
THE VEHICLE AND PEDESTRIAN ACCESS CONTROL SPECIALIST



OPERATING INSTRUCTIONS LIFTING BARRIERS

Before installing or repairing your equipment, we recommend that you read these user and operating instructions carefully.

We are at your disposal for any additional information or comments.

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Note: The illustrations in this document are non-contractual.

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1 General information

1.1 Foreword

Thank you for choosing La Barrière Automatique to secure and regulate your access areas. Be rest assured that your acquisition will provide you with the greatest satisfaction for a number of years.

However, before installing your equipment, we recommend that you read the following operating instructions and the quick installation guide attached.

Despite the care taken in drafting these instructions, if specific points seem incorrect or unclear, please let us know. We are at your disposal for any comments or additional information.

Before installing or repairing the automatic lifting barrier, please read these instructions carefully.

The lifting barrier must be installed and serviced by a professional installer, in accordance with the instructions and regulations in force.

All of the instructions must be respected to prevent any harm to people. Failure to observe these instructions may cause physical injuries, which, in some cases, may be serious.



1.2 Information

The installation of a barrier or a physical obstacle incurs your liability with regard to user safety. In addition, we ask you to take into account the following comments:

- ▶ The key used to open the barrier hatch provides access to the mechanism and electrical part. Therefore, it must be used by employees who are aware of running the risks of electrocution and crushing in the event of negligent operation. The intervening employee must check that the hatch is correctly locked before leaving.
- ▶ Pedestrian traffic must be prohibited in the obstacle passage area except if its movement is highlighted efficiently (light and/or audible warning, marking on the ground, sign board, etc.). You are responsible for the condition of this signalling.

You are solely responsible for the installation of and compliance with appropriate signs, taking into account the following note:

Note: in countries within the European Union, requirement 1.3.7.2 of the EC Machinery Directive lays down the affixing of a pictogram on either side of equipment that prohibits pedestrian access in hazardous areas, at least one metre downstream and upstream of the boom in closed position (horizontal).

Example of pictogram:



1.3 Limits of liability

Failure to observe the provisions listed below releases La Barrière Automatique of any liability for damages caused to people or objects:

- ▶ In the event of an operating anomaly, switch off the motor's power supply immediately and control the barrier manually until the failure has been determined and eliminated
- ▶ Do not modify the product's parts if this is not stated in the manual or approved by the manufacturer
- ▶ Devices must be modified or dismantled exclusively by authorised and qualified staff
- ▶ Avoid placing parts of the automation system close to heat sources or in contact with liquid substances
- ▶ Use suitable power supply cables
- ▶ For ideal operation of the automation system, use accessories offered by La Barrière Automatique
- ▶ Installation, inspection and placing into operation must be carried out according to the standard in force
- ▶ Dispose of waste materials in compliance with the local standard in force

1.4 Intellectual property rights

It is prohibited to give the operating instructions to third parties without the manufacturer's written consent.

The contents, texts, drawings, figures and other illustrations are protected by intellectual property law and benefit from intellectual property rights. Any fraudulent use is liable for criminal penalties.

Reproductions, even partial and whatever their type or form, as well as use and/or communication of the contents are prohibited without the manufacturer's written consent.

1.5 Guarantee

Under normal use of the product, if these operating instructions have been followed and no unauthorised intervention has taken place, "La Barrière Automatique" shall be liable for any defects of form or manufacture for mechanical and/or electrical parts in accordance with the contract concluded at the time of sale.

1.6 Customer service and after-sales service

Whether before, during or after sale of the equipment, "La Barrière Automatique" is at your disposal for any technical issues via the following contact details:

LA BARRIÈRE AUTOMATIQUE
451 chemin de Champivost
69760 LIMONEST
France
Tel.: +33 (0)4-78-86-02-86
Fax: +33 (0)4-78-51-18-76
Email: contact@barriere-automatique.fr

Comment: In order to process your request as best as possible, whenever possible, please note the information present on the barrier's identification plate (type, serial number, date of manufacture) before calling.

1.7 Declaration of conformity

The barriers are compliant with the following European standards:

No. 305/2011/EC : Construction Products Regulation
 No. 2006/42/EC : Machinery Directive
 No. 2014/35/EC : Low Voltage Directive
 No. 2014/30/EC : Electromagnetic Compatibility Directive
 No. 2011/65/EC : ROHS Directive
 NF EN 61800-3 amendment A11, Table 2: Minimum immunity requirements for harmonics, second environment
 NF EN 61800-3 amendment A11, Table 3 and 4: Immunity requirements for voltage variations, unbalances and frequency variations, second environment
 NF EN 61800-3 amendment A11, Table 6: Immunity requirements for high-frequency disturbances, second environment
 NF EN 61800-3 subclauses 6.1.1, 6.1.2, 6.1.3, 6.1.4: Low-frequency emissions
 NF EN 61800-3 Table 6 and 7: High-frequency emissions, first environment
 NF EN 61800-5-1: Adjustable speed electrical power drive systems
 NF EN 60034-1: Rotary electrical machines

1.8 Environmental protection

Incorrect disposal of components or of the barrier may result in environmental damages. Please observe and comply with the local and national directives and laws in force before dismantling a barrier.

2 Safety

2.1 Compliant use of barriers

“La Barrière Automatique” barriers are designed exclusively to regulate the entry and/or exit of predefined vehicles in specified areas.

The vehicles must have a metal surface area large enough to be detected by the magnetic loops on the ground.

For vehicles that cannot be detected by the magnetic loops (metal surface area too small), we strongly recommend the use of another safety device such as an infrared sensor or an ultrasonic sensor.

If the user chooses not to use safety devices, “La Barrière Automatique” shall under no circumstances be held liable in the event of uncontrolled closing of the barrier.

The barrier must be controlled by electrical power only.

2.2 Non-compliant use of barriers



Non-compliant use of the barrier may result in hazardous situations and risk of serious injuries.

All of the following uses are considered as non-compliant:

- ▶ Regulating the traffic of pedestrians, bicycles and/or animals
- ▶ Using the barriers for level crossings
- ▶ Connecting or assembling accessories without prior approval by “La Barrière Automatique”
- ▶ Any other use other than those described in the compliant uses section

Any request for damages whatsoever following non-compliant use of the barrier will be refused.

The user of the barrier is solely liable for any damages following non-compliant use.

2.3 User responsibility

In all cases, the user must meet his legal safety obligations. In particular, the user must:

- ▶ Be aware of the legislation in force regarding protection in the workplace
- ▶ Regularly check that the user instructions given correspond to current regulations and adapt them accordingly
- ▶ Clearly allocate the skills of the employee designated to use the barrier during installation, use, maintenance or cleaning of the barrier
- ▶ Make sure that this same employee has read and understood this user manual
- ▶ Make sure that this same employee is clearly equipped with personal protective equipment (PPE) for any operation whatsoever on the barrier.

In addition, the operator is responsible for:

- ▶ Training staff at regular intervals on the handling of the barrier and informing them of potential risks
- ▶ Keeping the barrier in good condition
- ▶ Respecting barrier cleaning and maintenance times
- ▶ Preventing unauthorised people from entering the danger area under the barrier boom as much as possible

2.4 Modifications and transformations

Any modification or transformation of the barriers or the complete installation may result in unforeseen risks.

Before any operation of this type, please contact the manufacturer.

2.5 Qualified staff



Use, even compliant, of the barrier by an unqualified employee may result in hazardous situations and risks of serious injuries.

The following staff are considered as qualified:

- ▶ **Staff trained** by the operator on the tasks entrusted to them and on the potential risks
- ▶ **Staff qualified in electrical engineering** who are able to carry out work on electrical installations and recognise the potential risks
- ▶ **“La Barrière Automatique” maintenance staff** who are selected, trained and authorised by “La Barrière Automatique” to carry out servicing and maintenance work on barriers

2.6 Hazardous area

The barrier powered on may start to move and therefore constitute a hazardous element causing crushing and/or cutting risks.

Any unqualified employee must remain at a safe distance of at least 50 cm from the barrier.

3 Identification

Each barrier has an identification plate fixed on the housing that indicates the barrier type, serial number and date of manufacture:



Date of manufacture: **MM YY** (MM: month; YY: year)

Serial number: **6-digit code** starting with the two digits for the year of manufacture

Type: **LBA X**

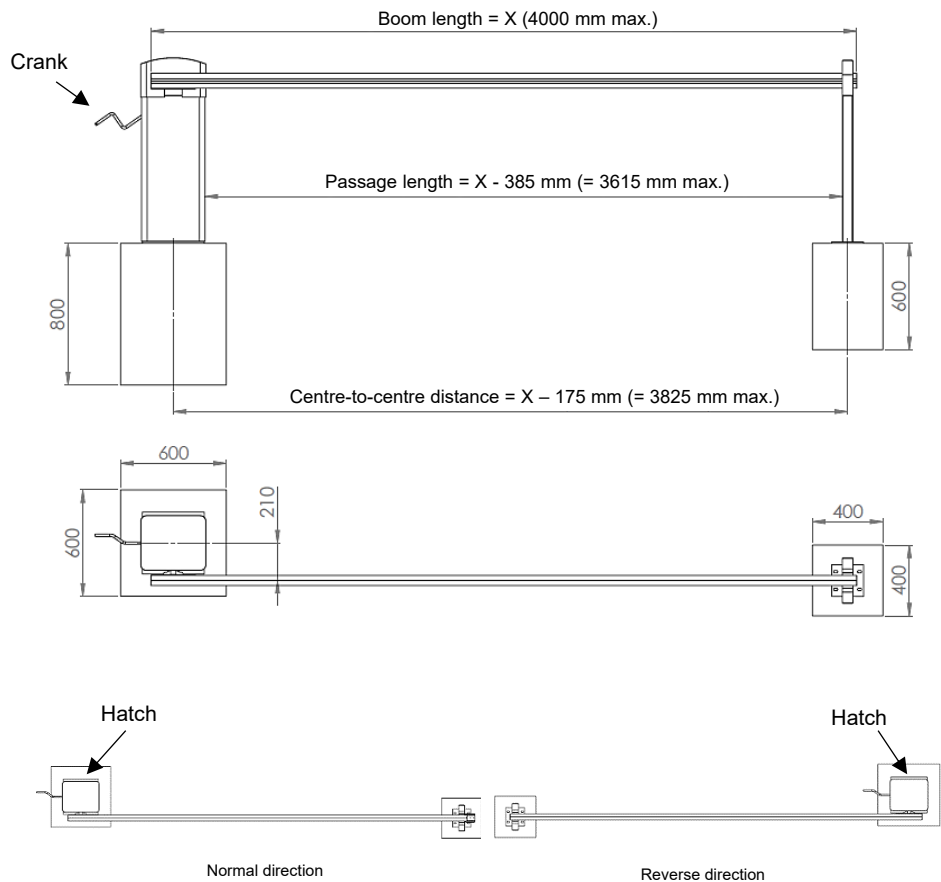
You will also find here the telephone number for technical support.

4 Technical features

4.1 Dimensions and direction

4.1.1 LBA 4

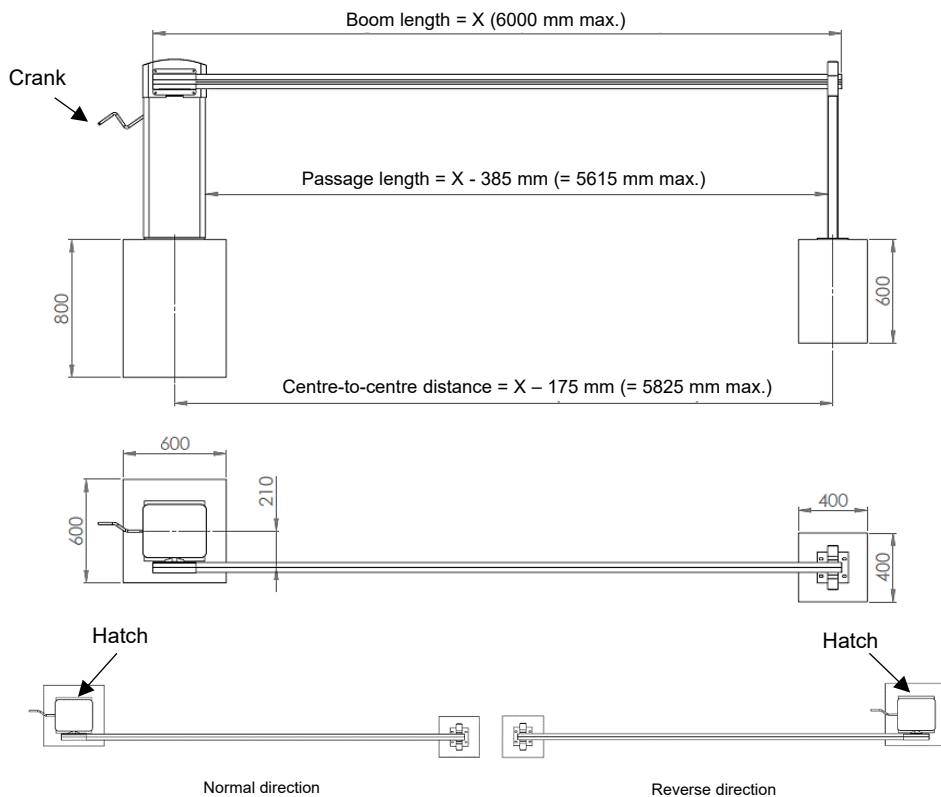
Maximum boom length: 4 m



4.1.2 LBA 6/6R/63PK

LBA 6/6R maximum boom length: 6 m (straight boom); 4.50 m (folding boom)

LBA 63PK maximum boom length: 3.80 m



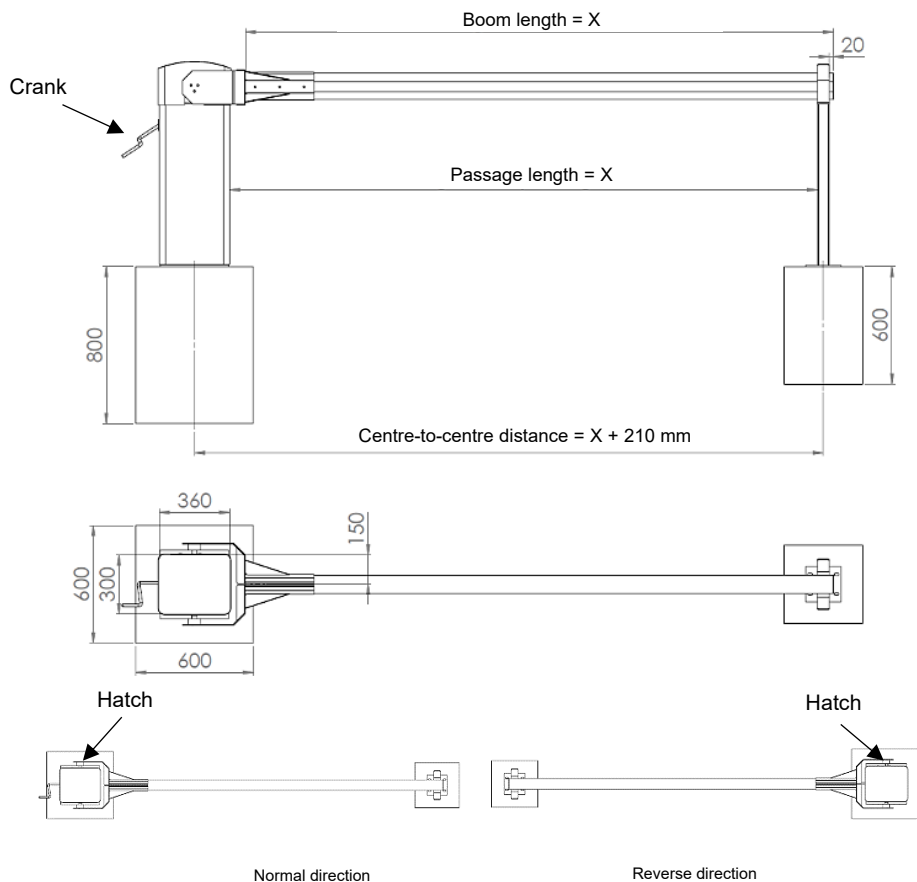
Comment: Only LBA6 has a crank

4.1.3 LBA 7/7R/74

LBA 7 maximum boom length: 7 m

LBA 7R maximum boom length: 6 m

LBA 74 maximum boom length: 4 m



Comment: Only LBA7 has a crank

4.2 Main features

This barrier comprises several sub-assemblies that are very easy to replace: sheet metal, motor unit, boom support for aluminium boom and electrical board.

Barrier	LBA4	LBA6	LBA6R	LBA63PK	LBA7	LBA7R	LBA74
Sheet metal	Housing and hatch made of 2 mm thick sheet metal with cataphoresis treatment and RAL 5015 paint Aluminium top cover and RAL 9010 paint (other colours possible as an option)						
Boom	Oval Aluminium 84 x 57 mm	Oval Aluminium 84 x 57 mm		Oval Aluminium 84 x 57 mm Straight or folding	Oval aluminium 84 x 57 mm Or Rectangular Fibre 145 x 65 mm		Oval Aluminium 135 x 93 mm
Max. length	4 m	6 m		3.80 m	7 m	6 m	4 m
Motor	Three-phase 0.18 kW - 230 Vac						
Reversibility	No		Yes		No		Yes
Counterbalance	Compression spring						
Speed	Adjustable speed and rates controlled by a 0.25 kW variable frequency drive						
Operating time	2,4 to 4,4s	2,2 to 8,3s*	1,7 to 3,8s*	1,5 to 2,4s	2,2 to 8,3s*	1,7 to 3,8s*	2,5 to 3,8s
Control	Control board ONE-C						
Position sensor							

*: Take into account the boom length and its accessories

4.3 Power supply

Designation	Unit	Min.	Typ.	Max.
Power supply	Vac	210	230	250
	Hz	48	50	52
Consumption	W	-	180	250

4.4 Conditions of use

Immunity	Standard code or level
Operating temperature	From -30°C to +55°C
Power line disturbances	
Humidity	Maximum degree of humidity: 95% up to 30°C; 50% above 30°C
Water spraying	Code AD5: water jet washing sprayed in all directions, or high-pressure washing at a minimum distance of 1 m
Solid matter	Code AE4: protection against particles larger than 1 mm
Wind	Wind resistant up to 140 km/h
Corrosive substances	Code AF2 more specific conditions of the type salt mist, exhaust fumes from vehicles.
Impacts	Code AG3
Vibrations	Code AH2
Flora and mildew	Code AK2
Fauna	Code AL2
Electromagnetic, electrostatic or ionising effects	Code AM6
Solar radiation	Code AN2
	Code AQ2

4.5 Performances

Barrier	LBA 4	LBA 6/6R/63PK	LBA 7/7R/74
MTBF	> 10,000 h	> 15,000 h	
MCBF	3,000,000	5,000,000	
No. of operations	15,000/day		10,000/day
MTTR	< 15 minutes		< 30 minutes
IP	IP 54		

Where:

- **MTCF:** Mean Time to Catastrophic Failure
- **MCBF:** Mean Time Between Failure
- **MTTR:** Mean Time to Repair
- **IP:** Protection Index

5 Operating principle

The barrier is divided into two parts: a mechanical part (housing, boom, counterbalance device) and an electrical part (control board, geared motor, sensor, magnetic loops, etc.).

The electrical part controls the mechanical part.

The control board ONE-C is a PLC including a variable frequency drive to control the barrier's motor.

This PLC is also connected to the barrier's various electrical accessories: angular position sensors, magnetic loop, infrared sensor, flashing light, etc.

The angular sensor indicates the position of the boom to the PLC, which allows it to control the variable frequency drive accordingly.

A safety device (magnetic loop, IR sensor, etc.) is recommended below the barrier to detect a vehicle or a pedestrian under the boom so that the control unit prevents the barrier from closing, if necessary.

Automatic closing after passage or after time delay functions can be activated via the control board's terminal boards.

The control board also transmits information on the barrier's status in the form of dry contacts (NO or NC).

The speeds and acceleration/deceleration rates can be adjusted via the variable frequency drive.

The counterbalance device is a spring which counterbalances the weight of the boom when the barrier is activated.

The barrier is said to be "reversible" if boom movement is possible when switched off without needing to use a crank. Some reversible barriers therefore re-open automatically in the event of a power cut using the counterbalance spring.

"Irreversible" barriers require the use of a crank to operate them when switched off.

6 Transport and storage

6.1 Transport instructions

For safety reasons, the transport instructions are as follows:

- ▶ Any person whatsoever involved in the loading, transport or unloading of the barrier's elements must be equipped with personal protective equipment
- ▶ Use a suitable transport tool (pallet truck or forklift truck) to unload or handle the packaged products
- ▶ At least two people are needed to unload the housing and the boom from the pallet
- ▶ Use a suitable lifting device to move the barrier's housing (two-wheel hand truck, etc.)
- ▶ Use suitable lifting equipment for the barrier's boom (straps, etc.)

6.2 Checks after transport

The delivery must be checked upon receipt to make sure that everything is there and that there is no damage due to transport.

In the event of visible damage due to transport or missing parts:

- ▶ **Do not accept the delivery, or only accept it subject to reservations**
- ▶ **Note the extent of the damage on the delivery note**
- ▶ **File a complaint with “La Barrière Automatique”**

6.3 Storage instructions

Please store the barrier's elements in the following conditions:

- Indoors
- In a dry place
- Immobile
- Protected from dust, sunlight, splashing of fluids
- Storage temperature: -30 to 70°C
- Ambient humidity: max. 95% (50% above 30°C)
- For long-term storage, regularly check the general condition of the barrier's various elements

7 Assembly and installation

7.1 Foundations and conduits:

7.1.1 Non-rotary base plate:

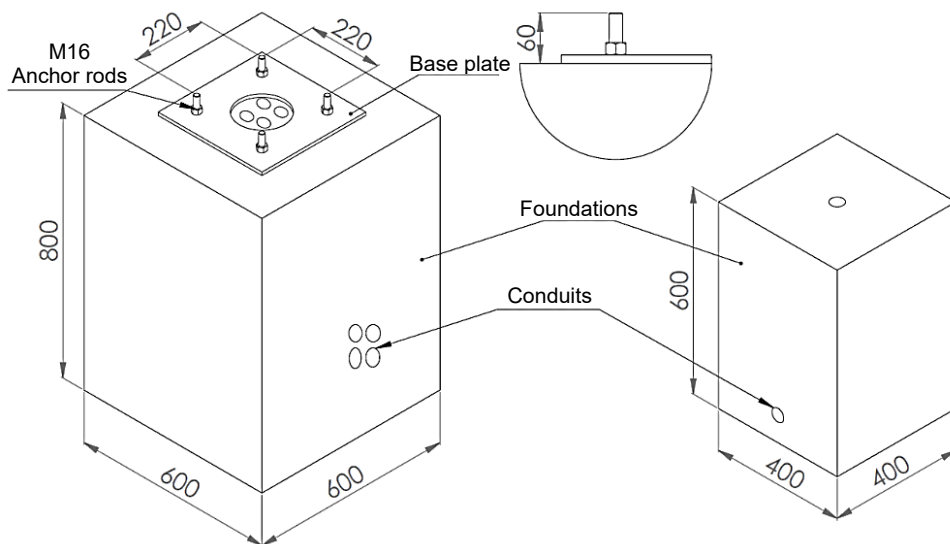
Construct a concrete foundation for the barrier's housing and for the support post (optional) according to the following recommendations.

The concrete foundation must be perfectly horizontal and placed at finished floor level at least.

The conduits must reach the middle of the barrier.

An anchor plate is provided. It will enable the four 16 x 250 mm anchor rods to be secured at the correct centre-to-centre distance and will provide a clean and flat surface for fixing the barrier.

The anchor rods must protrude by 60 mm (see below).



Recommended dimensions for the conduits:

- Ø 60 mm for power supply Ø 40 mm for control
- Ø 30 mm housing → support post connection
- Ø 30 mm housing → to road connection (Magnetic loop)

7.1.2 Rotary base plate:

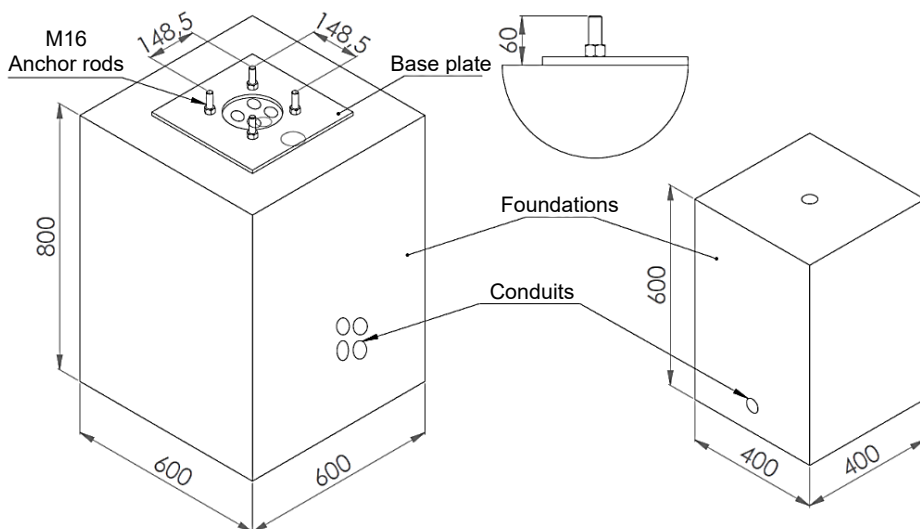
Construct a concrete foundation for the barrier's housing and for the support post (optional) according to the following recommendations.

The concrete foundation must be perfectly horizontal and placed at finished floor level at least.

The conduits must reach the middle of the barrier.

An anchor plate is provided. It will enable the four 16 x 250 mm anchor rods to be secured at the correct centre-to-centre distance and will provide a clean and flat surface for fixing the barrier.

The anchor rods must protrude by 60 mm (see below).



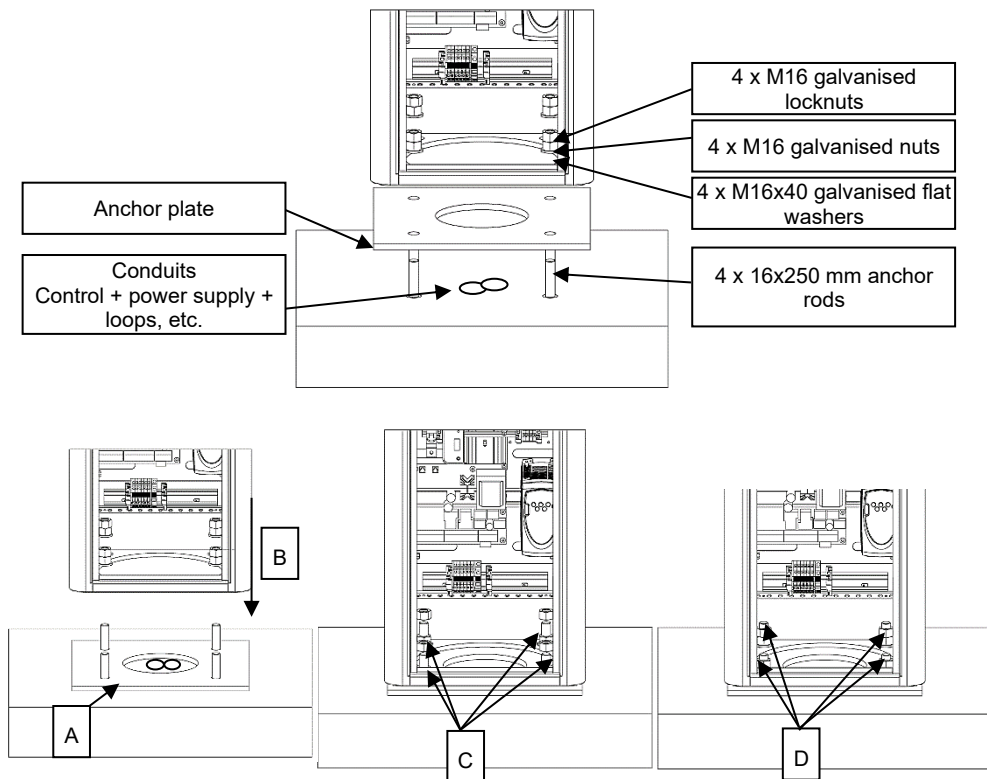
Recommended dimensions for the conduits:

- Ø 60 mm for power supply Ø 40 mm for control
- Ø 30 mm housing → support post connection
- Ø 30 mm housing → to road connection (Magnetic loop)

7.2 Installation of the barrier's housing:

7.2.1 On non-rotary base plate:

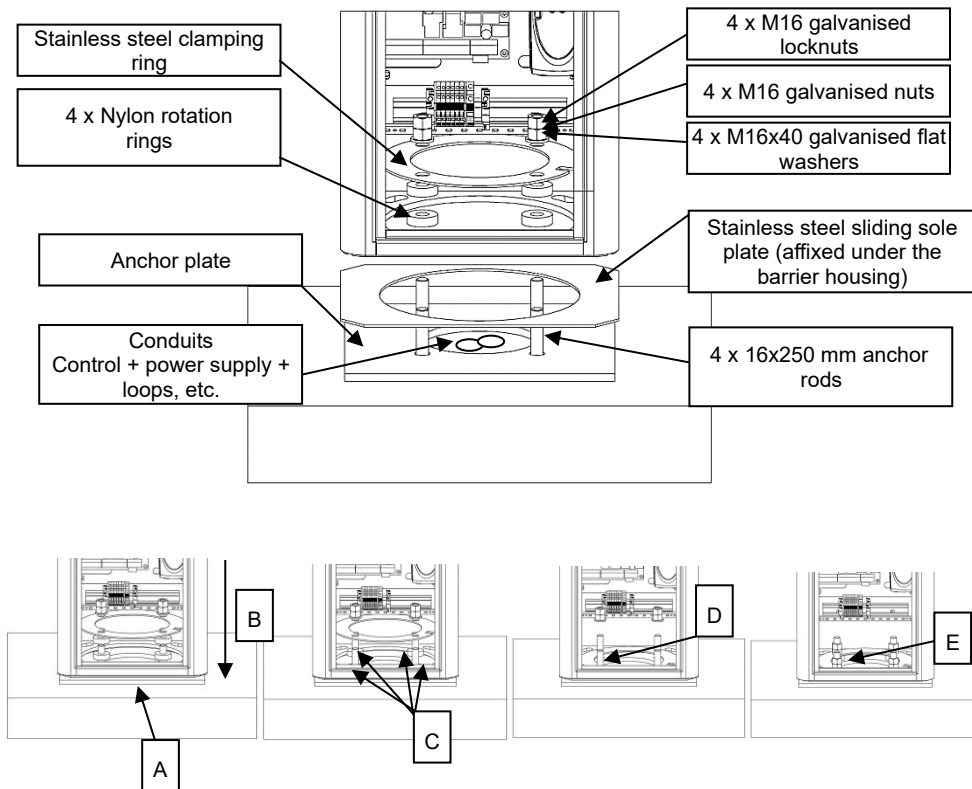
After carrying out the civil engineering work, you can install the barrier following the procedure below:



- A- Install the anchor plate
- B- Install the housing on the anchor rods taking care not to jam the wires
- C- Install the M16x40 flat washers then the M16 nuts to secure the barrier. Lock the nuts
- D- Install the M16 locknuts to prevent any loosening
- E- Tighten the nuts securely because they hold the entire barrier in place
- F- The barrier must be earthed using a braid tightened on one of the 4 mounting studs

7.2.2 On the rotary base plate:

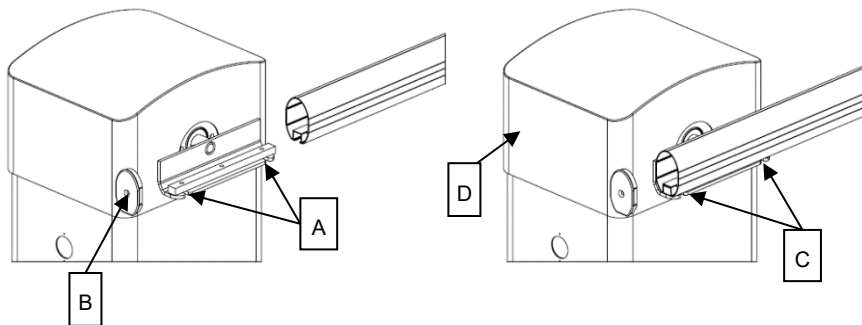
After carrying out the civil engineering work, you can install the barrier following the procedure below:



- A- Install the anchor plate
- B- Install the housing on the anchor rods taking care not to jam the wires (the stainless steel sole plate is affixed under the housing in the factory).
- C- Install the 4 nylon rotation rings on the anchor rods. They must be positioned on the edge of the housing.
- D- Install the clamping ring.
- E- Install the M16x40 flat washers then the M16 nuts to secure the barrier. Lock the nuts. Check the rotation. Install and lock the locknuts
- F- The barrier must be earthed using a braid tightened on one of the 4 mounting studs

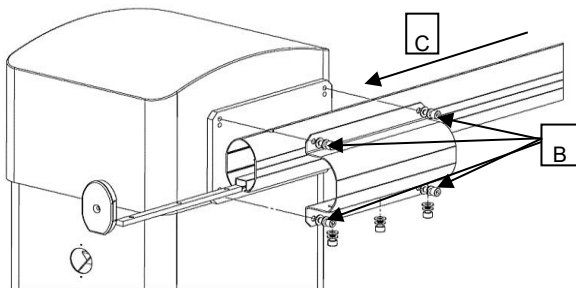
7.3 Assembly of the boom:

7.3.1 LBA4:



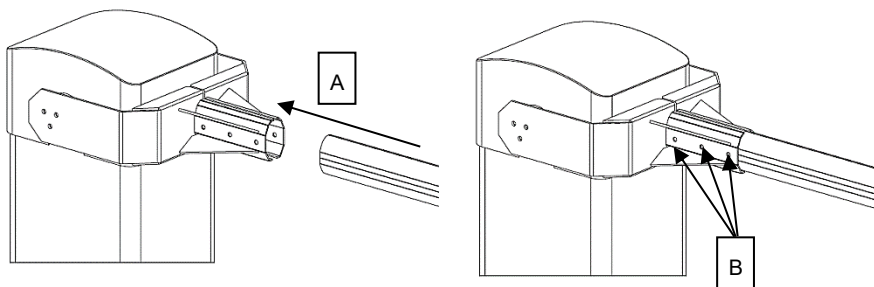
- A- Unscrew the three M8x20 stainless steel screws that secure the gib without completely removing them
- B- Remove the boom cap and engage the boom until it protrudes slightly (1 cm)
- C- Retighten the screws
- D- Replace the cap

7.3.2 LBA6/6R/63:



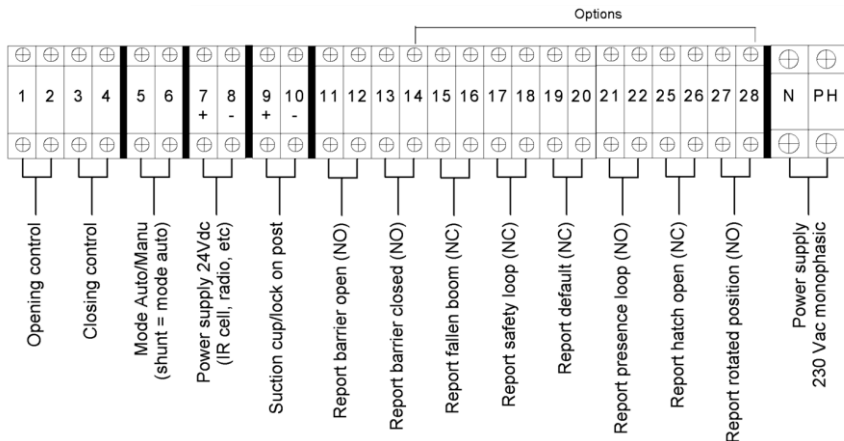
- A- Install the clamping collar equipped with the gib
- B- Install the four M8x16 stainless steel screws tightening them slightly
- C- Remove the cap and engage the boom up to the clamping collar (take care not to drop the boom sensor if present)
- D- Retighten the clamping collar and gib screws
- E- Replace the cap

7.3.3 LBA7/7R/74:



- A- Engage the boom until it is in contact with the bottom of the half-shell
- B- Install and tighten the 3 screws and the nuts passing through the boom

8 Electrical connection:



The barrier is connected electrically to the terminal board on the bottom of the control panel. The terminals are as follows:

- **Closing and opening commands (terminals 1 to 4):**

The commands must be NO pulsed dry contacts. A keep-open command prevents closing (opening takes priority over closing).

- **Automatic/manual mode (terminals 5-6):**

Automatic mode is activated by creating a shunt between terminals 5 and 6.

Automatic mode (default): The automatic opening and closing orders (magnetic opening loop, closing after passage and closing after time delay) are activated.

Manual mode: The automatic opening and closing orders (magnetic opening loop, closing after passage and closing after time delay) are deactivated. The barrier only opens or closes with one command (terminals 1 to 4).

- **24Vdc power supply (terminals 7-8)**
- **Sucker and locking support (terminals 9-10)**
- **Information feedback (terminals 11 to 14):**

The different information provided is as follows:

Barrier open: NO dry contact

Barrier closed: NO dry contact

Fallen boom: NC dry contact (option)

Safety loop: NC dry contact (option)

Default: NC dry contact (option) **Presence loop:** NO dry contact (option)

Hatch open: NC dry contact (option) **Rotated position:** NO dry contact (option)

- **Power supply (terminals N and Ph):**

The supply cable must be wired last to avoid all electrical risks.

It must be type 3G 1.5 mm² or 2.5 mm² (depending on the cable distance).

Provide for electrical protection at head-end (differential circuit breaker 10A-30 mA/barrier)

The power cable earth must without fail be connected to the earth strip next to the terminal board.



As soon as the barrier has been installed, it must be switched on to prevent any condensation inside

9 Switching on and settings

9.1 Foreword:

The barriers are tested and set in the factory. However, on-site adjustment (adjustment of stops and sensor) may be needed to optimise the barrier's operation.

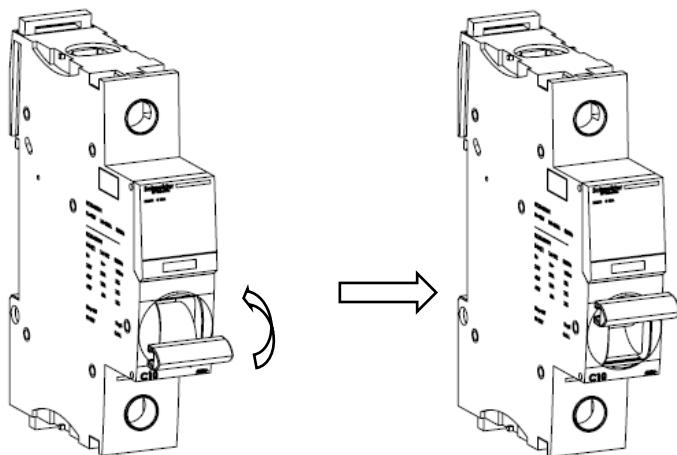
The barriers are designed and set based on the equipment controlled.
Any change made to the barrier (e.g.: boom length) may require adjustment of the settings.

9.2 Switching on the barrier

To switch on the barrier once it has been electrically connected, simply close the main selector switch and the circuit breakers by lifting the switches.



WARNING: RISK OF INJURY DUE TO AUTOMATIC BARRIER CLOSING, IF CLOSING AFTER PASSAGE IS ACTIVATED!



9.3 Adjustment of stops and sensor:



As the settings are adjusted with the power on, there is a risk of injuries related to absence of the top cover. Therefore, be extremely careful during these operations.

9.3.1 Irreversible barriers (LBA4/6/7)

Step 1: Teach-in of the position sensor



For irreversible barriers, the open and closed barrier positions are determined during the teach-in of the angle sensor.

To start a teach-in procedure, press the "ESC" and "▼" keys on the ONE-C simultaneously for 2s. The following message appears on the display:

```
==== Initiation ====
==== Learning =====
of : LBA6
=> OK to continue
```

1- Validation of the barrier type:

The first step is to validate that the barrier type set in the PLC is the right one.

If it is, press the "OK" button to start the procedure.

Otherwise, change the barrier settings in the menu (see §13.4 "USER PARAMETERS").

```
==== Learning =====
=== opening stop ===
Use UP and DOWN
=> OK to validate
```

2- Teaching the open position:

Using the keys ▲ and ▼, move the barrier to the open position and confirm by pressing "OK".

Once the open position is saved, the following message is displayed:

```
==== Learning =====
=== closing stop ===
Use UP and DOWN
=> OK to validate
```

3- Teach-in of the closed position:

Using the keys ▲ and ▼, place the barrier in the closed position and confirm by pressing "OK".

After the closed position is registered, the following message is displayed for 1s:

```
==== Learning
===== done
with =====
success =====
```

The open and closed positions are now saved and the barrier is in the closed position.

Note: In case of incorrect settings, a teach-in procedure can be restarted at any time by simultaneously pressing the "ESC" and "▼" buttons on the ONE-C for 2s.

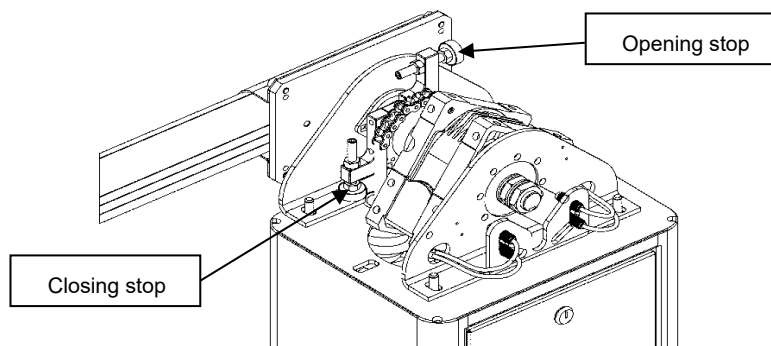
Step 2: Setting the stops (except LBA4)

In the case of non-reversible barriers, the stops serve as a safety device in the event of a sensor failure.

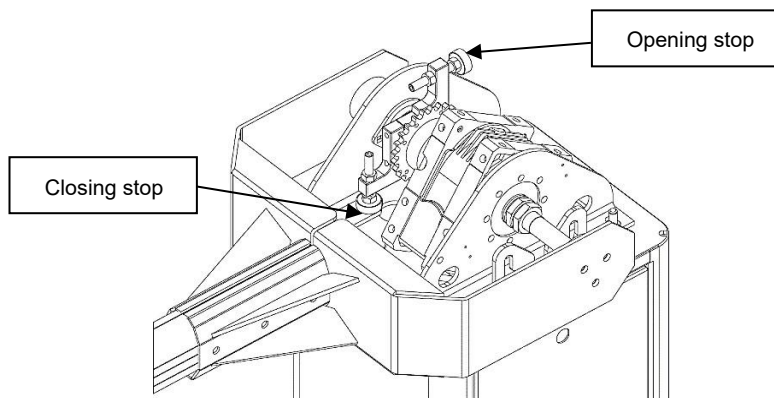
To set the stops:

- 1- Remove the cover
- 2- Switch off the power supply to the barrier
- 3- Loosen the locknut of the stop you want to adjust.
- 4- Screw or unscrew the stop until it locks the arm in case of overtravel (slightly after the end position).
- 5- Lock the locknut of the stop

LBA 6:



LBA 7:



9.3.2 Reversible barriers (LBA6R/63/7R/74)

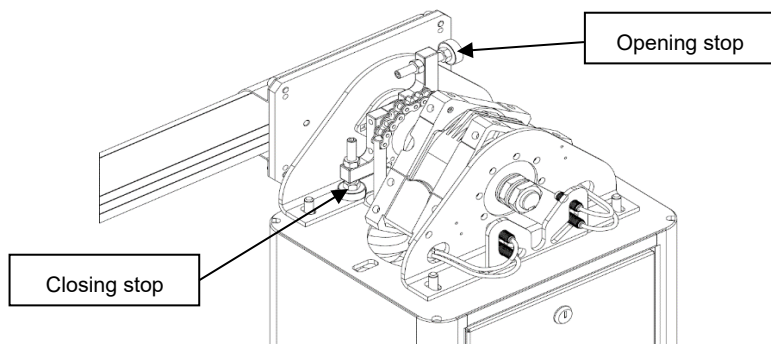
Step 1: Adjusting the stops

For reversible barriers, stops are used to define the barrier's open and closed positions.

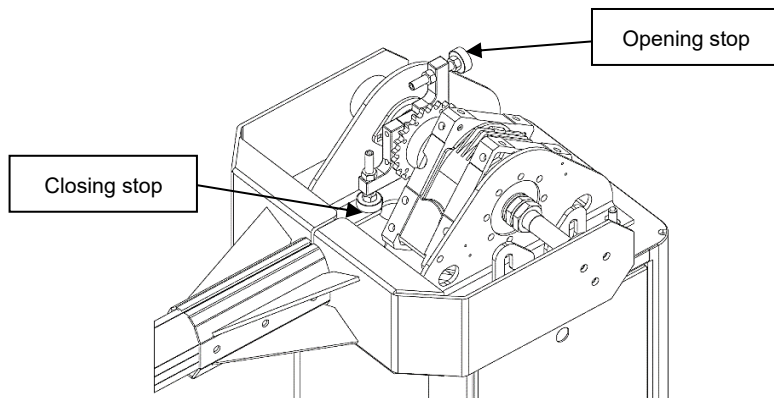
To adjust the stops:

- 1- Remove the top cover
- 2- Switch off the barrier
- 3- Unlock the locknut of the stop that you want to adjust
- 4- Screw or unscrew the stop until it reaches the required position
- 5- Lock the stop's locknut

LBA 6R/63:



LBA 7R/74:



Step 2: Teach-in of the position sensor



To start a teach-in procedure, press the "ESC" and "▼" keys on the ONE-C simultaneously for 2s. The following message appears on the display:

```
==== Initiation ====
==== Learning =====
of : LBA6R
=> OK to continue
```

1- Validation of the barrier type:

The first step is to validate that the barrier type set in the PLC is the right one.

If it is, press the "OK" button to start the procedure.

Otherwise, change the barrier settings in the menu (see §13.4 "USER PARAMETERS").

```
==== Learning =====
=== opening stop ===
Hold UP and
release at the stop
```

2- Teaching the open position:

Hold the ▲ button until the opening stop and release to confirm the position.

Once the open position is saved, the following message is displayed:

```
==== Learning =====
=== closing stop ===
Hold DOWN and
release at the stop
```

3- Teach-in of the closed position:

Hold the ▼ key until the closing stop and release to confirm the position.

After the closed position is registered, the following message is displayed for 1s:

```
==== Learning
===== done
with =====
success =====
```

The open and closed positions are now saved and the barrier is in the closed position.

Note: In case of incorrect settings, a teach-in procedure can be restarted at any time by simultaneously pressing the "ESC" and "▼" buttons on the ONE-C for 2s.

9.4 Adjustment of the counterbalance:

The barrier is equipped with a counterbalance spring to counterbalance the weight of the boom.

For reversible barriers, the counterbalance can be used to automatically raise the boom in the event of power cuts.

Whether or not to obtain the automatic lifting function, the counterbalance must be adjusted by:

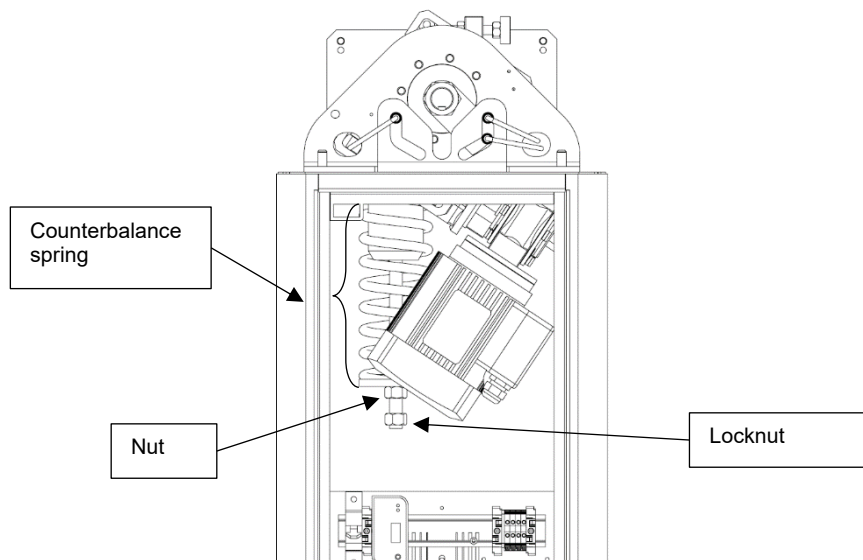
- **Increasing the counterbalance:** Activation/Increase of automatic lifting
- **Reducing the counterbalance:** Reduction/Deactivation of automatic lifting



The counterbalance is adjusted switched off!

The counterbalance is adjusted in the following way:

- 1- Unscrew the locknut on the spring rod
- 2- Tighten (or loosen) the nut to have more (or less) counterbalance
- 3- Tighten the locknut

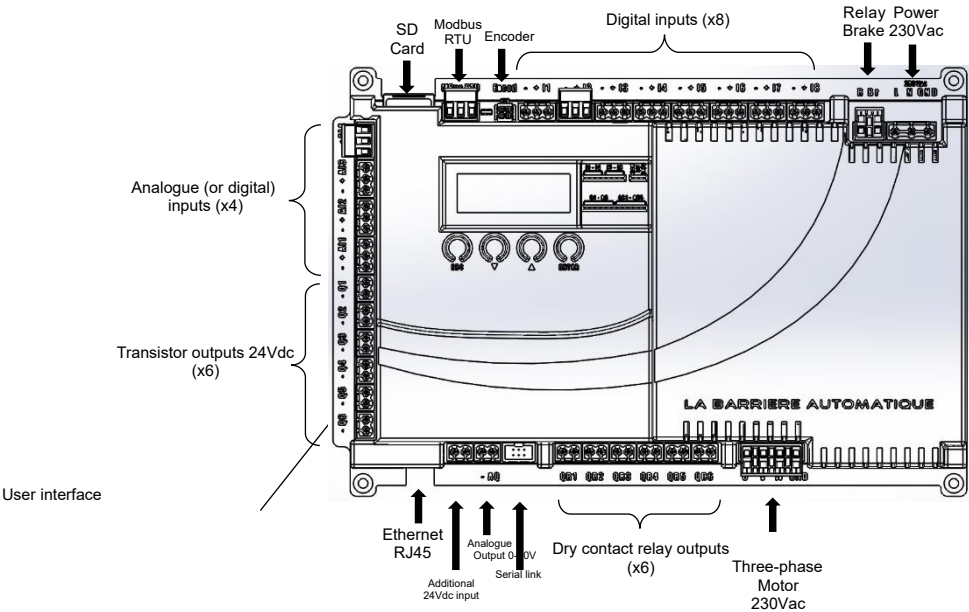


Comments:

- Automatic lifting must be slow to prevent the boom from hitting the opening stop too abruptly.
- Automatic lifting may be limited by the length of the boom and/or the weight of the accessories on the boom.

10 Presentation on the interface

10.1 General interface



User interface	Description
Screen	4x20 character backlit viewing screen. Allows you to browse through the barrier menu, modify various settings and view the main information.
Buttons	Navigation buttons "ESC", "▼", "▲" and "ENTER". Makes it possible to browse through the barrier menu and modify various settings
LEDs	LEDs for viewing the digital inputs, transistor outputs and relay outputs as well as voltages (24V; 5V; 3.3V). (LED off: 0; LED on: 1)

10.2 Inputs/outputs

10.2.1 Inputs/outputs description

Inputs/outputs	Terminal block(s)	Terminals	Description
Digital inputs 24Vdc	I1 to I8	- ; + ; Ix	24Vdc All or Nothing inputs for the barrier controls
Digital inputs 0-10V (or digital 24Vdc)	AI1 to AI4	- ; + ; AIx	Analogue Inputs 0-10V which can be configured as 24Vdc All or Nothing for connecting position sensors
Transistor outputs 24Vdc	Q1 to Q6	- ; Qx	24Vdc All or Nothing outputs for controlling the various accessories of the barrier (0.75A per output; max.: 40W total).
Relay outputs	QR1 to QR6	QRx	Dry contact All or Nothing outputs for information reports (contact: 10A 250Vac)
0-10V analogue output	AQ	- ; AQ	0-10V analogue output for the controlling of an analogue accessory
Encoder	Encod	Encod	Encoder input for the connecting of an absolute angular position sensor

Motor connection	Terminal block(s)	Terminals	Description
Motor phases	Motor	U; V;W; GND	3-phase power supply of the motor and the ground (Max. power: 0.55kW)
Brake relay	R Br	R Br	Dry contact relay output for the controlling of the brake of the motor (if needed)

Power supply	Terminal block(s)	Terminals	Description
230V AC power supply	230Vac	L; N; GND	General power supply of the control board
Additional 24Vdc input	N/A	N/A	24Vdc input available if needed, in the event the max. power (40W) is exceeded on the transistor outputs

Communication	Description
Ethernet	TCP/IP Modbus port.
Mbus RTU	RTU RS485 Modbus port.
Serial link	Allows you to programme the electronic board

Update / backup	Description
SD Card	Location of the SD card for automatic backup of the programme. Also allows for the insertion of a SD card to update or back up the PLC programme or the internal firmware of the board

10.2.2 Default assignment of the inputs/outputs

I1	Open command (NO)
I2	Close command (NO)
I3	Magnetic safety loop (NC)
I4	Safety infrared cell (or ultrasound detection) (NC) no. 1
I5	Safety infrared cell (or ultrasound detection) (NC) no. 2
I6	Free opening magnetic loop (NO)
I7	Automatic/Manuel mode (1: Auto; 0: Man)
I8	Unhinging sensor (or fallen arm) (NC)

Analogue/digital inputs	Description
AI1	Opening end-of-travel sensor (NO)
AI2	Opening slowdown sensor (NO)
AI3	Closing slowdown sensor (NO) or crank end-of-travel (irreversible barriers)
AI4	Closing end-of-travel sensor (NO)

Encoder input	Description
Encod	Angular position sensor

Transistor outputs	Description
Q1	Flashing light on cover
Q2	Lights on arm
Q3	Suction cup/locking
Q4	Unhinging alarm
Q5	Green light
Q6	Red light

Relay outputs	Description
QR1	Open barrier report (NO)
QR2	Closed barrier report (NO)
QR3	Barrier unhinged/fallen arm report (NC)
QR4	Safety loop report (NO)
QR5	Fault summary report (NC)
QR6	Not assigned

Note: These are the default input/output assignments. They can change according to the type of barrier and customer.

11 Controls and viewing

11.1 Local controls:

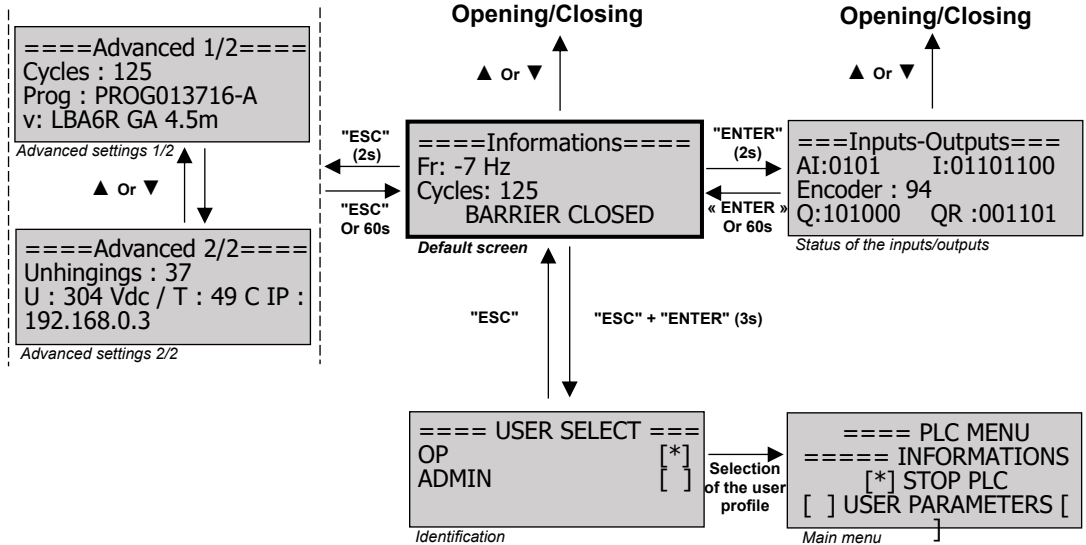
Control	Function
Key ▼	Local close command (from the "Information" and "Inputs-Outputs" screens)
Key ▲	Local open command (from the "Information" and "Inputs-Outputs" screens)
ESC key (2s)	Display of the advanced settings
ENTER key (2s)	Display of the input/output statuses
ESC + ENTER (3s)	Main menu

11.2 Viewing

The screen as well as the viewing LEDs allow you to view the current status of the barrier.

11.2.1 Screen:

Here is the overview of the various possible displays on the screen from the default screen:



- **Information" screen (default screen):**

This display is the default screen, it indicates useful information for the installer:

```
====Informations====
Fr: -7 Hz
Cycles: 125
BARRIER CLOSED
```

- **Frequency of the motor (in Hz):** this corresponds to the frequency of the current injected into the motor. This frequency is positive in the opening direction and negative in the closing direction.
- **Number of cycles carried out:** the number of cycles carried out by the barrier corresponds to the number of openings
- **Current status of the barrier:** this message indicates the status of the barrier (see "§12.1. Status messages of the barrier")

Note: This display will return automatically if no button is pressed for 60s

- **"Advanced settings" screens (press "ESC" for 2s):**

To access the advanced settings screens, keep the "ESC" pressed for 2s. You will then see the first screen for advanced settings, simply click one of the two arrows to go to the second screen.

These displays indicate the advanced settings:

```
====Advanced 1/2====
Cycles : 125
Prog : PROG013716-A
v: LBA6R GA 4.5m
```

```
====Advanced 2/2====
Unhings : 37
U : 304 Vdc / T : 49 C IP :
192.168.0.3
```

- **Number of cycles of the barrier:** this number of cycles corresponds to the number of openings carried out by the barrier.
- **Programme of the barrier:** this shows the programme number as well as its version. This information is useful when troubleshooting.
- **Type of the barrier :** this shows the type of the barrier selected and its length. **If the type of the barrier does not match the real type of the barrier on the identification plate, contact the after-sale service.**
- **Number of unhings that the barrier was subjected to:** this number indicates the number of unhings that the barrier has been subjected to.
- **Direct voltage of the bus (in V):** this voltage allows you to check that there is no fault on the direct bus of the variator. This voltage must be about $300V \pm 20V$.
- **Temperature of the IGBT module of the variator (in °C):** this temperature makes it possible to verify that there is no overheating on the IGBT module of the frequency variator. This temperature must be less than 80°C.
- **IP address of the barrier:** This is the IP address of the barrier for the Modbus communication.

Note: The screen display automatically returns to the "Information" screen after 60s if no button is pressed.

- **Status of the inputs/outputs" screen (hold "ENTER" for 2s):**

To access the screen for viewing the status of the inputs/outputs, press and hold the « ENTER » button for 2s.

The screen shows the statuses of the 4 different input/output types (0: inactive; 1: active):

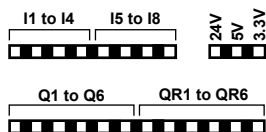
===Inputs-Outputs===		- Analogue/digital inputs (AI): AI1 to AI4
AI:0101	I:01101100	- Digital inputs (I): I1 to I8
Encoder : 94		- Encoder: value of the angular sensor (°)
Q:101000	QR :001101	- Transistor outputs (Q): Q1 to Q6
		- Relay outputs (QR): QR1 to QR6

Note: The screen display automatically returns to the "Information" screen after 60s if no button is pressed.

Details on the main menu will be provided hereinafter.

11.2.2 LEDs:

The LEDs also make it possible to view the status of the inputs/outputs as well as the useful voltages:



- LED on: input/output active (1)
- LED off: input/output inactive (0)

Note: Contrary to the screen for viewing the status of the inputs/outputs, here, the analogue inputs AI1 to AI4 are not viewed as they cannot be represented by LEDs.

12 Messages and safety component activation

12.1 Status messages of the barrier:

Here are the various status messages of the barrier (last line on the information screen):

Message	Meaning
« BARRIER OPEN »	The barrier is open and the automatic closing after the time delay or auto mode are not activated
« BARRIER OPEN 15S »	The barrier is open and the barrier will close automatically at the end of a countdown timer (Automatic closing after time delay and auto mode activated) Note: if the countdown timer remains at 15s, this means that an order to open and/or a safety component is activated
« BARRIER CLOSED »	The barrier is closed
« OPENNING »	The barrier is in the process of opening
« CLOSING »	The barrier is in the process of closing
« DETECTION LOOP »	A vehicle is present on the safety loop. Closing the barrier is impossible.
« DETECTION CELL »	A vehicle is present in front of the infrared or ultrasound cell(s). Closing the barrier is impossible.
« BARRIER UNHINGED »	The barrier is unhinged. The closing of the barrier is impossible if the option "Automatic rehinging" is activated.
« CRANK MISSING »	The crank is not in its housing. Controlling the barrier is impossible. The motor is cut off.

12.2 Messages for safety activation of the barrier:

Here are the various messages for safety activation of the barrier:

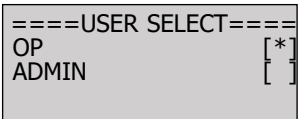
Message	Meaning
"Operation time exceeded"	The time for opening or closing the barrier has exceeded the manoeuvring time (by default: 30s). Motor control is cut off. The barrier has to be reset.
"Motor in fault Error code: XXX"	The motor is in fault. The error code is indicated. Error codes: 0: No error 106: Winding calculation error when powering up (motor disconnected, short-circuit on the phases, incorrect configuration of the motor, etc.) 107: Overheating of the IGBT module Other: Contact After-Sales Service
"Fault while closing : Obstacle detected"	The barrier has detected an obstacle during closing and has automatically reopened and is held open. An opening order is necessary to put it back into service
"Type of barriere unknown"	The parameterized barrier configuration is unknown. The parameters must be set again: "Type_barriere", "Longueur_lisse" and "Lisse".

13 Main menu:

To go to the main menu, press the "ESC" and "ENTER" keys simultaneously for 3s.

13.1 Choice of the user:

Before accessing the main menu, you must first select the user. You can choose between two users: "OP" and "ADMIN":

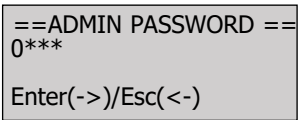


Contrary to the access to the menu via the "OP" user, access via the "ADMIN" user requires a password because it provides access to more features and more settings:

Function	OP	ADMIN
INFORMATIONS	•	•
START/STOP PLC	•	•
USER PARAMETERS	•	•
IP CONFIG	•	•
DOWNLOAD PLC PROG	•	•
UPLOAD PLC PROG	•	•
ERASE PLC PROG		•
ERASE PLC RETAIN		•
ERASE USERPARAM		•
LOCATED VARS		•
REBOOT		•

Entering the password:

To access the "ADMIN" user profile, you must enter the 4-digit password:



with:

- ESC: Cancel/Previous digit
- ▼and▲: Digit selection ENTER: Next digit/Validation

Note: To know the "ADMIN" password, please contact After-Sales Service.

Once the user is selected and, where applicable, the password has been entered, you will access the PLC's main menu, the "PLC MENU" screen is displayed:

```

===== PLC MENU
===== INFORMATIONS
      [*] STOP PLC
[ ] USER PARAMETERS [
  ]

```

13.2 "INFORMATION" - Characteristics of the programme:

The "INFORMATION" function provides you with fast access to the various advanced pieces of information on the contents of the board.

```

=====INFORMATIONS=====
-----FIRMWARE uC1-----
MAC XX:XX:XX:XX:XX:XX
VX.X

```

Simply scroll through the information using the directional arrows.

The available information is (in the order of reading):

- MAC address of the "uC1" microcontroller (main microcontroller)
- Version of the firmware present in the "uC1" microcontroller
- Latest date of the firmware update of the "uC1" microcontroller
- Version of the firmware present in the "uC1" microcontroller (microcontroller for motor control)
- Latest date of the firmware update of the "uC2" microcontroller
- Project name
- Project version
- Product name
- Product version
- Date and time of the latest compilation of the project
- Name of our company
- Project language

13.3 "START/STOP PLC" - Starting/stopping the program:

The "STOP PLC" function allows you to stop the PLC, for example when we want to stop the barrier without however powering down the barrier.

When the barrier is stopped, the function then becomes "START PLC" and makes it possible to start the program again. It is also possible to reset the barrier in order to start the program again in good conditions.

13.4 "USER PARAMETERS" - Settings for the program:

The "USER PARAMETERS" functions provides access to the list of user settings that can be modified in order to adjust the barrier. Some of these settings can be accessed only via the "ADMIN" user.

Here is the list of default settings:

Settings	Description	Unit	OP	ADMIN
Type_barriere	Choice of the type of barrier to be controlled: 1 : LBA4 2 : LBA6 3 : LBA6R 4 : LBA63PK 5 : LBA63PG Aval 6 : LBA63PG Amont 7 : LBA7 8 : LBA7R 9 : LBA74 10 : LBA86NEO IR 11 : LBA86NEO R 12 : LBA12 A restart of the barrier is mandatory after any change to this setting.			●
Longueur_lisse	Length of the arm.	m		●
Grille_lisse	Type of grid: 0 : No grid 1 : GA grid 2 : GTH grid 3 : HP grid			●
Boost_Vit_1	Boost applied at opening speed (default mode: 100%)	%		●
Boost_Vit_2	Boost applied at closing speed (default mode: 100%)	%		●
T_manoeuvre	The time beyond which the barrier goes into default mode if neither of the two limit switches has been detected. (default mode: 30s)	s	●	●
FAT	Activation of automatic closing after time delay (TRUE: enabled; FALSE: disabled).		●	●
FAP	Activation of automatic closing after passing through the safety loop (TRUE: activated; FALSE: deactivated).		●	●
T_FAT	Waiting time before automatic closing after timer (if enabled) (default mode: 15s)	s	●	●
T_FAP	Waiting time before the automatic closing after passage (if activated) (default mode: 0s)	s	●	●

T_detection_FAP	Minimum detection time on the magnetic loop so that closing after passage is activated (default mode: 0.5s)	s	●	●
T_PVT	Duration of the delayed low speed in closing (for irreversible barriers) (default mode: 1s)	s	●	●
Presign_OUV	Time of pre-notification before the opening of the barrier. (default mode: 0s)	s	●	●
Presign_FERM	Duration of the pre-signalling before the barrier closes. (default mode: 0s)	s	●	●
Clignotement_feux	Activation of the flashing lights on arm (TRUE: on; FALSE: off).		●	●
T_ON_feux	Time during which the lights on the arm are lit. (default mode: 0.5s)	s	●	●
T_OFF_feux	Time during which the lights on the arm are off. (default mode: 0.5s)	s	●	●
PWM_verrou	Activation of the PWM function on the output lock (Q3) to consumeless (TRUE: on; FALSE: off).		●	●
T_verrouillage	Time after which the lock is activated after the barrier is completely closed. (default mode: 1s)	s	●	●
Activation_deverr	Option to be activated when the barrier is equipped with a mechanical locking device (except in the case of the electromagnetic suction cup) so that the barrier closes very slightly before each opening to release the lock. (TRUE: On; FALSE: Off).		●	●
T_deverrouillage	Duration of reclosing to release the lock before the barrier is opened (see parameter "Latch_activation"). (default mode: 0.2s)	s	●	●
Angle_deverr	Angle from which the locking is deactivated if the arm is forced. (default mode: 20°)	°	●	●
Mode_1_BP	Activation of the "1 BP" control mode which allows the barrier to be controlled with a single command: the opening command then becomes a command to closing when the barrier is open (TRUE: enabled; FALSE: disabled).		●	●
Mode_homme_mort	Activation of the "dead man" control mode: the closing command must be maintained until the end of the closing process, otherwise the barrier will automatically re-open. (TRUE: On; FALSE: Off).		●	●
Mode_orange	Activation of the orange lighting of the		●	●

	signalling elements (LED cover, illuminated rail) during the moving phase. (TRUE: On; FALSE: Off).			
Cligno_orange	Activation of the flashing of the signalling elements (LED cover, illuminated rail) during the orange lighting phase. (TRUE: On; FALSE: Off).		•	•
Cligno_rouge	Activation of the flashing red light (or LED cover/illuminated cover during the red light up phase) (TRUE: On; FALSE: Off).		•	•
Veille_Vert	Activation of the automatic green light extinction (or led/illuminated cover during the green light phase) (TRUE: On; FALSE: Off).		•	•
T_Veille_Vert	Time after which the green light (or LED cover/illuminated shield during the green light up phase) goes out if the parameter "Green_Sleep" is activated. (default mode: 60s)	s	•	•
English	Passing messages into French (TRUE: English; FALSE: French).		•	•
Regondage_auto	Activating the automatic rewind function (LBA63PG) (TRUE: On; FALSE: Off).			•
Reouverture_secu	Activation of automatic reopening on detection of a safety device (loops, infrared cell, ultrasound, etc.). (TRUE: enabled; FALSE: disabled)			•
Etat_apprentissage	A variable that allows you to visualise whether teach-in has been achieved through the barrier or not. (TRUE: achieved; FALSE: not achieved)			•
Butee_1	Value of the opening stop recorded during training	°	•	•
Tolerance_1	Tolerance angle around the stop opening in which the barrier is considered to be open. (default mode: +/-5°)	°	•	•
Butee_2	Value of the closing stop recorded during training	°	•	•
Tolerance_2	Tolerance angle around the closing stop in which the barrier is considered closed. (default mode: +/-5°)	°	•	•
Offset_Ouv	Size of the idle range once the Slowing down completed before reaching the opening end stop (default mode: 0°)	°	•	•
Offset_Ferm	Size of the idle range after deceleration before reaching the closing end stop (default mode: 0°)	°	•	•

<u>Valeur Filtre Chocs</u>	Detection threshold of a frontal impact in the closed position for counting the number of impacts suffered (default: 200)			●
<u>Duree Filtre Chocs</u>	Duration of the pulse created by an edge for taking the count into account (default: 2s)	S		●
<u>Numero Serie</u>	Barrier serial number (not configured). To be configured in order to be able to read it from the modbus exchange table		●	●
<u>T pos ouverte</u>	Time during which the barrier remains open before closing after reopening on obstacle detection (if activated) (default: 2s)	S	●	●
<u>T detection choc</u>	Time during which the arm must be blocked to consider an obstacle (default: 0.1s)	S	●	●
<u>Rampe detection choc</u>	Degree variation below which the arm is considered blocked for the settime (default: 2.0°)	°	●	●
<u>Réouverture obstacle</u>	Activation of the automatic reopening function on obstacle detection during closing (TRUE: enabled; FALSE: disabled).		●	●
<u>Nb chocs autorises</u>	Number of reclosing attempts after obstacle detection before the barrier goes into default (default: 3) The fault can be reset by sending an opening order		●	●

Note: This is a default list. It can change according to the type of barrier and customer.

Important : The settings in grey must not be modify without contacting the after-sale service.

Modification of a setting:

To modify a setting in the PLC, you must:

```
=== USER PARAM ===  
T_manoeuvre [*]  
FAT [ ]  
FAP [ ]
```

1- Using the directional arrows and the "Enter » key, select the setting that you want to modify. The value is displayed.

```
=T_manoeuvre= 30  
Up(Next)/Down(Prev)  
Enter => Edit value
```

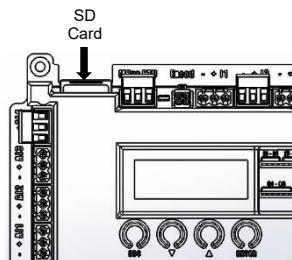
- 2- Press "Enter" again to be able to modify the value
- 3- Set the desired value using the up and down arrows.
- 4- Press "Enter" again to confirm
- 5- Then press "ESC" to return to the list of parameters
- 6- Press "ESC" again to exit the menu

13.5 "IP CONFIG" - IP address configuration:

⇒ See §14 TCP/IP Modbus Communication

13.6 "DOWNLOAD PLC PROG" - Modification of the program using an SD card:

To modify the program of the barrier using an SD card, you must:



- 1- Remove the SD card already present and insert the SD card which contains the program into the housing provided at the top left of the board
- 2- Go to the menu of the control board by pressing the "ESC" and "ENTER" keys simultaneously for 3s.
- 3- Select the "OP" profile by clicking on "ENTER".
- 4- Using the arrow ▼, select the "DOWNLOAD PLC PROG" function with the "ENTER" key.
- 5- Then select the program (file ".LBA") that you want to copy by clicking on "ENTER".
- 6- **If the SD card comes from another barrier**, the following question will be displayed:
 - a. Click on "ENTER" if you wish to retain the parameters of the settings (speeds, timers, etc.) of the current barrier
 - b. Click on "ESC" if you wish to copy the parameters of the settings (speeds, timers, etc.) from the barrier that was used to program the SD card

Otherwise, go directly to the next step

```

=====DOWNLOADING=====
Done
  
```

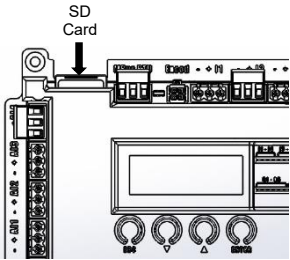
- 7- The message "Done" is displayed after a few seconds to confirm that the program has been updated successfully from the SD card
- 8- Then press "ENTER" to return to the menu.
- 9- Start the program by selecting "START PLC".
- 10- Remove the SD card and insert the original SD card again.
- 11- Restart the barrier.

```

===== PLC MENU =====
INFORMATIONS          [*]
START PLC              [*]
USER PARAMETERS        [*]
  
```

13.7 "UPLOAD PLC PROG" - Recording of the program on an SD card:

To modify the program of the barrier on an SD card, you must



- 1- Remove the SD card already present and insert the SD card into the housing provided at the top left of the board
- 2- Go to the menu of the control board by pressing the "ESC" and "ENTER" keys simultaneously for 3s.
- 3- Select the "OP" profile by clicking on "ENTER"
- 4- Using the arrow ▼, select the "UPLOAD PLC PROG" function with the "ENTER" key
- 5- The message "Done" is displayed after a few seconds to confirm that the program has been updated successfully from the SD card
- 6- Then press "ENTER" to return to the menu.
- 7- Click on "ESC" to exit the menu.
- 8- Remove the SD card and insert the original SD card again

```
==== PLC MENU
===== IP CONFIG [ ]
DOWNLOAD PLC PROG[ ]
UPLOAD PLC PROG [*]
```

```
===== UPLOADING =====
Done
```

```
==== PLC MENU
===== INFORMATIONS
[*] STOP PLC
[ ] USER PARAMETERS [ ]
```

13.8 "LOCATED VARS" - Local variables of the program:

The "LOCATED VARS" tab provides access to the statuses of the local variables of the barrier for the purposes of troubleshooting, for example. This function can be accessed only with the ADMIN profile (See §4.1. Choice of the user)

Here is the list of available variables:

Variable	Description
Commande_Ouverture	Possibility of maintaining an open control (NO)
Commande_Fermeture	Possibility of maintaining a close control (NO)
Etat_commande_ouverture_GTC	CTM opening control status (NO)
Etat_commande_fermeture_GTC	CTM closing command status (NO)
Etat_Detection_Boucle_Securite	Safety loop status (NO)
Etat_Detection_Cellules	Ultrasound or infrared cell status (NO)
Etat_Boucle_Ouverture_Libre	Free opening loop status (NO)
Etat_Mode_Auto	Auto/Man mode status (0=Manual mode; 1=Auto mode)
Etat_Capteur_Degondage	Unhinging sensor status (NC)
Etat_Capteur_Fdc_Ouv	Opening end-of-travel sensor status (NO)
Etat_Capteur_Ral_Ouv	Opening slowdown sensor status (NO)
Etat_Capteur_Ral_Ferm	Closing slowdown sensor status (NO)
Etat_Capteur_Fdc_Ferm	Closing end-of-travel sensor status (NO)
Report_Barriere_Ouverte	Open barrier report status (NO)
Report_Barriere_Fermee	Closed barrier report status (NO)
Report_Barriere_Degondage	Unhinged barrier report status (NC)
Report_Boucle_Securite	Safety loop presence report status (NO)
Report_Barriere_Defaut	Barrier fault report status (NO)
Sortie_Feu_Flash	Flashing light output status (NO)
Sortie_Feux_Sur_Lisse	Light output on arm status (NO)
Sortie_Verrouillage	Locking output status (NO)
Sortie_Alarme_Degondage	Unhinging alarm output status (NO)
Sortie_Feu_Vert	Green light output status (NO)
Sortie_Feu_Rouge	Red light output status (NO)
Nbre_Cycles	Number of cycles carried out by the barrier (opening)
Nbre_Degondages	Number of unhings the barrier has been subjected to
Erreur_Moteur	Motor error code in case of fault (see §3.2. Messages for safety activation of the barrier)

14 TCP/IP Modbus Communication:

The ONE-C control board can be controlled via the Ethernet port or the RS485 port using the Modbus communications protocol.

14.1 RS485 Communication:

The control board is configured as a slave.

If the control board is not located at the end of the line, remove the jumper located to the right of the connector.

14.2 Ethernet TCP/IP Communication

The control board is configured as a server.

14.3 Modification of the IP address

The default IP address of the control board is: **192.168.0.100**

This static IP address can be modified or configured in DHCP.

To modify the IP address, you must:

```
=====USER SELECT=====
OP                               [ ]
ADMIN                           [*]
```

- 1- Go to the OP menu of the control board by pressing the "ESC" and "ENTER" keys simultaneously for 3s.

```
===== PLC MENU
===== IP CONFIG [ ]
DOWNLOAD PLC PROG[ ]
UPLOAD PLC PROG [*]
```

- 2- Using the arrow ▼, select the "IP CONFIG" function with the "ENTER" key

```
== IP CONFIG ==
DHCP             [*]
STATIC           [ ]
```

- 3- Choose your IP address assignment mode:
 - **DHCP**: automatic assignment of the IP address
 - **STATIC**: configuration of a static IP address

```
===== PLC MENU
===== IP CONFIG [ ]
DOWNLOAD PLC PROG[ ]
UPLOAD PLC PROG [*]
```

- 4- If you select the "DHCP" mode, press "ESC" several times to exit the menu

```
== STATIC IP=
192.168.000.100
Esc (<-) / Enter (->)
```

- 5- If you select the "STATIC" mode, configure the desired IP address using:
 - **ESC**: Cancel/Previous digit
 - **▼and▲**: Digit selection
 - **ENTER**: Next digit/Validation

14.4 Exchange table:

The Modbus exchange table for the board is as follows:

Data	Data type	Direction	Type	Address	Description
Controls	Boolean	Write	Coil	0	Open command (0 = non-
	Boolean	Write	Coil	1	Close command (0 = non-
	Boolean	Write	Coil	2	Reserved
	Boolean	Write	Coil	3	Reserved
	Boolean	Write	Coil	4	Reserved
	Boolean	Write	Coil	5	Reserved
	Boolean	Write	Coil	6	Reserved
	Boolean	Write	Coil	7	Reserved
	Boolean	Write	Coil	8	Reserved
	Boolean	Write	Coil	9	Reserved
	Boolean	Write	Coil	10	Reserved
	Boolean	Write	Coil	11	Reserved
	Boolean	Write	Coil	12	Reserved
	Boolean	Write	Coil	13	Reserved
	Boolean	Write	Coil	14	Reserved
Statuses	Boolean	Read	Input Discretes	0	Barrier open (0 = non-open; 1 = open)
	Boolean	Read	Input Discretes	1	Barrier closed (0 = non-closed; 1 = closed)
	Boolean	Read	Input Discretes	2	Unhinged barrier (0 = unhinged; 1 = non-
	Boolean	Read	Input Discretes	3	Barrier in fault (0 = fault; 1 = not in
	Boolean	Read	Input Discretes	4	Open command status (CTM) (0 = non-
	Boolean	Read	Input Discretes	5	Closed command status (CTM) (0 = non-
	Boolean	Read	Input Discretes	6	Open command status (Modbus) (0 = non-active; 1 = active)
	Boolean	Read	Input Discretes	7	Closed command status (Modbus) (0 = non-active; 1 = active)
	Boolean	Read	Input Discretes	8	Safety loop status (0 = no detection; 1 = detection)
	Boolean	Read	Input Discretes	9	IR cell status (0 = no detection; 1 = detection)
	Boolean	Read	Input Discretes	10	Free opening loop status (0 = no detection; 1 = detection)
	Boolean	Read	Input Discretes	11	FAP activation status (0 = non-
	Boolean	Read	Input Discretes	12	FAT activation status (0 = non-active; 1 = active)
	Boolean	Read	Input Discretes	13	Reserved
	Boolean	Read	Input Discretes	14	Reserved
	Boolean	Read	Input Discretes	15	Reserved
Cycles	Double word	Read	Holding Register	0-1	Number of cycles
	Double word	Read	Holding Register	2-3	Number of unhingsings

Following:

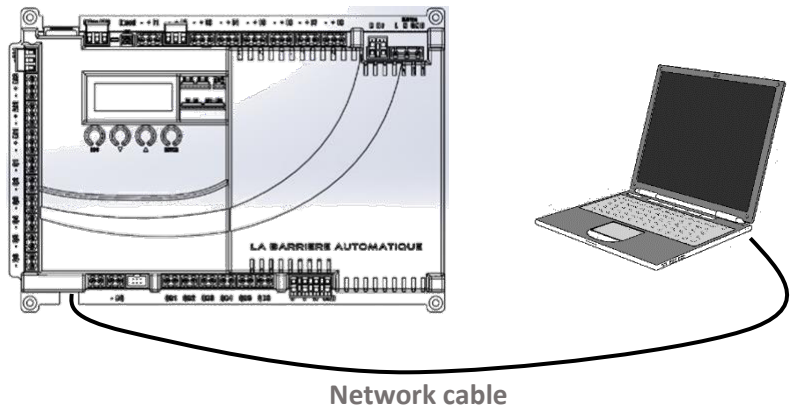
Data	Data type	Direction	Type	Address	Description
Life word	Word	Read	Holding Register	4	Life word (increment by 1 every second; reset to 10000)
Serial number	Double word	Read	Holding Register	6-7	Barrier serial number. It must first be set in the settings
Default code	Word	Read	Holding Register	8	Fault number (if faulty): 0: No fault 1 to 200: Motor fault 201: Crank missing 202: Operation time exceeded during opening 203: Maneuvering time exceeded during closing 204: Obstacle detected during closing 205: Barrier type unknown

15 Web server

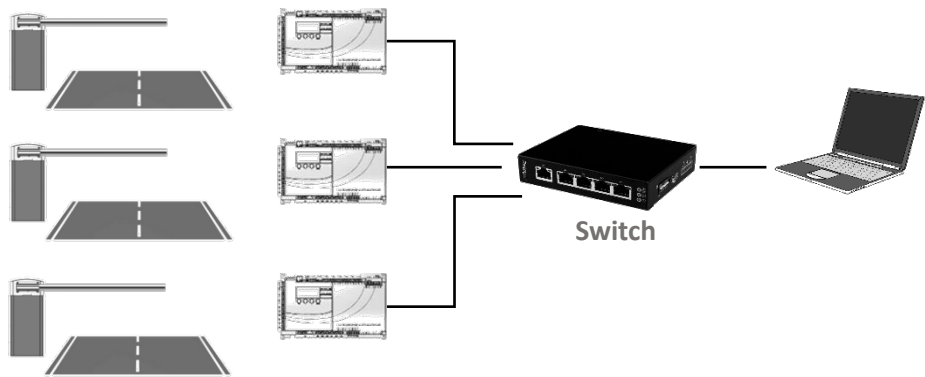
The ONE-C control board has a built-in web server that makes it possible to view, control, and configure the barrier using a web browser.

15.1 Connection to the barrier

To connect to the barrier, simply connect the barrier to the network using an Ethernet cable via the RJ45 port located to the lower right of the control board.



In the event several barriers are installed, it is of course possible to use a switch:

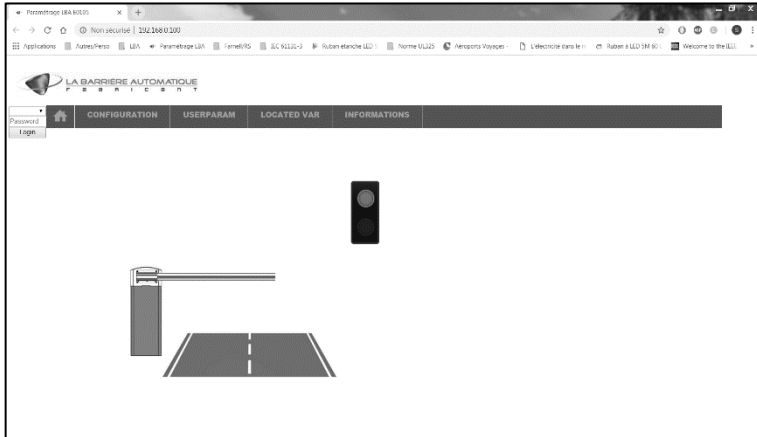


Once the barrier is connected, enter the barrier's IP address in your browser.

The default IP address is: **192.168.0.100**

15.2 Authentification

When you open the web server in your browser, you will see the home page below.



The web server has two possible levels of authentication, with each one offering different possibilities for supervision:

- **No identification:**
 - Viewing of the status of the barrier
- **"Admin" profile:**
 - Viewing of the barrier
 - Controlling the barrier with the "Open" and "Close" buttons
 - Access to IP address configuration
 - Access to the barrier's settings that can be accessed via the "Admin" profile

To log in, simply select the ID "ADMIN" at the top left of the page then enter the corresponding password and confirm by clicking on *Login*.

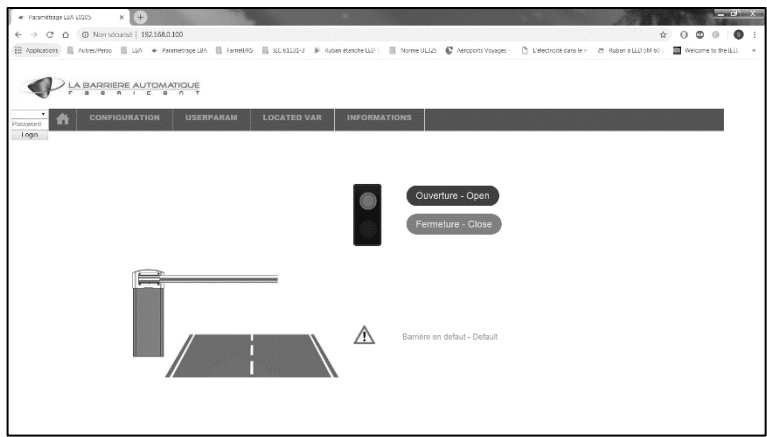
To disconnect, simply click on the *Logout* button.

Note: To know the "ADMIN" passwords, please contact After-Sales Service.

15.3 Home page

The web server's home page provides a precise view of the status of the barrier as well as the possibility to control the barrier for the "ADMIN" profile.

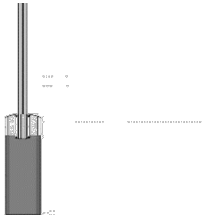
Below is an example of the home page for an "ADMIN" profile.



In this example, the barrier is closed and is in fault.

We also have the "Ouverture – Open" and "Fermeture –Close" buttons that were not present before authentication.

Here is the key for the various images and/or messages that can be displayed on this home page:

Image	Message	Description
	None	The barrier is closed. The "barrier closed" report is activated.
	None	The barrier is open. The "barrier open" report is activated.

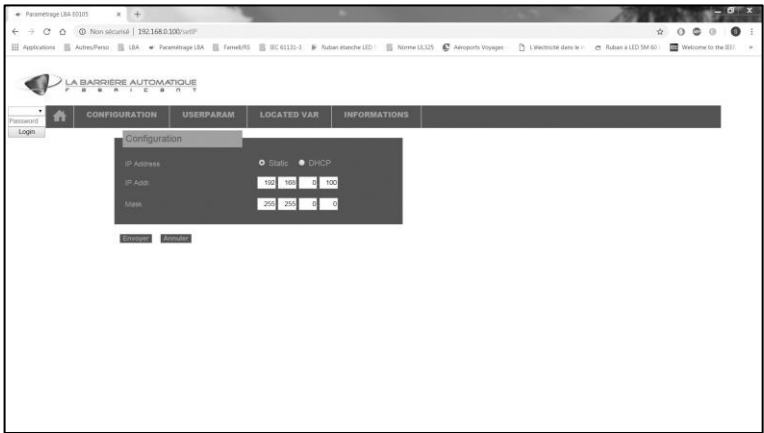
	None	<u>Red light:</u> The barrier is not open or is about to close. Passage is prohibited. The "Red light" output is activated.
	None	<u>Green light:</u> The barrier is open and is not about to close. Passage is authorised. The "Green light" output is activated.
	Safety detection	The barrier is open and detects a presence on the safety loop and/or in front of the infrared (or ultrasound) cells. Closing is impossible.
	Unhinged barrier– Unhinged	The barrier is unhinged or the arm has fallen.
	Barrier in fault – Fault	The barrier is in fault. Motor control is cut off. List of possible faults: (see §12.2 "Messages for safety activation of the barrier")

If the web server's home page is not sufficient to correctly view the barrier or if you want to configure the barrier, there are other tabs for a more in-depth use of the web server.

15.4 Other tabs

15.4.1 "Configuration" tab

The "Configuration" tab makes it possible to configure the barrier's network settings.

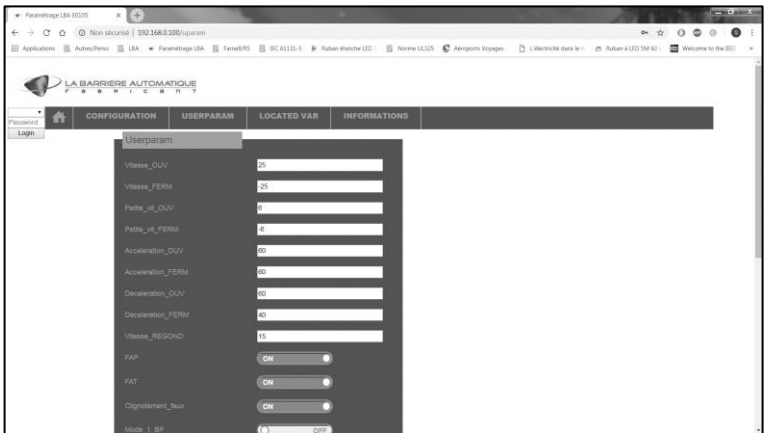


This allows you to choose whether you want the barrier to have a fixed (Static) IP address or if you want the IP address to be assigned automatically by the network that the barrier is connected to (DHCP).

Note: The IP address can be modified only with the "ADMIN" profile.

15.4.2 "Userparam" tab (authentication required)

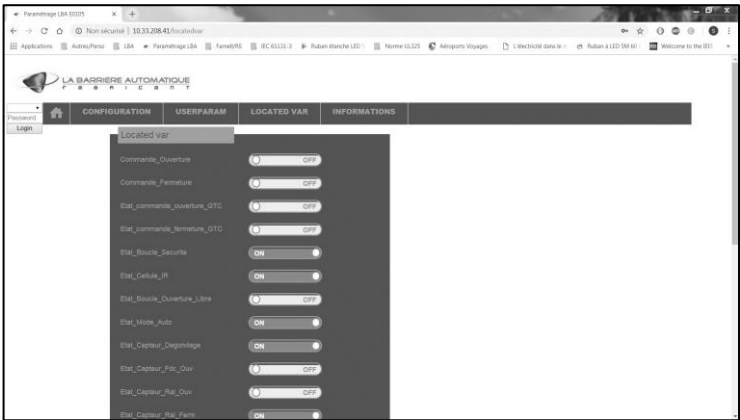
The "Userparam" tab provides access to the various settings allowed by the user profile and also allows them to be modified (see §13.4. "USER PARAMETERS" - Settings for the program).



To confirm a setting modification, you must click on "Send" at the bottom of the page.

15.4.3 "Located var" tab (authentication required)

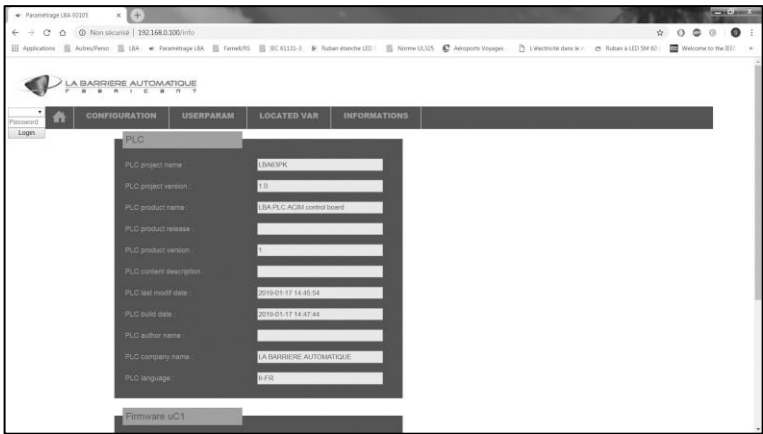
The "Located var" tab provides access to the statuses of the local variables of the barrier for the purposes of troubleshooting, for example.



Note: The page has to be refreshed in order to view the new status of the variables.

15.4.4 "Informations" tab

The "Informations" tab includes the list of advanced information for the barrier's program and control board (see §13.2. "INFORMATIONS" - Characteristics of the program).



16 Cleaning and maintenance:



The power supply must be cut off before carrying out barrier cleaning and maintenance operations.

16.1 Cleaning:

The cleaning frequency mainly depends on the environmental and climatic conditions in which the barrier is used.



Do not use abrasive products for cleaning due to the risk of damaging electrical cables or barrier coatings.

Protect conductive elements from humidity and dust to avoid the risk of short-circuits.

Cleaning to be carried out:

- External cleaning, checking of no knocks, scratches, etc. that promote the appearance of corrosion
- Internal dusting of the mechanical and electrical part

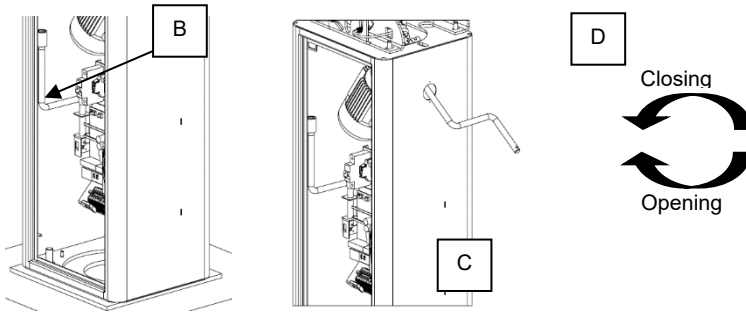
16.2 Maintenance plan:

Frequency	Operation
Every 6 months	• Previously described cleaning operations • Check the tightening of all of the screws and bolts, including securing to the ground as well as the accessories • Check the connectors on the control board or PLC • Tightening of wires, good contact in the terminals • Visual inspection of the horizontal position of the boom • Visual inspection of the vertical position of the boom • Check that the safety components (magnetic loop, cells, sensor, ultrasonic sensor, etc.) are working properly
Yearly	• Visual inspection of the absence of bouncing after opening or closing • Check the various barrier settings • Check that the signalling components (flashing light, bell, etc.) are working properly • Check that the locking components (lock, internal locking, etc.) are working properly • Check that the selector switch is working properly • Check that the opening and closing remote controls are working properly • Check that the opening and closing local controls are working properly

- Lubrication of the counterbalance unit (chain, quick link and spring) to prevent oxidation
- Check the position and condition of the counterbalance spring

17 Malfunctions

17.1 Manual opening in the event of no voltage (LBA4/6/7)



- A- Open the barrier hatch using the key (standard key 405)
 B- Take the crank fixed on the side of the board

The crank is positioned on a contactor for cutting off the power supply of the electronic board(user protection).

- C- Insert the crank into the hole located on the side of the barrier
 D- Rotate in the clockwise direction to raise the barrier or rotate in the anti-clockwise direction to lower the barrier

17.2 Manual opening in the event of no voltage (LBA6R/63PK/7R/74)

In the event of a power cut, the barrier opens automatically or the boom is "free" and can be lifted manually.

To adjust the automatic lifting, see paragraph "9.4 Adjustment of the counterbalance"

17.3 Frequent adjustments and failures

Here is a table of frequent adjustments and failures:

Failure	Possible cause(s)	Troubleshooting
The barrier does not open	The opening control does not reach the PLC	Look at the status of the PLC inputs/outputs ⇒ See “§ 10.2.2 Default assignment of the inputs/outputs” Check the wiring of the opening control (or the free opening loop)
	The PLC is faulty ⇒ An error message is displayed on the screen	Contact the After-Sale Service
	The reduction gear is broken ⇒ Opening the barrier is impossible, even when switched off	Contact the After-Sales Service to replace the geared motor unit ⇒ See “§18.2 Replacement of the geared motor unit”
	The crank is not put back in place (LBA 4/6/7)	Put the crank back in its place on the side of the board
The barrier does not close	The closing control does not reach the PLC	Look at the status of the PLC inputs/outputs ⇒ See “§ 10.2.2 Default assignment of the inputs/outputs” Check the wiring of the closing control
	An opening control is active	Look at the status of the PLC inputs/outputs ⇒ See “§ 10.2.2 Default assignment of the inputs/outputs” Deactivate the opening control
	A safety input is activated (safety loop, IR sensor, ultrasonic sensor)	Look at the status of the PLC inputs/outputs ⇒ See “§ 10.2.2 Default assignment of the inputs/outputs” Remove the vehicle or any object on/in front of the safety device. Check the orientation of the IR sensors If there is no IR sensor or ultrasonic sensor (options), or loop detector, check that there is a shunt on terminals I3, I4, and I5 of the PLC

	The PLC is faulty ⇒ An error message is displayed on the screen	Contact the After-Sale Service
	The reduction gear is broken ⇒ Closing the barrier is impossible, even when switched off	Contact the After-Sales Service to replace the geared motor unit ⇒ See “§18.2 Replacement of the geared motor unit”
	The crank is not put back in place (LBA 4/6/7)	Put the crank back in its place on the side of the board
The barrier closes when a vehicle is in front of the IR sensor (or ultrasonic sensor) or over the safety loop	The vehicle is not detected	Check the wiring of the safety component in question
The barrier does not close after passage over the safety loop	Closing after passage is not activated	Activate the closing after pass by activating the parameter “FAP” in the menu of the PLC ⇒ See “§13.4 USER PARAMETERS”
The barrier does not close after the time delay	Closing after time delay is not activated	Activate the closing after time delay by activating the parameter “FAT” in the menu of the PLC ⇒ See “§13.4 USER PARAMETERS”
The barrier does not stay open	Automatic closing (after passage or after time delay) is activated	Deactivate the automatic closure by deactivating the parameters “FAT” and “FAP” in the menu of the PLC ⇒ See “§13.4 USER PARAMETERS”
The barrier does not open automatically due to no voltage (LBA6R/63PK/7R/74)	The counterbalance is not strong enough	Increase the counterbalance ⇒ See “§ 9.4 Adjustment of the counterbalance”
The barrier does not reach the horizontal position	The counterbalance is too strong (LBA6R/63PK/7R/74)	Reduce the counterbalance ⇒ See “§ 9.4 Adjustment of the counterbalance”
	The closing slowdown time delay is too short (LBA4/6/7)	Increase the value of the parameter “T_PVT” in the menu of the PLC ⇒ See “§13.4 USER PARAMETERS”
	The teach-in of the closing stop was not done correctly	Redo the teach-in of the closing stop ⇒ See “§9.3 Adjustment of stops and sensor”

	The closing stop is too high in relation to the support post or stand (or vice versa)	Reset the support post or stand ⇒ See the instructions for accessories
--	---	---

For any other situation, please contact La Barrière Automatique's after-sales serviceon: +33 (0)4-78-86-02-86.

18 Repairs



The power supply must be cut off before carrying out repair operations on the barrier.

If operations are carried out with the power on, the barrier must be disconnected from all access control systems to prevent unexpected barrier movements.

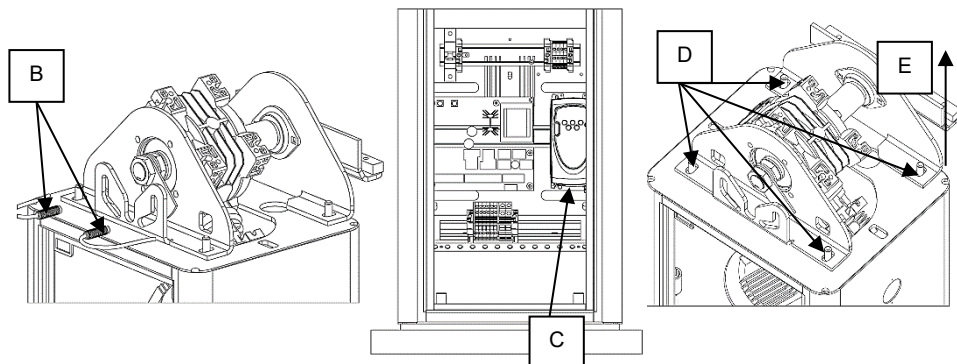
18.1 Replacement of the boom

⇒ To replace the boom, please refer to paragraph “7.3 Assembly of the boom”

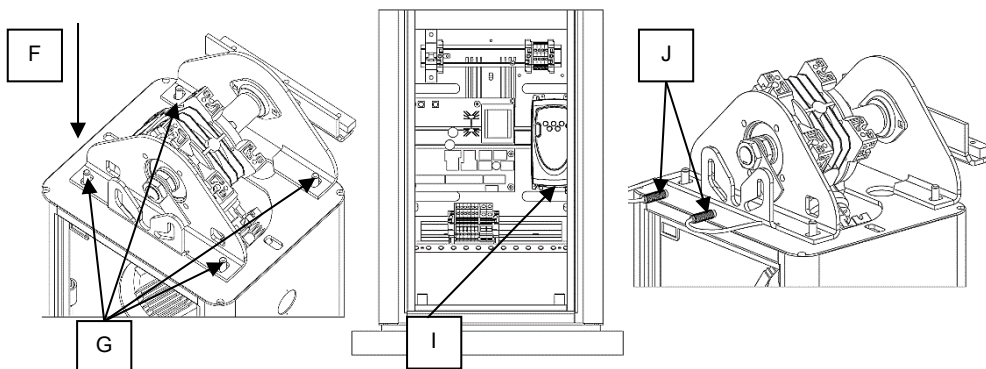
18.2 Replacement of the geared motor unit

18.2.1 LBA4

The LBA 4 geared motor unit is replaced following the procedure below:



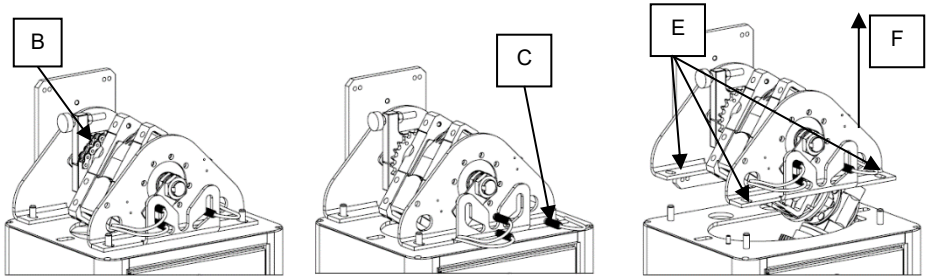
- A- Remove the top cover, then the boom
- B- Disconnect and unscrew the angular sensor to remove it
- C- Disconnect the geared motor connected to the variable frequency drive
- D- Unscrew and remove the 4 locknuts of the geared motor support brackets
- E- Remove the geared motor unit



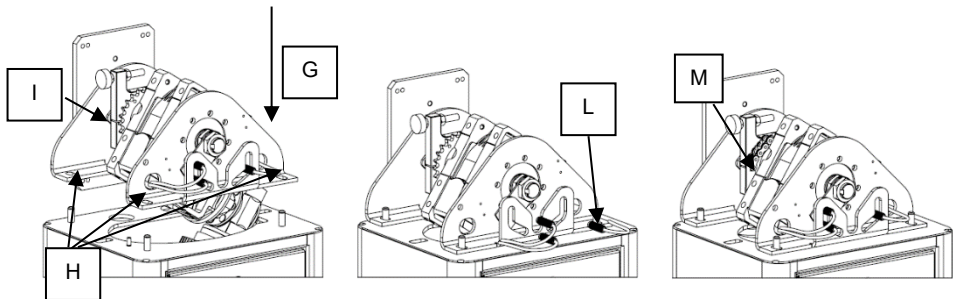
- F- Install the new geared motor unit in the place of the old one
- G- Rescrew the 4 locknuts
- H- Tighten the 2 nut screws that secure the bearing on the bracket
- I- Reconnect the new geared motor unit to the variable speed drive with terminals U, V, W and to the earth
- J- Replace and reconnect the angular sensor as it was before the replacement
- K- Redo the teach-in procedure (see paragraph "9.3 Adjustment of stops and sensor")

18.2.2 LBA 6/6R/63PK

The LBA 6/6R/63PK geared motor unit is replaced following the procedure below:



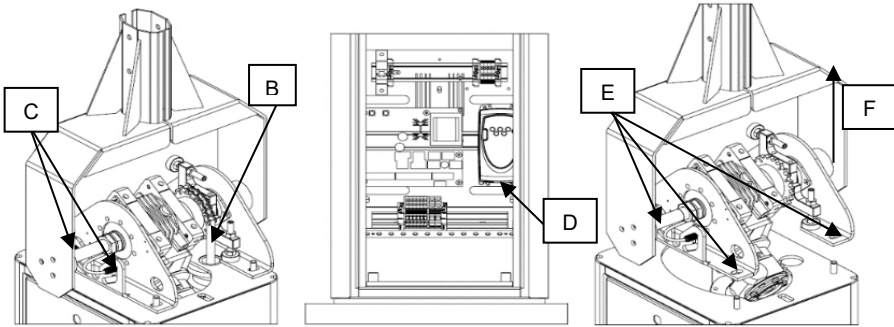
- A- Remove the top cover and screw the opening stop to be able to open the barrier further than the vertical stop (to loosen the counterbalance unit)
- B- Once the barrier has been opened further than the vertical stop, remove the chain-spring counterbalance system by removing the quick link of the chain on the pinion
- C- Disconnect and unscrew the angular sensor to remove it
- D- Disconnect the geared motor connected to the variable frequency drive
- E- Unscrew and remove the 4 locknuts of the geared motor support brackets
- F- Remove the geared motor unit



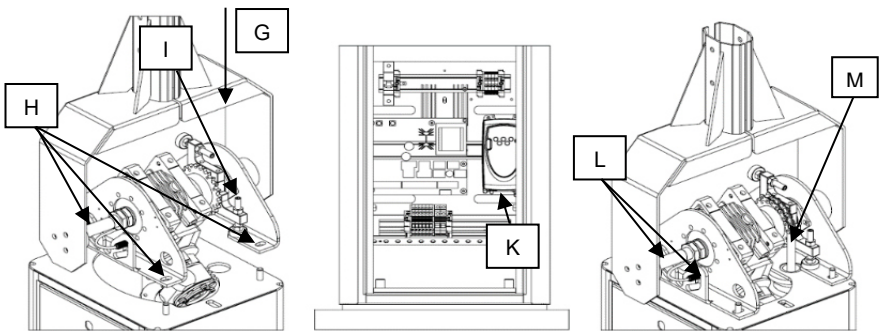
- G- Install the new geared motor unit in the place of the old one
- H- Rescrew the 2 locknuts located on the boom side by aligning the flange with the edge of the housing
- I- Tighten the 2 nut screws that secure the bearing on the bracket
- J- Rescrew the other 2 locknuts located on the sensors side
- K- Reconnect the new geared motor unit to the variable speed drive with terminals U, V, W and to the earth
- L- Replace and reconnect the angular sensor as it was before the replacement
- M- Reinstall the counterbalance on the pinion
- N- Redo the teach-in procedure (see paragraph "9.3 Adjustment of stops and sensor")

18.2.3 LBA 7/7R/74

The LBA 7/7R/74 geared motor unit is replaced following the procedure below:



- A- Remove the top cover (only possible in closed position) and screw the opening stop to be able to open the barrier further than the vertical stop (to loosen the counterbalance unit)
- B- Remove the chain-spring counterbalance system by removing the quick link of the chain on the pinion
- C- Disconnect and unscrew the angular sensor to remove it
- D- Disconnect the geared motor connected to the variable frequency drive
- E- Unscrew and remove the 4 locknuts of the geared motor support brackets
- F- Remove the geared motor unit

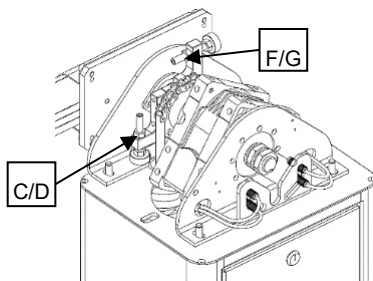


- G- Install the new geared motor unit in the place of the old one
- H- Rescrew the 2 locknuts located on the boom side by aligning the flange with the edge of the housing
- I- Tighten the 2 nut screws that secure the bearing on the bracket
- J- Rescrew the other 2 locknuts located on the sensors side
- K- Reconnect the new geared motor unit to the variable speed drive with terminals U, V, W and to the earth
- L- Replace and reconnect the angular sensor as it was before the replacement
- M- Reinstall the counterbalance on the pinion
- N- Redo the teach-in procedure (see paragraph "9.3 Adjustment of stops and sensor")

18.3 Replacement of the stops (except for LBA 4)

18.3.1 LBA 6/6R/63PK

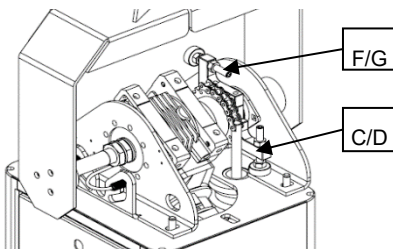
The LBA 6/6R/63PK stops are replaced following the procedure below:



- A- Remove the top cover
- B- Position the boom in horizontal position (with the crank if LBA6)
- C- Unlock the locknut of the vertical position stop
- D- Unscrew the stop to remove it completely and replace it with the new one
- E- Position the boom in vertical position (with the crank if LBA6)
- F- Unlock the locknut of the horizontal position stop
- G- Unscrew the stop to remove it completely and replace it with the new one
- H- Readjust the stops (see paragraph "9.3 Adjustment of stops and sensors")

18.3.2 LBA 7/7R/74

The LBA 7/7R/74 stops are replaced following the procedure below:



- A- Remove the top cover
- B- Position the boom in horizontal position (with the crank if LBA7)
- C- Unlock the locknut of the vertical position stop
- D- Unscrew the stop to remove it completely and replace it with the new one
- E- Position the boom in vertical position (with the crank if LBA7)
- F- Unlock the locknut of the horizontal position stop
- G- Unscrew the stop to remove it completely and replace it with the new one
- H- Readjust the stops (see paragraph "9.3 Adjustment of stops and sensors")

18.4 Replacement of the angular sensor

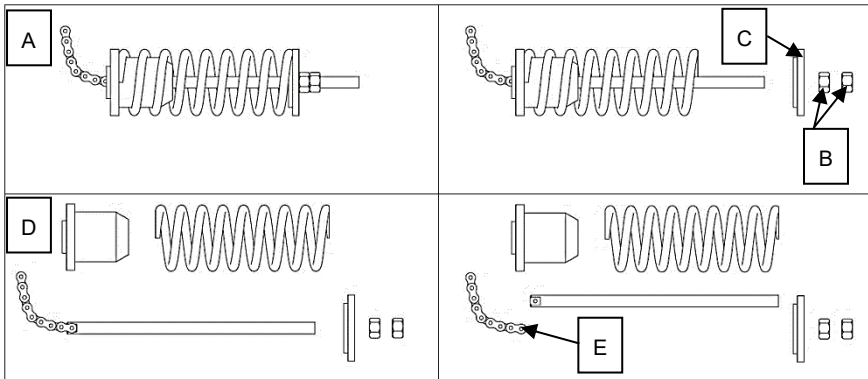
The angular sensor is replaced following the procedure below:



- A- Using an Allen key, unscrew and remove angular sensor from the metallic cam
- B- Disconnect the angular sensor on the encoder terminal at the top of the control board
- C- Cut the black collar fixing the cable to the bracket
- D- Remove the sensor via the holes provided for this purpose.
- E- Fix the new sensor on the metallic plate using the Allen key
- F- Connect the new sensor to the encoder terminal at the top of the control board
- G- Fix the cable with a new collar. The cable must bend and not to touch the bracket during the full movement of the barrier
- H- Redo the teach-in procedure (see paragraph "9.3 Adjustment of stops and sensor")

18.5 Replacement of the counterbalance spring (except for LBA 4)

The spring, chain or quick link are replaced following the procedure below:



To be able to remove the counterbalance unit, you must loosen it first by opening the barrier slightly further than the vertical position (screw the opening stop)

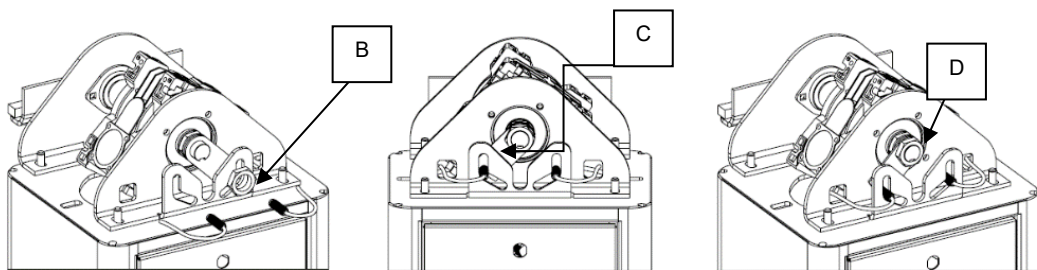
- A- After loosening it, remove the counterbalance unit with its chain by removing the quick link of the pinion
- B- Unscrew the locknut and nut
- C- Remove the spring bearing washer
- D- Remove the spring
- E- Remove the locking device with its chain
- F- Remove the spring centring pin
- G- Dismantle the quick link from the locking device

18.6 Reversing the direction of the barrier

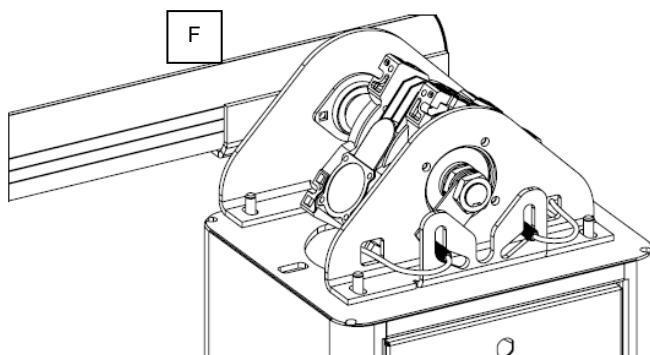
18.6.1 LBA4

To reverse the direction of the LBA 4, follow the procedure below:

- A- Remove the boom, then the top cover
- B- Remove the angular sensor
- C- Reverse the metallic cam using a 36 mm spanner
- D- Replace the shaft nut using a 36 mm spanner after having reversed it and the angular sensor



- E- Reverse the two phases for the variable frequency drive
- F- Put the boom back in place

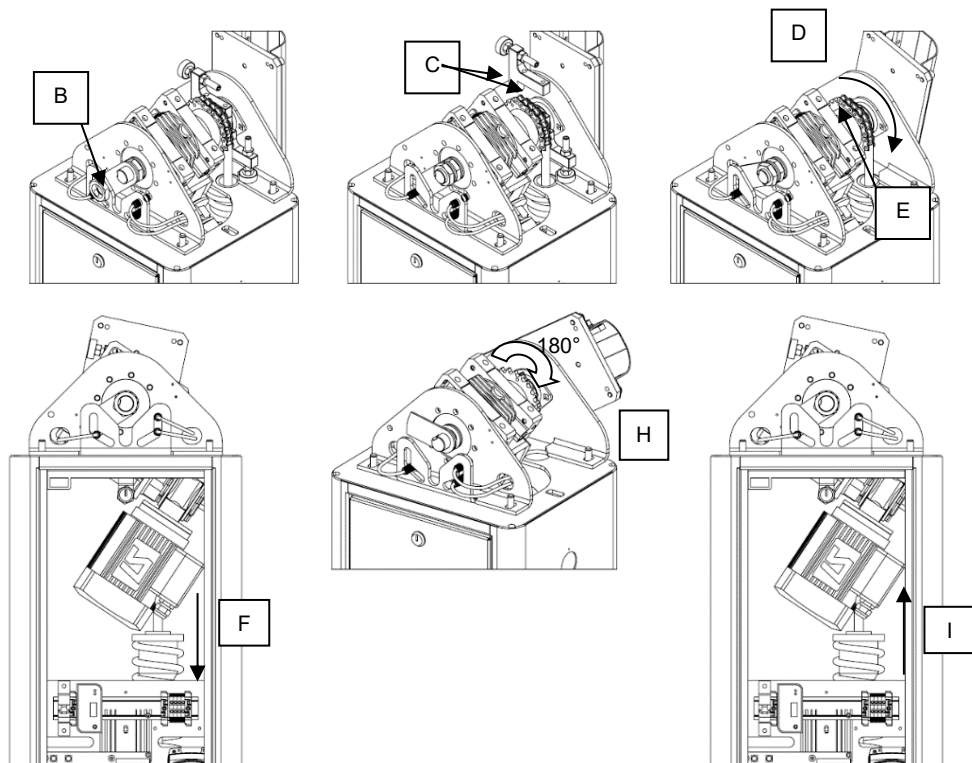


- G- Readjust the stops and the sensor (see paragraph "9.3 Adjustment of stops and sensors")

18.6.2 LBA 6/6R/63PK

To reverse the direction of the LBA 6/6R/63PK, follow the procedure below:

A- Remove the boom and the top cover

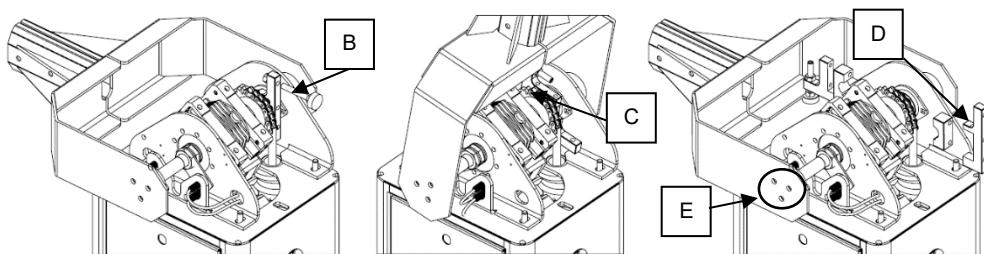


- B- Remove the nut at the end of the shaft using a 36 mm spanner
- C- Dismantle the support of the stops by removing the 2 screws completely and the reinforcement.
- D- Tilt the plate to loosen the counterbalance
- E- Dismantle the quick link from the counterbalance chain using needle-nose pliers
- F- Remove the counterbalance unit with its chain
- G- Remove the angular sensor and the metallic cam
- H- Pivot the plate 180°
- I- Reinstall the counterbalance unit by engaging the chain in the other hole of the upper steel sheet
- J- Tilt the plate on the chain side and reinstall the quick link
- K- Pivot the detection cam and fix back the angular sensor
- L- Reinstall the support of the stops in the other direction by retightening the 2 screws
- M- Reinstall the nut at the end of the shaft and lock it
- N- Reverse the two phases for the variable frequency drive
- O- Readjust the stops and the sensor (see paragraph "9.3 Adjustment of stops and sensors")

18.6.3 LBA 7/7R/74

To reverse the direction of the LBA 7/7R/74, follow the procedure below:

A- Put the barrier in closed position, then remove the boom and top cover

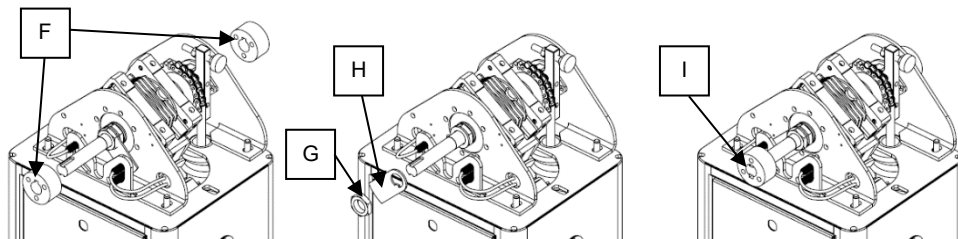


B- Remove the Opening stop to be able to open the barrier beyond the stop and loosen the counterbalance spring

C- Remove the quick link that connects the chain and the pinion, then dismantle the counterbalance system

D- Put the barrier back in closed position, then dismantle the stop system

E- Remove the 2 half-shells by unscrewing the 3 screws on either side



F- Using a hub puller, pull off the 2 lobes

G- Remove the nut at the end of the shaft using a 36 mm spanner

H- Remove the angular sensor, reverse the metallic cam and fix back the angular sensor

I- Reinstall the nut, then the lobes reversing their direction

J- Reinstall the counterbalance unit by engaging the chain in the other hole of the upper steel sheet

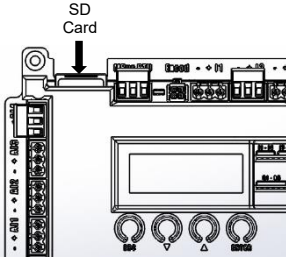
K- Reinstall the stop support the other way round

L- Reverse the two phases for the variable frequency drive

M- Readjust the stops and the sensor (see paragraph "9.3 Adjustment of stops and sensors")

19 Replacing ONE-C control board:

To replace a ONE-C control board, you must:



- 1- Disconnect and remove the ONE-C control board to be replaced.
- 2- Recover the SD card of the ONE-C control board to be replaced (housing located at the top left).

This SD card contains the program of the old ONE-C control board and will be used to program the new control board identically.

- 3- Insert the new ONCE-C control board into the barrier
- 4- Insert the SD card of the old control board into the new control board

```

===== AUTO UPDATE =====
UPDATE PLC FROM
SDCARD AUTO SAVE? Esc
(NO) / Enter (YES)
    
```

- 5- When it starts, the new control board will automatically detect the presence of a programmed SD card coming from another control board and will ask you if you want to program the control board using this SD card.

```

=====DOWNLOADING=====
Done
    
```

- 6- Click on "ENTER" to program the new control board identically to the old control board.

- 7- The message "Done" is displayed after a few seconds to confirm that the program has been updated successfully from the SD card

- 8- Then press "ENTER" to return to the menu.

```

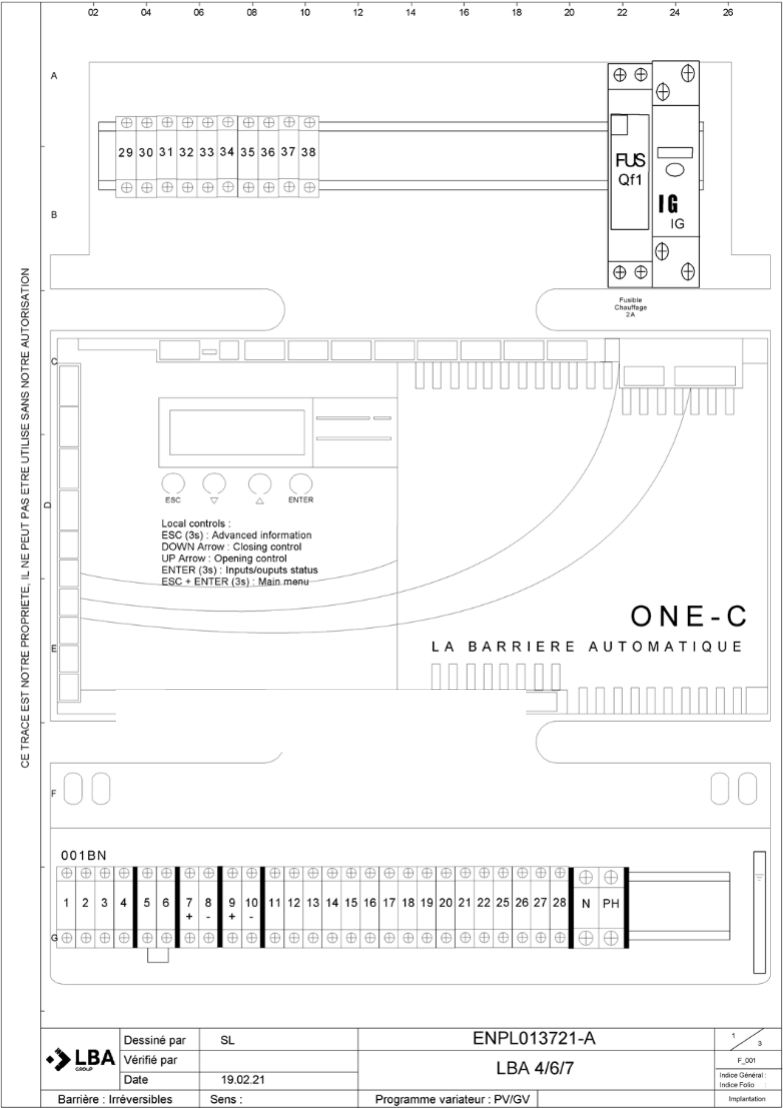
===== PLC MENU =====
INFORMATIONS      [*]
START PLC          [ ]
USER PARAMETERS    [ ]
    
```

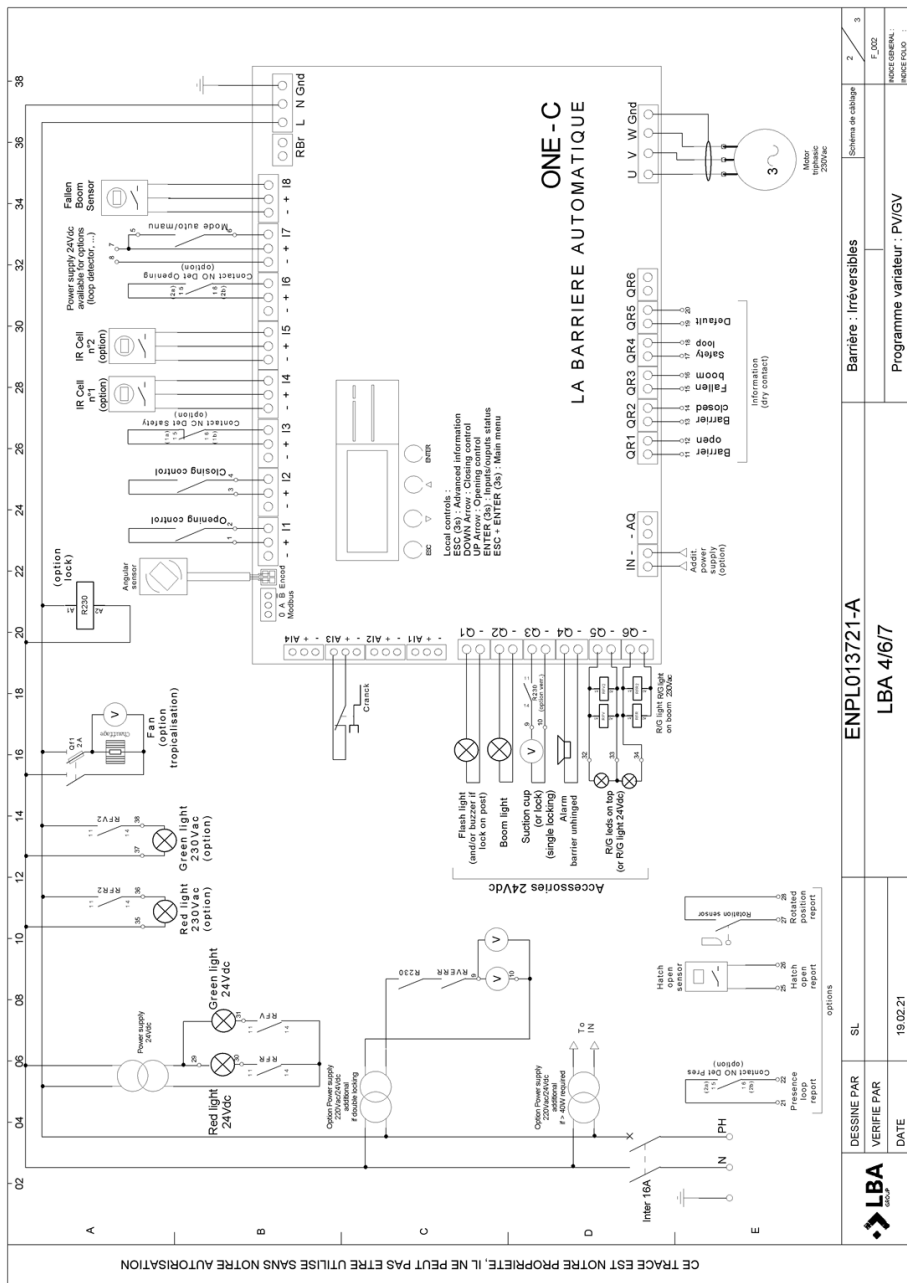
- 9- Start the program by selecting "START PLC" then click "ESC" to exit the menu.

- 10- Restart the barrier

20 Wiring diagram

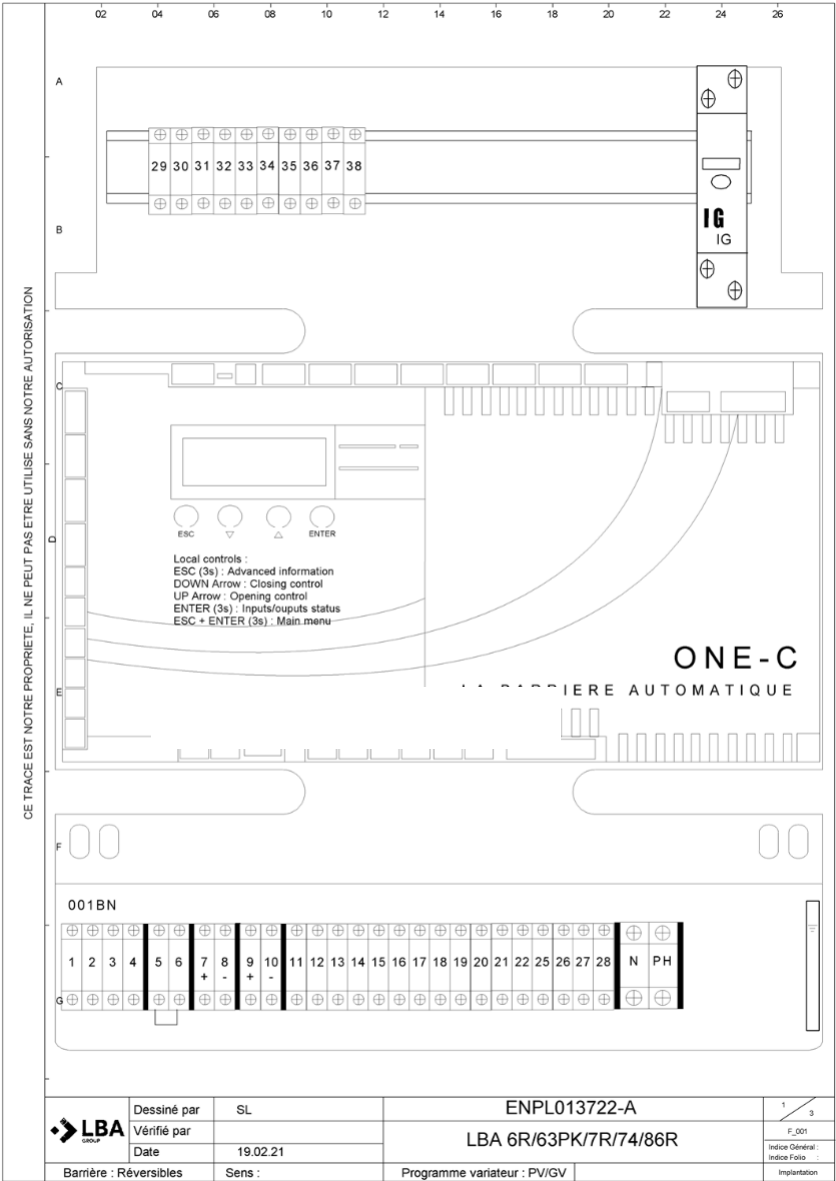
20.1 Irreversible barriers (LBA4/6/7)







20.2 Reversible barriers (LBA6R/63PK/7R/74)



Notes

[illegible]