SITRAFFIC Stella

Local Event Detection and Alert
Alerting road users – and autonomous local data registration

Advantages at a glance
- Increased traffic safety
- Autonomous data registration
- Easy to install and integrate into existing networks
- A variety of applications with the same technology

Increasing safety and traffic flow
SITRAFFIC Stella stands for Standalone Traffic and Environment Local detection and Alert, and that rather unwieldy name tells you exactly what it does. SITRAFFIC Stella systems are used at critical locations to put out targeted hazard warnings – to improve safety and prevent accidents.

Attached to a streetlamp as a source of mains power.

Autonomous local data acquisition and traffic control
SITRAFFIC Stella is designed to register environmental and traffic data, acting independently and deciding on appropriate sign aspects. These systems can use fuel cell or solar powered solutions or the night power used for street lighting, making them independent of the electricity network. This also reduces outlays on additional infrastructure and the required installation time.

Adapted from the Siemens outstation and guaranteeing the same Siemens standard of quality
SITRAFFIC Stella uses the smallest of the Siemens outstation series, the SST4-XXS, which is largely constructed from SST4 modules. This not only guarantees compliance with the TLS standard – in many projects SITRAFFIC Stella is also a cost-effective alternative to existing solutions, naturally with the same reliability as the SST4.

Significant advantages
Firstly, we provide SST4 technology as the core system for the various SITRAFFIC Stella applications. Secondly, we are able to supply both weather and traffic stations. And thirdly, SITRAFFIC Stella applications can be integrated into existing Siemens systems.

Simplified installation thanks to compact design
The compact design of the SST4-XXS and its use of a battery as combined power and UPS unit (uninterruptible power supply) makes it possible to house the controller and all its power and communications equipment in one cabinet.

Stand-alone solution with growth potential
SITRAFFIC Stella can be installed as an individual standalone system, but it can also be integrated into existing or future Siemens traffic management systems. Such an outstation as core element gives you increased flexibility in building up your traffic or environmental detection networks.

SITRAFFIC Stella is a compact and cost efficient solution for smaller traffic management applications
Since 2002, SST4 systems, the fourth incarnation of Siemens' motorway outstations, have proven themselves successful in numerous projects across Germany, Austria and throughout the world. Our newly introduced SITRAFFIC Stella system now extends this to an even wider field of operations:
- Weather detection and warning
- Speed and congestion warning systems
- Black ice, wind and fog warning systems

Siemens' Technology
SITRAFFIC Stella systems involve just a few components, so on-site installations can be completed quickly – ideal for temporary installations. Siemens' controllers use the well-proven SiTOS protocol (Siemens Traffic Outdoor Station) to actuate a wide range of signs and detectors and this also provides an open interface for third party suppliers.
Optimized features

Energy saving processing unit
Processor performance has been tailored to the application. An energy saving processor provides sufficient performance with extremely low power consumption. The controller analyses the collected data from sensors and detectors and activates the appropriate sign aspect. The analysis can be configured as appropriate for the application and sensors used, and this configuration can be modified remotely at a later date.

Proven outstation software
The complete TLS* 2002 compliant software package is available, providing for continued connection. The service tool also provides the same comprehensive software download facilities to your field equipment that you had on the SST4.

* TLS stands for Technische Lieferbedingungen für Streckenstationen (technical delivery conditions for outstations)

Communications interfaces
As well as the familiar V24 transfer methods used by TLS-compliant applications (with Siemens' FME* modem) SITRAFFIC Stella can also be supplied with radio, GSM/GPRS or Ethernet connections as communications interface. Decentralized detectors can be connected to SITRAFFIC Stella by means of a radio link.

* FME stands for FSK modem Europe card

SITRAFFIC Stella cabinet containing the SST4-XXS and all the necessary components, such as batteries and charge regulators and the attached DESI (Decentral Environment Sensor Interface).

SITRAFFIC Stella is a cost effective future-oriented alternative for specific applications, such as weather detection or congestion warning, in the context of Siemens traffic technology solutions.

Decentralized detector with solar panel and wireless modem.
Modular design increases flexibility

### Environmental Sensors
Environmental sensors for wind, precipitation, visibility, road surface condition, humidity, and temperature can all be connected to SITRAFFIC Stella. Sensors are connected to the outstation using serial interfaces or analog interfaces via Siemens’ DESI interface. The higher power consumption of sensors, particularly heated sensors, means that in this case you will need a power supply.

### Traffic Detectors
Overhead detectors enable you to register traffic data, such as speeds, numbers of vehicles and their classifications. Detectors are connected to the outstation via serial interfaces. For detector stations with infrared sensors the power consumption of low enough t solar powered solutions.

### SITRAFFIC Stella offers a fully functioning weather station

#### Advantages
- Dependable Siemens SST4 technology
- Can be integrated into existing Siemens TMS systems
- Experience with SST4 or other SITRAFFIC Stella systems is transferable to this application

#### Features
Our SITRAFFIC Stella weather stations offer a fully functioning meteorological station with Siemens’ SST4-XXS as core controller. Up to six environmental sensors can be connected.

The SITRAFFIC Stella weather station provides all the necessary weather-related data for efficient traffic management under the prevailing weather conditions. But SITRAFFIC Stella is also configurable. From a simple fog warning station right up to a complete meteorological station, customers can choose the configuration that best meets their requirements.

#### Connection of sensors
Sensors are connected to the outstation directly via serial RS485 interfaces or, for analog sensors, via Siemens’ sensor interface DESI.

DESI transfers analog signals to the outstation via a serial RS485 interfaces using Siemens’ SiTOS protocol. This enables the analog sensors and DESI interface to be positioned remote from the outstation.

The following sensors represent the maximum configuration that can be connected:
- 2x road surface sensors
- 1x precipitation sensor
- 1x visibility sensor
- 1x temperature & humidity sensor
- 1x wind sensor

#### Power Supply
Weather stations generally require a constant power supply because of the higher power consumption of heated sensors. In special cases it will be possible to create standalone solutions powered by fuel cells or solar panels.
**Outstations**
The outstation is an independent controller that does not need to be connected to any central system. The design is compact and therefore suitable for installation in a variety of different cabinets. Low power consumption enables you to use solar powered solutions. The available communication interfaces include cable connections, wireless connections such as WLAN, ISM, GSM, and GPRS.

**VMS – Variable Message Signs**
SITRAFFIC Stella provides for connecting variable message signs or prismatic signs using Siemens controllers. Triggered by events such as congestion, fog or strong winds, they enable appropriate sign aspects to be switched on to warn road users. Prismatic signs are suitable for solar powered solutions.

**Technical Data**
- **Outstation**: SST4-XXS with PCV-S module
- **RS485**: Serial bus
  - Max. 1000m distance to sensors
- **RS485 to DESI**: SiTOS Bus, serial
  - Max. 1000m distance to DESI
- **DESI**: 4x analog inputs
  - 4..20mA
  - Max. 20m distance to sensor
- **Wind**: 2 analog values
- **Humidity &temp.**: 1 analog value
- **Visibility**: 1 analog value
- **Road surface**: Serial interface
- **Precipitation**: Serial interface
Technical data

Standards: TLS 2002 (German standard for outstations), CE certificate

Mechanical: Installed in half a single-row 19" rack on the backplane of the cabinet. The cabinet can be mounted on a pole

Controller: DIMM/ETX board (CPU scalable, 1 MB SRAM, 64 (standard) 1 GB (optional) flash disk, 32 MB RAM)

Interfaces: Ethernet (optional), 8 serial and 8 optoisolated inputs 0-30V DC, 8 outputs (high current 50V, 50mA)

Function group 1: Loop and overhead detectors,
Function group 3: Brightness sensor, environment and weather sensors (precipitation, surface temperature, wind, visibility, other)
Function group 4: VMS using LED or fiber-optic technology, prismatic signs, LCD signs, free-text displays, traffic signal systems

Communications: Transmission as per V24 standard, fiber-optic modem, (optional) RF, TCP/IP, GSM or GPRS

Communication with detectors: RS485, RF connection (license-free waveband)

Power supply: 230/400V at 50Hz (single-phase or three-phase)
12 V DC with battery back-up (solar power or streetlight connection)

Service/IBS: Software upload via service interface or wireless transmission, local connection set up with radio touch panel

Tools: PC-based diagnosis tools

Optional extras: GPS clock

Other: Integrated lightning protection

Temperature range: −25°C ... +75°C

Size and weight
Cabinet: 50x50x35cm ca. 30kg
SST4-XXS: ½ 19" x 3 units (25x14x25cm) ca. 4kg

Applications: Mobil congestion warning systems
Speed warning systems
Local weather detection and warning
Fog warning systems
More Information is available from:

Siemens AG
Industry Sector
Mobility Division
Traffic Solutions
Hofmannstr. 51

D-81359 Munich

The information in this manual contains descriptions and features, which may change in the course of further product development. The specified features are not binding unless expressly agreed upon completion of the contract.

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