DIAGNOSTIC AND MONITORING TECHNOLOGIES FOR TRACK AND FIXED INFRASTRUCTURE ASSETS

Intelligent solutions for all railway applications
PERFORMANCE
ON TRACK

Highest availability, safety and reliability.

More than 160 years of experience make voestalpine SIGNALING an expert and dynamic pioneer in the railway sector. Our extensive railway expertise together with innovative drive, locking and detection systems as well as signaling solutions for all types of railway turnouts make it possible to sustainably optimize the performance of your railway infrastructure. Our innovative solutions in the areas of diagnostic and monitoring technology are always customized to your respective needs and requirements. That’s how we ensure that, together with us, you are one step ahead in the future as well.

Railway Systems
With the newly founded Business Unit “Railway Systems”, we are now offering you the entire portfolio in the railway infrastructure sector bundled from a single source. Rails, turnouts, signaling technology and monitoring applications as well as services combined with reliable availability and the lowest life cycle costs guarantee maximum performance capability as well as the greatest possible level of flexibility.

In the areas of drive, locking, signaling and detection technologies, voestalpine SIGNALING is completely committed to helping you and ensuring your success. Highly-developed diagnostic systems and hazard alert systems efficiently avoid unnecessary preventative maintenance and ensure the greatest possible level of safety for the passengers and the goods to be transported. Our intelligent overall concepts impress with maximum reliability and our many years of expertise allow us to identify new challenges promptly and to work together with you to develop the ideal solution concepts.
Goals

» Maximize the availability of tracks by using diagnostic systems

» Optimize maintenance cycles

» Maximize the inspection periods

» Use synergies between components - intelligent turnout systems from a single source

» Partnership cooperation with our customers

» Availability, reliability, maintainability and safety - low life cycle costs

With us, our customers are therefore one step ahead.
Based on the latest technologies, we offer you fully digitized and intelligent monitoring concepts, customized to the requirements of your railway infrastructure. The direct recording of the asset condition and the evaluation of targeted information directly via the central management software allow for optimized asset management, an efficient maintenance planning and thus the avoidance of unnecessary preventative maintenance.
Our visualization software allows for an easy and intuitive operation via a multilingual user interface. The entire monitoring of the operating state is possible regardless of the platform (remote/browser-compatible) on any PC, tablet or smartphone without installing special software. This guarantees the permanent availability of all relevant data and information.

By using various sensors, measured variables are quantitatively recorded in order to determine the performance and state of the monitored system. The measurement is completely risk-free due to the use of non-invasive technology. Custom hardware with flexible options that was developed specifically for railway applications processes the information from the sensors in real-time.

Special database servers analyze the recorded data information and create the bases for the data evaluations and performance statistics of all assets visualized on the central management software ROADMASTER®.

Advantages

» Allows for targeted and efficient maintenance
» Improves track availability
» Visualization of the actual and target state
» Targeted information (24/7)
» Alarms in the event of a deterioration or critical asset state
» Allows for optimized asset management and maintenance/servicing processes
» Preventative early detection of faults & targeted measures are set before failure occurs
» Avoidance of faults and prediction of asset development
» Integration into higher-ranking asset management systems possible

» Independent of existing infrastructure
» Verified nonreactive data acquisition
» Approved by leading railways
» Possible integration in existing IT environment
» Tool for the maintenance process
Advantages of diagnostic and monitoring systems

Manufacturer / product – the product supplies data to the monitoring system. This feedback makes it possible for the manufacturer to continuously optimize and adjust the product quality based on the results. Railway operators or maintenance staff therefore also benefit from this.

Operator / maintenance staff – diagnostic systems provide valuable time so that costly systems failures can be prevented. The effects of maintenance work on the asset performance are clearly visible. Maintenance costs are lowered, track availability is increased and predictive maintenance is possible. Data comparisons over longer time periods allow for detailed evaluations with respect to process optimization and potential for improvement, helping to sustainably lower costs.

Passenger – the greatest possible reduction of downtimes ensures the maximum reliability and punctuality. This promotes passenger satisfaction as well as the customer’s trust in railway transport.

ROADMASTER® APPLICATIONS
TURNOUT DIAGNOSTICS

SCM – Switch Condition Monitoring
Turnout faults are often triggers of costly delay minutes. By using intelligent turnout diagnostic systems, imminent faults are detected at an early stage before the railway operations are negatively affected. In this way the necessary measures can be initiated promptly, failures can be avoided and maximum availability can be ensured.
Independent of drive and interlocking technologies

Measurement points

» Measurements at the point machine
» Infrastructure and track
» Interlocking system (temperature, performance, ...)
» Numerous other measurement points possible - including:
  » Acceleration
  » Temperature / noise emissions
  » Water level
  » Setting movements

Advantages

» Modular design
» Measurement points can be set as needed, easy to retrofit
» Flexible monitoring solution => data acquisition centrally in the signal box or directly at the turnout
» Maintenance planning
» Independent of the interlocking system
» National and international approvals
TCM – Track Circuit Monitoring
Track circuits are a vital part of many signaling systems and maintaining their performance is fundamental to the safety and efficiency of the rail network. The Track Circuit Monitor (TCM) reliably identifies deterioration in track circuit performance and issues alerts to allow maintenance before failure. A non-invasive sensor monitors energy levels at the track circuit receiver and sends real-time data to a central server where it is analyzed using specialist software with preset multiband alarm levels to detect when the operating characteristics of a track circuit start to deteriorate. Alarm events are sent to designated users who can react immediately and initiate necessary actions in a timely manner.
RXM – Rail Crossing Monitoring
Rail crossings are a critical interface between the railway and the public that require regular maintenance and testing to ensure safety. RXM monitors and records the performance of rail crossings to enable proactive maintenance. Event recording produces a precise chronological log of the status of all controls and indications associated with the rail crossing operating system. Real time condition monitoring enables continuous data acquisition of the rail crossing components and sub-systems that may deteriorate between routine maintenance and inspection. Information is sent over a fixed network or wireless connection to a central server through which the maintainer receives maintenance notifications.

SPM – Signaling Power Monitoring
Signaling systems represent a central safety-relevant element in all railway systems. The performance and reliability of signaling systems is dependent on the quality and availability of the power supply network that feeds them. Signaling Power Monitoring (SPM) offers rail operators the opportunity to remotely monitor power supplies. The measurement of parameters such as voltage, current, battery condition and insulation resistance provides valuable data to the rail operators. This enables a comprehensive diagnosis of problems that may occur in power supplies, which shortens response times and ensures optimum availability of the signal systems.

TRM – Track and Rail Monitoring
Vertical rail movement and changes in rail temperature can have a significant impact on the performance and reliability of track, installed assets and rail extensions joints. TRM reliably monitors track movements and changes in rail temperature. The measurements provide valuable data both for the reliability of track systems and for the structural integrity of bridges, thus building a much more comprehensive long-term view as the basis for efficient maintenance. With each train passing the vertical and lateral movement as well as temperature differences are logged continuously and transmitted to a server. The data is evaluated and compared with corresponding reference data to enable early failure detection.
THINK GLOBAL – ACT LOCAL

The voestalpine SIGNALING Group is a trendsetter in turnout equipment, signaling technology and diagnostic systems under the strong voestalpine VAE GmbH umbrella. Our success is based on our passion for innovative solutions, products of the highest quality and our sustained customer and service orientation. In addition to our locations in Austria, Germany, Great Britain, Poland and USA, we also have subsidiaries in the Netherlands and Australia, as well as an international network of regional support centers and sales offices to give you the best and fastest support possible.

We value cooperative and productive collaboration with our customers, whereby service is of crucial importance to us. Our service begins at the planning stage, where we will be happy to work with you to develop the most suitable system solution for your requirements. In accordance with our one-stop-shop philosophy, we offer you first-class turnout setting systems and signaling solutions, as well as diagnostic and monitoring technology from one source – tailored to local needs. We focus on professional installation and assembly monitoring as well as providing expert training for your employees. This alone puts us in a position to meet our quality standards and continue to develop in the interest of our customers.

VISIONARY WORLDWIDE

Railway operators in the regional, high speed, heavy haul and local transport sectors around the world rely on the high quality and reliability of our systems and products. This trust fills us with pride and is both our mission and motivation for the future. In the interest of our customers, we set ourselves tomorrow’s challenges today. We work with them to develop pioneering system solutions for all requirements and both regional and local conditions. We would be delighted to welcome you into our circle of partners!
LOCATIONS OF
voestalpine SIGNALING GROUP

Innovation, service and customer proximity are key values of our corporate philosophy. That is why we have distributed our expertise in the field of diagnostics and monitoring technologies for track systems and fixed infrastructure assets at two central locations of the SIGNALING Group in order to be in tune with your needs in the development of future-oriented technologies.

voestalpine SIGNALING Zeltweg
On one hand our subsidiary in Zeltweg produces drive, locking and detection systems in the standard and high-speed ranges. This is where we develop individually combinable products as well as complete system solutions in combination with innovative force transmission systems. On the other hand our business unit “Diagnostic and Monitoring Technologies” (DMT) has its core competence in monitoring fixed assets. We have developed a world leading range of monitoring solutions which provide our customers with the tools to implement smarter maintenance practices and prevent asset failures. With more than 160 years of competency and experience in the international turnout business, we can offer system turnout knowledge combined with signaling expertise from one source.

voestalpine SIGNALING Fareham
Diagnostic systems for fixed infrastructure such as point machines, track circuits and power supplies, assist railways to implement smarter maintenance practices and prevent asset failures. Key parameters are measured to identify deteriorating condition and issue automatic alerts allowing scheduled maintenance before failure occurs. Since 1998 the company has focused exclusively on rail, designing robust intelligent hardware for the most challenging environments and modular software platforms which give users remote visibility of asset status and detailed performance data. Based in the UK, voestalpine SIGNALING Fareham has a world leading range of asset monitoring applications.