Solution 3

TECHNICAL MANUAL
(Translated from French)
**Document revisions**

<table>
<thead>
<tr>
<th>Rev</th>
<th>Date</th>
<th>Written by</th>
<th>Checked by</th>
<th>Nature of the modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>20.11.2007</td>
<td>CP</td>
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<td>Replacement of the D1 logic control board with the AS1320 v4.1 (chapter 3).</td>
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<td>Ch. 3 adapted to control board v 6.2.</td>
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<td>12</td>
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<td>MFy</td>
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<td>EC certificate update.</td>
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1. INTRODUCTION

The BL16 electrical rising barrier you have chosen was designed and manufactured by Automatic Systems. We would like to thank you for choosing us. We are convinced that you will be fully satisfied with your acquisition for many years to come, and with this in view, we request that you read the following information attentively, before installing your equipment.

Despite the care taken in drafting this manual, some points may appear incorrect or unclear. Should that be the case, please do not hesitate to send us your comments and/or questions.

PRIOR WARNING:

YOUR BL16 RISING BARRIER CONTAINS AN ELECTRICAL MECHANISM AND VARIOUS ELECTRICAL COMPONENTS. ANY NEGLIGENCE DURING ANY WORKS WHATSOEVER ON IT COULD HAVE SERIOUS CONSEQUENCES WITH REGARD TO YOUR SAFETY. FROM THE MOMENT YOU OPEN THE HOUSING, THE SAFETY SWITCH (4:3) COMPLETELY PREVENTS THE BARRIER FROM MOVING, UNLESS THE MAINTENANCE TECHNICIAN PERFORMS A DELIBERATE ACTION. DESPITE THE PRESENCE OF THIS SWITCH, CUT THE POWER SUPPLY BY RELEASING THE CIRCUIT BREAKER (4:2). HANDLE ALL INTERNAL ELEMENTS THAT COULD BE ELECTRIFIED OR COULD MOVE WITH THE UTMOST CARE. DO NOT REMOVE THE LID OF THE BARRIER EXCEPT IF NECESSARY.

IMPORTANT INFORMATION

Installing a barrier or access control obstacle for vehicles exposes the user to responsibilities with regards to the safety of people: You are also requested to take the following points into account:

♦ Pedestrian traffic in the passage where the barrier is installed must be completely forbidden, unless the movement of a pedestrian is effectively demonstrated (sound and/or light signal, marking of the ground, etc.). You are responsible for the state of these signals.

♦ The access key to the mechanism must only be used by persons informed of the electrical and mechanical risks incurred by negligent handling. These people are required to lock the mechanism’s access door after finishing work.

Therefore, it is your duty – it is your own responsibility – to set up adequate signposting by taking the preceding into account. Also, see the note below.

Note: In the countries of the European Union, requirement 1.3.7.2 of the EC Machine Directive states that the pictogram for the prohibition of pedestrian access to the dangerous area must be affixed to both sides of the piece of equipment (less than one metre above and below the barrier arm in the horizontal position).

The installation of detection loops must be validated by qualified personnel who will determine their optimal configuration (adapted to vehicle type and passageway).

WARNING: The risk of injury exists for people when using standard detection loops; they can incorrectly detect trucks and (motor)bikes and close the gate on them!
2. GENERAL INFORMATION

2.1. Cross-sectional views

Legend

1:1 Motor  
1:2 Limit-switch microswitches  
1:3 Tower body  
1:4 Transmission shaft  
1:5 Balancing spring  
1:6 Connecting rod  
1:7 Lid  
1:8 Yoke for arm fastening  
1:9 Motor logic control board  
1:10 Grounding point

BL16 (side view)

Fig. 1
Legend
2:1 Motor 2:6 Connecting rod
2:2 Reducer 2:7 Lid
2:3 Tower body 2:8 Yoke for arm fastening
2:4 Torque limiter 2:9 Logic control board
2:5 Spring stretcher 2:10 Grounding point

Fig. 2
2.2. Mechanical assembly

Legend

3:1 Motor 3:5 Connecting rod
3:2 Reducer 3:6 Bearings (lifetime lubricated)
3:3 Limit-switch microswitches 3:7 Yoke for arm fastening
3:4 Torque limiter 3:8 Transmission shaft

Fig 3
2.3. Turning the power to the equipment off

- As soon as you open the mechanism’s access door, the power supply to motor logic control board is cut thanks to a “door presence” switch (4:3). Warning, the equipment is still under power! Consequently, cut the power at the circuit breaker (4:2). If, despite everything, you would like the mechanism to operate, leave the circuit breaker (4:2) engaged and pull on the “door presence” switch (4:3) to keep the equipment under power.

Legend

4:1 Logic control board ensemble
4:2 Thermal magnetic circuit breaker
4:3 “Door presence” switch

Fig. 4

2.4. General conditions for use

- Your BL16 electrical rising barrier has been designed to operate in all kinds of climatic environments, from -20°C to +50°C.
2.5. Emergency operation
- The following instructions must be communicated to the person responsible for the installation.

2.5.1. Opening if there is a power outage:

- Preamble:
  - Through its crank-connecting rod mechanical principle, the BL16 locks at its extreme positions. Thus, it must be unlocked before manual action may be undertaken.

- Procedure:
  - Unlock and remove the side door.
  - Cut the electrical power supply to the barrier by releasing the general circuit breaker (4:2).

-- Place the operating lever in hole 5:1, as shown in Fig. 5a for barrier solutions 1 and 2, or as in Fig. 5b for barrier solutions 3 and 4. Then, unlock the mechanism from its horizontal-arm position.
-- Remove the lever.
-- Pull up the arm by hand, until it is at an angle of about 70°.
-- Put the lever back in hole 5:1 (as shown in Fig. 5a or 5b, depending on the solution) and continue moving the arm. The operation is finished when the mechanism locks.
-- Put the lever back into its housing.
### 2.5.2. If there is a failure (troubleshooting guide)

| The obstacle does not move | Liquid crystal display is off | Check the electrical power supply at the general panel • Check the voltage of the current where the cable enters the circuit breaker (4:2) and ensure that the latter is properly engaged (the circuit breaker is “ON”). • Check that commands are connection in accordance with the wiring diagram and that all of the wires are tightened well; tighten them further if necessary. • Check the state of the fuses (6:1) on the logic control board. • Check whether the green LEDs on the logic control board’s terminal blocks (6:6) are lit. - If not, check the general fuses (6:1). - If so, check that the logic board is not in programming mode (cable RJ45 plugged in to the connector (6:5)). |
| Liquid crystal display is on | Check whether the red LEDs (other than the analogue output) on the logic control board’s terminal blocks (6:6) are lit. - If not, cut the supply voltage and remove the terminal blocks (6:6) (on the AS1320 and AS1321, if present). Turn the power back on and then check whether the red LEDs are on. If that is the case, there is a short circuit in one of the terminal blocks (6:6). In order to reactive the outputs, the logic board has to be turned on again. - If so, see the display of breakdowns (“PRDSTD – BL_xxx” menu → “Log”/”Close Status”/”Open Status”). |
| Check whether the frequency inverter has broken down | Refer to the AS1320 logic control board manual. |
| The obstacle stops during movement | OP, CL and STOP commands have no effect | Opening and/or closing limit switch is defective or incorrectly connected. |

**Note:** If the problem persists after the preceding points have been reviewed, please contact your local Automatic Systems distributor.
3. AS12320 LOGIC CONTROL BOARD

(Extract from AS1320 technician manual)

Fig. 6

Legend

6:1. Fuses
6:2. Light indicating that stabilised power is being supplied
6:3. Menu display screen
6:4. Keys for navigating through the menu
6:5. Connector for the RJ45 communication cable
6:6. Input/Output control terminal blocks
6:7. Green LEDs (lights indicating that power is being supplied to the logic control board)
6:8. Connectors for presence detectors (for inductive loops)
The logic control board is the interface between the user and the barrier. It manages all of the latter’s actions, including any potential options.

**Below, only the functions accessible in Simplified mode are presented.** They are sufficient for everyday use of the barrier. Please refer to the logic board manual (available upon request) for a detailed description of all of the functions, their parameters, etc.

The navigation of the display menus is based on an architecture using drop-down menus with three levels: MENUS ↔ PARAMETERS ↔ VALUES.

Use the ◀▶ keys to move from one level to another (hold down for a few seconds to move from the idle screen to another menu). Use the ▲▼ keys to navigate within the levels themselves. Press the OK key to validate a value modification.

**Note:** the second column in the tables below provides the parameter default values as they are entered during manufacturing of the control board.

Nevertheless, as each equipment has been specifically adjusted in our workshops, the values actually present on the board may differ slightly.

---

**Menus**

- Menus
- Parameters
- Values

**Values**

- QUICK START
- MEMORY

**Menus**

- Arm Length
- Barrier Type

**Parameters**

- Arm Length
- Arm Type

**Values**

- Arm Length (3m00)
- Arm Length (2m00)
- Arm Length (2m50)
- Arm Length (3m50)
- Arm Length (4m00)
- Arm Length (4m50)
- Arm Length (5m00)
- Arm Length (5m50)

A question mark (?) preceding the parameter indicates that it is ready to be modified.

The current value of the parameter appears on the second line.

A star (*) below a parameter indicates that it is the default value (set in the factory).

To validate a modification, press the OK key.

⚠ Store the modifications to avoid them being lost in the event of a power outage ("QUICK START" → "MEMORY" → "Save")

---
3.1. “PRDSTD – BL_xxx” Menu: diagnosis and monitoring

This screen appears when the unit is turned on and when there has not been any navigation through the menus in Simplified mode for 100 seconds.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK key</td>
<td>(only within this menu (<em>) and when no other parameter is selected): command for opening and closing the obstacle. OK during opening: without effect. OK during closing: inversion (= opening). OK maintained: oscillating movement around the opening limit switch: the obstacle opens, starts closing, opens again, etc. (</em>) Warning: in &quot;QUICKSTART&quot; menu, validating passage from Extended to Simplified menus through the OK key causes also an opening or closing movement of the arm, even if a presence is detected by the Presence sensors.</td>
<td></td>
</tr>
<tr>
<td>Left key (◄)</td>
<td>Change the menu display language with each touch. EN = English FR = Français NL = Nederlands DE = Deutsch ES = Español IT = Italiano SV = Svenska Select the language using the OK key or allow it to change automatically after a few seconds, following which all of the preceding parameter modifications (including the language) will be saved in MEM1.</td>
<td></td>
</tr>
</tbody>
</table>
| **Soft. Version** | Display the software version used by the control unit, following format "type – evolution – version – revision – minor index" of the application.  
The descriptions included in this chapter correspond to versions "00-00-06-rr-00". |
|---|---|
| **Log** | Display of the last 100 events (use ► the ▲ and ◄ keys to view preceding events).  
For the first two seconds, the event number (00 for the last event recorded (= most recent), 01 for the preceding event, and so on), as well as the date (year-month-day) and time (hours-minutes-seconds) of creation are displayed.  
In the next two seconds, the event description is displayed.  
For example: |
| 2 s Log  
00 060324 235034 | On 24 March 2006 at 23 hours (11 p.m.) 50 minutes and 34 seconds… |
| 2 s Log  
Out Of Service | …the apparatus was put out of service. |
| 2 s Log  
01 060324 235034 | View the preceding message (01) using the ►▲ keys… |
| 2 s Log  
Open Time Out | …we observe that it was put out of service due to a time out while opening. |
| **Note**: If no error message is displayed when the machine fails, refer to the Troubleshooting chapter. |
| **Power Up** | Power was turned on. |
| **Power Down** | Power was turned off. |
| **Short Circuit** | Short circuit of the control board outputs (connector blocks). The short circuit is declared and the equipment put Out of Service only after 3 unsuccessful reactivation tries within the 2.5 seconds following a voltage drop in the 24V power supply (this is to avoid putting it out of service at inopportune moments, as for example during a network changeover to an emergency generator).  
If one of the outputs short circuits, all of them become inactive and the control board must be powered up again for the outputs to be reactivated. |
| **Open Time Out** | Time out during opening: the time allocated for opening was exceeded ("TIMING" menu, "OpenTimeOut" parameter). |
| **Close Time Out** | Time out during closing: the time allocated for closing was exceeded ("TIMING" menu, "CloseTimeOut" parameter). |
| **Close Retries** | Allotted number of trials to close have been executed (as defined in the "TIMING" menu). |
| **Arm Swing Off** | Arm detected out of its support jaw (see the “Arm Swing Off” parameter in the “OPTIONS” menu).  
If the message continues to be displayed after the arm is rehinged, check the status of the “SW arm presence” sensor and its fastening |
<table>
<thead>
<tr>
<th>Out Of Service</th>
<th>Apparatus out of service. This may be caused by the following events:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Time out during opening (see “Open Time Out” message).</td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td>Time out during closing (see “Close Time Out” error) + allotted number of tries to close have been executed (see “Close Retries” message).</td>
<td></td>
</tr>
<tr>
<td>3)</td>
<td>Arm is unhinged (see “Arm Swing Off” message).</td>
<td></td>
</tr>
<tr>
<td>4)</td>
<td>Locking or unlocking failure of the BL4x (see “Unlock BL4x Er” message).</td>
<td></td>
</tr>
<tr>
<td>5)</td>
<td>Defect of the frequency inverter.</td>
<td></td>
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</table>

<p>| Time Adjust   | Modification of the date and time.                                 |  |
| Access Level Chg | Change to the access level.                                    |  |
| OOS Restore   | Apparatus put back in service (after it has been out of service) =&gt; see the “RestartMode” parameter under the “OPTIONS” menu. |  |
| Test Intensive | Activation of the intensive test.                               |  |
| Lock Open     | The Lock Open command of the test mode has been activated.      |  |
| Lock Close    | The Lock Close command of the test mode has been activated.     |  |
| Safety Arm    | Safety arm (only with the “rubber protection profile” option: Rubber strip that detects when the arm makes contact with a vehicle). |  |
| Sw Manual     | Frequency converter power cut-off in order to prevent any movement of the obstacle in case of: |  |
|                | • Crank presence sensor activation (available on some equipment for manual handling of the obstacle), |  |
|                | • Door/hood opening sensors activation (option on some equipment). |  |
| LS Fault      | Both opening and closing limit switches are activated simultaneously or badly connected during 100 ms, while “Positioning” parameter of the “QUICKSTART” menu is set to ”Limit Switches”. |  |
| Reset LS Fault | Limit switch problem resolved (see “LS Fault” error).         |  |
| Analog. Fault | The analogue sensor send measure 0 or 1000 during minimum 100 ms. This may result from a defective wiring, a wrong positioning of the sensor in front of its cam, a defective sensor, etc. |  |
| OP Power Cut  | Unlocking of the obstacle following an outage of the supply voltage (if “QUICK START” ► “Power Fail OP” ► “ON”). |  |
| <strong>OP Power Blip</strong> | Unlocking of the obstacle following a micro-outage of the supply voltage (the voltage drops to 0 V during a few milliseconds) (if “QUICK START” ► “Power Fail OP” ► “ON”). In this state, the obstacle is STOPPED but still operational, because the supply voltage has returned. The apparatus waits for the next command to execute a movement. |
| <strong>CoolingMotor ON</strong> | Start-up of the motor cooling fan. <strong>Note:</strong> This message is only displayed if the “Cooling – Log” (below) is “ON”. |
| <strong>CoolingMotor OFF</strong> | Stopping of the fan that cools the motor. <strong>Note:</strong> This message is only displayed if the “Cooling – Log” (below) is “ON”. |
| <strong>Stop Time Out</strong> | Elapse of the delay defined under the “Max Stop” parameter of the “TIMING” menu for the regulation of the obstacle position with regard to the Stop. |
| <strong>Download Chg Lv1</strong> | Download of a version of the control board program differing from the one previously installed. As there is a difference of level 1 (revision modification), only the parameter values found in MEM1 are modified. |
| <strong>Download Chg Lv2</strong> | Download of a version of the control board program differing from the one previously installed. As there is a difference of level 2 (modification of the version or evolution), all of the parameters are returned to their default values. |
| <strong>Download Chg Lv3</strong> | Download of a version of the control board program differing from the one previously installed. As there is a difference of level 3 (modification of the application), all of the parameters are returned to their default values and the counters are reset to 0. |
| <strong>Reset Counters</strong> | Counters reset to zero following the download of a different program version of level 3 (see “Download Chg Lv3”). |
| <strong>Curve 229Std</strong> | Change in the type of barrier: selection of “curve 229 standard” (“Barrier Type” parameter under the “QUICK START” menu). |
| <strong>Curve 229Highway</strong> | Change in the type of barrier: selection of “curve 229 highway” (“Barrier Type” parameter under the “QUICK START” menu). |
| <strong>Curve 1x-2x-3x-5x</strong> | Change in the type of barrier: selection of “curve for BL16, BL32, BL33, BL52, BL53” (“Barrier Type” parameter under the “QUICK START” menu). |
| <strong>Curve BLG77</strong> | Change in the type of barrier: Selection of “curve BLG77” (“Barrier Type” parameter under the “QUICK START” menu). |
| <strong>Curve Special</strong> | Change in the type of barrier: selection of the “Special” curve (“OPTIONS” menu) for operation according to the “OP REGULATION” and “CL REGULATION” menus. |</p>
<table>
<thead>
<tr>
<th>Curve BL223</th>
<th>Change in the type of barrier: Selection of “curve BL223” (“Barrier Type” parameter under the “QUICK START” menu).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curve BL40 AVR</td>
<td>Change in the type of barrier: Selection of “curve BL40 AVR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL40 SR</td>
<td>Change in the type of barrier: Selection of “curve BL40SR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL41 AVR</td>
<td>Change in the type of barrier: Selection of “curve BL41AVR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL41 SR</td>
<td>Change in the type of barrier: Selection of “curve BL41SR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL43 AVR</td>
<td>Change in the type of barrier: Selection of “curve BL43AVR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL43 SR</td>
<td>Change in the type of barrier: Selection of “curve BL43SR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL44 AVR</td>
<td>Change in the type of barrier: Selection of “curve BL44AVR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL44 SR</td>
<td>Change in the type of barrier: Selection of “curve BL44SR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL46 AVR</td>
<td>Change in the type of barrier: Selection of “curve BL46AVR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve BL46 SR</td>
<td>Change in the type of barrier: Selection of “curve BL46SR” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Curve RSB 70&amp;71</td>
<td>Change in the type of equipment: Selection of “curve RSB 70&amp;71” (“Barrier Type” parameter under the “QUICK START” menu).</td>
</tr>
<tr>
<td>Unlock BL4x Er</td>
<td>Only with “locking of the arm” option for BL4x. The inductive sensor has not detected the unblocking of the lock within the 3 seconds following the open or close request: check whether the locking pin is pressing on the locking clips, preventing them form opening, or whether the sensor is defective.</td>
</tr>
</tbody>
</table>

**Close Status**

- **OK**
  - Normal closure.
- **PS1 Activated**
  - A sensor (loop/cell) detects the presence or a cut in the circuit. In the latter case:
  - **Check whether the sensor is plugged into the corresponding connector block and whether it is functioning properly.**
- **PS2 Activated**
  - **Check whether the sensor is properly connected.**

**Technical manual BL16-MT-EN-12**

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<table>
<thead>
<tr>
<th><strong>PS4 Activated</strong></th>
<th>• Check whether the sensors are programmed correctly (“SENSOR FUNCTION” menu).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lock OP Hold</strong></td>
<td>Check why the Lock Open command is being sustained on the control board connector block.</td>
</tr>
</tbody>
</table>
| **Safe Arm Activ** | Activation of the “Safety Arm” sensor (only with the “rubber protection profile” option: rubber strip that detects when the arm makes contact with a vehicle):  
  • Check whether the arm safety sensor is functioning properly.  
  • Check whether the “Safety Arm” parameter is programmed correctly (“Options” menu). |
| **PWF Open Activ** | Setting of the “PWF Open Activ” parameter of the “OPTIONS” menu to “ON”, that is to say that during activation the obstacle opens and waits for the activation of a close or lock-close command.  
  **Note**: the closure loops are not taken into account for closing in this case. |
| **Lock Open LCD** | The “Test Mode” parameter of the “TEST” menu is not set to “Deactivated”. |
| **Delay Befor CL** | Wait for the delay programmed under the “Delay Befor CL” parameter under the “TIMING” menu to elapse. |
| **Open Cmd Hold** | Check why the open command is being sustained on the control board connector block. |
| **Stop Cmd Hold** | • Check why the stop command is being sustained on the control board connector block.  
  • Check whether the “Stop Cmd” parameter is programmed correctly (“Options” menu). |
| **Reader A Hold** | Check why the Reader A command is being sustained on the control board connector block. |
| **Reader B Hold** | Check why the Reader B command is being sustained on the control board connector block. |
| **Position Fail** | The type of sensor selected is “Analogue Sensor” (“QUICK START” ➤ menu “Positioning”); nevertheless, the obstacle still has to be activated (➤ “Activate Motor?” ➤ OK). |
| **Counter CR** | • The reader counter (see the “OPTIONS” menu ➤ “Counter CR”) is greater than zero.  
  • Or the timing for no passage is other than zero (see the “TIMING” menu ➤ “No Passage”). |
| **Open Status** | Cases when the obstacle is prevented from opening during a request to open. |
| **OK** | Normal opening. |
| **Lock CL Hold** | Check why the Lock CL command is being sustained on the control board connector block. |
| **Lock Close LCD** | The “Test Mode” parameter of the “TEST” menu is not set to “Deactivated”. |
| **Delay Befor OP** | Wait for the time programmed under the “Delay Bef. OP” under the “TIMING” menu to elapse. |
| Stop Cmd Hold | • Check why the close order is being sustained on the control board connector block.  
• Check whether the “Stop CMD” parameter is programmed correctly (“Options” menu). |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| Arm ELV Locked | • Check whether the detector of the unlocking of the electrically locking (ELV) tip is functioning properly.  
• Check whether the “Arm” parameter in the “OPTIONS” menu is programmed correctly. |
| Arm ELV Detect | Check whether the detector sensing the presence of the arm is functioning properly on the control board connector block. |
| Position Fail | The type of sensor selected is “Analog. Sensor” (“QUICK START” menu ► “Positioning”); nevertheless, the obstacle still has to be activated (► “Activate Motor?” ► OK). |
| Counter 1      | 0 to 99,000,000 (0 by default)  
Total number of manoeuvres executed by the obstacle since it was first put into service. |
| Counter 2      | 0 to 99,000,000 (0 by default)  
Representation of counter 1, with the possibility of resetting it to zero. |
| Reset counter 2 | Counter 2 reset to zero. |
| OFF (by default) | No resetting. |
| ON             | Request to reset to zero. |
| Done           | Message is displayed for 1 second when the counter has been reset to zero. |
3.2. “QUICK START” menu: quick configuration

This menu inspects the parameters that have to be configured before the equipment may be used.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS1 Function</td>
<td>0 (by default) to 7</td>
<td>Definition of the mode of operation of Presence Sensor 1: see table below.</td>
</tr>
<tr>
<td>PS2 Function</td>
<td>0 (by default) to 7</td>
<td>Definition of the mode of operation of Presence Sensor 2: see table below.</td>
</tr>
</tbody>
</table>

By default, the presence sensors are deactivated. Therefore, in order to ensure that their safety functions are operational, it is indispensable that the parameters for each of the presence sensors used be set.

<table>
<thead>
<tr>
<th>Sensor function</th>
<th>Action upon arrival in the sensor’s field</th>
<th>Action upon leaving the sensor’s field</th>
<th>Action upon arrival in the sensor’s field</th>
<th>Action upon leaving the sensor’s field</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Deactivated)</td>
<td>**</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1 (Opening)</td>
<td>Opening**</td>
<td>Closing*</td>
<td>Opening</td>
<td>Closing*</td>
</tr>
<tr>
<td>2 (CL_Stop+CL)</td>
<td>**</td>
<td>Closing***</td>
<td>Stop</td>
<td>+</td>
</tr>
<tr>
<td>3 (CL_OP+CL)</td>
<td>**</td>
<td>Closing***</td>
<td>Opening</td>
<td>Closing</td>
</tr>
<tr>
<td>4 (Nothing_Stop+CL)</td>
<td>**</td>
<td>Stop</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>5 (Nothing_OP+CL)</td>
<td>**</td>
<td>Opening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 (Nothing_OP)</td>
<td>**</td>
<td>Closing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 (Incompatible)</td>
<td>This message is displayed for 1 second if the selected operating mode for the sensor is not compatible with the exploitation mode (parameter below). See the table of incompatible modes here under.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: Automatic closure only if the preceding opening was initiated by detection and not if presence is detected by another sensor. Notably, if there is a power outage when the obstacle is open, the obstacle will not close automatically when the power is brought back (a close command must be executed).

**: Opening is possible using the commands present on the control board's connector blocks: open command, reader command, and Lock Open command.

***: If passage is detected while the obstacle is Locked Open, closure will take place when the Lock Open command is deactivated.

With regard to the underlined values, a close command must be executed to close the obstacle when it is open. The safety function is only activated during the closing movement of the obstacle.

Note: the installation of 2 loops on PS1 and PS2 requires the use of a double detector since PS1 and PS2 are electrically connected to the same connection pin.

Note: 2 supplementary Presence Sensor (PS3 and PS4) are available through extended menu "SENSOR FUNCTION".

Note: the information regarding the sensor status (1/0) is always available (for each function mode) through extended menu "OUTPUT FUNCTION".

Warning: When the power is turned on, the detectors (DP) measure the state of the loops and initialize the reference level with regard to their environment. Hence, if a vehicle is present on the loop during activation, it will not be detected and the loop will give the order to close (in modes 1, 2 and 3 only)!
<table>
<thead>
<tr>
<th>Positioning</th>
<th>Definition of the type of sensor used to position the obstacle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit Switches (by default)</td>
<td>To be selected if the position of the obstacle is determined by limit switch interrupters (standard on BL16), enabling the extreme positions of the obstacle to be detected (completely open or completely closed).</td>
</tr>
<tr>
<td>Analog. Sensor</td>
<td>To be selected if the position of the obstacle is determined by an analogue sensor. The analogue position sensor measures the distance separating it from a spiral cam located on the shaft that transmits the movement of the obstacle's motor, which means that the angular position of the obstacle is known at all times. Also, see the “Min Sensor Max” parameter below.</td>
</tr>
<tr>
<td>Manual Switch</td>
<td>This message is displayed if it is not possible to activate the analogue sensor, as per one of these cases:</td>
</tr>
</tbody>
</table>
|                                | • The crank presence detector (only present on some equipments) is engaged.  
  => Remove the crank so that the motor may be engaged. |
|                                | • If the equipment does not have a crank presence detector, the circuit may have been cut.  
  => bypass the corresponding connector blocks. |
| Activate Motor?                | Pushing the OK key within 5 seconds launches the analogue sensor activation procedure (see below) and the movement of the obstacle! |
|                                | The Barrier Type and Arm characteristics must be selected BEFORE initializing the analogue sensor. Otherwise, rough movements of the arm can occur with risk of injury for the personnel and the equipment.  
  => Navigate through the menus by means of the upper key (▲). |
<p>| Search LSO…                    | The obstacle opens to look for its limit switch. |
| Search LSC…                    | The obstacle closes to look for its limit switch. |
| Init. Passed                   | This is displayed if the opening and closing limit switches were detected. The analogue sensor is then operational. The message disappears after 5 seconds or if the OK key is pushed. |
|                                | <strong>IMPORTANT</strong>: Save the values in MEM1 or MEM2 (“MEMORY” menu), then turn off the control board and turn it back on again. |
| Adjust Sensor                  | Activation failed because the analogue sensor was not properly positioned =&gt; adjust it (closer or further away from the cam) so the measurement is included in the working range (= between the min. and the max. set in the “Min Sensor Max” parameter below). |</p>
<table>
<thead>
<tr>
<th>Value 0 Detect</th>
<th>Activation failed because the analogue sensor returned a measurement of zero. As this value does not exist, check:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• the sensor’s wiring (in the sensor as well as on the control board’s connector blocks);</td>
</tr>
<tr>
<td></td>
<td>• whether the sensor is too close to the cam;</td>
</tr>
<tr>
<td></td>
<td>• whether the sensor is functioning; LED on the sensor is illuminated and the value measured is displayed in the “Min Sensor Max” parameter below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barrier Type</th>
<th>Definition of the equipment type; this allows the program to automatically modify the opening and closing curves.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Note 1:</strong> The equipment type is stated on the reference plate, inside the housing.</td>
</tr>
<tr>
<td></td>
<td><strong>Note 2:</strong> To change from barrier solution 1 or 2 to solution 3 or 4 (illustration below), 2 phases of the motor have to be inverted.</td>
</tr>
</tbody>
</table>

| 229 Standard (by default) | Parameter to select for a BL229 Standard. |
| 229 Highway              | Parameter to select for a BL229 Highway. |
| 1x – 2x – 3x – 5x        | Parameter to select for a BL16, BL32, BL33, BL52, BL53, BP56, RSB70, or RSB71. |
| BLG77                    | Parameter to select for a BLG77. |
| BL 223                   | Parameter to select for a BL223. |
| RSB 70 & 71              | Parameter to select for a RSB 70 or RSB 71. |
| BL 40 SR                 | Parameter to select for a BL40 without automatic opening of the arm in case of power cut. |
| BL40 AVR                 | Parameter to select for a BL40 with automatic opening of the arm in case of power cut. |
| BL 41 SR                 | Parameter to select for a BL41 without automatic opening of the arm in case of power cut. |
| BL 41 AVR                | Parameter to select for a BL41 with automatic opening of the arm in case of power cut. |
| BL 43 SR                 | Parameter to select for a BL43 without automatic opening of the arm in case of power cut. |
| BL 43 AVR                | Parameter to select for a BL43 with automatic opening of the arm in case of power cut. |
| BL 44 SR                 | Parameter to select for a BL44 without automatic opening of the arm in case of power cut. |
| BL44 AVR                 | Parameter to select for a BL44 with automatic opening of the arm in case of power cut. |

Note 1: The equipment type is stated on the reference plate, inside the housing.

Note 2: To change from barrier solution 1 or 2 to solution 3 or 4 (illustration below), 2 phases of the motor have to be inverted.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL 46 SR</td>
<td>Parameter to select for a BL46 without automatic opening of the arm in case of power cut.</td>
</tr>
<tr>
<td>BL 46 AVR</td>
<td>Parameter to select for a BL46 with automatic opening of the arm in case of power cut.</td>
</tr>
<tr>
<td>Arm Length</td>
<td>Specification of the arm mounted on the barrier; this allows the program to automatically modify the opening and closing curves.</td>
</tr>
<tr>
<td></td>
<td>If the selected length does not correspond to a standard for the barrier selected in the &quot;Barrier Type&quot; parameter, the message &quot;Doesn't Exist&quot; appears briefly.</td>
</tr>
<tr>
<td></td>
<td>Note: arm length = free passage = distance between the arm tip and the barrier housing.</td>
</tr>
<tr>
<td>2m00</td>
<td>Select this for a BL4x or BL229 with an arm of 2 m.</td>
</tr>
<tr>
<td>2m50</td>
<td>Select this for a BL4x or BL229 with an arm of 2.5 m.</td>
</tr>
<tr>
<td>3m00</td>
<td>Select this for a BL4x or BL229 with an arm of 3 m.</td>
</tr>
<tr>
<td>3m50</td>
<td>Select this for a BL4x or BL229 with an arm of 3.5 m.</td>
</tr>
<tr>
<td>4m00</td>
<td>Select this for a BL4x or BL229 with an arm of 4 m.</td>
</tr>
<tr>
<td>4m50</td>
<td>Select this for a BL4x or BL229 with an arm of 4.5 m.</td>
</tr>
<tr>
<td>5m00 (by default)</td>
<td>Select this for a BL4x or BL229 with an arm of 5 m.</td>
</tr>
<tr>
<td>5m50</td>
<td>Select this for a BL4x or BL229 with an arm of 5.5 m.</td>
</tr>
<tr>
<td>6m00</td>
<td>Select this for a BL4x or BL229 with an arm of 6 m.</td>
</tr>
<tr>
<td>7m00</td>
<td>Select this for a BL4x with an arm of 6.5 or 7 m.</td>
</tr>
<tr>
<td>8m00</td>
<td>Select this for a BL4x with an arm of 7.5 or 8 m.</td>
</tr>
<tr>
<td>9m00</td>
<td>Select this for a BL4x with an arm of 8.5 or 9 m.</td>
</tr>
<tr>
<td>10m00</td>
<td>Select this for a BL4x with an arm of 9.5 or 10 m.</td>
</tr>
<tr>
<td>11m00</td>
<td>Select this for a BL4x with an arm of 10.5 or 11 m.</td>
</tr>
<tr>
<td>12m00</td>
<td>Select this for a BL4x with an arm of 11.5 or 12 m.</td>
</tr>
<tr>
<td>Non-modifiable</td>
<td>This message is displayed when the &quot;Barrier Type&quot; parameter does not allow any modification of the arm length.</td>
</tr>
<tr>
<td>Incompatible</td>
<td>Message displayed when the selected Arm Length is not compatible with the selected Barrier Type.</td>
</tr>
<tr>
<td>Arm Type</td>
<td>Specification of the type of arm assembled on the barrier. This parameter only applies to the BL Highway and is not taken into account for other types of equipment.</td>
</tr>
<tr>
<td>Aluminium (default)</td>
<td>Aluminium arm.</td>
</tr>
<tr>
<td>Carbon</td>
<td>Carbon arm.</td>
</tr>
<tr>
<td>Non-modifiable</td>
<td>Message displayed for the equipments different than BL229 Highway.</td>
</tr>
</tbody>
</table>
### Power Fail OP

<table>
<thead>
<tr>
<th>Choice(<em>) of mode for unlocking the obstacle during a loss of supply voltage. (</em>) Except for BL4x, which parameter is automatically set to ON and not adjustable.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OFF</strong> (by default, except for BL4x)</td>
</tr>
<tr>
<td><strong>ON</strong> (by default for BL4x only, not adjustable)</td>
</tr>
</tbody>
</table>

### Exploitation

| Operating modes for the opening, closing and STOP commands. The commands follow this decreasing order of priority: STOP (stop) Lock OP (lock open) Lock CL (lock close) OP (open) CL (close) The presence sensors and reader inputs are at the same hierarchical level as OP/STOP/CL => Lock Close has priority in an opening loop and will work even if something is detected. **Warning**: The OP command is never interrupted (the arm always goes to the LSO before accepting the next command) => Lock Close will take affect after the obstacle has reached its LSO. **Note**: Some use modes are incompatible with the operating mode of the presence sensors (see the table of incompatible modes, here after). |

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Technical manual BL16-MT-EN-12

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| 2 Contacts (by default) | 2 contacts used for opening and closing, on the control board's connector block.  
Open Cmd: open the obstacle  
Close Cmd: close the obstacle on the rising edge of the command.  
STOP Cmd: stop.  
**Note:** A Lock Open command is given if the “No Passage” timing has been activated, it will close when the following two conditions have been met:  
- the Lock Open command is deactivated,  
- the set time has elapsed (or, immediately if there is a detector on a closing sensor). |
|---|---|
| 1 Contact | Open Cmd: if active, the obstacle opens.  
Open Cmd: if inactive, the obstacle closes.  
STOP Cmd: stop. When the stop is released, the obstacle will continue to open if an OP/Lock Open command is still present, if not the obstacle will close.  
**Note:** there is no CL contact in this mode.  
**Note:** if this mode is used for a reader, it must be ensured that the latter sends a continuous signal in order for the obstacle to be kept open for a given time.  
**Note:** this mode is highly recommended for barriers which arm is Normally Open (tunnel entry, etc.). In this case effectively, it is mandatory to maintain a continuous opening command in order to prevent an untimely closing (by maintenance personnel for example).  
**Warning:** if there is a voltage loss while the obstacle is open, the obstacle will close when the power comes back if the OP command is not activated, because – in this mode – an inactive open command equals a close command. |
| Step by Step | Open Cmd: inversion at each rising edge (i.e., at each pulse).  
STOP Cmd: stop.  
**Note:** neither CL nor reader commands are available in this mode. |
| Dead Man | Open Cmd: if active, the obstacle opens.  
Open Cmd: if inactive (i.e., when the command is released), stop.  
Close Cmd: If active, the obstacle closes.  
Close Cmd: if inactive, stop.  
STOP Cmd: stop.  
**Note:** the reader commands do not work in this mode.  
**Note:** this mode is only compatible with presence sensors operating under the “Nothing_Stop” or “Deactivated” modes (otherwise the “Incompatible” message appears briefly). |
| 2 Contacts CFE | Same as “2 Contacts” operation, except:  
Close Cmd: **Closure** of the obstacle on the **Falling Edge** of the command (i.e., when the button is released). |
### Incompatible

This message is displayed for one second if the operating mode selected is not compatible with the parameters set for the presence sensors.

### Memory

Save the parameter values (see “MEMORY” menu).

### Ignored (by default)

No action.

### Save

**This saving action is necessary so that the modifications made are not lost during a power cut!**

### Load Default

Recall the default values (factory settings) of the parameters accessible in the level from which this command is executed.

E.g.: If you are in the Simplified menus, this function will only load the default values of the parameters accessible in Simplified menu, and will not modify the values of the parameters accessible in Extended or Manufacturer menus.

Warning: the loading of the default parameters entails the loss of the parameters specific to the installation’s real situation and may put the equipment out of service.

### Done

This message is displayed when the save or the load is finished and disappears automatically after 1 second.

### Min Sensor Max

<table>
<thead>
<tr>
<th>0000 (default)</th>
<th>0000 (default)</th>
<th>0000 (default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>to 1024</td>
<td>to 1024</td>
<td>to 1024</td>
</tr>
</tbody>
</table>

This parameter applies to the analogue sensor (see the “Positioning” parameter above) and allows viewing the current value of the sensor (“Sensor”) (reflection of the angular position of the obstacle) in its measurement range (“Min” and “Max” being the sensor values at the extreme positions of the obstacle: completely open and closed).

### Menu Access

**Simplified (default)**

Access to the menus included in the Simplified mode.

**Warning:** pressing the OK key to validate the passage from the Extended to the Simplified mode causes a movement of the arm (opening or closing), even if a presence is detected by the Presence sensors.

**Extended**

Access to supplementary parameters.
**Table of incompatible modes** between presence sensor (PS) use and operating modes:

- ✔ compatible
- ❌ incompatible

<table>
<thead>
<tr>
<th>Sensor Function</th>
<th>2 Contacts</th>
<th>1 Contact</th>
<th>Step by Step</th>
<th>Dead Man</th>
<th>2 Contacts CFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desactivated</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Opening</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>✔️</td>
</tr>
<tr>
<td>CL_Stop+CL</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>✔️</td>
</tr>
<tr>
<td>CL_OP+CL</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>✔️</td>
</tr>
<tr>
<td>Nothing_Stop+CL</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>✔️</td>
</tr>
<tr>
<td>Nothing_OP+CL</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>✔️</td>
</tr>
<tr>
<td>Nothing_Stop</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Nothing_OP</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>✔️</td>
</tr>
</tbody>
</table>
4. INSTALLATION

4.1. Preparatory works on site

4.1.1. Fastening the barrier to a finished floor using anchors and clamps

The works must be carried out in compliance with the CH3769 layout plan, which takes precedence over the following explanations:

- Install a PVC tube (with a diameter of at least 60 mm) for the entry of the power and control cables.
- Install a PVC tube (with a diameter of at least 25 mm) for the entry of the (optional) detection-loop cables.
- Make the concrete slab. The finished level must be perfectly horizontal.
- When the concrete has fully set, drill four holes into the finished floor using the stipulated dimensions. Automatic Systems recommends fastening the barrier with four LIEBIG B15/30 safety bolts (not supplied), or their equivalent.
- Wiring should be done in compliance with the standards in force in the relevant country.
  The cables must be one metre longer than the concrete slab.

4.1.2. Fastening the barrier to a finished floor on an elevated base (optional)

The works must be carried out in compliance with the CH2536 layout plan, which takes precedence over the following explanations:

- Install a PVC tube (with a diameter of at least 60 mm) to allow the power and control cables to leave the concrete slab.
- Install a PVC tube (with a diameter of at least 25 mm) for the entry of the (optional) detection-loop cables.
- Construct a concrete slab. The sub-plate must be just above the finished level and perfectly horizontal. Once the concrete has fully set, drill four holes to fasten the elevated barrier base using four LIEBIG B15/30 safety bolts (not supplied), or their equivalent.
- The barrier’s tower body should be fastened to the base using four ZN DIN933 M12x60 screws.
- Wiring should be done in compliance with the standards in force in the relevant country and the cables must be at least one metre longer than the plinth.

4.1.3. Fastening the barrier to a base with a plaster frame (optional)

The works must be carried out in compliance with the CH4223 layout plan, which takes precedence over the following explanations:

- Each anchor rod (7:1) should have a nut (7:2) and a flat washer (7:3). Insert them into the holes of the plaster frame (7:4). The thread must face up, as illustrated in figure 7c. Assemble the anchor rods on the plaster frame. Place a flat washer (7:5), a tooth lock washer (7:6) and a nut (7:7) on each thread, which should exceed them by 60 mm. Tighten the nuts. Use adhesive tape to project the threads sticking out of the plaster frame from concrete spraying.
- Install a PVC tube (with a diameter of at least 60 mm) to allow the power and control cables to leave the concrete base.
- Install a PVC tube (with a diameter of at least 25 mm) for the entry of the (optional) detection-loop cables.
- Construct a concrete base (7:8). The sub-plate must be just above the finished level of the base and perfectly horizontal (Fig. 7d). Once the concrete has fully set, take the adhesive tape off of the threads and remove the nuts (7:7), the tooth lock washers (7:6) and the flat washers (7:5).
- To fasten the barrier:
  Place the tower body on the plaster frame.
  Put the 2 clamps on 2 anchor rods and then place a flat washer (7:5), a tooth lock washer (7:6) and a nut (7:7) on top of each and tighten (Fig. 7e).
- Wiring should be done in compliance with the standards in force in the relevant country and the cables must be at least one metre longer than the plinth.

Fig. 7c

Fig. 7d

Fig. 7e
4.2. Handling and installation of material
- The barrier has been packaged for transport. Transport the material to the site and remove the packaging materials.
- Unlock and remove the side door. The keys are attached to the yoke for fastening the arm (2:8) with adhesive tape.
- Unlock and remove the lid.
- Check the state of the material. Despite careful packaging, damage may occur during transport. That being the case, immediately contact your insurance company or distributor. If necessary, proceed to repairs.
- Fasten the barrier to the base (see the previous chapter) in accordance with the orientation you wish the obstacle to have with regard to the road.
- If necessary, place adjustment planks under the tower body in order to obtain the optimal level for the barrier.

Note: It may be necessary to align the tower body after placing the arm. Therefore, do not fully tighten it now.
4.3. Dimensions and general features

**Fig. 8**

*Note: The illustrated model is assembled with the door facing the road*

**Fig. 9**

*Solutions:*
- **Solution 1 (standard)**
- **Solution 2**
- **Solution 3**
- **Solution 4**

*Note: For further information regarding the exact model to install, which logic control board to integrate, the choice of loops to use (depending on the configuration of the site, etc.), please refer to the relevant technical sheets or contact your local Automatic Systems distributor.*
4.4. Placing the arm

- Loosen (without completely removing) the three fixing screws (10:1) of the yoke.
- Firmly take hold of the end of the arm (10:2) (the end without red reflectors), and vertically place it in the yoke (10:3).
- Keep the arm level with the edge of the yoke and tighten the three fixing screws well (10:1).
- Using the operating lever mentioned in 2.5.1 Opening if there is a power outage, bring the arm to a horizontal position.
- Check that the unit is correctly aligned with the road and make adjustments if necessary.
- If no arm tip support needs to be installed, secure the final fastening of the barrier to the base.
4.5. Levelling the arm

- The barrier is closed when it is in “position 0” if points (x), (y) and (z) of the crank-connecting rod device are perfectly aligned, as illustrated below. If they are aligned correctly, the arm should be horizontal.

- Check whether the arm is perfectly vertical in the open position, then bring it to the closed position. If the arm is perfectly horizontal, then go to Paragraph 4.6. If the arm is not perfectly horizontal even though points (x), (y) and (z) are aligned – for example, to make up for imperfect levelling of the tower body – adjust the horizontal state of the arm as follows:

--- Loosen the two nuts (12:1).
--- Adjust the connecting rod (12:2) to correct the level of the arm: turn the connecting rod in one direction to raise the arm and in the opposite direction to lower it.
--- Tighten the nuts (12:1) firmly.

- “Position 0” implies that:
  - The arm is in the horizontal position.
  - Points (x), (y) and (z) are aligned.
  - The motor is stopped.
  - The closing limit-switch microswitch is engaged.
4.6. Installation of the (optional) arm tip support

- The arm tip support is an available option.

- The arm support must be anchored into a concrete base using four safety bolts according to the CH2656 layout plan. Its role is to ensure the rigidity of the arm and keep its tip in the closed position (horizontal).

- As needed, adjust the height of the arm support as follows:

  -- Remove the screw (13:1).
  -- Turn the claw (13:2) in the required direction, so that the arm tip rests on it when in the closed position.
  -- Replace the screw (13:1) and tighten it.
  -- Align the arm in the arm support by, if necessary, turning the barrier on its base.
  -- Secure the final fastening of the barrier by tightening it as much as possible to the concrete base.
4.7. **Electrical connections and initial power up**

- The electrical connections must be undertaken in compliance with the wiring diagram, which takes precedence over all other information.
- Remove the logic control board by pulling it out along its slides.
- Connect the options chosen as indicated on the wiring diagram.
- Connect the electrical power supply cables to the circuit breaker (4:2). Make sure that you connect the ground wire to its terminal (PE).
- Arm the barrier’s thermal protection by engaging the circuit breaker. If the installation includes one or more presence detector loops, ensure that it is (they are) not activated by a vehicle, in order to avoid distorting the adjustment of the loop(s).
- Pull the button of the door presence sensor to electrically operate the barrier.
- Try opening the barrier electrically by pushing the OK button on the logic board.
- Put the logic control board back into position by pushing it along its slides.
- Try opening and closing the barrier electrically using the external control (push button, reader, etc.).
4.8. Tests and checks

- Before putting your BL16 barrier into service, perform general electrical tests: opening, closing, etc., and subsequently:
  -- Check that all of the nuts and screws have been tightened.
  -- Check that all of the wires are connected to their respective terminal blocks.
  -- Check that the arm is assembled correctly.
    If this is not the case, refer to Paragraph 4.4 Placing the arm.
  -- Check that the arm is horizontal. If necessary, refer to Paragraph 4.5 Levelling the arm.
  -- Check that the arm does not have problems reopening if movement is inverting during descent and whether it can be opened by hand while it is moving.
    If necessary, refer to Paragraph 5.2 Adjusting the friction clutch.
  -- Open and close the barrier electrically. Check that the arm stops in the vertical position when the motor stops and that the three points (x), (y) and (z) of the crank-connecting rod device are perfectly aligned in the closed position as well when the motor stops. If this is not the case, refer to Paragraph 5.3 Adjusting the position of the limit-switch microswitches.
  -- Check that no tools have been left inside the barrier.
  -- Eliminate all foreign bodies from the interior of the tower body (waste, etc) and clean it.
  -- Replace the lid and lock it.
  -- Close the side door and lock it.

  The barrier is now operational. All of the adjustments were made in the factory during the operating tests. Nevertheless, it may be necessary to make additional adjustments following transport or handling that occurred during assembly.
  In this case, refer to Chapter 5. Technical adjustments and operations.

4.9. Temporary disassembly

- If you have to disassemble the equipment temporarily, for example, to move it, proceed according to the following steps:

  4.9.1. Disconnect the equipment
  -- Unlock and remove the side door.
  -- Cut the power at the circuit breaker (4:2).
  -- Unplug any present optional items.

  4.9.2. Disassemble the arm
  -- Bring the arm to the vertical position.
  -- Loosen the three fixing screws (10:1) of the yoke (10:3), without completely removing them.
  -- Firmly take hold of the arm and pull up to remove it from the yoke.

  4.9.3. Remove the tower body
  -- Remove the tower body fixings from the concrete base. Then, the tower body may be removed from the latter.

4.10. Discarding the equipment

- When you take the equipment out of service permanently, dismantle it as described in Paragraph 4.9. Temporary disassembly. Do not forget to empty the oil in the reducer and to discard the various components of the machine in the appropriate manner (metal pieces, electronic components, etc.).
5. TECHNICAL ADJUSTMENTS AND OPERATIONS

WARNING!

REMEMBER: YOUR BL16 RISING BARRIER CONTAINS AN ELECTRICAL MECHANISM AND VARIOUS ELECTRICAL COMPONENTS. ANY NEGLIGENCE DURING ANY WORKS WHATSOEVER ON IT COULD HAVE SERIOUS CONSEQUENCES WITH REGARD TO YOUR SAFETY. FROM THE MOMENT YOU OPEN THE HOUSING, A SAFETY SWITCH COMPLETELY PREVENTS THE BARRIER FROM MOVING, UNLESS THE MAINTENANCE TECHNICIAN PERFORMS A DELIBERATE ACTION. DESPITE THE PRESENCE OF THIS SWITCH, CUT THE POWER SUPPLY BY TURNING OFF THE GENERAL CIRCUIT BREAKER (4:2). HANDLE ALL INTERNAL ELEMENTS THAT COULD BE ELECTRIFIED OR COULD MOVE WITH THE UTMOST CARE. DO NOT REMOVE THE LID OF THE BARRIER EXCEPT IF NECESSARY.

5.1. Balancing the arm via the spring

- The force needed to activate the mechanism is minimal, thanks to the tension spring incorporated if the barrier arm is longer than 1.90 metres. The tension must be correctly adjusted to guarantee the unit’s optimal operation, namely, the force used to move the arm up must be identical to that for moving it down. To check this adjustment, do as follows:

--- Bring the arm to the vertical position.
--- Loosen the locking nut (15:1) and adjust the tension of the spring by playing with the nut (15:2) to obtain the theoretical distance $L$ – refer to the table in Fig. 14.
--- Check that it is well balanced. The arm must remain balanced at a $\pm 45^\circ$ angle, *if the friction clutch is completely loosened.*

<table>
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<th>Solution</th>
<th>Designation</th>
<th>2 M</th>
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<th>4 M</th>
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<td>A - 1</td>
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<td>Y</td>
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<tr>
<td>Solutions 3 and 4</td>
<td>Spring position</td>
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<td>C - 4</td>
<td>C - 4</td>
<td>C - 4</td>
<td>D - 4</td>
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<tr>
<td></td>
<td>L (length)</td>
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<td>155</td>
<td>155</td>
<td>145</td>
<td>137</td>
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<tr>
<td></td>
<td>Closing LS Position</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

--- Bring the arm to the vertical position.
--- Loosen the locking nut (15:1) and adjust the tension of the spring by playing with the nut (15:2) to obtain the theoretical distance $L$ – refer to the table in Fig. 14.
--- Check that it is well balanced. The arm must remain balanced at a $\pm 45^\circ$ angle, *if the friction clutch is completely loosened.*

--- Bring the arm to the vertical position.
--- Loosen the locking nut (15:1) and adjust the tension of the spring by playing with the nut (15:2) to obtain the theoretical distance $L$ – refer to the table in Fig. 14.
--- Check that it is well balanced. The arm must remain balanced at a $\pm 45^\circ$ angle, *if the friction clutch is completely loosened.*
a) If the arm falls:

- Loosen the locking nut (15:1).
- Tighten the nut (15:2) slightly against the fastening nut to further tighten the tension spring and position the arm at 45°.
- When it has been properly adjusted, tighten the locking nut (15:1) against the nut (15:2).

b) If the arm rises:

- Loosen the locking nut (15:1).
- Loosen the nut (15:2) slightly to release the spring and position the arm at 45°.
- When it has been properly adjusted, tighten the locking nut (15:1).

- When the operation has been completed, proceed to adjusting the torque limiter – refer to Paragraph 5.2. Adjusting the friction clutch.
5.2. Adjusting the friction clutch

- The friction clutch, i.e., the safety torque limiter was adjusted in the factory. Nevertheless, it may be necessary to make corrections once the barrier is installed or after an initial operating period. Adjust it in the following cases:

  -- The arm has trouble reopening when the movement is inverted during descent. The friction clutch slips and must be tightened again.

  -- The arm cannot be opened by hand while it is moving. The friction clutch must be loosened.

  -- After using the spring to balance the arm (if the barrier arm is longer than 1.90 metres).

- In both cases, proceed as follows:

  -- Tighten the two screws (16:1) if the friction clutch slips; loosen them if the friction clutch is too tight.

  -- Arm the barrier’s thermal protection by engaging the circuit breaker (4:2).

  -- Use the external control unit (optional; push-button box, for example) to test the electrical opening and closing and repeat the preceding procedure until the desired result is obtained. Do not forget to turn off the power beforehand.

**IMPORTANT:** Excessive tightening of the friction clutch may damage the reducer!

- To test the friction clutch’s tightening, follow this procedure:

  -- Engage the circuit breaker (4:2).

  -- Open the barrier electrically to an angle of 90° using the external control unit (optional; push-button box, for example).

  -- Close it electrically.

  -- Invert the movement when the arm is in mid course (45° angle).

  -- By slipping slightly, the friction clutch should absorb the inertia of the arm.
5.3. Adjusting the position of the limit-switch microswitches

**Note:** The following procedure is for solution 1 or 2 with a BL16. If you are using barrier solution 3 or 4, the position of the opening and closing limit-switch microswitches is the opposite, but the idea is the same.

- The arm stops at the end of the closing or opening movement thanks to the limit-switch microswitches, (17:1) and (17:2), activated by the polyamide cam (17:3) crimped to the screw (17:4). To check whether the position of these limit-switch microswitches is correct, ensure that the arm is horizontal and then perform the following test.

  **Remember:** The alignment of points (x), (y) and (z) of the crank-connecting rod driving device (see Fig. 11) ensures that the arm locks mechanically in the open and closed positions.
5.3.1. Electric closing test

-- Engage the circuit breaker (4:2).

-- Close the barrier electrically. The three points, (x), (y) and (z), of the crank-connecting rod device must be perfectly aligned.

If the movement stops before the points, (x), (y) and (z), have become aligned [too early]:

1. Turn off the equipment by pressing the button on the circuit breaker (4:2).
2. Loosen the two fixing screws (17:5) of the closing limit-switch microswitch (17:1).
3. Move the closing limit-switch microswitch (17:1) slightly in direction A.
4. Tighten the two fixing screws (17:5) again.
5. Turn the equipment on again and rearm the circuit breaker (4:2).
6. Carry out a test.
7. If necessary, repeat this procedure until the desired results have been obtained. Never forget to turn the equipment off first.

If the movement stops too late (arm presses against the edge of the stop cutout and the motor continues to turn):

1. Turn off the equipment by pressing the button on the circuit breaker (4:2).
2. Loosen the two fixing screws (17:5) of the closing limit-switch microswitch (17:1).
3. Move the closing limit-switch microswitch (17:1) slightly in direction B.
4. Tighten the two fixing screws (17:5) again.
5. Turn the equipment on again and rearm the circuit breaker (4:2).
6. Carry out a test.
7. If necessary, repeat this procedure until the desired results have been obtained. Never forget to turn the equipment off first.
5.3.2. Electric opening test

-- Engage the circuit breaker (4:2).

-- Open the barrier electrically to an angle 90° of by pressing the appropriate button (push-button box or OK button on the logic board). The three points, (x), (y) and (z), of the crank-connecting rod device should theoretically be aligned.

**If the arm stops before reaching a 90° angle:**

1. Turn of the equipment by pressing the appropriate button on the circuit breaker (4:2).
2. Loosen the two fixing screws (17:5) of the opening limit-switch microswitch (17:2).
3. Move the opening limit-switch microswitch (17:2) slightly in direction B.
4. Tighten the two fixing screws (17:5) again.
5. Turn the equipment on again and rearm the circuit breaker (4:2).
6. Carry out a test.
7. If necessary, repeat this procedure until the desired results have been obtained. Never forget to turn the equipment off first.

**If the arm stops after reaching a 90° angle (presses against the stop and the motor continues to turn):**

1. Turn of the equipment by pressing the button on the circuit breaker (4:2).
2. Loosen the two fixing screws (17:5) of the opening limit-switch microswitch (17:2).
3. Move the opening limit-switch microswitch (17:2) slightly in direction A.
4. Tighten the two fixing screws (17:5) again.
5. Turn the equipment on again and rearm the circuit breaker (4:2).
6. Carry out a test.
7. If necessary, repeat this procedure until the desired results have been obtained. Never forget to turn the equipment off first.
5.4. Replacing the gear motor

- The gear motor is replaced as follows:

--- Ensure that the equipment is not on (circuit breaker (4:2) is released).
--- Disconnect the connecting rod (18:1) from the lever (18:2) by loosening the nut (18:3) and removing the screw (18:4).
--- Disconnect the logic control board’s cable from the motor power supply.
--- Remove the nuts (18:5) and fixing clamps (18:6) and mark the position of the various elements: Tooth lock washers, flat washers, large flat washer, etc.
--- Remove the motor reducer.
--- Remove the screw (18:7) in order to be able to extricate the lever (18:2).
--- Begin assembling the new motor reducer. Follow the procedure that has just been articulated, but in the inverse order.
--- When the operation has been finished, check whether the arm is horizontal and check the alignment of points (x), (y) and (z) of the crank-connecting rod device as explained in Paragraph 4.5. Levelling the arm.
--- Now adjust the limit-switch microswitches according to the instructions provided in Paragraph 5.3. Adjusting the position of the limit-switch microswitches.
--- At the end of the procedure, test the operation electrically.
5.5. Replacing the balancing spring

After a certain period of operation, the spring (barrier arm longer than 1.90 metres) may begin to give or show signs of weakness, especially near the points at which it is fixed. To replace it, proceed as follows:

--- Ensure that the equipment is not on (general circuit breaker (4:2) is released).

--- Bring the arm to the vertical position and ensure that the mechanism is fully locked, by bringing the lever (18:2) to rest against the relevant stop.

--- Mark off the distance \(L\) (see Fig. 14) between the lower part of the spring and the backing plate.

--- Remove nuts (19:1) and (19:2).

--- Loosen nuts (19:3) and (19:4) and remove screw (19:5) and mark the position of the various elements.

--- Begin assembling the new spring group. Follow the procedure that has just been articulated, but in the inverse order.

--- Tighten screw (19:1) until the distance \(L\) is obtained and lock it with a nut (19:2).

--- Undertake an operating text and observe the behaviour of the spring and the mechanical assembly.

--- If necessary, follow the instructions in Paragraph 5.1. Balancing the arm via the spring to obtain optimal spring adjustment.
5.6. Replacing a limit-switch microswitch

- To replace a limit-switch microswitch, proceed as follows.

- Ensure that the equipment is not on (general circuit breaker (4:2) is released).

- Remove the corresponding terminal lugs after having marked off their positions.

- Remove the two screws (20:1) and the two washers (20:1). Then, remove the defective microswitch unit together with its support plate.

- Position the new microswitch unit and monitor the lever’s position (20:3). Fasten the unit using the screws (20:1), washers (20:2) and clamp (20:4).

- Put the lugs back on their terminals.

- Position the microswitch and adjust the position of the corresponding cam. To do so, follow the instructions provided in Paragraph 5.3. Adjusting the position of the limit-switch microswitches.

- At the end of the procedure, test the operation electrically.
5.7. Replacing the transmission shaft

- To replace the transmission shaft, proceed as follows:

  -- Ensure that the equipment is not on (general circuit breaker (4:2) is released).

  -- Dismantle the arm and disconnect the spring.

  -- Loosen the set screws (21:1) and the bearings (21:2).

  -- Loosen the screw (21:3).

  -- Remove the shaft (21:4).

  -- To assemble the new shaft, follow the procedure that has just been articulated but in the inverse order. Carefully, put back the cap (21:5), key (21:6) and the sealing ring (21:7).

  -- At the end of the procedure, test the operation.
5.8. Changing the barrier solution

- If you choose to modify the barrier solution, proceed as follows:

5.8.1. Conversion from solution 1 to solution 2

-- Disassemble the arm and disconnect the spring. Follow the instructions given in the relevant paragraphs to do so.
-- Loosen the screw (22:1).
-- Loosen the set screws (22:2) and the bearings (22:3).
-- Remove the transmission shaft (22:4) and the key (22:5).
-- Remove the cap (22:6) and the sealing ring (22:7).
-- Reassemble the unit as illustrated above and place the shaft (22:4) in the bearing first and then in the yoke (22:8).
-- Position the yoke (22:8) 30 mm away from the tower body and tighten the bearings’ set screws (22:2) well.
-- Put the key (22:5) back in place, align the yoke (22:8) and tighten the screw (22:1) well.
-- At the end of the procedure, test the operation.
5.8.2. Conversion from solution 3 to solution 4

-- Proceed as described on the previous page. Use the illustration above as a guide with regard to the layout of the elements.
-- Moreover, if the barrier arm is longer than 2.90 metres, you must also move the spring to the other side of the shaft and change the point at which it is fixed (fastening to the right on the plate). Follow the instructions in Paragraph 5.5. Replacing the balancing spring.
-- Then, invert the wires of the limit-switch microswitches and two motor cable wires on the corresponding terminal blocks of the logic control unit.
-- Completely readjust the limit-switch microswitches. Follow the instructions in Paragraph 5.3. Adjusting the position of the limit-switch microswitches.
-- At the end of the procedure, test the operation.
6. MAINTENANCE

- The following operations should be carried out every 6 to 12 months, depending on how intense the traffic is.
  - Unlock and remove the side door and, if necessary, the lid.
  - Dust and clean the interior of the tower body and ensure that no foreign bodies are inside (waste, etc.).
  - Check that all the nuts and screws of the mechanical assembly are fastened tightly.
  - Check the state of the electrical connections and tighten them if necessary. Check the state of the contacts and electrical relays of the logic control board.
  - Check that the arm is assembled correctly. If this is not the case, refer to Paragraph 4.4. Placing the arm.
  - Check that the arm is horizontal. If necessary, refer to Paragraph 4.5. Levelling the arm.
  - Check that the arm does not have problems reopening if movement is inverting during descent and that it cannot be opened by hand while it is moving. If necessary, refer to Paragraph 5.2. Adjusting the friction clutch.
  - Open and close the barrier electrically. Check that the arm stops in the vertical position when the motor stops and that the three points (x), (y) and (z) of the crank-connecting rod device are perfectly aligned in the closed position as well when the motor stops. If this is not the case, refer to Paragraph 5.3. Adjusting the position of the limit-switch microswitches.
  - Check that the door presence contact is operating correctly. When the side door is removed, it should be impossible to operate the barrier electrically, except if you first push the button on the door presence sensor to re-establish the power supply to the equipment.
  - If the barrier arm is longer than 1.90 metres long, check the general state of the balancing spring. If it needs to be replaced, refer to Paragraph 5.5. Replacing the balancing spring.
  - Check whether the connecting rod straps (2:6) are worn and grease them every year. Use multipurpose, anticorrosive grease with a lithium or metallic lithium base that retains its properties from -25°C to +110°C.
  - Inspect the rotation of the bearings (3:6) with regard to noise and fluidity of movement. The bearings are life-time lubricated.
  - Check the tightness of the reducer.
  - Check that no tools have been left inside the barrier. Put the lid and side door back in place and lock them.
  - Clean the exterior of the housing and the arm using a soft rag impregnated with a mild detergent. For countries which receive a lot of sun, we recommend treating the exterior of the housing with polish.

Note: If you would like to install an accessory on the arm or remove one from it (road sign, etc.), please refer to Paragraphs 4.5., 5.1., and 5.2. to readjust the arm.
### 7.1 Control blocks assignment

#### Connector block number

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<tr>
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<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

#### Connectors

- **A**: In/Out connector blocks.
- **B**: connector blocks.
- **C**: connector blocks.
- **X9**: Connectors for inductive loops presence detectors.
- **X11**: Inductive loops presence detector.
- **X13**: Inductive loops connectors.
- **Y**: Inductive loops presence detector.
**INPUTS**

Signals from outside that are received by the control board.
There is a green LED under every input connection, which indicates its status (ON/OFF).

DI1, DI2, DI3, DI4 (cell): signal from the optional safety cells (see “connecting the presence sensors” below).

DI5 (Swing off sens./Lock):
1. **Swing off sensor**: for all machines except BL4x, signal emitted by the optional arm swing off detector when it no longer detects the arm on the jaw. Also, configure the “Arm Swing Off” parameter in the “OPTIONS” menu.
2. **Lock**: for BL4x, signal emitted by the arm locking device sensor, indicating the status of the lock (locked or unlocked).

DI6 (reader A command): order to open from the optional badge reader.

DI7 (stop command): order to stop the movement of the obstacle immediately, from a push-button box, remote control, etc. Also, configure the “Stop CMD” parameter in the “OPTIONS” menu.

DI8 (open CMD): order to open the obstacle, from a push-button box, remote control, reader, etc. Also, configure the “Exploitation” parameter in the “QUICK START” menu.

DI9 (close CMD): order to close the obstacle, from a push-button box, remote control, etc. Also, configure the “Exploitation” parameter in the “QUICK START” menu.

DI10 (lock open CMD): order to keep the obstacle in the open position, from an external switch.

DI11 (lock close CMD): order to keep the obstacle in the closed position, from an external switch.

DI12 (Sw open): signal from the opening limit-switch detector.

DI13 (Sw close): signal from the closing limit-switch detector.

DI14 (crank limit switch): signal from the presence detector switch of the crank used for manual operation of the obstacle (only on some types of equipment). This turns off the motor command outputs (DO7 and DO8) to prevent the obstacle from moving while the crank is engaged (safety). If there is no crank limit switch on the equipment, connections B4 and C4 must be linked.

AI1 (analogue sensor): analogue signal from the analogue position sensor, which must be activated (“Positioning” parameter under the “QUICK START” menu).

**OUTPUTS**

Signals sent by the control board to external elements.
There is a red LED under every output connection, which indicates its status (ON/OFF).

REL1- and REL1+: connectors of the relay from which the indication to transmit comes (parameter is adjustable via the “OUTPUT FUNCTION” menu).

REL2- and REL2+: connectors of the relay from which the indication to transmit comes (parameter is adjustable via the “OUTPUT FUNCTION” menu).

REL3- and REL3+: connectors of the relay from which the indication to transmit comes (parameter is adjustable via the “OUTPUT FUNCTION” menu).

DO7 (rising motor): status 1 (ON) if the obstacle is opening or completely open.

DO8 (descending motor): status 1 (ON) if the obstacle is closing or completely closed.

(DO9 = Power relay 1 (cf. "OUTPUT FUNCTION" menu) on X8 connector (ch. Error! Reference source not found.))

DO10 PWM and DO11 PWM (Pulse Width Modulation): power element outputs (for arm lighting, flashing light, frequency inverter fan) adjustable via the “OUTPUT FUNCTION” menu: outputs 10 and 11.

AO1 (FI setting): analogue signal sent to the frequency inverter controlling the speed of the motor.

**CONNECTORS FOR EXTERNAL ELEMENTS**

24V: 24 Volt DC connector.

GND: 0 Volt connector.
Connecting the presence sensors

The board accepts up to four Presence Sensors (cells and/or loops, the generic term used in the rest of the manual and on the plans, diagrams and display is “PS”).

The cells are directly connected to connectors A, B and C (positions 13 to 16).

The loops are connected to the X13 connectors (loop x on connector DPx) (cable sections ≤ 2.5 mm²) and the associated detector (Y) is connected to the corresponding pin (Z).

**Note 1:** a double detector allows the handling of 2 loops simultaneously, but only following 2 combinations: either DP1 & DP2, either DP3 & DP4.

**Note 2:** circuits DP1, DP2, DP3, DP4 of connector X13 are respectively linked to circuits DP1, DP2, DP3, DP4 of connectors A, B and C. A loop and a cell may not be put on the same circuit (in other words, if a cell is connected to DI1 (connector 16), a loop may not be at DP1 but may be at DP2, 3 or 4).

**Note 3:** it is also necessary to configure the “Exploitation” parameter in the “QUICK START” menu.

**Warning:** when the presence sensors are put in place, the obstacle may move. Hence, the presence sensors should not be placed before power to the equipment has been cut (circuit breaker cut).
8. LAYOUT PLANS

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**Technical manual BL16-MT-EN-12**

**CONCRETE FONDATION SECTION A-A**

**FOOTPATH**

**ROAD LEVEL**

---

**EXPANDING BOLTS**

**STEEL BASE**

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<td>3 - 4m</td>
<td>600</td>
</tr>
<tr>
<td>&gt; 4m - 5m</td>
<td>800</td>
</tr>
</tbody>
</table>

**LENGTH X**

| BL 21-29 | 360 |
| BL 16   | 320 |

---

**LEGEND:**

1. CONCRETE BASE
2. STEEL BASEMENT
3. MAGNETIC DETECTION LOOP
4. TUBE IN PVC 60mm Ø
5. POWER SUPPLY MONO 230V~ + IN 362.5 V~
6. REMOTE CONTROL IN 5Ghz OR FOLLOWING SPECIFICATIONS

**FIXING PLINTH FOR BL21/29/16**

Ce plan reste notre propriété et ne peut pas être diffusé à des tiers ni être reproduit sans autorisation écrite de Automatic Systems. Ce plan doit être expédié au client sans élévation à des tiers. Le client doit rester informé de toute modification importante apportée à ce plan.

**DESIGNATION :**

**BESTEMMING :**

**DESSINE :**

**DATE :**

**N° Dossier :**

**VERIFIE :**

**PLAN N° :**

**ECONOMIE :**

**SCHAL :**

**PLAN N° :**

**PM**

CH2536-gbi B

Avenue Marcella, 5 - B-1300 Wavre

www.automaticsystems-group.com
9. "EC" CERTIFICATE OF CONFORMITY

Déclaration CE de conformité

Nous, soussignés,

AUTOMATIC SYSTEMS s.a.
Avenue Mercator, 5
D-1300 WAVRE
Belgique

Déclarons que la machine

Barrière levante électrique

BL16

est conforme aux dispositions des Directives, normes et autres spécifications suivantes:

- Directive Sécurité des Machines 2006/42/CE.
- Directive Rassure Tension 2006/95/CE.
- DirectiveCompatibilité électromagnétique 2004/108/CE.
- EN 12100-1: 2003 Sécurité des machines-Terminalogie de base et méthodologie
- EN 61000-6-3: 2001 Compatibilité électromagnétique-Norme générale émission- Résidentiel, commercial, industrie légère.

Fait à WAVRE,
le : 2009 12 03
Nom du signataire : Denis VANMOL
Fonction : Directeur du développement
Signature :

EC declaration of conformity

We, undersigned,

AUTOMATIC SYSTEMS s.a.
Avenue Mercator, 5
D-1300 WAVRE
Belgium

Herewith declare that the machinery

Electrical rising barrier

BL16

is in accordance with the conditions of the following Directives, standards and other specifications:

- Machinery Directive 2000/42/CE
- Low-voltage Directive 2006/95/CE
- EN 12100-1: 2003 Machinery – Basic terminology and methodology.
- FN 60204-1: 2006 Safety of machinery Electrical equipment of machines. General requirements.

Made in WAVRE
Date: 2009-12-03
Name: Denis VANMOL
Function: Director of Development
Signature: 

Technical manual BL16-MT-EN-12

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