key (see chapter 11.3 - User's guide).

2.2 - COMPONENTS USED TO SET UP A COMPLETE SYSTEM

Fig. 1 illustrates all components used to set up a complete system, such as that shown in **fig. 3**. The components are:

[**a**] - 1 electromechanical gearmotor SL1SC/SL10SC with integrated control unit and foundation plate
[**b**] - 1 pair of PH1 photocells (one TX and one RX)
[**c**] - 1 FL1 Flashing light with integrated aerial
[**d**] - 1 KS1 key-operated selector switch and two keys
[**e**] - 2 limit switch brackets
[**f**] - 2 TX4 radio transmitters
[**g**] - 3 release keys
[**h**] - Metal hardware

WARNING! - Some of these devices are optional and may not be present in the kit (see Mhouse product catalogue).

— STEP 3 —
PRELIMINARY CHECKS FOR INSTALLATION

3.1 - CHECKING SUITABILITY OF GATE TO BE AUTOMATED AND RELATIVE ENVIRONMENT

- Ensure that the mechanical structure of the gate complies with current national standards and that it is suitable for automation. For this check, refer to the information specified on the gate dataplate. **Important** - This product cannot be used to automate a gate that is not already efficient and safe; furthermore it cannot solve defects caused by incorrect gate installation or poor maintenance.
- Manually move the gate in both directions (opening/closing) and ensure that friction is constant throughout travel (there must be no points of increased or decreased force).
- If the leaf is fitted in a pedestrian pass door or a door onto the leaf movement area, ensure that this door does not obstruct normal travel, and install a suitable interlock device if necessary.
- Manually move the gate to any position; leave it stationary and ensure that it does not move when left.
- Ensure that there is no risk of gate derailing or risks of exit from the tracks.
- Ensure that the space around the site of gearmotor installation enables safe and easy manual gate release.
- Ensure that the gearmotor fixing zone is not subject to the risk of flooding; if necessary install the gearmotor in a position raised from the ground.
- Ensure that the selected surfaces for installation of the various devices are solid and guarantee a stable fixture; as regards photocells, select a flat surface that guarantees correct alignment between photocells (Tx and Rx).
- Ensure that all devices to be installed are in a sheltered location and protected against the risk of accidental impact.

3.2 - PRODUCT APPLICATION LIMITS

Before proceeding with installation, perform the following checks in the specified sequence and ensure conformity both with the data in this paragraph and the technical data provided in the chapter "Technical Specifications".

1 - Ensure that the dimensions and weight of the gate are within the following limits of use:
SL1SC - maximum length 5 m
- maximum weight 400 kg.
SL10SC - maximum length 7 m
- maximum weight 500 kg.

2 - Check the overall dimensions of the gearmotor (**fig. 2**). *Note – These measurements also serve as a reference to calculate the space occupied by the foundation pit for routing the electrical cable ducting.*

3 - Ensure that the estimated lifetime is compatible with the intended use (see paragraph 3.3).

4 - Ensure that all limitations, conditions and warnings in this manual can be fully observed.

3.3 - PRODUCT LIFETIME

The lifetime is the average economic duration of the product. The value of lifetime is strongly influenced by the intensity of the manoeuvres performed by the automation, i.e. the sum of all factors that contribute to product wear (see Table 1). To estimate the probable lifetime of your automation, proceed as follows:

01. Add up all the values in the items of **Table A**;
02. In **Graph 1** from the value obtained above, trace vertical line until it intersects the curve; from this point trace a horizontal line until it intersects the line of the "manoeuvre cycles". The value obtained is the estimated lifetime of your product.

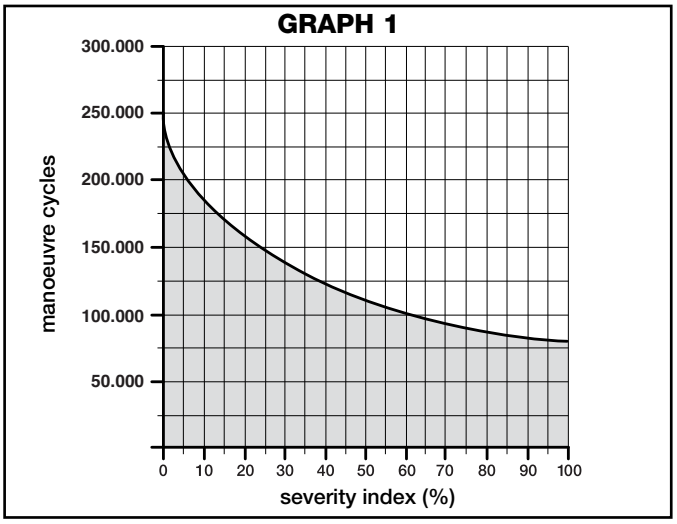
The lifetime values specified in the graph are only obtainable if the maintenance schedule is strictly observed (see chapter 9 - Maintenance schedule). The estimation of lifetime is made on the basis of design calculations and the results of tests performed on prototypes. As it is only an estimation, it does not represent any form of guarantee on the effective lifetime of the product.

Example of calculating lifetime: automation of a gate with a leaf length of 3.5 m with weight of 250 kg, for example, in a location near the sea. Table A shows the "severity index" ratings for this type of installation: 10% ("Leaf length"), 20% ("Leaf weight") and 15% ("Presence of dust, sand or saline mist"). These values must be added up to obtain the overall severity index, which in this case is 45%.
With the value obtained (45%), check the horizontal axis of Graph 1 ("severity index"), for the corresponding value of "manoeuvre cycles" which our product can complete in its lifetime = approx. 115,000 cycles.

TABLE A

		Severity index	
		SL1SC	SL10SC
Leaf length	< 3 m	0%	0%
	3 - 4 m	10%	5%
	4 - 5 m	20%	10%
	5 - 6 m	-	15%
	6 - 7 m	-	20%
Leaf weight	< 200 kg	10%	0%
	200 - 300 kg	20%	10%
	300 - 400 kg	30%	20%
	400 - 500 kg	-	30%
Ambient temperature over 40°C or lower than 0°C or humidity greater than 80%		20	20
Presence of dust, sand or saline mist		15	15
Motor force setting on level 4		15	15

Note – The data refer to a balanced sliding gate in perfect maintenance conditions



— STEP 4 —

4.1 - PRELIMINARY INSTALLATION WORK

4.1.1 - Establish the position of devices in the system

With reference to **fig. 3** and **4**, locate the approximate position for installation of each device envisaged in the system. **Fig. 3** shows a system made using this product and other optional accessories in the Mhouse range. These elements are positioned according to a typical standard layout. The components are:

a - SL1SC/SL10SC gearmotor with control unit
b - Pair of PH1 photocells
c - FL1 Flashing light with integrated aerial
d - Pair of posts for PT50 photocells (not supplied)
e - Mechanical stop on Closing
f - Floor-mounted track
g - Opening limit switch bracket
h - CR100 rack (not supplied)
i - KS1 key-operated selector switch
l - Closing limit switch bracket

***Note** - The limit switch stops are not supplied in the pack and are not part of the Mhouse product range.*

WARNINGS:
- *The gearmotor must be anchored to the ground, laterally to the gate using the relative fixing plate.*
- *The fixed control devices must be positioned:*
  - in sight of the automation;
  - far from moving parts;
  - at a height of at least 1.5 m from the ground,
  - not accessible by the public.

4.1.2 - Establish the position of all connection cables

Refer to the instructions in paragraph 4.2 to establish the layout of the raceways for electric cable ducting.

4.1.3 - Ensure all equipment and materials for work are available

Before starting work, ensure that you have all equipment and materials required to complete the work. Ensure that all items are in good condition and comply with local safety standards.

4.1.4 - Completing the set-up work

Prepare the area for subsequent installation of the devices, completing all preliminary work, such as:
- digging of raceways for protection ducting of electric cables (external ducting may be used as an alternative);
- laying of protection ducting and embedding in concrete;
- sizing of all electric cables to required length (see paragraph 4.2) and routing in protection ducting. **Caution! – In this phase, do not make any electrical connections.**

***Warnings**:*
- *The hoses and ducting serve to protect electrical cables and prevent accidental damage in the event of impact.*
- *When laying pipelines, take into account the risk of possible deposits of water in the branch wells, where condensate may form in the pipelines and the control unit with possible damage to the electronic circuits.*
- *Position the ends of the ducting at the points envisaged for fixture of the various components.*

4.2 - PREPARING ELECTRIC CABLES

To prepare all connection cables, proceed as follows:

a) - Refer to **fig. 4** to check the connections of the various devices to the control unit and terminals to be used for each connection. **Important** - Only devices using "ECSbus" technology can be connected to the terminal "ECSbus".

b) - Refer to **fig. 3** to check positions of the electrical cables in the area. Then draw a similar diagram on paper, adapting it to specific requirements of your system. ***Note** - This diagram will be useful to establish the route of the raceways for cable ducting, and to draw up a complete list of the cables required.*

c) - Read **Table 1** to determine the type of cables to be used; then refer to the diagram drawn above and on-site measurements to determine the length of each cable. **Caution! - No cable must exceed the specific maximum length stated in Table 1.**

WARNING - "ECSbus" technology enables the interconnection of devices using a single "bus" cable, with 2 internal electrical wires. Connection of several devices can be in the configuration "**cascade**", "**star**" or the latter two "**combined**":

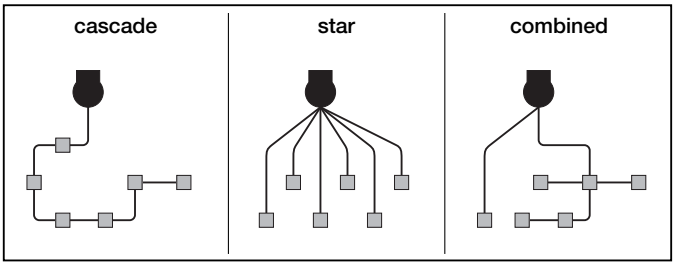


TABLE 1 – Technical specifications of electric cables

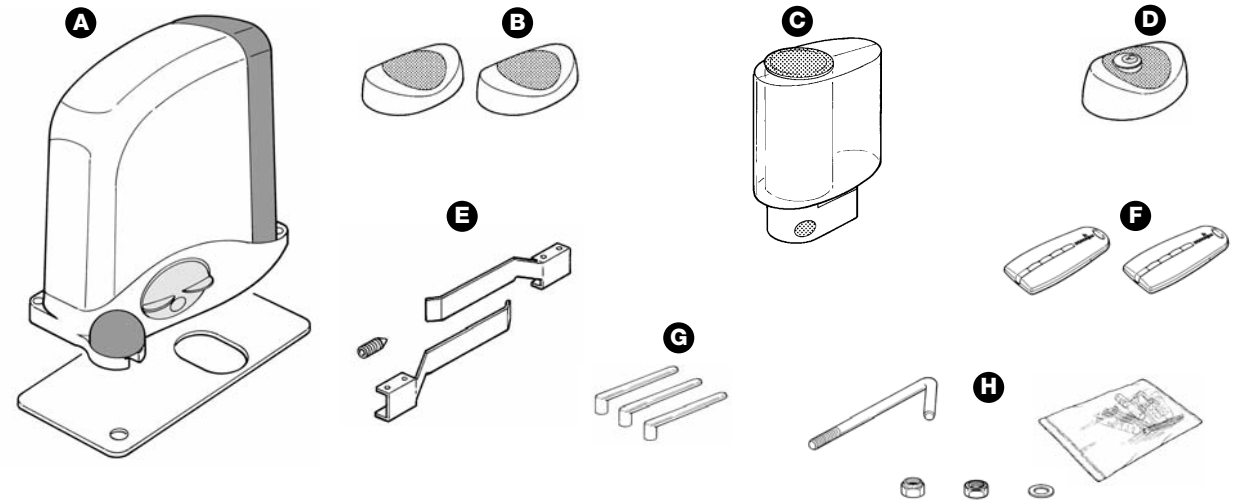
Connection	Type of cable (minimum section values)	Max. admissible length
A - Power line	Cable 3 x 1,5 mm²	30 m *(note 1)*
B - FLASH flashing light output	Cable 2 x 0,5 mm²	20 m
C - Radio aerial	Shielded cable type RG58	20 m (less than 5 m recommended)
D - ECSbus input/output	Cable 2 x 0,5 mm²	20 m *(note 2)*
E - STOP input	Cable 2 x 0,5 mm²	20 m *(note 2)*
F - OPEN input	Cable 2 x 0,5 mm²	20 m *(note 2)*

***Note 1** - If the power cable is longer than 30 m, a cable with a larger section is required (e.g. 3x2.5 mm²) and safety earthing is necessary in the vicinity of the automation.*

***Note 2** - For cables of ECSbus and those of the STOP and OPEN inputs, a single cable with multiple internal wires may be used, to combine several connections: for example, the STOP and OPEN inputs can be connected to the KS1 selector switch with a cable of 4 x 0,5 mm².*

CAUTION! – The cables used must be suited to the installation environment; for example a cable type H03VV-F is recommended for indoor environments, and a cable type H07RN -F for outdoor environments is recommended.

1



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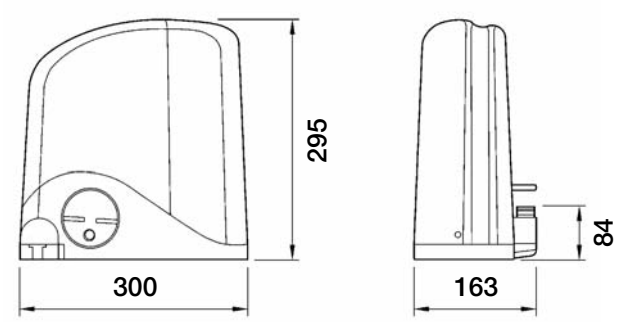

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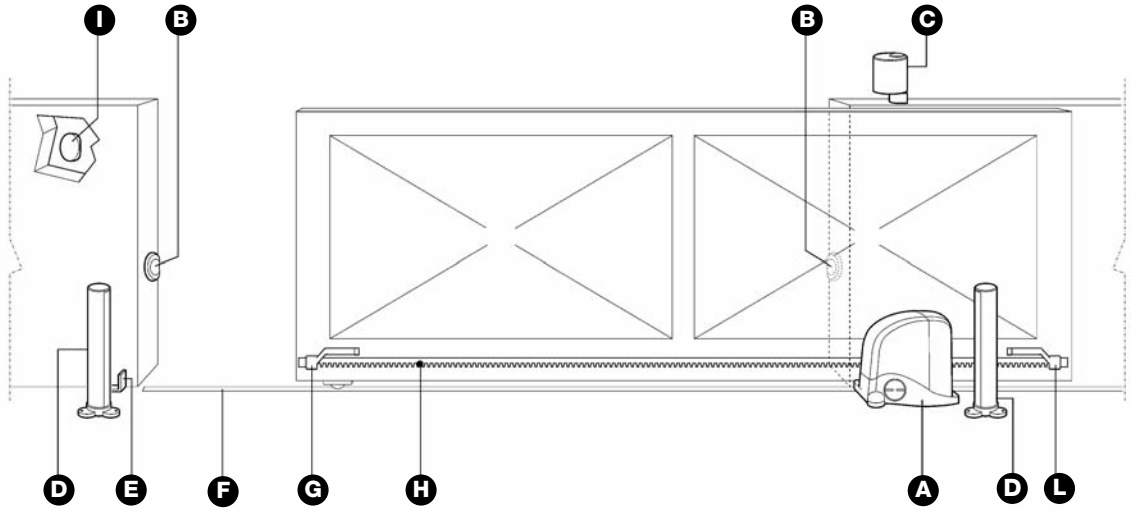

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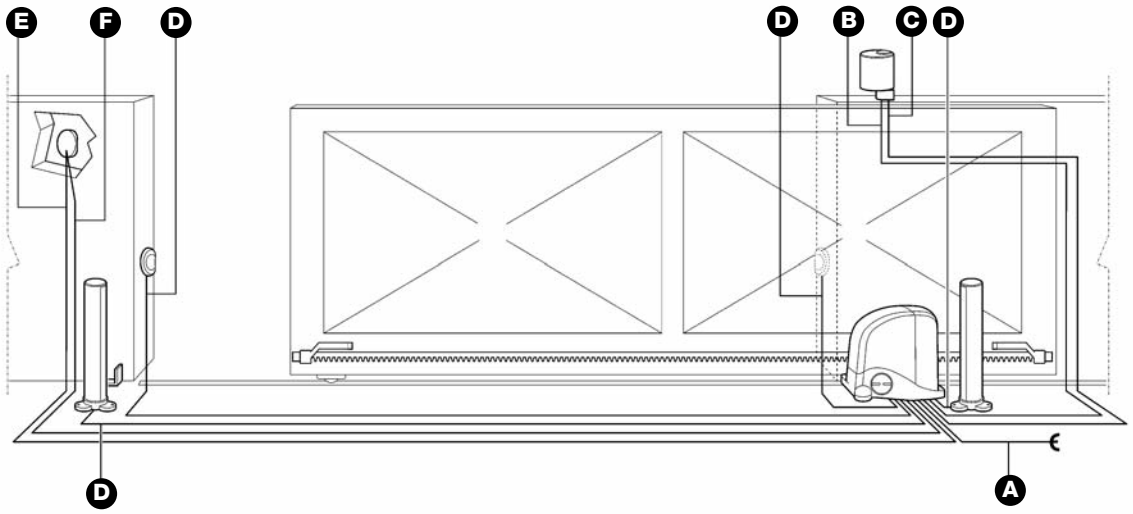

INSTALLATION: ASSEMBLY AND CONNECTION OF COMPONENTS

— STEP 5 —

IMPORTANT!
- The following assembly phases show installation of a gearmotor model SL1SC/SL10SC.
- To ensure correct system operation, mechanical stops must be mounted on the floor or wall at the maximum leaf opening and closing points. ***Note*** *- These stops are not supplied in the pack and are not part of the Mhouse product range.*

WARNINGS

• Incorrect installation may cause serious physical injury to those working on or using the system.

• Before starting automation assembly, make the preliminary checks as described in STEP 3.

5.1 - INSTALLING THE GEARMOTOR ON THE GATE WITHOUT A RACK

If the support surface already exists, the gearmotor should be fixed on it directly, using suitable means, such as expansion plugs. Otherwise, to secure the gearmotor, proceed as follows:

01. Make a suitably-sized foundation pit, according to the required site of installation; see values shown in **fig. 2**;

02. Fit one or more tubes for routing the electric cables (**fig. 5**). *Note - Leave tubes longer than 50 cm;*

03. Fit two bolts on the foundation plate placing a nut below and above the plate; the nut below the plate should be tightened as shown in **fig. 6** so that the threaded section protrudes by approx. 36 mm above the plate;

04. Before casting the concrete, prepare the foundation plate with the printed side (position of pinion) facing the gate and positioned as specified by the values in **fig. 7**; then lay the tubes for routing the cables through the relative hole;

05. Now cast the concrete and place the plate as described in point 04, ensuring that it is parallel to the leaf and perfectly level (**fig. 8**). Wait for the concrete to set completely;

06. When the concrete is sufficiently dry (after a few days), remove the 2 upper nuts which will no longer be used;

07. Shorten the cable routing tubes by 30/40 mm;

08. Remove the nut cover on the gearmotor (**fig. 9**);

09. Rest the gearmotor on the plate, ensuring that it is perfectly parallel to the leaf, then slightly lighten the 2 locknuts and washers supplied (**fig. 10**). Tighten the nuts fully down;

10. Manually release the gearmotor (see paragraph 11.3 - User's guide);

11. Move the gate to the maximum opening position then position the first section of the rack above the pinion of the gearmotor. The rack should protrude, with respect to the axis of the pinion, by the value specified in **fig. 11** (with motor fixed to left) or **fig. 12** (with motor fixed to right); i.e. the space required for the limit switch brackets;

Important! – Leave a clearance of 1 mm between the rack (for all parts) and the pinion (**fig. 13**), so that the weight of the leaf does not exert pressure on the motor.

12. Now fix the other parts of the rack one after the other; to keep the rack aligned with the level of the pinion, simply trace the fixing hole when the slot is aligned with the axis of the pinion (**fig. 14**). Repeat the same operation at each fixing point;

13. After fixing the last part of the rack, if necessary, cut off the protruding section; the rack should not protrude from the leaf;

14. Manually complete a number of leaf opening and closing cycles to ensure that the rack slides smoothly along the pinion throughout the entire length;

15. Position (approximately) the two limit switch brackets **[A]** on the rack (**fig. 15**) and manually move the gate for final fixture;

16. Fix the limit switch brackets as follows:
a) manually move the leaf to the opening position, leaving a distance of at least 2-3 cm from the mechanical end stop.
b) slide the travel limit bracket on the rack in the opening direction until the limit switch trips. Then move the bracket forward by at least 2 cm and lock on the rack using the grub screws supplied.
c) perform the same operation to secure the Closing limit switch.

17. Then manually release the gearmotor (see paragraph 11.3 - User's guide).

The electrical connections can now be made (see chapter 6).

5.2 - INSTALLING THE GEARMOTOR ON THE GATE WITH AN EXISTING RACK

If the support surface already exists, the gearmotor should be fixed on it directly, using suitable means, such as expansion plugs. Otherwise, to secure the gearmotor, proceed as follows:

Warnings
– Before fixing the gearmotor, ensure that the existing rack is compatible with the overall dimensions of the pinion (see **fig. 16**).
– Ensure that the distance between the pinion and rack is approx. 12 mm.

01. Make a suitably-sized foundation pit, according to the required site of installation; see values shown in **fig. 2**; **Caution:** – The foundation plate must be positioned at 77 mm from the rack;

02. Fit one or more tubes for routing the electric cables (fig. 5). *Note - Leave tubes longer than 50 cm;*

03. Fit two bolts on the foundation plate placing a nut below and above the plate; the nut below the plate should be tightened as shown in **fig. 6** so that the threaded section protrudes by approx. 36 mm above the plate;

04. Before casting the concrete, prepare the foundation plate with the printed side (position of pinion) facing the gate and positioned as specified by the values in **fig. 7**; then lay the tubes for routing the cables through the relative hole;

05. Now cast the concrete and place the plate as described in point 04, ensuring that it is parallel to the leaf and perfectly level (**fig. 8**). Wait for the concrete to set completely;

06. When the concrete is sufficiently dry (after a few days), remove the 2 upper nuts which will no longer be used;

07. Shorten the cable routing tubes by 30/40 mm;

08. Remove the nut cover on the gearmotor (**fig. 9**);

09. Place the gearmotor on the foundation plate, tilting it to facilitate insertion below the rack (**fig. 18**). Slightly tighten the 2 locknuts, after inserting the washers;

10. If necessary, adjust the gearmotor height (max. 10 mm), using the 4 stud bolts fitted (**fig. 19**). **Important!** – Leave a clearance of 1 mm between the rack and the pinion, so that the weight of the leaf does not exert pressure on the motor.
Where possible, fix the gearmotor without stud bolts, to ensure increased stability and solid fixture on the plate.

11. Ensure that the gearmotor is perfectly parallel to the leaf, then fix it to the foundation plate, tightening the 2 locknuts fully down;

12. Manually release the gearmotor (see paragraph 11.3 - User's guide);

13. Manually complete a number of leaf opening and closing cycles to ensure that the rack slides smoothly along the pinion throughout the entire length;

14. Fix the limit switch brackets **[A]** (**fig. 15**) as follows:
a) manually move the leaf to the opening position, leaving a distance of at least 2-3 cm from the mechanical end stop.
b) slide the travel limit bracket on the rack in the opening direction until the limit switch trips. Then move the bracket forward by at least 2 cm and lock on the rack using the grub screws supplied.
c) perform the same operation to secure the Closing limit switch.

15. Then manually lock the gearmotor (see paragraph 11.3 - User's guide).

The electrical connections can now be made (see chapter 6).

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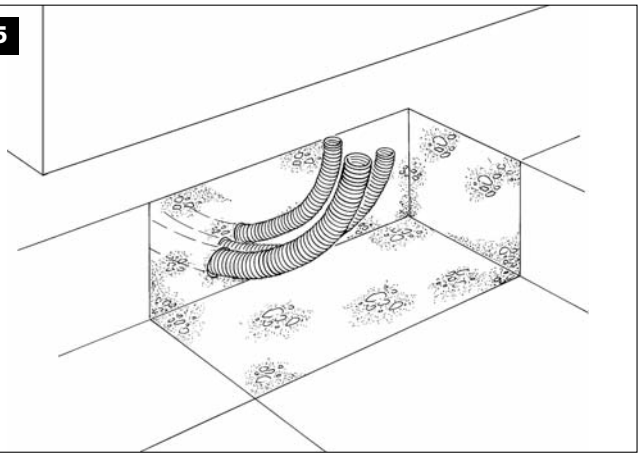

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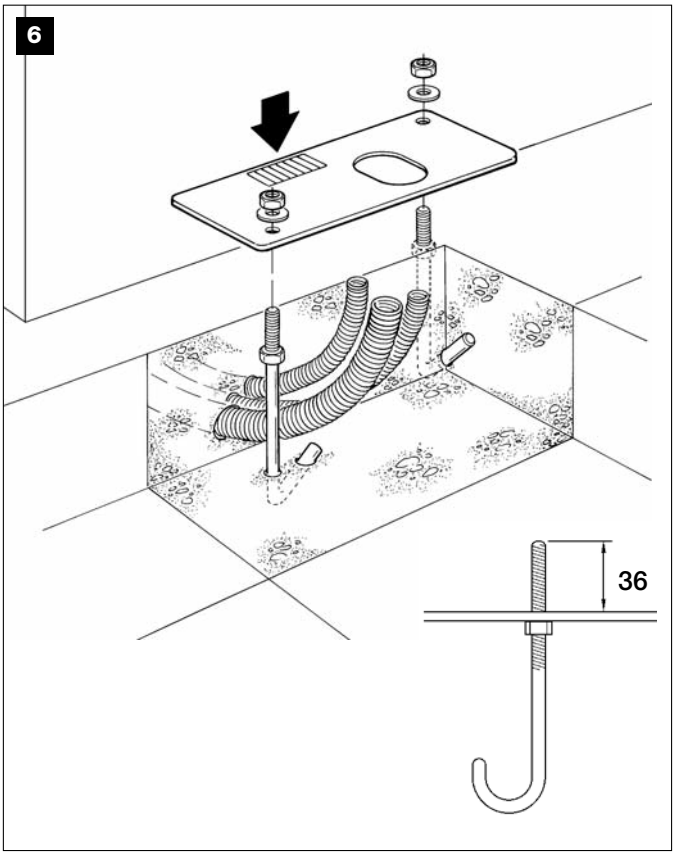
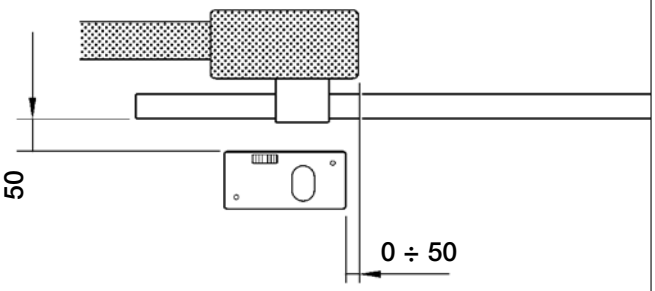
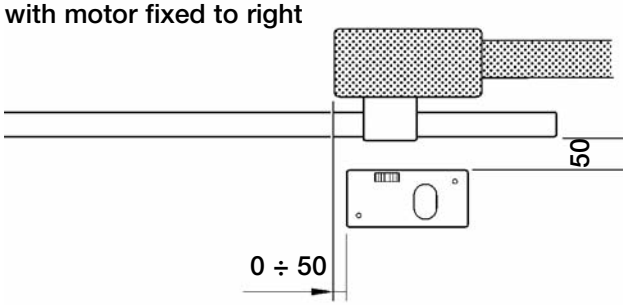


7 with motor fixed to left



with motor fixed to right



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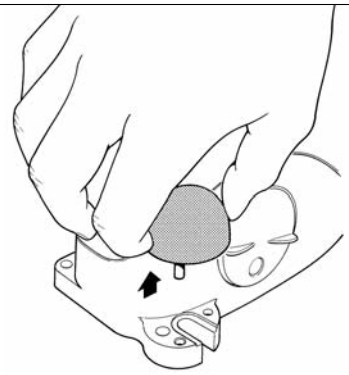

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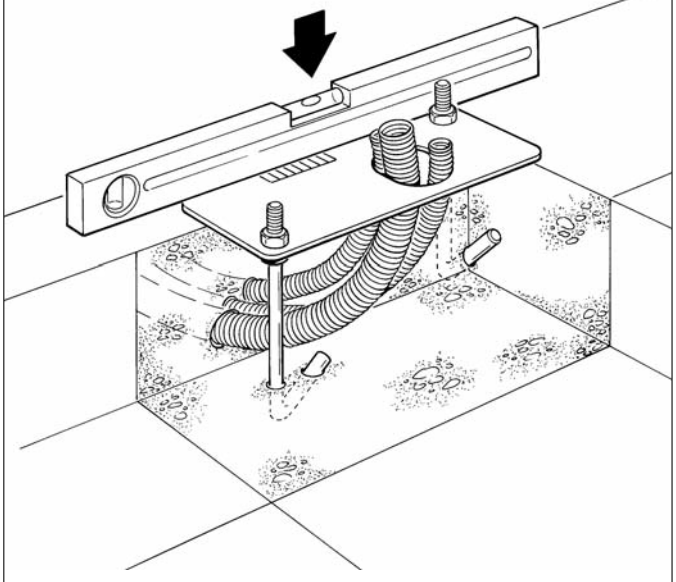

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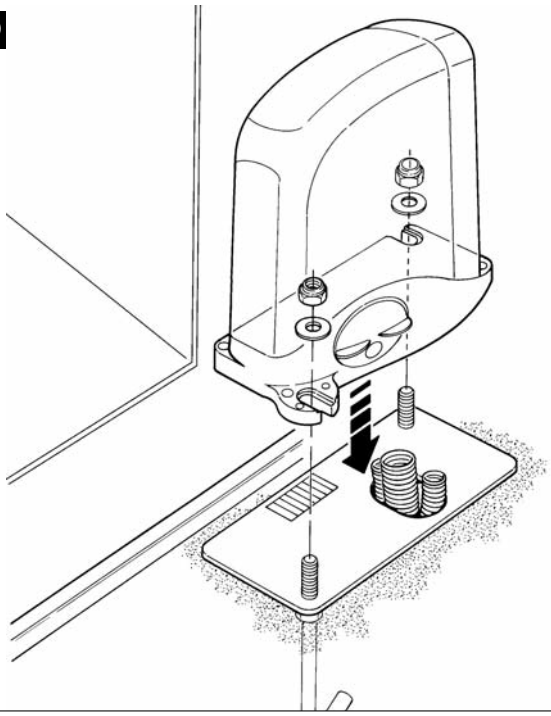

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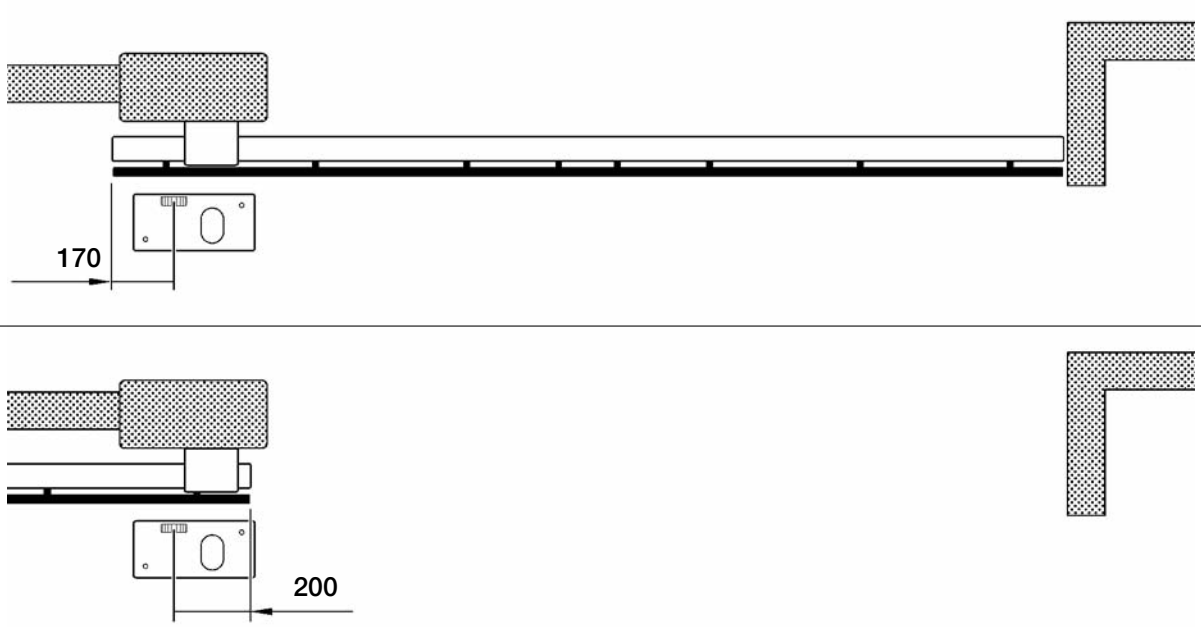

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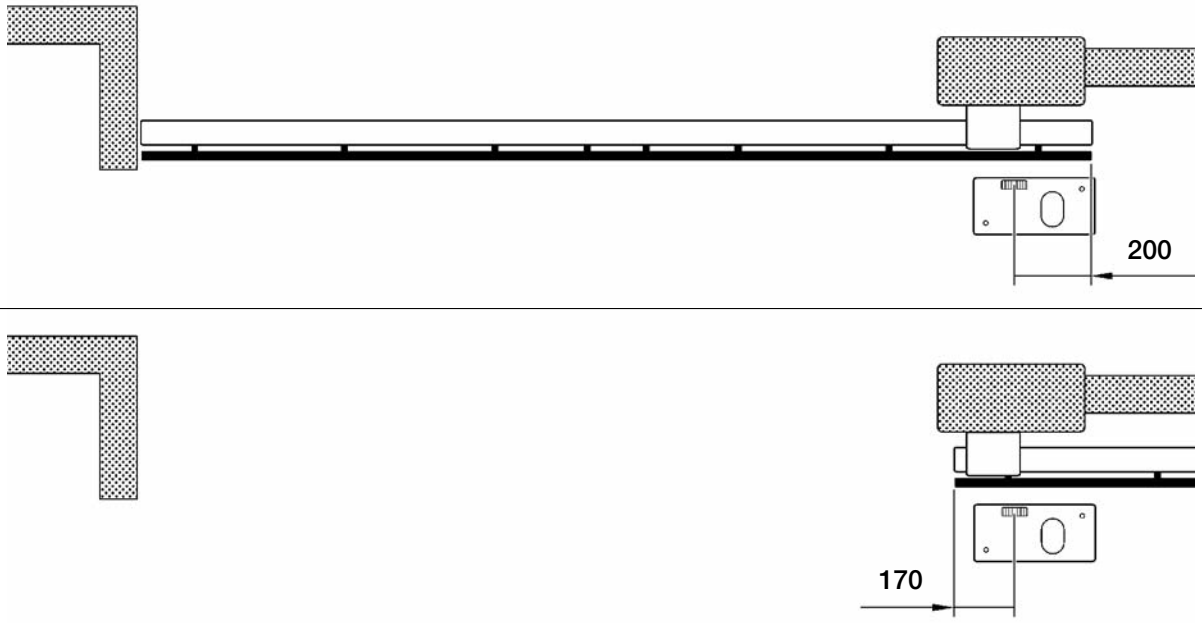

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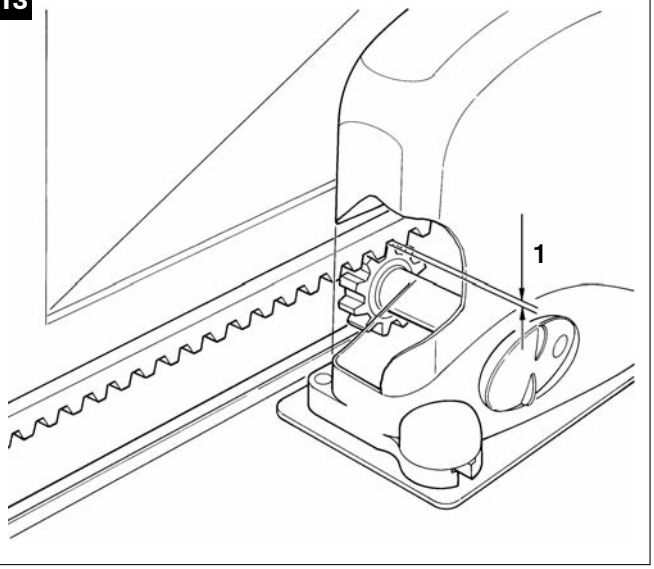

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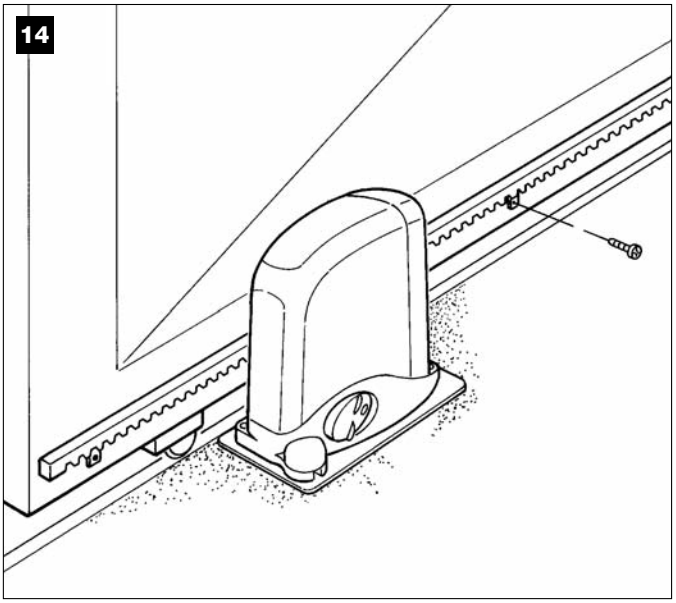

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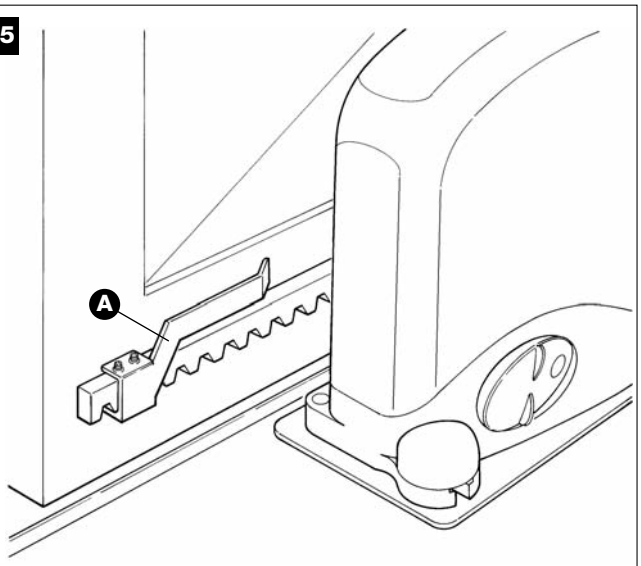

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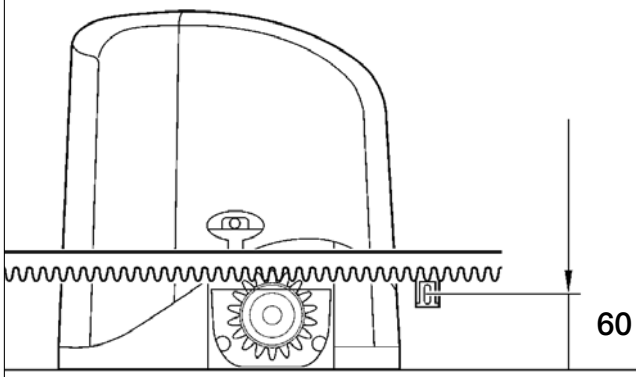
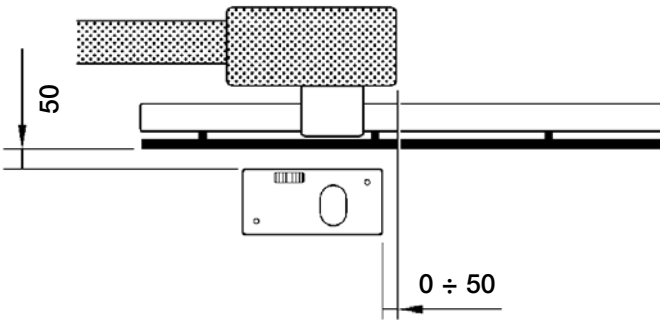
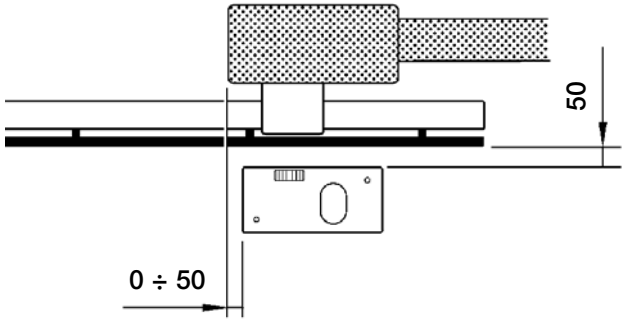


17 with motor fixed to left



with motor fixed to right



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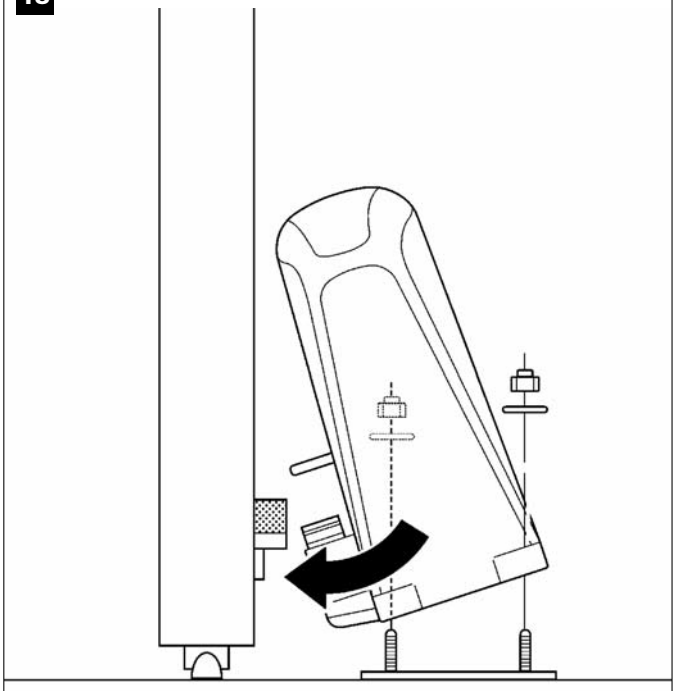

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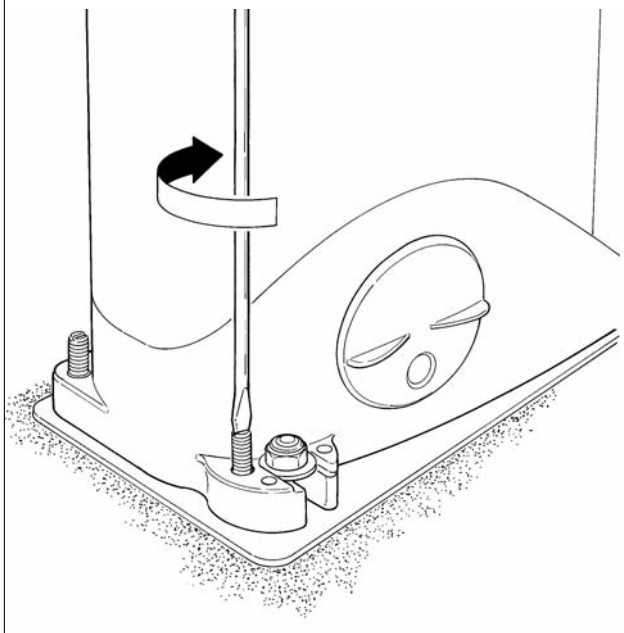

— STEP 6 —

6.1 - INSTALLING THE PH1 PHOTOCELLS (fig. 20)

01. Select the position of the two elements making up the photocell (TX and RX) observing the following:
- Place them at a height of 40-60 cm from the ground, to the sides of the zone to be protected, on the outer side (facing the public road) and as close as possible to the edge of the gate, i.e. no further than 15 cm.
- Point the transmitter TX at receiver RX with a maximum tolerance of 5°.
- There must be a raceway tube at the two points envisaged for routing cables.

02. Remove the front glass panel **[A]** (**fig. 20-1**) using a screwdriver to lever off the lower section.
03. Press on the lens to separate the two shells (**fig. 20-2**).
04. On the base, use a screwdriver to punch through two of the four holes **[B]** (**fig. 20-3**).
05. Position the photocell at the point where the cable routing tube arrives, ensuring that the hole on the base **[D]** (**fig. 20-3**) is aligned with the cable outlet from the wall; trace the drilling points using the base as a reference.
06. Use a percussion drill to drill the wall, with a 5mm tip, and insert 5 mm plugs.
07. Fix the base, using the relative screws **[C]** (**fig. 20-3**).
08. Connect the electrical cable in the relative terminals of both TX and RX (**fig. 20-4**). From an electrical point of view, TX and RX must be connected in parallel, as shown in **fig. 20-5**. No polarity needs to be observed. To facilitate operations, remove terminals, make connections, then refit the terminals.
09. (**fig. 20-6**) Fix the covering shell **[E]** with the two screws **[F]** using a Phillips screwdriver. Insert the glass panel **[G]** pressing on it to click into place.

6.2 - INSTALLING THE KS1 KEY-OPERATED SELECTOR SWITCH (fig. 21)

01. Select the position of the switch so that it is outside, alongside the gate, at a height of approx. 80 cm, so that it can also be used by persons of different heights.
02. Remove the front glass panel **[A]** using a screwdriver to lever off the lower section.
03. To separate the base from the shell. insert the key and keep it turned, then pull with the aid of a finger inserted in the cable routing hole.
04. On the base, use a screwdriver to punch through the four holes; trace the drilling points using the base as a reference, so that the hole on the base is aligned with the cable outlet.
05. Use a percussion drill to drill the wall, with a 5mm tip, and insert 5 mm plugs.
06. Fix the base, using the four screws **[B]**.
07. Connect the electric cables in the relative OPEN and STOP terminals as shown in **fig. 21-4**. No polarity needs to be observed. To facilitate operations, remove terminals, make connections, then refit the terminals.
08. To insert the shell on the base, turn the key and after inserting the shell return the key to the central position.
09. Fix the housing **[C]** with the two screws **[D]** using a Phillips screwdriver. Lastly, insert the glass panel **[E]** pressing on it to click into place.

6.3 - INSTALLING THE FL1 FLASHING LIGHT (fig. 22)

01. Select the position of the flashing light so that it is in the vicinity of the gate in a visible location; it can be fixed on either a horizontal or vertical surface.
02. (**fig. 22-1**) Extract the diffuser **[A]** from the base by pressing the two buttons **[B]**.
03. Separate the lamp holder with aerial from the base (**fig. 22-2**).
04. Depending on the fixture, use a screwdriver to punch through the four holes on the side or base for routing the cables.
05. Trace the drilling holes using the base as a reference and ensuring that the hole on the base is aligned with the cable outlet.
06. Use a percussion drill to drill the wall, with a 6 mm tip, and insert 6 mm plugs.
07. Fix the base, using the relative screws **[C]** (**fig. 22-3**).
08. Connect the electric cables in the relative FLASH and "aerial" terminals as shown in **fig. 22-4**. No polarity needs to be observed on the FLASH terminal, while in the case of the shielded cable connection of the aerial, the sheath must be connected as shown in **fig. 22-5**. To facilitate operations, remove terminals, make connections, then refit the terminals.
09. Insert the lamp holder in the base, taking care to press it down so that it locks into place.
10. Insert the diffuser, pressing the buttons and press fully down. Turn it in the required direction before pressing it down and clicking the two buttons into place (**fig. 22-6**).

6.4 - ELECTRICAL CONNECTION TO CONTROL PANEL

01. Remove the lateral cover of the gearmotor: remove the screw and pull the cover upwards (**fig. 23**);
02. Depending on the position of the gearmotor (right or left), set the electric jumper for the direction of the opening manoeuvre (Open), see **fig. 24**;
03. Remove the rubber membrane of the hole made for insertion of the electric cables. Insert the cables required for connections of the various devices (**fig. 25**). Leave cable lengths of at least 40-50 cm.
04. From the rubber membrane, remove a sufficient part of the internal mesh for insertion of the cables. Then fit the membrane into its seat (**fig. 26**).
05. At this point, make the electrical connections of the various devices to the control unit terminals (see **fig. 27** and following paragraphs).
- The terminals have the same colour as the terminals on the corresponding devices; for example the grey terminal (OPEN) of the KS1 key-operated selector switch must be connected to the grey terminal (OPEN) of the control unit;
- No polarity is needed for virtually any of the connections; only in the case of the shielded cable of the aerial, the central core and sheath must be connected as shown in detail **[A]** of **fig. 27**.

*Notes: - To facilitate connections, terminals can be removed as shown in **fig. 28** - **[A]**; after making the connections, refit the terminals in their seats. - At the end of connections, use cable ties to secure the electric cables to the relative fixtures* **[B]** ***fig. 28.***

06. Remove the lateral cover of the gearmotor as shown in **fig. 29.**

6.5 - INSTALLING THE PR1 BUFFER BATTERY (fig. 30)

CAUTION! - The electric connection of the battery to the control unit must only be made after completing all installation and programming phases, as the battery constitutes an emergency power supply.

To install and connect the buffer battery PR1 to the control unit, refer to **fig. 30** and the PR1 instruction manual.

When the automation is powered by the buffer battery, 60 seconds after a manoeuvre is completed, the control unit automatically switches off the output "ECSbus" (and all connected devices), outputs Flash and Els, and all leds, with the exception of the ECSbus led, which flashes at slower intervals; this indicates the "Standby" function. When the control unit receives a command, it restores normal operation (with a short delay). This function is used to reduce consumption; an important factor when the unit is powered by battery.

6.6 - INSTALLING THE SOLAR POWER SUPPLY SYSTEM (fig. 31)

CAUTION! - When the automation is powered exclusively by the solar power system "PF", IT MUST NEVER BE POWERED at the same time by the mains.

To connect the PF solar power system to the control unit, refer to **fig. 31** and the PF instruction manual.

When the automation is powered by the solar panel, 60 seconds after a manoeuvre is completed, the control unit automatically switches off the output "ECSbus" (and all connected devices), outputs Flash and Els, and all leds, with the exception of the ECSbus led, which flashes at slower intervals; this indicates the "Standby" function. When the control unit receives a command, it restores normal operation (with a short delay). This function is used to reduce consumption; an important factor when the unit is powered by photovoltaic panels.

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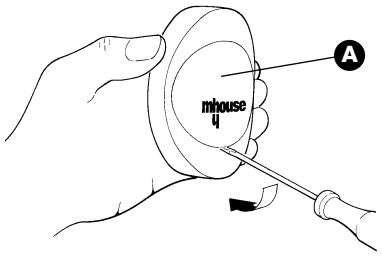

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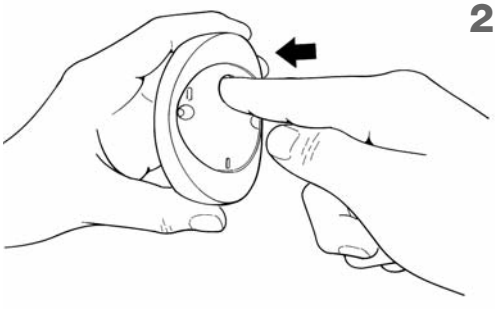

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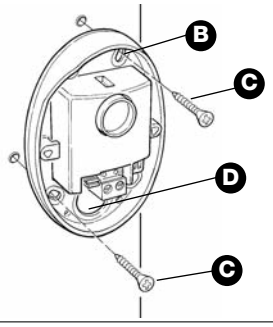

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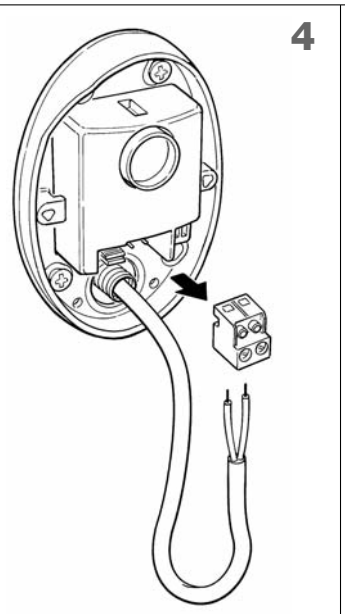

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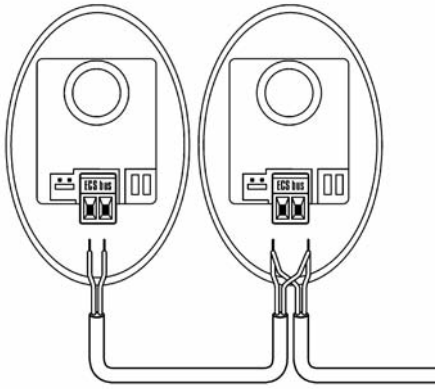

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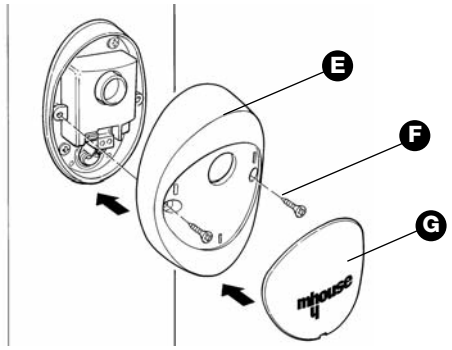

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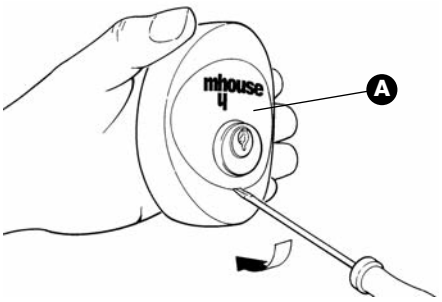

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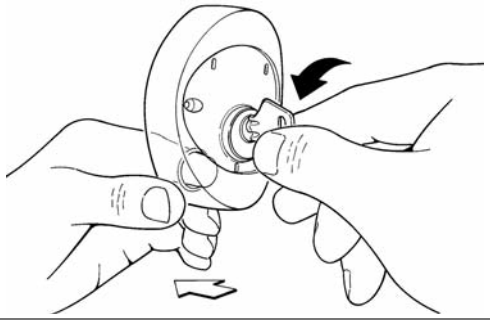

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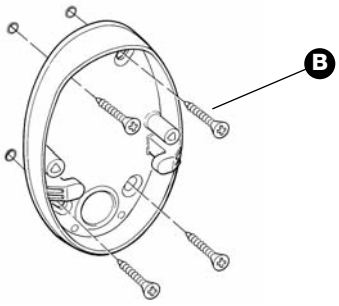

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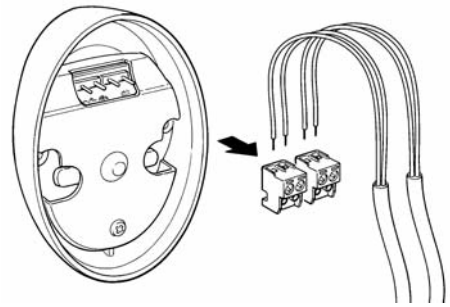

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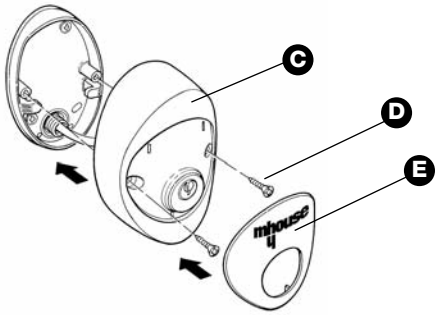

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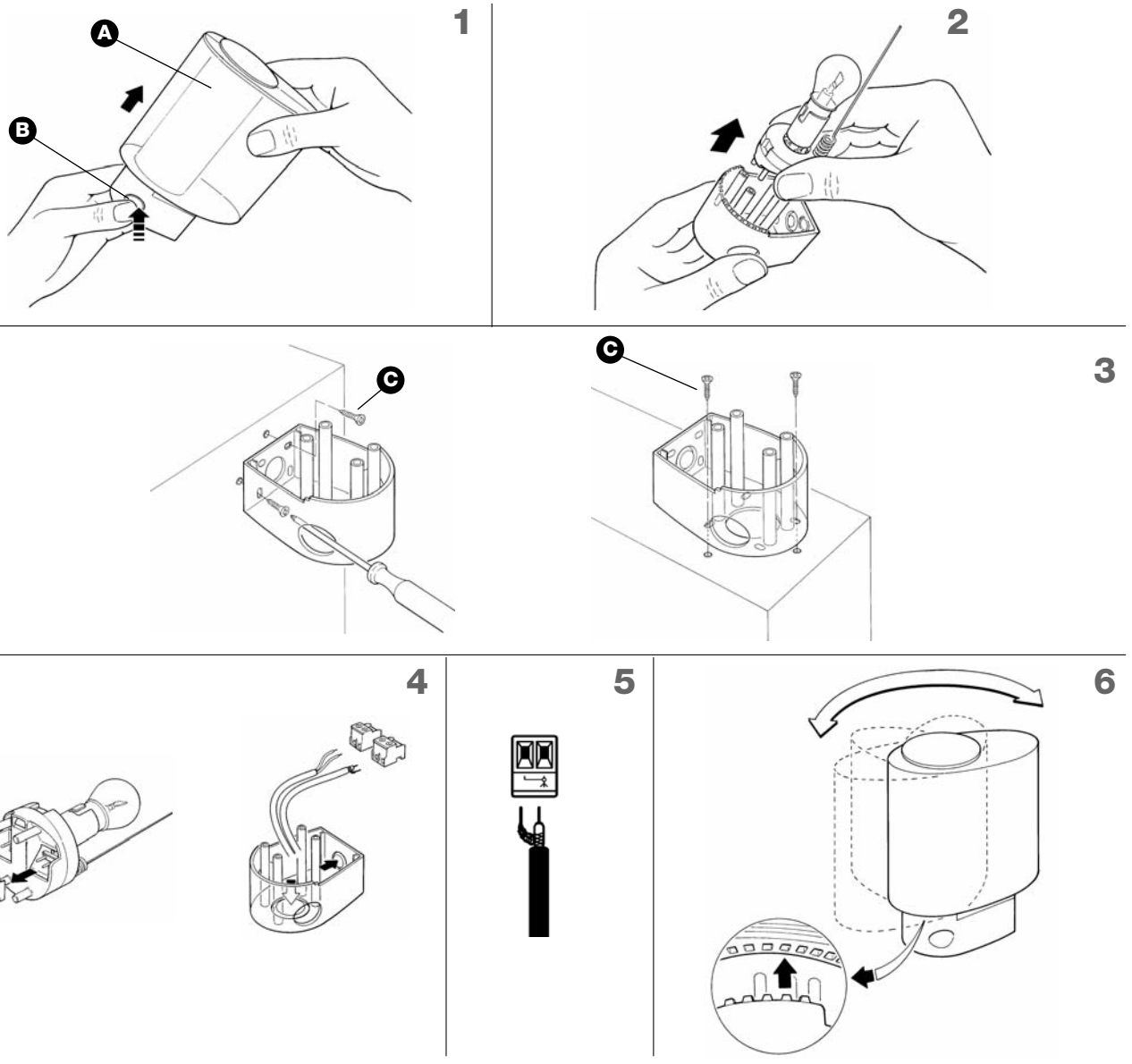

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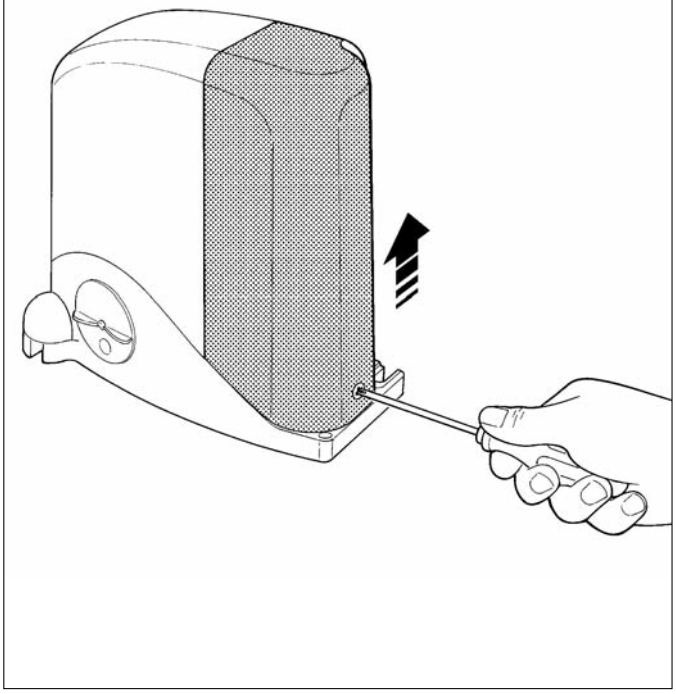

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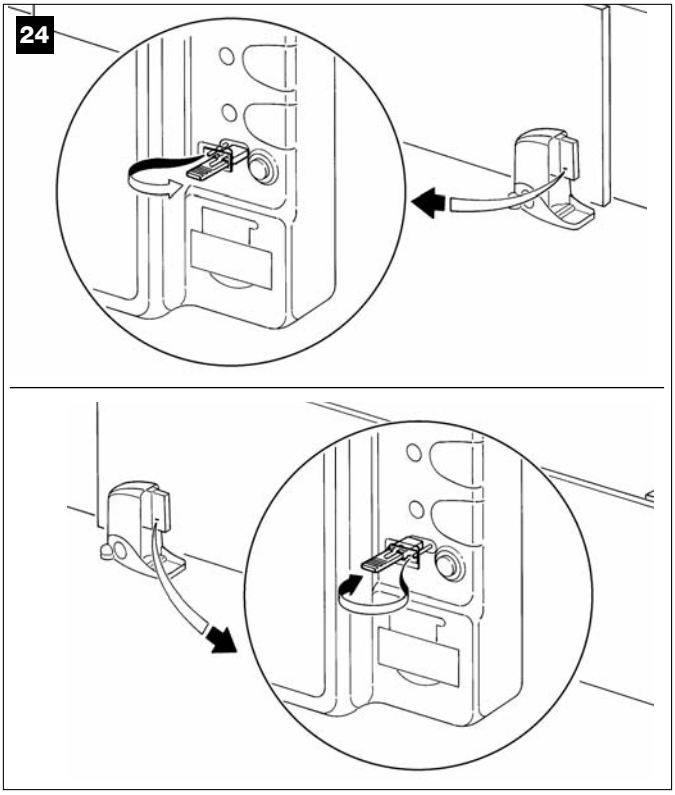

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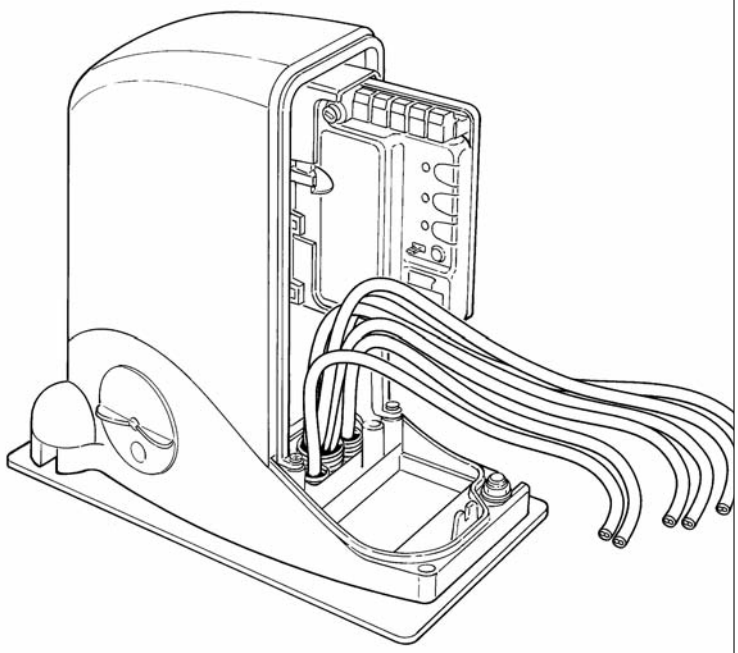

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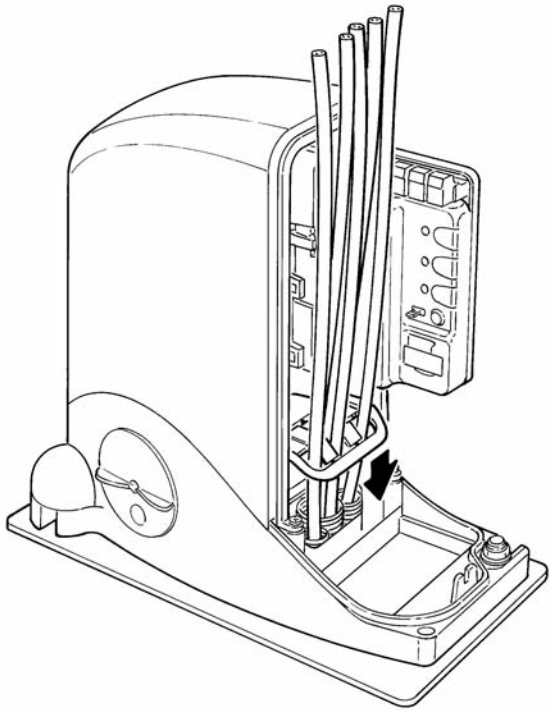

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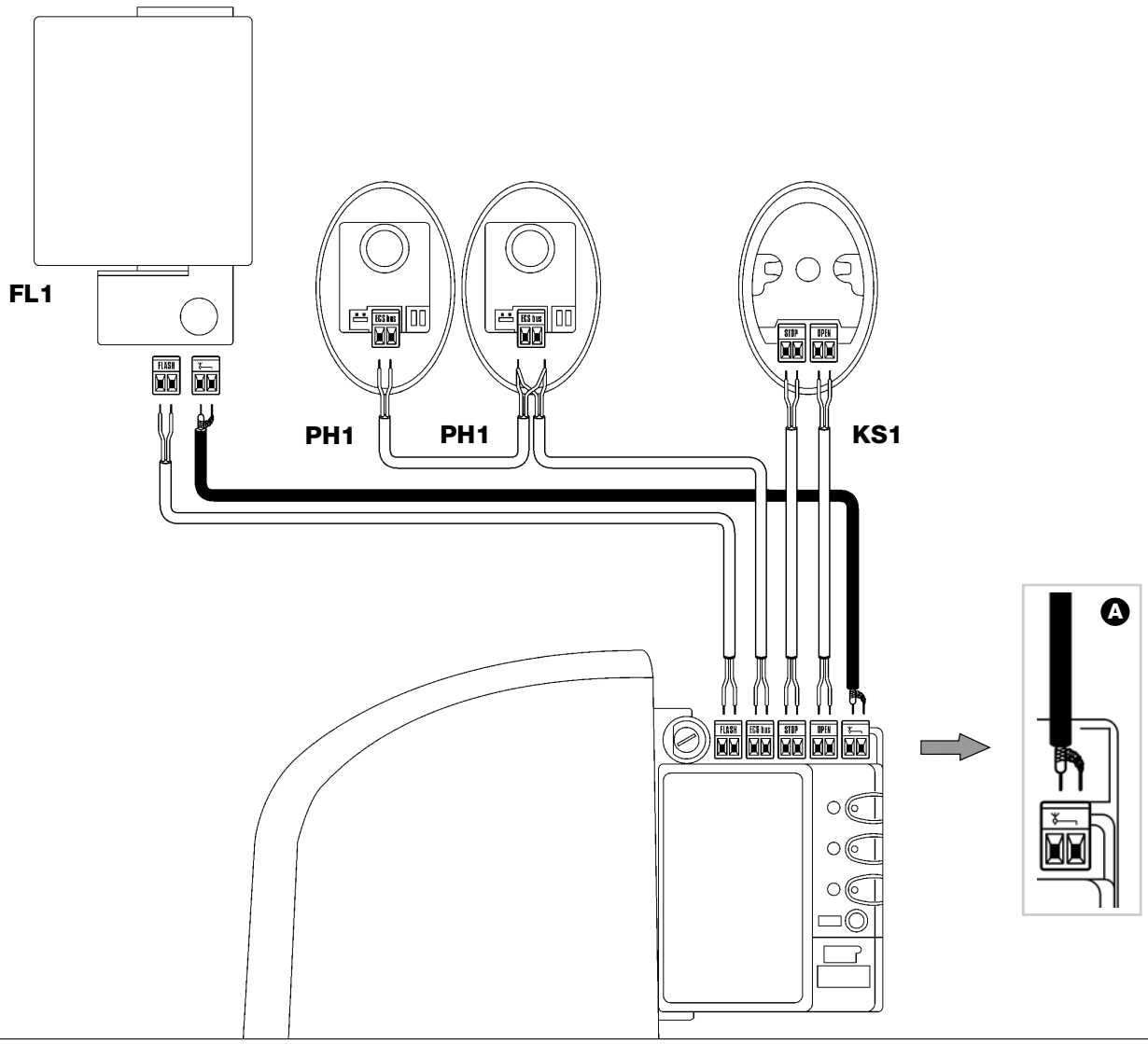

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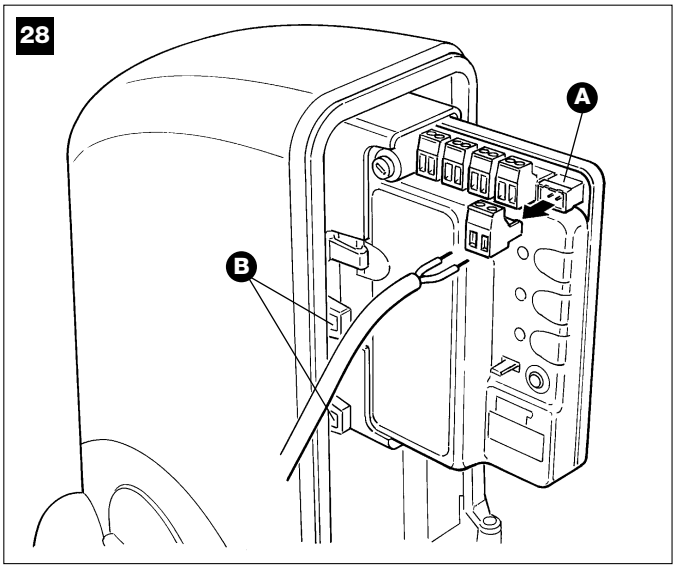

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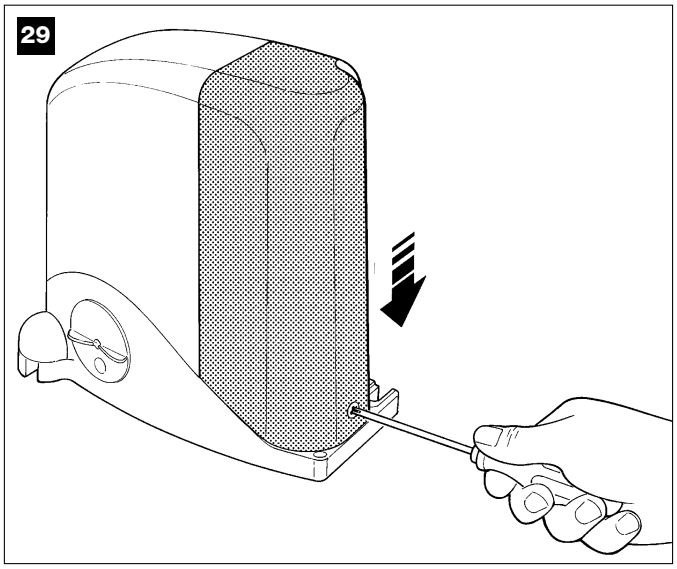

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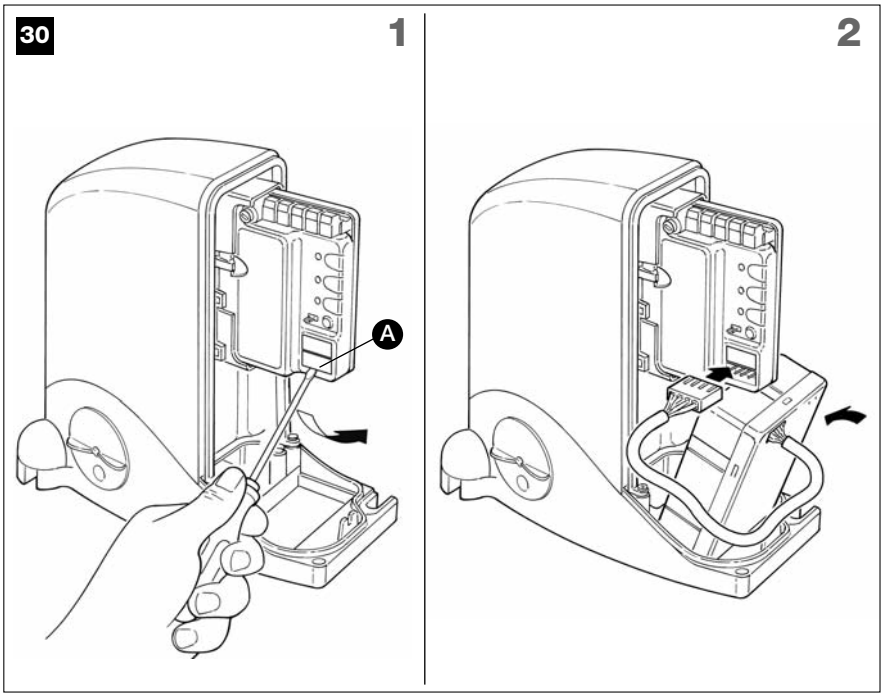

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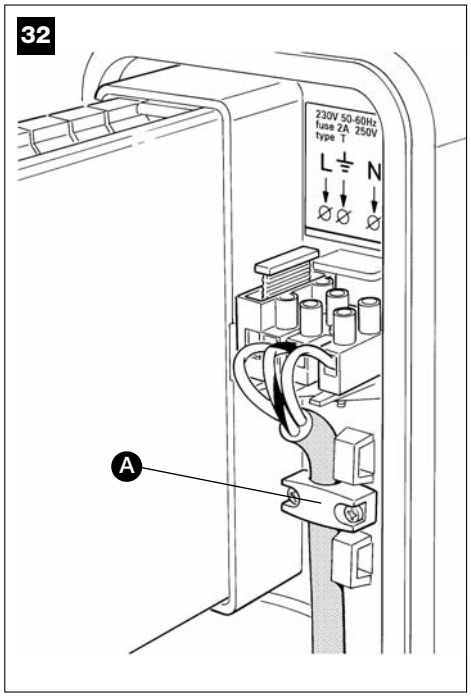

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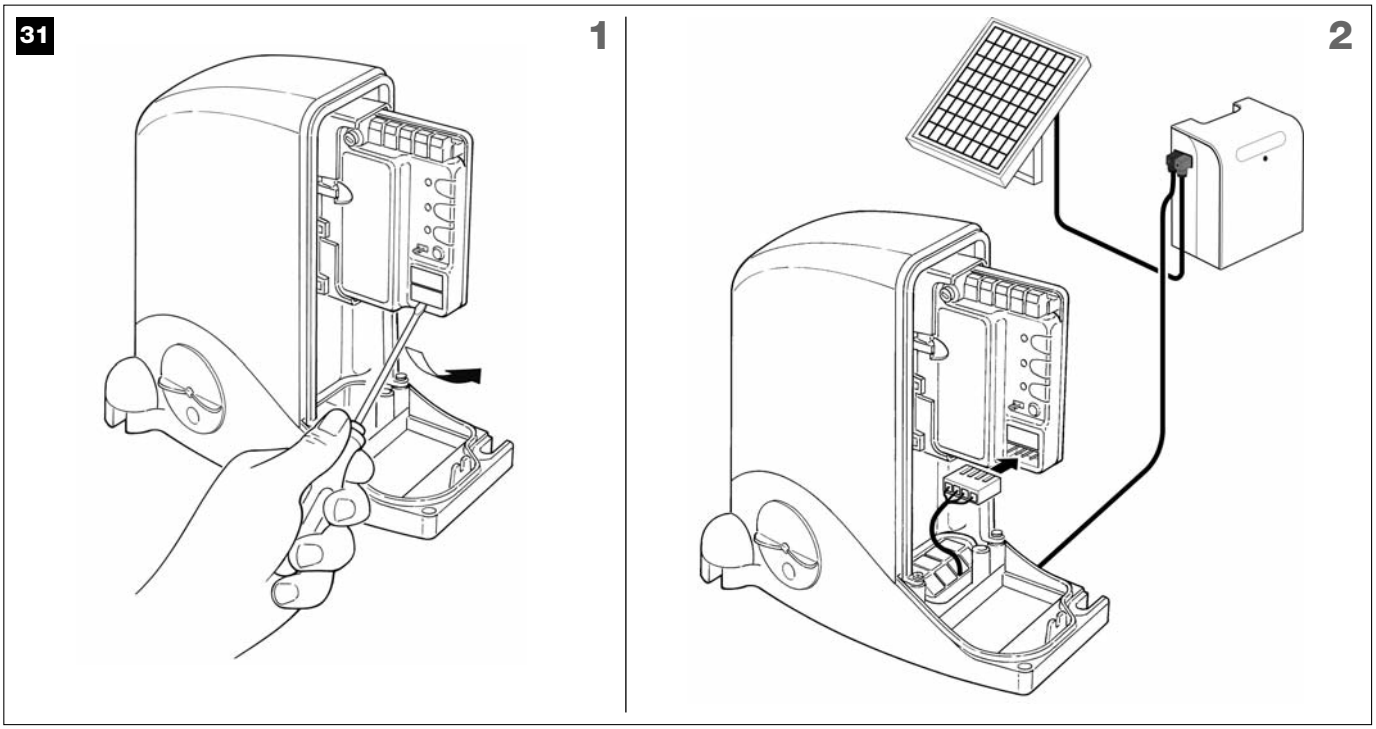

— STEP 7 —

7.1 - POWER SUPPLY CONNECTION

WARNINGS
– The power cable is in PVC and is designed for installation indoors. If installed outdoors, the entire cable must be covered with a protection ducting. Otherwise the cable can be replaced with a H07RN-F version.
– Final connection of the automation to the electrical mains or replacement of the cable supplied must be made exclusively by a qualified and skilled electrician, in observance of the current safety standards and the following instructions.

• **For automation operation tests and programming**, use the cable supplied, inserting the plug in an electrical socket. If the socket is far from the automation, an extension may be used in this phase.

• **For the automation testing and commissioning phase** the control unit must be permanently connected to the power mains, replacing the cable supplied with one of adequate length. To connect the cable to the gearmotor control unit, proceed as follows:

WARNING!
The power line must be fitted with a disconnect device that ensures complete shut-off of power to the automation. The disconnect device must have contacts with a sufficient gap to ensure complete disconnection, in compliance with the overvoltage category III, according to the installation instructions. If necessary, this device guarantees quick and safe disconnection from the mains power and therefore must be positioned in sight of the automation. If located in a concealed position, it must be equipped with a system that prevents inadvertent or unauthorised reconnection of power, to avoid potential hazards. The disconnect device is not supplied with the product.

01. Ensure that the gearmotor plug is not inserted in the mains socket;
02. Disconnect the electric cable on the gearmotor from the power terminal.
03. Loosen the collar **[A]** (**fig. 32**) present below the terminal and extract the electric cable. Replace it with the permanent electric power cable.
04. Connect the electric cable to the gearmotor power terminal (**fig. 32**);
05. Tighten down the collar **[A]** to secure the electric cable.

7.2 - INITIAL CHECKS

After powering up the control unit, perform the following checks:

01. Ensure that the led “ECSBus” **[A]** (**fig. 33**) flashes regularly with the frequency of 1 flash per second;
02. Ensure that the LED “SAFE” **[B]** (**fig. 33**) on the photocells is flashing (both on TX and RX); the type of flash is not important, as this depends on other factors; it is important that it is not off or permanently lit.
03. Ensure that the night-time light **[C]** (**fig. 33**) on the KS1 key-operated selector switch is on.
04. If these events do not occur, disconnect the control unit from the power supply and check the cable connections again with care. For other useful information, refer also to chapters 10.5 “Troubleshooting” and 10.6 “Diagnostics and signals”.

7.3 - LEARNING CONNECTED DEVICES

On completion of initial checks, the control unit must be able to recognise the devices connected on the terminals “ECSBus” and “STOP”.

01. On the control unit, press and hold P2 **[A]** (**fig. 34)** for at least 3 seconds, then release:
02. Wait a few seconds for the control unit to complete the device learning phase.
03. At the end of the learning phase the STOP led **[B]** (**fig. 34**) must remain lit, while the led P2 **[C]** (**fig. 33**) should turn off. If led P2 flashes, this means that there is an error; see paragraph 10.5 “Troubleshooting”.

The phase for learning connected devices can be repeated at any time also after installation (for example if a photocell is added); simply repeat the procedure from point 01.

7.4 - CHECKING GATE LEAF MOVEMENT

After learning devices, the control unit must recognise the length of the gate. In this phase the length of the gate is measured from the closing limit switch to the opening limit switch. This measurement is required to calculate the points of deceleration and partial opening.

01. Release the gearmotor (see paragraph 11.3 - User’s guide) and move the gate to mid-travel so that it is free to move in both the opening and closing directions; then lock the gearmotor.
02. On the control unit, press and release the key OPEN **[A]** (**fig. 35**); wait for the control unit to perform leaf opening until the opening limit switch is reached.
If the manoeuvre is not opening, press the OPEN key again to stop the manoeuvre and invert the position of the jumper, (see **fig. 24**) and then repeat point 02.
03. On the control unit, press and release the key OPEN **[A]** (**fig. 35**);
04. Perform a number of opening and closing manoeuvres, ensuring that the gate stops (reaching the limit switch) at at least 2-3 centimetres before the mechanical stops.

7.5 - CHECKING THE RADIO TRANSMITTERS

To check transmitters, simply press one of its 4 keys, ensure that the LED flashes and that the automation performs the associated command.
The command associated with each key depends on the mode in which they were memorised (see paragraph 10.4 “Memorising radio transmitters”). The transmitters supplied are already memorised and the keys, when pressed, send the following commands (**fig. 36**):

Key T1 = “OPEN” command”
Key T2 = “Pedestrian Open” command
Key T3 = “Open only” command
Key T4 = “Close only” command

7.6 - SETTINGS

7.6.1 - Selecting the leaf speed

Leaf opening and closing can be at two speeds: “high” and “low”.
To change from one speed to another, briefly press key P2 **[B]** (**fig. 37**); the corresponding led P2 **[A]** (**fig. 37**) will turn on or off; when the led is off, the speed setting is “low”, when the led is on the speed setting is “high”.

7.6.2 - Selecting the operating mode

Gate opening and closing can be performed in two different operating modes:

- Single cycle (semi-automatic): with one command, the gate opens and remains open until the next command which activates closing.
- Complete cycle (automatic closing): with one command, the gate opens and closes again automatically after a short interval (for the time interval, see paragraph 10.1 “Parameter settings via radio transmitter”).

To change from one mode to another, briefly press key P3 **[B] (fig. 38)**; the corresponding led **[A]** (**fig. 38**) will turn on or off; when the led is off, the cycle is “single”, when the led is on the cycle is “complete”.

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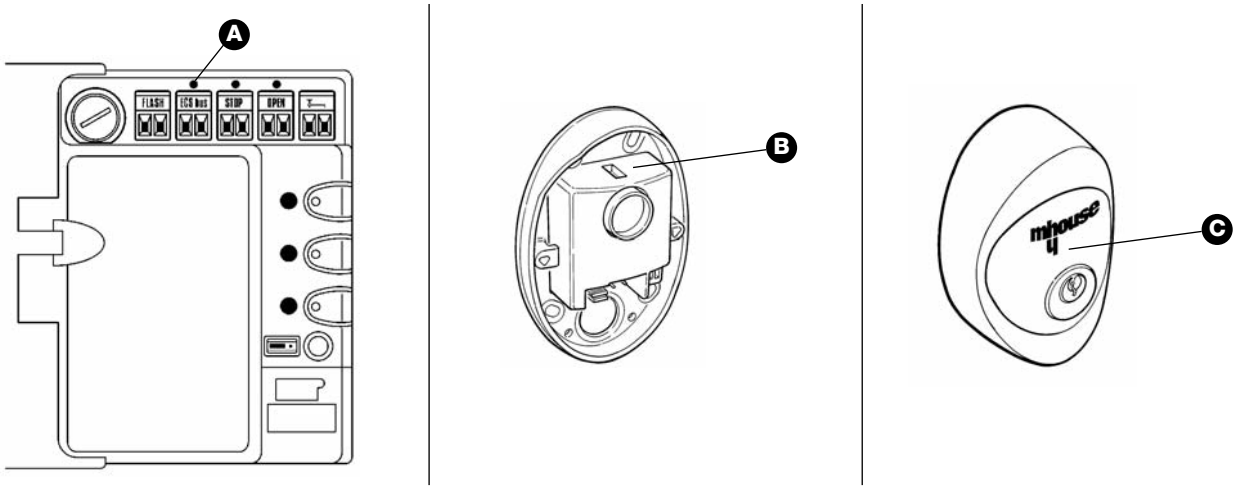

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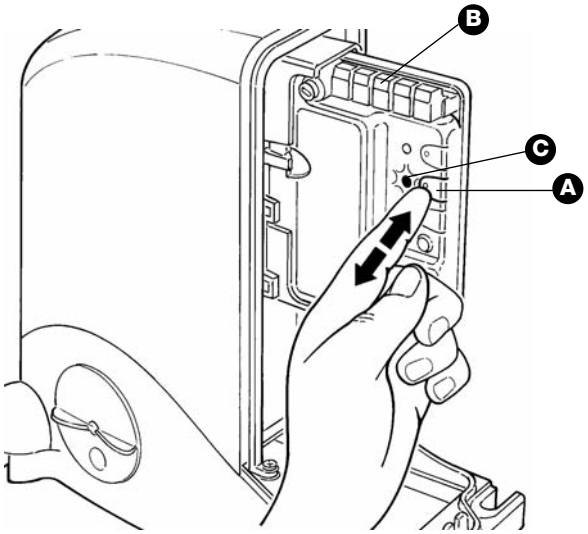

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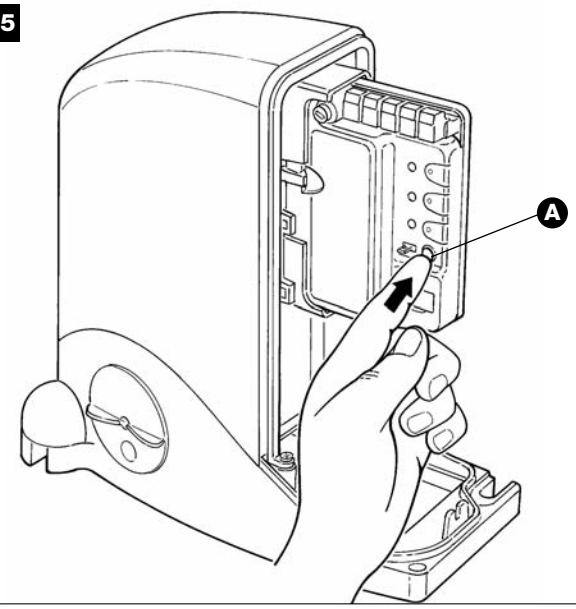

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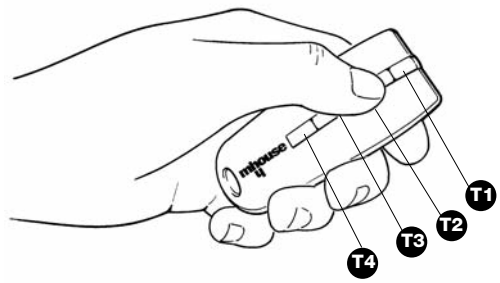

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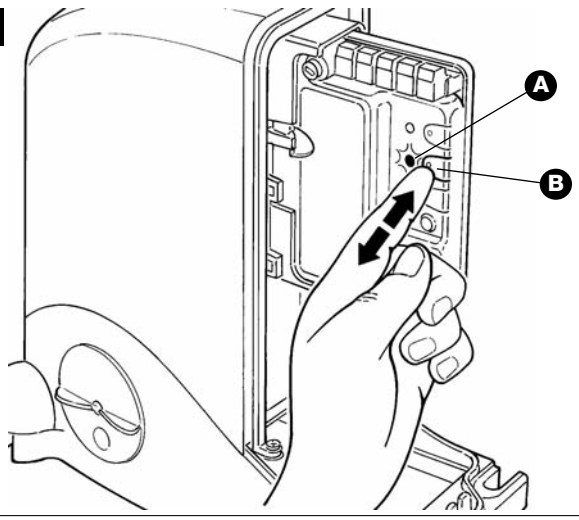

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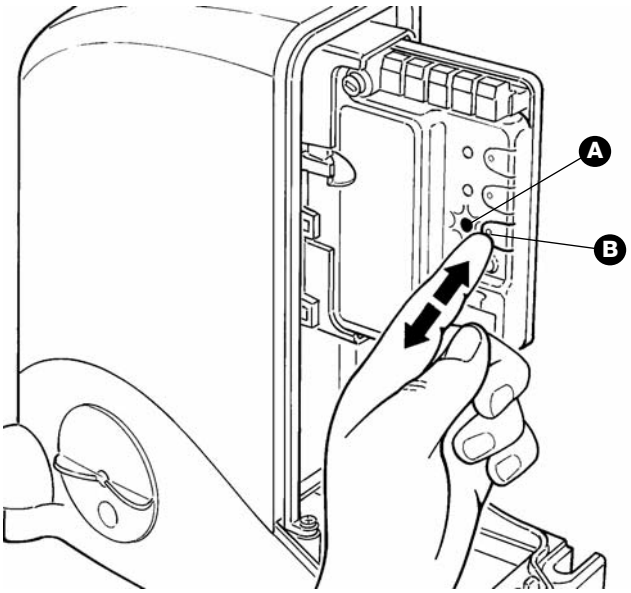

TESTING AND COMMISSIONING

— STEP 8 —

These are the most important phases when setting up an automation, in order to guarantee maximum safety.
Testing can also be used as a periodic check of devices in the automation.

Testing of the entire system must be performed by skilled and qualified personnel, who are responsible for the tests required to verify the solutions adopted according to the risks present, and for ensuring observance of all legal provisions, standards and regulations, with particular reference to all requirements of the standard EN 12445 which establishes the test methods for testing automations for power-operated gates.

8.1 - TESTING

01. **Ensure that all instructions and warnings in STEP 1 have been strictly observed.**
02. Using the selector or radio transmitter, test gate opening and closing and ensure that leaf movement corresponds to the envisaged commands.Test several times to assess smooth operation of the gate and check for any defects in assembly or adjustment and any possible points of friction.
03. Check operation of all system safety devices one at a time (photocells, sensitive edges, etc.). In particular, each time a device trips, the "ECSBus" led on the control unit emits a longer flash to confirm control unit recognition of the event.
04. To test photocells and in particular that there is no interference with other devices, pass a cylinder (**fig. 39**) (diameter 5 cm, length 30 cm) through the optic axis joining the pair of photocells, first close to the TX and then the RX and then mid-way between the two. Ensure that in all cases the device engages, changing from the active status to alarm status and vice versa; then ensure that the action envisaged is performed on the control unit; e.g. that during the Closing manoeuvre, the door inverts the current movement.
05. Measure the force as specified in the standard EN 12445. If the motor force control is used as an auxiliary function for reduction of impact force, test and identify the setting that obtains the best results.

8.2 - COMMISSIONING

Commissioning can only be performed after positive results of all test phases. Partial or "makeshift" commissioning is strictly prohibited.

01. Prepare the automation technical documentation, which must contain at least the following documents: overall layout drawing (e.g. **fig. 3**), electrical wiring diagram (e.g. **fig. 24**), risk assessment and solutions adopted, manufacturer's declaration of conformity for all devices used (use appendix 1).
02. Affix a dataplate on the door, specifying at least the following data: type of automation, name and address of manufacturer (responsible for "commissioning"), serial number, year of construction and CE mark.
03. Permanently attach to the gate the label supplied in the pack, regarding the procedure for manual locking/release of the gearmotor.
04. Compile and provide the automation owner with the declaration of conformity (use appendix 2)
05. Prepare and provide the automation owner with the User's guide; for this purpose appendix "User's guide" (chapter 11.3) may be used as an example.
06. Prepare and provide the owner with the form "Maintenance schedule", containing all maintenance instructions for all devices in the automation.
07. Before commissioning the automation, ensure that the owner is adequately informed of all associated risks and hazards.

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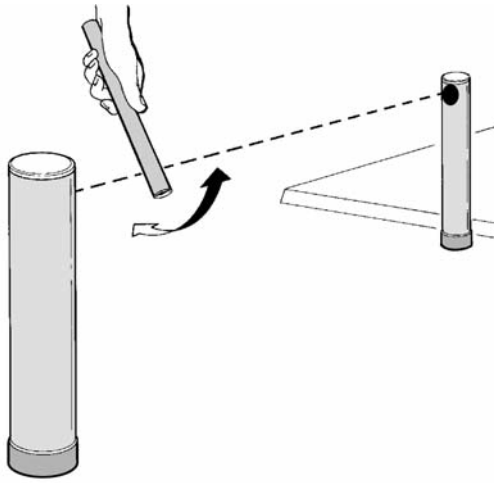

MAINTENANCE

— STEP 9 —

Maintenance must be performed in strict observance of the safety provisions in this manual and according to current legislation and standards.

The automation devices do not require special maintenance. However a check should be performed at least every six months to ensure complete efficiency of all devices.
For this purpose, the tests and checks envisaged in paragraph 8.1 "Testing" should all be performed, as well as all procedure in the paragraph "Maintenance operations permitted for the user".
If other devices are present, follow the instructions in the relative maintenance schedule.

PRODUCT DISPOSAL

This product is an integral part of the automation and therefore must be disposed together with the latter.

As in installation, also at the end of product lifetime, the disassembly and scrapping operations must be performed by qualified personnel.
This product comprises various types of materials: some may be recycled others must be disposed of. Seek information on the recycling and disposal systems envisaged by the local regulations 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 symbol alongside, disposal of this product in domestic waste is strictly prohibited. Separate the waste into categories for disposal, according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing a new version.

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

— STEP 10 —

10.1 - ADVANCED SETTINGS

10.1.1 - Parameter settings via radio transmitter

The radio transmitter can be used to set a number of control unit operating parameters: there are four parameters and each of these can have four different values:

1) Pause time: the time for which the gate remains open (in the case of automatic closure).
2) Pedestrian opening: pedestrian gate opening mode.
3) Motor force: motor force over which the control unit recognises an obstacle and inverts movement.
4) "OPEN" function: sequence of movements associated with each "OPEN" command.

TABLE 6

Parameter	N°	Value	**Action:** operation to be performed at point 3 of the settings phase
Pause Time	1°	10s	Press T1 once
	2°	20s (*)	Press T1 twice
	3°	40s	Press T1 three times
	4°	60s	Press T1 four times
Pedestrian opening	1°	Gate opening at 0.7m	Press T2 once
	2°	Gate opening at 1m (*)	Press T2 twice
	3°	Gate opening mid-way	Press T2 three times
	4°	Gate opening at 3/4	Press T2 four times
Motor force	1°	Low	Press T3 once
	2°	Medium low (*)	Press T3 twice
	3°	Medium high	Press T3 three times
	4°	High	Press T3 four times
"OPEN" function	1°	"Open", "Stop", "Close", "Stop"	Press T4 once
	2°	"Open", "Stop", "Close", "Open" (*)	Press T4 twice
	3°	"Open", "Close", "Open", "Close"	Press T4 three times
	4°	Opening only	Press T4 four times

(*) *Factory setting*

The parameter setting operation can be performed using any radio transmitter, provided that it is memorised in mode 1, in the same way as that supplied (see paragraph 10.4.1 "Memorisation mode 1").
If there is no transmitter memorised in mode 1 a single one may be memorised for this phase, after which it must be deleted immediately (see paragraph 10.4.4 "Deleting a radio transmitter").

CAUTION! – When making settings via a transmitter, the control unit must be allowed sufficient time to recognise the command via radio; in practice the keys must always be pressed and released slowly, pressing for at least one second, releasing for one second and so on.

01. Press T1 and T2 simultaneously (**fig. 40**) on the radio transmitter for at least 5 s.
02. Release the two keys.
03. Within three seconds, complete the action as specified in Table 6 according to the parameter to be modified.

Example: to set the pause time at 40 s.
01. Press and hold the keys T1 and T2 simultaneously for at least 5 seconds.
02. Release T1 and T2
03. Press T1 three times

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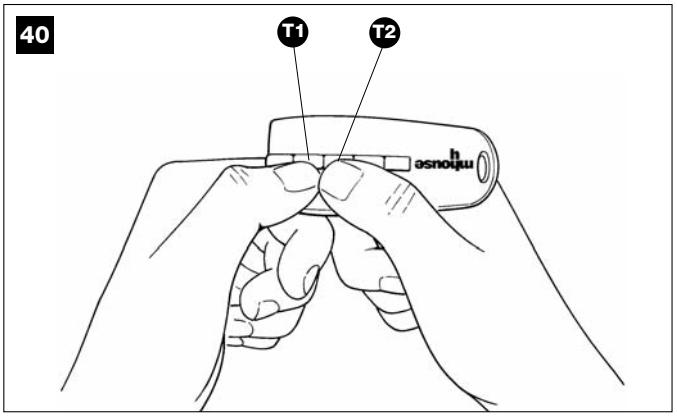

All parameters can be adjusted as required without any contraindications, only the "Motor force" setting may require special attention:
- Do not use force values to compensate for anomalous points of friction on the gate. Excessive force settings may impair safety system operation or cause damage to the gate.
- If the "Motor force control" is used in support of the system for impact force reduction, after each adjustment the force measurement procedure must be performed, as envisaged by standard EN 12445.
- Weather conditions can influence gate movement; new adjustments may be required periodically.

10.1.2 - Checking settings via a radio transmitter

With a radio transmitter memorised in Mode 1 the user can check settings at any time for each parameter, as follows:

01. Press T1 and T2 simultaneously on the radio transmitter for at least 5s.
02. Release the two keys.
03. Within three seconds, complete the action as specified in **Table 7** according to the parameter to be modified.
04. Release the key when the flashing light starts to flash.
05. Count the number of flashes and, according to the number, check the corresponding value on Table 6.

Example: After pressing T1 and T2 for 5 s followed by T1, if the flashing light flashes three times, the pause time is set at 40 s.

TABLE 7

Parameter	Action
Pause time	Press and hold T1
Pause time	Press and hold T2
Motor force	Press and hold T3
"OPEN" function	Press and hold T4

10.2 - OPTIONAL ACCESSORIES

As well as the devices in SL1S-SL10S, there are a number of optional accessories which may be used to integrate the automation system.

PR1: 24 V buffer battery; in the event of a mains power failure, this guarantees at least 10 complete cycles.

PF: 24 V solar power system; useful in cases in which there is no electrical mains power.

PT50: Pair of columns (height 500 mm) with photocell

PT100: Pair of columns (height 1000 mm) with two photocells
For information on new accessories, consult the MHOUSE catalogue or visit the website www.mhouse.biz.

10.3 - ADDING OR REMOVING DEVICES

An automation using SL1S-SL10S enables devices to be added or removed at any time.
Caution! – Do not add devices before ensuring that they are fully compatible with SL1S-SL10S; for further details, contact the MHOUSE technical assistance.

10.3.1 - ECSBus

ECSBus is a system that enables connections of ECSBus devices using just two wires, which convey both electrical power and communication signals. All devices are connected in parallel on the same 2 wires of the ECSBus; each device is recognised individually as it is assigned a unique address during installation.

Photocells and other devices using this system can be connected to ECSBus, such as safety devices, control buttons, indicator lights etc. For information on ECSBus devices, refer to the MHOUSE catalogue or visit the website www.mhouse.biz

A special learning phase enables the control unit to recognise all connected devices individually, and enables precise diagnostics procedures. For this reason, each time a device connected to ECSBus is added or removed, the learning phase must be performed on the control unit; see paragraph 10.3.3 “Learning other devices”.

10.3.2 - STOP input

STOP is the input that causes immediate shutdown of the movement (followed by a brief inversion of the manoeuvre). This input can be connected to devices with contact types Normally Open (NO, as in the case of the KS1 selector switch), Normally Closed (NC) or devices with a constant resistance of 8.2 KΩ, such as sensitive edges.

When set accordingly, more than one device can be connected to the STOP input, also different from one another; see **Table 8**.

TABLE 8

2nd device type:		1st device type:		
		NO	**NC**	**8,2 KΩ**
	NO	In parallel (***note 2***)	(***note 1***)	In parallel
	NC	(***note 1***)	In series (***note 3***)	In series
	8,2KΩ	In parallel	In series	(***note 4***)

Note 1. *The NO and NC combination can be obtained by placing the two contacts in parallel, and placing an 8.2kΩ resistance in series with the NC contact (it is, therefore, possible to combine 3 devices: NO, 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 two devices with an 8.2 kΩ constant resistance output can be connected in parallel; multiple devices must be connected “in cascade” with a single 8.2 kΩ termination resistance.*

Caution! - If the STOP input is used to connect devices with safety functions, only the devices with 8.2 kΩ constant resistance output will guarantee the fail-safe category 3.

As with the ECSBus, the control unit recognises the type of device connected to the STOP input during the learning phase; subsequently the control unit gives a STOP command when it detects a variation with respect to the learned state.

10.3.3 - Recognition of other devices

The learning operation of the devices connected to the ECSBus and STOP input is usually carried out during the installation phase; if devices are added or removed the learning operation can be carried out again as follows:

01. Press and hold key P2 **[B]** on the control unit for at least three seconds (**fig. 41**), then release the key.
02. Wait a few seconds to allow the control unit to finish learning the devices.
03. At the end of the learning the LED P2 **[A]** (**fig. 41**) should switch off. If the LED P2 flashes it means there is an error; see paragraph 10.5 “Troubleshooting”.
04. After having added or removed a device the automation test must be carried out again as specified in paragraph 8.1 “Testing”.

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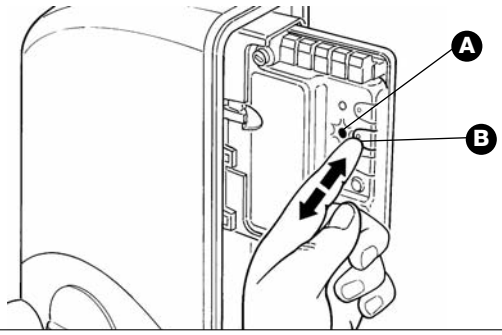

10.3.4 - Adding optional photocells

Additional photocells to those supplied with the SL1S-SL10S can be installed at any time. In systems for the automation of sliding gates they must be installed as shown in **fig**. **42**.
In order for the control unit to correctly recognise the photocells they must be assigned with addresses using special electric jumpers. The address assignment operation must be carried out on both TX and RX (placing the electric jumpers in the same way) and it is important to check that there are not any other pairs of photocells with the same address. The photocell address assignment operation is necessary for them to be correctly recognised among the other devices of the ECSBus and to assign them their function.

01. Open the housing of the photocell.
02. Identify the position in which they are installed according to Figure 70

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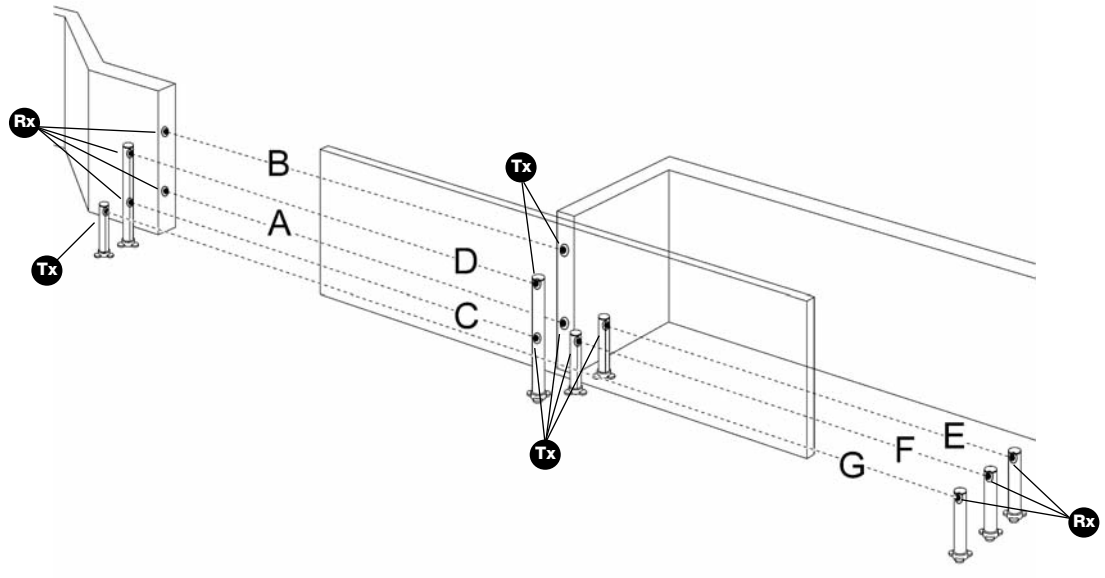

and place the jumper according to **Table 9**.

Unused jumpers must be placed in the special compartment for future use (**fig. 43**).

03. Eseguire la fase di apprendimento come indicato nel paragrafo 10.3.3 “Apprendimento altri dispositivi”.

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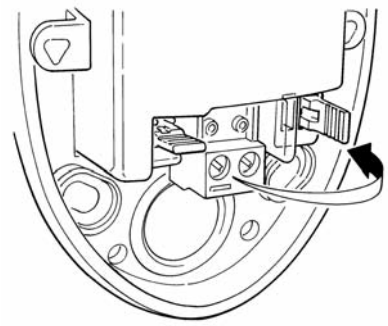
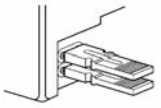
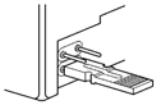
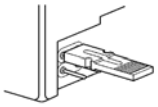
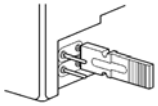
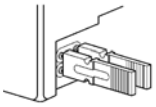
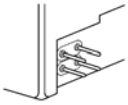
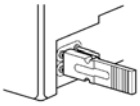


TABLE 9

Photocell		Jumpers	Photocell		Jumpers
A	External photocell h=50cm; triggered on closure		**E**	External photocell triggered on opening	
B	External photocell h=100cm; triggered on closure		**F**	Internal photocell triggered on opening	
C	Internal photocell h=50cm; triggered on closure		**G**	Single photocell that covers the entire automation and is triggered on closure and opening	
D	Internal photocell h=100cm; triggered on closure		Note: normally there are no restrictions to the position of the two elements that make up the photocell (TX-RX). Only if photocell G is used with photocell B it is necessary to follow the positions shown in **fig. 40**.		

10.4 - MEMORISING RADIO TRANSMITTERS

The control unit contains a radio receiver for TX4 transmitters; the transmitter included in the box is already memorised and ready to use.
There are two ways of memorising a new transmitter:

• **Mode 1**: in this “mode” the radio transmitter is used as a whole, i.e. all the keys carry out a preset command (the transmitter supplied with the SL1S-SL10S is memorised using Mode 1). Obviously a radio transmitter in mode 1 can only control one single automation; that is:

Key T1	“OPEN” command
Key T2	“Partially open” command
Key T3	“Only open” command
Key T4	“Only close” command

• **Mode 2**: each key can be associated to one of the four commands available. If this mode is used appropriately 2 or more different automations can be controlled, for example:

Key T1	“Only open” Automation N°1 command
Key T2	“Only close” Automation N°1 command
Key T3	“OPEN” Automation N°1 command
Key T4	“OPEN” Automation N°3 command

Obviously each transmitter is treated separately and for one single control unit there can be some transmitters memorised in mode 1 and others in mode 2.

The overall maximum memory capacity is of 150 units; mode 1 memorisation occupies one unit per transmitter while mode 2 occupies one unit per key.

Caution! – As memorisation procedures have a time limit (10 s), it is important to read the instructions in the next paragraphs before starting.

10.4.1 - Memorisation mode 1

01. Press key P1 **[B]** (**fig. 44**) for at least 3 s. When the LED P1 **[A]** (**fig. 44**) switches on release the key.

02. Within 10 s press any one key on the transmitter for at least 3 s to memorise it. If the memorisation procedure is successful, the LED P1 will emit 3 flashes.

03. If there are other transmitters to be memorised repeat step 2 within the next 10 s otherwise the memorisation phase will end automatically.

10.4.2 - Memorisation mode 2

With Mode 2 memorisation each key can be associated with any one of the four commands: “OPEN”, “Partially open”, “Only open” and “Only close”.

In Mode 2 each key requires its own memorisation phase.

01. If the transmitter to be memorised is already memorised (such as the transmitters supplied which are already memorised in mode 1) the transmitter must be deleted following the procedure described in: “10.4.4 - Deleting a radio transmitter”.

02. Press key P1 **[B]** (**fig. 44**) on the control unit the number of times equal to the required command, according to **Table B** *(e.g. 3 times for the “Only open” command)*.

03. Check that LED P1 **[A]** (**fig. 44**) flashes quickly for a number of times equal to the command selected.

04. Within 10 s press the required key on the radio transmitter for at least 2 s to memorise it. If the memorisation procedure is successful, the LED P1 will emit 3 slow flashes.

05. If there are other transmitters to be memorised for the same type of command, repeat step 03 within the next 10 s otherwise the memorisation phase will end automatically.

TABLE B	
1 time.	“Open” command
2 times.	“Pedestrian open” command
3 times	“Only open” command
4 times	“Only close” command
5 times	“Stop” command
6 times	"Apartment block open” command
7 times	“High priority open” command
8 times	“Pedestrian 2 open” command
9 times	“Pedestrian 3 Open” ” command
10 times	“Open+ block automation” command
11 times	“Close + block automation” command
12 times	“Block automation” command
13 times	“Release automation” command
14 times	“Courtesy Light Timer On “command
15 times	“Courtesy Light On-Off “command

10.4.3 - Remote memorisation

A new radio transmitter can be memorised on the control unit without having to use the unit itself. It is sufficient to have an “OLD” working and memorised radio transmitter. The “NEW” radio transmitter will “inherit” the characteristics of the OLD one; in other words if the old one is memorised in Mode 1 then the NEW one will also be memorised in Mode 1; in this case during the memorisation phase press any one key on the two transmitters. If the OLD radio transmitter is memorised in Mode 2 press the key with the required command on the OLD transmitter and press the key on the NEW transmitter with which you wish to associate the new command.

Take the two transmitters and position yourself within the action range of the automation and follow the following steps:

01. Press the key on the NEW radio transmitter for at least 5 s then release it.

02. Press the key on the OLD radio transmitter slowly 3 times.

03. Press the key on the NEW radio transmitter slowly once.

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

Repeat these steps for each new transmitter to be memorised.

10.4.4 - Deleting a radio transmitter

It is necessary to have a radio transmitter to delete it.
If the transmitter is memorised in Mode 1 one single deletion phase is sufficient and at point 3 any key can be pressed. If the transmitter is memorised in Mode 2 a deletion phase must be carried out for each key.

01. Press and hold key P1 **[B]** (**fig. 44**) on the control unit.

02. Wait for the LED P1 **[A]** (**fig. 44**) to switch on and within three seconds.

03. Press the key on the radio transmitter to be deleted for at least three seconds. If deletion is successful LED P1 will emit five quick flashes. If LED P1 emits one slow flash it means that the deletion has not been completed because the transmitter is not memorised.

04. To delete other transmitters keep key P1 pressed and repeat step 3 within 10 seconds otherwise the deletion procedure will end automatically.

10.4.4 - Deleting all radio transmitters

This procedure deletes all memorised transmitters.

01. Press and hold key P1 **[B]** (**fig. 44**) on the control unit.

02. Wait for LED P1 **[A]** (**fig. 44**) to switch on, then off and then flash 3 times.

03. Release key P1 precisely when the LED flashes the third time.

04. Wait about 4 s for deletion to be completed, during which the LED P1 will emit quick flashes.

If the procedure is successful after a few moments the LED P1 will emit 5 slow flashes.

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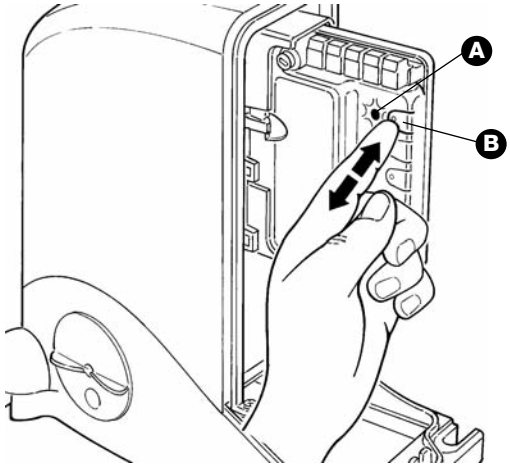

10.5 - TROUBLESHOOTING

Table 10 gives possible indications on how to deal with malfunctions that may be met during installation or due to a fault.

TABLE 10 (fig. 45)

Symptoms	Probable cause and possible solution
The radio transmitter does not emit any signal (the LED **[A]** does not light up)	• Check whether the batteries are flat and if necessary replace them (page 36)
The manoeuvre does not start and the LED “ECSBbus” **[B]** does not flash	• Check that the power supply cable is correctly inserted in the mains socket • Check that the fuses **[E]** and **[F]** have not been activated; if this is the case check the cause of the fault and replace them with other fuses with the same characteristics
The manoeuvre does not start and the flashing light is off	• Check that the command is actually received. If the command reaches the OPEN input the relevant LED “OPEN” **[D]** should light up; if a radio transmitter is used the LED “ECSBus” should emit two long flashes
The manoeuvre does not start and the flashing light flashes	• Check that the STOP input is active, in other words that the LED “STOP” **[C]** is on. If this is not the case check the device connected to the STOP input • The photocell test carried out at the beginning of each manoeuvre is negative; check the photocells and refer to **Table 11**
The manoeuvre starts but is immediately followed by an inversion	• The force selected is too low to move the gate. Check for obstructions and if necessary select a higher force as described on page 21
The manoeuvre is carried out but the flashing light is not working	• Check that there is voltage on the FLASH terminal of the flashing light during the manoeuvre (as it is intermittent the value of the voltage is not important: about 10-30Vac); if there is voltage the problem is caused by the lamp which must be replaced with one with the same characteristics

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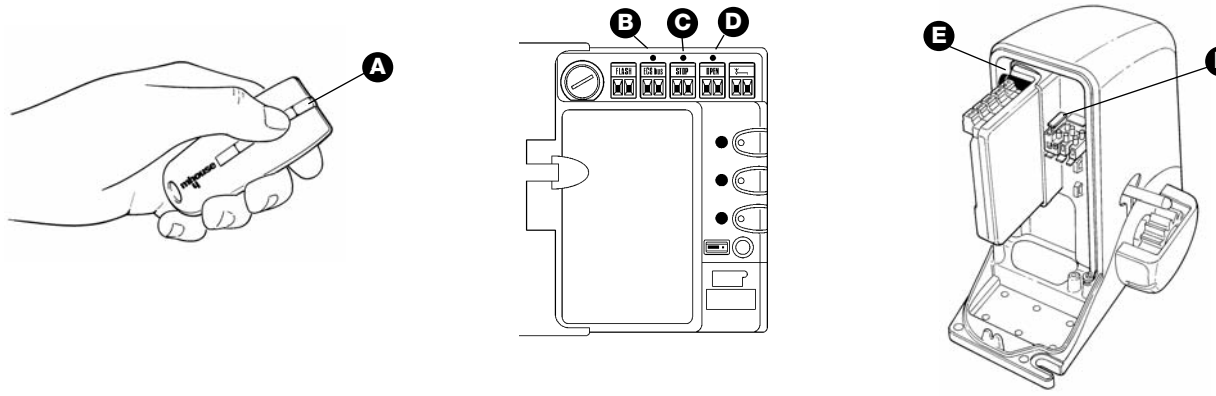

10.6 - DIAGNOSTICS AND SIGNALS

Some devices directly provide particular signals to describe the state of operation or eventually a malfunction.

10.6.1 - Photocells

The photocells contain a LED "SAFE" **[A]** (**fig. 46**) that provides information at any moment on the state of operation; see **Table 11**.

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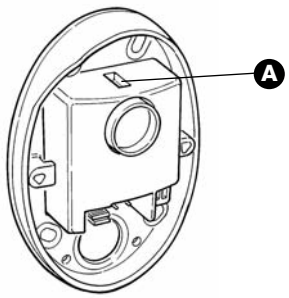

TABLE 11

LED "SAFE"	Status	Action
Off	The photocell is not powered or is faulty	Check that the voltage on the photocell terminals is of about 8-12 Vdc; if the voltage is correct then the photocell is probably faulty
3 quick flashes and 1 second pause	Device not recognized by the control unit	Repeat the learning procedure on the control unit. Check that all the photocell pairs on ECSBus have different addresses (see **Table 9**)
1 very slow flash	The RX receives an excellent signal	Normal operation
1 slow flash	The RX receives a good signal	Normal operation
1 quick flash	The RX receives a poor signal	Normal operation but check TX-RX alignment and correct cleaning of photocell lenses
1 very quick flash	The RX receives a bad signal	At the limit of normal operation; check TX-RX alignment and correct cleaning of photocell lenses
Always lit	The RX does not receive any signal	Check for any obstruction between TX and RX Check that the LED on the TX flashes slowly. Check TX-RX alignment

10.6.2 - Flashing light

During a manoeuvre the flashing light flashes every second; in case of anomalies the light flashes at more frequent intervals (half a second); the flashes are repeated twice with an interval of one second; see **Table 12**.

TABLE 12

Quick flashes	Status	Action
1 flash 1 second pause 1 flash	ECSBus error	At the beginning of the manoeuvre the devices present do not correspond with those recognised; check and eventually carry out the learning procedure (10.3.3 Recognition of other devices") One or more devices may be faulty; check and, if necessary, replace them
2 flashes 1 second pause 2 flashes	Photocell activated	At the start of the manoeuvre, one or more photocells do not enable movement; check to see if there are any obstructions. During the movement if there is an obstruction no action is required
3 flashes 1 second pause 3 flashes	"Gearmotor force" limiting device activated	During the movement, the gate experienced excessive friction; identify the cause
4 flashes 1 second pause 4 flashes	STOP input activated	At the start of the manoeuvre or during the movement, the STOP input was activated; identify the cause

5 flashes 1 second pause 5 flashes	Error on internal parameters in electronic control unit	Wait at least 30 seconds, and then try giving a command; if the condition persists it means there is a serious fault and the electronic board must be replaced
6 flashes 1 second pause 6 flashes	Maximum limit of manoeuvres per hour exceeded	Wait a few minutes until the manoeuvre limiting device falls to below the maximum limit
7 flashes 1 second pause 7 flashes	Internal electric circuit error	Disconnect all power circuits for a few seconds, and then try giving a command; if the condition persists it means there is a serious fault and the electronic board must be replaced
8 flashes 1 second pause 8 flashes	A command is already present that disables execution of other commands	Check the type of command that is always present; for example, it could be a command from a timer on the "open" input.
9 flashes 1 second pause 9 flashes	Blocked automation	Release the automation by giving to the control unit the release automation command

9.6.3 - Control unit

The LEDs on the control unit provide particular signals to report on the normal operation and on possible faults; see **Table 13**.

TABLE 13 (fig. 47)

LED ECSBus [A]	Status	Action
Off The led flashes slowly	Fault	Check that the unit is powered; check that the fuses have not been activated; if this is the case check the cause of the fault and replace them with other fuses with the same characteristics
On	Serious fault	There is a serious fault; switch off the control unit for a few seconds; if the status persists there is a fault and the electronic board must be replaced
One flash per second	Everything OK	Control unit works correctly
2 long flashes	Input status variation	This is normal when one of the inputs is changed: OPEN, STOP, photocells activated or a radio transmitter is used
1 flash every 2 seconds	Automation in "standby" mode	Everything OK; when the control unit receives a command normal operation is restored (with a short delay)
Series of flashes separated by a pause	The same signal as for the flashing light, see **Table 12**.	An overload has been detected therefore the power to the ECSBus switched off. Check by disconnecting the devices one at a time
Quick flash	ECSBus short circuit	To restore power to the ECSBus simply send a command, for example with a radio transmitter
LED STOP [B]	**Status**	**Action**
Off*	STOP input activated	Check the devices connected to the STOP input
On	Everything OK	STOP input active
LED OPEN [C]	**Status**	**Action**
Off	Everything OK	OPEN input not active
On	OPEN input activated	This is normal only if the device connected to the OPEN input is active
LED P1 [D]	**Status**	**Action**
Off*	Everything OK	No memorisation underway
On	Memorisation mode 1	This is normal during memorisation mode 1 which lasts maximum 10s.
Series of quick flashes, from 1 to 4	Memorisation mode 2	This is normal during memorisation mode 2 which lasts maximum 10s.
5 quick flashes	Deletion OK	Deletion of a transmitter successfully completed
1 slow flash	Wrong command	Command received from a transmitter which is not memorised
3 slow flashes	Memorisation OK	Memorisation successfully completed
5 slow flashes	Deletion OK	All radio transmitters successfully deleted
LED P2 [E]	**Status**	**Action**
Off *	Everything OK	"Slow" speed selected
On	Everything OK	"Fast" speed selected
1 flash per second	The learning phase has not been carried out or there are errors in the memory data	Carry out the position learning procedure again (see paragraph 10.3.3 "recognition of other devices")

2 flashes per second	Device learning procedure underway	It shows that the search for connected devices is underway (it lasts maximum a few seconds)
LED P3 [F]	**Status**	**Action**
Off *	Everything OK	Cycle operation
On	Everything OK	Complete cycle operation
* or it could be in “Standby” mode		

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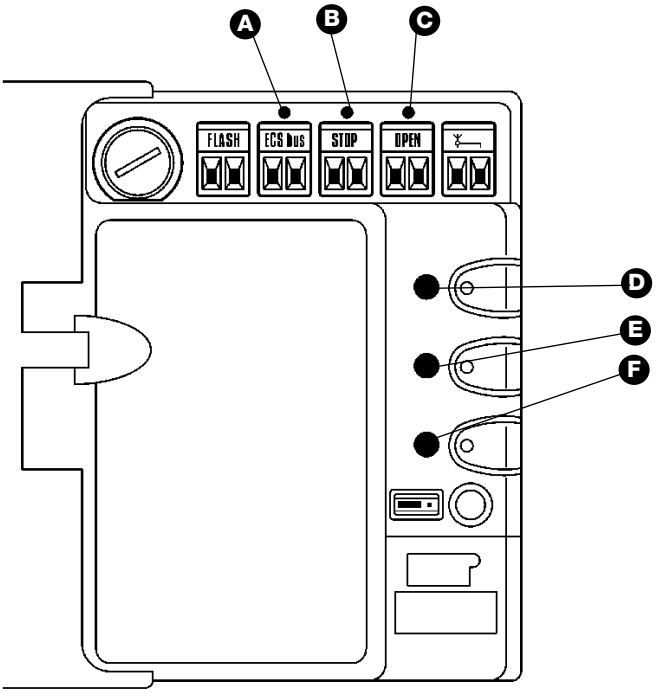


TECHNICAL SPECIFICATIONS OF PRODUCT COMPONENTS

The product SL1S-SL10S is produced by Nice S.p.a. (TV) I, Mhouse S.r.l is a company part of the NICE S.p.a. group. In order to improve its products, NICE S.p.a. reserves the right to modify the technical characteristics at any time without prior notice. In any case, the manufacturer guarantees their functionality and fitness for the intended purposes. Note: all technical specifications refer to a temperature of 20 °C.

Model type	**SL1SC**	**SL10SC**
Type	Electromechanical gearmotor for automated gates and doors incorporating a control unit complete with radio receiver for “TX4” transmitters.	
Adopted technology	24 V⎓ motor, helical teeth reduction gear; mechanical release A transformer inside the motor but separated from the control unit reduces mains voltage to the nominal voltage of 24 V⎓ used by the automation system	
Peak thrust	10 Nm	15 Nm
Nominal torque	3,5 Nm	5,2 Nm
Nominal thrust	-	-
Idling speed	0,25 m/s	0,18 m/s
Nominal torque speed	0,20 m/s	0,15 m/s
Maximum frequency of cycles	14 cycles per hour at 25°C	12 cycles per hour at 25°C
Maximum continuous cycle time	10 minutes	7 minutes
Working Limits	Its structural characteristics make it suitable for use on gates weighing up to 400 Kg and up to 5 m long	Its structural characteristics make it suitable for use on gates weighing up to 500 Kg and up to 7 m long
SL1SC- SL10SC power supply	230 V~ (+10% -15%) 50/60 Hz	
SL1SC- SL10SC / V1 power supply	120 V~ (+10% -15%) 50/60 Hz	
Maximum absorbed power	370 W	420 W
Emergency power supply	Designed to accommodate “PR1” buffer batteries	
Flashing light output	For visual signalling devices with 12 V lamp, maximum 21 W	
ECSBus output	One output with a maximum load of 10 ECSBus units	
"OPEN" input	For normally open contacts (the closing of the contact causes the “OPEN” command)	
STOP input	For normally open contacts and/or for 8.2 KΩ constant resistance, or normally closed contacts with recognition of the “normal” status (any variation from the memorized status causes the “STOP” command)	
Radio aerial input	52 Ω for RG58 or similar type of cable	
Maximum cable length	Mains power supply: 30 m; inputs/outputs: 20 m with aerial cable preferably shorter than 5 m (observe the directions regarding the minimum gauge and type of cable)	
Operating ambient temperature	-20 ÷ 50°C	
Not suitable for use in acid, saline or potentially explosive atmosphere	NO	
Mounting	Horizontal surface-mounted with relative fixing plate	
Protection class	IP44	
Dimensions / weight	300 x 163 h 295 mm / 7,5 Kg	300 x 163 h 295 mm / 8,5 Kg
Remote control possibility	With TX4 transmitters the control unit can receive one or more of the following commands: “OPEN”, “Open partially”, “Open only” and “Close only”	
TX4 transmitters memorized	Up to 150 if memorized in mode 1	
Range of TX4 transmitters	From 50 to 100 m. 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 10, 20, 40, 80 seconds The type of pedestrian opening can be selected from 4 modes The sensitivity of the obstacle detection system can be selected from 4 levels The operation of the “Open” command can be selected from 4 modes	
Self-programmed functions	Automatic detection of devices connected to the ECSBus output Automatic detection of the type of “STOP” device (NO or NC contact or 8.2 KΩ resistance) Automatic detection of gate length and calculation of deceleration points	

PH1 Photocells	
Tipologia	Presence detector for automated gates and doors (type D according to EN 12453 standard) consisting of a “TX” transmitter and an “RX” receiver
Adopted technology	Optical, by means of direct TX-RX interpolation with modulated infrared ray
Detection capacity	Opaque objects located on the optical axis between TX and RX, larger than 50 mm and moving slower than 1.6 m/s
TX transmission angle	Approx. 20°
RX reception angle	Approx. 20°
Useful capacity	Up to 10m for maximum TX-RX misalignment of ± 5° (the device can signal an obstacle even in the case of adverse weather conditions)
Power supply/output	The device can be connected only to “ECSBus” networks from which it receives the power supply and sends the output signals.
Absorbed power	1 ECSBus unit
Maximum cable length	Up to 20 m (observe the directions regarding the minimum gauge and type of cable)
Addressing possibility	Up to 7 detectors with protection function and 2 with opening command function. The automatic synchronism prevents any interference among the various detectors
Operating ambient temperature	-20 ÷ 50 °C
Suitable for use in acid, saline or potentially explosive atmosphere	No
Mounting	Vertical, wall-mounted
Protection class	IP44
Dimensions / weight (TX and RX)	95 x 65 h 25 mm / 65 g

KS1 Key-Operated Selector Switch	
Type	Key-operated double switch suitable for control of automatic gates and doors. Illuminated for night operation
Adopted technology	Activation protected by a lock, the insertion and clockwise turning of the key causes the closing of a contact, the counter-clockwise turning of the key causes the closing of the second contact; spring-loaded for return of key to the middle position
Tamper-proof	The selector switch can be opened to access the connections only by inserting the key and turning it in either direction
Security lock	Key with 450 different key numbers
Power supply/contacts	The device can only be connected to the “OPEN” and “STOP” terminals on the MHOUSE automation control units, to which it sends the control signals and by which it is energized for night illumination
Operating ambient temperature	-20 ÷ 50 °C
Suitable for use in acid, saline or potentially explosive atmosphere	No
Mounting	Vertical, wall mounted
Protection class	IP44
Dimensions / weight	95 x 65 h 36 mm / 135 g

FL1 Flashing light	
Type	Flashing signalling light for automatic gates and doors. The device incorporates a receiving aerial for remote control
Adopted technology	Visual signalling device with 12 V 21 W lamp, controlled by MHOUSE automation control units
Lamp	12 V 21 W BA15 socket (automotive type lamp)
Power supply	The device can be connected only to the “FLASH” and “AERIAL” terminals on the MHOUSE automatic gate control units
Operating ambient temperature	-20 ÷ 50 °C
Suitable for use in acid, saline or potentially explosive atmosphere	No
Mounting	Horizontal surface-mounted or vertical wall-mounted
Protection class	IP44
Dimensions / weight	120 x 60 h 170 mm / 285 g

TX4 transmitters	
Type	Radio transmitters for remote control of automatic gates and doors
Adopted technology	AM OOK coded modulation of radio carrier
Frequency	433.92 Mhz
Coding	Rolling code with 64 Bit code (18 billion million combinations)
Buttons	4, each button can be used for the different controls of the same control unit or to control different control units.
Irradiated power	Approx. 0.0001 W
Power supply	6 V +20% -40% with two CR2016 type lithium batteries
Battery life	3 years, estimated on the basis of 10 commands/day, each lasting 1s at 20 °C (at low temperatures the efficiency of the batteries decreases)
Operating ambient temperature	-20 ÷ 50 °C
Suitable for use in acid, saline or potentially explosive atmosphere	No
Protection class	IP40 (suitable for use indoors or in protected environments)
Dimensions / weight	72 x 31 h 11 mm / 18 g

ANNEXE 1

CE declaration of conformity

Declaration according to the Directives: 1999/5/EC (R&TTE), 2004/108/ECE (EMC); 2006/42/EC (MD) annex II, part B SL1SC and SL10SC are produced by Nice S.p.a. (TV) I; MHOUSE S.r.l . is a commercial trademark owned by the group Nice S.p.a.

Note *- The contents of this declaration correspond to declarations in the last revision of the official document deposited at the registered offices of Nice Spa available before this manual was printed. 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) I.*

Number: 361/SL1S **Revision:** 0 **Language:** EN

Manufacturer's Name: NICE s.p.a.
Address: Via Pezza Alta 13, Z.I. Rustignè, 31046 Oderzo (TV) Italy
Person authorised to draw up technical documentation: Mr. Oscar Marchetto.
Product type: Electromechanical gearmotor with built-in control unit and radio receiver
Model / Type: SL1SC, SL10SC
Accessories: TX4, PH1, KS1, FL1

The undersigned, Luigi Paro, in the role of Managing Director, declares under his sole responsibility, that the above mentioned product conforms to the requirements of the following directives:

- 1999/5/EC DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL of 9 March 1999 regarding radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity, according to the following harmonised standards:
  - Health protection (art. 3(1)(a)): EN 50371:2002
  - Electric safety (art. 3(1)(a)): EN 60950-1:2006
  - Electromagnetic compatibility (art. 3(1)(b)): EN 301 489-1 V1.8.1:2008, EN 301 489-3 V1.4.1:2002
  - Radio spectrum (art. 3(3)): EN 300 220-2 V2.1.2:2007

- 2004/108/EC DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL of 15 December 2004 regarding the approximation of member state legislation related to electromagnetic compatibility, repealing directive 89/336/EEC, according to the following harmonised standards:
  EN 61000-6-2:2005, EN 61000-6-3:2007

In addition the product conforms to the following directive according to the requirements for “partly completed machinery”:

2006/42/EC DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL of 17 May 2006 regarding machinery, repealing directive 95/16/EC

- We hereby declare that the relevant technical documentation has been compile4d in conformity with Annex VII B of directive 2006/42/EC and that the following essential requirements have been satisfied:
  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 undertakes to transmit, in response to a reasoned request by the national authorities, relevant information on the “partly completed machinery”, without prejudice to intellectual property rights of the manufacturer.
- Should the “partly completed machinery” be put into service in a European country with an official language different from the one of this declaration, the importer must attach the translation of this document to the declaration.
- The “partly completed machinery” must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of directive 2006/42/EC.

The product also conforms with the requirements of the following Directives:
EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006 + A13:2008
EN 60335-2-103:2003

The product also complies, within the constraints of applicable parts, with the following standards:
EN 13241-1:2003, EN 12445:2002, EN 12453:2002, EN 12978:2003

Oderzo, 29 July 2010

Ing. Luigi Paro *(Managing Director)*

— STEP 11 —

This guide must be stored safely and be accessible to all automation users.

11.1 – *Safety instructions*

• Keep at a safe distance from the moving door until it is completely open or closed; do not go through the door until it is completely open and has come to a standstill.

• Do not allow children to play near the door or with the controls.

• 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.

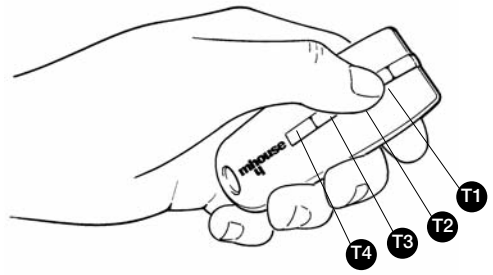
• Maintenance or repairs must only be carried out by qualified technical personnel.

11.2 – *Gate control gate*

• With radio transmitter

The radio transmitter supplied is ready for use and the four keys have the following functions (**fig. 48**):

48



Function (*)	
T1 Button	
T2 Button	
T3 Button	
T4 Button	

(*) This table must be compiled by the person who programmed the automation.

• With selector (optional accessory)

The selector has two positions with automatic return to the centre (**fig. 49**).

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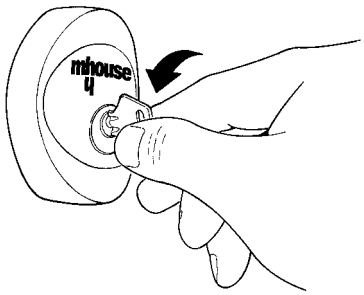


Action	Function
Rotated to the right: "OPEN"	(*)
Rotated to the left: "STOP"	It stops the movement of the gate

(*) This item must be compiled by the person who programmed the automation.

• Control with safety devices out of service

n the event of safety devices malfunctioning or out of service, the door may still be moved.

01. Activate the gate control (using the remote control or key selector switch) The door will open normally if there is the consent of the safety devices, otherwise the command must be activated and held within 3 seconds.

02. After about 2 s the door will move in "hold-to-run" mode, in other words until the command is pressed the door will continue to move; the door will stop as soon as the command is released.

In the event of safety devices out of service arrange for repairs to the automation immediately.

11.3 – *Manually releasing or locking the gearmotor (fig. 50)*

SL1S-SL10S are equipped with a mechanical system that enables manual opening and closing of the gate (i.e. as if there is not a gearmotor).

The manual operation must be carried out in case of power failure or system malfunction. In case of power failure the buffer battery can be used (optional accessory PR1).

In case of fault of the gearmotor the motor release can be used to check whether the fault is in the release mechanism.

01. Turn the release cap cover anti-clockwise until it coincides with the hole with the release pin.

02. Insert the key in the release pin.

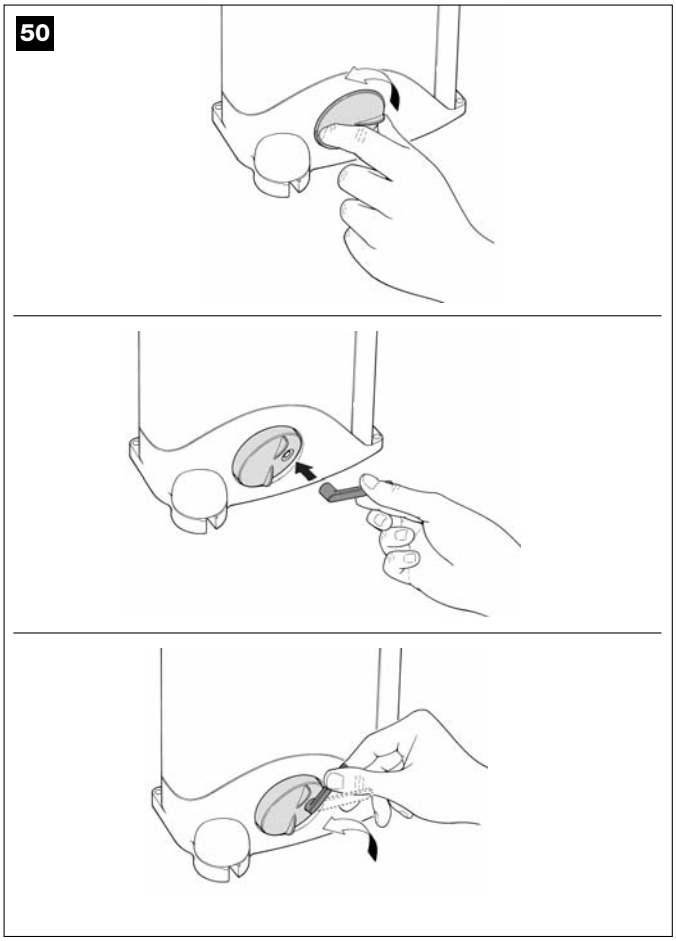
03. Turn the key anti-clockwise by about 90° until the gate is released.

04. Then move the gate manually.

05. To reset the automation turn the key clockwise and at the same time move the gate until you hear the carriage engage.

06. Remove the key and close the release cap cover by turning it clockwise.

50



11.4 – *Maintenance operations admissible to the user*

The list of operations to be regularly carried out by the user is listed below.

• For cleaning the surfaces of the devices, use a slightly damp (not wet) cloth. Never use substances containing alcohol, benzene, diluents or other flammable substances. Use of these substances may damage to the devices and cause fires or electric shocks.

• Disconnect the automation from the power supply before removing leaves or stones to stop anyone activating the door.

• Regularly check the system, in particular the cables, springs and supports and check for signs of unbalance, wear or damage. Do not use the automation if it needs to be repaired or adjusted as a fault or an incorrectly balanced door may cause injuries.

11.5 – *Remote control battery replacemen (fig. 51)*

When the range of the remote control is significantly reduced and the LED light becomes weaker the battery of the remote control is probably flat. The remote control contains two CR2016 type lithium batteries. Replacement instructions:

01. Pull the bottom to remove it.

02. Insert a small point into the special slit and push the batteries outwards.

03. Insert the new battery respecting polarity ("+" goes downwards).

04. Close the bottom until it clicks.

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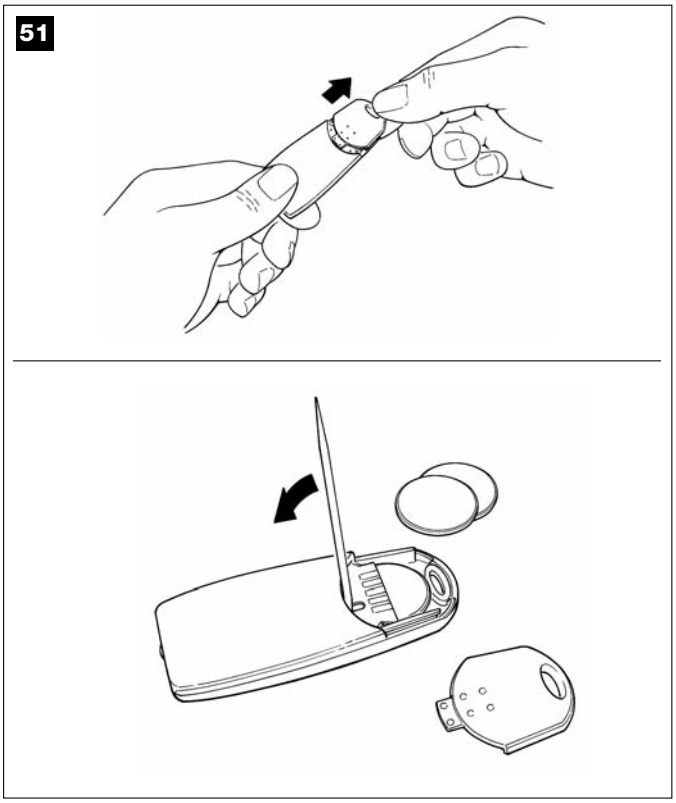

The batteries contain polluting substances: do not dispose of them with normal waste material; follow the instructions foreseen by local regulations.

ANNEXE 2

CE DECLARATION OF CONFORMITY

In conformity with Directive 2006/42/EC, Appendix II, part A (EC declaration of conformity for machinery)

The undersigned / Company
(name or company name of the person responsible for commissioning of the power-operated gate
. . . . . .

Address: . . . . . .

. . . . . .

Hereby declares under his/her sole responsibility that:
- **The automation**: power-operated swing gate
- **Serial N°**: . . . . . .
- **Year of manufacture**: . . . . . .
- **Location (address)**: . . . . . .

. . . . . .

Complies with the essential requirements of the following directives:

2006/42/CE "Machinery" Directive
2004/108/CEE Electromagnetic Compatibility Directive
2006/95/CEE "Low Voltage" Directive
1999/5/CE "R&TTE" Directive

and what is provided for by the following harmonised standards:

EN 12445 "Industrial, commercial and garage doors and gates. Safety in use of power operated doors - Test methods"
EN 12453 "Industrial, commercial and garage doors and gates. Safety in use of power operated doors - Requirements"

Name: . . . . . Signature: . . . . . .

Date: . . . . . .

Place: . . . . . .

Nice S.p.a.
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