

Automation kit for sliding gates
Instructions and Recommendations for installation and use



FREEDOM

SAVE YOUR ENERGY

BYOU

MADE IN ITALY **CE**

Dear Customer

We would like to congratulate and thank you for choosing the BYOU systems.

FREEDOM like all other products in the range it is the fruit of careful and accurate choice of materials and components. The result is a product that interprets and embodies captivating designs and state-of-the-art technology.

BYOU products are covered by a warranty with duration of 2 years.

BYOU is not liable for damage caused by improper use or by incorrect installation of products or components.

The descriptions and illustrations in this manual may be subject to modification at any time by the manufacturer, who reserves the right to make updates to the product of a technical, construction or commercial type, without having to update this publication within specific times.

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General recommendations

If this is the first time you realise an automation for FREEDOM sliding gates, we recommend that you read this manual carefully as it contains important advice and information for the realisation of the plant in safe conditions.

Keep the various components on hand to gain confidence with them while reading this manual.

Keep this manual for future use.

FREEDOM is realised in a way to allow easy installation and configuration of the system, however, some phases require the presence of qualified staff.

When reading this manual pay particular attention to these symbols:



Authorised technician.

Indicates the phases to be performed in the presence of mains voltage. The presence of qualified staff is required (electrician or authorised installer), in complete respect with the Safety Standards in force.



Attention!

Potentially dangerous operations. Scrupulously respect the indications given.



Useful indication.

Suggestions and recommendations for simplifying and/or improving the installation operations.

All packaging in the Kit is realised using eco-compatible material that can be recycled. Dispose of the same according to the Regulations in force, separating the various materials.

The automation of a door cannot be considered the only device for protection against intrusion.

Do not use any of the components in unsuitable environments (salty, acid or potentially explosive atmosphere)

All operations that require the protection shells of the devices opened, must take place without mains power supply.

This item is not intended to be used by people (including children) with reduced physical, sensorial or mental abilities, or without adequate knowledge of the product, unless they are under the supervision of eligible persons or they have received instructions for use by people in charge of their security.

Product description

DESTINATION OF USE

This product is destined exclusively for the opening and closing sliding gates, characterised by dimensional and weight limits as indicated in this manual in the "Limits of use" paragraph.

No other use is allowed.

BYOU is not liable for uses that are not in compliance with those indicated in these instructions.

The kit is made up from an electromechanical operator with 24V direct current motor, which allows movement of the leaf via a driving/gear rack system.

Two end run brackets, appropriately positioned on the rack, act on a spring micro switch, ending the movement of the leaf.

The built-in control unit controls the movement of the motor and functioning of the accessories.

The supplied accessories are:

1 P.BY pair of photocells: to be installed on the pillars, they interrupt the movement of the leaf if there are obstacles present.

1 F.BY flashing light: flashing light that indicates that the leaf is moving.

1 K.BY key selector switch: installed externally, allows the opening and closure by means of a customised key.

2 BY radio transmitters: remote controls for opening/closing the leaf.

Other accessories available as options:

- CB.BY emergency battery kit: in case of a power cut, it allows the functioning of the leaf by batteries and relative battery charger installed inside the operator.

- C.BY pair of small columns for additional pair of photocells F.BY: to be installed within the property (see paragraph C.BY).

- R4.BY: 4 metres of rack.

Measure the length of the leaf to be automated and then obtain the necessary amount of rack.

Content of the kit

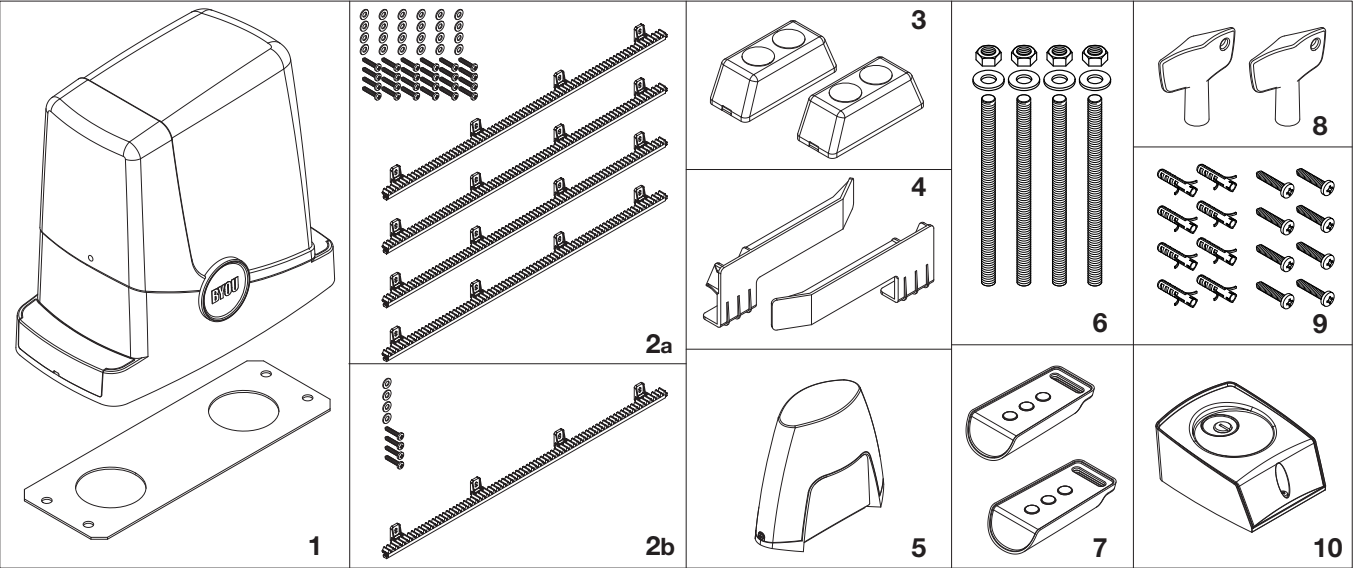
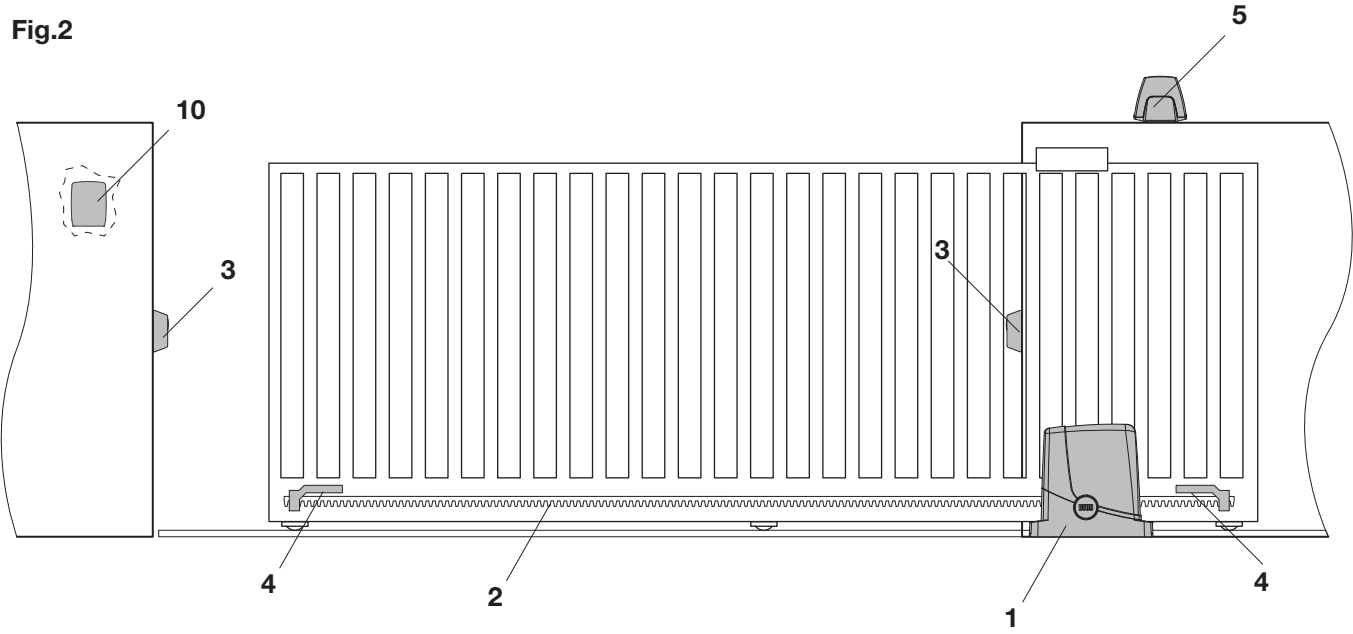


Fig.1

1	FREEDOM: Electromechanical operator with built-in control unit and foundation plate.	6	FRD.2: 4 anchorage pins with relative nuts and washers for anchorage of the foundation plate to the ground
2a	R4.BY: 4 tracts of rack of 1 m/each, with relative screws and washers for fixing the leaf (not included*).	7	BY: pair of 4-channel radio transmitters
2b	R1.BY: 1 tract of rack of 1 m/each, with relative screws and washers for fixing the leaf (not included*).	8	FRD.3: release keys for manual manoeuvre
3	P.BY: Pair of photocells for wall installation 1 transmitter ("TX") 1 receiver ("RX")	9	Plugs and screws for fixing the accessories (flashing light, key selector, photocells)
4	FRD.1: 2 end run brackets with dowels for fixing to the rack	10	K.BY: key selector.
5	F.BY: Flashing light with built-in aerial	<i>*Indispensable accessory, not included in the package, to be purchased on the basis of the length of the leaf.</i> Note: The content of the package may undergo variations. If in doubt, consult your local dealer.	

Description of the automation

With reference to the list of components in fig.1, fig. 2 shows a typical plant that can be realised using FREEDOM.



Preliminary check

It is indispensable to carry out several checks before starting installation:

- Try and open the gate manually, it must move without effort and without points of resistance for the entire run.
- When left in any intermediate position the gate must not move.
- The leaf must be suitable for fixing to the rack (see dimensions and limits of use).
- The guides and components subject to wear must be in perfect working condition. If this is not the case, replace the faulty parts.
- Check the stop retainers, controlling their efficiency also if the leaf should arrive with force on the profile.
- The fixing area of the gear motor must not be subject to water stagnation or flooding. If this is possible, envision a raised installation position.
- The door structure must be strong and rigid.
- The electric set-ups necessary for installation are highlighted in the "Electric connections" paragraph. If they

are not pre-existing they must be realised, with the aid of a specialised technician, if necessary (electrician).

- With reference to Fig. 3, check the maximum and minimum clearances indicated in measurements A and B.



The reliability and safety of the automation depend on the state of the door structure.



Check that there is enough space for installation of the operator in safe and comfortable conditions.

Technical Data, dimensions and limits of use

TECHNICAL DATA	FREEDOM
Control unit power supply	230 Vac
Motor power supply	24Vdc
Absorbed power	80 W
Absorption	0,6 A
Torque	9 Nm
Operative intermittence	10 minutes ON 50 minutes OFF
Opening speed	10 m/1'
Protection rating	IP44
Functioning temperature	-20°C / +60°C
Driving gear for rack	M4 Z14
Noise	<70 dB
Weight	6,8 kg

DIMENSIONS

Fig. 3 indicates the main clearance dimensions of the gear motor complete with guide.

The measurements are expressed in millimetres.

If the rack is already present on the gate, it is important to consider the measurement of the driving gear (89mm), for the correct coupling between the rack and the driving gear.



If the rack is already present, check that it is well-fixed, in good state, perfectly horizontal and that the pitch corresponds to that of the driving gear, M4, i.e. about 12 mm between one notch and the next.

LIMITS OF USE

FREEDOM can be used exclusively for residential sliding gates with a maximum weight of 400 kg.

Should the gate leaf be heavier than 300 kg, it is recommended that the braking function be disabled (TSM=0) and the torque be at its maximum value (PM=0).

The length of the leaf is not a restriction. In all cases it is recommended to install FREEDOM on leaves with length exceeding 6m.



The materials with which the door is built, the state of maintenance and particular conditions of use can reduce the values indicated.

In no case can the installation of FREEDOM be considered a solution for opening inefficient doors.

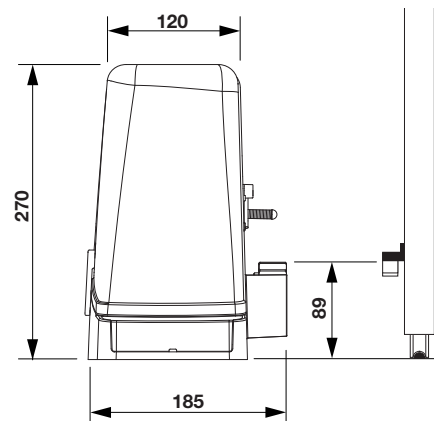


Fig.3

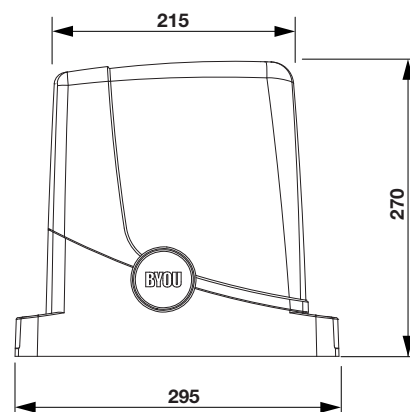
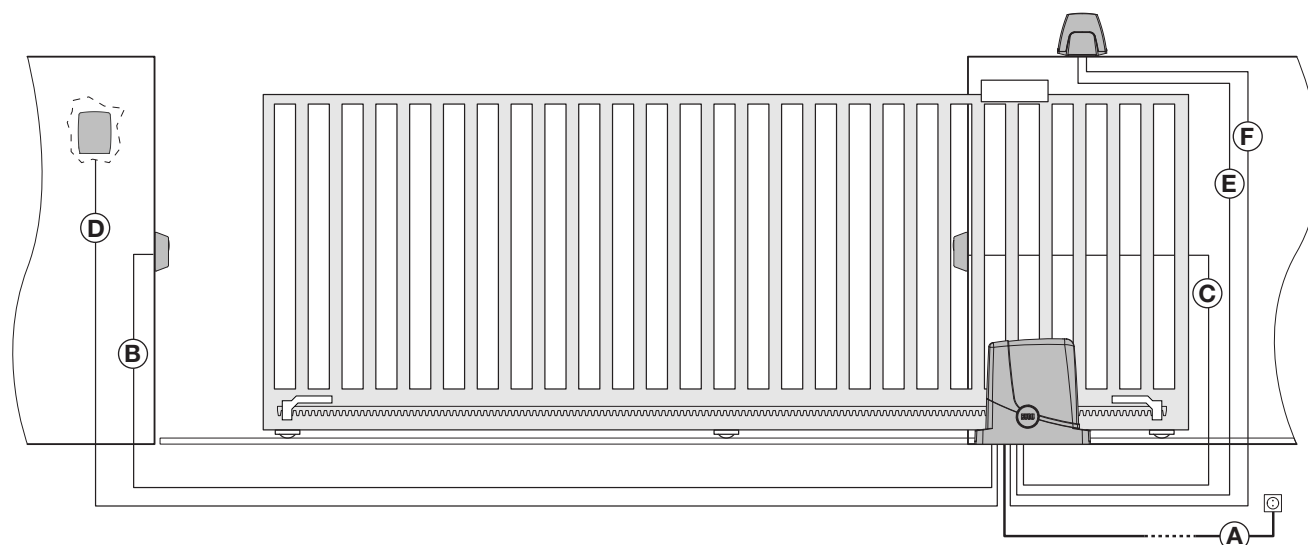


Fig.4



The cables necessary for the installation of FREEDOM can vary according to the accessories installed.

No connection cable is supplied for the accessories.

Fig. 4 indicates the cables for standard installation.

List of cables

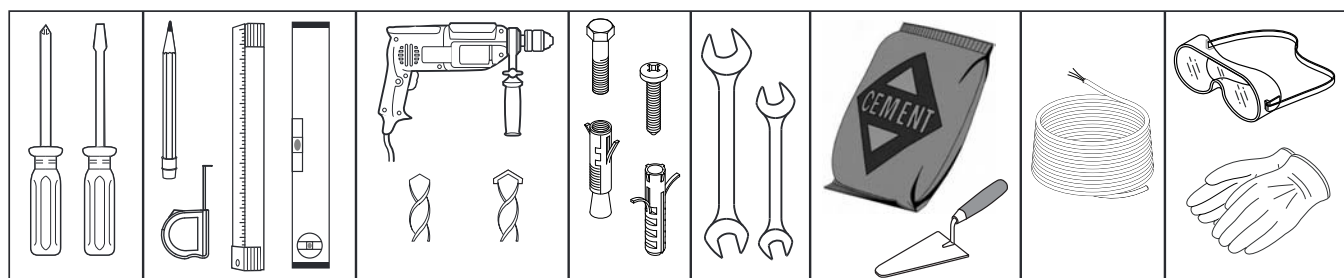
	Connection	Type	Maximum length and notes
A	Mains power supply to the control unit	3x1,5mm ²	30m - [1]
B	Photocell transmitter connection	2x0,5mm ²	20m
C	Photocell receiver connection	4x0,5mm ²	20m
D	Key selector connection for external command	4x0,5mm ²	20m
E	Flashing signal light connection	2x1,0mm ²	10m
F	Connection of the aerial built-in the flashing light	RG 58	[2]

Notes

[1]	 A pre-wired cable with plug is supplied that is to be used exclusively for installation tests and cannot be used for the continuous use of the automation. A qualified electrician will replace it with a network connection that is in compliance with the Standards in force. An omnipolar switch should be provided with the contact opening of at least 3 mm, provided with overload protection and able to cut off the system from the mains.
[2]	There is an aerial pre-installed in the control unit, which in most cases makes this connection superfluous. If reception is disturbed, the capacity of the receiver can be improved by connecting the aerial in the flashing light to the control unit. Exclusively use the relevant RG58 cable for this purpose, available as an accessory.
	<i>All connections to be made to the gear motor control unit require underground raceways to be laid. These will only be set-up after the positioning measurements of the plate, described successively, have been verified.</i> <i>If the other connections are not already set-up, they will be realised in a bricked-up raceway or using raceways from the outside (flexible corrugated sheath) that is in compliance with the Standards in force.</i> <i>If in doubt, contact staff that is specialised in the realisation of these set-ups.</i>
	The cables used must be suitable for the type of connection. For example, for connection protected by raceways use H03VV-F cables, for cables in the outdoor environment always use the H07RN-F type.

Tools and materials

Fig.5



Make sure that there are all tools and materials necessary for installation (fig.5). Also check that the same are in compliance with the Standards and in perfect working order. Depending on the type of flooring present, a small concrete cast may have to be made for the gear motor fixing base. If in doubt, contact qualified staff.



Use suitable individual protection devices I.P.D. (goggles, gloves, etc).



The length and type of connection cables depend on the accessories installed (see "Electric connections" paragraph).

Laying the foundation plate - Measurements

The positioning of the plate must respect the distances indicated in figures 6a/b/c/d (seen from above):

- Fig. 6a installation with motor on the left
- Fig. 6b installation with motor on the right

If the rack is already installed on the leaf:

- Fig. 6c installation with motor on the left
- Fig. 6d installation with motor on the right

It is also indispensable that the rack projects, with respect to the centre of the plate, by at least the measurements indicated in figure 8a (motor on left) and 8b (motor on right) to allow positioning of the end run brackets.



In some cases it is possible that the rack projects by a few centimetres with respect to the plumb line of the gate in order to allow complete closure.

Make note of the measurements indicated before proceeding with the successive phases.



The foundation plate has two large holes for the passage of the raceways. They can both be used, thanks to the space present on the bottom of the gear motor, but it is easier to use the hole of the left if the pinion, highlighted in the figures.

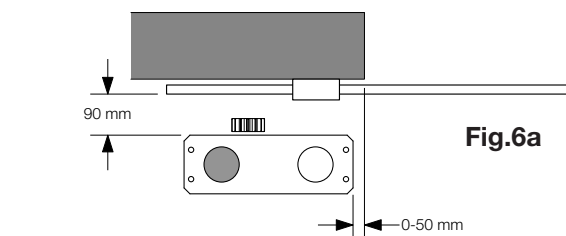


Fig.6a

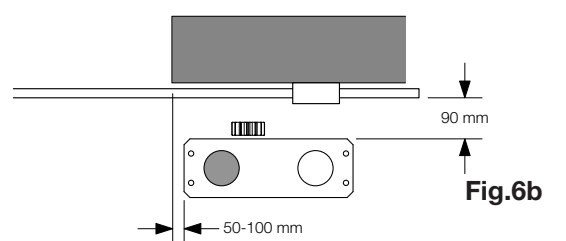


Fig.6b

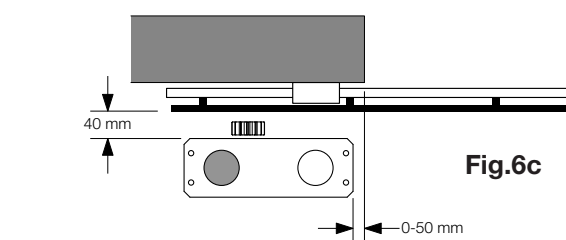


Fig.6c

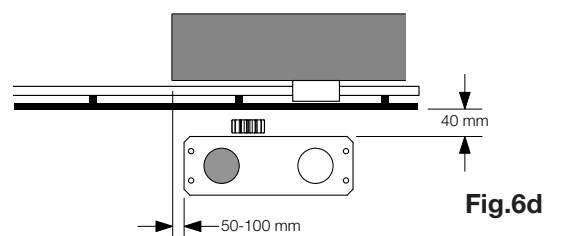


Fig.6d

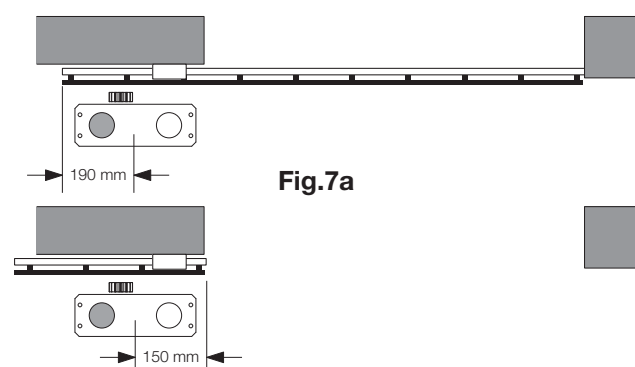


Fig.7a

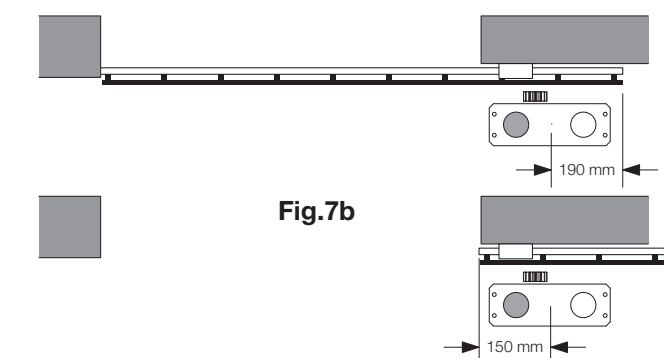


Fig.7b

Laying the foundation plate - Cement foundation

If there is no cement flooring (or similar material) a cement* foundation must be prepared. Proceed as follows:

1 - Dig a suitable hole (minimum 40x30cm, at least 35cm deep), considering the measurements indicated in the previous paragraph.

2 - Prepare the pipes for the passage of the electric cables (see "Electric connections"), leaving the pipes longer by about 30/40cm (figure 8-ref.T).

3 - Bend the 4 threaded bars:

a) if the rack is pre-installed at a measurement greater than that indicated in Figure 3, or in the case of possible water stagnation, the foundation plate may have to be raised. In this case, bend the bars at a height of about 45 mm as indicated in Figure 9.

b) if the motor will be fixed to the ground, bend the bars at a height of about 30 mm as indicated in Figure 10.

4 - Prepare the plate for the cast, fixing the threaded bars. With reference to Figure 11 use 4 lower support nuts D and 4 nuts F with the relative washers R to block the plate in position. The position of the bars must be similar to that indicated in figure 11.

5 - Prepare the cement following the manufacturer's indications. In some cases it may be necessary to realise a metal cage to make the foundation more stable.

6 - Sink the bars into the cement, paying attention to the level of the plate and the parallelism with the leaf (figure 12).

7 - Wait for the cement cast to be reinforced.

8 - Remove the upper screws and washers, which will be successively used to fix the gear motor.

9 - Figure 13 shows the plate when fixing is ultimated. If necessary, it is now possible to raise the plate by a maximum of 20 mm, positioning 4 nuts and the relative washers under the plate, as indicated in figure 14.

* If in doubt, contact qualified staff for realisation of the foundation.



The plate must be tightly fixed to the ground, perfectly levelled and parallel to the leaf.

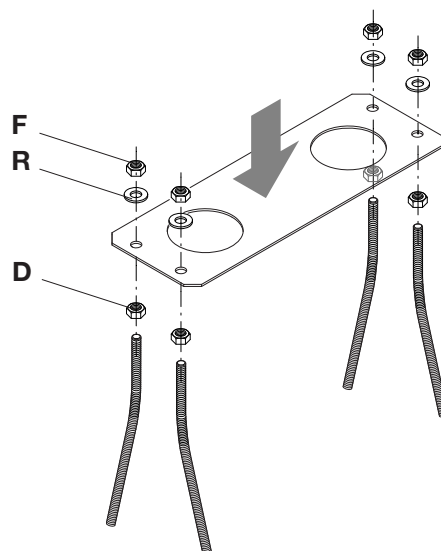


Fig. 11

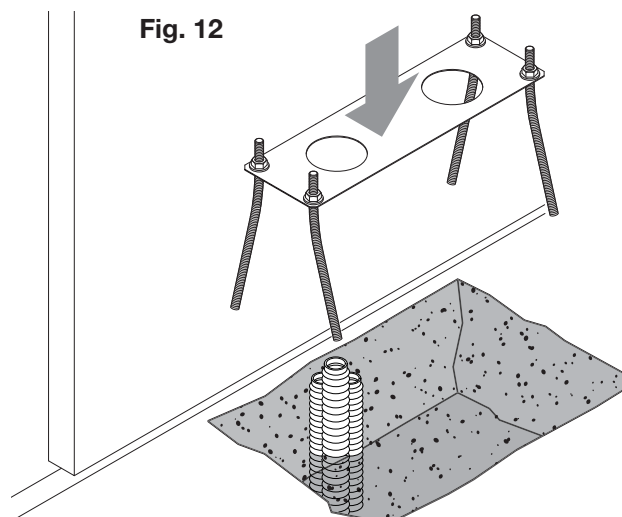


Fig. 12

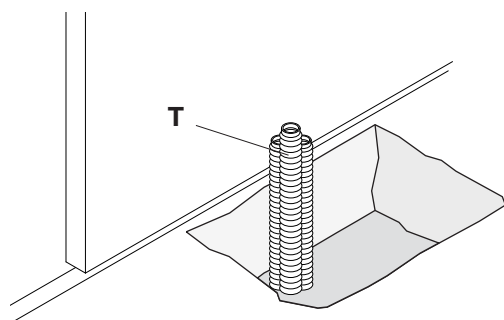


Fig. 8

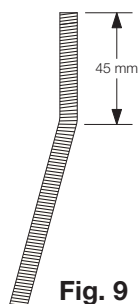


Fig. 9

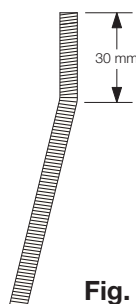


Fig. 10

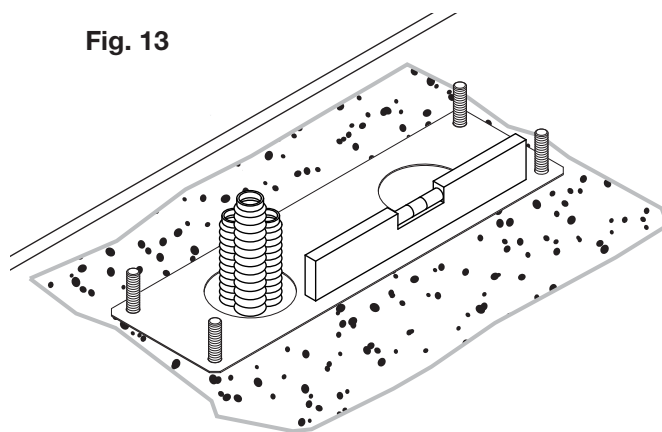


Fig. 13

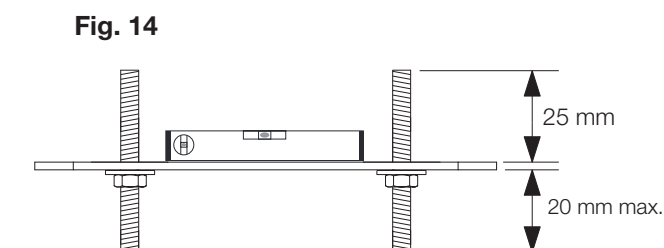


Fig. 14

Laying the foundation plate - Fixing to the floor

If the floor is in cement (or similar material) it is possible to fix the plate directly to the ground:

1 - Obtain suitable fixing systems, normally on the market, steel pressure plugs (figure 15 -ref A) or anchorage with expansion straps (figure 15 -ref B) to be inserted using a mallet.

2 - Respecting the measurements indicated previously, trace the drilling points using the plate as a reference, make 4 holes measuring 10 mm in diameter and fix the plate. Make sure that the threaded bar projects by at least 25mm as indicated in figure 16.

3 - In some cases (rack already installed, possible water stagnation, etc) it is possible to fix the plate in a raised position with respect to the floor by a maximum of 20 mm, positioning 4 nuts and the relative washers under the plate as indicated in figure 17. In this case, the pins must project from the ground by at least 45mm.



Check that the floor is well-levelled and suitable for fixing via plugs. Independently from the type of pre-selected fixing, the plate must result well-fixed, perfectly levelled and parallel to the leaf.

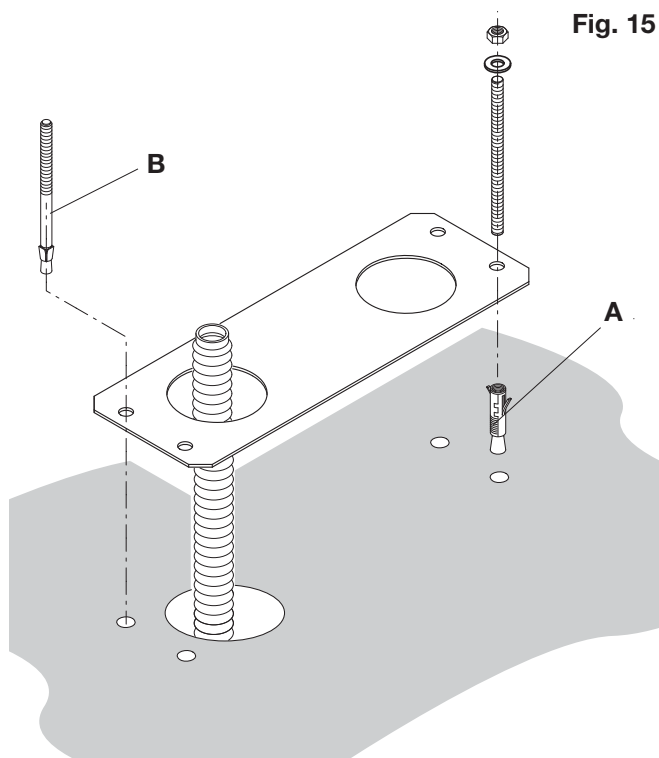


Fig. 15

Fig. 16

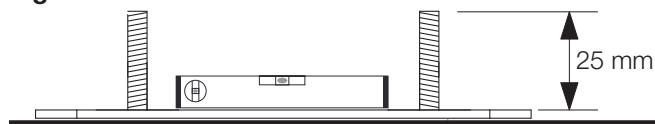
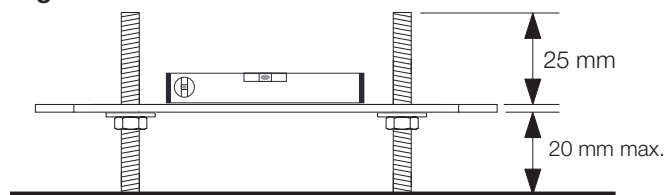


Fig. 17



Fixing the gear motor

To fix the motor reducer to the plate, with reference to fig. 18, proceed as follows:

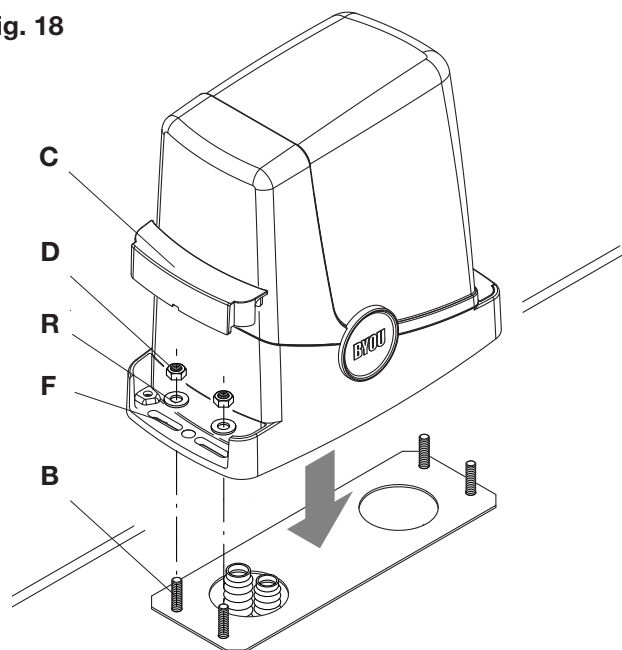
1 - Remove the two screw-cover sumps C.

2 - Place the gear motor on the plate, making sure that the threaded bars enter the holes.

3 - Block the gear motor using the 4 washers R and the 4 bolts D.

4 - The slots F allow to regulate the distance of the motor with respect to the leaf.

Fig. 18



Fixing the rack

The rack, appropriately fixed to the leaf, transforms the rotary movement of the gear into the linear movement of the leaf. Before fixing the rack, it is necessary to release the gear motor, proceed as follows:

- 1) Turn the circular cover by 180°, in a way to view the triangular pin.
- 2 - Insert the release key FRD.3 and turn it clockwise until a certain resistance is felt (Fig.20).
About 15 complete rotations of the key are necessary
- 3 - The gear is now released and free to turn.

Now fix the rack:

- 1 - Take the leaf into the completely open position.
 - 2 - Place the first tract of the rack on the gear.
- Considering the measurements indicated in figures 7a and 7b, mark the first drilling point. Block the rack temporarily, using a clamp for example (Fig.21).
- 3 - Drill and block the first fin of the rack using the screw and the washer as indicated in figure 22, checking that a space of about 1 mm remains between the gear and rack (Fig.23).
 - 4 - Make the leaf slide and take the driving gear near to the second fixing fin, always checking the space of 1mm between gear and rack (Fig.24).
 - 5 - Proceed in the same way for the other fins, moving the leaf every time in a way always to have the correct gear/rack coupling.
 - 6 - Now continue with the remaining tracts of the rack. Every tract must be attached to the previous one as indicated in Figure 25, in a way to keep the rack pitch constant.



Use several manual opening and closing manoeuvres to check that the rack is correctly engaged, along its entire length. If necessary, the holes present on the rack allow height adjustment.

Fig. 22

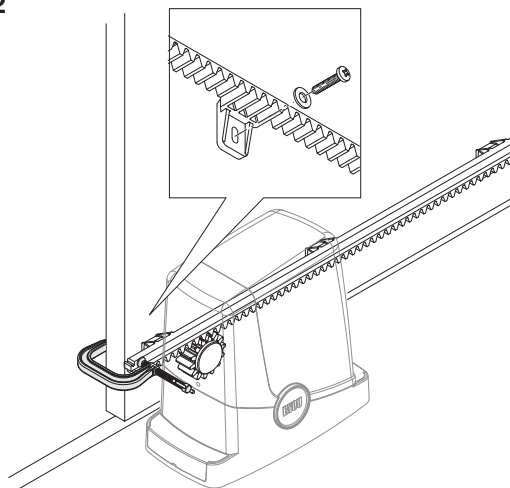


Fig. 23

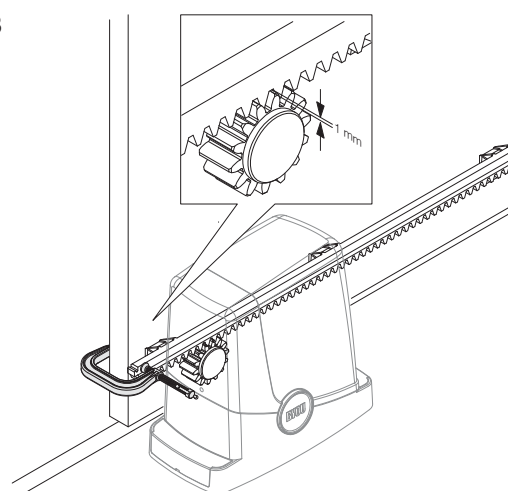


Fig. 24

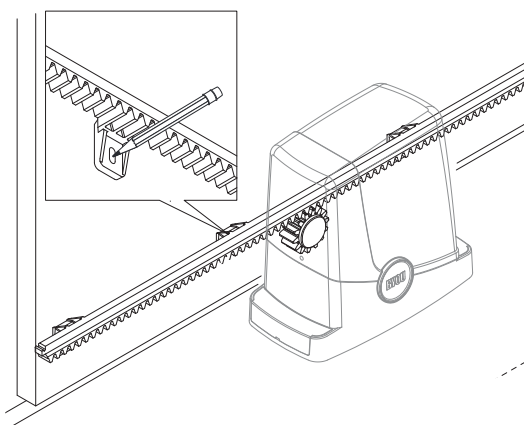


Fig. 25

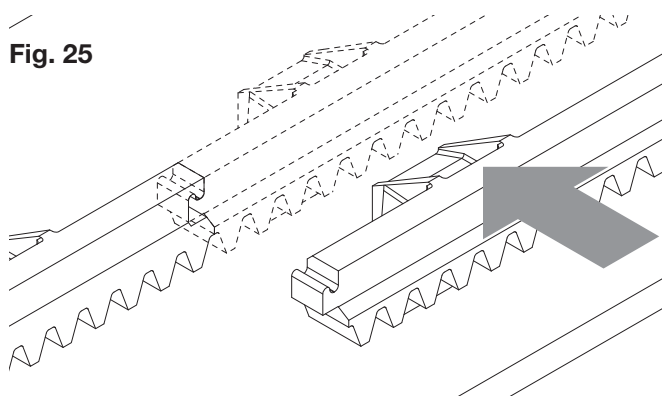


Fig. 19

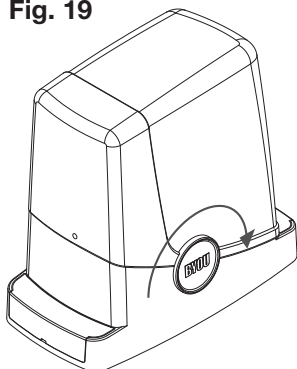


Fig. 20

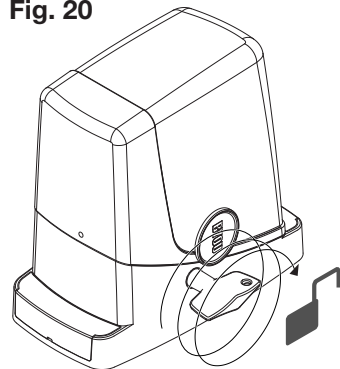
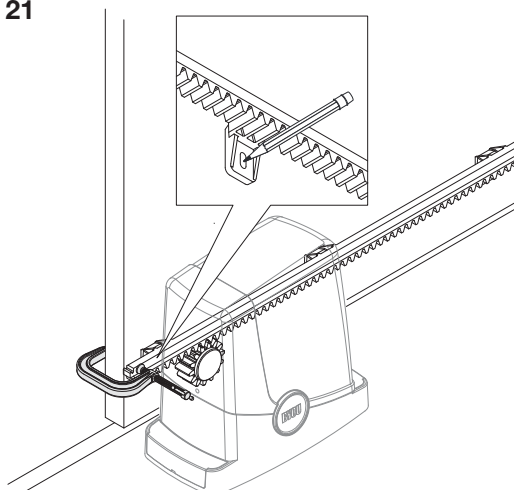


Fig. 21



Fixing the end run brackets

Stopping the movement, in the opening phase and in the closing phase, takes place via the end run brackets FRD.1, which, relevantly fixed onto the rack, make the end run spring, present on the gear motor, intervene.

To position and fix the brackets FRD.1, proceed as follows:

1 - Take the leaf to the desired opening position. If a stop block is present on the ground, the leaf must stop 2/3 cm before the block (Figure 26).

2 - Place the right bracket FRD.1 on the rack and make it slide until the end run spring, bending, effects switch-over of the internal switch, which can be perceived with a "click" (Figure 27).

3 - Fix the bracket temporarily via the two screws supplied (Figure 28).

4 - Take the leaf into the completely closed position and then open by about 2 cm (Figure 29).

5 - Place the left bracket FRD.1 on the rack and make it slide until the end run spring, bending, effects switch-over of the internal switch, which can be perceived with a "click" (Figure 30).

6 - Fix the bracket as indicated in previous point 3.

7 - If necessary, use a hacksaw to shorten the end part of the last tract of the rack, so that it does not project with respect to the plumb line of the leaf.



In the inspection phase, use several opening and closing manoeuvres to check whether the end run intervenes in the correct opening and closing points, before the respective mechanical profiles.
If necessary, move the brackets FRD.1 to advance or delay the stop points

Fig. 26

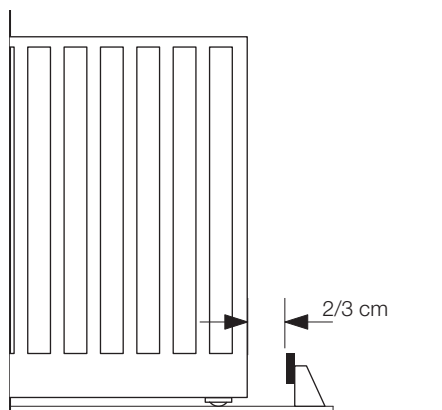


Fig. 27

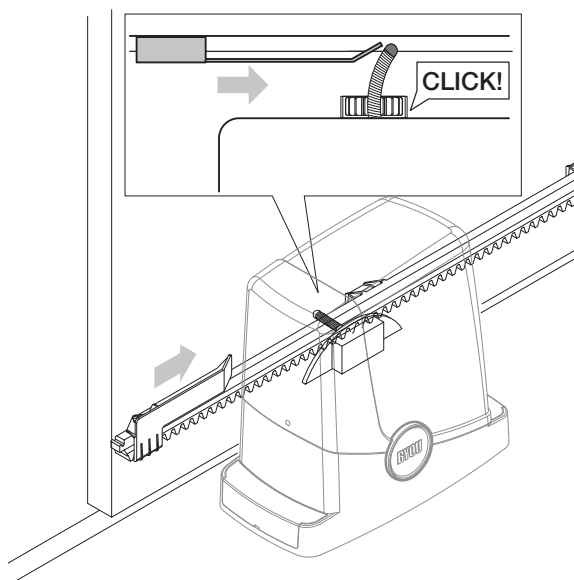


Fig. 28

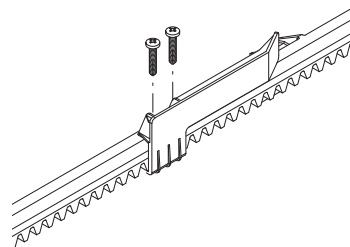


Fig. 29

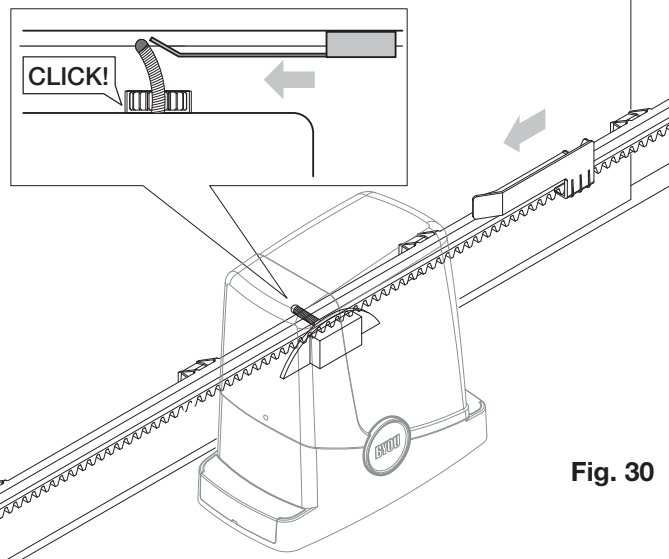
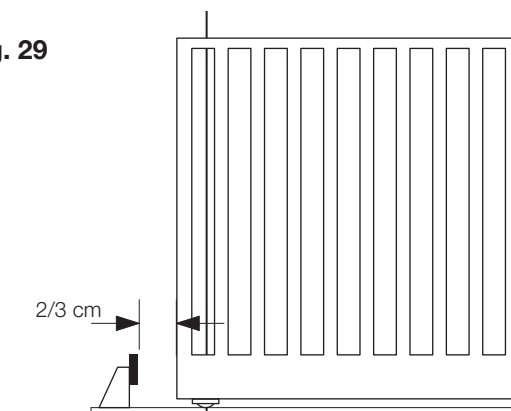
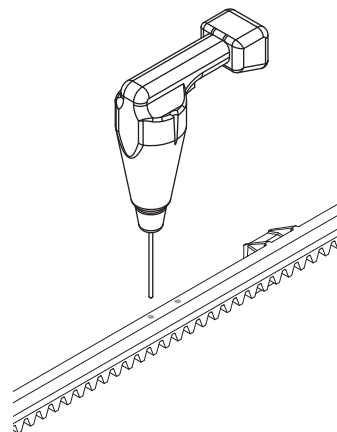


Fig. 30

Fig. 31



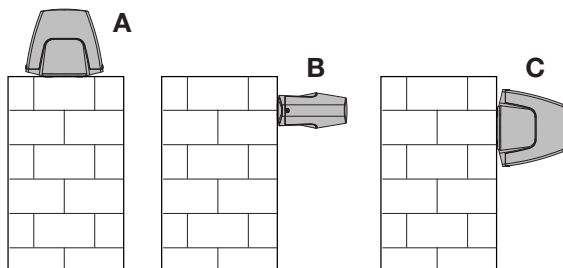
Installation of the flashing light F.BY

Description

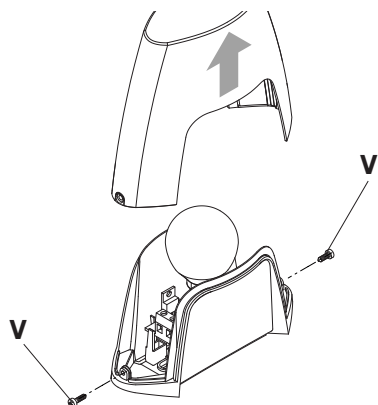
Flashing light signalling that the gate is in movement for automatic doors and gates. It has a built-in aerial for the reception of radio transmitters.

Installation

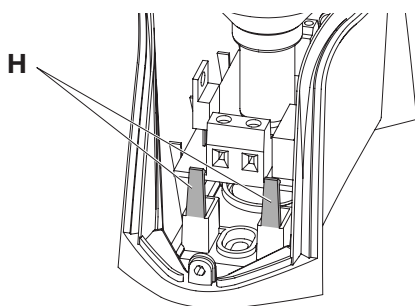
Choose the position of the flashing light so that it is proximity of the gate and easily visible.



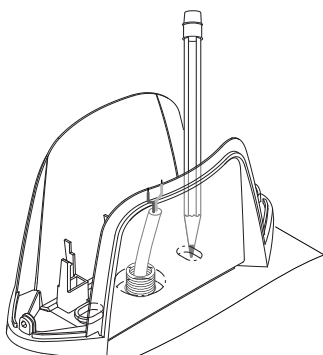
The flashing light can be fixed onto a horizontal or vertical surface. In the case of vertical installation (Fig.B and C) the protection rating is reduced to X4.



Loosen the two screws V and then remove the transparent cover.



Remove the electronic circuit, pulling the two plastic tabs H outwards, thus releasing the board.

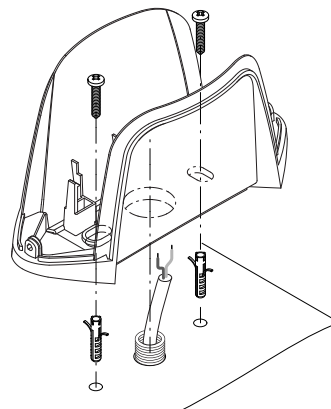


Trace the drilling points using the base as a reference. The central hole must correspond to the passage of the cables.

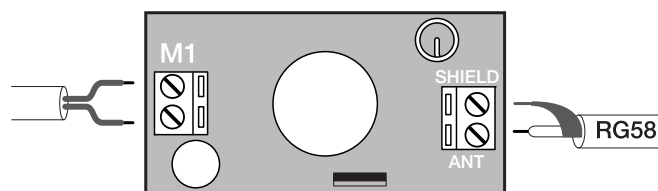
Two 6 mm plugs and relative screws are supplied for fixing the flashing light.

Make two holes with diameter of 6 mm.

Insert the cable and fix the base using the plugs and screws.

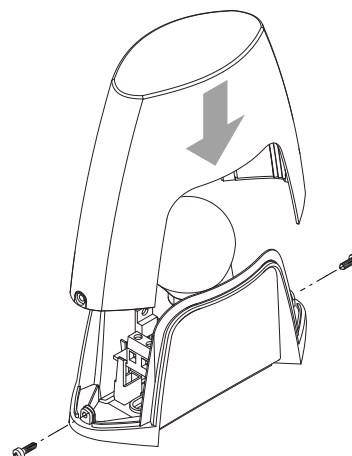


Connections



Connect the 24V flashing light output of the control unit to the terminal board M1 (see main connection layout).

Connect the aerial cable RG58 to the terminal board M2 (if requested). The external shield must be connected to the SHIELD clamp. The signal cable must be connected to the ANT clamp.



Put the board back into the relevant sear and then close the flashing light.

TECHNICAL DATA

	Flashing light F.BY
Power supply	24Vac Flashing light output of the BYOU control units
Bulb	E14/24Vac/dc
Absorption	600 mA
Functioning temperature	-20°C / +70°C
Protection rating	IP44
Dimensions	145x65x128 (mm)

Installation of photocells P.BY

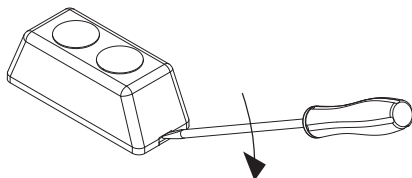
Description

Pair of photocells for detection of obstacles for automations for doors and gates.

The pair is made up of a transmitter (labelled TX) that sends an infrared ray towards the receiver (labelled RX). The receiver has an output with NC contact (normally closed). The interruption of the ray causes the contact to open, the control unit detects the receiver switch-over and interrupts the movement according to the settings selected.

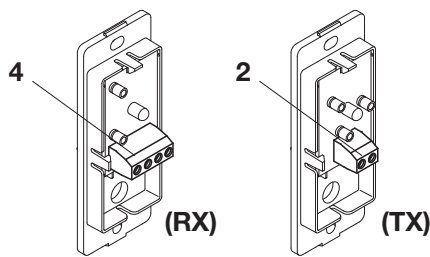
Installation

Open the photocells by using a screwdriver as a lever in the slot

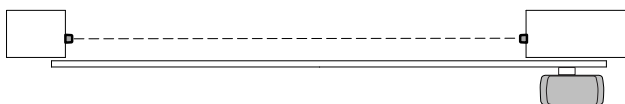


The difference between the receiver and the transmitter is evident from the number of clamps present on the boards:

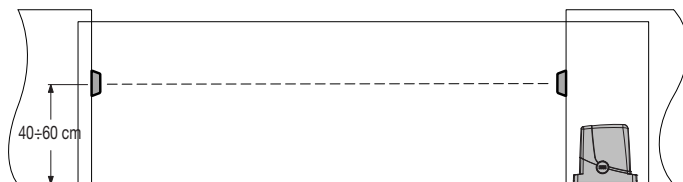
- 4 clamps for the receiver (RX)
- 2 clamps for the transmitter (TX)



The two photocells must be fixed on the outside and as near as possible to the gate:



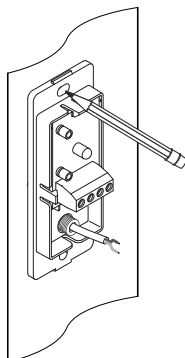
At a height of 40÷60 cm from the ground:



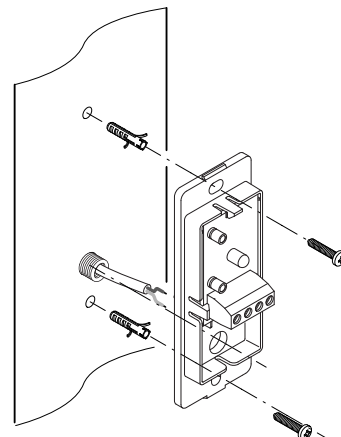
Trace the drilling holes using the photocell base as a reference.

The hole in proximity of the terminal board must correspond to the passage of the cables.

Four 6 mm plugs and relative screws are supplied for fixing the photocells.



Make two holes with diameter of 6 mm in a way that the hole in proximity of the terminal board corresponds to the set-up of the cables. Insert the cable and fix the base of the photocell to the wall using the plugs and screws.

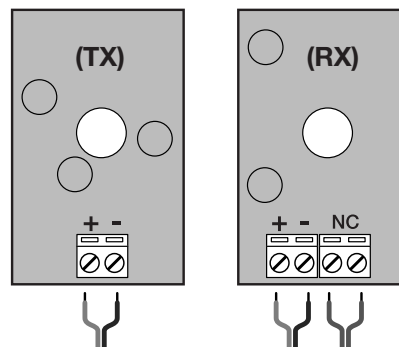


Connections

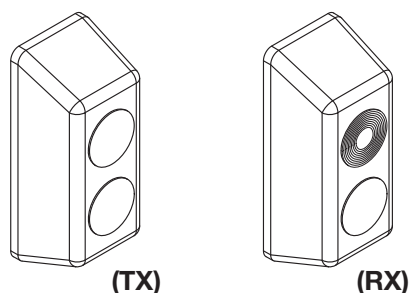
Connect the TX and RX to the control unit as per the main connection layout.

TX only requires power supply from the 24V output of the control unit, respect the polarities (+/-).

RX requires 24V power supply (respect the polarities +/-) and the connection of the NC contact at the PHOT C input.



Make the connections and re-position the covers checking that the cover with the lens (RX - 4 clamps) is applied to the receiver. The lens can be recognised by the concentric circles that are visible in transparency.



TECHNICAL DATA

TECHNICAL DATA	P.BY photocell
Power supply	24Vac/dc
Capacity (in optimal conditions)	about 20 metres
Absorption	15mA(TX) - 20mA(RX)
Functioning temperature	-20°C / +70°C
Protection rating	IP44
Dimensions	90x35x31 (mm)

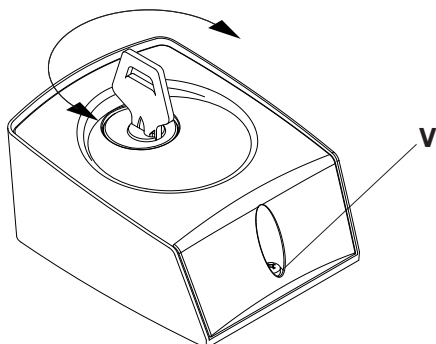
Installation of selector K.BY

Description

Key selector with control of automations for automatic gates and doors.

Wall fixing, customised key.

The customised key also has a burglar-resistance function as it is indispensable for opening the selector.

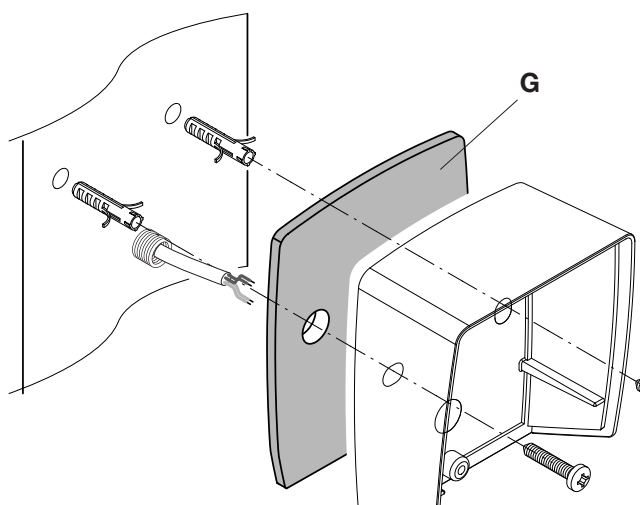


Installation

Select the position of the selector in a way that it is in proximity to the gate, at a height of about 100/120cm.

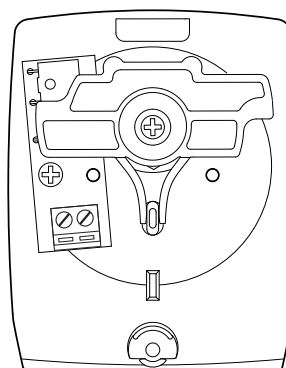
To open the selector, remove the screw V, insert the key, turn it clockwise and hold it in this position, lift the selector cover, which separates from the fixed base. Keep the screw V, which is indispensable for closing the selector.

Two 6 mm plugs and relative screws are supplied for fixing the selector base to the wall.



Using the support as a reference, mark and perform two holes with diameter of 6 mm in a way that the lower hole corresponds to the set-up of the cables.

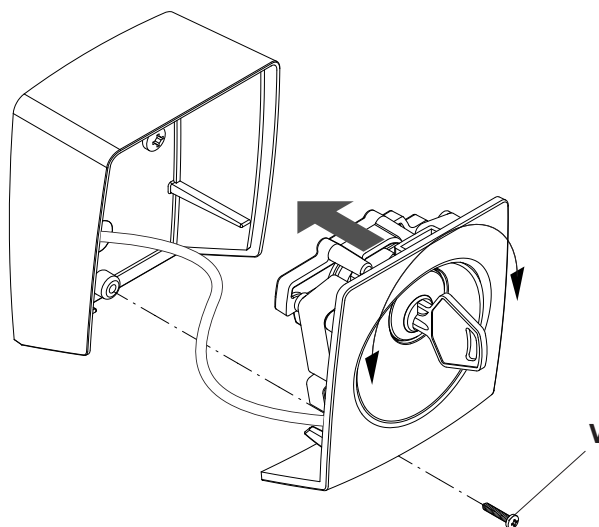
Apply gasket G, supplied, on the rear of the selector switch. Insert the cable and fix the base to the wall using the plugs and screws.



Connections

A terminal board is installed on the selector for the connection to the Step-by-Step input (PP) of the control unit:

No polarity (+/-) has to be respected.



To close the selector, turn the key clockwise and hold it in this position, insert the selector into the base fixed to the wall. Release the key and fix the screw V

TECHNICAL DATA

	F.BY selector
Contacts	1 micro switch, with return spring in central position
Functioning temperature	-20°C / +70°C
Protection rating	IP44
Dimensions	72x90x46 (mm)

Transmitter BY

Description

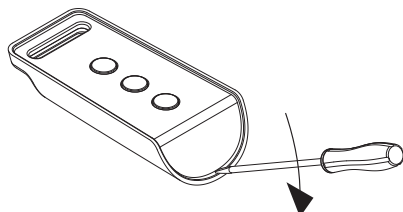
Radio transmitter for the long distance commands for BYOU automations.

Functioning

The transmitter has three buttons through which it is possible to command the various functions of the automation, configurable in the control unit.

Replacing the battery

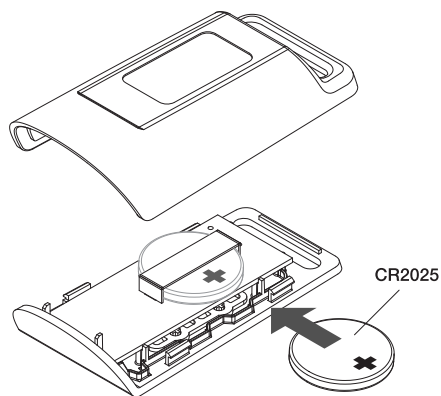
When the signal LED starts to flash it means that the battery is starting to go flat and must be replaced.



Use a small screwdriver as a lever in the zone indicated, in a way to open the transmitter.

Replace the new battery by inserting it with the positive pole upwards, as indicated in the figure.

IMPORTANT: Do not touch the batteries.
Use rubber gloves.



The batteries contain pollutants, do not throw them in the waste but dispose of the as special waste according to the Standards in force.

Close the transmitter.

TECHNICAL DATA

TECHNICAL DATA	Transmitter BY
Code	Rolling-code
Frequency	433,92 MHz
Functioning temperature	-20°C / +70°C
Dimensions	68x33x16 (mm)

Control unit CP.FDM



Before proceeding, check that the mains power supply is disconnected.

The control unit CP.FDM is inside the gear motor sump. To access the control unit, remove the two screws V1 and V2 indicated in figure 32 and the cover C.

The CP.FDM control unit is mounted on an inclined support in order to favour the wiring and programming operations.

For the passage of the connection cables of the accessories, there is a relevant opening on the bottom of the gear motor sump (detail F).

The connection cables of accessories must be fixed. Drill a hole in the central support (H) and, fit the cables by using a cable tie (K).

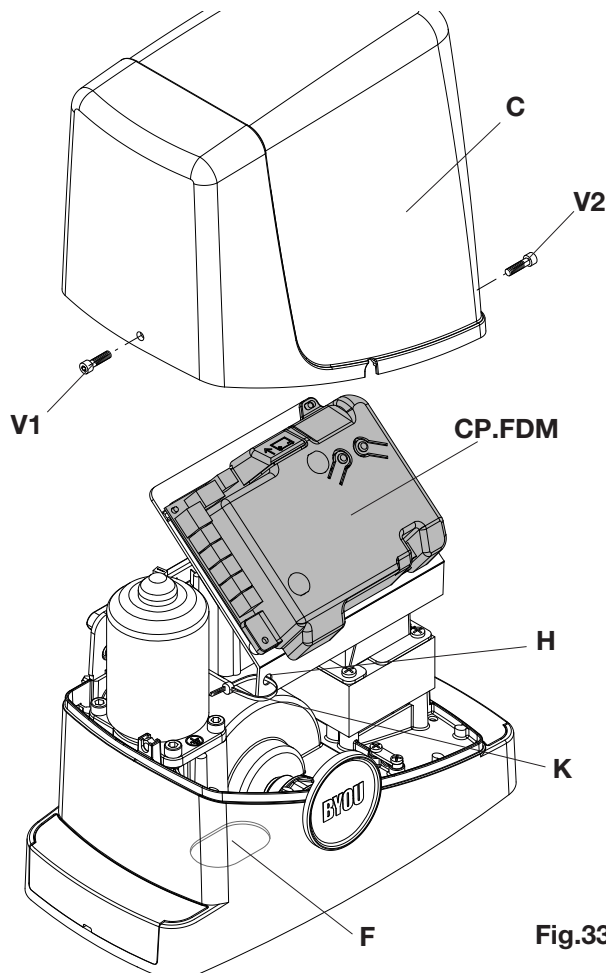


Fig.33

Control unit CP.FDM connections

Except for the mains connection cable, all electric connections have a voltage of 24V and can also be performed by unqualified staff.

Connect all accessories making reference to the layout in figure 33 and to the “Electric connections” paragraph, for that concerning the types of cable.

To make connection easier, the accessory clamps have colours that correspond to those of the control unit.

KEY:

- 1 Line protection fuse
- 2 Accessories protection fuse
- 3 “PGM” programming button
- 4 Programming button “↑”
- 5 LCD

DESCRIPTION OF THE TERMINAL BOARDS

CLAMP	COLOUR	DESCRIPTION
PHOT	GREEN	NC input from the RX photocell. The two clamps are connected to each other by a wire (ref. “A”). Remove this wire only if the photocell is connected.
STOP	BLACK	STOP input NC contact for auxiliary “STOP” command (optional). The two clamps are connected to each other by a wire (ref. “A”). Remove this wire only if a device is connected to this input.
PP	WHITE	Step-by Step’ command input from the key selector. At every impulse sent from the selector a sequence of commands, which can be configured using the PP function, is performed cyclically.
24V	YELLOW	24Vdc output for photocells power supply. Respect the polarities + and - in the connections (ref “B”).
BLINK	RED	24Vdc flashing light connection output
SHIELD/ANT	BLUE	Connection of the aerial built-in the flashing light. When connecting the RG58 cable, the external shield must be connected to the SHIELD clamp.

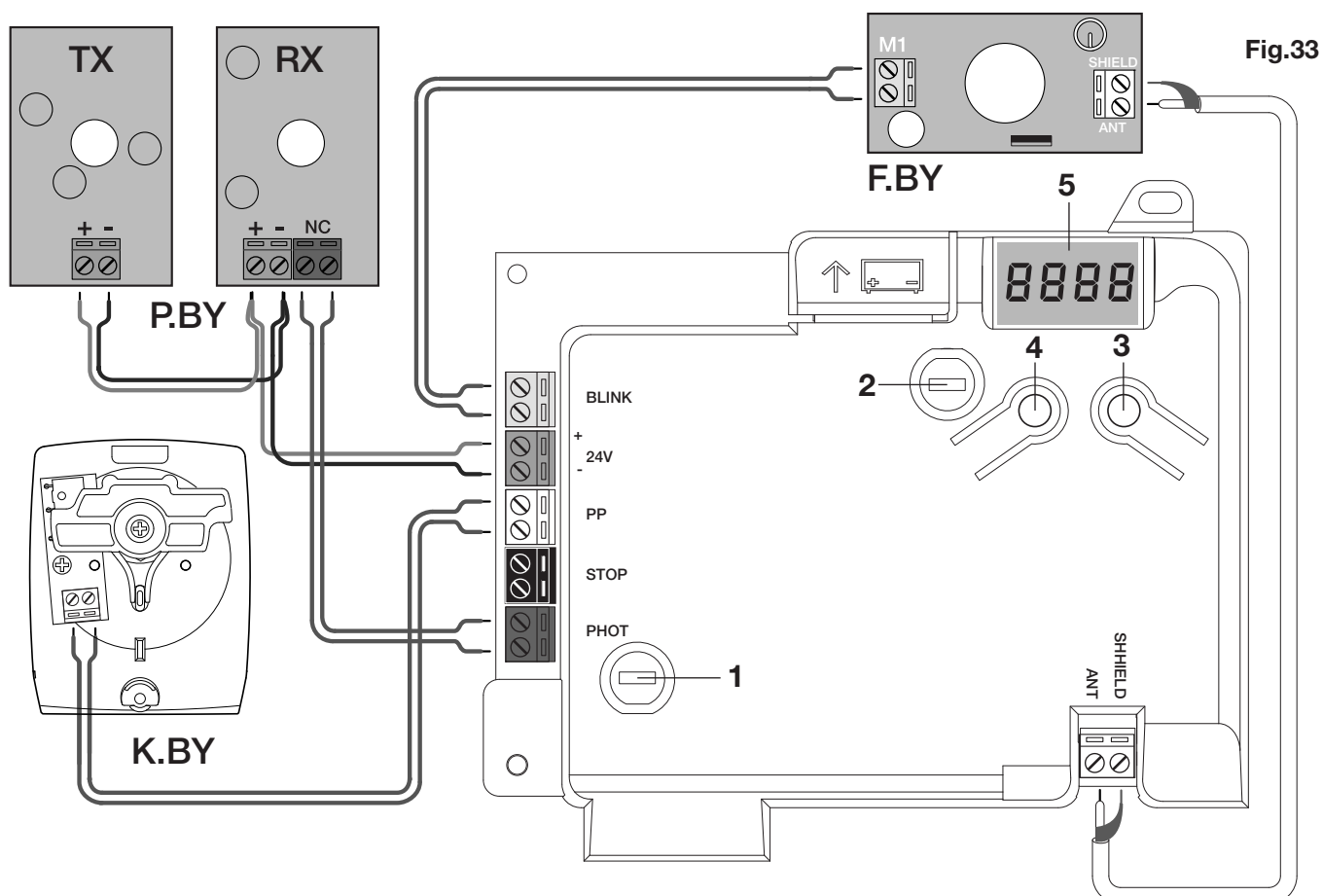
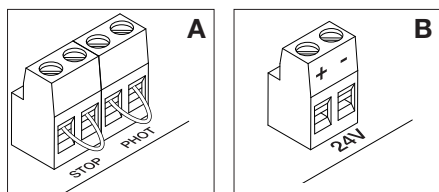


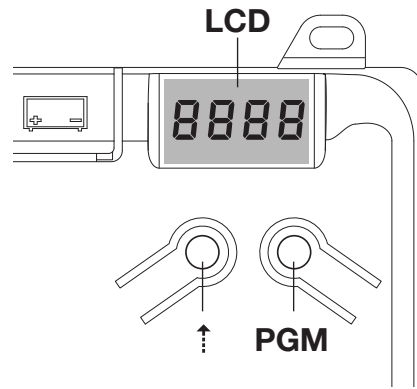
Fig.33

Programming the CP.FDM control unit - Introduction

Programming of the control unit allows the regulation of all parameters indispensable for the correct functioning of the automation.

Programming takes place by means of a series of menus that can be selected from the LCD. A function corresponds to every menu, which will be described successively.

PGM	The "PGM" button allows to enter programming, select the pre-selected menu and confirm the value selected.
↑	The "↑" button allows to scroll the various items in the menu and the values to be set cyclically.
PGM+↑	By pressing "↑" and "PGM" at the same time, return to the upper level of the menu or, if already at the first level, exit programming.



With the display off, the "↑" button performs a Step-by-Step command. This function can be useful during the programming and inspection phases. Pressing the PGM button causes the immediate stop of any leaf movement.

Self-regulation of the functioning parameters (AUTO)

The first and most important function to program is the self-regulation of the parameters, which allows the control unit to automatically set the end run points, the torque applied to the leaf and the torque in the slowing phase*.



During the autoset operations, the control unit automatically performs several opening and closure manoeuvres. Before proceeding, check that no person, animal or obstacle is or can be in the door manoeuvre area.

All the accessories provided for the system should be already connected to the control unit. If further accessories should be added, self-adjustment must be repeated.

Proceed as follows:

- 1- Apply mains power supply to the automation via the pre-wired socket, using an extension if necessary.
- 2- Release the leave, take it manually to about half of the run and block it again.
- 3- Start the autoset phase as described below. As soon as the first manoeuvre starts, carefully check that the leaf moves in the closure direction.

If this is not the case, press "↑" and "PGM" at the same time to interrupt the autoset. The display shows the ERR message. Use the movement direction reverse button (MINV menu) and change the direction of movement.

1	Press the button [PGM] to access programming.	PGM
2	The display shows AUTO, select Auto by pressing the [PGM] button.	AUTO
3	AUTO starts to flash slowly. Press and hold the [PGM] key, after 5 seconds AUTO starts to flash quickly, release the key only when the display shows the PRG message.	
4	The self-regulation phase starts, the display shows PRG. The control unit commands different opening and closing manoeuvres at various speeds. At the end of the manoeuvre the display shows "OK"	PRG
5	The control unit goes back to the AUTO menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

* The slowing phase must be activated via the TSM parameter. The control unit is supplied with the parameter set at 0 (Off); the AUTO function does not activate slowing but is limited to defining a suitable torque value.

The intervention of the photocells or any other command from the transmitter or key selector, interrupts the autoset phase, displaying the message ERR1/2/3. The procedure must therefore be repeated.

Every self-regulation procedure overwrites the previous one.

Perform an autostop procedure after every maintenance intervention or modification of the door.

Regulation of the automatic closure time (TCA)

The automatic closure function allows to set a time which, on expiry, if the leaf is in the open position the control unit autonomously commands a closure manoeuvre.

With this function active, if you forget to give the closure command or in the case of simultaneous commands, the control unit closes the leaf after the set time.

The factory setting envisions 30 seconds before automatic closure.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the TCA function is displayed.	
2	Press the [PGM] button to enter the TCA parameter regulation. The display shows the current value of the TCA parameter. Use the [↑] key to select one of these values: 0 The TCA function is deactivated. 1 The pause time is set at 10 seconds 2 The pause time is set at 30 seconds (default setting) 3 The pause time is set at 60 seconds 4 The pause time is set at 90 seconds	
3	Confirm the desired value using the [PGM] key, the display shows PRG.	
4	The control unit goes back to the TCA menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Regulation of the motor thrust (PMOT)

The force applied is normally set automatically by the control unit during the self-regulation phase (*Auto*).

This menu can be used to modify that set by the control unit, to make up for a friction point for example.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the PMOT function is displayed.	
2	Press the [PGM] button to enter the PMOT regulation. The display shows the current value of the PMOT parameter. Use the [↑] key to select one of these values: 1 low motors torque 2 medium/low motors torque (default setting) 3 medium/high motors torque 4 high motors torque	
3	Confirm the desired value using the [PGM] key, the display shows PRG.	
4	The control unit goes back to the PMOT menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Regulation of the slowing time (TSM)

If the leaf is to slow for a few seconds before the end run intervention, select one of the values available, as described below.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the TSM function is displayed.	TSM
2	Press the [PGM] button to enter the TSM regulation. The display shows the current value of the TSM parameter. Use the [↑] key to select one of these values: 0 Slowing not active (default setting) 1 3 slowing seconds 2 5 slowing seconds 3 7 slowing seconds 4 10 slowing seconds	0000 0004
3	Confirm the desired value using the [PGM] key, the display shows PRG.	PRG
4	The control unit goes back to the TSM menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

After every modification of the value of this parameter, it is necessary to proceed with a new self-learning phase

Step-by-Step functioning mode (PP)

It is possible to select two different modes of the Step-by Step command sent from the transmitter or the key selector. Every time the button is pressed in the default mode, the following progression of commands is performed cyclically: OPEN>STOP>CLOSE>STOP>OPEN> and so on.

The sequence can be modified by eliminating the intermediate STOP commands: OPEN>CLOSE>OPEN> and so on.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the PP function is displayed.	PP
2	Press the [PGM] button to enter the PP regulation. The display shows the current value of the PP parameter. Use the [↑] key to select one of these values: ON OPEN>CLOSE>OPEN functioning OFF OPEN>STOP>CLOSE>STOP>OPEN> functioning (default)	on off
3	Confirm the desired value using the [PGM] key, the display shows PRG.	PRG
4	The control unit goes back to the PP menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Pre-flashing functioning mode (Pre)

An imminent manoeuvre warning mode can be set through the pre-flashing function.

Once activated, the flashing light switches on 3 seconds before the door starts to move.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the Pre function is displayed.	PrE
2	Press the [PGM] button to enter the Pre regulation. The display shows the current value of the Pre parameter. ON pre-flashing activated OFF pre-flashing deactivated (default)	on off
3	Confirm the desired value using the [PGM] key, the display shows PRG.	PRG
4	The control unit goes back to the PRE menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Condominium function (IBL)

If used in condominiums, it may be preferable that further commands given during the opening phase are ignored. This function can result useful if many users are involved, in a way to prevent several opening commands, given at the same time, causing the movement to stop.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the IBL function is displayed.	IBL
2	Press the [PGM] button to enter the IBL regulation. The display shows the current value of the IBL parameter. ON IBL mode activated OFF IBL mode deactivated (default)	on off
3	Confirm the desired value using the [PGM] key, the display shows PRG.	PrG
4	The control unit goes back to the IBL menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Selection of photocells functioning (PHCL)

It is possible to select the functioning mode of the photocells connected to the PHOT input. Normally, the photocells are active only in the closing phase, to allow the access of the vehicle even when the gate is not completely open. If this intervention is also desired in the opening phase, modify the parameter as follows:

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the PHCL menu is displayed.	PhcL
2	Press the [PGM] button to enter the PHCL regulation. The display shows the current value of the PHCL parameter. Use the [↑] key to select one of these values: ON Photocells active in the opening and closing phase OFF Photocells only active in the closure phase (default)	on off
3	Confirm the desired value using the [PGM] key, the display shows PRG.	PrG
4	The control unit goes back to the PHCL menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Selection of direction of rotation of the motor (MINV)

The sliding gates can open by sliding to the right or to the left, as indicated in Figure.



The direction of rotation may have to be inverted according to the position of the motor.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the MINV menu is displayed.	Minu
2	Press the [PGM] button to enter the MINV regulation. The display shows the current value of the MINV parameter. Use the [↑] key to select one of these values: C_O Motor with opening to the right - default setting O_C Motor with left opening	O--C C--O
3	Confirm the desired value using the [PGM] key, the display shows PRG.	PrG
4	The control unit goes back to the MINV menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Resetting the control unit (Res)

This function annuls all settings made, taking the control unit back to the initial conditions. It also deletes the settings of the autostart procedure.

NOTE: Any remote controls memorised in the radio receiver are not deleted.

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the Res function is displayed.	
2	Press and hold [PGM], the RES message starts to flash quickly.	
3	Release the [PGM] button when the PRG message is displayed. The control unit is now taken to factory values.	
4	The control unit goes back to the RES menu. To exit programming, press the [PGM] and [↑] buttons at the same time or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Memorising new transmitters (RADI>PP)

To memorise new transmitters with Step-by-Step function for the automation command, proceed as follows:

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the Radi menu is displayed.	
2	Press the [PGM] button to enter the Radi function. The display shows the first sub-menu PP.	
3	Press the [PGM] button to enter the PP function. The display shows the PUSH message.	
4	Press the BY transmitter button that is to be associated to the Step-by-Step function within 5 seconds.	
5	The display shows PRG to confirm memorisation.	
6	The control unit goes back to the RADI>PP menu. To go back to the RADI menu, press the [PGM] and [↑] buttons at the same time. To exit programming, press the [PGM] and [↑] buttons at the same time again or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

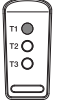
Memorising pedestrian function (RADI>Ped)

The pedestrian function can be associated to any transmitter button. The pedestrian function envisions partial opening for 7 seconds, proceed as follows:

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↑] until the Radi menu is displayed.	
2	Press the [PGM] button to enter the Radi function. The display shows the first sub-menu PP. Press [↑] to display the Ped sub-menu.	
3	Press the [PGM] button to enter the Ped function. The display shows the flashing PUSH message.	
4	Press the BY transmitter button that is to be associated to the Pedestrian function within 10 seconds (e.g. if key 1 has already been associated to the Step-by-Step function, key T2 can be associated to the Pedestrian function).	
5	The display shows OK to confirm memorisation.	
6	The control unit goes back to the RADI>PED menu. To go back to the RADI menu, press the [PGM] and [↑] buttons at the same time. To exit programming, press the [PGM] and [↑] buttons again at the same time again or, alternatively, remove the power supply or wait 60 seconds.	PGM+↑

Deleting transmitters (RADI>CLR)

Proceed as follows to delete a transmitter already inserted in the memory:

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↵] until the Radi menu is displayed.	
2	Press the [PGM] button to enter the Radi function. The display shows the first sub-menu PP. Press [↵] to display the CLR sub-menu	
3	Press the [PGM] button to enter the CLR function. The display shows PUSH.	
4	Press any transmitter button BY that is to be deleted within 5 s.	
5	The display shows OK to confirm cancellation.	
6	The control unit goes back to the RADI>CLR menu. To go back to the RADI menu, press the [PGM] and [↵] buttons at the same time. To exit programming, press the [PGM] and [↵] buttons again at the same time again or, alternatively, remove the power supply or wait 60 seconds.	

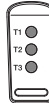
Complete deletion of the receiver memory (RADI>RTR)

To delete the memory completely, eliminating all previously-inserted remote controls, proceed as follows:

1	Press the [PGM] button to access programming or if the control unit is already in the programming menu, press [↵] until the Radi menu is displayed.	
2	Press the [PGM] button to enter the Radi function. The display shows the first sub-menu PP. Press [↵] three times to display the RTR sub-menu	
3	Press the [PGM] button to enter the RTR function, the RTR message starts to flash slowly. Press [PGM], the PRG message is displayed and deleting starts.	
4	When the PRG message switches off, the display shows the OK message for about 2 seconds. All remote controls are now deleted from the memory.	
6	The control unit goes back to the RADI>RTR menu. To go back to the RADI menu, press the [PGM] and [↵] buttons at the same time. To exit programming, press the [PGM] and [↵] buttons at the same time again or, alternatively, remove the power supply or wait 60 seconds.	

Remote controls quick duplication

If you have a transmitter that is already memorised (TX1), it can be duplicated (TX2) without accessing the control unit for programming, proceed as follows:

1	With remote control that is already memorised (TX1), give an opening command and wait for the leaf to be in the completely open position.	
2	Press all three transmitter keys, already memorised (TX1), at the same time until the flashing* light switches on.	 TX1
3	Press the button of the remote control that is already memorised (TX1) that is to be copied into the new transmitter. The flashing light switches off for 3 seconds.	 TX1
4	When the flashing light switches back on, press the button of the new transmitter (TX2) that is to assume the function of the button selected in point 3.	 TX2
5	If a new transmitter is to be duplicated, repeat the procedure from point 2. Wait 60 seconds to exit the programming procedure.	

* If the automatic re-closure function is active, pressing the three buttons at the same time suspends it to allow memorisation operations.

Inspection and commissioning



ALL OPERATIONS DESCRIBED IN THIS PARAGRAPH ARE EXCLUSIVE COMPETENCE OF AUTHORISED BYOU STAFF, IN COMPLIANCE WITH THAT ENVISIONED IN THIS MANUAL AND THE STANDARDS IN FORCE.

The respect for the indications given below is indispensable to guarantee the maximum safety of the automation.

The BYOU authorised technician must perform all tests envisioned by the Law, Standards and Regulations in force depending on the risks present, particularly respecting all requisites of the EN 12445 Standard, which establishes the test methods for gate automations.

INSPECTION

1 Check that the model selected is suitable for the type of application and that all automation components have been installed correctly, with respect to the indications in this manual.

2 Test opening and closure and control that the movement of the leaf is regular without friction points.

3 Check that all electric connections are made correctly and with cables that are in compliance with the Standards.

4 Check the correct functioning of photocells, transmitters, key selectors, manual release devices.

5 For the photocells, check that on the passage of a cylinder with diameter of 5 cm and length of 30 cm the switch-over takes place on the optical axis with the consequent movement stop. The photocells must intervene when passing the cylinder in proximity of the TX, in proximity of the RX and in the centre.

6 Take the measurement of the force of impact according to that indicated by the EN 12445 Standard, intervening, if necessary on the "Regulation of the motor thrust (PMOT) paragraph.

7 Replace the temporary power supply cable with a mains connection that is in compliance with the Standards in force and the type of installation.

COMMISSIONING

Commissioning of the automation can only be performed if all of the previously-described inspection phases have had a positive result.

1 Apply the warning plate, supplied with the automation, to the gate in a well-visible position.

2 Apply a plate to the gate that contains the following data: Type of automation, name and address of the person in charge of commissioning (manufacturer), serial number, year of manufacture and CE mark.

3 Realise the technical file as per indications of the EN 12445 Standard, attaching the entire drawing (e.g. figure 2, electric wiring diagrams (e.g. figure 5), risk analysis and solutions adopted, declaration of conformity of the manufacturer of the devices used (included in this manual).

4 Fill in and supply the owner of the automation with the declaration of conformity.

5 Realise and supply the owner with the "user guide" for the automation, also using the user guide present in this manual.

6 Realise and supply the owner of the automation with the periodical maintenance plan.

7 Do not start the automation before having informed the owner completely regarding the dangers and risks deriving from incorrect use of the automation.

What to do if...

Below find the most common functioning problems and the relative solutions. :

Problem	Cause	Solution
The automation does not work	There is no mains power supply The control unit is not connected The photocells are engaged One or more protection fuses have intervened	Check for the presence of mains power supply Check all connections to the control unit Check that there is no obstacle between the photocells Check the integrity of the fuses and replace them if necessary.
The automation does not work using the remote control.	The remote control battery is flat, the remote control LED flashes quickly the remote control has not been memorised	Replace the remote control batteries Memorise the remote control.
The automation does not work using the key selector	The selector is not connected correctly or is faulty.	Check the key selector connections or replace them if faulty
The gate stops in the opening or closure phase, inverts the movement for a few seconds and then stops.	The obstacle detection sensor has intervened	If no obstacles are present, release the motor and check for the presence of friction points. Perform a new self-learning. Increase the value of the PMOT parameter
The door does not close	STOP input active. Obstacle between the photocells or photocells broken	Check the connections of the STOP input Remove the obstacle or check the photocells
The flashing light does not switch on	The bulb has blown The flashing light is not connected correctly	Replace the bulb Check the connections.
The automatic system does not operate. The message PHOT-C is displayed.	The photocells detect an obstacle The photocells have been connected after the self-adjustment phase	Check any obstacle present Repeat the self-adjustment procedure.

The control unit LCD displays several messages during normal functioning and in the case of breakdown:

Message	Description
Err	Stop the autoset phase by pressing the [PGM] and [↑] buttons at the same time
Err1	Motor error. Check the motor connection or broken motor
Err2	Photocell error. Check the photocell connections or broken photocells.
Err3	PP input activation error during the autoset phase
Err4	STOP input activation error during the autoset phase
PP	PP inlet active
Stop	STOP input active
Phot	Photocell input active
oPEn	Start of opening manoeuvre
cLoS	Start of closure manoeuvre
ALt	Stop the manoeuvre by means of the PP command or STOP input.
bALt	The automation is functioning with the buffer battery in the absence of mains power supply (only with CB.BY accessory installed).

KEEP THIS GUIDE AND MAKE IT AVAILABLE TO ALL USERS OF THE AUTOMATION.

SAFETY STANDARDS

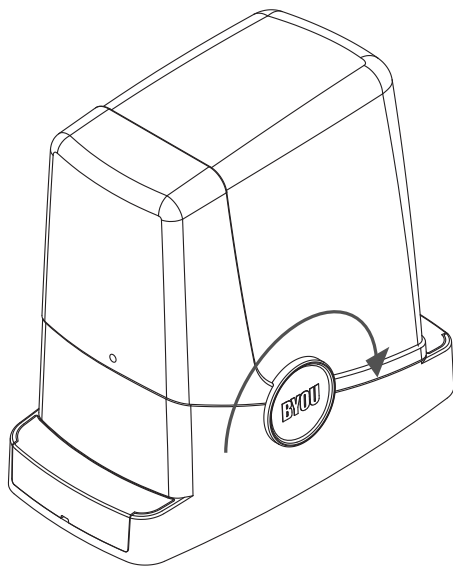


Do not stand in the movement area of the door.
Do not allow children to play with the commands or in proximity of the leaves.
In the case of functioning anomalies do not attempt to repair the fault but contact a BYOU specialised technician.

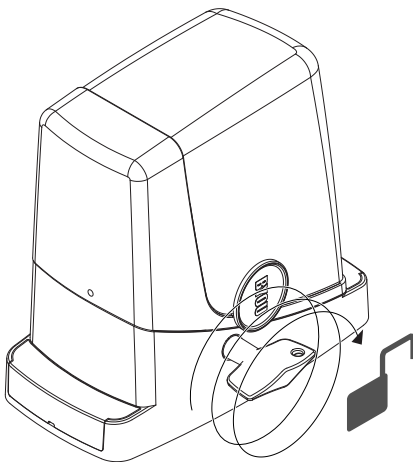
MANUAL MOVEMENT FROM INSIDE

In the case of functioning anomalies or power cuts, the automation can be released and the door moved manually, proceed as follows:

1 - Turn the circular cover by 180°, in a way to view the triangular pin.



2 - Insert the release key FRD.3 and turn it clockwise until a certain resistance is felt (Fig.20).
About 15 complete rotations of the key are necessary.



3 - The gear is now released and free to turn. Move the leaf manually to open and close the gate.

4 - To restore automatic functioning, turn the key anti-clockwise until it stops.

MAINTENANCE

- Periodically check the efficiency of the manual emergency release.
- The actuator does not require routine maintenance, however it is necessary to periodically check the safety devices and the other parts of the plant that could create dangers following wear.

DISPOSAL

Whenever the product is put out of service, the legislative provisions in force must be followed regarding differentiated disposal and re-cycling of the various components (metals, plastics, electric cables, etc.). It is advised to contact a BYOU specialised technician or a specialised company that is enabled for this purpose.

CE declaration of conformity for machines
(Directive 89/392 CE, Attachment II, part B) - Do not put into service

The undersigned Luigi Benincà in quality of the legal representative, declares that the product:

Manufacturer: BYOU srl a socio unico
Address: Via dell'Industria 91 - 36030 Sarcedo (Vicenza) - ITALIA
Description Electromechanical automation with built-in control unit for sliding gates.
Model: FREEDOM
Accessories: BY, F.BY, P.BY, K.BY

is in compliance with the essential requisites envisioned by the following Directives:

Directive	Title
98/37/CE	98/37/CE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL dated 22 June 1998 concerning the harmonisation of the legislations of the Member States relative to machinery
73/23/EEC	73/23/EEC DIRECTIVE OF THE EUROPEAN COUNCIL dated 19 February 1973 concerning the harmonisation of the legislations of the Member States relative to electric material destined for use within certain voltage limits
89/36/EEC	89/36/EEC DIRECTIVE OF THE EUROPEAN COUNCIL dated 3 May 1989, concerning the harmonisation of the legislations of the Member States relative to electromagnetic compatibility
199/5/CE	1999/5/CE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL dated 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

is in compliance with the essential requisites envisioned by the following Standards:

Standard	Edition	Title
UNI EN 12445	8/2002	Industrial, commercial and garage doors and gates. Safety when using motorised doors - Measurement methods
UNI EN 12453	8/2002	Industrial, commercial and garage doors and gates. Safety when using motorised doors - Requisites
ETSI EN301489-3	11/2001	Electromagnetic Compatibility and Radio spectrum Matters(ERM) Electro Magnetic Compatibility (EMC) standard for radio equipment and services
EN300220-3	2000	Radio appliances and systems (RES) - Short range devices - Technical features and test methods for radio equipment to use in the frequency range from 25 MHz to 1000 MHz with power levels up to 500 mW.
CEI EN60950	10/2001	Information technology equipment. Safety

and also declares that it is not allowed to start the machinery until the machine in which it has been incorporated or of which it will become a component has been identified and has been declared in compliance with the conditions of the 98/37/CE Directive and national legislation that transposes it, this means that until the machinery subject of this declaration does not form a complete unit with the final machine.

Sarcedo, 10/04/2009.

Luigi Benincà, Legal representative.

