

Sliding-gate operators

FA02077-EN

CE

EAC

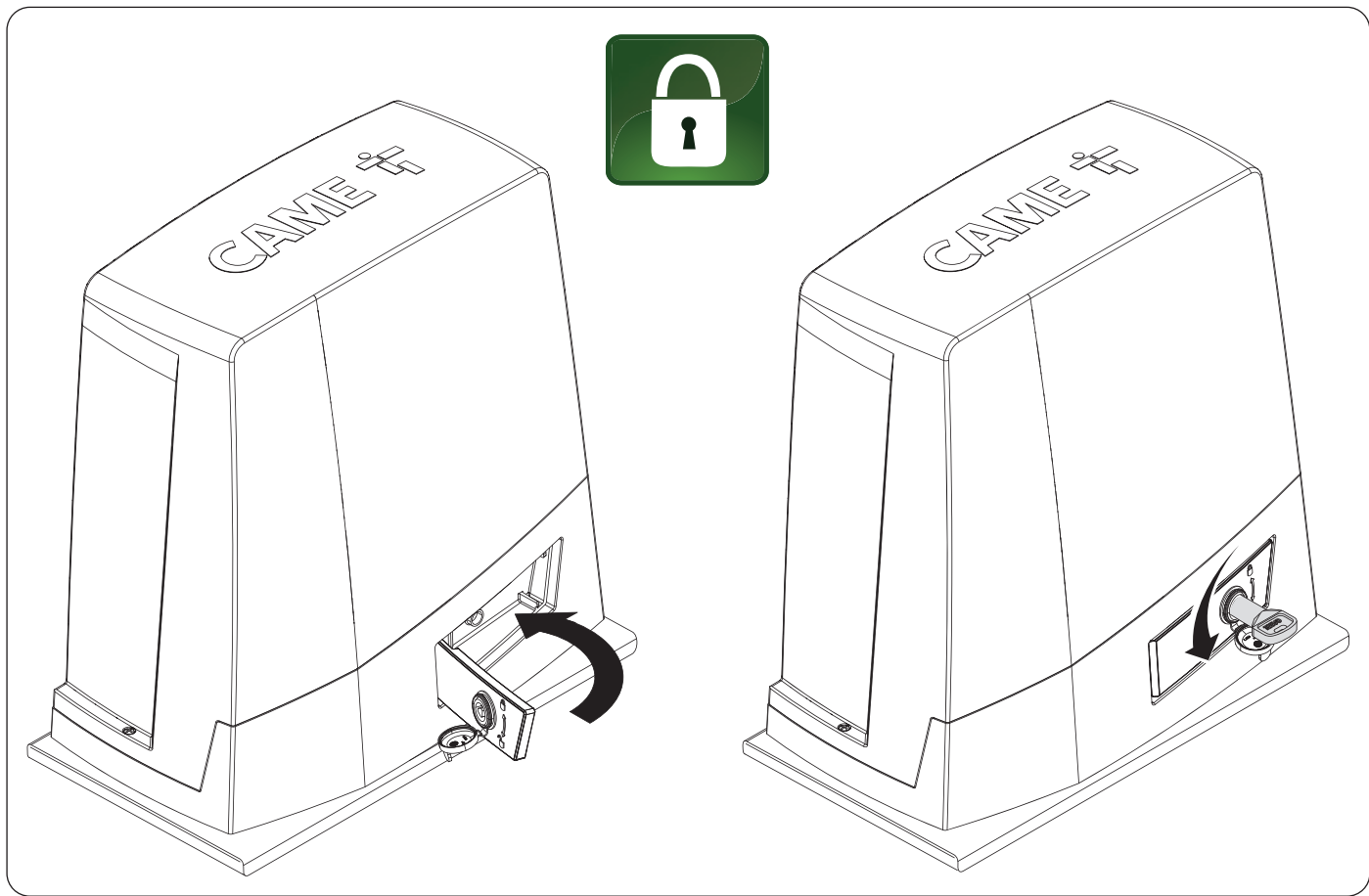
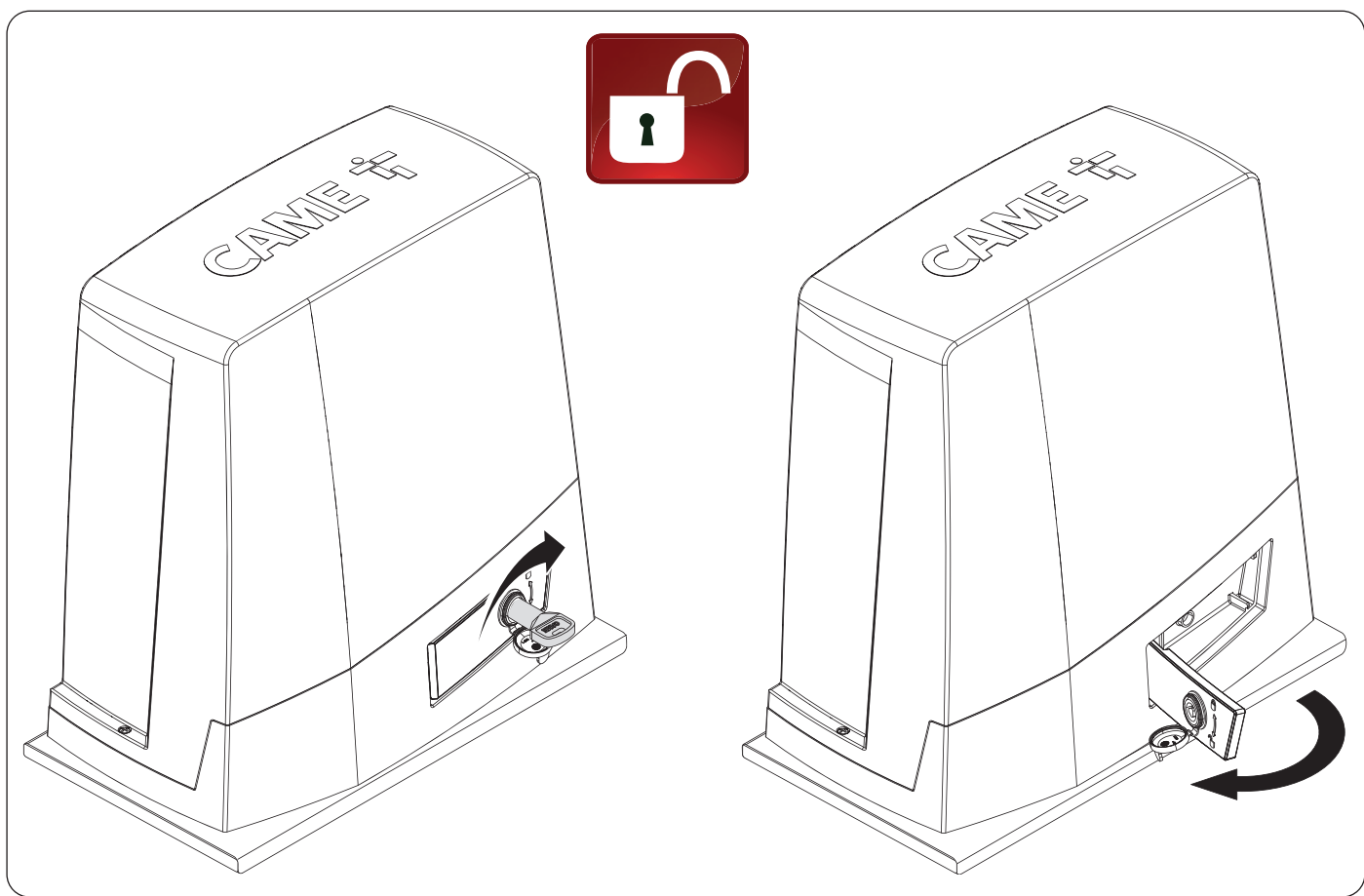


BKV15AGE
BKV15AGS
BKV15ALS
BKV15RGS

BKV20AGE
BKV20AGS
BKV20ALS

BKV25AGE
BKV25AGS
BKV25ALS
BKV20RGS

INSTALLATION MANUAL

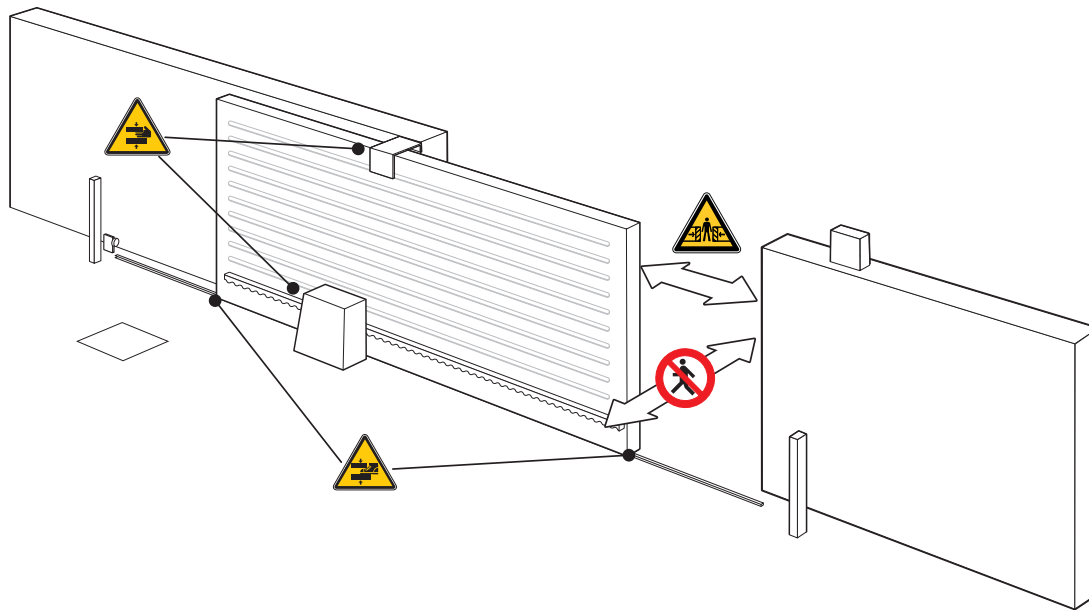


⚠ Important safety instructions.**⚠ Please follow all of these instructions. Improper installation may cause serious bodily harm.****⚠ Before continuing, please also read the general precautions for users.**

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 is defined by the Machinery Directive (2006/42/EC) as partly completed machinery.
- Partly completed machinery means an assembly which is almost machinery but which cannot in itself perform a specific application.
- Partly completed machinery is only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment thereby forming machinery to which the Machinery Directive (2006/42/EC) applies.
- 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.
- Check that the temperature ranges given are suitable for the installation site.
- Do not install on slopes i.e. any surfaces that are not perfectly level.
- Do not install the operator on surfaces that could yield and bend. If necessary, add suitable reinforcements to the anchoring points.
- 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.
- In case of manual handling, have one person for every 20 kg that needs hoisting; for non-manual handling, use proper hoisting equipment in safe conditions.
- 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.
- Use additional protection to prevent your fingers from being crushed between the pinion and rack.
- All fixed controls must be clearly visible after installation, in a position that allows the guided part to be directly visible, but far away from moving parts. In the case of a hold-to-run control, this must be installed at a minimum height of 1.5 m from the ground and must not be accessible to the public.
- 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.

Main points of danger for people



No transiting while the barrier is moving.



Risk of entrapment.




Risk of trapping hands.



Risk of trapping feet.

DISMANTLING AND DISPOSAL

 CAME S.p.A. employs an Environmental Management System at its premises. This system is certified and compliant with the UNI EN ISO 14001 standard to ensure that the environment is respected and safeguarded. Please continue safeguarding the environment. At CAME we consider it one of the fundamentals of our operating and market strategies. Please follow these brief disposal guidelines:

DISPOSING OF THE PACKAGING

The packaging materials (cardboard, plastic, etc.) can be disposed of easily as solid urban waste, separated for recycling.

Before dismantling and disposing of the product, please always check the local laws in force.

DISPOSE OF THE PRODUCT RESPONSIBLY.

DISPOSING OF THE PRODUCT

Our products are made of various materials. Most of these materials (aluminium, plastic, iron and electrical cables) are classified as solid urban waste. They can be separated for recycling and disposed of at authorised waste treatment plants.

Other components (electronic boards, transmitter batteries, etc.) may contain pollutants.

These must be removed and disposed of by an authorised waste disposal and recycling firm.

It is always advisable to check the specific laws that apply in your area.

DISPOSE OF THE PRODUCT RESPONSIBLY.

Key

 This symbol shows which parts to read carefully.

 This symbol shows which parts describe safety issues.

 This symbol shows what to tell users.

 The measurements, unless otherwise stated, are in millimetres.

Description

801MS-0300

BKV15AGS - Operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device for sliding gates weighing up to 1500 kg that are up to 20 m long.

801MS-0310

BKV20AGS - Operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device for sliding gates weighing up to 2000 kg that are up to 20 m long.

801MS-0320

BKV25AGS - Operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement/obstruction-detection device and module 6 pinion for sliding gates weighing up to 2500 kg that are up to 20 m long.

801MS-0330

BKV15RGS - High performance operator with 36V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device for gates weighing up to 1500 kg that are up to 20 m long.

801MS-0340

BKV20RGS - High performance operator with 36V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device for gates weighing up to 2000 kg that are up to 20 m long.

801MS-0350

BKV15AGE - Plus operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, magnetic limit switches and clock accessory included for sliding gates weighing up to 1500 kg that are up to 20 m long.

801MS-0360

BKV20AGE - Plus operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, magnetic limit switches and clock accessory included for sliding gates weighing up to 2000 kg that are up to 20 m long.

801MS-0370

BKV25AGE - Plus operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, module 6 pinion, magnetic limit switches and clock accessory included for sliding gates weighing up to 2500 kg that are up to 20 m long.

801MS-0301

BKV15ALS - High-performance operator with 36V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device for gates weighing up to 1500 kg that are up to 20 m long. RAL 7040 grey cover.

801MS-0311

BKV20ALS - High-performance operator with 36V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device for gates weighing up to 2000 kg that are up to 20 m long. RAL 7040 grey cover.

801MS-0321

BKV25ALS - High-performance operator with 36 V motor, featuring a control board with graphic display, Adaptive Speed & Torque Technology, 4 safety inputs, movement and obstruction-detecting device, and module 6 pinion for gates weighing up to 2500 kg that are up to 20 m long. RAL 7040 grey cover.

Intended use

Solution for large sliding gates.

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

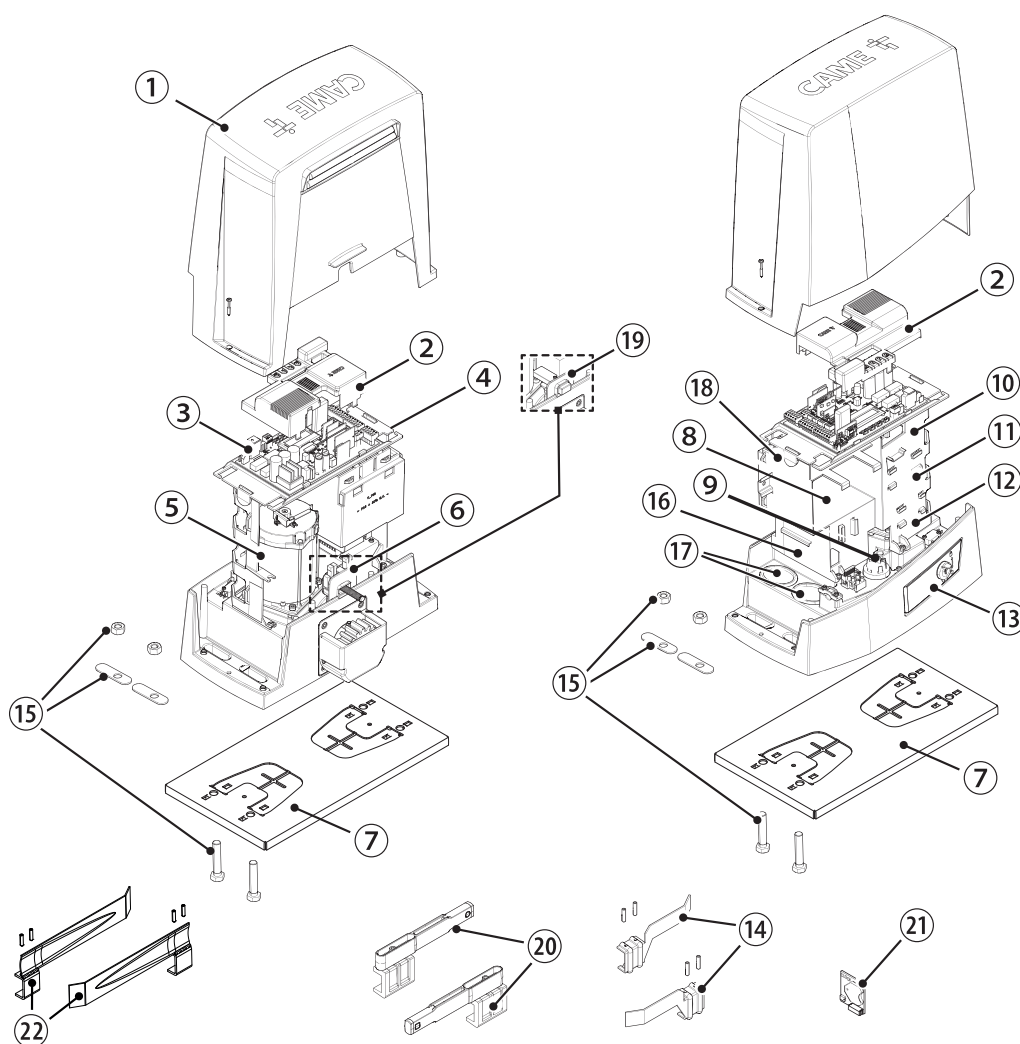
Operator

- ❶ Cover
- ❷ Board protection cover
- ❸ Control board
- ❹ Board-holder support
- ❺ Gearmotor
- ❻ Mechanical limit switch
- ❼ Anchoring plate
- ❽ Housing for two emergency batteries
- ❾ Housing for thermostat with cartridge
- ❿ Housing for the RGSM001 module
- ⓫ Housing for the 806SA-0090 card
- ⓬ Housing for the RGP1 module
- ⓭ Release lever
- ⓮ Mechanical limit-switch tabs
- ⓯ Fixtures and fittings
- ⓰ Housing for UR042 module
- ⓱ Holes for the electrical cables
- ⓲ Housing for SMA module
- ⓳ Magnetic limit switch*
- ⓴ Magnetic limit-switch tabs*
- ⓵ Clock card (806SA-0120)*
- ⓶ Long mechanical limit-switch tabs**

* Only for BKV15AGE, BKV20AGE and BKV25AGE

** Only for BKV25AGS, BKV25ALS, BKV25RGS

*  Magnetic limit switches are an alternative to mechanical limit switches.



Control board

The functions on the input and output contacts, the time settings and user management are set and viewed on the display.

All connections are protected by quick fuses.

For the system to work properly, before fitting any plug-in card, DISCONNECT THE MAIN POWER SUPPLY and remove any batteries.

Before working on the control panel, disconnect the mains power supply and remove the batteries, if any.

- 1

Terminal board for connecting the gearmotor
- 2

Terminal board for connecting the encoder
- 3

Terminal board for connecting the RGP1 module or 806SA-0090 card
- 4

Programming buttons
- 5

RSE card connector
- 6

Connector for CAME KEY
- 7

Connector for plug-in radio frequency card (AF)
- 8

Terminal board for connecting the antenna
- 9

Terminal board for connecting the safety devices
- 10

Terminal board for connecting the paired function or the CRP
- 11

Terminal board for connecting control devices
- 12

Terminal board for connecting the keypad selector
- 13

Terminal board for connecting the transponder selector switch
- 14

Terminal board for connecting the signalling devices
- 15

Terminal board for B1-B2 output
- 16

Connector for the R700 or R800 decoding card
- 17

Connector for the RIOCN8WS module
- 18

Connector for the clock card (806SA-0120)
- 19

Terminal board for limit-switch micro-switches
- 20

Accessories fuse
- 21

Control board fuse
- 22

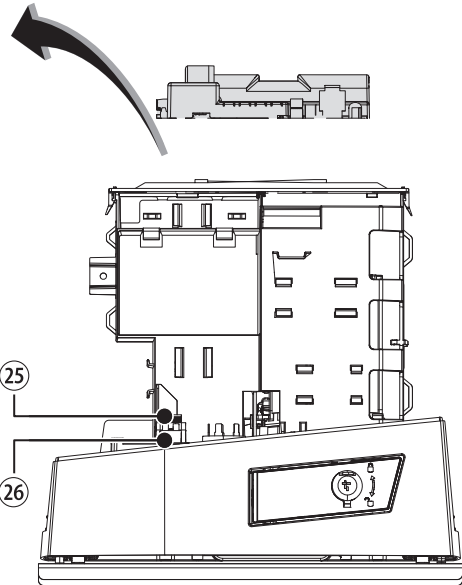
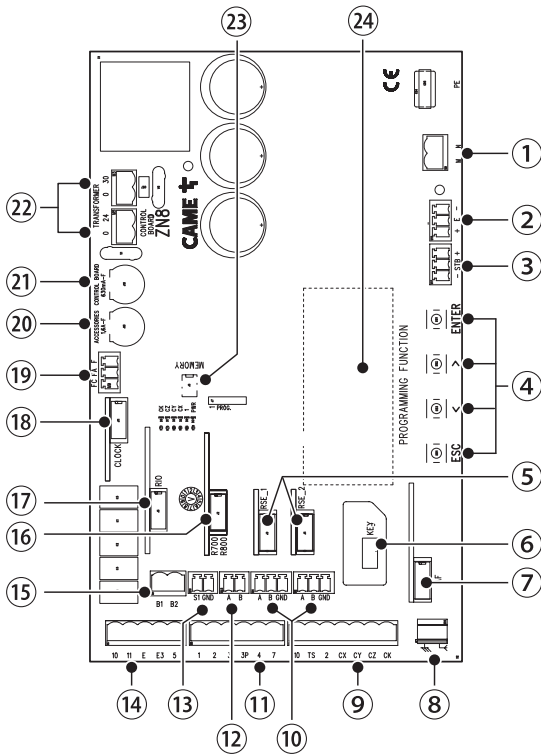
Terminal board for connecting the transformer
- 23

Memory Roll card connector
- 24

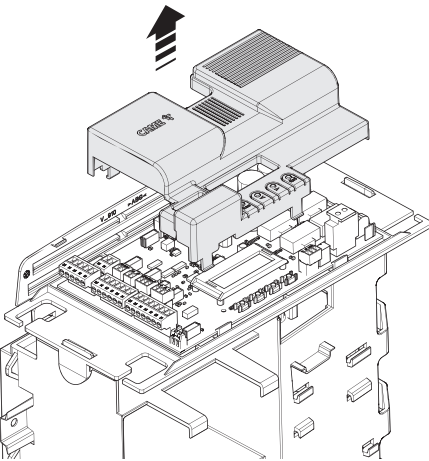
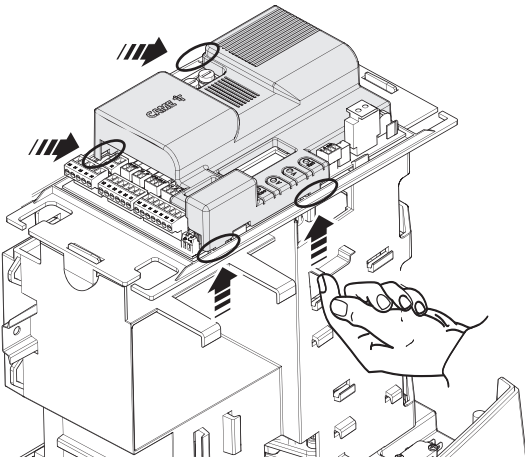
Display
- 25

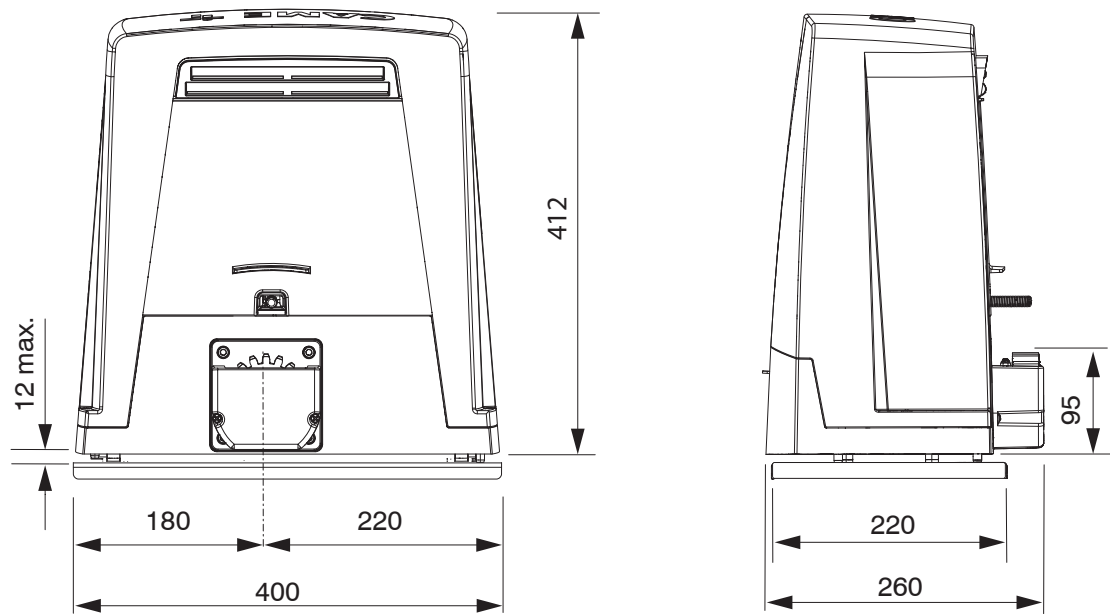
Line fuse
- 26

Power supply terminal board



Remove the card cover before inserting the cards into the connectors.





Usage limitations

MODELS	BKV15AGS	BKV20AGS	BKV25AGS	BKV15RGS	BKV20RGS
Maximum gate-leaf length (m)	20	20	20	20	20
Maximum gate-leaf weight (kg)	1500	2000	2500	1500	2000

MODELS	BKV15AGE	BKV20AGE	BKV25AGE	BKV15ALS	BKV20ALS	BKV25ALS
Maximum gate-leaf length (m)	20	20	20	20	20	20
Maximum gate-leaf weight (kg)	1500	2000	2500	1500	2000	2500

Technical data

MODELS	BKV15AGS	BKV20AGS	BKV25AGS	BKV15RGS	BKV20RGS
Power supply (V - 50/60 Hz)	230 AC	230 AC	230 AC	120 AC	120 AC
Motor power supply (V)	36 DC	36 DC	36 DC	36 DC	36 DC
Standby consumption (W)	14	14	14	14	14
Power (W)	200	250	300	200	250
Current draw (A)	8	9	10	8	9
Maximum current draw (A)	20	20	20	20	20
Colour	RAL 7024	RAL 7024	RAL 7024	RAL 7024	RAL 7024
Thrust (N)	800	900	1000	800	900
Maximum thrust (N)	1200	1350	1500	1200	1350
Maximum operating speed (m/min)	12	12	12	12	12
Operating time (s)	180	180	180	180	180
Cycles/hour	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION
Pinion module	4	4	6	4	4
Reduction ratio	40	40	40	40	40
Protection rating (IP)	54	54	54	54	54
Weight (kg)	20	21	21	20	21
Average life (cycles)**	250000	250000	250000	250000	250000

(*) 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.

MODELS	BKV15AGE	BKV20AGE	BKV25AGE	BKV15ALS	BKV20ALS	BKV25ALS
Power supply (V - 50/60 Hz)	230 AC	230 AC	230 AC	230 AC	230 AC	230 AC
Motor power supply (V)	36 DC	36 DC	36 DC	36 DC	36 DC	36 DC
Standby consumption (W)	14	14	14	14	14	14
Power (W)	200	250	300	200	250	300
Current draw (A)	8	9	10	8	9	10
Maximum current draw (A)	20	20	20	20	20	20
Colour	RAL 7024	RAL 7024	RAL 7024	RAL 7040	RAL 7040	RAL 7040
Thrust (N)	800	900	1000	800	900	1000
Maximum thrust (N)	1200	1350	1500	1200	1350	1500
Maximum operating speed (m/min)	12	12	12	12	12	12
Operating time (s)	180	180	180	180	180	180
Cycles/hour	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION	CONTINUOUS OPERATION
Pinion module	4	4	6	4	4	6
Reduction ratio	40	40	40	40	40	40
Protection rating (IP)	54	54	54	54	54	54
Weight (kg)	20	21	21	20	21	21
Average life (cycles)**	250000	250000	250000	250000	250000	250000

(*) 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.

Fuse table

MODELS	BKV15AGS	BKV20AGS	BKV25AGS	BKV15RGS	BKV20RGS
Line fuse	2 A F	2 A F	2 A F	4 A F	4 A F
Control-board fuse	630 mA F	630 mA F	630 mA F	630 mA F	630 mA F
Accessory fuse	1.6 A F	1.6 A F	1.6 A F	1.6 A F	1.6 A F

MODELS	BKV15AGE	BKV20AGE	BKV25AGE	BKV15ALS	BKV20ALS	BKV25ALS
Line fuse	2 A F	2 A F	2 A F	2 A F	2 A F	2 A F
Control-board fuse	630 mA F	630 mA F	630 mA F	630 mA F	630 mA F	630 mA F
Accessory fuse	1.6 A F	1.6 A F	1.6 A F	1.6 A F	1.6 A F	1.6 A F


Cable types and minimum thicknesses

Cable length (m)	up to 20	from 20 to 30
Power supply 230 V AC	3G x 1.5 mm2	3G x 2.5 mm2
24 V AC/DC flashing beacon	2 x 1 mm2	2 x 1 mm2
TX Photocells	2 x 0.5 mm2	2 x 0.5 mm2
RX photocells	4 x 0.5 mm2	4 x 0.5 mm2
Command and control devices	* no. x 0.5 mm2	* no. x 0.5 mm2


* no. = see product assembly instructions.


Warning: the cable cross-section is indicative and varies according to the motor power and cable length.

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

 To connect the antenna, use RG58 cable (up to 5 m).

 For paired connection and CRP, use UTP CAT5 cable (up to 1,000 m).

 If the cable lengths differ from those specified in the table, define the cable cross-sections according to the actual power draw of the connected devices and in line with regulation CEI EN 60204-1.

 For multiple, sequential loads along the same line, recalculate the values in the table according to the actual power draw and distances. For information on connecting products not covered in this manual, please see the documentation accompanying the products themselves.

INSTALLATION

 The following illustrations are examples only. The space available for fitting the operator and accessories varies depending on the area where it is installed. It is up to the installer to find the most suitable solution.

 The drawings show an operator fitted on the left.

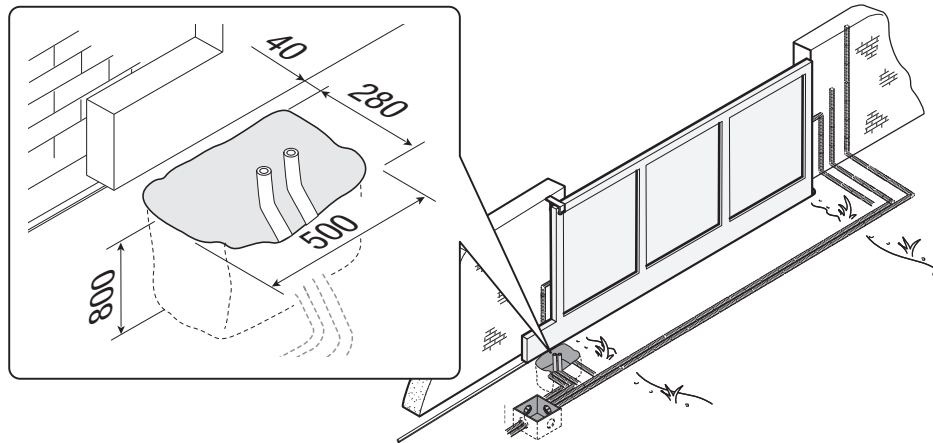
Preliminary operations

Dig a hole for the foundation frame.

Set up the corrugated tubes needed for the wiring coming out of the junction pit.

 Use $\varnothing 40$ mm corrugated tubes to connect the gearmotor to the accessories.


 The number of tubes depends on the type of system and the accessories that are going to be fitted.



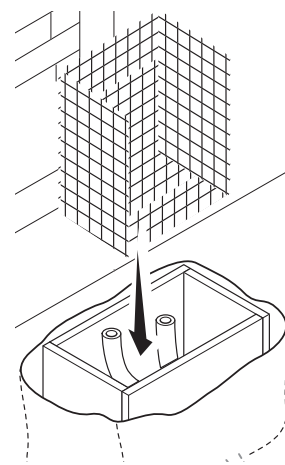
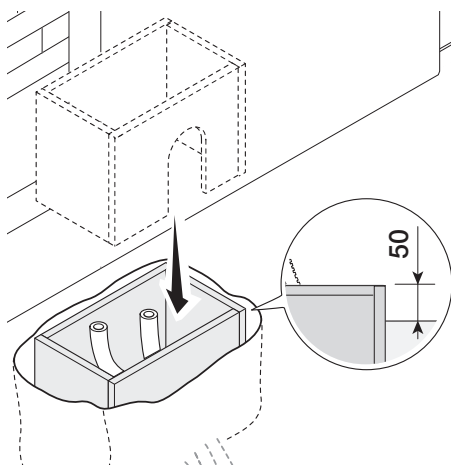
Laying the anchoring plate

Set up a foundation frame that is larger than the anchoring plate.

Insert the foundation frame into the dug hole.

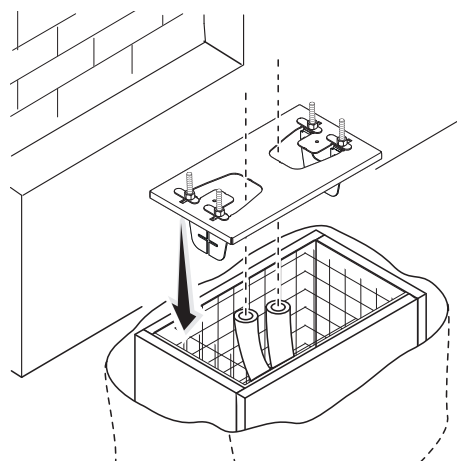
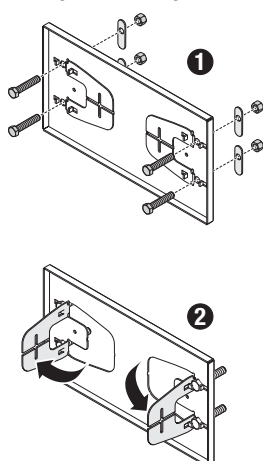
 The foundation frame must protrude by 50 mm, above ground level.

Fit an iron cage in the foundation frame to reinforce the concrete.



Insert the screws supplied in the anchoring plate.
 Lock the screws in place with the nuts supplied.
 Remove the pre-shaped clamps using a screwdriver.
 Fit the anchoring plate in the iron cage.

 The tubes must pass through the existing holes.



Position the anchoring plate, taking note of the measurements shown in the drawing.

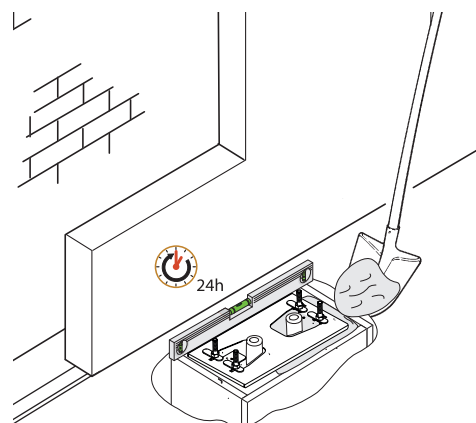
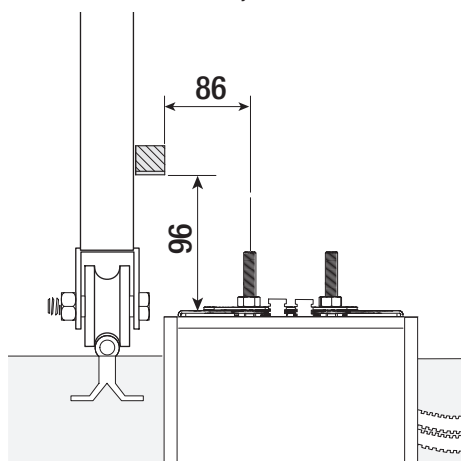
 If the gate does not have a rack, proceed with the installation.

 See the section "FASTENING THE RACK".

Cast cement into the foundation frame.

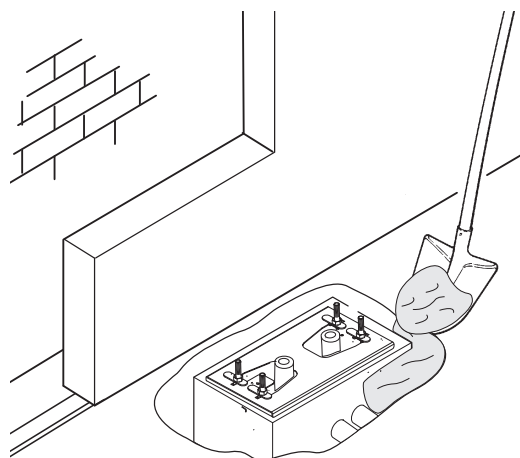
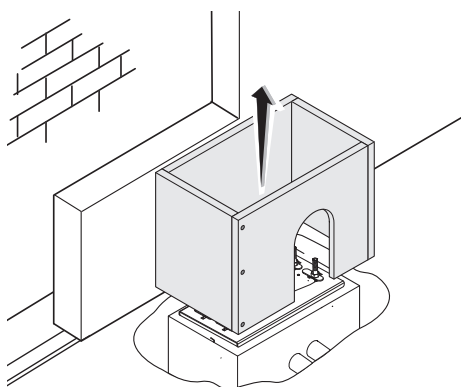
 The plate must be perfectly level and the screw threads completely above surface.

Wait at least 24 hours for the cement to dry.

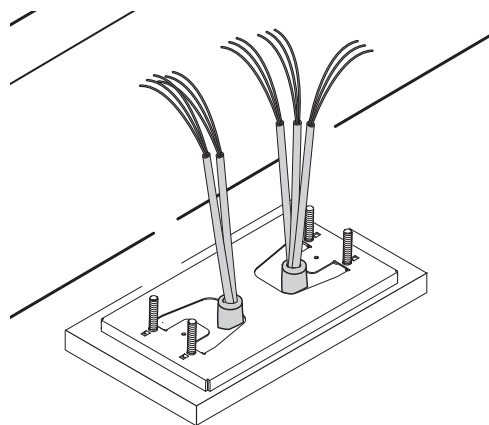
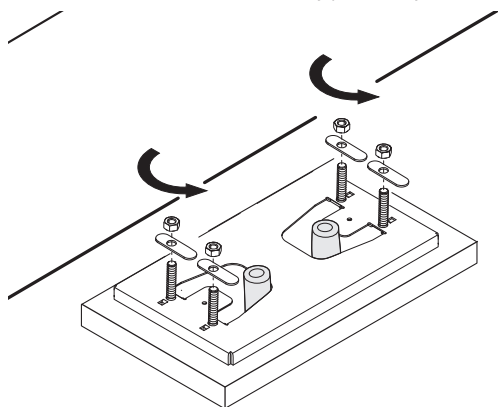


Remove the foundation frame.

Fill the hole with soil around the concrete block.




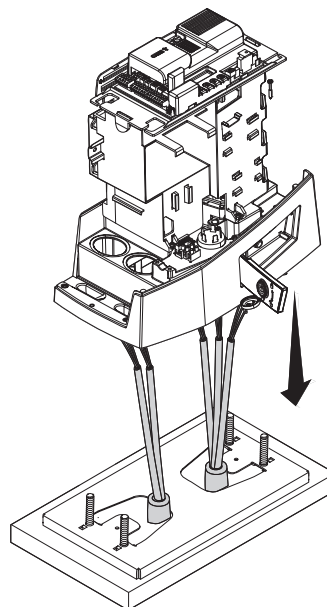
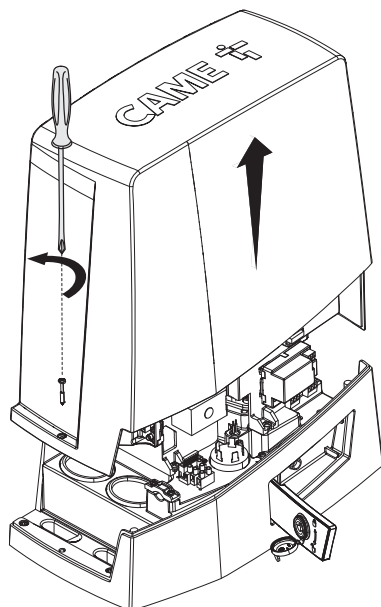
Remove the nuts from the screws.
Insert the electrical cables into the tubes until they protrude by about 600 mm.



Setting up the operator

Remove the operator cover.
Place the operator on top of the anchoring plate.

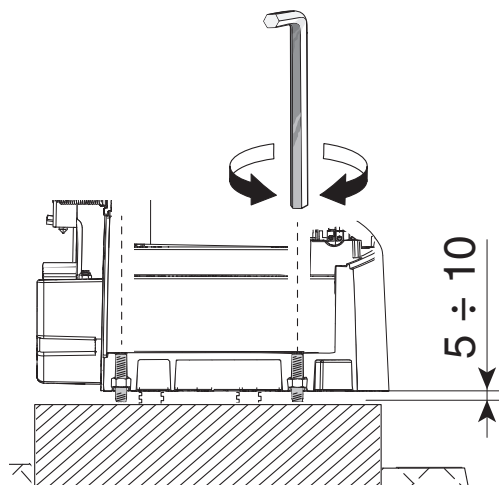
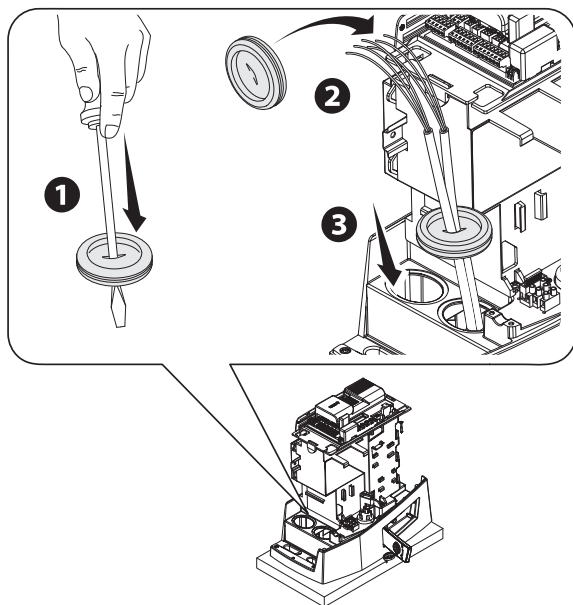
 The electrical cables must pass under the operator foundation frame



Make a hole in the cable gland.

Thread the cables through the cable gland.

Lift the operator by 5-10 mm from the plate by adjusting the threaded feet, to allow for any adjustments that may need to be made between the rack and pinion.



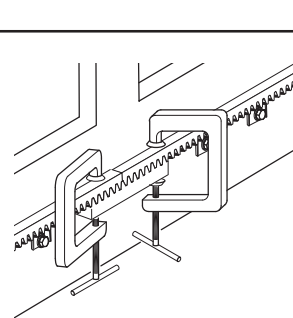
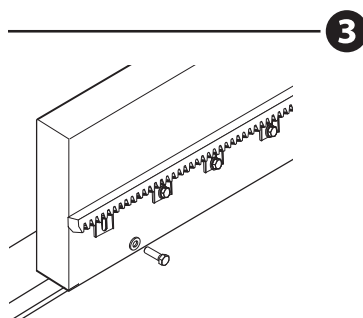
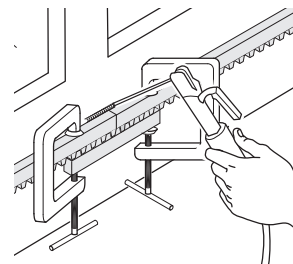
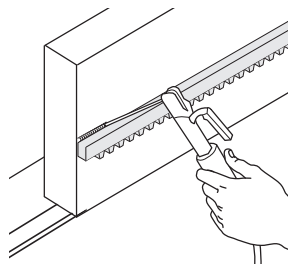
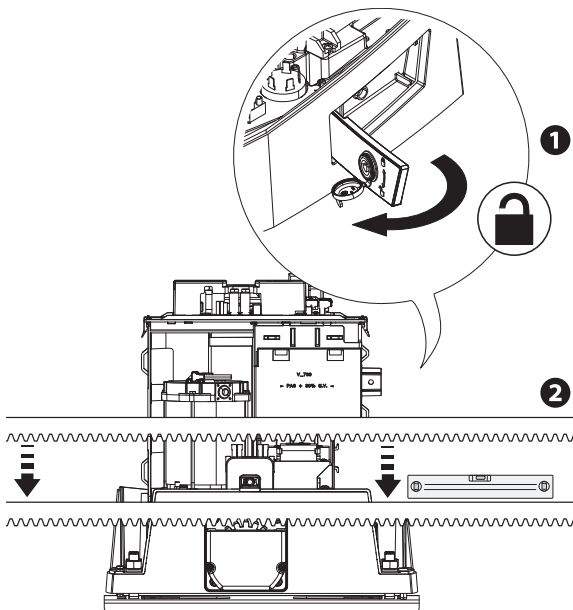
Fastening the rack

1 Release the operator.

2 Rest the rack on the pinion.

3 Weld or fasten the rack to the gate along its entire length.

 To assemble the rack modules, use an extra piece and rest it under the joint, then fasten it in place using two clamps.

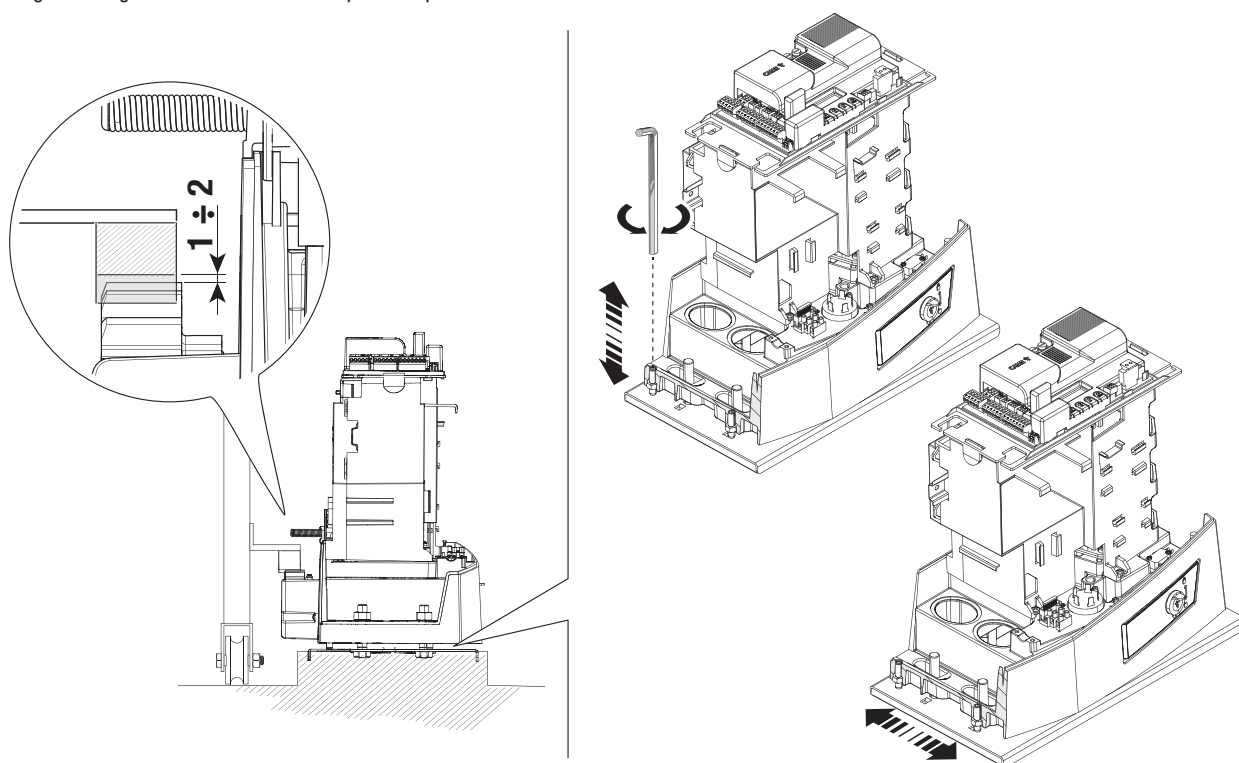


Adjusting the pinion-rack coupling

Open and close the gate manually.

Adjust the pinion-rack coupling distance using the threaded feet (vertical adjustment) and the holes (horizontal adjustment).

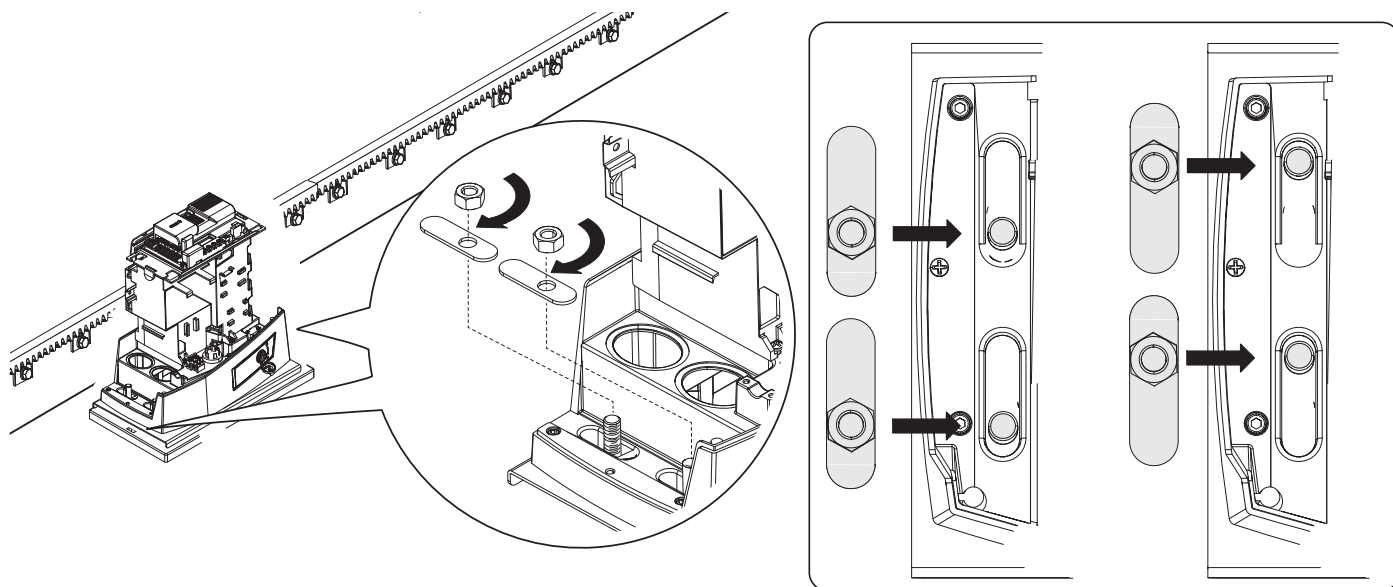
 The weight of the gate must not bear down upon the operator.



Fastening the operator in place

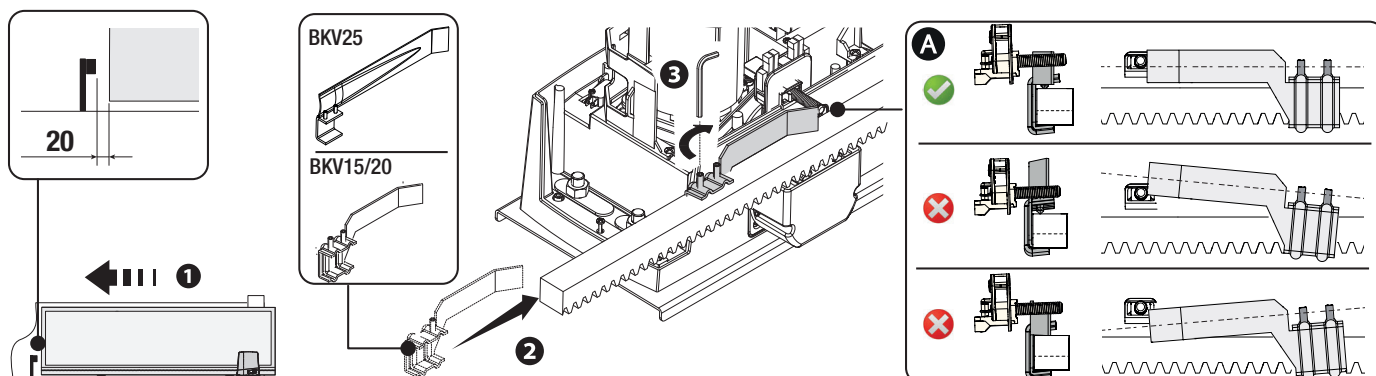
 Only fasten the operator after adjusting the pinion-rack coupling.

Fasten the operator to the anchoring plate using stoppers and nuts.

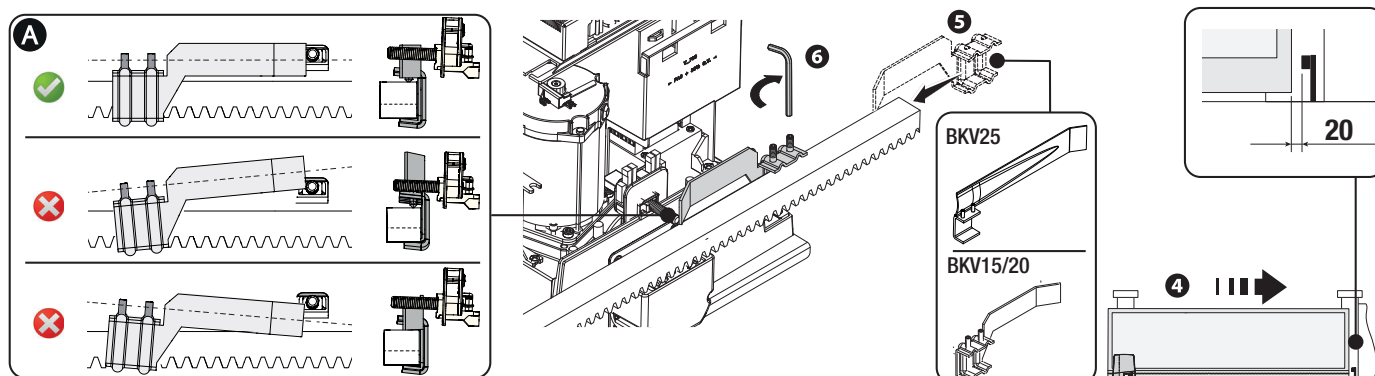


Determining the travel end points with mechanical limit switches

- ❶ Open the gate.
 - ❷ Insert the opening limit-switch tab in the rack until it activates the micro switch via the spring (mechanical limit switch).
- 📖 Ensure the limit-switch tab is correctly positioned as shown in figure A. If necessary, loosen the fixing nuts on the gearmotor and adjust the feet, observing the coupling distance between the rack and pinion.
- ❸ Fasten the opening limit-switch tab using the grub screws supplied.



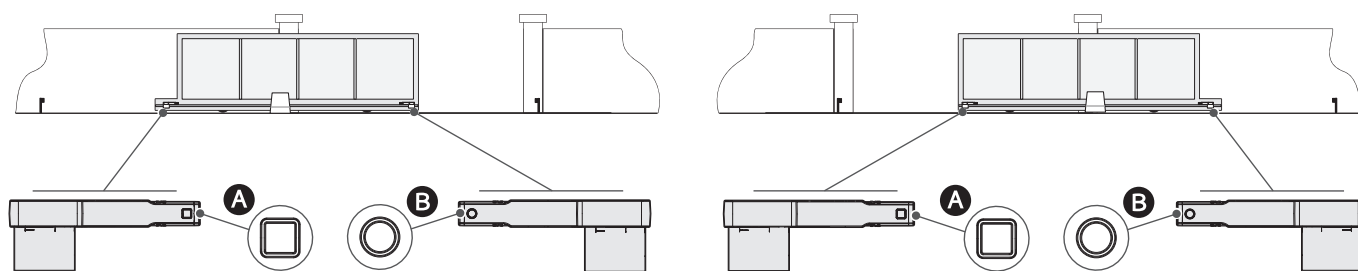
- ❹ Close the gate.
 - ❺ Insert the closing limit-switch tab in the rack until it activates the micro switch via the spring (mechanical limit switch).
- 📖 Ensure the limit-switch tab is correctly positioned as shown in figure A. If necessary, loosen the fixing nuts on the gearmotor and adjust the feet, observing the coupling distance between the rack and pinion.
- ❻ Fasten the closing limit-switch tab using the grub screws supplied.



Establishing the travel end points with magnetic limit switches

* Only for BKV15AGE, BKV20AGE and BKV25AGE

- A** Magnetic limit-switch tab during closing
- B** Magnetic limit-switch tab during opening



To the left (Default)

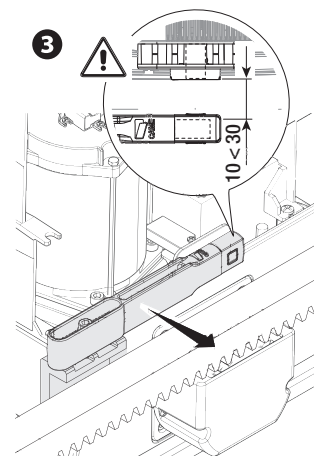
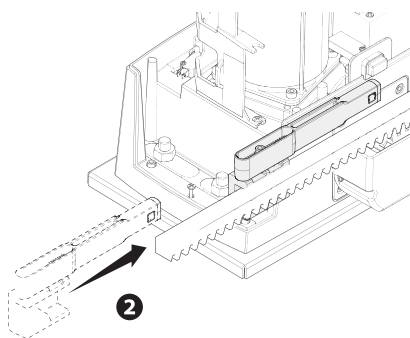
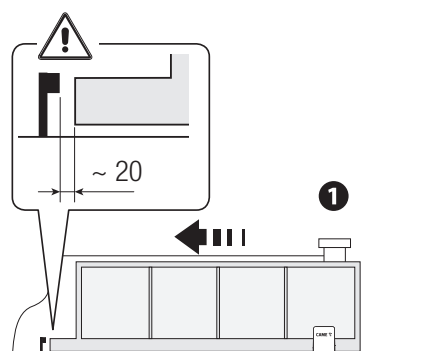
Edit the parameter for the function [Opening direction].

The figures below show the limit switch installed with the operator on the left.

Open the gate.

Insert the magnetic opening limit-switch tab on the rack.

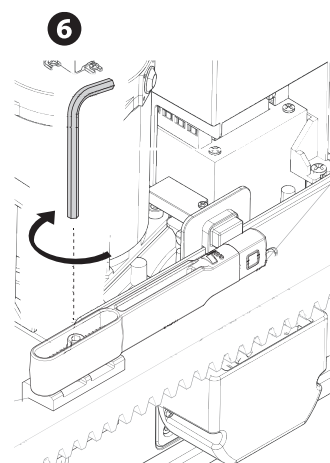
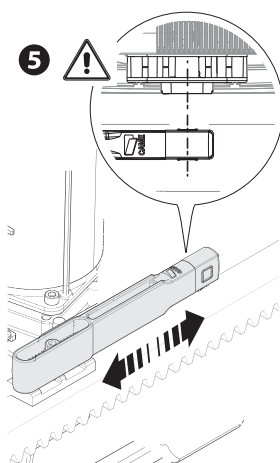
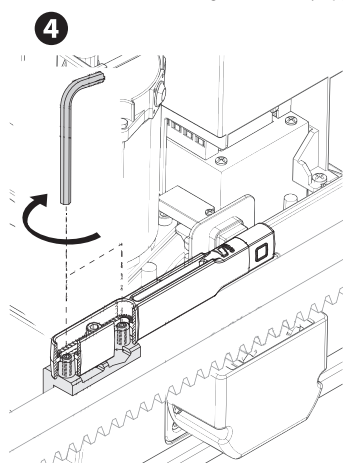
The tab magnet must be between 10 and 30 mm from the magnetic sensor.



Fasten the support to the rack using the grub screws supplied.

The limit-switch tab magnet must be perpendicular to the magnetic sensor.

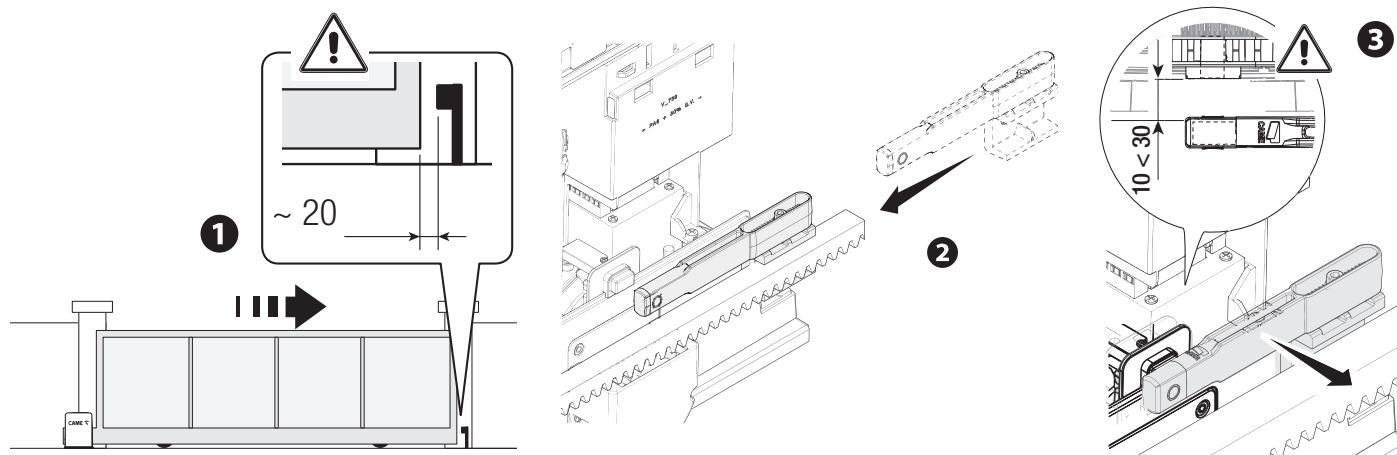
Fasten the limit-switch tab using the screw (supplied).




Close the gate.

Insert the magnetic closing limit-switch tab on the rack.

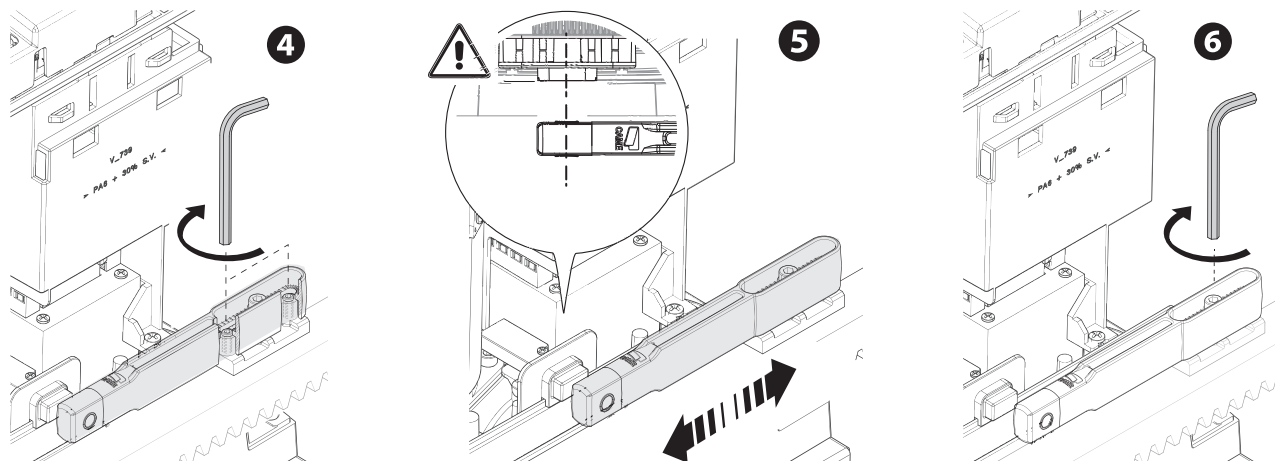
 The tab magnet must be between 10 and 30 mm from the magnetic sensor.



Fasten the support to the rack using the grub screws supplied.


 The limit-switch tab magnet must be perpendicular to the magnetic sensor.

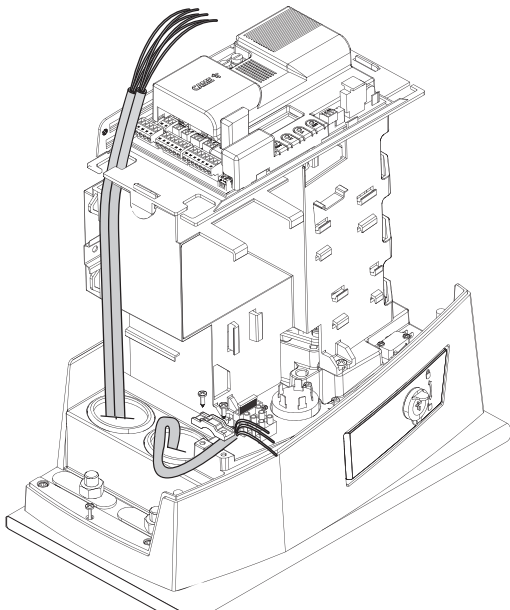
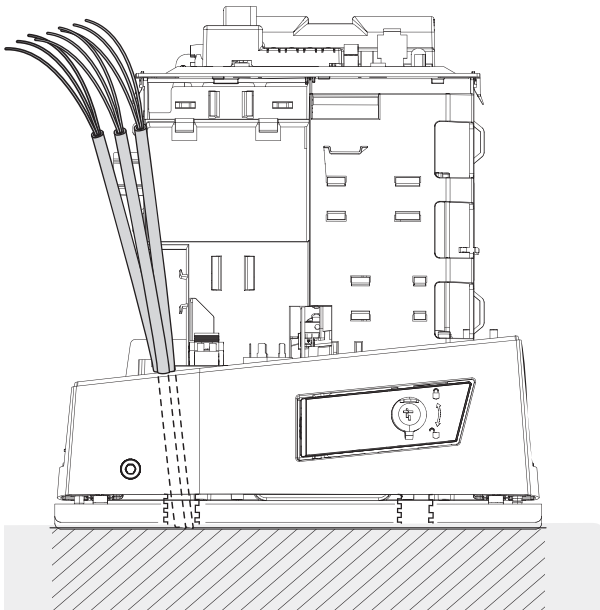
Fasten the limit-switch tab using the screw (supplied).




ELECTRICAL CONNECTIONS

Passing the electrical cables

 Connect all wires and cables in compliance with the law.
The electrical cables must not touch any parts that may overheat during use (such as the motor and transformer).

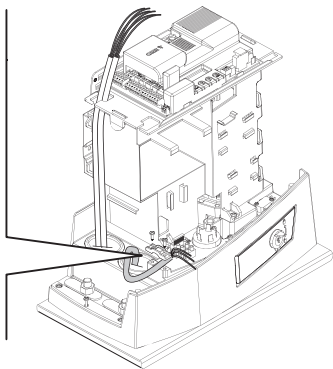
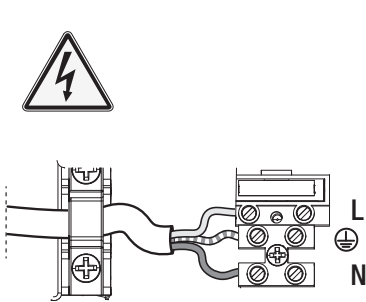


Power supply


Make sure the mains power supply is disconnected during all installation procedures.
 Before working on the control panel, disconnect the mains power supply and remove the batteries, if any.

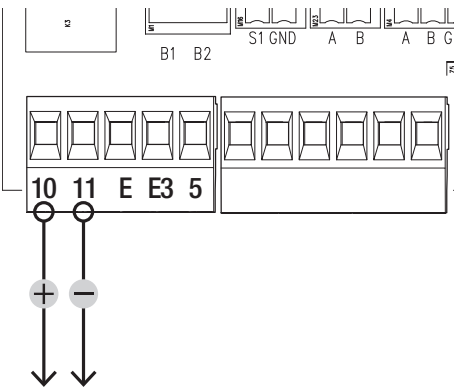
Connecting to the mains (230/120 V AC - 50/60 Hz)

-  L Phase
-  N Neutral
-  Earth



Power supply output for accessories

The output normally delivers 24 V AC.
 The sum of the power draw for the connected accessories must not exceed 20 W.



Maximum capacity of contacts

Device	Output	Power supply (V)	Power (W)
Accessories	10 - 11	24 AC/DC	20
Additional light	10 - E3	24	-
Flashing beacon	10 - E	24 AC/DC	3
Operator status warning light	10 - 5	24 AC/DC	-

❶ Flashing beacon

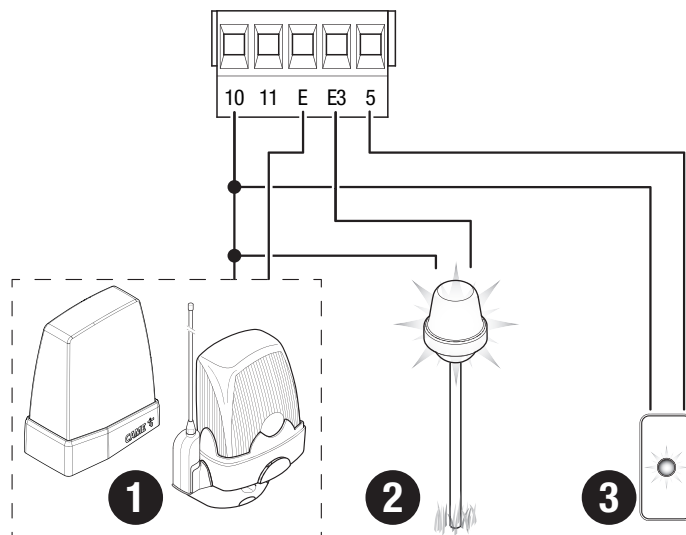
It flashes when the operator opens and closes.

❷ Additional light

It increases the light in the manoeuvring area.

❸ Operator status warning light

It notifies the user of the operator status.



- ❶ Card reader
- ❷ Transponder selector switch
- ❸ Keypad selector
- ❹ STOP button (NC contact)

Stop the gate and exclude automatic closing. Use a control device to resume movement.

📖 If the contact is not used, it must be deactivated during programming.

- ❺ Control device (NO contact)

OPEN ONLY function

- ❻ Control device (NO contact)

PARTIAL OPENING function

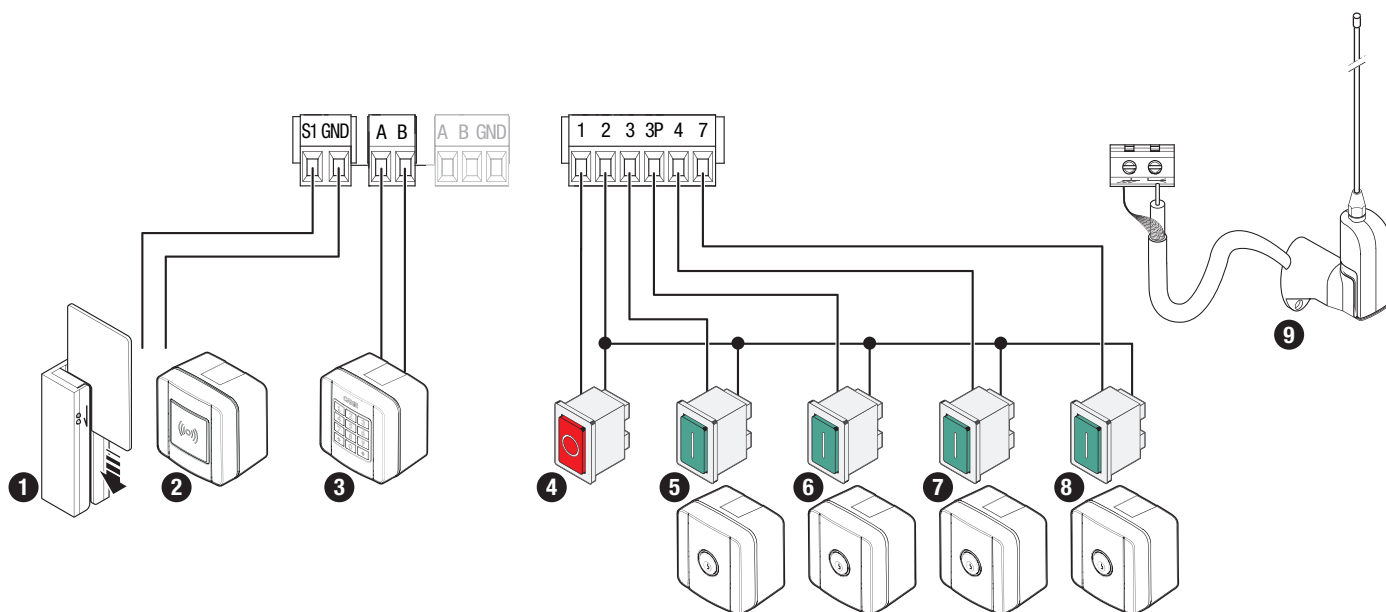
- ❼ Control device (NO contact)

CLOSE ONLY function

- ❽ Control device (NO contact)

OPEN-CLOSE (step-by-step) or OPEN-STOP-CLOSE-STOP (sequential) function

- ❾ Antenna with RG58 cable



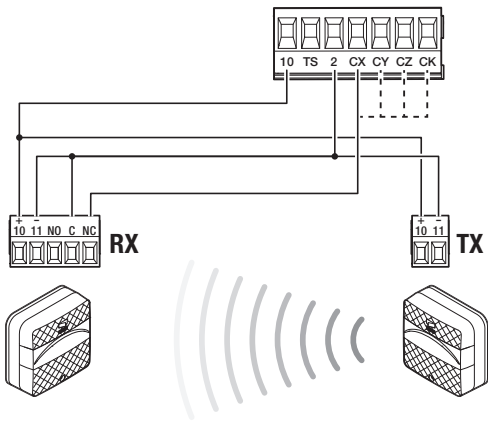
Safety devices

Connect the safety devices to the CX, CY CZ and/or CK inputs (NC contacts).
During programming, configure the type of action that must be performed by the device connected to the input.

 If contacts CX, CY, CZ and/or CK are not used, they must be deactivated during programming.


DELTA and DXR photocells

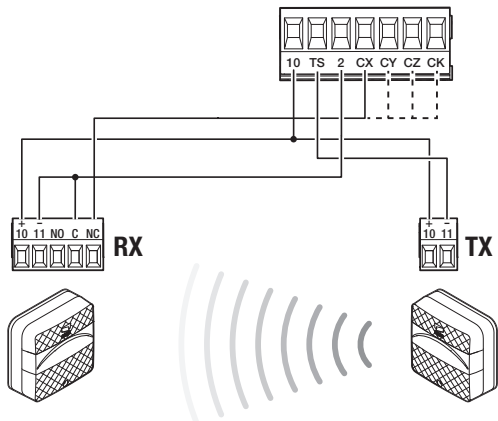
Standard connection



DELTA and DXR photocells

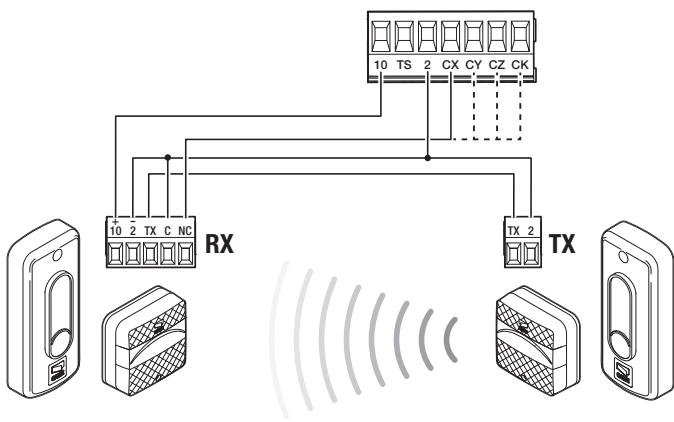
Connection with safety test

 See function [F5] Safety devices test.




DIR / DELTA-S photocells

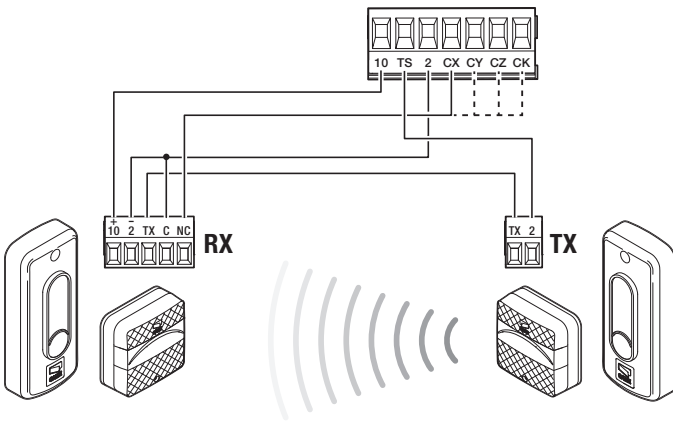
Standard connection



DIR / DELTA-S photocells

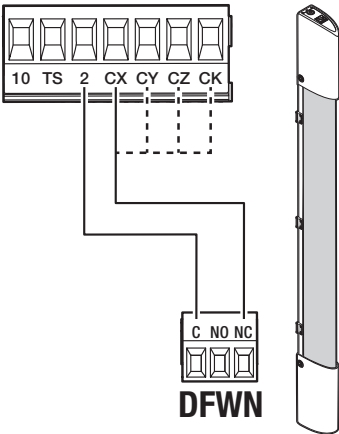
Connection with safety test

 See function [F5] Safety devices test.



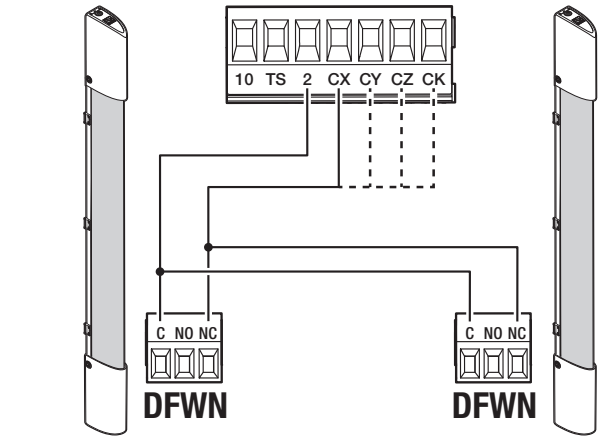
DFWN sensitive edge

Connection with resistive or NC contact



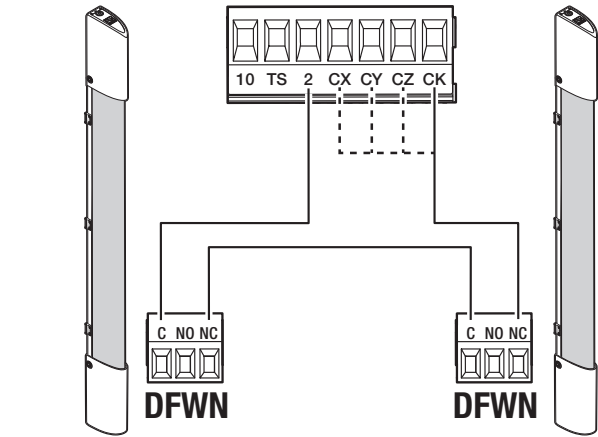
Pair of sensitive edges DFWN

Connected in parallel with resistive contact (recommended)

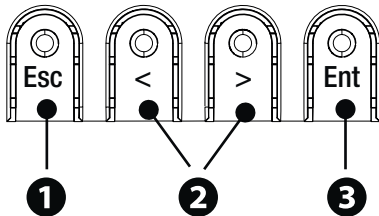


Pair of sensitive edges DFWN

Connected in series with resistive or NC contact



Programming button functions



1 ESC button

The ESC button is used to perform the operations described below.
Exit the menu
Delete the changes
Go back to the previous screen
Stop the operator

2 < > buttons

The < > buttons are used to perform the operations described below.
Navigate the menu
Increase or decrease values
Open or close the operator

3 ENTER button

The ENTER button is used to perform the operations described below.
Access menus
Confirm choice

Icon key



The operator is in self-learning mode.
When the operator is in self-learning mode, AST Control is disabled.
To prevent the AST Control from being disabled, calibrate travel manually.



The operator detected an obstruction when the gate was moving to the right.



The operator detected an obstruction when the gate was moving to the left.



The operator detected two obstructions when the gate was moving to the right.
When the maximum number of detected obstructions has been reached, the operator stops and an error message shows on the display.



The operator detected two obstructions when the gate was moving to the left.
When the maximum number of detected obstructions has been reached, the operator stops and an error message shows on the display.



There is at least one programmed timer.



A programmed timer is running.
With the timer programmed for opening or partial opening, any given radio command will always allow opening. The wired commands continue to operate normally.

Getting started

- Once the electrical connections have been made, proceed with commissioning. Only skilled and qualified staff may perform this operation. Make sure that there are no obstacles in the way. Connect the device to the power supply and follow the wizard that appears on the display.
- After powering up the system, the first manoeuvre is always to open the gate. Wait for the manoeuvre to be completed.
- Press the ESC button or STOP button immediately in the event of any faults, malfunctions, strange noises or vibrations, or unexpected behaviour in the system.

Functions menu

Opening direction

Set the gate opening direction.

Configuration Motor settings	Opening direction	To the left (Default) To the right
---------------------------------	-------------------	---------------------------------------

Motor test

Check the gate opens in the right direction.

 If the buttons do not execute the commands correctly, invert the gate opening direction.

Configuration Motor settings	Motor test	The > button closes the gate The < button opens the gate
---------------------------------	------------	---

Travel calibration

Start the travel self-learning.

Configuration Motor settings	Travel calibration	Confirm? NO Confirm? YES
---------------------------------	--------------------	-----------------------------

Motor type

Set the type of gearmotor installed.

Configuration Motor settings	Motor type	BKV1500 BKV2000 BKV2500
---------------------------------	------------	-------------------------------

Opening speed

Set the opening speed (percentage of maximum speed).

Configuration Gate travel settings	Opening speed	40% to 100% (Default 100%)
---------------------------------------	---------------	----------------------------


Closing speed

Set the closing speed (percentage of maximum speed).

Configuration Gate travel settings	Closing speed	40% to 100% (Default 100%)
---------------------------------------	---------------	----------------------------

Opening slowdown speed


Set the slowdown speed during opening (as a percentage of the maximum speed).

 If the slowdown speed is incorrectly set to a value higher than the opening speed by mistake, the parameter is automatically corrected.

Configuration Gate travel settings	Opening slowdown speed	15% to 60% (Default 50%)
---------------------------------------	------------------------	--------------------------

Closing slowdown speed

Set the slowdown speed during closing (as a percentage of the maximum speed).

 If the slowdown speed is incorrectly set to a value higher than the opening speed by mistake, the parameter is automatically corrected.

Configuration Gate travel settings	Closing slowdown speed	15% to 60% (Default 50%)
---------------------------------------	------------------------	--------------------------

Travel sensitivity

Adjust the obstruction detection sensitivity during boom travel.

Configuration Gate travel settings	Travel AST control	Deactivated (Default) Minimum Average Maximum Customised
---------------------------------------	--------------------	--

Slowdown sensitivity

Adjust the obstruction detection sensitivity during slowdown.

Configuration Gate travel settings	Slowdown AST control	Deactivated (Default) Minimum Average Maximum Customised
---------------------------------------	----------------------	--

Soft start

Set a slowdown of a few seconds after each opening and closing command.

Configuration Gate travel settings	Soft start	Deactivated (Default) On
---------------------------------------	------------	-----------------------------


Partial opening point

Determine the gate partial opening point, as a percentage of total travel.

Configuration Gate travel settings	Part. open point	10% to 100% (20% Default)
---------------------------------------	------------------	---------------------------

Opening slowdown point


Set the opening slowdown start point, as a percentage of total travel.

 During travel calibration, the opening slowdown point is automatically set to allow for a slowing space of 60 cm.

Configuration Gate travel settings	Opening slowdown point	2% to 60% (Default 25%)
---------------------------------------	------------------------	-------------------------

Closing slowdown point

Set the closing slowdown start point, as a percentage of total travel.

 During travel calibration, the closing slowdown point is automatically set to allow for a slowing space of 60 cm.

Configuration Gate travel settings	Closing slowdown point	2% to 60% (Default 25%)
---------------------------------------	------------------------	-------------------------

Total stop

Stop the gate and exclude automatic closing. Use a control device to resume movement.

Configuration Wired safety devices	Total stop	Deactivated (Default) On
---------------------------------------	------------	-----------------------------

CX input

Associate a function with the CX input.

Configuration Wired safety devices	CX input	Deactivated (Default) C1 = Reopen while closing (photocells) C2 = Reclose while opening (photocells) C3 = Partial stop C4 = Obstacle standby (photocells) C7 = Reopen while closing (sensitive edges) C8 = Reclose while opening (sensitive edges) C13 = Reopen while closing, with immediate stop once the obstruction has been removed, even if the gate is not in motion r7 = Reopen while closing (sensitive edges with 8K2 resistor) r8 = Reclose while opening (sensitive edges with 8K2 resistor) r7 (two sensitive edges) = Reopen while closing (pair of sensitive edges with 8K2 resistor) r8 (two sensitive edges) = Reclose while opening (pair of sensitive edges with 8K2 resistor)
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CY input

Associate a function with the CY input.

Configuration Wired safety devices	CY input	Deactivated (Default) C1 = Reopen while closing (photocells) C2 = Reclose while opening (photocells) C3 = Partial stop C4 = Obstacle standby (photocells) C7 = Reopen while closing (sensitive edges) C8 = Reclose while opening (sensitive edges) C13 = Reopen while closing, with immediate stop once the obstruction has been removed, even if the gate is not in motion r7 = Reopen while closing (sensitive edges with 8K2 resistor) r8 = Reclose while opening (sensitive edges with 8K2 resistor) r7 (two sensitive edges) = Reopen while closing (pair of sensitive edges with 8K2 resistor) r8 (two sensitive edges) = Reclose while opening (pair of sensitive edges with 8K2 resistor)
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CZ input

Associate a function with the CZ input.

Configuration Wired safety devices	CZ input	Deactivated (Default) C1 = Reopen while closing (photocells) C2 = Reclose while opening (photocells) C3 = Partial stop C4 = Obstacle standby (photocells) C7 = Reopen while closing (sensitive edges) C8 = Reclose while opening (sensitive edges) C13 = Reopen while closing, with immediate stop once the obstruction has been removed, even if the gate is not in motion r7 = Reopen while closing (sensitive edges with 8K2 resistor) r8 = Reclose while opening (sensitive edges with 8K2 resistor) r7 (two sensitive edges) = Reopen while closing (pair of sensitive edges with 8K2 resistor) r8 (two sensitive edges) = Reclose while opening (pair of sensitive edges with 8K2 resistor)
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CK input

Associate a function with the CK input.

Configuration Wired safety devices	CK input	Deactivated (Default) C1 = Reopen while closing (photocells) C2 = Reclose while opening (photocells) C3 = Partial stop C4 = Obstacle standby (photocells) C7 = Reopen while closing (sensitive edges) C8 = Reclose while opening (sensitive edges) C13 = Reopen while closing, with immediate stop once the obstruction has been removed, even if the gate is not in motion r7 = Reopen while closing (sensitive edges with 8K2 resistor) r8 = Reclose while opening (sensitive edges with 8K2 resistor) r7 (two sensitive edges) = Reopen while closing (pair of sensitive edges with 8K2 resistor) r8 (two sensitive edges) = Reclose while opening (pair of sensitive edges with 8K2 resistor)
---------------------------------------	----------	--

Safety devices test

Check that the photocells connected to the inputs are operating correctly, after each opening and closing command.

Configuration Wired safety devices	Safety devices test	Deactivated (Default) On
---------------------------------------	---------------------	-----------------------------

Obstacle with motor stopped

With the function active, the gate remains idle if the safety devices detect an obstacle. The function is active when the gate is closed, open or after a complete stop.

Configuration Wired safety devices	Obst. with motor stopped	Deactivated (Default) On
---------------------------------------	--------------------------	-----------------------------

RIO ED T1

Associate one of the available functions with a wireless safety device.

Configuration RIO safety devices	RIO ED T1	Disabled (Default) P0 = It stops the gate and excludes automatic closing. Use a control device to resume movement. P7 = Reopen while closing. P8 = Reclose while opening.
-------------------------------------	-----------	--

RIO ED T2

Associate one of the available functions with a wireless safety device.

Configuration RIO safety devices	RIO ED T2	Disabled (Default) P0 = It stops the gate and excludes automatic closing. Use a control device to resume movement. P7 = Reopen while closing. P8 = Reclose while opening.
-------------------------------------	-----------	--

RIO PH T1

Associate one of the available functions with a wireless safety device.

Configuration RIO safety devices	RIO PH T1	Disabled (Default) P1 = Reopen while closing. P2 = Reclose while opening. P3 = Partial stop. P4 = Obstacle standby. P13 = Reopening during closure with immediate stop once the obstacle has been removed, even with the gate not in motion.
-------------------------------------	-----------	---

RIO PH T2

Associate one of the available functions with a wireless safety device.

Configuration RIO safety devices	RIO PH T2	Disabled (Default) P1 = Reopen while closing. P2 = Reclose while opening. P3 = Partial stop. P4 = Obstacle standby. P13 = Reopening during closure with immediate stop once the obstacle has been removed, even with the gate not in motion.
-------------------------------------	-----------	---

Command 2-7

Associate a command with the device connected to 2-7.

Configuration Command inputs	Command 2-7	Step-by-step (Default) Sequential
---------------------------------	-------------	--------------------------------------

Hold-to-run

With the function active, the operator stops moving (opening or closing) when the control device is released.

 When the function is active, it excludes all other radio control devices.

Configuration Functions	Hold-to-run	Deactivated (Default) On
----------------------------	-------------	-----------------------------

B1-B2 output

Configure the contact.

Configuration Functions	B1-B2 output	Bistable Monostable (Default) The contact remains closed for 1 to 180 seconds.
----------------------------	--------------	--

Removing obstacles


If an obstacle is detected by the sensitive edge or by the amperometric sensor on the electronic board, movement is inverted to create a space sufficient to clear the obstacle.

If this function is deactivated, the motion is inverted until the limit-switch is reached.

Configuration Functions	Removing obstacles	Deactivated (Default) On
----------------------------	--------------------	-----------------------------

Automatic closure


Set the time before automatic closure is activated, once the opening travel end point has been reached.

 The function does not work if any of the safety devices are triggered when an obstacle is detected, after a complete stop, during a power outage or if there is an error.

Configuration Times	Automatic close	Deactivated (Default) From 1 to 180 seconds
------------------------	-----------------	--

Automatic closing after partial opening

Set the time before automatic closure is activated, after a partial opening command has been performed.

 The function does not work if any of the safety devices are triggered when an obstacle is detected, after a complete stop, during a power outage or if there is an error.

 Do not deactivate the function [Automatic close].

Configuration Times	Automatic partial close	Off 1 to 180 seconds (Default 10 seconds)
------------------------	-------------------------	--



Gate-open warning light

It signals the gate status.

Configuration Manage lights	Gate-open warning light	Warning light on (Default) - The warning light stays on when the gate is moving or open. Warning light flashing - The warning light flashes when the gate is moving and it stays on when the gate is open. Rhythmic flashing - Every hour, 3 + 3 flashes signal that the number of operations for maintenance has been reached.
--------------------------------	-------------------------	---

Light E3

Choose the operating mode of the lighting device connected to the output.

Configuration Manage lights	Light E3	Deactivated (Default) Cycle lamp  The light remains off if an automatic closing time is not set. Courtesy light  The light remains on for the time set under the function [Courtesy time].
--------------------------------	----------	--

Courtesy time

Set the lighting device operation time.

Configuration Manage lights	Courtesy time	60 to 180 seconds (Default 60 seconds)
--------------------------------	---------------	--


Pre-flashing time

Set the time for which the beacon is activated before each manoeuvre.

Configuration Manage lights	Pre-flashing time	Deactivated (Default) 1 to 10 seconds
--------------------------------	-------------------	--

RSE1

Configure the function to be performed by the card inserted in the RSE1 connector.

 If an RSE card – configured for paired connections – is plugged into the RSE_1 connector, use the RSE_2 connector for remote connection (CRP). In this case, a CAME KEY cannot be connected.

Configuration RSE communication	RSE1	CRP (Default) Paired Off
------------------------------------	------	--------------------------------

CRP address

Assign a unique identification code (CRP address) to the control board. It is used where there are multiple operators connected via CRP.

Configuration RSE communication	CRP address	1 to 254
------------------------------------	-------------	----------

RSE1 speed

Set the remote connection system communication speed on the RSE1 port.

Configuration RSE communication	RSE1 speed	1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 38400 bps (Default) 57600 bps 115200 bps
------------------------------------	------------	--

RSE2 speed

Set the remote connection system communication speed on the RSE2 port.

Configuration RSE communication	RSE2 speed	1200 bps 2400 bps 4800 bps 9600 bps 14400 bps 19200 bps 38400 bps (Default) 57600 bps 115200 bps
------------------------------------	------------	--

Save data

Save user data, timings and configurations to the memory device (memory roll).

Configuration External memory	Save data	
----------------------------------	-----------	--

Read data

Upload user data, timings and configurations to the memory device (memory roll).

Configuration External memory	Read data	
----------------------------------	-----------	--

Guided procedure (Wizard)

You can use the system configuration wizard.

Configuration	Guided procedure (Wizard)	Type of system Opening direction CX input CY input CZ input CK input Travel AST Control Slowdown AST Control Add users Travel calibration
---------------	---------------------------	--

New user

Register up to a maximum of 250 users and assign a function to each one.

 The operation can be carried out by using a transmitter or another control device. The boards that manage the control devices (AF - R700 - R800) must be inserted into the connectors.

User management	New user	Step-by-step Sequential Open Partial opening B1-B2 output Choose the function to be assigned to the user. Press ENTER to confirm. Send the code from the control device. Repeat the procedure to add other users.
-----------------	----------	---

Remove user

Remove one of the registered users.

User management	Remove user	Use the arrows to choose the number associated with the user you want to remove. No. 1 > 250 Alternatively, the control device associated with the user you want to remove can be activated. Press ENTER to confirm. “CLR” will appear to confirm deletion. Confirm? NO Confirm? YES
-----------------	-------------	--


Remove all

Remove all registered users.

User management	Remove all	Confirm? NO Confirm? YES
-----------------	------------	-----------------------------

Radio decoding

Choose the type of radio coding for the transmitters enabled to control the operator.

 If you choose the type of radio coding for the transmitters [Rolling code] or [TW key block], any transmitters with a different type of radio coding saved previously will be deleted.

User management	Radio decoding	All decodings Rolling code TW Key block Confirm? NO Confirm? YES
-----------------	----------------	--

Sensor type

Set the type of control device.

User management	Sensor type	Keypad Transponder
-----------------	-------------	-----------------------


Self-Learning Rolling

Save a new transmitter using an existing one without following the add new user procedure [New User].

User management	Self-Learning Rolling	Deactivated (Default) On
-----------------	-----------------------	-----------------------------

Change mode

Change the function assigned to a specific user.

User management	Change mode	Select the user for whom you want to change the command.  You can select a user without using the arrows, by sending a command from the device associated with the user. Press ENTER to confirm. Choose the command to associate with the user. Press ENTER to confirm. Confirm? No Confirm? Yes
-----------------	-------------	---

FW version

Display the firmware version number and the GUI installed.

Information	FW version	FW x.x.xx (firmware) GUI x.x (graphics)
-------------	------------	--

Manoeuvre counter

View the number of operator manoeuvres.

Total manoeuvres = Manoeuvres carried out since installation.

Partial manoeuvres = Manoeuvres carried out after the last one [Maintenance reset].

Information	Manoeuvre counter	Total manoeuvres Partial manoeuvres
-------------	-------------------	--

Set up maintenance

Set the number of manoeuvres the operator can perform before a maintenance warning signal is generated. During a maintenance warning signal, the warning light flashes rhythmically 3 + 3 times [Open].

Information	Set up maintenance	Deactivated (Default) 1X100 to 250X100
-------------	--------------------	---

Maintenance reset

Reset the number of partial manoeuvres.

Information	Maintenance reset	Confirm? NO Confirm? YES
-------------	-------------------	-----------------------------

Parameter reset

Restore factory settings except for the functions: [Radio decoding], [Motor type] and the settings related to travel calibration.

Information	Parameter reset	Confirm? NO Confirm? YES
-------------	-----------------	-----------------------------

Errors list

View the last 8 errors detected. The error list can be deleted.

Information	Errors list	Use the arrows to scroll through the list. To cancel the error list, select [Delete errors] Press ENTER to confirm. Confirm? NO Confirm? YES
-------------	-------------	--

Show clock

Enable the clock on the display.

Timer management	Show clock	
------------------	------------	--

Set the clock

Set the date and time.

Timer management	Set the clock	Use the arrows and the Enter button to enter the desired values.
------------------	---------------	--

Automatic DST

Enable automatic daylight saving time setting.

Timer management	Automatic DST	Deactivated (Default) On
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Time format

Choose the clock display format.

Timer management	Time format	24-hour 12-hour
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Create new timer

Time one or more types of activation chosen from those available.

Timer management	Create new timer	Use the arrows to choose the desired function. Open / Partial opening / Output B1-B2 Press ENTER to confirm. Use the arrows to set the start and end time of the function activation. Start time / end time Press ENTER to confirm. Use the arrows to set the function activation days. Select days / Whole week Press ENTER to confirm.
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Remove timer

Removes one of the saved timings.

Timer management	Remove timer	Use the arrows to choose the timing to be removed. O = [Opening] P = [Partial opening] B = [Output B1-B2] Press ENTER to confirm.
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Commands

Run certain gate commands without the control devices.

Commands		Open Partial opening Close Stop Use the arrows to select the command to be executed. Press ENTER to confirm.
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Language

Set the display language.

Language		Italiano (IT) English (EN) Français (FR) Deutsch (DE) Español (ES) Português (PT) Русский (RU) Polski (PL)
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Enable password

Set a 4-digit password. The password will be requested to anyone who wants to access the main menu.

Password	Enable password	Use the arrows and the Enter button to dial the desired code. Enter the password again using the arrows and the Enter button to confirm.
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Forgotten password

If you forget your password, follow the procedure below.
Disconnect the control board from the power supply.
Press and hold the < and > buttons, then reconnect the control board to the power supply.
Continue to press and hold the < > buttons until [Factory reset] is displayed.
Select [Confirm YES].
Press ENTER to confirm.

 When you reset the control board, all saved users, set times and calibration operations are deleted.

Remove password

Remove the password that protects access to the main menu.

Password	Remove password	Confirm? NO Confirm? YES
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Change password

Change the 4-digit password that protects access to the main menu.

Password	Change password	Use the arrows and the Enter button to dial the desired code. Enter the password again using the arrows and the Enter button to confirm.
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F Menu

Enable the F functions menu view.

Import/export data

Save user data and system configuration data on a MEMORY ROLL card.
The stored data can be reused for another control board to configure another system in the same way.

⚠ Before inserting and removing the MEMORY ROLL card, DISCONNECT THE MAINS POWER SUPPLY TO THE LINE.

- 1 Insert the MEMORY ROLL card into the corresponding connector on the control board.
- 2 Press the “Enter” button to access programming.
- 3 Use the arrows to choose the desired function.

📖 The functions are displayed only when a MEMORY ROLL card is inserted.

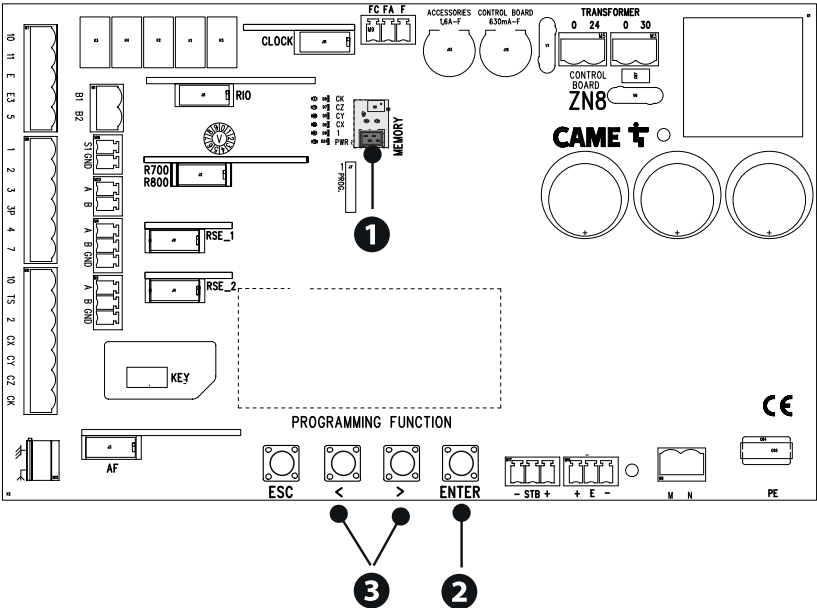
- Save data

Save user data, timings and configurations to the memory device (memory roll).

- Read data

Upload user data, timings and configurations to the memory device (memory roll).

📖 Once the data have been saved and loaded, remove the MEMORY ROLL card.

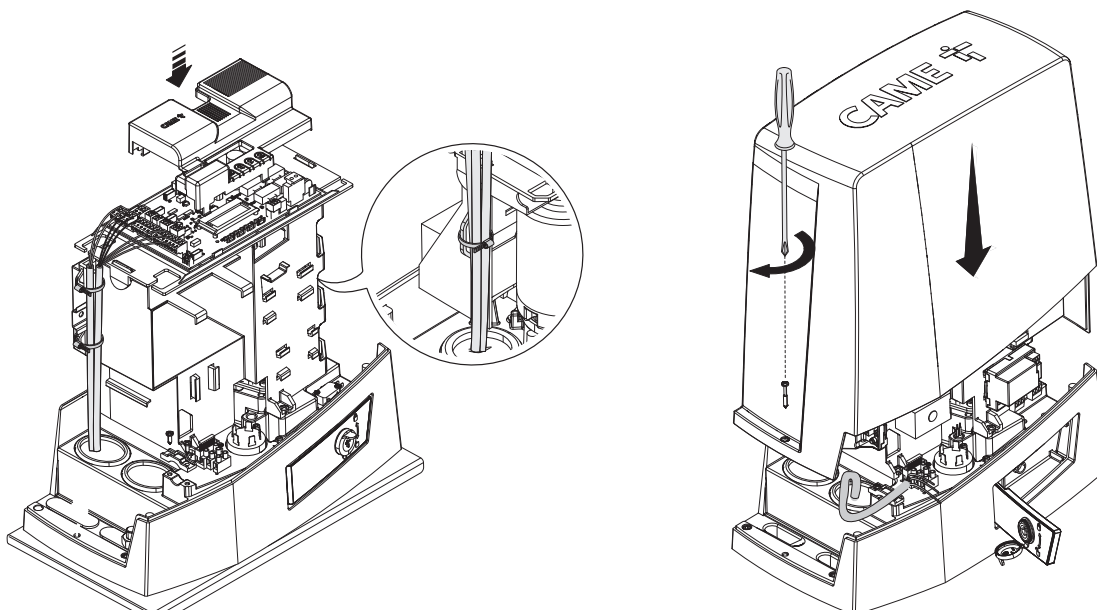


ERROR MESSAGES

E2	Calibration error
E3	Encoder signal not detected error
E4	Service test failure error
E6	Motor control malfunction
E7	Operating time error
E8	Open release-hatch error
E9	Obstacle detected during closing
E10	Obstacle detected during opening
E11	The maximum number of obstacles detected consecutively has been exceeded
E12	Motor supply voltage missing or insufficient
E13	Limit switch input error or both limit switches open
E14	Serial communication error
E15	Incompatible transmitter error
E16	Open SLAVE-motor hatch error
E17	Wireless system communication error
E18	Wireless system not configured error

FINAL OPERATIONS

 Before closing up the casing, check that the cable inlets are sealed to stop insects getting in and to prevent damp.



PAIRED OPERATION

Two connected operators are controlled with one command.

Electrical connections

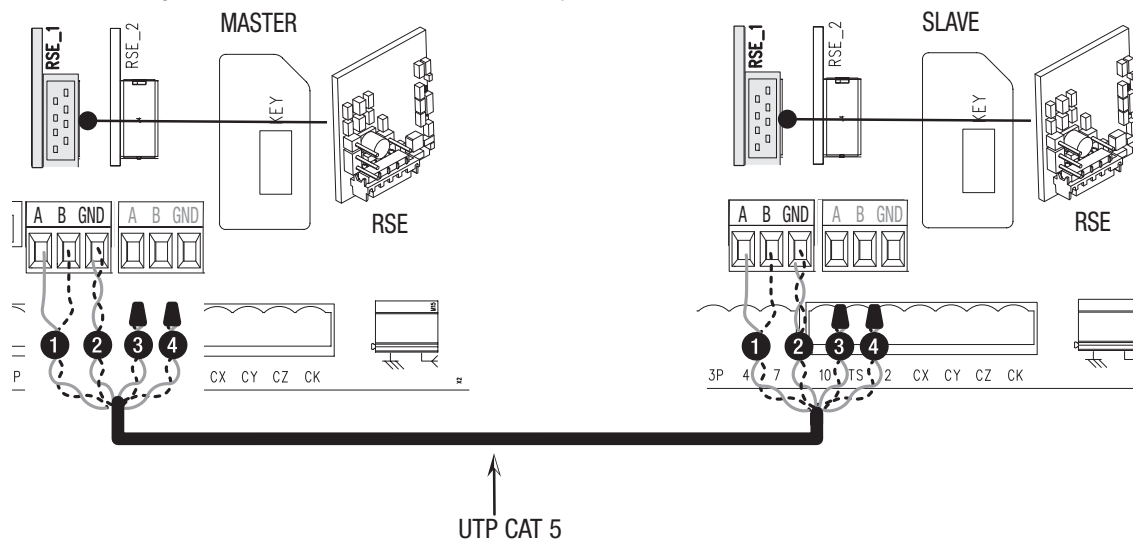
Connect the two electronic boards with a UTP CAT 5 cable.

Fit an RSE card on both control boards, using the RSE_1 connector.

Connect up the electrics for the devices and accessories.

 The devices and accessories must be connected to the control board which will be set as the MASTER.

 For information on connecting the electrics for the devices and accessories, please see the “ELECTRICAL CONNECTIONS” section.



Programming

 All programming operations described below must be performed only on the control board set as the MASTER.

Select the [Paired] system type when following the guided procedure, or configure the RSE_1 port to [Paired] mode.

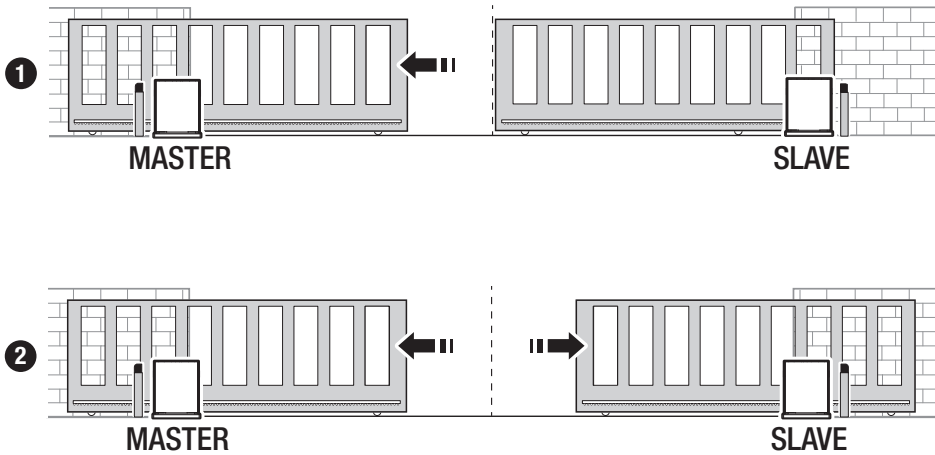
 After programming the MASTER operator in [Paired], the second operator automatically becomes SLAVE.

Saving users

 All save user operations must be performed only on the control board set as the MASTER.

Operating modes

- 1 PARTIAL OPENING command
- 2 STEP-BY-STEP or OPEN ONLY command



MCBF			
Models	BKV15	BKV20	BKV25
20 m - 1500 kg	250000	-	-
20 m - 2000 kg	-	250000	-
20 m - 2500 kg	-	-	250000
Installation in windy area	-15%	-15%	-15%

The percentages indicate how much the number of cycles should be reduced in relation to the type and number of accessories installed.

Before carrying out any cleaning or maintenance, or replacing any parts, disconnect the device from the power supply.

This document informs the installer of the checks that must be carried out during maintenance.

If the system is not used for long periods of time, e.g. for installations at sites with seasonal closures, disconnect the power supply. When the power supply is reconnected, check the system is working correctly.

For information on correct installation and adjustments, please see the product installation manual.

For information on choosing products and accessories, please see our product catalogue.

Every 10,000 cycles and, in any case, every 6 months of operation, you must perform the maintenance work indicated below.

Perform a general and complete check of the tightness of the nuts and bolts.

Grease all of the moving mechanical parts.

Check the warning and safety devices are working properly.

Check for any wear on the moving mechanical parts and check that they are working properly.

Check the release mechanism is working efficiently by performing a manoeuvre with the leaf free. The gate leaf must not be obstructed.

Check the cables are intact and connected correctly.

Check and clean the track guide and rack.



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