Elpro S20

electronic controller

Up to 2 bollards

- Step-by-step function
- Pedestrian opening
- Prepared for 3 lamps traffic lights
- Automatic or semi- automatic
- Separate connections for electric valve
- External time clock
- Deadman control
- ISC system i.e. integrity supervision

FADINI
l'apricancello

Dis. N. 8219

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CE

GENERAL WARNINGS FOR PEOPLE SAFETY

INTRODUCTION

This operator is designed for a specific scope of applications as indicated in this manual, including safety, control and signaling accessories as minimum required with FADINI equipment. □ Any applications not explicitly included in this manual may cause operation problems or damages to properties and people. □ Meccanica Fadini snc is not liable for damages caused by the incorrect use of the equipment, or for applications not included in this manual or for malfunctioning resulting from the use of materials or accessories not recommended by the manufacturer. □ The manufacturer reserves the right to make changes to its products without prior notice. □ All that is not explicitly indicated in this manual is to be considered not allowed.

BEFORE INSTALLATION

Before commencing operator installation assess the suitability of the access, its general condition and the structure. □ Make sure that there is no risk of impact, crushing, shearing, conveying, cutting, entangling and lifting situations, which may prejudice people safety. □ Do not install near any source of heat and avoid contacts with flammable substances. □ Keep all the accessories able to turn on the operator (transmitters, proximity readers, key-switches, etc) out of the reach of the children. □ Transit through the access only with stationary operator. □ Do not allow children and/or people to stand in the proximity of a working operator. □ To ensure safety in the whole movement area of a gate it is advisable to install photocells, sensitive edges, magnetic loops and detectors. □ Use yellow-black strips or proper signals to identify dangerous spots. □ Before cleaning and maintenance operations, disconnect the appliance from the mains by switching off the master switch. □ If removing the actuator, do not cut the electric wires, but disconnect them from the terminal box by loosening the screws inside the junction box.

INSTALLATION

All installation operations must be performed by a qualified technician, in observance of the Machinery Directive 2006/42/CE and safety regulations EN 12453 - EN 12445. □ Verify the presence of a thermal-magnetic circuit breaker 0,03 A - 230 V - 50 Hz upstream the installation. □ Use appropriate objects to test the correct functionality of the safety accessories, such as photocells, sensitive edges, etc. □ Carry out a risk analysis by means of appropriate instruments measuring the crushing and impact force of the main opening and closing edge in compliance with EN 12445. □ Identify the appropriate solution necessary to eliminate and reduce such risks. □ In case where the gate to automate is equipped with a pedestrian entrance, it is appropriate to prepare the system in such a way to prohibit the operation of the engine when the pedestrian entrance is used. □ Apply safety nameplates with CE marking on the gate warning about the presence of an automated installation. □ The installer must inform and instruct the end user about the proper use of the system by releasing him a technical dossier, including: layout and components of the installation, risk analysis, verification of safety accessories, verification of impact forces and reporting of residual risks.

INFORMATION FOR END-USERS

The end-user is required to read carefully and to receive information concerning only the operation of the installation so that he becomes himself responsible for the correct use of it. □ The end-user shall establish a written maintenance contract with the installer/maintenance technician (on -call). □ Any maintenance operation must be done by qualified technicians. □ Keep these instructions carefully.

WARNINGS FOR THE CORRECT OPERATION OF THE INSTALLATION

For optimum performance of system over time according to safety regulations, it is necessary to perform proper maintenance and monitoring of the entire installation: the automation, the electronic equipment and the cables connected to these.

□ The entire installation must be carried out by qualified technical personnel, filling in the Maintenance Manual indicated in the Safety Regulation Book (to be requested or downloaded from the site www.fadini.net/supporto/downloads).
□ Operator: maintenance inspection at least every 6 months, while for the electronic equipment and safety systems an inspection at least once every month is required. □ The manufacturer, Meccanica Fadini snc, is not responsible for non-observance of good installation practice and incorrect maintenance of the installation.

DISPOSAL OF MATERIALS

Dispose properly of the packaging materials such as cardboard, nylon, polystyrene etc. through specializing companies (after verification of the regulations in force at the place of installation in the field of waste disposal). Disposal of electrical and electronic materials: to remove and dispose through specializing companies, as per Directive 2012/19/UE. Disposal of substances hazardous for the environment is prohibited.

UE DECLARATION OF CONFORMITY (DoC)

Manufacturer: Meccanica Fadini snc
Address: Via Mantova, 177/A - 37053 Cerea - VR - Italy

declare that the DoC is issued under our sole responsibility and belongs to the following product:

Control unit model **ELPRO S20**

is in conformity with the relevant Union harmonisation legislation:
- Electromagnetic Compatibility Directive 2014/30/UE
- Low Voltage Directive 2014/35/UE

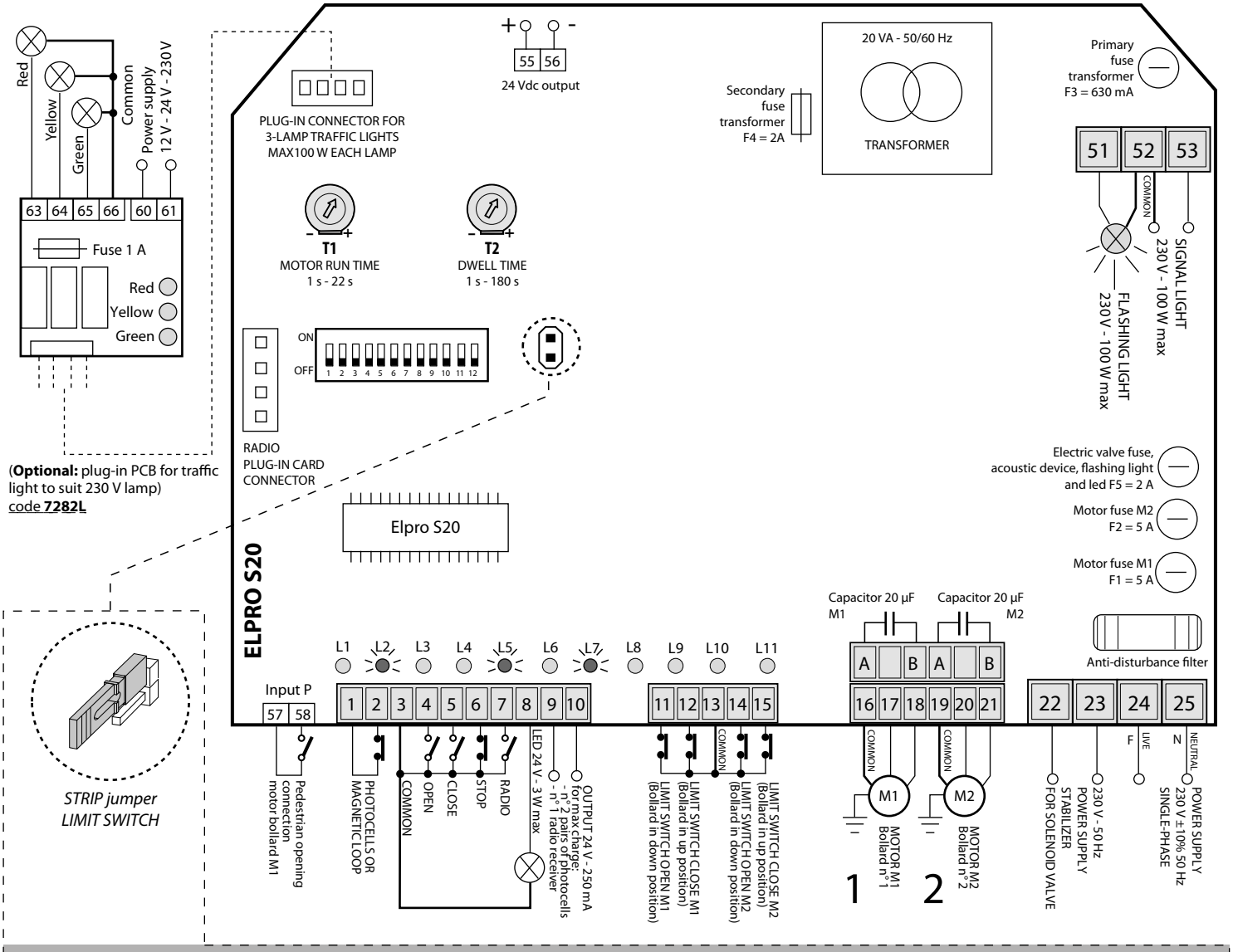
Cerea, 19/04/2017

Meccanica Fadini s.n.c.
Responsible Manager

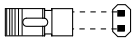
GB

Elpro S20

ELECTRONIC CONTROLLER UP TO 2 AUTOMATIC BOLLARDS, WITH OR WITHOUT LIMIT SWITCH



LIMIT SWITCH DIAGNOSTIC

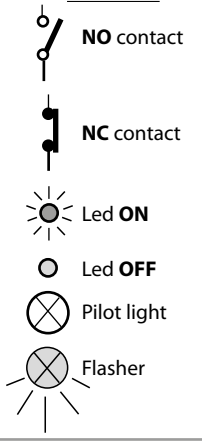


Coral, Vigilo, Talos, Talos M30, Strabuc 930 Opinat range of bollards with limit switch: with the STRIP jumper inserted (as in the picture), Elpro S20 checks cyclicly every 10 minutes that the closing limit switches (post raised) are in the correct position; should any of them fail to be such, only the motor of the post not in position is operated until this is fully up as required.

Note well: whenever **Elpro** S20 is re-powered, wait 10 seconds for the logic to become fully operating again.

The electronic control panel Elpro S20 is designed to operate the Talos, Talos M30, Strabuc 930 Opinat, Coral and Vigilo; power supply is 230 V single-phase.
Elpro S20 is capable of monitoring damages or malfunctioning with the system (ISC).
I.S.C. = **I**ntegrity and **S**upervision **C**ircuit, is a special function of Elpro S20 which can self control the electronic PCB and detect any damages occurring with any components or accessories. In this case, provided that the post is fitted with a release electric valve, lowering is allowed automatically. The manufacturing company declines any responsability for incorrect handling and application; also, it reserves the right to change or update the control panel any time.

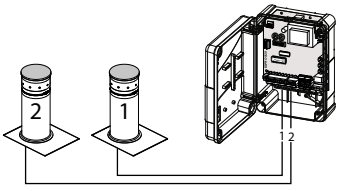
SYMBOLS:



IMPORTANT FOR THE INSTALLATION AND THE CORRECT FUNCTIONING:
- The control box must be installed in a dry and sheltered place; suitable holes are provided with the FADINI universal box for fitting purpose and in case any commercial box is used, this must be adequate to the job.
- Make sure that power supply to the control board be 230 V ±10%.
- Make sure that power supply to the electric motor be 230 V ±10%.
- For distances longer than 50 metres increase the section of the wires.
- Fit the mains to the control box with a high sensitivity, 0,03 A, differential, magnetic-thermal circuit breaker.
- Cables with 1,5 mm² section wires are to be used for the power supply, electric motor and flasher for distances up to 50 m.
- Cables with 1 mm² section wires are to be used for the limit switches, photocells, push buttons and accessories.

N.W.: for applications such as light switching, CCTV, etc. use solid state relays to prevent the microprocessor from being affected.

IN CASE OF FAILURE OF THE PANEL:
- Check the electronic PCB voltage supply is 230 V ±10%.
- Check the electric motor power supply is 230 V ±10%.
- For longer distances increase wire section.
- Check fuses.
- The photocell contacts are closed.
- Check all NC contacts.
- The limit switches are properly connected and work correctly.
- In case the electric valve is fitted, check integrity with all fuses.
- Check that no voltage drop has occurred from the control board to the electric motor.



GB **Elpro S20**

ELECTRONIC CONTROLLER UP TO 2 AUTOMATIC BOLLARDS, WITH OR WITHOUT LIMIT SWITCH

meccanica FADINI

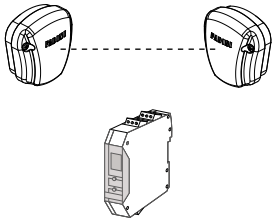
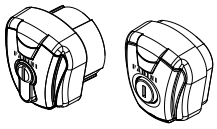
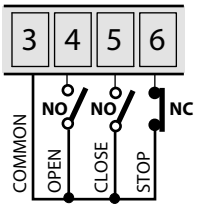
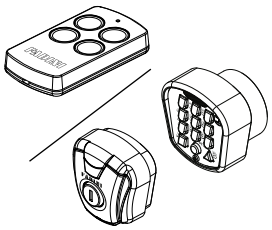
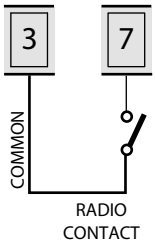
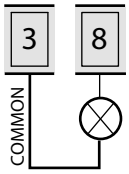
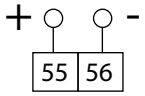
DIAGNOSTIC LEDS

L1 = pedestrian opening, normally **OFF**, alight when a pedestrian open pulse is given
L2 = photocells or loop, normally **ALIGHT**, if obstructed light goes off
L3 = open, normally **OFF**, alight when an open pulse is given
L4 = close, normally **OFF**, alight when a close pulse is given
L5 = stop, normally **ON**, it goes off when a stop pulse is given
L6 = radio, normally **OFF**, alight when a radio pulse is given
L7 = normally **ON**, mains voltage and fuse integrity F1, F2, F3, F4
L8 = limit switch open M1, normally **ON**, it goes off when the post is in down position
L9 = limit switch close M1, normally **ON**, it goes off when the post is in up position
L10 = limit switch open M2, normally **ON**, it goes off when the post is in down position
L11 = limit switch close M2, normally **ON**, it goes off when the post is in up position

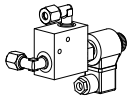
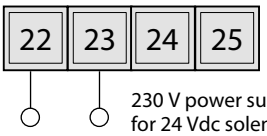
DIP-SWITCHES

1 = ON Photocells or loop stop while opening
2 = ON Radio no reversing while opening
3 = ON Automatic closing
4 = ON Pre flashing activated
5 = ON Radio step by step stop in between
6 = ON Pedestrian opening motor M1 only one post operating
7 = ON Deadman control
8 = Traffic lights (see functions)
9 = Traffic lights (see functions)
10 = ON No lamp on during dwell time
11 = ON Close on dwell time after passage through photocells or over the loop
12 = ON Max working time 90 s. OFF = 18 s

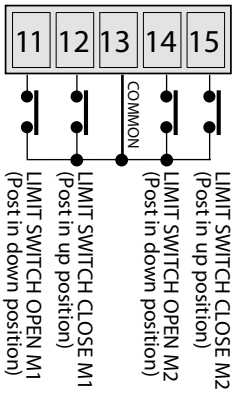
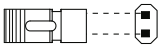
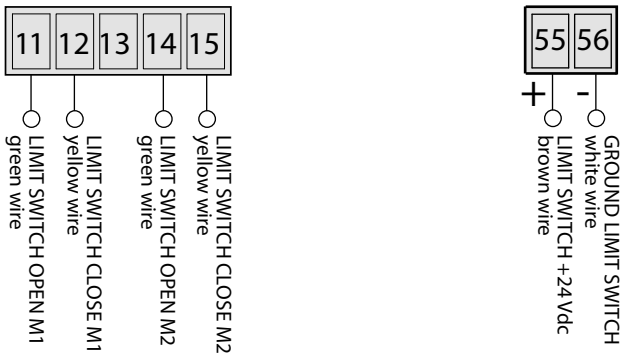
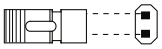
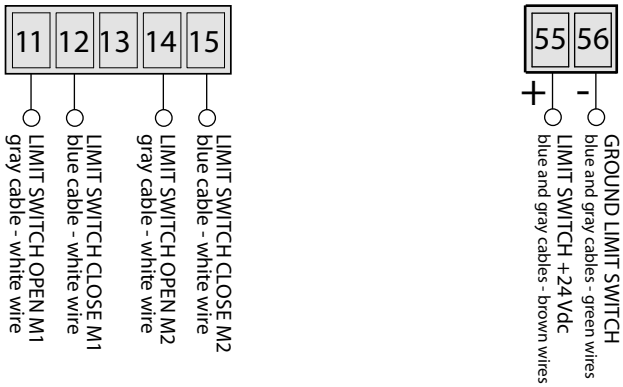
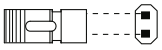
LOW VOLTAGE ELECTRICAL CONNECTIONS

Accessory	*Electrical connections*	*Dip-switch setting and LED indication of functions*
Photocells or loop detectors: 	 Photocells or Loop detectors **24 Vac output** max load: 2 pairs photocells 1 radio receiver	**DIP-SWITCH N° 1 and N° 11:** 1 **ON**: photocells or loop stop while opening, reverse on closing once obstacle is removed **OFF**: photocells or loop do not stop while opening, reverse on closing in caseof an obstacle 11 **ON**: during dwell time, automatic mode (dip-switch 3 = ON) after engaging the photocellsor loop, it closes 5 s later **OFF**: it does not close after engaging the photocells or loop **L2 ON** = no obstacle, it goes off in case of obstuction
Key-switch: 	 NO and NC contacts to be connected to the respective terminals in the key-or button-switches. All of the possible setting combinations are described in the instructions sheets included with the respective control accessories	**L3 OFF** = no OPENING contact, it goes on whenever an opening pulse is given **L4 OFF** = no CLOSING contact, it goes on whenever a closing pulse is given **L5 ON** = STOP contact closed, it goes off whenever a stop pulse is given
Radio contact (step by step mode): 	 - Opening only: **dip 2 = ON** and **dip 5 = OFF** - Gate travel reversing by any pulse **dip 2 = OFF** and **dip 5 = OFF** - Step by step: open-stop-close-stop **dip 2 = OFF** and **dip 5 = ON** - No new pulse is accepted in opening. In dwell phase and in closing any new pulses tops and reverses gate travel: **dip 2 = ON** and **dip 5 = ON**	**DIP-SWITCH N° 2 and N° 5:** 2 **ON**: it does not reverse on opening **OFF**: it reverses at any pulse 5 **ON**: step by step with stop in between **OFF**: standard operation **L6 OFF** = no RADIO contact, it goes on by any radio pulse
Indication lamp output 24 V max 3 W:	 Output for a 24 V max 3 W indication lamp showing the status of the system: Lamp **ON** = post in down position, free passage Lamp **OFF** = post in up position, closed passage Flashing **0,5 s (fast)** = rising post Flashing **1 s (normally)** = lowering post With external clock: **2 short flashes** followed by a longer pause	
24 Vdc output:	 Output for 24 Vdc applications	

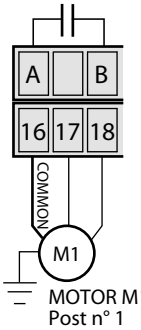
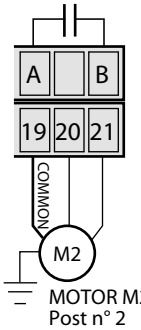
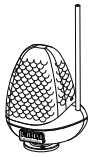
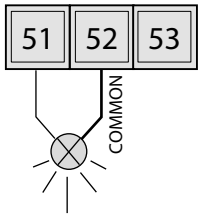
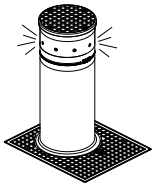
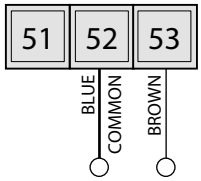
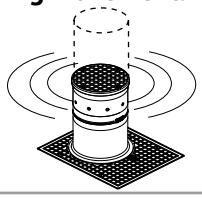
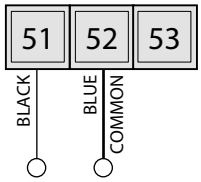
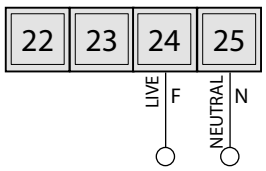
ELECTRICAL POWER CONNECTIONS

Accessory	*Electrical connections*	*Dip-switch setting and LED indication of functions*
Electric valve power supply: 	 230 V power supply for 24 Vdc solenoid valve stabilizer	

LIMIT SWITCH CONNECTIONS

Accessory	*Electrical connections*	*Dip-switch setting and LED indication of functions*
Old type limit switch NC: • ***Strabuc 930 Opinat*** and in the previous versions of: • ***Talos - Talos M30*** • ***Coral - Vigilo <u>with LEDs</u>*** • ***Strabuc*** range		 With the STRIP jumper inserted (as in the picture), Elpro S40 checks cyclicly every 10 minutes that the closing limit switches (post raised) are in the correct position; should any of them fail to be such, only the motor of the post not in position is operated until this is fully up as required. N.W.: the limit switches for not in use bollards are to stay blank. **<u>Do not bridge them.</u>**
New limit switches hall effect for CORAL - VIGILO as standard from 2019 • ***Coral - Vigilo*** range 		 With the STRIP jumper inserted (as in the picture), Elpro S40 checks cyclicly every 10 minutes that the closing limit switches (post raised) are in the correct position; should any of them fail to be such, only the motor of the post not in position is operated until this is fully up as required. N.W.: the limit switches for not in use bollards are to stay blank. **<u>Do not bridge them.</u>**
New limit switches hall effect for TALOS as standard from 2018 • ***Talos*** range **- *Talos M30*** 		 With the STRIP jumper inserted (as in the picture), Elpro S40 checks cyclicly every 10 minutes that the closing limit switches (post raised) are in the correct position; should any of them fail to be such, only the motor of the post not in position is operated until this is fully up as required. N.W.: the limit switches for not in use bollards are to stay blank. **<u>Do not bridge them.</u>**

ELECTRICAL POWER CONNECTIONS

Accessory	*Electrical connections*	*Dip-switch setting and LED indication of functions*
Motors:	**Important:** when doing the electric power connections it is better to connect only one motor and its respective limit switches. Put the posts into phase one by one. 20 µF additional capacitor in case of power shortage for Motor M1  MOTOR M1 Post n° 1 20 µF additional capacitor in case of power shortage for Motor M2  MOTOR M2 Post n° 2	**DIP-SWITCH N° 12:** **ON**: motor run time max 90 s 12 **OFF**: motor run time max 18 s  **T1 MOTOR RUN** TIME **1 s - 22 s**  **T2 DWELL** TIME **1 s - 180 s**
External flashing lamp: 	 230 V - 100 W max It is possible to connect both the external flashing lamp and the intermittent signal led lights which are on only during the rising and lowering movement. The cable for the connection is the one labelled as flashing lights cable.	**DIP-SWITCH N° 4 and N° 10:** **ON**: pre-flashing 4 **OFF**: no pre-flashing **ON**: flashing light out of service on dwell time. Automatic mode 10 **OFF**: light flashes on dwell time. Automatic mode
Signal led lights: 	 Signal led lights output 230 V - 100 W max Output for intermittent signal led lights during the movement both rising and lowering and also on dwell in up position: the lights are off only when the bollard is in down position. Connect the **blue-common** wire and the **brown** wire of the bollard flashing light cable.	
Acoustic signal "beeper" during movement: 	 Acoustic signal device 230 V - 100 W max The acoustic signal device inside the bollard is active duringrising and lowering. The connection wires are the **blue-common** and the **black** one of the flashing light cable.	
PCB power supply:	 PCB power supply 230 V ±10% 50 Hz single phase Electronic programmer power supply.	

FUNCTIONS

Description	*Dip-switch setting and LED indication of functions*

Automatic / semi-automatic:

Automatic cycle: after an opening pulse, the bollard goes down, it stops for dwell time pre-set in trimmer T2, after the pre-set time it closes automatically.
Semi-automatic: after an opening pulse, the bollard goes down. A closing pulse is needed to close.

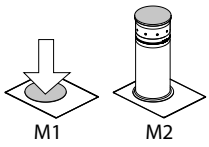
DIP-SWITCH N° 3:

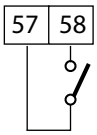
3 — **ON**: automatic closing
OFF: no automatic closing. Semi-automatic function

Dwell time: from 1 to 180 s

Pedestrian opening:

This command is separate from the standard opening command. When all the posts are in up position, on pulsing input P dip-switch 6 = ON and 3 = ON, post n° 1 (motor M1) goes down for pedestrian opening, for the time pre-set in Trimmer T2, after this time it closes automatically. The function *pedestrian opening* is not in service during the first operation cycle, after a power failure.





Pedestrian opening contact terminals post motor M1

DIP-SWITCH N° 3 and N° 6 both on ON:

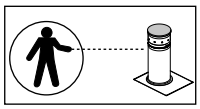
3 — **ON**: automatic closing
OFF: No automatic closing. Semi-automatic closing

6 — **ON**: pedestrian opening motor M1
OFF: standard operation

Dwell time: from 1 to 180 s

Hold on switched (deadman) control:

Open and close operations are achieved *by holding a switch on* (no relay self-holding is involved) therefore a physical attendance is required to keep the post opening or closing until either the button or key is released.

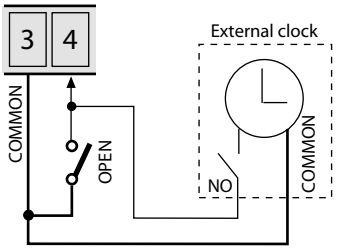


DIP-SWITCH N° 7:

6 — **ON**: deadman control
OFF: standard operations

External clock (optional):

The electronic programmer Elpro S20 can be connected to a clock for the post opening and closing.
Connection: connect in parallel the NO clock contact to the 4 OPEN and 3 COMMON terminals, automatic closing is by dip-switch n° 3 = ON.
How it works: program the opening time on the clock. At the preset time, the post goes down and remain open (the flashing light will turn off) and will not accept any other command (not even radio commands) until the time set on the clock expires. When this time expires the gates close automatically after the pause time. While the posts are held open by the time set on the *clock*, the indication light keeps giving out two consecutive flashes followed by a long pause.



DIP-SWITCH N° 3:

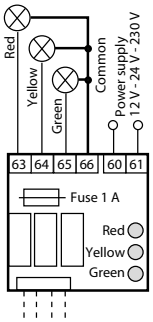
3 — **ON**: automatic closing
OFF: No automatic closing. Semi-automatic function

Trimmer pausa: da 1 s fino a 180 s

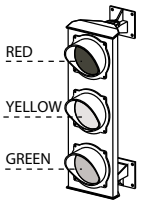
Plug-in traffic lights interface (optional - code 7282L):

The interface power supply (12 V - 24 V - 230 V - 100 W output per lamp) is independent from the one of the programmer.
It can work also with the 2 lamps, red and green traffic lights (dip-switch 8 = OFF and 9 = OFF)
Working logic:
- **GREEN** light = post in **down position**, **OPEN** passage
- **RED** light = moving post or in **up position**, **CLOSED** passage
- **YELLOW** light = it lights before the switching from the green light to the red light.

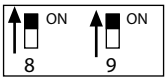
Note: during **pedestrian mode** the traffic light is always **RED**.



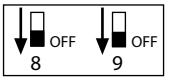
(**Optional:** plug-in PCB for 230V traffic lights) code **7282L**



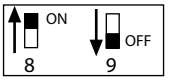
DIP-SWITCHES:



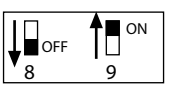
Dip-switch **8 = ON** and **9 = ON**
The yellow light turns on for the time of **10 s** after the red light turns on and **after 7 s the post starts rising**



Dip-switch **8 = OFF** and **9 = OFF**
The yellow light turns on for the time of **0 s** and after **0 s** the red light turns on and **the post starts rising immediately**



Dip-switch **8 = ON** and **9 = OFF**
The yellow light turns on for the time of **2 s** after the red light turns on and **after 2 s the post starts rising**



Dip-switch **8 = OFF** and **9 = ON**
The yellow light turns on for the time of **6 s** after the red light turns on and **after 5 s the post starts rising**

GB TECHNICAL SPECIFICATIONS

Single-phase PCB power supply	230 V ±10% 50 Hz
Three-phase PCB power supply	-
Max. power of motors	1.200 W
Courtesy light output	-
Photocells/keyswitch/radio receiver output	24 Vdc max 250 mA
Pilot light output	24 V - 3 W max
DSA control output	-
Flasher output	230 V - 100 W max
Motor run time	1 - 22 s
Dwell time	1 - 180 s
Closing gate delay time	-
Pedestrian opening time	-
Box dimensions	210x295x110 mm
Protection standards	IP 64
Working temperature	-20 °C +55 °C
Solenoid valve power supply	230 V - 50 Hz
Beeper output	230 V - 100 W max

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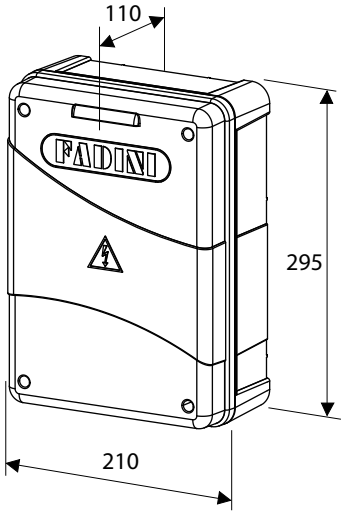

Direttiva **2012/19/UE**
Smaltimento dei materiali elettrici ed elettronici

VIETATO GETTARE NEI RIFIUTI MATERIALI NOCIVI PER L'AMBIENTE

Directive **2012/19/UE**
Disposal of electric and electronic material

DO NOT DISPOSE OF AS NORMAL WASTE. HARMFUL FOR THE ENVIRONMENT

2019/05

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