

# POSS, the track to greater availability

POSS MONITORING FOR RAIL INFRASTRUCTURE AND ROLLING STOCK



## Strukton Systems MicroPOSS 2.0

### General Description

The MicroPOSS 2.0 unit is a data logger capable of handling both analog and digital sensor inputs. It is able to:

- sample nine 4-20mA analog input channels
- twenty-seven digital inputs configured either as potential or potential-free inputs

A built in FPGA enables it to sample both DC as well as AC currents on the analog inputs. All channels are buffered and preprocessed locally after which the measurements are sent to a central data management system over Ethernet, GPRS or GSM-R.

One of the key principles of the MicroPOSS 2.0 data logger is its easy installation. The current sensors mostly used with this data logger are of split-core design making it easy to install in a relay house without the need for detaching existing cables. Furthermore the data logger gets its configuration from a central system, keeping the use of software tooling and expertise in the field to a minimum.

Another key principle is robustness. The datalogger is capable to buffer thousands of measurements locally on mirrored memory-cards to protect measurements being lost during failure of the mobile network.

The MicroPOSS 2.0 unit is tested against the European and the stricter Dutch EMC railway standards making it a logger suitable for placement in relay interlocking houses or electronic interlocking cabinets.

The rugged stainless steel housing allows use in harsh railway environments without problems. The high isolation level of the power supply allows direct connection to the signalling power supply without the need for an isolation transformer.

### Main features

#### Hardware

- Embedded platform based state of the art ARM and FPGA technology
- 9 analog input channels (Sub-D9) capable of sampling and supplying power to active industry standard 4-20mA AC and DC sensors
- 27 digital input channels, either configured for potential or potential-free inputs
- A built in FPGA opens the door to high frequency sampling applications
- Maximum sampling frequency of 1 kHz

#### Communications

- Communication over Ethernet and optionally GPRS or GSM-R
- All communication modules are integrated in the same unit reducing installation time and minimising EMC risks
- Multiple MicroPOSS units can be linked together in a local network saving communication costs



**Strukton**  
Systems

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### Software

Contains measurement software to perform

- Non intrusive Point condition monitoring
- Train detection - Track Circuits
- Insulation monitoring

Contains communication software to

- Communicate measurement and alarm messages to a central POSS server
- Receive new settings and firmware from a central POSS server

### **Technical specifications**

#### Physical characteristics

Housing:	Stainless steel
Dimensions:	200 x 230 x 150 mm (L x W x H)
Operating temperature:	-20 ... 70 °C
Storage temperature:	-30 ... 80 °C
Humidity:	Up to 100% non-condensing
Protection level:	IP4X

#### Electrical characteristics

Power supply:	90...260 VAC
Frequency:	47...80Hz
Power consumption:	< 15 W
Fuses:	Fuse less
Auxiliary voltages:	24 VDC, 5 VDC
Leakage current:	0.5 mA
Isolation levels:	2.2 kVAC / 3.1kVDC 1 min.

### External interfaces

Inputs: 9 DB9 connectors

Analogue (9)	4-20 mA 24VDV
Digital (27)	Potential or Potential Free input
Maintenance	Dual MMC card slot, Sim card slot, RS232 debug interface

### Communication characteristics

Ethernet

Type:	Ethernet (Cat. 5)
Connection:	RJ45
Speed:	10Mbps

### GPRS/GSM-R

Type:	Siemens MC55 triband / Siemens MC55i quadband (GSM-R)
Connection:	N-Connector (Female)
Speed:	Up to 85.6 kbps (downlink)
Output power:	2W / Class 4 for EGSM 900 / GSM-R 1W / Class 1 for GSM 1800 / 1900

### Regulations

The MicroPOSS data logger conforms to the following international regulations regarding EMC:

- NEN-EN 50121-3-2  
Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus
- NEN-EN 50121-4  
Railway applications - Electromagnetic compatibility - Part 4 - Emission and immunity of the signalling and telecommunications apparatus
- NEN-EN55011  
Industrial, scientific and medical (ISM) radio-frequency Equipment. Electromagnetic disturbance characteristics. Limits and methods of measurement
- NEN-EN55022  
Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement

In addition to these international regulations the MicroPOSS data logger is tested to the specific Dutch ProRail regulations RLN00007 and RLN00138. These regulations are stricter than the international EN 50121-4 standard.

### Availability

Release planned: Q4/2009

