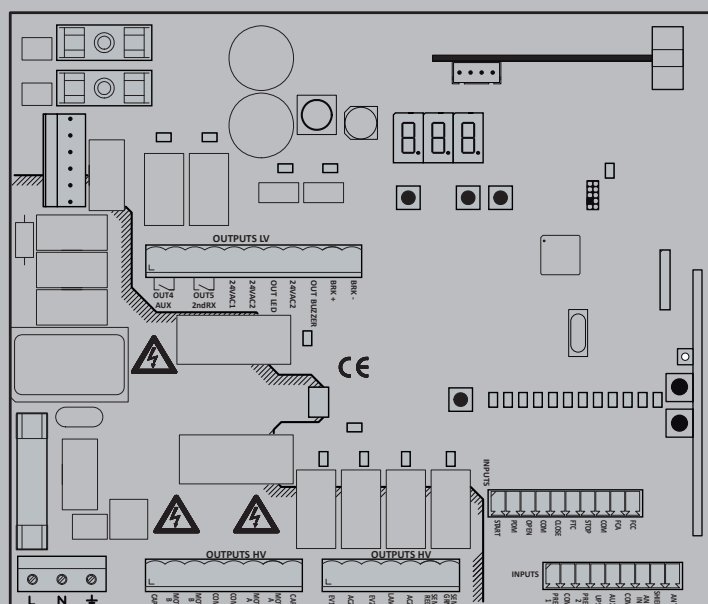


PERSEO CBE

(FW 1.3.X)



INSTALLATION AND OPERATION MANUAL

CONTROL UNIT

Caution! Read "Warnings" inside carefully!

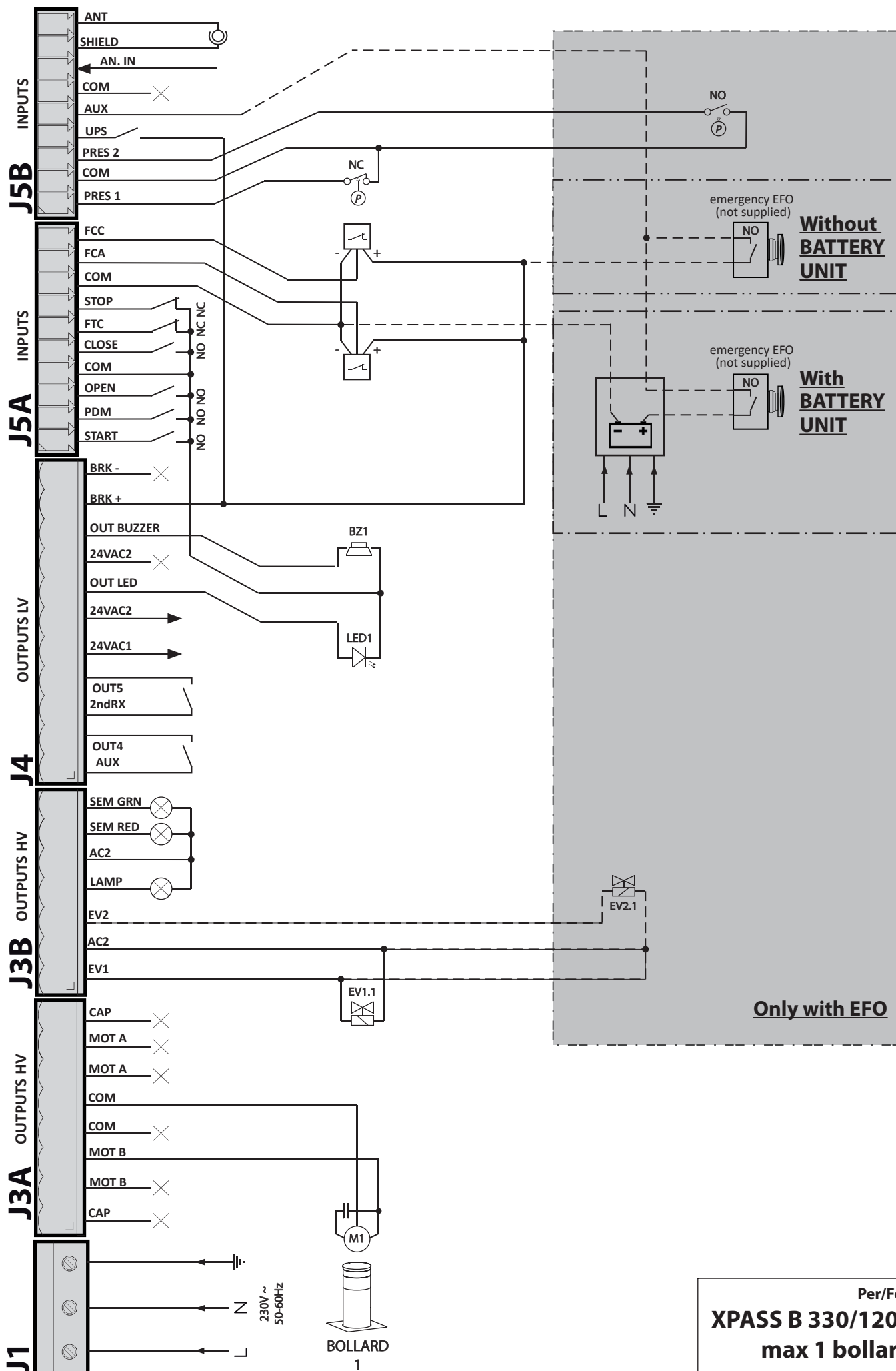


AZIENDA CON
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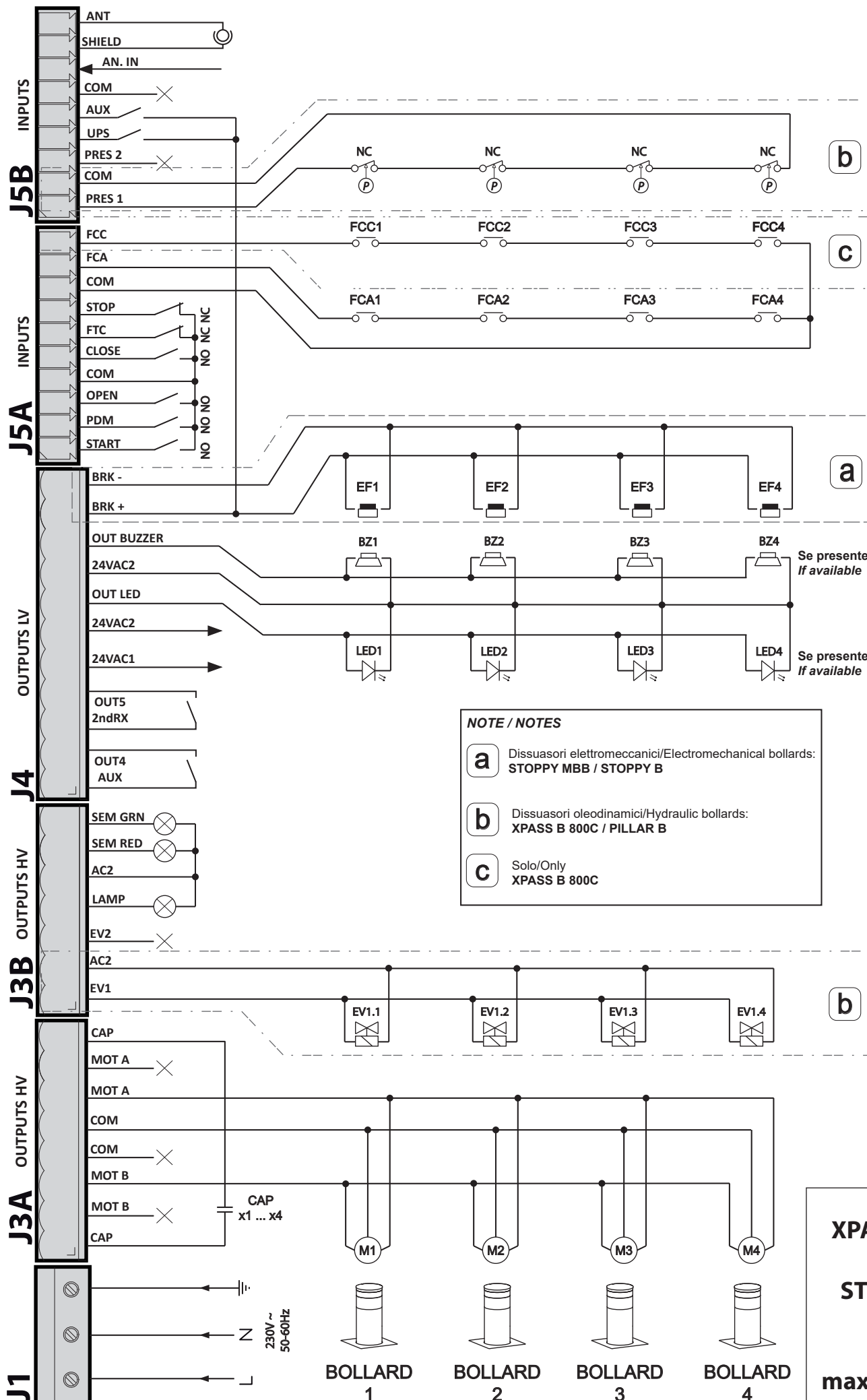


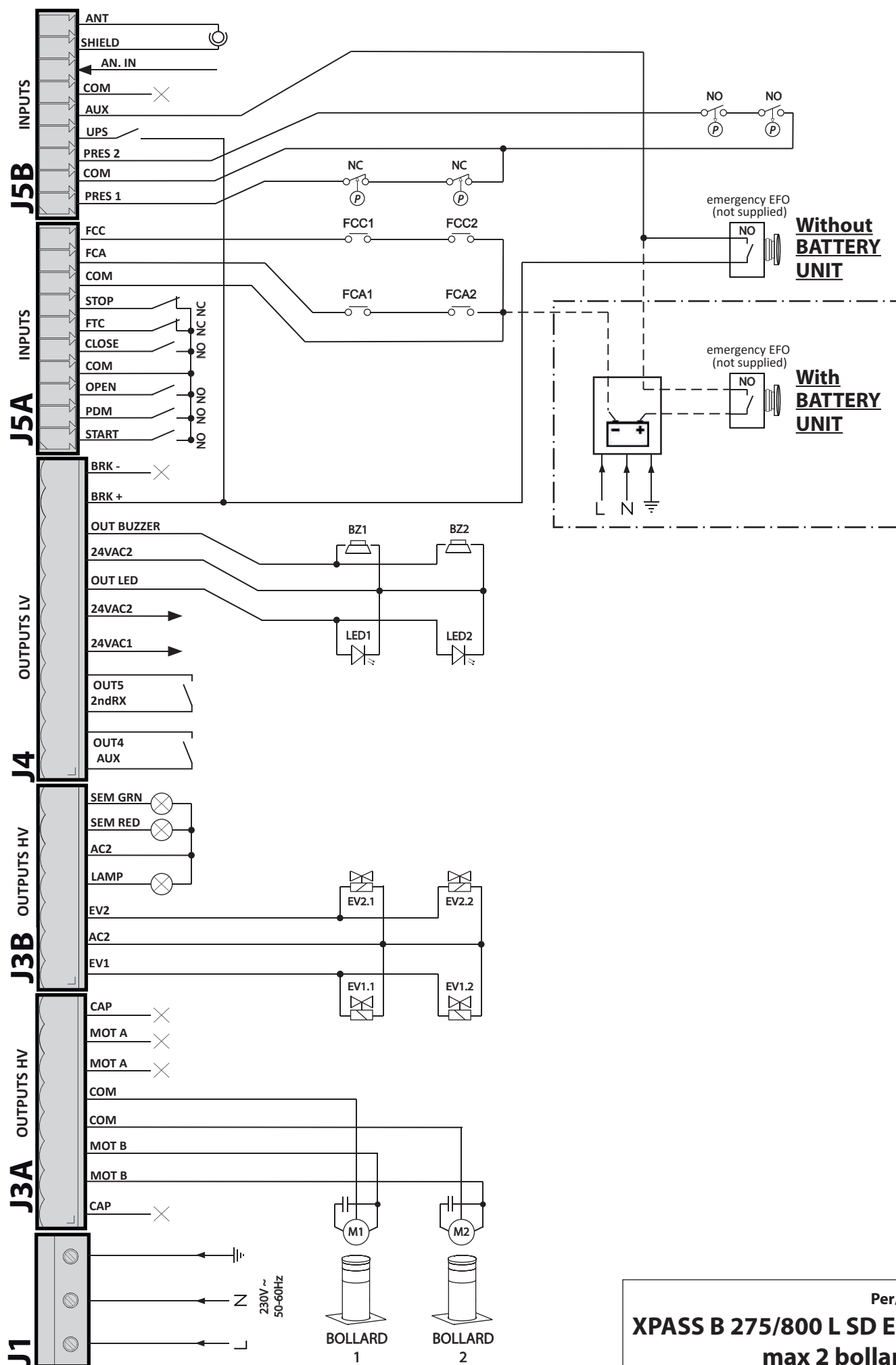
www.torautomatic.hr





Per/For
XPASS B 330/1200
 max 1 bollard





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1. INTRODUCTION



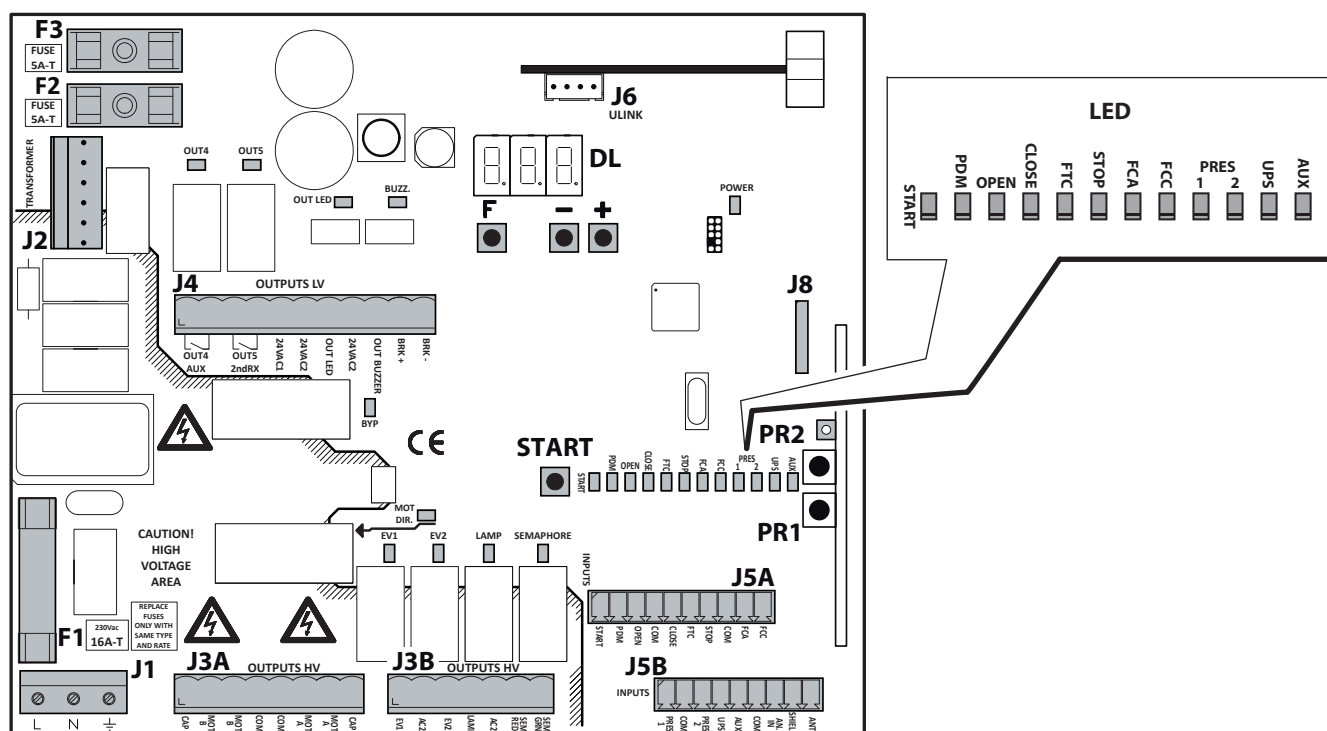
The control unit has been developed to control automatic bollards.



= Electrical connections coming from bollard.

2. MAIN CHARACTERISTICS

- Microprocessor logic
- LEDs displaying input and output status
- Socket for integrated radio receiver 433Mhz; 2048 codes (optional)
- 3-digit display
- 2 configurable outputs
- PROGRAMMER connector for receiver
- Integrated heater TERMON



J1: 230Vac terminal block

J3A/J3B: Power terminal block (high voltage)

J4: Outputs/accessories power supply terminal block (low voltage)

J5A/J5B: Input terminal block

J6: Expansion connector

J8: Programmer connector for receiver

DL: 3-digit display

SW1: "START" control button

F1: Line fuse: 6.3x32 16A T

F2/F3: Low voltage fuses: 5x20 5A T

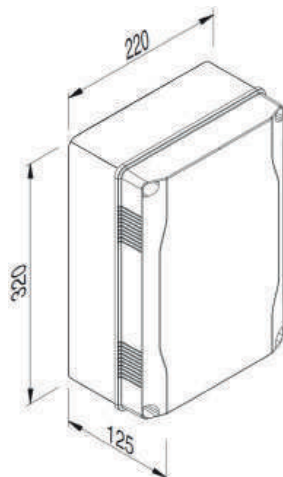
F/+/-: Programming push buttons

PR1/PR2: Radio receiver programming push buttons

3. TECHNICAL SPECIFICATIONS

- Power supply:	230Vac $\pm$ 10%, 50/60Hz	-Operating ambient humidity	up to 95%
- Motor output:	230Vac; 13A max		non condensing
- Flashing light/traffic light:	230Vac; 40W max	-Protection degree	IP55
- Accessory output:	24Vac; 1A max	-Storage ambient temperature	-25° +60° C
-Operating ambient temperature	-25° +60° C		

3.1 CONTROL PANEL DIMENSIONS



4. INSTALLATION SAFETY

In order to reach the level of safety required by current regulations, read the following prescriptions carefully.

- 1) Make all connections in the terminal block after carefully reading the instructions given in this manual and observing the general rules and technical standards governing electrical systems.
- 2) Upstream from the installation, fit an omnipole miniature circuit breaker with a contact gap of at least 3 mm.
- 3) If there isn't one already, install a residual current device with a threshold of 30 mA.
- 4) Check the effectiveness of the grounding system and connect to it all the parts of the automation fitted with a terminal or grounding cable.
- 5) Fit at least one external warning device, such as a traffic light or flashing light, along with a warning or danger sign.
- 6) Fit all the safety devices required by the type of installation, taking into consideration the risks it can cause.
- 7) Separate the power lines (min. sect. 1.5 mm²) from the low-voltage signal lines (min. sect. 0.5 mm²) in the ducts.



5. PRELIMINARY OPERATION

- Before sending a command to the automation, make sure to have selected correctly the type of bollard as follows:

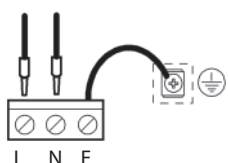
Bollard selection

- Hold down buttons F and + for 5 seconds to select the connected bollard.
- Select the type of bollard using the buttons +/-.
- Press F and + to confirm.

BOLLARD TABLE					
96	PILLAR B 275/600	E5	EASY Ø115-500 - STOPPY B 115/500	a7	STOPPY Ø210-700
98	PILLAR B 275/800 - PILLAR B O 275/800.6C L - XPASS B 275/800C - XPASS B O 275/800C L	E7	EASY Ø200-700 - STOPPY B 200/700	U5	NOT AVAILABLE
H6	PILLAR B 275/600.6C SD	F7	NOT AVAILABLE	U7	NOT AVAILABLE
H8	PILLAR B 275/800.6C SD - XPASS B 275/800C SD	I7	NOT AVAILABLE	92	NOT AVAILABLE
H2	XPASS B 330/1200	CA	NOT AVAILABLE	LB	XPASS B 275/800 L SD EFO
d5	STOPPY MBB 219-500.C	Cb	NOT AVAILABLE		
d7	STOPPY MBB 219-700.C	a5	STOPPY Ø210-500		

- **Select network frequency through Hc parameter.** (see 3rd level programming).
- **(Hydraulic bollards with EFO only) Select the parameter EF=01** (see 2nd level programming).
- **(Hydraulic bollards only) Select the pressure switch type with the parameter PP** (see 3rd level programming).
- Check the connection method for simultaneous operation, if controlling multiple deterrent devices simultaneously (see paragraph 10).

6. INPUT AND OUTPUT FUNCTIONALITY AND CONNECTIONS



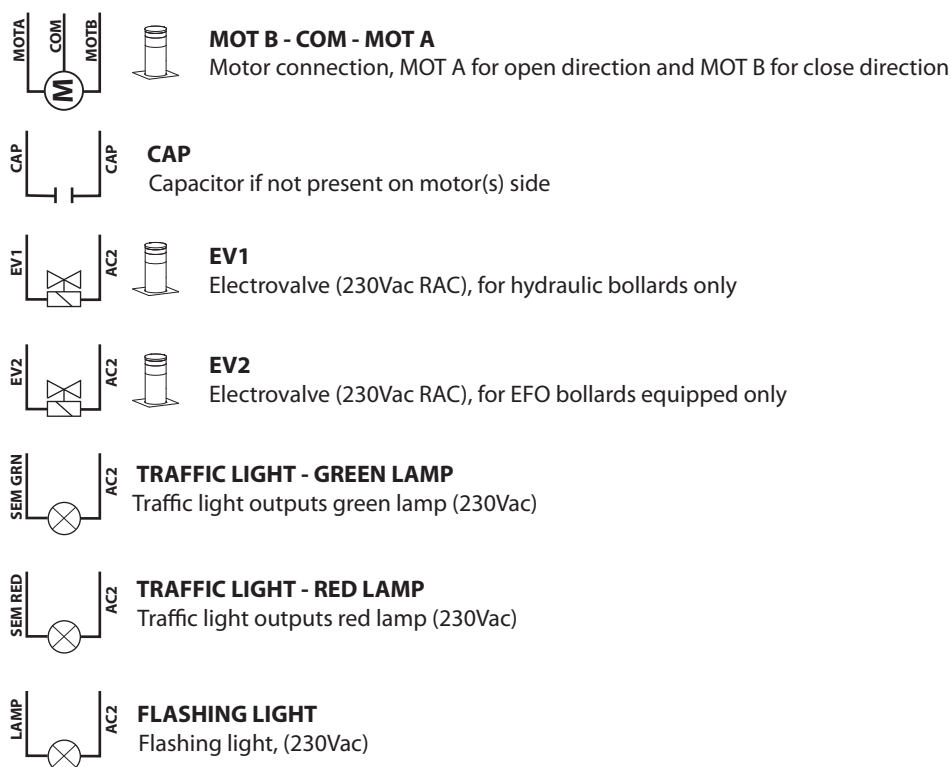
6.1 J2 POWER TERMINAL BLOCK



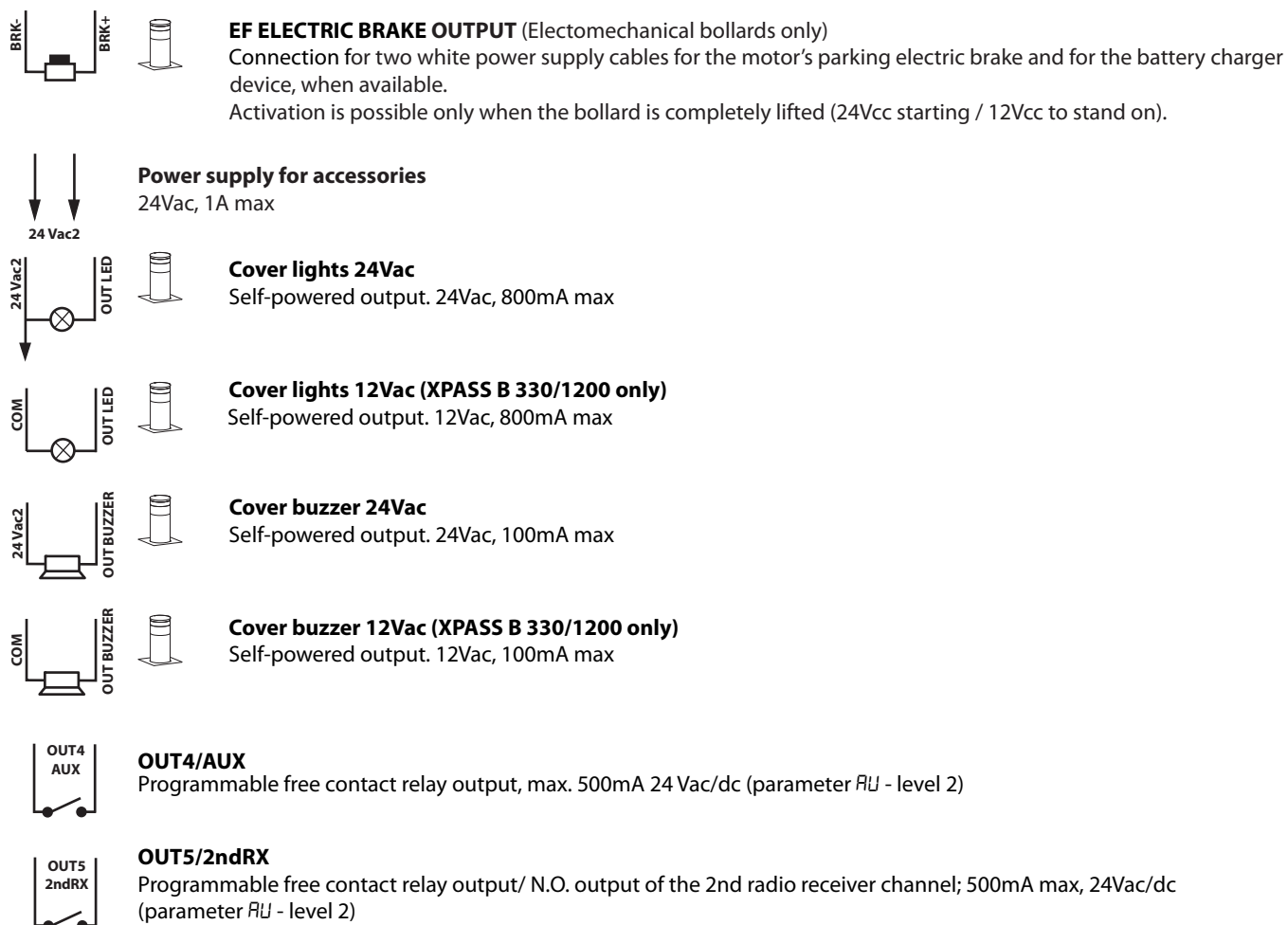
LINE 230V

230V 50/60Hz power supply with varistor internal protection and 5A T (5x20) plus 16A T (6.3x32) fuses. Connect the phase and neutral as shown on the screen printing. Use a cable type H07RN-F 2x1.5+E min. Connect the yellow/green wire of the power supply mains to the earth terminal of the appliance.

6.2 J3A/J3B POWER TERMINAL BLOCK



6.3 J4 OUTPUTS/ACCESSORIES TERMINAL BLOCK



6.4 J5A/J5B INPUTS TERMINAL BLOCK



FCC

2 wire N.O. closing limit switch input (set parameter $Lt=00$ - level 3 and parameter $Fc=01$ - level 2).
When activated the opening travel ends (XPASS B 800C).



3 wire N.O. closing limit switch input (set parameter $Lt=00$ - level 3 and parameter $Fc=01$ - level 2).
When activated the opening travel ends (XPASS B 330/1200).



FCA

2 wire N.O. opening limit switch input (set parameter $Lt=00$ - level 3). When activated the opening travel ends.



3 wire N.O. opening limit switch input (set parameter $Lt=01$ - level 3). When activated the opening travel ends (XPASS B 330/1200).



STOP

N.C. safety input. When it is activated, the automation is immediately stopped. During the pause time, a stop control eliminates the automatic closing, leaving the bollard open waiting for a command.



FTC

N.C. photocell input. It allows the automation to be closed only if the safety devices have not triggered. Operating mode programmable with parameter Ft -level 1.



CLOSE

N.O. closing input. It allows the automation to be closed only if the safety devices have not triggered. Operating mode programmable with parameter Ct -level 1.



OPEN

N.O. opening input.

By keeping this input controlled, the automation performs the opening manoeuvre and will close automatically only when the input is freed. Connect clocks, daily timers or weekly timers here if wanted.



START

N.O. input that operates the bollard's opening and closing. The command is ignored while opening



PDM

Programmable Input $Pd-3$ liv..
May be duplicated on AUX output.



PRES 1

Closure travel limit pressure switch input (see parameter Pp - level 3). Limit switch N.C. input in closing.
When activated the closing travel finishes (For hydraulic bollards only).



PRES 2

EFO pressure switch input (see parameter Pe - level 3 and parameter Ef - level 2).
(For EFO equipped bollards only).



UPS

UPS status input. To be connected to smart UPS with status output, active-high during mains failure. The control unit has also an internal detector that works with simpler square-wave and quasi-sinusoidal UPS. With these simpler UPS there is no need to use this input.



AUXILIARY INPUT AUX

For bollards with EFO device. Is active when emergency EFO command is active (see parameter Pf - level 3)



ANALOG INPUT

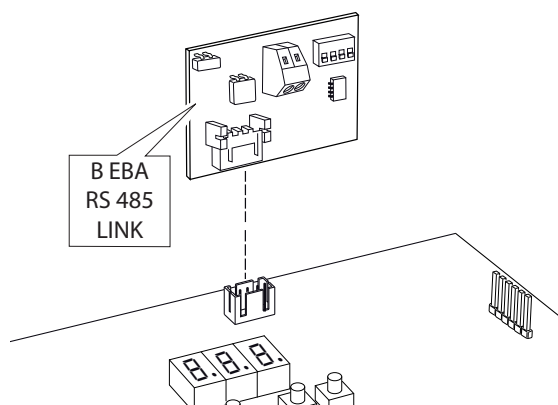
Multi-purpose analog input 0..5V



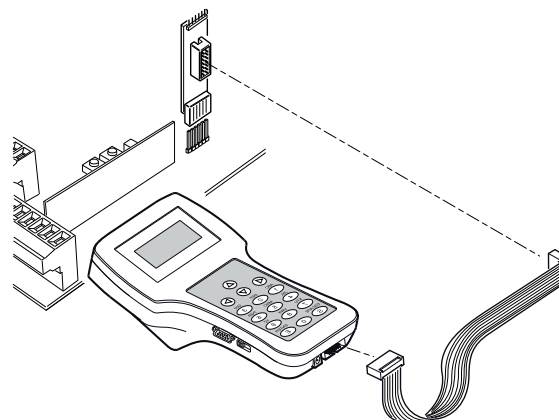
ANTENNA

Antenna connection for the radio receiver (option).

6.5 J6 EXPANSION CONNECTOR



6.6 J8 PROGRAMMER CONNECTOR FOR RECEIVER



7. DISPLAY

At power-on the display shows the board type "LDH", then the FW release X.Y.Z, then the type of bollard (see table on chapter cap. 5), and finally the status or error code.

The status (initial 01) or error code is always displayed except in programming menu or when a blocking error is present.

7.1 STATUS CODE

The status code is shown on the first 2 digits.

	01: Idle
0P	02: Opening 03: Opening limit switch reached 04: Stop activated during opening
0L	05: Closing 06: Closing limit switch reached 07: Stop activated during closing

08	08: Stop due to photocell triggering 09: Opening after photocell triggering 10: Pause after photocell triggering
0b	Hydraulic bollards only: 11: Stop due to a detected obstacle 12: Opening after a detected obstacle 13: Pause after obstacle detection
14	14: Maximum working time in opening reached 15: Maximum working time in closing reached



A standard cycle, without errors, is always 2 -> 3 when opening, 5 -> 6 when closing

On the third digit and dot, additional information is shown:

Display	STATUS
0.0.0.	UPS active, mains voltage failure
0.0.0.	STOP signal active
0.0.0.	"Termon" active
0.0.0.	Photocell engaged

8. PROGRAMMING

8.1 BASIC FUNCTIONS

To access programming, press button **F** for 2 seconds.

Programming is divided into 4 levels.

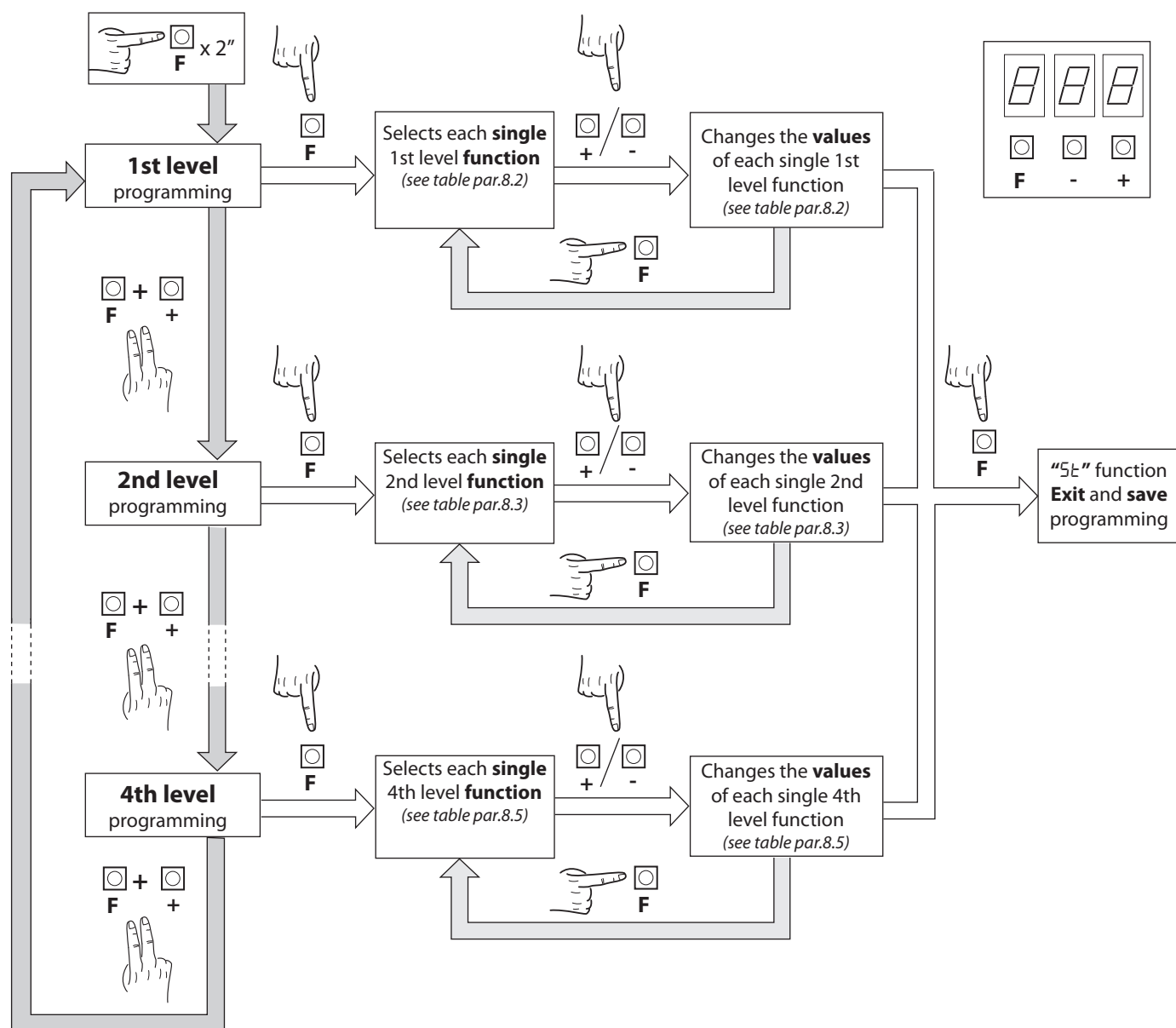
To go to the next level keep button **F** pressed and press the + key (Sequence 1-2-3-4-1.....).

After selecting the level wanted, press button **F** to display the functions available in consecutive order. Each time **F** is pressed the menu shifts to the next function (L0 - LL - Fx.....).

With the function selected, use the $\oplus$ or $\ominus$ key to change the value of the parameter ($\oplus$: 00-0 1-02-03... / $\ominus$: ...03-02-0 1-00).

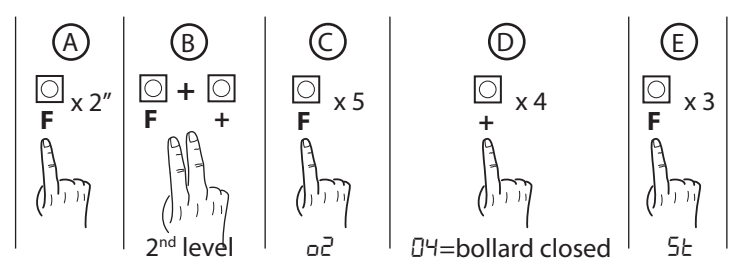
The changes made to the parameters are active immediately, but will be permanently saved only when exiting the menu, selecting the ST function with key **F**.

NOTE: In case of power failure during programming, all changes will be lost.



Example:

Selecting Output2 set to closed arm:



8.2 1st LEVEL PROGRAMMING

The following table gives the 1st level functions and the adjustable parameters.



= DEFAULT value set in factory.



= parameter value set during installation: should be filled if DEFAULT value is modified.

Par	Function	Settable data		
<i>L0</i>	Selects the functioning logic. (see notes after the table)	00: Hold-to-run	01	
		01: Semi automatic		
		02: Automatic		
<i>CL</i>	Close input configuration (see notes after the table)	00: Standard close input	00	
		01: Close-when-released input		
		02: The close command acts as a close-when-released and safety function.		
<i>Fe</i>	Photocells	00: During, it reopens and waits for the photo cell free commands closing.	02	
		01: When closing it reopens; closes after 1" when the photocell is free		
		02: When closing it reopens; closes after 5" when the photocell is free		
<i>Ob</i>	Obstacle detection (for hydraulic bollards only)	00: Disabled	03	
		01: When closing it stops and waits for commands		
		02: When closing it reopens and waits for commands		
		03: When closing it reopens, then closes after 5 seconds		
<i>PO</i>	Opening-warning time	0-30	00	
<i>PC</i>	Closing-warning time	0-30	00	
<i>Ld</i>	Bollard lights	00: Cover lights flashing during movement, fixed on when the bollard is opened and closed	00	
		01: Cover lights flashing during movement and with bollard open, fixed on when the bollard is closed		
		02: Cover lights always flashing		
		03: Cover lights flashing during movement and with bollard closed, fixed on when the bollard is open		
<i>EP</i>	Pause time (in seconds)	00-99	10	
<i>bu</i>	Buzzer	00: Buzzer off	01	
		01: Buzzer on during movement		
<i>Pr</i>	Preset controlling entrance configuration	01: none	01	
		02: Configuration of installation type A parameter (see chapter 13.1)		
		03: Configuration of installation type B parameter (see chapter 13.2)		
		04: Configuration of installation type C parameter (see chapter 13.3)		
		05: Configuration of installation type D parameter (see chapter 13.4)		
<i>dF</i>	Resetting default parameters. (see notes after the table)	00: No resetting	00	
		01: Resetting the default parameters		
		02: Same as 01, except for "COM" parameters that are not reset		
<i>St</i>	Exiting the menu/saving	Pressing the "F" key exits the programming menu and changes are saved		

Description of level 1 parameters

• *L0*: Functioning logic

- Hold-to-run: Close function active for as long as inputs are active. Open function activated by activating and releasing input. The start command opens once and closes once.
- Semi automatic: The automation works with jog commands, without automatic reclosing. Hence, when fully open, to control closing you need to act on the start or close command respectively.
- Automatic: The automation works in jogs. When the opening manoeuvre is completed in the standard cycle, automatic reclosing is activated after the pause time set (parameter *EP*).

• **CL**: Close configuration

- **01**: Close-when-released input

The bollard closes automatically only when the vehicle has completely passed by the photocell or magnetic detector (the recommended accessories for this purpose). Connect the N.O. contact of the detector or photocell to the close input terminals. If the vehicle is on the detector or in front of the photocell it does not cause immediate closing but the control board will wait for the signal to be released (i.e. vehicle moved).

- **02**: The close command acts as close-when-released and safety function.

When closing, a close command stops the automation. When close input becomes inactive the bollard resumes closing.

• **Pr**: Preset

- To configure the parameters for installation type **A**, **B**, **C** and **D**; set the corresponding value and exit the menu. See chapter 13 for details on installation types.

• **dF**: Default

- To restore the parameters to the factory default values, set the "dF" to 1 or 2, then exit the menu. if **PF=02** the communication "Com" settings is kept.

Warning: The "default" operation sets all parameters to the factory default values, including the Preset values and the bollard type.

8.3 2nd LEVEL PROGRAMMING

The following table gives the 2nd level functions and the adjustable parameters.



= DEFAULT value set in factory.



= parameter value set during installation: should be filled if DEFAULT value is modified.

Par	Function	Settable data		
5r	Request for maintenance	00: disabled	00	
		01: active on the configured outputs		
		02: as in 01 plus lights flash twice		
nt	Programming maintenance cycles in thousands	00-99	00	
nL	Programming maintenance cycles in millions	0.0-9.9	0.0	
04 05	Output 4, Output 5	00: scheduled maintenance required	05=14 04=04	
		01: photocell triggering		
		02: obstacle detection (for hydraulic bollard only)		
		03: PDM input active		
		04: bollard fully up (close position)		
		05: bollard fully down (open position)		
		06: STOP input active		
		07: warning flash		
		08: START input active		
		09: OPEN input active		
		10: power failure (the output is activated at switch-on)		
		11: assistance required		
		12: CLOSE input active		
		13: UPS		
		14: second radio channel active		
		15: buzzer (for Totem)		
		16: EFO pressure switch failure		
		17: FCC sensor failure or manual forcing attempt		
FC	Closing limit switch presence	0: not present	see note	
		01: present		
EF	EFO present (for SD version and XPASS B 330/1200)	00: not present	00	
		01: present		
EE	TERMON	00-30: heating level (01 = min; 30 = max)	00	

UP	UPS	00: disabled	00	
		01: enabled, opens automatically during mains failure		
		02: enabled, closes automatically during mains failure ⚠ WARNING: THIS SELECTION MAY BE DANGEROUS		
Cr	Deceleration torque (not available for hydraulic bollards)	20-80	50	
St	Exiting the menu/saving	Pressing the "F" key exits the programming menu and changes are saved		

Description of level 2 parameters

• 5r: Request for maintenance

- 00: the request for maintenance is not active.
- 01: after the programmed cycles set by the counters n_k and n_L , the programmed output is activated (see parameters α_4 , α_5)
- 02: after the programmed cycles set by the counters n_k and n_L , the programmed output is activated (see parameters α_4 , α_5) and the bollard lights flash twice.

• n_k - n_L : Programming maintenance cycles in thousands and millions

These two parameters set the number of cycles after which a request for maintenance is signalled.

Thousands of cycles can be set with the n_k parameter, millions of cycles with the n_L parameter. Example: to set maintenance alarm after 275 000 cycles, set n_L to 0.2 and n_k to 75.

• FL: Closing limit switch presence.

This parameter must be set only for bollards with additional limit switch installed for closed-fully up position. After every default operation it is set to 01 for H2 and 9A bollards, 00 for the others.

• $\alpha_4=11$; $\alpha_5=11$: Assistance required

If configured, the contact indicates that the electronic control unit detected an error in the automation and in particular, the failure of the travel stop or the solenoid valve (hydraulic bollards only). The error is also signalled by the triple flashing of the cover lights, if installed

• EE: TERMON (integrated electronic motor heating system)

Should be activated ONLY when the ambient temperature where the bollard is installed drops below a minimum of 0°C for all the day.

EE = 00, TERMON is disabled (default)

EE = 01, minimum heating

EE = 30, maximum heating

• Cr: Deceleration torque (electromechanical bollards only)

Sets the deceleration speed at the end of the closing manoeuvre.

The value of the deceleration speed at the end of opening is factory preset and cannot be modified.

8.4 3rd LEVEL PROGRAMMING

The following table gives the 3rd level functions and the adjustable parameters.



= DEFAULT value set in factory.



= parameter value set during installation: should be filled if DEFAULT value is modified.

Par.	Function	Settable data		
Pd	PDM dynamic input polarity	00: input N.O.	00	
		01: input N.C.		
Lt	Limit switch connection	00: series (N.O. 2-wire sensors)	00	
		01: parallel (N.C. 3-wire sensors)		
Pp	Pressure switch polarity (for hydraulic bollards only)	00: N.O. (used until 2012)	01	
		01: N.C. (used from 2013)		
Pe	EFO Pressure switch polarity	00: N.O.	00	
		01: N.C.		
Pa	Input AUX polarity	00: N.O.	00	
		01: N.C.		
P4 P5	Output 4 polarity Output 5 polarity	00: N.O.	00	
		01: N.C.		
Cp	Commands accepted during pause time	00: OFF	01	
		01: ON		

FP	Programmable PDM input for special functions	00: None	00	
		01: Opening Enable when active		
		02: Opening Enable and pause time reset (with Pr=04), when active		
		03: TERMON Enabled when active		
		04: Opening Enable and pause time reset (with Pr=05), when active		
r1	Radio channel 1 command selection	00: Receiver channel 1 not used	01	
		01: Receiver channel 1 mapped to START		
		02: Receiver channel 1 mapped to OPEN (with Pr=05 special function)		
Ht	Select mains frequency	50-60: Value of main frequency in Hertz (Hz)	50	
St	Exiting the menu/saving	Pressing the "F" key exits the programming menu and changes are saved		

Description of level 3 parameters

• **Pd: Input polarity**

For N.O. or N.C. input polarity configuration.

• **P4 P5: Output 4 polarity, Output 5 polarity**

Output polarity: The outputs can be configured as N.O. or N.C.. NOTE: in the event of a power failure the N.C. contact opens anyway.

• **Pr: Output polarity**

The outputs can be configured as N.O. or N.C.. NOTE: in the event of a power failure the N.C. contact opens anyway.

• **CP: Enable command during the pause time**

Depending also upon other settings, the system accepts or not the commands from inputs.

• **FP: Special PDM functions**

FP=01 PDM is used as opening enable. As long as it is not active, no opening command is accepted. Also no close command is accepted so the bollard remains open.

FP=02 The PDM functions as described in point 1, but in case of automatic logic, the pause time is reloaded.

FP=03 The PDM function enables the TERMON system. Based on the setting of the Pd parameter, the closing or opening of the contact activates or deactivates the TERMON system. This allow the TERMON function to be controlled by a calendar and/or a thermostat.

• **PP: Pressure switch polarity**



N.O.: Pressure switch type used until **2012**.

N.C.: Pressure switch type used from **2013** on.

8.5 4TH LEVEL PROGRAMMING

The following table gives the 4th level functions and the adjustable parameters.



= DEFAULT value set in factory.



= parameter value set during installation: should be filled if DEFAULT value is modified.

Par	Function	Settable data		
Com	Communication protocol	00: disabled	00	
		01: U-LINK		
		02: Modbus/RTU		
Umo	U-LINK mode	00: Slave	00	
		01: Master		
Uld	U-LINK adress	00 - 120	00	
RID	Modbus/RTU ID	01 - 247: For Slave	01	
		00: For Master		
RSP	MODBUS RTU speed	19.2: 19 200 baud	38.4	
		38.4 38 400 baud		
EOt	Cycles counter	Read only parameter, in thousands (x1000)	000	
Err	Historical errors	00: do not clear (keeps) the list	00	
		01: clear the list		

Description of level 4 parameters

• Com:

Setting communication protocol.

Set value always same to Master and Slave.

• Ulink:

Setting U-LINK mode.

• Ulid:

Setting U-LINK address.

• Mod:

Setting Modbus/RTU ID.

• ModP:

Setting MODBUS RTU speed

• Err:

Show the list of error codes and the number of time they occur, alternatively.

9. RADIO RECEIVER

9.1 RECEIVER TECHNICAL SPECIFICATIONS

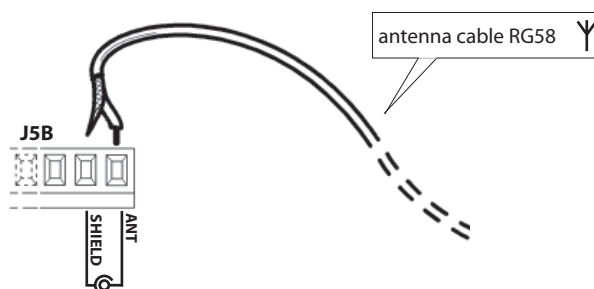
- Max. n° of transmitters that can be memorized:	2048
- Frequency:	433.92MHz
- Code by means of:	Rolling-code algorithm
- N° of combinations:	4 billion

9.2 RADIO CHANNELS FUNCTIONALITY

Channel 1:	Select the command from parameter <i>r1</i> - level 2
Channel 2:	Closes the relay contact on the terminal block J4: OUT4, OUT5, if activated <i>o4</i> = 14 - level 2, <i>o5</i> = 14 - level 2 (default).

9.3 ANTENNA INSTALLATION

Use an antenna tuned to 433MHz. Connect the tuned antenna to the antenna terminals using RG58 coaxial cable.



9.4 MANUAL PROGRAMMING

In the case of standard installations where no advanced functions are required, it is possible to proceed to manual storage of the transmitters, making reference to programming table A and to the example for basic programming.

- 1) If you wish the transmitter to activate output 1, press pushbutton PR1, otherwise if you wish the transmitter to activate output 2, press pushbutton PR2.
- 2) When LED DL1 starts blinking, press "hidden key" on the transmitter, LED DL1 will remain continuously lit.
- 3) Press the key of the transmitter to be memorized, LED DL1 will flash quickly to indicate that it has been memorized successfully. Flashing as normal will then be resumed.
- 4) To memorize another transmitter, repeat steps 2) and 3).
- 5) To exit memorizing mode, wait for the LED to go off completely or press the key of a remote control that has just been memorized.

IMPORTANT NOTE: ATTACH THE ADHESIVE KEY LABEL TO THE FIRST MEMORISED TRANSMITTER (MASTER).

In the case of manual programming, the first transmitter assigns the key code to the receiver; this code is necessary in order to carry out subsequent cloning of the radio transmitters.



"Hidden key"

9.5 SELF-LEARNING MODE PROGRAMMING

This mode is used to copy the keys of a transmitter already stored in the receiver memory, without accessing the receiver.

The first transmitter is to be memorised in manual mode (see paragraph 9.4).

- a) Press hidden key on the transmitter already memorised.
- b) Press key T on the transmitter already memorised, which is also to be attributed to the new transmitter.
- c) Within 10 s., press "hidden key" on the new transmitter to be memorised.
- d) Press key T to be attributed to the new transmitter.
- e) To memorise another transmitter, repeat the procedure from step (c) within a maximum time of 10 seconds, otherwise the receiver exits the programming mode.
- f) To copy another key, repeat from step (a), having waited for the receiver to exit the programming mode (or after disconnecting the receiver from the power supply).



"Hidden key"

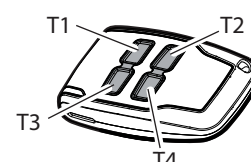
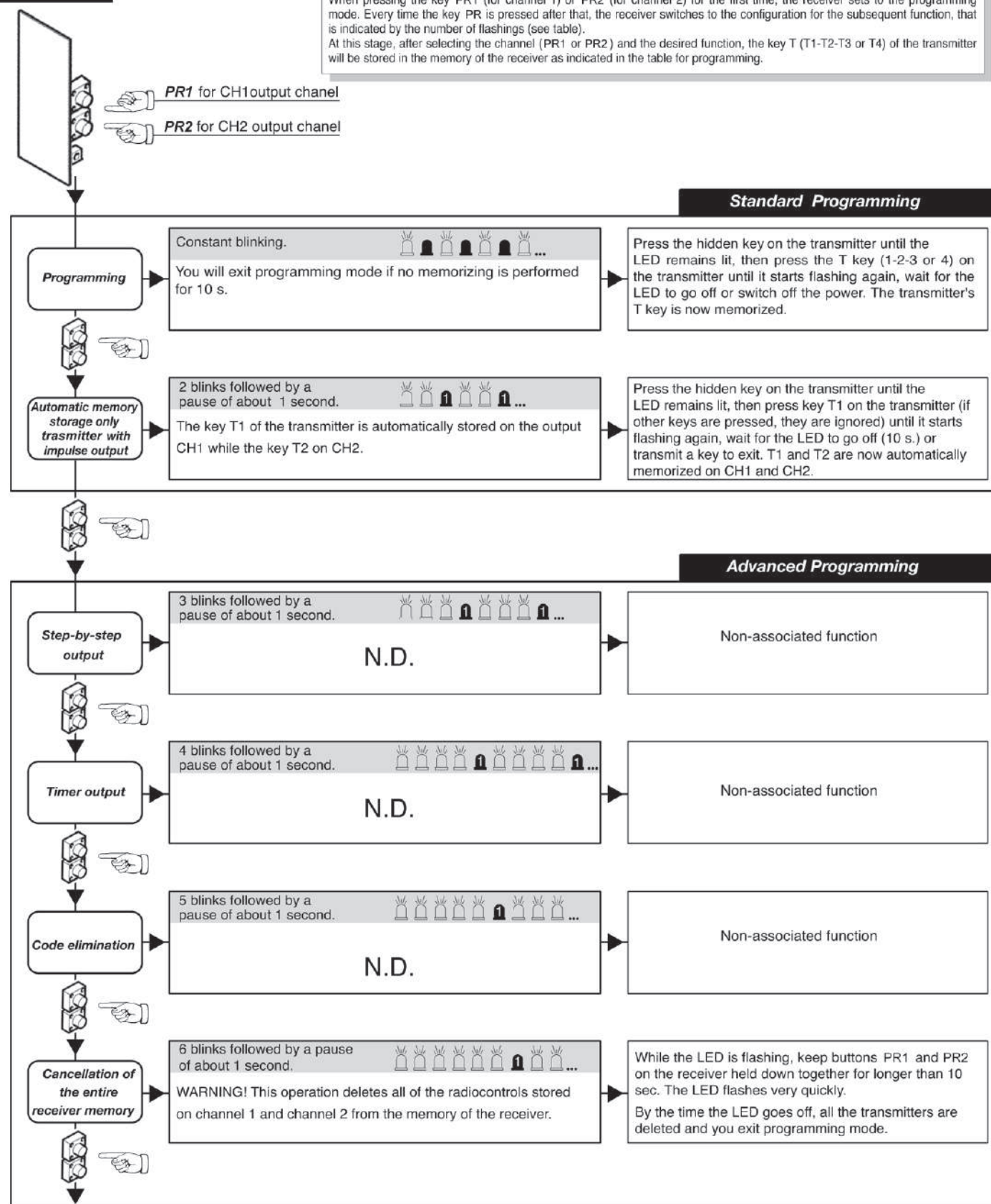
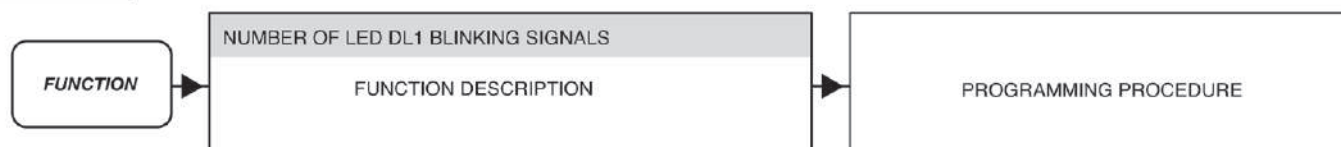


TABLE A

When pressing the key PR1 (for channel 1) or PR2 (for channel 2) for the first time, the receiver sets to the programming mode. Every time the key PR is pressed after that, the receiver switches to the configuration for the subsequent function, that is indicated by the number of flashings (see table). At this stage, after selecting the channel (PR1 or PR2) and the desired function, the key T (T1-T2-T3 or T4) of the transmitter will be stored in the memory of the receiver as indicated in the table for programming.



LEGEND



10. CONNECTIONS FOR SIMULTANEOUS OPERATION (FIG. PAG. 7 and 8)

The control unit is used to operate up to a maximum of four bollards connected in parallel to thus obtain simultaneous operation with just one control panel.

We recommend to use a junction box with adequate protection rating to complete the connections between two or more bollards. Following the table with indicated how to connect, serial or parallel, the common cables.

Refer to the specific bollard manual for identify the right wires.

	96, 98, H6, H8	L8	d5, d7, E5, E7, F7, I7, C8, C6, o5, o7, U5, U7
MOTOR	Connect them in parallel respecting the polarity of the motors and joining the black cables, the brown cables and the blue cables together. If present, joining the gray cables with the blue cable together.		
CAPACITOR	Connect in parallel the capacitor supplied with each bollard		
ELECTRIC BRAKE	NOT PRESENT		Connect the WHITE cables of the electric brakes in parallel
LIGHT	Connect the YELLOW cables of the LED lamps in parallel		
HORN	Connect the PINK cables of the horn contact in parallel		
FCA	Connect the GREEN cables of the limit switch in series.		Connect the GREEN cables of the limit switch in series.
FCC	Connect the ORANGE cables of the limit switch in series (only for XPASS B 800C)	Connect the ORANGE cables of the limit switch in series	NOT PRESENT
PRESSURE SWITCH PRES1	Connect the WHITE cables of the pressure switch in parallel (used until 2012) Connect the WHITE wires of the pressure switch (used from 2013) in series	Connect the WHITE wires of the pressure switch in series	NOT PRESENT
PRESSURE SWITCH EFO PRES2	Connect the GREEN/WHITE cables of the EFO pressure switch in parallel, if present		NOT PRESENT
BURGLAR	Connect the ORANGE cables of the burglar device contact in series (only for PILLAR B, option)	Connect the PINK/ORANGE cables of the burglar device contact in parallel, if envisaged	Connect the ORANGE cables of the burglar device contact in series, if envisaged
HEATING ELEMENT	NOT PRESENT	NOT PRESENT	Connect the RED cables of the heating element in parallel, if envisaged
UNLOAD ELECTROVALVE EV1	Connect the RED cables of the electrovalve element in parallel		NOT PRESENT
UPLOAD ELECTROVALVE EV2	NOT PRESENT	Connect the RED/WHITE cables of the electrovalve element in parallel	NOT PRESENT
EFO ELECTROVALVE	NOT PRESENT	Connect the WHITE cables of the electrovalve element in parallel, if EFO present	NOT PRESENT

11. TROUBLESHOOTING GUIDE

In the case of a malfunction, check that the correct bollard was selected (paragraph 5)

- Dual flashing of the cover lights. Indicates that scheduled maintenance is required. Check the parameters Sr , nE , nL
- Triple flashing of the cover lights and status 14 or 15 on the display at the end of the manoeuvre. Check the opening travel stop and the pressure switch contact at the end of closing (hydraulic bollards only).

12. WARNINGS

The builder recommended to make an installation which has all the accessories necessary to ensure operation according to current provisions, always using genuine devices.

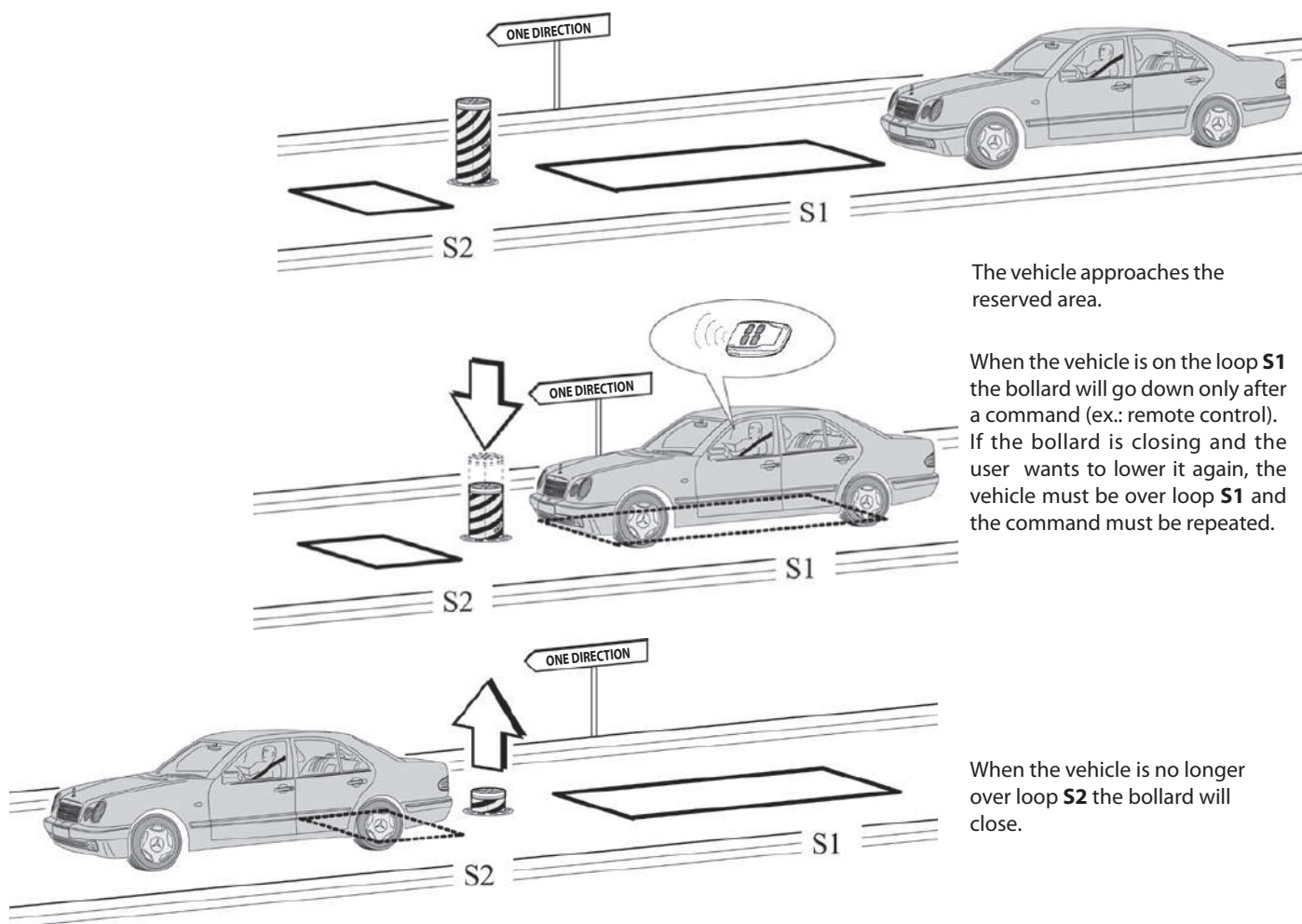
This equipment must be installed and used in strict compliance with the manufacturer's instructions. The manufacturer cannot be held responsible for any damage deriving from improper or unreasonable installation and use.

The constructor disclaims all liability for any inaccuracies contained in this manual and reserves the right to make changes at any time without any prior notice whatsoever.

13. EXAMPLES OF CONTROLLED ENTRIES/EXITS

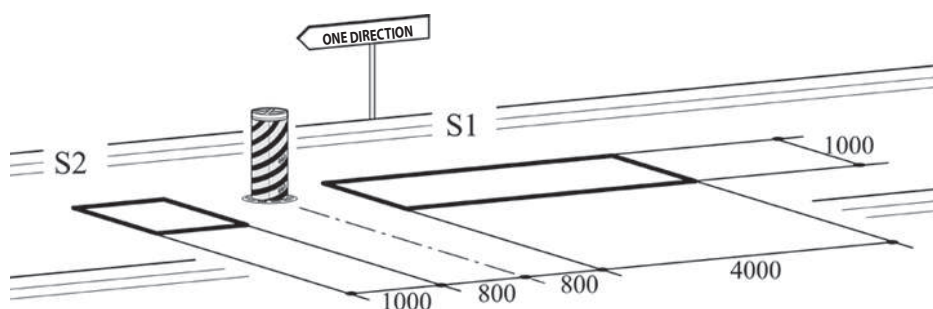
13.1 INSTALLATION A CONTROLLED ENTRY OR EXIT

This solution is recommended when you want to enter a reserved area in just one direction, by activating a command (radio control, proximity key, magnetic keys, etc.).



Loops **S1** and **S2** also have a safety function in that they will not let the bollard to move all the time if the vehicle is over **S1** or **S2**.

RECOMMENDED DIMENSIONS



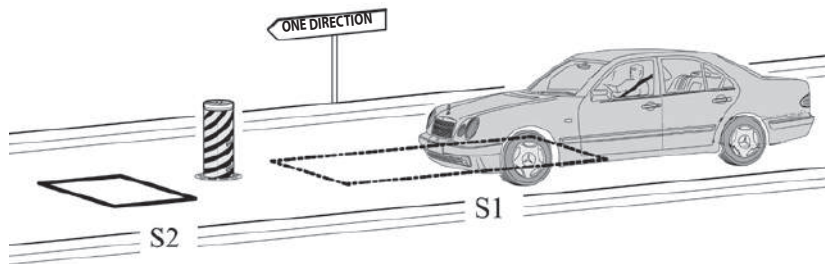
- Connect the **N.O.** contact of the **S1** loop receiver to **PDM** input.
- Connect the **N.O.** contact of the **S2** loop receiver to **CLOSE** input.
- The dimensional values given are approximate.

✱ We suggest installing the "RME 2" metal mass loop detector.

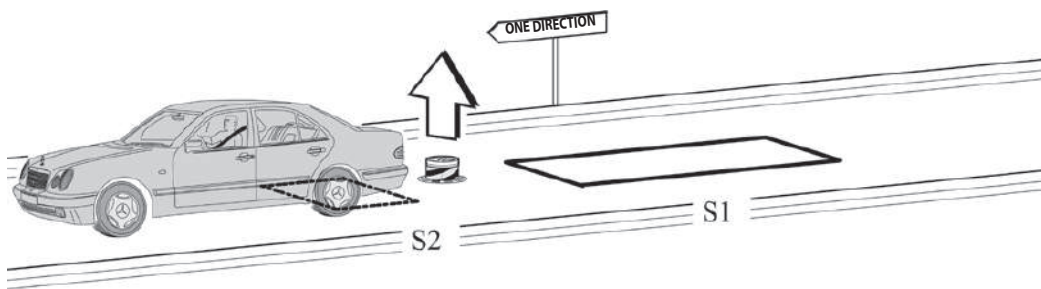
	PARAMETER	DATA	DESCRIPTION
Pr=02	CL	02	The close command acts as a close-when-release and safety function.
	r 1	02	Radio channel 1: Open
	FP	01	Opening consent
	LD	01	Semiautomatic logic
	CP	00	Commands during pause is OFF

13.2 INSTALLATION B AUTOMATIC ENTRY OR EXIT

This solution is recommended when you want to allow entry to a reserved area, without using any commands, allowing transit of vehicles in **just one direction**.



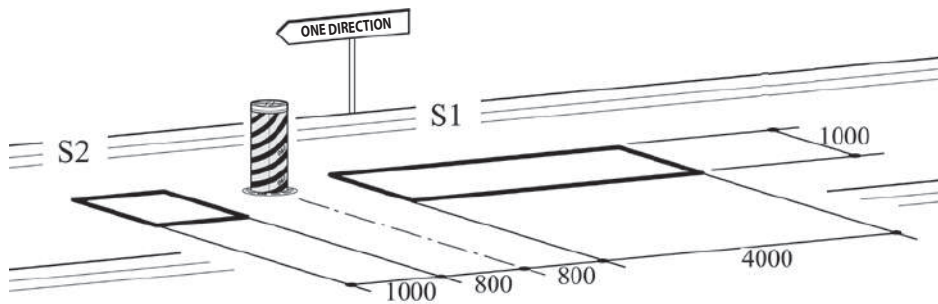
The vehicle approaches the reserved area. When over the loop **S1**, the bollard goes down.



When the vehicle is no longer over loop **S2**, the bollard will rise again.

Loops **S1** and **S2** also have a safety function in that they will not let the bollard to move all the time if the vehicle is over **S1** or **S2**.

RECOMMENDED DIMENSIONS



- Connect the **N.O.** contact of the coil receiver **S1** to the **OPEN** input.
- Connect the **N.O.** contact of the **S2** loop receiver to the **CLOSE** input.
- The dimensional values given are only approximate.

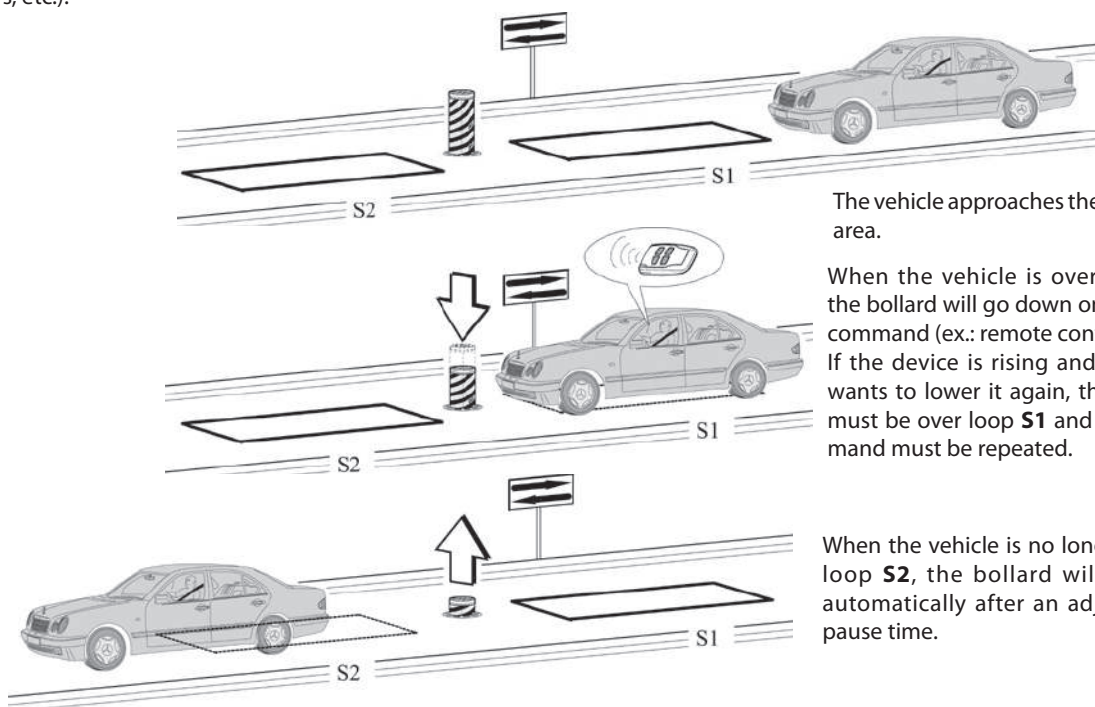
* We suggest installing the "**RME 2**" metal mass detector.

	PARAMETER	DATA	DESCRIPTION
P=10	CL	02	The close command acts as a close-when-released and safety function.
	r1	00	Radio channel 1: Disabled
	FP	01	Opening consent
	LD	01	Semiautomatic logic
	CP	00	Command during pause is OFF

13.3 INSTALLATION C CONTROLLED ENTRY AND EXIT

This solution is recommended when you want to enter a reserved area in both directions by activating a command (radio control, proximity key, magnetic keys, etc.).

ENTRY

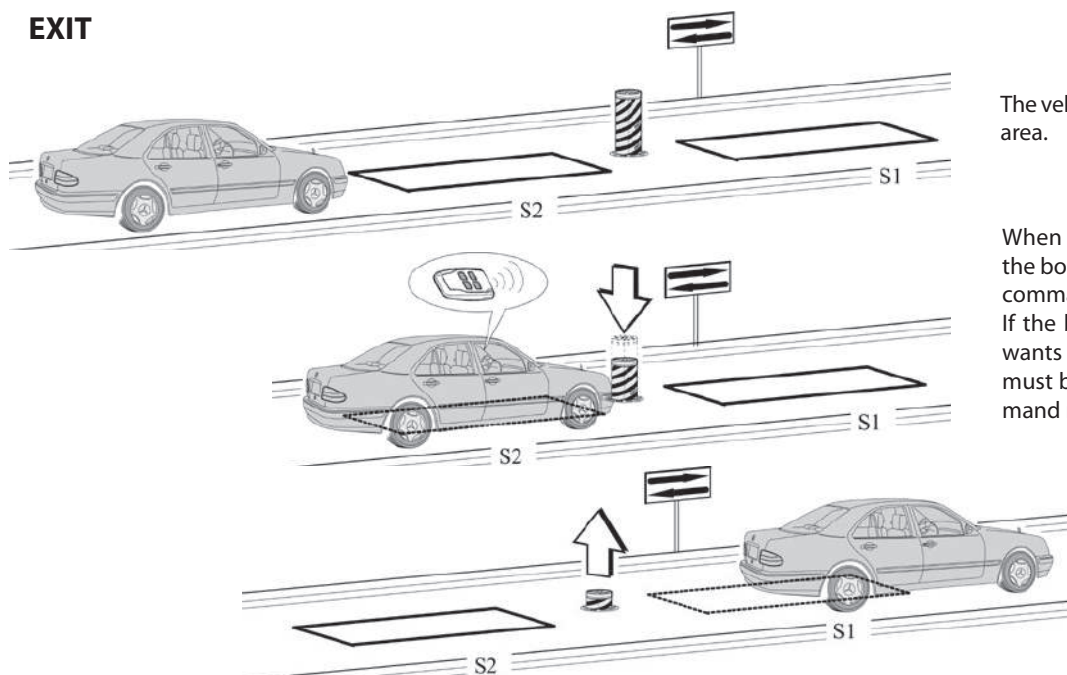


The vehicle approaches the reserved area.

When the vehicle is over loop **S1** the bollard will go down only after a command (ex.: remote control). If the device is rising and the user wants to lower it again, the vehicle must be over loop **S1** and the command must be repeated.

When the vehicle is no longer over loop **S2**, the bollard will go up automatically after an adjustable pause time.

EXIT



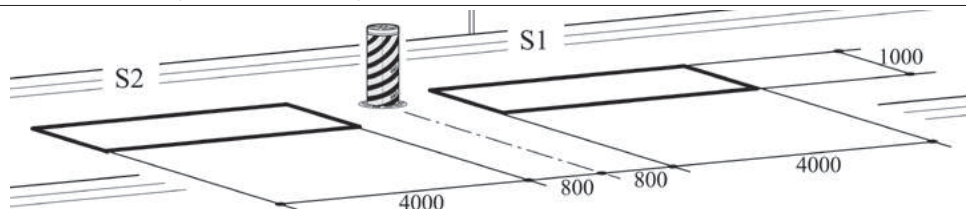
The vehicle approaches the reserved area.

When the vehicle is over loop **S2**, the bollard will go down only after a command (ex.: remote control). If the bollard is rising and the user wants to lower it again, the vehicle must be over loop **S2** and the command must be repeated.

When the vehicle leaves loop **S1** the bollard will rise automatically after an adjustable pause time.

Loops **S1** and **S2** also have a safety function in that they will not let the bollard to move all the time if the vehicle is over **S1** or **S2**.

RECOMMENDED DIMENSIONS



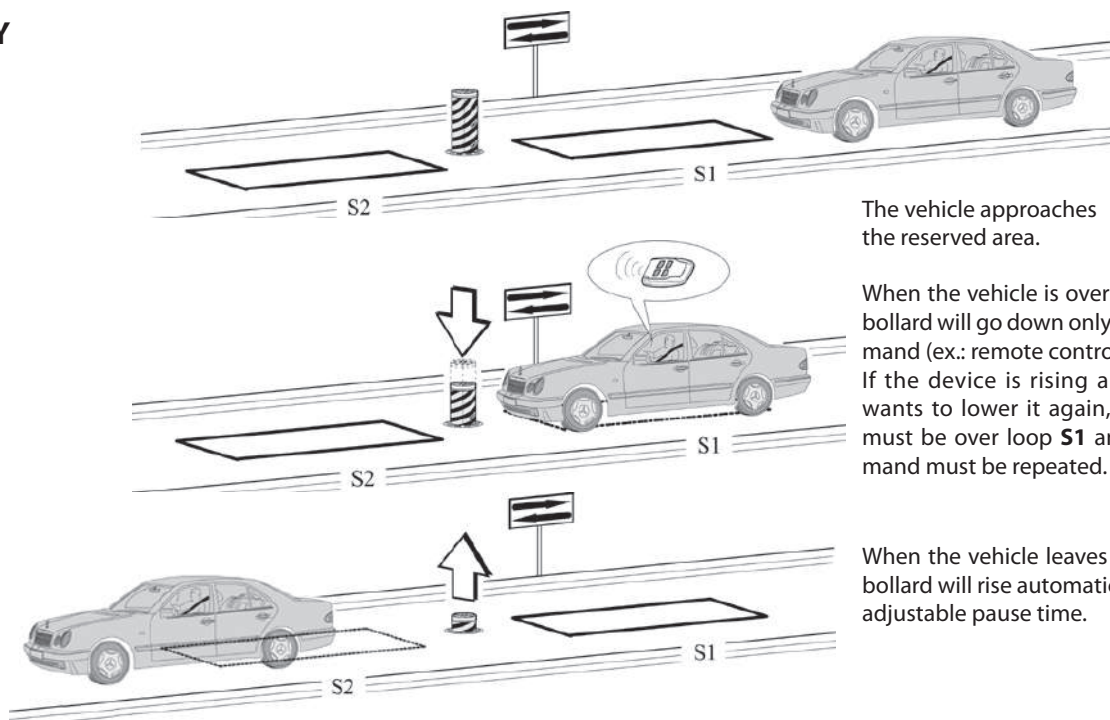
- Connect the **N.O.** contact of the coil **S1** and **S2** receiver to **PDM** input.
- The dimensional values given are approximate.
- * We suggest installing the "RME 2" metal mass detector.

	PARAMETER	DATA	DESCRIPTION
H0=JP	Lo	02	Functioning logic: Automatic
	tP	1-99	Pause time
	FP	02	Opening consent and pause time reset
	r 1	02	Radio channel 1: Open
	CP	00	Command during pause is OFF
	CL	00	Standard close

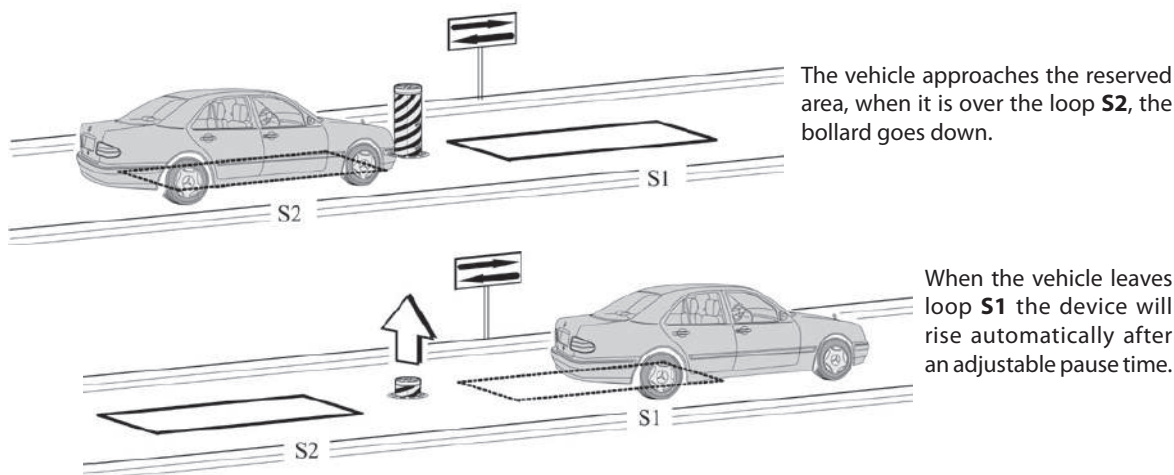
13.4 INSTALLATION D CONTROLLED ENTRY AND AUTOMATIC EXIT

This solution is recommended when you want to enter a reserved area in both directions. Entry is by means of a command while exiting is automatic.

ENTRY

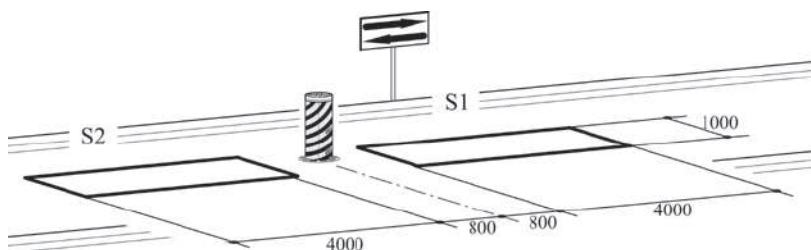


EXIT



Loops **S1** and **S2** also have a safety function in that they will not let the bollard to move all the time if the vehicle is over **S1** or **S2**.

RECOMMENDED DIMENSIONS



- Connect the contact of loop **S1** receiver to **PDM** input.
- Connect the N.O. contact of the **S2** loop receiver to **OPEN** input.
- The dimensional values given are approximate.
- * We suggest installing the "RME 2" metal mass detector.

	PARAMETER	DATA	DESCRIPTION
RME 2	L0	02	Functioning logic: Automatic
	FP	04	Special function
	r1	02	Radio channel 1: Open
	CP	00	Command during pause is OFF
	CL	00	Close standard

14. ERROR HANDLING

The control board can store up to 10 different errors, with no. of occurrences limited to 10, for each event.

In case of blocking (severe) error, it is possible to restart the board by pressing both keys "+" and "-" for 5 seconds or by switching off and on the power supply. When restarting by means of keys, a memory check is performed and automatic recovery of out-of-range parameters is done. The parameters are set to default factory values, so a new setup should be done, if necessary.

In level 4 menu, parameter "Err", shows the list of events and error stored in memory. The display shows alternatively the error code E_{xx} and the number of occurrences. Use "+" e "-" for scroll the whole list.

At the end of the list, an exit code is presented: quitting (by pressing "F") with 000 the error list is preserved, quitting with 00 the error history is cleared to zero.

Events/warning not severe are stored in memory, without blocking the normal behaviour of the control board.

List of errors and events with the indication of blocking/not blocking:

FAULT AND EVENTS TABLE:

Par	Description	BLOCKING
E 10	Internal error on memory access.	YES
E 14	Out of range memory address.	YES
E 20	Fuse F2 or F3 blown or not present.	YES
E 21	STOP occurred, changing the normal automation behaviour.(*)	NO
E 23	Obstacle detected during operation.	NO
E 24	Time-out elapsed while opening.	NO
E 25	Time-out elapsed while closing.	NO
E 27	Break on U-Link communication.	NO
E 28	Programmed maintenance cycles reached.	NO
E 29	Close limit switch not working (when present and enabled).	NO
E 92	MODBUS: unknown command.	YES
E 95	MODBUS: parity parameter error. Internal error.	YES
E 97	MODBUS: wrong parameter or data length.	YES
E 99	Communication parameter unknown	YES

(*) Events occurrence that change the normal behaviour, such as STOP, obstacle detection, etc., are stored.

For example, if STOP input activates during a static status (automation stopped), the event is not saved; but if it prevents a movement or inhibits a command, it is stored.

INSTALLATORE
INSTALLER
INSTALLATEUR
INSTALLATEUR
INSTALATOR

DATA
DATE
DATE
DATUM
FECHA



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