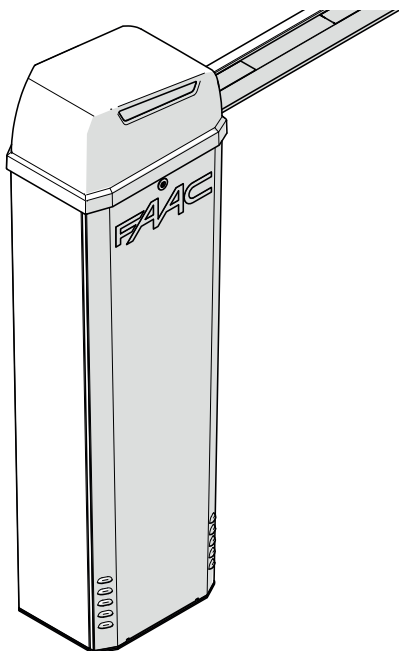


B614



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1. IMPORTANT SAFETY INFORMATION

Important Safety Instructions

WARNING - TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

- READ AND FOLLOW ALL INSTRUCTIONS.
- Never let children operate or play with the gate controls. Keep remote controls away from children.
- Always keep people and objects away from the gate. **NO ONE SHOULD CROSS THE PATH OF A MOVING GATE.**
- Test the gate operator monthly. The gate **MUST** reverse on contact with a rigid object or when an object activates a non-contact sensor. If necessary, adjust the force or the limit of travel and then retest the gate operator. Failure to properly adjust and retest the gate operator can increase the risk of injury or death.
- Use the manual release mechanism only when the gate is not moving.
- **KEEP GATE PROPERLY MAINTAINED.** Have a qualified service person make repairs to gate hardware.
- The entrance is for vehicles only. Pedestrians must use a separate entrance.
- **SAVE THESE INSTRUCTIONS.**

Important Installation Instructions

1. Install the gate operator only when the following conditions have been met:
 - The operator is appropriate for the type and usage class of the gate.
 - All openings of a horizontal slide gate have been guarded or screened from the bottom of the gate to a minimum of 4 feet (1.25 m) above the ground to prevent a 2.25 inch (55 mm) diameter sphere from passing through openings anywhere in the gate or through that portion of the adjacent fence that the gate covers when in the open position.
 - All exposed pinch points are eliminated or guarded.
 - Guarding is supplied for exposed rollers.
2. The operator is intended for installation on gates used by vehicles only. Pedestrians must be provided with a separate access opening.
3. To reduce the risk of entrapment when opening and closing, the gate must be installed in a location that allows adequate clearance between the gate and adjacent structures. Swinging gates shall not open outward into public access areas.
4. Before installing the gate operator, ensure that the gate has been properly installed and that it swings freely in both directions. Do not over-tighten the operator clutch or pressure relief valve to compensate for a damaged gate.
5. User controls must be installed at least 6 feet (1.83 m) away from any moving part of the gate and located where the user is prevented from reaching over, under, around or through the gate to operate the controls. Controls located outdoors or those that are easily accessible shall have security features to prevent unauthorized use.

6. The Stop and/or Reset buttons must be located within line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
7. All warning signs and placards must be installed and easily seen within visible proximity of the gate. A minimum of one warning sign shall be installed on each side of the gate.
8. For gate operators that utilize a non-contact sensor (photo arm or the like):
 - See instructions on the placement of non-contact sensors for each type of application.
 - Exercise care to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.
 - Locate one or more non-contact sensors where the risk of entrapment or obstruction exists, such as at the reachable perimeter of a moving gate or barrier.
9. For gate operators that utilize a contact sensor (edge sensor or similar):
 - Locate one or more contact sensors where the risk of entrapment or obstruction exists, such as at the leading edge, trailing edge, and post mounted both inside and outside of a vehicular horizontal slide gate
 - Locate one or more contact sensors at the bottom edge of a vehicular vertical lift gate.
 - Locate one or more contact sensors at the bottom edge of a vertical barrier (arm).
 - Locate one or more contact sensors at the pinch point of a vehicular vertical pivot gate.
 - Locate hard-wired contact sensors and wiring so that communication between sensor and gate operator is not subjected to mechanical damage.
 - Locate wireless contact sensors, such as those that transmit radio frequency (RF) signals, where the transmission of signals are not obstructed or impeded by building structures, natural landscaping or similar

hindrances. Wireless contact sensors shall function under their intended end-use conditions.

General Safety Precautions

Installation

- If you have any questions or concerns regarding the safety of the gate operating system, do not install the operator and consult the manufacturer.
- The condition of the gate structure itself directly affects the reliability and safety of the gate operator.
- Only qualified personnel should install this equipment. Failure to meet this requirement could cause severe injury and/or death, for which the manufacturer cannot be held responsible.
- Install devices such as reversing edges and photo arms to provide better protection for personal property and pedestrians. Install reversing devices that are appropriate to the gate design and application.
- Before applying electrical power, ensure that voltage requirements of the equipment correspond to the supply voltage. Refer to the label on your gate operator system.

Usage

- Use this equipment only in the capacity for which it was designed. Any use other than that stated should be considered improper and therefore dangerous.
- The manufacturer cannot be held responsible for damage caused by improper, erroneous or unreasonable use.
- If a gate system component malfunctions, disconnect the main power before attempting to repair it.

- Do not impede the movement of the gate, you may injure yourself or damage the gate system as a result.
- This equipment may reach high thermal temperatures during normal operation, therefore use caution when touching the external housing of the gate operator.
- Use the manual release mechanism according to the procedures presented in this manual.
- Before performing any cleaning or maintenance operations, disconnect power to the equipment.
- All cleaning, maintenance or repair work must be performed by qualified personnel.

UL325 GATE OPERATOR CLASSIFICATIONS**RESIDENTIAL VEHICULAR GATE OPERATOR CLASS I**

A vehicular gate operator system intended for use in a single family dwelling, garage or associated parking area.

COMMERCIAL / GENERAL ACCESS VEHICULAR GATE OPERATOR CLASS II

A vehicular gate operator system intended for use in commercial locations or buildings such as multi-family housing units (five or more single family units), hotels, parking garages, retail stores or other buildings that service the general public.

INDUSTRIAL / LIMITED ACCESS VEHICULAR GATE OPERATOR CLASS III


A vehicular gate operator system intended for use in industrial locations or buildings such as factories, loading docks or other locations not intended to service the general public.

RESTRICTED ACCESS VEHICULAR GATE OPERATOR CLASS IV

A vehicular gate operator system intended for use in guarded industrial locations or buildings such as airport security areas or other restricted access locations that do not service the general public, and in which unauthorized access is prevented via supervision by security personnel.

INTRODUCTION TO THIS INSTRUCTIONS MANUAL

Meaning of the symbols used

 1 Symbols: notes and warnings on the instructions



WARNING ELECTRIC SHOCK HAZARD - The operation or stage described must be performed following the instructions supplied and applicable safety regulations



WARNING, PERSONAL INJURY HAZARD OR RISK OF DAMAGE TO COMPONENTS - The operation or stage described must be performed following the supplied instructions and applicable safety regulations



WARNING - Details and specifications that must be complied with in order to ensure that the system operates correctly.



RECYCLING and DISPOSAL - Components and structural materials, batteries and electronic components must not be disposed of together with household waste. They must be taken to authorised disposal and recycling centres



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



PAGE E.g.:  6 see Page 6




FIGURE E.g.:  1-3 see Figure 1 - item 3



TABLE E.g.:  1 see Table 1

§

CHAPTER/SECTION E.g.: §1.1 see section 1.1



APPENDIX E.g.:  1 see Appendix 1




Automatic operation - automation locked



Manual operation - automation unlocked


TRANSPORT AND STORAGE

 Follow the instructions on the packaging during handling. Two people must move the package. Use the HANDLES.

 2 Symbols: markings on packaging

 Read the instructions

 This way up indication: do not turn upside down

 Store away from water and humidity

 Maximum number of stackable pallets

 Maximum number of stackable packages

 Percent storage humidity

 Storage temperature

 CE marking

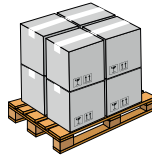
 Wear work gloves


 Wear safety footwear

 20 kg is the MAX weight one person can lift

Kg _____ Weight of package


PALLETISED SUPPLY



 Use a forklift or pallet truck, following safety regulations to avoid the risk of impacts or collisions.

SINGLE PACKAGE



 For manual lifting, there should be 1 person for every 44 lb (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: 41° to 86°F (5° to 30°C).
- Percentage of humidity: 30% to 70%.

UNPACKING AND HANDLING




Two people are recommended to handle the package. Use the handles.



Never manage the barrier by holding the control board.

1. Carefully set the package down on the ground.
2. Cut the packaging to open it right up and remove all the packaging material.
3. Stand the barrier on the base.



Check that all components are present and intact  1.

4. 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.



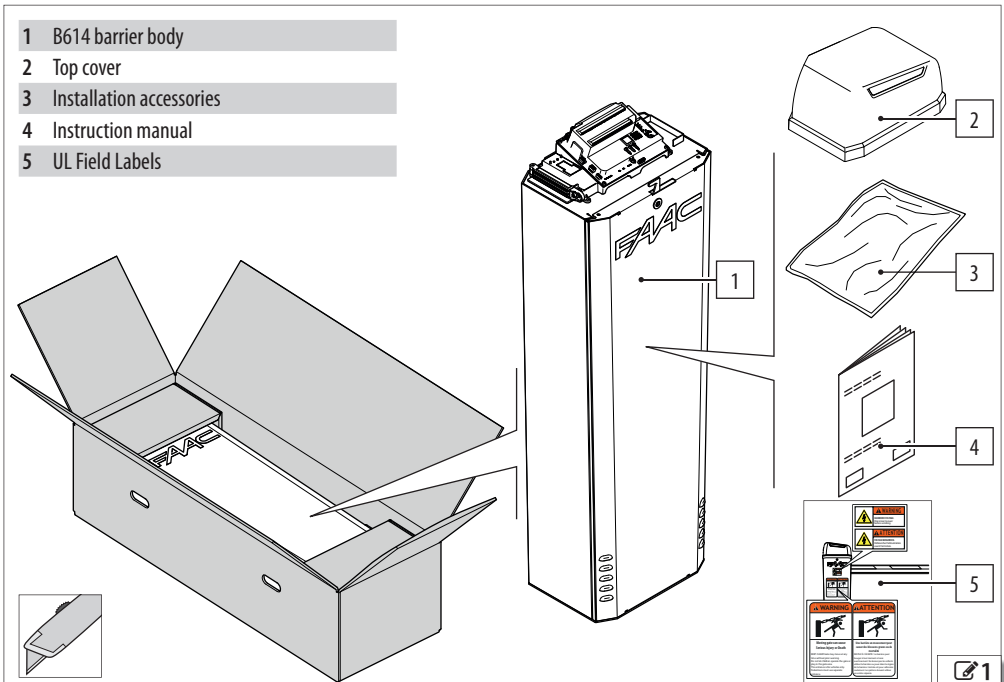
When you have finished with them, dispose of the packaging in the appropriate containers, as per applicable waste disposal regulations.

DISPOSAL OF THE PRODUCT

After having dismantled the product, dispose of it in compliance with the current waste disposal regulations.



Components and structural materials, batteries and electronic components must not be disposed of together with household waste. They must be taken to authorised disposal and recycling centres.



2. B614

2.1 INTENDED USE

The B614 barriers are designed for vehicular access control in residential buildings/apartment complexes. To move the arm manually, follow the instructions for manual operation.



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.

2.2 LIMITATIONS OF USE

Comply with the limitations on frequency of use listed in the technical data section.

The B614 requires the use of a specific FAAC arm that conforms to the dimensions indicated in this manual. Only the FAAC accessories indicated in this manual should be installed on the arm.

The B614 requires the use of a FAAC spring that is adequate for counterbalancing the weight of the arm and the relative accessories.

Barriers must be used exclusively for vehicle access control and it must be complemented by suitable visible signs prohibiting foot traffic. A separate route for foot traffic outside the range of the arm must be provided and properly indicated.

The presence of weather conditions such as snow, ice and strong wind, even occasional, could affect the correct operation of the automation, the integrity of the components and be a potential source of danger (see § 2.4). The limitations of use of the B614 in wind is equivalent to grade 10 on the Beaufort Scale (max. speed: 63 mph).

The installation must be visible during the day and at night. If it is not, appropriate solutions must be provided to make the fixed and moving parts visible (light kit on the arm).

The B614 must be connected to a FAAC electronic board as indicated in this manual (Technical characteristics).

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

2.3 UNAUTHORISED USE

- Uses other than the intended ones 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 forbidden to use B614 in a constructional configuration other than the one provided by the manufacturer.
- No component part of the product may be modified.

- It is prohibited to install the automation system on escape routes.
- 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.
- 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 intended and authorised by their respective manufacturers.
- Do not expose the barrier to direct jets of water of any type and size.
- Do not expose the barrier to aggressive chemical or environmental agents.
- The barrier may not be used to move moving parts other than the arms produced by FAAC specified in this manual.
- Use to control pedestrian access, bicycle traffic and the passage of animals is prohibited.
- Use of the barrier at level crossings is prohibited.
- Use of the barrier on public thoroughfares is prohibited.
- 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 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 or catch on to the arm or lift yourself up on it. Do not climb on the barrier cabinet.
- 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.



During manual handling, accompany the arm slowly for the entire movement. Do not let the arm travel freely.

2.4 EMERGENCY USE

In emergencies or if there is a fault, turn off the power supply to the automation and disconnect the backup batteries if there are any. If the arm can be moved safely by hand, use the MANUAL OPERATION mode; otherwise place the automation out of service until it has been reset/repaired.

In the case of a breakdown, the automation must be reset/repaired exclusively by the installer/maintenance technician.

2.5 MANUAL OPERATION




- Operate the manual release only when there is no electrical power and the arm is not moving
- During manual handling, accompany the arm slowly for the entire movement. Do not let the arm travel freely.
- Do not leave the barrier unlocked. After the manual movement, restore automatic operation.

WARNING: The arm could come down unexpectedly after being released. Always make sure that the area underneath the arm is clear of objects or people before operating the manual release key.


RELEASE PROCEDURE

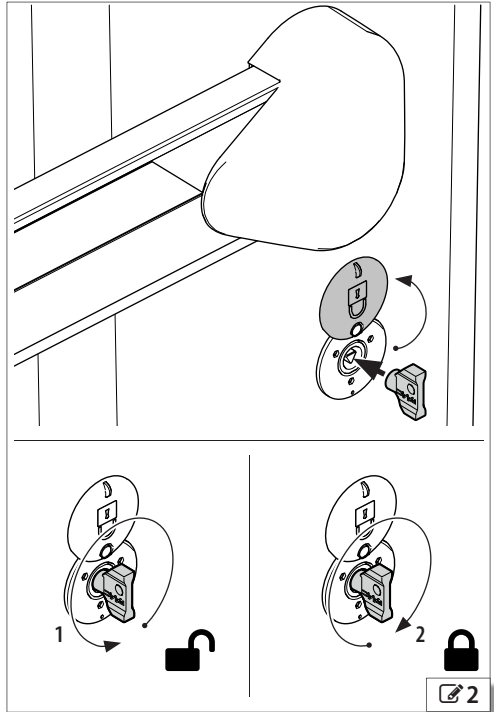


1.  2 Open the lock cover. Insert the key and turn it once counterclockwise until it stops (1).
2. Move the barrier arm manually.
3. Restore the operation.

RESTORE NORMAL OPERATION



1.  2 Insert the key and turn it twice clockwise until it stops (2).
2. Check that manual movement is inhibited.
3. Remove the key and close the cover.

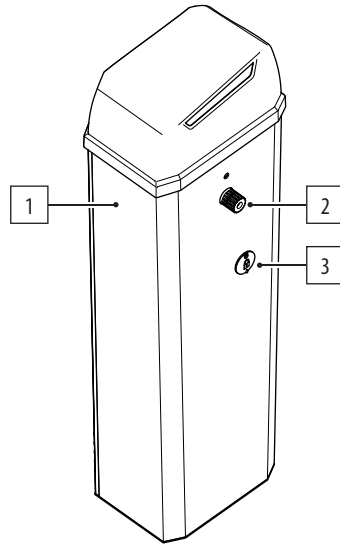


2.8 COMPONENT IDENTIFICATION

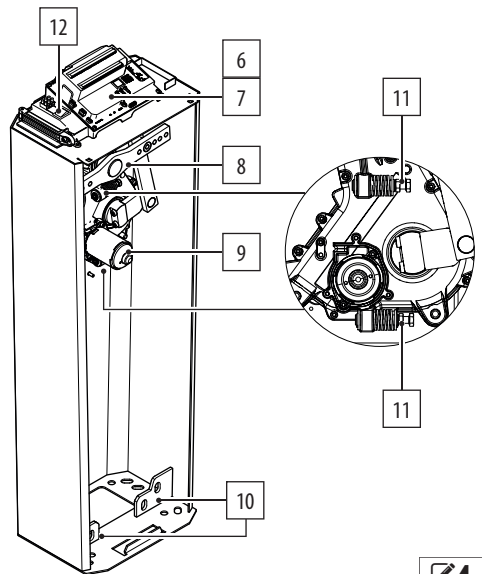
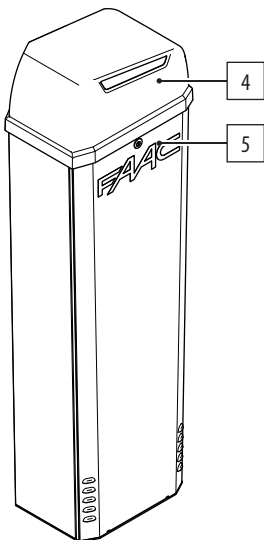
Standard equipment on the barrier body (☑ 4):

- 1 Enclosure
- 2 Drive shaft
- 3 Manual release (triangular key)
- 4 Top cover
- 5 Door with lock
- 6 E614 control board
- 7 E614 control board cover
- 8 Rocker arm / upper spring mounting hole
- 9 Electromechanical gearmotor with Encoder
- 10 Lower spring mounting hole
- 11 Positive stops
- 12 Mains ON/OFF switch

B614 arm side



B614 door side



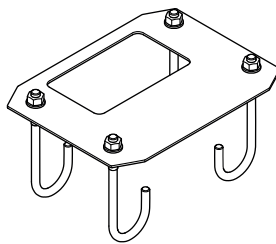
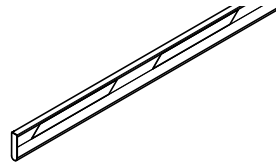
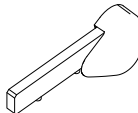
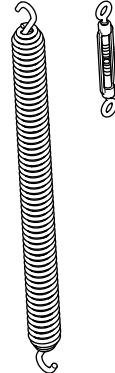
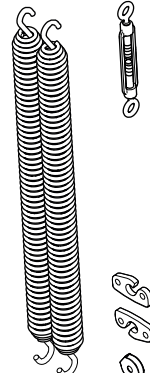
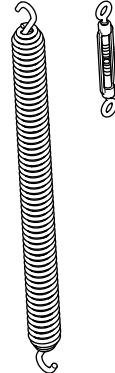
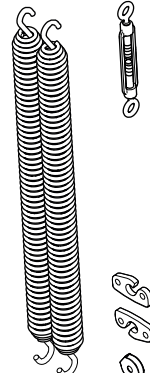
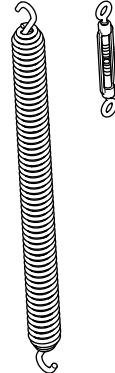
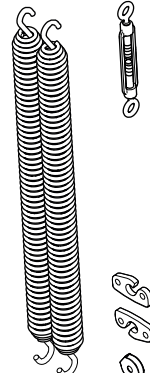
2.9 INSTALLATION COMPONENTS

A typical installation includes the following FAAC components supplied separately (☞ 5):

- 1 Foundation plate
- 2 Rectangular arm
- 3 Arm mounting bracket
- 4 Single or double balancing spring

2.10 OPTIONAL ACCESSORIES

For the FAAC accessories for the B614 see the chapter § 8.

1	<p>Foundation plate</p> 		
2	<p>Rectangular arm</p> 		
3	<p>Bracket for rectangular arm</p> 		
4	<table border="0"> <tr> <td data-bbox="629 938 849 1528"> <p>Single spring</p>  </td> <td data-bbox="849 938 1076 1528"> <p>Double spring</p>  </td> </tr> </table>	<p>Single spring</p> 	<p>Double spring</p> 
<p>Single spring</p> 	<p>Double spring</p> 		

☞ 5

3. INSTALLATION REQUIREMENTS

3.1 MECHANICAL REQUIREMENTS

Before starting any work make sure that all the following conditions are present, to ensure a safe and reliable installation of the B614 barrier operator.



There is firm ground to support the weight of the barrier with flat, horizontal paving. There must be no chance of water accumulating in the installation area. For the installation of detection loops, refer to the specific instructions.

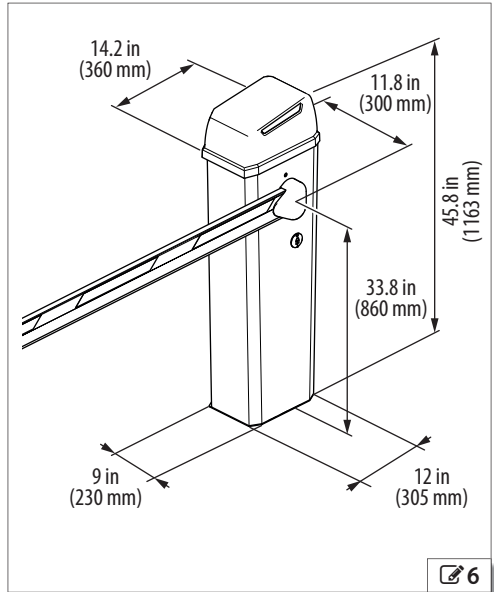
There is a safety area between the wall (or other fixed element) and the end of the arm, to protect against the risk of people becoming trapped/crushed.

There are safety areas between the fixed and moving parts to prevent hands from being crushed.

There is enough working space for the installation activities and subsequent maintenance operations, bearing in mind the opening of the service door and the positioning/removal of the cabinet and any other elements.

There are no fixed or mobile obstacles to the movement of the arm (e.g.: branches, overhead cables, ceilings).

If the installation area presents the possibility of vehicle impact, provide adequate structures to protect the barrier body.



3.2 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".



All wiring and connections must comply with the current applicable electrical code.

The power supply line for the operator should be on a dedicated circuit and under a circuit breaker. The metal parts of the enclosure must be grounded. The electrical cables of the operator must be of a size and insulation class that is compliant with current electrical code and laid in appropriate rigid or flexible conduits, either above or below ground.

Use separate conduits for the power supply and the 12-24 V control devices / accessories cables.

In the case of a Master-Slave configuration, a cable conduit has to be installed for the cables that connect the two electronic boards.

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.

The location of the power disconnect breaker should be easily accessible and marked.

The conduit fittings and the cable glands must prevent the entry of moisture, insects and small animals.

Protect extension connections using junction boxes with an IP 67 protection rating or higher.

The overall length of the BUS cables must not exceed 330ft (100 m).

The barrier must always be visible to prevent it from being hit accidentally; an adequate lighting system is required.

It is recommended to install a flashing light in a visible position to indicate when it is moving.

For the installation of detection loops, refer to the relative instructions.

The control accessories must be positioned in areas that are always accessible and not dangerous for the user. It is recommended to position the control accessories within the field of view of the operator.



Comply with the following heights from the ground:

- control accessories = minimum 59.05 in (150 cm)

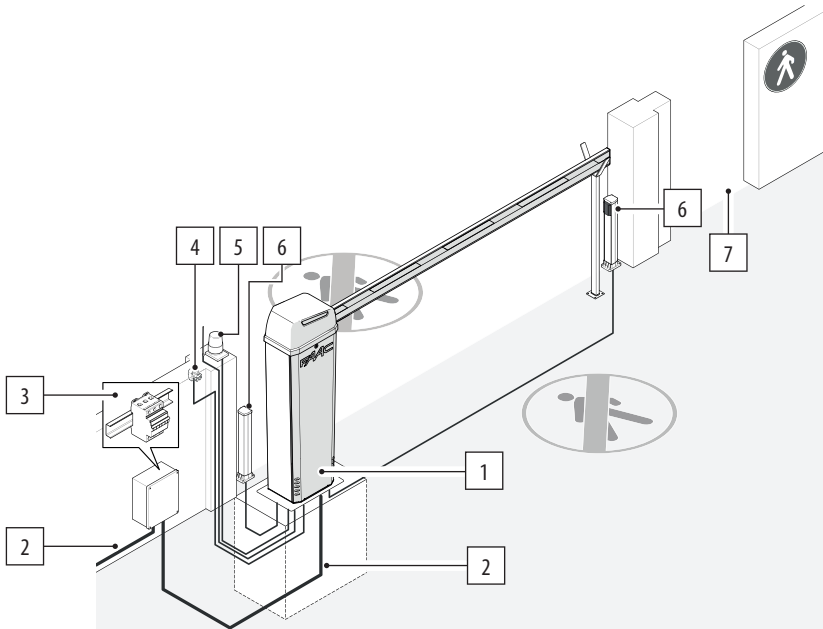
- emergency buttons = maximum 47.24 in (120 cm)

If the manual controls are intended to be used by disabled or infirm persons, highlight them with suitable pictograms and make sure that these users are able to access them.

3.3 EXAMPLE SYSTEM

  7) The example is purely an illustration and is only one of the possible applications of the B614.

Example system	Minimum wire cross section
1 Barrier B614	
2 Mains power supply	3x 14 AWG
3 Circuit breaker	
4 Key button	
5 Flashing light	
6 BUS 2easy photocells	2 x 20 AWG
7 Foot traffic route	



4. MECHANICAL INSTALLATION



Always perform the work with the power supply disconnected.



Mark off the work site and prohibit access/transit. Before the barrier is fixed to the foundation there are risks of tripping and falls.

When working inside the enclosure there are risks of cutting, shearing, crushing hands due to the presence of moving parts. Until the installation is completed, the partially installed barrier must always be left blocked and with the door and upper cover always closed to prevent access to the electronic parts and the moving mechanical parts.

Never install the arm before securing the barrier body and checking it.

Until the installation is complete, never leave the barrier unguarded with the arm mounted. If the arm is mounted, the barrier must be locked with the arm open.

If installation is outside, it must be done in good weather without rain or gusts of wind. If it is raining, an adequate shelter for the barrier must be made until the mechanical and electronic installation is complete.

Never handle the barrier by holding the control board support.

4.1 TOOLS REQUIRED



8-13-17-19

Wrench



4-6

Allen key



Level

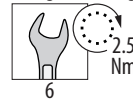


TOOL with TORQUE ADJUSTMENT


Where necessary for safety, a torque wrench with the specified tightening torque will be shown.


FASTENING TORQUE VALUE



The torque wrench and the tightening torque in Nm is shown in the figures. E.g.: HEX WRENCH 6 set at 2.5 Nm




4.2 INSTALLING THE FOUNDATION PLATE

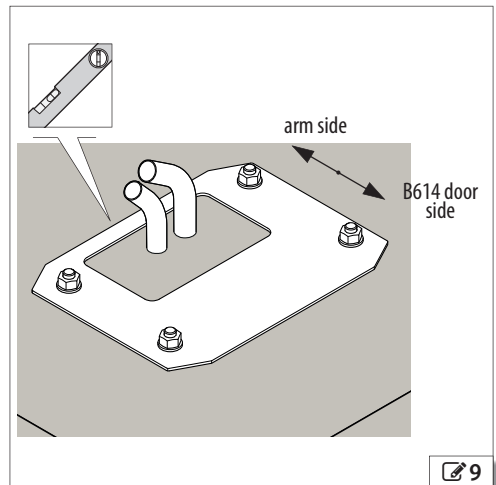
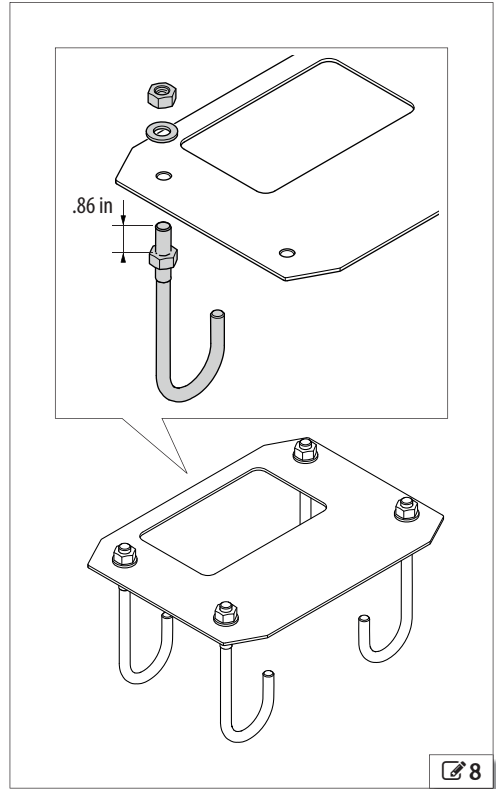
 Always perform the work with the power supply disconnected.

 The barrier installation is facilitated by the use of the optional foundation plate.
 - The blueprint appended to this manual that gives the characteristics of the foundation is approximate. The blueprint considers the barrier applied to the maximum limits indicated in this manual and under the most arduous conditions. The installation engineer is responsible for the evaluation of the foundation materials and dimensions on the basis of the characteristics of the ground and place of installation. Perform structural calculations where necessary.


1. Dig the hole in the ground. Fill it with concrete, allowing the cable conduits to protrude.
2.  8 Assemble the base plate.
3.  9 Immerse the base plate in the foundation leaving the surface exposed.


 The plate must be in the centre of the plinth.
 The hole for the cables to pass through must correspond with the orientation planned for the barrier (barrier side, door side).
 The cable conduits must protrude from the hole in the plate by approximately 8 in (20 cm).
 Check the plate is horizontal using a level.
 Clean the concrete off the surface of the plate and the nuts with washers so they can be removed when necessary.



4. Wait for the concrete to set.





4.3 INSTALLING THE BARRIER BODY

 Always perform the work with the power supply disconnected.

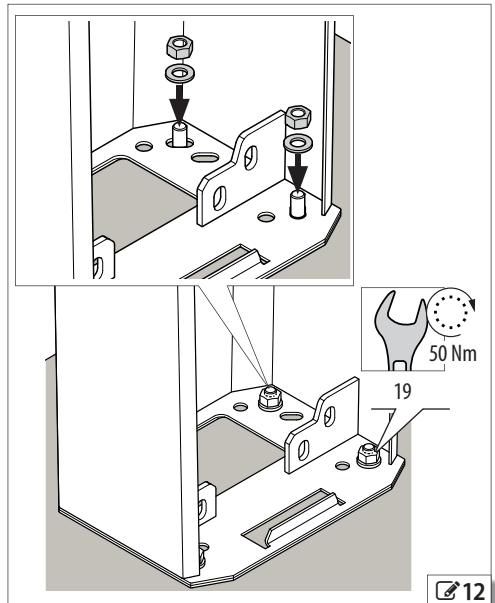
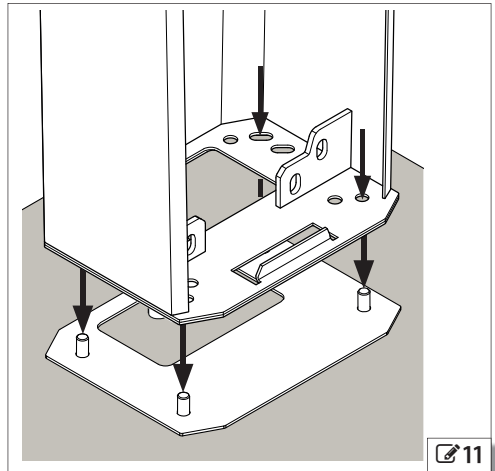
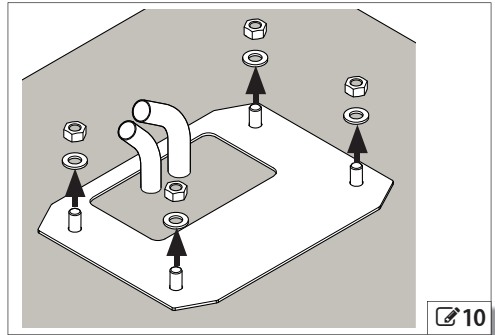
 Before you start, make sure that the plinth's concrete has solidified.
In this phase the barrier must be locked.
Never handle the barrier by holding the control board support.

1.  10 Remove the 4 nuts with washers from the plate
2.  11 Place the barrier body on the foundation, at the four mounting holes.

 Be careful not to damage the electrical cable conduits.



3.  12 Fix the body of the barrier in position using a nut with washer on every bolt of the foundation.

 Use the torque wrench to tighten to the torque shown in the figure.

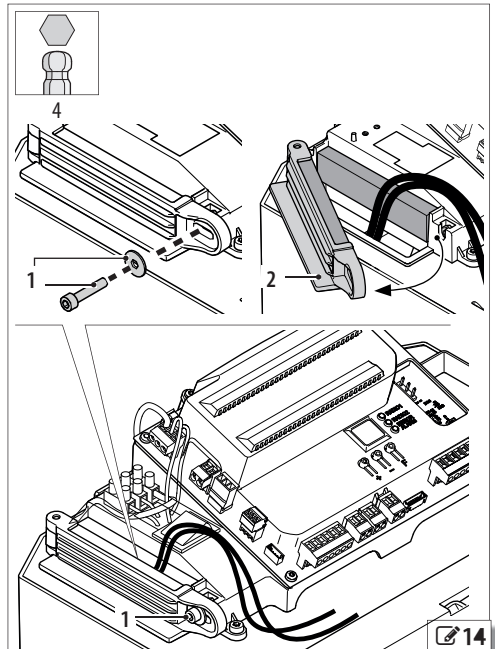
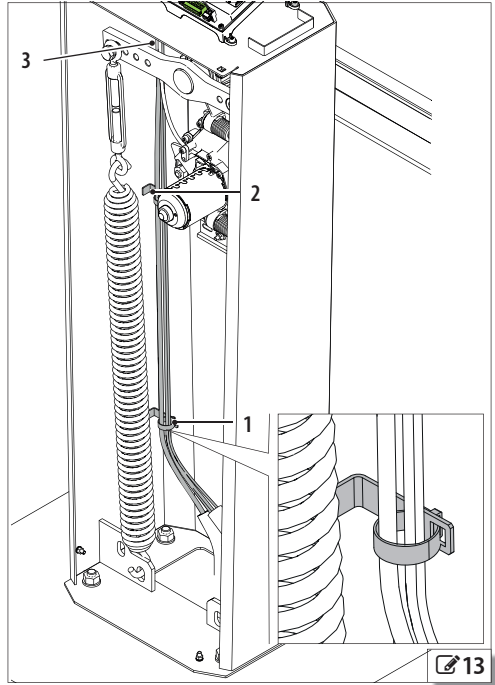


ROUTING THE CABLES INSIDE THE BARRIER

i 51.18 in (130 cm) of cable are necessary.

1.  **13** Arrange the cables inside the barrier. Secure the cables with the cable ties provided in positions 1, 2 and 3.
2.  **14** Remove the bolt with washer 1. Open cable strain relief 2. Bring the cables to the board.
3. Use the screw and washer 1 to close the cable strain relief.

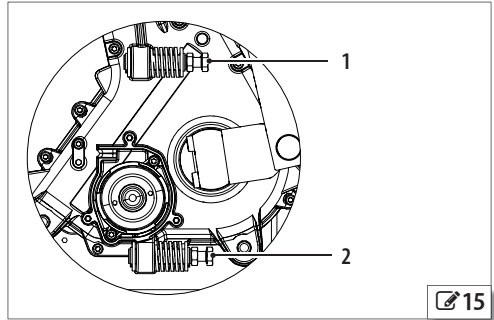
i The electrical connections must be made after completing the mechanical installation



4.4 INSTALLING THE ARM



- Always perform the work with the power supply disconnected.
 - Before installing the arm, check the mounting of the barrier body with the tightening torques indicated.
 - Two people must move the arm.
 - If necessary to cut the arm, do not cut the end with the mounting hole in it. After cutting remove any sharp borders and burs.
- Before installing the arm, check the integrity of the lower rubber edge protection.



15

PREPARING THE ROCKER ARM

Before installing the barrier arm, make sure to turn the rocker arm in the closed arm position.



- This phase requires the barrier to be released.
- Keep away from the moving elements inside the box.
 - To move the rocker arm, turn the drive shaft, using the arm mounting lever. Do not use other tools

1. Release the barrier using the manual release key.
2. Turn the shaft so as to bring the rocker arm in contact with the closing positive stop (15).

Closing positive stop	
LH barrier	1
RH barrier	2

3. Re-lock the barrier.

INSTALLATION

1. (16) Screw in the guide 1 in the drive shaft.
2. Insert lever 2 in the drive shaft horizontally in contact with seeger ring 3.

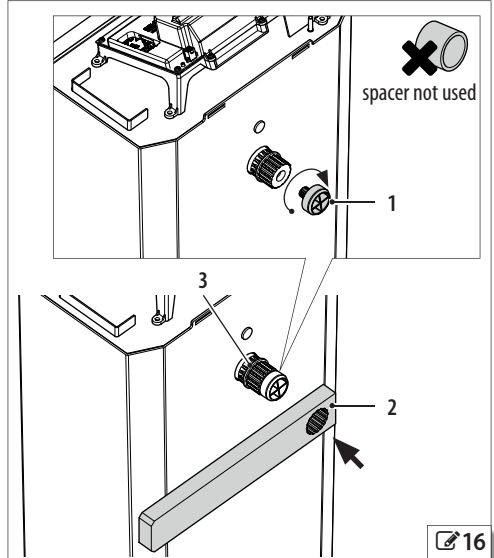


The spacer must not be used and must be taken out.

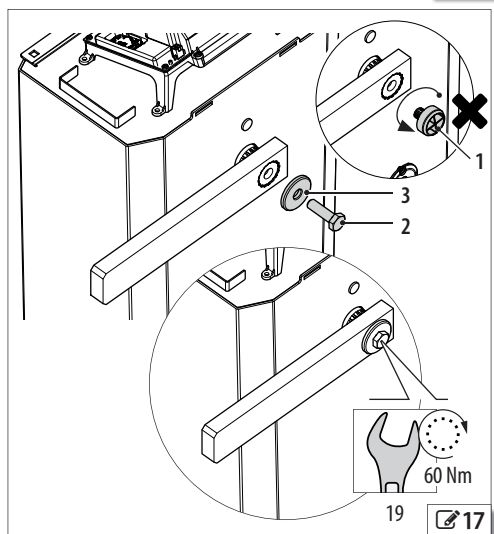
3. (17) Removing guide 1 and store it.
4. Secure the lever in position with screw 2 and washer 3.




Use the torque wrench to tighten to the torque shown in the figure.





16



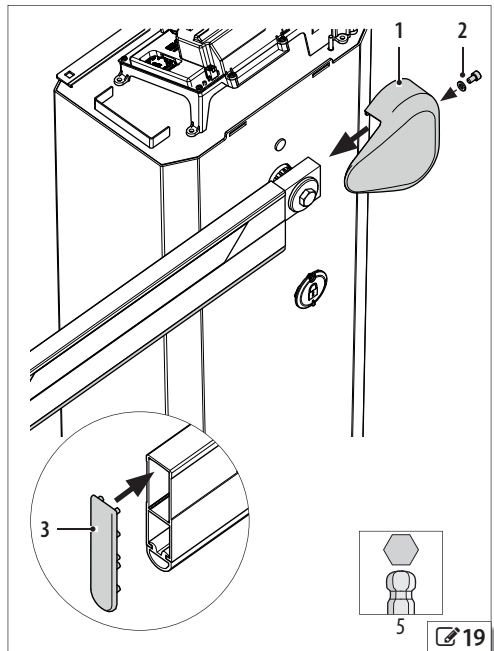
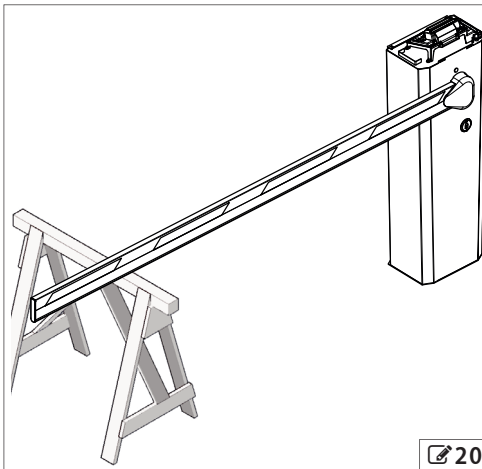
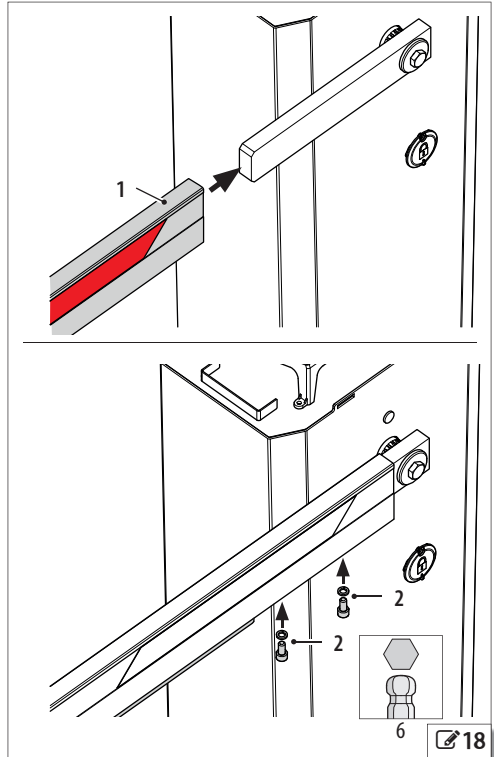
19 17

5.  18) Insert arm 1 in the lever.

 To make the insertion of the arm easier, rest it on a stand at the other end.

6. Line up the two holes underneath (slide the lower edging temporarily to uncover the holes).
7. Fix the arm with screws 2 and relative washers (reposition the lower rubber edge).
8.  19) Insert cover 1 and secure it it with screw 2 and relative washer.
9. Insert the cover 3 at the end of the arm.


 Leave the arm supported to take the weight until the installation of the spring is complete  20).





4.5 MOUNTING THE SPRING

The balancing of the barrier requires:


- installing of the turnbuckle in the appropriate position
- installing of the appropriate spring: single or double
- manual adjustment of the turnbuckle

 - Carry out the work with the power supply disconnected.




 - The spring appropriate for the length of the arm is defined in the balancing table (see  2). Follow the indication of the table to identify the holes for hooking the spring to the rocker arm and the base.

- The accessories on the arm must be considered when choosing the balancing spring (single or double). In case of addition or elimination of the accessories at a later time, it might be necessary to change the spring.

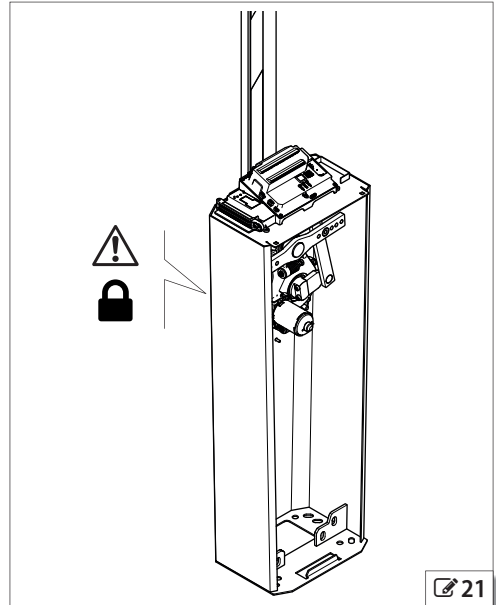
TURNBUCKLE

 This operation requires the release of the barrier.

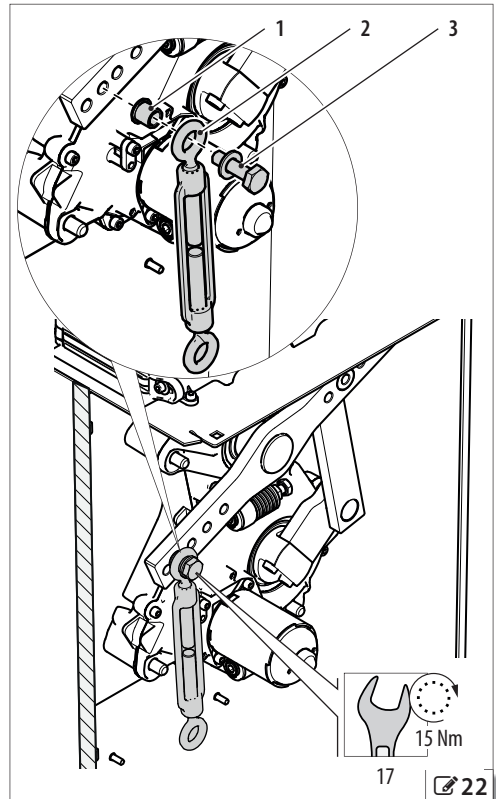
- Keep away from the moving elements inside the box.
- Do not leave the arm vertical when the barrier is unlocked.

1. Release the barrier using the manual release key.
2.  21 Lift the arm completely vertical.
3. Relock the barrier.
4.  22 Align the bushing 1 and the turnbuckle 2 with the appropriate hole (see  2). Fix in position with screw 3, adding the supplied washer.

 Use the torque wrench to tighten to the torque shown in the figure.



 21



17

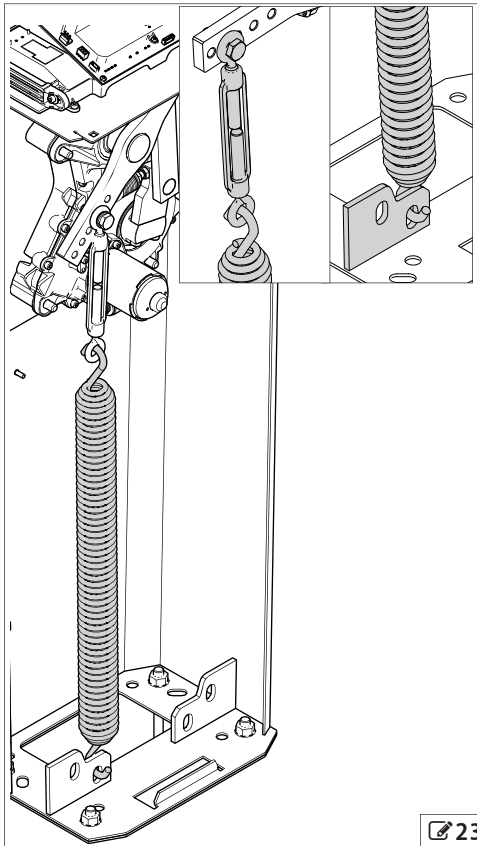
 22

SINGLE SPRING

1. Lengthen the turnbuckle by manually unscrewing it to facilitate the operation.
2. (🔧 23) Hook the spring onto the turnbuckle and the appropriate slot at the bottom of the barrier body (see 🔗 2).
3. Shorten the turnbuckle by rotating it manually to place the spring under tension.



Keep away from the spring coils.

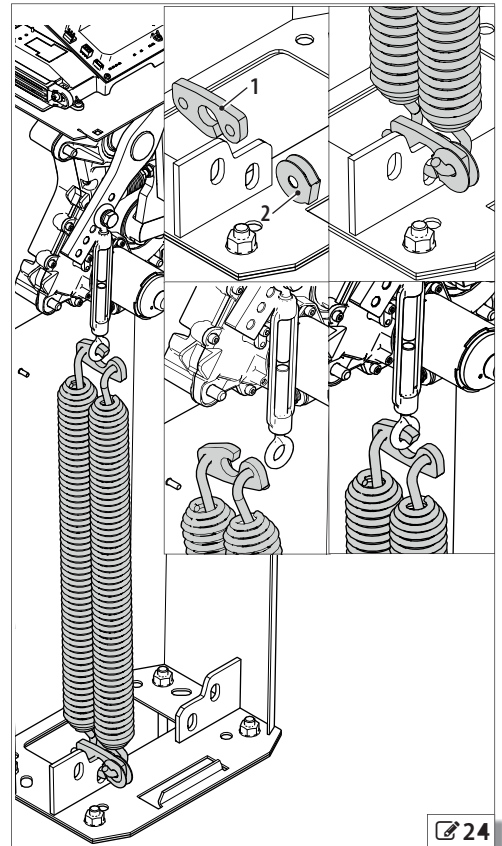


DOUBLE SPRING

1. Lengthen the turnbuckle by manually unscrewing it to facilitate the operation.
2. **Lower bracket (🔧 24):** Connect the plate 1 to the slot on the base of the barrier body as shown in the figure and lock it in position using the part 2. Attach the 2 springs.
3. **Upper bracket (🔧 24):** Attach the plate 2 to the springs and then to the turnbuckle.
4. Shorten the turnbuckle by rotating it manually to place the spring under tension.




Keep away from the spring coils.



4.6 ACCESSORIES ON THE ARM

! The accessories on the arm must be considered when choosing the balancer spring (single or double). The accessories on the arm must be installed before balancing the arm. If the accessories are added or removed later it may be necessary to change the spring. After any modification to the arm, it is necessary to balance it again.

The spring appropriate for the configuration and length of the arm is defined in the balancing tables (see  2).

i See the chapter § 8.

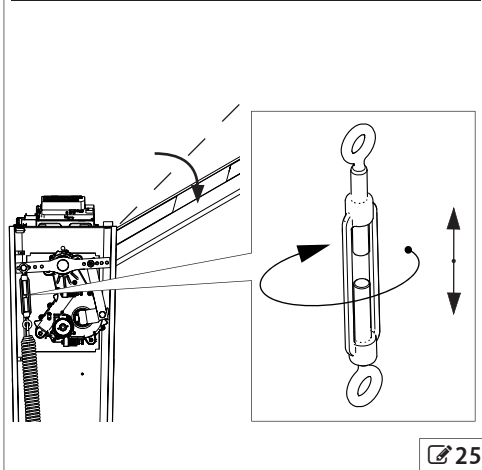
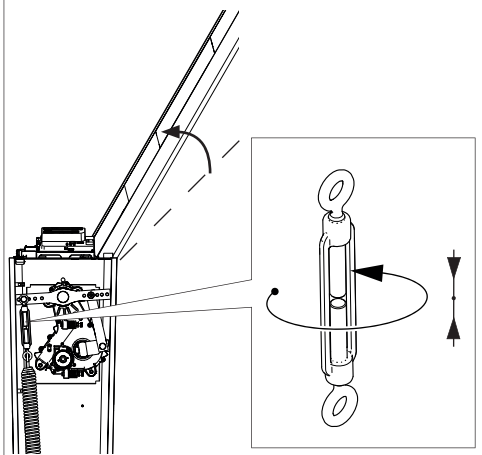
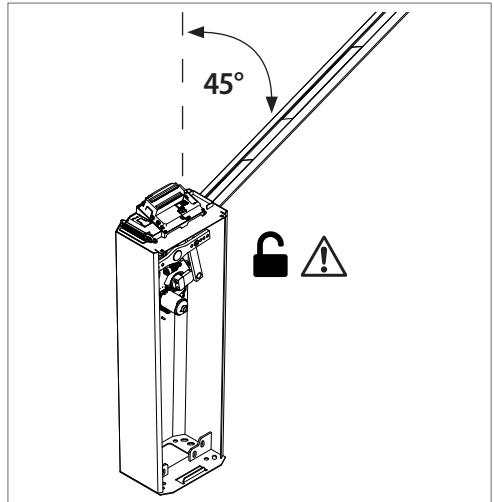
4.7 BALANCING THE ARM

! This operation requires the barrier to be released.

- Release the barrier using the manual release key when there is no electrical power.
- Keep away from the moving elements inside the box and from the coil spires.
- Do not leave the arm vertical when the barrier is unlocked.
- Make sure the arm is properly balanced before putting the barrier in operation to avoid extra stress on the spring that could reduce its lifespan.

i See the specific instructions for balancing an articulated arm.

1. Release the barrier using the manual release key.
2. Bring the arm to 45° and release it: the arm is balanced correctly when it stays in position.
3. Make the adjustment, if necessary:
 - if the arm wants to open, the turnbuckle must be extended
 - if the arm wants to close, the turnbuckle must be shortened
4. Repeat the adjustment until it the arm correctly balanced.
5. Relock the barrier.



4.8 LIMITS ADJUSTMENT

The gearmotor is supplied with the limits already adjusted.

It is possible to work on the limits to fine tune the arm's horizontal and verticality positions (🔧 26).

	Limit A	Limit B
RH barrier	vertical arm	horizontal arm
LH barrier	horizontal arm	vertical arm



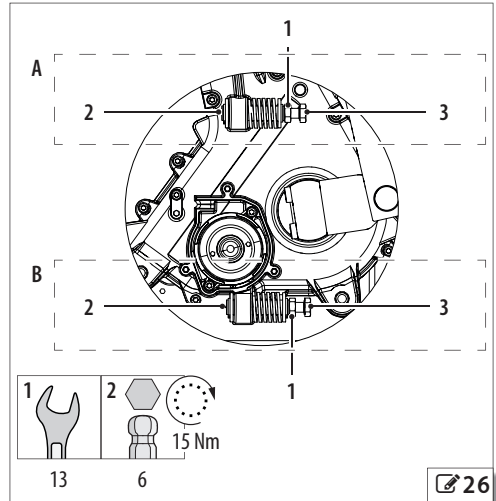
This operation requires the release of the barrier.

- Release the barrier using the manual release key when there is no electrical power.
- Keep away from the moving elements inside the box and from the coil spires.
- Do not leave the arm vertical when the barrier is unlocked.

1. At the same time, loosen lock nut 1 and the screw 2.
2. Keep the lock nut 1 still and manually adjust the stop with screw 3.
3. Tighten the lock nut 1 with the hex wrench and the screw with Allen key 2.
4. Check the correct adjustment of the limits. Repeat the sequence if necessary. At the end, tighten screw 2 completely with the indicated torque.



Use the torque wrench to tighten to the torque shown in the figure.



🔧 26

4.9 GROUNDING THE DOOR

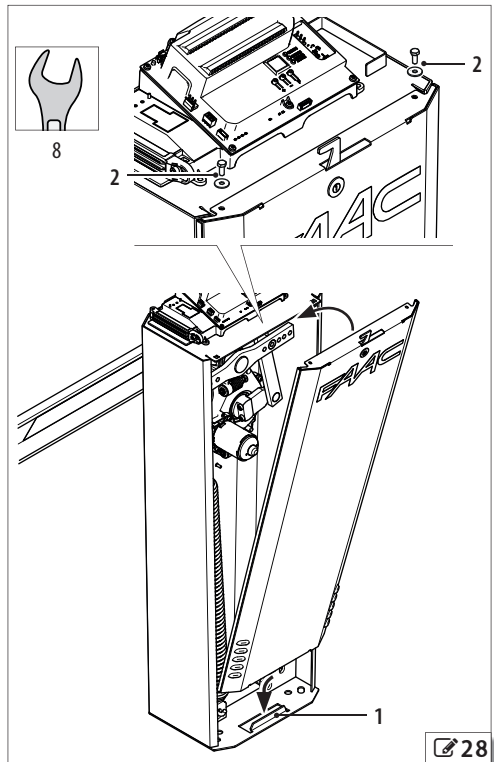
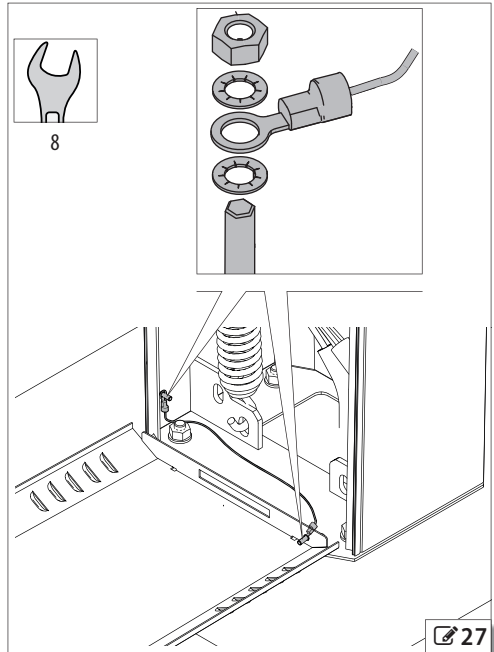
1. (🔧 27) With the supplied cable connect the door and the base. Use the toothed washer and nut on the base and on the door. Pay attention to the insertion order indicated in the figure.

4.10 CLOSING THE DOOR



The door must be closed before operating the barrier, even manually.
Handle the door carefully so as not to damage the ground cable.

1. (🔧 28) Insert the lower slot of the door in its place 1, at the bottom of the box.
2. Close the door and secure it in place with screws 2 (provided).

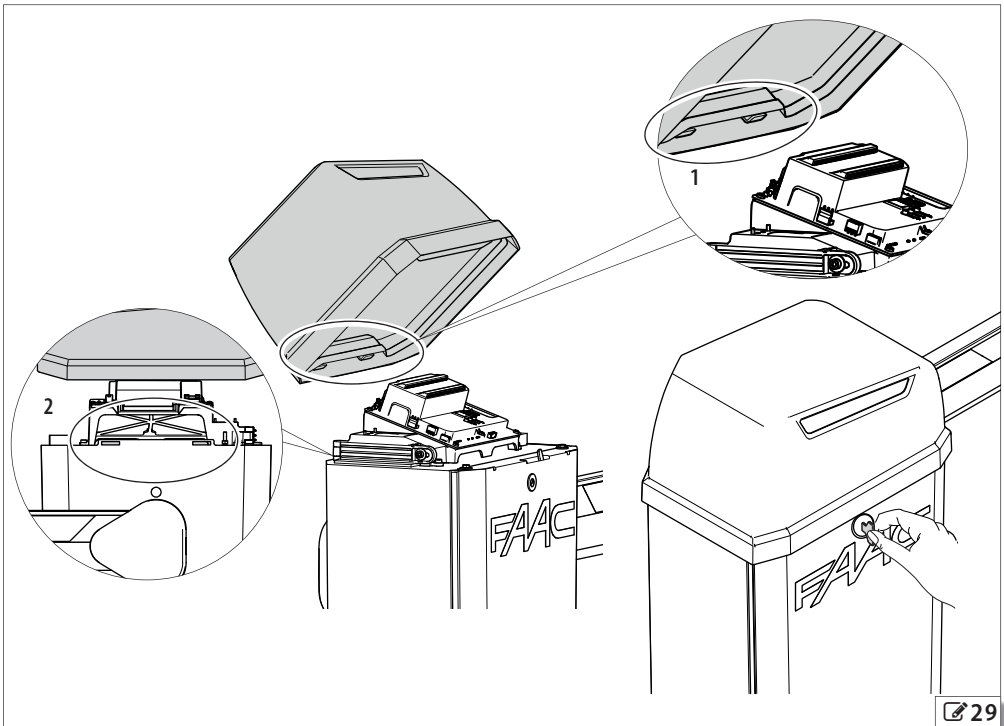


4.11 INSTALLING THE TOP COVER

i If there is a flashing light kit, insert the connector before closing the cover (see the chapter § 8).

1. (🔧 29) With the cover inclined, insert tabs 1 in slots 2 on the box (arm side), then lower it on the opposite side.
2. Close with the key: turn anticlockwise.
3. Check that the cover is secured: try to lift it from both ends at the same time and then on the opposite side.

i For the seal to be effective, The door of the barrier must be closed completely.



5. ELECTRONIC INSTALLATION



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

The board cover must never be removed unless the board is to be replaced. No installation operation requires the removal of the cover.

5.1 BOARD E614

4 E614 board technical data

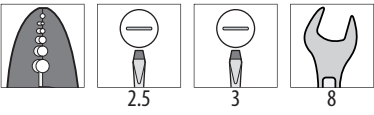
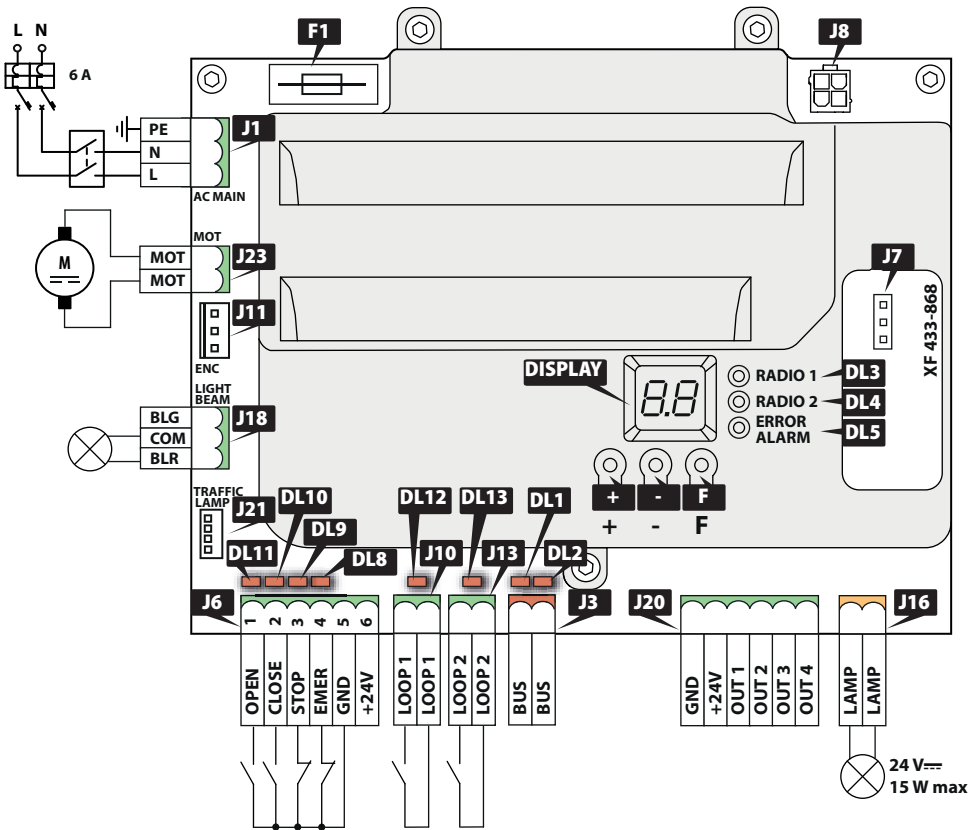
Power supply voltage	115V~ +/-10% 50/60 Hz
Max power	150 W
Accessories output voltage	24V 
Max. accessories load	500 mA
Max. BUS 2easy accessories load	500 mA
Max. flashing light load	24V  15 W
Ambient operating temperature	-4 ° to +131 °F (-20 °C to +55 °C)

COMPONENTS


See figure  30

BOARD:	
J1	Mains power supply terminal block
J3	BUS 2easy terminal block
J6	Inputs terminal block
J7	Connector for XF radio module
J8	Connector for battery backup
J10	Terminal block for external detector LOOP1
J11	Connector for encoder
J13	Terminal block for external detector LOOP2
J16	Terminal block for external flashing light
J18	Terminal block for the arm lights
J20	Terminal block for outputs
J21	Connector for integrated flashing light
J23	Connector for motor
F1	Board protection fuse (F1 = T5A UL approved)
DISPLAY	
DL1	BUS 2easy ACTIVE LED

BOARD:	
DL2	BUS 2easy "BUS MON" diagnostic LED
DL3	"RADIO1" (OMNIDEC) LED
DL4	"RADIO2" (OMNIDEC) LED
DL5	Error / alarm LED
DL8	EMER status LED
DL9	STOP/FSW-CL status LED
DL10	CLOSE status LED
DL11	OPEN status LED
DL12	LOOP1 status LED
DL13	LOOP2 status LED





5.2 CONNECTIONS

 Before making electrical connections, turn off power to the barrier. If the disconnect switch is not in view, apply a warning sign stating "WARNING - Maintenance in Progress".




 In Master-Slave configuration see the chapter § 9.

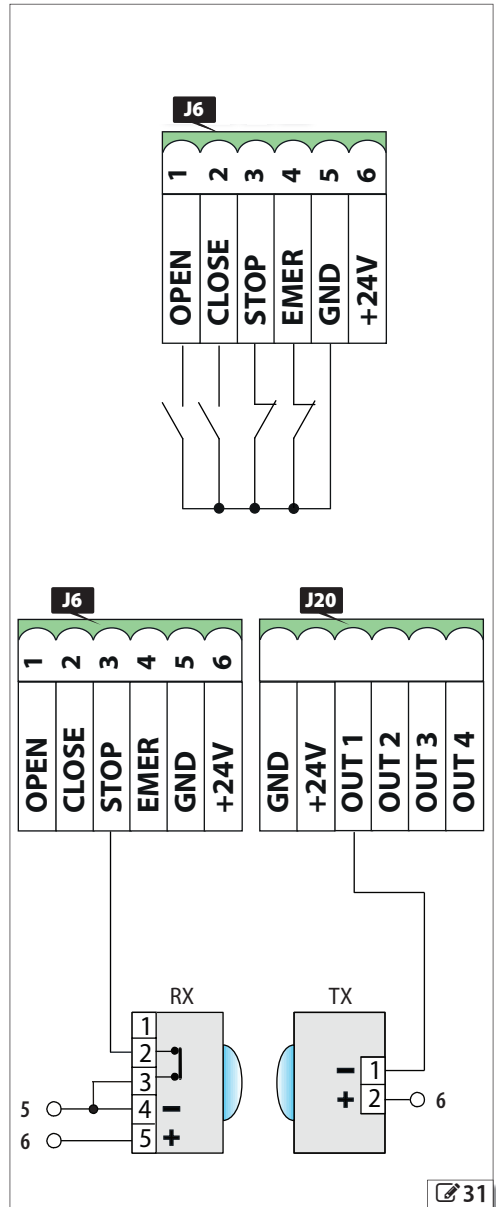
CONTROL DEVICES

 31) Connect the devices to the terminal block J6 of the board.

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

TERMINAL BLOCK J6:

- | | | |
|-------|---|--|
| 1 | OPEN | NO contact, connect a pushbutton or other pulse generator that commands the opening of the barrier, by closing a contact |
| 2 | CLOSE | NO contact, connect a pushbutton or other pulse generator that commands the closing of the barrier, by closing a contact |
| | STOP | Configured as STOP (default):
NC contact, connect a pushbutton or other pulse generator that commands the stopping of the barrier, by opening a contact |
| |  | If NO device is connected, jump the input to GND |
| 3 | FSW-CL | Configured as FSW-CL (see SP function in Advanced programming):
NC contact, connect a photocell or other device that commands the inversion on opening, by opening a contact during closing |
| |  | If NO device is connected, jump the input to GND |
| 4 | EMER | NC contact, connect a pushbutton or other pulse generator that commands the emergency opening of the barrier, by opening a contact |
| |  | If NO device is connected, jump the input to GND |
| 7 | GND | Accessories power supply negative and common contact (1 A max.) |
| 8-9 + | | Accessories power supply positive 24 V == (1 A max.). |



 31

STOP input configured as FSW-CL

The STOP input can be configured as safety (FSW-CL). Connect the negative of the transmitter (TX) power supply of the photocells to an OUT output configured as Fail-Safe. In this way the operating condition of the photocells is checked before each closing: the test consists in breaking the power supply to the TX

momentarily and checking the change of status of the input. If the test fails the electronic board does not command the movement.

EXTERNAL LOOPS



The magnetic loop detectors must not be used to detect pedestrians, cycles and motorbikes. If it necessary to detect them, other devices such as photocells are needed.

(32) Connect the magnetic detectors to terminal boards J10 (LOOP 1) or J13 (LOOP 2).

Opening coil NO contact

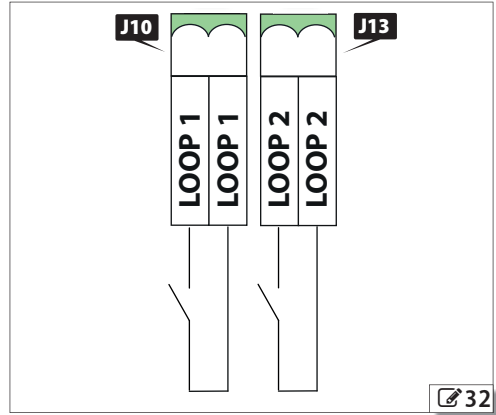
LOOP 1 Connect a detector that, when the contact is closed (loop engaged), commands the opening

Transit coil NO contact

Connect a detector that, when the contact is closed (loop engaged), works according to the set functioning logic: **all logics, except P** As long as the loop is engaged, it prevents closing. If the loop is engaged during the closing, it commands the inversion on opening.

LOOP 2

only in logic P The loop commands the closing at the disengagement. If the loop is engaged during the closing, it commands the stop (disengage the loop to complete the closing)



32

BUS DEVICES



If no BUS 2easy devices are used, leave the BUS 2easy terminal board free.

See the chapter § 8.4 for the connection and orientation.

OUT OUTPUTS



Do not exceed 100mA max load for each output.

Open Collector Outputs: the activation of the output and its polarity can be configured by Advanced programming.

	OUT active	OUT not active
NO polarity	0V	open circuit
NC polarity	open circuit	0V

(33) Connect the devices required to terminal block J20.

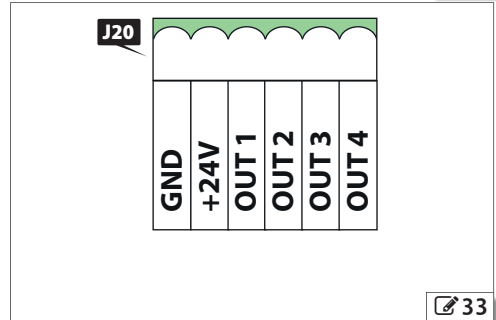
24 V == FLASHING LIGHT

See the chapter § 8.1 for the connection.

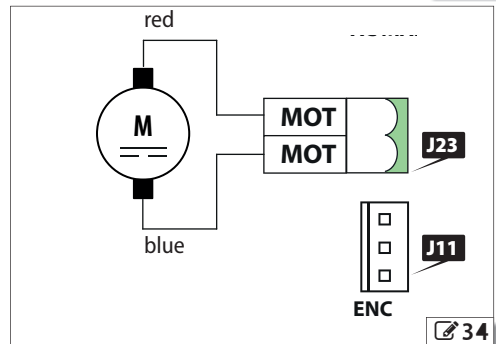
MOTOR

(34) The motor wire is connected from the factory for a RH barrier.

Invert the wires if a LH barrier is being installed.



33



34

ENCODER

The encoder wire is connected from the factory.

i The encoder must always be connected in order for the automation system to operate.

ARM LIGHTS

See the chapters § 8.4 for the connection.

INTEGRATED FLASHING LIGHT

35 See the chapter § 8.5 for the connection.

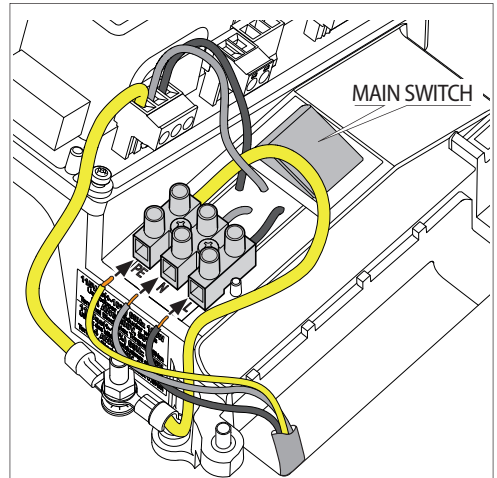
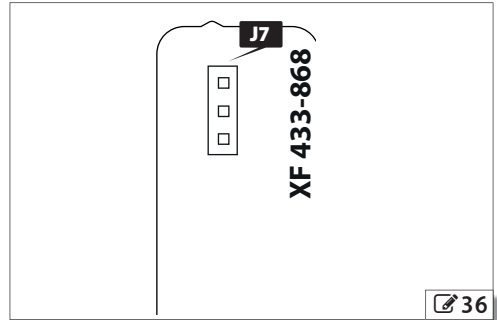
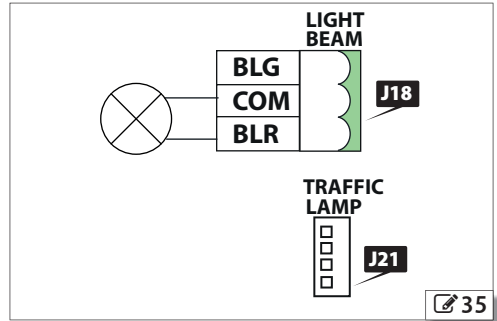
XF RADIO MODULE

36 See the chapter § 8.2 for the activation.

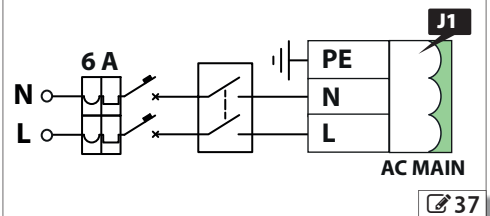
MAINS SUPPLY AND EARTHING

! Do not remove the grounding done in the factory.

37 Connect the power cable to the main switch, using PE, N, L terminals.



Use a standard AWG 14 tripolar cable (not supplied).



6. START-UP

! During operation there is a risk of cutting, crushing or the total loss of hands due to the moving parts inside the box.

If two barriers are installed in the following configuration Master-Slave, before beginning the start up of the Master, it is necessary to have configured the Slave barrier (see the chapter § 9).

1. Check that the B614 manual release is not engaged so that the arm can't be moved manually.
2. Power up the barrier (Master barrier). The board lights up and the display then comes on:
 - firmware version (2 digits separated by a point)
 - \square flashing if a set-up or the automation status is requested
3. Check the status of the LEDs at rest (see the chapter § 10.1).

i The BUS 2easy LEDs must be checked after the devices have been registered.

4. Store the radio transmitter as needed (see the chapter § 8.2).
5. Program E614 without performing the set-up.

! For the barrier to work properly, set the parameter cF dependent on the arm length.

6. Register the BUS 2easy devices, if they are installed (see the chapter § 8.3).
7. Check the barrier's direction of travel (see the chapter § 10.2).
8. Perform the set-up (see the chapter § 6.3).
9. If the Battery Backup is being used:
 - Turn off power
 - Connect the Battery Backup
 - Switch on power to the system.

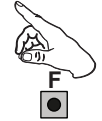
6.1 PROGRAMMING

BASIC PROGRAMMING

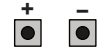
1. Press and hold down F until the first basic function appears. (Each function is displayed as long as F remains pressed).



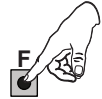
2. Release: the value of the function appears (default or programmed).



3. Use the **+** or **-** button to modify the value.



4. Press F to confirm the value displayed. Go to the next function. The modified value becomes effective immediately.



Proceed in the same way for all the functions. The last function (\square) allows you to close the program.

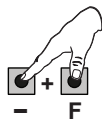
5. In \square select \square or \square using the **+/=** buttons:

- \square = save the new program
- \square = DO NOT save the new program

6. Press F to confirm and close the program. It returns to the automation status view.

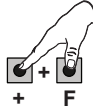
To exit from the programming mode at any time:

press and hold down F and then **-** as well to move directly to \square .

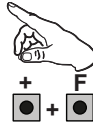


ADVANCED PROGRAMMING

1. Press and hold down F and then + as well, until the first advanced function appears. (Each function is displayed as long as F remains pressed).



2. Release: the value of the function appears (default or programmed).



3. Use the + or - button to modify the value.



4. Press F to confirm the value displayed. Go to the next function. The modified value becomes effective immediately.



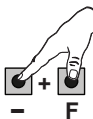
Proceed in the same way for all the functions. The last function (SE) allows you to close the program.

5. In SE select Y or NO using the +/- buttons:
 Y = save the new program
 NO = DO NOT save the new program

6. Press F to confirm and close the program. It returns to the automation status view.



To exit from the programming mode at any time:

press and hold down F and then - as well to move directly to SE.



5 Basic programming


Basic function	Default
CF BARRIER CONFIGURATION Set functional parameters (including opening and closing speed) dependent on the arm length. 01 arm up to 3m 02 arm from 3m to 4m 03 arm from 4m to 5m	03
DF DEFAULT Displayed if the board is configured with the factory settings (default). Y indicates that all set values correspond to the defaults NO indicates that one or more set values are different from the defaults Select Y if you wish to restore the default configuration.	Y
CE MASTER/SLAVE configuration. MA Configures the board in Master mode SL Configures the board in Slave mode ⓘ The following parameters are not displayed on the Slave board: LD-PA-BU-EL-PP-LE-BF. See the relative section.	MA
LO FUNCTIONING LOGIC EP Semi-automatic step by step A Automatic AP Automatic step by step b Semiautomatic B bC Semiautomatic B on opening/person present C on closure C Person present P Car park PA Automatic Parking ⓘ See the dedicated section for the functioning of the logics	EP
PA PAUSE TIME Adjustable from 00 a 59 s, to 1 sec steps. If 59 is exceeded, the display changes to indicate minutes and tens of seconds (separated by a dot) and can be adjusted in steps of 10 seconds, up to a maximum of 9.5 minutes. ⓘ E.g.: if the display indicates 2.5, the time is 2 min and 50 sec.	20
SO OPENING SPEED 01 minimum speed 10 maximum speed	See table
SC CLOSING SPEED 01 minimum speed 10 maximum speed	Default speed

Basic function	Default
bU BUS 2easy DEVICE REGISTRATION	no
 See the relative section.	
mI Dead-man MOTOR OPERATION mode	--
+ OPENS (displaying oP) as long as the button remains pressed. - CLOSES (displaying cL) as long as the button remains pressed.	
tL SET-UP	no
Acquires the end limit positions.	
 See the relative section.	
S LEAVING THE PROGRAMMING MODE	4
4 save and exit from programming mode no exit from programming mode without saving Press F to confirm. After exiting, the display indicates the status of the automation system: 00 = Closed 01 = Open 02 = Stationary then opens 03 = Stationary then closes 04 = Pausing 05 = Opening 06 = Closing 07 = Failsafe in progress 08 = Check of BUS 2easy device in progress 09 = Pre-flashing and then opens 10 = Pre-flashing and then closes 11 = Opening in emergency	

6 Default speed

	cF 01	cF 02	cF 03
S _o	10	06	02
S _c	08	04	02

7 Advanced programming

Advanced function	Default
PF PRE-FLASHING	no
no disabled 0C preflashing 3 sec. before each movement	
F0 DRIVING FORCE ON OPENING	50
01 minimum power 50 maximum power	
FC DRIVING FORCE ON CLOSURE	50
01 minimum power 50 maximum power	
SP STOP INPUT CONFIGURATION	00
It defines the function of the STOP input	
00 (STOP) Stop 02 (FSW-CL) Closure photoelectric cell	
t OPERATING TIME (time-out)	5.0
Set a higher value than the time the barrier needs to open/close completely.	
This can be adjusted from 0 to 59 secs. in 1 sec steps. Afterwards, the display changes in minutes and tens of seconds (separated by a dot) and the time is adjusted in 10 sec. steps, up to a maximum value of 9.5 minutes.	
E.g.: if the display indicates 2.5, the pause time is 2 min and 50 sec.	
 In the case of a application with a Master/Slave configuration the operating time must be set on the Master central control unit that takes account of the movement of both the barriers.	
o1 OUT OUTPUT 1 CONFIGURATION	00
00 Always active 01 failsafe 02 telltale light (on during opening/pause/open, flashing on closure, off when closed) 03 courtesy light 05 barrier open or in pause mode 06 barrier closed 07 barrier moving 08 barrier in emergency mode 09 barrier opening 10 barrier closing 12 safety device active 13 light column (active in pause mode/open, turns off on closure) 15 step by step activation through second radio channel 19 battery operation 20 Loop1 engaged 21 Loop2 engaged	

Advanced function	Default
<p>P1 OUT OUTPUT 1 POLARITY</p> <p> <input type="checkbox"/> NC output <input type="checkbox"/> NO output If output <input type="checkbox"/> = <input type="checkbox"/> (Fail-safe) configure P1 = <input type="checkbox"/>. </p>	<input type="checkbox"/>
o2 see o1	
P2 see P1	
o3 see o1	
P3 see P1	
o4 see o1	
P4 see P1	
<p>t0 OUT OUTPUT 1 TIMING</p> <p>(only displayed if one of the outputs is configured as courtesy light)</p> <p>This defines the timing of the output from 1 to 59 minutes in 1 minute steps.</p>	<input type="checkbox"/>
<p>bF BATTERY OPERATION</p> <p> <input type="checkbox"/> continues to function until completely dead <input type="checkbox"/> the barrier opens when the mains power is interrupted <input type="checkbox"/> the barrier closes when the mains power is interrupted </p>	<input type="checkbox"/>
<p>oS INTEGRATED flashing light OPERATING MODE</p> <p> <input type="checkbox"/> light column (steady green with barrier in pause mode/open, red flashing during movement, red steady with barrier closed) <input type="checkbox"/> flashing light (flashing red during movement, off in all other states) </p>	<input type="checkbox"/>
<p>bL ARM LIGHT OPERATIONAL MODE</p> <p> <input type="checkbox"/> lights on with barrier closed, off with barrier in pause mode/open, flashing during the movement <input type="checkbox"/> lights off with barrier in pause mode/open, flashing in all other states </p>	<input type="checkbox"/>
<p>AS MAINTENANCE REQUEST - CYCLE COUNTER (linked to the next two functions)</p> <p>This can be useful to set scheduled maintenance interventions.</p> <p> <input type="checkbox"/> Active <input type="checkbox"/> Excluded </p>	<input type="checkbox"/>
<p>nc CYCLE PROGRAMMING IN THOUSANDS</p> <p>This makes it possible to set a countdown of the plant operating cycles from 0 to 99 (thousands of cycles). The function can be used, in combination with <input type="checkbox"/>, to verify the use of the system and for the "Request for assistance"</p> <p><input type="checkbox"/>...<input type="checkbox"/> (thousands of cycles)</p>	<input type="checkbox"/>

Advanced function	Default
<p>nc CYCLE PROGRAMMING IN HUNDREDS OF THOUSANDS</p> <p>This makes it possible to set a countdown of the plant operating cycles from 0 to 99 (hundreds of thousands of cycles). The value displayed is updated as the cycles progress, integrating with the <input type="checkbox"/> value. (<input type="checkbox"/> decrease corresponds to 99 <input type="checkbox"/> decreases). The function can be used in combination with <input type="checkbox"/>, to verify plant use and for the "Request for Assistance".</p>	<input type="checkbox"/>
<p>SE AUTOMATION SYSTEM STATUS:</p> <p>See SE in the Basic programming</p>	<input type="checkbox"/>

6.2 OPERATING LOGICS



In all the logics:

- the STOP command has the priority and stops the automation system from working
- the EMERGENCY command has the priority and opens the automation system.

EP - SEMI-AUTOMATIC STEP BY STEP

The EP logic requires the use of just the OPEN command:

- OPEN when the barrier is closed, it commands the opening.
- OPEN when the barrier is open it commands the closing.
- OPEN during the movement it stops
- OPEN after the stop, it reverses in movement.



The CLOSE command always commands the closing.

P - AUTOMATIC

Logic P only requires the OPEN command:

- OPEN when the barrier is closed, it commands the opening. After the pause time, the barrier closes again automatically.
- OPEN when the barrier is open in pause mode, it reloads the pause time. (Even the intervention of the photocells reloads the pause time)
- OPEN during opening is ignored.
- OPEN during opening causes it to open again.



The CLOSE command always commands the closing.

PP - AUTOMATIC STEP-BY-STEP

The PP logic requires the use of just the OPEN command:

- OPEN when the barrier is closed, it commands the opening. After the pause time, the barrier closes again automatically.
- OPEN when the barrier is open in pause mode it locks. (Even the intervention of the photocells during the pause mode reloads the pause time)
- OPEN during the opening locks.
- OPEN during opening causes it to open again.



The CLOSE command always commands the closing.

b - SEMI-AUTOMATIC B

Logic b requires the use of the OPEN and CLOSE commands:

- OPEN when the barrier is closed, it commands the opening.
- CLOSE when the barrier is open it commands the closing.
- CLOSE during opening it causes reclosing.
- OPEN during opening causes it to open again.

bC - SEMIAUTOMATIC b ON OPENING/ PERSON PRESENT C ON CLOSING

bC logic requires the use of the OPEN command on opening and CLOSE maintained on closing. The activation of the CLOSE command on closing must be intentional and the barrier must be visible.

- OPEN when the barrier is closed, it commands the opening.
- Maintained CLOSE commands the closing.

C - DEAD-MAN

Logic C requires the use of maintained OPEN and CLOSE commands. The control must be activated intentionally and the barrier must be visible.

- Maintained OPEN commands the opening.
- Maintained CLOSE commands the closing.
- If the photocells are triggered, movement is stopped.

P - PARKING

Logic P requires the use of the OPEN and CLOSE commands:

- OPEN when the barrier is closed, it commands the opening.
- CLOSE when the barrier is open it commands the closing.
- CLOSE during opening it causes reclosing after opening.
- OPEN during opening causes it to open again.
- The triggering of the photocells during closing stops the movement, on disengagement the barrier continues to close.

PP - PARKING AUTOMATIC

Logic PP requires the OPEN and CLOSE commands to be used.

- OPEN when the barrier is closed, it commands the opening. After the pause time, the barrier closes again automatically.
- OPEN when the barrier is open in pause mode, it reloads the pause time. (Even the intervention of the photocells reloads the pause time)
- CLOSE when the barrier is open it commands the closing.
- CLOSE during opening it causes reclosing after opening.
- OPEN during opening causes it to open again.
- The triggering of the photocells during closing stops the movement, on disengagement the barrier continues to close.

6.3 SET-UP

The set-up procedure enables the limits positions to be memorised.

The system needs to be set-up:

- When the automation system is first started
- When the board has been replaced
- Each time the display shows \square flashing and the automation system does not work
- Following any variation in the position of the positive stops.

How to perform the set-up:



During the SET-UP, the safety devices are ignored, keep away and stop anyone from approaching the automation system until the end of the procedure



The SET-UP MUST be performed:

- with the mains power switched on
 - with the automation system functioning normally
 - with the STOP/EMER inputs not active
-

1. Select parameter E_L in Basic Programming, the display shows $- - :$
2. Keep the buttons pressed $+$ and $-$ about 3 seconds. When \square appears flashing, release the buttons. The arm begins to close and stops when it reaches the stop.
3. \square flashes on the display. The arm remains in the close position for a couple of seconds.
4. \square flashes on the display. The arm begins to open and stops when it reaches the stop.
5. The procedure has come to an end and the display shows the status of the open automation system (\square).

7. PUTTING INTO SERVICE

7.1 FINAL CHECKS

1. Check that the forces generated by the arm is less than 150 N. Check that the maximum force required to move the arm by hand is less than 220 N.
2. Check that the automation system is working properly with all the devices installed.

7.2 FINAL OPERATIONS

1. Install the top cover (see the relative section).
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. Exhibit the sign prohibiting foot traffic.

FIELD INSTALLED LABELS

Apply the supplied field install labels (see  38).



The indication of the RISK must be visible even with the arm closed.

Do not to perforate the box.

- Apply the sticker supplied with the warning against the risk of cutting, crushing or the loss of fingers or a hand between the arm and the body of the barrier.



8. ACCESSORIES



When working inside the enclosure there are risks of cutting, shearing, crushing hands due to the presence of moving parts. Until the installation is completed, the partially installed barrier must always be left locked and with the door and upper cover always closed to prevent access to the electronic parts and the moving mechanical parts.

Never install the arm before securing the barrier body and checking it. Until the installation is complete never leave the barrier unattended with the arm installed. Mark off the work site and prohibit access/transit. If installation is outside, it must be done in good weather without rain or gusts of wind. If it is raining, an adequate shelter for the barrier must be made until the mechanical and electronic installation is complete.

Never handle the barrier by holding the board support.

8.1 24V == FLASHING LIGHT

The flashing light indicates that the automation is moving.



Install the flashing light in an easily visible position.

1. (🔧 39) Connect the flashing light to terminal block J16 (3 W max).
2. If required, set the preflash (PF Advanced programming)
3. Check that the device is working properly.

8.2 XF RADIO MODULE

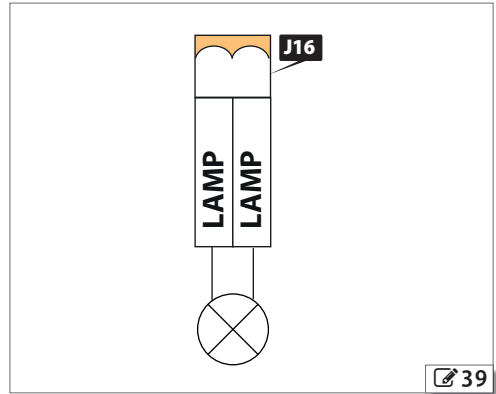
The E614 is equipped with an OMNIDEC integrated two channel decoding system that can program, via the XF radio module, the FAAC radio controls transmitters codes



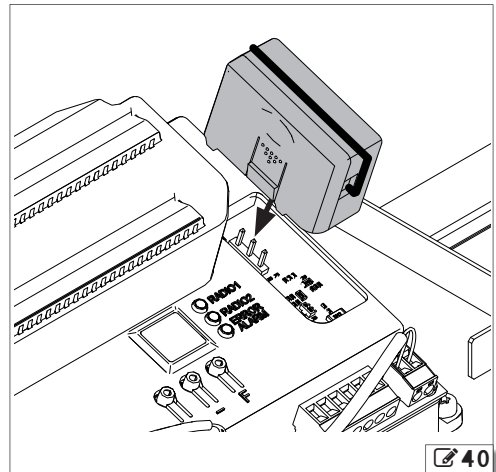
A maximum of 256 codes can be stored. The stored codes act as an OPEN or CLOSE command. The radio controls and the XF radio module must have the same frequency.

When storing the codes, keep the radio control approximately 3 ft (1m) from the XF radio module.

1. (🔧 40) Insert the XF radio module in the connector J3 paying attention to the insertion direction.
2. Store the radio controls.



🔧 39



🔧 40

LC/RC - STORE THE FIRST RADIO CONTROL

1. Press and keep pressed the + key (OPEN programming) or - (CLOSE programming). After pressing the button for about 5 seconds, the corresponding radio LED (DL4 or DL5) will start to flash to indicate that the radio code learning phase has started.
2. Release the button, from this moment E614 stays in the learning phase for around 20 secs.
3. Make sure that the LED DL4 or DL5 on the board is still flashing and press the button of the LC/RC radio control that you wish to store for a few seconds (the LED becomes steady). The LED (DL4 or DL5) on the board goes on as a steady light for 1 sec to then start flashing again for another 20 seconds during which it is possible to store another radio control.
4. To store additional radio controls at a later stage, repeat the procedure from the beginning or carry out the remote code storing procedure.

LC/RC - REMOTE CODE STORING PROCEDURE

Additional radio controls can be stored remotely, i.e. without having to use the board directly, by using a radio control that has already been memorised.

1. Near the E614 press buttons P1 and P2 if the radio control already memorised (as OPEN or CLOSE at the same time). The LED of the radio control and LED DL4 or DL5 of the board begin to flash for 5 secs.
2. Release both the buttons then press the button already stored within five seconds. From this moment E614 stays in the learning phase for around 20 secs.
3. Make sure that the LED DL4 or DL5 on the board is still flashing and press the button of the radio control that you wish to memorise. The LED (DL4 or DL5) on the board goes on as a steady light for 2 sec to then start flashing again for another 20 seconds during which it is possible to store another radio control.
4. Wait for LED DL4 or DL5 on the board to turn off before using the new radio control.

DELETING RADIO CONTROLS FROM MEMORY



This procedure cannot be reversed and erases ALL the codes of the radio controls stored both as OPEN and as CLOSE. The erasing procedure is only active in the barrier status display mode.

1. Press and hold down the - button.



- After holding the button down for approx 5 seconds LED DL5 begins to flash slowly, after another 5 seconds flashing slowly and pressure maintained LEDs DL4 and DL5 begin to flash more quickly (beginning erase).
- At the end of the rapid flashing LEDs DL4 and DL5 come on and remain steady to confirm the successful erasing of all the (OPEN and CLOSE) radio codes in the board.

2. Release the - button. The LEDs turn off, indicating that the codes were erased correctly.



8.3 BUS 2EASY DEVICES

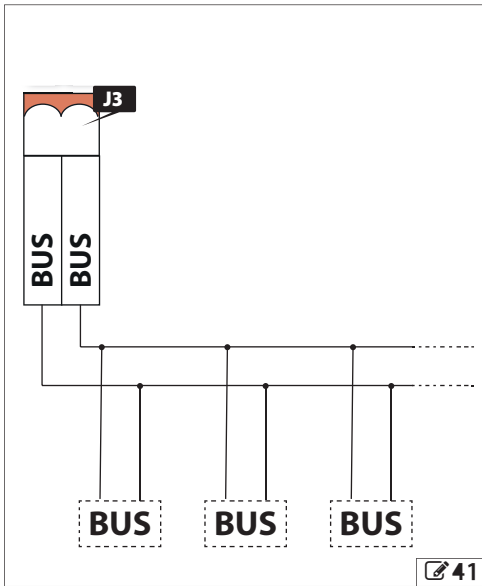
This board has a BUS 2easy circuit for connecting BUS 2easy devices (photocells, control devices).

i If no BUS 2easy accessories are used, leave the BUS 2easy connector free. Do not bridge.

CONNECTION

41 Connecting any devices BUS 2easy (photocells and command devices) to terminal J3.

i The overall length of the BUS 2easy cables must not exceed 100 m.
The BUS line does not require a matching polarity connection.



BUS 2EASY PHOTOCELLS

Type of use:

Closing photo-cells	Active during closing	When an obstacle is detected, they stop the arm and re-open it.
---------------------	-----------------------	---

Photocells used as pulse generators	Always active	When an obstacle is detected, they send an OPEN command
-------------------------------------	---------------	---

1. Assign an address to the BUS 2easy photocells.

8 Orienting the photocells

1 0 0 0	
1 0 0 1	
1 0 1 0	
1 0 1 1	
1 1 0 0	
1 1 1 0	
1 1 1 1	
1 1 1 1	

Assign an address to each pair of photocells by setting the four DIP switches (DS1) on the transmitter and the corresponding receiver.

i The transmitter and receiver of a pair of photocells must have the same DIP switch settings.
There must never be two or more pairs of photocells with the same DIP switch settings. If there is more than one pair of photocells with the same address, a conflict error is generated.

2. Register the BUS 2easy photocells (Basic programming).
3. Check the status of LEDs DL3 and DL7.
4. Check that the photocells are operating correctly. When the arm is moving, interrupt it with an obstacle and check the LEDs on the photocells, the status of the bus on the display and the automation system operate according to the type of photocell installed.

CONTROL DEVICES

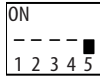
1. Position the DIP switches to assign the commands.

i Stop NC also generates a stop when the device is disconnected. A command (e.g.: OPEN A_1) must be used on only one of the connected devices.

9 Addressing control devices

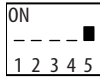
0 0 0 0	Open A_1
0 0 0 1	Open A_2
0 0 1 0	Open A_3
0 0 1 1	Open A_4
0 1 0 0	Open A_5
0 1 0 1	Stop
0 1 1 0	Stop NC_1
0 1 1 1	Stop NC_2
1 0 0 0	Close
1 0 0 1	Open B_1
1 0 1 0	Open B_2
1 0 1 1	Open B_3
1 1 0 0	Open B_4
1 1 0 1	Open B_5
1 1 1 0	/
1 1 1 1	/

1 command
DIP switch 5 = 0 (OFF)



0 0 0 0	Open A_1	Open B_1
0 0 0 1	Open A_1	Open B_2
0 0 1 0	Open A_1	Stop
0 0 1 1	Open A_1	Close
0 1 0 0	Open A_2	Open B_1
0 1 0 1	Open A_2	Open B_2
0 1 1 0	Open A_2	Stop
0 1 1 1	Open A_2	Close
1 0 0 0	Open A_3	Open B_3
1 0 0 1	Open A_3	Open B_4
1 0 1 0	Open A_3	StopNC_1
1 0 1 1	Open A_3	Close
1 1 0 0	Open A_4	Open B_3
1 1 0 1	Open A_4	Open B_4
1 1 1 0	Open A_4	StopNC_2
1 1 1 1	Open A_4	Close

2 commands
DIP switch 5 = 1 (ON)



1. Register the BUS 2easy control devices (b Basic programming).
2. Check the status of LEDs DL3 and DL7 (9).
3. Check that the devices are working properly. Use the controls to make the arm move. Check the LEDs on the devices, the status of the bus on the display and make sure that the automation system operates according to the type of device installed.

BUS 2EASY DEVICE REGISTRATION

Registration is required:

- When the automation system is first started or after the board has been replaced.
- Following any changes (addition, replacement or removal) to the BUS 2easy devices.

Registration procedure:

1. Select parameter b in basic programming. When F is released, the display shows the status of the BUS 2easy devices (9).
2. Press and hold the + and - buttons simultaneously for at least 5 seconds until 3 appears (the display flashes during this time). Registration has been completed.
3. Release the + and - buttons. The display shows the status of the BUS 2easy devices
4. Check the status of the LEDs on the board:

LED DL7 (Red) - BUS 2easy devices

- At least one device is engaged/active
- No device is engaged/active

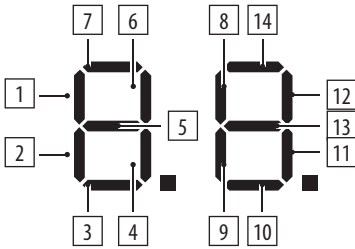
LED DL3 (Green) - BUS 2easy line

- Line monitoring. LED always on (off with board in Sleep mode)
- Line short-circuited
- Device error: check the ERROR LED

Registered device verification procedure:

1. Select parameter b in basic programming. After registering one or more devices, b displays segment 13 on.
2. Press and hold the + button and keep it pressed; the segments relative to the registered devices will come on. Each segment of the display corresponds to a type of device:

1	Open A control device
2	Open B control device
3	Closing photocells
4	Photocells for Open impulse
5	Not used
6	Close control device
7	Not used
8	Stop control device
9	Not used
10	Not used
11	Not used
12	Not used
13	BUS 2easy status
14	Not used



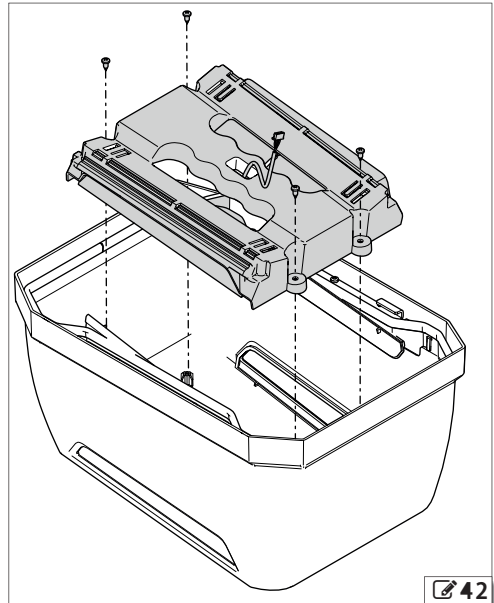
no	No device registered
cc	BUS 2easy line short-circuited
E-	BUS 2easy line error

8.4 RECTANGULAR ARM LIGHT KIT

Follow the assembly instructions provided with the product following all the safety precautions indicated in this manual.

8.5 INTEGRATED FLASHING LIGHT

1. Open the upper cover.
2. Fasten the flashing light with the screws provided (🔩 42).
3. Connect the flashing light to terminal J21.
4. Set the operating mode (no in Advanced programming).
5. Close the upper cover.
6. Check that the device is working properly.



8.6 ARTICULATED ARM KIT

Follow the assembly instructions provided with the product following all the safety precautions indicated in this manual.

- !** The installation of an articulated arm must take the specific risks into consideration:
- IMPACT on the horizontal section of the arm, when the arm is open
 - CRUSHING in the jointed area, when the arm is moving.
 - Do not use joint to limit the height of the vehicles passing.
 - Indicate the maximum height of the vehicles considering the height of the arm itself.
 - Apply a danger of crushing sticker on the arm in the jointed area.
 - Check the integrity of the wire during the half-yearly scheduled maintenance.


8.7 SKIRT


Follow the assembly instructions provided with the product respecting all the safety precautions indicated in this manual.

-  Check the mounting with the indicated tightening torque.

8.8 FOOT


Follow the assembly instructions provided with the product following all the safety precautions indicated in this manual.

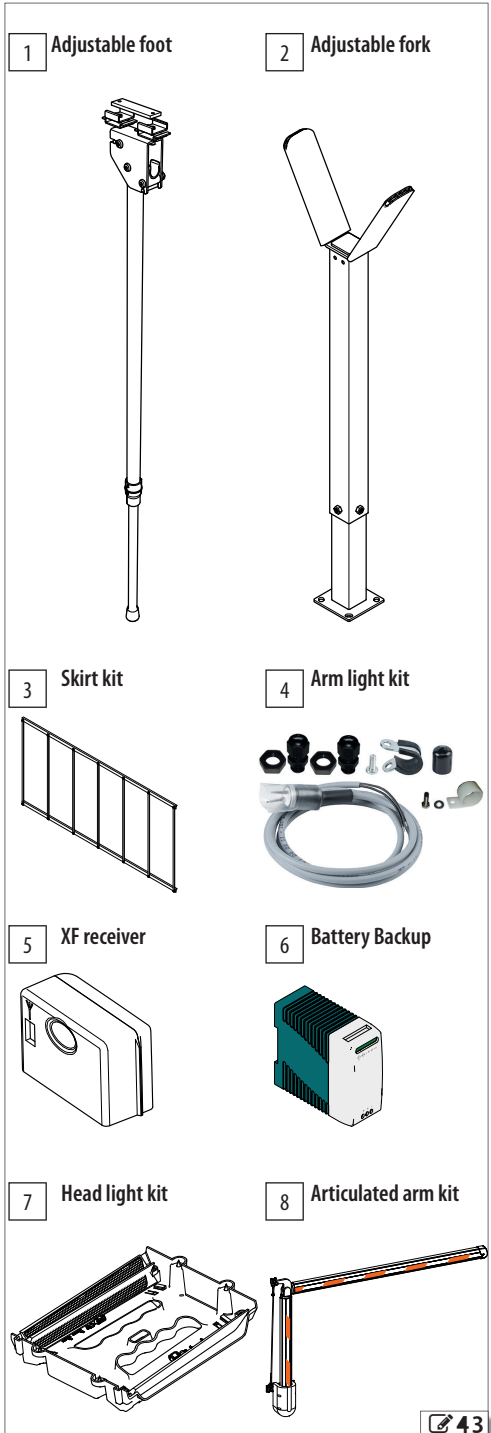
-  - Check the mounting with the indicated tightening torque.
- Check the lower protection is present and is in good condition.
- You should install an audio alarm or similar to indicate the arm is closing.

-  On the rectangular arm, it is not possible to install the foot when there are lights on the arm.


8.9 FORK

Follow the assembly instructions provided with the product respecting all the safety precautions indicated in this manual.

-  - Check the mounting with the indicated tightening torque.
- Provide for a clearance area or signals to prevent pedestrians being knocked. The area must be adequately lit.



9. MASTER-SLAVE


 **44**) The Master-Slave configuration makes it possible to install two opposing barriers with synchronous movement.

When programming one barrier must be defined as Master and the other as Slave. The Master barrier manages all the controls and movements.

The control devices and any external loops must be connected to the Master barrier.

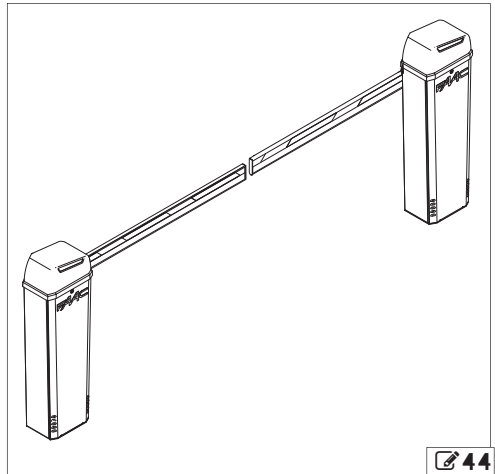
Each barrier must be programmed on the basis of the length and configuration of the arm. The functioning logic must only be programmed on the Master board. The anticrushing function is active on each barrier and commands the inversion of both.

CONNECTION

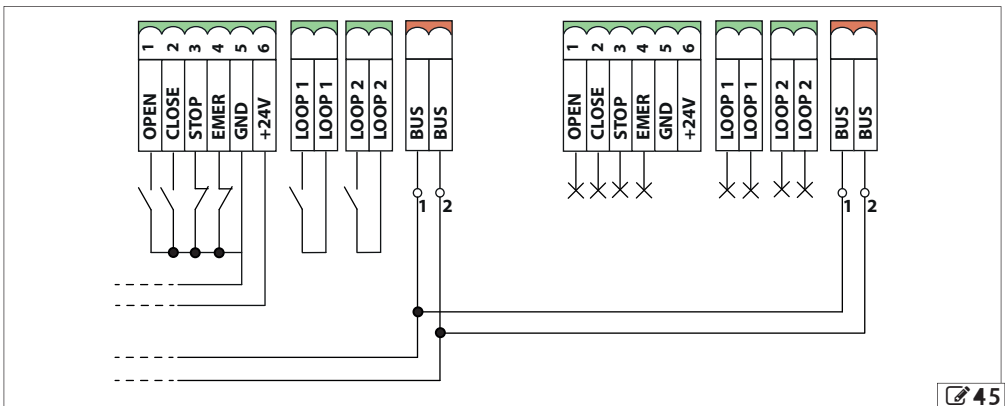
1. Connect the barrier with BUS 2easy polarised connection  **45**).
2. Connect the devices (see the chapter § 5.2). The inputs for the command devices and any external loop are inhibited on the Slave board.

Connections	Master	Slave
Power supply	✓	✓
Motor	✓	✓
Encoder	✓	✓
Head lighting	✓	✓
Arm lights	✓	✓
Control devices	✓	✗
Loop	✓	✗
Outputs	✓	✓
Flashing light	✓	✓

3. The BUS 2easy devices can be connected to the Master or to the Slave board. The devices must be registered on the Master barrier.



 **44**



 **45**

SLAVE BARRIER CONFIGURATION

1. Power Slave barrier. The board turns on. The display reads in sequence:
 - firmware version (2 digits separated by a point)
 - \square flashing if a set-up or the automation status is requested
2. Access the Basic programming and set:
 - cF depending on the arm configuration and length
 - $\text{CL}=\text{SL}$ for configuring the board as Slave.
3. Check the status of the LEDs on the board:

LED DL7 (Red)



Master-Slave synchronisation absent or the line is short circuited.

LED DL3 (Green)



Master-Slave synchronisation present.

4. Check the direction of travel (see the chapter § 10.2). The barrier must not be in manual functioning mode.
5. Start up (see the chapter § 6).



During the set-up the Master board controls the Slave board and the two arms move with a synchronous movement.

10. DIAGNOSTICS

10.1 LEDS CHECK

LED	STATUS	IDLE
DL1 BUS	● active ○ not active	○
DL2 BUS MON	See BUS 2easy device registration	●
DL3 RADIO1	● active ○ not active	○
DL4 RADIO2	● active ○ not active	○
DL5 Error/alarm "ERROR"	● active ○ not active	○
DL8 EMER	● not active ○ active	●
DL9 STOP	● not active ○ active	●
DL10 CLOSE	● active ○ not active	○
DL11 OPEN	○	○
DL12 LOOP1	● active ○ not active	○
DL13 LOOP2	● active ○ not active	○



In Master-Slave configuration see the chapter § 9.

10.2 DIRECTION OF MOVEMENT CHECK

1. Select parameter \overline{M} in the Basic programming. The display shows --.
2. Keep the + button pressed. The display shows $\square P$ and the barrier opens.
3. Keep the - button pressed. The display shows $\square L$ and the barrier closes.
4. If the conditions in points 2 and 3 are not respected, invert the motor wires.

10.3 ENCODER OPERATION CHECK

1. Select parameter \overline{M} in Basic Programming, the display shows --.
2. Keep the + button pressed. The display shows $\square P$ and the barrier opens. The flashing point between the two letters indicates that the encoder is operating correctly.
3. Keep the - button pressed. The display shows $\square L$ and the barrier closes. The flashing point between the two letters indicates that the encoder is operating correctly.

10.4 AUTOMATION SYSTEM STATUS CHECK

The E614 display if not in the programming, shows a code indicating the status the automation is in:

$\square \square$	Closed
$\square 1$	Open
$\square 2$	Stationary then opens
$\square 3$	Stationary then closes
$\square 4$	In pause mode
$\square 5$	Opening
$\square 6$	Closing
$\square 7$	Failsafe in progress
$\square 8$	BUS 2easy device verification in progress
$\square 9$	Pre-flashing and then opens
$\square 0$	Pre-flashing and then closes
$\square \square$	Opening in Emergency

10.5 CHECK FIRMWARE VERSION

When the display of the E614 is switched on, it shows the following in succession:

- firmware version (2 digits separated by a point)
- automation system status

10.6 CHECK OF THE REGISTERED BUS 2EASY DEVICES

1. Select parameter BU in Basic programming.
2. Press and hold the + button; the segments relative to the registered devices will light up (see 48).

11. MAINTENANCE



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.

Do not remove the board cover. No maintenance requires the removal of the cover.



The barrier must not be left released. If the barrier is put out of order for a long time, the arm needs to be removed.

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 cleared after maintenance has been completed.

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 that have been modified or otherwise tampered with.



The warranty shall be forfeited in the event of tampering with components.

Only use original FAAC spare parts.

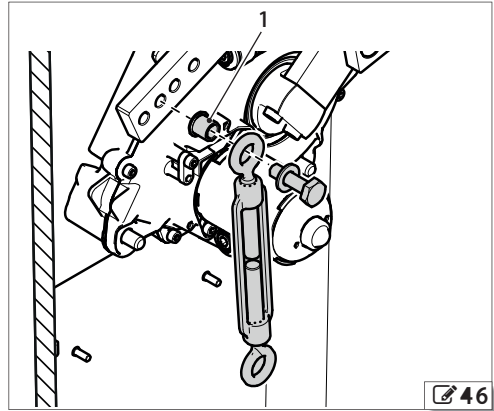
11.1 ROUTINE MAINTENANCE

The Routine maintenance lists, purely for guidance which is not intended to be exhaustive, the operations which must be performed on a regular basis to keep the automation system safe and in good working order (see  Routine maintenance).

Repair or restoration is necessary if the tests listed in Routine Maintenance turn up conditions that are other than expected. The barrier must not be put back into operation until all specified safety precautions have been complied with.

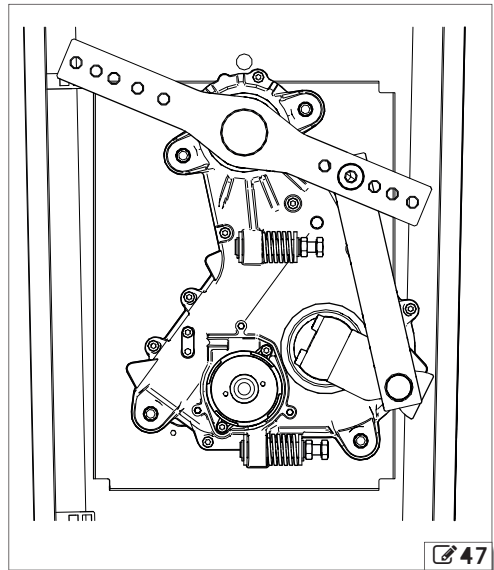
11.2 REPLACING THE SPRING AND FLANGED BUSHING

1. Release the arm.
2. Lift it completely vertically.
3. Re-lock it.
4. (🔧 46) Lengthen the turnbuckle by manually unscrewing it, then remove the spring.
5. Loosen the screw to remove the flanged bushing (1) and replace it. Fix the turnbuckle in the appropriate hole with the new flanged bushing, the screw and washer.
6. Mount the new spring.
7. Balance the arm.



11.3 REPLACING THE GEARMOTOR

1. Release the arm.
2. Lift it completely vertically.
3. Re-lock it.
4. Lengthen the turnbuckle by manually unscrewing it, then remove the spring.
5. Release the arm again and bring it in horizontal position.
6. Remove the arm.
7. Position the rocker arm as shown in the figure (🔧 47).
8. Re-lock the arm.
9. Remove the C-clip ring on the drive shaft.
10. Unscrew the 4 nuts and remove the washers.
11. Remove the gearmotor
12. Remove the electric motor, taking care not to damage its cable.
13. Install the electric motor onto the new gearmotor and follow the procedure in reverse.



11.4 FUSE REPLACEMENT

1. (🔧 48) Remove the fuse F1 cover by gently pry it off with a screwdriver.
2. Remove the fuse
3. Plug in the new fuse.
4. Replace the fuse cover.

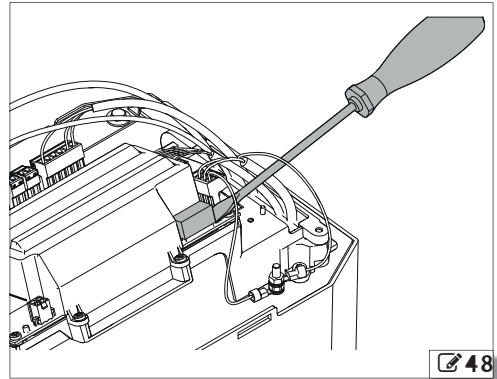


Only use a TSA UL approved (delayed) fuse.

11.5 OPERATIONAL PROBLEMS

🔧 10 Troubleshooting

CONDITION	FINDING SOLUTIONS
The barrier does not perform the SET-UP	check the automation is not released check there is power
The barrier does NOT OPEN	check the motor and encoder connection
The barrier CLOSES rather than OPENING and vice versa.	invert the phases in the motor connection and perform a SET-UP
The barrier makes very slow movements	check the force set check the balancing of the arm check the parameter cF has been set in accordance with the arm length if the barrier is being battery operated make sure the battery is charged.
The barrier moves irregularly	check the motor connection and make sure that the encoder is working correctly
The barrier does NOT OPEN	check the automation is not released check the motor direction of travel
The barrier does NOT CLOSE	check the automation is not released check the motor direction of travel Check the LED status of the controls, loops, safety devices and EMER are not active
The barrier does NOT OPEN and does NOT CLOSE	check the automation is not released Check the status of the STOP LED is not active check the motor and encoder connection



🔧 48

12. INSTRUCTIONS FOR USE



The installer must provide the owner/operator of the automation with the with the maintenance schedule and the user instructions of the automation.

The installer must inform the owner/operator of any residual risks and the intended use and ways in which the machine should not be used.

The owner is responsible for operating the automation and must:

- comply with all User instructions provided by the installer/maintenance technician and the Safety recommendations
- keep the user instructions
- have the maintenance schedule implemented

12.1 SAFETY RECOMMENDATIONS

The B614 operator is intended to control vehicular traffic.



- Do not use the automation when the area of operation is not free of persons, animals or objects.
- Do not remain in or walk/drive through the area of operation of the automation while it is moving.
- Do not allow children to approach or play in the area of operation of the automation.
- Do not try to prevent the movement of the automation.
- Do not climb or catch on to the arm or let yourself be pulled by it.
- Do not allow the devices to be used by anyone who is not specifically authorised and trained to do so.
- Do not use the automation in the presence of faults which could compromise safety.
- Do not expose the automation system to corrosive chemical or atmospheric agents; do not expose the automation to water jets of any type or size.
- Do not perform any work on the components of the automation.

Risk of cutting, crushing or losing fingers or a hand between the arm and the box. Do not approach the barrier, do not put your hands in the danger area during movement.

12.2 EMERGENCY USE

In emergencies or if there is a fault, turn off the power supply to the automation and disconnect the backup batteries if there are any. If the arm can be moved safely by hand, use the MANUAL OPERATION mode; otherwise place the automation out of service until it has been reset/repaired.

In the case of a breakdown, the automation must be reset/repaired exclusively by the installer/maintenance technician.



For atmospheric events outside the resistance to wind limits indicated in the table in alert situations it is necessary to put the barrier out of service with closed, locked arm and request the assistance of the installation engineer to remove the arm.


12.3 MANUAL OPERATION



- Unlock the barrier only when no electrical power is applied.
- Unlock the barrier only when the arm is at a standstill.
- During manual handling, accompany the arm slowly for the entire stroke. Do not let the arm travel freely.
- Do not leave the barrier unblocked: after carrying out the manual movement, restore automatic operation.


WARNING: The arm could come down unexpectedly after being released. Always make sure that the area underneath the arm is clear of objects or people before operating the manual release key.

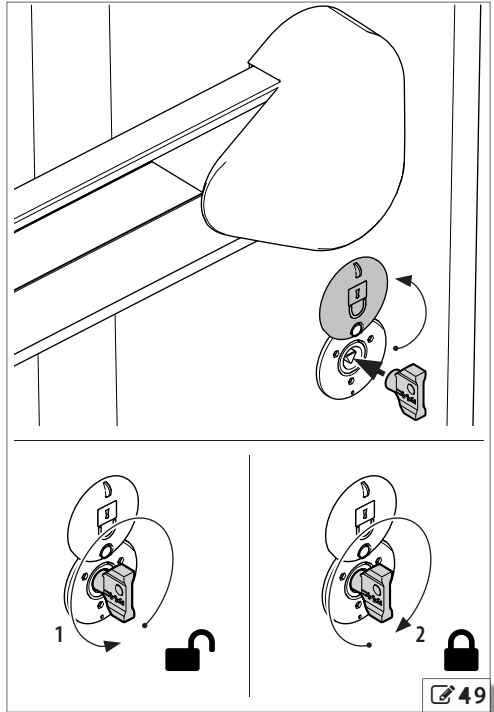
RELEASE PROCEDURE

1.  **49** Open the lock cover. Insert the key and turn it once anticlockwise until it stops (1).
2. Move the barrier manually.
3. Restore the operation.

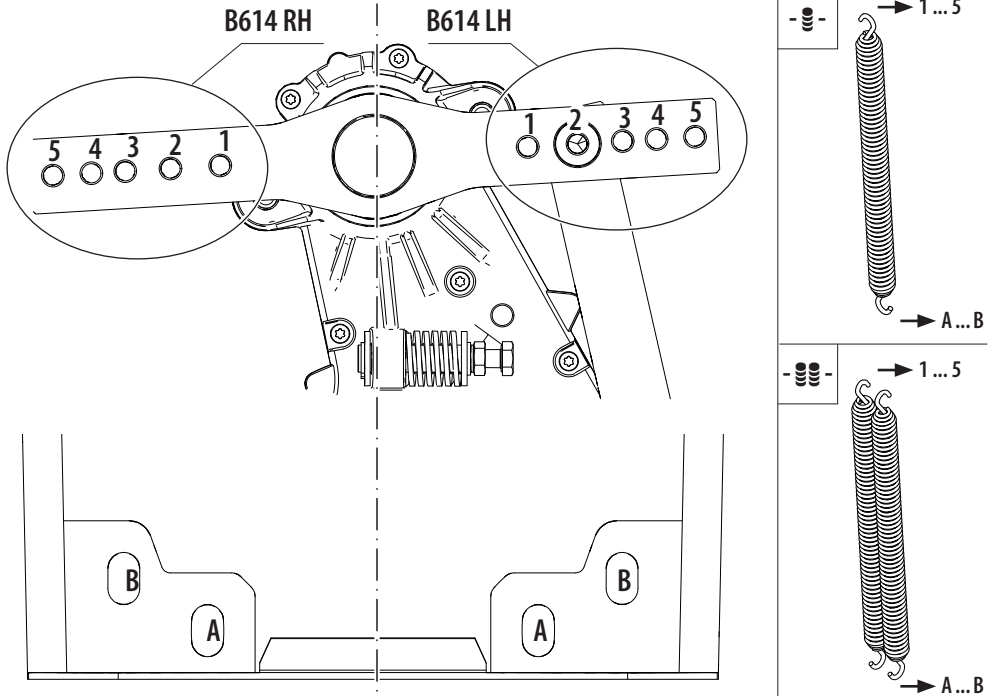


RESTORE NORMAL OPERATION

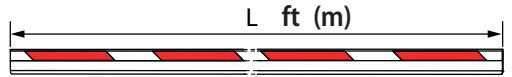
1.  **49** Insert the key and turn it twice clockwise until it stops (2).
2. Check that manual movement is inhibited.
3. Remove the key and close the cover.



2 Balancing system



11 Rectangular arm balancing



L ft (m)	min	6.07 (1.85)	8.03 (2.45)	9.83 (3.00)	11.47 (3.50)	
	max	8.02 (2.44)	9.82 (2.99)	11.46 (3.49)	12.5 (3.81)	
arm (no accessory)	☺ 1 B	☺ 2 B	☺ 3 A	☺ 4 A		
L ft (m)	min	5.91 (1.80)	7.70 (2.35)	9.50 (2.90)	10.98 (3.35)	
	max	7.69 (2.34)	9.49 (2.89)	10.97 (3.34)	12.45 (3.79)	
arm and lights	☺ 1 B	☺ 2 B	☺ 3 A	☺ 4 A		
L ft (m)	min	5.41 (1.65)	7.21 (2.20)	8.85 (2.70)	10.16 (3.10)	11.47 (3.50)
	max	7.20 (2.19)	8.84 (2.69)	10.15 (3.09)	11.46 (3.49)	12.48 (3.80)
arm and skirt	☺ 1 B	☺ 2 B	☺ 3 A	☺ 4 A	☺ 5 A	
L ft (m)	min	4.43 (1.35)	6.22 (1.90)	8.03 (2.45)	9.50 (2.90)	10.98 (3.35)
	max	6.21 (1.89)	8.02 (2.44)	9.49 (2.89)	10.97 (3.34)	12.15 (3.70)
arm and foot	☺ 1 B	☺ 2 B	☺ 3 A	☺ 4 A	☺ 5 A	
L ft (m)	min	5.74 (1.75)	7.37 (2.25)	8.68 (2.65)	10.00 (3.05)	11.01 (3.36)
	max	7.36 (2.24)	8.67 (2.64)	9.98 (3.04)	11.00 (3.35)	12.5 (3.81)
arm, skirt and foot	☺ 2 A	☺ 3 A	☺ 4 A	☺ 5 A	☺☺ 3 A	

 **3 Routine maintenance**



Make sure that the power is OFF before performing any maintenance on the Barrier Gate Operator. Disconnect the battery if installed.

Spring replacing

if regular arm: every 500,000 cycles

if arm with skirt or foot: every 300,000 cycles

Maintenance Tasks every 6 months

Barrier

Check the mechanical connection between the enclosure and the foundation plate.

Check the presence and integrity of the reflectors on the arm and all the other signs and markings necessary.

Photocells

Check condition, fastening and correct operation.

Check the posts, ensuring that they are intact, correctly fastened and free of deformation etc.

Skirt

Check: the integrity and mounting of the arm.

Foot

Check: the integrity and mounting of the arm.

Check the presence and integrity of the reflectors on the foot and all the other signs and markings necessary.

Check the presence and integrity of the lower foot guard.

Fork

Check that they are intact and correctly fastened.

Check the presence and integrity of all the signs and markings necessary.

Articulated arm

Check that they are intact and correctly fastened.

Check the integrity of the wire and the relative signs (max height allowed, risk of crushing in the arm joint).

Complete automation system

Check the correct functioning of the manual release: when the release is activated it must only be possible to move the arm manually. Check the presence of the lock cover.

Check that the maximum force required to move the arm by hand is less than 220 N.

Check that the encoder is working properly.

Check that each pair of photocells is working correctly.

Check there is no optical/light interference between the photocells.

Maintenance Tasks every 12 months

Structures

Check the plinth and built/fenced parts around the automation system: make sure there is no damage, cracking, breaks or subsidence.

Check the area the arm moves in: make sure there are no objects/deposits that reduce the uncluttered safety areas and obstacles to the movement of the arm such as branches, overhead wires etc.

Ensure that there are no sharp protrusions which could represent a perforation or hooking hazard.

Barrier

Check the barrier and its fixings: integrity, absence of deformation, rust etc.

Check that screws and bolts are correctly tightened.

Check the condition of the arm and that it is fastened properly.

Check the integrity and proper mounting of the spring and tie rods.

Check the configuration and the balancing of the barrier.

Check the integrity, proper functioning and adjustment of the limits.

Check the integrity of all the cables, cable glands and junction boxes.

Check that the arm locks when not driven.

Clean the gearmotor and the bearing box.

Do a general cleaning of the barrier area.

Electronic equipment

Check the integrity of the upper cover and the plastic electronic board protection.

Check that the connectors and wiring are intact.

Check that the ground connections are intact.

Check that there are no signs of overheating, burning etc. of electronic components.

Check the operation of the circuit breaker and differential switch and of the main switch.

Control devices

Check that the installed devices and radio controls are in good condition and that they operate correctly.

Deformable edges

Check that they are intact and correctly fastened.

Flashing light

Check condition, fastening and correct operation.

Access control

Check the proper opening of the barrier only with proper input.

Complete automation system

Check that the automation operates correctly, following the set logic, when using the various control devices.

Check the proper fluid, smooth movement of the arm without strange noises.

Check the correct speed during opening and closing and the presence of the intended slow downs.

Check that all necessary signage and warnings are present, intact and legible.

Electrical Motor

Recommended maintenance at: 500,000 cycles

