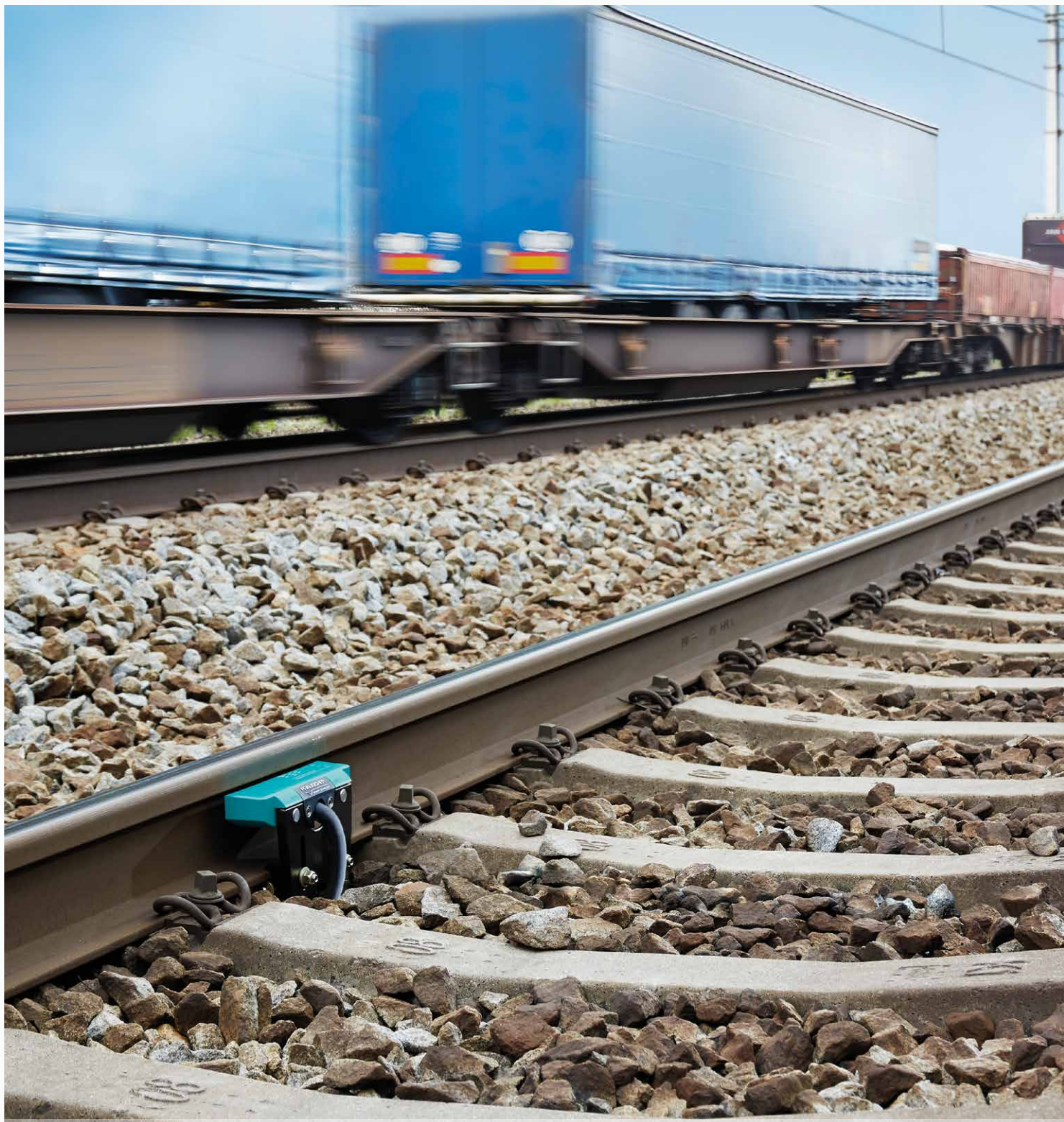


COMPANY PROFILE



EN





Dear readers and friends,

Rationalisation of the railway traffic on main lines, urban and mass transit as well as industrial lines requires in many areas the use of state-of-the-art technologies. For safe railway services this entails, among others, the use of automatic track vacancy detection systems, reliable level crossings and a multitude of other systems that are controlled by the presence of the vehicles. The core element of such systems is the safe, highly available yet economically efficient detection of the vehicle axle under any climatic, technical or operating conditions.

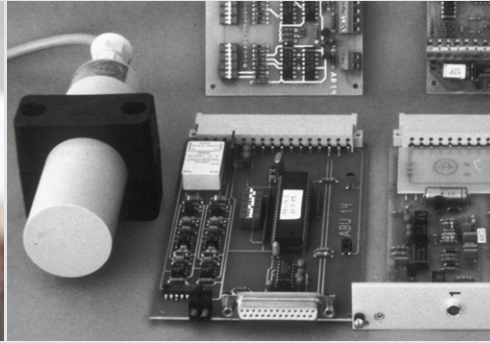
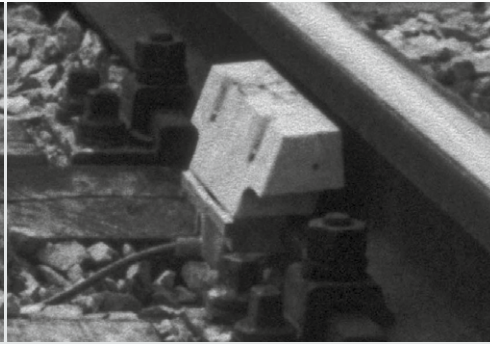
Frauscher Sensor Technology is a technology leader for inductive sensors for railway applications. Since 1987 Frauscher has been developing, manufacturing and delivering axle counters, wheel detection systems as well as inductive wheel sensors for a large variety of applications. As an independent medium-sized company, we make a point of constant innovation, best quality, superior customer orientation and outstanding service for our products and systems.

Towards this goal we strive to ensure a holistic approach to sustainable business development. Under this approach not only each of our employees, but compliance with codes of conduct, social commitment as well as environmental protection are in the centre of our business decisions.

This brochure gives you some insight into our company, customers, products, processes and employees. I hope you enjoy reading it.

Michael Thiel
CEO Frauscher Sensor Technology

COMPANY HISTORY



1989

First use of wheel sensors in the track system of VA Stahl Linz GmbH (EOW)

1990

First axle counting tests on the Westbahn line of Austrian Railways (Österreichische Bundesbahnen, ÖBB)

1993

Development of Axle Counting System AZF

2002

Certification of Axle Counting System ACS2000 by the German Federal Railway Authority (EBA)

2006

Presentation of Wheel Sensor RSR123 with V.Mix Technology®

It was in the early eighties that Josef Frauscher, an engineer by trade, started the development of analogue inductive position decoders for distance measurement and inductive radio systems. Both systems are still in service today. Analogue inductive position decoders are used, for example, to monitor the plumb line deflection in reservoirs or to determine the position of switch tongues. The INDUFERN system is used in a variety of industrial units, which require the contactless transmission of switching signals or data over a few meters.



Development of Magnetic Noise Receiver MNR

2009

Introduction of Frauscher Advanced Counter FAdC®

2010

Introduction of Frauscher Diagnostic System FDS

2010

First implementation of the software protocol
Frauscher Safe Ethernet FSE

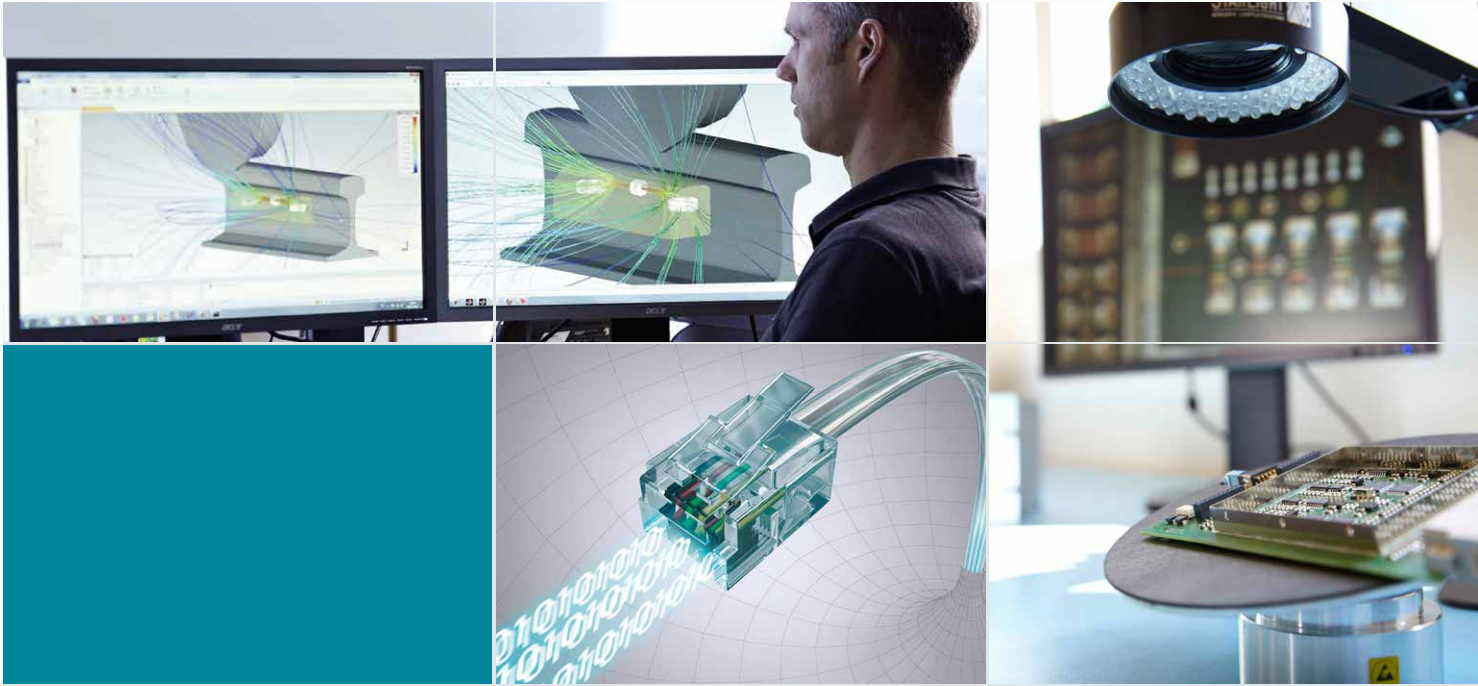
2013

Development of Wheel Sensor RSR110

2014

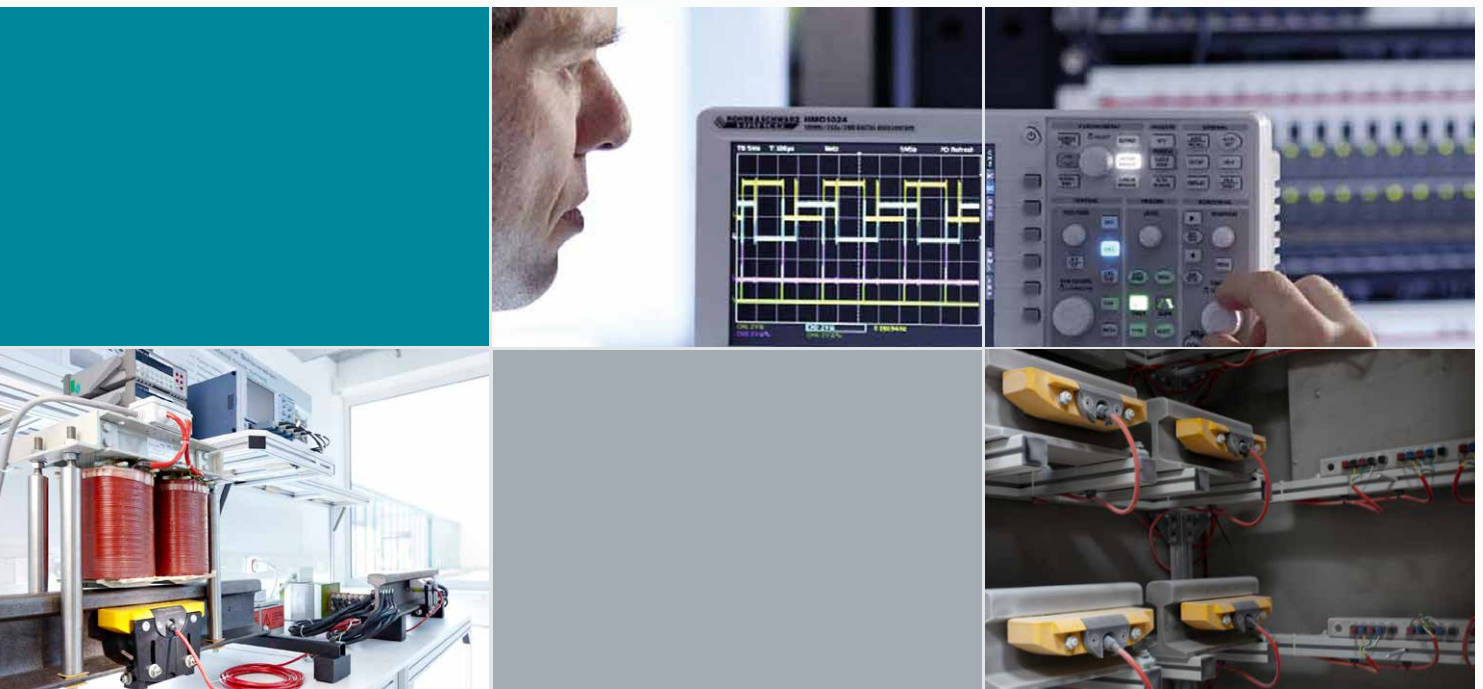
Based on these operating principles Josef Frauscher developed an inductive sensor for the detection of train wheels in 1987, which was called RSR180. Its current equipment version is still manufactured in large quantities today. The growing success of these products in the market led Josef Frauscher to found the sole proprietor company Frauscher, which was absorbed into Frauscher GmbH in 1992. A private foundation and Frauscher Holding GmbH form the parent company for Frauscher Sensortechnik GmbH, based in St. Marienkirchen, Austria as well as its subsidiaries in England, Poland, China, India, Brazil, Australia, USA and representative offices in Kazakhstan and Malaysia.

TECHNOLOGY



MAXIMUM QUALITY

Frauscher is a worldwide leader in the field of inductive sensor production for railway applications. A high level of vertical integration, consistent quality assurance and function control of components and systems as well continuous optimization of all production steps ensure the superior quality of our products. Safe, reliable and precise wheel sensors are the result of optimal combination of mechanical and electronic components as well as years of experience in the usage of a wide variety of materials and processes.



HIGHEST SAFETY

6 | 7

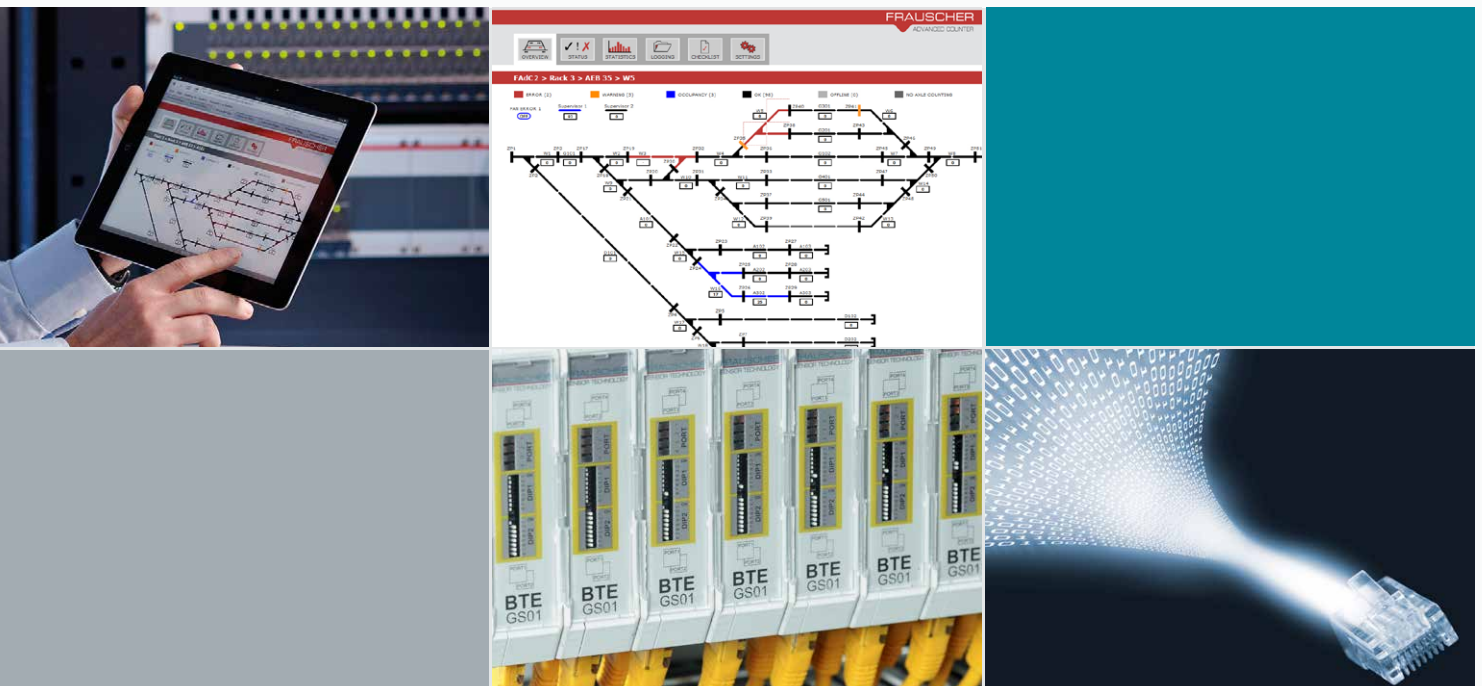
The development division has consistently implemented CENELEC standards EN 50126, EN 50128, EN 50129 and EN 50159 for all processes and procedures of the development stage. The independent RAMS Management division ensures compliance with these standards within the company. Advanced and powerful laboratory equipment ensures target-driven economic system development through continuous practical verification of system properties. State-of-the-art development environments and tools are integral parts of Frauscher's investment strategy.

PORTFOLIO



AXLE COUNTERS

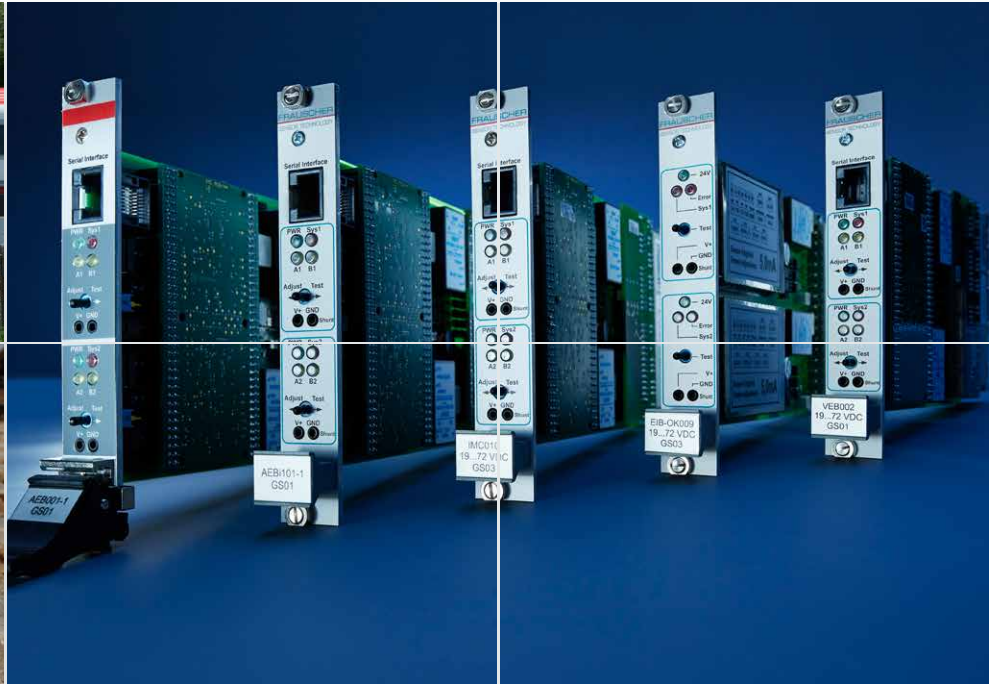
Axle counters are already being used all over the world by many rail operators as a reliable and cost-effective train detection system. They are able to provide higher-level systems with a great deal of information beyond just train detection. At the same time, they can be integrated very effectively into interlocking and signalling systems using state-of-the-art interfaces.



DIAGNOSTICS

So as to ensure reliable operation and afford simple and cost-efficient maintenance of the systems, Frauscher offers a vast range of tools for diagnostics and maintenance as well as configuration and read-out tools. The Frauscher Diagnostic System FDS is compatible with all axle counting systems by Frauscher and, in addition to the display of important system information using a web browser, also provides timely transmission of alarms and failure messages via SMS and e-mail.

PORTFOLIO



WHEEL DETECTION SYSTEMS

Frauscher wheel detection systems are the basis for safe and highly available applications. Component combinations and specific software are selected based on a systematic analysis of functional requirements, customer specifications and conditions of use. In addition to wheel detection, other information such as speed, wheel diameter and driving direction are safely and reliably detected and transmitted to superordinate systems like axle counters and level crossings.

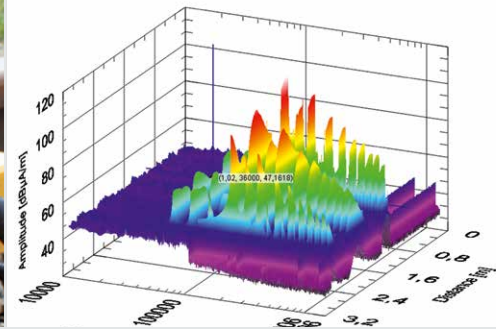


WHEEL SENSORS

10 | 11

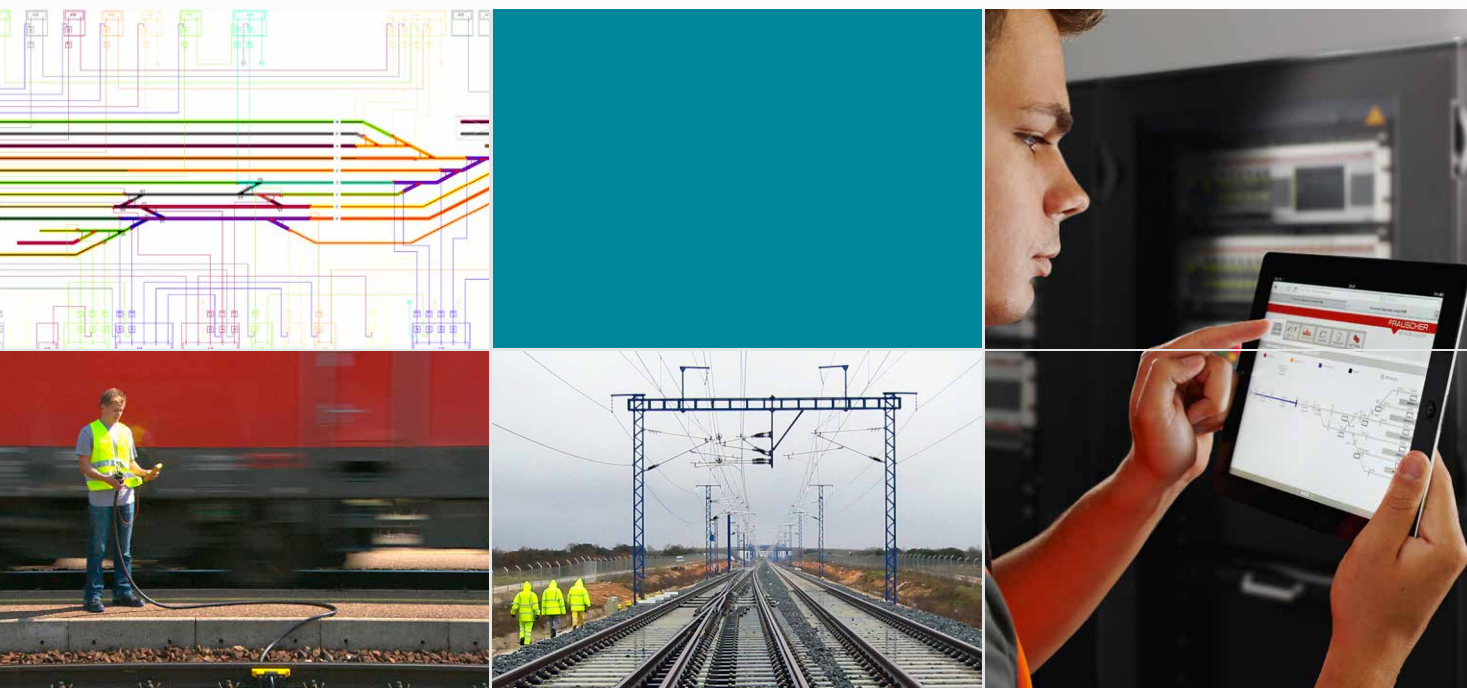
The new, highly-resistant Frauscher Wheel Sensor RSR110 guarantees that individual applications can be implemented in a way that offers high availability and cost-effectiveness. Based on the open analogue interface, it can easily be integrated into the existing electronic systems. The RSR110 combines very high availability with maximum flexibility. The analogue signal can be interpreted precisely in line with your own definition, in accordance with specific requirements.

PORTFOLIO



MEASURING SYSTEMS

The availability of wheel detection and axle counting systems depends decisively on the electromagnetic interference at the sensor – vehicle interface. Detection and evaluation of such interferences are the basis for Standard EN 50238-3. Based on its experience in the field of sensor technology Frauscher developed the Magnetic Noise Receiver MNR measuring system, which detects the electromagnetic interferences of vehicles in the 10 kHz to 1.3 MHz frequency range.



CUSTOMER SERVICE

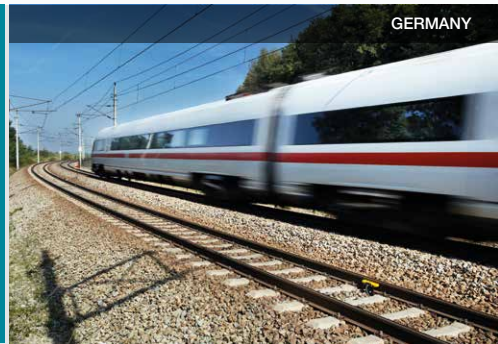
12 | 13

Frauscher is highly customer-focused in all of its services. This encompasses both, individual planning and project design, as well as the provision of support for installation and commissioning. Test installations verify the reliability of the system under customer-specific basic conditions. A comprehensive training programme ensures that operators are able to install the systems independently, operate them on a long-term basis, maintain them and even configure them where necessary. This guarantees complete independence and minimal life cycle costs.

FRAUSCHER WORLDWIDE



AUSTRIA



GERMANY



INDIA



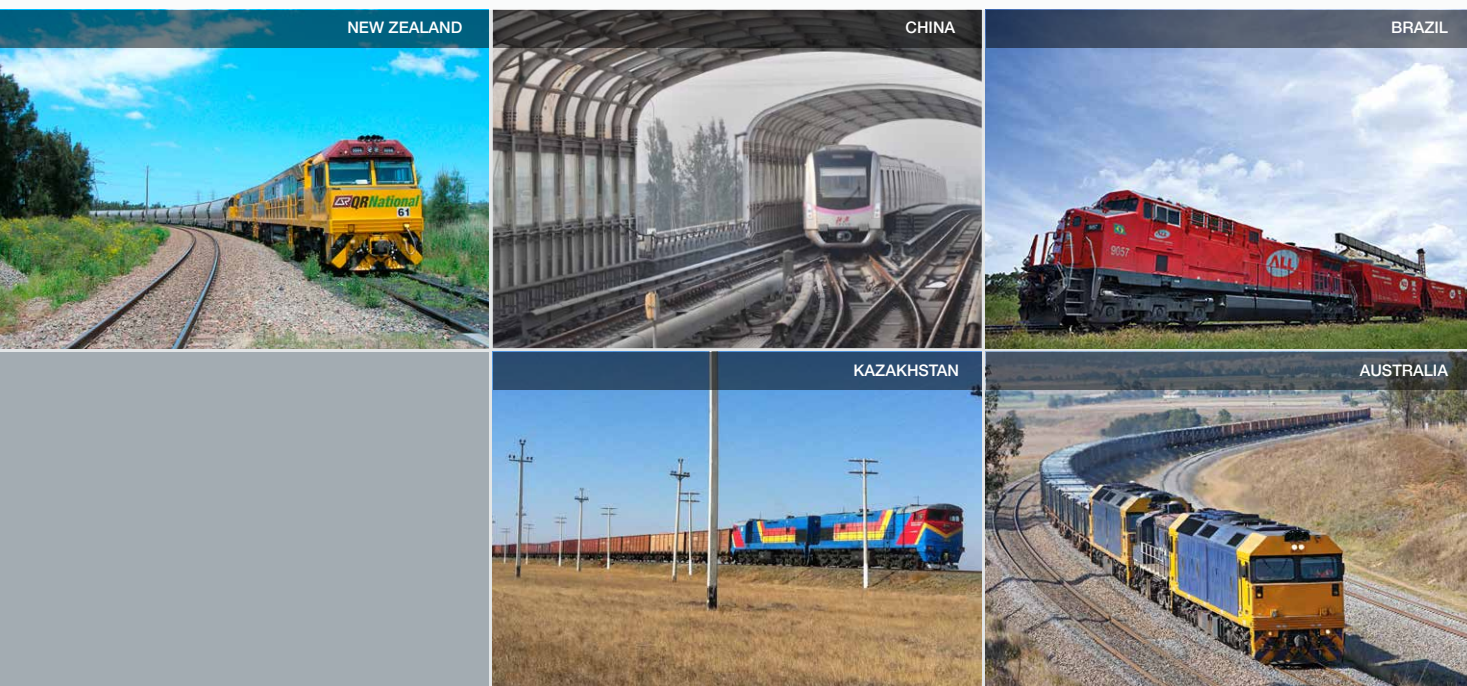
USA



SOUTH AFRICA

Frauscher products can be found on all continents and in more than 70 countries of the world.

All Frauscher axle counters, wheel detection systems and wheel sensors can be used on various integration levels. Based on flexible, analogue or digital interfaces, integration can be easily done using existing infrastructure. Software interfaces can be implemented using a customised protocol or the freely available software protocol Frauscher Safe Ethernet FSE. This enables to support individual requirements by generating various information and provide them to all kinds of higher level systems.



Leading technology for individual requirements

Rail Market Segments:

- » Main Lines
- » Urban & Mass Transit
- » Industrial & Mining

Frauscher wheel sensors and evaluation boards can be used in a wide range of applications and on various kinds of railways, such as Main Lines, Urban & Mass Transit or Industrial & Mining. Each segment has its very specific requirements that can be handled by Frauscher components due to maximum flexibility, highest quality and adherence to individual security requirements.

FRAUSCHER WORLDWIDE



Optimal support for customers and projects has always been a focal point of the company's business philosophy. This objective has been achieved for many years now either through cooperation with partners in different countries or by the establishment of branch offices for sales and servicing.



International projects and subsidiaries have increased Frauscher's experience with a wide variety of systems and infrastructures. These insights are the impetus behind ongoing research and developments to handle technical challenges all over the globe, such as extreme temperatures, high vibration levels, electromagnetic interference, flooding, lightning strike and more. On that base a professional approach to different operational requirements is enabled. This ensures maximum availability of all Frauscher solutions.

AWARDS



Frauscher Sensortechnik GmbH has been certified for years for its Quality Assurance systems (ISO 9001), its Environmental Management System (ISO 14001) and for its Occupational Health and Safety Information System (OHSAS 18001). The particularly careful use of energy and raw materials is visible and traceable in the company. A large percentage of power requirements of our buildings and processes is obtained from renewable energy sources and used as efficiently as possible. In 2000 this sustainable strategy was awarded the Energy Globe Award. Frauscher has been certified to the International Railway Industry Standards (IRIS) since 2013. Following an assessment of its long-term quality strategy, the company passed first time and without reservation.



HEADQUARTERS

Frauscher Sensortechnik GmbH
Gewerbestraße 1 | 4774 St. Marienkirchen | AUSTRIA
T: +43 7711 2920-0 | F: +43 7711 2920-25 | E: office@frauscher.com