



## Traffic signal monitoring

Monitoring of traffic signal states in front of and in the tunnel

## Features

- Controlling and monitoring of traffic signals through PLC
- Monitoring of LED modules when switched on
- Monitoring of conventional lamps when switched on and switched off
- Monitoring for open circuit
- Avoidance of illegal traffic signal states
- Support of night dimming
- Operation and fault indication for every signal (red, yellow, green) and sum fault indication by digital outputs
- Versions for 1-, 2- or 3-state traffic signals available
- Visible LEDs in the front panel to indicate the signal states
- Traffic light controller as 19-inch slide-in 3 HE, 8 TE
- PCB as eurocard (acc. DIN 41494, Teil 2)
- Pluggable into multipoint connector DIN 41612 H7/F24

## System

- Traffic light controller with front panel and LEDs
- Multipoint connector DIN 41612 H7/F24 in 19-inch rack or on top-hat rail
- Transformer to support night dimming

## Operation

Traffic signals in tunnels are essential to influence the traffic in case of danger or incidents. The states of traffic signals have to be monitored to ensure tunnel safety.

Traffic signals in a tunnel are controlled by the tunnel control system which is connected to the traffic signal controller via common PLC inputs and outputs. The traffic signal controller switches the traffic signal states (red, yellow, green) according to commands from the tunnel control system and reports back the actual operational state of the traffic signal.

In case of defects (open circuit, defective lamp) an error is indicated. Illegal operational states (e.g. red and green) are avoided, in such cases the traffic signal shows flashing yellow.

## Advantages

- Specifically developed for application in and in front of tunnels
- 1-, 2- or 3-state signal versions in same format
- 19-inch slide-in technology for easy and quick exchange
- Versions for conventional lamps can be exchanged for LED versions if traffic signals are replaced
- Visible LEDs to indicate signal states and faults

## Application

Tunnels are important infrastructure elements in road networks and facilitate the connection of regions.

Environmental conditions in tunnels are influenced by fog, particles and emissions and need to be monitored to protect people on their passage through the tunnel from danger and impacts on their health. Accidents in tunnels, and particularly fires, can have dramatic consequences and can prove extremely costly in terms of human life, increased congestion, pollution and repair costs.

At every time people in the tunnel need to be supplied with breathable air and sufficient visibility.

Since 1990 JES Elektrotechnik GmbH develops, installs and maintains systems to monitor air quality and lighting conditions in tunnels. Our systems are robust, durable and resistant against the corrosive atmosphere in a tunnel. They operate reliably and have a high accuracy in measurement.

All systems fulfil the requirements of the EC guideline 2004/54/EC (Minimum safety requirements for tunnels in the trans-European road network) and the more precise national guidelines and provisions:

- Austria: RVS 09.02 Tunnelausrüstung
- Germany: RABT Richtlinien für die Ausstattung und den Betrieb von Straßentunneln
- Switzerland: ASTRA Richtlinien und Fachhandbuch Betriebs- und Sicherheitsausrüstungen (BSA)

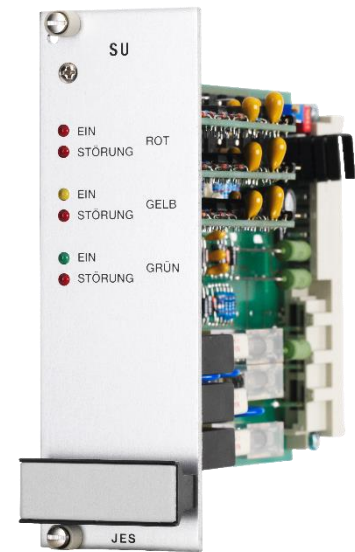
Our range of products for tunnel covers systems for monitoring of

- Toxic gases like CO, NO, NO<sub>2</sub> (extractive or in-situ)
- Visibility (extractive or in-situ)
- Air speed, direction and temperature
- Luminance (access, threshold and interior zone)
- Illuminance

## Technical Specifications

Traffic signal controller for LED traffic signals	
Type	t/SIG-3-230-FUTURLED3-DIM
Channels	3
Lamps	SWARCO FUTURLED3 – 230 VAC
Dimmable	Ja
Operating voltage	196..253 V (day) / 150 V..170 V (night, dimmed)
Nominal power	min. 8 W / 4 W per channel
Lamp fault (on)	< 75 % of nominal current

Traffic signal controller for conventional traffic signals	
Type	t/SIG-1-230-G100
Channels	1
Lamps	Glühlampen 100 W
Dimmable	Nein
Operating voltage	230 VAC ± 10 %, 50 Hz
Nominal current	435 mA per channel at 100 W
Lamp fault (on)	< 75 % of nominal current
Lamp fault (off)	> 30 mA or > 3 V against N



The versions stated above are examples. The traffic light controllers are available for traffic signals with 1, 2 or 3 channels and can be customised for different operational voltages and currents.

Control unit (integrated on PCB)	
Operational voltage	24 VDC ± 10 %
Current consumption	max. 150 mA
Control inputs	1 per channel, 24 VDC, max. 2 mA
State outputs	1 per channel, 24 VDC, max. 50 mA

Mechanical details	
PCB with front panel und multipoint connector suitable for 19-inch rack	
PCB dimensions	Eurocard, 160 x 100 mm
Width	8 TE (40,3 mm)
Height	3 HE (129 mm)
Depth	190 mm gesamt
Multipoint connector	DIN 41612 Bauform H7/F24
Weight	300 g

Conformities	
Electrical standards	2006/95/EC Low voltage directive (LVD) 2004/108/EC Electromagnetic compatibility (EMC) ÖVE EN 60065

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