

CONSULTING & ENGINEERING

Comprehensive consulting services and sustainable engineering for diagnostic and monitoring technologies of fixed infrastructure assets

Planning the FIAM sensor system, hardware and software

The Fixed Infrastructure Asset Monitoring (FIAM) hardware and software portfolio of the voestalpine SIGNALING Group is comprehensive. Taking particular note of “cyber security” and “safety”, we plan appropriate sensor systems, hardware and software, analysis and reporting tools as well as data communication either tailor-made in the customer's IT structure or as hosted services within voestalpine with “customer access” or as an integrated component in the IT landscape of higher-ranking third party systems. In this area, we combine specific railway expertise with RAMS, IT and cyber security knowledge.

Customizing the FIAM software

By request, workshops are carried out with the customer (or with certain user groups) to then define specific additional functionalities that are then programmed accordingly by software experts and adopted in the diagnostic solution.

Recording of existing systems for the retrofitting of FIAM systems

If existing systems (signal boxes, turnouts, track circuits, railway crossings, rail expansion joints) are equipped or converted with diagnostic systems (conversion: hardware upgrade), it is usually necessary to inspect and analyze the corresponding existing systems on site. In particular, it may be necessary to record the space available in the signal box and in the outdoor installations to be able to plan the sensor system and data acquisition/data processing and in order to gauge the available energy supply and communication options. Our team records these data on site, adds customer information to it and takes this as a basis to develop an appropriate proposed solution for the customer.



CERTIFIED TRAINING

Comprehensive range of instructions and training courses in dealing with diagnostic and monitoring technologies of fixed infrastructure assets

Training for administrators and key users

We offer sustainable and comprehensive training sessions for administrators and key users, which combine practical and theoretical knowledge and ensure they have the necessary knowledge of hardware and software, their operation as well as their parametrization. In particular, however, the training is about using the software to increase system availability and to be able to specifically plan maintenance measures. Afterwards, the participants should be able to pass on the in-depth knowledge to other users or be able to act as a key user and contact partner internally.

Training for users, technicians & service personnel

We offer sustainable and comprehensive training sessions for technicians and service personnel, which combine practical and theoretical knowledge and ensure they have the necessary knowledge to ensure maximum availability of components while using the diagnostic systems. The training sessions can be booked at the global training center in St. Pölten, Austria or at the individual companies at the respective location (Zeltweg/Fareham). If necessary, theory and practical training sessions can also be held at the customer's location.



SUPPLY, LOGISTICS & INITIAL SERVICES

Initial delivery and installation services for diagnostic and monitoring technologies of fixed infrastructure assets

Shipping and transport logistics to the construction site

voestalpine SIGNALING Group has business relationships in over 50 countries around the world and, in the course of market development, has established internal competences for the handling of product and system transports. They use first-class logistics service providers to transport diagnostic and monitoring systems to the site of installation while complying with quality, time and cost targets. This is done in close cooperation with the client in order to ensure that local specifics and directives are observed.

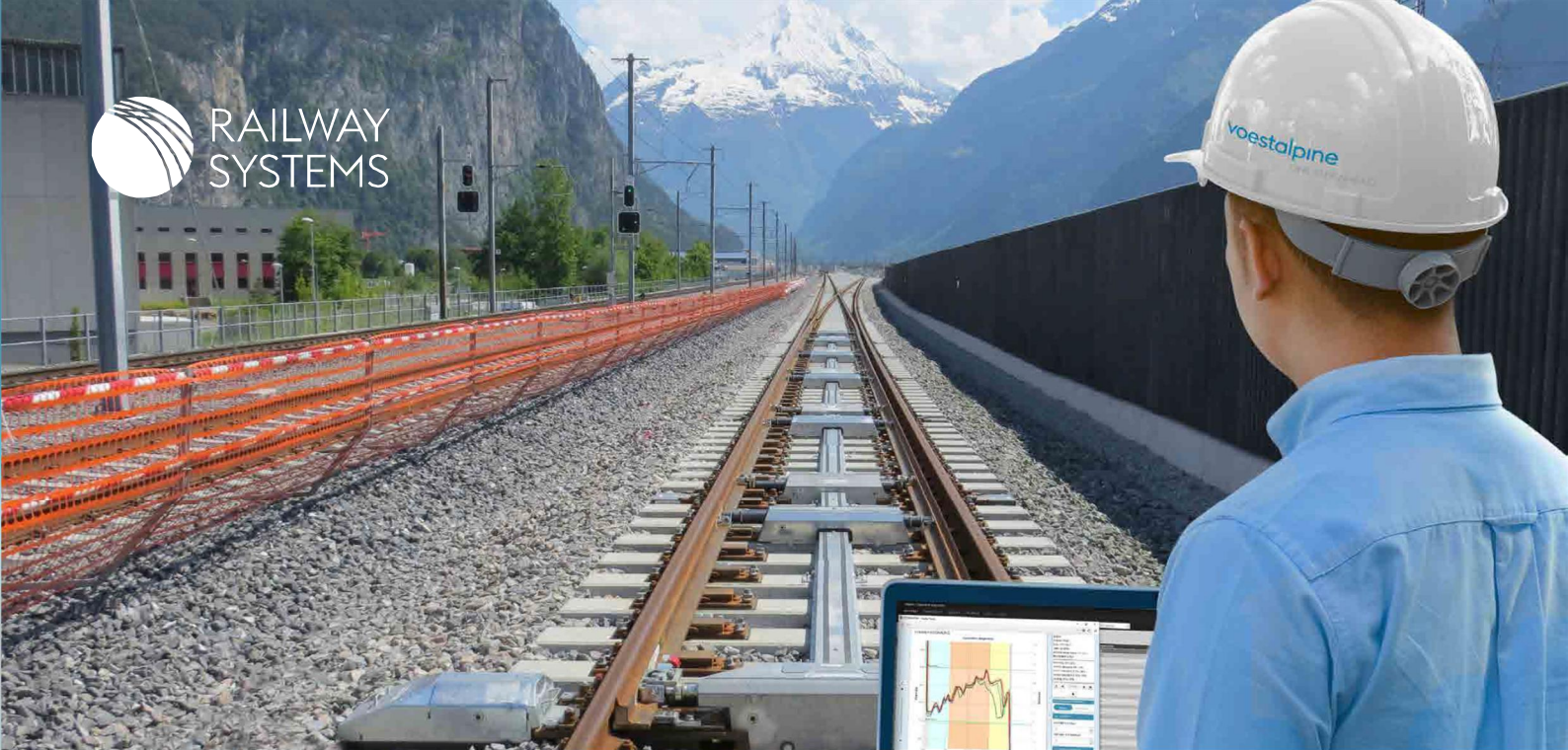
Installation of software and the hardware components

Our experienced technicians (mechatronics/electrical equipment and electronics as well as telecommunications experience) install sensor

systems and hardware components properly and professionally. This package includes wiring and setting up data communication. Our software specialists set up the software on the prepared server structure and carry out function and security checks as part of the installation.

Commissioning and site acceptance test (SAT) of the diagnostic systems

The service technicians commission the diagnostic systems and are supported by our in-house technicians who ensure the perfect interplay of sensor system-hardware-data communication-software by telephone. During commissioning, weaknesses of the outdoor installations (e.g. turnout) are often discovered by our experienced service technicians. Their immediate correction often contributes to improved availability.



CONTINUOUS SERVICE / SERVICE LEVEL AGREEMENT

Services and agreements for diagnostic and monitoring technologies of fixed infrastructure assets over the entire product life cycle

Sensor system and hardware service

Inspection and maintenance of the sensor system and recording electronics based on periodic remote (and self) diagnostics of the components. A contract's scope of services includes the repair and replacement of components. The components themselves are charged to the customer (at least outside of the warranty period).

Software service

In addition to the elimination of bugs and general software updates, software updates on the diagnostic servers and signal box computers are included which are available due to in-house further product development. These will be carried out after positive consultation and confirmation from both parties, provided the functionality of the hardware package is sufficient.

Second Level Support

By default, our technicians and analysis experts are available Monday to Thursday between 8:00 am and 3:45 pm as well as Fridays from 8:00 am to 12:30 pm. On the one hand, this concerns user problems with the software. On the other hand, this concerns telephone support in interpreting diagnostic messages.

Third Level Support

If a system error cannot be remedied via telephone support, a qualified service technician from voestalpine SIGNALING will be sent out to solve the problem on site. 5 such deployments per year are typically included in a service contract. (If more or less is agreed is a matter of negotiation.)



PARTNERSHIP WITH FUTURE

Software as a Service (SaaS)

Due to its domain expertise in the field of railway infrastructure, the voestalpine SIGNALING Group is the pioneer in the development of monitoring solutions for external signal-technical systems as well as track system components. In addition to using such monitoring tools for its own maintenance activities, the monitoring expertise can be provided to the end customer via "Software as a Service" (SaaS). voestalpine SIGNALING evaluates the recorded data and takes it as a basis to develop specific state and service information, such as:

- Daily, weekly and monthly reports
- Top ten lists
- Heat maps
- Recommendations for action
- Remaining life estimates
- Product performance – evaluations
- Asset statistics

The design options for a contract are extremely flexible and range from "flat rates" with different packages to the sale of individual queries per asset. The high quality findings from the

monitoring systems are thus part of a comprehensive condition-based maintenance. By focusing on emerging faults, targeted maintenance measures can be taken in advance, thereby sustainably increasing the track availability. Planned, condition-based maintenance operations compared to unplanned faults sustainably reduce maintenance costs, thereby contributing to a smoother railway operation with increased punctuality and customer satisfaction.

Leasing models for hardware and sensor systems

Hardware and sensor systems can be provided to the customer in the form of a flexible leasing model.

Cloud Services

Software can also be run as a "hosted service" if the customer desires, for example within the voestalpine domain. This has the advantage that all topics such as updates, cyber security and data transmission security are guaranteed and do not pose a problem to the customer.