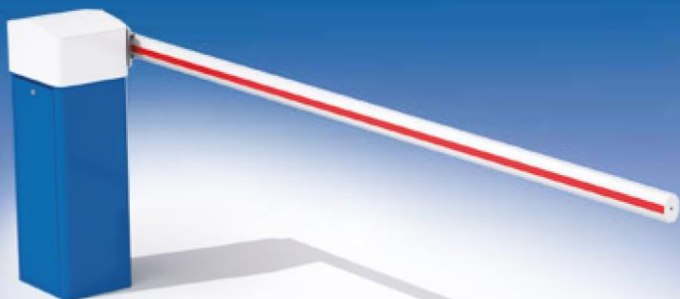




LA BARRIÈRE AUTOMATIQUE
LBA GROUP

THE VEHICLE AND PEDESTRIAN ACCESS CONTROL SPECIALIST



OPERATING INSTRUCTIONS

LIFTING BARRIERS

LBA 4, 6, 63PK, 7 and 74

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.

Please contact our After-Sales Service on +33 (0)4 78 86 02 86, from Monday to Friday, 9 am to 6 pm.

13.10.2020	A	Création	SL
Date	Indice	Description	Auteur

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.

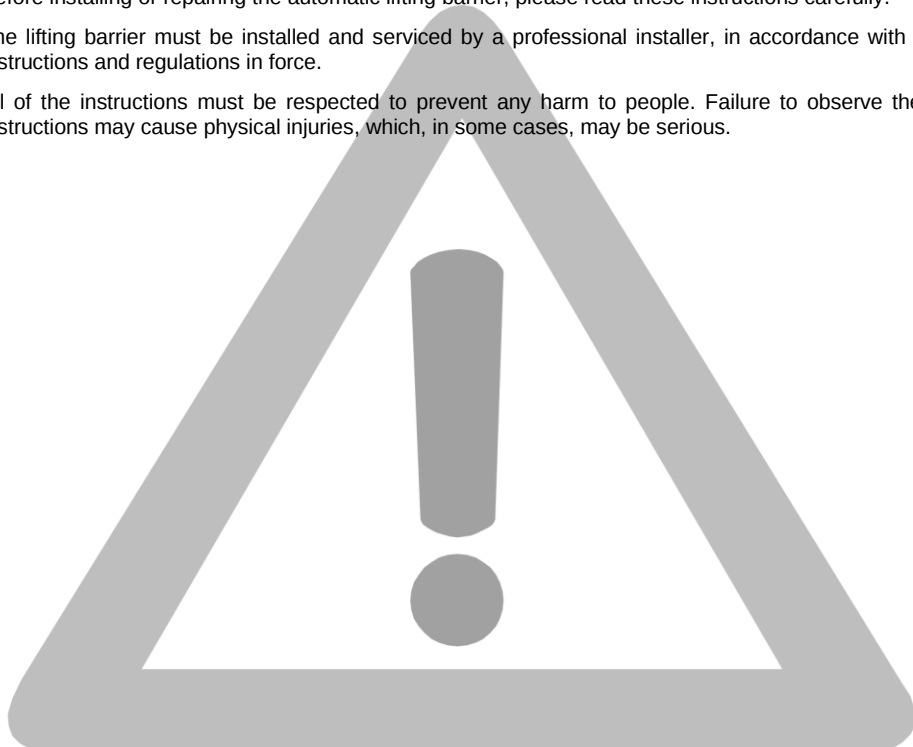
However, before installing your equipment, we recommend that you read the following operating instructions and the quick installation guide attached.

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 risks 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**

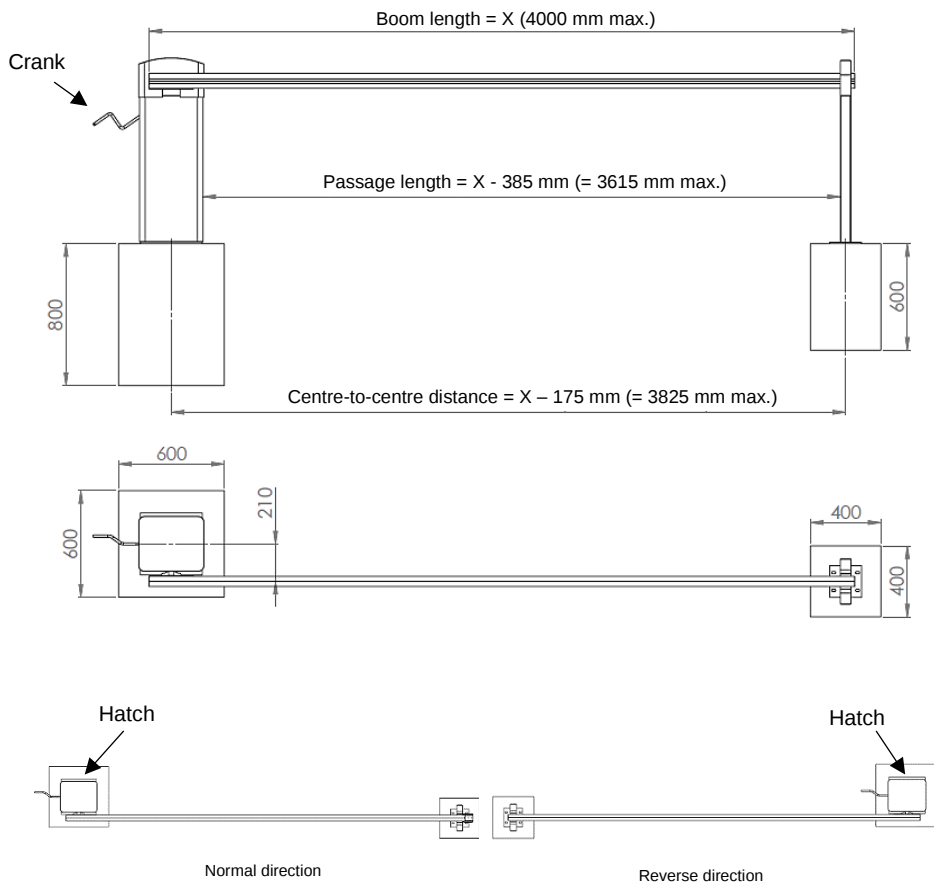
You will also find here the telephone number for technical support.

4 Technical features

4.1 Dimensions and direction

4.1.1 LBA 4

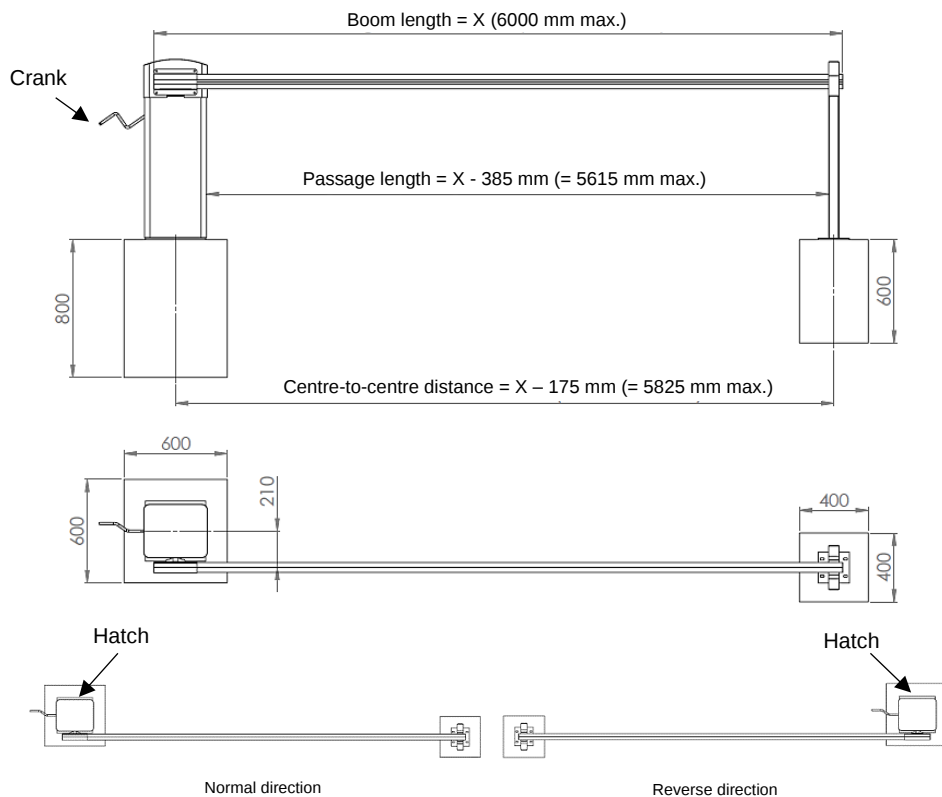
Maximum boom length: 4 m



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



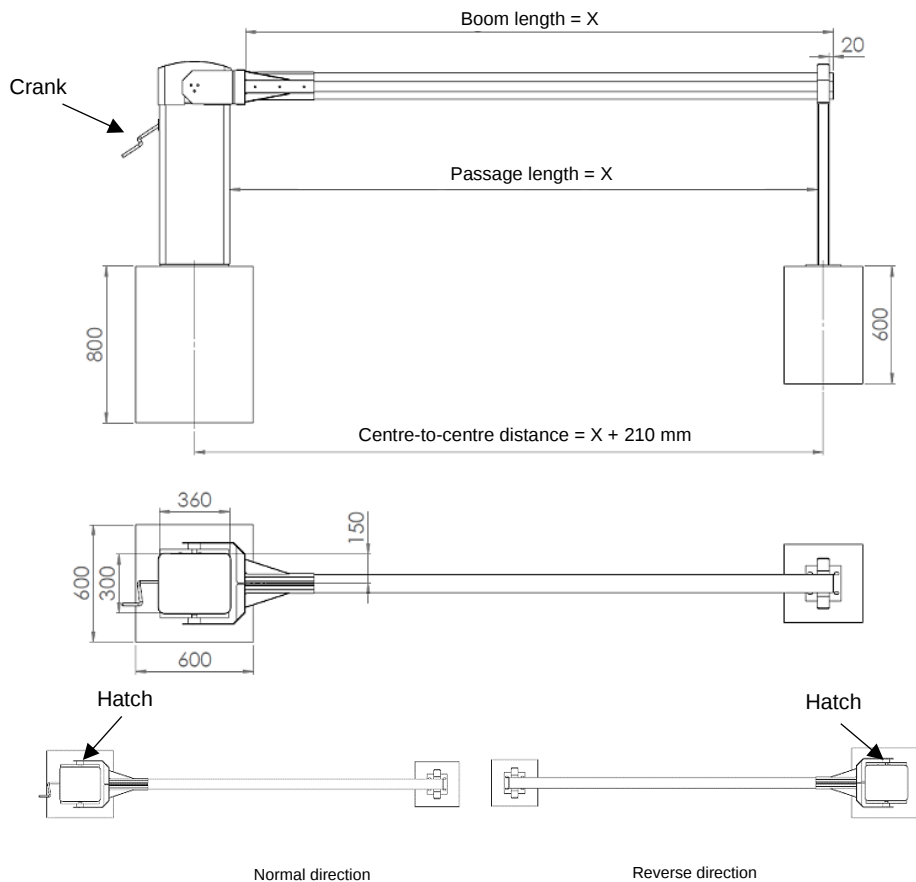
Comment: Only LBA6 has a crank

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	3 to 6 s	2 to 9 s*		0.8 to 3 s	2 to 9 s*		2 to 4 s
Control	Electronic board	PLC					
Position sensors	Inductive (contactless)						

*: Take into account the boom length and its accessories

4.3 Power supply

Designation	Unit	Min.	Typ.	Max.
Power supply	Vac	210	230	250
Frequency	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	Immune against power line disturbances less than 100 ms
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
Lightning	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, sensors, magnetic loops, etc.).

The electrical part controls the mechanical part.

The control board comprises a PLC (or electronic board) which controls a variable frequency drive, which in turn controls the barrier's motor.

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

The inductive sensors indicate 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:

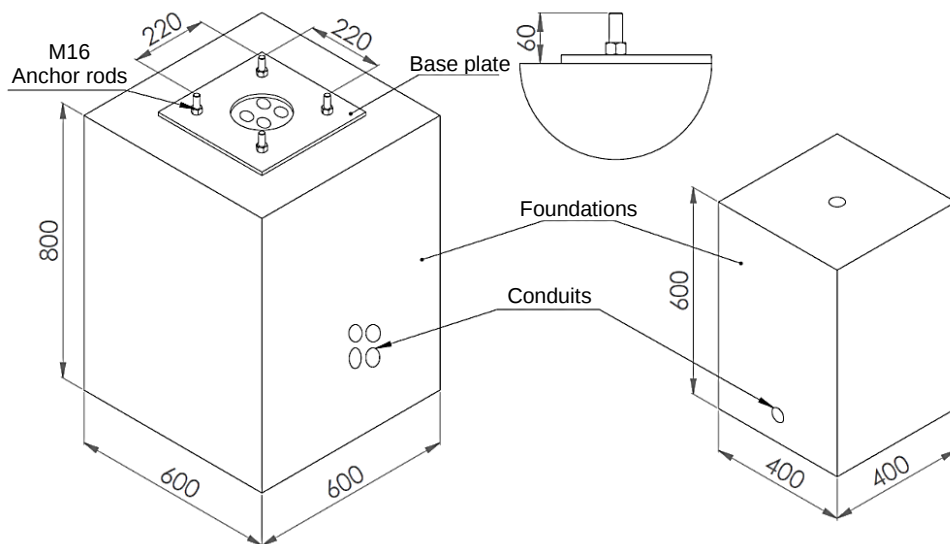
Construct a concrete foundation for the barrier's housing and for the support post (optional) according to the following recommendations.

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:

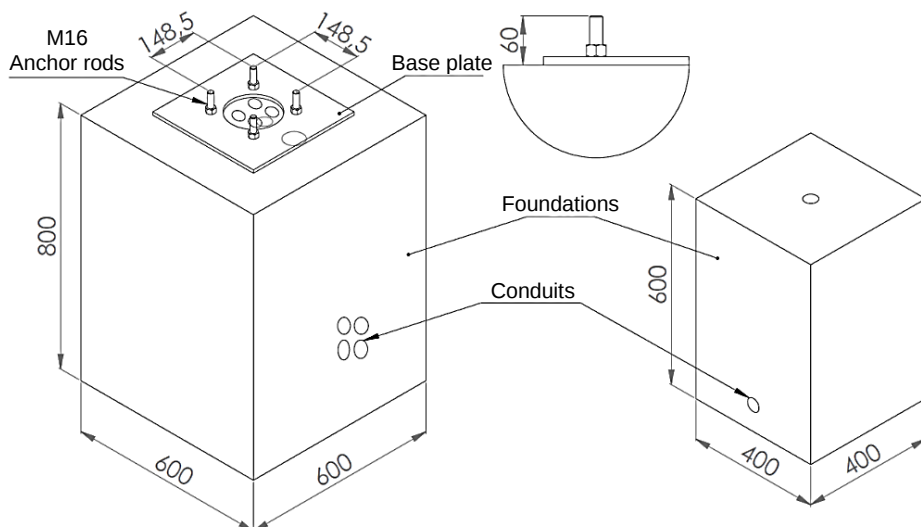
Construct a concrete foundation for the barrier's housing and for the support post (optional) according to the following recommendations.

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).



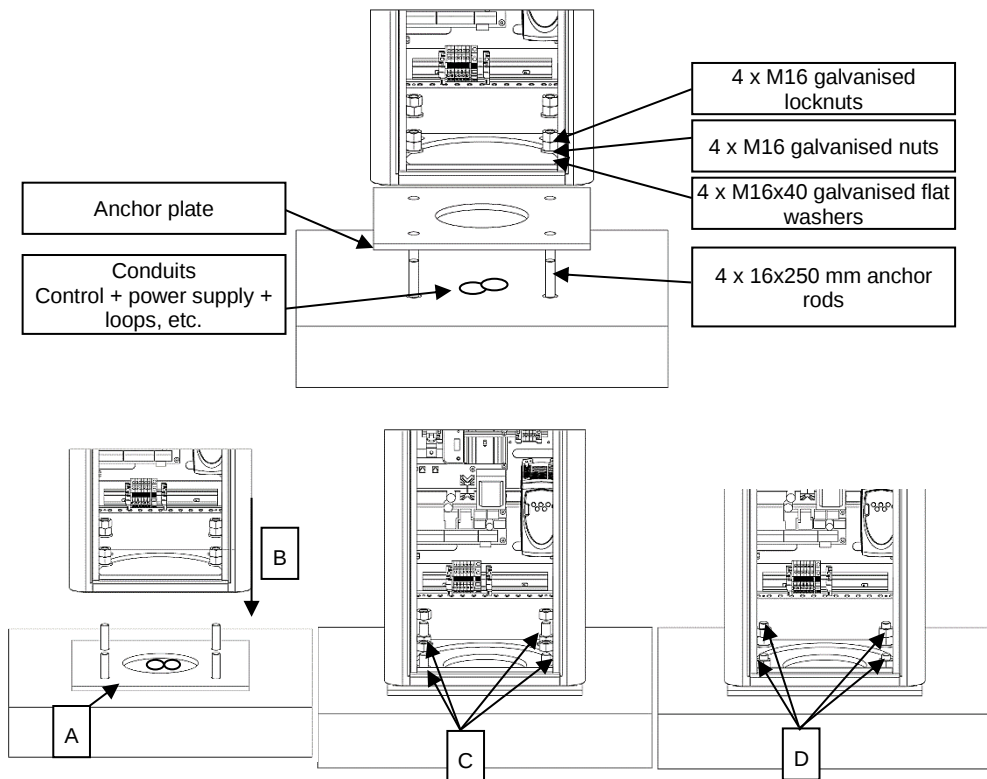
Recommended dimensions for the conduits:

- 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:

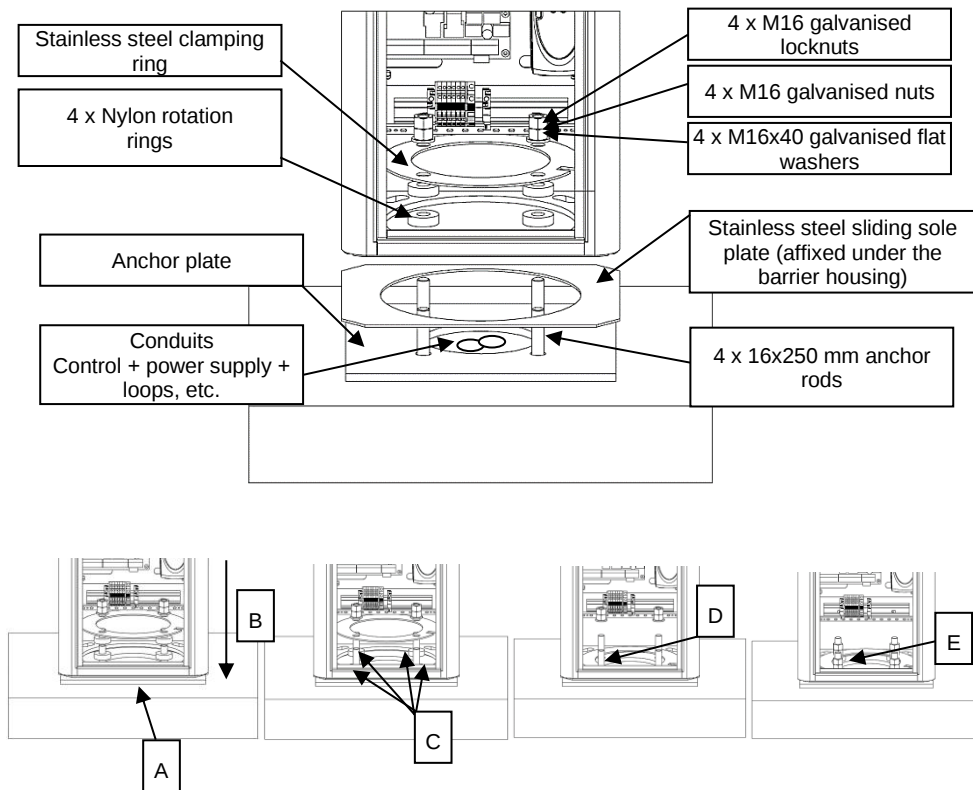
After carrying out the civil engineering work, you can install the barrier following the procedure below:



- 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:

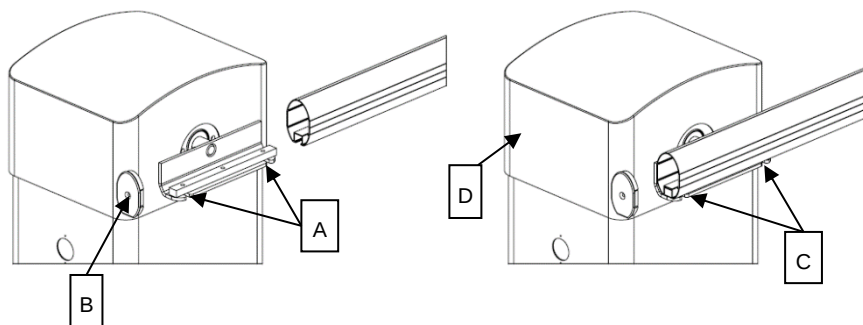
After carrying out the civil engineering work, you can install the barrier following the procedure below:



- 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

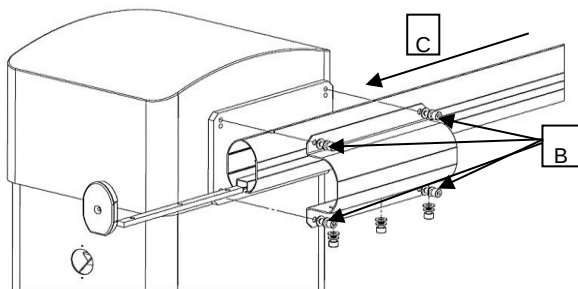
7.3 Assembly of the boom:

7.3.1 LBA4:



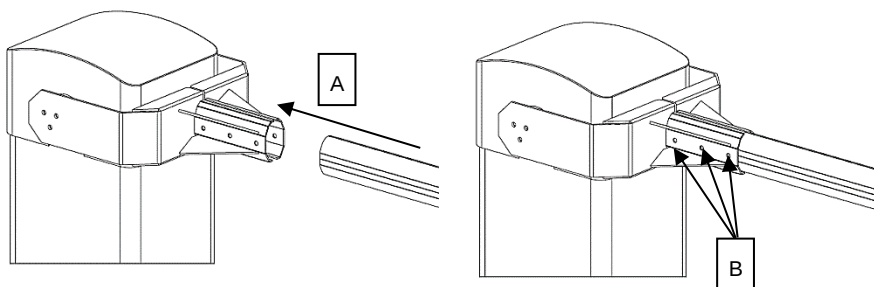
- A- Unscrew the three M8x20 stainless steel screws that secure the gib without completely removing them
- B- Remove the boom cap and engage the boom until it protrudes slightly (1 cm)
- C- Retighten the screws
- D- Replace the cap

7.3.2 LBA6/6R/63:



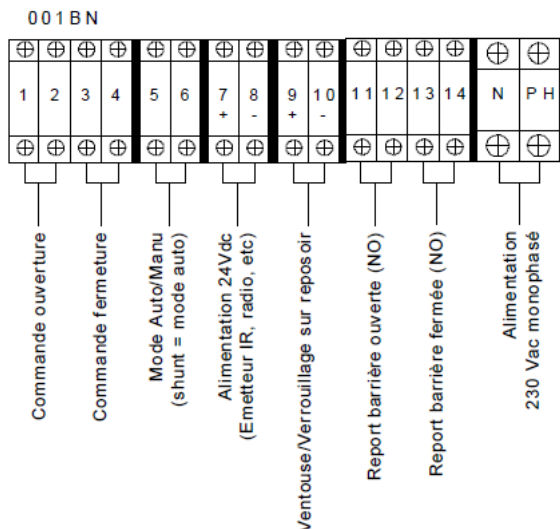
- A- Install the clamping collar equipped with the gib
- B- Install the four M8x16 stainless steel screws tightening them slightly
- C- Remove the cap and engage the boom up to the clamping collar (take care not to drop the boom sensor if present)
- D- Retighten the clamping collar and gib screws
- E-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

- **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 sensors) may be needed to optimise the barrier's operation.

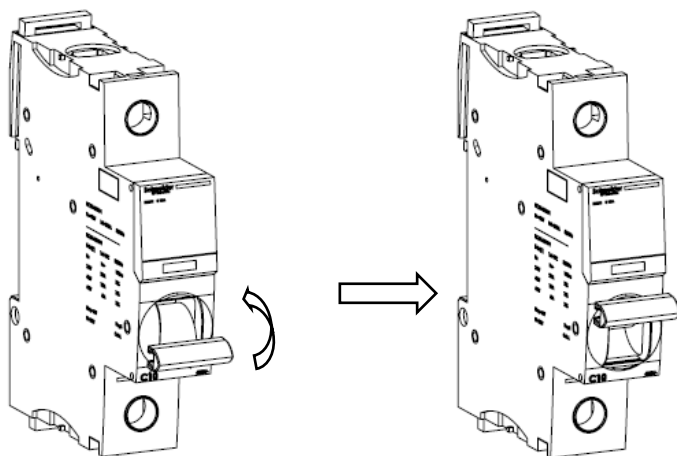
The barriers are designed and set based on the equipment controlled.
Any change made to the barrier (e.g.: boom length) may require adjustment of the settings.

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 sensors:

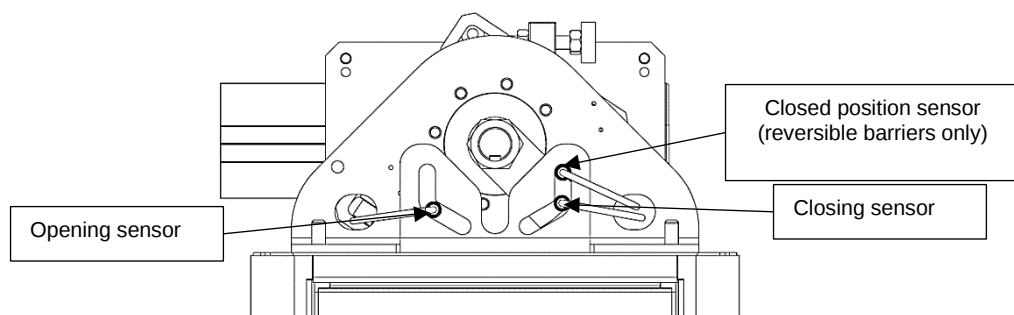


As the settings are adjusted with the power on, there is a risk of injuries related to absence of the top cover. Therefore, be extremely careful during these operations.

9.3.1 Irreversible barriers (LBA4/6/7)

1st step: Adjusting the sensors

For irreversible barriers, the sensors determine the barrier's open or closed position.



This is a drawing of a barrier in normal direction, in the case of a barrier in the reverse direction, the sensor positions are reversed.

➤ **Opening sensor setting**

- 1- Set the sensor so that it is activated (the sensor's light must be on) at approximately 10° before the vertical position (90°)
- 2- The barrier must stop in vertical position
- 3- When you have reached the ideal setting, tighten the nut on the detection cam side using a 17 mm spanner

➤ **Closing sensor setting**

- 1- Set the sensor so that it is activated (the sensor's light must be on) at approximately 10° before the horizontal position (0°)
- 2- The barrier must stop in horizontal position
- 3- When you have reached the ideal setting, tighten the nut using a 17 mm spanner

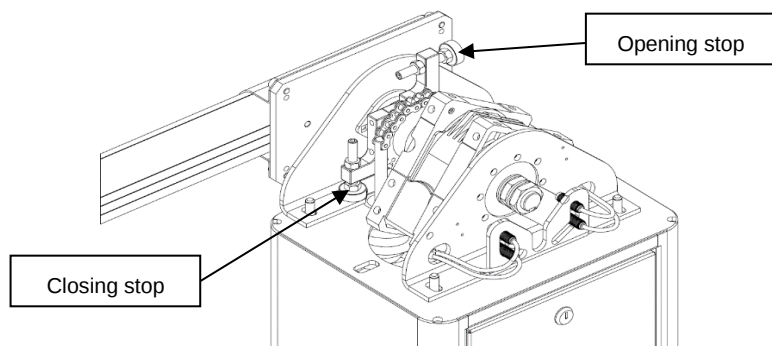
2nd step: Adjusting the stops (except for LBA4)

For irreversible barriers, stops are used for safety purposes in the event of faulty sensors.

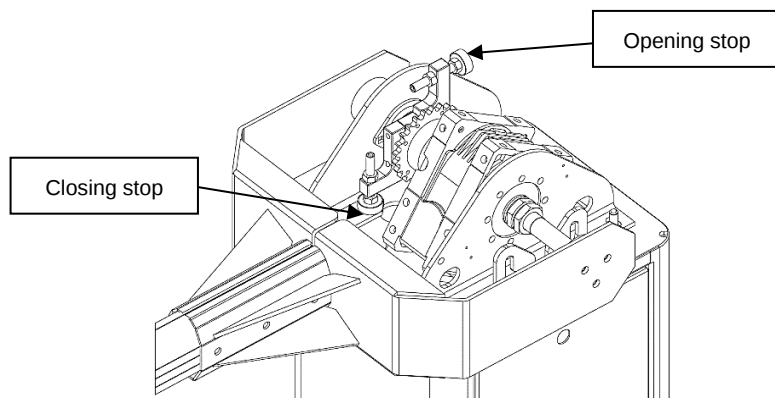
To adjust the stops:

- 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 locks the boom to avoid over-travel (slightly after the final position)
- 5- Lock the stop's locknut

LBA 6:



LBA 7:



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

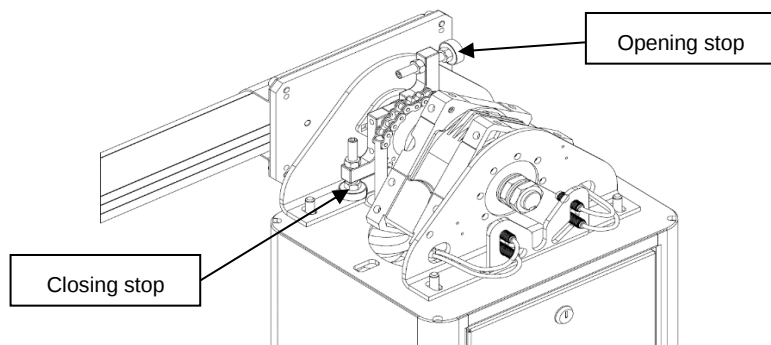
1st step: Adjusting the stops

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

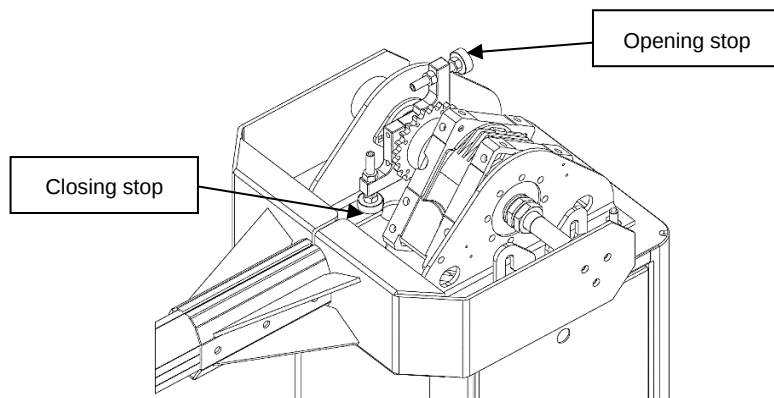
To adjust the stops:

- 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:

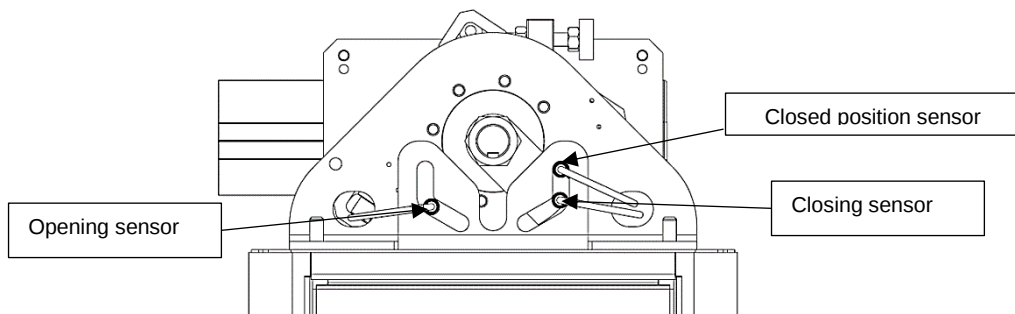


LBA 7R/74:



2nd step: Adjusting the sensors

For reversible barriers, sensors are used to slow down the boom's movement before reaching the barrier's open and closed positions.



This is a drawing of a barrier in normal direction, in the case of a barrier in the reverse direction, the sensor positions are reversed.

➤ **Opening sensor setting**

- 1- Set the sensor so that it is activated (the sensor's light must be on) at approximately 10° before the vertical position (90°)
- 2- The barrier must reach the stop slowly
- 3- When you have reached the ideal setting, tighten the nut on the detection cam side using a 17 mm spanner

➤ **Closing sensor setting**

- 1- Set the sensor so that it is activated (the sensor's light must be on) at approximately 10° before the horizontal position (0°)
- 2- The barrier must reach the stop slowly
- 3- When you have reached the ideal setting, tighten the nut using a 17 mm spanner

➤ **Closed position sensor setting**

- 1- Insert a wedge of approximately 5 mm under the closing stop
- 2- Adjust the position of the sensor so that it is at the detection limit (activated)
- 3- When you have reached the ideal setting, tighten the nut using a 17 mm spanner

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:

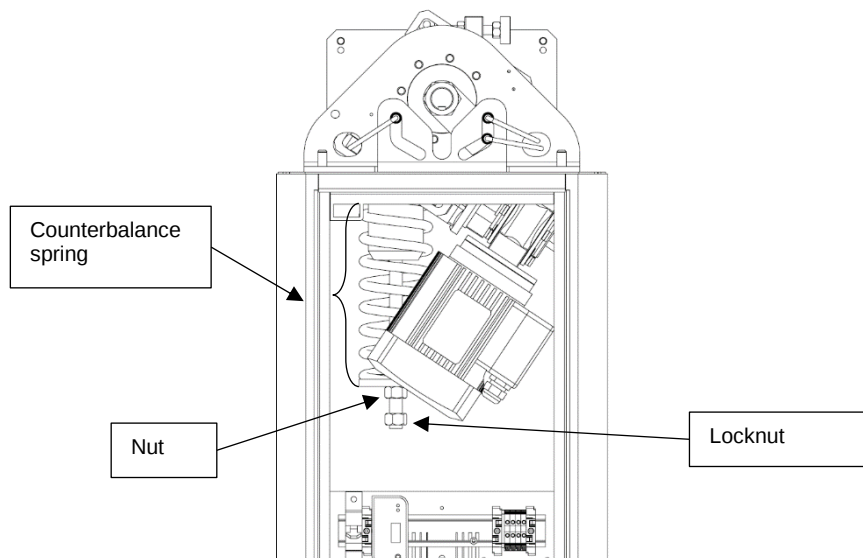
- **Increasing the counterbalance:** Activation/Increase of automatic lifting
- **Reducing the counterbalance:** Reduction/Deactivation of automatic lifting



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

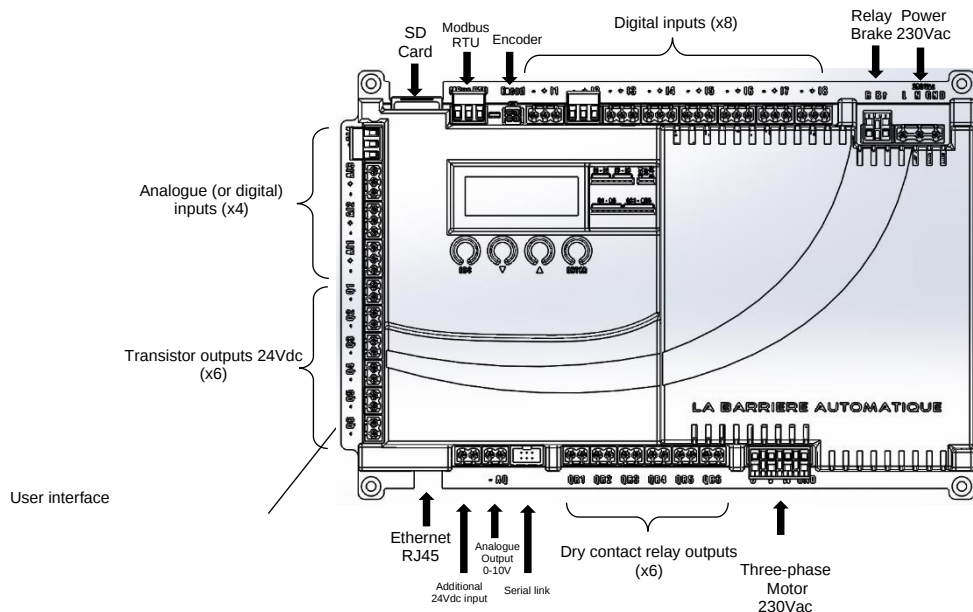


Comments:

- 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)

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:

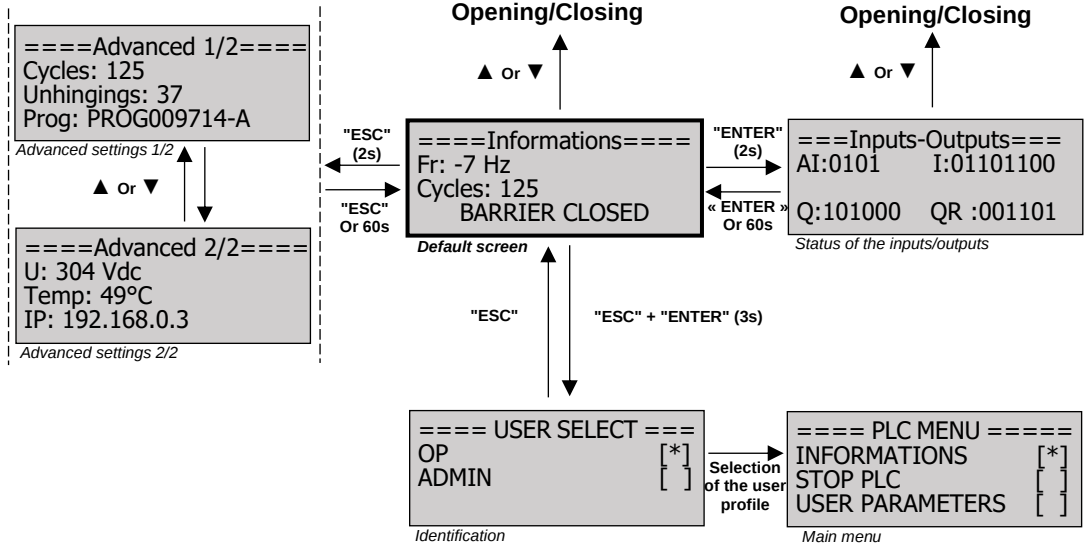
Control	Function
Key ▼	Local close command (from the "Information" and "Inputs-Outputs" screens)
Key ▲	Local open command (from the "Information" and "Inputs-Outputs" screens)
ESC key (2s)	Display of the advanced settings
ENTER key (2s)	Display of the input/output statuses
ESC + ENTER (3s)	Main menu

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 "§3.1. 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
Unhings: 37
Prog: PROG009714 v1
```

- **Number of cycles of the barrier:** this number of cycles corresponds to the number of openings carried out by the barrier.
- **Number of unhings that the barrier was subjected to:** this number indicates the number of unhings that the barrier has been subjected to.
- **Programme of the barrier:** this shows the programme number as well as its version. This information is useful when troubleshooting.

```
====Advanced 2/2====
U : 304 Vdc
Temp : 49 C
IP : 192.168.0.100
```

- **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
- **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===
AI:0101    I:01101100
Q:101000   QR :001101
  
```

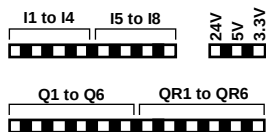
- **Analogue/digital inputs (AI):** AI1 to AI4
- **Digital inputs (I):** I1 to I8
- **Transistor outputs (Q):** Q1 to Q6
- **Relay outputs (QR):** QR1 to QR6

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
« OPENING »	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:

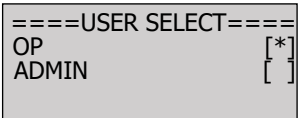
Message	Meaning
"Operation time exceeded"	The time for opening or closing the barrier has exceeded the manoeuvring time (by default: 30s). Motor control is cut off. The barrier has to be reset.
"Motor in fault Error code: XXX"	The motor is in fault. The error code is indicated. Error codes: 0: No error 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

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":

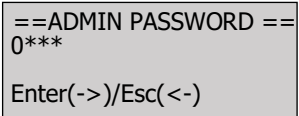


Contrary to the access to the menu via the "OP" user, access via the "ADMIN" user requires a password because it provides access to more features and more settings:

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:

Setting	Description	Unit	OP	ADMIN
T_manoeuvre	Time beyond which the barrier goes into fault if neither of the two end-of-travel sensors has been detected. (default: 30s)	s	●	●
FAT	Activation of automatic closing after time delay (TRUE: activated; FALSE: deactivated).		●	●
FAP	Activation of automatic closing after passage on the safety loop (TRUE: activated; FALSE: deactivated).		●	●
T_FAT	Waiting time before automatic closing after time delay (if activated) (default: 15s)	s	●	●
T_FAP	Waiting time before automatic closing after passage (if activated) (default: 0s)	s	●	●
T_Detection_FAP	Minimum duration for detection on the magnetic loop so that the closing after passage is activated (default: 0.5s)	s	●	●
T_PVT	Duration of the small speed timed for closing (case with irreversible barriers) (default: 1s)	s	●	●
Presign_OUV	Duration of the pre-signalling before the opening of the barrier. (default: 0s)	s	●	●
Presign_FERM	Duration of the pre-signalling before the closing of the barrier. (default: 0s)	s	●	●
Clignotement_feux	Activation of blinking lights on arm (TRUE: activated; FALSE: deactivated).		●	●
Mode_1_BP	Activation of the "1 BP" control mode which makes is possible to control the barrier with a single control: the opening control then becomes a closing control when the barrier is open (TRUE: activated; FALSE: deactivated).		●	●
Mode_homme_mort	Activation of the "dead man" control mode: the closing control has to be maintained until the end of closing otherwise the barrier will open again automatically (TRUE: activated; FALSE: deactivated).		●	●
Mode_capteurs_NC	Configuring of the end-of-travel sensors as normally closed (NC) instead of normally open (NO) (TRUE: NC; FALSE: NO).		●	●
Activation_deverr	Option to be activated when the barrier is provided with a mechanical locking member (excluding electromagnetic suction cup) so that the barrier closes very slightly before each opening in order to release the locking (TRUE: activated; FALSE: deactivated).		●	●

PWM_verrou	Activation of the PWM function on the locking output (Q3) in order to consume less (TRUE: activated; FALSE: deactivated).		●	●
English	Activation of English messages on the screen (TRUE : English ; FALSE : French).		●	●
Param_Vit_1	Opening speed of the barrier.	Hz	●	●
Param_Vit_2	Closing speed of the barrier.	Hz	●	●
Param_Vit_3	Slowdown speed (holding torque) in opening	Hz	●	●
Param_Vit_4	Slowdown speed (holding torque) in closing	Hz	●	●
Param_Vit_5	Acceleration ramp of the barrier in opening.	Hz/s	●	●
Param_Vit_6	Acceleration ramp of the barrier in closing.	Hz/s	●	●
Param_Vit_7	Deceleration ramp of the barrier in opening.	Hz/s	●	●
Param_Vit_8	Deceleration ramp of the barrier in closing.	Hz/s	●	●
Param_Vit_9	Opening speed of the barrier during automatic rehinging.	Hz	●	●
Regondage_auto	Activation of the automatic rehinging function (LBA63PG) (TRUE: activated; FALSE: deactivated).			●
Reversibilite	Option to be activated when the barrier is reversible in order to activate the "holding torque" function (TRUE: activated; FALSE: deactivated)			●
Reouverture_secu	Activation of the automatic reopening on detection of a safety component (loops, IR cell, ultrasound, etc.) (TRUE: activated; FALSE: deactivated)			●
Param_Boost_1	Value of the boost applied to the motor during movement	%		●
Param_Boost_2	Speed below which a boost is applied to the motor in movement	Hz		●
Param_Boost_3	Value of the boost applied to the motor during holding torque	%		●
Param_Boost_4	Speed below which a boost is applied to the motor in holding torque	Hz		●
Param_Motor_1	Maximum value of the current that can be applied to the motor during movement	A		●
Param_Motor_2	Maximum value of the current that can be applied to the motor during holding torque	A		●
Param_Motor_3	Choice of the motor to control: 1: Motor 0.18kW 1.2A Bonfiglioli 2: Motor 0.25kW 1.5A Leroy Somer 3: Motor 0.55kW 3A Bonfiglioli 4: Motor 0.25kW 1.4A Bonfiglioli			●
Sens_barriere	Direction of rotation of the motor (1; -1)			●

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 ===
Vitesse_OUV      [*]
Vitesse_FERM      [ ]
Petite_vit_OUV    [ ]
  
```

```

=Vitesse_OUV=
70
Up(Next)/Down(Prev)
Enter => Edit value
  
```

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

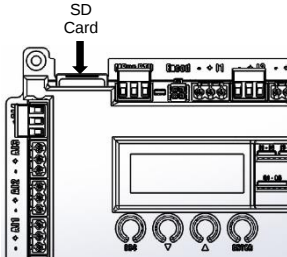
13.5 "IP CONFIG" - IP address configuration:

⇒ See §5 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:



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

```
== SELECT PLC PROG ==
SAVEPLC.LBA             [*]
```

```
=PRESERVE USERPARAM=
preserve on board
u_param and retain?
Esc(NO) / Enter(YES)
```

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

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

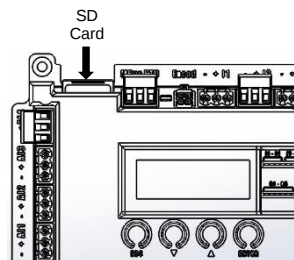
- 1- Remove the SD card already present and insert the SD card which contains the program into the housing provided at the top left of the board
- 2- Go to the menu of the control board by pressing the "ESC" and "ENTER" keys simultaneously for 3s.
- 3- Select the "OP" profile by clicking on "ENTER".
- 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

- 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.

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



```

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

```

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

```

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

- 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

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 Degondée	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              [*]

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

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

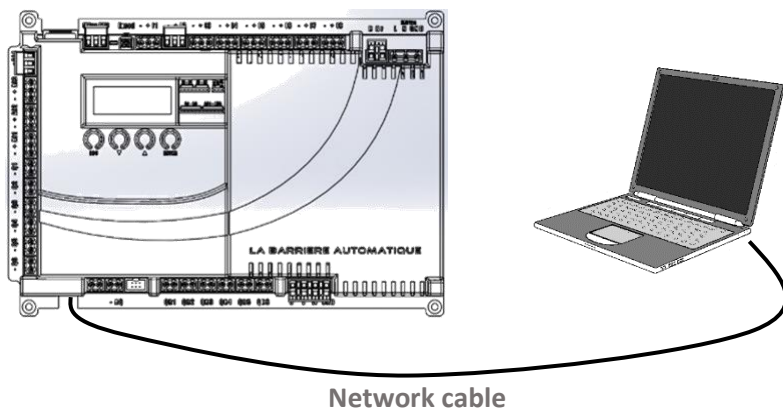
Data	Data type	Direction	Type	Address	Description
Controls	Boolean	Read	Coil	0	Open command (0 = non-active; 1 = active)
	Boolean	Read	Coil	1	Close command (0 = non-active; 1 = active)
	Boolean	Read	Coil	2	Reserved
	Boolean	Read	Coil	3	Reserved
	Boolean	Read	Coil	4	Reserved
	Boolean	Read	Coil	5	Reserved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

15 Web server

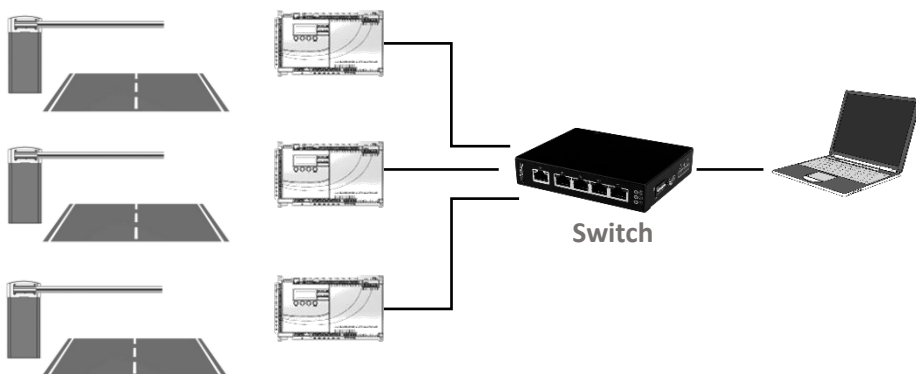
The ONE-C control board has a built-in web server that makes it possible to view, control, and configure the barrier using a web browser.

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:

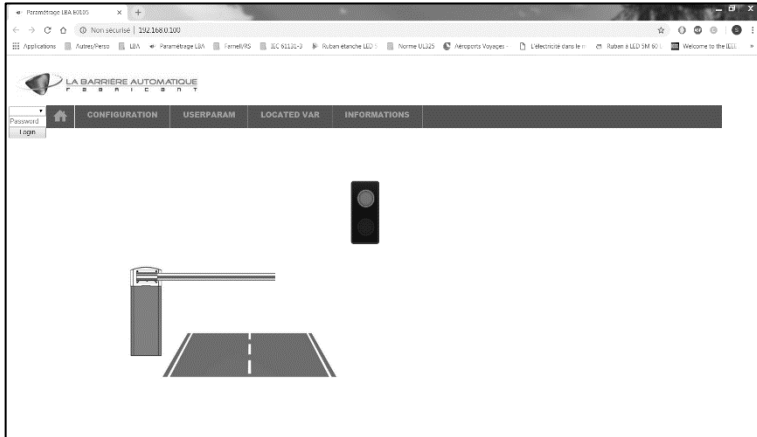


Once the barrier is connected, enter the barrier's IP address in your browser.

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*.

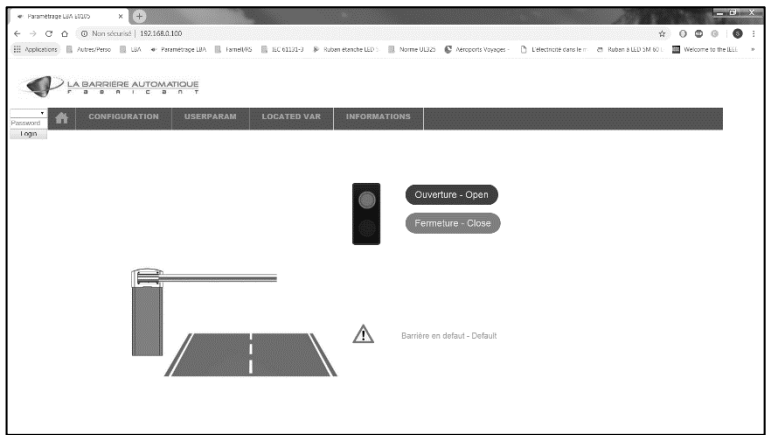
To disconnect, simply click on the *Logout* button.

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.

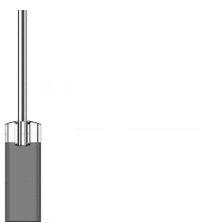
Below is an example of the home page for an "ADMIN" profile.



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.

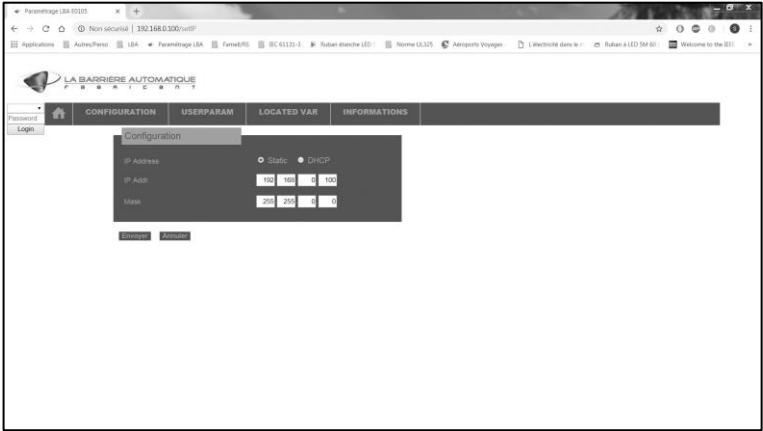
	None	<u>Red light:</u> The barrier is not open or is about to close. Passage is prohibited. The "Red light" output is activated.
	None	<u>Green light:</u> The barrier is open and is not about to close. Passage is authorised. The "Green light" output is activated.
	Safety detection	The barrier is open 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: - The time delay for manoeuvring was exceeded (obstacle, broken reduction gear, defective sensors...). - The crank is not in place - The motor is not (or is incorrectly) connected - A phase of the motor is disconnected - A phase of the motor is short-circuited - The connected motor is not the correct motor

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.

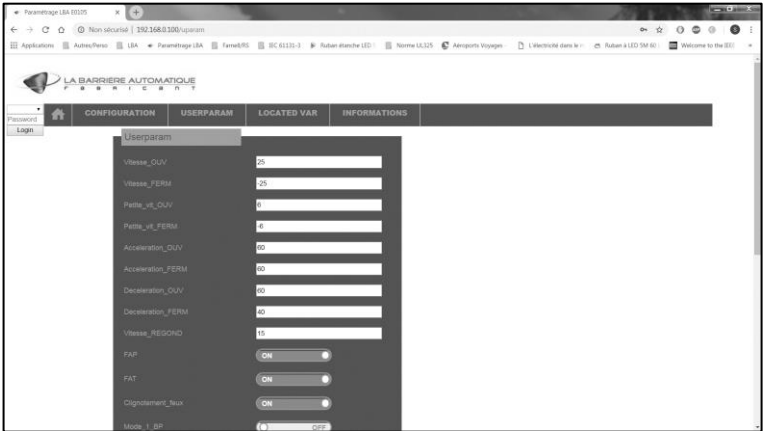


This allows you to choose whether you want the barrier to have a fixed (Static) IP address or if you want the IP address to be assigned automatically by the network that the barrier is connected to (DHCP).

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

15.4.2 "Userparam" tab (authentication required)

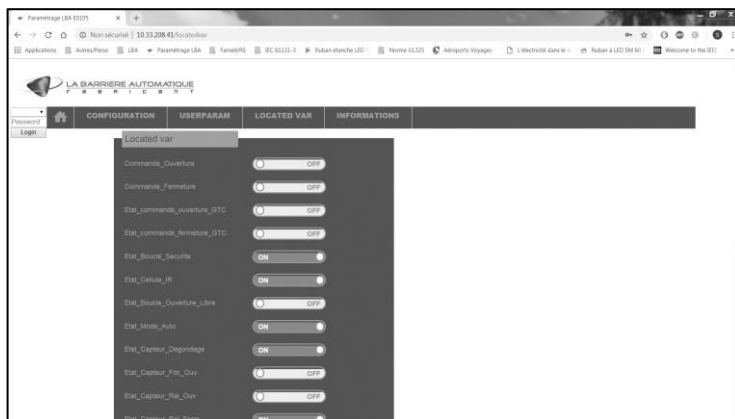
The "Userparam" tab provides access to the various settings allowed by the user profile and also allows them to be modified (see §3.4. "USER PARAMETERS" - Settings for the program).



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

15.4.3 "Located var" tab (authentication required)

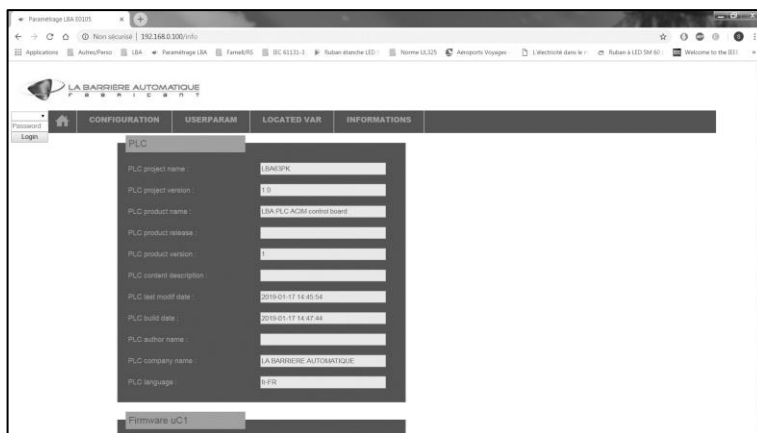
The "Located var" tab provides access to the statuses of the local variables of the barrier for the purposes of troubleshooting, for example.



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 §3.2. "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

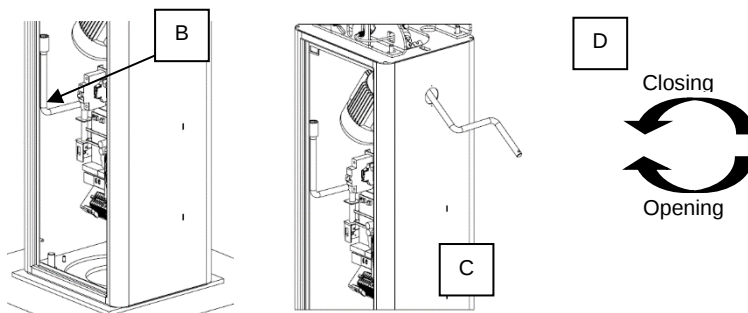
16.2 Maintenance plan:

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
Yearly	• Visual inspection of the absence of bouncing after opening or closing • Check the various barrier settings • Check that the safety components (magnetic loop, sensor, ultrasonic sensor, etc.) are working properly • 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 “§ 9.6 Setting the PLC”) Check the wiring of the opening control (or the free opening loop)
	The variable speed drive is faulty ⇒ An error message is displayed on the variable speed drive	See “§12.4 Variable speed drive error messages”
	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 “§ 13.2 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 “§ 9.6 Setting the PLC”) Check the wiring of the closing control
	An opening control is active	Look at the status of the PLC inputs/outputs (see “§ 9.7 Setting the PLC”) 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 “§ 9.6 Setting the PLC”) 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), check that there is a shunt

		between terminals 42 and 44 of the terminal board
	The variable speed drive is faulty ⇒ An error message is displayed on the variable speed drive	See "§12.4 Variable speed drive error messages"
	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 "§ 13.2 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 passage by creating a shunt between terminals 7 and 8 of the terminal board
The barrier does not close after the time delay	Closing after time delay is not activated	Activate the closing after time delay by creating a shunt between terminals 9 and 10 of the terminal board
The barrier does not stay open	Automatic closing (after passage or after time delay) is activated	Remove the shunt(s) between terminal 7, 8, 9 and 10 of the terminal board
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 holding speed must be delayed slightly to reach the closing stop (LBA6R/63PK/7R/74)	Increase parameter 00.022 of the variable speed drive ⇒ See "§ 9.5 Variable frequency drive setting"

	The closing slowdown time delay is too short (LBA4/6/7)	Increase parameter 00.022 of the variable speed drive ⇒ See “§ 9.5 Variable frequency drive setting”
	The closing sensor is positioned too low on the attachment bracket (LBA4/6/7)	Raise the closing sensor slightly on the attachment bracket ⇒ See “9.3 Adjustment of the stops and sensors”
	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 service on: +33 (0)4-78-86-02-86.

17.4 Variable speed drive error messages

Here are common variable speed drive error messages:

Message	Designation	Recommended actions
FAN.F	Variable speed drive failure	Check that the fan is not blocked. Contact the after-sales service to replace the variable speed drive
It.Ac	Output current overload time exceeded	Make sure that the boom is not blocked Reset the position sensors (see § 9.3 Adjustment of stops and sensors")
O.Ld1	Overload on the logic output	Check that the total loads for the logic outputs do not exceed 100 mA Check that the wiring of the output is not damaged
I.AC.Lt	Current limit activated	This is not an error but a warning. The variable speed drive continues to operate but can no longer accelerate Reduce the rates and speeds in the variable speed drive (see “§ 9.5 Variable speed drive setting”)

For any other message, please contact La Barrière Automatique's after-sales service on: +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.

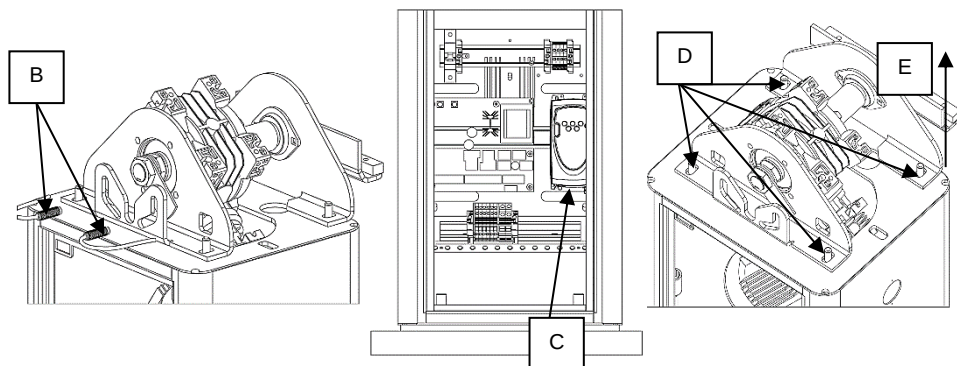
18.1 Replacement of the boom

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

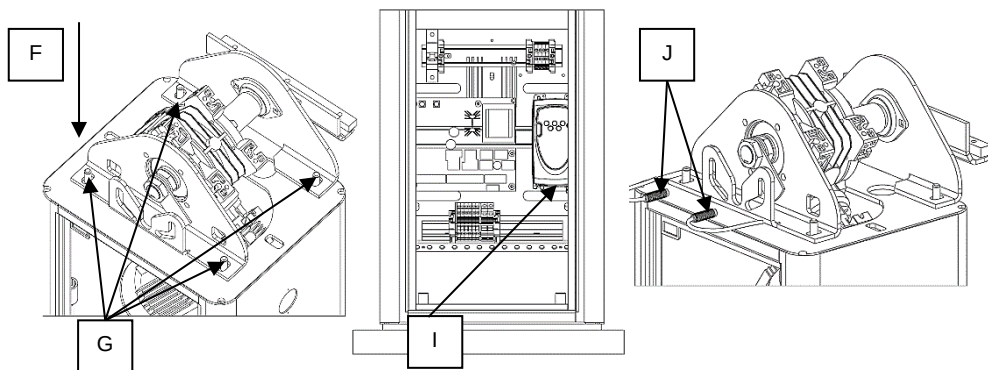
18.2 Replacement of the geared motor unit

18.2.1 LBA4

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



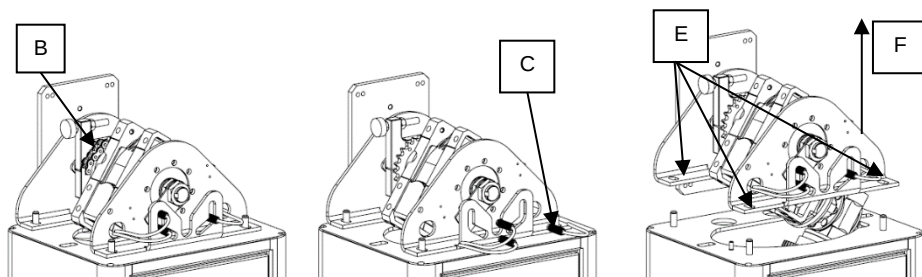
- A- Remove the top cover, then the boom
- B- Unscrew the inductive sensors and remove them via the holes on either side of the bracket
- C- Disconnect the geared motor connected to the variable frequency drive
- D- Unscrew and remove the 4 locknuts of the geared motor support brackets
- E- Remove the geared motor unit



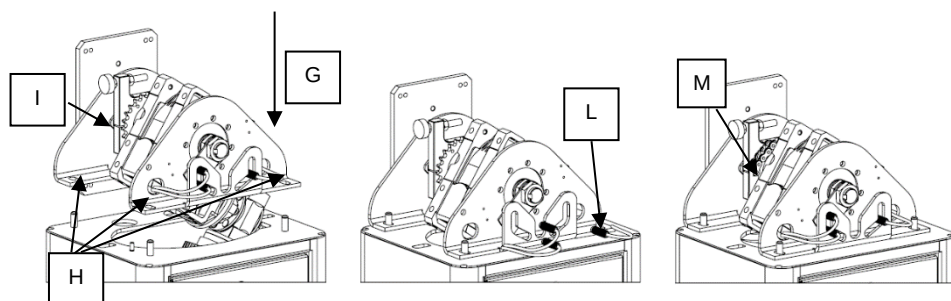
- F- Install the new geared motor unit in the place of the old one
- G- Rescrew the 4 locknuts
- H- Tighten the 2 nut screws that secure the bearing on the bracket
- I- Reconnect the new geared motor unit to the variable speed drive with terminals U, V, W and to the earth
- J- Replace the inductive sensors as they were before the replacement
- K- Readjust the position sensors (see paragraph "9.3 Adjustment of stops and sensors")

18.2.2 LBA 6/6R/63PK

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



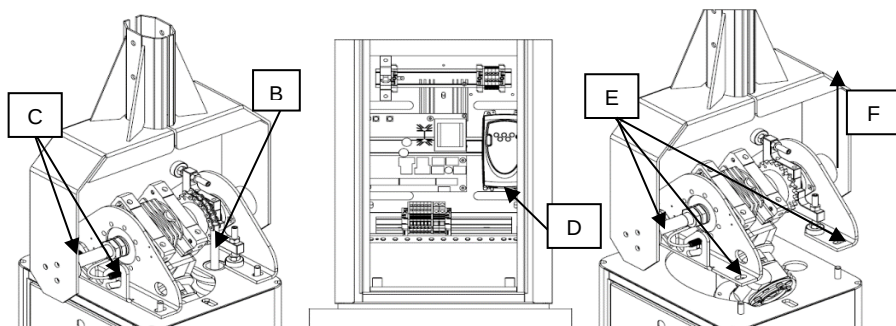
- A- Remove the top cover and screw the opening stop to be able to open the barrier further than the vertical stop (to loosen the counterbalance unit)
- B- Once the barrier has been opened further than the vertical stop, remove the chain-spring counterbalance system by removing the quick link of the chain on the pinion
- C- Unscrew the inductive sensors and remove them via the holes on either side of the bracket
- 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



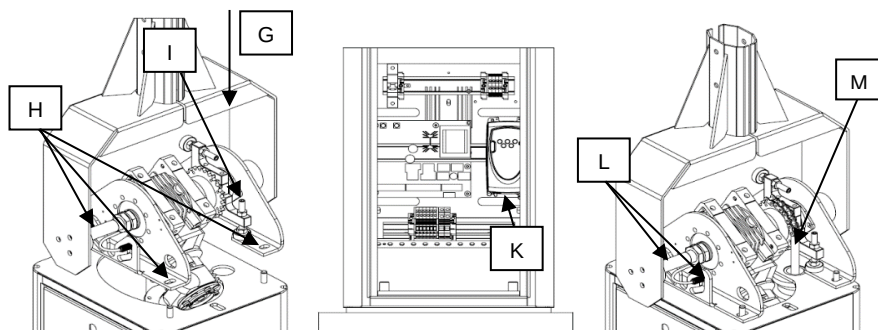
- G- Install the new geared motor unit in the place of the old one
- H- Rescrew the 2 locknuts located on the boom side by aligning the flange with the edge of the housing
- I- Tighten the 2 nut screws that secure the bearing on the bracket
- J- Rescrew the other 2 locknuts located on the sensors side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

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- Unscrew the inductive sensors and remove them via the holes on either side of the bracket
- 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

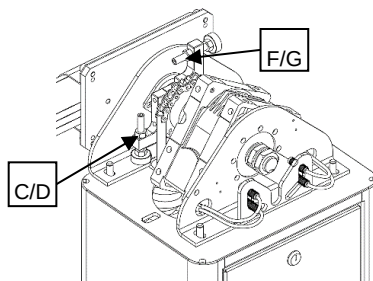


- G- Install the new geared motor unit in the place of the old one
- H- Rescrew the 2 locknuts located on the boom side by aligning the flange with the edge of the housing
- I- Tighten the 2 nut screws that secure the bearing on the bracket
- J- Rescrew the other 2 locknuts located on the sensors side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

18.3 Replacement of the stops (except for LBA 4)

18.3.1 LBA 6/6R/63PK

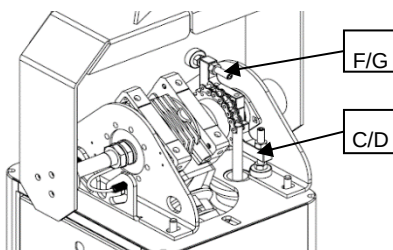
The LBA 6/6R/63PK stops are replaced following the procedure below:



- 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

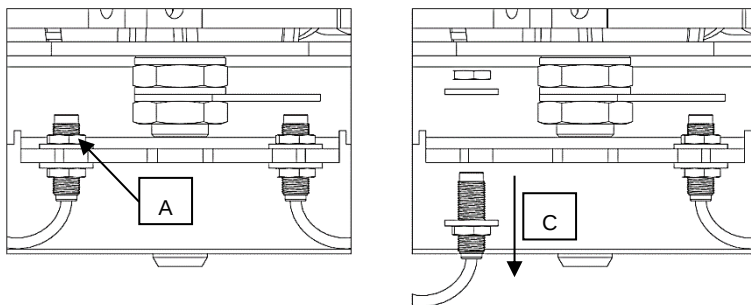
The LBA 7/7R/74 stops are replaced following the procedure below:



- 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 position sensors

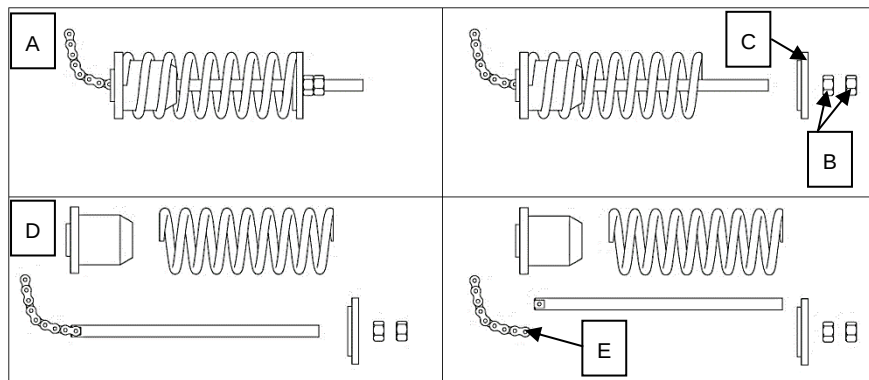
The position sensors are replaced following the procedure below:



- A- Using two 17 mm spanners, unscrew and remove the nut on the reduction gear side (do not unscrew the nut on the outside because it is affixed to the threadlock)
- B- Disconnect the 3 wires on the terminal board at the top of the control board
- C- Remove the sensor via the holes provided for this purpose.
- D- Install the new sensor at approximately 2 mm from the detection cam
- E- Connect the new sensor to the terminal board at the top, using the same terminals as the old one
- F- Readjust the position sensors (see paragraph "9.3 Adjustment of stops and sensors")

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)

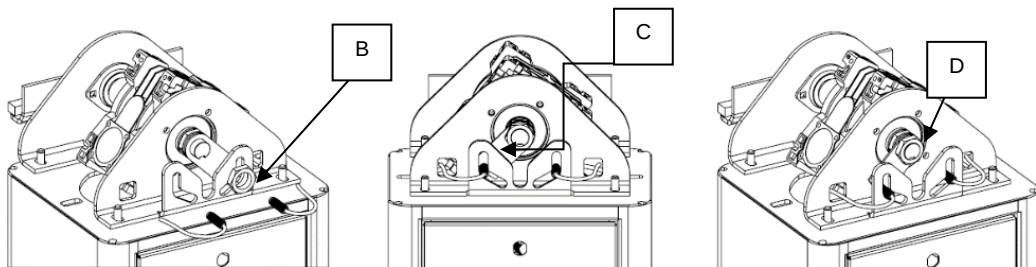
- A- After loosening it, remove the counterbalance unit with its chain by removing the quick link of the pinion
- B- Unscrew the locknut and nut
- C- Remove the spring bearing washer
- D- Remove the spring
- E- Remove the locking device with its chain
- F- Remove the spring centring pin
- G- Dismantle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

18.6 Reversing the direction of the barrier

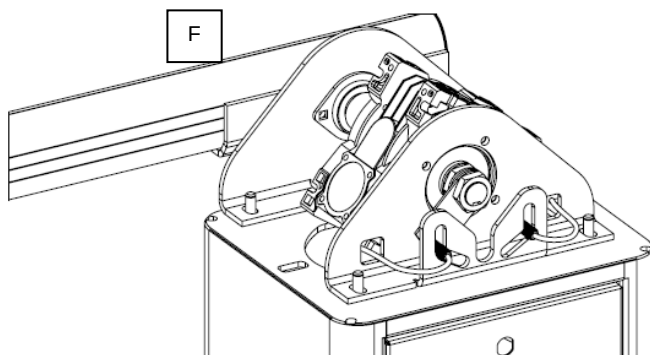
18.6.1 LBA4

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

- A- Remove the boom, then the top cover
- B- Remove the position sensors and the nut at the end of the shaft using a 36 mm spanner
- C- Reverse the detection cam
- D- Replace the shaft nut using a 36 mm spanner and the 2 sensors after having reversed them
(Opening becomes Closing and vice versa)



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

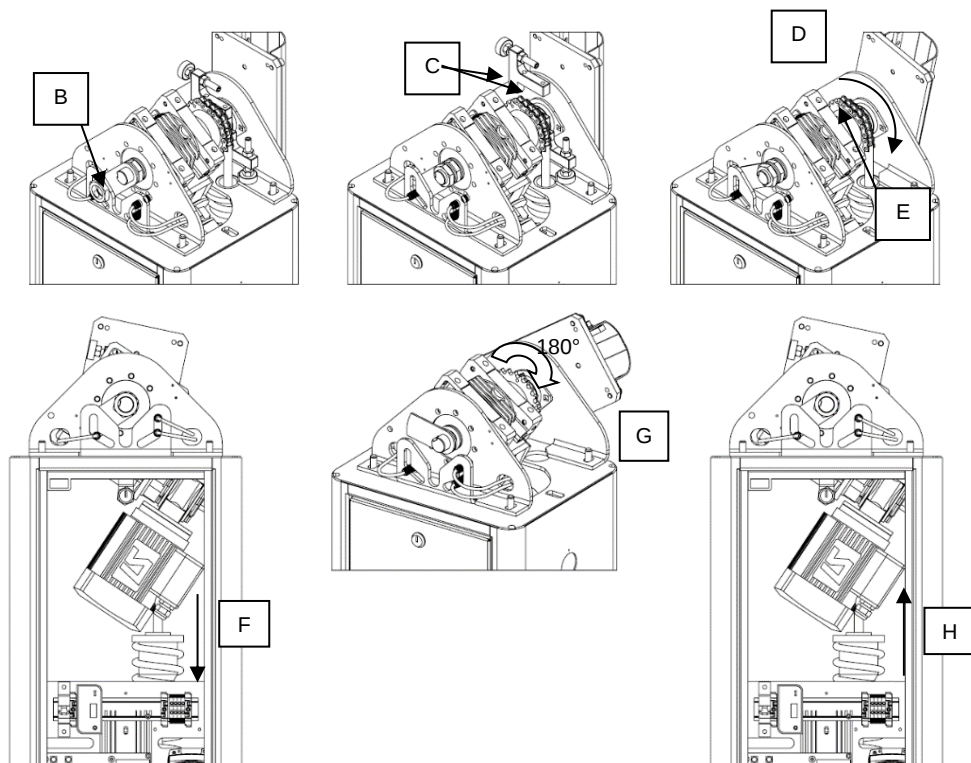


- G- Readjust the position sensors (see paragraph "9.3 Adjustment of stops and sensors")

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

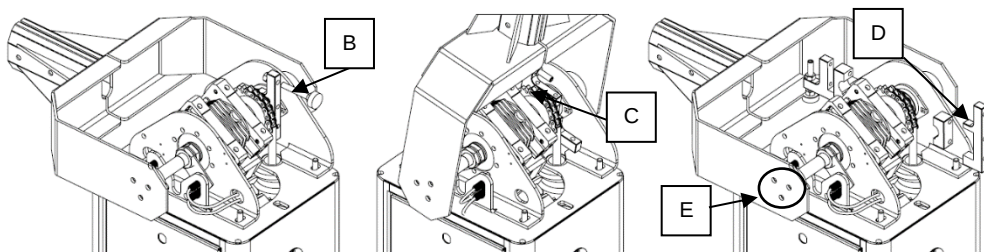


- B- Remove the nut at the end of the shaft using a 36 mm spanner
- C- Dismantle the support of the stops by removing the 2 screws completely and the reinforcement.
- D- Tilt the plate to loosen the counterbalance
- E- Dismantle the quick link from the counterbalance chain using needle-nose pliers
- F- Remove the counterbalance unit with its chain
- G- Pivot the plate 180°
- H- Reinstall the counterbalance unit by engaging the chain in the other hole of the upper steel sheet
- I- Tilt the plate on the chain side and reinstall the quick link
- J- Pivot the detection cam
- K- Reinstall the support of the stops in the other direction by retightening the 2 screws
- L- Reinstall the nut at the end of the shaft and lock it
- M- Physically reverse sensors no. 1-2 and 4
- N- Reverse the two phases for the variable frequency drive
- O- Readjust the stops and sensors (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

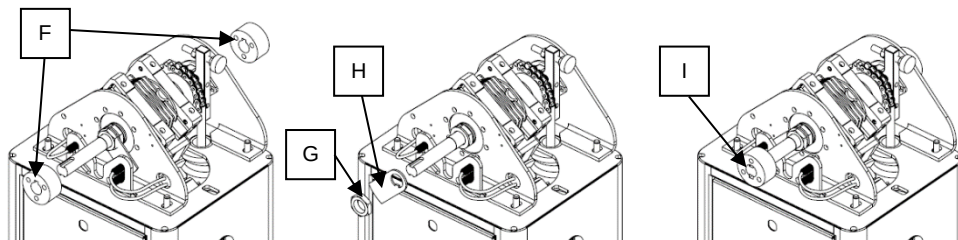


B- Remove the Opening stop to be able to open the barrier beyond the stop and loosen the counterbalance spring

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- Reverse the detection cam

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

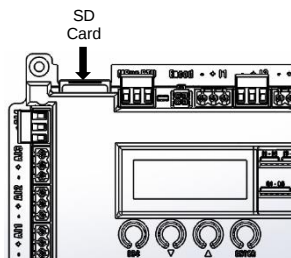
L- Physically reverse sensors no. 1-2 and 4

M- Reverse the two phases for the variable frequency drive

N- Readjust the stops and sensors (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

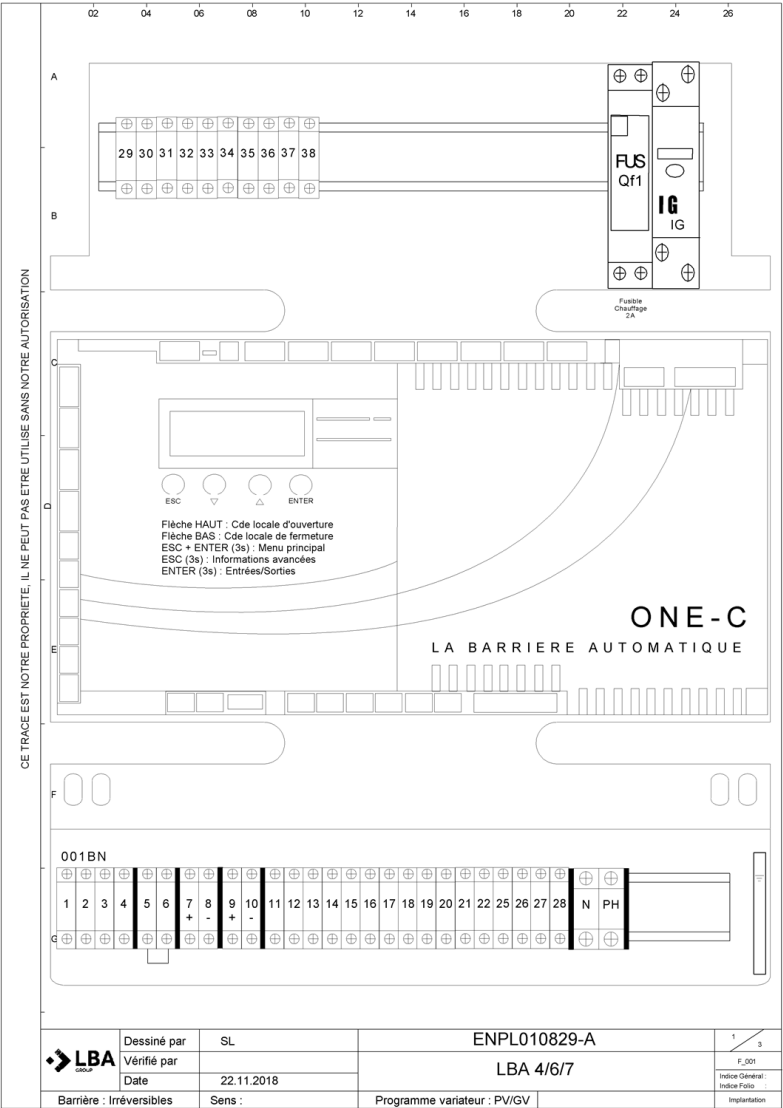
```

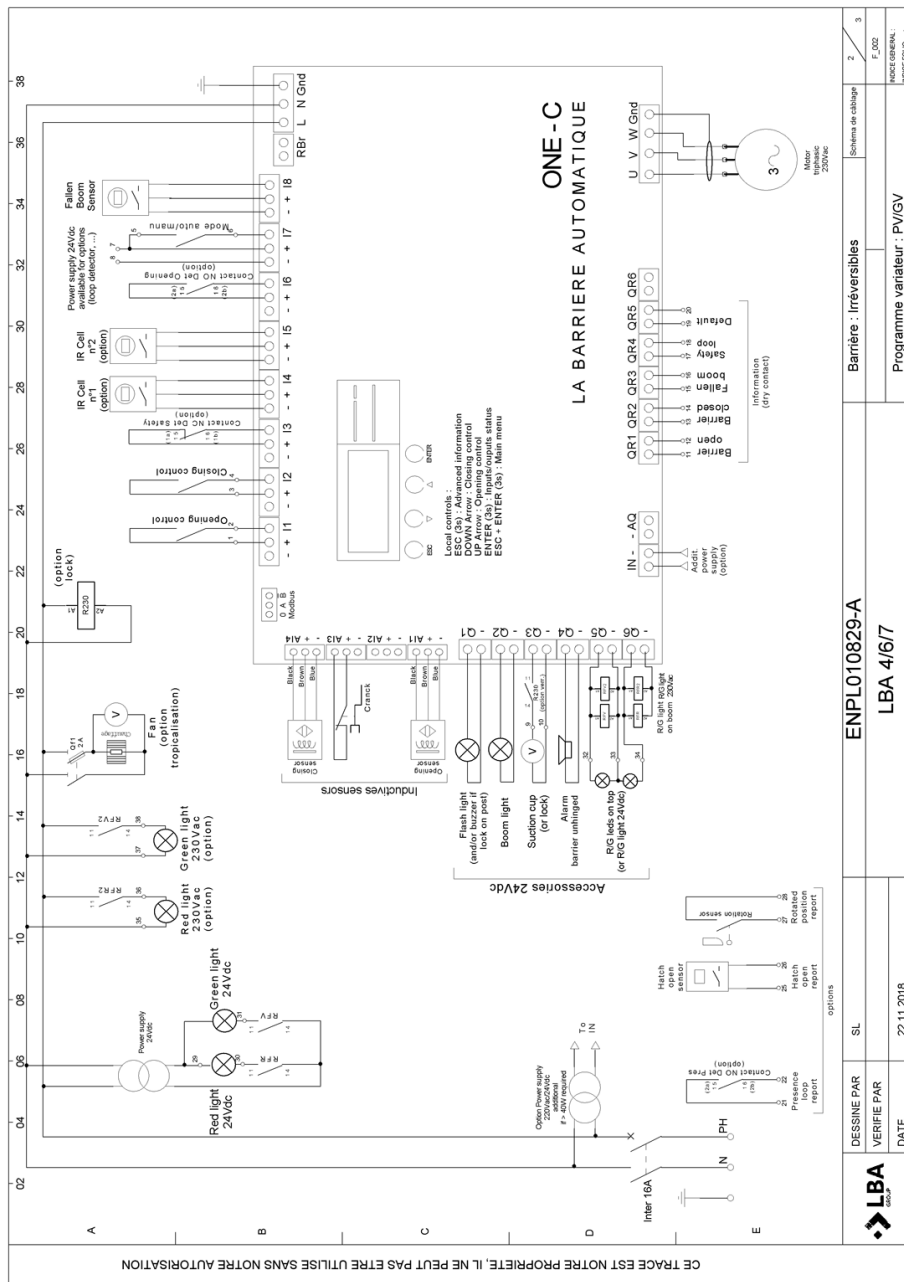
===== PLC MENU =====
INFORMATIONS      [*]
START PLC          [ ]
USER PARAMETERS    [ ]
    
```

- 8- Then press "ENTER" to return to the menu.
- 9- Start the program by selecting "START PLC" then click "ESC" to exit the menu.
- 10- Restart the barrier

20 Wiring diagram

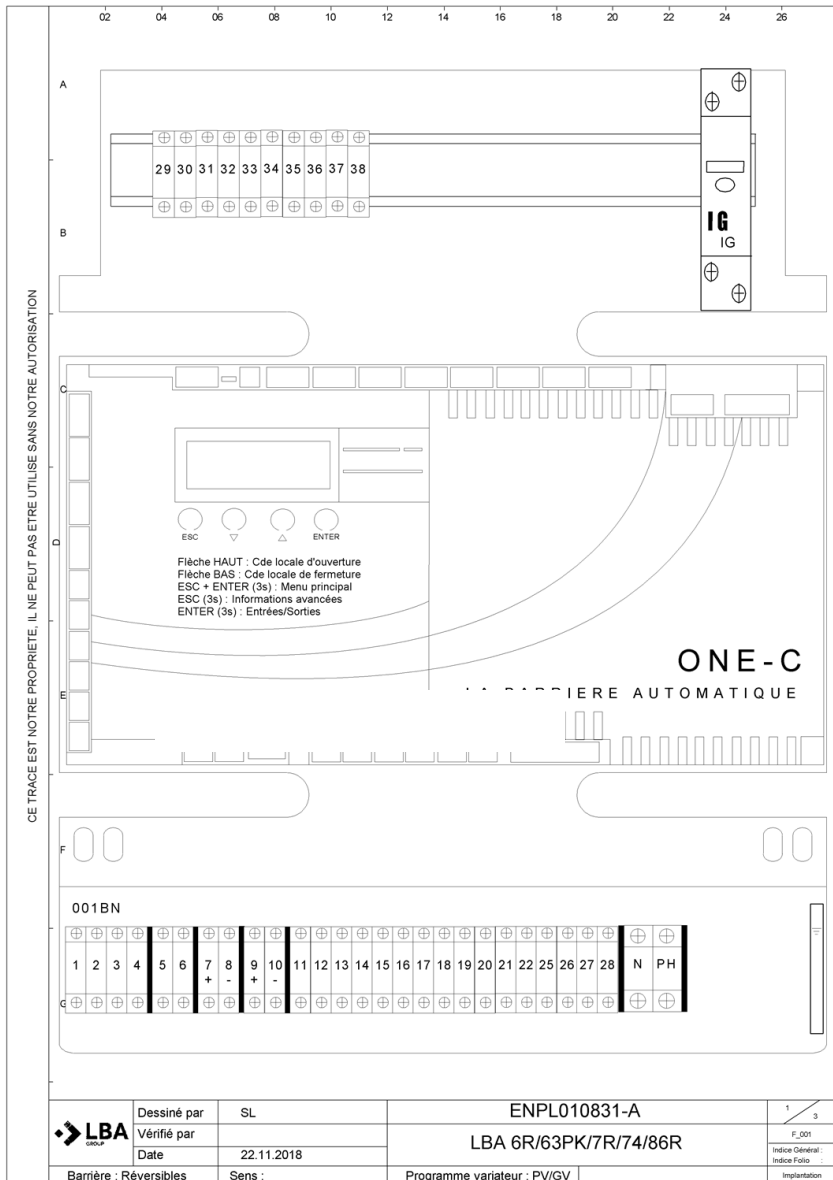
20.1 Irreversible barriers (LBA4/6/7)

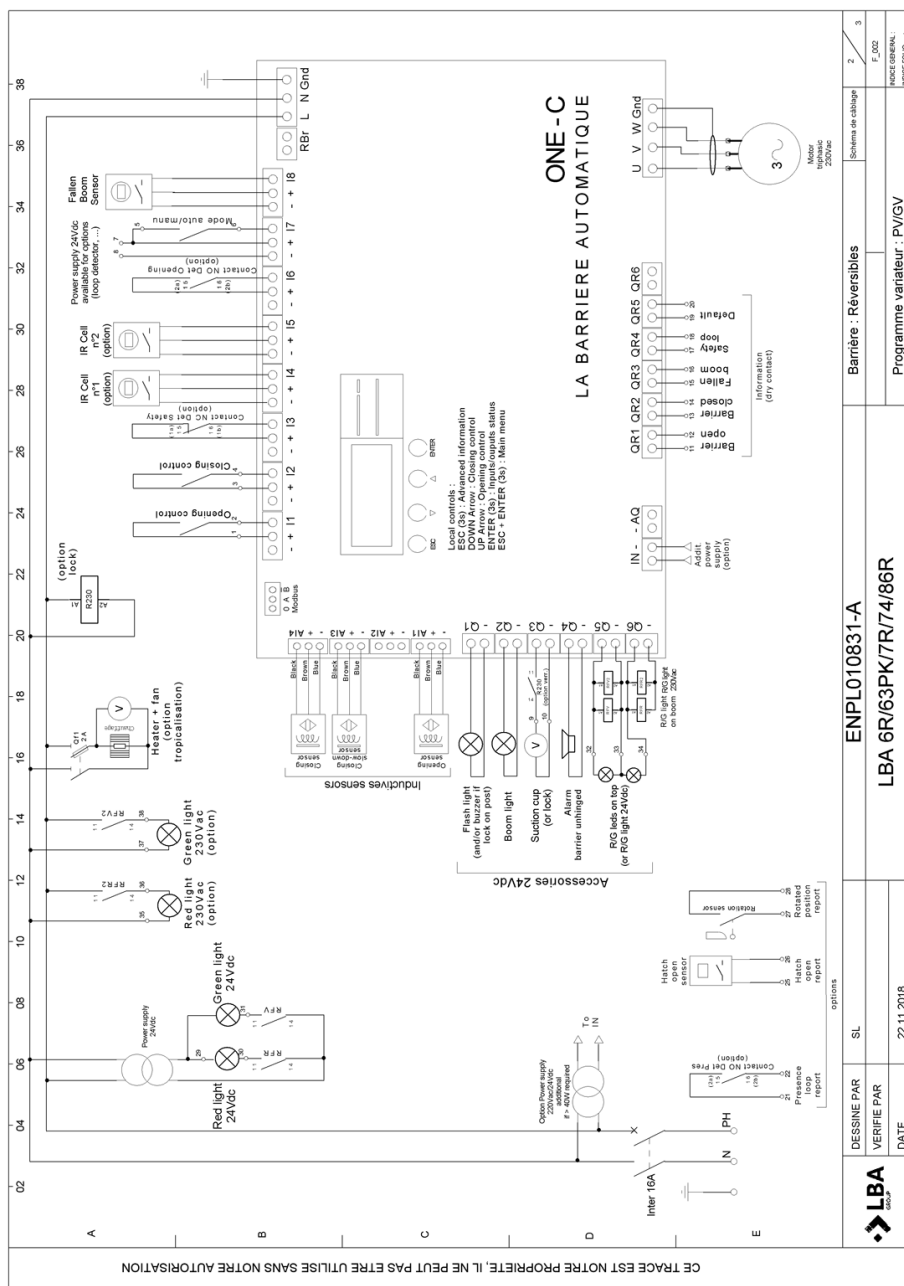


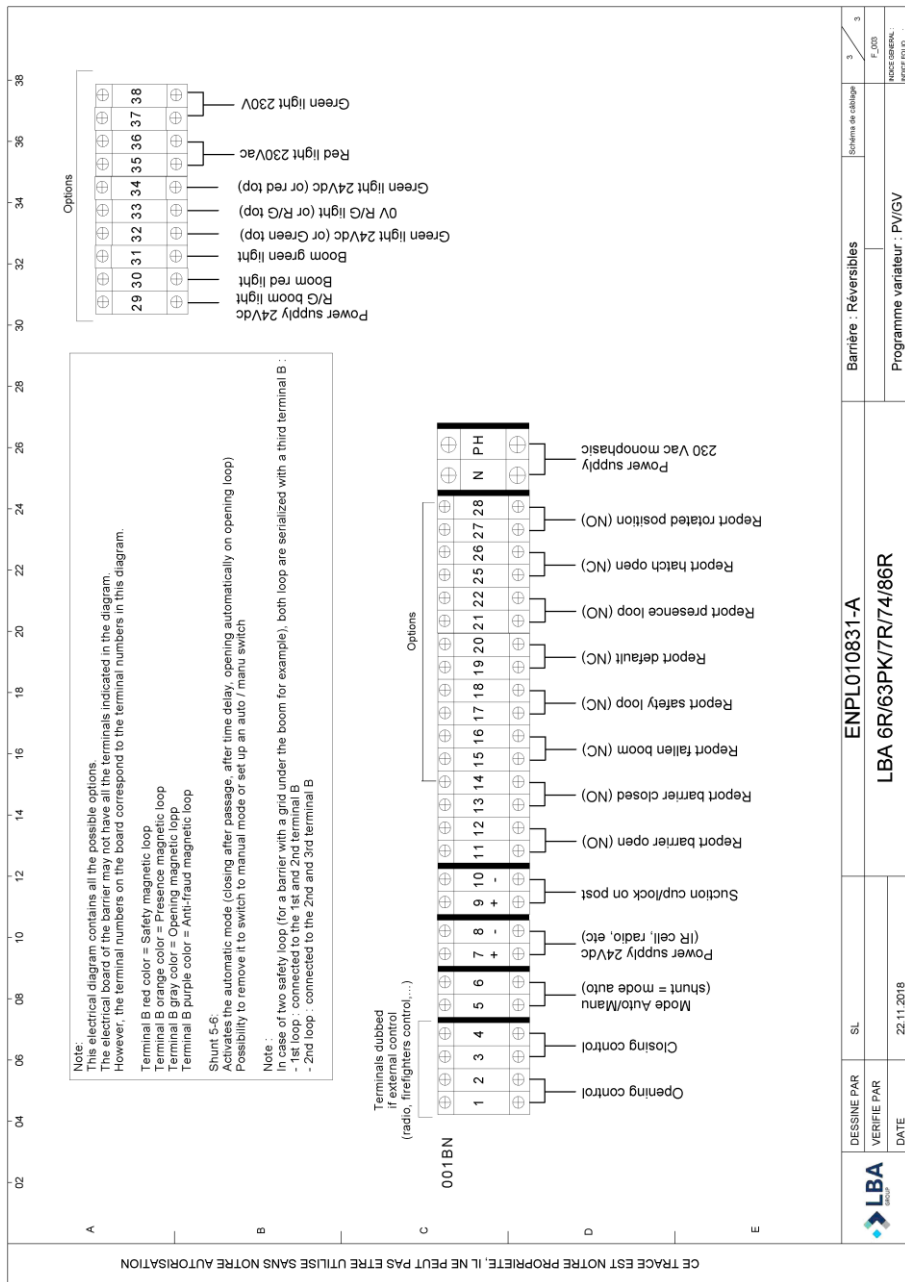




20.2 Reversible barriers (LBA6R/63PK/7R/74)







Notes

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.



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