USER'S GUIDE TO SIEMENS's 'LOGO!' PLC

CONTENTS

1. PRESENTATION

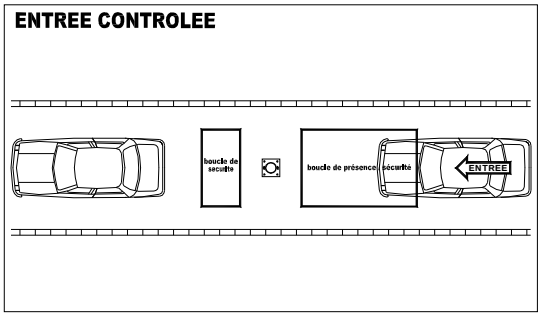
1.1. GENERALITIES

This is a quick start guide describing the installation and operation of SIEMENS' LOGO! PLC with the PnStd Version 1.000 software meant for the management of access control with pneumatic URBACO bollards, and HyStd Version 1.00 software meant for the management of access control with hydraulic URBACO bollards.
This program is operational for 1 access with traffic lights and built-in weekly clock.
The use of limit switches (upper and lower) is not mandatory. They are intended to secure the operation mode and detect errors and defaults on access site.
Surveillance of the compressor is possible with stop when the compressor is working non-stop.
The PLC screen and keyboard are intended to help analyze the errors and defaults, to check on the operating mode entered (temporizations, limit switches …), to set date and time and access the weekly clock.
Programming, as entered by the user, is subject to memory back-up time (at least 80 hours) in case of a power outage.
In case of memory loss (e.g., if the PLC is disconnected for more than 48 hours), the original program will be automatically reloaded.

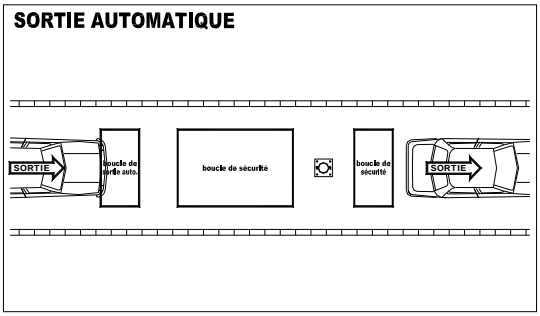
The different operation modes below are the result of modifications made onto loop connections on PLC inputs.

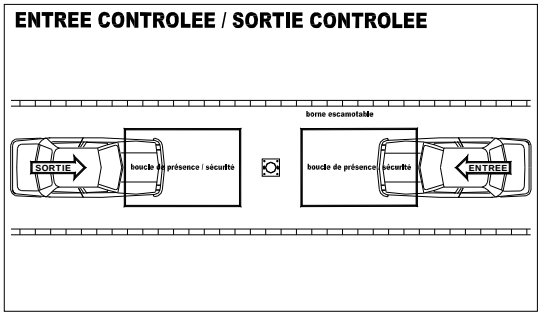
1.2. Situations:

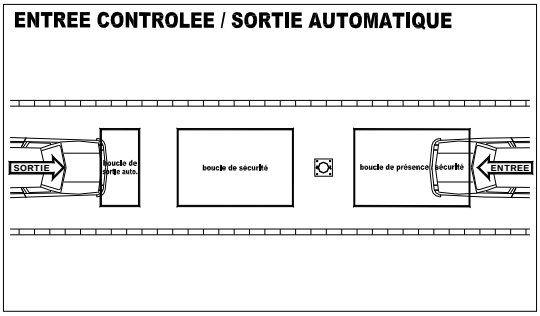
Controlled Entrance



Free Exit







Controlled Entrance / Controlled Exit

Controlled Entrance / Free Exit

2. BOLLARD OPERATION MODE

2.1. Vehicle driving through:

When not in use, the traffic light is red and the bollard upward.
A vehicle drives over the presence loop.
An external actuator (beeper, card/badge reader, keypad …) sends an impulse to the control unit.
The bollard moves down and retracts.
The red light flashes, or remains steady, depending on program entered for descent.
When the bollard is retracted, the traffic light turns green/yellow (flashing or steady, depending on program entered).
The bollard remains retracted as long as the vehicle has not completely passed over the security loop.
As soon as the vehicle leaves the security loop, the red light flashes during pre-warning time (programmable).
Once temporization is over, the bollard rises back.
The red light flashes, or remains steady, depending on program entered for rise.
Once the bollard is upward, the flashing red light remains steady.

If a vehicle shows up onto the security loop during pre-warning phase, or while the bollard is rising up, the bollard moves back down again and the light turns to yellow/green.
This cycle is resumed when the security loop is free again.

2.2. Free Exit :

The cycle is similar as above, only actuation process is different.
To open access, a vehicle must be on free exit loop AND security loop for 2 seconds (programmable) to actuate the bollard down.

2.3. Forced opening :

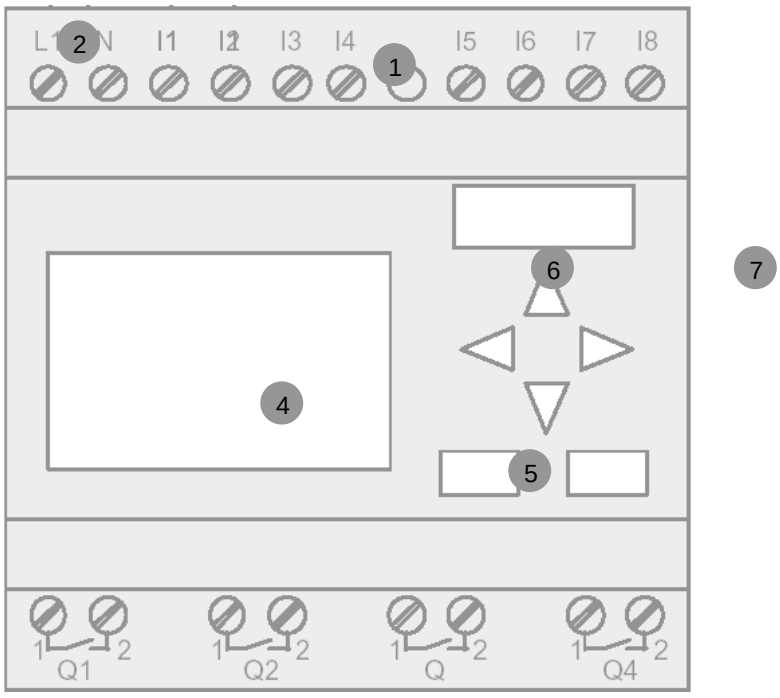
Priority descent of the bollard is possible with the help of a push button (to be connected). The bollard is kept down as long as this input is on 0 Volt.
The lack of any voltage on this input results in the bollard(s) descending until the information is updated and relayed again.
When the opening is requested, the bollard moves down and the traffic lights work according to program entered.
When the process is over, the red light starts flashing during notification temporization before the bollard moves upward again (pre-warning).
When the bollard is rising, the traffic lights work according to program entered.
If a vehicle shows up onto the security loop during pre-warning phase, operation mode is similar as described in 2.2.

2.4. Switching tension on :

When tension is on, the notification temporizer turns the red light on, flashing, before the bollard moves upward (pre-warning).
When the bollard is rising, the traffic lights work according to program entered.

3. THE PLC

3.1. Presentation



The SIEMENS **LOGO!** PLC presents: 3

Upper part: - a connection rack with 8 inputs (I1 to I8). (1)
- a supply rack (L1 – N). (2)

Lower part: - a connection rack with 4 outputs (Q1 to Q4). (3)

Front plate: - a multi-character display screen (4)
- a board with 6 keys (5)
- a compartment to accommodate the program cartridge (optional). (6)
- a connector for input or output expansions. (7)

To run the program, validate “START” in the menu.

In « STOP » mode, the program will not run and all outputs are deactivated.

The PLC screen shows date and time, or potential errors and defaults, when in operation mode.

3.2. Technical data

PLC LOGO! with 24Vac supply, 24Vac inputs, and relay outputs.

General technical data:

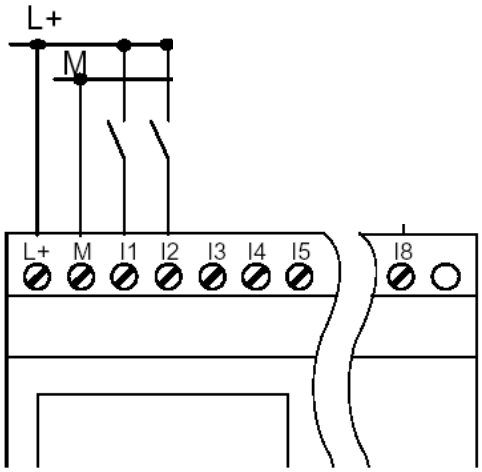
Criterion	Tested in accordance with	Values
LOGO! : • Dimensions W x H x D • Weight • Installation		72 x 90 x 55 mm – *2.83 x 3.54 x 2.16 in.* Approx. 190 g / *6,7021 oz* On 35 mm / *1.37 in* DIN rail 4 WM wide or wall-mounting.
LOGO! expansion module: • Dimensions W x H x D • Weight • Installation		36 x 90 x 55 mm – *2.83 x 3.51 x 2.16 in.* Approx. 90 g / *3.17 oz.* On 35 mm / *1.37 in.* DIN rail 2 WM wide or wall mounting.
Ambient weather conditions		
Ambient temperature Horizontal installation Vertical installation	Low temperature to IEC 60068-2-1 High temperature to IEC 60068-2-2	0°C/32°F to 55°C/131°F 0°C/32°F to 55°C/131°F
Storage / Shipping		-40°C/-40°F to +70°C/+158°F
Relative humidity	IEC 60068-2-30	from 10 to 95% No condensation
Air pressure		795 to 1,080 hPa
Pollutants	IEC 60068-2-42 IEC 60068-2-43	SO_2 10 cm^3/m^3, 4 days H_2S 1 cm^3/m^3, 4 days
Ambient mechanical conditions		
Protection Mode		IP 20
Vibrations	IEC 60068-2-6	5 to 9 Hz (constant amplitude 3,5 mm / 0.13 in) 9 to150 Hz (constant acceleration 1 g / 0.03 oz)
Shock	IEC 60068-2-27	18 shocks (half-sine wave 15g / 11 ms)
Drop	IEC 60068-2-31	Drop height 50 mm
Free fall (packaged)	IEC 60068-2-32	1 m / 3.28 ft
Electro-magnetic compatibility (EMC)		
Noise emissions	EN 55011/A EN 55022/B EN 50081-1 (domestic area)	Limit-value class B group 1
Electrostatic discharge	IEC 61000-4-2 Severity 3	8 kV air discharge 6 kV contact discharge
Electromagnetic fields	IEC 61000-4-3	Field strength 10 V/m
HF currents on cables and cable shielding	IEC 61000-4-6	10 V
Burst pulses	IEC 61000-4-4 Severity 3	2 kV (supply and signal cables)
High energy surge	IEC 61000-4-5 Severity 3	1 kV (supply cables) symmetrical 2 kV (supply cables) asymmetrical
Safety to IEC / VDE		
Clearance and creepage distance rating	IEC 60664, IEC 61131-2, EN 50178 cULus following UL 508	Fulfilled
Insulation strength	IEC 61131-2	Fulfilled

Technical specifications:

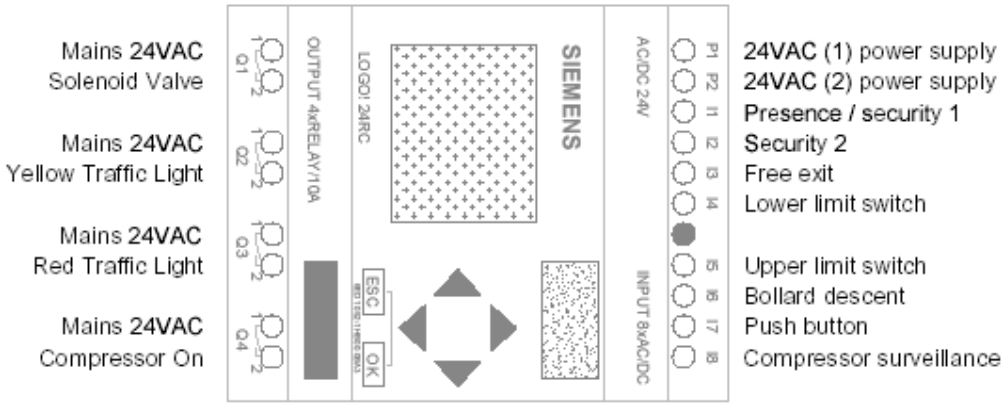
Power Supply	
Input / Supply voltage	24 V CA/CC
Permissible range	20,4 ... 26,4 V CA 20,4 ... 28,8 V CC
Permissible mains frequency	47 ... 63 Hz
Current consumption 24 V CA 24 V CC	 40 ... 110 mA 20 ... 75 mA
Voltage failure buffering	typ. 5 ms
Power loss at 24 V CA 24 V CC	 0,9 ... 2,7 W 0,4 ... 1,8 W
Backup of the real-time clock at 25°C / 77°F	typ. 80 h
Accuracy of the real-time clock	typ. ±2 s / day
Number	8 commutation P or N
Electrical isolation	no
Input voltage L1 Signal 0 Signal 1	L < 5 V CA/CC > 12 V CA/CC
Input current at Signal 0 Signal 1	 < 1,0 mA > 2,5 mA
Delay time at 0 to 1 1 to 0	 typ. 1,5 ms typ. 15 ms
Line length (unshielded)	100 m / 109,36 yds
Number	4
Output type	Relay outputs
Electrical isolation	yes
In groups of	1
Control of a digital input	yes
Continuous current (I_{th})	max. 10 A per relay
Mechanical	10 Hz
Electrical	-
Ohmic load / Lamp load	2 Hz
Inductive load	0.5 Hz

3.3. Connecting LOGO!

The PLC inputs being linked by the potential, they therefore require the same reference potential (chassis ground) as the power supply.



3.4. Standard Wiring Diagram



3.5. The program cartridge

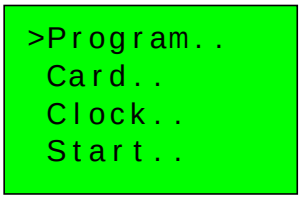
3.5.1. Presentation :

The program cartridge is an EEprom which contains the PLC operation program. It permits to update the program, to reload it if the PLC has been through some electrical malfunction or has been cut off power for a length of time superior to backup capacity.
Note: This cartridge is not supplied for systems installed in France. Only system with specific programming or installed abroad include this cartridge.

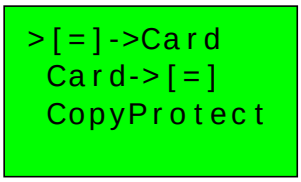
3.5.2. Upgrading or Program Reloading Procedure:

To copy a program from the PLC cartridge, proceed as follows:

1. Position the program cartridge
2. Activate the PLC programming mode (ESC / >Stop).



3. Move ">" onto '**Card**': Key ▼ or ▲.
4. Press on **OK**. You have now reached the transfer menu.
5. Move ">" onto '**Card -> LOGO**': Key ▼ or ▲.



[=] **= the PLC**

6. Press on **OK**.

The PLC is copying the control program from the cartridge. When LOGO! has finished copying, you will automatically be transferred to the main menu.

Note: The backup cartridge may remain where it is, it does in no way hinder the PLC operating. However, should you wish to remove it, it is not necessary to turn the PLC off, this can be done even with the PLC on.

3.6. Expansions

3.6.1. Input expansions:

Input expansions are intended for the provision of additional inputs. They are used in specific systems.

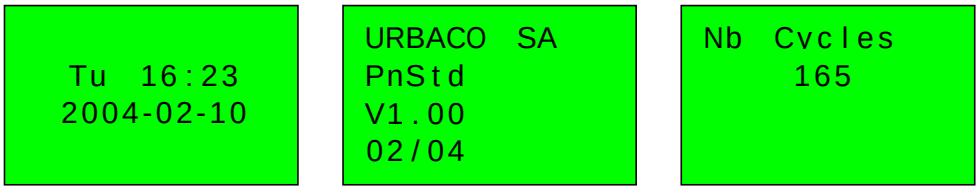
3.6.2. Output expansions:

Output expansions are intended for the provision of additional outputs. They are used in specific systems.

4. VISUALIZATION AND PROGRAMMING

4.1. Presentation

Display screen and keypad are intended for the visualization of statuses, defaults, errors and other messages as well as for the programming of the different operation data.
In normal operating mode, date and time, program version and number of cycles are displayed.

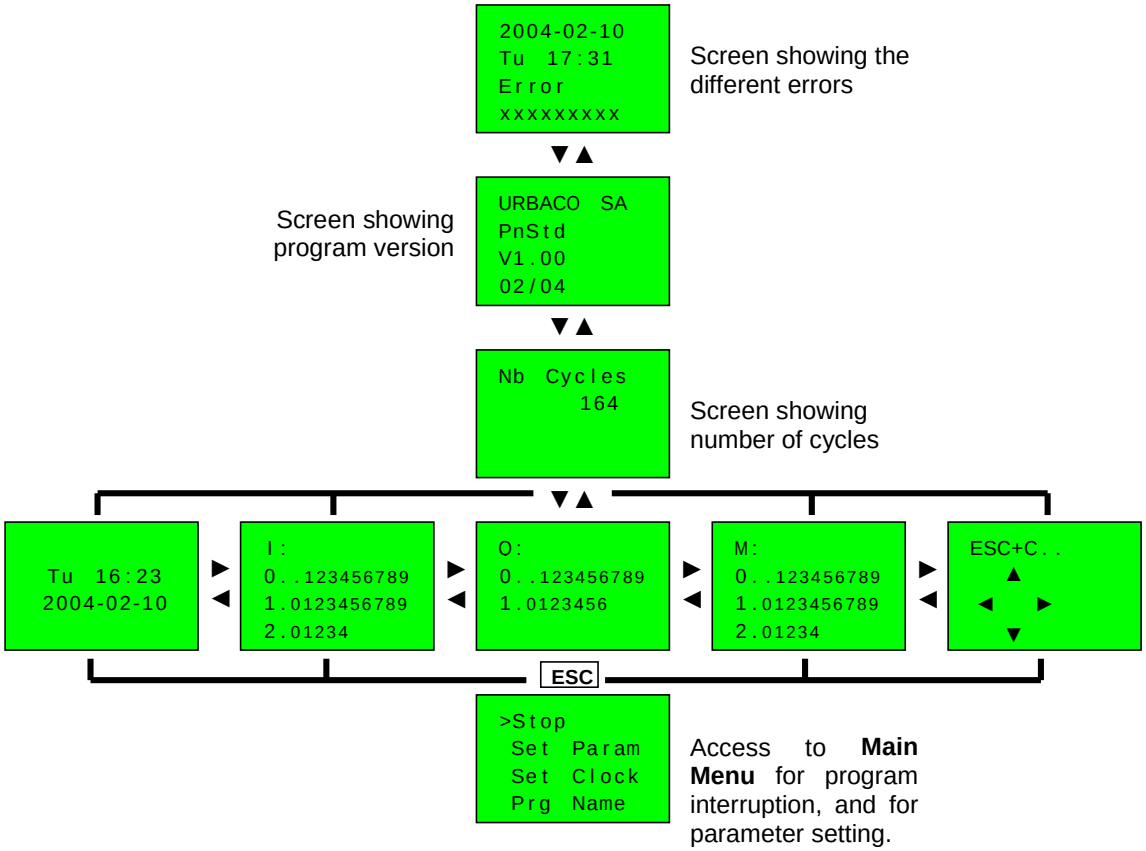


Keys:

With keys ▲ ▼, you can change screen vertically, move around in the menu, increase or decrease a value within program.
With keys ◄ ►, you can change screen horizontally, move along the different characters of any program value on display (tens, units, seconds …).
With key **ESC,** you can de-validate in case of a keyboarding error or go back to previous menu level.
With key **OK,** you can call for the modification of a program value, or validate it, or enter the selected menu.

4.2. Screens:

With the display screen, it is possible to visualize date and time, the program version, the number of cycles, the status of entrances and exits, the potential errors on compressor, on the lower limit switch, on the upper limit switch, and on both limit switches at the same time. As for errors, time and date of occurrence are indicated.
Keys are intended for navigation between the different screens.

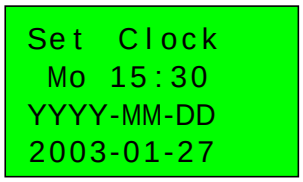


4.3. Programs and Parameters:

4.3.1. How to set time and date:

It is possible to set time and date in programming mode

1. Activate programming mode.
2. In programming menu, select "Set Clock" (Key ▼ or ▲) and press on **OK**.



Cursor is positioned on the day of the week.

3. Select the day of the week: Key ▼ or ▲.
4. Move the cursor onto next position: Key ◄ or ►.
5. Modify the value displayed with key ▼ or ▲.
6. Set time, repeat steps 4 and 5.
7. Set date, repeat steps 4 and 5.
8. Confirm your entry: press **OK**.

4.3.2. Operating parameters:

Different parameters may be set to operate the bollard. These parameters are the following:

- Tps Comp: on the pneumatic version the **Compressor Surveillance Time** permits to cut power off the compressor if an air leak happens on the pneumatic circuit, and results in the compressor working non-stop. The value by default is set on **5 min.** It is of utmost importance that it is not set on less than 1 minute for reasons of good functioning. On the hydraulic version, it stands for the maximum time **the compressor will be functioning**, in other words, the set value will only indicate the length of time during which the hydraulic compressor can operate. No error should happen on the compressor on hydraulic version.

- Autom.: the "Automatic" function mode (ON) or manual (OFF) permits to define that the bollard moves upward once security has been released or by substitute actuation. The value by default is set on **ON**, in other words, in automatic function mode.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).

- Tps Prea.: **Notification Time** permits pre-warning (red light) during a set length of time before bollard actually moves upward. The value by default is set on **2s** (2 seconds). If the value is longer than that, it entices tail-gating.
  Version: **Pn Std** and **HyStd** (Present on pneumatic and hydraulic versions).

- LLS: permits to select an operating mode with lower limit switch (ON) or without lower limit switch (OFF). The value by default is set on '**ON',** which means with lower limit switch operation.
  Version: **PnStd only** (Pneumatic only, this parameter is not necessary on hydraulic versions).
- ULS: permits to select an operating mode with upper limit switch (ON) or without upper limit switch (OFF). The value by default is set on '**OFF,** which means without upper limit switch operation.
  Version: **PnStd only** (Pneumatic only, this parameter is not necessary on hydraulic versions).
- Tps SA : **Time set for free exit** which defines the length of time a vehicle has to be over the free exit loop and security loop to trigger the bollard's descent. The value by default is set on **2s** (2 seconds). If this duration is nil, the operation will spontaneously trigger.
  Version: **PnStd** and **HyStd** (Present on the pneumatic and hydraulic versions).
- Feux Fix: permits to select the **type of operating mode for traffic lights** showing bollard status, either steady (ON), or flashing (OFF). The value by default is set on **OFF**, which means with traffic lights flashing.
  Version: **PnStd** and **HyStd** (Present on the pneumatic and hydraulic versions).

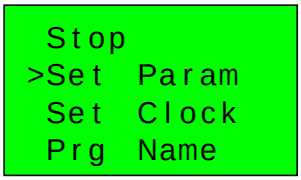
- Ctrl Cde: permits to select the **type of operating mode of the actuator** for bollard descent, either with detection of a vehicle on the security / presence loop (ON), or directly (OFF). The value by default is set on '**ON'**, which means with a validation of the actuation by detection on loop.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).
- Time LLS: the **Time given to Lower Limit Switch** which permits the detection of a default on limit switch. If the PLC doesn't sense the lower limit switch on time, a warning message is sent. The value by default is set on **7s** (7 seconds). It this length of time is too short, messages warning of a default on lower limit switch may occur too frequently.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).
- Time ULS: the **Time given to Upper Limit Switch** which permits the detection of a default on limit switch. If the PLC doesn't sense the upper limit switch on time, a warning message is sent. The value by default is set on **7s** (7 seconds). If this length of time is too short, messages warning of a default on upper limit switch may occur too frequently.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).
- Clock/Timer 1: permits to program a **time slot for free opening** if required. It is possible to choose the day(s) of the week when this should happen, time when this should start and time when this should stop (identical for each day selected). There is no setting by default.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).
- Clock/Timer 2: idem CLOCK/TIMER 1.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).
  Clock/Timer 3: idem CLOCK/TIMER 1.
  Version: **PnStd** and **HyStd** (Present on pneumatic and hydraulic versions).
- TimeSecu: **Security time** permits to define the time for activation of the security span from the moment the bollards are operated upwards. The value by default is set on **5s** (5 seconds). If the value is longer than that, it entices tail-gating.
  Version : **PnStd** and (Present on pneumatic and hydraulic versions).

4.3.3. How to set operation parameters:

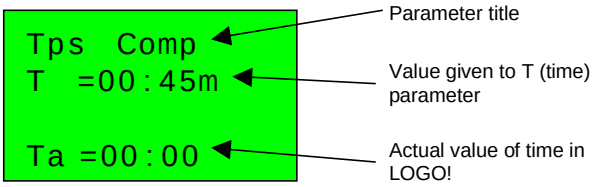
Selection of parameters :

To select a parameter, proceed as follows:

1. In main menu, select option "Set Param" : Key ▼ or ▲.



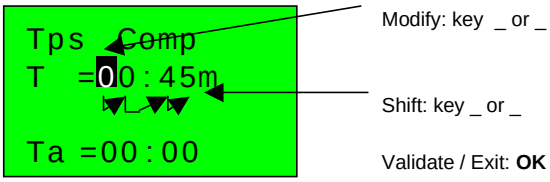
2. Press on **OK**.
   LOGO! displays the first parameter. If no parameter may be selected, you may return to the parameter menu using the ESC key.



Modification of parameters :

To modify a parameter, first select which one is to be modified.
To modify its value, proceed as follows:

1. Shift cursor to wherever you wish to modify something using key ◄ or ►.
2. Modify the value using key ▼ or ▲.
3. Validate the value using the **OK** key.



Caution:
When you modify parameters of time in RUN mode, you can also modify the time base (s = seconds, m = minutes, h = hours). If you modify the time base, the actual value of time is set back to 0.

5. WIRING

Inputs				Outputs			
Marks	Label	Access	Function	Marks	Label	Access	Function
I1	/BP	1	Presence / security loop	Q1	EV	1	Solenoid valve
I2	/BS	1	Security loop	Q2	FJ	1	Yellow light
I3	/BSA	1	Free exit loop	Q3	FR	1	Red light
I4	BB	1	Lower limit switch	Q4	.ACOMP	1	Compressor Stop
I5	BH	1	Upper limit switch				
I6	COM	1	Descent actuator				
I7	/CP	1	Push button				
I8	COMP	1	Compressor surveillance				

The **/** before the label indicates that the signal is active on 0V.
The standard wiring diagram for an access configured as Free Entrance / Exit incl. all options is appended.

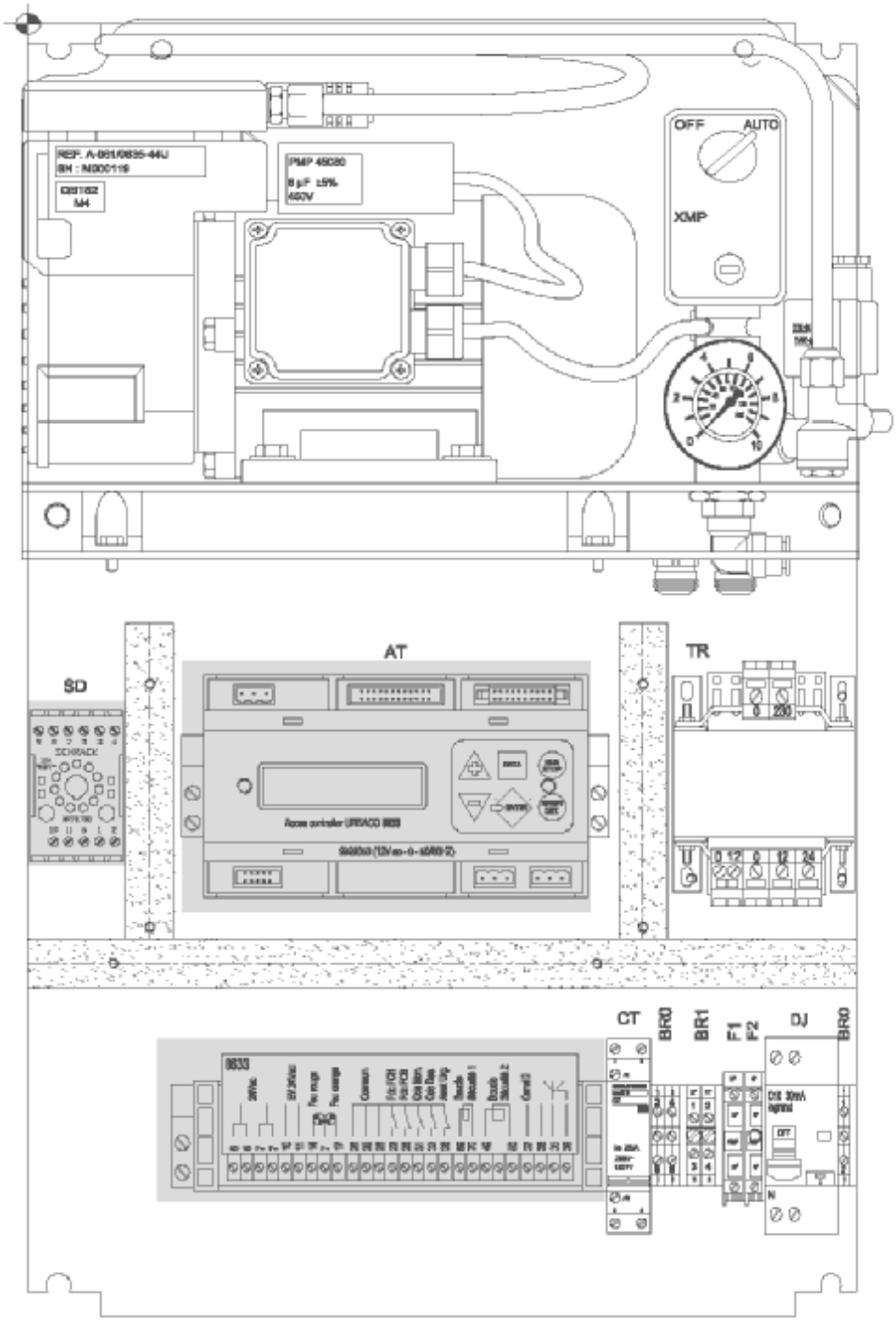
6. HOW TO REPLACE THE 8633B BY THE LOGO! PLC

6.1. Presentation of components:

To replace the URBACO 8633B PLC by Siemens's LOGO!, it is necessary to remove the following components from the control panel:

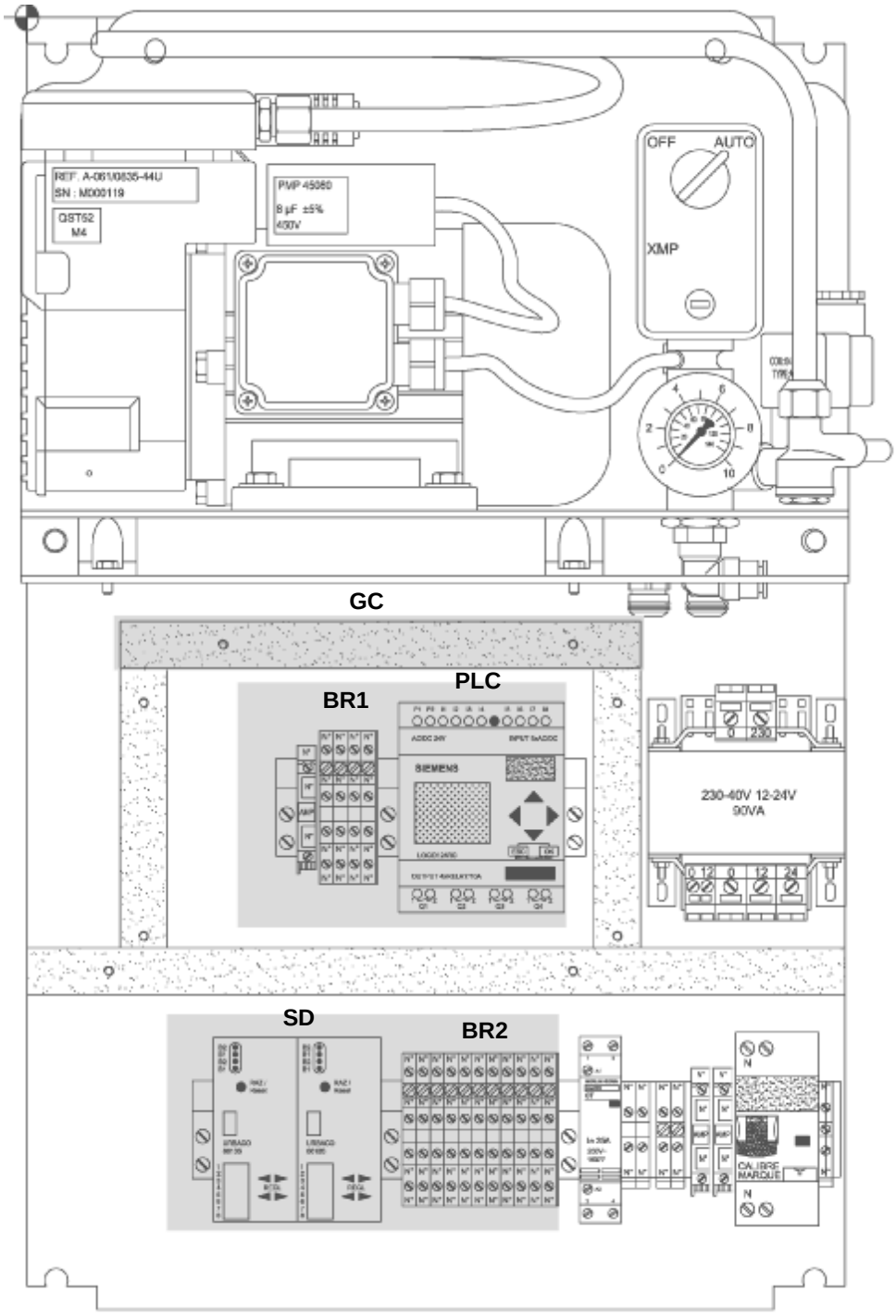
- The 8633B (AT) PLC
- The detector holder (SD)
- The 8633B connection rack
- The DIN rail stopper on the left next to the 8633B connection rack

To do this, please detach all wiring from these elements first.



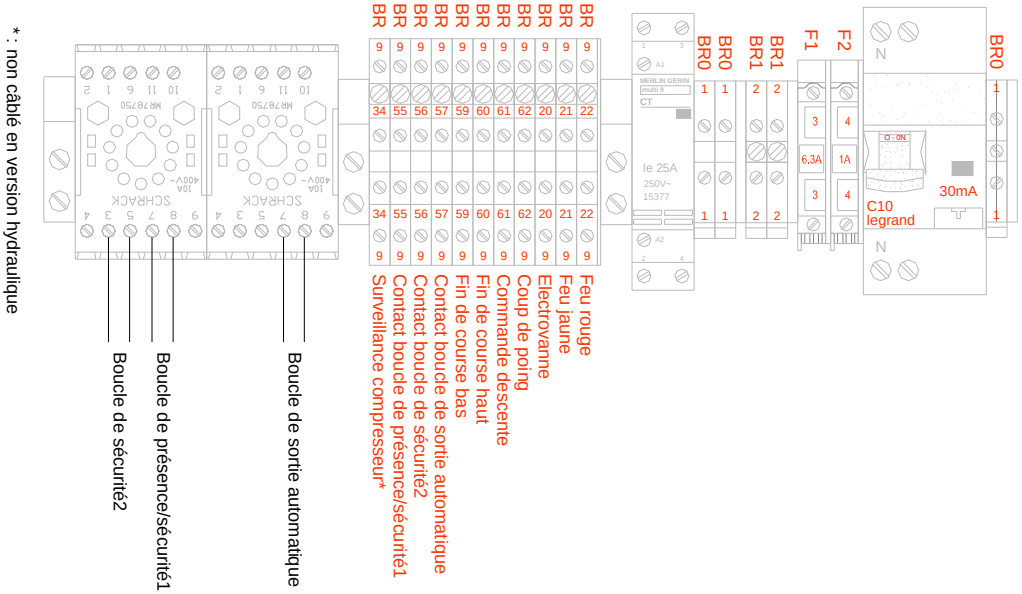
Position the following elements:

- The LOGO! (PLC)
- The dispatching racks (BR1)
- The DIN rail stoppers of LOGO! and of dispatching rack
- The connection racks (BR2)
- The detector holders (if necessary for proper operating) (SD)
- The DIN rail stoppers of the connection rack and detector holders
- The length of cable chute (GC)



6.2. Wiring:

Wiring of the LOGO! PLC must coincide and comply with these inputs / outputs (see §3.4 and §5).



- Red light / Yellow light / Solenoid valve / Push button / Descent actuator / Upper limit switch / Lower limit switch / Free exit loop contact / Security loop contact 2 / Presence Security loop contact 1 / Compressor surveillance
- Free exit loop / Presence Security loop 1 / Security loop 2 / *not wired for the hydraulic version

TRAINING SESSIONS

URBACO S.A. is a recognized training authority competent to organize technical training seminars on the whole line of products manufactured:

- Bollards (fixed, removable and automatic) and Site Furnishings.
- Automated Systems and Access Control.
- Centralized Technical Supervision and Computer Programming

The seminars are held upon a couple of days and are dispensed in various languages.
For any details re. training seminars, please contact URBACO's Export Department.

MAINTENANCE CONTRACT:

Maintenance contracts are provided by URBACO depending on your installations and expectations:

- Preventive maintenance contracts.
- Curative maintenance contracts (with quotation).
- Others: night time intervention… (via our local representation)

Any information re. contracts, contact your local URBACO retailer and / or URBACO Technical Dep't.

EXPORT DEPARTMENT:

Available Monday through Friday from 8:00 a.m. till 12:30 and from 2:00 p.m. till 6:00 p.m.

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