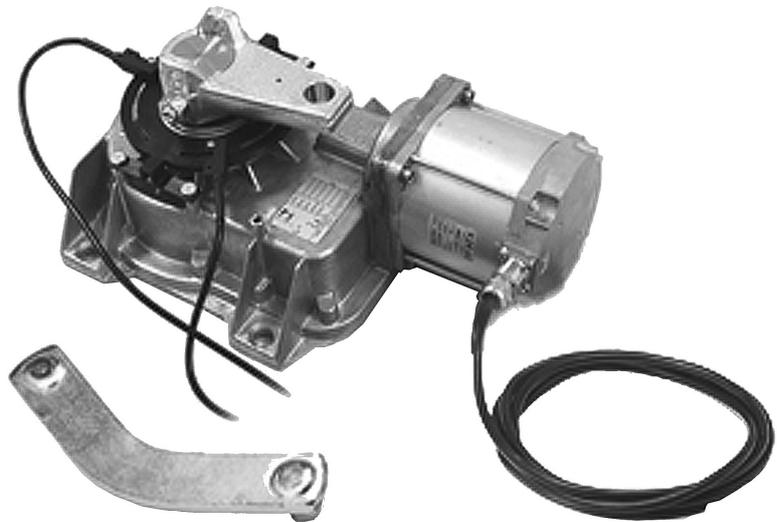


IN-GROUND OPERATOR
FOR SWING GATES

FROG SERIES



INSTALLATION MANUAL
FROG A24 / FROG A24E



WARNING!

Important instructions for the safety of people:

READ CAREFULLY!



Foreword

• Use of the products must be restricted to its intended use (i.e. that for which it was expressly built for). Any other use is to be 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 automated system.

Before installing

(preliminary check: in case of a negative outcome, do not proceed before having complied with the safety obligations)

• Make sure that the parts you intend to automate are in good working order, and that they are properly balanced and aligned. Also, 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 on either an upward or downward slope (i.e. that are not on flat, level ground) • Check that any lawn watering devices will not wet the gearmotor 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 (see installation manual). In such cases, employ proper weight handling safety equipment • All opening commands (e.g. buttons, key selectors, 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 (e.g. push button, or proximity devices, etc.) must be installed at a height of at least 1.5 m and must not be accessible to the public • All 'maintained action' 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 client, verify 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. Trim any vegetation that may interfere with the photocells • 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) away from the children as well • 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. Keep glass panels constantly clean (use a slightly water-moistened cloth; do not use solvents or any other chemical products) • 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. See instructions • Users are FORBIDDEN to carry out ANY ACTIONS THAT THEY HAVE NOT BEEN EXPRESSLY ASKED TO DO OR SO INDICATED in the manuals. Any repairs, modifications to the settings and extraordinary maintenance MUST BE DONE BY THE TECHNICAL ASSISTANCE STAFF • 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 'maintained action' 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 performing maintenance.

THIS PAGE LEFT INTENTIONALLY BLANK

“IMPORTANT INSTALLATION, SAFETY INSTRUCTIONS”

“CAUTION: IMPROPER INSTALLATION MAY CAUSE SERIOUS DAMAGE, FOLLOW ALL INSTALLATION INSTRUCTIONS CAREFULLY”

“THIS MANUAL IS ONLY FOR PROFESSIONAL OR QUALIFIED INSTALLERS”



1 Legend of symbols



This symbol tells you to read the section with particular care.



This symbol tells you that the sections concern safety issues.



This symbol tells you what to say to the end-users.

2 Condition of use

2.1 Intended use

The FROG operator was engineered to power residential and condominium swing gates.



The use of this product for purposes other than those described above and installation executed in a manner other than as instructed in this technical manual are prohibited.

2.2 Limits to use

For intensive use and condominiums: max weight of the gate 400kg with max length of 3.5m.

3 Reference Standards

For its quality processes management CAME cancelli automatici is ISO 9001:2000 certified, and for its environmental management it is ISO 14001 certified. CAME engineers and manufactures all of its products in Italy.

This product complies with the following standards: see declaration of conformity.

4 Description

4.1 Operator

This product is engineered and manufactured by CAME CANCELLI AUTOMATICI S.p.A. and complies with current safety regulations. Guaranteed 24 months if not tampered with.

The operator is made up of a foundation box, a release assembly, a gearmotor and a transmission arm.

Zinc-plated press-forged fondation box for underground installation. On the inside is the release assembly with a customised, manual-release key and the gearmotor – made of a cast aluminium shell, inside of which operates an irreversible, gear-ratio and, endless screw plus helical crown system. A transmission arm is connected to the gearmotor.

4.2 Technical features

FROG A24 / FROG A24E

Motor power supply: 24V D.C.

Max draw.: 15 A

Power: 180W

Max Torque.: 320N

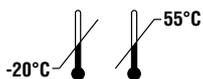
Opening time (90°): from 16 to 45 s

Gear ratio: 1/1152

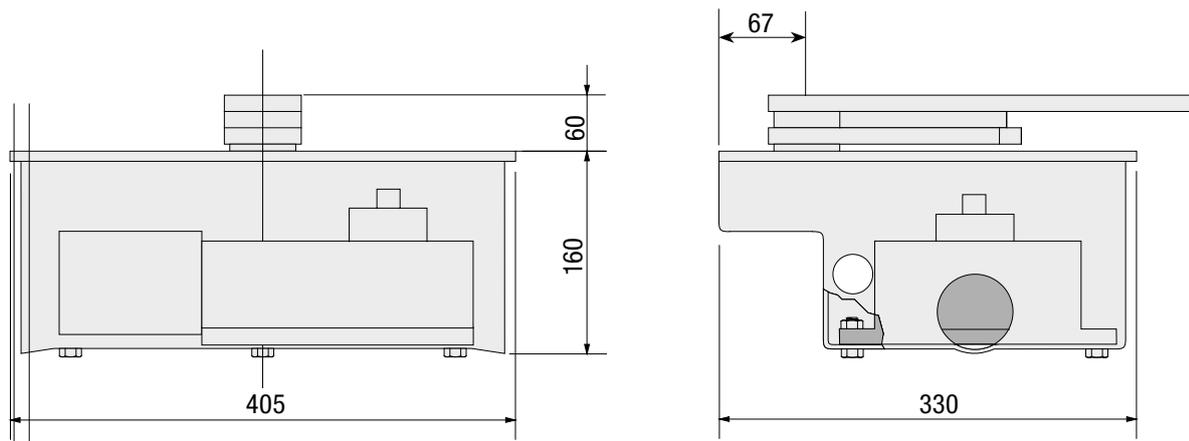
Duty cycle: Intensive use

Protection rating: IP67

Weight: 11,5 kg



4.3 Dimensions



5 Installation

 Installation must be carried out by expert qualified personnel and in full compliance with current regulations.

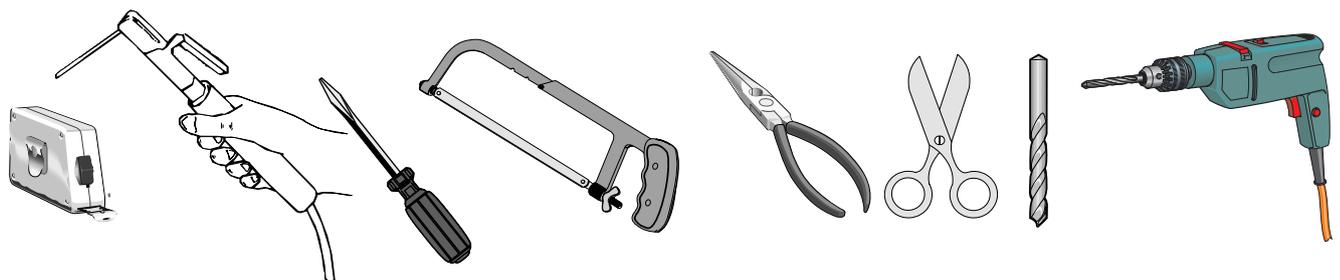
5.1 Preliminary checks

 Before installing, do the following:

- Make sure you have a suitable omnipolar cut-off device with contacts more than 3 mm apart, and independent (sectioned off) power supply;
- Make sure you have suitable tubing and conduits for the electrical cables to pass through and be protected against mechanical damage;
- Fit tubing to drain away any water leaks which may cause oxidation;
-  Make sure that any connections inside the case (that provide continuance to the protective circuit) be fitted with extra insulation as compared to the other conductive parts inside;
- Make sure the structure of the gate is sturdy, the hinges work and that there is no friction between moving and non-moving parts;
- Make sure there is a mechanical stop for opening and closing.

5.2 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 the current standards and regulations. The following figure illustrates the minimum equipment needed by the installer.



5.3 Cable list and minimum thickness

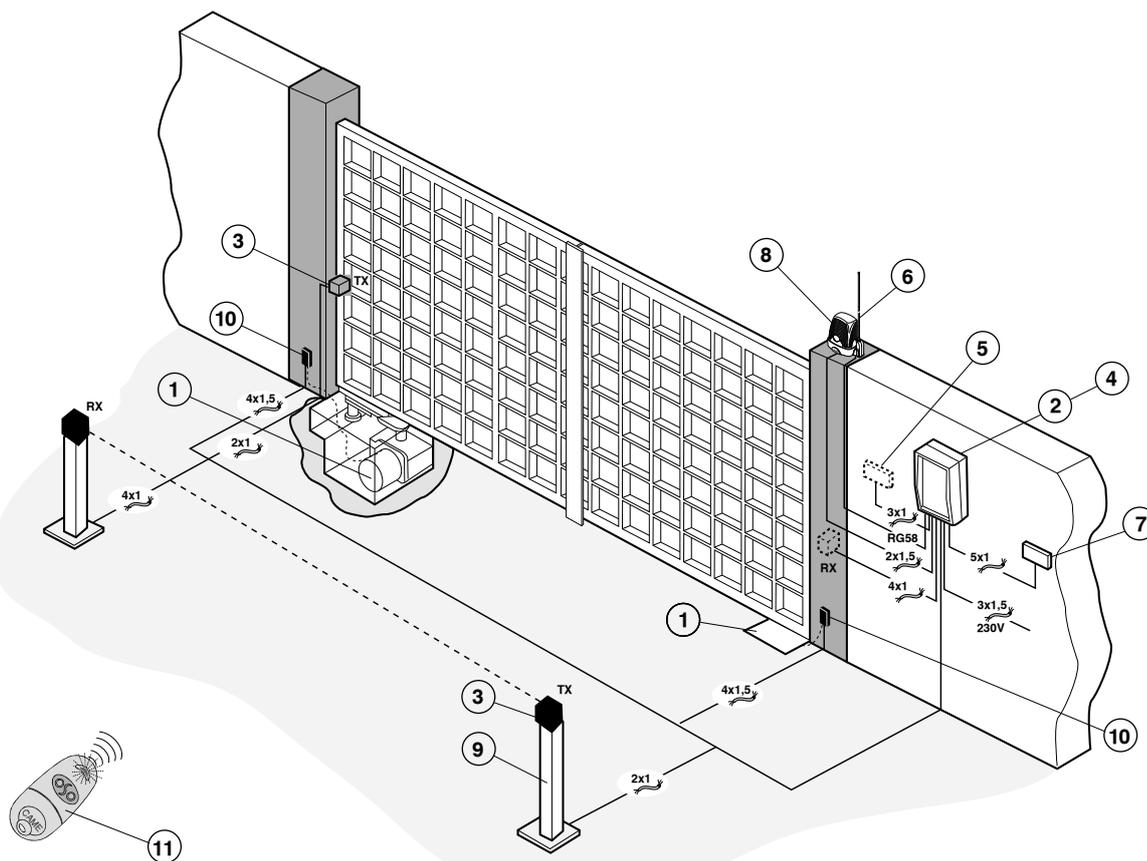
Connections	Type of cable	Length of cable 1 < 10 m	Leng. cable 10 < 20 m	Leng. cable 20 < 30 m
Control panel power supply 230V	FROR CEI 20-22 CEI EN 50267-2-1	3G 1,5 mm ²	3G 2,5 mm ²	3G 4 mm ²
Motor power supply 24V		2 x 1 mm ²	2 x 1,5 mm ²	2 x 2,5 mm ²
Flashing light		2 x 0,5 mm ²	2 x 1 mm ²	2 x 1,5 mm ²
Photocell transmitters		2 x 0,5 mm ²	2 x 0,5 mm ²	2 x 0,5 mm ²
Photocell receivers		4 x 0,5 mm ²	4 x 0,5 mm ²	4 x 0,5 mm ²
Accessories power supply		2 x 0,5 mm ²	2 x 0,5 mm ²	2 x 1 mm ²
Control and safety devices		2 x 0,5 mm ²	2 x 0,5 mm ²	2 x 0,5 mm ²
Antenna connection	RG58	max. 10 m		
Encoder	TWISTED	max. 30 m		

N.B.: If the cable length differs from that specified in the table, then you must determine the proper cable diameter in the basis of the actual power draw by the connected devices and depending on the standards specified in CEI EN 60204-1.

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 described in this manual, please refer to the instructions that come with said products.

5.4 Standard installation

- 1) FROG unit
- 2) Control panel
- 3) Safety photocells
- 4) Radio receiver
- 5) Key-switch selector
- 6) Antenna
- 7) Command push-button panel
- 8) Flashing light
- 9) Photocell column
- 10) Shunt box
- 11) Transmitter



5.5 Assembly diagram

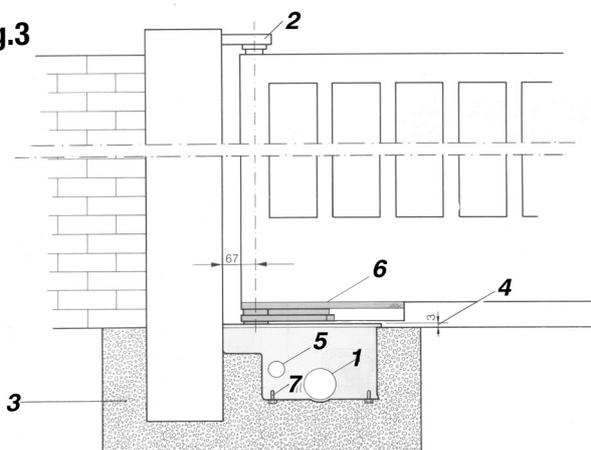


5.6 Installing the unit



- Check the efficiency of both moving and non-moving parts on the structure that will be supporting the operator;
- Determine, depending on the type of supporting structure and desired opening, the exact position of the motor assembly by following the standard applications shown;
- Set up a closing end stop and an opening end stop (fig. 4, p. 5).
- Dig, depending on the size of the assembly, a foundation pit in the chosen spot (Fig. 3);
- Prepare a drainage system in the foundation, to drain away any water leaks which may cause oxidation (fig 3 – part.1);
- The foundation box makes for quick and easy setting up of the assembly. Place it inside the pit with the pin aligned to the upper hinge (Fig. 3 – part. 2), sink it into the cement (Fig. 3 – part. 3) making sure it is perfectly levelled and that the upper edge is 3mm above ground level (Fig. 3 part. 4);
- Plan for the route of the electrical cables according to the command and safety instructions using the apposite hole on the box (Fig. 3 – part. 5);
- Grease the rotation pins of the foundation box and the gate attachment lever; the hinge and pin lever must be aligned;
- Position the gate leaf between the upper hinge and the pin lever; the hinge and pin lever must be aligned;
- Secure the pin lever to the gate leaf, by welding spots 3 to 4 cm apart along the contact surface. Avoid any welding near the threaded screws (Fig. 3 – Part. 6).

Fig.3



- Screw the M10 x 100 (A) and the M10 (B) bolt onto the gearmotor arm as shown in fig. 4-1 (RIGHT HAND installation) and fig. 4-2 (LEFT HAND installation);
- Affix the gearmotor to the foundation box using the threaded pins and securing it using the provided bolts and washers;
- Insert the (C) transmission lever between the motor arm and the box lever and electronically shut the gate against the closing end stop.

Adjust screw (A) until it touches the (C) transmission lever.

- When testing, adjust the screw so as to allow proper closing pressure of the gate leaf and allow its re-hooking during the mechanism's release procedure.
- Once adjustment is complete, secure the (B) nut.

Fig.4

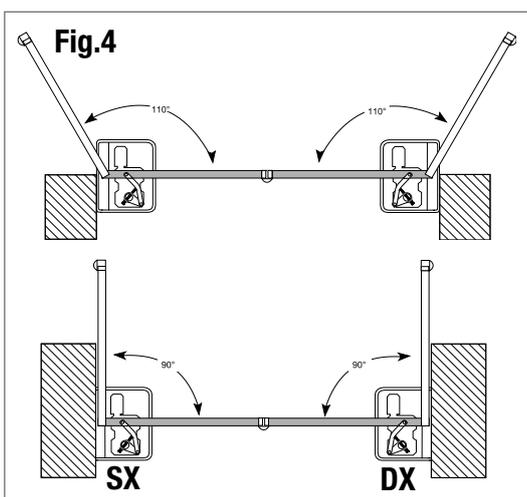


Fig.4-1
SX

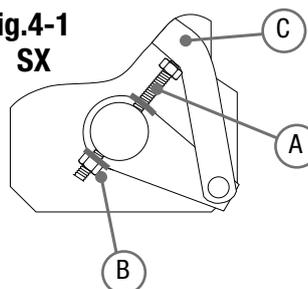
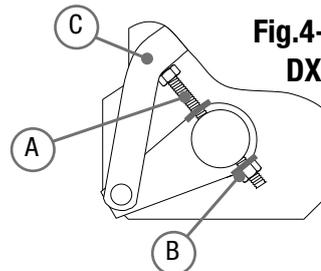


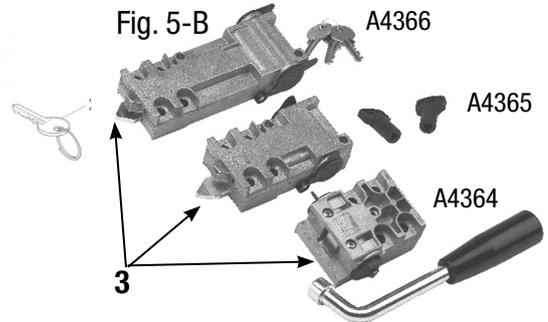
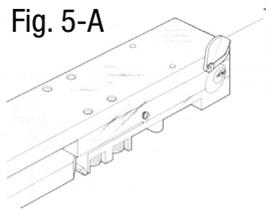
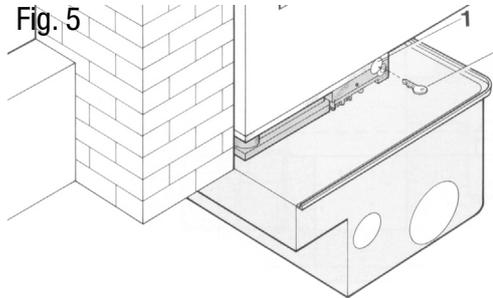
Fig.4-2
DX



5.7 Manual release

- In emergencies (i.e. power outages) the release mechanisms allow the gate to hook back up when closing.
- You may choose among three different release models: model A4366 with customised key (Fig. 5-A), model A4365 with tri-lobed key and model A4364 with lever key (Fig. 5-B). We suggest greasing the release's hook-up key (Fig. 5-B – part. 3); Consult the documentation pertinent to the relative items for the release procedure.

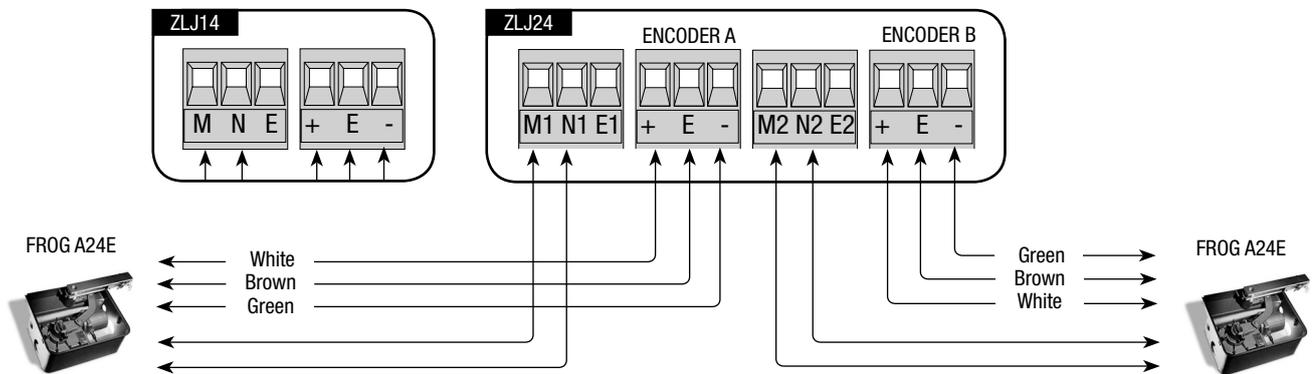
N. B.: release operations are to be carried out during emergency procedures and with the power disconnected.



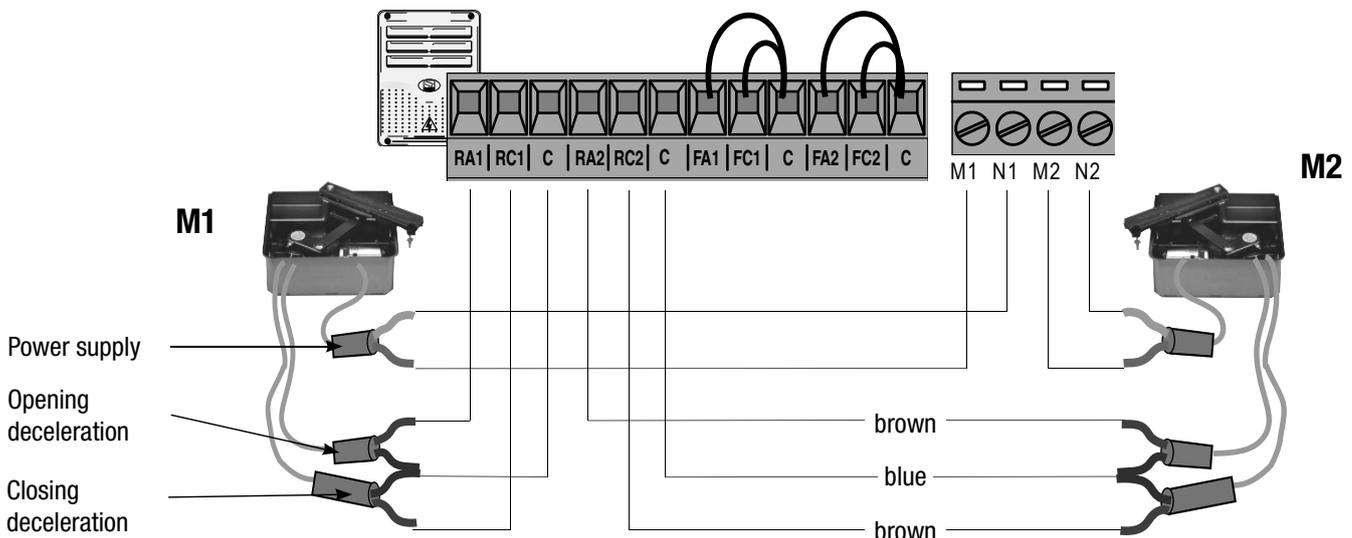
6 Connecting to the control panel

- We suggest making the gearmotor cable connections in shunt boxes;
- For further information concerning the functions, see the technical documentation for the ZLJ14 - ZLJ24 - ZL19N - ZL170N control panels.

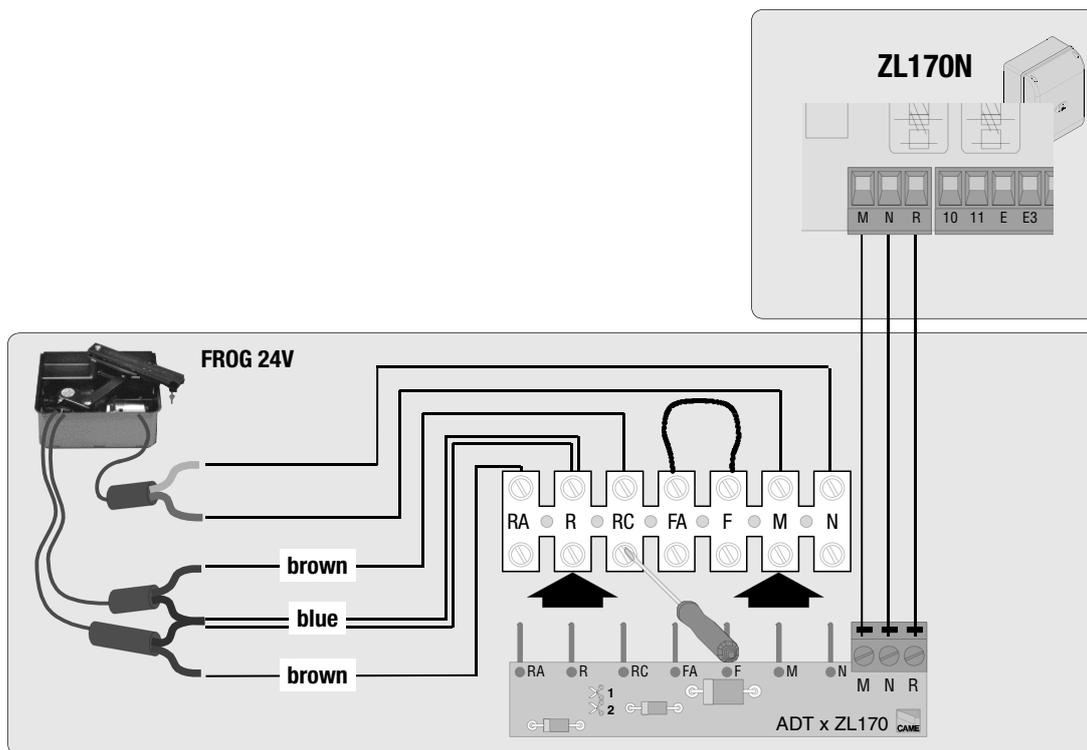
6.1 FROG-A 24E - Connecting to the control panel ZLJ14 - ZLJ24



6.2 FROG-A 24 - Connecting to the control panel ZL19N



6.3 FROG-A 24 - Connecting to the control panel ZL170N



7 Adjustments (only FROG-A 24)

7.1 Adjusting the brake microswitches

- Using the motor, make so that the gate leaf is max 500mm from being fully opened.
- At this point do a first adjustment of the (endstop) microswitches, positioning them close to the magnet. Consider that this type of endstop reads the magnetic field. You may have to repeat the procedure to increase the precision of the adjustment (fig. 6/7);

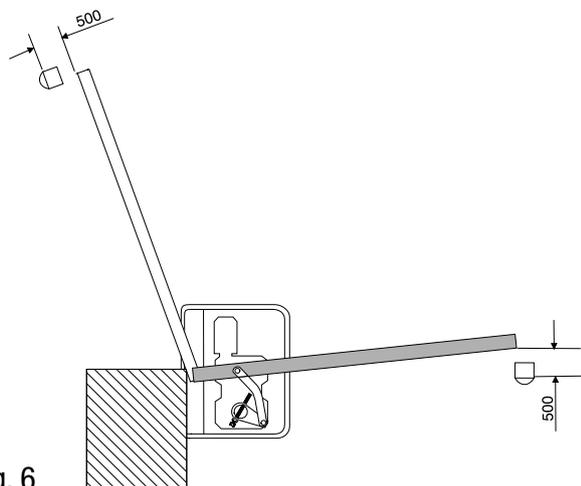


Fig. 6

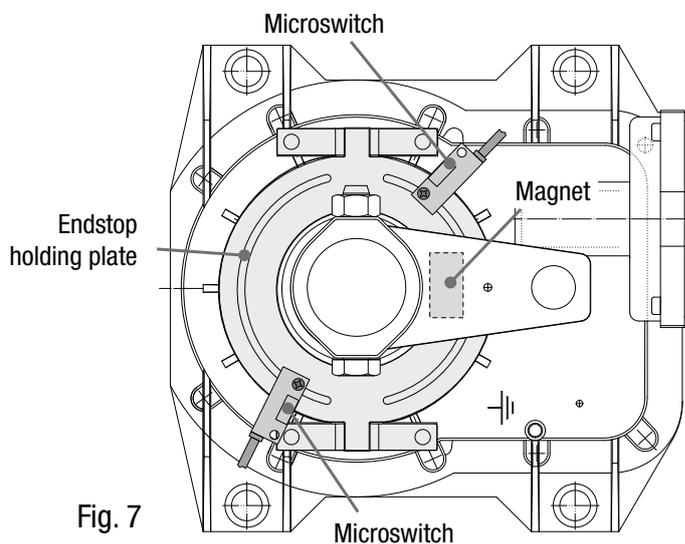
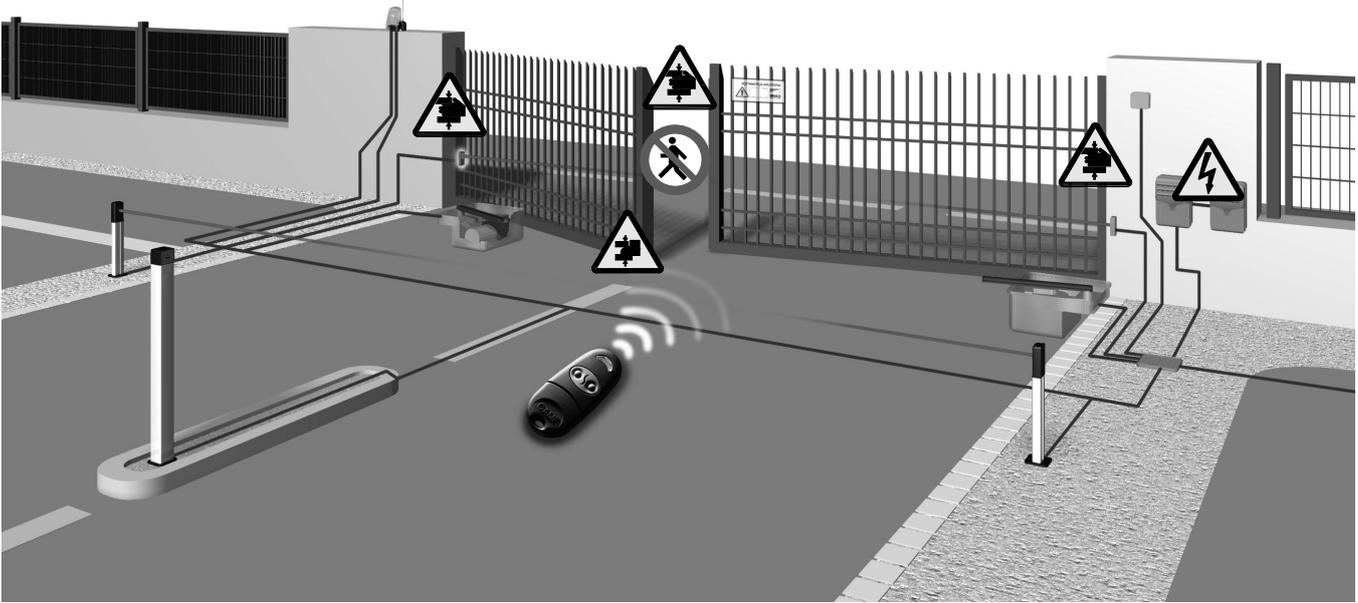


Fig. 7

8 Safety instructions

Important safety instructions

This product must only be employed for its originally intended use. Any other use is wrong and potentially dangerous. The manufacturer cannot be held liable for any damages resulting from wrongful, erroneous or negligent uses. Avoid working close to the hinges or other moving mechanical parts. Stay out of the opening/closing arc when operator is in motion. Do not exercise force against the motion of the operator as this could result in potentially dangerous situations.



Do not allow children to play or loiter within the opening/closing arc of the operator. Keep remote controls and any other command device out the reach of children, to prevent operator from being activated by accident. In the event of anomalous behaviour, stop using the operator immediately.



Danger of crushing hands



Danger! High voltage



Danger of crushing feet



No transit during operation

9 Maintenance

9.1 Periodic maintenance

 Periodic maintenance to be carried out by the end-user is as follows: wipe clean the glass surface of the photocells; check that the safety devices work properly; remove any obstructions.

We suggest checking the state of lubrication and tightness of the anchoring screws on the operator.

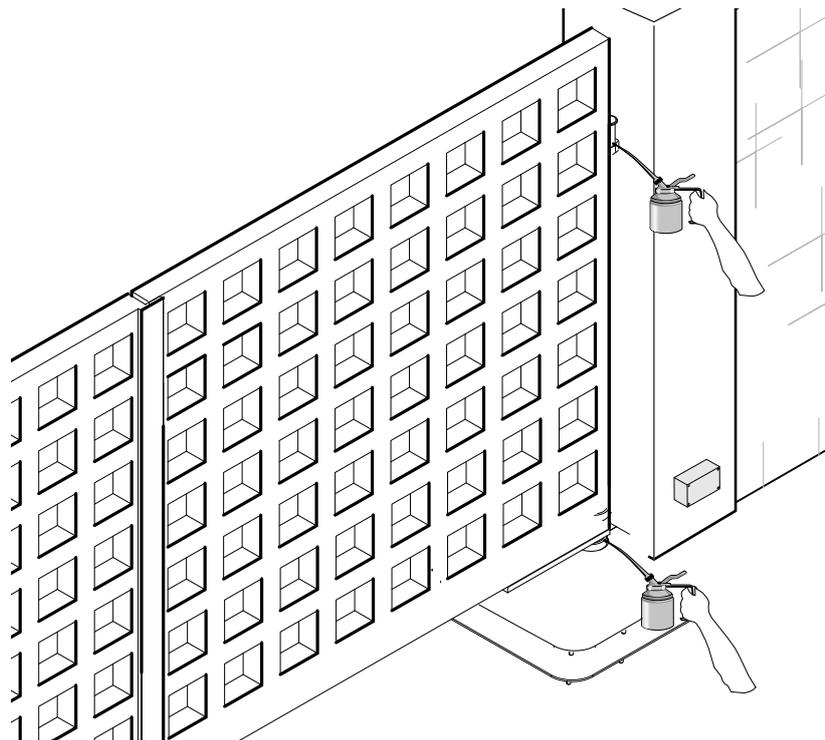
To check the efficiency of the safety devices, move an object in front of the photocells when gate is closing. If the operator inverts the motion or stops, the photocells are working properly.

This is the only maintenance procedure to be carried out with the power source connected.

Before performing any maintenance procedures, cut off the main power, to prevent possible accidents due to gate movement.

To clean the photocells use a water dampened cloth. Do not use solvents or other chemical products which may ruin the devices.

In the event of any strange vibrations or squeaking, lubricate the joints with grease, as shown in the diagram.



Make sure there are no plants within the photocell's beam, and that the gate motion is free of any obstacles.

9.2 Trouble shooting

MALFUNCTIONS	POSSIBLE CAUSES	CHECK AND REMEDIES
The gate will not open nor close	<ul style="list-style-type: none">• There is no power• The gearmotor is released• The remote control's batteries are run down• The transmitter is broken• The stop button is either stuck or broken• The opening/closing button or the key selector are stuck	<ul style="list-style-type: none">• Check that the power is up• Lock gearmotor (Chapt. 5.7)• Replace batteries• Call assistance• Call assistance• Call assistance
The gate opens but will not close	<ul style="list-style-type: none">• The photocells are engaged	<ul style="list-style-type: none">• Check that photocells are clean and in good working order• Call assistance
The flasher does not work	<ul style="list-style-type: none">• The bulb is burnt	<ul style="list-style-type: none">• Call assistance

Periodic maintenance log (for end-user) (every 6 months)

Date	Notes	Signature

9.3 Extra-ordinary maintenance

 The following table serves to note down any extraordinary maintenance, repairs or improvements performed by specialised firms.
 N.B.: Any extraordinary maintenance must be performed by specialised technicians.

Extra-ordinary maintenance log

Installer's stamp	Operator name
	Date of job
	Technician's signature
	Requester's signature
Job performed _____ _____	
Installer's stamp	Operator name
	Date of job
	Technician's signature
	Requester's signature
Job performed _____ _____	
Installer's stamp	Operator name
	Date of job
	Technician's signature
	Requester's signature
Job performed _____ _____	

Installer's stamp	Operator name
	Date of job
	Technician's signature
	Requester's signature
Job performed _____ _____	

Installer's stamp	Operator name
	Date of job
	Technician's signature
	Requester's signature
Job performed _____ _____	

10 Demolition and disposal

 In its premises, CAME cancelli automatici s.p.a. implements an Environmental Management System certified in compliance with the UNI EN ISO 14001 standard to ensure environmental protection.

Please continue our efforts to protect the environment—which CAME considers one of the cardinal elements in the development of its operational and market strategies—simply by observing brief recommendations as regards disposal:

DISPOSAL OF PACKAGING

The packaging components (cardboard, plastic, etc.) are all classifiable as solid urban waste products and may be disposed of easily, keeping in mind recycling possibilities.

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

PLEASE DISPOSE OF PROPERLY!

PRODUCT DISPOSAL

Our products are made up of various types of materials. Most of them (aluminium, plastics, iron, electrical wires, etc.) may be disposed of in normal garbage collection bins and can be recycled by disposing of in specific recyclable material collection bins and disposal in authorized centres.

Other components (electrical boards, remote control batteries, etc.), however, may contain polluting substances.

They should therefore be removed and given to qualified service companies for proper disposal.

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

PLEASE DISPOSE OF PROPERLY!

11 Maker's statement



MANUFACTURER'S DECLARATION OF CONFORMITY

Pursuant to annex II B of the Machinery Directive 98/37/EC



CAME Cancelli Automatici S.p.A.
via Martiri della Libertà, 15
31030 Dossan di Casier - Treviso - ITALY
tel (+39) 0422 4940 - fax (+39) 0422 4941
internet: www.came.it - e-mail: info@came.it

IMPORTANT WARNING!
Do not use the equipment specified here above, before completing
the full installation
In full compliance with the Machinery Directive 98/37/EC

Declares under its own responsibility that the equipments for automatic garage doors and gates listed below:

FROG A24 / FROG A24E

... comply with the National Law related to the following European Directives and to the applicable parts of the following Standards.

98/37/CE - 98/79/CE	MACHINERY DIRECTIVE
98/336/CEE - 92/31/CEE	ELECTROMAGNETIC COMPATIBILITY DIRECTIVE
73/23/CEE - 93/68/CE	LOW VOLTAGE DIRECTIVE
89/106/CEE	CONSTRUCTION PRODUCTS DIRECTIVE

EN 13241-1	EN 12635	EN 61000-6-2
EN 12453	EN 12978	EN 61000-6-3
EN 12445	EN 60335-1	EN 60204-1

MANAGING DIRECTOR
Mr. Gianni Michielan

Reference code to request a true copy of the original: **DDF B EN A001L**



English - Manual code: 119AU35 ver. 1.0 06/2010 © CAME cancelli automatici s.p.a. The data and information reported in this installation manual are susceptible to change at any time and without obligation on CAME cancelli automatici s.p.a. to notify users.

<p>CAME France S.a. 7, Rue Des Haras Z.I. Des Hautes Patures 92737 Nanterre Cedex ☎ (+33) 1 46 13 05 05 ☎ (+33) 1 46 13 05 00</p>	FRANCE	GERMANY	<p>CAME Gmbh Seefeld Akazienstrasse, 9 16356 Seefeld Bei Berlin ☎ (+49) 33 3988390 ☎ (+49) 33 39883985</p>
<p>CAME Automatismes S.a. 3, Rue Odette Jasse 13015 Marseille ☎ (+33) 4 95 06 33 70 ☎ (+33) 4 91 60 69 05</p>	FRANCE	U.A.E.	<p>CAME Gulf Fze Office No: S10122a2o210 P.O. Box 262853 Jebel Ali Free Zone - Dubai ☎ (+971) 4 8860046 ☎ (+971) 4 8860048</p>
<p>CAME Automatismos S.a. C/Juan De Mariana, N. 17-local 28045 Madrid ☎ (+34) 91 52 85 009 ☎ (+34) 91 46 85 442</p>	SPAIN	RUSSIA	<p>CAME Rus Umc Rus Lic Ul. Otradnaya D. 2b, Str. 2, office 219 127273, Moscow ☎ (+7) 495 739 00 69 ☎ (+7) 495 739 00 69 (ext. 226)</p>
<p>CAME United Kingdom Ltd. Unit 3 Orchard Business Park Town Street, Sandiacre Nottingham - Ng10 5bp ☎ (+44) 115 9210430 ☎ (+44) 115 9210431</p>	GREAT BRITAIN	PORTUGAL	<p>CAME Portugal Ucj Portugal Unipessoal Lda Rua Liebig, nº 23 2830-141 Barreiro ☎ (+351) 21 207 39 67 ☎ (+351) 21 207 39 65</p>
<p>CAME Group Benelux S.a. Zoning Ouest 7 7860 Lessines ☎ (+32) 68 333014 ☎ (+32) 68 338019</p>	BELGIUM	INDIA	<p>CAME India Automation Solutions Pvt. Ltd A - 10, Green Park 110016 - New Delhi ☎ (+91) 11 64640255/256 ☎ (+91) 2678 3510</p>
<p>CAME Americas Automation Lic 11345 NW 122nd St. Medley, FL 33178 ☎ (+1) 305 433 3307 ☎ (+1) 305 396 3331</p>	U.S.A	ASIA	<p>CAME Asia Pacific 60 Alexandra Terrace #09-09 Block C, The ComTech 118 502 Singapore ☎ (+65) 6275 8426 ☎ (+65) 6275 5451</p>
<p>CAME Gmbh Kornwestheimer Str. 37 70825 Korntal Munchingen Bei Stuttgart ☎ (+49) 71 5037830 ☎ (+49) 71 50378383</p>	GERMANY		

CAME Cancelli Automatici S.p.a.
Via Martiri Della Libertà, 15
31030 **Dosson Di Casier** (Tv)
☎ (+39) 0422 4940
☎ (+39) 0422 4941
Informazioni Commerciali 800 848095

ITALY

ITALY

CAME Sud s.r.l.
Via F. Imperato, 198
Centro Mercato 2, Lotto A/7
80146 **Napoli**
☎ (+39) 081 7524455
☎ (+39) 081 7529190

CAME Service Italia S.r.l.
Via Della Pace, 28
31030 **Dosson Di Casier** (Tv)
☎ (+39) 0422 383532
☎ (+39) 0422 490044

ITALY

ITALY

CAME Global Utilities s.r.l.
Via E. Fermi, 31
20060 **Gessate** (Mi)
☎ (+39) 02 95380366
☎ (+39) 02 95380224

Assistenza Tecnica 800 295830

