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ORIONE

TRAFFIC CONTROLLER

ORIONE is a traffic controller designed with latest technologies and predisposed for future software updates of greater complexity thanks to its design using reliable standard industrial modules. The unit is realized for medium-small size signalized intersections, very competitive from the economic point of view but anyway able to meet the high-level functional needs and capabilities, such as centralization, of the other family controllers Vega and Pegaso.

All the controller cards are connected via dedicated I2C bus allowing to create a connection network between distributed intelligence type processors.

GENERAL FEATURES

The heart of the system is represented by Linux operating system, in fact, the main command board of the controller is a CPU64 type.

Below are some of the main operating features:

- Control of stand-alone junction with fixed or changing times through micro regulation loops.
- Control of junction in a dynamic way by calculating the cycle times and single phase in function of the volume of traffic detected within the area of macro-regulation.
- Control of a junction linked to a central remote control system.
- Perform functions of master / slave within synchronized management with other systems in order to obtain the green wave through wired or wireless GPS connection.
- Automatic adjustment / synchronization by GPS of its system clock and of time base.
- Collect, monitor and send traffic information to competent offices.
- Automatically send alarm messages and / or warnings via GSM / GPRS network.
- Be programmed in guided mode typically by semaphoric parameters or in free mode as PLC.
- Collection and storage of traffic data by volume, classification.
- Timestamp of all events and functional alarms.

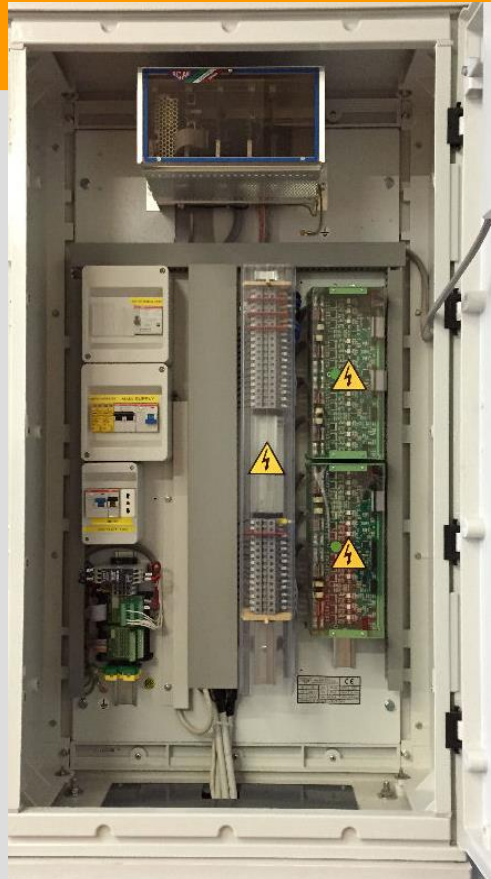
Orione is therefore a controller that can manage any traffic situation according to the selected functional mode :

Stand-alone, coordinated, dynamic centralized or remote.

In addition, by simply replacing the power supply board the controller can drive a system operating at 42Vac with the utmost electrical safety.

MAX. CAPACITY

- 12 signal groups
- 8 loops
- 44 digital inputs
- 20 relay outputs
- 40 digital outputs
- 32 semaphoric plans



Control panel



Output signals

Orione output groups are realized using the same characteristics of I/O64 boards so to provide functional and safety guarantees in a format suitable for standard DIN rail supports.

The main characteristics of the output groups are:

- Possibility to drive the traffic lights in dimmer mode by light adjustment
- Continuous control and monitoring of voltage and current of all traffic signal lights and of a single light.
- Management (as option) of double red control for providing one controlled red output and one uncontrolled red output.

Diagnostics

Orione is equipped with an in-built diagnostic software that can facilitate the failure identification and troubleshooting by providing important information, such as:

- Type of failure
- Board and relevant defective output
- Faulty loop and / or detector
- Faulty input

Diagnostics also allows to access the different internal memory archives for examining in details the equipment condition during failures.

A log file is available within diagnostic information.

Input commands

The controller is equipped with a control panel that can be accessed by a service door for selecting the following functions: AUTO, MANUAL, FLASH, ALL RED.

Safety

Orione is realized with redundant circuits for traffic light signal control of:

- Congruity of logic commands and incompatibility matrix with eventual corrective action
- Double sensor for control of green signals
- Separated bus between control and command signals
- Cross-check of communication between processors
- Monitoring of congruence between diagram (logical state) and ON / OFF status of the lights
- Timeout checking of traffic-light cycle timing

Configuration software

Orione can be programmed locally or by remote through a panel with keyboard-display or by PC with proprietary software running under Windows operating system.

Data can be inserted using the specific traffic light firmware and / or using the user script function from PC.

It is also possible to use a tablet / smartphone with a proper software application instead of panel-display.

User Interface

The communication interface is available in different languages.

CPU

It represents the heart of the controller and it is of same type of Vega and Pegaso controller:

- MonoEurocard layout
- ARM9 64-bit processor on SOM module
- 64Mb RAM
- 128Mb FLASH MEMORY
- 1 ETHERNET port
- 2 USB Ports
- 2 Serial ports RS232 and RS422/485
- 1 Port CONSOLE

Output Card

Realized in 265x107mm format; connections obtained by polarized quick plug-in connections. Each card provides 4 signal groups (R + Y+ G) or 12 protected outputs with 4 fast-blow fuses 4A on-board.

Detector card

Realized in Eurocard format it manages 4 autonomous self-tuning detector channels.

The connection to the central CPU is realized via dedicated I2C bus for a complete configurability and a compact integration in command minirack.

Digital inputs and outputs

Orione provides the hardware interface using a card with 12 inputs and 4 outputs all optically-isolated from the logic of the CPU.

Optional Cards

There are many hardware options available, Orione can be implemented with the following cards and modules:

- AUX64 card with GSM / GPRS, BLUETOOTH, GPS
- DET16 card (detector 4 channels)
- PIG-16in card (for additional 16 inputs)
- PIG-10out card (for 10 relay outputs)
- 32Digital-OUT card (for additional 32 digital outputs)
- Interface module for operating status and system restart by GPRS

Construction features

Orione is realized with a cabinet in electrically insulating material:

- fiber glass reinforced polyester or painted steel
- Size 1150x650x350mm
- IP55 protection degree
- Color RAL7032

Basically equipped with:

- 1xPower supply board
- 1xCPU board
- 1xPIG 12in - 4 out card
- 1x4 signal groups card (12 outputs)

Electrical Characteristics

Main supply: 230Vac +15% -20 50Hz;
42Vac, 110Vac 50Hz (on request)

Consumption (load excluded) : 25W max
Maximum connected load : 500W resistive for output
Hold-up time : 150ms max
Operating temperature : from -40 °C to +60 °C

Compliant Norms

Orione conforms to the following standards:

EN 50556 Road Traffic Signal Systems

EN 50293 EMC

EN 12675 Functional Safety



Controller rack

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