Wayside Train Monitoring Systems – an actual overview
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Dear Readers,

The ongoing growth of importance to apply wayside train monitoring systems in European railways is given at least by three main drivers. First is the operational safety in terms of remote controlled interlockings and centralization of operation control to compensate the missing human inspection of passing trains at stations. The second argument can be found in the availability of the European freight corridors. Preventive recognition of up coming fault states allow immediate interaction and thereby increasing quality of transport due to less disturbances of traffic flow. Last but not least the third concept is the usage of measured data for maintenance purposes. This requires a well established information storage and distribution platform to provide reliable data to potential user groups. For all mentioned fields of application wayside train monitoring systems have to meet the customer’s requirements to gain satisfaction in daily operation.

Looking on the priorities set by different infrastructure managers all over Europe the first devices always installed were hot box detectors to prevent derailments caused by damaged boxes or faulty breaks. Here the cost benefit ratio can be directly calculated by the loss of property documented in the accident data base of an infrastructure manager. The second priority can be found more the less in monitoring wheel-rail-contact forces to identify at least flat spots, unbalanced cargo or overload. For the purpose of track design improvement more sophisticated solutions were designed which deliver more and also with higher precision reliable data to explain the complex field of wheel-rail interaction under various conditions. Today most implementation strategies end at this point but there are currently arising some promising technologies ready to enter the market soon. Fire recognition (or hot spot indication), chemistry check and clearance profile detection can be found in this third group of devices. The business case for the development and implementation of such devices highly depends on the specific boundary conditions of an infrastructure manager. This special issue of RTR shall give an overview on the variety of wayside train monitoring systems already used in daily operation or on the border to market enter.

The technical devices are only a part of an overall implementation strategy which must cover the operational handling in case of alarms and the usage of measured data in maintenance procedures to improve the quality of railway transport.

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Front cover:

Monitoring of boxes and brakes is one of the most important tasks in railway operation to achieve a high level of safety also in times of automated operation control. Therefore the related scan areas were chosen as front cover of this RTR Special on Wayside Train Monitoring Systems.

(Graphic: SST Signal & System Technik GmbH)