

119BW41EN



OPERATOR FOR SLIDING GATES



Installation manual





English

CE

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CAUTION! important personal safety instructions: READ CAREFULLY!



Foreword

• This product should only be used for the purpose for which it was explicitly designed. Any other use is considered dangerous. CAME Cancelli Automatici S.p.A. is not liable for any damage resulting from improper, wrongful or unreasonable use • Keep these warnings with the installation and use manuals issued with the automation system.

Before installing

(preliminary check: in case of a negative outcome, do not proceed until you have complied with the safety requirements)

• Check that the part you intend to automate is in good mechanical condition, balanced and aligned, and that it opens and closes properly. Make sure that proper mechanical stops are already in place • If the operator will be installed at a height of less than 2.5 m from the ground or other access level, check whether you will need any protections and/or warnings • Any gate leaves fitted with pedestrian entrances onto which you will install an operator must have a blocking mechanism when the gate is in motion • Make sure that the opening of the automated gate is not an entrapment hazard as regards any surrounding fixed parts • Do not mount the operator upside down or onto any elements that may fold under its weight. If needed, add suitable reinforcements at the points where it is secured • Do not install onto gates not on level ground • Check that any lawn watering devices will not wet the operator from the bottom up.

Installation

• Carefully section off the entire site to prevent unauthorised access, especially by minors and children • Be careful when handling operators that weigh more than 20 kg. In such cases, use proper weight handling safety equipment • All opening commands (e.g. buttons, key selector switches, magnetic detectors etc.) must be installed at least 1.85 m from the gate's area of operation perimeter - or where they cannot be reached from the outside of the gate. Also, the direct commands (buttons, touch commands etc.) must be installed at a height of at least 1.5 m and must not be accessible to the public • All 'hold-to-run' commands must be placed where the moving gate leaves, transit areas and driveways are completely visible • If missing, apply a permanent label that shows the position of the release mechanism • Before delivering to the user, check that the system is EN 12453 (impact test) standard compliant. Make sure that the operator has been properly adjusted and that the safety and protection devices as well as the manual release are working properly • Where necessary and in plain sight, apply the Warning Signs (e.g. gate plate)

Special instructions and advice for users

 Keep the gate's area of operation clean and clear of any obstacles. Check that there is no vegetation in the area of operation of the photocells and that there are no obstacles in the area of operation of the operator • Do not allow children to play with the fixed command devices, or in the gate's area of operation. Keep any remote control devices (i.e. transmitters) or any control devices away from children as well, to prevent the operator from being activated accidentally •The operator is not designed to be used by persons (including children) whose physical, sensorial or mental capacities are limited, or who are lacking in experience or knowledge, unless said persons can be supervised or given instructions regarding using the operator by a person responsible for their safety . Frequently check the system, to see whether any anomalies or signs of wear and tear appear on the moving parts, on the component parts, on the securing points, on the cables and any accessible connections. Keep any joints (i.e. hinges) lubricated and clean, and do the same where friction may occur (i.e. slide rails) • Perform functional tests on photocells and sensitive edges every six months. To check that the photocells work, pass an object in front of them during closing. If the operator reverses the direction of movement or comes to a halt, the photocells work correctly. This is the only maintenance operation that must be carried out while the operator is live. Ensure that the glass on the photocells is kept clean (use a cloth slightly moistened with water; do not use solvents or any other chemicals as these could damage the devices) • If the system requires repairs or modifications, release the operator and do not use it until safety conditions have been restored • Cut off the power supply before releasing the operator for manual openings and before any other operation, to prevent dangerous situations. Read the instructions • If the power cable is damaged, it must be replaced by the manufacturer or

the technical assistance service or by a person with a similar qualification so as to prevent any risks • It is STRICTLY FORBIDDEN for users to perform OPERATIONS THEY ARE NOT EXPLICITLY REQUIRED AND ASKED to do in the manuals. For repairs, adjustments and extraordinary maintenance, CONTACT THE SPECIALIST TECHNICAL SERVICE CENTRE • On the periodic maintenance log, note down the checks you have done.

Special instructions and advice for all

• Avoid working near the hinges or moving mechanical parts • Stay clear of the gate's area of operation when in motion • Do not resist the direction of movement of the gate; this may present a safety hazard • At all times be extremely careful about dangerous points that must be indicated by proper pictograms and/or black and yellow stripes • When using a selector or command in 'hold-to-run' mode, keep checking that there are no people in the area of operation of the moving parts. Do this until you release the command • The gate may move at any time without warning • Always cut the power when cleaning or performing maintenance.



- Difference indicates parts to read carefully.
- ▲ This symbol indicates parts about safety.
- This symbol tells you what to say to the end users. F

REGULATORY REFERENCES

Came Cancelli Automatici is a company with an ISO 9001-certified company quality management system and an ISO 14001-certified environmental management system.

The product in question complies with the regulations referred to in the declaration of conformity.

DESCRIPTION

This product has been designed and built by CAME CANCELLI AUTOMATICI S.p.A. in compliance with applicable safety standards.

The operator consists of a cast aluminium part, with a non-reversible electromechanical gearmotor operating inside and an ABS container for the control board with the transformer.

Intended use

The BY-3500T operator has been designed to power sliding gates for industrial use.

Any installation and operation that differs from what is set out in this manual is prohibited.

Limits of use

Туре	BY-3500T
Max. leaf length (m)	17
Max. leaf weight (kg)	3.500

Technical data

Туре	BY-3500T
Protection rating (IP)	54
Power supply (V - 50/60 Hz)	230/400 AC THREE-PHASE
Motor power supply (V - 50/60 Hz)	230/400 AC THREE-PHASE
Current draw (A)	2
Power (W)	750
Thrust (N)	3500
Opening speed (m/min)	10,5
Duty cycle (%)	50
Operating temperature (°C)	-20 - +55
Motor thermal protection (°C)	150
Gear ratio (i)	1/28
Insulation class	
Weight (kg)	74



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Description of the components

- 1. Cabinet
- 2. Gearmotor
- 3. Control panel
- 4. Inspection panel
- 5. Fixing plate
- 6. Nut
- 7. Washer
- 8. Anchor bracket
- 9. Screw
- 10. Release nut
- 11. Customised DIN keys

Dimensions (mm)





GENERAL INSTALLATION INSTRUCTIONS

▲ Installation must be carried out by qualified and experienced personnel in compliance with applicable regulations.

Preliminary checks

▲ Before installing the operator:

- Check that the gate is stable, and that the sliding wheels are in good condition and greased.
- Check that the ground guide is securely fixed to the ground, completely on the surface and free from irregularities that may hinder gate movement.
- Check that the upper guide blocks do not create friction.
- Make sure there is one opening and one closing mechanical stop.
- Make sure that the mounting point for the gearmotor is in an area protected from impacts and that the anchoring surface is solid;
- Provide a suitable single-pole disconnection device, with a maximum of 3 mm between the contacts, to disconnect the power supply;
- Definition of the protection circuit) are fitted with extra insulation compared to the other internal conductor parts;
- Prepare suitable piping and ducts for routing the electrical cables, ensuring protection against mechanical damage.

Tools and materials

Make sure you have all the tools and materials you will need for the installation at hand to work in total safety and compliance with current standards and regulations. The figure shows some examples of installer's tools.



Types of cables and minimum thicknesses

Connection	Cable type	Cable length 1 < 10 m	Cable length 10 < 20 m	Cable length 20 < 30 m
Board power supply 230/400 V 3P	H05RN-F	4G x 1.5 mm ²	4G x 2.5 mm ²	4G x 4 mm ²
Flashing light	EBOB CEL	2 x 0.5 mm ²	2 x 1 mm ²	2 x 1.5 mm ²
Photocell transmitters	20-22	2 x 0.5 mm ²	2 x 0.5 mm ²	2 x 0.5 mm ²
Photocell receivers	IEC EN	4 x 0.5 mm ²	4 x 0.5 mm ²	4 x 0.5 mm ²
Control and safety devices	50267-2-1	2 x 0.5 mm ²	2 x 0.5 mm ²	2 x 0.5 mm ²
Limit switch connection		4 x 0.5 mm ²	4 x 0.5 mm ²	4 x 0.5 mm ²
Antenna connection	RG58	max. 10 m		

N.B.: If the cables differ in length compared to what is shown in the table, the cable cross-section is determined according to the actual current draw of the devices connected and according to the provisions of the IEC EN 60204-1 standard.

For connections that require several, sequential loads, the sizes given on the table must be re-evaluated based on actual power draw and distances. When connecting products that are not specified in this manual, please refer to the documentation provided with said products.

Example of a system

- 1. Operator
- 2. End run fin
- 3. Rack
- 4. Key selector
- 5. Flashing light
- 6. Antenna
- 7. Photocells
- 8. Photocell column
- 9. End run
- 10. Safety edge
- 11. Inspection chamber



INSTALLATION

▲ The following illustrations are only examples, given that the space for securing the operator and accessories varies depending on the overall dimensions. The installation technician is responsible for choosing the most suitable solution.

Installing corrugated tubes

Drill the hole for the counterframe.

Prepare the junction boxes and corrugated tubes necessary for the connections from the inspection chamber. In order to connect the gearmotor, a \emptyset 60 mm corrugated tube is advisable. \emptyset 25 mm pipes are recommended for accessories, on the other hand.

N.B. the number of tubes depends on the type of system installed and any accessories.



Installing the mounting plate

Prepare a counterframe that is larger than the mounting plate and place it in the hole. The counterframe must protrude 50 mm from ground level. Insert an iron grid inside the counterframe to reinforce the concrete.

Secure the anchor brackets to the plate using the screws, nuts and washers supplied.







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Position the mounting plate, respecting the measurements shown on the drawing, if the rack is already present. Caution! The tube must pass through the prepared hole.





Fill the counterframe with cement. The plate must be perfectly level with the screw threads completely on the surface. Allow to cure for at least.

Remove the counterframe and fill the hole around the block of cement with earth.







Remove the nuts and washers from the screws. Insert the electric cables in the tube until they protrude by approximately 600 mm.





Securing the gearmotor

Remove the inspection hatch using the customised key. Unscrew the side screws and lift the cabinet out of the gearmotor.



Position the gearmotor above the mounting plate. Caution! The electrical cables must pass under the gearmotor box. Lift the gearmotor 5 to 10 mm up from the plate, using the threaded steel feet for any subsequent adjustments between the pinion and the rack.



Unlock the gearmotor. Rest the rack on top of the gearmotor pinion.





Weld or secure the rack to the gate along its entire length. Assemble the rack modules by using a piece of scrap placed under the join point, securing it using two terminals. N.B. if the rack is already present, proceed directly with adjusting the pinion/rack coupling distance.





Open and close the gate manually and adjust the pinion/rack coupling distance using the threaded feet (vertical adjustment) and the slots (horizontal adjustment). This prevents the weight of the gate bearing upon the operator.



When adjustment is complete, secure the gearmotor to the plate using the washers and nuts.



Determining the end run points

Position the end run fins on the rack and secure them using the 3 mm hex key. Their position limits the gate run. N.B. ensure that the gate does not strike against the mechanical stop during opening or closing.





ELECTRICAL CONNECTIONS

△ Caution! Before intervening on the control panel, disconnect mains power.

Control board power supply: 230/400 VAC three-phase, with frequency of 50-60 Hz. Control device power supply: 24 VAC.

 $\hfill \hfill \hfill$ The functions must be set using the dip switches and the adjustments using the trimmers.

All the connections are protected by quick fuses.

	FUSE TABLE
Line fuses	8 A-F
Panel fuse	630 mA-F
Accessory fuse	2 A-F

Description of the components

- 1 Dip switch
- 2. Panel fuse
- 3. Accessory fuse
- 4. Line fuses
- Connector for AF card 5.
- 6. Power indicator LED
- 7. Programming indicator LED 8. Terminal block for control and
- safety devices 9 Transformer terminal block
- Radio code memorisation buttons 10.
- ACT trimmer: adjusting the 11.
- automatic closing time 12. PART.OP. trimmer: adjusting
- partial opening



Power supply

The gearmotor is designed to be powered at 400 V three-phase.



With 230 V three-phase power supply.

Remove the control panel, the mounting bracket and the connection cover.

Changing the connections of the gearmotor contacts. Replace the control panel and, on the control board, move the short circuit bridge from the 400 V terminal to the 230 V terminal.



Connecting the gearmotor and end run

The motor is designed to be installed on the left, inside view.







If installing on the right, inside view, reverse the motor and end run terminals on the control panel.







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Control devices

Stop button (N.C. contact) Stops the gate with the exclusion of automatic closing. To resume movement, press the control button or other control device.

N.B. if not used, set dip switch 10 to ON.

OPEN ONLY function from the control device (N.O. contact)

PARTIAL OPENING function from the control device (N.O. contact)

CLOSE ONLY function from the control device (N.O. contact)

OPEN-STOP-CLOSE-STOP (sequential) function / OPEN-CLOSE-REVERSE (step-by-step) from the control device (N.O. contact) See dip switch 2 and 3 function selection.



Indicator and lighting devices

Flashing light (Contact rated for: 230 V AC - 25 W max.). Flashes during gate opening and closing.



Cycle/courtesy lamp (Contact capacity: 230 V - 60 W max.).

With dip switch 16 set to OFF and dip switch 17 set to ON = Cycle lamp. Lights the area of operation. It remains on from the start of gate opening to complete closing (including the automatic closing time).

With dip switch 16 set to ON and dip switch 17 set to OFF = Courtesy lamp.

Lights the area of operation; stays on for a set time of 330 seconds after an opening command.

Gate closed indicator light (contact capacity: 24 V - 3 W max.) Indicates that the gate is closed.



Gate open indicator light (contact capacity: 24 V - 3 W max.)

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Safety devices

 $C1 = Contact \ (N.C.) \ for \ reopening \ during \ closing.$

Input for safety devices such as photocells, sensitive edges and other devices compliant with the EN 12978 standard. While the operator is closing, the opening of the contact causes the reversal of the direction of movement until completely open.

If C1 is not used, set dip switch 7 to ON.

CX with dip switch 8 and dip switch 9 OFF = Contact (N.C.) for reclosing during opening.

Input for safety devices such as photocells, sensitive edges and other devices compliant with the EN 12978 standard. While the operator is opening, the closing of the contact causes the reversal of the direction of movement until completely closed.

CX with dip switch 8 OFF and dip switch 9 ON = Contact (N.C.) for partial stop.

Input for safety devices such as photocells, sensitive edges and other devices compliant with the EN 12978 standard. Stops the operator, if it is moving, and then sets automatic closing.

If CX is not used, set dip switch 8 to ON.





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Photocell safety connection

With each opening or closing command, the panel checks that the photocells work. Any anomaly inhibits any command. Set dip switch 13 to ON.



DELTA



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1 ON	-	AUTOMATIC CLOSING function activated
2 ON	-	OPEN-STOP-CLOSE-STOP function from the transmitter and/or the button (2-7) activated
2 0FF	-	OPEN-CLOSE function from the transmitter and/or the button (2-7) activated
3 ON	-	OPEN ONLY function from the transmitter activated
4 ON	-	HOLD-TO-RUN function activated
5 ON	-	PRE-FLASHING during opening and closing activated
6 ON	-	OBSTACLE DETECTION function activated
7 0FF	-	REOPENING during closing (2-C1) function activated
8 0FF / 9 0FF	-	RECLOSING during opening (2-CX) function activated
8 OFF / 9 ON	-	PARTIAL STOP function (2-CX) activated; (if the devices are not connected on 2-CX, set dip switch 8 to ON)
10 OFF	-	TOTAL STOP function with button (1-2) activated
11	-	Not used, keep the dip switch in the OFF position
12 ON	-	PARTIAL OPENING function activated; automatic closing occurs after a set time of 8 seconds.
12 OFF	-	PARTIAL OPENING function activated; automatic closing, if envisaged, occurs after a time that can be set at between 1 and 14 seconds using the trimmers.
13 ON	-	Safety test function to check photocell efficiency activated; (13 OFF - disabled)
14	-	Not used, keep the dip switch in the OFF position
15	-	Not used, keep the dip switch in the OFF position
16 ON	-	COURTESY LAMP function activated
17 ON	-	CYCLE LAMP function activated
18	-	Not used, keep the dip switch in the OFF position
19	-	Not used, keep the dip switch in the OFF position
20	-	Not used, keep the dip switch in the OFF position

Adjustments



ACT trimmer

PART.OP. trimmer

Adjustment of the AUTOMATIC CLOSING time: from a minimum of 1 second to a maximum of 120 seconds.

- Adjustment of the PARTIAL OPENING time from a minimum of 1 second to a maximum of 14 seconds.

Activating the radio control

Connect the antenna RG58 cable to the terminals and any accessory to connect to the B1-B2 output (N.O. contact) ①.

For the AF43S / AF43SM radiofrequency cards only, position the jumper as shown according to the series of transmitters used 2.

DISCONNECT POWER AND REMOVE THE BATTERIES, IF PRESENT. Insert the AF card on the control board. N.B. the control board only recognises the AF card when the operator is powered again ③.

Hold down the CH1 key on the control board: the LED indicator flashes. Press a key on the transmitter to send the code. The LED will remain lit to indicate SUCCESSFUL memorisation 4.

Follow the same procedure with the CH2 key, associating it with another transmitter key **5**.

CH1 = channel for direct control of a panel function (OPEN ONLY, OPEN-CLOSE-REVERSE or OPEN-STOP-CLOSE-STOP, according to the selection made on dip switches 2 and 3).

CH2 = channel for commands directed to an accessory device connected on B1-B2 or for connecting two coupled motors having a single command.



Securing the cover

After making the electrical connections and selecting the functions and adjustments, fit the cabinet on the gearmotor and secure it.



Releasing the gearmotor

 $\ensuremath{\vartriangle}$ The operation must be carried out while the power is off.



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CONNECTING TWO COUPLED GEARMOTORS HAVING A SINGLE CONTROL

With two coupled gearmotors, you can command only the opening (by button and/or radio control): the gate will close only in automatic closing mode.

(1) Coordinate the direction of travel of the two gearmotors (A) and (B), by modifying the motor's rotation (B) (invert the cables on terminals FA-FC and U-V).

2 Make the electrical connections only on the motor's control board (2). Whereas, the adjustments and features, must be made on both boards.

3 Connect the two boards together, as illustrated. Set DIP 1 and 3 to ON on both boards.

(4) Fit the AF board only into the gearmotor's board A.

The transmitter button for opening a gate must be memorized on the gearmotor's channel CH1 (). The transmitter button for opening both gates must be memorized on the gearmotor's channel CH2 ().



MAINTENANCE

Before any maintenance, disconnect line voltage to prevent any possible dangerous situations that can be caused by accidental movement of the operator. Lubricate the rotation points with grease whenever abnormal vibrations or squeaking occurs, as shown below.



Periodic maintenance

Periodic maintenance log to be completed by the user (every six months)

Date	Notes	Signature

Extraordinary maintenance

▲The table below is used to note any extraordinary maintenance, repairs or improvements carried out by specialist companies.
▲ Extraordinary maintenance must be carried out by specialist technicians.

Extraordinary maintenance log

Installation technician stamp	Operator name			
	Date of intervention			
	Technician signature			
	Customer signature			
Intervention carried out				
Installation technician stamp	Operator name			
	Date of intervention			
	Technician signature			
	Customer signature			
Intervention carried out	·			

TROUBLESHOOTING

MALFUNCTIONS	POSSIBLE CAUSES	CHECKS AND REMEDIES
The gate does not open or close	 No power The gearmotor is unlocked The transmitter battery is flat The transmitter is broken The stop button is stuck or broken The opening/closing button or the key selector switch are stuck Photocell partial stop 	 Check for mains power Lock the gearmotor Replace the batteries Contact service Contact service Contact service Contact service Contact service
The gate opens but does not close	The photocells are engagedSensitive edge triggered	Check that the photocells are clean and work correctlyContact service
The gate closes but does not open	Sensitive edge triggered	Contact service

DISMANTLING AND DISPOSAL

CAME CANCELLI AUTOMATICI S.p.A. implements an EN ISO 14001-certified and compliant Environmental Management System at its plants, to ensure environmental protection.

Please continue our efforts to protect the environment, something that CAME considers to be one of the foundations in developing its business and market strategies, simply by observing brief recommendations as regards disposal:

DISPOSAL OF PACKAGING

Packaging components (cardboard, plastic etc.) can be disposed of together with normal household waste without any difficulty, by simply separating the different types of waste and recycling them.

Before proceeding, it is always advisable to check specific regulations in force in the place of installation.

DISPOSE OF PROPERLY!

DISPOSAL OF THE PRODUCT

Our products are made with different materials. Most of them (aluminium, plastic, iron, electrical cables) can be disposed of together with normal household waste. They can be recycled if collected, sorted and sent to authorised centres.

Other components (Control boards, transmitter batteries etc.), on the other hand, may contain pollutants.

They should therefore be removed and handed over to companies authorised to recover and recycle them.

Before proceeding, it is always advisable to check specific regulations in force in the place of disposal.

DISPOSE OF PROPERLY!

DECLARATION OF CONFORMITY

Declaration CE - Came Cancelli Automatici S.p.A. declares that this device complies with the essential requirements and other relevant provisions established in Directives 2006/42/EC and 2004/108/EC.

A true copy of the declaration of conformity is available upon request.



IT • Per ogni ulteriore informazione su azienda, prodotti e assistenza nella vostra lingua:

EN • For any further information on company, products and assistance in your language:

FR • Pour toute autre information sur la société, les produits et l'assistance dans votre langue :

DE • Weitere Infos über Unternehmen, Produkte und Kundendienst bei:

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