



**USER'S MANUAL – URBACO U200 &
U201 CONTROL BOARDS
Article Code: 002ZU200
Version V4**

**THIS MANUAL IS INTENDED FOR FOREMEN AND TECHNICAL STAFF IN CHARGE OF THE
INSTALLATION, OPERATION AND MAINTENANCE OF THIS PRODUCT.**



Pictures are not contractual
NT-U200V4(V3-EN) – V3 – 09/06

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1. PRESENTATION

1.1. General features:

This manual describes the setup and operation of the CAME U200 Version V4 automation board intended for the management of URBACO's pneumatic-driven automatic retractable bollards.

As a standard the case consists of the U200 motherboard which runs 1 access and of a mains transformer. Using the optional U201 add-on-card connected to the U200 makes it possible to run a 2nd access.

The detectors/sensors for the safety loops may be built in the case depending on operating logic mode chosen.

The U200 board has a socket designed for CAME plug-in boards. Programming the board depending on operating mode selected is done with switches and with a potentiometer. Finally, 4 x LEDs give indications on the status of some functions.

Directions for the good use of an access site controlled by automatic retractable bollard(s)

SAFETY RULES FOR THE GOOD USE OF AN ACCESS SITE CONTROLLED BY AUTOMATIC RETRACTABLE BOLLARD(S)

So as to ensure the good operationality of the access, for safety reasons URBACO recommends:

- **To set up vertical signposts warning of an obstacle («retractable bollard») ahead.**

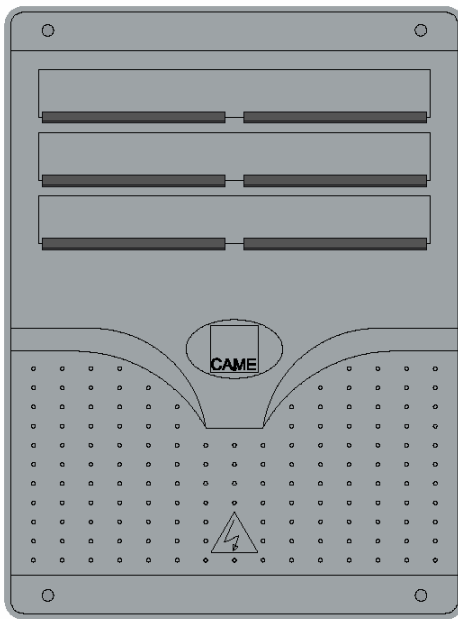
For access control systems, URBACO recommends that vehicle **be obliged to stop before the bollard and wait for its complete retraction underground** (and for the light to turn from red to flashing amber if the access site has position lights) **prior to driving on.**

For access sites programmed with bollards automatically rising once a vehicle has passed, following vehicles **must not try and drive through the access site one after the other without each stopping before the bollard, making sure it is retracted and respect signal given by position light (if such a device has been installed).**

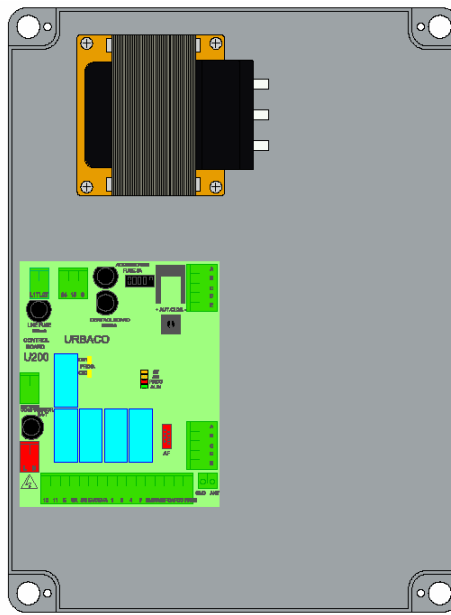
INFORMATION AND TRAINING OF USERS

The person(s) in charge of the access site is (are) bound to inform users on how to operate and utilise the access. URBACO will not be held responsible for any damage due to mishandling or to disrespecting safety rules.

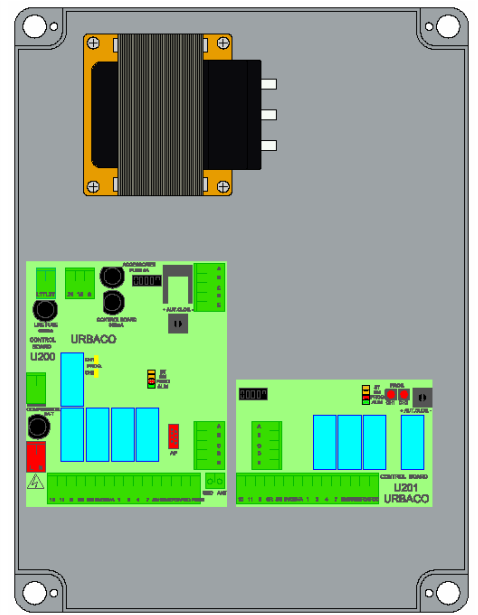
1.2. Case layout:



Case closed



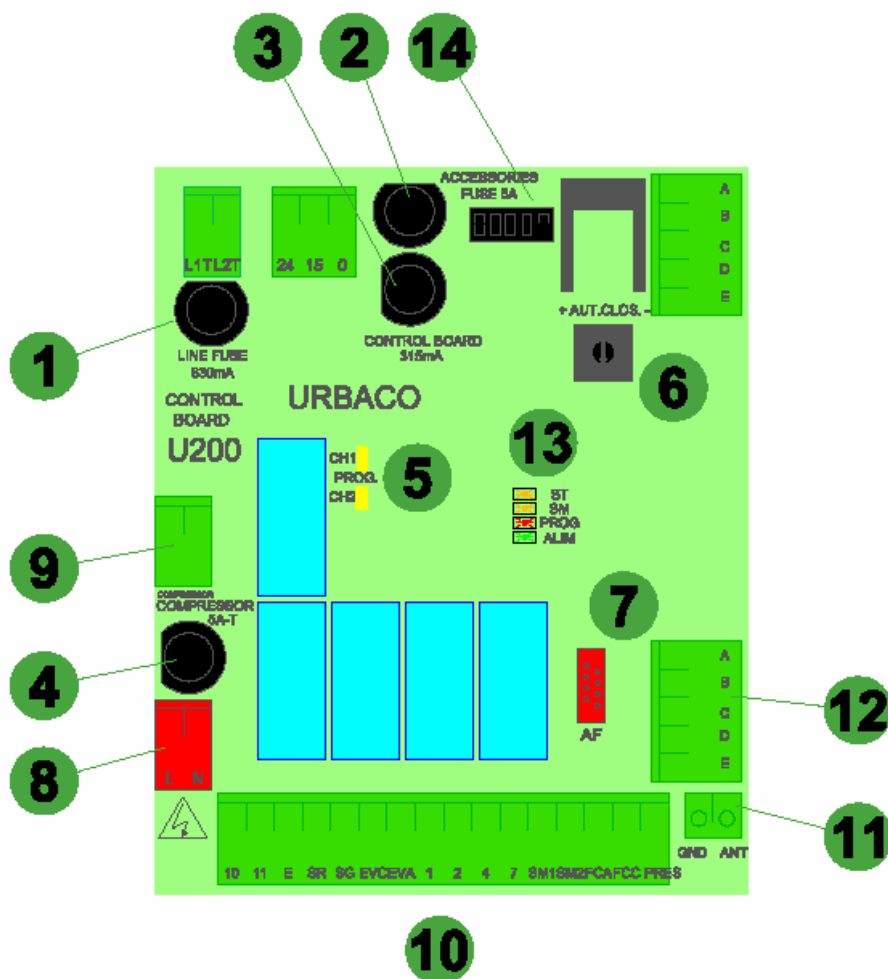
Case with U200 board



Case with U200 board and U201 add-on-card

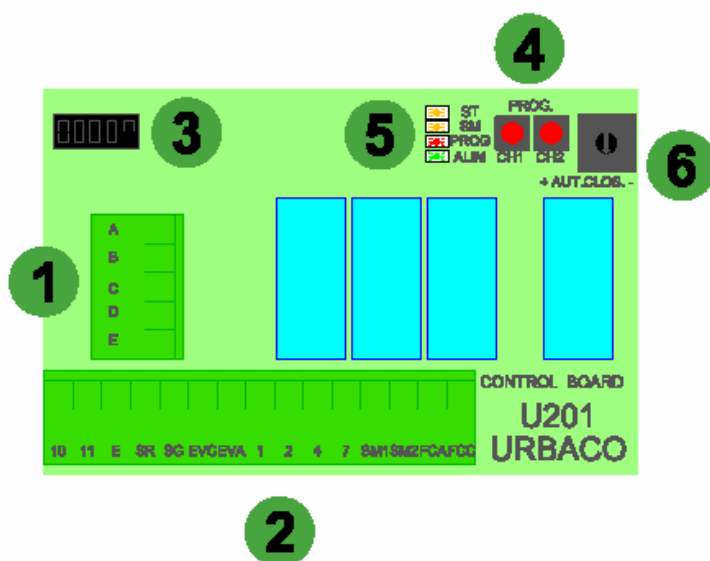
1.3. Description of the U200 motherboard and U201 add-on-card:

1.3.1. The U200 motherboard:



1. Fuse: Line 630 Ma
2. Fuse: Accessories 5A and solenoid valve
3. Fuse: Motherboard 315 mA
4. Fuse: Compressor 5A T
5. Programming switches for CH1 and CH2 radio transmitters
6. Time control setter before automatic rise
7. Sockets for CAME plug-ins: AF43S, AF43SM, AF43SR, AF30, AF150
8. 230V mains supply terminal
9. 230V compressor supply terminal
10. Terminal strip
11. Radio antenna terminal
12. U201 junction terminal
13. LED status indicators
14. Programming switches

1.3.2. The U201 add-on-card for 2nd access



1. U200 junction terminal
2. Terminal strip
3. 2nd access site programming switch
4. Programming switches for CH1 and CH2 radio beepers
5. LED status indicators
6. Time lapse relay before automatic rise

2. TECHNICAL SPECIFICATIONS

General specifications:

Case:	:	ABS plastic
IP:	:	IP 54
IK:	:	IK 8
Cable input:	:	4 inputs for PE Ø10 (not supplied)
Weight:	:	3.5 kg // 7.7 lbs
Dimensions (H x L x D):	:	320 mm x 240 mm x 150 mm // 12.6 x 9.44 x 5.9 in.

Electrical specifications:

Supply tension:	:	230 V, 1-phase
Consumption:	:	<1A (U200 only)
Frequency:	:	50 Hz
Electrical insulation:	:	Class II Class I (open case)

Specifications:

URBACO U200 and U201 control boards permit:

- From 1 to 4 automatic retractable bollards for the pneumatic version
- Management of upper and lower limit switches by URBACO
- Management of induction loops via 1- or 2-way detectors (depending on operating logic mode)
- Compressor surveillance
- Management of external controllers by dry contact
- Operation of 4 solenoid valves (as supplied by URBACO)

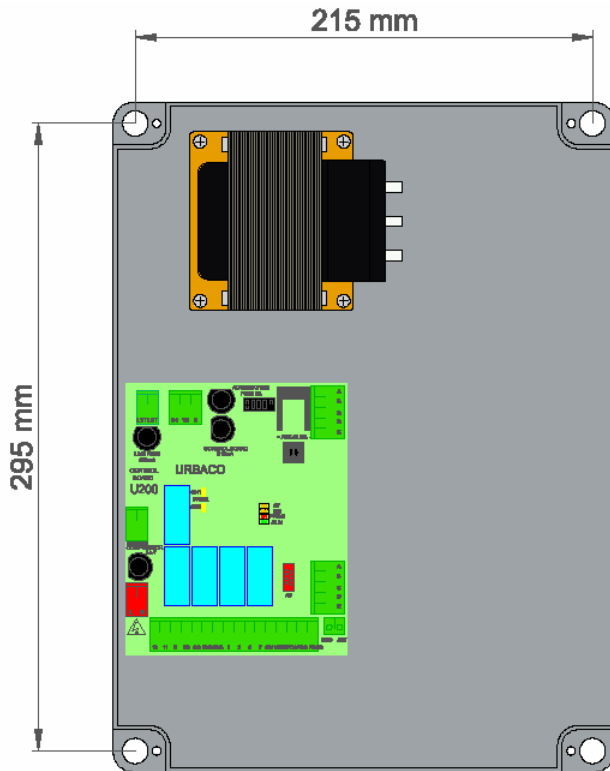
A maximum power of 20W is available on Solenoid Valve output.

The U200 and U201 control boards do not have any diagnose for operation faults except for compressor surveillance.

Limit switches are compatible but no default may be detected or diagnosed.

3. INSTALLATION AND CONNECTIONS

3.1. How to fix the case:



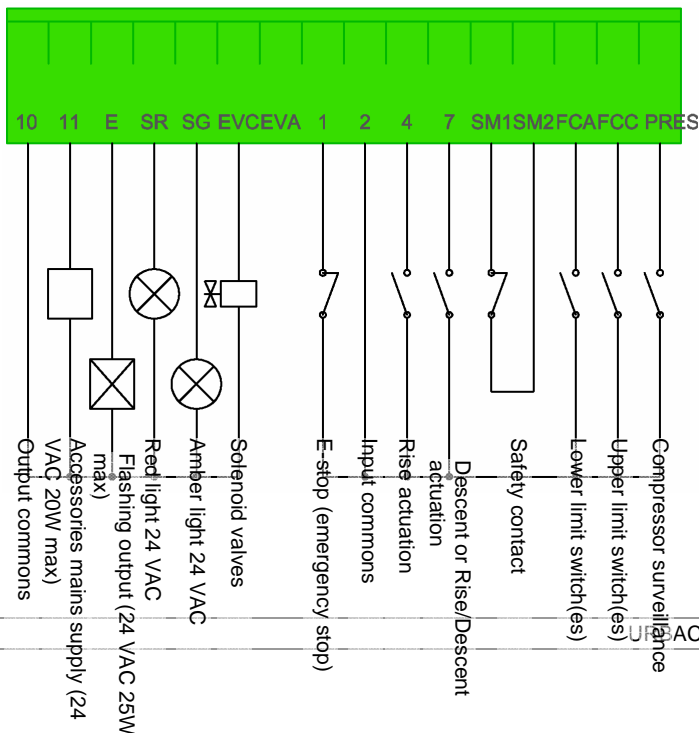
This case is suitable for wall-mount inside any premises or built in a cabinet or CITY-type controller

215 mm = 8.46 in

295 mm = 11.61 in

3.2. How to connect the U200 mother board and U201 add-on-card for 2nd access:

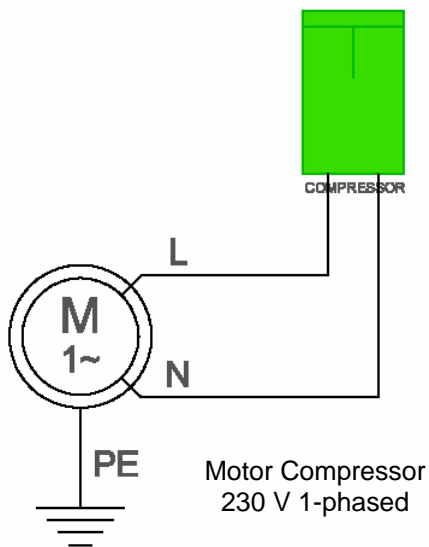
3.2.1. How to connect the bollard and its accessories:



When several bollards are present on 1 access, apply parallel connections for solenoid valves and series connections for limit switches. Compressor surveillance is not available on U201 add-on-cards.

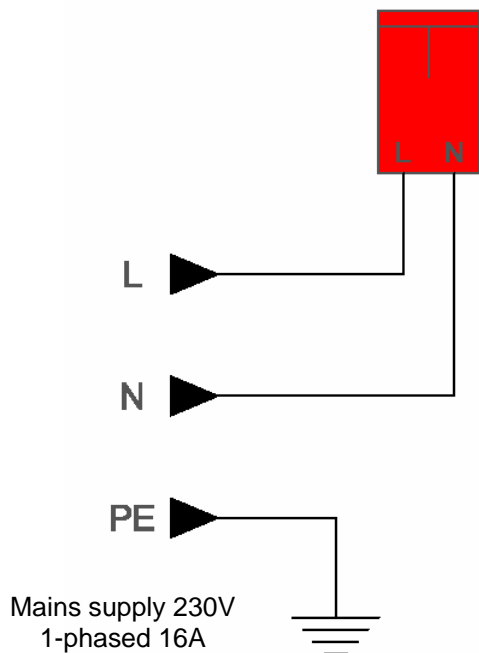
The upper limit switch is not compulsory (programming) but highly recommended for the optimal management of bollards

3.2.2. Connecting the compressor:



This supply terminal permits to disconnect the compressor in case of extensive use if the compressor surveillance contact is connected.

3.2.3. Connecting mains supply:

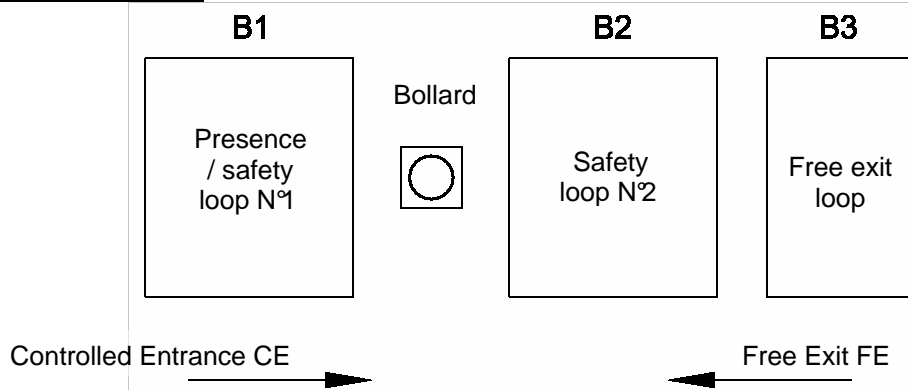


Obligatory use differential protection 30mA for 230V 16A power supply. Earth/ground wire of power supply must be connected to all components with earth/ground connectors. The controller metal body must be earthed/grounded when the U200 not protected with cover.

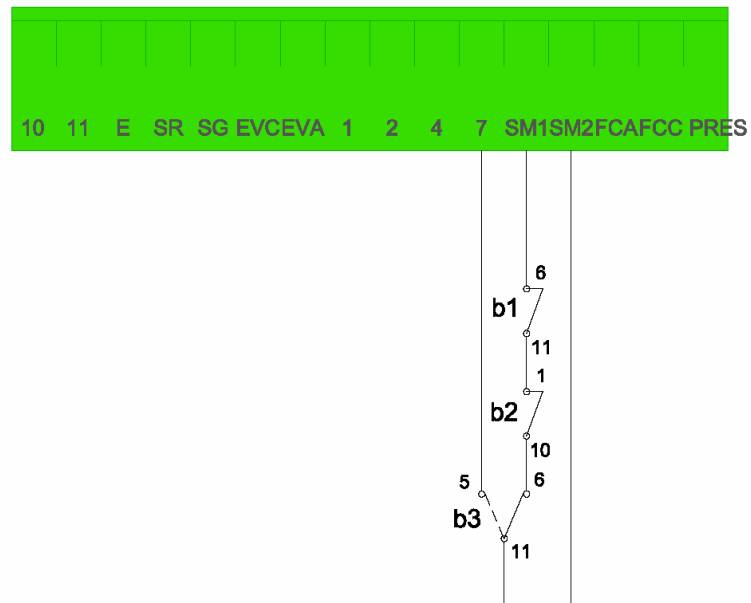
3.3. How to connect the operation logic system:

3.3.1. Controlled entrance and free exit:

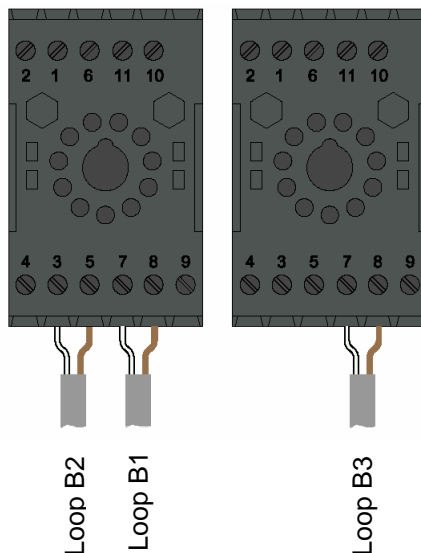
a) Installation of loops:



b) Connecting the detector contacts (sensors):



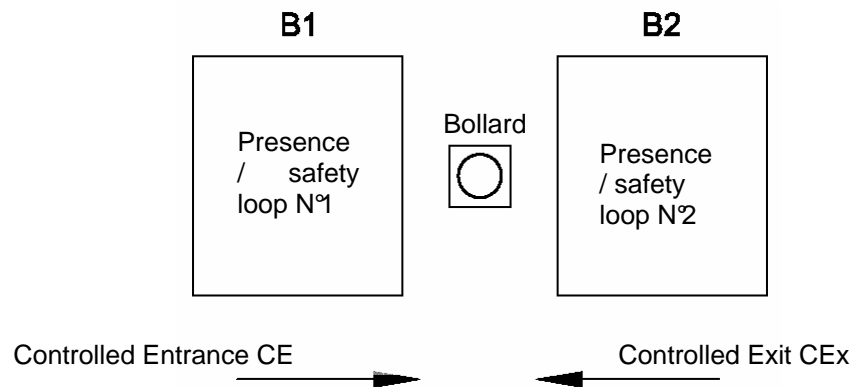
c) Connecting the loops:



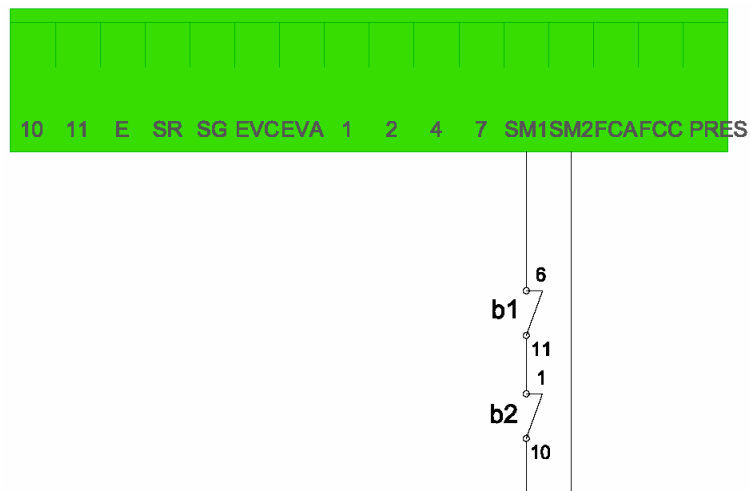
D1: 2-way safety loop detector (B1 and B2)
D2: 1-way free exit loop detector

3.3.2. Controlled entrance and exit:

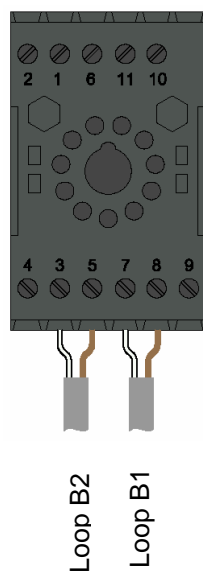
a) Installation of loops:



b) Connecting the detector contacts:



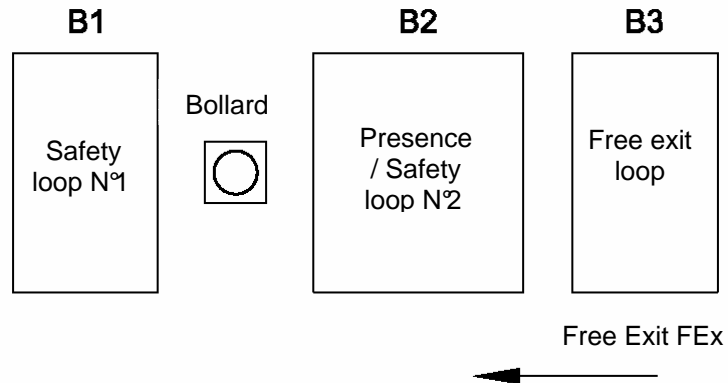
c) Connecting the loops:



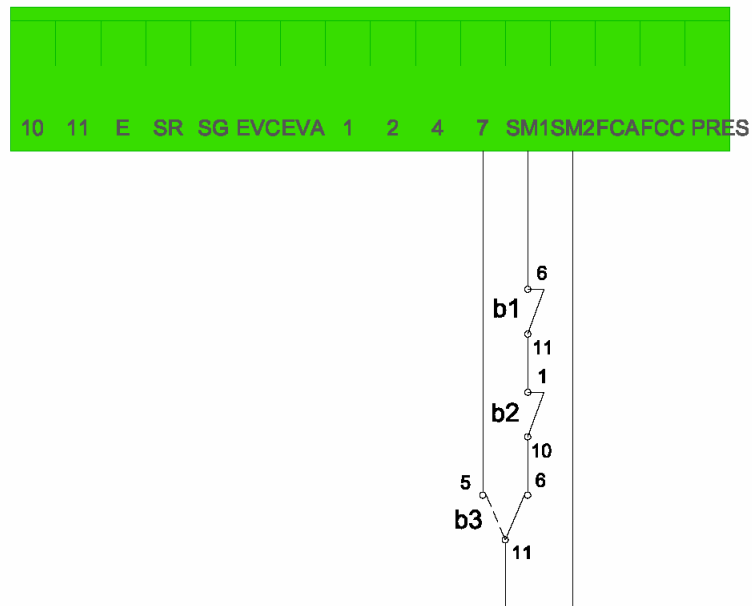
D1: 2-way safety loop detector (B1 and B2)

3.3.3. Free exit:

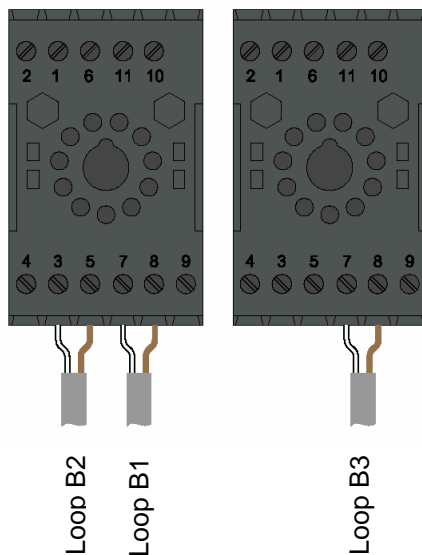
a) Installation of loops:



b) Connecting the detector contacts:



c) Connecting the loops:

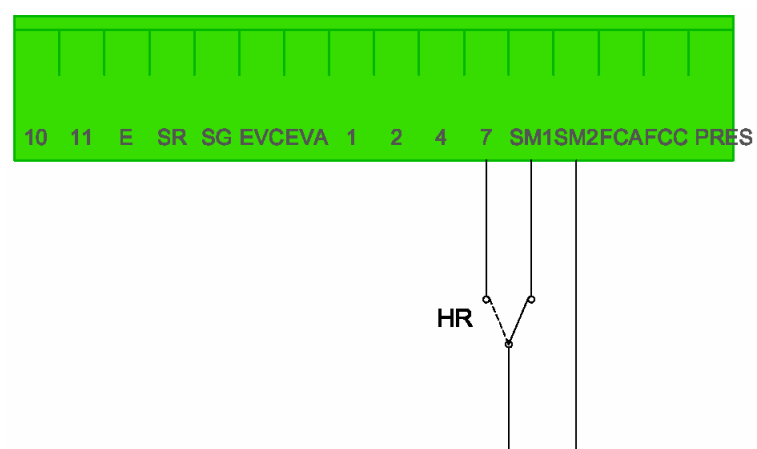


D1: 2-way safety loop detector (B1 and B2)
D2: 1-way free exit loop detector

3.3.4. None:



3.4. How to connect an external timer:

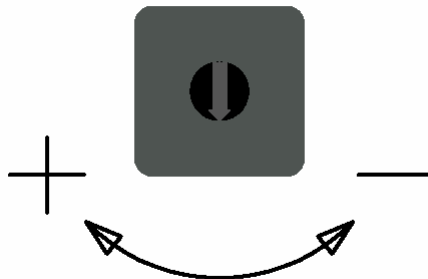


4. PROGRAMMING AND TUNING

Programming can be done using 5 switches:

- SW1** Automatic or manual operated (ON – or – OFF)
ON: Bollard automatically rises once the safety loops (SM1/SM2) are cleared and after time range set by potentiometer.
OFF: The bollard does not rise even when the safety loops (SM1/SM2) are cleared; waiting for actuation by control (See SW2)
- SW2** Control actuator (descent –or– rise/descent)
ON: Actuation of rise on input N°4 and descent on input N°7
OFF: Actuation of rise / descent on input N°7
- SW3** Warning before rise (YES –or– NO)
ON: 3 seconds' notice before bollard rises
OFF: Warning deactivated
- SW4** Type of solenoid valve
ON: Bi-stable solenoid valve
OFF: URBACO mono-stable solenoid valve
- SW5** Descent actuator (with –or– without presence)
ON: Descent actuation with presence (SM1/SM2 open)
OFF: Descent actuation without vehicle presence.

Potentiometer 6 is intended to adjust time frame (warning) before the bollard rises. Time frame can be set on up to 1 minute.



5. OPERATION

5.1. **Power on:** (when all connections are made))

The bollard rises if the board is programmed on automatic and if safety loops are cleared.

5.2. **Power outage:**

The bollard retracts underground and rises back when power is back on if the board is programmed on automatic and if safety loops are cleared.

5.3. **Operation on a descent request (normal passage):**

SW1 = ON and adjustment of warning time frame before bollard rises.

- Descent actuation with presence (SW5=ON)

The descent actuation will only be taken into account if a vehicle is present on presence / safety loop N°1 (SM1/SM2 open)

In this case, the bollard rises once the safety loops have been cleared (SM1/SM2 closed) and after the warning time (if SW3 = ON)

- Descent actuation without presence (SW5=OFF)

The bollard retracts immediately each time it is actuated down and rises once the safety loops have been cleared (SM1/SM2 closed) and after the warning time (if SW3 = ON)

5.4. **Operation in manual mode (rise and descent by controller):**

SW1= OFF and SW2 = OFF

Input N°7 is where the bollard up and down receives impulses to do so.

An impulse on 7 immediately triggers the bollard down (conditioned by SW5), a second impulse will trigger the bollard back up if no vehicle is present on the safety loops (SM1/SM2 closed) and after the warning time (if SW3 = ON).

SW1 = OFF and SW2 = ON

Input N°7 triggers the bollard down and input N°4 triggers the bollard up.

An impulse on 7 immediately triggers the bollard down (conditioned by SW5), an impulse on N°4 will trigger the bollard upward if no vehicle is present on the safety loops (SM1/SM2 closed) and after the warning time (if SW3 = ON).

5.5. **Operation of emergency stop mode:**

The emergency stop button added to the system will trigger the bollard down. As long as it is pushed in, the bollard cannot rise. If the button is released, the bollard remains retracted (down). The bollard needs to be actuated up by remote control to be able to rise again. This operation mode is in compliance with the 'machine directive'

5.6. **Operation on a free exit:**

Wiring a free exit detector to the system is another way to trigger the bollard down. Bollard will rise again like for a normal drive-through situation.

5.7. **Safety during rise:**

- Without upper limit switch: securities are active for the 18 seconds' time lapse relay after activation of solenoid valve.
- With upper limit switch: securities are active as long as the upper limit switch is not activated.

As a standard, URBACO bollards are equipped with upper and lower limit switches. It is recommended to have them connected.

5.8. Locking in the upward position:

- Without upper limit switch: after the 18 seconds' time lapse relay from the moment the solenoid valve is activated.
- With upper limit switch: securities are active as long as the upper limit switch is not activated.

As a standard, URBACO bollards are equipped with upper and lower limit switches. It is recommended to have them connected.

5.9. Operation of compressor surveillance:

A dry contact on pressure gauge is used to control time during which compressor is in service. When motor is on, the contact is closed. When the motor stops, the contact opens. As soon as the solenoid valve is actuated, time lapse relay starts. If the compressor turns for 5 minutes, operation is stopped.

5.10. Compressor management:

The compressor works on its own. The 230V mains supply is continuous in normal operation. The pressure gauge built in runs the 'on' and 'off' status of the compressor to maintain air pressure in circuit.

5.11. Loss of upper limit switch while bollard locked upward:

Does not affect system

5.12. Visualisation LEDs:

ST = ON → STOP during rise – OFF → Normal
SM = ON → SAFETY activated – OFF → NORMAL
PROG = Programming of radio beeper
ON = → board powered on

5.13. Negative security / Failsafe:

Negative security (failsafe) is meant to maintain the bollard upward in case of a power outage. This function is not directly managed by the U200 board but this can be done by supplying a counter-valve between 10 and SR; the counter-valve is placed on the normal solenoid valve exhaust.

5.14. Maximum number of bollards

4 x bollards maximum, whatever the size and diameter.

NB: the type of compressor used also determinates the number of bollards (see documentation on compressors).

5.15. Traffic lights indicating bollard status

Red light = steady when the bollard is upward

Flashing when the bollard is in motion.

Amber light = flashing when the bollard is down (retracted)

NB: the lower limit switch is imperative for installations using traffic lights.

5.16. Access default

No default management, except for compressor surveillance.

6. MAINTENANCE

No special maintenance is prescribed for the U200 ; technical checkups are however advisable to control the general state of material (absence of dust, humidity...), operationality of safety equipments (vehicle detection), operationality of control devices (beeper, contactless cards...) and to tighten loose connections inside the case.

These maintenance interventions are to be envisaged by operators depending where the case is located and how often it is used (intensive or non-intensive use).

7. TROUBLE SHOOTING

Nature of problem	Solutions
The power LED for is off	<ul style="list-style-type: none"> - Check power supply with a controller - Check connections - Check fuses
Radio beepers not active	<ul style="list-style-type: none"> - Beepers are not programmed or badly so. - No vehicle on loop (according to SWS) - Beeper is out of order - Radio board - Antenna
External control device not active	<ul style="list-style-type: none"> - Check power and connections. - Check vehicle presence (SW5) - Check programming or/and configuration
The bollard does not rise	<ul style="list-style-type: none"> - SM1/SM2 open - Time lapse relay for automatic rise is not over - Board is programmed for manual operating (SW2)
The bollard does not rise even when power is on	<ul style="list-style-type: none"> - Try impulse on N7 - SM1/SM2 open
Traffic lights are not working correctly	<ul style="list-style-type: none"> - Check connections of limits switches (they may have been inverted)
Compressor does not start	<ul style="list-style-type: none"> - Check fuses - Check connections - Check compressor



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