VEGA

Intelligent Traffic Signal Controller

Vega is a next-generation traffic controller designed for managing large intersections; in its maximum configuration, it can control up to 64 traffic signal groups.
Vega features a fully modular distributed intelligence architecture, thanks to a differentiated bus system that ensures high reliability and safety.
The controller is equipped with a powerful CPU that enables real-time processing of traffic data for optimizing vehicle flows through specialized algorithms.
Monitoring functions:

- Generation of "LOG" files and statistical files (alarms, activities, traffic data).
- Automatic sending of diagnostic and alarm messages via cellular network (optional router required).
- Remote access for configuration, diagnostics, and file transfer through an integrated WEB SERVER (optional router required).

The controller can operate standalone while maintaining remote access and monitoring functions, or be connected to most widely used UTC systems, including the SCAE STCWEB system, to fully exploit all machine features.
The VEGA controller is equipped with multiple interface ports (RS232, RS485, USB, ETHERNET) and can be complemented with the following communication devices:

- Router for remote access via cellular network (optional).
- WiFi for local wireless access (optional).

COLOR TOUCH PANEL

www.scae.net

Conformità alle Normative
EN50556 Road traffic Signal System
EN50293 EMC
EN12675 Functional Safety
Certificates and test reports available upon request

General Features

- Monitoring of all traffic signal heads to detect individual lamp failures.
- Collection of volumetric and classified traffic data through various types of sensors.
- Archiving of alarms, activities, diagnostic information, and traffic data.
- Notification of alarms or programmable events via SMS or Email.
- Autonomous management of one or multiple signalized intersections with a single device (up to 4 by adding additional CPU boards).
- Compatibility with major UTC systems.
- Clock synchronization via GPS, necessary for green wave implementation and plan switching.
- Maximum programming flexibility with custom user script functionality.
- Optional nighttime dimmer function for traffic signal heads.

Vega Capacity

- Management of up to 64 signal groups (192 power outputs).
- Up to 64 loop vehicle detectors.
- Up to 128 digital inputs.
- Up to 144 digital outputs.
- Up to 20 relay outputs.
- 32 traffic plans selectable remotely or locally based on calendar and external events.

Technical Specifications

- Power supply: 230V/110Vac -20% +15% (42Vac available on request).
- Consumption excluding load: 80 VA at maximum configuration.
- Maximum load: 6000 W.
- Max load per output: 800 W.
- Output protection: 4A type EF.
- Immunity to power dips: 100 ms.
- Operating temperature: -40°C to +70°C.

Diagnostics

Vega is equipped with a set of diagnostic tools designed to provide useful maintenance information, including:

- Type of fault.
- Faulty board.
- Loop detector failure.
- Input failure.
- Burned lamp/traffic module.
- Power reset and instability.
- Power supply voltage too low or too high.

The diagnostic service allows access to internal variables to examine malfunctions in detail. Display visualization, log file archiving, and automatic message forwarding complete the fault-finding support tools.

Safety

Vega is equipped with a series of control circuits based on hardware and software redundancy logic. The safety system consists of various sensors, processors, and circuits:

- Voltage measurement sensors on traffic signal outputs, with redundant reading on the green light output.
- Current measurement sensors on each traffic signal output circuit.
- Temperature detection of the main electronic circuits.
- Independent processor for conflict control between green and red signals.
- Independent processor on each output control board performing:
  - Consistency check between logical commands and traffic signal output status.
  - Current monitoring on each output to ensure proper lamp operation.
- Hardware and software Watchdog control on processors and microcontrollers.
- Safety checks on the CPU board:
  - Data consistency check for data stored in memory.
  - Hardware configuration verification.
  - Consistency check between logical commands and traffic signal outputs.
  - Correction action on commands to comply with the safety matrix.
  - Timing control of the traffic light cycle.
  - Measurement and control of the power supply voltage.
  - PIN code protection for configuration changes.

Software Configuration

The VEGA controller can be programmed both locally and remotely using the following tools:

- Display panel.
- PPSVIS64 Windows software.
- Integrated web server.
- Smartphone app.

All configuration operations can be performed during normal controller operation, without causing any service disruption to users. Configuration is done via simple parameter selection and graphical input of the traffic light diagram (with PPSVIS64). The configuration software also allows adding a custom user script written in a C-like language, enabling users to create special functions.

It is possible to use a USB pendrive for loading or retrieving data from memory as well as for firmware updates. All configuration and programming data are stored in non-volatile memory, ensuring data retention even during power outages.

Applications

Besides the classic use as a controller for a single traffic intersection, Vega can be used for:

- Managing multiple intersections (up to 4 by adding additional CPU boards).
- Master device for a network of traffic controllers.
- Implementation of a variable-cycle Green Wave system, generated by acquiring data from the controller network via serial line or cellular network.
- Implementation of wireless Green Wave systems, synchronized via GPS.
- Interface with devices via MODBUS protocol.
- Interface with third-party systems through RESTful Web API (easy and secure access to configuration and status of the traffic controller).
- Connection to UTC systems with the following protocols:
  - SCAE STCWEB 2.0
  - SWARCO MIZAR OMNIA - SIGMA+
  - PASPA
  - NTCIP 1202
  - MQTT
  - MODBUS
  - FALCON

Structural Features

Vega is available in two configurations depending on the required capacity:

STANDARD CABINET

- ***Capacity: Up to 24 signal groups.***
- ***Material: Polyester with hot-pressed fiberglass.***
- ***Dimensions: 1150 x 650 x 350 mm.***
- ***Protection rating: IP55.***
- ***Color: RAL7032.***

DOUBLE DOOR CABINET

- ***Capacity: Up to 64 signal groups.***
- ***Material: Polyester with hot-pressed fiberglass.***
- ***Dimensions: 1115 x 1245 x 320 mm.***
- ***Protection rating: IP55.***
- ***Color: RAL7032.***

Rack

Vega features a modular 19" Rack structure to house all the required boards, including the motherboard PCB that provides necessary electrical connections via dedicated connectors.

Main Rack

Slot	*Board Types*
N. 8 I/O–6064	Output boards
N. 1 AL64	Power supply board
N. 4 DET416	Detector boards
N. 1 CPU64	CPU board
N. 1 AUX64	Communication board
N. 1 CPU64s	Expansion CPU board

Secondary Rack (optional)

Slot	*Board Types*
N.8 I/O-6064	Output board
N.4 DET416	Detector board
N.1 CPU64	Secondary CPU board*
N.1 CPU64s	Expansion CPU board*

*In case the rack is used as a secondary main rack for implementing another independent traffic signal controller within the same cabinet.

Detector Extension Rack (optional)

Slot	*Board Types*
N° 12 - DET416	Detector boards

SAFE MOBILITY SCAE

SEMAFORI • CONTROLLI • AUTOMAZIONE • ELETTRONICA
SCAE S.p.A. - 20054 Segrate - MILANO (ITALY) - Via Volta, 6
Tel. +39 02 26 930.1 - Fax +39 02 26 930.310
Cap. Soc. € 3.000.000,00 i.v. Reg. Imprese MI 679633 C.F. e P. IVA 00857000152
www.scae.net - e-mail: info@scae.net