LA SEMAFORICA

# RSC

## Centralizable Traffic Controller

CE Certification obtained Acc. to EN:50556:2011-02
RSC centralizable traffic controller is a modular system developed by La Semaforica for meeting any requirement of traffic management, of any nature and complexity.
It has been developed and built in compliance to standards of UNI EN: 50556:2011-02 and it is supplied with CE Certification.

## GENERAL CHARACTERISTICS

It is based on a multiprocessor structure, and it is made up by a central control unit that can be extended to an industrial PC 32 bit and by a series of remote microprocessors for the management of inputs and outputs.
It is formed by modular Eurocard boards (100 mm x 160 mm) lodged in a rack 19" 3/6U with polarized connectors according to DIN 41612, and provided with a front panel with a wide LCD display 80 characters, in order to make the interface with end users easy and intuitive.

## TECHNICAL FEATURES

- Equipped for 32 signal groups (upgradble to 42)
- Max load for each lamp output 4A
- 32 digital inputs (upgradble to 80)
- 32 digital outputs (optional)
- 16 independent programs selectable by LCD panel, remote control or with internal weekly charts
- 2 serial ports RS 232 (upgradble to 4 RS 232, 1 Ethernet port, 2 USB and 1 RS 485)
- Detection and classification of traffic data (32 inputs on 8 length classes and 8 speed classes)
- Centralization with TMacs System
- Centralization with PASPA System
- Centralization with SIGMA System (Elsag)
- Centralization with SPOT/UTOPIA System (Mizar)


In order to offer the best possible service, La Semaforica reserves the right to modify at any moment and without any warning the features of the products described in this document. This document has the only purpose of illustrating the products. If you need detailed technical data, please do not hesitate to contact us.

- Connections via GPRS, leased lined
- Fully Adaptive traffic with dynamic plan generation
- Standard Power 230 Vac
- 42Vac ELV  Available, Safety Power
- Dimming Function Available, Energy Saving
- Software Open multilanguages

## MAIN FUNCTIONS

- Flashing
- All red
- Manual with remote control
- Automatic with fixed times
- Synchronized - Linked or internal timer
- GPS Timing function
- Actuated by the traffic flow with extension and/or cancellation of traffic phases
- Light off features
- Dynamic generation of traffic plan, according to traffic data collected
- Priority system for public or emergency vehicles
- Automatic change between summer time/daylight time
- Monitoring of all connected lamps
- Collection and storage of traffic data with volumetric and classification standards, collected through inductive loops and/or microwave technology
- Centralization with dynamic plan selection or phase progress.
- Telecontrol with automatic sending of SMS or faxes, as soon as breakdowns on traffic controller arise
- Insertion of plan through internal weekly chart
- Insertion of plan on special dates with yearly calendar
- Automatic storage of damages, state exchange
- Degraded functioning with management algorithms, alarm event
- Algorithms for management priority tramways
- 80 characters display with vision of internal temperatures of cabinet, instantaneous power and power supply

## CONTROLS AND SAFETY

With reference to standards of EN 12675, the traffic controller foresees a series of redundant control circuits on different hardware so as to give a complete security on all outputs.

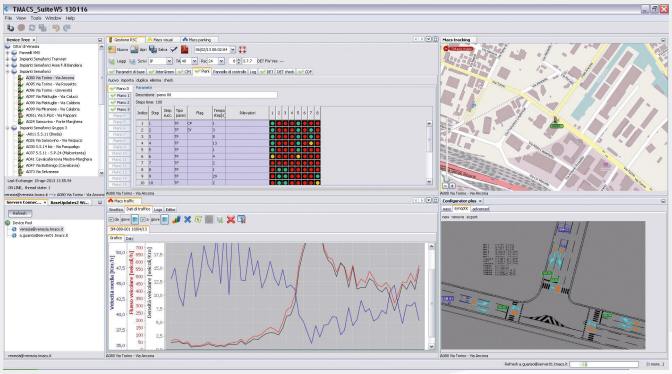
In particular, the traffic controller is provided with the following controls:

- "CONFLICT GREENS": checking of incopatibility of two green lights simultaneously switched-on.
- "INTERGREEN MATRIX": control of inter-time a mong green lights as function of minimum times of ignition, and a progammable compatibility matrix.
- "PROGRAM ERROR": check of installation running program and that times programmed are correct.
- "CURRENT CHECK": control of a single lamp connected in parallel with other lamps.
- "Check of wrongly switched-off lights": control of electrocuted loads.
- "Check of wrongly switched-on lights": control of short-circuit cables.

## TRAFFIC PLANS SETTING

Traffic controller programming is made through a special software developed by La Semaforica for PC or Mac in Windows® or Linux Operative System, which has an intuitive design to facilitate the configuration of any signaled junction.

Many parameters can be set directly on the controller, thanks to the keyboard and the LCD monitor. Maximum greens, detector configuration, are among the parameters that can be set.



## MODULARITY

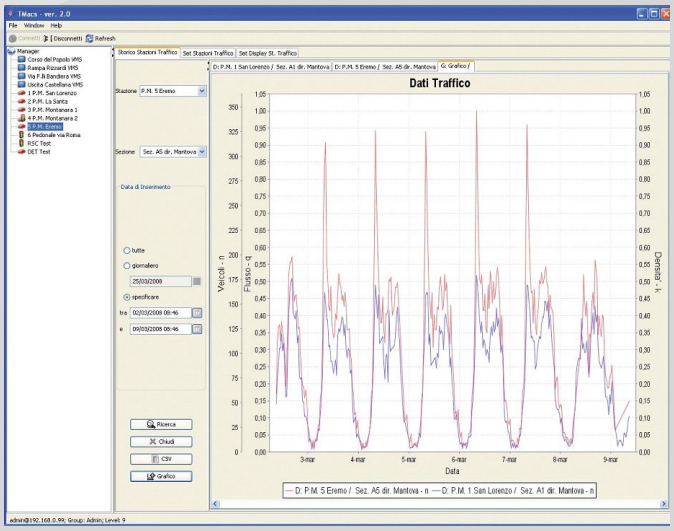
The modular structure of our RSC controller allow it to be configured for any kind of intersection and makes it simpler to fix in case of failure. The main components are:

- Power Supply board: It provides power supply to the electronic circuitry of all boards and has an emergency flashing device that put the installation on flashing mode, even if CPU board is not working.
- CPU Board: It manages the traffic controller, the firmware is located here and it stores all configurations and set traffic plans.
- All data are recorded in an EEPROM support. The board can be extended with industrial PC platform with standard PC104: this integration allows the communications between traffic controller and any other system present on the installation.
- Detection board: it interfaces with vehicular detectors in order to collect and store traffic data. Data are available for a statistics use or directly for the dynamic control of phases.
- OUTPUT board: it is the interface between CPU and traffic lights. Each one has 6 lamp outputs and can control 2 signal groups.
- TA board: it runs as a support for OUT board, checking the power absorption of each output, detecting the burning out of each lamp.

## TRAFFIC DATA ACQUISITION

The RSC system provides the option of transforming the traffic signal controller into a traffic data detection and logging station.

It integrates up to 32 vehicle inputs; data is classified by length and speed, with storage of the data relating to each input based on eight length classes and eight speed classes. Through dedicated software, it is possible to configure, manage, and download the archive. Traffic data storage uses a free-format scheme, with aggregation configurable for up to 9 vehicle classes. Data can be exported in tabular form or as an advanced report.




## FULLY ADAPTIVE FUNCTION (CDF)

### CDF Control Objectives:

Calculation of best Green times on any traffic lane according to measured flow and fluency noticed.

It integrates seamlessly with the normal actuated functioning. Using both of these adjustments together brings to a perfect management of the intersection. RSC traffic controller is able to determine and adjust in realtime the cycle times to real requirements of traffic.

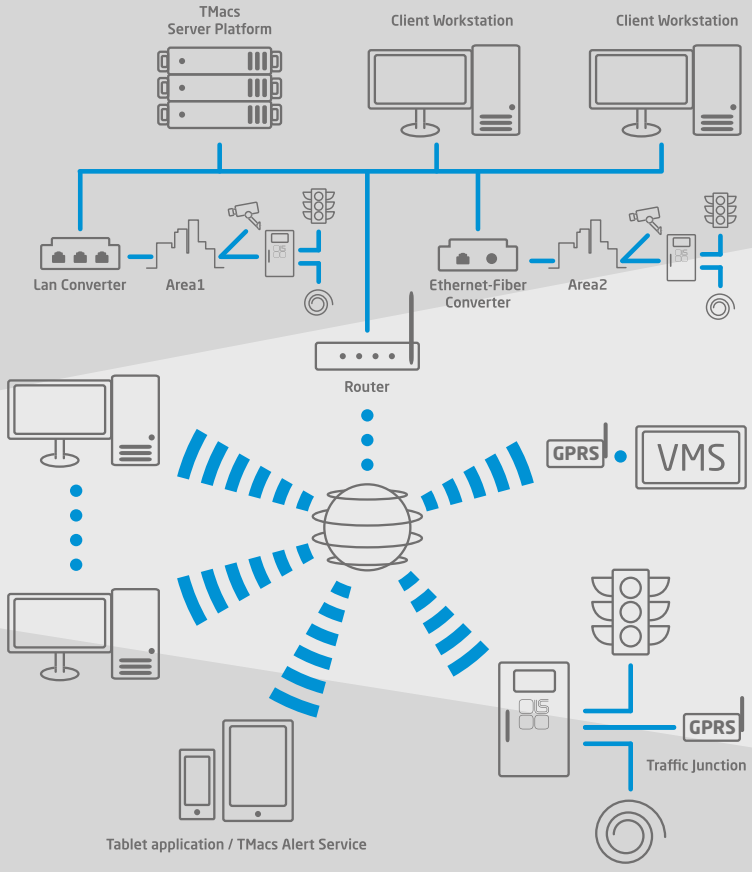
The dynamic generation of plan, with reference to time change of program, allows to modify the program referring to a real request from traffic and not to a statistic theoretical calculation.

It is possible to realize a network of traffic controllers all operating in dynamic generation of plan.

## CENTRALIZED FUNCTIONING

RSC can be used in MANY Centralization Systems with the following functioning mode: choosing a traffic plan with phase progress, or in synchronized systems.
The Central System developed by La Semaforica allows to choose among different operative modes. Traffic junctions are linked to one or more geographic areas, and they can be selected through a showed menu; different arms of the menu can represent either a single junction or a junctions network, containing all single junctions that can be selected independently.

The architecture of a typical Centralization System is shown in the following scheme.



| TECHNICAL DETAILS | |
|---|---|
| Basic sizes (signal groups) | 8,16,24,32 |
| Loop detectors | 8,16,32 |
| Video detectors | Traficon |
| Voltage | 230 Vac±15%<br>42 Vac±15% |
| Ambient temperature | -40 - +80°C |
| Load per output | Max 4A |
| I/O interfaces | 12V, 100 mA |
| Cabinet | 1145x605x320mm |
| Indoor Rack | 19" 3U (8 sg)<br>19" 6U (16sg-24sg)<br>19" 9U (32sg) |
| Communication | RS 232, Ethernet |
| System connections | TMacs - Utopia |
| Certifications | EN-50566<br>EN-50293 |

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