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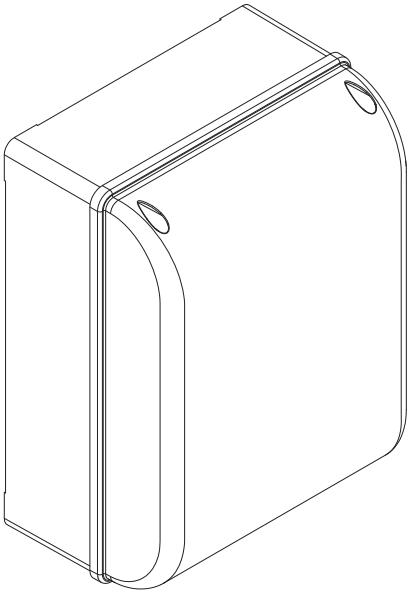
FA02007-EN

CONTROL PANEL
FOR 24 V GEARMOTORS



ZL60

INSTALLATION MANUAL

EN English

⚠ IMPORTANT SAFETY INSTRUCTIONS.

⚠ Please follow all of these instructions. Improper installation may cause serious bodily harm.
⚠ Before continuing, please also read the general precautions for users.

- Only use this product for its intended purpose. Any other use is hazardous.
- The manufacturer cannot be held liable for any damage caused by improper, unreasonable or erroneous use.
- This product has been designed to be assembled to partly completed machinery and/or equipment so as to build machinery as regulated by the Machinery Directive 2006/42/EC.
- The final installation must comply with the Machinery Directive (2006/42/EC) and the European reference standards in force.
- The manufacturer declines any liability for using non-original products, which would also void the warranty.
- All operations indicated in this manual must be carried out exclusively by skilled and qualified personnel and in full compliance with the regulations in force.
- The device must be installed, wired, connected and tested according to good professional practice, in compliance with the standards and laws in force.
- Make sure the mains power supply is disconnected during all installation procedures.
- All the components (e.g. actuators, photocells and sensitive edges) needed for the final installation to comply with the Machinery Directive (2006/42/EC) and with the reference harmonised technical standards are specified in the general CAME product catalogue or on the website www.came.com.
- Check that the temperature ranges given are suitable for the installation site.
- Make sure that no direct jets of water can wet the product at the installation site (sprinklers, water cleaners, etc.).
- Make sure you have set up a suitable dual-pole cut-off device along the power supply that is compliant with the installation rules. It should completely cut off the power supply according to category III surcharge conditions.
- Demarcate the entire site properly to prevent unauthorised personnel from entering, especially minors.
- Use suitable protection to prevent any mechanical hazards due to persons loitering within the operating range of the operator.
- The electrical cables must pass through special pipes, ducts and cable glands in order to guarantee adequate protection against mechanical damage.
- The electrical cables must not touch any parts that may overheat during use (such as the motor and transformer).
- Before installation, check that the guided part is in good mechanical condition, and that it opens and closes correctly.
- The product cannot be used to automate any guided part that includes a pedestrian gate, unless it can only be enabled when the pedestrian gate is secured.
- Make sure that nobody can become trapped between the guided and fixed parts, when the guided part is set in motion. If you are automating a pedestrian gate that moves horizontally, this can be achieved if the corresponding distance is less than 8 mm. However, the distances indicated below are sufficient to avoid trapping the corresponding body parts: - fingers, more

than 25 mm; - feet, more than 50 mm; - head, more than 300 mm; - for the entire body, more than 500 mm. If you cannot achieve these distances, you will need to take suitable safety precautions.

• All fixed controls must be clearly visible after installation, in position that the guided part is directly visible, but far away from moving parts. In the case of a maintained action command, this must be installed at a minimum height of 1.5 m from the ground and must not be accessible to the public.

• Where operated with a hold-to-run control, install a STOP button to disconnect the main power supply to the operator, to block movement of the guided part.

• If not already present, apply a permanent tag that describes how to use the manual release mechanism close to it.

• Make sure that the operator has been properly adjusted and that the safety and protection devices and the manual release are working properly.

• Before handing over to the final user, check that the system complies with the harmonised standards and the essential requirements of the Machinery Directive (2006/42/EC).

• Any residual risks must be indicated clearly with proper signage affixed in visible areas, and explained to end users.

• Put the machine's ID plate in a visible place when the installation is complete.

• If the power supply cable is damaged, it must be immediately replaced by the manufacturer or by an authorised technical support service, or in any case, by qualified staff, to prevent any risk.

• Keep this manual inside the technical folder along with the manuals of all the other devices used for your automation system.

• Make sure to hand over to the end user all the operating manuals of the products that make up the final machinery.

• The product, in its original packaging supplied by the manufacturer, must only be transported in a closed environment (railway carriage, containers, closed vehicles).

• If the product malfunctions, stop using it and contact customer services at https://www.came.com/global/en/contact-us or via the telephone number on the website.

• The manufacture date is provided in the production batch printed on the product label. If necessary, contact us at https://www.came.com/global/en/contact-us.

• The general conditions of sale are given in the official CAME price lists.

KEY

🕮 This symbol shows which parts to read carefully.

⚠ This symbol shows which parts describe safety issues.

☞ This symbol shows which parts to tell users about.

The measurements, unless otherwise stated, are in millimeters.

DESCRIPTION

ZL60 – Control panel for one or two-leaf swing gates, with DIP switch settings, on-board radio decoding and safety device self-diagnostics.

Intended use

For private homes and apartment buildings.

🕮 Any installation and/or use other than that specified in this manual is forbidden.

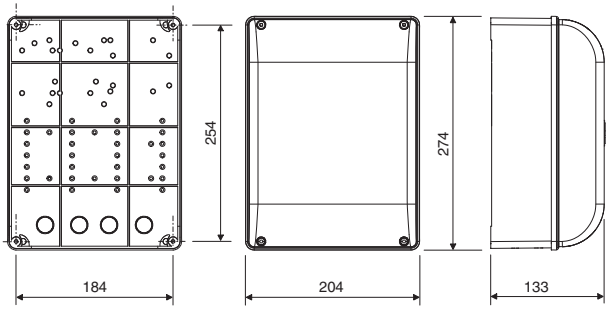
Technical data

Type	ZL60
Protection rating (IP)	54 series
Power supply (V - 50/60 Hz)	230 AC
Motor power supply (V)	24 DC
Stand-by consumption (W)	7 series
Stand-by consumption with the RGP1 (W) module	1.15 series
Maximum power (W)	300 series
Casing material	ABS
Operating temperature (°C)	-20 to +55
Storage temperature (°C)*	-25 to +70
Average life (cycles)**	100,000
Apparatus class	I
Weight (kg)	3.6 series

(*) Before installing the product, keep it at room temperature where it has previously been stored or transported at a very high or very low temperature.

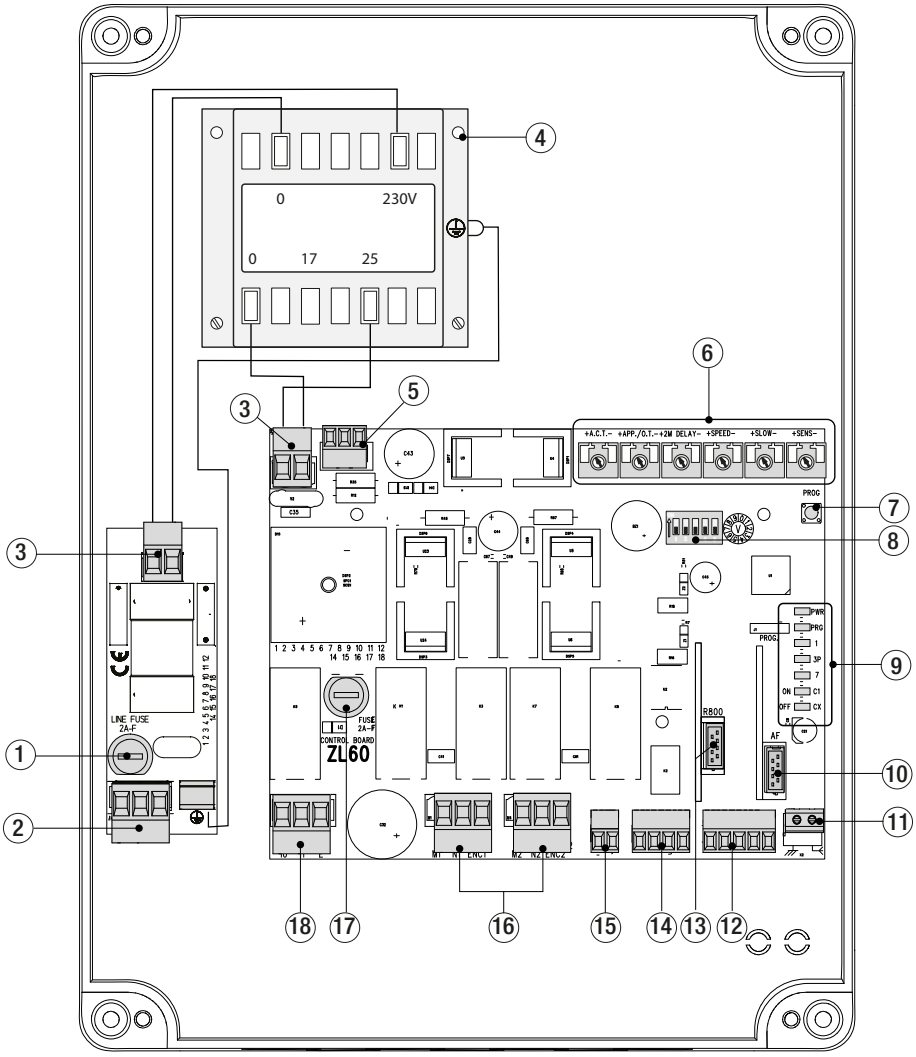
(**) The average product life is a purely indicative estimate. It applies to compliant usage, installation and maintenance conditions. It is also influenced by other factors, such as climatic and environmental conditions.

Dimensions



Description of parts

1. Line fuse
2. Power supply terminals
3. Transformer terminal
4. Transformer
5. RGP1 module terminal
6. Trimmer
7. Programming button
8. DIP-SWITCH
9. Alert LED
10. AF card connector
11. Antenna terminals
12. Safety-device terminals
13. R800 card connector
14. Control-device terminals
15. Keypad selector terminal
16. Gearmotors terminals with encoder
17. Accessories/card fuse
18. Power supply to accessories terminal



GENERAL INSTRUCTIONS FOR INSTALLING

⚠ Only skilled, qualified staff must install this product in full compliance with the law in force.
⚠ Caution! Before working on the control panel, cut off the mains power supply and remove any batteries.

The control panel is set up for:
- connecting the RGP1 module for reducing energy consumption;
- connecting the RLB card for emergency operation and battery-recharging;

All connections and links are rapid-fuse protected.

Fuses	
HD Analog	2 A-F = 230 V
Accessories / board	2 A-F

Cable types and minimum thicknesses

Connection	cable length	
	< 20 m	20 < 30 m
Input voltage for 230 V AC control board (1P+N+PE)	3G x 1.5 mm^2	3G x 2.5 mm^2
Signalling devices	2 x 0.5 mm^2	
Command and control devices	2 x 0.5 mm^2	
Safety devices (photocells)	(TX = 2 x 0.5 mm^2) (RX = 4 x 0.5 mm^2)	

🕮 When operating at 230 V and outdoors, use H05RN-F-type cables that are 60245 IEC 57 (IEC) compliant; whereas indoors, use H05VV-F-type cables that are 60227 IEC 53 (IEC) compliant. For power supplies up to 48 V, you can use FROR 20-22 II-type cables that comply with EN 50267-2-1 (CEI).

🕮 To connect the antenna, use the RG58 (we suggest up to 5 m).

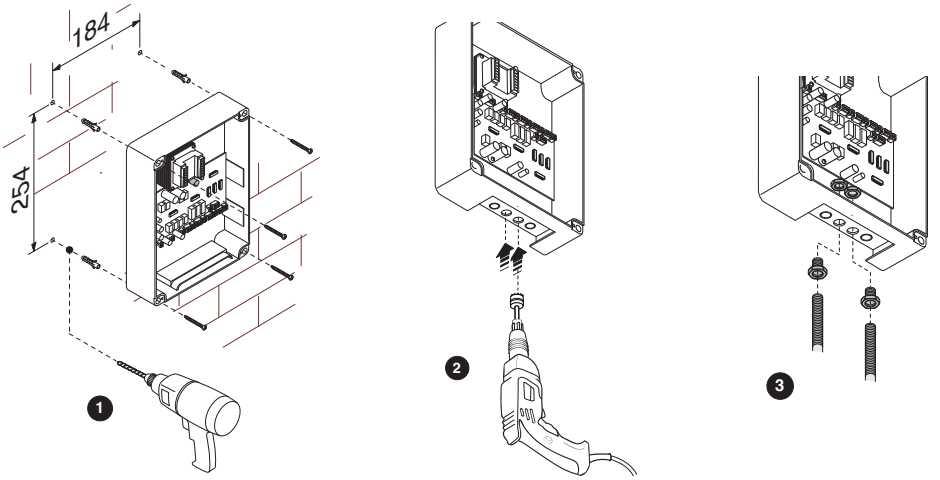
🕮 If cable lengths differ from those specified in the table, establish the cable sections depending on the actual power draw of the connected devices and according to the provisions of regulation CEI EN 60204-1.

🕮 For multiple, sequential loads along the same line, the dimensions on the table need to be recalculated according to the actual power draw and distances. For connecting products that are not contemplated in this manual, see the literature accompanying said products

INSTALLING

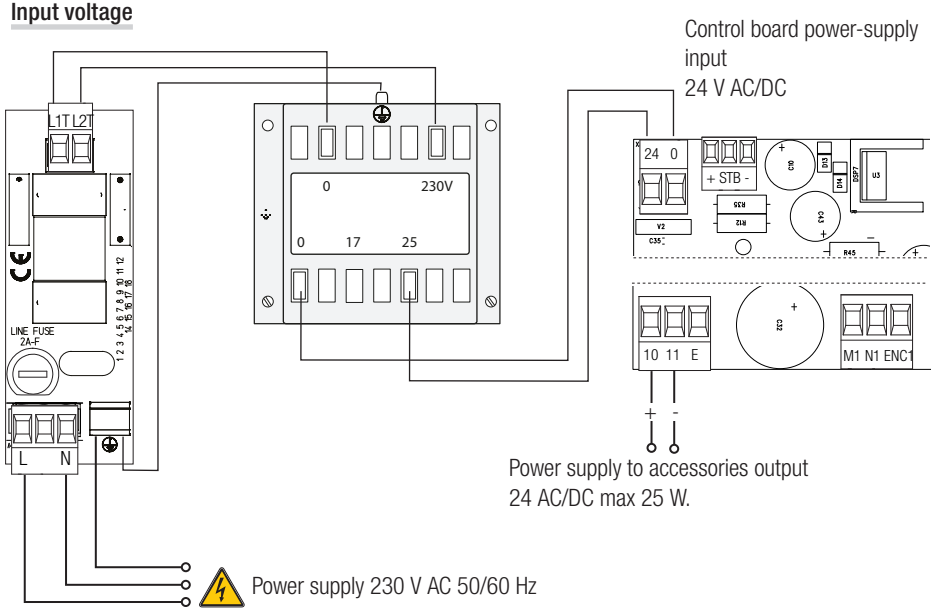
Fastening the control panel

❶ Fasten the control panel in a protected area; use rounded cross head screws with maximum 6 mm diameter.
❷ Perforate the punched holes.
🕮 The holes have different diameters: 23, 29 and 37 mm.
⚠ Be careful not to damage the control board inside the control panel.
❸ Enter the cable gland with the corrugated tubes for threading the electrical cables.



ELECTRICAL CONNECTIONS AND PROGRAMMING

Input voltage

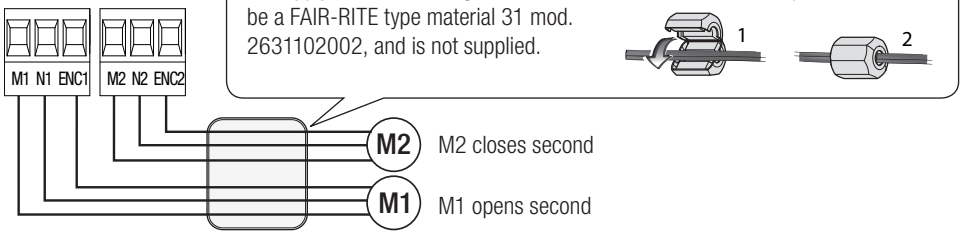


Control board power-supply input
24 V AC/DC

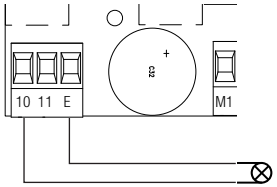
Power supply to accessories output
24 AC/DC max 25 W.

Power supply 230 V AC 50/60 Hz

Connecting the gearmotor to the Encoder



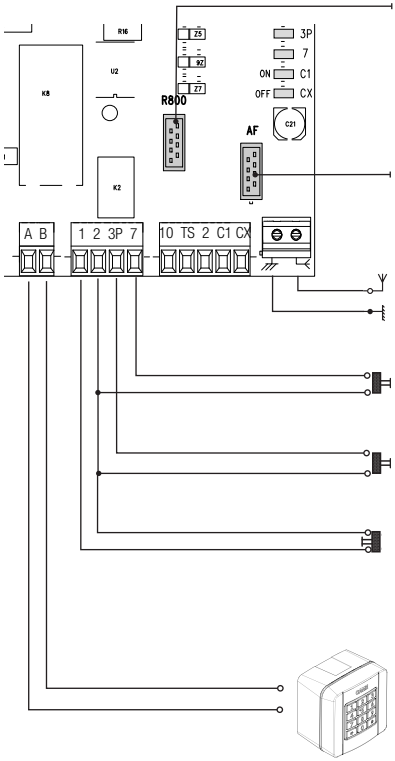
Warning device



Flashing beacon connection output.
(Contact rated for: 24 V AC/DC - 25 W max).

Command and control devices

⚠ CAUTION! YOU MUST CUT OFF THE MAINS POWER SUPPLY and remove the batteries, if present, before fitting any plug-in card (such as AF, R800).



Connector for the R800 card (the R800 card is for using the keypad selector).

Connector for AF card (AF868 or AF43S) for remote control.

Antenna with RG58 cable for remote control.

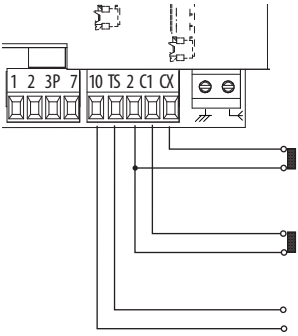
OPEN-CLOSE-INVERT (step-by-step) function from control device (NO contact). Alternatively, from functions programming you can activate the OPEN-STOP-CLOSE-STOP command.

PARTIAL/PEDESTRIAN OPENING function from control device (NO contact).

STOP button (NC contact). For stopping the gate while excluding automatic closing. To resume movement press the control button or use another control device.
If unused, it should be deactivated during programming.

Keypad selector.

Safety devices



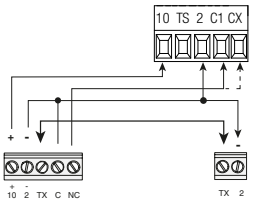
Photocells connection (NC contact), see the functions programming section.

Reopening during closing photocells connection (NC contact) see functions programming.

Photocells safety connection (services test)

Photocells

Configure contact C1 or CX (NC), input for safety devices such as photocells.
See functions programming of input C1 or CX in:

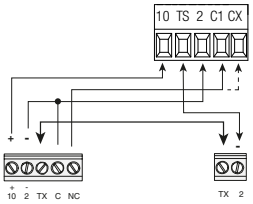


- **C1** reopening while closing. While the gate leaves are closing, opening the contact causes the inversion of movement until they are completely open;
- **CX** partial stop, gate leaves stop if they are moving, triggering the automatic closing time; if the automatic closing time is enabled);
- **CX** obstruction wait, gate leaves stop is they are moving. They resume movement once the obstruction is removed.

If unused, contacts CX and C1 should be deactivated during programming.

Connecting the safety devices (i.e. the safety test)

At each opening and closing command, the control board checks the efficacy of the safety devices (such as photocells).
Any anomalies will inhibit all commands.
Enable this function when programming.



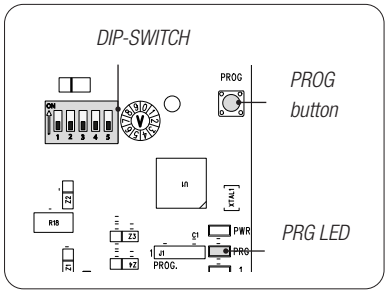
FUNCTIONS PROGRAMMING

⚠ **When programming, the operator needs to be in stop mode.**

When programming is finished, set all Dip-switches to OFF.

📖 You can save up to 25 users.

📖 Use the Dip-switch to select the function if the LED is lit, the function is enabled. Whereas if the LED is off, the function is disabled.



Functions menu

📖 **Start programming by first running the following functions: Motor type, Number of motors, TOTAL STOP and self-learning.**

DIP-SWITCH	Description of functions
	**Motor type** By default, the control panel controls OPP001 and FTL20DGC-series gearmotors. For controlling OPS001, BXL04AGS-series gearmotors. select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once. To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
	**Number of motors** By default, two motors are configured. To configure a single motor: select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once. To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
	**TOTAL STOP from button (contact 1-2)** By default, the feature is enabled. To disable it: select the DIP-switches as shown and press the PROG button on the control board. The LED flashes and the buzzer sounds off twice. To return to the default setting, press PROG again. The LED stays lit and the buzzer sounds once.
	**Self-learning of the gate travel (see Self-learning paragraph)** Select the DIP-switches as shown and press the PROG button on the control board. The operator will perform a series of maneuvers to establish the limit-switch points. To establish the slow-down staring points - when opening and closing - press PROG when the gate leaves reach the desired position. During calibration the PRG LED flashes. Once the calibration is done the buzzer sounds off once. If the calibration is not successful, the LED flashes quickly and the buzzer sounds off seven times. You can interrupt the gate travel's self-learning operation by pressing the STOP button (if enabled).
	**Reopening during closing (contact 2-C1)** By default, the feature is disabled. To enable it: select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once. To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
	**Input on contact 2-CX** By default, the feature is disabled. To enable it: select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once. To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
	**Partial stop or obstruction wait (contact 2-CX)** By default, the function is set to partial stop. To enable theobstruction wait: Select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once. To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
	**OPEN-CLOSE-INVERT or OPEN-STOP-CLOSE-STOP from button (contact 2-7)** By default, the feature is OPEN-CLOSE-INVERT. To enable it to OPEN-STOP-CLOSE-STOP: select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once. To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.

Partial opening or pedestrian opening (contact 2-3P)
By default, the opening is set to pedestrian mode.
To enable in partial opening:
select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.

Obstruction detection with motor stopped
By default, this function is enabled.
To disable it:
select the DIP-switches as shown and press the PROG button on the control board. The LED flashes and the buzzer sounds off twice.
To return to the default setting, press PROG again. The LED stays lit and the buzzer sounds once.

Excluding the Encoder
By default, the Encoder is enabled.
To disable it:
select the DIP-switches as shown and press the PROG button on the control board. The LED flashes and the buzzer sounds of once.
To return to the default setting, press PROG again. The LED stays lit and the buzzer sounds off twice.

Timed slow-downs (with Encoder disabled)
By default, the feature is disabled.
To enable it:
select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
📖 Set the APP./O.T. trimmer to maximum and the SENS trimmer to half.
Store the trimmer values according to the procedure indicated.

Automatic closing
By default, the feature is disabled.
To enable it:
select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
The wait before the automatic closing starts when the opening limit-switch point is reached - for a time that is settable on the A.C.T. trimmer.
⚠ The automatic closing does not activate if the safety devices are triggered due to obstacle detection, after a total stop or if the power supply is missing.

Automatic closing after either partial or pedestrian opening
By default, the feature is disabled.
To enable it:
Select the DIP-switches as shown and press the PROG button on the control board. The PRG LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
⚠ The automatic closing time is permanently set to 10 seconds.

Pre-flashing (pre-flashing duration: 5 s)
By default, the feature is disabled.
To enable it:
select the DIP-switches as shown and press the PROG button on the control board. The PRG LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.

Closing thrust
By default, the feature is disabled.
To enable it:
select the DIP-switches as shown and press the PROG button on the control board. The PRG LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice

Saving the trimmer value

Use the trimmers to set the automatic closing time (A.C.T.), the opening and closing latching points, the second motor's closing-delay speed, the slow-down speed (SDS) and the sensitivity (SENS.).
To save the values:
select the DIP-switches as shown and press the PROG button on the control board. The PRG LED stays lit and the buzzer sounds once.

Services test

By default, the feature is disabled.
To enable it:
Select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.

Button-activated maintained action

By default, the feature is disabled.
To enable it:
select the DIP-switches as shown and press the PROG button on the control board. The LED stays lit and the buzzer sounds once.
To return to the default setting, press PROG again. The LED flashes and the buzzer sounds off twice.
⚠ The gate opens and closes when the button is kept pressed.
Opening button connected on 2-3P (contact NO) and closing button connected on 2-7 (contact NO)
All other control devices, even radio-based ones, are excluded.

SERVICING UP TO 25 USERS

Partially open
Door opening approx. 36°, cannot be changed.
Select the DIP-switches as shown and press the PROG button for one second. The PRG LED flashes.
Within 20 seconds, enter a code from the keypad selector or press any button on the transmitter that you want to save.
Once the saving is finished the PROG LED turns on and the buzzer sounds off once.
If the transmitter has been previously saved or the maximum number of registered users is exceeded the LED flashes quickly and the buzzer sounds off seven times.

Open only
Select the DIP switches as shown and press the PROG button for one second. The PRG LED flashes.
Within 20 seconds, enter a code form the keypad selector or press any button on the transmitter that you want to save.
Once the saving is finished the PROG LED stays on and the buzzer sounds off once.
If the transmitter has been previously saved or the maximum number of registered users is exceeded the LED flashes quickly and the buzzer sounds off seven times.

OPEN-CLOSE-INVERT
Select the DIP switches as shown and press the PROG button for one second. The PRG LED flashes.
Within 20 seconds, enter a code form the keypad selector or press any button on the transmitter that you want to save.
Once the saving is finished the PROG LED stays on and the buzzer sounds off once.
If the code has been previously saved or the maximum number of registered users exceeded, the LED flashes quickly and the buzzer sounds off seven times.

OPEN-STOP-CLOSE-STOP
Select the DIP switches as shown and press the PROG button for one second. The PRG LED flashes.
Within 20 seconds, enter a code from the keypad selector or press any button on the transmitter that you want to save.
Once the saving is finished the PROG LED stays on and the buzzer sounds off once.
If the code has been previously saved or the maximum number of registered users exceeded, the LED flashes quickly and the buzzer sounds off seven times.

Deleting all users

Select the Dip-switches as shown and press the PROG button for five seconds.
Once deletion is complete, the PRG LED stays lit and buzzer sounds off for one second.

Resetting parameters

Select the Dip-switches as shown and press the PROG button for five seconds.
Once deletion is complete, the PRG LED stays lit and buzzer sounds off for one second.
This function does not delete any users.

Auto-learning of the gate-leaf travel

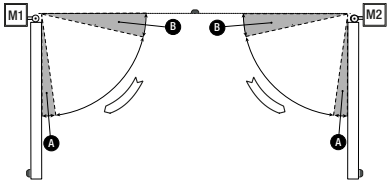
With the Encoder enabled (the default setting)

Select the DIPs and press the PROG key on the board as shown in features programming.

The operator will perform a series of maneuvers to establish the starting slow-down and limit-switch points.

Ⓐ = 25% of the movement area at slowed down speed when opening.

Ⓑ = 25% of the area of movement at slowed down closing speed.



How to change the opening and closing slow-down points with Encoder enabled

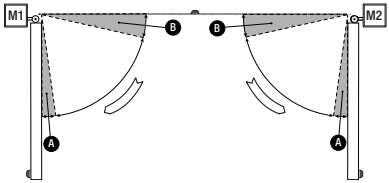
Close the gate leaves.

Start the gate-leaf travel self-learning procedure.

When M2 reaches the desired closing slow-down starting point Ⓑ (10/45 % of the travel), press the PROG button.

Press again the PROG button when M2 reaches the desired opening slow-down starting point Ⓐ (55/90 % of the travel).

Repeat the procedure for M1.



Timed slow-downs with Encoder disabled

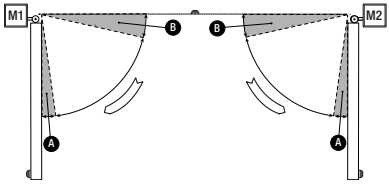
📖 Set the OP TIME trimmer to maximum, set the SENS trimmer to half, save the trimmers' values, disable the Encoder, enable the timed slow-down function.

Start the gate-leaf travel self-learning procedure.

The operator will perform a series of maneuvers to establish the starting slow-down and limit-switch points.

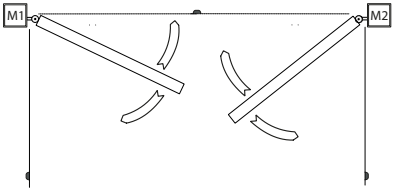
Ⓐ = 25% of the working time at slowed opening speed.

Ⓑ = 25% of the working time at slowed closing speed.

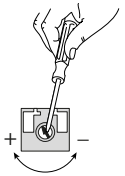


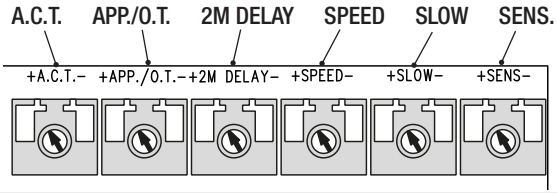
With Encoders and timed slow-downs disabled

📖 If the **Encoder** and **Slow-down functions** are both disabled, the gate leaves will open or close completely at a constant, limited speed of 50% of the top speed.



Adjusting the functions

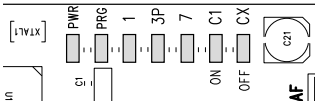




Trimmer	Description of functions
A.C.T.	**Automatic Closing Time** It sets the open gate's waiting time. Once this time elapses, the shutter automatically closes. The waiting time can be adjusted to between 1 and 180 seconds.
APP./O.T.	**Latching point - with Encoder enabled - or operating time - with Encoder disabled.** It adjusts the motors final resting point before the opening and closing limit switches. The starting final resting point is calculated as a percentage of the gate leave's complete travel, from 1% to 10%. When the Encoder is disabled, the trimmer is used to set the operating time from 5 to 120 seconds.
2M DELAY	**M2 closing delay time** After a closing command or after an automatic closing, the leaf of gearmotor (M2) starts with a delay compared to gearmotor (M1) for an adjustable time of between 3 and 25 seconds.
SPEED	**Travel speed** It adjusts the speed of the gearmotors during the manuevers. The speed can be adjusted from 30% (-) to 100% (+). When the Encoder and the timed slow-downs are disabled, the top speed is 50%.
SLOW	**Slow-down speed** It adjusts the gearmotors' speed when slowing down. The speed may be adjusted from 30% (-) to 60% (+) of the maximum speed. If the slow down speed is greater than the travel speed, the travel speed is automatically limited.
SENS.	**Sensitivity** It adjusts the obstruction detection sensitivity during the gate movement. Minimum sensitivity (-) or maximum sensitivity (+).

After adjusting the trimmers, select the DIPs and press the PROG key on the board as shown in functions programming section.

Alert LED

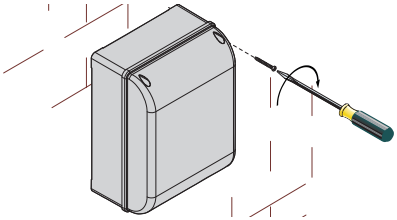


LEDs	Description
PWR *(Green)*	It warns about the voltage running through the control control board.
PRG *(Red)*	It warns about the functions' programming phases, the automatic closing waiting time and of any errors/malfunctions.
1 *(Yellow)*	It warns that contact 1-2 (NC) is open (STOP button).
3P *(Yellow)*	It warns that contact 2-3P (NO) is closed (partial opening button).
7 *(Yellow)*	It warns that contact 2-7 (NO) is closed (command button).
C1/ON *(Yellow)*	It warns that contact 2-C1 (NC) is open (photocells) / Function enabled.
CX/OFF (*Yellow*)	It warns that contact 2-CX (NC) is open (photocells) / Function disabled.

FINAL OPERATIONS

Fastening the cover

Once finished with the electrical connections and powering up, fit the cover and secure it using the supplied screws.



TROUBLESHOOTING

ALERTS	POSSIBLE CAUSES	FIXES
THE PROG LED flashes and the buzzer sounds every 5 s	• The control board does not work	• Call for assistance
The PROG LED flashes and the buzzer sounds off seven time	• Self-learning error	• Check that the gearmotor and encoder are properly connected
	• Encoder error	• Call for assistance
	• Services test error	• Check that the photocells are connected and working properly
	• Operating time error	• Check that the gearmotors and the operating-time setting are in order
	• Maximum number of obstructions consecutively detected (max 5)	• Remove obstruction
	• Error during the resetting of parameters or deleting of users	• The PROG key must be pressed for over 5 seconds
	• User already saved or maximum number of registered users exceeded	• Check whether the user is, in fact, saved

DISMANTLING AND DISPOSAL

Decommissioning and dismantling - always check the current applicable law before continuing. The packaging materials (cardboard, plastic, and so on) should be disposed of as solid household waste, and simply separated from other waste for recycling.
Whereas other components (control boards, batteries, transmitters, and so on) may contain hazardous pollutants. These must therefore be disposed of by authorized, certified professional services.
DISPOSE OF RESPONSIBLY!

The contents of this manual may change, at any time, and without notice.

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