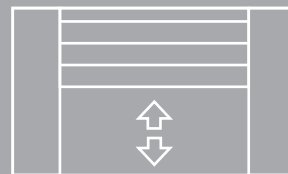
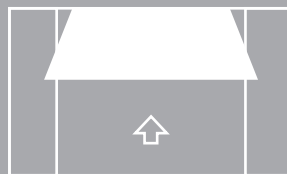
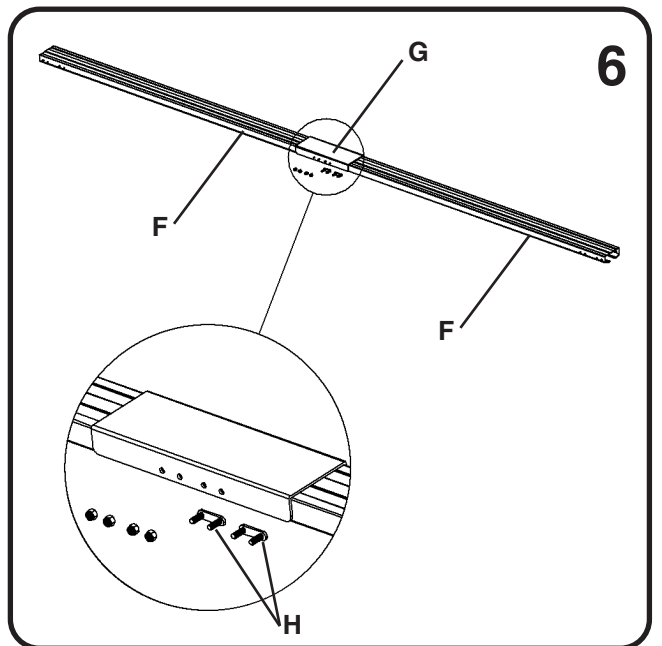
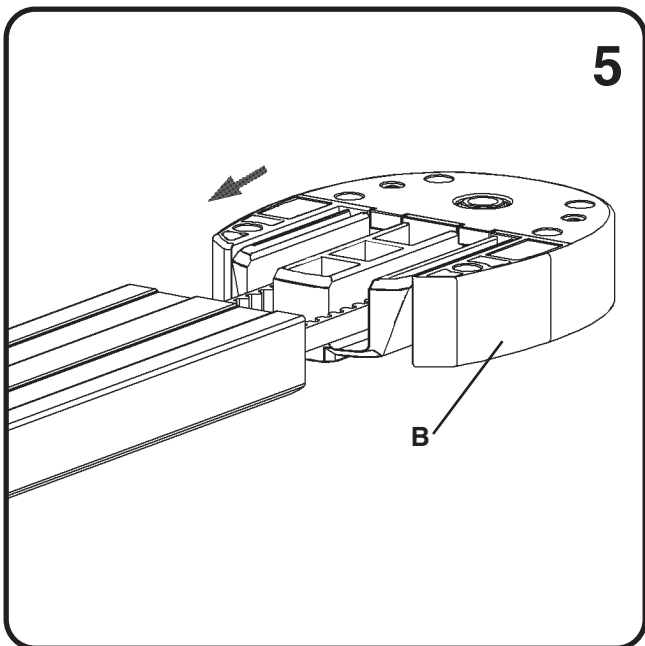
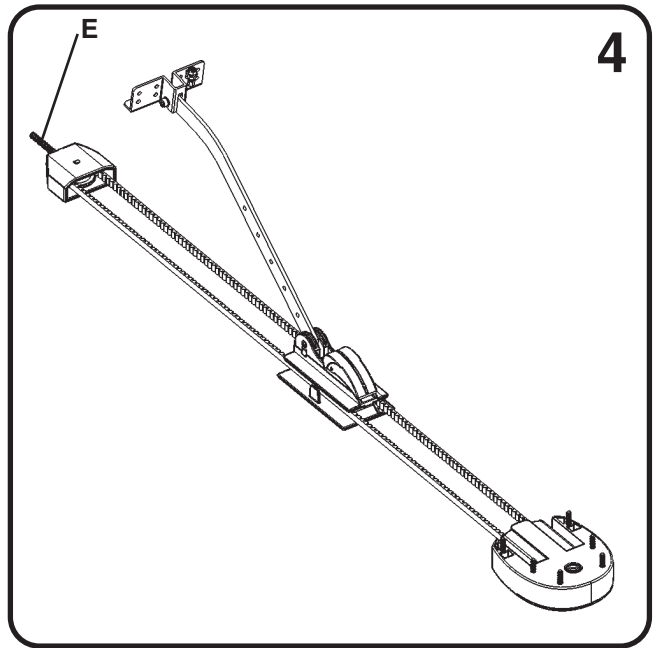
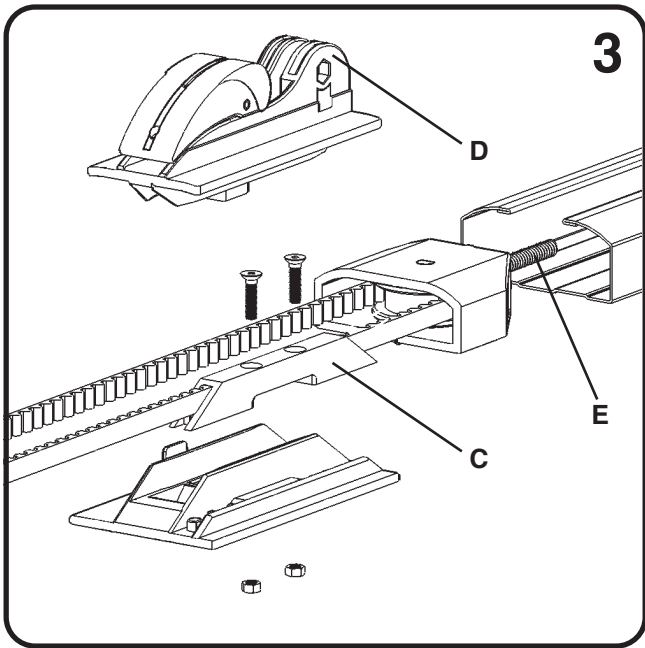
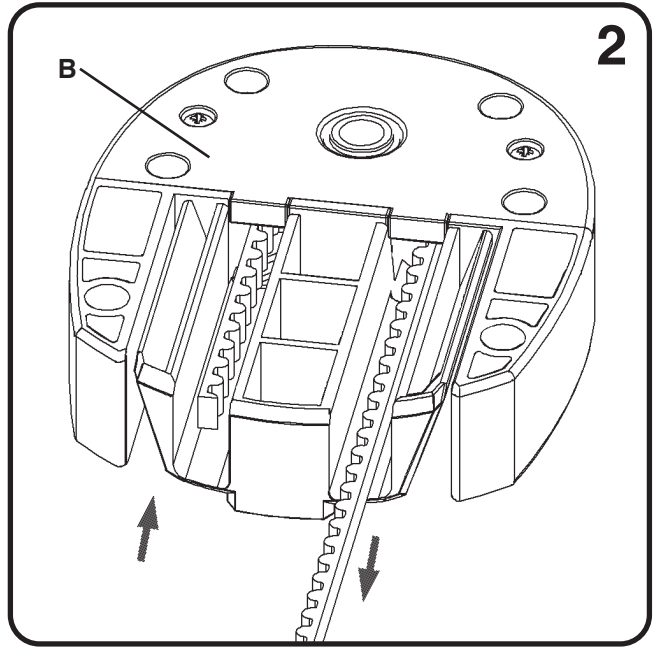
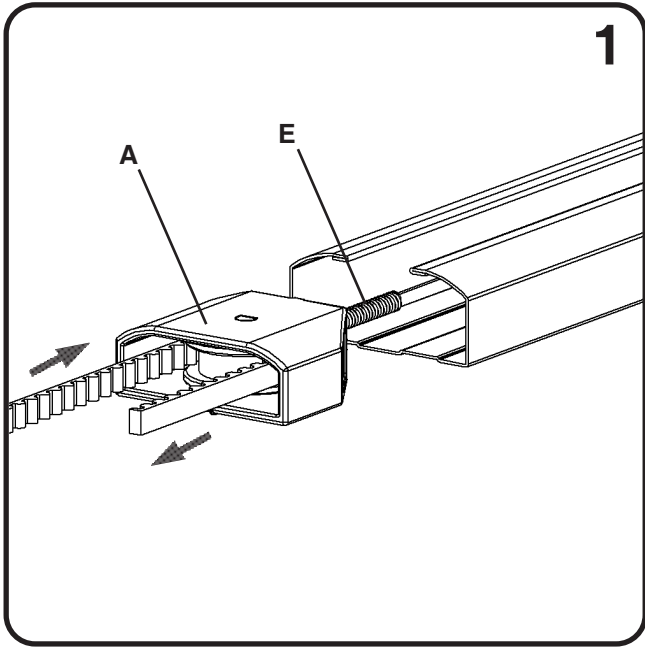


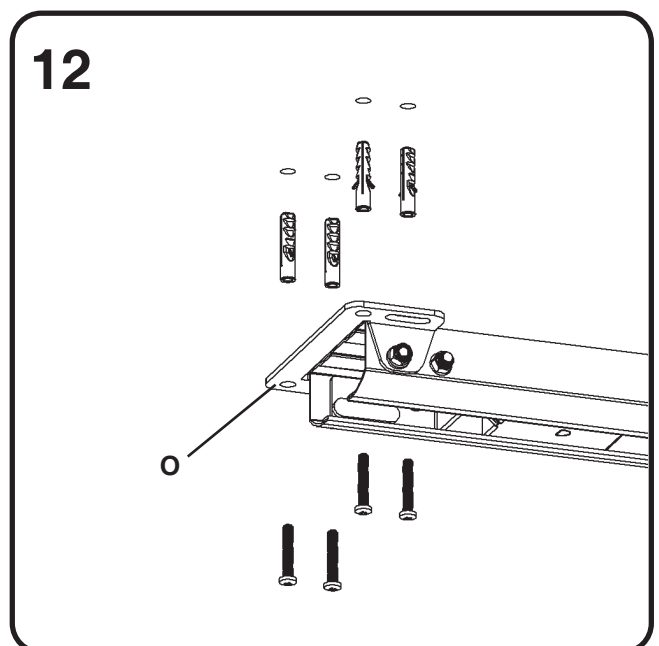
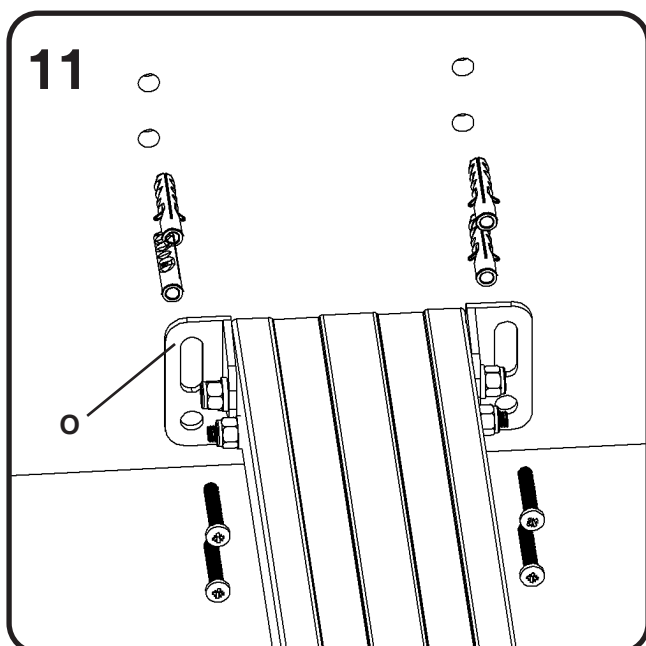
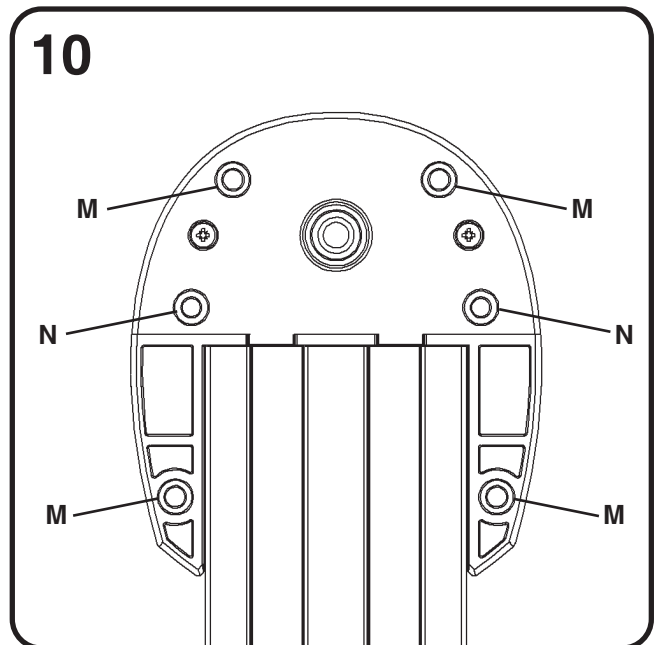
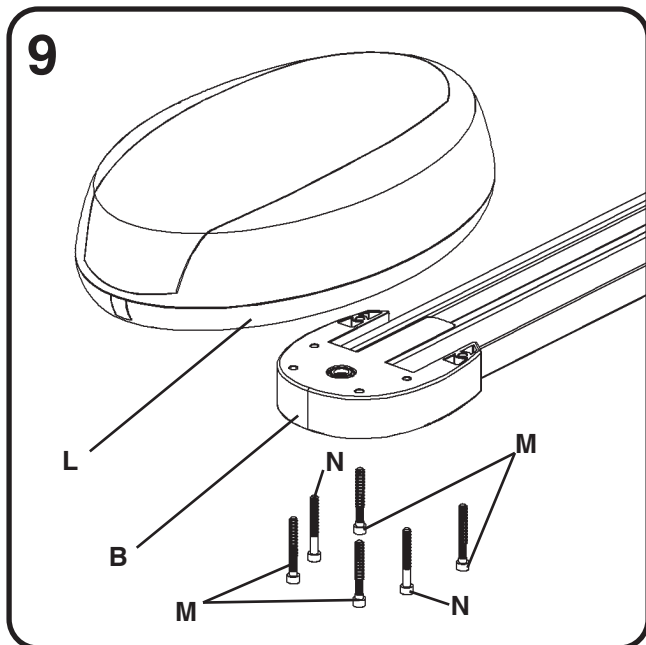
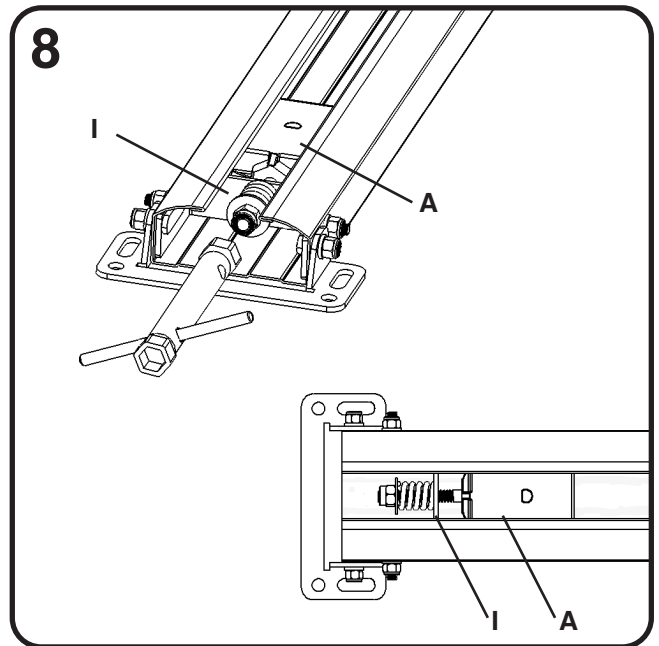
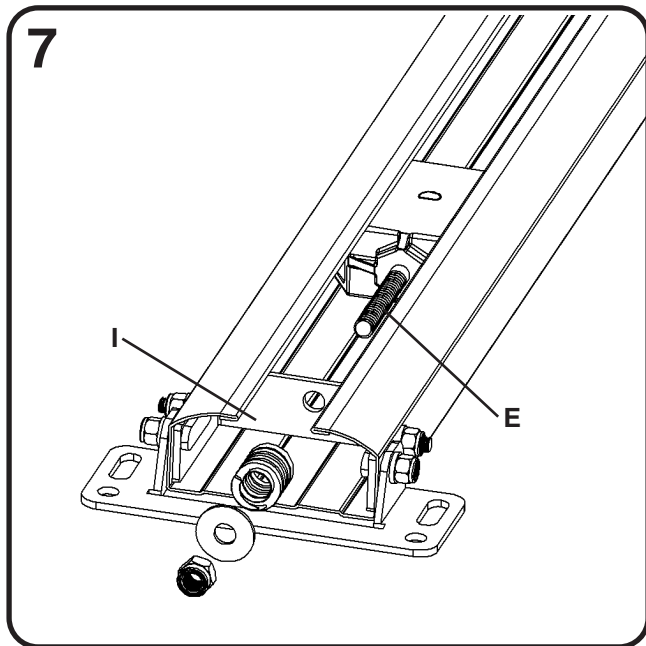
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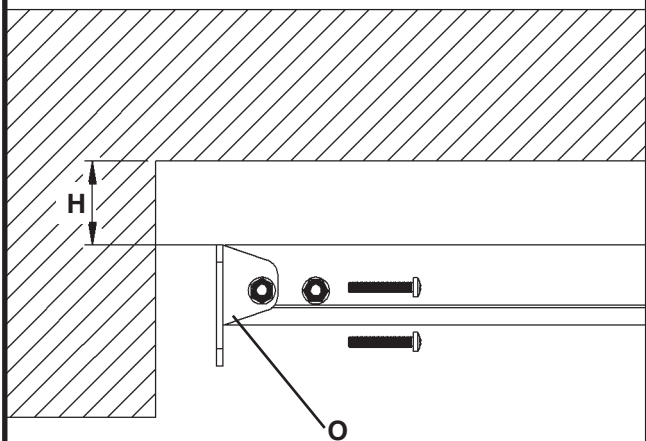
- I** MANUALE ISTRUZIONI (pagina 05)
- GB** INSTRUCTION MANUAL (page 17)
- F** MANUEL D'INSTRUCTIONS (page 29)
- D** ANLEITUNGS HEFT (seite 41)
- E** MANUAL DE INSTRUCCIONES (página 53)

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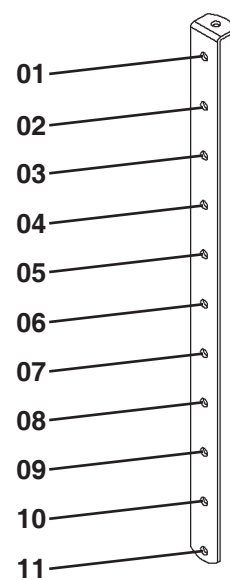




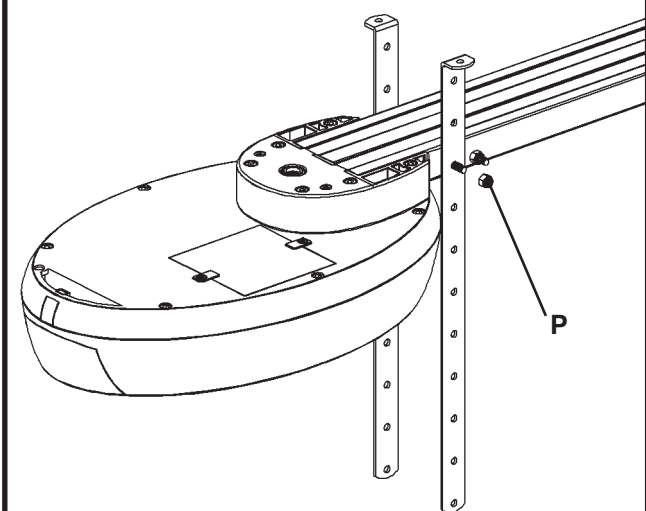
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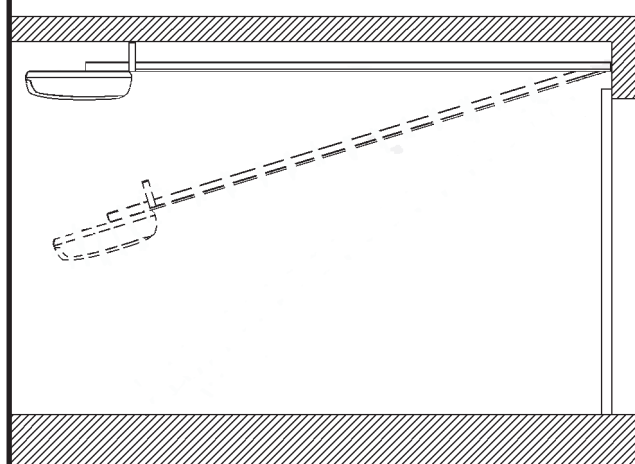
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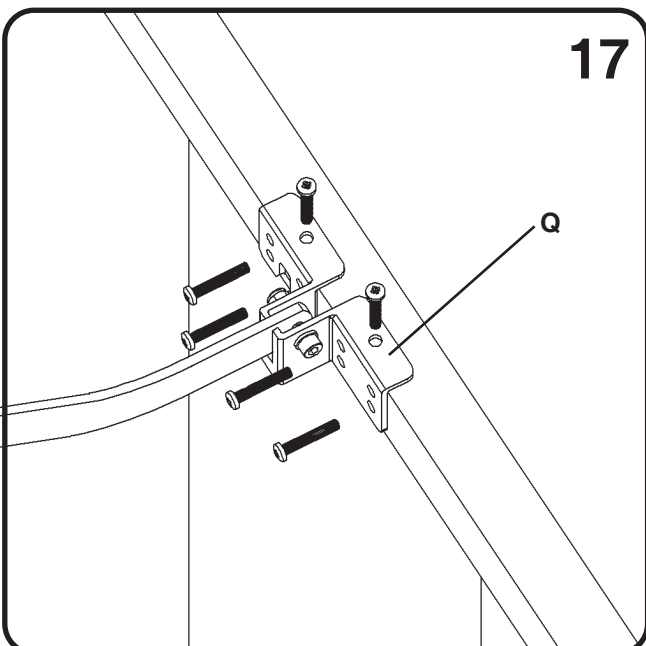
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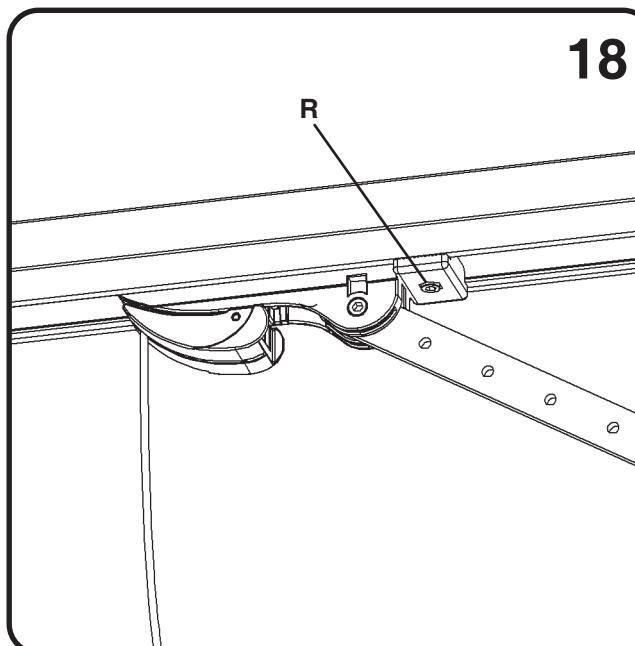
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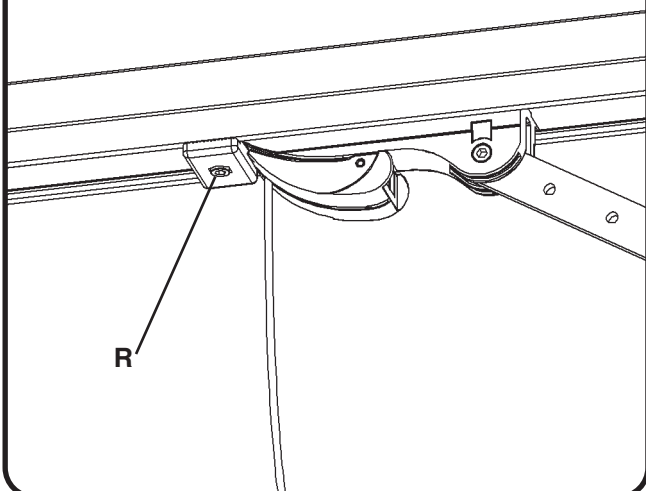
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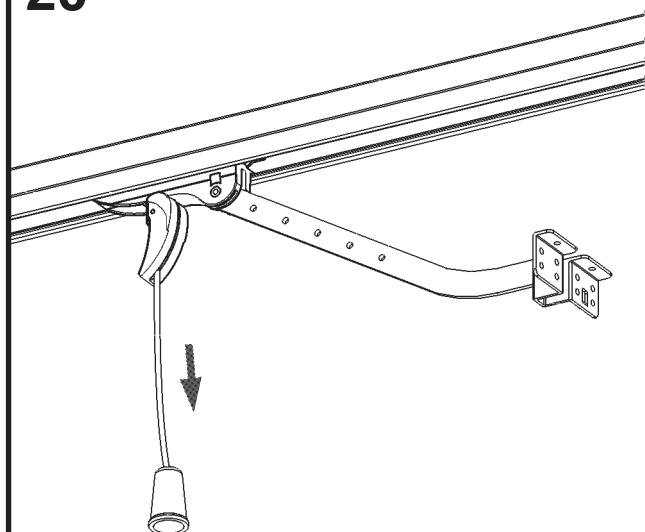
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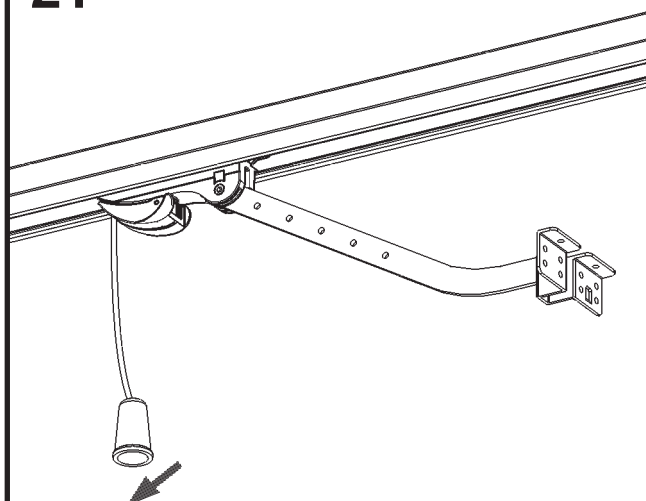
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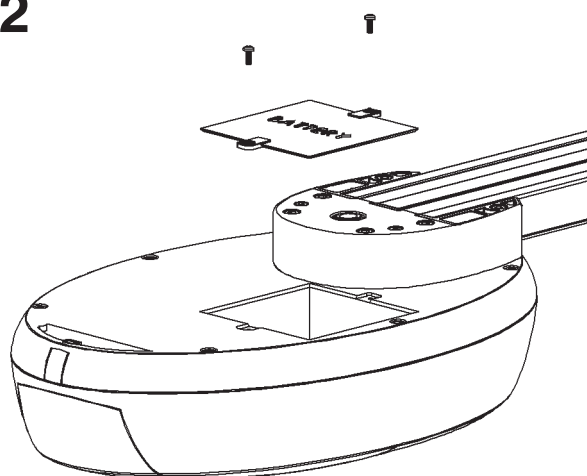
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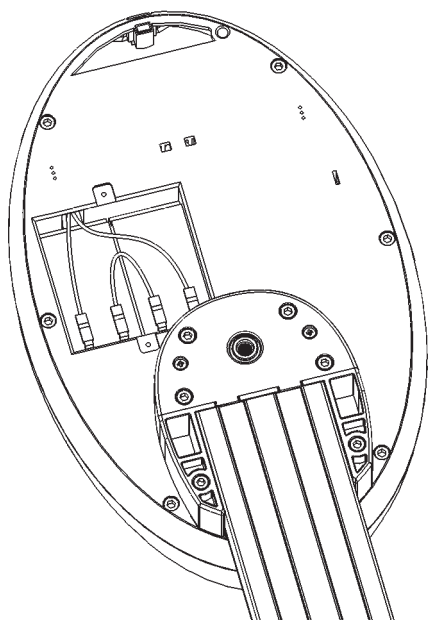
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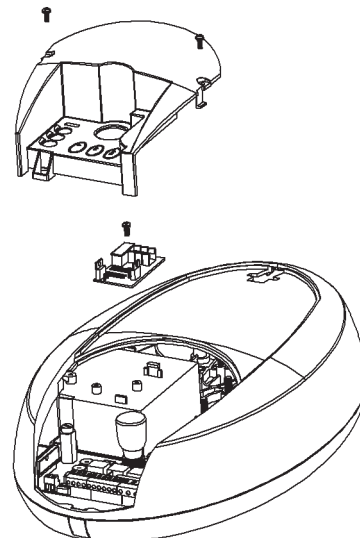
22



23



24



WARNINGS

Before installing the product ascertain that safety conditions are observed according to the law, rules and regulation. Use personal safety devices and locate warning signs on the motorized gate.

Unfulfilment of the below listed direction will release the King gates srl from any responsibility for damage caused to people or things.

- Ascertain the integrity of the packing when opening it.
- In case of anomalies in the functioning, turn immediatly off the gear-motor, disconnect electrical power and operate the gate manually the problem has been found and salved.
- Do not modify the product in any part.
- Only authorized and qualified staff is alloned to disassemble the product.
- Prevent any part of the automation from being next to any source of heat or in contact with liquid substances.
- Use only adequate power supply cables.
- To optimize the functioning of the automation, King gates accessories only.
- Disposal of waste material has to observe local regulations.
- Installing, testing and first functioning have to observe the laws in force.

MAIN FEATURES

TECHNICAL SPECIFICATIONS AUTOMATION

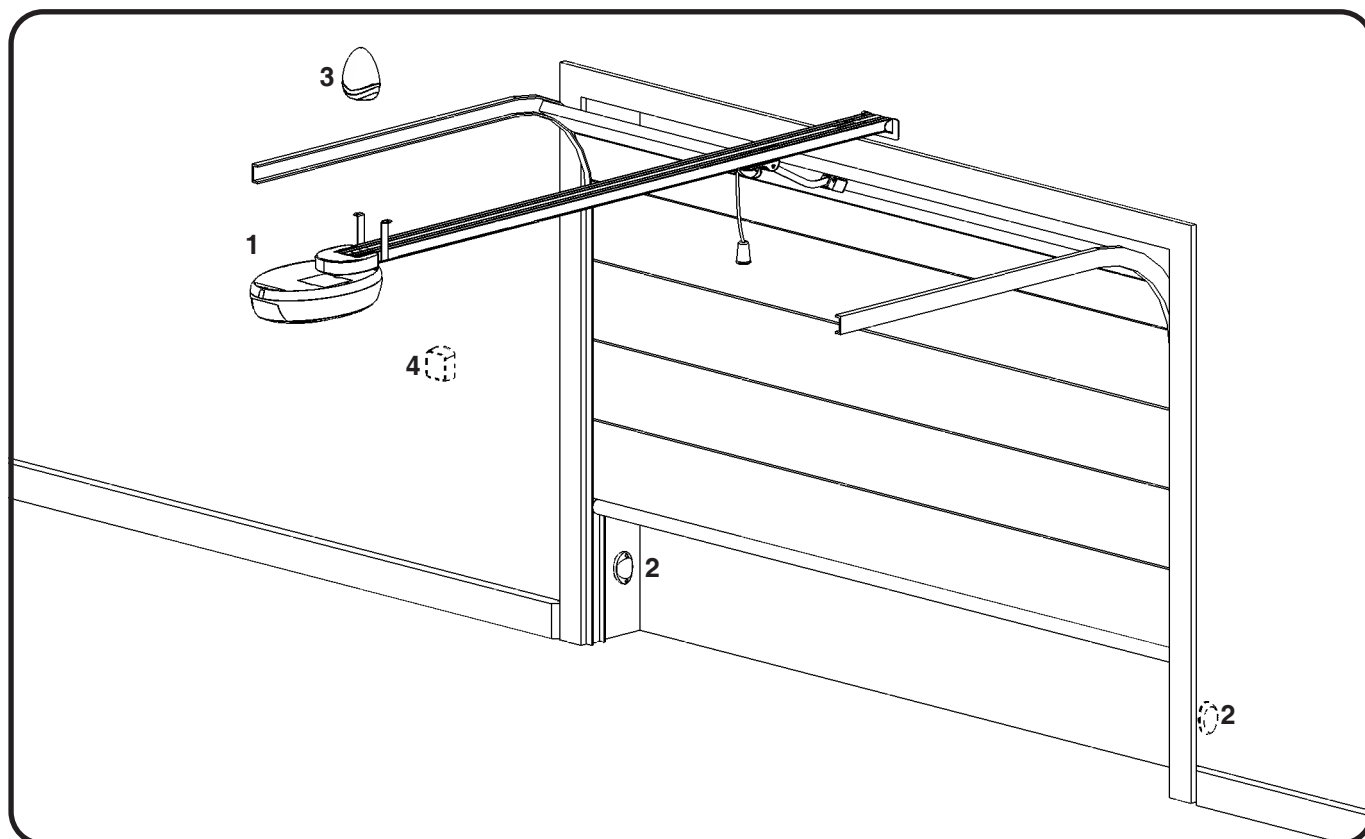
		Rolls 700	Rolls 1200
Power supply	(Vac 50Hz)	230	230
Motor power supply	(Vdc)	24	24
Max thrust	(N)	700	1200
Electrical input	(A)	0.8	1.3
Working temperature	(°C)	-20 ÷ +55	-20 ÷ +55
Max dimensions sectional doors	(m ²)	10	17
Max dimensions overhead doors	(m ²)	10	14
Transmission gear		M8, Z18	M8, Z18
Speed	(cm/sec.)	9 - 16	9 - 16
Frequency of use	(%)	60	60
Motorgear dimensions	(mm)	414x264x110	414x264x110
Slide thickness	(mm)	37	37
Limit switch		Encoder with mechanical stop	Encoder with mechanical stop

TECHNICAL SPECIFICATIONS STAR GDO100

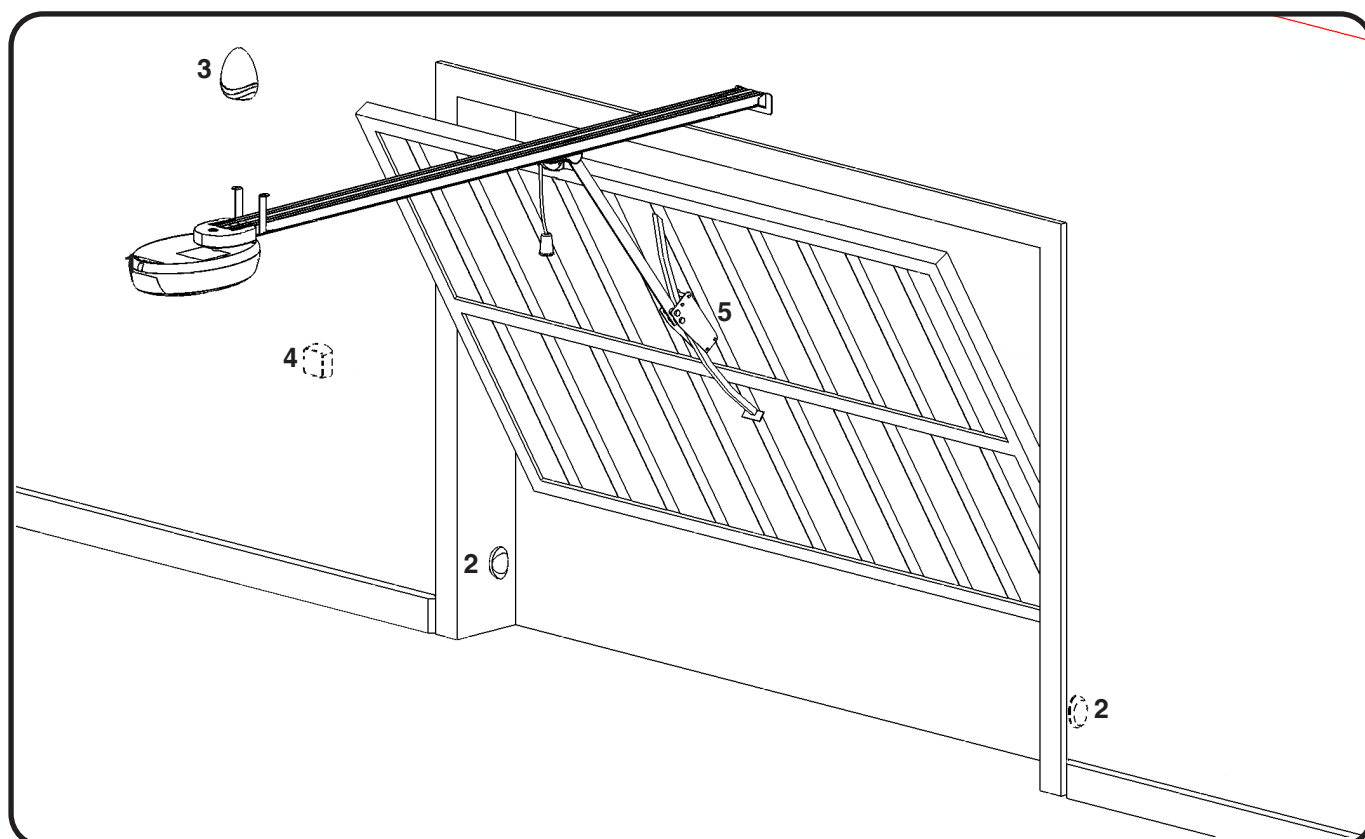
		Star GDO 100
Transformer power supply	(Vac)	230
Control unit power	(Vac)	230
Motor output	(Vdc)	24 (max 100Watt)
Max current peak from the motor	(A)	8
Accessories power	(Vdc)	24 (400mA)
Environmental operating temperature	(°C)	-20 ÷ +55
Courtesy light	(Vac)	230 (max 40W)
Courtesy light operation		Activated by remote control
Receiver		433 MHz incorporated with 180 storable codes
Flash light	(Vdc)	24 (max 15W)

TYPICAL SYSTEM

GB



- 1 Gear-motor
- 2 Photocell
- 3 Flashing-light
- 4 Key selector
- 5 Adaptor arm



INSTALLATION

ASSEMBLING THE “BELT UNIT”

To assemble “belt unit”, proceed as follows:

- Slide one end of the belt into the transfer pulley (A) and the other end into the motor support (B) following the orientation shown in **figures 1 and 2**
- Then join the two ends with the plastic joint (C). Fix to the top drive carriage (D) as in **fig.03**.
- Extend the belt and check that the unit is in line, with the teeth facing inwards (**fig.04**).

ASSEMBLING THE GUIDE “GRB23” (1.5mt X 2) OR “GRB4” (3mt + 1)

To assemble the guide “GRB23” or the guide “GRB4”, proceed as follows:

- Extend the belt and check that the unit is in line, with the teeth facing inwards (**fig.04**).
- Insert the “belt unit” into the guide without the brackets from the screw (E) end until the motor support is restrained (**fig.05**).
- Prepare the two profiles (F) and the joint (G) supplied (**fig.06**).
- Join the two guides and the joint firmly together with the fastenings supplied (H) (**fig. 06**).
- Insert the screw M8x70 (E) into the bracket (I). Insert, in order, the washer, the spring, the washer and the self-locking M8 nut (**fig.07**).
- Tension the belt (**fig.08**).

ASSEMBLING THE GUIDE “GRB3” (3mt)

Guide “GRB3” is supplied already assembled, the only operation still required is to tension the belt until the distances between the pulley support (A) and bracket (I) is 18 -20 mm (**fig.08**).

FIXING THE GEAR MOTOR TO THE GUIDE

- Mate the motor casing (L) to the support (B) (**fig.09**).
- Definitively fix the gear motor to the guide using the four 6.3 mm x 50 self-threading screws (M) and the two M6 x 50 metric screws (N) as in **figures 9 and 10**.

ⓘ Please take care to insert the self-threading screws “M” and the metric screws “N” in the appropriate holes as shown in figure 10.

WALL MOUNTING THE GUIDE

Considering the installation limits pointed out on the previous page, fix it above the door, centrally to the door and with the bracket “O” perfectly level (**fig.11**).

Where the installation site allows, the possibility exists to fix the guide directly onto the ceiling, turning the bracket (O) 90° (**fig.12**).

To facilitate and optimise the installation, some "guideline" dimensions are given that allow the profile to be fixed perfectly level (**fig.13 - fig.14**).

Ceiling height (H) (fig.13)	Bracket hole (fig.14)	Ceiling height (H) (fig.13)	Bracket hole (fig.14)
0mm	01	240mm	07
40mm	02	280mm	08
80mm	03	320mm	09
120mm	04	360mm	10
160mm	05	400mm	11
200mm	06		

CEILING MOUNTING THE GUIDE

Unscrew the M6 nut (P) and anchor the fastening brackets to the ceiling above the guide verifying they are perpendicular to the profile (**fig.15**). For the choice of the holes, see the previous paragraph (**fig.13-14**).

Cut the brackets in the part extending under the profile.

Lift away the guide, mark the bracket anchoring points on the ceiling, put the guide back and drill the ceiling (**fig.16**).

Definitively fix the guide and verify it is level.

FIXING THE DOOR TO THE BRACKET

Set the automation to manual operation (**fig.20**), and then drag the carriage to the door. Fix the bracket (**Q**) to the door making sure the two surfaces mate perfectly (**fig.17**).

ⓘ Please verify it is firmly fastened, opening and closing the door manually.

ADJUSTING THE END OF STROKE

With the automation set on manual operation, fully close the door, loosen the catch screw (**R**) and join the catch itself to the drive carriage. Then tighten the screw (**R**) firmly (**fig.18**).

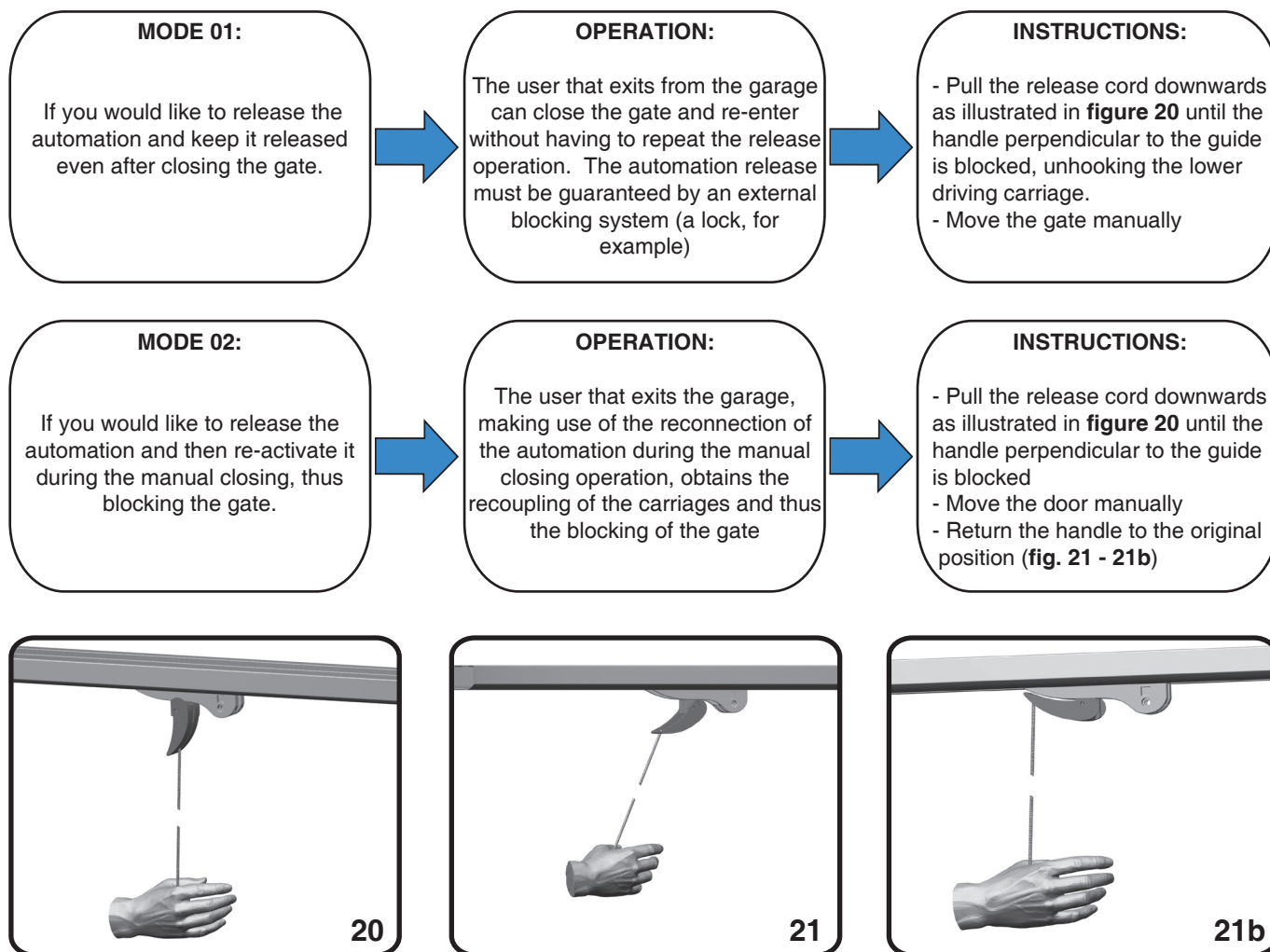
Repeat the operation with the door fully open (**fig.19**).

MANUAL MANOEUVRE

The release manoeuvre has been provided for manual opening of the door in case of a power cut or motor breakdown. In order to enable all types of use (for example the presence of an electric or outside lock) the handle has been designed to lock itself perpendicularly to the carriage, allowing the user to completely do away with door automation.

The gear motor can also be released from the outside installing the optional accessory "SBL001".

The two manual operating modes are:



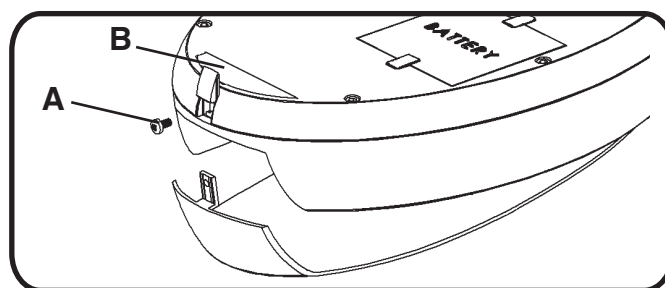
ⓘ During manual operation use only the door for opening and closing, thus avoiding strain on the carriage by pulling the release cord.

ELECTRICAL CONNECTIONS

To get the control unit, open the fascia lifting the cover and loosening the screw (A).

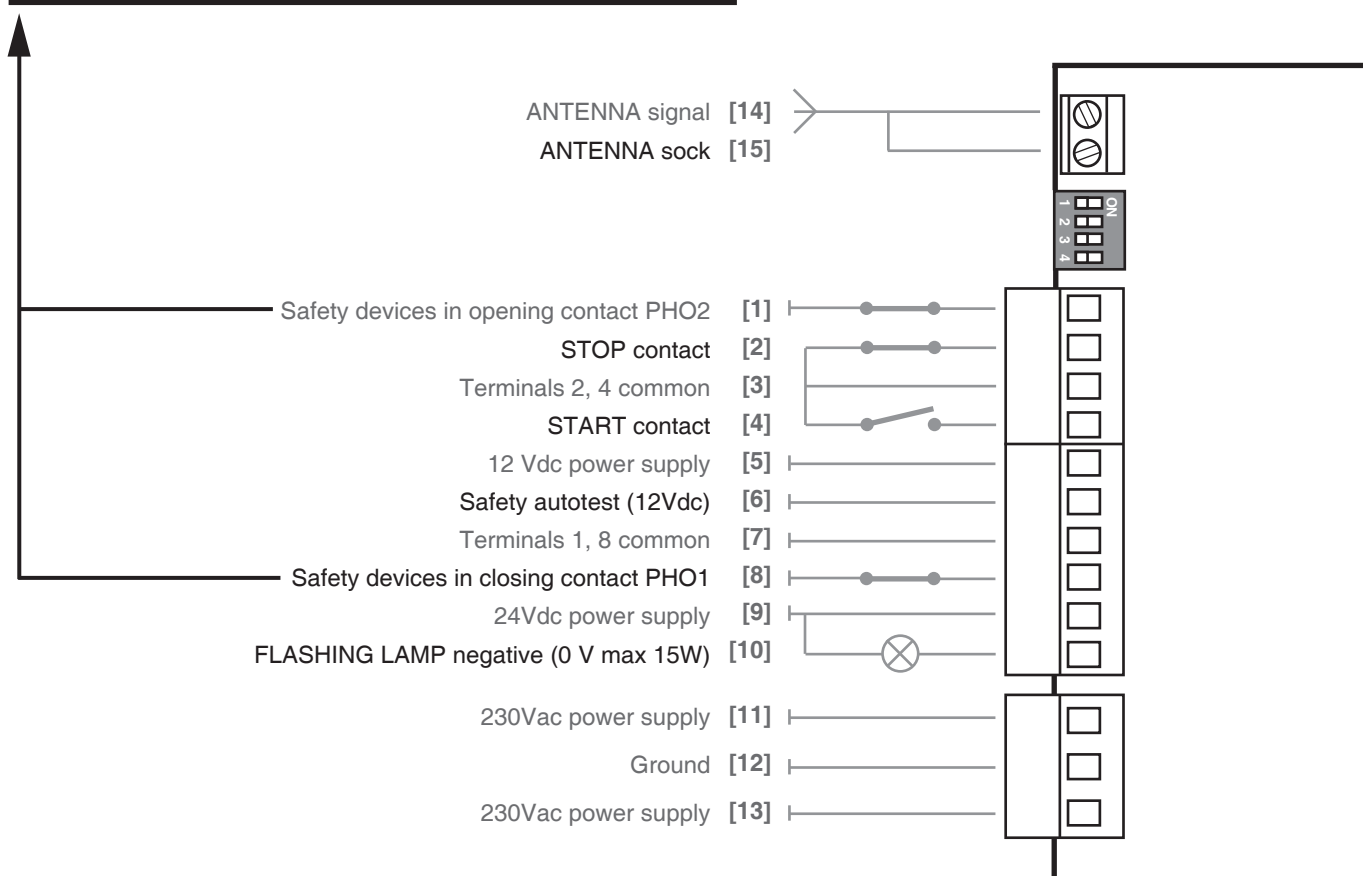
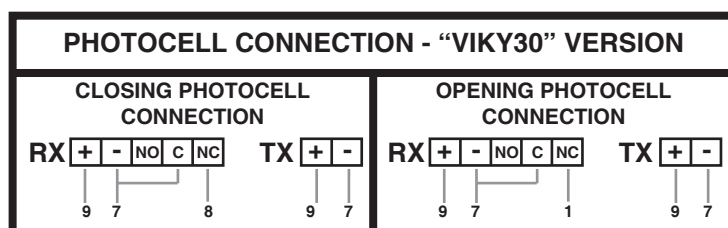
Pass the cables through **zone B**.

Carry out the cabling according to the diagram below.



⚠ The connections must be made exclusively by qualified personnel when the voltage is off.

CONNECTION DIAGRAM

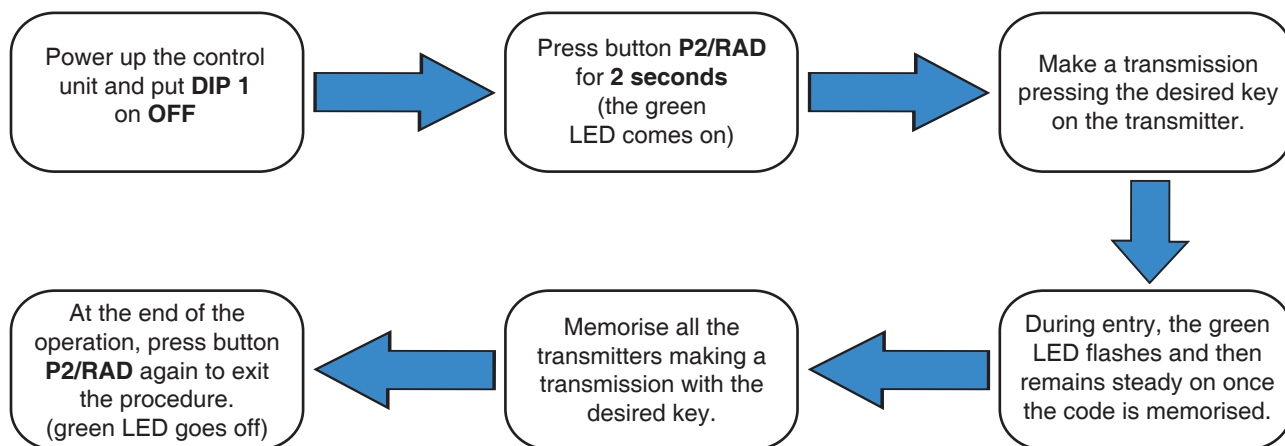


PROGRAMMING THE RADIO REMOTE CONTROLS

PROGRAMMING THE CHANNEL FOR ACTIVATING THE AUTOMATION

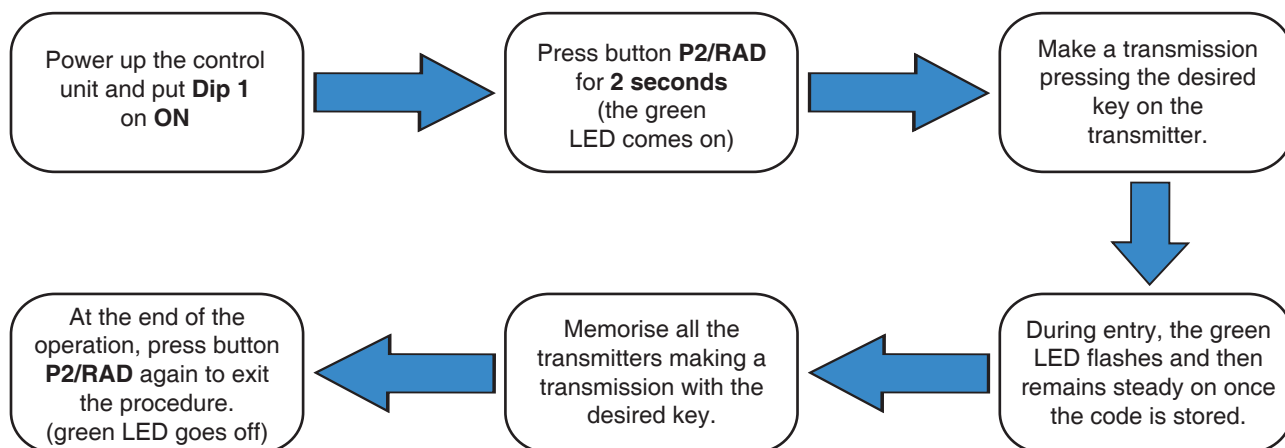
⚠ Check that the control units is not set to operate with the dead man's switch (DIPs 2 and 3 must not both be OFF).

GB



PROGRAMMING THE CHANNEL FOR ACTIVATING THE COURTESY LIGHT

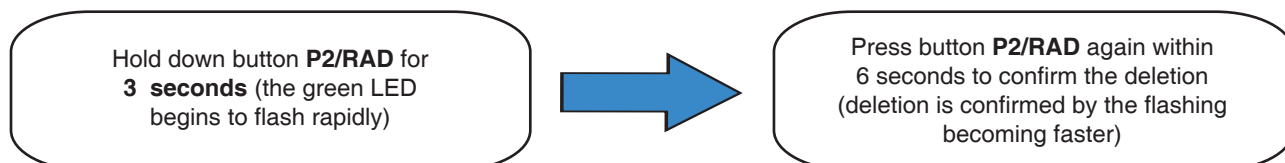
Using this procedure the installer can switch on the courtesy light independently with a radio remote control key (different from the one selected in the previous paragraph for opening and door).



⚠ The programming procedures are exited automatically in any case 10 seconds after the last transmission.

DELETING ALL THE CODES

Using this procedure the installer can delete all the previously programmed radio remote controls from the memory.



PROGRAM THE TRAVEL LIMITS

SIMPLIFIED LEARNING PROCEDURE

① For better adjustment of the obstruction control, it may be necessary (mainly with the trimmer "FOR" set at the maximum or with heavy doors), to intervene during the opening and closing phases (points 7 - 8 - 10) by pressing the activation key of the transmitter or the push button P1/SET on the control unit as soon as the driving carriage comes into contact with the mechanical stop.

1. Put the door in an intermediate position.

2. **RESET**: press and hold the programming button **P1/SET** for 2 sec.

3. Yellow led flashes

INITIAL SETTINGS OF DIP-SWITCHES

Dip	Status	Operation	ON
01	OFF	Safety test disabled	1 2 3 4
	ON	Safety test enabled	
02 - 03	OFF - OFF	Dead man's switch mode	
	OFF - ON	Automatic closing mode	
	ON - OFF	Step by step mode (Open - Stop - Close - Stop)	
	ON - ON	Step by step mode with automatic closing	
04	OFF	Flashing light fixed	
	ON	Flashing light flashing	

4. Within 5 seconds, press the programming button **P1/SET** for 1 sec.

5. Yellow LED stays on

6. The control unit briefly open

7. The door close until mechanical stop

8. The control unit briefly open

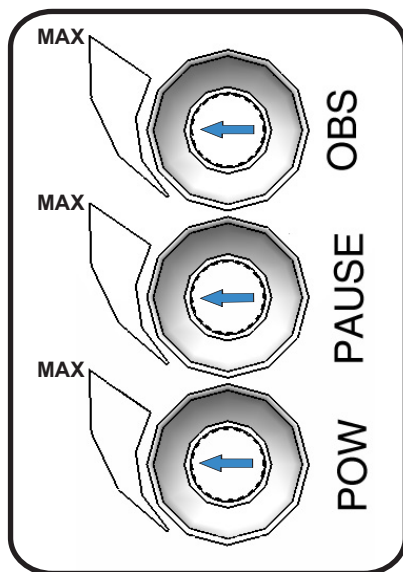
9. Pause for one second

10. The door close until mechanical stop
Yellow LED switches off

END of learning procedure

TRIMMER

A variation of the trimmer "FOR" (speed) requires the reset learning procedure to be repeated (point 2) since the manoeuvre times vary. Decelerations are automatically defined in the last 10% of the manoeuvre.



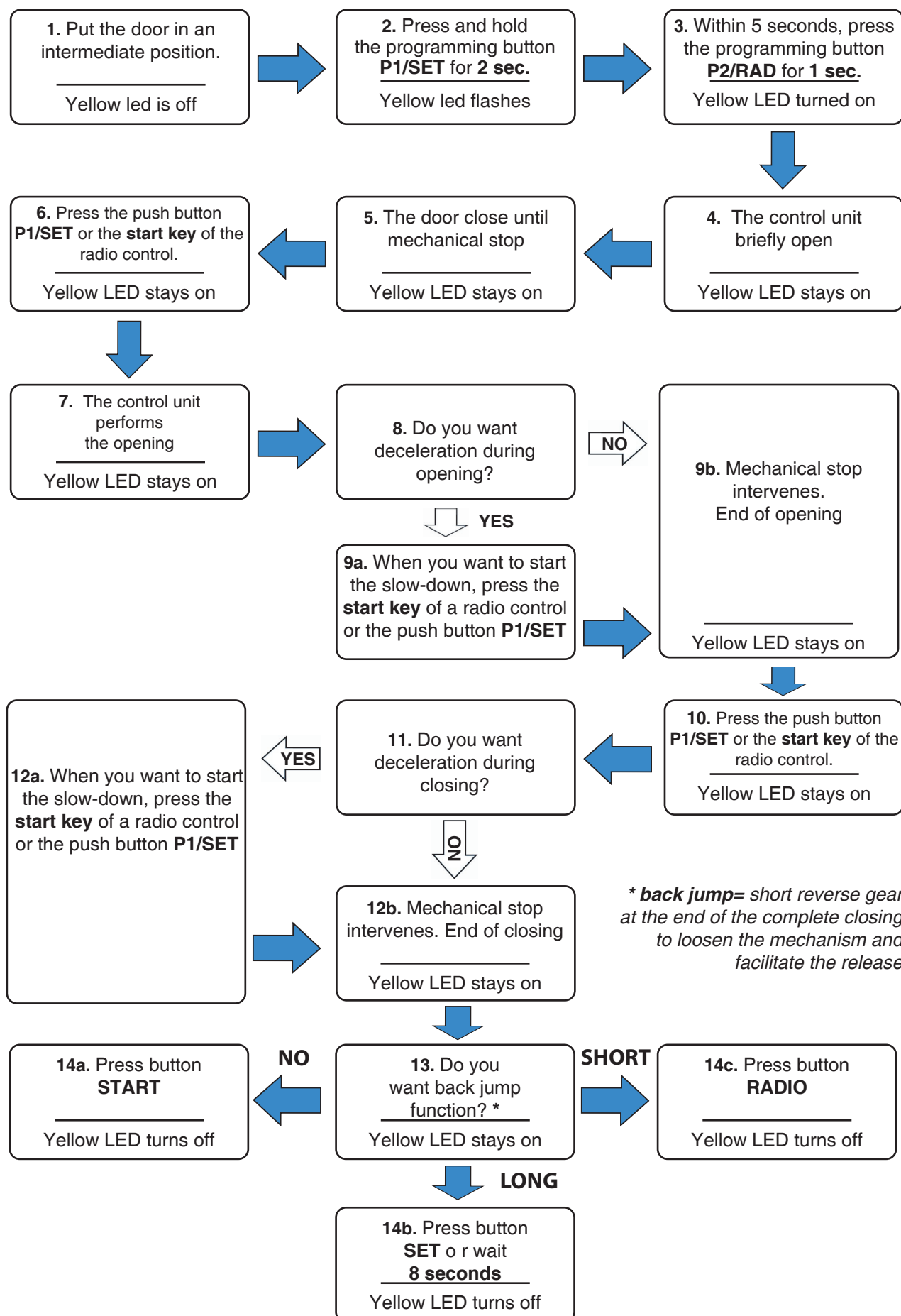
Obstacle sensitivity (OBS):
Regulation of the activation time from 0.1 to 3 seconds.

Pause time (PAU):
Regulation of the pause time from 0 to 60 seconds.

Power / Speed (POW):
Regulation from 50% to 100% of the power.

PROFESSIONAL LEARNING PROCEDURE

Using this procedure the installer can determine the instant in which deceleration begins and the back jump type.



OPERATION MODES

TIMED AUTOMATIC CLOSING MODE

Put **DIP 3** in the **ON** position and **DIP 2** in the **OFF** position.

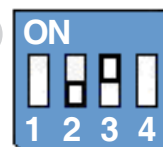
In this mode, if a command is given via radio or through the “STR” input, the control unit:

- gives a steady flash of one second.
- starts the motor at the speed set on the trimmer **FOR**.
- opening is halted by the limit switch triggering, an obstacle being detected or the manoeuvre timing out. If additional commands are given during opening, they have no effect.
- with the automation at a standstill or in automatic pause, when a command is given, the pause count restarts from zero each time.

When the pause times out, the door is closed and the control unit:

- gives a steady flash of one second.
- starts the motor for one second at a reduced speed (softstart) and then at the speed set on the trimmer **FOR**.
- if a command is given during closing, the control unit reopens the door fully.
- closing is halted by the limit switch triggering, an obstacle being detected or the manoeuvre timing out.

ⓘ **Keeping the opening contact closed (“STR” terminal) for example with a timed relay, the control unit opens the door and the automation remains disconnected and automatic closing is disabled until the contact is reopened (Company Function).**

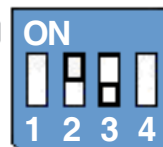


STEP BY STEP MODE WITHOUT AUTOMATIC CLOSING

Put **DIP 3** in the **OFF** position and **DIP 2** in the **ON** position.

The step by step command sequence is OPEN-STOP-CLOSE-STOP

The opening and closing manoeuvres take place as described in the previous paragraph.



STEP BY STEP MODE WITH AUTOMATIC CLOSING

Put **DIP 3** in the **ON** position and **DIP 2** in the **ON** position.

The step-step logic is OPEN/STOP/CLOSE/STOP.

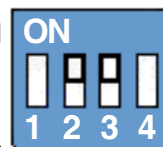
When the opening manoeuvre has been completed and the pause time set on the “PAU” trimmer has elapsed the effects automatic closing.

If, when the automation is closed, a radio command is given, either through the “STR” input command or the **STAR** pushbutton on the board, the control unit:

- commands a one second fixed pre-flash
- it activates the motor for 1,5 second at maximum power and then at the power set with the “**FOR**” trimmer.
- the opening terminates when the limit switch or the mechanical stop are triggered or the manoeuvre time has elapsed.

If the automation is completely open, once the pause time has elapsed the closing manoeuvre takes place. The control unit:

- carries out a fixed two seconds pre-flash.
- it activates the motor for 1,5 second at maximum power and then at the power set with the “**POWER**” trimmer.
- The opening terminates when the limit switch or the mechanical stop are triggered or the manoeuvre time has elapsed.



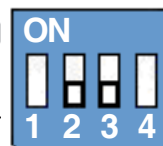
DEAD MAN'S SWITCH MODE

Put **DIP 3** in the **OFF** position and **DIP 2** in the **OFF** position.

Hold down the **STAR** button located on the electronic board, the control unit opens the door until the end of opening stroke is reached or the button is released.

Hold down the **P2/RAD** button located on the electronic board, the control unit closes the door until the end of closing stroke is reached or the button is released.

The radio command has no effect. When the control unit is in this mode it is not possible to enter the programming of the radio codes.



TRIMMER

Trimmer “FOR” - Motor speed

Use the “FOR” trimmer to adjust the voltage with which the motor is powered during operation, thus adjusting its speed. This is settable between 50% and 100% of the maximum force and can be increased by turning the trimmer clockwise. Thus if the trimmer is set on the minimum then the speed is equal to about 50%, if adjusted in an intermediate position it is equal to 75%, while at the maximum the speed will be the largest obtainable.

ⓘ A variation of the “FOR” trimmer requires the repetition of the learning procedure since the operation times, and thus the moments in which to start the slow-down, vary.

Trimmer “PAU” - Pause time

The “PAU” trimmer is used to set the pause time of the control unit if the automatic closing is enabled by means of **DIP 3**. The pause time is settable between 3 and 60 seconds and can be increased by turning the trimmer clockwise. Thus if the trimmer is set at the minimum then the pause time is equal to about 3 seconds, if adjusted to an intermediate position it is equal to about 28 seconds, while at the maximum the pause time will be about 60 seconds.

Trimmer “OBS” - Obstacle sensitivity

The “OBS” trimmer is used to adjust both the intervention delay after detection of an obstruction and the opposing force to be used by the automation. This function is useful to overcome any critical points of the automation where, for a brief time interval, there is greater power absorption by the motor.

Both the intervention delay and the opposing force can be increased by turning the trimmer clockwise. The intervention delay can be set between 0.1 and 3 seconds.

Thus if the trimmer is set at the minimum then the intervention time is equal to about 0.1 seconds, if adjusted to an intermediate position it is equal to about 1.5 seconds, while at the maximum the intervention time will be about 3 seconds.

OPERATION OF THE SAFETY DEVICES

PHOTOCELL (PHO input)

When triggered, the photocell provokes:

- in closing phase, an inversion of the motion, either immediate or when cleared, according to the programming,
- in opening phase it has no effect,
- when the access is closed it has no effect on the opening commands if set for immediate inversion, otherwise it delays the opening until it is cleared,
- if the access is open it inhibits the closing commands.

SAFETY IN OPENING (SFT/PED input)

Safety devices can be connected (self-testing or not) to the “SFT” input on the control unit (e.g. fixed wire ribs, pneumatically-operated ribs, etc.).

The safety acts as follows:

- in closing phase it has no effect
- in opening phase it provokes an inversion of direction for 2 seconds,
- when the gate is closed the opening commands are inhibited,
- when the gate is open the closing commands are inhibited

SAFETIES SELF-TEST

The control unit has a self-test function of the safeties connected to the “PHO” and “SFT” input.

It switches off the transmitter to check the commutation of the corresponding receiver contact before the execution of each manoeuvre. In this case, the “gate open warning light” is not available.

To activate this self-test function proceed as follows:

- switch **DIP1** to **ON**
 - connect the positive of the photocell transmitter power to the terminal “+TX”
- If the enabling of the safety self-test is not required switch **DIP1** to **OFF**.

FLASHING LIGHT

The control unit has two output terminals (LAMP) to command a low voltage flashing light (**24Vdc**). The light start flashing 1 second before each manoeuvre.

If the **DIP 4** in the **OFF** position the power supply to the flashing light is continuous. Therefore the terminals must be connected to a flashing light with a built-in oscillating circuit..

If the **DIP 4** is in the **ON** position the power supply is intermittent and therefore a normal lamp without oscillating circuit can be connected (230VAC).

❗ **The power rating of the lamp must not be greater than 15W.**

SLOW-DOWN

The slow-down function allows the gate to apply a reduced force before reaching the limit stop. The speed is reduced to about one third of the normal working speed

The “slow” dip activates the slow-down system enable.

With the simplified self learning procedure the starting point of slow-down are fixed at 90%.

With the professional learning procedure the fitter can choose the opening and closing point of slow-down.

COURTESY LIGHT

The control unit controls the courtesy light located inside the gear motor. Contact for turning on the light is provided before each manoeuvre and remains active for about two minutes from the opening.

To turn on the light independently, with a radio channel other than the one for opening the door, see page 22.

BACK-UP BATTERIES

The control unit is equipped with a Molex connector for connecting a battery charger; this requires two 12V batteries connected in series (or one 24V battery). **Cod. BAT 12 K. (fig. 22-23-24)**

STOP INPUT

The activation of the logical stop input stops all the function.

To resume the cycle the stop must be deactivated and another command given.

SIGNALLING LED

Yellow led SET (L1):

- flashes for 5 seconds when turned on to indicate that it is possible to enter the professional or simplified learning modes.
- lights up with a fixed light while professional or simplified learning are carried out.
- is turned off when the control unit function normally.

Green led RAD (L2):

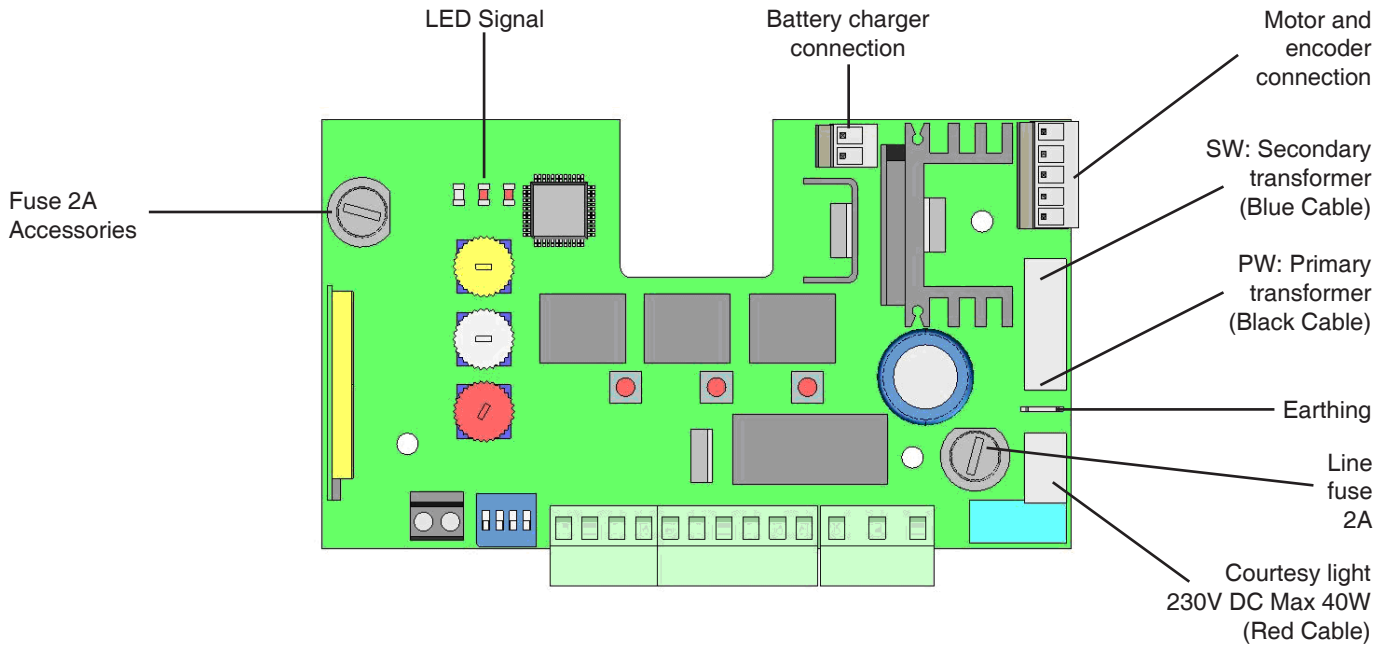
- flashes briefly when a 433 MHz Multipass radio code is received.
- is alight (fixed light) when radio codes are being memorised.
- flashes rapidly when the control unit is switched on and the radio code memory is defective.
- flashes rapidly during the cancellation of radio codes.
- flashes more quickly in case of attempt to insert codes with the memory full.
- is switched off when the control unit is functioning normally and waiting to receive a command via radio.

Red led ST (L3):

- on when the gate is closed .
- flashes quickly when the control unit is in block (safety tests failed, for example).
- flashes when the automation is open or during opening or closing.

MAINTENANCE

The system does not require any specific maintenance. However, what is required is a periodic inspection of the state of the fastenings, wear on the moving parts (pulleys, carriages...) and the belt tension.





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