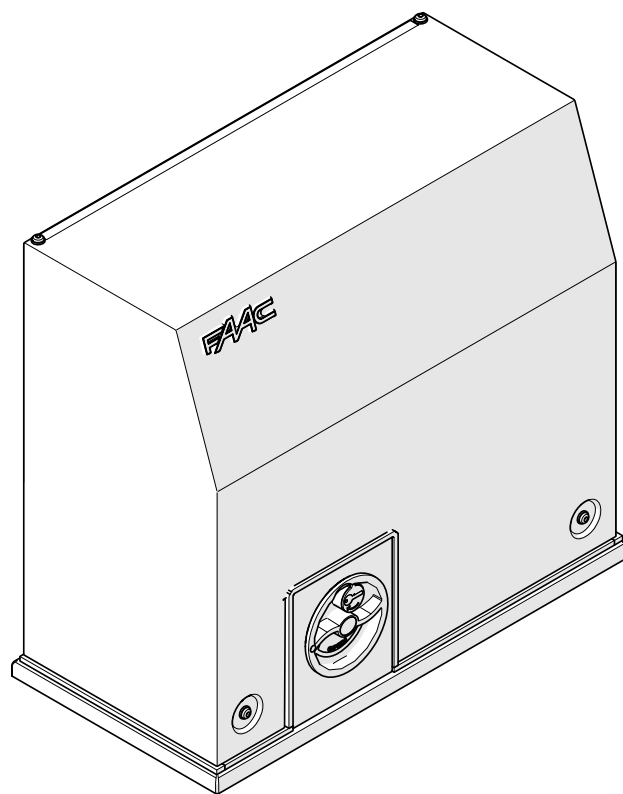


# C851



**FAAC**

Translation of the original instructions

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De klanten mogen kopieën maken die enkel voor eigen gebruik bestemd zijn.

Dez handleiding werd in 2016 gepubliceerd.

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**EU DECLARATION OF CONFORMITY**

The Manufacturer

**Company name:** FAAC S.p.A. Soc. Unipersonale

**Address:** Via Calari, 10 - 40069 Zola Predosa BOLOGNA - ITALY

hereby declares on his sole responsibility that the following products:

**Description:** Gearmotor for sliding gates

**Model:** C851

comply with the following applicable EU legislations:

2014/30/EU

2011/65/EU

Furthermore, the following harmonised standards have been applied:

EN61000-6-2:2005

EN61000-6-3:2007 + A1:2011

Bologna, Italy 20-12-2016 CEO



**DECLARATION OF INCORPORATION FOR PARTLY COMPLETED MACHINERY**

(2006/42/EC ANNEX II P.1, B)

Manufacturer and person authorised to prepare the relevant technical documentation

**Company name:** FAAC S.p.A. Soc. Unipersonale

**Address:** Via Calari, 10 - 40069 Zola Predosa BOLOGNA - ITALIA

hereby declares that for the partly completed machinery:

**Description:** Gearmotor for sliding gates

**Model:** C851

The essential requirements of the Machinery Directive 2006/42/EC (including all applicable amendments) that have been applied and fulfilled are as follows:

- 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.2.1, 1.2.3, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 1.3.4, 1.3.6, 1.3.9, 1.4.1, 1.4.2.1, 1.5.1, 1.5.2, 1.5.5, 1.5.6, 1.5.7, 1.5.8, 1.5.10, 1.5.11, 1.6.1, 1.6.4, 1.7.1, 1.7.2, 1.7.3, 1.7.4.2, 1.7.4.3

and that the relevant technical documentation has been compiled in compliance with part B of Annex VII.

Furthermore, the following harmonised standards have been applied:

EN12100:2010

EN13849-1:2015

EN13849-2:2012

Other standards applied:

EN12453:2000

And also undertakes to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery by mail or e-mail.

Finally, the manufacturer declares that the above-mentioned partly completed machinery must not be put into service until the final machine in which it is to be incorporated has been declared compliant with the requirements of the above-mentioned Machinery Directive 2006/42/EC.

Bologna, Italy 20-12-2016 CEO



**ENGLISH**  
Translation of the original instructions

# 1. INTRODUCTION TO THIS INSTRUCTION MANUAL

This manual provides the correct procedures and requirements for installing C851 and maintaining it in a safe condition.

When drafting the manual, the results of the risk assessment conducted by FAAC S.p.A. on the entire product life cycle have been taken into account in order to implement effective risk reduction measures. The following stages of the life cycle of the product have been considered:

- Delivery/handling
- Assembly and installation
- Set-up and commissioning
- Operation
- Maintenance/troubleshooting
- Disposal at the end of the product's life cycle

Risks arising from installation and using the product have been taken into consideration; these include:

- Risks for the installation/maintenance technician (technical personnel)
- Risks for the user of the automation system
- Risks to product integrity (damage)

In Europe, the automation of a gate falls under the Machinery Directive 2006/42/EC and the corresponding harmonised standards. Anyone automating a gate (new or existing) is classified as the Manufacturer of the Machine. They are therefore required by law, among other things, to carry out a risk analysis of the machine (automatic gate in its entirety) and take protective measures to fulfil the essential safety requirements specified in Annex I of the Machinery Directive.
























FAAC S.p.A. recommends that you always comply with standards EN 12453 and EN 12445 and in particular that you adopt the safety criteria and devices indicated in these standards, without exception, including the dead-man function.

This manual also contains general information and guidelines, which are purely illustrative and not exhaustive, in order to facilitate the activities carried out by the Manufacturer of the Machine in all respects with regard to carrying out the risk analysis and drafting the instructions for use and maintenance of the machine. It should be clearly understood that FAAC S.p.A. accepts no liability for the reliability and/or completeness of the above instructions. As such, the manufacturer of the machine must carry out all the activities required by the Machinery Directive and the corresponding harmonised standards on the basis of the actual condition of the locations and structures where the product C851 will be installed, prior to commissioning the machine. These activities include the analysis of all the risks associated with the machine and subsequent implementation of all safety measures intended to fulfil the essential safety requirements.

This manual contains references to European standards. The automation of a gate must fully comply with any laws, standards and regulations applicable in the country where installation will take place.


 Unless otherwise specified, the measurements provided in the instructions are in mm.

## 1.1 MEANING OF THE SYMBOLS USED


	<b>1</b> Symbols: notes and warnings on the instructions
	WARNING ELECTRIC SHOCK HAZARD - The procedure or step described must be carried out following the instructions provided and according to the applicable safety regulations
	WARNING, PERSONAL INJURY HAZARD OR RISK OF DAMAGE TO COMPONENTS - The procedure or step described must be carried out following the instructions provided and according to the applicable safety regulations.
	WARNING - Details and specifications that must be complied with in order to ensure that the system operates correctly.
	RECYCLING AND DISPOSAL - The materials used in manufacturing, the batteries and any electronic components must not be sent to landfill. They must be taken to authorised recycling and disposal centres
	FIGURE E.g.:  1-3 see Figure 1 - detail 3.
	TABLE E.g.:  1 see Table 1.
§	CHAPTER/SECTION E.g.: §1.1 see section 1.1.
	Automatic operation - automation system locked
	Manual operation - automation system unlocked
	<b>2</b> Symbols: safety signs and symbols (EN ISO 7010)
	GENERIC HAZARD Personal injury hazard or risk of damage to components
	ELECTROCUTION HAZARD Risk of electric shock from live parts
	CRUSHING HAZARD, DANGER TO THE MUSCULOSKELETAL SYSTEM Risk of musculoskeletal crushing - Personal injury hazard when manually lifting heavy loads
	BURNING OR SCALDING HAZARD Risk of burns or scalding due to the presence of high-temperature parts
	CRUSHING HAZARD Risk of crushing of hands/feet due to the presence of heavy parts
	CUTTING/AMPUTATION/PIERCING HAZARD Cutting hazard due to the presence of sharp components or the use of pointed/sharp tools (drill)
	SHEARING HAZARD Risk of shearing due to moving parts
	RISK OF IMPACT/CRUSHING Risk of impact or crushing due to moving parts
	COLLISION WITH FORKLIFT TRUCKS HAZARD Risk of collision/impact with forklift trucks
	HAND CRUSHING HAZARD Risk of crushing hands due to moving parts
	RISK OF TRIPPING Risk of tripping over due to the presence of thresholds higher than 5mm

**3 Symbols: personal protective equipment**


Personal protective equipment must be worn to protect against hazards (e.g. crushing, cutting, shearing etc.):

-  Obligation to wear mask/goggles to protect the eyes from the risk of fragments due to the use of drill or welding machine

---


-  Obligation to wear work gloves

---

-  Obligation to wear safety footwear

**2. SAFETY RECOMMENDATIONS**

This product is placed onto the market as “partly completed machinery”, therefore it cannot be commissioned until the machine in which it will be incorporated has been identified and declared to conform to the Machinery Directive 2006/42/EC by the actual Manufacturer.

 Incorrect installation and/or incorrect use of the product might cause serious harm to people. Read and comply with all the instructions before starting any activity on the product. Keep these instructions for future reference.

Perform installation and other activities adhering to the sequences provided in the instructions manual.

Always comply with all the requirements contained in the instructions and warning tables at the beginning of the paragraphs. Always comply with the safety recommendations.

Only the installer and/or maintenance technician is authorised to work on the automation components. Do not modify the original components in any way.


Close off the work site (even temporarily) and prevent access/transit. EC countries must comply with the legislation that transposes the European Construction Site Directive 92/57/EC.

The installer is responsible for the installation/testing of the automation and for completing the Register of the system.

The installer must prove or declare to possess technical and professional proficiency to perform installation, testing and maintenance activities according to the requirements in these instructions.

**2.1 INSTALLER SAFETY**

Installation activities require special work conditions to reduce to the minimum the risks of accidents and serious damage. Furthermore, the suitable precautions must be taken to prevent risks of injury to persons or damage.

 The installer must be in good physical and mental condition, aware of and responsible for the hazards that may be generated when using the product.

The work area must be kept tidy and must not be left unattended.

Do not wear clothes or accessories (scarves, bracelets, etc.) that may get caught in moving parts.

Always wear the personal protective equipment recommended for the type of activity to be carried out.

The required level of workplace lighting must be equal to at least 200 lux.


Operate CE marked machinery and equipment in compliance with the manufacturer's instructions. Use work instruments in good conditions.

Use the transport and lifting equipment recommended in the instructions manual.


Use safety-compliant portable ladders of adequate size, fitted with anti-slip devices at the top and bottom, equipped with retainer hooks.

**2.2 TRANSPORT AND STORAGE**


**4 Symbols: warnings on packaging.**

-  Read the instructions


---

-  Handle with care, contains fragile parts


---

-  This way up, do not turn upside down


---

-  Keep away from water and moisture


---

-  20 kg is the maximum weight that 1 person can lift


---

-  Handle using a pallet truck


---

-  Percent storage humidity

---

-  Storage temperature


---

-  Maximum number of stackable packages


---

- Kg 40** Weight of package


---

-  Maximum number of stackable pallets


---

-  Do not dispose of with general waste. Dispose of in accordance with current regulations

---

-  Wear work gloves

---

-  Wear safety footwear

---

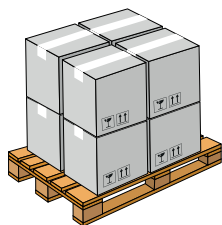
- CE** CE marking

**PALLETISED SUPPLY**

**RISKS**



**PERSONAL PROTECTIVE EQUIPMENT**



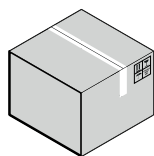
Follow the instructions on the packaging during handling.  
Use a forklift or pallet truck, following safety regulations to avoid the risk of impacts or collisions.

**SINGLE PACKAGE**

**RISKS**



**PERSONAL PROTECTIVE EQUIPMENT**



Follow the instructions on the packaging during handling.



For manual lifting, there should be one person for every 20 kg to be lifted.

**STORAGE**

Store the product in its original packaging, in closed and dry premises, protected from the sun and free from dust and aggressive substances. Protect from mechanical stress. If stored for more than 3 months, regularly check the condition of the components and the packaging.

- Storage temperature: 5°C to 30°C.
- Percentage of humidity: 30% to 70%.

**2.3 UNPACKING AND HANDLING**

**RISKS**



**PERSONAL PROTECTIVE EQUIPMENT**



1. Open the package.
2. Remove the package containing the accessories
3. Remove the gearmotor.
4. Check that all components are present and intact (🔍 2).
5. Dispose of the packaging materials.



The packaging materials (plastic, polystyrene, etc.) must not be left within reach of children as they are potential sources of danger.  
Discard the packaging after use in the appropriate containers in compliance with waste disposal regulations.



For manual lifting, there should be 1 person for every 20 kg to be lifted.

**2.4 DISPOSAL OF THE PRODUCT**

After dismantling the product, dispose of it in compliance with Standards in force.



The constructive components and materials, batteries and electronic components must not be disposed of with household waste but delivered to authorised disposal and recycling facilities.



### 3. C851

#### 3.1 INTENDED USE

FAAC C851 series gearmotors are designed to operate horizontal sliding gates for industrial use.

Only one gearmotor must be installed for each leaf. The gate must be moved via a rack.

Installations using the C851 must be used for vehicular traffic.

To operate the gate manually, see § 3.9.



Any other use that is not expressly specified in these instructions is prohibited and could affect the integrity of the product and/or represent a source of danger.

#### 3.2 LIMITATIONS OF USE

The gate must fall within the dimensional and weight limitations indicated in the technical data section. Obey the limitations on frequency of use listed in the technical data section.

Using the product in any configuration other than that provided for by FAAC S.p.A. is prohibited. It is prohibited to modify any product component.

The presence of weather conditions such as snow, ice and strong wind, even when occasional, could compromise correct automation, affect the integrity of the components and represent a potential source of danger.

If a pedestrian access gate is integrated in the sliding gate section, motorised movement must be disabled when the pedestrian gate is not closed.

C851 is not designed as a security (break-in protection) system.

Implementing automation requires the installation of the necessary safety devices, identified by the installer through an appropriate risk assessment of the installation site.

#### 3.3 UNAUTHORISED USE

- Uses other than the intended use are prohibited.
- It is prohibited to install the automation system outside of the limits specified in the Technical Data and Installation Requirements sections.
- It is prohibited to install the automation system on escape routes.
- It is prohibited to install the automation system to create fire doors.
- It is prohibited to install the automation system in environments in which there is a risk of explosion and/or fire: the presence of flammable gases or fumes is a serious safety hazard (the product is not 94/9/EC ATEX certified).
- It is prohibited to power the system with energy sources other than those specified.
- It is prohibited to integrate commercial systems and/or equipment other than those specified, or use them for purposes not envisaged and authorised by the corresponding manufacturers.
- It is prohibited to use and/or install accessories which have not been specifically approved by FAAC S.p.A.
- It is prohibited to use the automation system before performing commissioning.
- It is prohibited to use the automation system in the presence of faults which could compromise safety.
- It is prohibited to use the automation system with the fixed and/or mobile guards removed or altered.
- Do not allow water jets of any type or size to come into direct contact with the gearmotor.
- Do not expose the gearmotor to corrosive chemical or atmospheric agents.
- Do not use the automation system unless the area of operation is free of persons, animals or objects.

- Do not enter/remain in the area of operation of the automation system while it is moving.
- Do not try to prevent the movement of the automation system.
- Do not climb on, hold onto or let yourself be pulled by the leaf. Do not climb onto or sit on the gearmotor.
- Do not allow children to approach or play in the area of operation of the automation system.
- Do not allow the control devices to be used by anyone who is not specifically authorised and trained to do so.
- Do not allow the control devices to be used by children or persons with mental and physical deficiencies unless they are supervised by an adult who is responsible for their safety.



During manual operation, gently guide the leaf the whole way, do not push it and let it slide freely.


#### 3.4 EMERGENCY USE

In any malfunction, emergency or fault, disconnect the power supply of the automation. If the conditions allow the leaf to be safely moved manually, use the manual operation; otherwise, keep the automation out of service until it is restored/repaired.

In case of a fault, the automation must be restored/repaired must only be carried out by the installer/maintenance technician.



### 3.5 PRODUCT IDENTIFICATION



FAAC S.p.A. Soc. Unipersonale  
Via Calati, 10 - 40069 Zola Predosa BOLOGNA  
Italy

Made in .....  
Designed in Italy

Cod. .... Sale code

Mod. .... Product name

MM/YY PROG IDENTIFICATION NUMBER


..... V~ ..... Hz ..... W

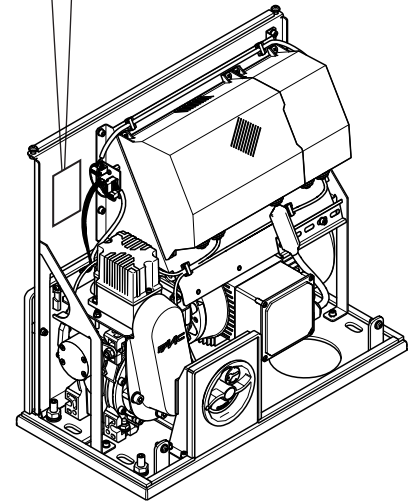
... N IP....


Month/year of production + progressive number for the month of production

Example:

0116                      0001  
   ↓                            ↓  
 produced in:      progressive:  
 January 2016      0001



 1

ENGLISH

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### 3.6 TECHNICAL SPECIFICATIONS

C851 is an oil lubricated electromechanical gearmotor supplied with a pinion to be connected to a rack and an E850S electronic board. C851 must be installed on a special base plate, supplied separately, which is embedded in a plinth. An electric brake ensures that the gate cannot be reversed when stationary. C851 is fitted with a key-protected release system, to use when the gate needs to be moved manually.

#### INVERTER

E850S has an integrated inverter in order to program the opening and closing speeds independently.

#### DISPLAY

The board functions are programmed via a LCD display and two buttons.

#### LIMIT SWITCH

The opening and closing stop positions of the gate are determined by two magnetic limit switches that are fixed mechanically to the rack.

#### DECELERATION

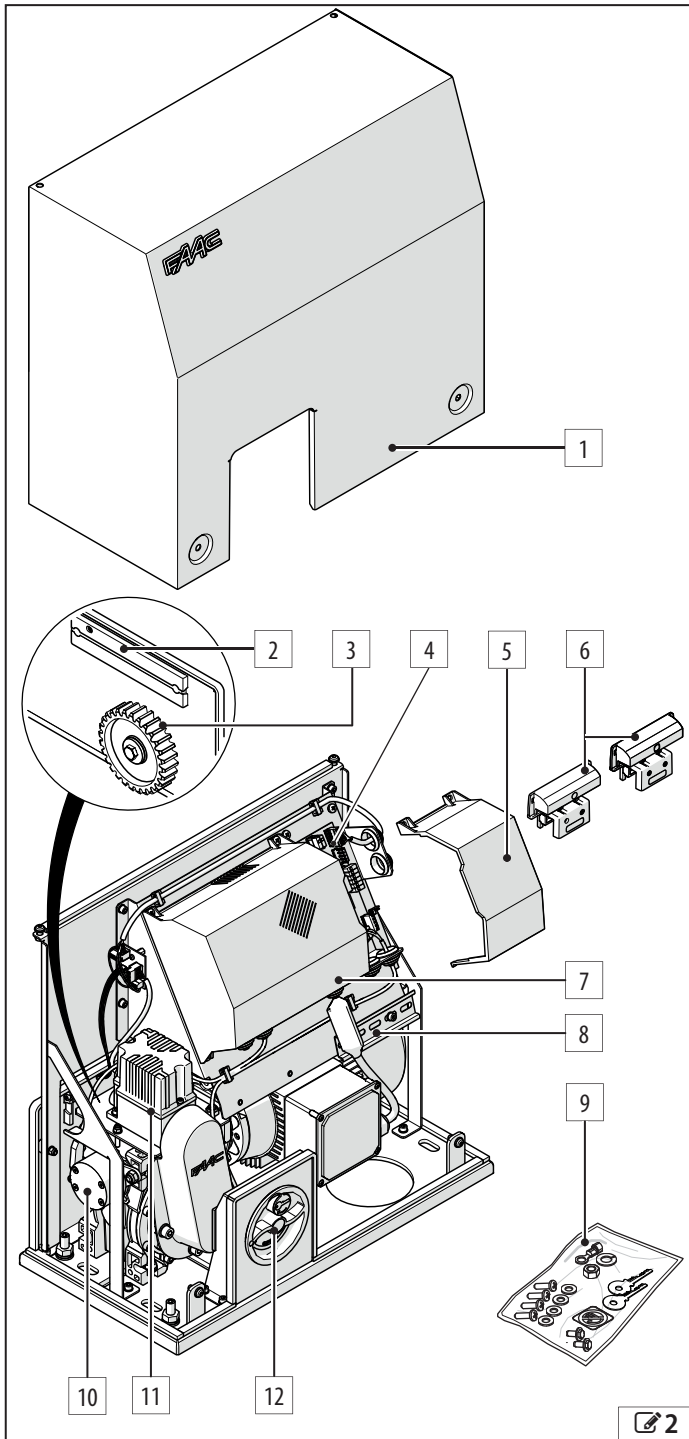
C851 has an integrated adjustment system for the deceleration start points close to the final stop positions.

#### 5 Technical Data

	<b>C851</b>
<b>Supply voltage</b>	230-240 V~ 50/60 Hz
<b>Max power</b>	1800 W
<b>Max. thrust force</b>	3000 N (at 230 V~ 50Hz)
<b>Max torque</b>	168 Nm
<b>Pinion</b>	Z28 Module 4
<b>Max leaf length</b>	20 m
<b>Max. leaf weight*</b>	1800 kg
<b>Leaf speed</b>	10...40 m/min
<b>Type of use</b>	Industrial
<b>Ambient operating temperature</b>	-20 °C - +55 °C
<b>Continuous use time (ROT)</b>	continuous at 25°C 60 min at 55°C
<b>Use frequency</b>	100% at 25°C 50% at 55°C
<b>Ingress protection</b>	IP 54
<b>Dimensions (LxDxH)</b>	510x295x467 mm
<b>Weight</b>	40 Kg

\* In the case of a cantilever gate, the maximum weight of the leaf is reduced by 30%

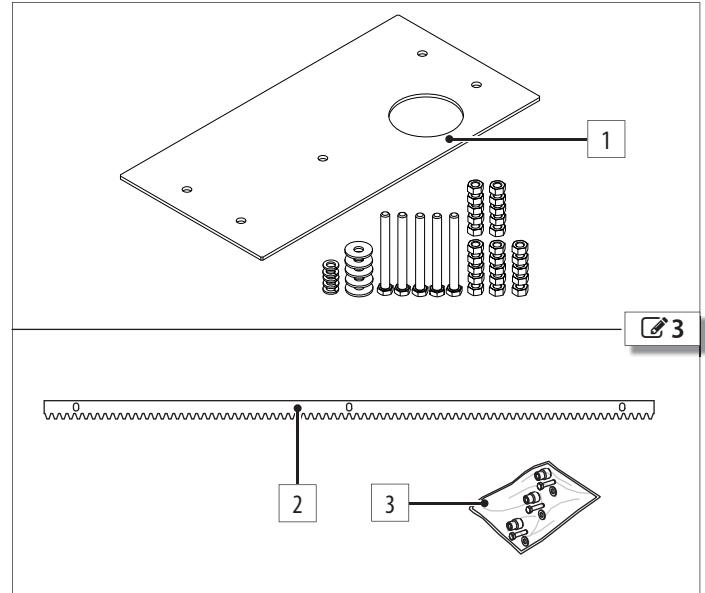
## 3.7 COMPONENT IDENTIFICATION



### 6 Components

- 1 Casing
- 2 Magnetic limit switch sensor
- 3 Pinion
- 4 Electronic board E850S
- 5 Transparent board cover
- 6 Magnetic limit switches
- 7 High voltage area board cover
- 8 DIN rail
- 9 Installation accessories
- 10 Electric brake
- 11 Integrated limit switch
- 12 Release device

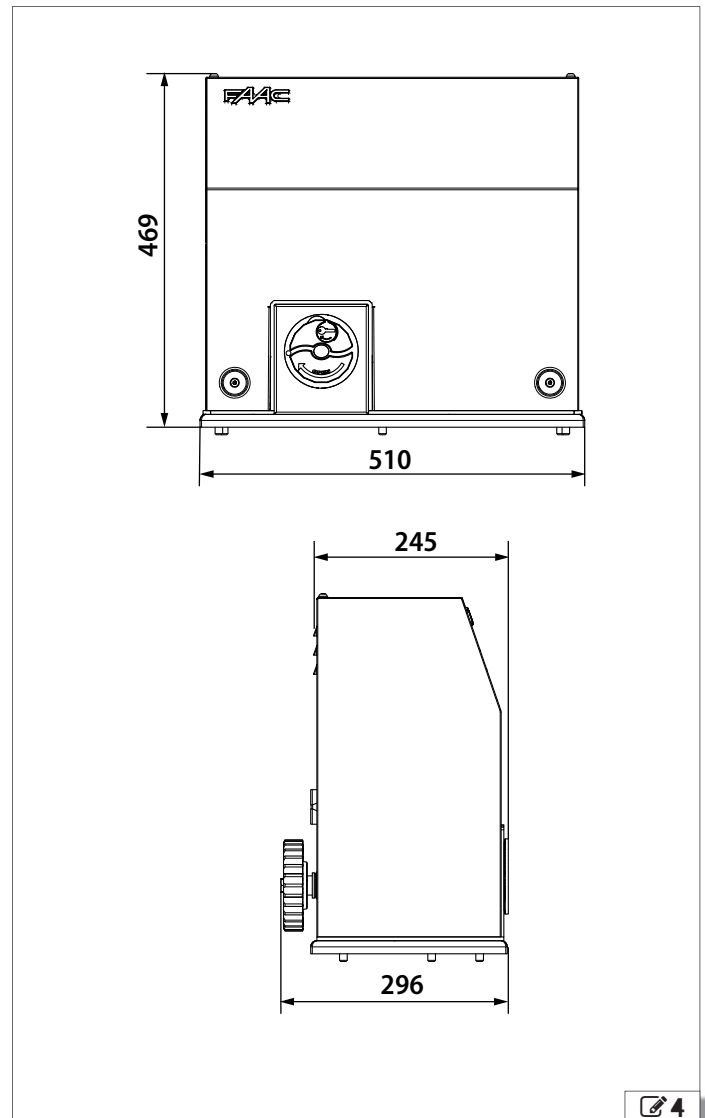
## INSTALLATION ACCESSORIES WHICH ARE NOT SUPPLIED



### 7 Installation Accessories

- 1 Base plate with mounting hardware
- 2 Steel rack 30x12 module 4
- 3 Steel spacers for rack, to be welded on

## 3.8 DIMENSIONAL DRAWING



### 3.9 MANUAL OPERATION

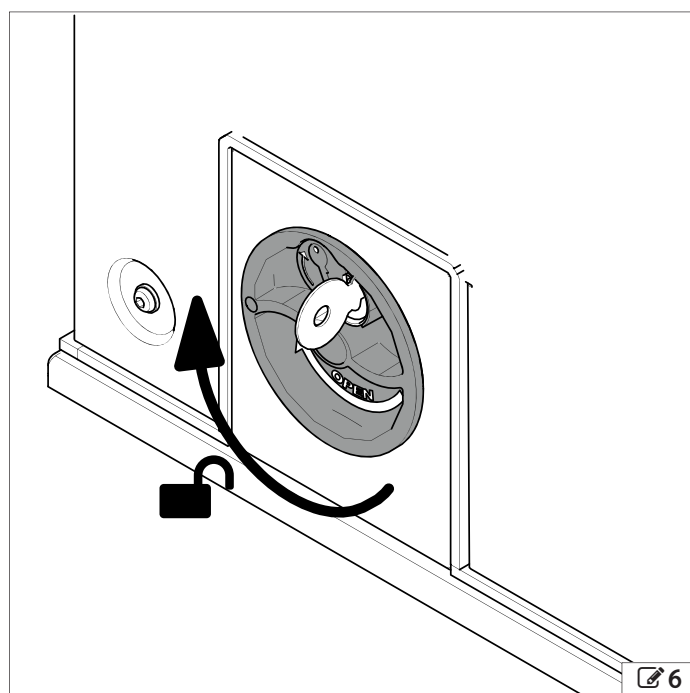
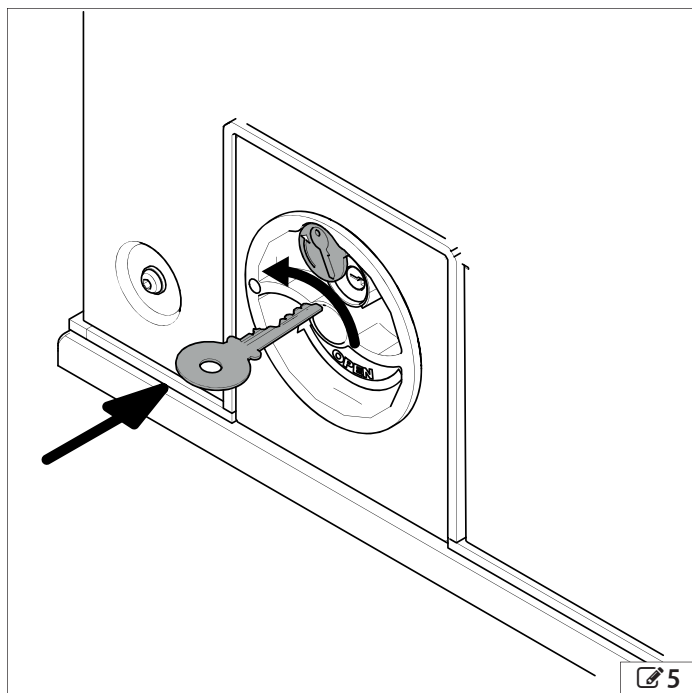


Before carrying out the release procedure, disconnect the power supply to the automation system.  
 Carry out the release procedure only when the gate is stationary.  
 During manual operation, gently guide the leaf the whole way, do not push it and let it slide freely.  
 Do not leave the gate with the release engaged: after moving it manually, restore automatic operation.

#### RELEASE PROCEDURE



1. Turn the lock protection shutter clockwise (🔧 5).
2. Insert the release key and rotate it a quarter of a turn anticlockwise (🔧 5).
3. Turn the release knob clockwise until it stops (🔧 6).



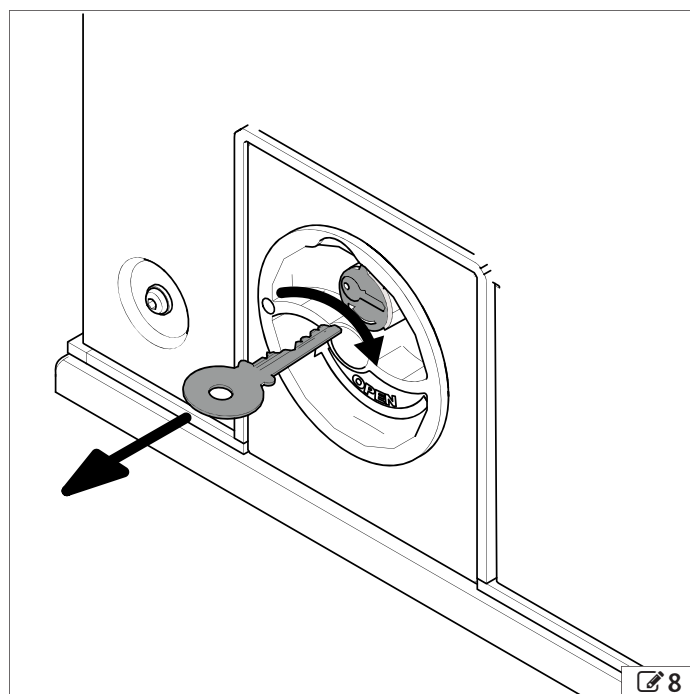
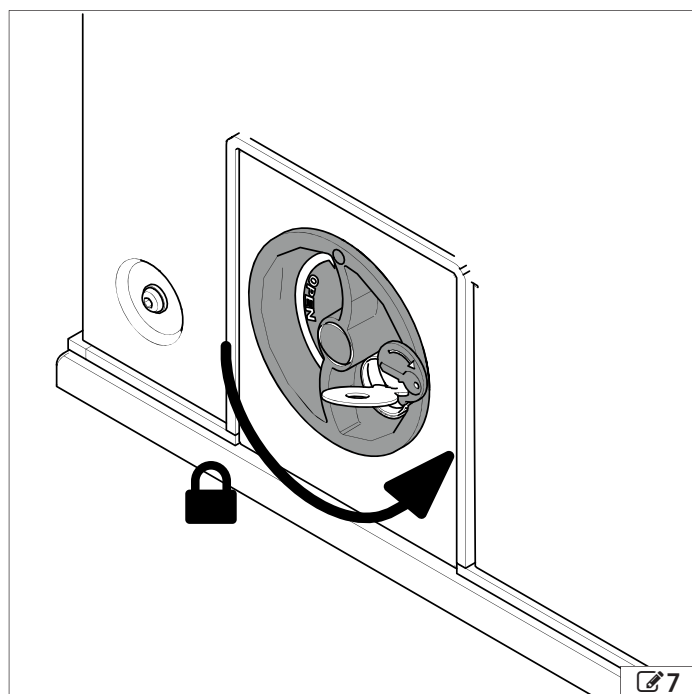
ENGLISH

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#### RESTORING AUTOMATIC OPERATION



1. Turn the release knob anticlockwise until it stops (🔧 7).
2. Turn the release key clockwise until it stops, then remove it (🔧 8).
3. Turn the lock protection shutter anticlockwise (🔧 8).
4. Manually move the gate until the mechanical system meshes.



## 4. INSTALLATION REQUIREMENTS

### 4.1 MECHANICAL REQUIREMENTS

The mechanical structural components must comply with the requirements of EN 12604 and EN 12605.

Before installing the automation system, the suitability of the mechanical requirements must be established, and the necessary work to reach them performed.

The essential mechanical requirements are as follows:



Solid ground to support the weight of the gate, the structures present and the gear motor. There must be no chance of water accumulating in the installation area. Flat, horizontal paving in the area of movement of the sliding gate section.

Structure (columns, guides, mechanical strikers, sliding gate section) must be solid and there must be no risk of detachment or collapse, taking into consideration the weight of the sliding gate section, force applied by wind and the forces generated by the gear motor. Perform structural calculations where necessary.

No signs of corrosion or cracking in the structure.

Sliding gate section perfectly vertical in all movement positions with regular, uniform movement without friction.

Appropriate devices must be installed to prevent the gate from falling.

There must be a lower horizontal sliding guide in good condition; this must be straight, with no deformations, and must be solidly fastened to the ground and free of obstacles along its entire length. The sliding gate section must remain in any position in which it is placed without moving. Presence of guide wheels on the ground, with diameter appropriate for the size and length of the sliding gate section and profile section matching the sliding guide. The number and position of the wheels must ensure adequate and constant distribution of the weight at all times.

Presence of upper containing guide to prevent vertical oscillation of the sliding gate section. The sliding gate section must not under any circumstances come out from its guides and fall. Wheels, rollers and bearings in good condition, lubricated and free from play or friction.

External mechanical limit stops to limit the travel of the sliding gate section when opening and closing. The stops must be suitably sized and solidly fastened so that they resist any impact of the sliding gate section in the event of improper use (gate pushed and left to slide freely). The mechanical limit stops must be positioned at 50 mm beyond the stop position of the sliding gate section, and must ensure that the sliding gate section remains inside its sliding guides.

The thresholds and protrusions of the paving must be appropriately shaped in order to prevent the risk of sliding or slipping.

Safety precaution between the wall (or other fixed element) and the furthest protruding part of the open gate to protect against the risk of persons becoming trapped/crushed. Alternatively, check that the opening force required falls within the maximum permissible limits according to applicable standards and legislation.

Safety devices installed between the fixed and moving parts to prevent against the risk of hands being trapped. Alternatively, apply protective elements preventing the introduction of fingers.

Safety element between the paving and lower edge of the sliding gate section, along its entire path, providing protection from the risk of feet becoming caught in and crushed beneath the wheels. Alternatively, apply protective elements preventing the introduction of feet.

No sharp edges or protruding parts should be present to ensure there is no cutting, hooking or perforation hazard. Alternatively, eliminate or protect any sharp edges and protruding parts.

No slots or openings should be present on the sliding gate section or the fencing to prevent the creation of a shearing hazard. Alternatively, apply protective mesh to any such openings. The mesh should be sufficiently fine to prevent introduction of body parts requiring protection, in relation to the distance between the fixed and moving parts.

For the minimum dimensions to prevent crushing/shearing of body parts, refer to EN 349. For the safety distances required to prevent danger zones being reached, refer to ISO 13857.

There should be a solid surface on the sliding gate section sufficiently large to attach the rack to.

If the area of installation gives rise to the risk of impact by vehicles, provide for an appropriate protective structure to protect the gear motor.

### 4.2 ELECTRICAL SYSTEM



Always shut off the power supply before performing any work. If the disconnect switch is not in view, apply a warning sign stating "WARNING - Maintenance in Progress".



The electrical system must comply with applicable legislation in the country of installation.

Use components and materials with a CE marking that are compliant with the Low Voltage Directive 2014/35/EU and EMC Directive 2014/30/EU.

The power supply line for the automation system must be fitted with a 6 A omnipolar circuit breaker with a contact opening distance of at least 3 mm, with breaking capacity which meets code.

The electric power supply must be fitted with a 30 mA RCD.

The metal parts of the structure must be earthed. Check that the protective earthing system complies with applicable regulations in the country of installation.

The electrical cables of the automation system must be laid in appropriate conduits, which may be rigid or flexible, above or below ground; the size and insulation class must conform with applicable legislation. Use separate conduits for power supply and low-voltage control cables. Check buried cable plans to ensure that there are no other electrical cables in proximity to the planned digging/drilling locations to prevent the risk of electrocution.

Check that there are no pipes in the vicinity as well.

It is recommended to install a flashing light in a visible position to warn when the gate is moving.

The control accessories must be positioned in a location that is not hazardous to the user and that is also accessible with the leaf open. It is advisable to position the control accessories within the field of view of the automation system; this is obligatory when operator presence is required for the controls.

If an emergency stop button has been installed, it must be EN13850 compliant.

The maintained action controls in the dead-man mode of operation, must comply with standard EN 60947-5-1.

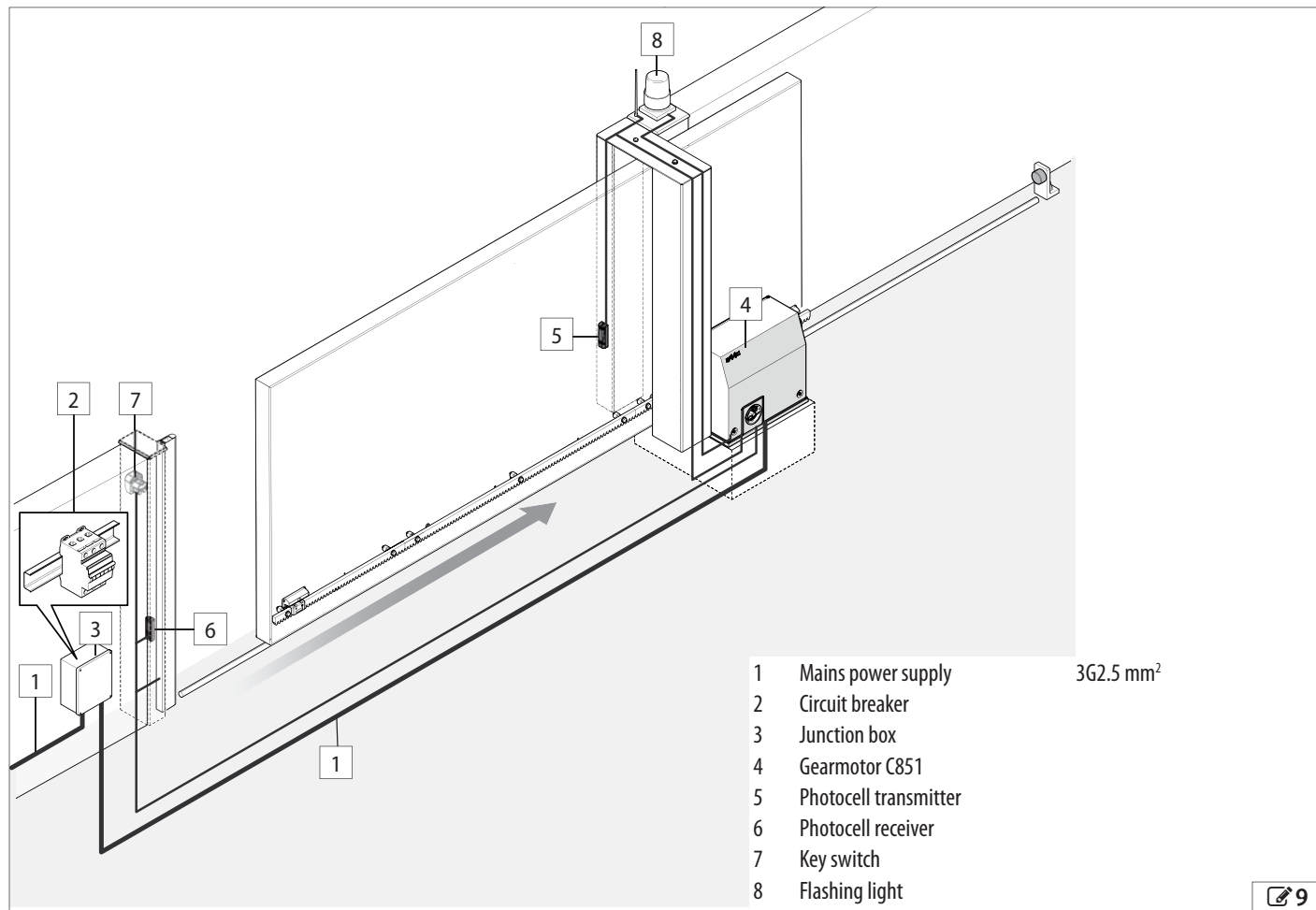
Comply with the following heights from the ground:

- control accessories = minimum 150 cm

- Emergency button = maximum 120 cm

### 4.3 EXAMPLE SYSTEM

The example is purely an illustration and is only one of the possible applications of the C851.



ENGLISH  
Translation of the original instructions

## 5. MECHANICAL INSTALLATION

### 5.1 TOOLS REQUIRED

Use appropriate tools and equipment in working environments which comply with applicable legislation.

8 Symbols: work tools

HEX SPANNER of size indicated  
8; 13; 19

TORQUE WRENCH - if necessary for safety, a torque wrench and the TIGHTENING TORQUE will be specified

x.x Nm    40 Nm    80 Nm  
17    19

FLAT SCREWDRIVER of the size(s) indicated  
2,5; 4; 5,5

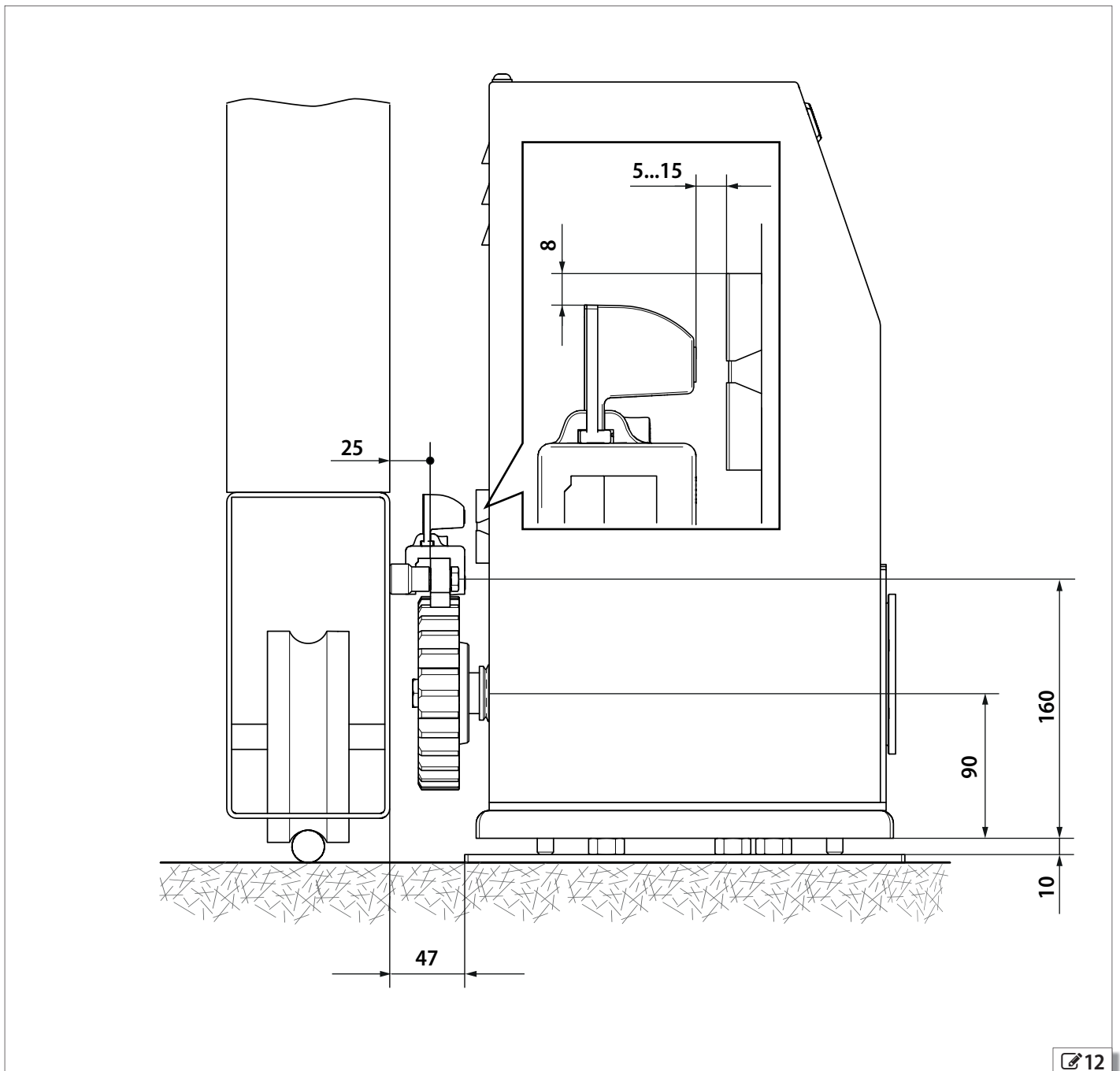
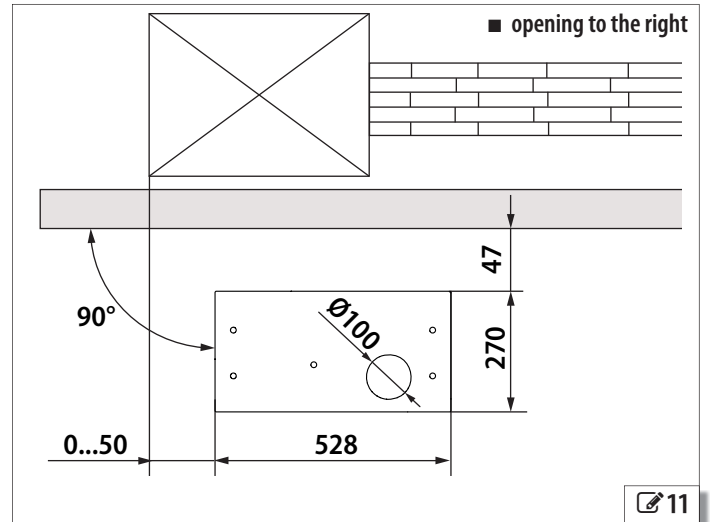
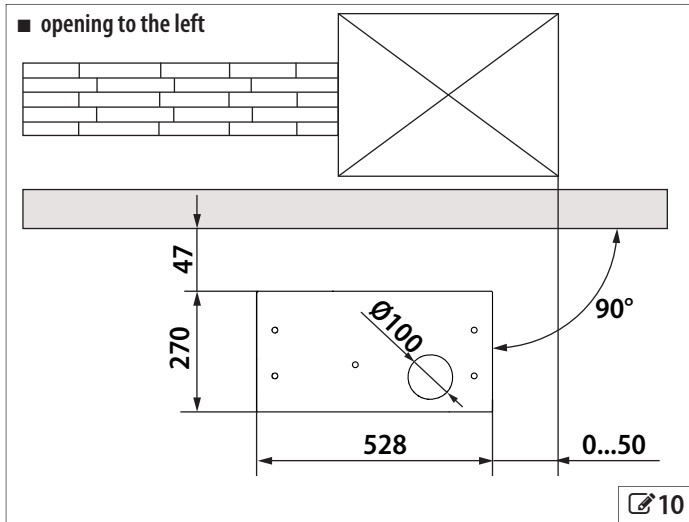
PHILLIPS SCREWDRIVER of the size(s) indicated  
1; 2

ALLEN KEY with ROUND HEAD of the size(s) indicated  
4; 5

- ELECTRICIAN'S SCISSORS
- LEVEL
- TAPE MEASURE
- SCREW CLAMP
- WELDING EQUIPMENT (for steel rack to be welded on)
- ANGLE GRINDER
- CALLIPER
- WIRE STRIPPER/TERMINAL CRIMPER

**5.2 INSTALLATION DIMENSIONS**

**POSITIONING THE BASE PLATE**





### 5.3 INSTALLING THE BASE PLATE

**RISKS**



**PERSONAL PROTECTIVE EQUIPMENT**



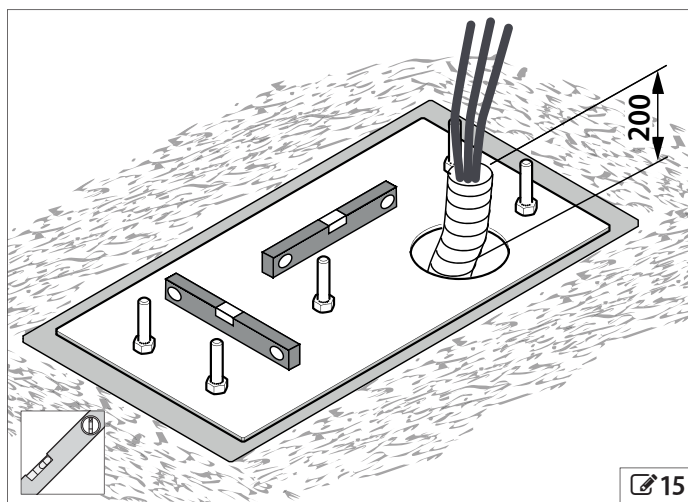
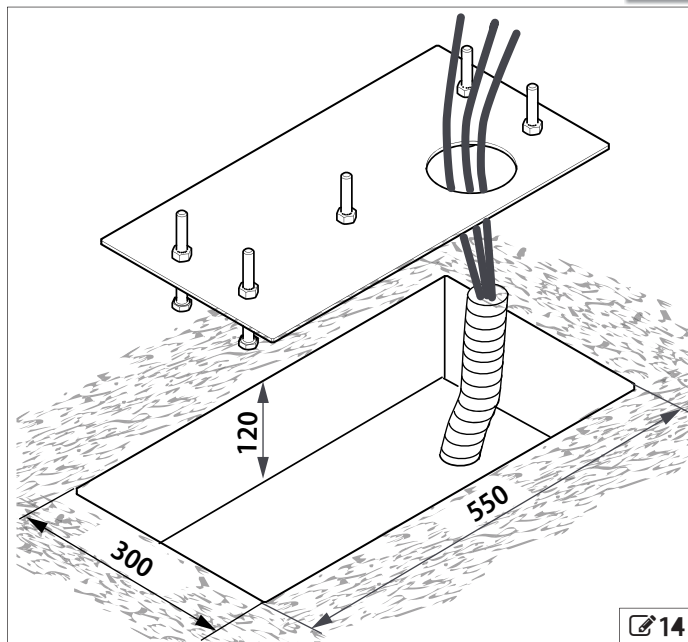
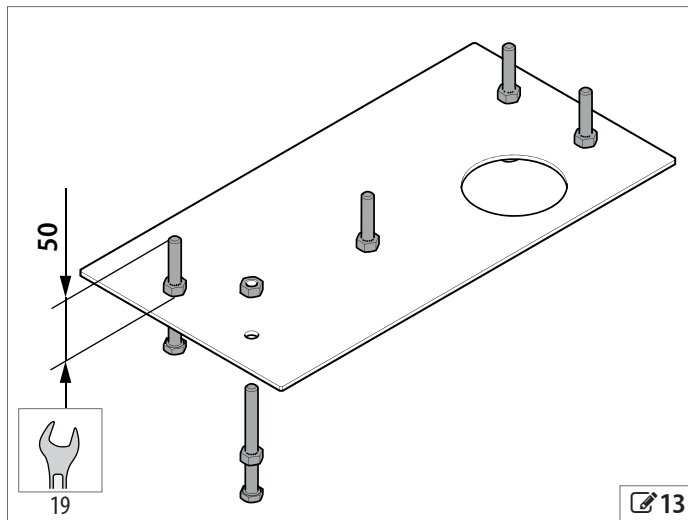
Carry out the work with the electricity supply disconnected.

The dimensions of the plinth shown in are given purely as a guideline. It is the responsibility of the installer to assess the dimensions of the foundation and the materials to be used according to the characteristics of the ground, the gate and the installation environment. Perform structural calculations where necessary.

Check that there are no electric cables and pipes close to where the plinth needs to be installed.

Before proceeding, the cable conduits must be laid. The cable conduits must protrude from the hole in the plate by approximately 20 cm. The electric cables must protrude from the hole in the plate by approximately 1.5 m. The orientation of the base plate with respect to the gate is shown in and .

1. Assemble the base plate as shown in ; tighten the M10 nuts and locknuts supplied, leaving each screw protruding by 50 mm. Protect the protruding part with adhesive tape to prevent it from becoming dirty with cement.
2. Make the hole in the ground. Fill it with concrete, allowing the cable conduits to protrude. .
3. Place the plate in the foundation, leaving the surface uncovered. Pass the cable conduits through the hole.
4. Using a spirit level, check that it is horizontal before the cement starts to set (.
5. Clean any concrete there may be from the surface of the plate.
6. Wait for the cement to set, then remove the adhesive tape from the screws.





## 5.4 INSTALL THE GEARMOTOR

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT

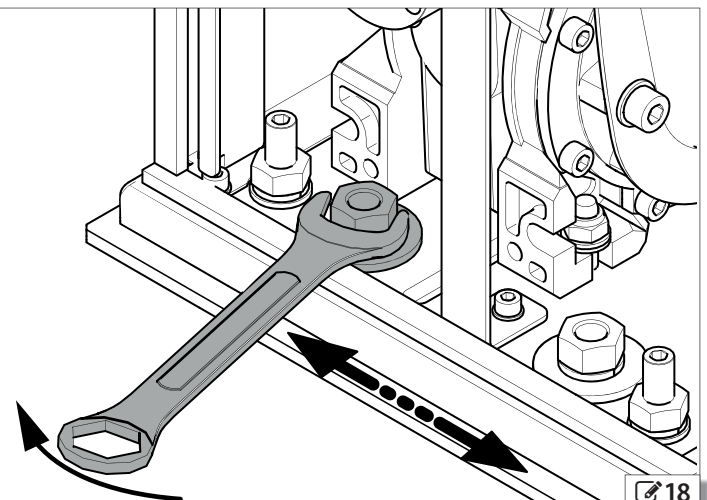
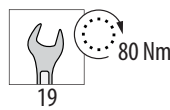
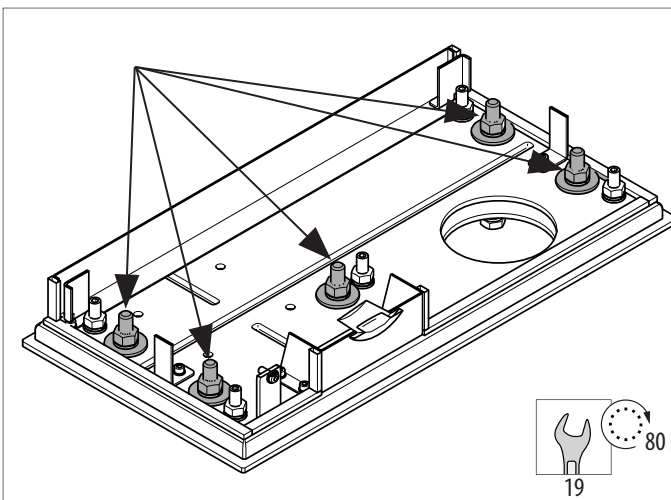
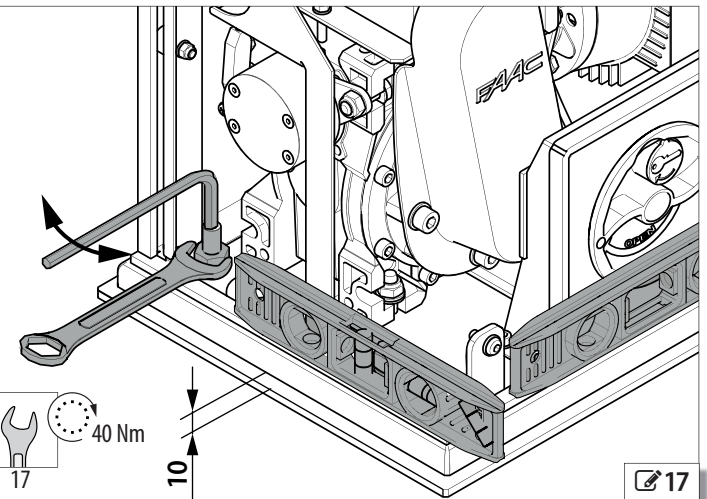
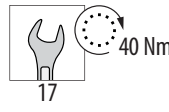
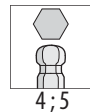
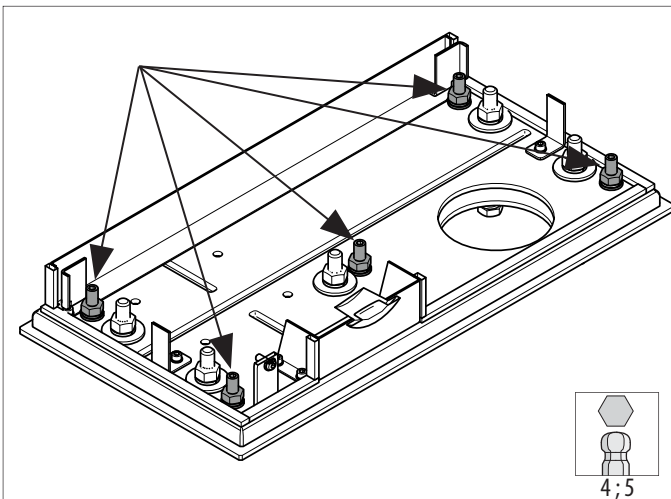
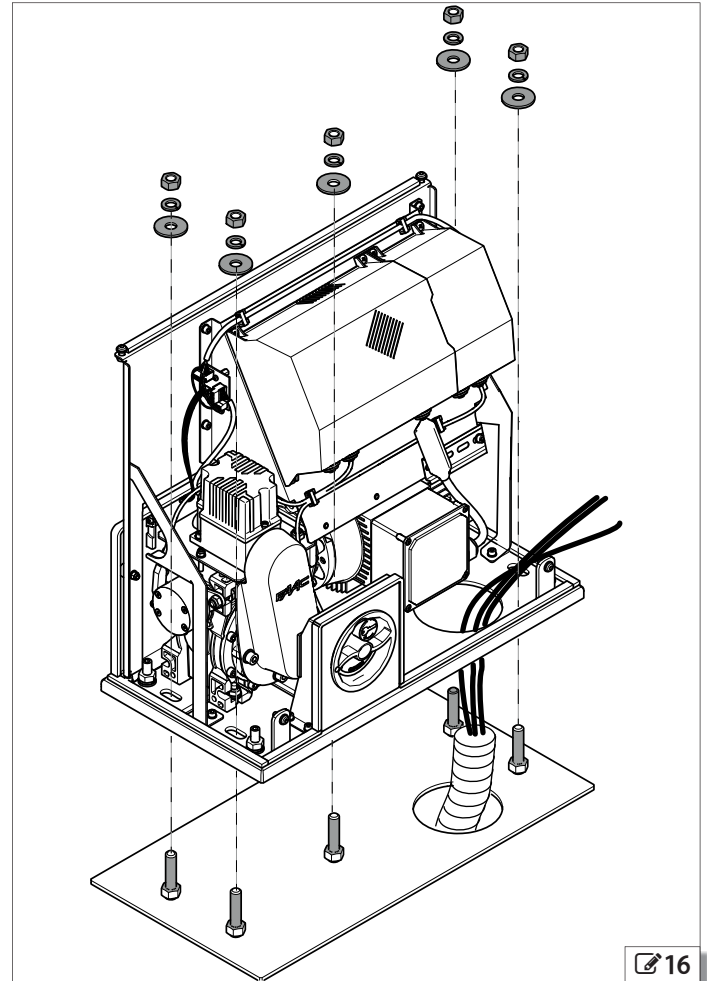


Carry out the work with the electricity supply disconnected.

Wait for the concrete of the plinth to set completely before proceeding.

1. Remove the casing ( 50) and place it temporarily to one side.
2. Position the C851 on the base plate aligning the slots with the screws of the plate 16. When doing this, pass the electric cables through the hole in the base, taking care not to damage or pinch them.
3. Insert the washer, serrated washer and nut on each screw of the base plate 16.
4. With reference to 17: regulate the height of the C851 by adjusting the 5 screws indicated with an Allen wrench. Check that the base of the C851 is horizontal using a spirit level. After adjustment is complete, tighten the nuts.
5. With reference to 18: move the C851, using the slots, so that it corresponds with the measurements indicated in 12. After adjustment is complete, tighten the nuts.

Use a torque wrench to tighten to the torque specified in 17 and 18.



## 5.5 INSTALL THE RACK

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



1. Release the C851.
2. Install the spacers and screws in the upper part of the slots (☞ 19-1) of the rack sections. This will allow future adjustments to be made in case the guide were to move downwards.
3. Rest an assembled section on the pinion.
4. Use a screw clamp to fasten the section to the leaf, using a spirit level to check that it is level (☞ 20).
5. Weld the first spacer to the leaf (☞ 20).
6. Move the leaf forward. Check that the section rests on the pinion and using a spirit level, check that it is horizontal.
7. Weld the second spacer to the leaf.
8. Repeat steps 6 and 7 for the third spacer.
9. Remove the clamp.
10. Assemble the next rack section as in step 2.
11. Rest the section on the pinion, against the previous one. Using a third section, screw clamps and a spirit level, line up the teeth and check it is level (☞ 21).
12. Weld the spacers, repeating the operations indicated in points 5-8, then remove the clamps.
13. Add other rack sections until the entire length of the leaf is covered.
14. If the last section is too long, cut it using an angle grinder close to one of the slots (☞ 22).
15. Tighten all the screws that fasten the rack.

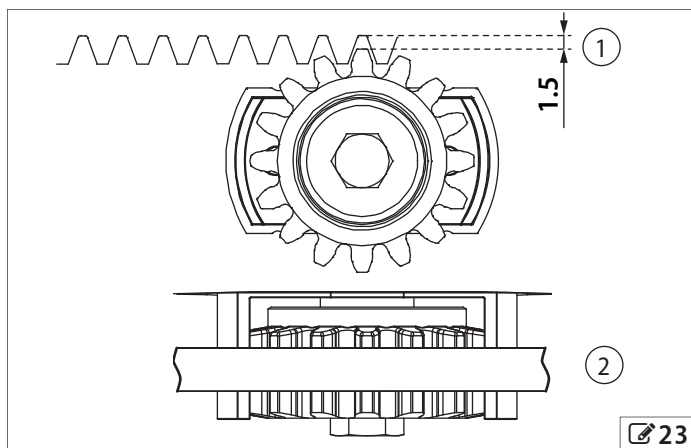
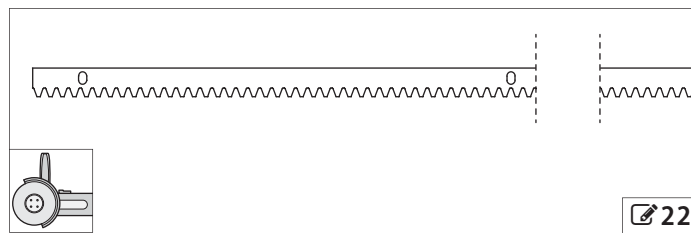
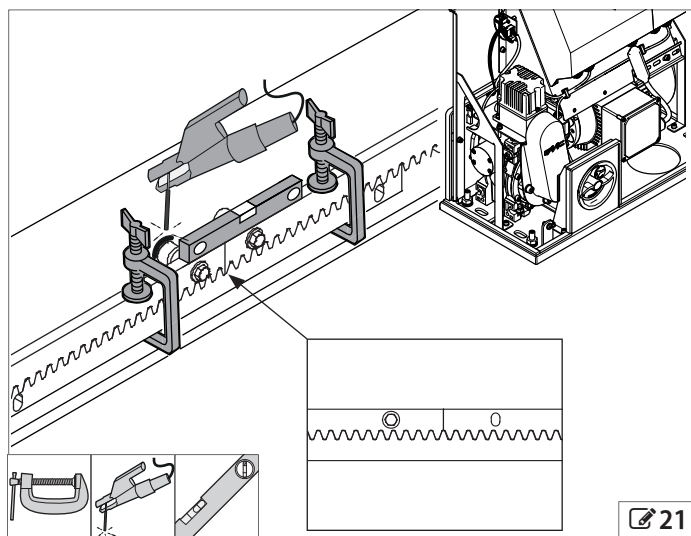
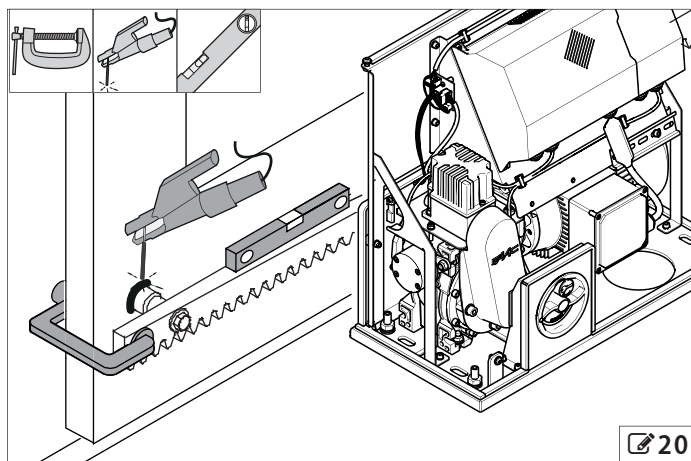
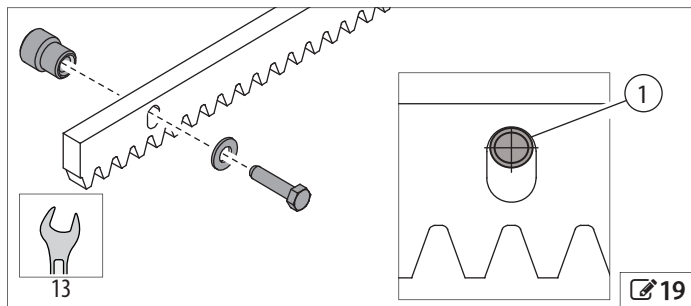
### ADJUSTMENTS AND CHECKS

In order to prevent damage to and the proper operation of the gear-motor, the following conditions must be met:

- there must be a distance of 1.5 mm between the teeth of the rack and the teeth of the pinion over the entire stroke (☞ 23-1)

**i** To lower the C851, redo steps 4 and 5 in section § 5.4

- the rack must slide within the width of the pinion along its entire length (☞ 23-2)
- the rack sections must not be welded together or to the spacers
- there must be no friction
- do not use grease or other lubricants between the rack and the pinion



## 6. ELECTRONIC INSTALLATION

**RISKS**



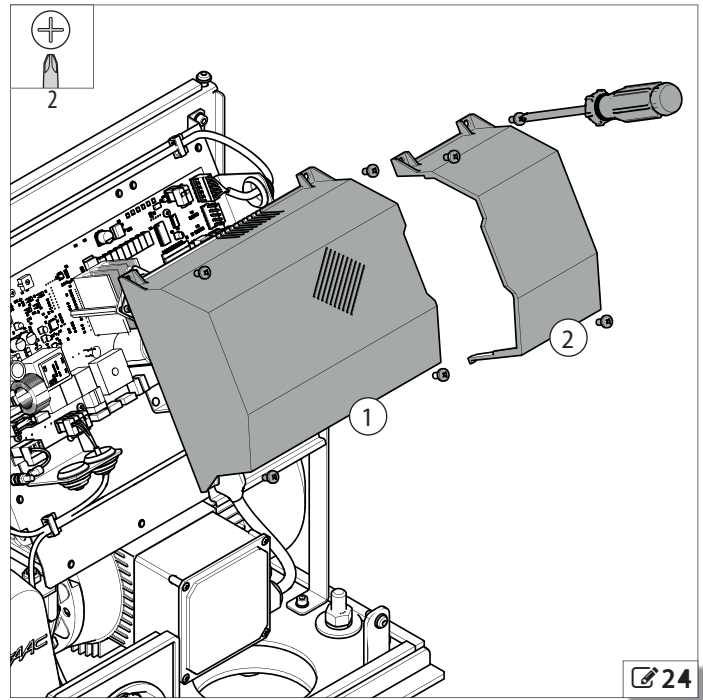
**PERSONAL PROTECTIVE EQUIPMENT**



**⚠** ALWAYS DISCONNECT THE POWER SUPPLY before working on the board. Turn the power on only after having made all the electrical connections and carried out the preliminary start-up checks.

**⚠** The board of the E850S is protected by plastic covers:  
 - the cover **24-1** protects against electric shock and must always be mounted if the mains power is on.  
 - the cover **24-2** allows the display and the LED on the board to be seen. It must always be mounted, but can be temporarily removed in order to access the programming buttons even if the mains power is turned on.

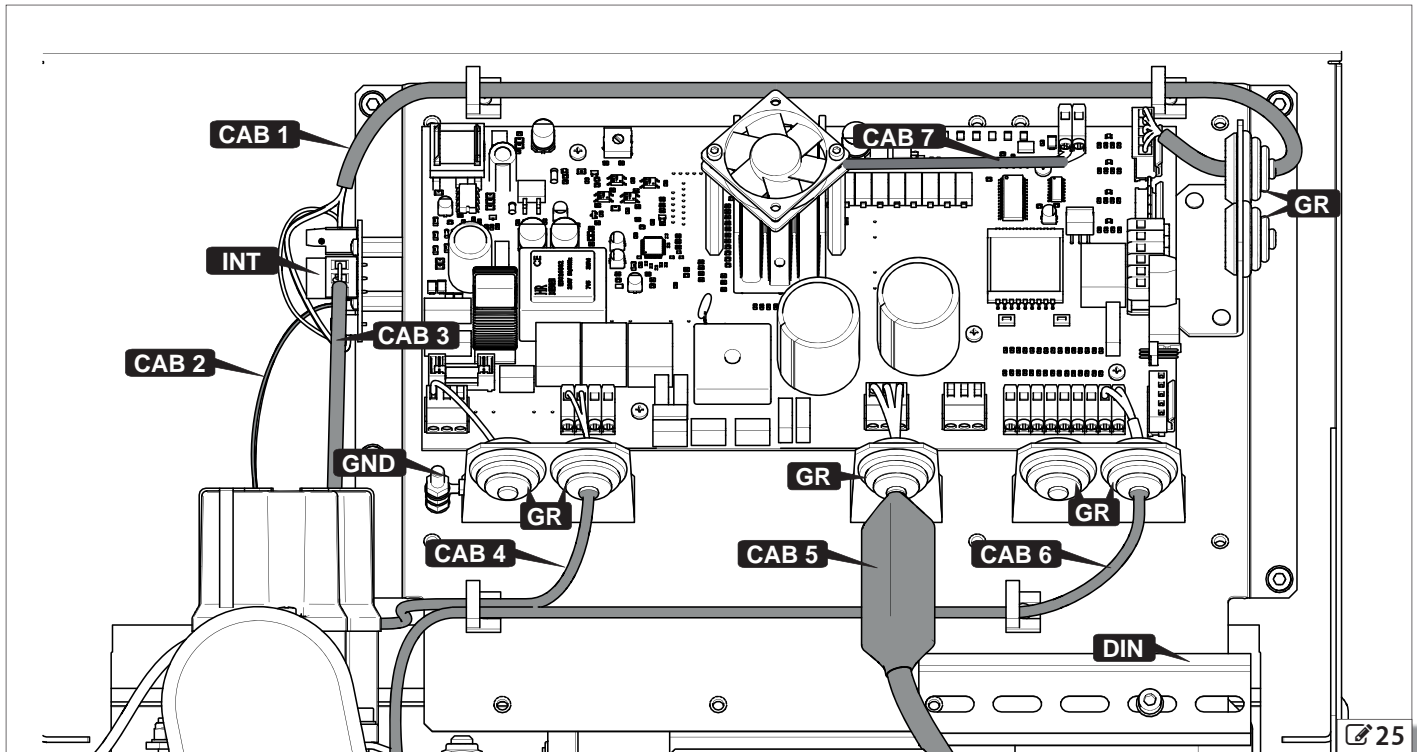
1. Remove both covers temporarily (**24**).



**24**

### 6.1 BOARD E850S

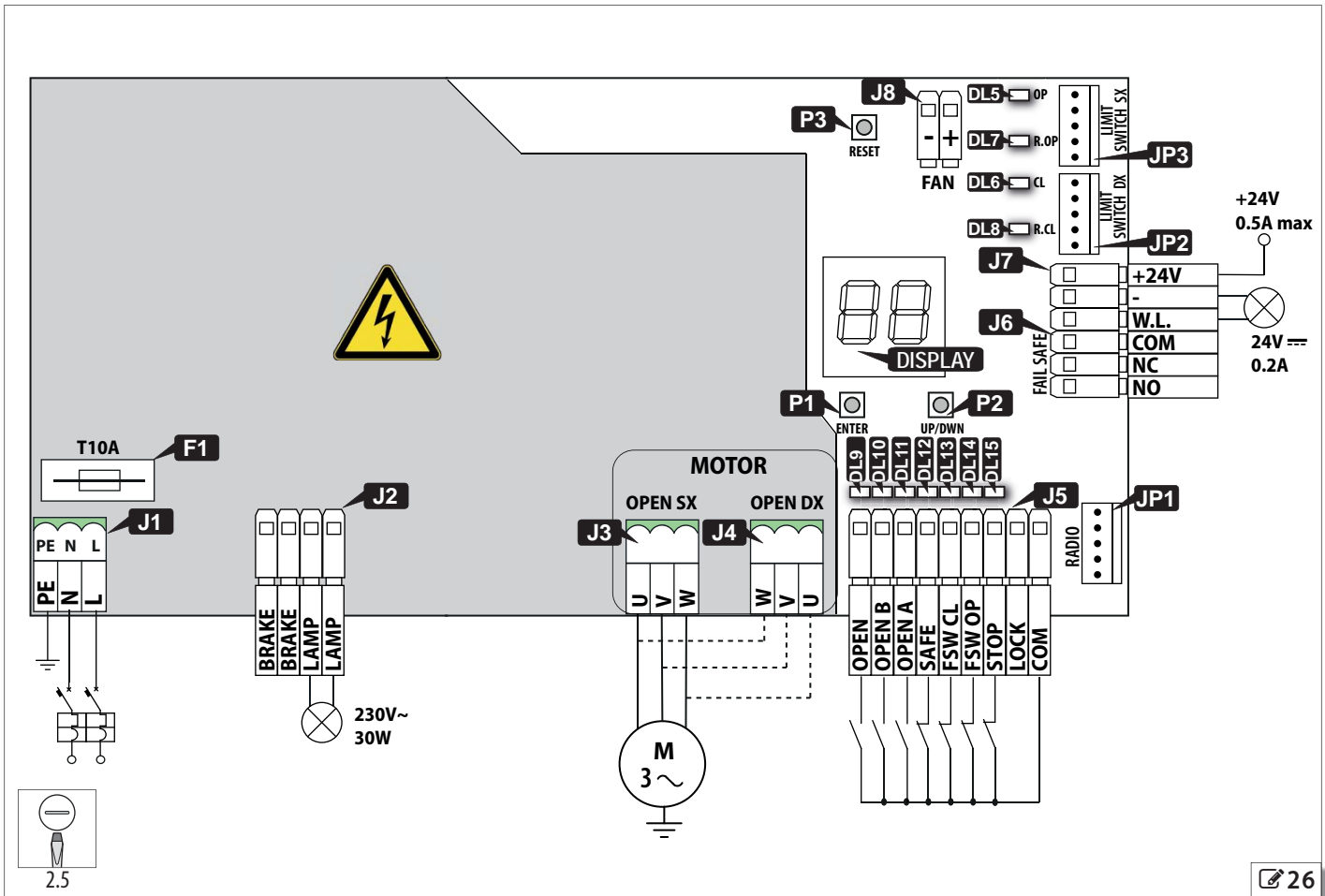
**COMPONENTS**



**25**

KEY:	
<b>CAB 1</b>	Limit switch cable
<b>CAB 2</b>	Magnetic limit switch cable
<b>CAB 3</b>	Integrated limit switch cable
<b>CAB 4</b>	Electric brake cable
<b>CAB 5</b>	Motor cable
<b>CAB 6</b>	Release device safety switch cable
<b>CAB 7</b>	Cooling fan cable

KEY:	
<b>INT</b>	Limit switch interface board
<b>DIN</b>	DIN rail
<b>GR</b>	Cable gland seal
<b>GND</b>	Earth connection



E850S	
J1	Power supply terminal board
J2	Electric brake and flashing light terminal board
J3	Left opening motor terminal board
J4	Right opening motor terminal board
J5	Control devices terminal board
J6	Fail-safe terminal board
J7	Indicator lamp and accessories power supply terminal board
J8	Cooling fan terminal board
JP1	Connector (5 pin) for radio/decoder board
JP2	Left opening limit switch connector
JP3	Right opening limit switch connector
DISPLAY	Programming display
P1	ENTER button
P2	UP/DWN button
P3	RESET button
F1	Mains power fuse T10A

E850S	
DL5	Opening limit switch status LED
DL6	Closing limit switch status LED
DL7	Opening deceleration status LED
DL8	Closing deceleration status LED
DL9	OPEN input status LED
DL10	OPEN B input status LED
DL11	OPEN A input status LED
DL12	SAFE input status LED
DL13	FSW CL input status LED
DL14	FSW OP input status LED
DL15	STOP input status LED

9 Board technical data E850S

Supply voltage	230 V~(+6% -10%) 50/60 Hz
Max power	18 W
Accessories output voltage	24 V=
Max. motor power	1.5 KW
Max. accessories load	500 mA
Max. flashing light load	30 W (230 V~)
Ambient operating temperature	-20 °C - +55 °C



## 6.2 CONNECTIONS



ALWAYS DISCONNECT THE POWER SUPPLY before working on the board.  
If the disconnect switch is not in view, apply a warning sign stating "WARNING - Maintenance in Progress".



The cables must pass through the available cable glands.

### MOTOR CABLE

Depending on the direction in which the gate is to open, plug the factory-wired motor connector into:

- J3 if the gate opens towards the left (🔗 27)
- J4 if the gate opens towards the right (🔗 28)



The direction in which the gate opens refers to when you are looking at the gate when standing in front of the C851.

### LIMIT SWITCH

Depending on the direction in which the gate opens, plug the factory-wired limit switch connector into:

- JP3 if the gate opens towards the left (🔗 29)
- JP2 if the gate opens towards the right (🔗 30)



The direction in which the gate opens refers to observing the gate when standing in front of the C851.

### ELECTRIC BRAKE

The electric brake is connected at the factory to J2 (🔗 31).  
The electric brake is powered by 230 V~.

### FLASHING LIGHT

The flashing light indicates that the gate is moving and must be installed in a position that is visible from both sides of the gate.  
Connect the flashing light (230 V~, max 30 W model), to the LAMP terminals of J2 (🔗 32).

### COOLING FAN

The board cooling fan is connected at the factory to J8 (🔗 33).  
The fan is powered by a DC voltage, therefore the connection is polarised.  
The fan is started and stopped by the board according to the temperature of the component to be cooled.

### SAFETY SWITCH ON RELEASE DEVICE

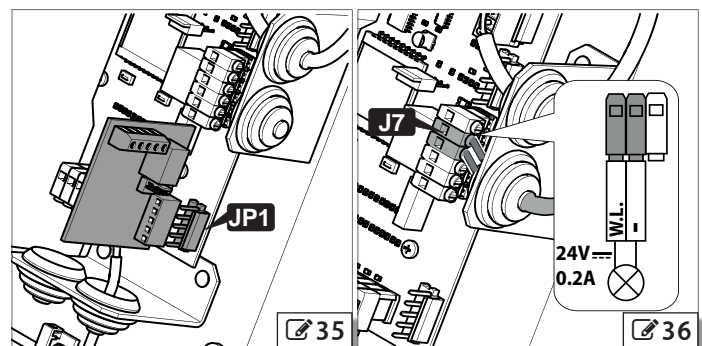
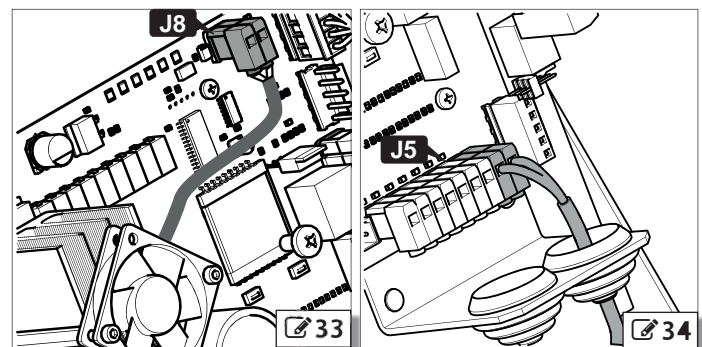
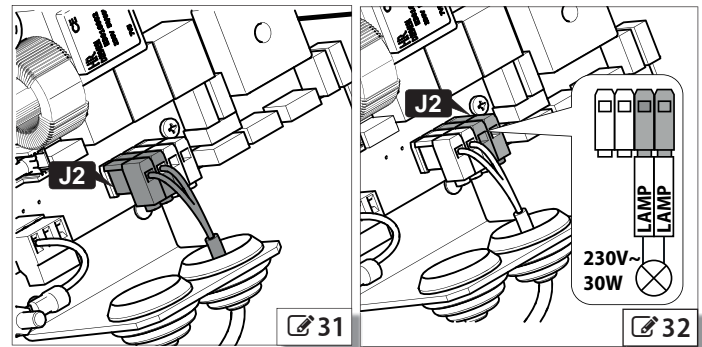
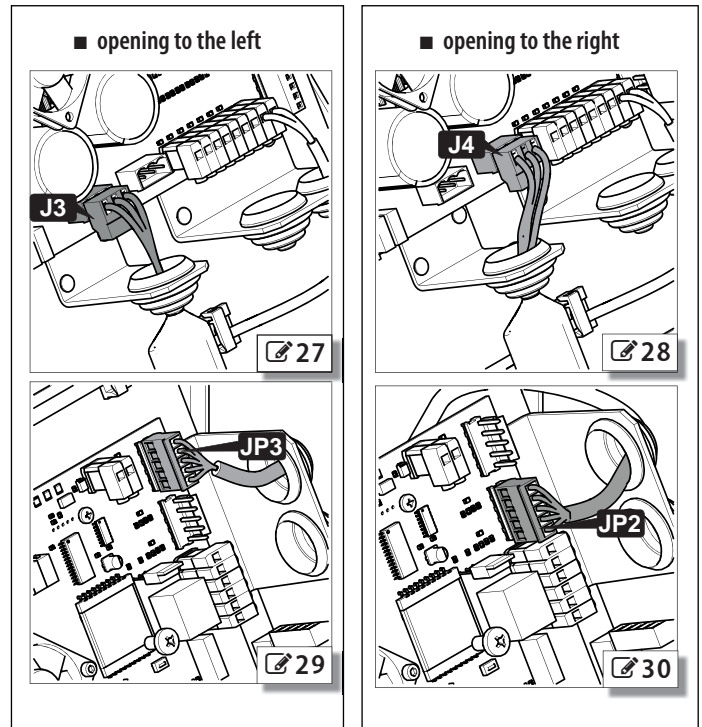
The release procedure activates a switch with an NC contact that is connected at the factory to the LOCK and COM INPUT terminals of J5 (🔗 34).  
As long as the switch is active, the board prevents the electric motor from being actuated.

### RADIO RECEIVER/DECODER BOARD

The quick insertion connector JP1 is specifically for 5-pin FAAC radio or decoder boards.  
It is a polarised type of connector (🔗 35).



If a FAAC model RP receiver is used, it is recommended to install the appropriate external antenna in order to obtain a sufficient range.



**INDICATOR LAMP**

The indicator light remotely indicates the status of the gate as follows:

gate status	indicator light status
closed	off
opening	on
open	on
closing	flashing

Connect the indicator light (model 24 V $\equiv$ , maximum 0.2 A) to the W.L. and - terminals of J7 (🔗 36).

**ACCESSORIES POWER SUPPLY**

E850S supplies 24 V $\equiv$  max. 0.5 A for the connected accessories, on the +24V and - terminals of J7 (🔗 37).

**CONTROL DEVICES**

Connect the devices to terminal board J5 (🔗 34).

- Multiple NO contacts on same input must be connected in parallel.
- Multiple NC contacts on same input must be connected in series.

**TERMINAL BOARD J5**

<b>OPEN</b>	NO contact, connect a push-button or another type of pulse generator which, by closing a contact, commands only the total opening of the gate. NO contact, connect a push-button or another type of pulse generator which, by closing a contact, commands only the partial opening of the gate.
<b>OPEN B</b>	Can be configured as CLOSE by setting programming parameter R=1; in this case it becomes a NO contact to which to connect a push-button or another type of pulse generator which, by closing a contact, commands only the closing of the gate.
<b>OPEN A</b>	NO contact, connect a push-button or another type of pulse generator which, by closing a contact, commands the total opening of the gate. The effect that subsequent pulses have depends on programming parameter d.
<b>SAFE</b>	NC contact, connect a safety edge or other safety device which, by opening a contact, causes the gate to reverse slightly before stopping the automation. Active during both opening and closing.
<b>FSW CL</b>	NC contact, connect a photocell or another device which, by opening a contact during closing, causes the gate to reverse.
<b>FSW OP</b>	NC contact, connect a photocell or another device which, by opening a contact during opening, causes the gate to stop; when released, the gate continues to open.
<b>STOP</b>	NC contact, connect a push-button or another type of pulse generator which, by opening a contact, causes the gate to stop. The following cycle takes place slowly until the gate is completely open. <b>i</b> If the input is not used, bridge it with COM INPUT.
<b>LOCK</b>	NC contact, used for connecting the safety switch on the release device at the factory.

**COM INPUT** Common contacts

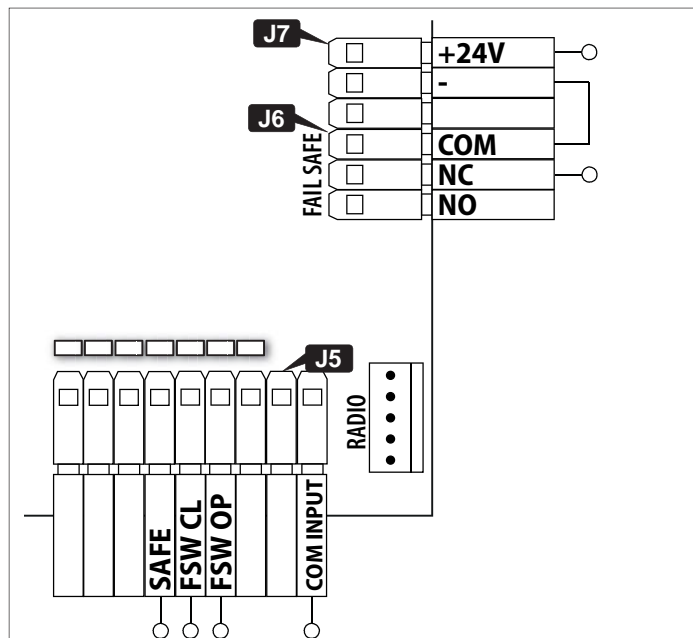
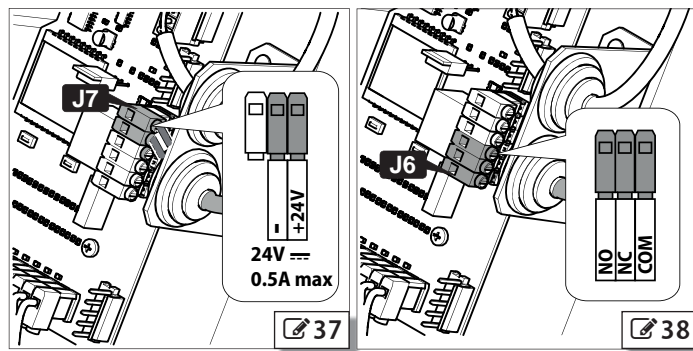
- If one or more SAFE, FSW CL, FSW OP inputs are not used:
  - With Failsafe disabled: bridge the input with COM INPUT
  - With Failsafe enabled: see below

**FAILSAFE**

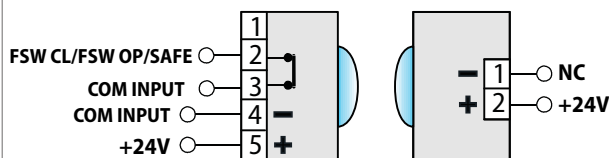
The failsafe is a test to check the operation of the safety devices connected to the inputs SAFE, FSW CL, FSW OP. It consists of momentarily interrupting the power supply to the devices before any movement takes place and checking the change in status of the inputs.

In order for the test to be performed, it must be enabled (parameter b=1).

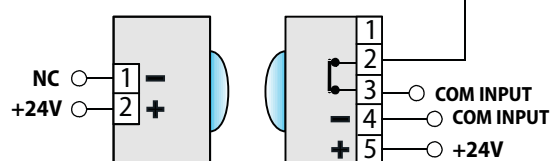
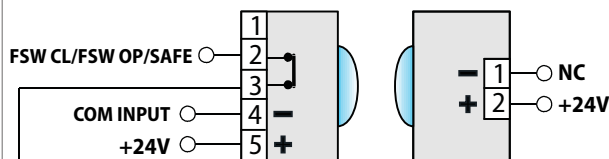
Terminal block J6 (🔗 38) provides a volt free contact (NO or NC) to be used to interrupt the power supply.



■ 1 pair of photocells



■ 2 pairs of photocells



🔗 39

☞ 39 shows the connection of one pair and two pairs of photocells (connected in series). In this configuration, if one or more of the SAFE, FSW CL, FSW OP inputs are not used, bridge them with NC of J6.

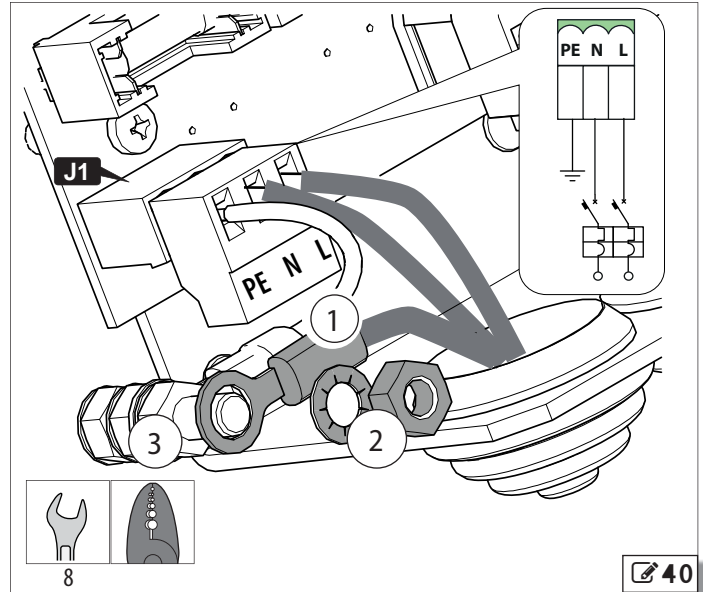
## MAINS POWER SUPPLY AND GROUNDING



Carry out the following operations with the electricity supply disconnected.

With reference to ☞ 40:

1. Crimp the cable lug (1), provided, to the earth wire.
2. Place the cable lug (1), washer and nut (2), provided, onto the earth connection (3). Tighten the nut.
3. Connect the phase wires and neutral to terminals L and N of J1 respectively.



## 7. SET-UP

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT

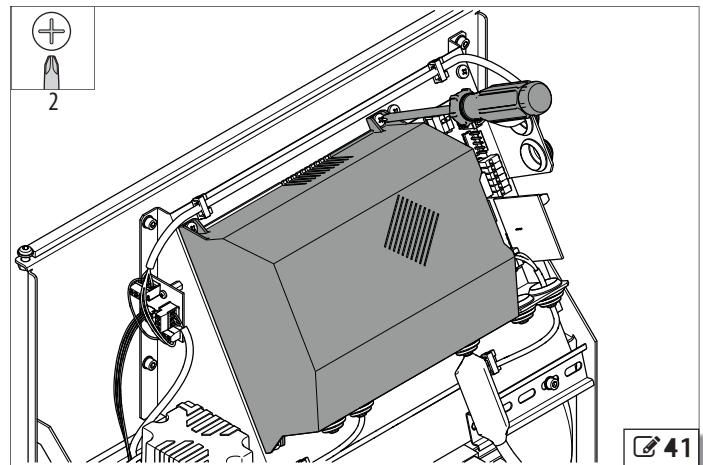


During operation there is a risk of fingers and hands being trapped between the rack, pinion and casing.



If the gate is not engaging a limit switch, any movement following a start or reset during opening takes place at a slow speed until it reaches the limit switch.

1. Make sure that the motor and limit switch cables are plugged into the correct connectors, according to the direction in which the gate opens.
2. Install the protective cover and secure it using the screws (☞ 41).
3. Make sure that the C851 has been released.
4. Switch on power to the system.
5. Install the limit switches on the rack.
6. Set the deceleration points by adjusting the integrated limit switch.
7. Program the C851.
8. Restore automatic operation.



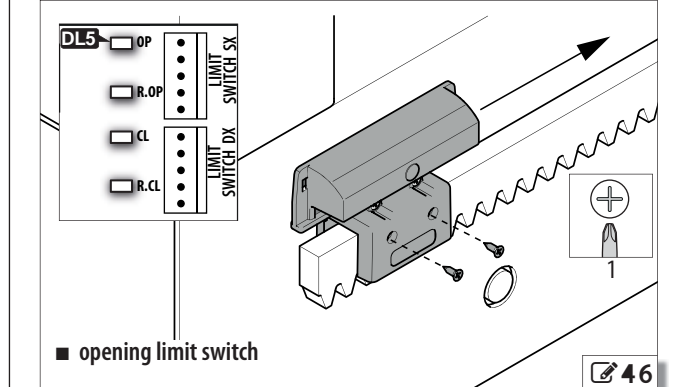
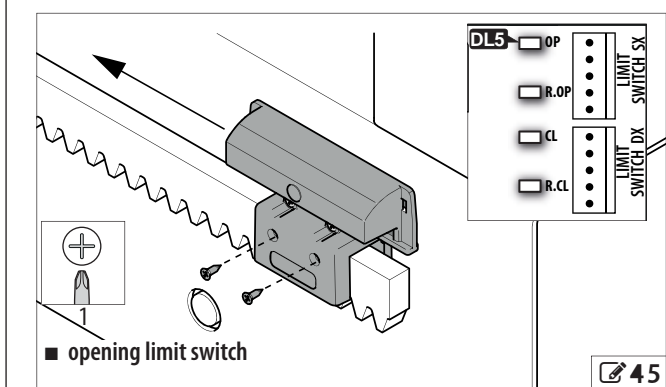
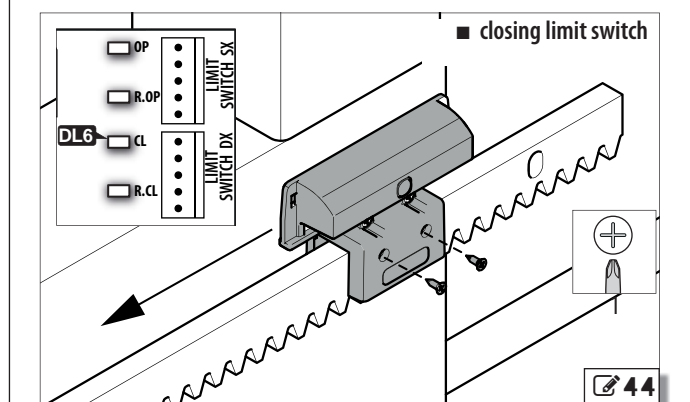
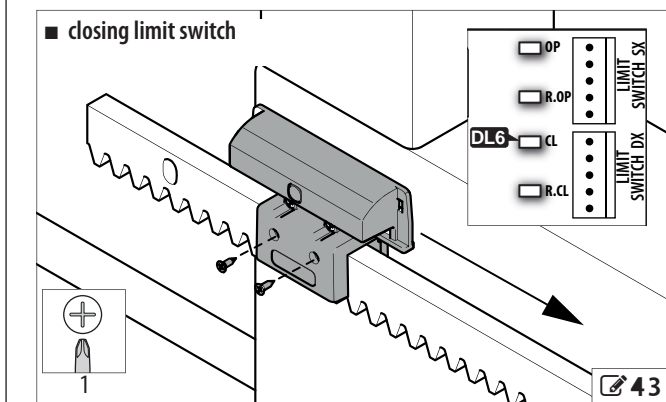
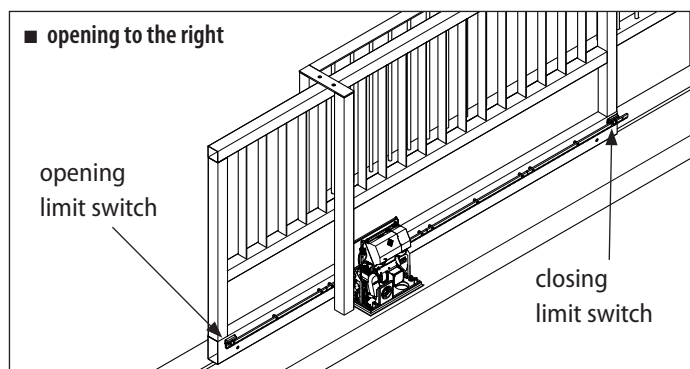
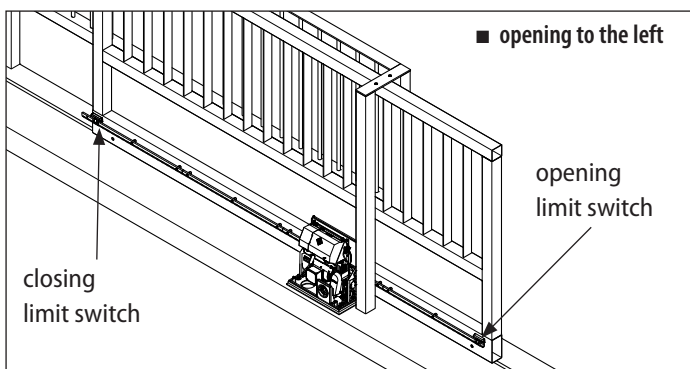
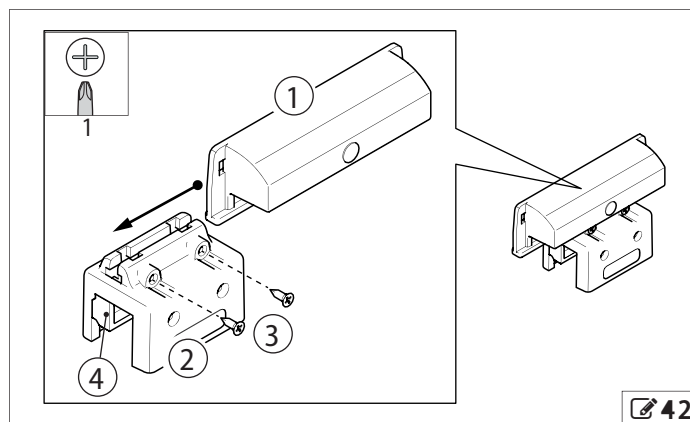


## 7.1 INSTALLING THE LIMIT SWITCHES

**i** C851 must be released.

- With reference to **42**, assemble the 2 limit switches:
  - slide the magnet (1) into the guide of the support (2) and position it centrally
  - tighten the screws (3)
  - press the spacer (4) in order to adapt the support to the thickness of the rack.
- Close the gate, leaving it a few centimetres from the mechanical stop.
- Install the closing limit switch on the rack as shown in **43** (opening to the left) or **44** (opening to the right) and slide it towards the sensor of the C851 until the LED DL6 turns off.
- Secure the support using the screws.
- Open the gate, leaving it a few centimetres from the mechanical stop.
- Install the opening limit switch on the rack as shown in **45** (opening to the left) or **46** (opening to the right) and slide it towards the sensor of the C851 until the LED DL5 turns off.
- Secure the support using the screws.
- Any slight adjustments can be made by subsequently loosening the screws temporarily **42-3** in order to move the magnet.

**!** During normal operation, the gate must always stop before hitting the mechanical stops.



## 7.2 SETTING THE DECELERATION POINTS

**i** The C851 must be released.

The deceleration start points are set by adjusting the integrated limit switch. The maximum deceleration space that can be set is 5 m. The minimum deceleration space depends on the programmed speed (parameters L. and .L.):

### 10 Minimum deceleration spaces

L0	minimum distance from magnetic limit switch: 10 cm
L1	minimum distance from magnetic limit switch: 40 cm
L2	minimum distance from magnetic limit switch: 70 cm
L3	minimum distance from magnetic limit switch: 130 cm



**!** Failure to comply with the minimum distances indicated in 10 can jeopardise the integrity and operation of the C851 and be a potential hazard for the safety of people.

1. Remove the cover of the integrated limit switch (47).
2. Loosen the central screw by one turn (48).
3. Refer to 11 and 12 to determine the function of the cams and their direction of adjustment in relation to the opening direction of the gate.



**i** 49 shows the position of the cams and the corresponding adjustment screws.

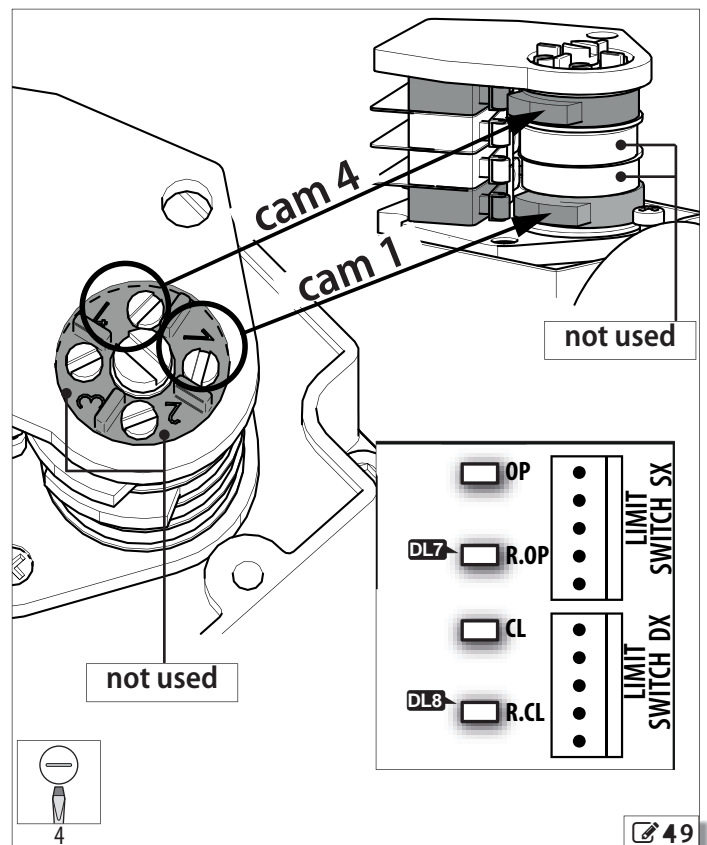
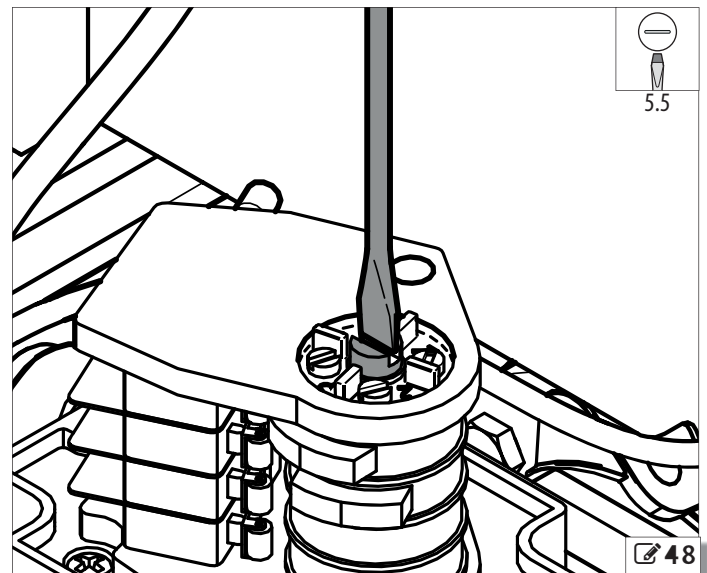
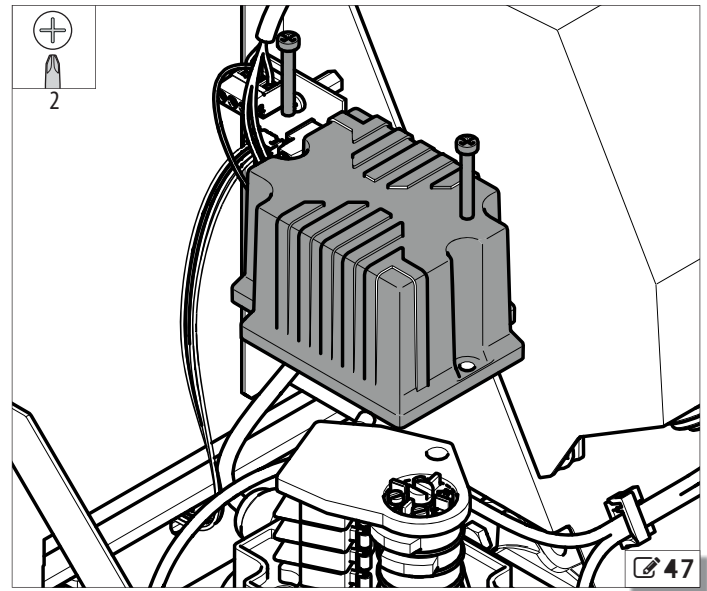
4. Open the gate manually as far as the required deceleration starting point.
5. Using a screwdriver, turn the screw corresponding to the opening deceleration cam in the direction of adjustment indicated until the micro switch is activated. When the micro switch is activated, the LED DL7 (R.OP) turns off.
6. Close the gate manually as far as the required deceleration starting point.
7. Using a screwdriver, turn the screw corresponding to the closing deceleration cam in the direction of adjustment indicated until the micro switch is activated. When the micro switch is activated, the LED DL8 (R.CL) turns off.
8. Tighten the central screw (48).
9. Replace the cover of the integrated limit switch (47).

### 11 Opening to the left

function	cam to be adjusted	direction of adjustment
opening deceleration	cam 1	
closing deceleration	cam 4	

### 12 Opening to the right

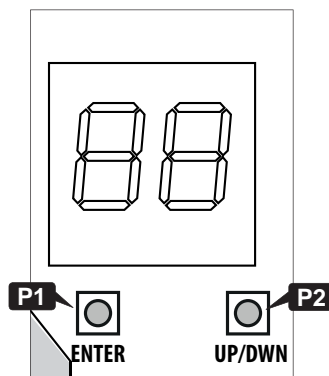
function	cam to be adjusted	direction of adjustment
opening deceleration	cam 4	
closing deceleration	cam 1	



### 7.3 PROGRAMMING

- i** To access the programming menu, the display must indicate the gate closed status (00).  
To access the programming mode from whichever state the gate is in, press and release the RESET button: 00 appears on the display.

Press button P1 (ENTER), for approximately 5 seconds, until the first parameter A appears.  
Press button P2 (UP/DWN) to modify the value of the parameter.  
Press button P1 (ENTER) to go to the next parameter.  
After 60 seconds of inactivity, the system will automatically exit from the programming menu saving any changes that were made.



ENGLISH  
Translation of the original instructions

parameter	default
<b>A OPEN B input configuration</b>	0
0 partial opening only	
1 closes only (CLOSE)	
<b>B Failsafe</b>	0
0 not enabled	
1 enabled	
<b>C Automatic closing</b>	0
0 not enabled	
1 enabled, pause 5 s	
2 enabled, pause 10 s	
3 enabled, pause 15 s	
4 enabled, pause 20 s	
5 enabled, pause 25 s	
6 enabled, pause 30 s	
7 enabled, pause 40 s	
8 enabled, pause 80 s	
9 enabled, pause 120 s	
<b>D OPEN A operation</b>	0
0 open/stop/close/open...	
1 open/close/open..."	
<b>E Partial opening time</b>	0
0 3 s	
1 5 s	
2 8 s	
3 10 s	
<b>H Condominium function</b>	0
0 not enabled (the OPEN A command is operative during opening)	
1 enabled (the OPEN command is ignored during opening)	
<b>L Maximum opening speed</b>	0
0 10 m/min	
1 20 m/min	
2 30 m/min	
3 40 m/min	
<b>.L Maximum closing speed</b>	0
0 10 m/min	
1 20 m/min	
2 30 m/min	
3 40 m/min	

parameter	default
<b>O Immediate closure after transit across photocells</b>	0
0 not enabled (with automatic closing enabled, the gate always closes after the pause time)	
1 enabled (with automatic closing enabled, the gate closes immediately after transit across the closing photocells)	
<b>P Timer function</b>	1
0 not enabled	
1 enabled (the OPEN A maintained action control keeps the gate open until released)	
<b>U Dead-man function</b>	0
0 not enabled	
1 enabled (requires the OPEN A and CLOSE maintained action controls to be used)	
<p><b>!</b> In the dead-man mode:</p> <ul style="list-style-type: none"> <li>- the control must be activated intentionally and the gate must be visible</li> <li>- the OPEN input is disabled</li> <li>- if the SAFE input is activated during opening or closing, it stops the movement immediately</li> <li>- if the FSW CL input is activated during closing, it stops the movement</li> <li>- if the FSW OP input is activated during opening, it stops the movement</li> <li>- the speed of the gate must be less than 5 m/min</li> </ul>	
<b>S Pre-flashing during closing</b>	0
0 not enabled	
1 1 s	
2 2 s	
3 3 s	
4 4 s	

The display, other than when in the programming menu, provides information regarding the status of the automation system (14).

## 8. PUTTING INTO SERVICE

### 8.1 FINAL CHECKS

1. Check that the speed set is not too high for the characteristics of the gate. Excessive speed may cause problems relating to the impact force, or result in the pinion teeth on the rack jumping out of position during inversion.
2. Make sure that the forces generated by the leaf are within the limits permitted by the current regulations. Use an impact force tester in accordance with standards EN 12453 and EN 12445. For non-EU countries, if there are no specific local regulations, the force must be less than 150 N.
3. Check that the maximum force required to move the leaf by hand is less than 260 N.
4. Check that the C851 and the installed devices are working properly.

### 8.2 INSTALLING THE BOARD COVER AND THE CASING



Carry out the following operations with the electricity supply disconnected.



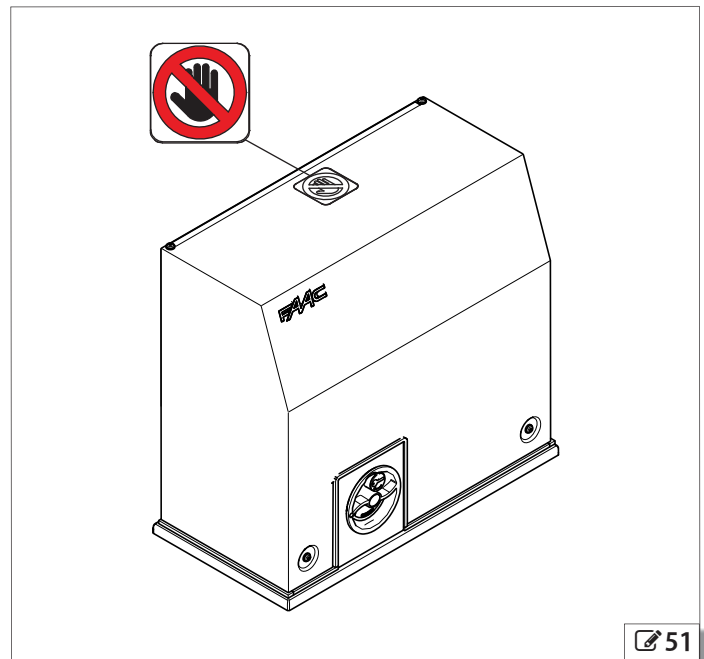
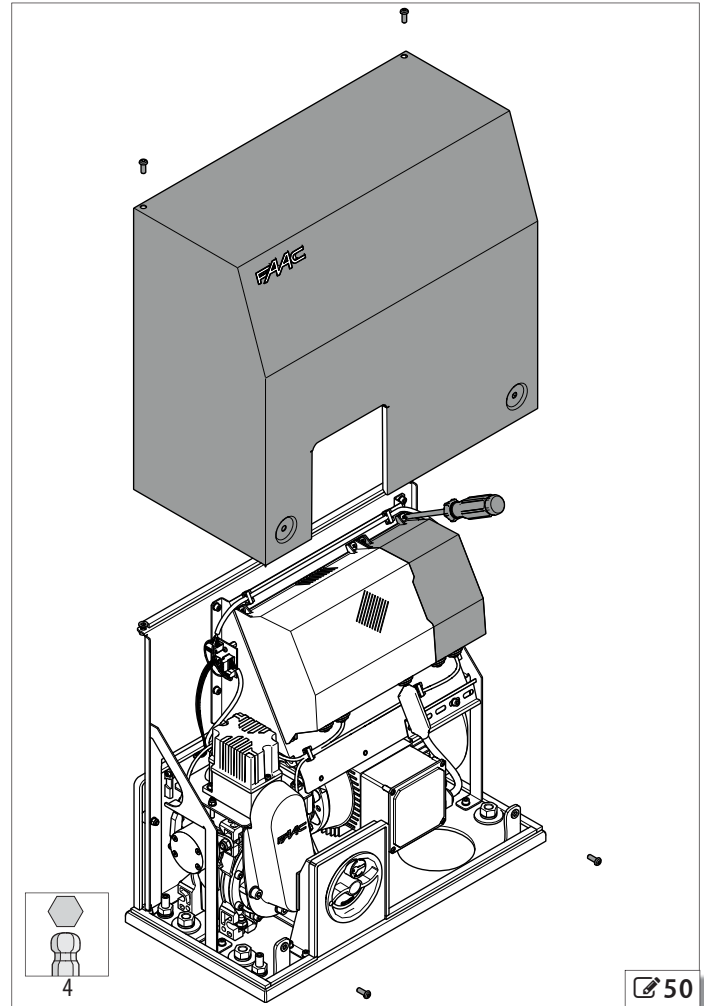
Before installing the board cover and casing you must have:

- completed the start-up procedure
- checked that the C851 and the installed devices are working properly.

1. Install the board cover and fasten it using the screws (🔩 50).
2. Install the casing and fasten it using the screws (🔩 50).

### 8.3 FINAL OPERATIONS

1. Affix the safety sign provided to the casing indicating that there is a risk of fingers and hands being trapped between the rack, pinion and casing (🔩 51).
2. Highlight all areas with adequate warning signs in which there are still residual risks, even if all possible safety measures having been adopted.
3. Place a "DANGER, AUTOMATICALLY CONTROLLED" sign in a prominent position on the gate.
4. Attach the CE marking to the gate.
5. Fill out the EC declaration of conformity and the system register.
6. Give the EC Declaration, the system register with the maintenance plan and the instructions for use of the automation system to the system owner/operator.



## 9. DIAGNOSTICS

### 9.1 LEDS CHECK

13 Status of the LEDs

LED	meaning	●	○
DL5 OP	opening limit switch	<b>not engaged</b>	engaged
DL6 OP	closing limit switch	<b>not engaged</b>	engaged
DL7 R.OP	deceleration during opening	<b>not engaged</b>	engaged
DL8 R.CL	deceleration during closing	<b>not engaged</b>	engaged
DL9 OPEN	OPEN input	active	<b>not active</b>
DL10 OPEN B	OPEN B input	active	<b>not active</b>
DL11 OPEN A	OPEN A input	active	<b>not active</b>
DL12 SAFE	SAFE input	<b>not active</b>	active
DL13 FSW CL	FSW CL input	<b>not active</b>	active
DL14 FSW OP	FSW OP input	<b>not active</b>	active
DL15 STOP	STOP input	<b>not active</b>	active

**i** Bold indicates the condition of the LEDs with the board powered, the gate at its halfway position and no connected device active (●=on ; ○=off).

### 9.2 AUTOMATED SYSTEM STATUS

The display, other than in the programming menu, provides information regarding the status of the automation system:

14 Automated system status

display	meaning
00	gate closed
02	gate opening/open
04	gate paused
06	gate closing
ST	the dead-man function is active and the gate has not yet completed the opening or closing cycle
ER	the failsafe function is active and the test has failed on at least one device (the LAMP output flashes quickly at the same time)
.8.8	dot on the left lit FSW OP input active
.8.8	dot on the right lit FSW CL input active

## 10. MAINTENANCE

### RISKS



### PERSONAL PROTECTIVE EQUIPMENT



**⚡** Always shut off the power supply before performing any maintenance operations. If the disconnect switch is not in view, apply a warning sign stating "WARNING - Maintenance in Progress". Restore the power supply only after finishing any maintenance work and restoring the area to normal.

**!** Maintenance must be performed by the installer or a maintenance technician.  
 Follow all safety recommendations and instructions given in this manual.  
 Mark off the work site and prohibit access/transit. Do not leave the work site unattended.  
 The work area must be kept tidy and clear upon completing maintenance.  
 Before starting work, wait for any hot components to cool down.  
 Do not make any modifications to the original components.  
 FAAC S.p.A. shall bear no liability for damage or injury due to components which have been modified or otherwise tampered with.

**i** The warranty shall be forfeited in the event of tampering with components.  
 Only use original FAAC spare parts.

**10.1 ROUTINE MAINTENANCE**

☒ 15 lists the operations which must be performed on a regular basis in order to keep the automation system working reliably and safely; these are given purely as a guideline and should not be considered exhaustive. The installer/machine manufacturer is responsible for drawing up the maintenance plan for the automation system, supplementing this list or modifying the maintenance operations on the basis of the machine characteristics.

☒ 15 Scheduled maintenance

<b>Operations</b>	<b>Frequency</b>
<b>Structures</b>	
Check the slab, the structures and components of the building/fence adjacent to the automation system, ensuring there is no damage, cracking or subsidence.	12
Check the gate's area of movement, ensuring it is free from obstacles, objects or deposits which would reduce the effectiveness of the safety measures.	12
Check that there are no gaps in the perimeter fence and that any protective grilles in the area where it overlaps with the mobile leaf are intact.	12
Ensure that there are no sharp protrusions which could represent a perforation or hooking hazard.	12
<b>Gate</b>	
Check the gate, ensuring it is intact and free of deformations, rust etc.	12
Check that there are no slots/openings on the leaf and that any protective grilles are intact.	12
Check that screws and bolts are correctly tightened.	12
Check that the sliding guides are straight and not excessively worn.	12
Check that the bearings are in good condition and there is no friction.	12
For cantilever systems, check the solidity of the guide system for the suspended leaf and the counterweight, where present.	12
Check that the mechanical strikes are fastened solidly and in good condition. This check must be performed on both sides, simulating any knocks which could occur during use.	12
Check the wheels, ensuring that they are intact, correctly fastened and free of deformation, wear and rust.	12
Check the rack, ensuring it is straight, spaced correctly from the pinion along its entire length, and correctly fastened to the gate.	12
Check the containing guide and the anti-tipping column, ensuring they are correctly fastened and intact.	12
Perform a general clean of the area of movement of the gate.	12
<b>garmotor</b>	
Check that the garmotor is intact and correctly fastened.	12
Check that the pinion is correctly tightened to the shaft.	12
Check that it is irreversible.	12
Check that there are no oil leaks.	12
Check the condition of the garmotor cables, the cable glands and junction boxes.	12
Check the integrity, working order and the adjustment of the magnetic limit switches.	12
<b>Electronic equipment</b>	
Check that the power supply and connecting cables and the cable glands are intact.	12
Check that the connectors and wiring are intact.	12
Check the integrity of the plastic board protection covers.	12
Check that there are no signs of overheating, burning etc. of electronic components.	12
Check that the earth connections are intact.	12
Check the operation of the circuit breaker and RCD.	12
<b>Control devices</b>	
Check that the installed devices and remote controls are in good condition and that they operate correctly.	12
<b>Sensitive edges</b>	
Check condition, fastening and correct operation.	6

<b>Operations</b>	<b>Frequency</b>
<b>Deformable edges</b>	
Check that they are intact and correctly fastened.	12
<b>Photocells</b>	
Check condition, fastening and correct operation.	6
Check the posts, ensuring that they are intact, correctly fastened and free of deformation etc.	6
<b>Flashing light</b>	
Check condition, fastening and correct operation.	12
<b>Access control</b>	
Check that the gate opens only when an authorised user is recognised.	12
<b>Complete automation system</b>	
Check that the automation system operates correctly, according to the set parameters, when using the various control devices.	12
Check that the gate moves correctly - smooth, regular and without abnormal noise.	12
Check that both the opening and closing speed are correct and that the stop positions and slow-downs provided for are respected.	12
Check that the manual release operates correctly: when the release mechanism is activated, it must only be possible to move the gate manually.	6
Check that the shutter on the lock of the release device is present.	
Check that the maximum force required for manual movement of the gate is below 225 N in residential areas and 390 N in industrial or commercial settings.	6
Check that the safety edges operate correctly when faced with an obstacle.	6
Check that each pair of photocells is working correctly.	6
Check that there is no optical/light interference between the pairs of photocells.	6
Check the force limitation curve (standards EN 12453 and EN 12445). For non-EU countries, if there are no specific local regulations, the force must be less than 150 N.	6
Check that all necessary signage and warnings are present, intact and legible: residual risks, exclusive use etc.	12
Check that the gate's CE marking and the DANGER, AUTOMATIC MOVEMENT warning signage is present, intact and legible.	12



## 11. INSTRUCTIONS FOR USE

It is the responsibility of the machine installer/manufacturer to prepare the instructions for use of the automation system, in compliance with the machinery directive, including all information and warnings necessary depending on the characteristics of the automation system. Guidelines are given below to help the installer prepare the instructions for use; these are given purely as an example, and are not exhaustive.



The installer must provide the owner/operator of the automation system with the CE Declaration, the system register with the maintenance plan, and the instructions for use of the automation system.

The installer must inform the owner/operator of the automation system of the presence of any residual risks, the intended use and any ways in which the machinery must not be used.

The owner is responsible for operating the automation system, and must:

- Respect all instructions for use received from the installer/maintenance technician as well as the safety recommendations
- Keep the instructions for use in a safe place where they are readily available for reference
- Ensure the maintenance plan is carried out correctly
- Keep the system register, which must be filled out by the maintenance technician at the conclusion of any maintenance operation

### 11.1 SAFETY RECOMMENDATIONS

Installations using FAAC C851 series gearmotors are designed for use with vehicular traffic.

The user must be in good physical and mental health and be aware of and responsible for the dangers which use of the product can lead to.



- Do not remain in or walk/drive through the area of operation of the automation system while it is moving.
- Do not use the automation system when the area of operation is not free of persons, animals or objects.
- Do not allow children to approach or play in the area of operation of the automation system.
- Do not try to prevent the movement of the automation system.
- Do not climb on, hold onto or let yourself be pulled by the leaf. Do not climb onto or sit on the gearmotor.
- Do not allow the devices to be used by anyone who is not specifically authorised and trained to do so.
- Do not allow the devices to be controlled by children or persons with mental and physical deficiencies unless they are supervised by an adult who is responsible for their safety.
- Do not use the automation system with the fixed and/or mobile guards removed or altered.
- Do not use the automation system in the presence of faults which could compromise safety.
- Do not expose the automation system to corrosive chemicals or atmospheric agents; do not expose the gearmotor to water jets of any type or size.
- Do not expose the automation system to flammable gases or fumes.
- Do not perform any work on the components of the automation system.

### 11.2 PRODUCT WARNINGS



Risk of fingers and hands being trapped between the rack, pinion and casing.

### 11.3 EMERGENCY USE

Environmental phenomena, even occasional, such as ice, snow and strong wind may hinder correct operation of the automation and affect component integrity and may become a potential source of danger.

In any malfunction, emergency or fault, disconnect the power supply of the automation. If the conditions allow the leaf to be safely moved manually, use the manual operation; otherwise, keep the automation out of service until it is restored/repaired.

In case of a fault, the automation must be restored/repaired must only be carried out by the installer/maintenance technician.

### 11.4 MANUAL OPERATION



Before performing the release operation, shut off the power supply to the automation system.

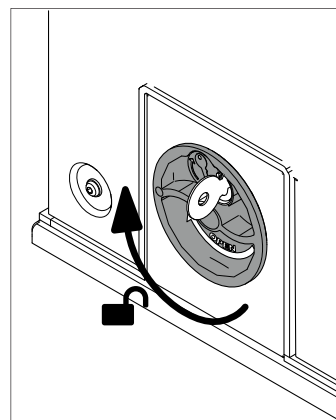
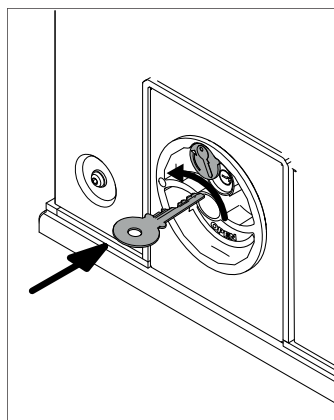
During manual operation, gently guide the leaf the whole way. Do not push it and let it slide freely.

Do not leave the gate with the release engaged: after moving it manually, restore automatic operation.

#### RELEASE PROCEDURE



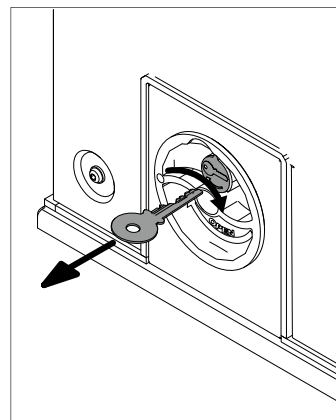
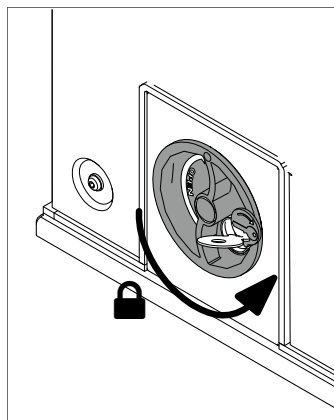
1. Turn the lock protection shutter clockwise
2. Insert the release key and rotate it anticlockwise by a quarter of a turn
3. Turn the release knob clockwise until it stops



#### RESTORING AUTOMATIC OPERATION



1. Turn the release knob anticlockwise until it stops
2. Turn the release key clockwise until it stops, then remove it
3. Turn the lock protection shutter anticlockwise
4. Manually move the gate until the mechanical system meshes.







FAAC S.p.A. Soc. Unipersonale  
Via Calari, 10 - 40069 Zola Predosa BOLOGNA - ITALY  
Tel. +39 051 61724 - Fax +39 051 758518  
[www.faac.it](http://www.faac.it) - [www.faacgroup.com](http://www.faacgroup.com)