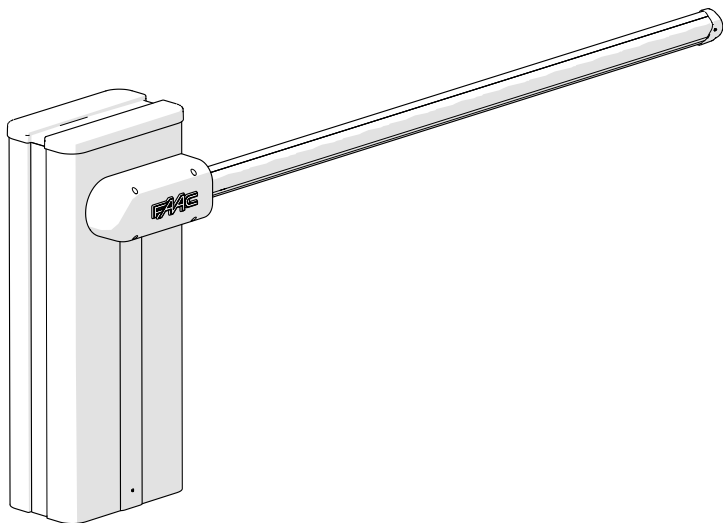


B680H



FAAC

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







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1. INTRODUCTION TO THIS INSTRUCTIONS MANUAL

This manual provides the correct procedures and requirements for installing B680H and maintaining it in a safe condition.

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

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

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

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

1.1 SAFETY WARNINGS FOR THE INSTALLER

Before starting, read and comply with the installation instructions and the "Safety warnings for the installer" booklet, supplied with the product.

1.2 MEANING OF THE SYMBOLS USED

NOTES AND WARNINGS ON THE INSTRUCTIONS



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




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

2. B680H

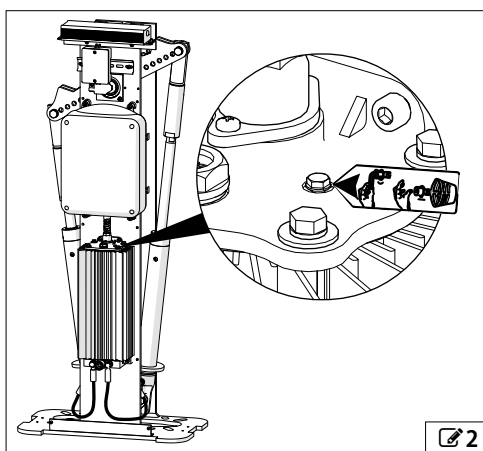
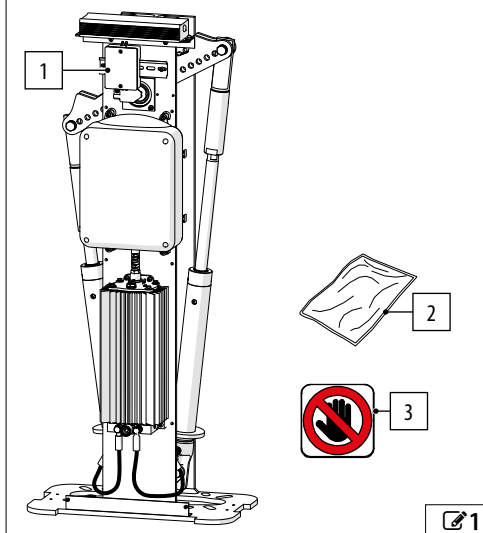
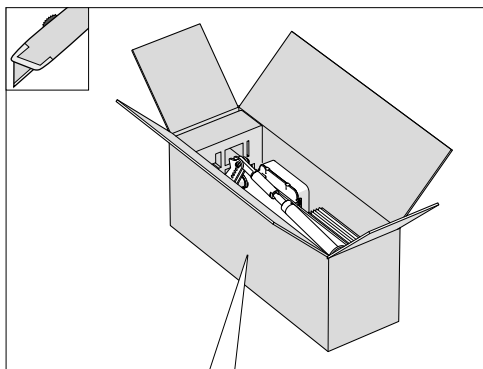
2.1 UNPACKING AND HANDLING

1. Carefully set the package down on the ground.
2. Cut the packaging in order to open it completely and remove all the packaging material.
3. Stand the barrier on the base.
4. Check that all components are present and intact (✍ 1):

- | | |
|---|--------------------------|
| 1 | B680H barrier body |
| 2 | Installation accessories |
| 3 | Hazard warning sticker |

CLOSE THE VENT HOLE WHEN HANDLING

The B680H is supplied with the vent hole closed with a screw and washer. When handling the barrier, the vent hole should be closed to prevent oil leaks (✍ 2).



2.2 PRODUCT IDENTIFICATION

The product is identified by the plate (3).

MARKINGS ON THE PRODUCT



Risk of electric shock from live parts. Located on the cover of the electronic equipment housing.



Indicates the screw to be removed before putting into service. Located next to the oil filler plug.



Risk of cutting, crushing or shearing of fingers or a hand between the beam and the barrier body. It must be placed on the trunk by the installation engineer.

FAAC **CE**

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Italy

Made in Italy
Designed in Italy


Cod.

Mod. **BARRIERA B680H**

MMYY **PROG**

..... V- Hz W

.... Nm IP



..... MMYPROG

Sale code

Product name

IDENTIFICATION NUMBER

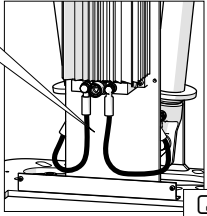
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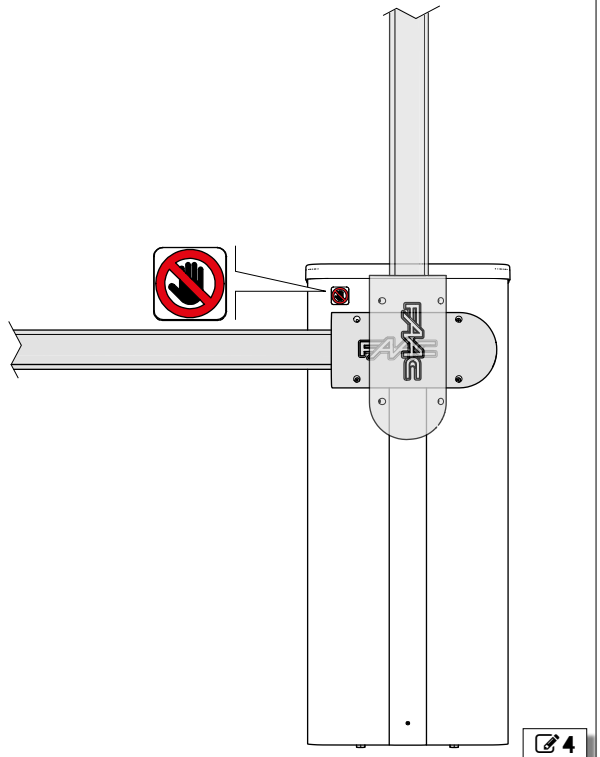
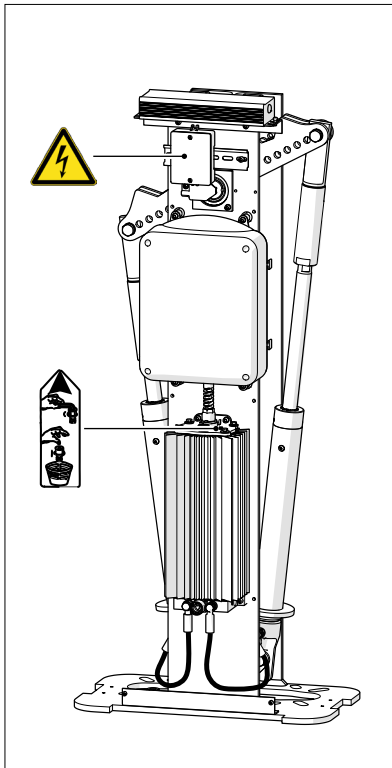
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3



2.3 INTENDED USE

The B680H barriers are designed for vehicle access control in residential buildings/apartment complexes / Industrial facilities / Car parks.

To move the beam manually, follow the instructions for manual functioning.

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.

2.4 LIMITATIONS OF USE

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

The B680H requires the use of a specific FAAC beam that conforms to the dimensions indicated in this manual. Only the FAAC accessories indicated in this manual should be installed on the beam.

The B680H requires the use of a FAAC spring that is adequate for counterbalancing the weight of the beam and the relative accessories.

The barriers with exclusively vehicle access control must be fitted with suitable visible signs prohibiting foot traffic. A separate route for foot traffic outside the range of the beam must be provided and properly indicated.

If foot traffic cannot be ruled out, the barrier falls within the scope of the EN 12453 standard.

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 § Emergency use). The limitations of use of the B680H in wind are detailed in table 4. Limits of use in relation to wind.

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.

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

2.5 UNAUTHORISED USE

- Uses other than the intended use are prohibited.
- It is prohibited to install the automation system outside of the limits specified in the Technical Data and Installation Requirements sections.
- It is forbidden to use B680H 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 in environments in which there is a risk of explosion and/or fire: the presence of flammable gases or fumes is a serious safety hazard (the product is not ATEX certified).
- It is prohibited to power the system with energy sources other than those specified.
- It is prohibited to integrate commercial systems and/or equipment other than those specified, or use them for purposes not 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 beams 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 beam 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.
- Do not allow the control devices to be used by children or persons with mental and physical deficiencies unless they are supervised by an adult who is responsible for their safety.
- During manual handling, accompany the beam slowly for the entire stroke. Do not let the beam travel freely.

2.6 EMERGENCY USE

In emergencies or if there is a fault, turn off the power supply to the automation and disconnect the buffer batteries if there are any. If the beam 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.

2.7 TECHNICAL SPECIFICATIONS B680H

The B680H is a hydraulic barrier with a self-supporting structure and an E680S electronic board. The following components (supplied separately) are required for carrying out the installation:

- foundation plate
- external cabinet
- beam and relative beam bracket with balancing spring.

■ Barrier B680H RH/LH

The B680H barrier can be installed so that it closes to the right or left.

The opening direction of the barrier is defined by looking at it from the door side (🔗 5):

- **RH barrier** (right): the beam closes towards the right (in a clockwise direction)
- **LH barrier** (left): the beam closes towards the left (in an anticlockwise direction)

■ Oil-bath lubrication

Oil bath lubrication ensures silent operation, high heat dissipation and reduced wear.

■ Irreversible system

To allow manual operation, a release manoeuvre must be performed.

■ Absolute encoder

The encoder constantly detects the exact position of the beam and makes it possible to manage the end of stroke and slowdown positions stored in the setup.

■ Anti-crushing operation

The encoder allows the board to create the anti-crushing feature:

- the recognition of an obstacle during closure causes the movement to be reversed.

■ Adjustable limit switches

The barrier is fitted with adjustable mechanical opening and closing limit switches.

■ Balancing system

A type S or L FAAC balancing spring has to be used, according to the length of the beam installed.

i The balancing system is used to ensure the stability and control of the beam during movement and keep it operating properly over time.

■ Replaceable cabinet

The cabinet is not load-bearing and can therefore be replaced easily.

■ One-piece or modular beams

- one-piece or modular beam, two types: S or L
- pivoting round beam
- articulated round S beam

■ Indicator lights

Various types of indicator lights can be fitted to the barrier:

- flashing traffic light indicator integrated in the cabinet
- beam lights
- XLED external flashing light

■ Configurations

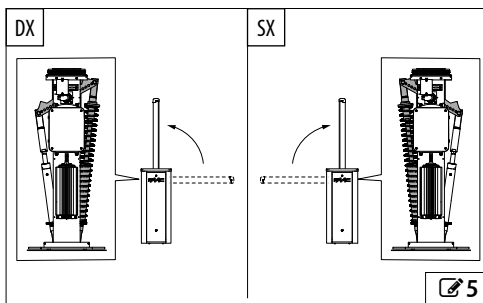
Different configurations can be obtained by using two B680H barriers:

- **Primary - Secondary configuration** (🔗 6-A)

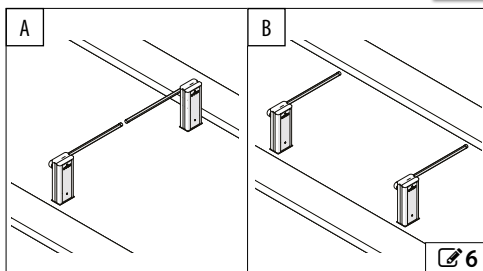
The Primary-Secondary configuration allows you to install two barriers that open in opposite directions.

- **Interlock configuration** (🔗 6-B)

The interlock function allows two barriers to be controlled where the opening of one is subject to the closing of the other.



🔗 5



🔗 6

FEATURES - ELECTRONIC BOARD E680S:

■ Switching power supply

The switching power supply reduces power consumption in stand-by mode, keeps the output voltage stable even in the event of fluctuations in the mains supply and works over a wide range of input voltages.

■ Display with programming buttons

There are three menus for programming from the board, via the display and dedicated buttons: BASIC, ADVANCED and EXPERT. The board is also designed to be programmed remotely via Simply Connect.


■ Simply Connect

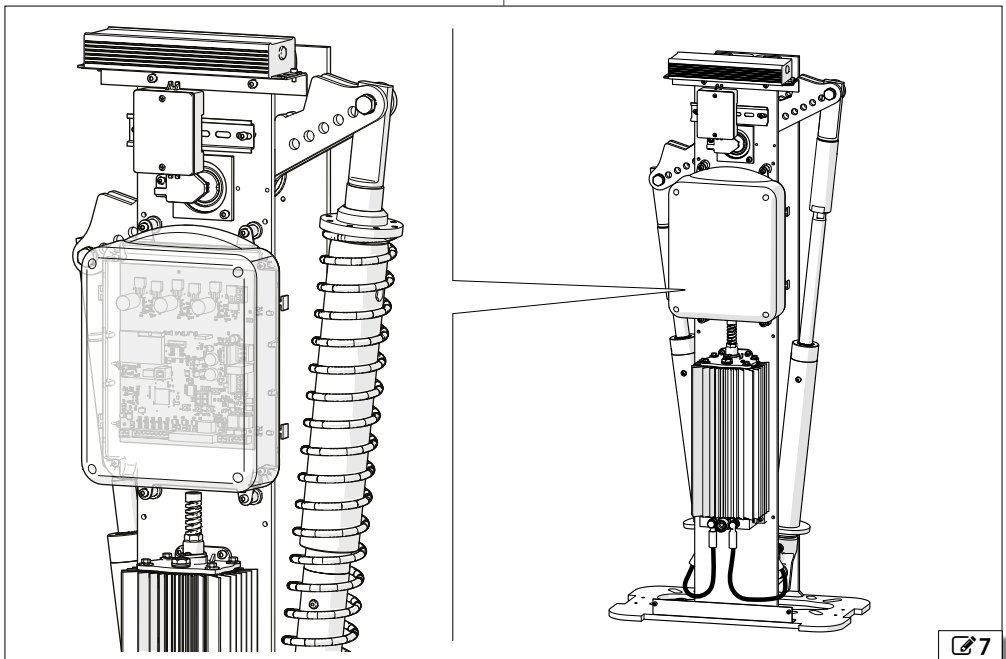
A cloud platform that allows remote communication with the automation, with specific modes for the installer or user. The Simply Connect system requires a connectivity module (accessory) to plug in to the electronic board, which is chosen according to the technology to be used (Wi-Fi, LAN, GSM).

■ BUS 2easy connection

FAAC BUS 2easy devices (photocells and control devices) can be connected.

■ 1 Technical data

B680H	
Power supply voltage	100-240 V~ 50/60 Hz
Electric motor	Brushless 36 V 
Max power	240 W
Speed	60°/s (S beam 2.3 m) - 15°/s (L beam 8.3 m)
Use frequency	Continuous use
Ambient operating temperature	-15 °C to +65 °C
Protection rating	IP 56
Dimensions (L x D x H)	469 x 279 x 1100 mm
Weight	70 kg
FAAC foundation plate	
Dimensions (L x H)	470 x 280 mm
FAAC beam	
Maximum length S beam	5.3 m
Maximum length L beam	8.3 m



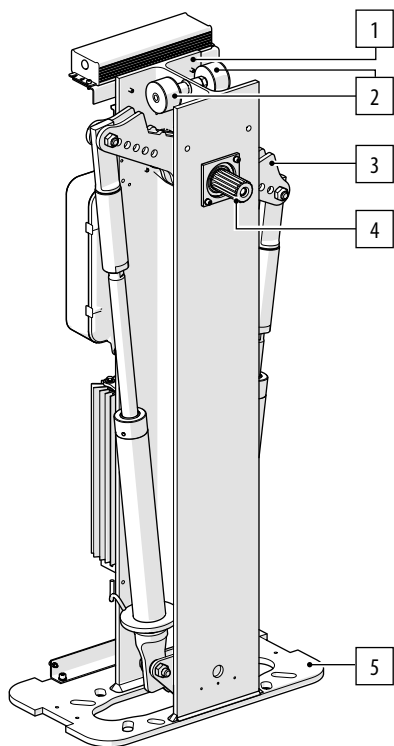
2.8 COMPONENT IDENTIFICATION

BARRIER BODY

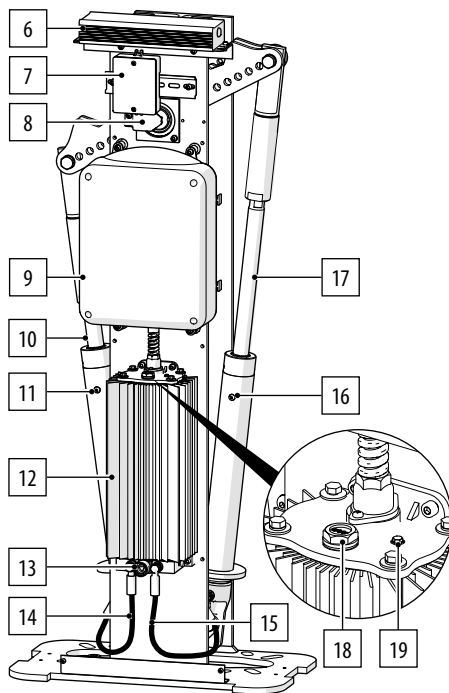
- 1 Support structure
- 2 Mechanical limit switches
- 3 Balancer
- 4 Drive shaft
- 5 Fixing plate
- 6 Switching power supply
- 7 Main power supply junction box
- 8 Absolute encoder
- 9 Electronic board enclosure

- 10 Plunger piston LH
- 11 Bleed screw - LH piston
- 12 Hydraulic control unit
- 13 Release lock
- 14 Hydraulic connecting hose LH
- 15 Hydraulic connecting hose RH
- 16 Bleed screw - RH piston
- 17 Plunger piston RH
- 18 Oil filler plug
- 19 Breather screw

B680H beam side

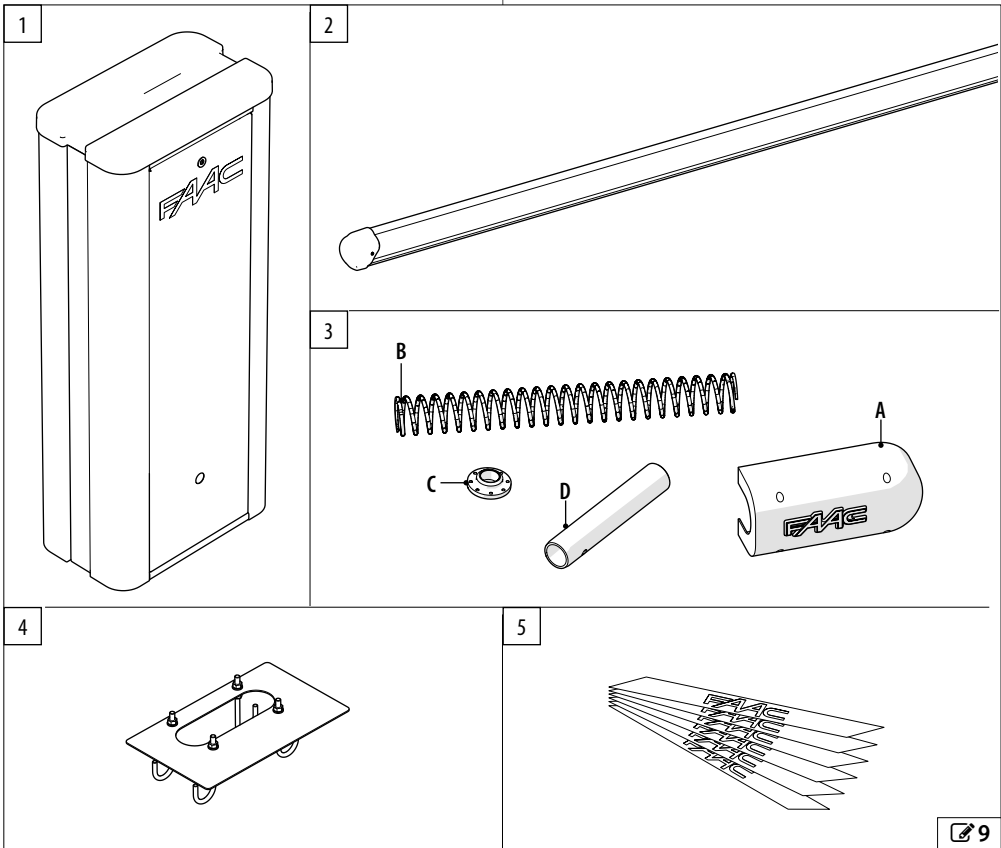


B680H door side

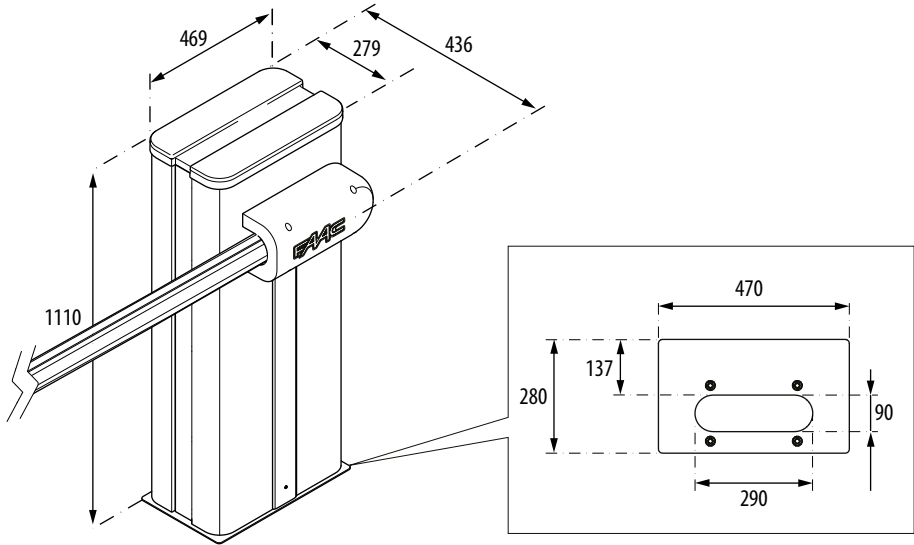


INSTALLATION COMPONENTS (SUPPLIED SEPARATELY)

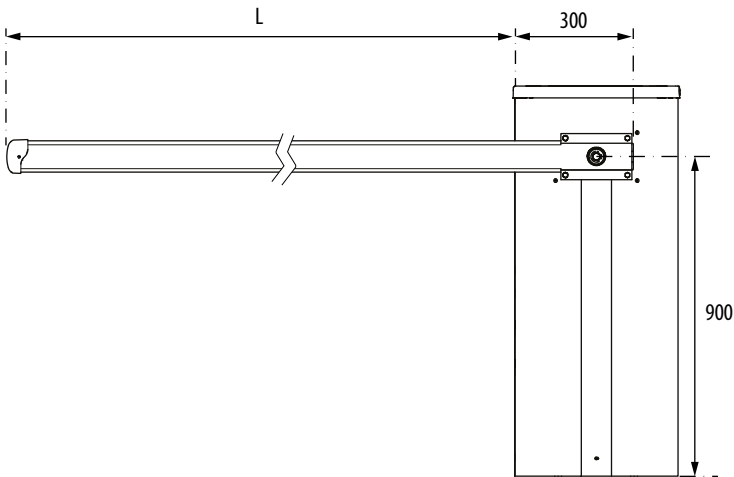
- 1 Cabinet
- 2 Beam
- 3 Beam bracket kit:
 - A Beam bracket
 - B Balancing spring
 - C Spring adjustment ring-nut
 - D Spring guide
- 4 Foundation plate
- 5 Adhesive reflectors



2.9 DIMENSIONS



Beam models	L (passage opening)
S beam	Max. 5 m
L beam	Max. 8 m



2.10 MANUAL OPERATION

In order to operate the beam manually, the hydraulic circuit has to be released using the key.

RELEASING THE BARRIER

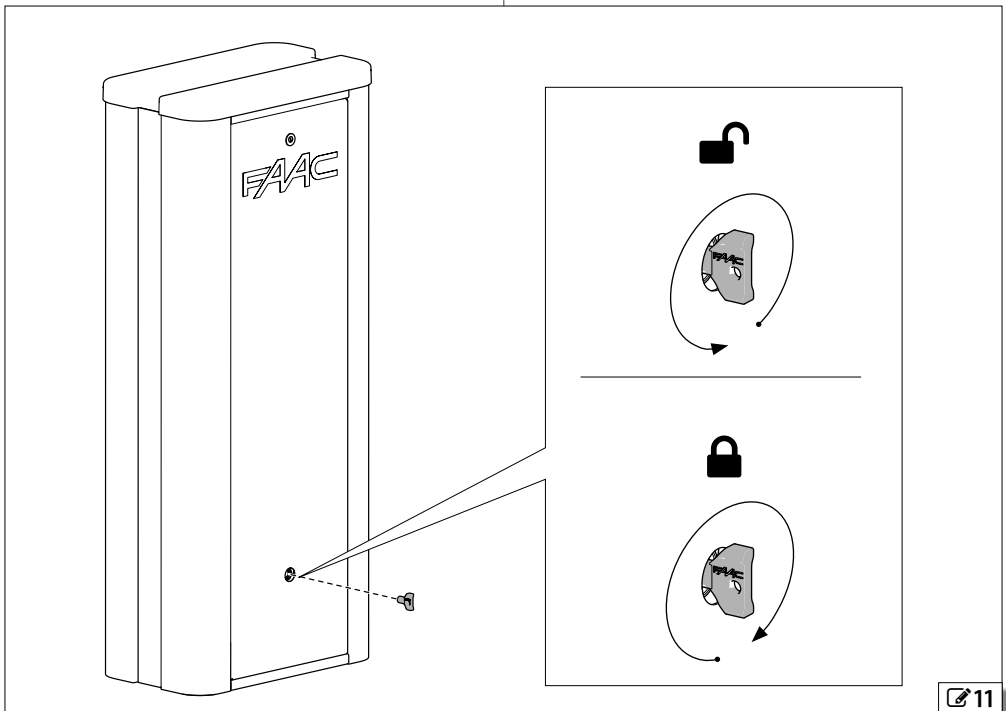


1. Insert the key and turn it anticlockwise until it stops.
2. Move the barrier manually.
3. Restore operation.

RESTORING OPERATION



1. Turn the key clockwise until it stops.
2. Check that manual movement is inhibited.
3. Remove the key.



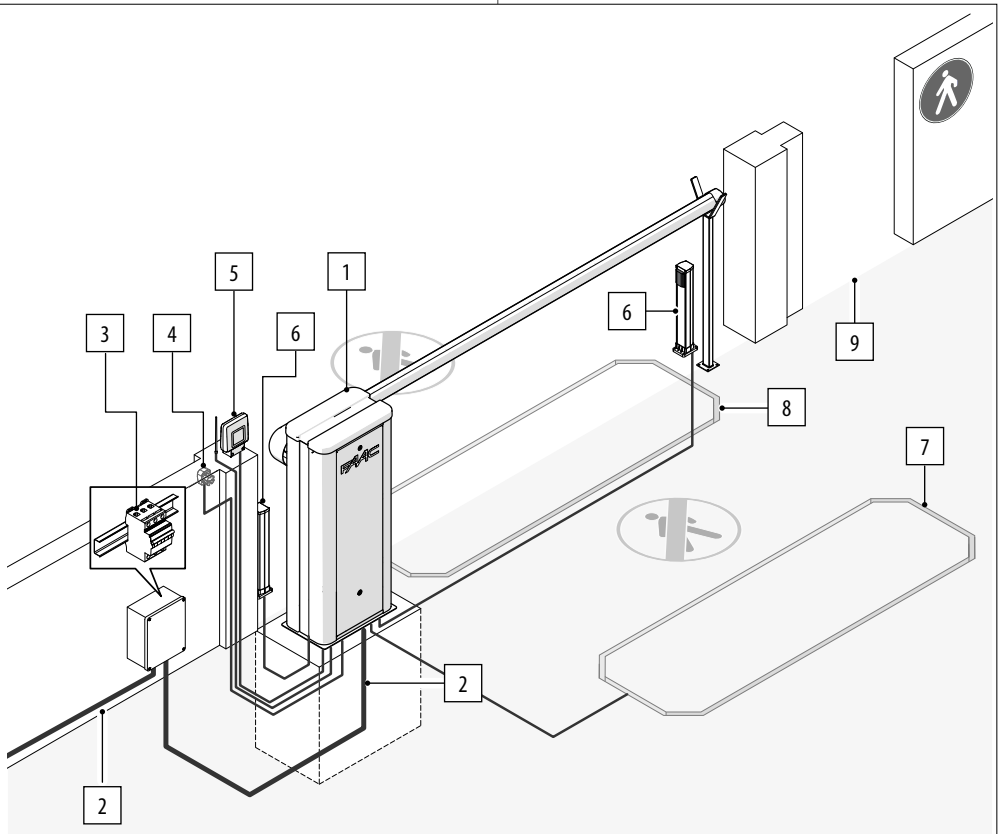
2.11 EXAMPLE SYSTEM



The example is purely an illustration and is only one of the possible applications of the B680H.

ENGLISH

Translation of the original instructions



Example system	Minimum wire cross section
1 Barrier B680H	
2 Mains power supply	3G 1.5 sq. mm
3 Circuit breaker	
4 Key button	
5 Flashing light	
6 BUS 2easy photocells	2 x 0.5 sq.mm
7 Inductive presence loop LOOP1	1.5mm ²
8 Inductive transit loop LOOP2	1.5mm ²
9 Pedestrian transit	
It is recommended that you install an audible or a similar device to indicate that the beam is closing	

3. MECHANICAL INSTALLATION

■ Tools required:



Flat-head screwdriver

2.5-3



Spanner

8-13-17-19



Allen key

4-6



Wire strippers



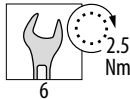
Level



TOOL with TORQUE ADJUSTMENT

If necessary, a torque wrench and the FASTENING TORQUE will be specified.

E.g.: SPANNER 6 set at 2.5 Nm.



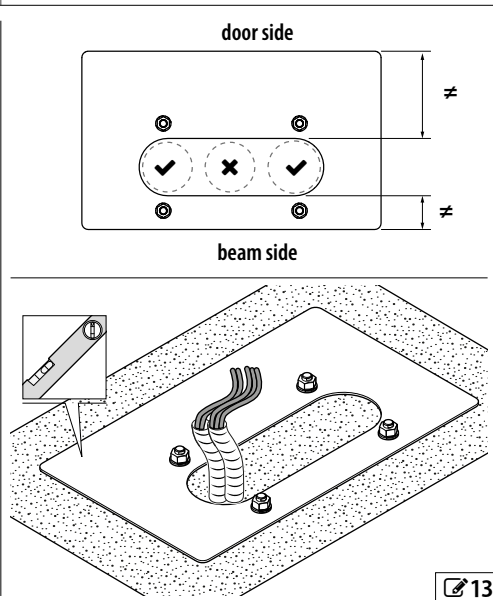
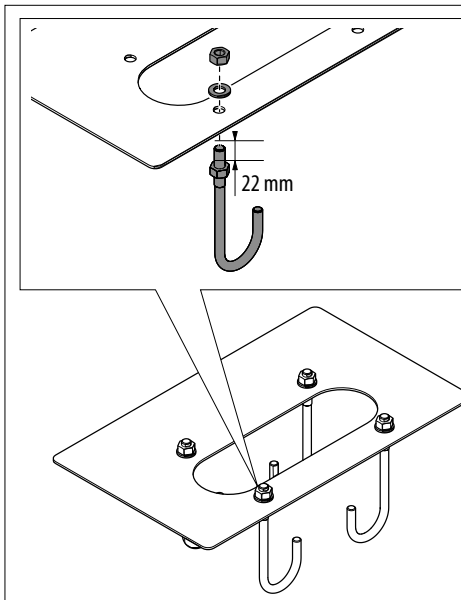
3.1 INSTALLING THE FOUNDATION PLATE

The product must be installed with the foundation plate.

1. Make a hole in the ground according to the foundation layout diagram in the appendix (☞ 1).
2. Fill it with concrete, allowing the cable conduits to protrude by approximately 20 cm.
3. Assemble the foundation plate.
4. Place the plate in the centre of the foundation, leaving its surface uncovered.

i Make sure that you install the plate the right way round. The cable conduits must be placed at one of the sides (✓) of the space provided on the base of the barrier and not in the centre (✗) of the slot for encumbrance reasons.

5. Check the plate is horizontal using a spirit level.
6. Clean the concrete off the surface of the plate and the nuts with washers so they can be removed when necessary.
7. Wait for the concrete to set.

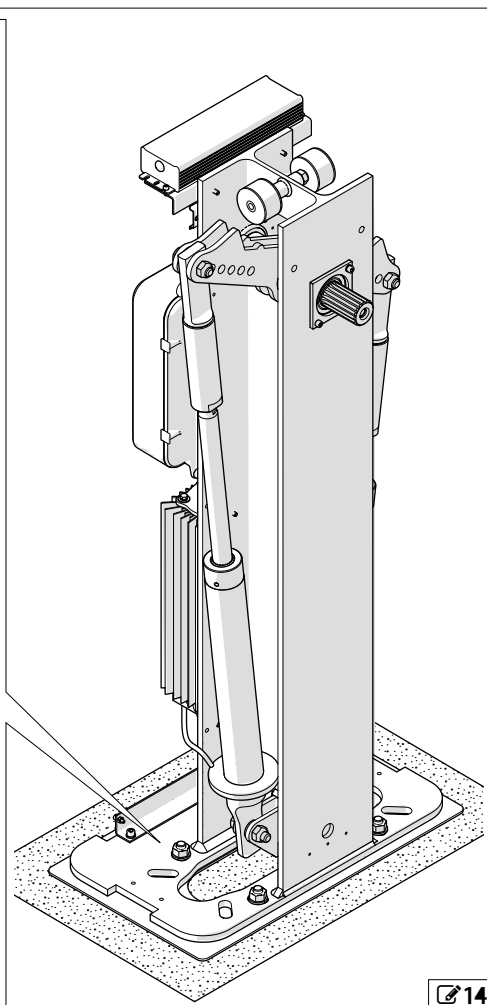
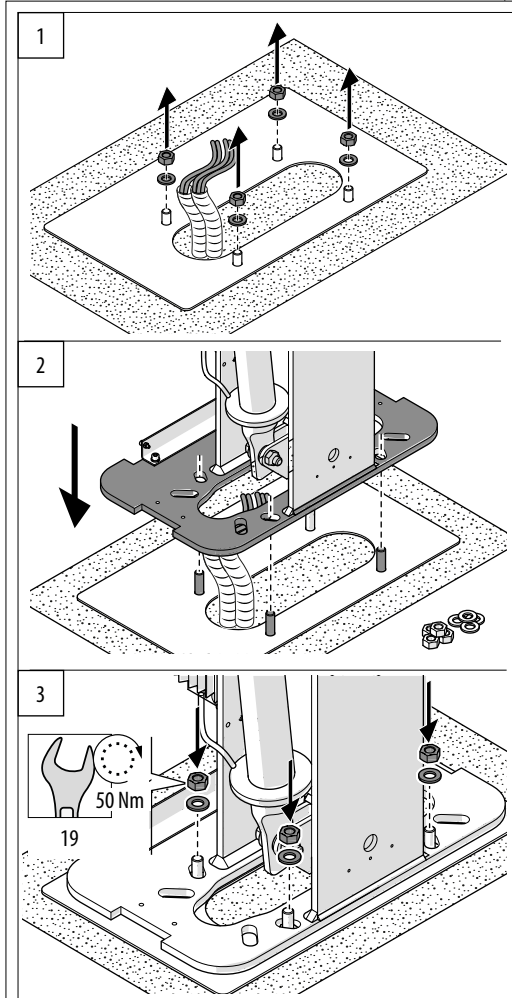


3.2 INSTALLING THE BARRIER BODY

1. When the foundation has hardened, remove the 4 nuts and washers from the plate.
2. Place the barrier body on the foundation, in correspondence with the 4 fixing points.


i Be careful not to damage the electrical cable tubes.

3. Insert the washers and nuts and tighten to the fastening torque indicated in the figure.





3.3 FITTING THE SPRING

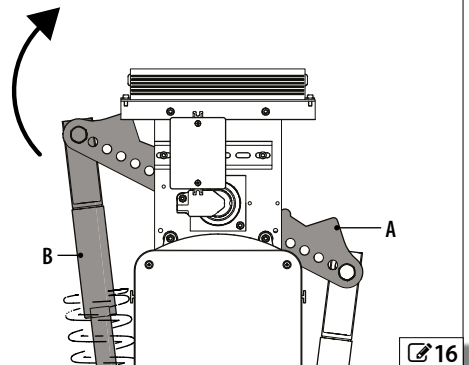
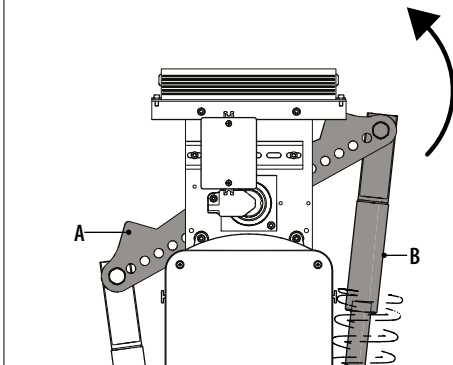
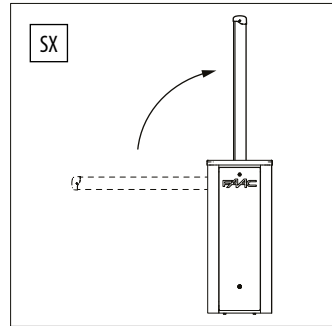
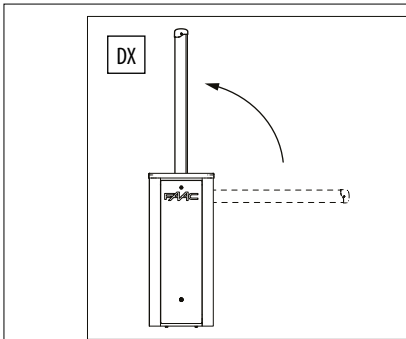
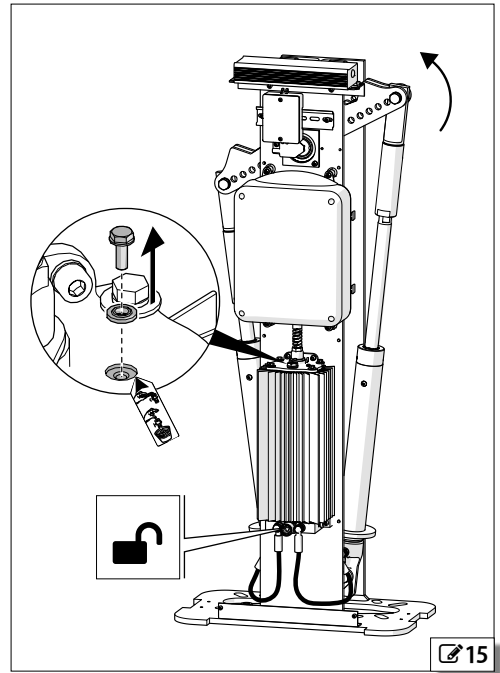
PREPARING THE BALANCER

With reference to  15:

1. Remove the breather screw and put it in a safe place.



 The breather screw will have to be put back if the barrier is moved.

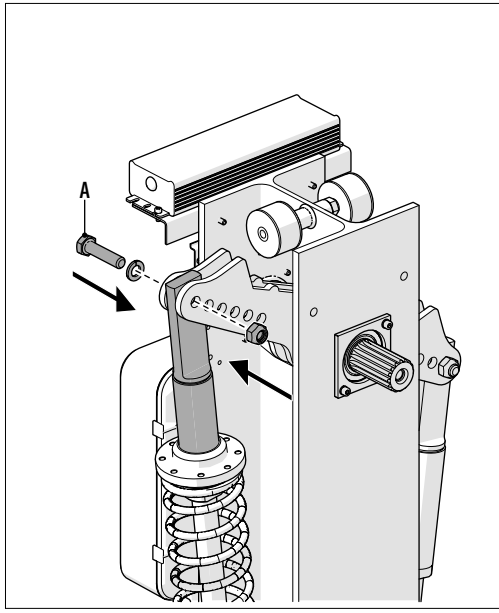
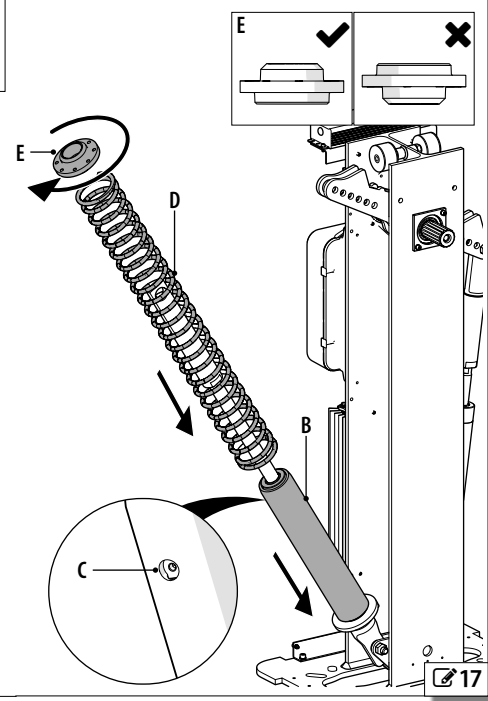
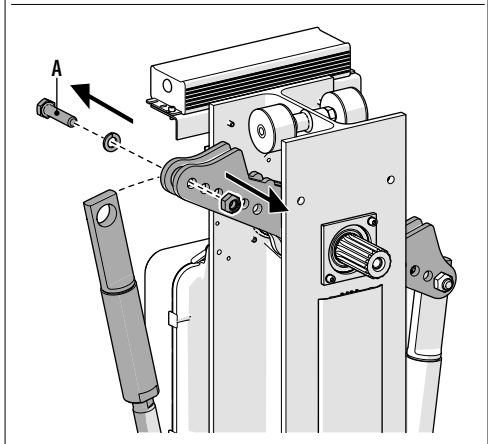
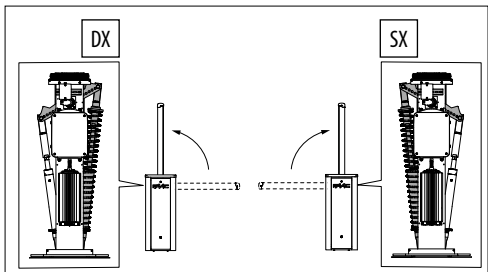
2. Prepare the barrier for manual operation, see the MANUAL OPERATION section.
3. With reference to  16 bring the balancer A and the relative piston B into the open position.



INSERTING THE SPRING AND FASTENING THE PISTONS

i RH Barrier: insert the spring onto the right piston
 LH Barrier: insert the spring onto the left piston.

1. Remove the pin A.
2. Insert the spring guide B onto the piston. The hole C must coincide with the piston bleed screw.
3. Insert the spring D.
4. Screw the ring-nut E until it is in contact with the spring D. Make sure that you insert the ring-nut the right way round.
5. Reinsert the pin A with washer into the fixing hole of the piston (see ) and tighten the nut.
6. Fasten the other piston in a similar manner (see )



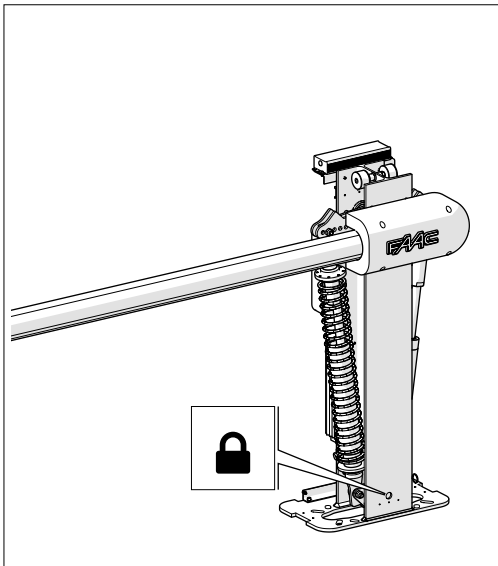
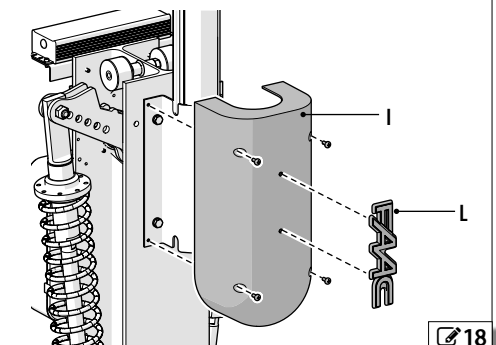
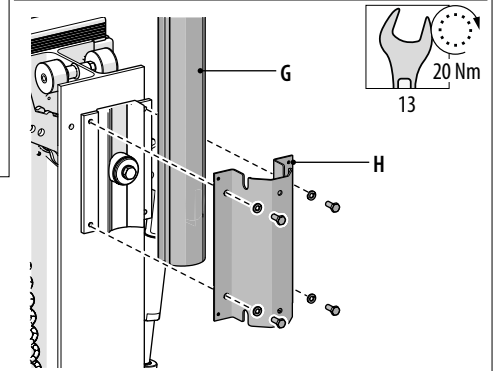
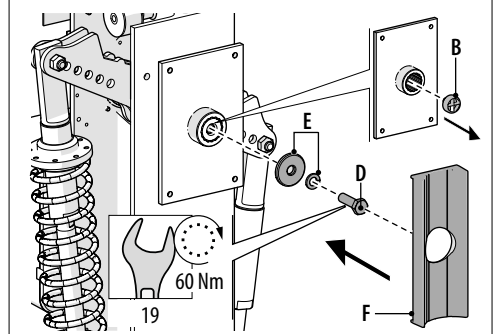
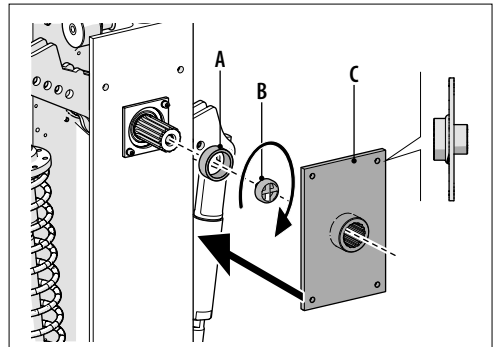
3.4 INSTALL THE BRACKET AND BEAM

i If the beam has to be shortened, cut the end opposite the one with the fixing hole. After the cutting remove any sharp borders and burrs.

1. Insert the spacer A and screw the guide B into the drive shaft on the barrier body.
2. Insert the plate C so that it rests on the spacer A. Make sure that you insert the plate the correct way round.
3. Remove the guide B and put it to one side.
4. Fix in position with the screw D, interposing the washers E.


i Do not apply grease to the fastening screw D.

5. Insert the adapter F.
6. Insert the beam G.
7. Mount the bracket H and secure it using the screws and washers (4 screws for the S beam and 6 for the L beam).
8. Insert the cover I and secure it with the screws.
9. Fasten the plate L.
10. Move the beam to the closed position.
11. Restore the barrier lock.





18

INSTALLING MODULAR BEAMS (OPTIONAL)

With reference to  19:

1. Connect joint A to joint B.


 Joint B has holes on both sides and must be positioned as shown in  19.

2. Insert the joints into the beam and insert the fixing screws, but without tightening them.
3. Install the extension onto the joints and insert the screws.
4. Tighten the screws.

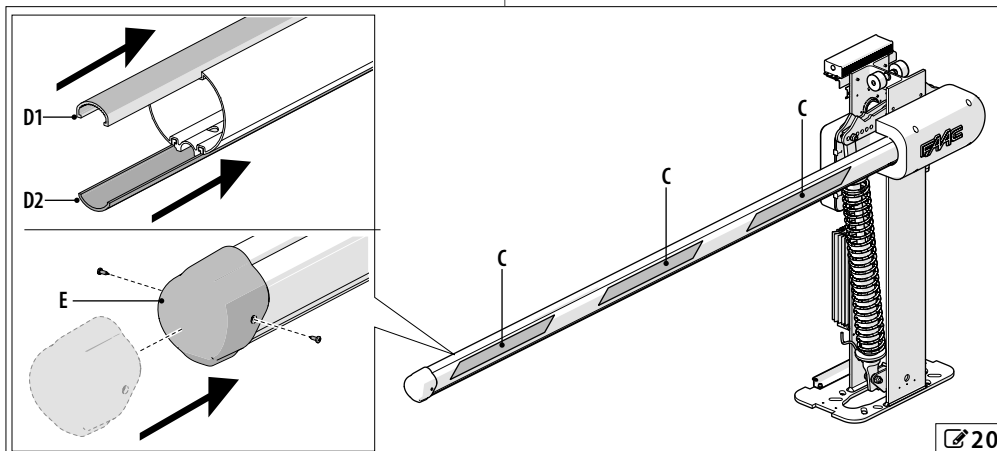
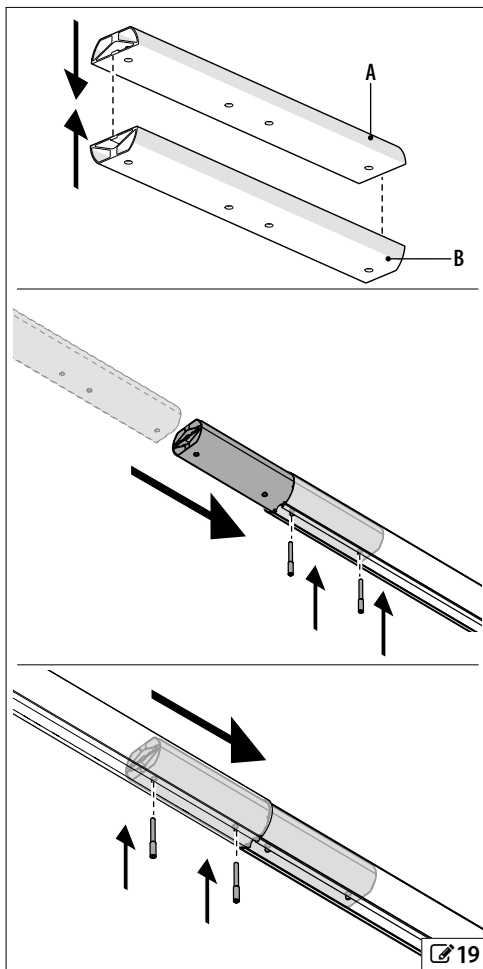
COMPLETING THE BEAM INSTALLATION

With reference to  20:

1. Apply the adhesive reflectors C to both sides of the beam.
2. Insert the optional profiles D1 and D2 by sliding them onto the beam.

 The rubber profile (D2) must face the closing direction.

3. Place the cover E over the end of the beam and fix it in place with the screws.



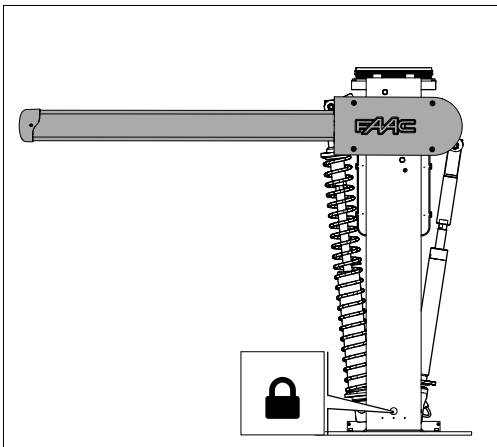
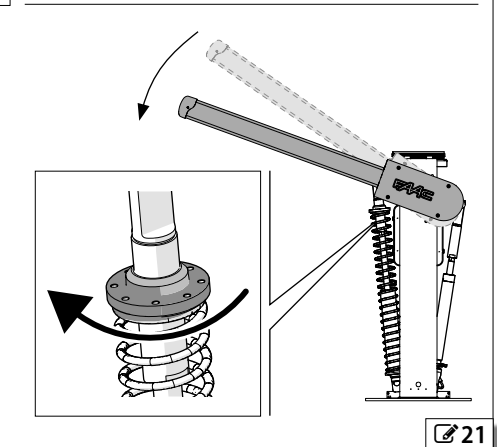
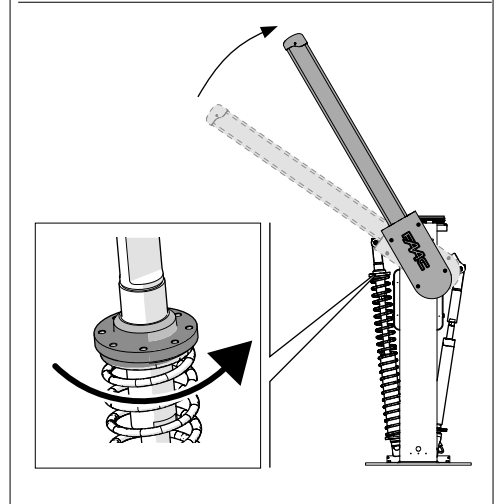
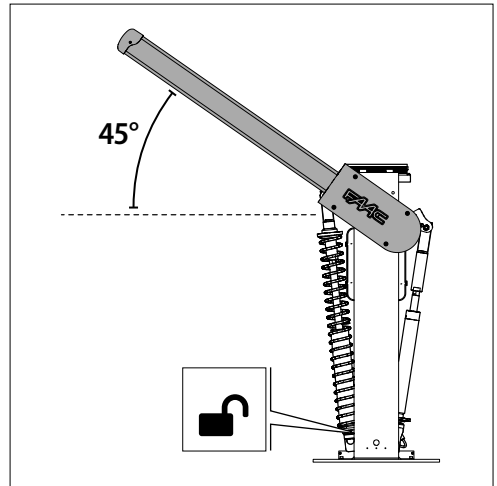
INSTALLING ACCESSORIES ON THE BEAM

The accessories on the beam must be fitted before balancing the beam. After a modification of the beam, it is necessary to balance it again.

 For fitting accessories to the beam, see § 7.

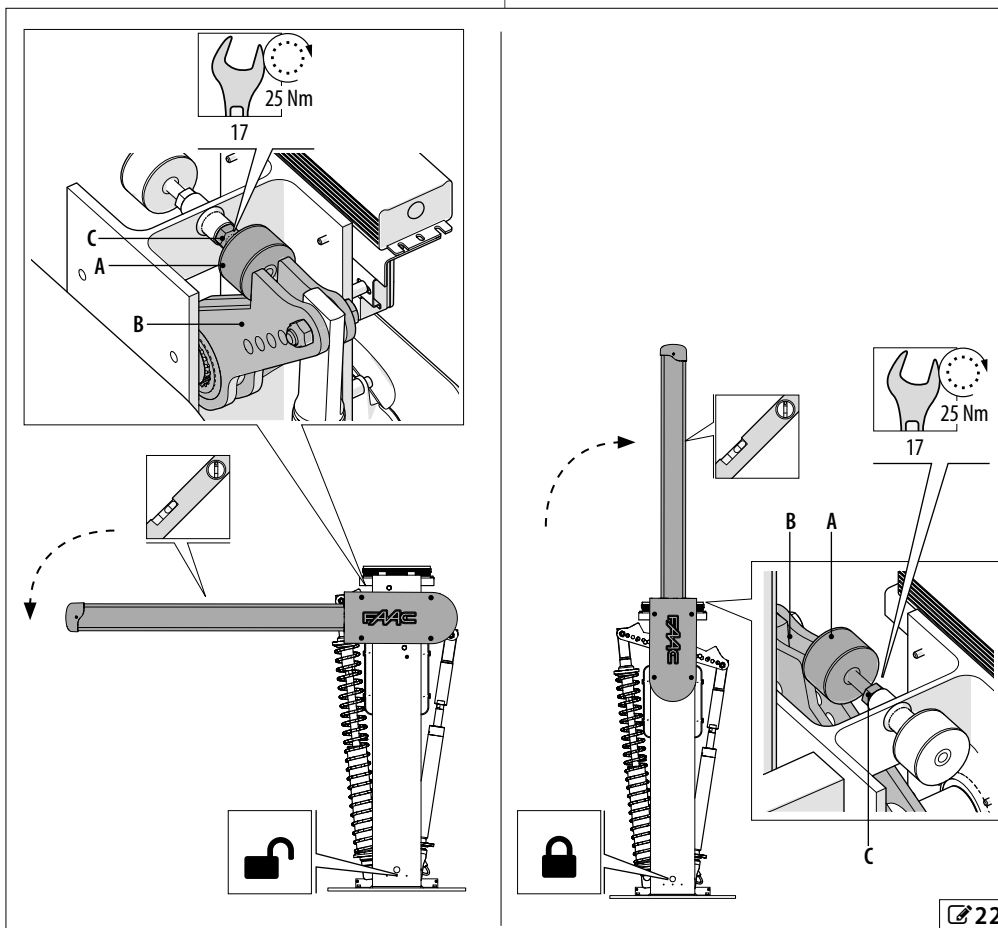
3.5 BALANCING THE BEAM

1. Release the barrier.
2. Bring the beam to 45° and release it: the beam is balanced correctly when it stays in position.
3. Make the adjustment, if necessary:
 - if the beam tends to open, turn the spring preload ring nut anticlockwise
 - if the beam tends to close, turn the spring preload ring nut clockwise
4. Repeat the adjustment until it is correctly balanced.
5. Restore the barrier lock.



3.6 LIMIT SWITCH ADJUSTMENT



1. Release the barrier.
2. Close the beam and keep it in this position.
3. Adjust the limit switch A until it is in contact with the balancer arm B.
4. Use a spirit level to make sure that the limit switch is correctly adjusted. Repeat the sequence if necessary.
5. When finished, tighten the locknut C to the fastening torque indicated.
6. Repeat the adjustment procedure with the beam open on the second limit switch.
7. Restore operation.




4. ELECTRONIC INSTALLATION

4.1 BOARD E680S

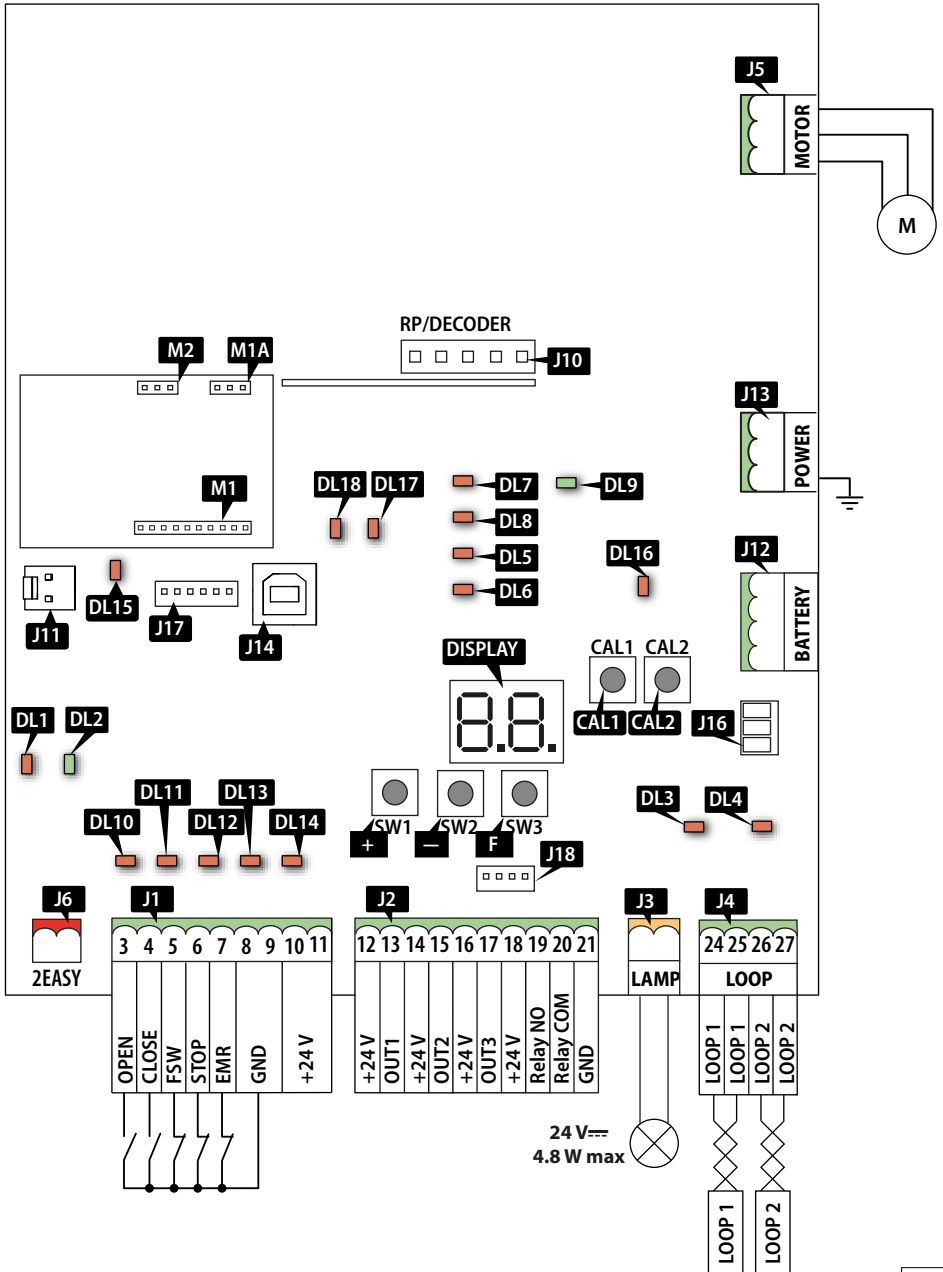
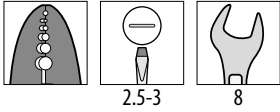
2 E680S board technical data

Max power	240 W
Accessories output voltage	24 V 
Max. accessories load including BUS 2easy accessories	800 mA
Max. BUS 2easy accessories load	500 mA
Max. flashing light load	24 V  4.8 W
Ambient operating temperature	-20 °C to +65 °C

COMPONENTS

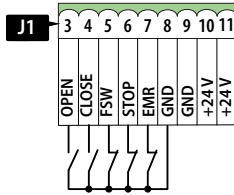
See figure  23

BOARD:	
J1	Inputs and accessories voltage connector
J2	Outputs connector
J3	Indicator light connector
J4	Detection loops connector
J5	Motor connector
J6	BUS 2easy connector
J10	Connector for Minidec / RP / Decoder radio board
J11	Breakthrough sensor connector
J12	Emergency battery connector
J13	DC power supply connector
J14	USB connector
J16	Beam lights connector
J17	Beam movement encoder connector
J18	Integrated traffic light connector
DISP1	Signalling / programming display
+ – F	Programming buttons
CAL1 CAL2	LOOP1 / LOOP2 calibration button
M1 M1A M2	Connectors for Simply Connect board
DL1	BUS 2easy device status
DL2	Bus status
DL3	LOOP1 status
DL4	LOOP2 status
DL5	Board faulty signal
DL6	Not used
DL7	Encoder Status
DL8	Not used
DL9	Board powered
DL10	Input status LED OPEN
DL11	Input status LED CLOSE
DL12	Input status LED FSW
DL13	Input status LED STOP
DL14	Input status LED EMR
DL15	Beam released signal
DL16	Battery operation signal
DL17	Radio channel 1 activity
DL18	Radio channel 2 activity



4.2 CONNECTIONS

CONTROL DEVICES (J1)

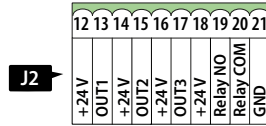


- i** Multiple NO contacts on same input must be connected in parallel.
Multiple NC contacts on same input must be connected in series.
Below is a brief explanation of the inputs. The effect a command has may vary according to the operating logic and programming functions.

3	OPEN	NO contact, connect a button or other pulse giver that commands the opening of the barrier, by closing a contact
4	CLOSE	NO contact, connect a button or other pulse giver that commands the closure of the barrier, by closing a contact
5	FSW	NC contact, connect a photoelectric cell or other device that commands the inversion on opening, by opening a contact during the closure i If NO device is connected, make a jump with GND
6	STOP	NC contact, connect a button or other pulse giver that commands the stopping of the barrier, by opening a contact i If NO device is connected, make a jump with GND
7	EMR	NC contact, connect a button or other pulse giver that commands the emergency opening of the barrier, by opening a contact i If NO device is connected, make a jump with GND
8-9	GND	Accessories power supply negative and common contacts
10-11	+	Accessories power supply positive 24 V ===

- i** Do not exceed the maximum load of the accessories (see Board technical data). To calculate the power consumption, refer to the instructions of the individual accessories.

OUTPUTS (J2)



■ OUT 1-2-3

- i** Do not exceed the maximum load of 24 V === with 100mA 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	0 V ===	open circuit
NC polarity	open circuit	0 V ===

■ OUT 4 a relè

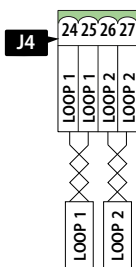
- i** The maximum load for each output is 500 mA at 24 V ===.

EXTERNAL FLASHING LIGHT 24 V === (J3)



Connect a 24 V XLED external flashing light to these terminals.

LOOP (J4)



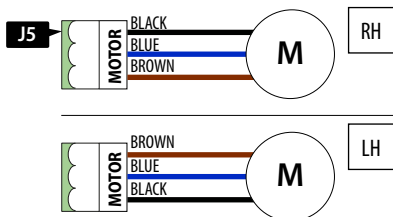
Inductive loop detectors must not be used to detect pedestrians, bicycles and motorbikes. If it is not possible to prevent them passing, other devices such as photocells are necessary.

To create detection loops, refer to [3](#).

Connect detection loops to terminal boards J4.

LOOP1	Presence loop Connect a loop which, when engaged, opens the barrier Transit loop
LOOP2	Connect a loop which, when engaged, works according to the set operating logic

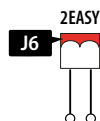
MOTOR (J5)



The motor cable is connected at the factory for a RH barrier.

i If you are installing a LH barrier, invert the brown and the black wires of the terminal, without moving the central wire.

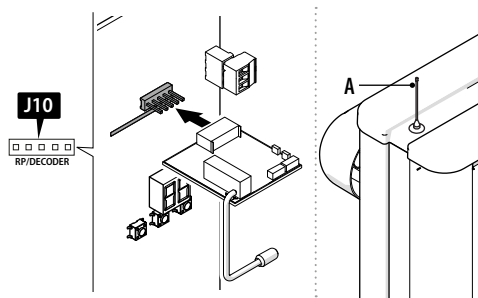
BUS 2EASY (J6) DEVICES



For making the connection and assigning addresses, see the specific section.

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

RADIO RECEIVER/DECODER BOARD (J10)



The 5-pin quick insertion connector is specifically for FAAC radio or decoder boards.

Insert as shown in the figure.

i If a FAAC model RP receiver is used, it is recommended that you install the appropriate external antenna A. Position the antenna on the upper support of the cabinet.

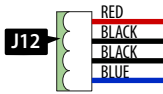
BEAM BREAKTHROUGH SENSOR (J11)



Provided for connecting the breakthrough sensor for the pivoting beam (if present).

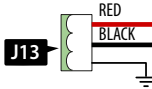
i The sensor is optional; do not remove the jumper that has already been installed if it is not present.

BATTERY XBAT 24 (J12)



Connect the emergency battery to this connector.

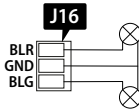
POWER SUPPLY 36 V \equiv (J13)



Pre-wired connector, used for powering the board.

i The installer must connect the earth terminal to the system earth during electrical connection operations.

BEAM LIGHTS 36 V \equiv (J16)



The rope light indicates that the beam is moving. The operation can be configured using parameters $\square 5$ and $\square 6$ and the light intensity via parameters $\square 7$ and $\square 8$ in expert programming mode.

ENCODER (J17)



The encoder wire is connected to connector J17 in the factory.

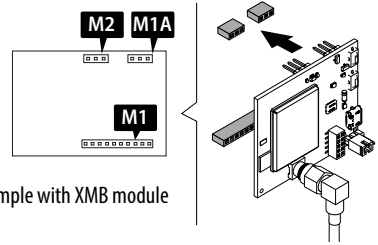
i The encoder must always be connected in order for the automation system to operate.

INTEGRATED FLASHING TRAFFIC LIGHT (J18)



The integrated flashing traffic light should be connected to connector J18.

SIMPLY CONNECT (M1 - M1A - M2)



Example with XMB module

Insert the module into the dedicated plug connectors and install the Simply Connect PRO app.

i When programming is taking place via Simply Connect, programming from the board is inhibited.

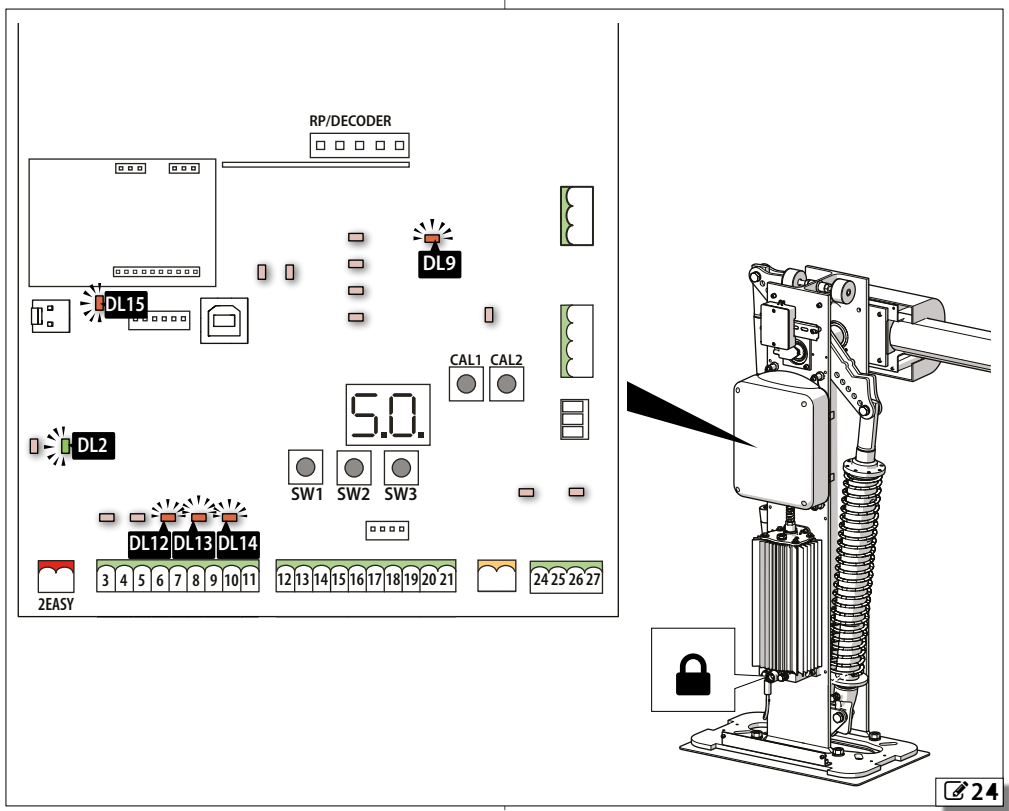
5. START-UP

Carry out the following operations referring to the § specific sections.

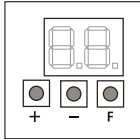
1. Make sure that the barrier B680H is locked and not operating in manual mode.
2. Switch on power to the system. The board lights up and the display then comes on:
 - firmware version (2 digits separated by a point).
 - flashing if setup is requested, or the automation status.

If two barriers are installed in a Primary-Secondary configuration, the Secondary barrier has to be configured before you start to set up the Primary barrier (see § 8.1).

3. Check the status of the LEDs, with the board powered and closed, some LEDs will be on, others will be off (refer to 24)
4. Memorise the radio controls of the system (see relative instructions).
5. Program the E680S without carrying out the setup. In order for the barrier to work properly, set function ϵF according to the length of the beam.
6. Check the direction of movement.
7. Carry out the setup procedure.
8. If you use an XBAT 24 battery, connect the battery after having carried out the setup. Connect it with the power supply disconnected.



5.1 PROGRAMMING THE BOARD



When the display shows the automation status, you can enter basic, advanced or expert programming mode.

■ Basic programming

1. Press and hold the **F** button: the first function (□□) appears on the display, which is displayed as long as button F remains pressed.
2. Release the button: the display shows the value of the function.
3. Press the **+** or **-** button to modify, then press the **F** button to confirm to go to the next function.

Proceed in the same way for all the functions.

■ Advanced programming

1. Press and hold the **F** button, then the **+** button as well: the first function (□□) appears on the display, which is displayed as long as button **F** remains pressed.
2. Release the buttons: the display shows the value of the function.
3. Press the **+** or **-** button to modify, then press the **F** button to confirm to go to the next function.

Proceed in the same way for all the functions.

■ Expert programming



Before making changes at this level, make sure that you fully understand the effect that the changes might have. If you modify functions relating to the operating logics, a custom logic is created (in basic programming the □□ function will display □□).

1. Press and hold the **F** button, then the **+** button as well for about 10 seconds: the first function (□□) appears on the display, which is displayed as long as button **F** remains pressed.
2. Release the buttons: the display shows the value of the function.
3. Press the **+** or **-** button to modify, then press the **F** button to confirm to go to the next function.

Proceed in the same way for all the functions.

■ Exiting programming mode



Every modified value becomes effective immediately, but when exiting from programming mode you have to decide whether to save the modifications or not. Modifications are lost if no buttons have been pressed for 10 minutes or if power to the board is disconnected before they have been saved.

1. Press and hold down the **F** button, then the **+** button as well.
Alternatively, scroll through the programming menu until you reach the last function (□□).
2. Select:
□ = save the changes
□ = DO NOT save the changes
3. Press button **F** to confirm: the display reverts to the automation status view.

3 Basic programming

Basic function	Default
3] Simply Connect 0 disabled 1 enabled 2, 3, 4 not used	0
cF BARRIER CONFIGURATION 01...06 (levels)	06
dF DEFAULT CONFIGURATION Displays 3 if the programming corresponds to the default settings. Select 3 if you wish to reload the default values. 3 the programming corresponds to the DEFAULT settings no the programming does NOT correspond to the default settings	3
cE OPPOSING BARRIER CONFIGURATION Configure the board as Primary or Secondary. 0A Primary 0L Secondary	0A
bU BUS 2easy DEVICE LEARNING See the relative section.	no
L0 FUNCTIONING LOGIC	E
A Automatic c0 Condominium A1 Automatic 1 cA Automatic condominium E Semi-automatic C Hold-to-run P Car park\ CU Custom (logic created in expert programming mode)	
PA PAUSE TIME 00...59 Adjustment step: 1 s 10...41 Adjustment step: 10 s	20
S0 OPENING SPEED 01...10 (minimum speed ... maximum speed)	10

i To establish this value, refer to § 5.2. Setting a default value that is lower than the one actually installed can cause irreversible damage to the beam and to the structure of the barrier. Loading a different configuration will reset the parameters to the default values.

i The following parameters are not displayed on the Secondary board SC - bU - L0 - PA - L1 - L2 - E L - PF - EP - E (for further information see § 8.1).

i Parameter CU is only displayed if a modification has been made to the advanced programming parameters.

Basic function	Default
S2 CLOSING SPEED 01...10 (minimum speed ... maximum speed) *The default value varies according to the setting of cF: 10 if cF=01 05 if cF=02 or 03 04 if cF=04 02 if cF=05 or 06	02*
L1 LOOP1 Loop connected to input LOOP1 (OPEN function). 3 LOOP1 enabled no LOOP1 not enabled	no
L2 LOOP2 Loop connected to input LOOP2 (SAFETY/ CLOSE function). 3 LOOP2 enabled no LOOP2 not enabled	no
S1 Sensitivity LOOP1 Regulates the sensitivity of the vehicle detection loop 00...10 (sensitivity levels, 10 = maximum sensitivity)	05
S2 Sensitivity LOOP2 Regulates the sensitivity of the vehicle detection loop 00...10 (sensitivity levels, 10 = maximum sensitivity)	05
0E MOTOR OPERATION IN DEAD MAN MODE + OPENS (displaying cP) as long as the button remains pressed. - CLOSES (displaying cL) as long as the button remains pressed.	--
E L SETUP Acquire the limit switch positions. See the relative section.	--

i Setting an excessive speed can cause irreversible damage to the beam and to the structure of the barrier.

Basic function	Default
----------------	---------


5E LEAVING THE PROGRAMMING MODE	Y
<ul style="list-style-type: none"> Y save and exit from programming mode n0 exit from programming mode without saving 	
<p>After having confirmed using button F, the display indicates the STATUS of the automation:</p>	

00 CLOSED	06 CLOSING
01 OPEN	07 Failsafe IN PROGRESS
02 STATIONARY THEN OPENS	08 VERIFYING BUS 2easy
03 STATIONARY THEN CLOSES	09 PRE-FLASHING BEFORE OPENING
04 IN PAUSE	10 PRE-FLASHING BEFORE CLOSING
05 OPENING	11 EMERGENCY OPEN

4 Advanced programming

Advanced function	Default
FD DRIVING FORCE ON OPENING	40*
01 minimum power	
50 maximum power	
*The default value varies according to the setting of cF:	
25 if cF=01 or 02	
30 if cF=03	
28 if cF=04	
30 if cF=05	
40 if cF=06	
FC DRIVING FORCE ON CLOSURE	40*
01 minimum power	
50 maximum power	
*The default value varies according to the setting of cF:	
25 if cF=01 or 02	
30 if cF=03	
28 if cF=04	
30 if cF=05	
40 if cF=06	
PF PRE-FLASHING	no
no not enabled	
0C enabled before opening and closing	
CL enabled before closing	
0P enabled before opening	
PA enabled only at end of pause	
tP PRE-FLASHING TIME	00
00 minimum pre-flashing	
10 maximum pre-flashing	
oc OBSTACLE SENSITIVITY DURING CLOSING	30
01 minimum sensitivity	
50 maximum sensitivity	

Advanced function	Default
o1 OUTPUT OUT 1 CONFIGURATION	04
00 Failsafe	
01 Type 1 beam lighting (on when beam closed, off when beam is open or paused, flashing when moving).	
02 Type 2 beam lighting (flashing during opening, closing and when the beam is closed or stopped. Off when beam is open or paused)	
03 Beam closed	
04 Beam open or paused, switches off during closing pre-flashing.	
05 Beam opening, including pre-flashing.	
06 Beam closing, including pre-flashing.	
07 Beam stopped	
08 Beam in emergency	
09 LOOP1 engaged	
10 LOOP2 engaged	
11 Open for secondary E680	
12 Close for secondary E680	
13 Beam breakthrough	
14 Not used	
15 Not used	
16 Opening deceleration space engaged	
17 Closing deceleration space engaged	
18 Interlock	
19 Indicator Light (on during opening and pause, flashing during closing, off when automation closed).	
20 Battery operation	
P1 OUTPUT POLARITY OUT 1	no
Y NC output	
no NO output	
If output o1 = 00 (Failsafe) configure P1 = no.	
o2 see o1	03
P2 see P1	no
o3 see o1	19
P3 see P1	no
o4 see o1	01
P4 see P1	no
o5 see o1	02
P5 see P1	no
o6 see o1	04
P6 see P1	no

Advanced function	Default
07 INTEGRATED flashing light OPERATING MODE 01 01 traffic light control (steady green with barrier in paused/open, red flashing during movement, steady red when barrier closed) 02 flashing light (flashing red during movement, off in all other states)	01
A5 MAINTENANCE REQUEST - CYCLE COUNTER 00 Enables/disables the maintenance alert when the programmed number of cycles has been reached as specified in the following functions 4 enabled 00 not enabled	00
0C THOUSANDS OF CYCLES 00 Displays the thousands of cycles that have been performed. 00...99 (thousands of cycles - programmable if A5 = 4)	00
0C CYCLE PROGRAMMING IN HUNDREDS OF THOUSANDS OF CYCLES 00 Displays the thousands of cycles that have been performed. 00...99 (thousands of cycles - programmable if A5 = 4)	00
 The value displayed is updated as the cycles progress, interacting with the value of 0C (a decrease of 1 in 0C corresponds to a decrease of 99 in 0C).	
S4 AUTOMATION SYSTEM STATUS: 4 See S4 in the Basic programming	4

5 Expert Programming

Expert Function	Setting
01	Enabling this function causes automatic closing after the pause time. ☒ = automatic closing ☐ = disabled
02	If you enable this function, operation is with two different inputs : OPEN for opening and CLOSE for closing. ☒ = operation with 2 inputs ☐ = disabled
03	Level recognition activation for the OPEN and CLOSE inputs (maintained command) . I.e. the board recognises the level (for example, if STOP is pressed with maintained OPEN, when STOP is released, the automation continues to open). If ☐ is disabled, the board commands a movement only in response to a change in the input. ☒ = level recognition ☐ = status change recognition
04	Activation of DEAD MAN opening (command kept pressed). Releasing the OPEN command stops operation ☒ = enabled ☐ = disabled
05	If you enable this function, an OPEN command during opening stops the movement. If parameter 06 = ☐ the system is ready for opening. If parameter 06 = ☒ the system is ready for closing. ☒ = stop movement during opening ☐ = disabled
06	If you enable this function, an OPEN command during opening reverses movement. If parameters 05 and 06 = ☐, the OPEN command has no effect during opening. ☒ = reverse movement during opening ☐ = disabled
07	If you enable this function, an OPEN command during a pause stops the movement. If parameters 07 and 08 = ☐, the OPEN command reloads the pause time. ☒ = stop movement during pause ☐ = disabled
08	If you enable this function, an OPEN command during the pause closes the automation. If parameters 07 and 08 = ☐, the OPEN command reloads the pause time. ☒ = close in pause ☐ = disabled
09	If you enable this function, an OPEN command during closing stops the operation, otherwise it reverses the movement. ☒ = stop ☐ = reverse
10	DEAD MAN closing enable (command kept pressed). Releasing the CLOSE command stops the movement. ☒ = enabled ☐ = disabled
11	If you enable this function, a CLOSE command has priority over OPEN, otherwise OPEN has priority over CLOSE. ☒ = enabled ☐ = disabled
12	If you enable this function, a CLOSE command closes the automation when released. The unit remains in closing pre-flashing as long as CLOSE is enabled. ☒ = close when released ☐ = close immediately
13	If you enable this function, a CLOSE command during opening stops operation, otherwise the CLOSE command causes the automation to reverse immediately or at the end of opening (see also parameter 14) ☒ = CLOSE stops movement ☐ = CLOSE reverses movement
14	If you enable this function, and if parameter 13 = ☐, the CLOSE command closes the automation immediately at the end of the opening cycle (memorises the CLOSE). If parameters 13 and 14 = ☐, CLOSE causes the automation to close immediately. ☒ = close at the end of opening ☐ = close immediately
15	If you enable this function when the system is stopped by a STOP command, a subsequent OPEN command causes the automation to move in the opposite direction. If parameter 15 = ☐ it always closes. ☒ = move in the opposite direction ☐ = always close
16	If you enable this function, during closing, the CLOSING SAFETIES stop movement and allow it to resume once they are released, otherwise it immediately reverses in opening. ☒ = close when released ☐ = reverse immediately
17	If you enable this function, the SAFETIES IN CLOSING close the automation when released (also see parameter 18). ☒ = close when FSW is released ☐ = disabled
18	If you enable this function, and if parameter 17 = ☒, the unit waits for the opening cycle to end before carrying out the closing command issued by the SAFETIES IN CLOSING . ☒ = close at the end of opening ☐ = disabled

Expert Function		Setting
19	If you enable this function, during closing, LOOP2 stops the movement and allows it to resume once released, otherwise it reverses immediately during opening.	3 = close when released n0 = reverse immediately
20	If you enable this function, LOOP2 closes the automation when it is released (also see parameter 21).	3 = close if LOOP2 is free n0 = disabled
21	If you enable this function, and if parameter 20 = 3, the unit waits for the opening cycle to end before carrying out the closing command issued by LOOP2.	3 = close at the end of opening n0 = disabled
22	If you enable this function: if there is a power failure, when the power comes back on, if an OPEN command is not active, the automation closes immediately.	3 = enabled n0 = disabled
23	LOOP1 commands opening and, once opened, closes if released (useful if a vehicle reverses with consecutive loops). If disabled when LOOP1 is released, closing is not carried out.	3 = close if LOOP1 is free n0 = disabled
24	If you activate this function, an opening or closing command is carried out only when the safeties are released.	3 = enabled n0 = disabled
25	A.D.M.A.P. function If you enable this function, the safety devices operate according to French standards.	3 = enabled n0 = disabled
26	If you enable this function, during closing the SAFETIES IN CLOSING stop and reverse the movement when released, otherwise they reverse immediately.	3 = stop and reverse when released. n0 = reverse immediately.
27	DO NOT MODIFY	n0
28	DO NOT MODIFY	n0
29	DO NOT MODIFY	n0
30	If you enable this function, LOOP1 commands have priority over LOOP2 commands.	3 = enabled n0 = disabled
R0	HOLD CLOSE / HOLD OPEN function If you enable this function, the automation will check the position of the beam at predetermined times (see parameter R1). If the beam is not completely closed or completely open (depending on the logic of the board), the automation will carry out a closing or opening movement for a maximum of 3 seconds to bring the beam back to the correct position. If after 3 seconds, the beam does go back to the completely closed / open position (for example because the beam has been released) the function will be disabled until a subsequent OPEN command is given.	3
R1	HOLD CLOSE / HOLD OPEN function activation time This parameter is the time interval between two activations of the HOLD OPEN / HOLD CLOSE function, expressed in minutes. (from 00 to 99)	01
r1	Frequency reading LOOP1 This option in the menu allows you to check the actual oscillation frequency reading of the loop connected to input LOOP1. It is read as follows: <ul style="list-style-type: none"> - First digit: tens (kHz) - Second digit: units (kHz) - Decimal point: Hundreds (kHz) For example a reading indicated as 05. refers to a reading of 105 kHz Read only parameter	

Expert Function	Setting
r2 Frequency reading LOOP2 This option in the menu allows you to check the actual oscillation frequency reading of the loop connected to input LOOP2 (see parameter r1 regarding how to read the value shown) Read only parameter	
F1 Frequency selection LOOP1 This parameter allows you to set a specific oscillation frequency for the loop connected to the input LOOP1, or leave it to the system to select the most suitable setting from the 4 levels available. R Automatic selection 1-2-3-4 Frequency 1-2-3-4 Note: The system is recalibrated when you exit from the ADVANCED programming menu after having changed the loop operating frequency settings. This allows you to obtain an updated frequency reading when you go back to the menu to view the values of parameters r1 or r2	To
F2 Frequency selection LOOP2 This parameter allows you to set a specific oscillation frequency for the loop connected to the input LOOP2, or leave it to the system to select the most suitable setting from the 4 levels available. R Automatic selection 1-2-3-4 Frequency 1-2-3-4 Note: The system is recalibrated when you exit from the ADVANCED programming menu after having changed the loop operating frequency settings. This allows you to obtain an updated frequency reading when you go back to the menu to view the values of parameters r1 or r2	To
h1 Hold time LOOP1 Used for setting the presence time on LOOP1. When this time has elapsed, the board calibrates itself and indicates "loop free" (led DL3 off). An automatic reset is carried out when the board is switched on. Y 5 minutes no infinite	no
h2 Hold time LOOP2 Used for setting the presence time on LOOP2. When this time has elapsed, the board calibrates itself and indicates "loop free" (led DL4 off). An automatic reset is carried out when the board is switched on. Y 5 minutes no infinite	no
H1 Articulated lorry function LOOP1 This function allows you increase the level of sensitivity at the time of detection in order to allow correct detection even in the case of very high vehicles or during the transit of a tractor unit and trailer. Y enabled no disabled	Y
H2 Articulated lorry function LOOP2 This function allows you increase the level of sensitivity at the time of detection in order to allow correct detection even in the case of very high vehicles or during the transit of a tractor unit and trailer. Y enabled no disabled	Y

Expert Function		Setting
⌘	Work time (time-out) Maximum work time of the automation before the motor stops, if the open or closed position is not reached. The value can be regulated from 0 to 59 sec. in 1 second steps. The display subsequently changes to minutes and tens of seconds (separated by a point) and the time is adjusted in 10 second steps, up to a maximum value of 4.1 minutes.	30
⌘r	Red light brightness (OUT 5) Changing this value increases or decreases the output voltage for OUT 5, changing the brightness of the rope light.	04
⌘G	Green light brightness (OUT 6) Changing this value increases or decreases the output voltage for OUT 5, changing the brightness of the rope light.	04
⌘E	AUTOMATION SYSTEM STATUS: Exit from programming, data storage and automation status display.	

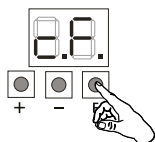
6 Default expert programming related to the operating logic

Function	T ₀	AI	PA	C ₀	E	P	C _n	C
1	Y	Y	Y	Y	N	N	N	N
2	N	N	Y	Y	N	Y	Y	Y
3	N	N	N	N	N	N	N	N
4	N	N	N	N	N	N	N	Y
5	N	N	N	N	Y	N	N	N
6	N	N	N	N	Y	N	N	N
7	N	N	N	N	N	N	N	N
8	N	N	N	N	N	N	N	N
9	N	N	N	N	N	N	N	N
10	N	N	N	N	N	N	N	Y
11	N	N	N	N	N	N	N	N
12	N	N	Y	N	N	Y	N	N
13	N	N	N	N	N	N	N	N
14	N	N	Y	Y	N	Y	Y	N
15	N	N	N	N	N	N	N	N
16	N	N	Y	N	N	Y	N	N
17	N	Y	N	N	N	N	N	N
18	N	Y	N	N	N	N	N	N
19	N	N	Y	N	N	Y	N	N
20	N	Y	Y	Y	N	Y	Y	N
21	N	Y	Y	Y	N	Y	Y	N
22	N	N	N	N	N	N	N	N
23	N	N	Y	N	N	Y	N	N
24	N	N	N	N	N	N	N	N
25	N	N	N	N	N	N	N	N
26	N	N	N	N	N	N	N	N
27	N	N	N	N	N	N	N	N
28	N	N	N	N	N	N	N	N
29	N	N	N	N	N	N	N	N
30	N	N	N	Y	N	N	Y	N

ENGLISH

Translation of the original instructions

5.2 PARAMETER cF



The correct default has to be set in the first basic programming function according to the length of the beam and the number of accessories installed.

7 Default parameter cF - S beam

L	2 m	2.5 m	3 m	3.5 m	4 m	4 m (*)	4.5 m	5 m	5 m (*)
Beam	1	1	2	2	2	3	3	3	3
Beam and lights	1	1	2	2	2	3	3	3	
Beam, lights and hedge	1	1	2	3	3	3	3		
Beam, lights, foot and hedge	1	2	2	3	3	3	3		
Beam, lights and foot	1	2	2	3	3	3	3		
Beam and foot	1	1	2	3	3	3	3		
Beam and hedge	1	1	2	2	3	3	3		
Beam, hedge and foot	1	2	2	3	3	3	3		
Jointed beam	1	2	1	3	3				

(*) with joint

8 Default parameter cF - L beam

L	5 m (**)	5 m	5.5 m	6 m	6.5 m	7 m	7.5 m	8 m
Beam	4	4	5	5	5	5	5	6
Beam and lights	4	4	5	5	5	5	6	6
Beam, lights and hedge	4	5	5	6	6	6	6	
Beam, lights, foot and hedge	5	5	5	5	6	6		
Beam, lights and foot	4	5	5	5	5	6	6	6
Beam and foot	4	5	5	5	5	5	6	6
Beam and hedge	4	5	5	5	5	6	6	
Beam, hedge and foot	5	5	5	5	5	6		

(**) without joint

5.3 OPERATING LOGICS

In all the logics:

- the STOP command has priority and stops the automation from operating
- the EMR command has priority and opens the automation
- if no devices are engaged, a CLOSE pulse causes the automation to close

■ **Automatic logics:**

- A - Automatic
- AI - Automatic 1
- PA - Automatic Parking
- CA - Automatic Condominium

■ **Semi-automatic logics:**

- E - Semi-automatic E
- P - Car park
- CA - Condominium

■ **Dead-man logic:**

- C - Dead-man

■ **Logic CU - Custom**

When a default logic is customized in expert programming mode, a CU - custom logic is created.

AUTOMATIC LOGICS

In all automatic logics, the OPEN and LOOP1 commands:

- with the beam closed, open and close the automation automatically after a pre-set pause time
- reverse to open during closing

■ **A - Automatic**

If the Photocell / LOOP2 is triggered:

- during the pause, it reloads the pause time
- during closing, it reverses to open and closes again after the pause time

■ **AI - Automatic 1**

If the Photocell / LOOP2 is triggered:

- during opening, when the movement has ended and when released, it closes the automation
- during closing, it reverses to open. When the movement has ended and when released, it closes the automation

■ **PA - Automatic Parking**

If the Photocell / LOOP2 is triggered:

- during closing, it stops the movement. When released, it continues to close

If LOOP2 is triggered:

- during opening, when the movement has ended and when released, it closes the automation

■ **CA - Automatic Condominium**

If the Photocell is triggered:

- during closing, it reverses to open and closes again after the pause time

If LOOP2 is triggered:

- during opening, when the movement has ended and when released, it closes the automation
- during closing, it reverses to open. When the movement has ended and when released, it closes the automation.

SEMI-AUTOMATIC LOGICS

In all semi-automatic logics, the OPEN command:

- with the beam closed, it commands the opening
- during closing, it reverses to open

■ E - Semi-automatic E

OPEN command:

- during opening, it stops the movement
- when open, it closes the automation

If LOOP1 is triggered:

- with the beam closed, it commands the opening
- during closing, it reverses to open

If the Photocell / LOOP2 is triggered:

- during closing, it reverses to open

■ P - Car park

If LOOP1 is triggered:

- with the beam closed, it commands the opening. When the movement has ended and when released, it closes the automation
- during closing, it reverses to open. When the movement has ended and when released, it closes the automation

If the Photocell / LOOP2 is triggered:

- during closing, it stops the movement. When released, it continues to close

■ □ - Condominium

If the Photocell is triggered:

- during closing, it reverses to open and closes again after the pause time

If LOOP1 is triggered:

- with the beam closed, it commands the opening
- reverse to open during closing

If LOOP2 is triggered:

- during opening, when the movement has ended and when released, it closes the automation
- during closing, it reverses to open. When the movement has ended and when released, it closes the automation

DEAD MAN LOGIC - MAINTAINED

■ □ - Dead-man

Logic □ requires the use of maintained OPEN and CLOSE commands.

The control must be activated intentionally and the barrier must be visible.

- Maintained OPEN opens the automation
- Maintained CLOSE closes the automation

If photocells LOOP1 and LOOP2 are triggered:

- during closing, they stop the movement

CUSTOM LOGIC



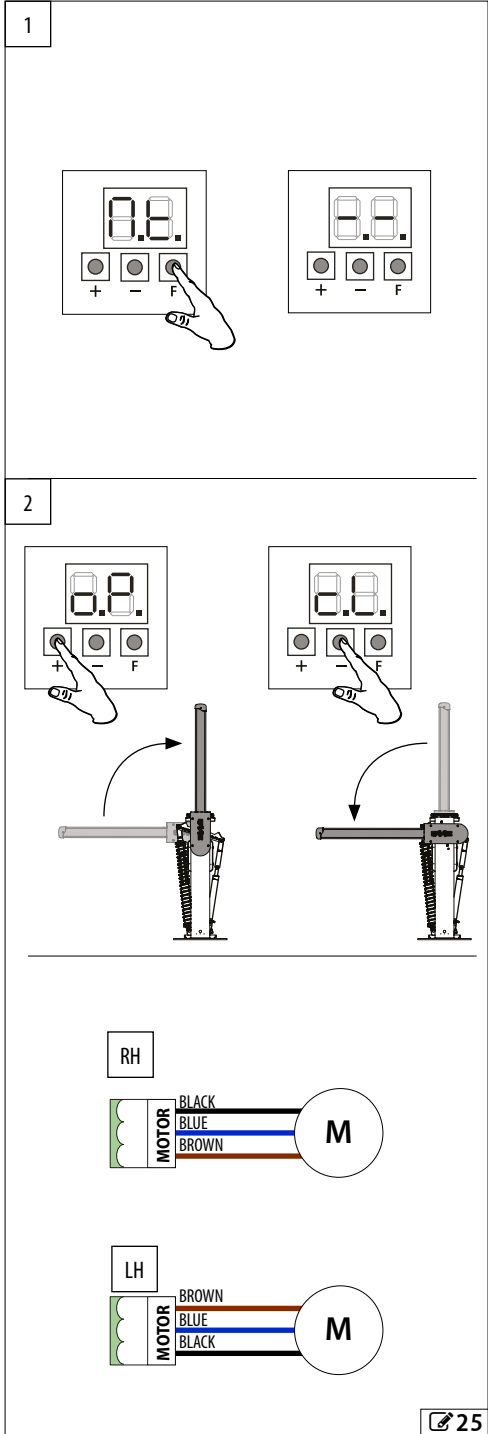
Custom logic is created in expert programming mode. Read the relevant section carefully before making changes at this level.

5.4 CHECK THE DIRECTION OF MOVEMENT

1. Select parameter $\square L$ in Basic Programming: the display shows --.
2. Press and hold the $+$ button: the display shows $\square P$ and the barrier opens. Press and hold the $-$ button: The display shows $\square L$ and the barrier closes.
3. If the conditions in points 2 and 3 are not met, disconnect the power supply and invert the black and brown wires of terminal J5 without modifying the central wire.



In the conditions indicated in points 2 and 3, the flashing dot between the two letters indicates that the encoder is operating correctly.



5.5 SET-UP

The setup procedure consists of a series of movements during which the board acquires the angle of rotation of the beam and other operating parameters which allow motor slowdowns and acceleration ramps to be managed correctly. The setup procedure also registers the BUS 2easy devices that are present.

The system needs to be setup

- When the automation system is first started
- When the board has been replaced
- Each time the display shows $\square\square$ flashing and the automation system does not work

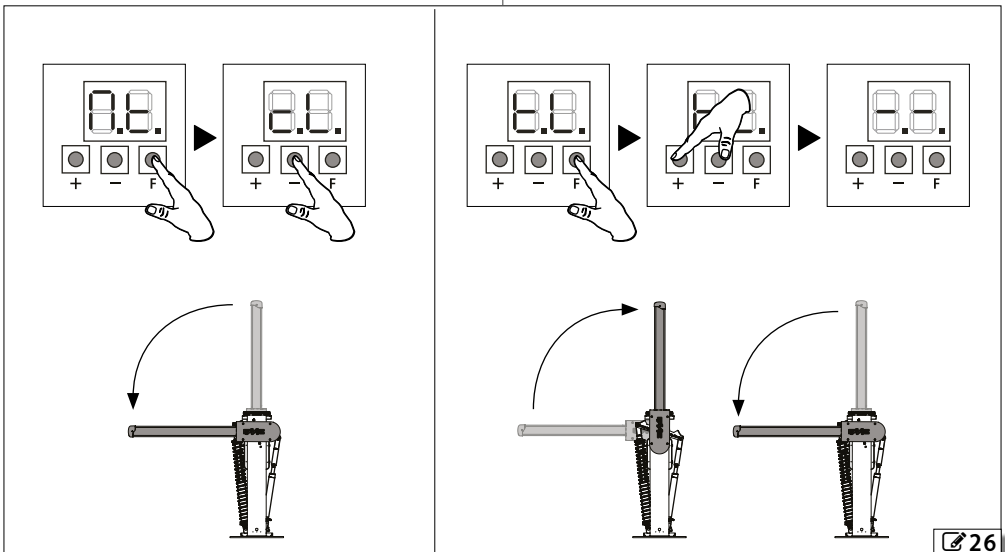
Setup procedure

The SETUP MUST be performed:

- with the mains power switched on
- with the automation locked
- with the STOP/EMR inputs not active

To carry out the setup:

1. Bring the automation to the fully closed position using parameter $\square\square$ in BASIC programming (see § 5.4).
2. Select the parameter $\square\square$ in Basic Programming, then press buttons $+$ and $-$ at the same time until the automation starts to open slowly. The $--$ symbol flashes on the display.
3. On reaching the fully open position, the automation system will stop automatically.
4. The automation will then start the beam closing movement.
5. On reaching the closed position, the automation system will stop automatically.
6. Press button **F** to exit the procedure, and confirm you wish to save the data with parameter $\square\square$. Make sure that the status of the automation system shown on the display is $\square\square$ (closed) and that the beam is in the closed position.




6. PUTTING INTO SERVICE

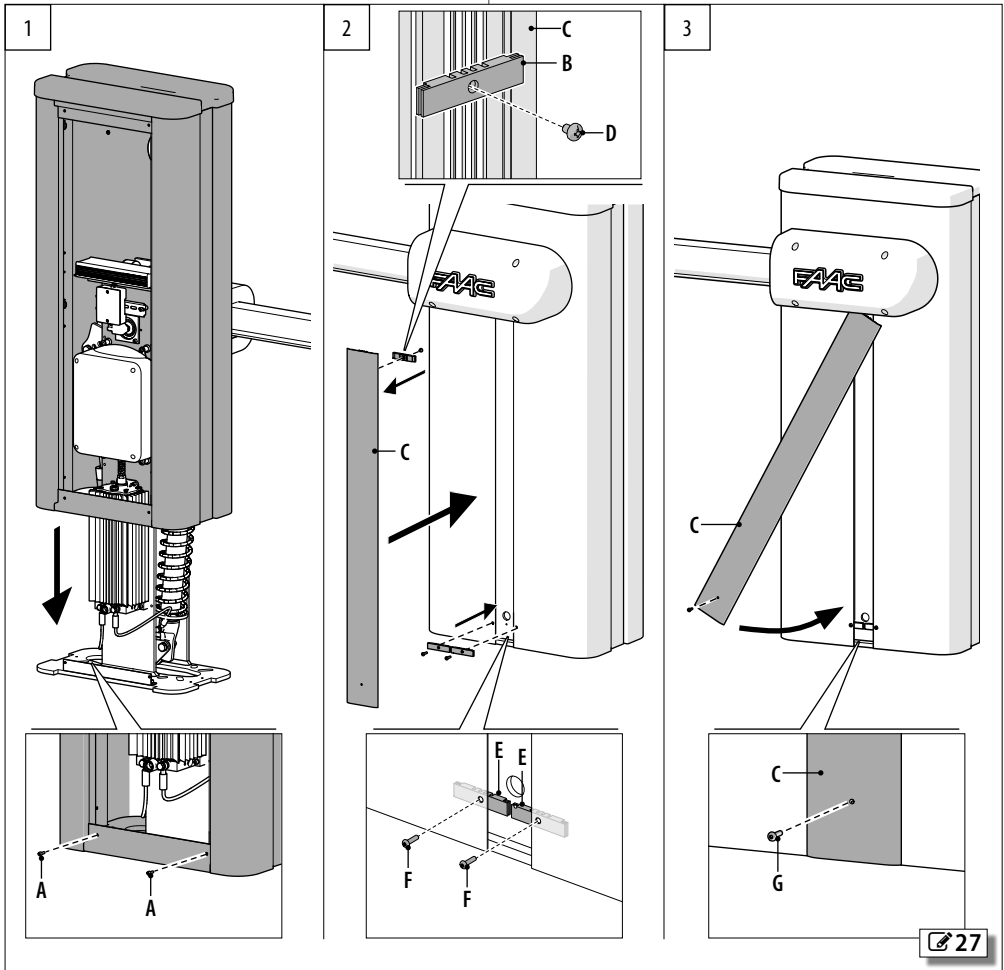
6.1 FINAL CHECKS

1. If foot traffic cannot be excluded, check that the forces generated by the beam fall within the limits permitted by the standard. Use an impact force tester in accordance with standards EN 12453. For non-EU countries, if there are no specific local regulations, the force must be less than 150 N. Check that the maximum force required to move the beam by hand is less than 220 N.
2. Check the automation system is working properly with all the devices installed.


6.2 INSTALLING THE CABINET

With reference to  27:

1. Insert the cabinet and secure it to the body of the automation using the screws **A**.
2. Secure the spacer **B** to the strip **C** using the screw **D**.
3. Insert the two spacers **E** and fasten them to the cabinet using the screws **F**.
4. Insert the strip **C** and secure it to the cabinet using the screw **G**.




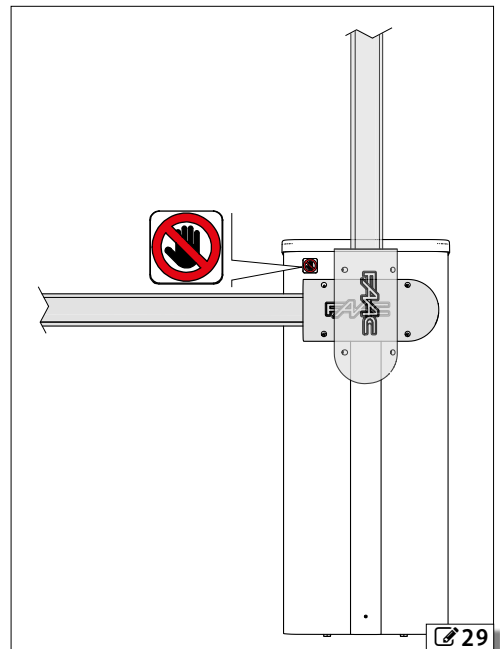
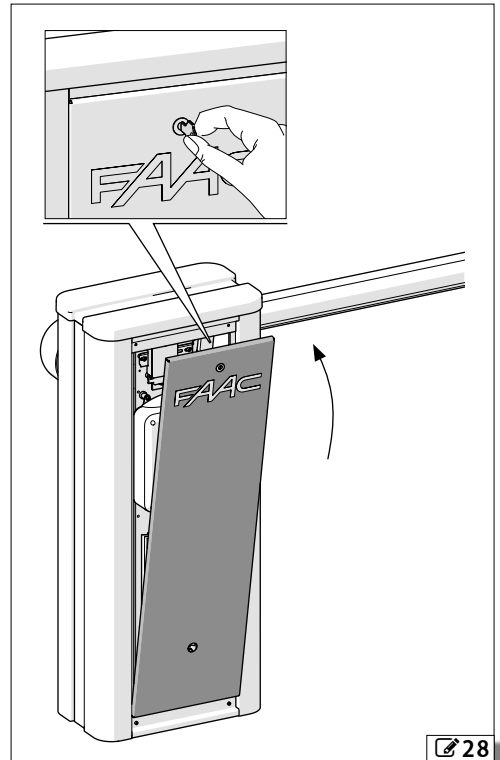
6.3 CLOSING THE DOOR

With reference to  28:

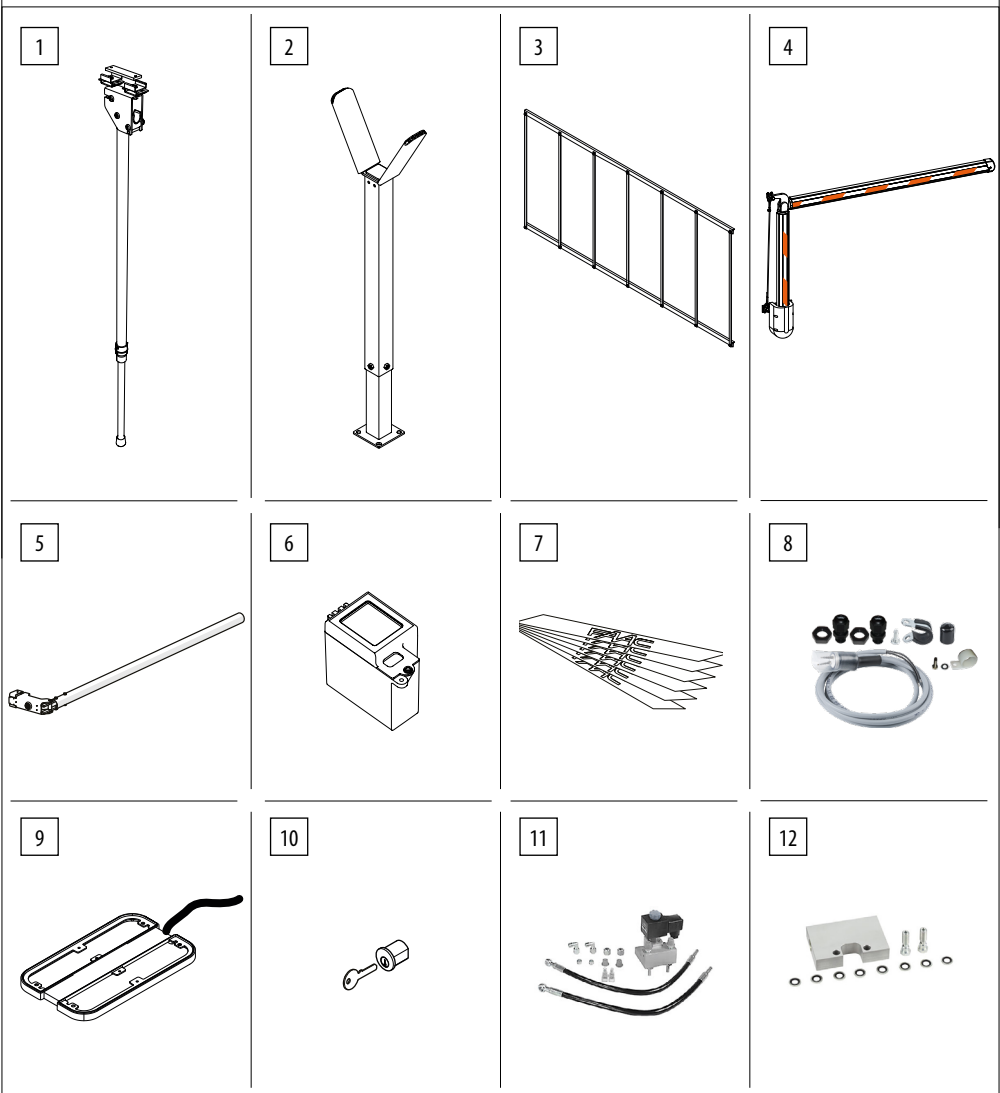
1. Insert the door into the seat at the bottom of the cabinet.
2. Lock the door using the key.

6.4 FINAL OPERATIONS

1. Apply the warning sticker, supplied, to the cabinet at the position shown in  29.
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. Apply a no pedestrian access sign, if required.
4. Place the "DANGER - AUTOMATIC MOVEMENT" sign where it is clearly visible. Place the EC marking on the barrier. Use adhesive signs so as not to perforate the box.
5. Fill out the EC declaration of conformity and the system register.
6. Give the EC Declaration, the system register with the maintenance plan and the instructions for use of the automation to the system owner/operator.



7. ACCESSORIES



- 1 Adjustable foot
- 2 Adjustable fork
- 3 Hedge kit
- 4 Joint kit
- 5 Pivot kit
- 6 XBAT 24 and XBAT 24 connection kit

- 7 Adhesive reflectors
- 8 Beam light kit
- 9 Integrated flashing traffic light
- 10 Release lock with personalised key
- 11 Anti-panic unit
- 12 Anti-vandal unit

7.1 BUS 2EASY DEVICES

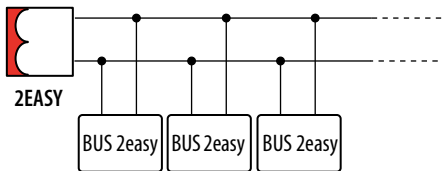
This board has a BUS 2easy circuit for the connection of the devices BUS 2easy.

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

CONNECTING A BUS 2EASY DEVICE.

Connect the devices to terminal board 2EASY.

i Do not exceed the maximum load of 500 mA. The overall length of the BUS 2easy cables must not exceed 100 m. The connection on the BUS line does not require a matching polarity connection.



■ BUS 2easy photocells

1. Assign an address to the BUS 2easy photocells by setting the four DIP switches on both the transmitter and the corresponding receiver (■ 9).

i The transmitter and receiver of a pair of photocells must have the same DIP switch settings. There must never be more than one pair of photocells with the same DIP switch setting. If there is more than one pair of photocells with the same DIP switch setting, it generates a conflict error on the board and prevents the automation from working. Detection devices do not generate conflicts with control devices and vice versa.

2. Register the BUS 2easy devices (§ specific section).
3. Check the BUS 2easy devices (§ specific section) and make sure that the automation operates according to the type of photocell installed.

■ 9 Assigning an address to BUS 2easy photocells

Key: 0=OFF , 1=ON

ON

1 2 3 4

1 0 0 0	FSW CL
1 0 0 1	
1 0 1 0	
1 0 1 1	
1 1 0 0	
1 1 0 1	
1 1 1 0	
1 1 1 1	
OPEN	

Type of use:

FSW CL	Photocell active during closing
OPEN	Photocell for OPEN A

i The action carried out when the photocells are triggered depends on the operating logic of the automation.

■ Control devices

1. Configure the DIP switches on the device to assign 1 or 2 commands (■ 10).

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. No two devices should have the same address. If there is more than one device with the same address, it generates a conflict error on the board and prevents the automation from working. Detection devices do not generate conflicts with control devices and vice versa.

2. Register the BUS 2easy devices (see § specific section).
3. Check the BUS 2easy devices (see § specific section) and make sure that the automation operates according to the type of control devices installed.

10 Addressing BUS 2easy control devices

Key: 0=OFF , 1=ON

DIP switch 5, if present, in the ON position enables the device for 2 commands.



0 0 0 0 0	Open A 1	0 0 0 0 1	Open A 1 /
0 0 0 1 0	Open A 2	0 0 0 1 1	Open A 1 /
0 0 1 0 0	Open A 3	0 0 1 0 1	Open A 1 Stop
0 0 1 1 0	Open A 4	0 0 1 1 1	Open A 1 Close
0 1 0 0 0	Open A 5	0 1 0 0 1	Open A 2 /
0 1 0 1 0	Stop	0 1 0 1 1	Open A 2 /
0 1 1 0 0	*Stop NC 1	0 1 1 0 1	Open A 2 Stop
0 1 1 1 0	*Stop NC 2	0 1 1 1 1	Open A 2 Close
1 0 0 0 0	Close	1 0 0 0 1	Open A 3 /
1 0 0 1 0	/	1 0 0 1 1	Open A 3 /
1 0 1 0 0	/	1 0 1 0 1	Open A 3 Stop NC 1
1 0 1 1 0	/	1 0 1 1 1	Open A 3 Close
1 1 0 0 0	/	1 1 0 0 1	Open A 4 /
1 1 0 1 0	/	1 1 0 1 1	Open A 4 /
1 1 1 0 0	/	1 1 1 0 1	Open A 4 *Stop NC 2
1 1 1 1 0	/	1 1 1 1 1	Open A 4 Close

REGISTERING BUS 2EASY DEVICES

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 BUS 2easy:

1. With the board powered, go to the BU function in basic programming.
2. Press the + and - buttons simultaneously for at least 5 s. The display flashes, then H appears (registration complete).
3. Release the buttons and exit from programming mode.

CHECKING THE BUS 2EASY STATUS LEDS

To verify the BUS 2easy connection and status, check the LEDs on the board:

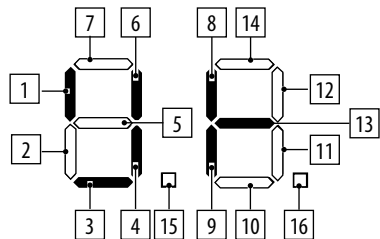
DL1 (RED)	● At least one device is in operation
	○ NO devices in operation
	* BUS 2easy registration in progress
DL2 (GREEN)	● OK
	○ SLEEPING
	* SHORT CIRCUIT
	* ERROR

VERIFYING BUS 2EASY DEVICES

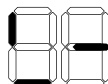
1. Go to the BU function in basic programming. The display shows status BUS 2easy:

- No devices are registered
- At least one device registered
- BUS 2easy short circuit / overload (error 36)
- BUS 2easy line error (check the addresses and repeat the registration)

2. Press the + button and keep it pressed; the segments relative to the registered devices turn on. Release the button, the display reverts to the BUS 2easy status view.
3. To check the operation of the registered devices, activate each device individually and check that the corresponding segment lights up.



1	Open A control device
2	Not used
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
15	Not used
16	Not used



e.g. 1 or more OPEN A control devices and closing photocells are registered

7.2 RELAY PHOTOCELLS

i Photocells are additional type D detection devices (according to EN 12453) that reduce the likelihood of contact with the moving beam. The photocells are not safety devices according to standard EN 12978.

Using relay photocells with NC contact. If multiple photocells are used, the contacts must be connected in series. If the FSW input is not used, it must be bridged to the GND terminal (or to the output programmed as Failsafe, if enabled).

■ Functional test (Failsafe)

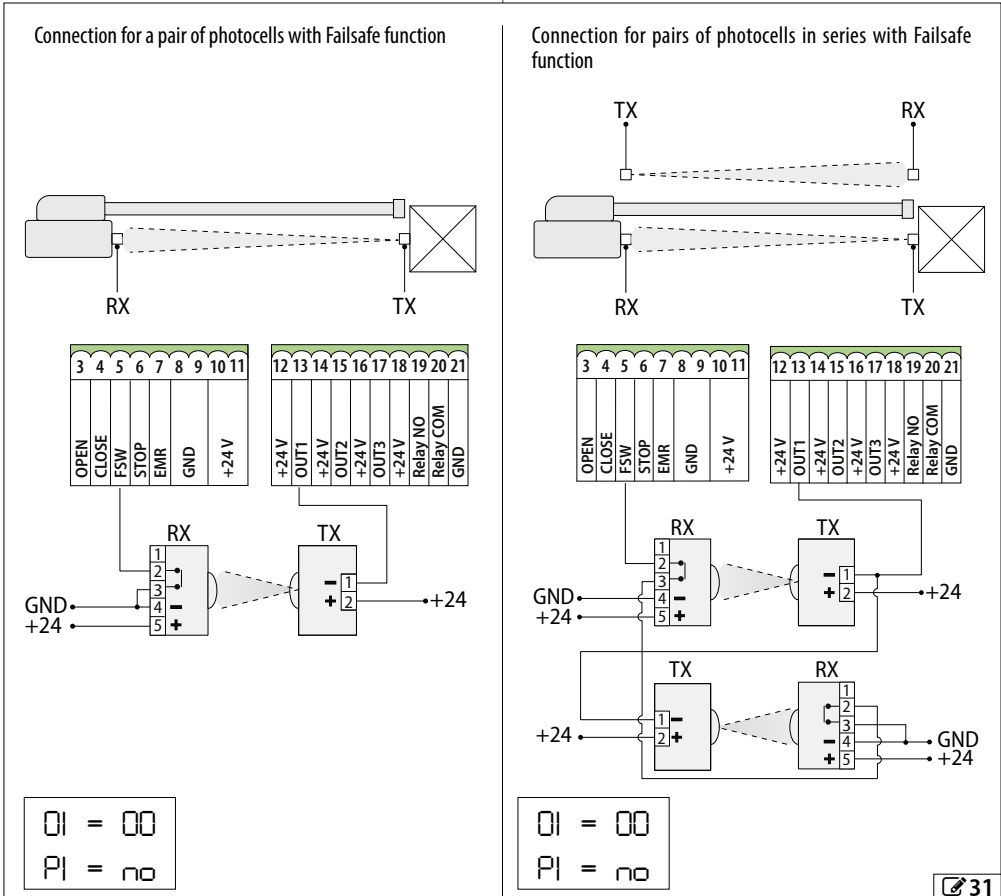
Failsafe is a functional test that is carried out before a movement: the board momentarily disconnects power to the transmitters and checks the change in status of the input. If the test fails, the board generates an error and prevents the automation from moving.

To enable the Failsafe:

1. Connect the negative of the transmitter to the negative of an output (e.g. OUT1).
2. In advanced programming, configure the output used as Failsafe:
 - OI = 00
3. Configure the polarity as normally open:
 - PI = n0

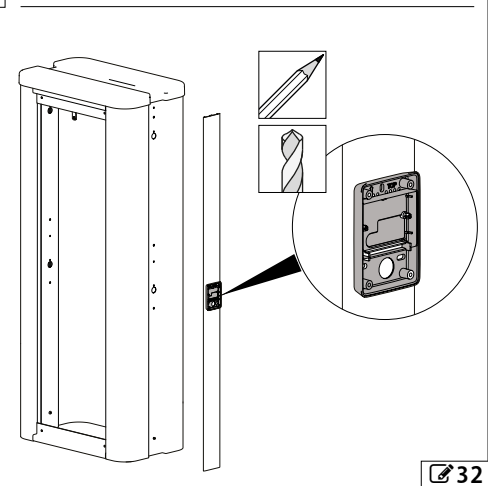
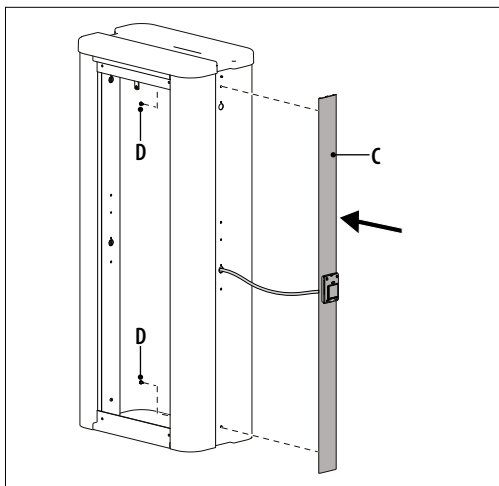
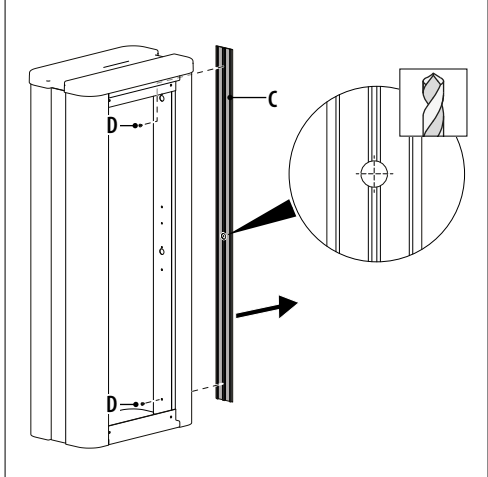
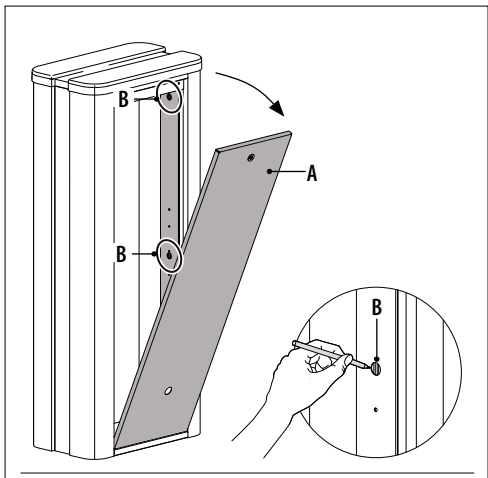
Connection for a pair of photocells with Failsafe function

Connection for pairs of photocells in series with Failsafe function



7.3 INSTALLING PHOTOCELLS ON THE BARRIER


1. Remove the cabinet.
2. Open the door A.
3. Determine which is the most suitable cable routing hole B and mark it on the strip C from the inside.
4. Remove the strip C from the cabinet by removing the fastening screws D.
5. Drill the hole for routing the cable.
6. Use the photocell fixing plate E to mark the fixing holes and drill them.
7. Mount the photocell following the installation instructions.
8. Feed the power cable through the cable routing hole.
9. Connect the photocell following the wiring diagram provided.
10. Reassemble the unit.



7.4 SIMPLY CONNECT


i Simply Connect requires B680H firmware version FW 4.0 or later.

When programming is taking place via Simply Connect, programming via the board is inhibited.

With reference to  33:

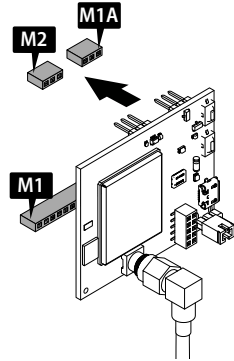
1. With the board disconnected from the power supply, insert the module into the dedicated plug in connectors.
2. Power up the board and check the signalling LEDs of the module (see instructions).
3. In basic programming, Simply connect function, enable channel 1 ($\text{J}[\text{E}] = \text{I}$).
4. Install the Simply Connect PRO app.

7.5 INTEGRATED TRAFFIC LIGHT

With reference to  34:

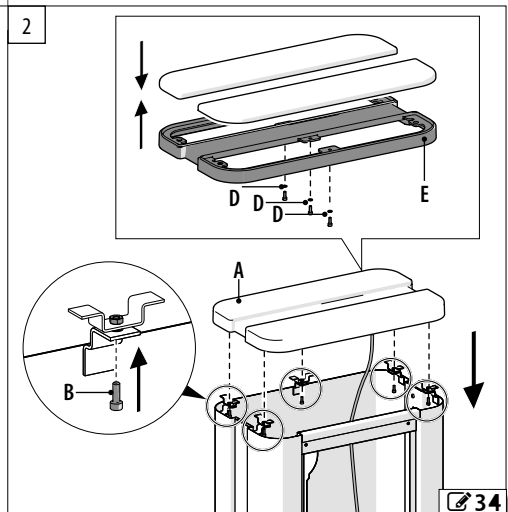
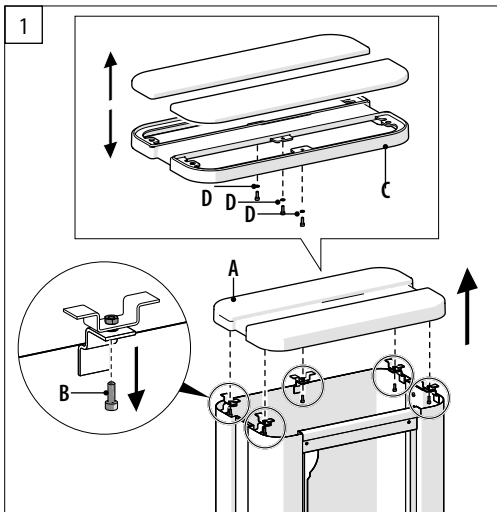
1. Remove the door from the cabinet and remove the cover A by unscrewing the Allen screws B.
2. Remove the support C from the cover A by unscrewing the Allen screws D.
3. Attach the support E with the integrated lights to the cover by screwing the Allen screws D.
4. Connect the wire to terminal J18.
5. Select the operating mode (function $\square \uparrow$ in Advanced programming).
6. Reassemble the unit and make sure that the device is working properly.

Example with XMB module



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 33



 34

7.6 EXTERNAL FLASHING LIGHT 24V==

The flashing light indicates that the automation is moving.

i Install the flashing light in an easily visible position.

1. Connect the external flashing light to connector J3 (4.8 W max).
2. Set the pre-flashing (PF Advanced programming), if required.
3. Check that the device is working properly.

7.7 BEAM LIGHT KIT

Follow the assembly instructions supplied with the product. Connect the beam lights to connector J16.

7.8 XBAT 24 EMERGENCY BATTERY

The XBAT 24 battery provides power to the automation system in the event of a mains power failure. The number of cycles that can be carried out with the battery depends on various factors (state of battery charge, time elapsing since the power outage, room temperature etc.).

i Recharge the battery before starting the system. The full charging cycle of the XBAT 24 battery is 72 hours.

1. Follow the assembly instructions supplied with the product.
2. Connect the battery to connector J12 on the board.

i Disconnect the emergency battery if the automation system is taken out of use.

7.9 RP RADIO MODULE

RP radio module with integrated decoding module, compatible with all FDS / FDS BD / SLH / RC / DS models. The RP radio is powered via the 5-pin plug in connector J10. Follow the assembly instructions supplied with the product.

If you are using a two-channel RP2 receiver, you can OPEN and CLOSE the automation directly from a two-channel radio control. If you use a single channel RP receiver, you can only OPEN the automation.

7.10 PIVOTING BEAM KIT

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

Connect the anti-breakthrough sensor to connector J11. If there is no sensor fitted, do not remove the jumper that has already been installed.

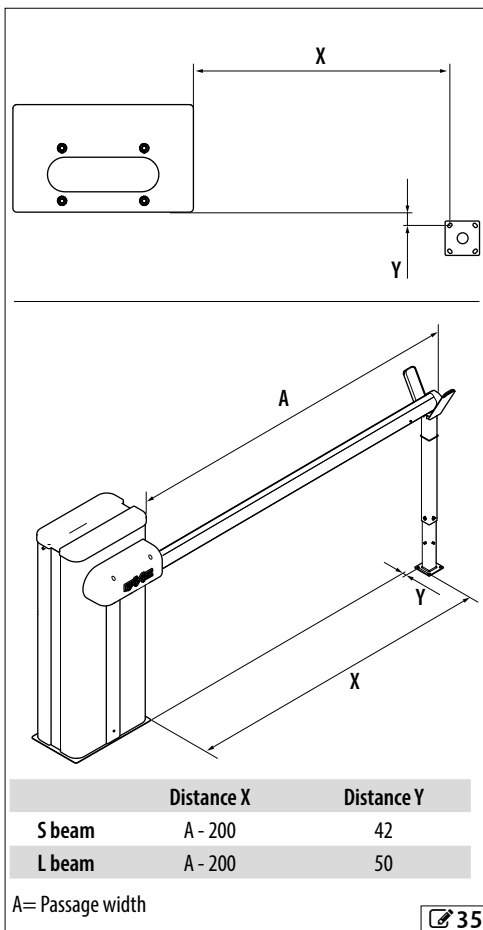
7.11 HEDGE

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

7.12 FORK

Follow the assembly instructions supplied with the product.

i Provide a clearance area or signals to prevent pedestrians from being hit.



7.13 BEAM JOINT KIT

Follow the assembly instructions supplied with the product.

- i** Indicate the maximum height of the vehicles considering the height of the beam itself.
Do not use the joint to limit the height of the vehicles passing through.

7.14 FOOT

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

7.15 ANTI-PANIC UNIT

Allows the beam to be opened manually in the event of a power supply failure.

Follow the assembly instructions supplied with the product.

7.16 ANTI-VANDAL UNIT

Protects the hydraulic system in the event that the beam is subjected to force.

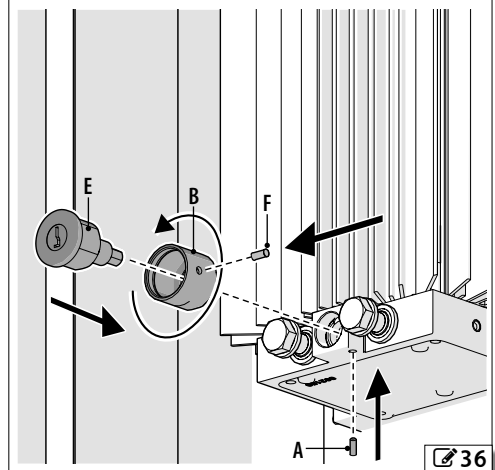
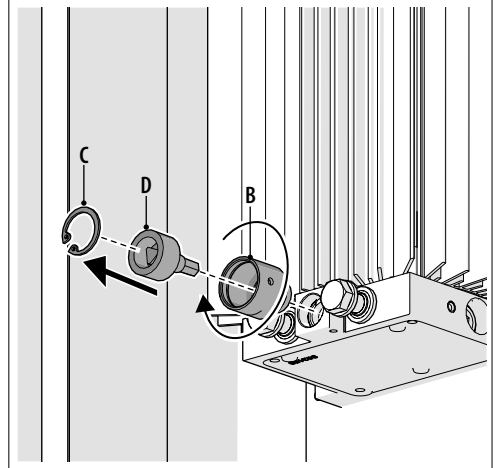
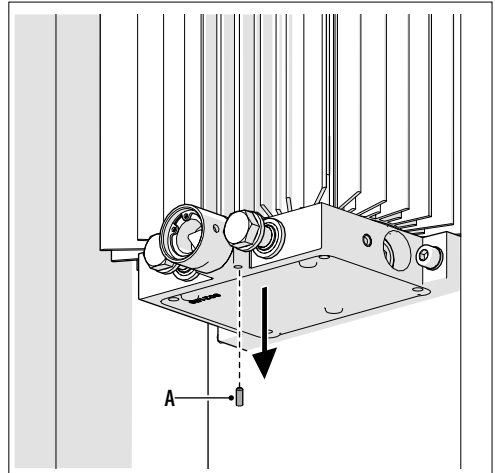
Follow the assembly instructions supplied with the product.

- i** It is not possible to mount both the anti-vandal unit and the anti-panic unit.

7.17 LOCK WITH PERSONALISED KEY

With reference to  36:

1. Remove the door from the cabinet.
2. Release the hydraulic control unit
3. Unscrew the grub screw A.
4. Unscrew the block B
5. Remove the Seeger C and the triangular lock D.
6. Insert the new lock E into the block B and secure it with the grub screw F.
7. Reassemble the unit.
8. Make sure that the release lever works, using the new keys.



8. TWO-BARRIER CONFIGURATION

8.1 TWO OPPOSING BARRIERS

This configuration makes it possible to install two opposing barriers with synchronous movement. In this configuration, one barrier is defined as the Primary and the other as the Secondary.

The Primary barrier manages all the controls and safety devices, and the Secondary barrier via BUS 2easy.

Any input signals on the J1 terminal board of the Secondary board will be ignored.

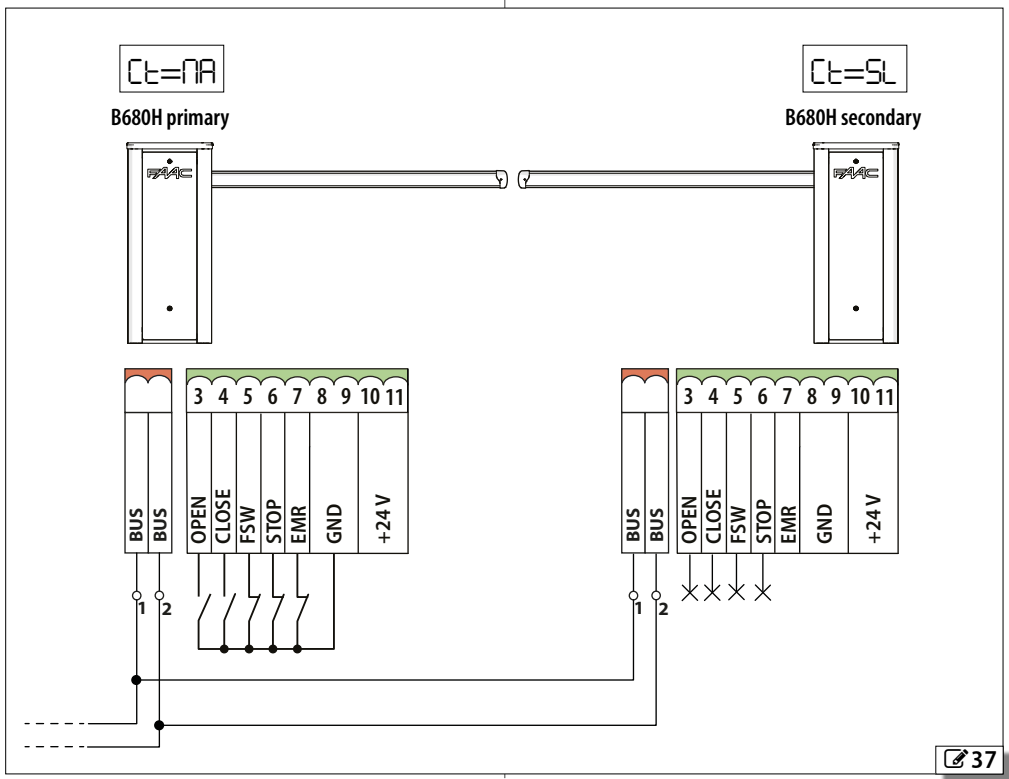


The anticrushing function is active on each barrier and commands the inversion of both.

CONNECTING OPPOSING BARRIERS

1. Connect the barriers with a BUS 2easy polarised connection.
2. Connect the required devices. They must be connected to the primary and/or secondary board as indicated in the table:

Connections	Primary	Secondary
Power supply	✓	✓
Motor	✓	✓
Encoder	✓	✓
Head lighting	✓	✓
Beam lights	✓	✓
Outputs	✓	✓
BUS 2easy	✓	✓
Control devices	✓	✗
Loop	✓	✗
Flashing light	✓	✗

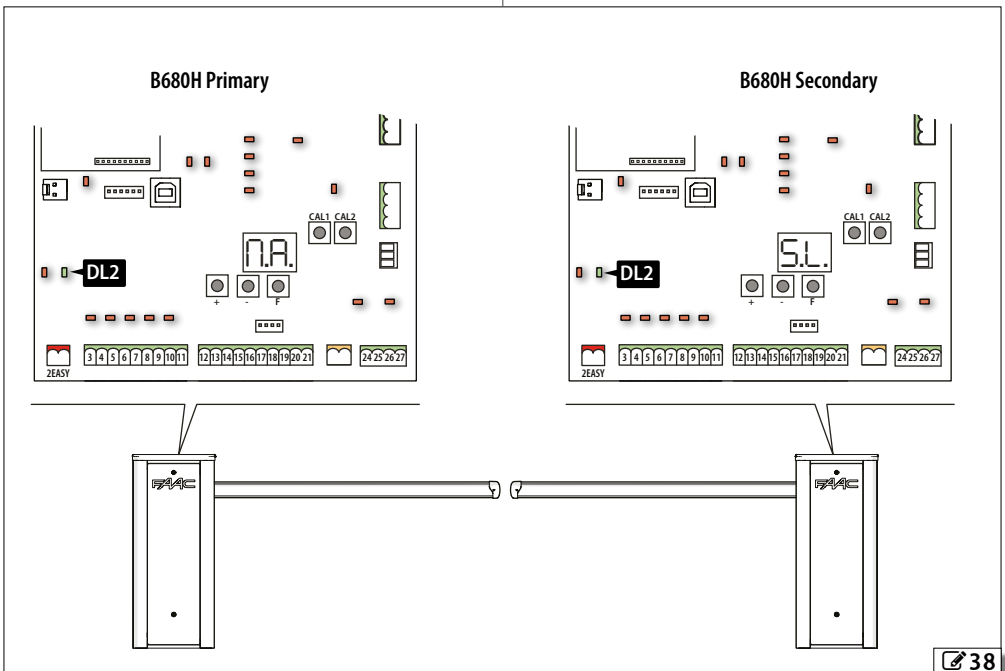


PRIMARY / SECONDARY CONFIGURATION

- Switch power on to the barriers.
 - On both boards, carry out programming according to the beam configuration and length (cF in Basic Programming).
 - Set:
 - $\text{CL}=\text{PA}$ on the primary board
 - $\text{CL}=\text{SL}$ on the secondary board
-
- i** The operating logic should only be programmed on the Primary board.
-
- Check the status of the LEDs on the boards and make sure that LED DL2 (green) is lit.
 - Check the driving direction for both barriers (see § 5.4).
 - Bring the automations to the fully closed position using parameter PE in BASIC programming.
 - Access Basic programming on the Primary board and select parameter EL , then press the **+** and **-** buttons at the same time until both automation systems start to open slowly. The -- symbol flashes on the display.

- On reaching the fully open position, both automation systems will stop automatically.
- The automation systems will then begin the beam closing movement.
- On reaching the closed position, the movement will stop automatically.
- Press the **F** button to exit the procedure and confirm that you wish to save the data using parameter SE .
- Check that the current status of the automation shown on the display of both automation systems is $\square\square$ (closed) and that the beam is in the closed position.

- i** During setup the Primary board controls the Secondary board.
When a device is configured as Secondary, the unused parameters will be hidden in the programming menus.




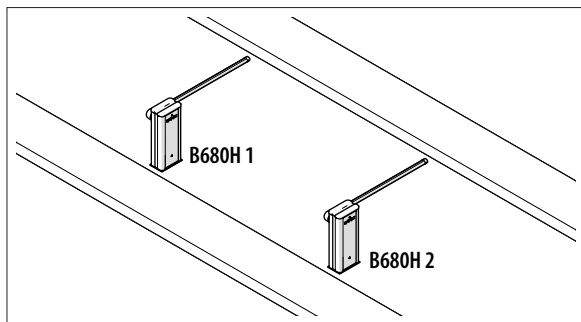
8.2 TWO INTERLOCKED BARRIERS

This configuration allows two barriers to be controlled where the opening of one is subject to the closing of the other.

The barriers are both Primary.

INTERLOCK CONFIGURATION

1. Connect the two barriers as per  39
2. In advanced programming program both boards with $ol=IB$ and $Pl=no$.
3. Carry out the start up and setup procedure

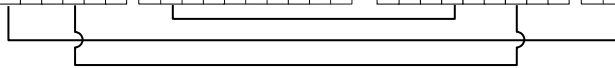


B680H 1

3	4	5	6	7	8	9	10	11													
OP-A	CLOSE	FSW	STOP	EMR	GND	+24 V	+24 V	+24 V	OUT1	+24 V	OUT2	+24 V	OUT3	+24 V	Relay NO	Relay COM	GND				

B680H 2

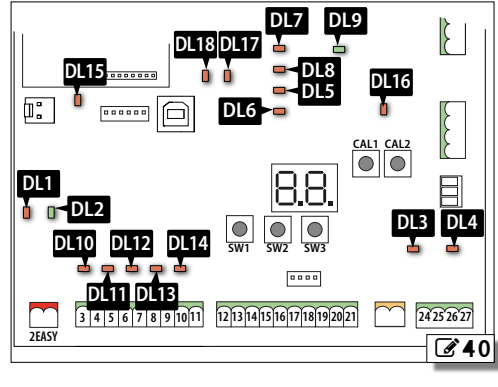
3	4	5	6	7	8	9	10	11													
OP-A	CLOSE	FSW	STOP	EMR	GND	+24 V	+24 V	+24 V	OUT1	+24 V	OUT2	+24 V	OUT3	+24 V	Relay NO	Relay COM	GND				



9. DIAGNOSTICS

9.1 DISPLAY SIGNALS

The items in bold in table 11 indicate the condition of the LEDs with the board powered and the beam closed.



11 LED diagnostics

LED	Colour	Meaning	●	○	*	*
DL1	red	BUS Zeasy operation				
DL2	green	BUS Zeasy line diagnostics				
DL3	red	LOOP1 status	Engaged	Idle	-	-
DL4	red	LOOP2 status	Engaged	Idle	-	-
DL5	red	Board faulty signal	Errors/alarms present	No errors/alarms	-	-
DL6	red	Not used	-	-	-	-
DL7	red	Encoder Status	-	Stopped	Moving (the flashing frequency is related to the speed)	
DL8	red	Not used	-	-	-	-
DL9	green	Board powered	Power on	No power	-	-
DL10	red	Input status LED OPEN	Active	not active	-	-
DL11	red	Input status LED CLOSE	Active	not active	-	-
DL12	red	Input status LED FSW	Not active	Active	-	-
DL13	red	Input status LED STOP	Not active	Active	-	-
DL14	red	Input status LED EMR	Not active	Active	-	-
DL15	red	Beam released signal	Beam not released	Beam released	-	-
DL16	red	Battery operation signal	Battery in operation	Battery not in operation	-	-
DL17	red	Radio channel 1 activity	Receiving command	Idle	-	-
DL18	red	Radio channel 2 activity	Receiving command	Idle	-	-

●=on ○=off * =slow flashing ** =fast flashing



In Primary-Secondary configuration see § 8.1.

9.2 FIRMWARE VERSION

When the display of the E680S is switched on, it shows the following in succession:

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

9.3 AUTOMATION STATUS

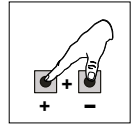
The E680S display if not in the programming, shows a code indicating the status the automation is in:

- | | |
|----|---|
| 00 | Closed |
| 01 | Open |
| 02 | Stationary then opens |
| 03 | Stationary then closes |
| 04 | In pause mode |
| 05 | Opening |
| 06 | Closing |
| 07 | Failsafe in progress |
| 08 | BUS 2easy device verification in progress |
| 09 | Pre-flashing and then opens |
| 10 | Pre-flashing and then closes |
| 11 | Opening in Emergency |

9.4 ERROR CODES AND ALARMS

The current notifications can be viewed on the B680H display (e.g. Er 07, or multiple notifications e.g. Er 07 16):

- when the board is not in the programming menus, press **+** and **-** at the same time.



12 Errors and alarms

Error (number on white background) - **Alarm** (number on grey background)

	No warnings	
	Accessories power supply fault	Check the accessories connection for short circuits. Check the current drawn by the connected accessories and that maximum indicated load is not exceeded. Switch the power off and on again. If the problem persists, replace the control board.
	Motor Fault	Motor disconnected or short-circuited. Check the wiring. If the problem persists, replace the motor.
	Encoder failure	Make sure that the encoder is connected properly. If the problem persists, replace the encoder.
	Access breakout	Access breakout. Re-arm the beam.
	Failsafe test failed	Device Failsafe test failed. Check the connections, programming, and that the safety devices are working correctly.
	Consecutive obstacles in closing	The maximum number of consecutive obstacles in closing has been reached. Remove the obstacle. If the problem persists, repeat the SETUP.
	Movement time-out	The movement is in timeout. Check the manual release. If the problem persists, replace the board or motor.
	BUS 2easy device fault/conflict	Check the addresses of the devices.
	Short circuit/overload on BUS 2easy	Check the connections of the BUS 2easy devices that are connected and registered.
	SETUP incorrect/missing	Perform SETUP.
	Emergency input active	Check the emergency input.
	Maintenance request	Scheduled maintenance should be carried out.
	Beam obstacle detected	An obstacle that prevents the beam from moving has been detected. Remove the obstacle.
	SETUP in progress	SETUP is in progress. The notification remains as long as the phase is in progress.
	Programming in progress	Programming is being carried out via Simply Connect.

10. MAINTENANCE

i If the barrier is put out of order for a long time, the beam needs to be removed. Only use original FAAC spare parts.

10.1 SCHEDULED MAINTENANCE

Carry out the operations indicated in table **13** **Scheduled maintenance** in order to keep the barrier working reliably and safely.

The table is provided as a guide only and should not be considered exhaustive.

13 Scheduled maintenance

i If the tests listed below turn up conditions that are other than expected, repair or restoration is necessary.

Operations	Frequency/months
Structure	
Check the plinth and built/fenced parts around the automation system: make sure there is no damage, cracking, breaks or subsidence.	12
Check the area in which the beam moves: make sure there are no objects/deposits that reduce the safety clearances or obstacles that prevent the beam from moving, such as branches, overhead lines etc.	12
Ensure that there are no sharp protrusions which could represent a perforation or hooking hazard.	12
Check the hoses	5 years
Check the end stops	5 years
Barrier	
Check the fixing of the upright to the foundation plate	6
Check the presence and integrity of the reflectors on the beam and all the other signs and markings necessary.	6
Check the barrier and its fixings: integrity, absence of deformation, rust etc. Check that screws and bolts are correctly tightened.	12
Check the condition of the beam and that it is fastened properly.	12
Check the integrity and proper fixing of the spring and tie rods.	12
Check the configuration and the balancing of the barrier.	12
Check the integrity, proper functioning and adjustment of the limit switch.	12
Check the integrity of all the cables, cable glands and junction boxes.	12
Make sure that there are no oil leaks	6
Do a general cleaning of the barrier manoeuvre area.	12
Electronic equipment	
Check the integrity of the upper cover.	12
Check that the connectors and wiring are intact.	12
Check that the earth connections are intact.	12
Check that there are no signs of overheating, burning etc. of electronic components.	12
Check the operation of the circuit breaker and differential switch.	12
Control devices	
Check that the installed devices and radio controls are in good condition and that they operate correctly.	12

The installer/machine manufacturer is responsible for drawing up the maintenance plan, supplementing this list or shortening maintenance intervals according to the machine characteristics, installed components and current local regulations.

i It is prohibited to put the system back into operation until all the safety requirements of the machine have been restored.

Operations	Frequency/months
Deformable edges	
Check that they are intact and correctly fastened.	12
Photocells	
Check condition, fastening and correct operation.	6
Check the posts, ensuring that they are intact, correctly fastened and free of deformation etc.	6
Flashing light	
Check condition, fastening and correct operation.	12
Access control	
Check the proper opening of the barrier only with authorised user recognition.	12
Hedge	
Check: the integrity and fixing of the beam.	6
Foot	
Check: the integrity and fixing of the beam.	6
Check the presence and integrity of the reflectors on the foot and all the other signs and markings necessary.	6
Check the presence and integrity of the lower foot guard.	6
Fork	
Check that they are intact and correctly fastened.	6
Check the presence and integrity of all the signs and markings necessary.	6
Jointed beam	
Check that they are intact and correctly fastened.	6
Check the integrity of the wire and the relative signs (max height allowed, risk of crushing in the beam joint).	6
Check the LED lights	5 years
Complete automation system	
Check the correct functioning of the manual release: when the release is activated it must only be possible to move the beam manually.	6
Check the presence of the lock cover.	
Check that the maximum force required to move the beam by hand is less than 220 N.	6
Check that the encoder is working properly.	6
Check the force limitation curve (standards EN 12453 and EN 12445). For non-EU countries, if there are no specific local regulations, the force must be less than 150 N.	6
Check that the automation operates correctly, following the set logic, when using the various control devices.	12
Check the proper fluid, smooth movement of the beam without strange noises.	12
Check the correct speed during opening and closing and the respect for the intended slow downs.	12
Check that all necessary signage and warnings are present, intact and legible: residual risks, exclusive use etc.	12
Check the presence, integrity, legibility of the EC marking covering the automation system and the DANGER AUTOMATIC MOVEMENT warning sign	12



For non FAAC components, refer to the manufacturer's documentation.

🗒️ 14 Periodic replacements

Component	Frequency in work cycles
Control unit	2000000
Plunger pistons	2000000

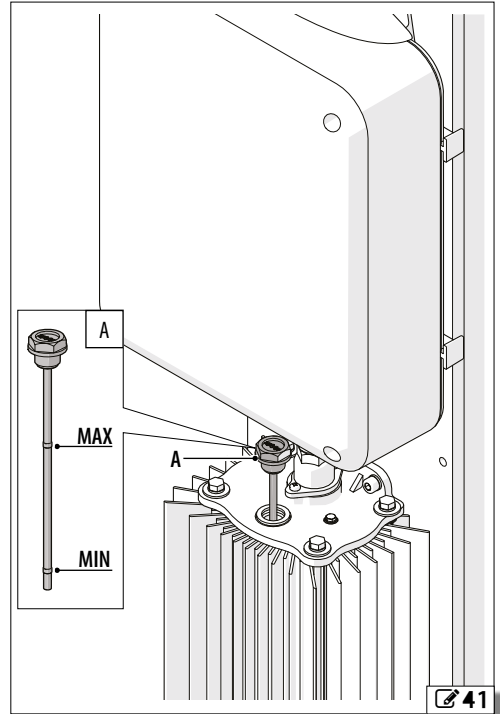
10.2 TOPPING UP THE OIL

Operations	Frequency/months
Check oil level	6
Bleed the air	If necessary

To top up the oil, follow the procedure below:

1. Unscrew the oil filler cap A and remove it.
2. Check the oil level: the oil level must be between the two marks.
3. If necessary, top up the oil without exceeding the maximum level.
4. Replace the cap and tighten it.

 Only use oil supplied by FAAC for topping up.



10.3 AIR BLEEDING PROCEDURE

If the beam movement is irregular, bleed the air as follows:

i If parameters $F\Box$ and $F\Box$ in ADVANCED Programming have been modified and a value less than the default has been set, we recommend that you set them to an equal or higher value during bleeding in order to make it easier to bleed the air.

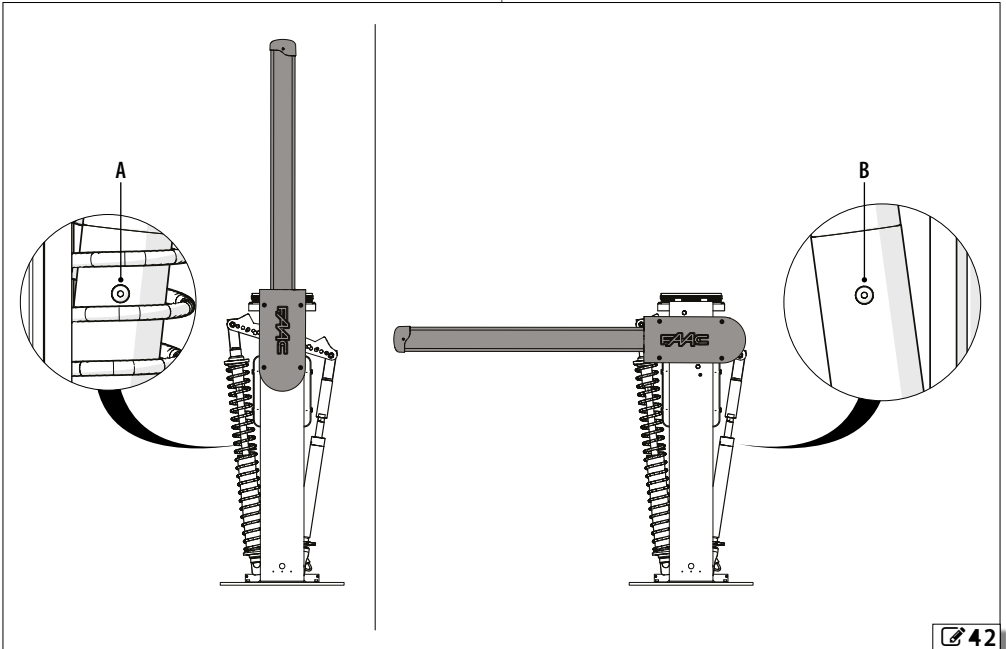
1. Open the automation electronically.
2. Once it is open, slightly loosen the bleed screw **A** of the piston with the balancing spring.
3. Re-tighten after air, foam or oil has been removed.
4. Carry out a closing cycle.

5. Once it is closed, slightly loosen the bleed screw **B** of the piston without the balancing spring.
6. Re-tighten after air, foam or oil has been removed.
7. Bleeding is complete when drops of oil come out of both pistons and the beam moves smoothly.

i If air or foam comes out of the pistons, bleeding should be repeated.

8. Check the oil level, top up if necessary.

i Be careful when doing this as the pistons contain oil under pressure, which could escape if the screws are loosened too much.



10.4 OPERATIONAL PROBLEMS


15 Troubleshooting

CONDITION	FINDING SOLUTIONS
The barrier does not perform the SETUP The barrier does NOT OPEN	Make sure that the automation has not been released Make sure there is power Check the motor and encoder connection
The barrier CLOSES rather than OPENING and vice versa.	Invert the phases in the motor connection and carry out the setup
The barrier makes very slow movements	Check the force set Make sure that the beam is balanced Make sure that the parameter cF has been set according to the length of the beam If the barrier working on the battery, make sure that 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	Make sure that the automation has not been released Check the driving direction of the motor
The barrier does NOT CLOSE	Make sure that the automation has not been released Check the driving direction of the motor Check the LED status of the controls, loops, safety devices and EMR are not active
The barrier does NOT OPEN and does NOT CLOSE	Make sure that the automation has not been released Check the status of the STOP LED is not active Check the motor and encoder connection
The barrier moves irregularly and is very noisy during the opening and closing cycles	Make sure there is no air in the hydraulic circuit, bleed it if necessary.

10.5 REVERSING THE OPENING DIRECTION

The direction in which the barrier will open is decided when it is installed. If the opening direction has to be reversed, proceed as follows.

■ Preliminary operations

With reference to  43-1:


1. Remove the cover
2. Release the barrier and move the beam so that it is vertical.
3. Lock the operator again.
4. Remove the beam and beam bracket.

■ Remove the spring unit

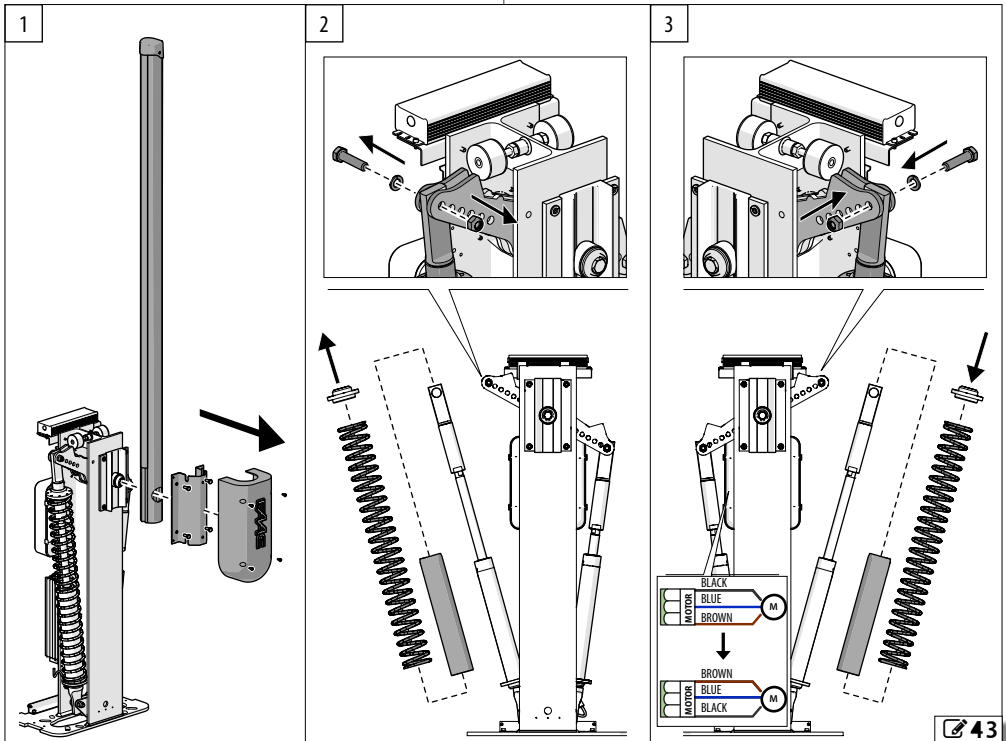
With reference to  43-2:

1. Remove the fastener that connects the plunger piston to the balancer arm.
2. Unscrew the preload ring nut.
3. Remove the balancing spring and the spring guide.
4. Connect the plunger piston to the correct fixing hole.

- Install the spring assembly on the piston on the opposite side

With reference to  43-3:

1. Remove the fixing screw of the plunger piston on the opposite side.
2. Unlock the automation.
3. Rotate the balancer by 90° and replace, in the following order, the spring guide, the balancing spring and the ring nut in the plunger piston on the new closing side.
4. Fasten the plunger piston to the balancer arm.
5. Install the beam and beam bracket.
6. Balance the system again.
7. Lock the operator.
8. Invert the motor cable connection.
9. Put the cover back.



11. INSTRUCTIONS FOR USE

It is the responsibility of the machine installer/manufacturer to draft the user instructions of the automation in accordance with the Machinery Directive, including all the required information and instructions based on the characteristics of the automation.

The guidelines below, which are purely indicative and in no way exhaustive, help the installer draft the user instructions.



The installer must provide the owner/operator of the automation with the EC Declaration, the system Logbook 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
- keep the system Logbook, which must be completed by the maintenance technician at the end of all servicing

11.1 SAFETY RECOMMENDATIONS

The plants made with FAAC buried actuators B680H series are intended for vehicular traffic.

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

- Do not use the automation unless the area of operation is free of persons, animals or objects.
- Do not enter/remain in 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, hold onto or let yourself be pulled along by the beam.
- Do not allow the control devices to be used by anyone who is not specifically authorised and trained to do so.
- Do not allow the control devices to be used by children or persons with mental and physical deficiencies unless they are supervised by an adult who is responsible for their safety.
- Do not use the automation if there are faults that 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 beam and the cabinet when the beam is moving. Do not approach the barrier, do not put your hands in the danger area during movement.

11.2 EMERGENCY USE

In emergencies or if there is a fault, turn off the power supply to the automation and disconnect the buffer batteries if there are any. If the beam 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 beam and request the assistance of the installation engineer to remove the beam.

11.3 MANUAL OPERATION

In order to operate the beam manually, the gearmotor has to be released using the lever with key.

RELEASE MANOEUVRE

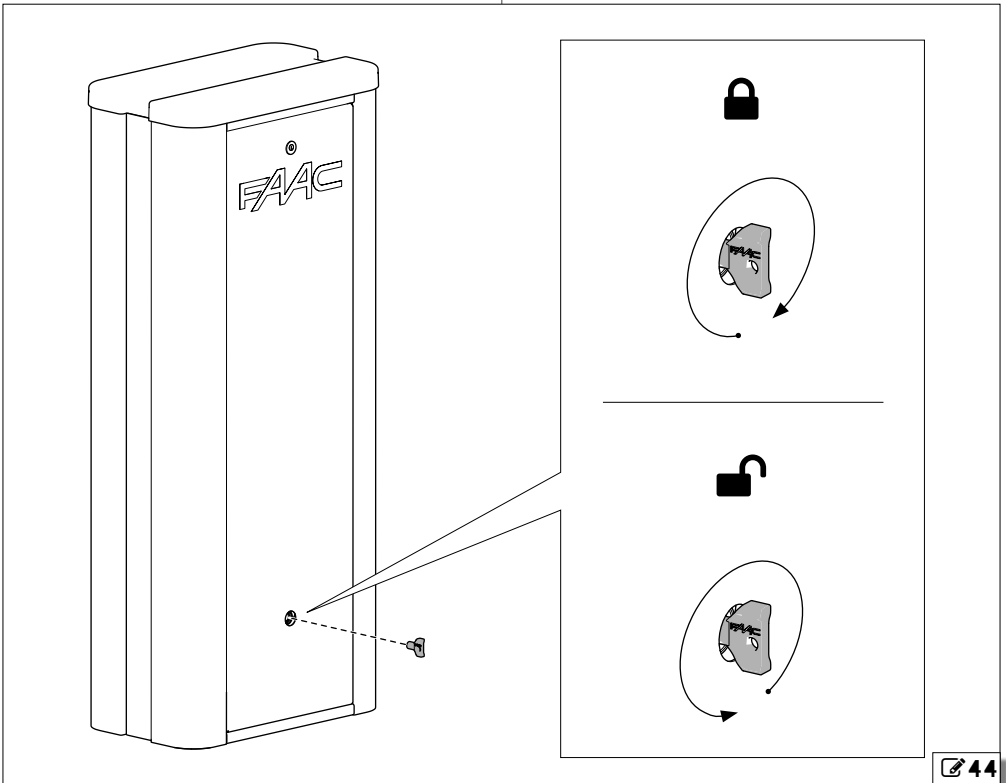


1. Open the lock cover. Insert the key and turn it anticlockwise until it stops.
2. Move the barrier manually.
3. Restore operation.

RESTORING OPERATION

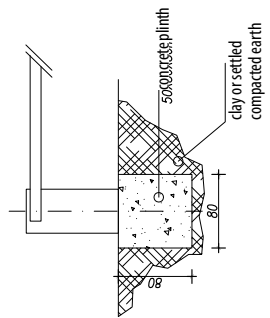


1. Turn the key clockwise until it stops.
2. Check that manual movement is inhibited.
3. Remove the key and close the cover.

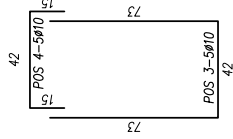
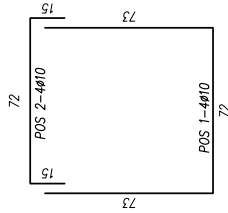
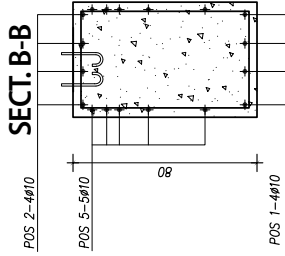
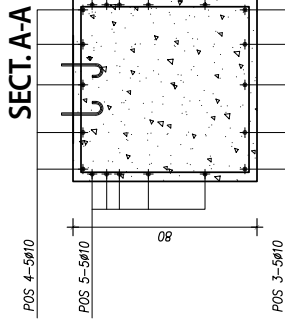


BASE DIAGRAM - B680H

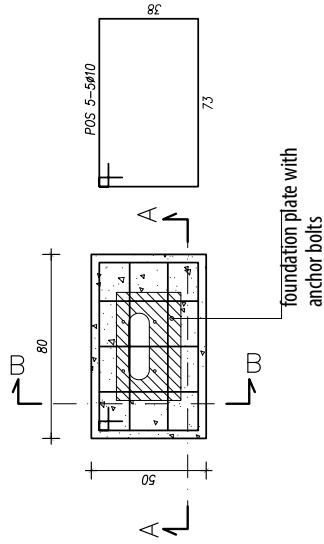
1 Foundation (barrier in maximum configuration)



REINFORCEMENTS

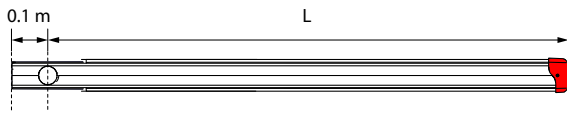
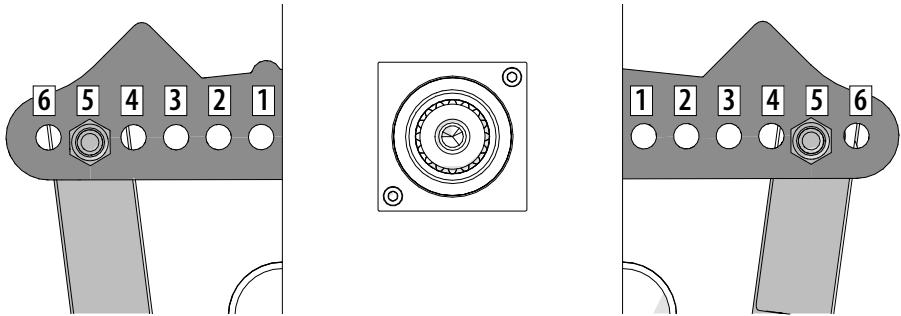


PLAN VIEW



MATERIALS	
CONCRETE	Resistance class C28/35
Exposure class	XF-4
REINFORCING STEEL:	B 450 C

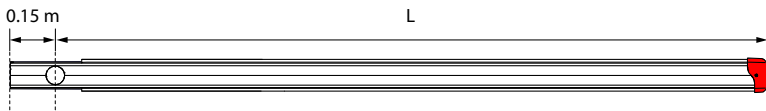
2 Balancing system



16 S beam balancing

L (length)	2 m	2.5 m	3 m	3.5 m	4 m	4 m (*)	4.5 m	5 m	5 m (*)
Beam	1	2	3	4	4	5	6	6	6
Beam and lights	1	2	3	4	4	5	6	6	
Beam, lights and hedge	1	2	4	5	6	6	6		
Beam, lights, foot and hedge	2	3	4	6	6	6	6		
Beam, lights and foot	2	3	3	5	6	6	6		
Beam and foot	1	2	3	5	6	6	6		
Beam and hedge	1	2	3	4	6	6	6		
Beam, hedge and foot	2	3	4	5	6	6	6		

(*) with joint

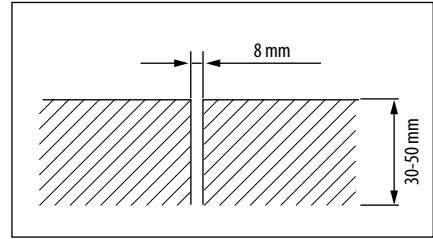
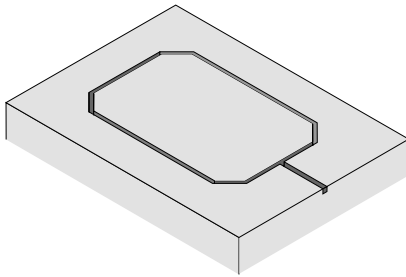


17 L beam balancing

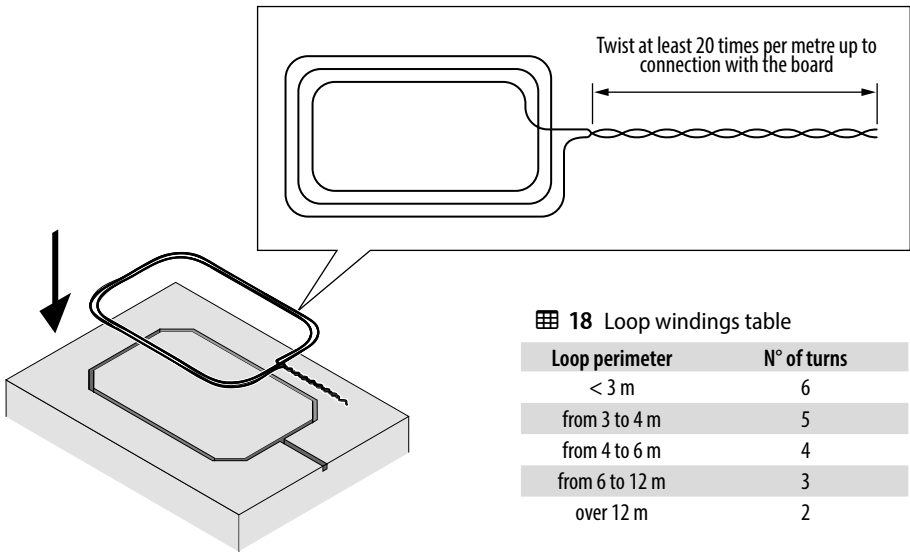
L (length)	5 m (**)	5 m	5.5 m	6 m	6.5 m	7 m	7.5 m	8 m
Beam	2	2	3	3	4	4	4	5
Beam and lights	2	2	3	3	4	4	5	6
Beam, lights and hedge	2	3	3	4	4	5	6	
Beam, lights, foot and hedge	3	3	4	4	5	6		
Beam, lights and foot	2	3	3	4	4	5	6	6
Beam and foot	2	3	3	4	4	4	5	6
Beam and hedge	2	3	3	4	4	5	6	
Beam, hedge and foot	3	3	3	4	4	5		

(**) without joint

3 Magnetic loop



The loop must be implemented at least 150 mm from fixed metal objects, at least 500 mm from moving metal objects and no more than 50 mm from the road surface.



18 Loop windings table

Loop perimeter	N° of turns
< 3 m	6
from 3 to 4 m	5
from 4 to 6 m	4
from 6 to 12 m	3
over 12 m	2

1. Prepare a PVC cable duct or make a chase in the ground (avoid 45° corners to prevent breaking the cable).
2. Use a normal single-pole 1.5 mm² diameter cable. If the cable is buried directly, it must be double insulated.
3. Preferably, induction loops are made square or rectangular.
4. Install the cable with the number of turns indicated in the table.
5. Twist the two ends of the cable from the loop to the E680S board at least 20 times per metre.

i Avoid making joints in the cable but if it is necessary to do so, solder the conductors and seal the joint with heat shrink tubing and keep it separate from mains power lines.

■ **Loop detector configuration**

The E680S board has an integrated metal mass detector for detecting vehicles via induction.

■ **Features**

- Galvanic separation between the electronics of the detector and the loop
- Automatic system alignment immediately after activation
- Continuous resetting of frequency drifts
- Sensitivity independent of loop inductivity.
- Loop working frequency regulation with automatic selection.
- Loop engaged message with LED display
- Loop status addressable on outputs

■ **Connection**

Connect the loops (see 45)

- LOOP1 = loop with opening function;
- LOOP2 = loop with closing and/or safety in closing function.

For information about the effect of signals emitted by the loops on the automation, please refer to the logics in section §7.3.

To enable the operation of the connected loops:

1. Go to BASIC programming and set steps L1 and L2 to Y according to the number and type of loops connected.



If only one loop is installed, enable only the corresponding programming step.

The operating status of the loop detector is indicated by two status LEDs DL3 and DL4.

If function L1 or L2 is disabled, the loop detection status is still available on the outputs, if suitably configured (see parameters o1... o4 in **ADVANCED** programming)

■ **Calibration**

- With the board in display mode, press the CAL1 button at any time to calibrate the loop connected to input LOOP1 or the CAL2 button to calibrate the loop connected to input LOOP2.
- Alternatively, switch the power off to the board for at least 10 seconds and then switch it on again.

■ **Board diagnostics**

Calibration is indicated by the board diagnostics by the flashing of the two LEDs DL3 and DL4. Once the calibration has been carried out, they indicate the detection status of the loop, if connected.

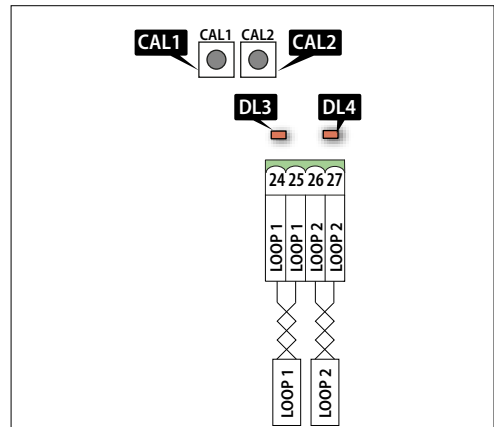
The signals provided by the board diagnostics are shown in table 19.

If one or both the magnetic loops are not installed, after an initial calibration attempt, the loop detector will make the two status LEDs flash every 5 seconds.

■ **Sensitivity adjustment**

Adjusting the sensitivity of the loop detector, causes a variation in the inductance, for each channel, that a vehicle has to cause in order to activate the relative detector output.

Sensitivity adjustment is carried out separately for each channel, using the two parameters S1 and S2 in **BASIC** programming.



19 LOOP diagnostics

DL3/DL4 led status	Loop status
Off	Loop free
On	Loop engaged
Flashing (0.5 s)	Loop in calibration
Fast flashing	Loop short circuited
Slow flash (0.5)	Loop missing or broken
Two flashes (every 5 s)	Loop non-compliant (resistance or inductance out of range)

45

4 Limits of use in relation to wind

The tables indicate the maximum permitted wind force (Beaufort scale) for the B680H beam in relation to its length.

Winds stronger than those permitted could affect the operation of the B680H.

It is the responsibility of the installer to assess the impact of the wind on all components of the structure in order to calculate the maximum permitted wind force for the automation.

20 Limits of use in relation to wind

Beam length (m)	Wind resistance (Beaufort scale)
2 - 4.5	12
4.5 - 6.5	11
6.5 - 7	10
7 - 8	9

Beaufort number and description (Beaufort scale)	Wind speed (km/h)
0 Calm	≤ 1
1 Light air	> 1...6
2 Light breeze	> 6...11
3 Gentle breeze	> 11...19
4 Moderate breeze	> 19...29
5 Fresh breeze	> 29...39
6 Strong breeze	> 39...50
7 High wind	> 50...62
8 Gale	> 62...75
9 Severe gale	> 75...87
10 Storm	> 87...102
11 Violent storm	> 102...117
12 Hurricane force	> 117



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