

POSS[®], the track to greater availability

POSS[®] MONITORING FOR RAIL INFRASTRUCTURE AND ROLLING STOCK



Strukton
Rail

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POSS[®] was developed by Strukton Systems, a division of Strukton Rail.

Strukton Rail is a full service provider in the field of rail systems in Europe. Strukton is an industry provider and innovator in the development, construction, maintenance of infrastructure and rolling stock for safe, and reliable, and cost effective travel. Strukton RAILS contribution to safety and reliability is the provision of systematic rail component status information, provided both at operational and management levels. We work on the principle that up to date knowledge enables preventive action to be taken. By constant monitoring adverse trends are monitored and corrective action may then be taken prior to any disruption to rail services. Strukton Rail currently has long term operations in Norway, Sweden, Denmark, Germany, the Netherlands, Belgium and Italy, and is growing its operational base to include clients outside of the European Union. Strukton Rail employs some 3,000 men and women.



POSS[®], the track to greater availability

The proper application of POSS[®] can reduce the occurrence of technical breakdowns that cause delays in train traffic by as much as 50% to 70%.

Rail transport operators, railway managers and railway maintenance companies are increasingly judged on the basis of reliability and punctuality. POSS[®] helps to increase the availability of railway tracks and rolling stock. All the essential railway equipment and components can be continuously monitored. POSS[®] is a proven product that supports Strukton's preventive maintenance approach. It has proven to be a powerful tool to optimize the maintenance process. Using POSS[®] results in fewer breakdowns and thus reducing operating costs.

The relevant information is made available through a web application, thus constantly providing up-to-date status reports.

In summary, by using POSS[®] Railway managers and maintenance companies get:

- Greater availability due to fewer breakdowns and swifter breakdown resolution POSS[®] is a preventative tool.
- Monitoring of railway equipment and train components making it possible to identify operational deviations in time.
- The opportunity to make repairs before a breakdown occurs.
- The capability to analyse any breakdowns from trend measurements thus providing valuable information about the nature of the breakdown and therefore facilitates swifter breakdown resolution.
- Ensuring that recurring breakdowns can be reduced to a minimum.

Lower costs due to planned (scheduled) maintenance

Maintenance can be undertaken in planned maintenance periods as opposed to emergency intervention based on analysis of POSS[®] output. This ensures that replacement parts are in stock and everything is prepared in order to carry out specific activities swiftly. Lower maintenance costs are achieved as a result. POSS[®] makes it possible to check the commissioning, maintenance and repair work.

Stronger market position due to efficient operations

POSS[®] is the perfect tool for analysing measurement data and reporting and presenting clearly outlined results. This provides improved insight and elevates the entire maintenance process to a higher level. Far fewer unscheduled repairs are necessary and condition-linked maintenance generates cost effective efficiency gains. When maintenance work is being carried out on the rail infrastructure scarce track possession can be utilised more efficiently; thanks to a sophisticated maintenance system, transport companies can keep their trains running longer and more frequently. This has a positive impact on keeping operational costs in check.



POSS® for Rolling Stock

Rolling stock availability is also vastly improved. POSS® provides essential information for Rail operators and Maintenance organisations.

The proper application of POSS® can increase train availability and largely reduces train delays caused by technical unreliability. Also down time due to unplanned maintenance can be reduced enormously.

Many new trains are equipped with their own diagnostics system, facilitating ongoing checks of practically all systems. A great deal of information of the actual performance status of this equipment only comes available when the train is in the maintenance facility. POSS® however supports the transfer of all this information real-time as well as at designated intervals, enabling the workshop to monitor train performance via the Internet. POSS® also not only enables the maintainer to schedule repairs and thus increase train availability but also to analyse failures and systems and thus improve reliability of the train.

Older trains mostly do not have a maintenance computer / system on board. In that case we can install sensors in the train and connect critical systems / components to POSS® too. Hence the train operator and maintainer of existing equipment will have the same benefits as the ones with new equipment.

On board, POSS® can be applied amongst others to the following systems:

- Power / Traction
- Doors
- ATP/ATC/ & ETCS
- Brakes
- Hydraulics & Pneumatics
- Electrical (high & low voltage)
- Maintenance, Diagnostic
- ICT Passenger Information
- Speed & Distance
- Track & Tracing

New developments include the link with the European Rail Traffic Management System (ERTMS) on board the train (ETCS). In this respect, POSS® satisfies a growing need. Monitoring makes ERTMS far more transparent. Thanks to the direct data link to the EVC box, error messages are sent through immediately from the coach equipment.

POSS® for Rail Infrastructure

Worldwide, POSS® monitors a diverse and varied elements of railway infrastructure and provides railway managers and maintenance companies with the right information to prevent unplanned blockage of track access.

Equipment most susceptible to breakdown includes:

Points

The performance capability of a point machine is directly related to the amount of power needed for the engine to switch points. Deviations in current consumption indicate a potential problem. The measuring units monitor current, capacity and the phase angle making it possible to maintain a detailed picture of the errors. The complete galvanic separation in operating both DC points (direct current) and AC points (alternating current) is a characteristic feature. POSS® is not connected electrically to the signalling system ruling out problems related to access. Installation is quick and easy, without requiring any track decommissioning.

Track-circuit current flows

Measuring the current of the track relay provides two sources of information: the quality of the track-circuit and the quality of the axle shunt. The latter parameter is becoming more important due to the increase of light rail rolling stock.

Level crossings

POSS® guarantees the reliable and safe operation of level crossings based on the following applications:

- Current measurement: monitoring barrier motor overload in the event of deep snow, freezing or vandalism.

- Event logging. Registering relay status as a black box function, in identifying liability in relation to incidents.
- Intelligent video monitoring. Cameras featuring image recognition check the time it takes for the barriers to close, the operation of the warning lights and the comprehensiveness of the level crossing. Statistics of passing traffic and trains are also recorded.

Additionally, POSS® is ideal for measuring:

- Earth faults
- Axle counters
- Compensation joints
- Rail temperature
- Rail tension
- Train detection
- Weather conditions
- Points heating
- Electrical systems in substations

An important benefit is that the system provides a direct data link with all new (electronic) rail infrastructure systems. In practice, the data output is often not connected because systems such as EBI-switch points, axle counters, earth fault measurement equipment and points heating equipment are widely separated geographically. POSS® can also be installed easily on a temporary basis to resolve incidental problems.



POSS® simply efficient

Strukton has developed POSS® for application in Strukton's own maintenance and operational environment. As POSS® is a live active system used everyday, it makes POSS® particularly attractive for the new user. It is the user that should benefit from the system. Distinguishing characteristics include:

Innovative

POSS® is an extremely innovative and State of the Art monitoring system that moves railway maintenance and fault finding from a reactive process to a proactive process. The technology used is entirely Internet based. The system consists of sensors along the tracks or in the train that transfer data via GPRS / GSM-R or fixed (glass fibre) connections to a centralised database linked to an Internet web server. Running the appropriate application enables users to distribute, analyse, report and/ or present the data as required.

Results online available

Read-outs can be made available at any given location using a handheld or laptop and a (wireless) Internet connection. Authorised employees can log in via www.possonline.com. Various levels of accessibility can be defined within a company.

Ease of use

POSS® has been expanded into a universal monitoring shell for railway equipment. The system's functionality forms an integrated whole and can be viewed on a single screen. The clear presentation of the different applications ensures optimal ease of use. POSS® measurement information forms an ideal source for maintenance analysis, trend analysis and management information.

Open system

POSS® is easy and safe to install as it requires no direct connection to the existing signal system. It may be expanded at a later date with new measurement options. It is a completely open system. This means that data inputs may also be added from other sources including inspection trains or maintenance management systems. It is also possible to link POSS® to existing business information systems.

Standardisation

POSS® satisfies all modern railway requirements, complying with the highest electromagnetic compatibility (EMC) standards in its category and is therefore ideal for all rail infrastructure applications.



Maintenance screen Train



Maintenance screen POSS®



POSS® - Philosophy

A monitoring system must not be unduly complicated, but optimally serve the customer's requirements. As a railway maintenance contractor we are fully aware of exactly where POSS® provides the most valuable information and therefore we have designed a basic system to meet those needs. However POSS® may be configured to meet the specific needs of individual clients.

Efficient application

We understand the crucial parameters needed to create a practically complete picture at the least expense and with the least amount of effort. As a rule, we aim to achieve 80% of the maximum yield at 20% of the required effort. Analysing historic measurement data can further increase results without requiring any additional effort!

Services

Professional advice and information exchange

POSS® is continuously improved by Strukton Rail and has been available for ten years. Our knowledge of rail infrastructure and railway track equipment makes POSS® interesting for all companies involved in operating or maintaining railway tracks or trains (including underground metro equipment, express trams and light-rail systems). We provide advice on specific applications, education and training, and the deployment of experts in the field. We understand the critical success factors and pitfalls associated with the business based on our

own experience. This level of know how can be placed at your disposal on request. Strukton Rail also facilitates the international exchange of knowledge and experience in the interests of elevating this comprehensive product to a higher level.

References

International leader

POSS® is already used in eight European countries and Australia.

Several major projects:

- The Netherlands - ProRail, Dutch Railway network, NS, Strukton Rail, NedTrain
- Sweden - Metro Stockholm
- Italy - Metro Naples
- United Kingdom - Network Rail, West Coast Main Line, Victoria Station

More information: www.possinfo.com

**WE HAVE A PASSION:
WE FIND IT BEFORE IT BREAKS**

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