

:GROUND

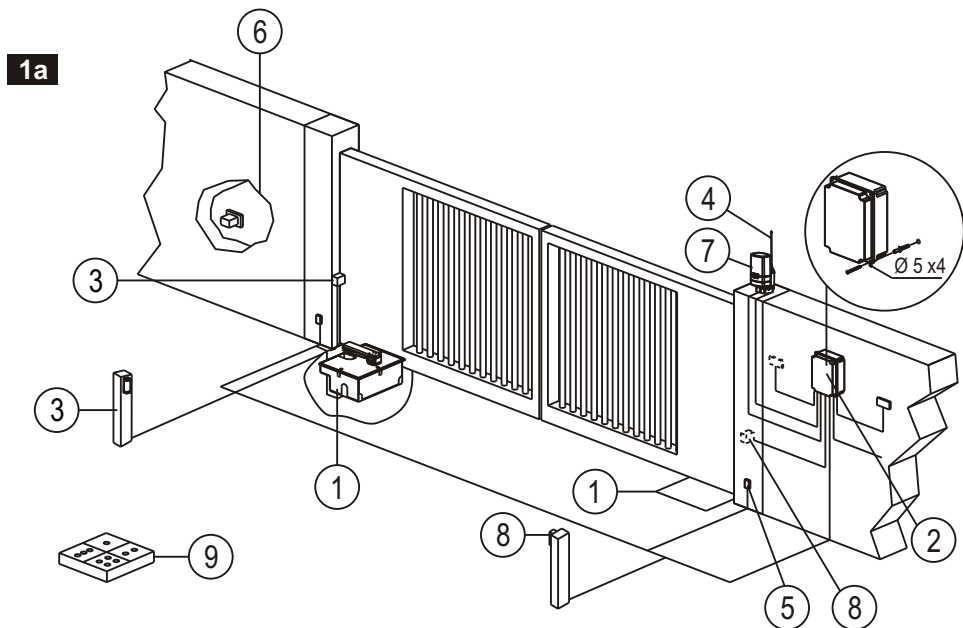


GROUND - (610-624)

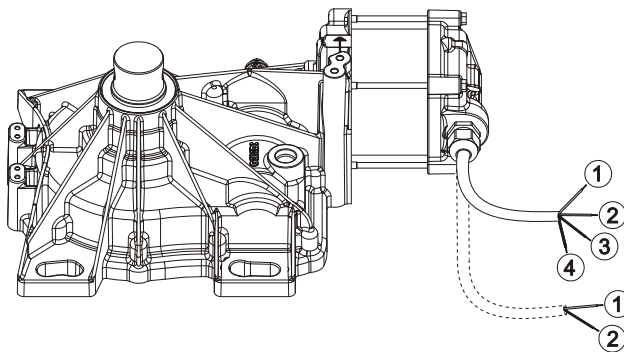
Interrati elettromeccanici
ISTRUZIONI PER L'INSTALLAZIONE

Electromechanical underground
INSTRUCTIONS FOR INSTALLATIONS

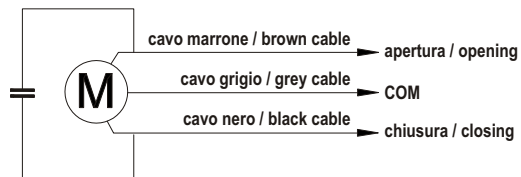




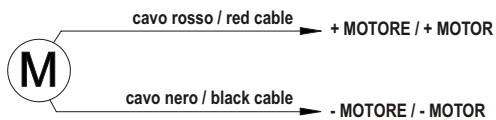
1b



GROUND 610 - 230Vac



GROUND 624 - 24Vdc



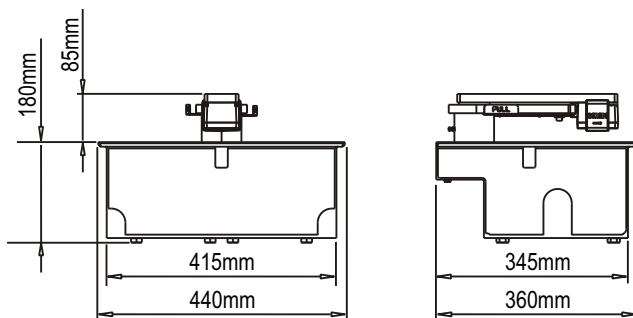
GROUND 610 - 230Vac

DESCRIZIONE CAVI / CABLES DETAILS	
1	Marrone / Brown Apertura / Opening
2	Grigio / Grey COM
3	Nero / Black Chiusura / Closing
4	Giallo-verde / Yellow-green Terra / Ground

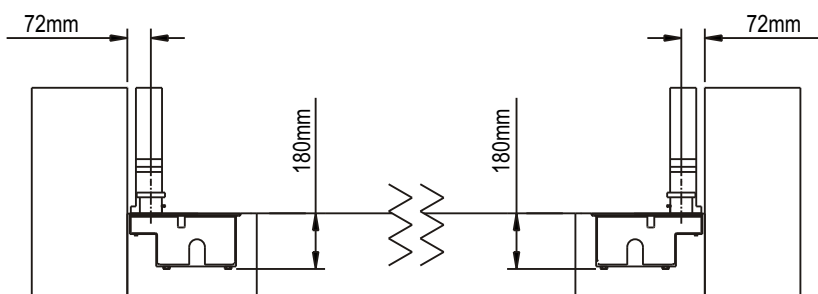
GROUND 624 - 24Vdc

DESCRIZIONE CAVI / CABLES DETAILS	
1	Rosso / Red Positivo / Positive
2	Nero / Black Negativo / Negative

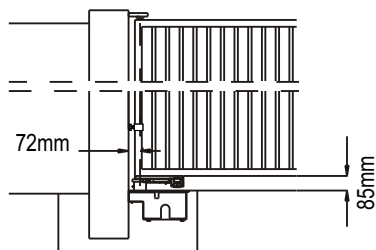
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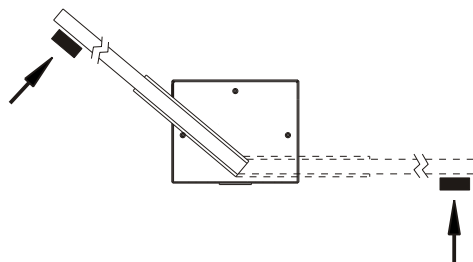
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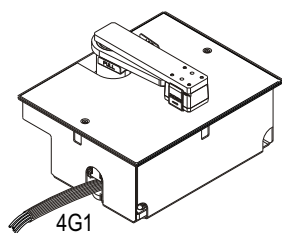
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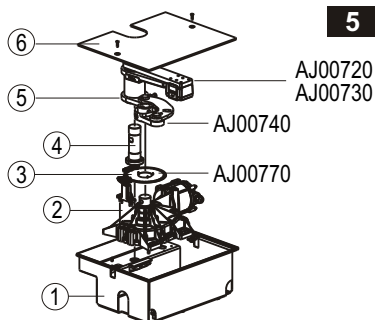
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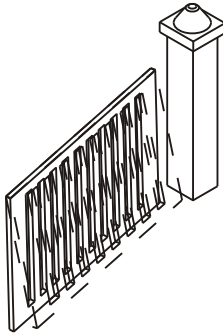
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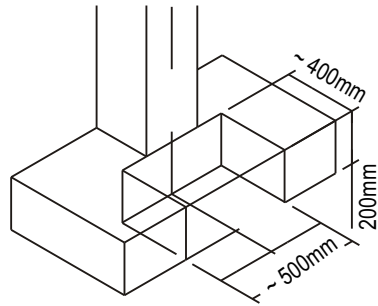
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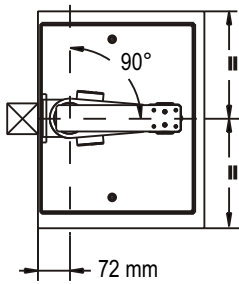
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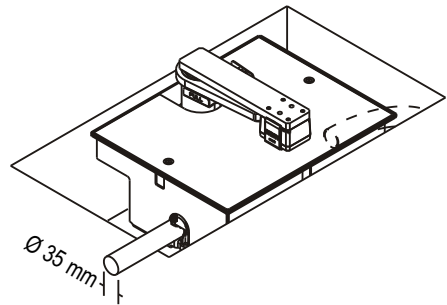
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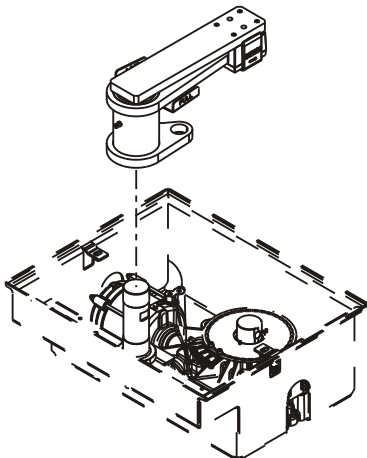
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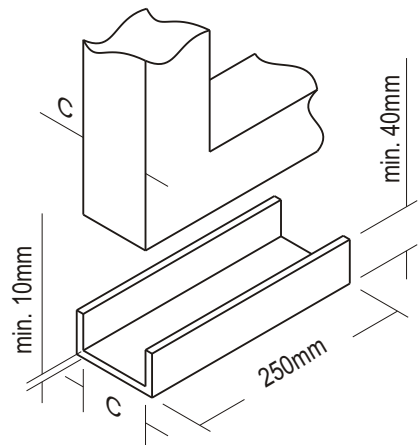
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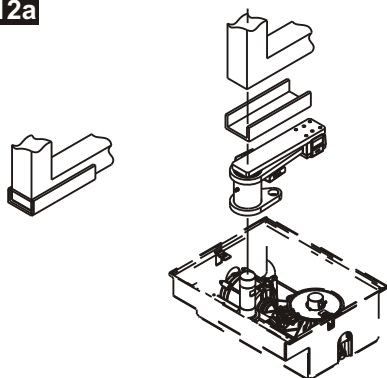
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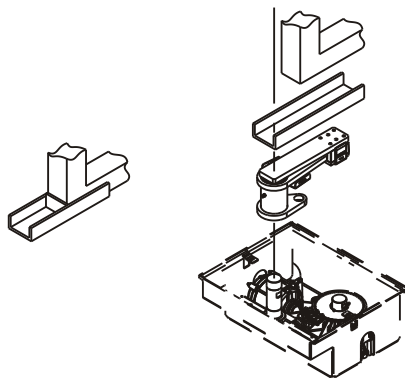
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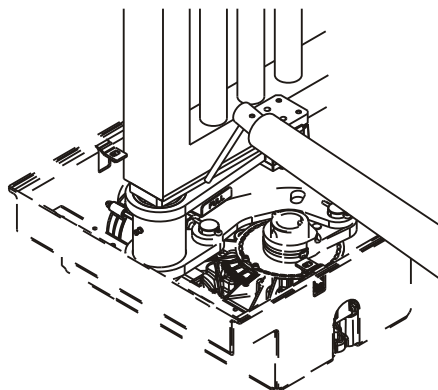
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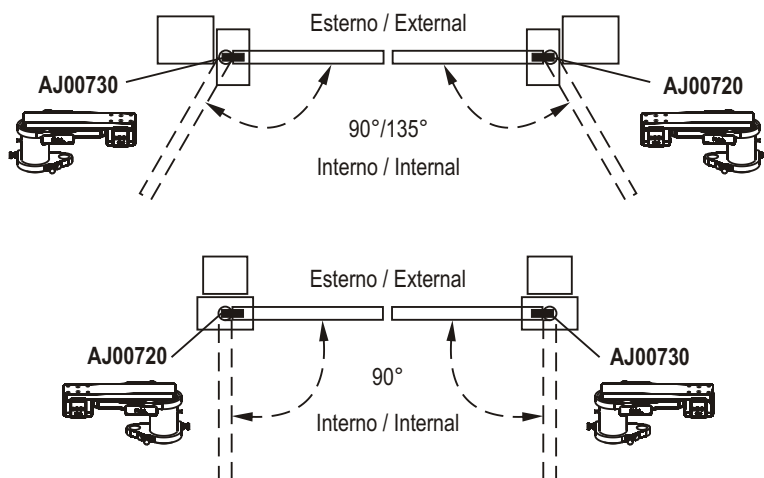
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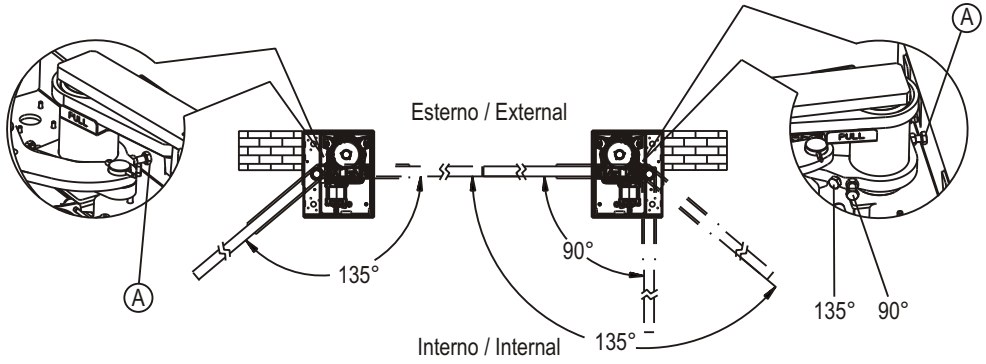
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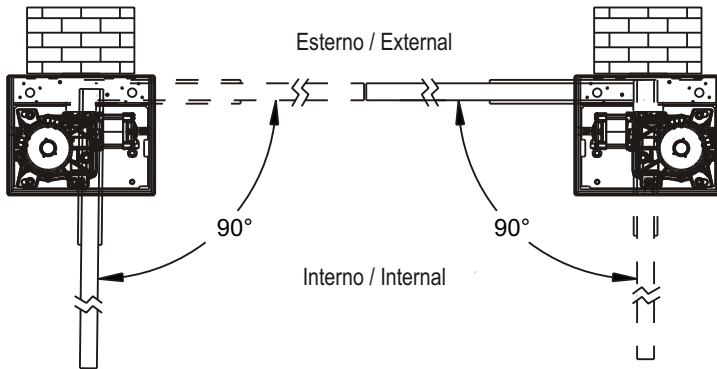
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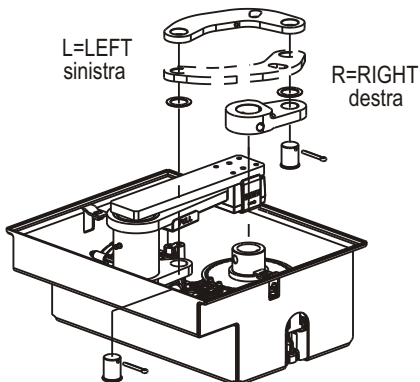
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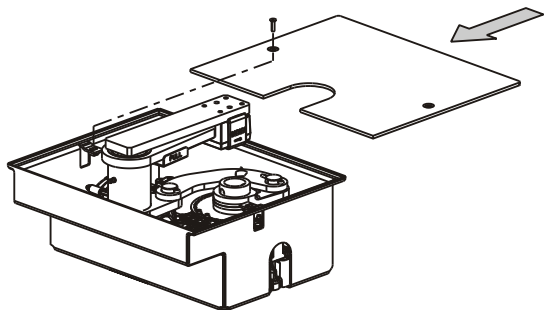
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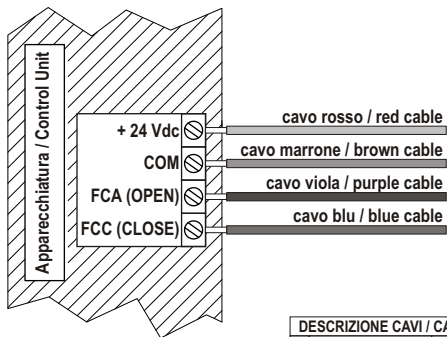
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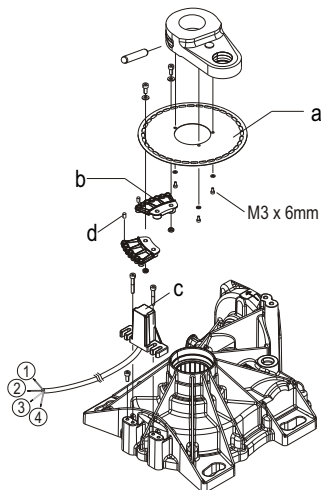
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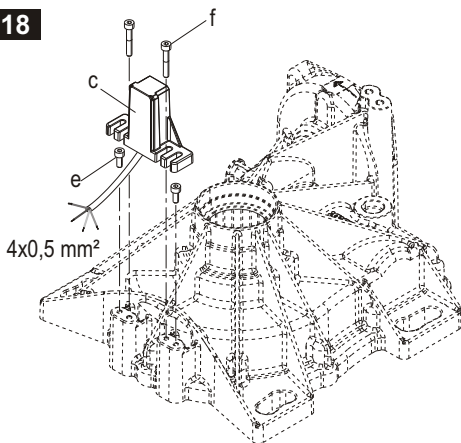
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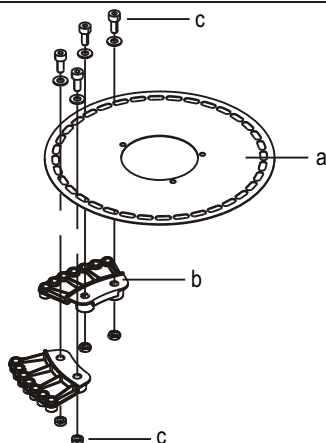
DESCRIZIONE CAVI / CABLES DETAILS	
1 Blu / Blue	Chiude / Close
2 Viola / Purple	Apre / Open
3 Rosso / Red	Positivo / Positive
4 Marrone / Brown	Negativo / Negative



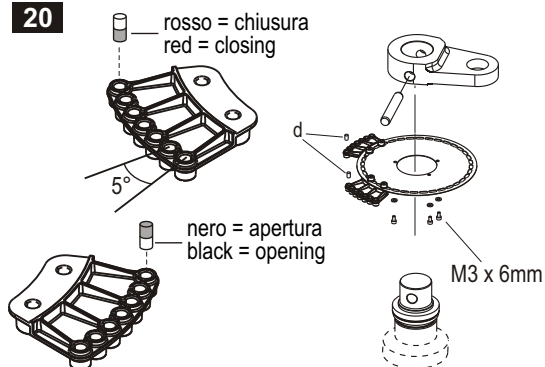
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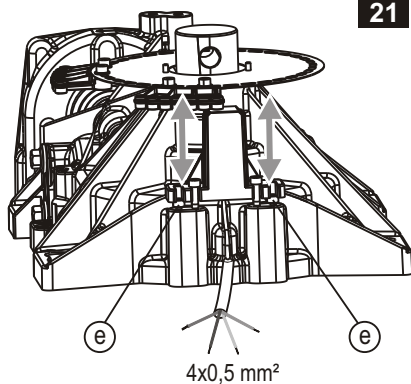
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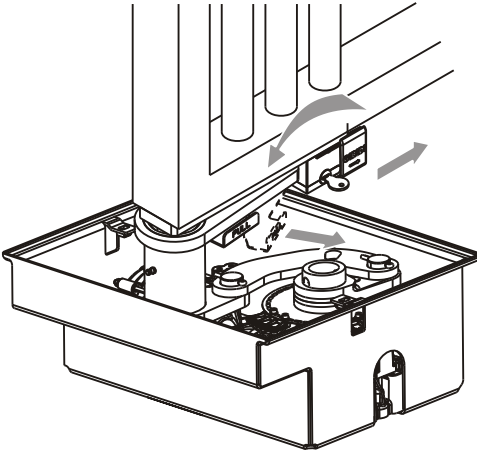
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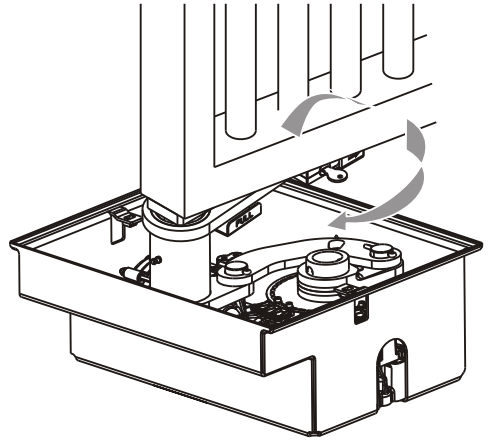
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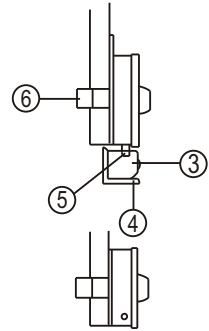
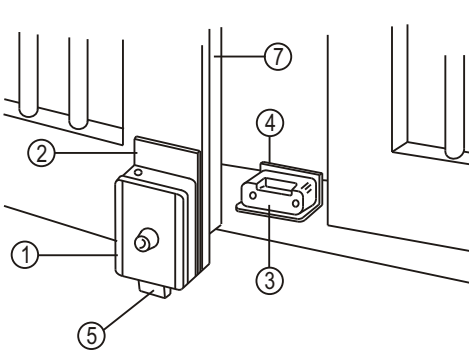
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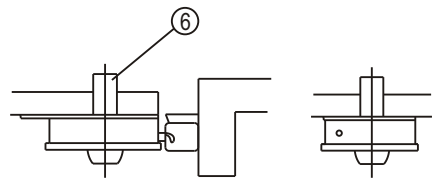
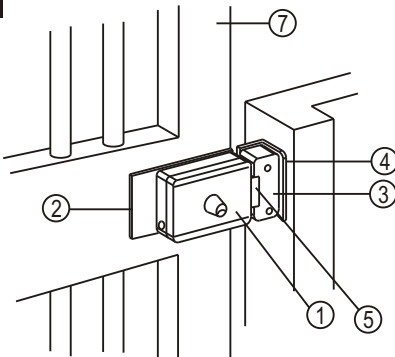
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25



INTRODUCTION

GROUND allows practically invisible automation of swing gates.

The automated device consists of an electromechanical underground operator in both 24 VDC and 230 VAC version, able to transmit motion to leaves of up to 3.5 m.

INSTALLATION WARNINGS

- Before proceeding with installation, fit a magnetothermal or differential switch with a maximum capacity of 10A upstream of the system. The switch must guarantee omnipolar separation of the contacts with an opening distance of at least 3mm.
- Keep all the materials contained in the packaging away from children, since they pose a potential risk.
- The manufacturer declines all responsibility for improper functioning of the automated device if the original components and accessories suitable for the specific application are not used.
- After installation, always carefully check proper functioning of the system and the devices used.
- This instruction manual addresses persons qualified for installation of "live equipment". Therefore, good technical knowledge and professional practice in compliance with the regulations in force are required.
- Maintenance must be carried out by qualified personnel.
- Before carrying out any cleaning or maintenance operation, disconnect the control unit from the mains.
- This product has been designed and constructed exclusively for the use indicated in this documentation. Any other use may cause damage to the product and be a source of danger.
- Check the intended end use and take all the necessary safety precautions.
- Use of the product for purposes different from the intended use has not been tested by the manufacturer, therefore any work is carried out on full responsibility of the installer.
- Mark the automated device with visible warning plates.
- Warn the user that children or animals should not play or stand near the gate.
- Appropriately protect the danger points (for example, using a sensitive frame).
- Check that the earthing system has been properly constructed: connect all the metal parts of doors, gates, etc. and all the system components to an earth terminal.
- Exclusively use original spare parts for any maintenance or repair operations.
- Do not modify any components of the automated device unless expressly authorised by Gi.Bi.Di.

Use suitable cable clamps to assure proper mechanical connection of the wiring and such as to maintain the IP degree of protection.

WARNINGS FOR THE USER

In the event of an operating fault or failure, cut the power upstream of the control unit and call Technical Service.

Periodically check functioning of the safety devices. Any repairs must be carried out by specialised personnel using original and certified materials.

The product may not be used by children or persons with reduced physical, sensorial or mental capacities, or lacking experience and knowledge, unless appropriately instructed.

Do not access the circuit board for adjustments and/or maintenance.



CAUTION: IMPORTANT SAFETY INSTRUCTIONS

It is important to follow these instructions in order to safeguard persons.

Keep this instruction booklet.

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ELECTRICAL LAYOUT (1a - 1b)

- 1- Underground motor GROUND610 power cable 4 x 1 mm²:
grey= motor common; brown= opening; black= closing; yellow/green= ground.
Underground motor GROUND624 2 x 1,5 mm² cable power supply: RED = + BLACK = -
for a cable length of 6 m max., over it's necessary increase the cable section.
- 2- Control unit cable 3 x 1.5 mm²
- 3- Photocell transmitter cable 2 x 0.5 mm²
- 4- Antenna RG58 screened coaxial cable
- 5- Connector block
- 6- Key selector cable 3 x 0.5 mm²
- 7- Flashing light cable 2 x 1 mm²
- 8- Photocell receiver cable 4 x 0.5 mm²
- 9- Domino

TECHNICAL DATA

Operator	GROUND 610	GROUND 624
Type	Underground electromechanical	
Supply voltage	220/230Vac 50-60Hz	
Motor power supply	230Vac	24Vdc
Power absorbed	MAX 400W	MAX 150W
Current absorbed (in block)	MAX 3,5A	MAX 5A
Max rotation angle	135°	135°
Max angular velocity	7°s	7°s
90° opening time	13 s	13 s
Max torque	530 N/m	320 N/m
Capacitor	10µF	-
Operating temperature	-20°C + 60°C	-20°C + 60°C
Operating frequency (%)	30%	heavy use
Degree of protection	IP 67	IP 67
Maximum leaf length	2,5 m - 600 kg 3,5 m - 400 kg	2,5 m - 600 kg 3,5 m - 400 kg

PRELIMINARY WARNINGS

Check that the gate structure is in conformity with the regulations in force and that the gate movement is linear without friction.

Preliminary checks:

- Check that the gate structure is sufficiently robust. In any case check that the gate weight and dimensions fall within the operating limits of the operator. Maximum leaf length:
2.5 m - maximum weight: 600 kg
3.5 m - maximum weight: 400 kg
(It is recommended to use an electric lock).
- Check that the leaf can be moved manually without force (points of greatest friction) for the entire travel of the gate during both opening and closing.
- Maximum cable length 10 m.

- Check that the area where the gearmotor will be fitted is not exposed to flooding.
- If the gate is not a new installation, check the state of wear of all the components, repair or replace the defective or worn parts and perform any other operations necessary.
- Check that the mechanical end-stops have been fitted.

The reliability and safety of the automated device is directly dependent on the condition of the gate structure.

DESCRIPTION (5)

- 1- Foundation box
- 2- Motor unit
- 3- Limit switch unit
- 4- Output shaft
- 5- Lever unit AJ00720 -AJ00730 (14)
- 6- Cover

INSTALLATION

- 1- Based on the type of structure and desired opening, decide on the exact position for the operator following the type indications.
- 2- If not yet fitted, apply a closing and opening end-stop (3b).
- 3- Dig a foundation hole in the appropriate position and large enough to fit the operator (7).
- 4- Provide for a water drain to prevent stagnation and subsequent oxidation in the foundation (9).

EMBEDDING THE OPERATOR BOX

Listed below are some typical conditions in which you might be operating with the relative suggestions for each one of them (6-7-8-9):

- | | |
|---|--|
| <p>a) Gate still to be installed:</p> <ul style="list-style-type: none"> - It is preferable to fit an adjustable type upper hinge for the leaf. <p>b) Gate with adjustable hinges:</p> <ul style="list-style-type: none"> - Remove the lower hinge - Loosen the upper hinge and turn the leaf (6) - Embed the box - Refit the leaf | <p>c) Gate with fixed hinges:</p> <ul style="list-style-type: none"> - Remove the gate - Remove the lower hinge <p>If the gate cannot be removed, insert a support shim underneath the lower edge of the leaf.</p> |
|---|--|

FOUNDATION EXCAVATION

- Dig a foundation hole with the dimensions indicated in (7).

NOTE: Depending on the type of ground, it is advisable to make a foundation for casting of quick-drying cement.

- Position the operator box in the excavation respecting the indications in (8) and check that it is level.

CAUTION: Make sure that the centre of the operator pin is perfectly in line with the hinge of the gate leaf (2 - 3a).

- Arrange a PVC tube of at least 35 mm diameter up to the operator cable inlet through which to run the electric cables (9).

Provide for a rainwater drain pipe, preferably connected to a water recovery duct (9).

UK

- Embed the operator box in the foundation hole.

FITTING THE GATE

N.B. Check that the cement in the foundation hole has dried sufficiently before installing the operator.

- 1- Fit the lever unit to the box pin **(10)** AJ00720 - AJ00730 **(14)**.
- 2- Procure a U-bracket of the dimensions indicated in **(11)** and close it on the pillar side using a plate as shown in **(12/a)** and **(12/b)**.
- 3- Weld the U-bracket or the gate on the operator support arm **(13)**.
- 4- Position the gate in the guide bracket and hinge it in the upper part.
- 5- Check manually that the gate is free to open and close coming to a complete halt on the mechanical end-stops. The leaf must move smoothly and uniformly without irregular friction.

OPERATOR INSTALLATION

- 1- Open and close the gate leaf determining the desired opening and closing by means of the mechanical limit switches **A(14a)**.
- 2- Once the limit switches have been adjusted, move the leaf into the gate-open position.
- 3- Fasten the operator checking that it is exactly positioned **(14a - 14b)**.
- 4- If using the limit switches, refer to the next paragraph.
- 5- Fit the connecting rod (left or right) as shown **(15)**.
- 6- At this stage, it is advisable to grease the operator output shaft and the lever fastening pins.
- 7- Power the operator and move the leaf into the gate-closed position.
- 8- Proceed with installation of the second operator (where applicable) repeating the above described procedures.
- 9- Fit the cover on the operator using the screws provided **(16)**.

LIMIT SWITCH UNIT (17-18)

The kit is made up of:

- a) Limit switch disc
- b) Limit switch
- c) Sensor board cable 4x0.5 mm²: blue= close, purple= open, red= positive, brown= negative
- d) Magnets
- e) Adjustment screws
- f) Retaining screws

LIMIT SWITCH FITTING AND ADJUSTMENT

- 1- Fit the two cheese-headed screws **e(18)** directly on the operator body.
- 2- Fasten the sensor board **c(18)** using the two screws **f(18)** above the two screws **e(18)**, and run the output cable through the grooves on the operator.
- 3- Secure the limit switch disc on the output lever using the screws M3 x 6 mm **(20)**.
- 4- Fasten the assembly formed by the disc and the lever on the operator output shaft using the pin **(20)**.
- 5- Fasten the connecting rod between the output levers using the relative pins and seeger **(15)**.
- 6- POWER THE OPERATOR
- 7- Taking the sensor as reference, assemble the two limit switches **b(19)** on the disc **a(19)** using the screws and nuts **c(19)** and fasten one in the gate-open position and the other one in the gate-closed position and run a full cycle.

- 8- Fit the deceleration and opening and closing limit switch enable magnets in the desired position. In any case, always refer to the control unit instructions for handling the limit switches.
There are several seats on the limit switches in which to position the magnets spaced out 5°, which is equivalent to a circumference arc of 250/300 mm on a 2.5 m long leaf.
If using two magnets (deceleration enable and end of motion), it is recommended to always leave at least one seat empty between the two magnets.
- 9- If the sensor fails to read, appropriately adjust its height **e(21)** by loosening the retaining screws **f(18)** and screwing or unscrewing the cheese-headed screws **e(18)**. When done, tighten the retaining screws.

NOTE ON MAGNET FITTING DIRECTION

When fitting the magnets **d(20)**, pay attention to their polarity: on each single holder fit the magnets facing the same polarization direction.

To check exact fitting, the operator must be connected to the control unit. Activate the operator until the magnets pass over the sensor **c(17)**; check on the control unit that the LEDs relative to the opening and closing limit switch inputs go off and that the operator stops in the gate-open and gate-closed positions.

Invert the magnets if the phases are not as desired.

It is recommended to use an electric lock for leafs larger than 2,5 m and in any case for blind or flush panel doors.

START-UP

- Program the circuit board as required following the relative instructions.
- Power the operator and check the LED status as indicated in the table in the instructions for the electronic part.

TESTING THE AUTOMATED DEVICE

Carefully test the automated device as well as all the accessories connected to it.

Give the customer the instructions for use and demonstrate proper functioning and use of the device, the safety devices, cautions and warnings.

MANUAL OPERATION

Should it be necessary to manually operate the gate, use the manual key unlocking device.

N.B.: The unlocking operations must be carried out only in the case of an emergency and especially with the power **DISCONNECTED**.

The manual unlocking device is situated on the support bracket of the gate and allows unlocking the gate both from the inside and the outside of the property.

To manually open the gate, operate as follows:

- Uncover the lock sliding off the protective cap as shown in **(22)**.
- Insert the unlocking key in the lock **(22)** and turn it.
- Pull the lever towards you and manually move the leaf.

RESTORING NORMAL OPERATION

To restore normal operation, act as follows:

- Return the lever/s to its/their normal position, i.e. to the back of the bracket **(23)**.
- Insert the unlocking key in the lock and turn it.
- Manually move the leaf until the lock couples on the locking bracket.
- Close the protective lock sliding cap.

UK**FITTING THE ELECTRIC LOCK (24-25)**

It is recommended to use an electric lock for leaves larger than 2,5 m and in any case for blind or flush panel doors.

- 1- ELECTRIC LOCK
- 2- ELECTRIC LOCK FASTENING PLATE
- 3- LATCH COUPLING
- 4- END-STOP FOR LATCH COUPLING
- 5- LATCH
- 6- THROUGH CYLINDER (ON REQUEST)
- 7- GATE

FINAL TESTING

Power the system and run a complete opening and closing cycle checking that:

- The safety devices function properly
- The gate moves smoothly
- The solidity of the foundation plate
- The gate assembly conforms to **EN 12453** and **EN 12445**.
- For further details and information on the reference standards, visit our site: www.gibidi.com

MAINTENANCE

Periodically check the gate paying particular attention to:

- Check the hinge pivots
- Check good functioning of the safety devices.
- Unlock the operator and check that there are no points of friction along the entire travel of the gate.
- Check that there is no dirt or deposits on the transmission levers.

Periodically check proper adjustment of the electronic anti-crushing safety device and the efficiency of the unlocking device for manual operation (see the relevant paragraph). The safety devices installed on the system must be checked every six months. Gi.Bi.Di. Srl reserves the right to change the technical data without prior notice in relation to product development.

MALFUNCTIONING

For any unresolved malfunction, cut the power to the system and call in a qualified technician (installer). In the period when the gate is out of service, activate the manual unlocking device to allow manual opening and closing.

CE Declaration of conformity

The manufacturer:

GI.BI.DI. S.r.l.

Via Abetone Brennero, 177/B,
46025 Poggio Rusco (MN) ITALY

Declares that the products:

ELECTROMECHANICAL GEARMOTOR GROUND 610 - 624

Are in conformity with the following CEE Directives:

- **LVD Directive 2006/95/CE and subsequent amendments;**
- **EMC Directive 2004/108/CE and subsequent amendments;**

and that the following harmonised standards have been applied:

- **EN60335-1,**
- **EN61000-6-1, EN61000-6-3**

Data 30/11/08


Managing Director
Oliviero Arosio

UK

EXTRAORDINARY MAINTENANCE

Date:		Installer company stamp:
Technician sign:		
Date	Notes	Technician sign

Date:		Installer company stamp:
Technician sign:		
Date	Notes	Technician sign

■ a **BANDINI INDUSTRIE** company

GIBIDI



ISO 9001 Cert. N. 0079

GI.BI.DI. S.r.l.

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