LA SEMAFORICA

SB-R

Wireless traffic controller

Ideal for **construction sites** and **temporary installations**

SB-R -Master traffic controller

SB-R -Slave traffic controller

PREFACE

Nowadays, the world is facing energy shortages, and the current trend is to support energy conservation and environmental protection. In this context, and from the need to meet our customers' demands, we have set the objective of developing and proposing this solar-powered wireless traffic control system. Compared to traditional traffic light systems powered by the electrical grid, it can save a significant amount of energy.

The use of wireless communication data transmission between the Master controller and the slave controllers offers numerous advantages, including the convenience of construction and installation, without the need to create ducts to house power cables or connections to the electrical power network.

OPERATING PRINCIPLE

During the day, solar energy, through a photovoltaic panel and the integrated charge controller, is converted into electrical energy. A portion is supplied to the control systems and traffic lights, while the remaining part is stored in the batteries installed on board the equipment. At night, as well as on cloudy and rainy days, the traffic controllers and traffic lights are powered by the batteries charged during the day, ensuring operation in all weather conditions.

The wireless communication between the control systems (master, slave) utilizes advanced LoRa technology with extended spectrum error correction to ensure stable and reliable data transmission, providing safe and dependable traffic regulation.

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FUNCTIONAL CHARACTERISTICS

The SB-R regulator consists of a **Master** unit equipped with a control panel with a graphical display, and one to four **Slave** units, connected to the master controller via modems using **LoRa** technology with extended spectrum, which do not interfere with civil or service communications.

This communication system operates at the frequency of 868 MHz, which is free and authorized for use in Italy. Upon request, we can provide modems with specific frequencies required by the customer, in compliance with the regulations in force in each country.

The SB-R regulator is a highly reliable product that can be supplied both in the classic version mounted on wheeled carts for easy positioning at the ends of the temporary roadworks site and in a fixed version installed in dedicated cabinets for permanent installations on traffic poles. It has been developed to ensure maximum installation flexibility and, housed in suitable IP65 cabinets, allows for direct installation on the traffic pole **without the need for any ducts to be created on the roadway**.

The Master regulator is programmable with multiple traffic light plans for every need, which can be set to specific times, and can be configured to control **up to four vehicular signal groups and four pedestrian signals** with **2 pedestrian request inputs for each unit.**

This allows it to be used versatilely for various traffic light applications, including:

- **One-way alternating**: with the same functionalities as construction traffic lights, but with the possibility to suppress one of the two vehicular phases and extend the green time using radar mounted on mobile carts or traffic poles.
- **Pedestrian crossing**: the possibility to install a pedestrian light and a vehicular light on the traffic pole or on the mobile cart to create a traditional pedestrian crossing.
- **T-junction and four-way intersections**: to enable traffic signaling at traditional three or four-way intersections.

IMPLEMENTED FUNCTION

- Flashing
- All red
- Automatic with fixed timing
- Traffic-actuated with phases for suppression and/or extension
- Automatic switch between daylight saving time/standard time according to standard dates or user-scheduled dates, with clock synchronization via integrated GPS receiver.

CONTROL AND SAFETY MEASURES

The SB-R traffic controller implements the following safety functions:

- **ENEMY GREENS**: monitoring the correct activation of green lights according to a programmable matrix.
- **OFF LAMPS**: monitoring the correct activation and failure due to short circuits on all outputs of the regulator.
- **DATA TRANSMISSION CONTROL**: when one or more slave units are not connected to the master regulator, the system enters safety mode by flashing the yellow lights.

TECHNICAL CHARACTERISTICS	
Maximum consumption Master or Slave	2 W
Maximum battery voltage	12 VDC
Maximum photovoltaic panel voltage	21 VDC
Maximum charging current	10 A
Maximum current to LED traffic modules	1 A
Maximum power output Master or Slave	100 W
Emergency flashing frequency	1 HZ
Operating temperature	-10 +65 °C
Maximum operating humidity	85%
Battery charge controller	integrated
LoRa communication interface	integrated
GPS interface for green wave	integrated
Maximum communication distance	1 km
Master-Slave synchronization time	20 S.
No-load current Master (display off)	120 mA
No-load current Slave	60 mA
Radio transmission power	22 dBm
Operating frequency in ITALY	868 MHz
Other frequencies available on request	

DIMENSIONS	SB-R MASTER	SB-R SLAVE
Width	260	260
Height	170	170
Depth	47,7	32

Measurements in mm

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