

POSS, the track to greater availability

POSS MONITORING FOR RAIL INFRASTRUCTURE AND ROLLING STOCK



Strukton Systems Monitoring & Travel Systems Optimises train detection with POSSonline

Train detection is a crucial component of the signalling system, as this system detects whether a rail section is vacant or occupied. This data is then used to control signals and level crossings or lock points. A system that does not operate properly can directly affect the availability or the safety situation on or along the track. POSSonline train detection monitoring can help prevent such problems.

The proper operation of train detection depends on aspects such as the wheel shunt and the resistance of the ballast. Fallen leaves on the track in autumn cause poor wheel shunt. This problem occurs with light trains, diesel locomotives and work trains in particular and may cause the barriers on level crossings to open while a train is passing. During winter time, road salt on level crossings and melted snow cause reduced resistance in the ballast. This may also occur in spring and summer during heavy rain showers. These conditions cause impaired train detection, which may have serious consequences.

POSSonline train detection monitoring can help prevent these problems through the online monitoring of both the wheel shunt and the resistance of the ballast. Firstly, it checks whether the section is properly vacated (availability aspect). And secondly, it monitors whether the signalling accurately indicates occupation (safety aspect). In so doing, POSSonline train detection monitoring helps to avoid the considerable expense of disrupted train services and – in the worst case scenario – perhaps even personal injury.

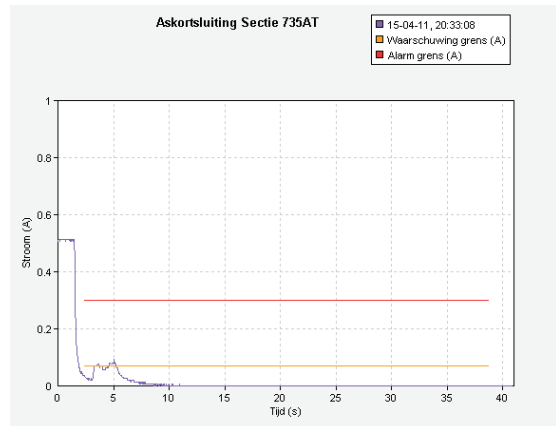


Figure 1 Representation of wheel shunt

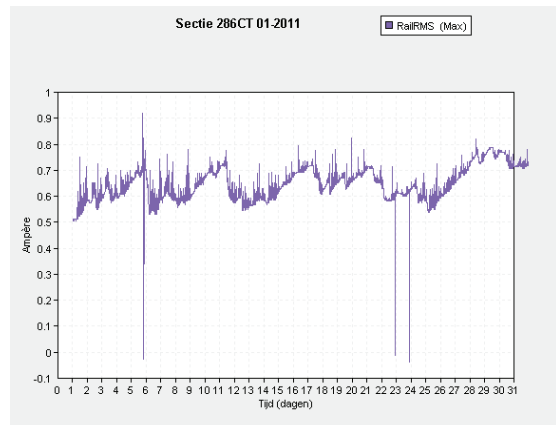


Figure 2 Trends in ballast resistance



Strukton
Systems

www.possinfo.com info@struktonsystems.com

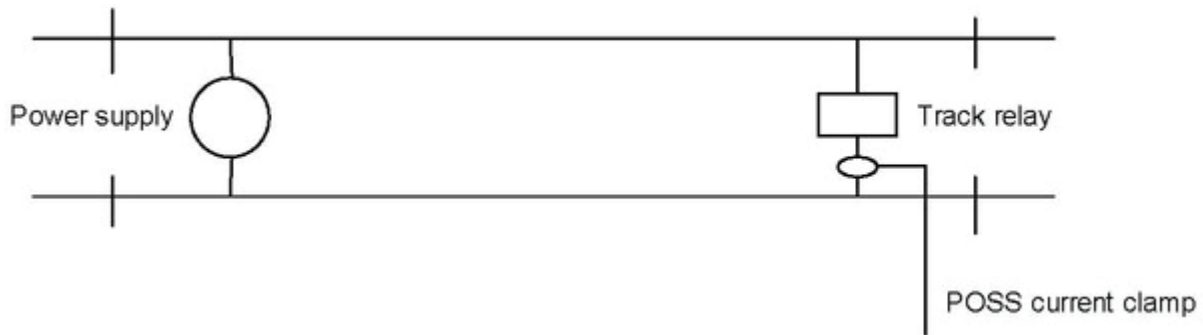
POSSonline

POSSonline gives online access to the following aspects:

- Wheel shunt for each passing train on a certain section (Figure 1 Representation of wheel shunt)
- Trends in the electrical resistance of the ballast, as a measure of the quality of the train detection. Fluctuations in the rail power circuit indicate the external effects of weather conditions (Figure 2 Trends in ballast resistance)
- Alerting whenever a warning goes unobserved or an alarm limit is exceeded. An e-mail or text message is sent to the responsible party

How does it work?

The boundaries of a rail section are determined by insulated joints in the rails. Both rails are connected to an AC power supply, which sets up a current via a track relay in the section. The section is regarded as 'occupied' if the current is interrupted, for instance due to the wheel shunt of a train. POSS measures the current passing through the track relay by means of a galvanically insulated measurement sensor. The following diagram shows a simplified version of this setup.



The POSS measurement data is accumulated in a central database and displayed online. All measurements are checked to validate whether they exceed warning or alarm references. In the event that either is exceeded, an alarm is generated and sent to the responsible party either via e-mail or as a text message. The basic solution supports all types of GRS rail current up to 1000Hz. Additional devices have been developed for high-frequency train detection systems; authorisation aspects will be handled per case if necessary.

Swift installation, proven solution

This measurement method has already been implemented for various customers throughout Europe, where it has proven highly effective. As installation is very simple, it can be carried out within just a few hours. No changes to existing systems are required, nor does the line need to be closed. The data logger is installed in a relay cabinet or relay station alongside the track, while the measurement sensor is connected to the wire attached to the track relay. A single data logger can be used to connect up to eight sections simultaneously. The storage of the measurement data and the internet application are centrally hosted in a data warehouse; configuration is all that is required.

What does it cost?

In the case of the minimum purchase of 100 sections, the cost of the initial section connected at a site amounts to € 2,400. Each consecutive section at the same site costs a further € 1,000. These prices include the central licensing charges per section, but not the installation, travelling and accommodation costs.

Contact

Further information on the POSS monitoring system and its applications can be found at www.possinfo.com.

Or you may prefer to contact:

Peter Drenth at +31 (0)6 11 95 81 90, e-mail peter.drenth@strukton.com or

Gerrit Nieuwenhuis at +31 (0)6 27 07 05 26, e-mail gerrit.nieuwenhuis@strukton.com

