

PERFORMANCE ON TRACK®

DRIVE, LOCKING AND DETECTION SYSTEMS AND SIGNALING SOLUTIONS

Innovative solutions for all railway applications

TRENDSETTER AND TECHNOLOGY LEADER

Maximize track availability
Increase time between inspections
Optimize maintenance cycles

As a trendsetter in the fields of drive, locking, signaling, and monitoring technology, voestalpine Signaling Group is committed to helping you and ensuring your success. All our innovative products as well as system and service solutions are adapted to the respective needs of your company so that we can guarantee the highest level of quality and cost efficiency. Our intelligent and sustainable complete concepts offer the highest levels of availability and reliability whilst guaranteeing maximum safety for passengers and goods being transported – all while keeping life-cycle costs low. Sophisticated diagnostic and alarm systems effectively prevent unnecessary preventive maintenance and complete our comprehensive portfolio. Our extensive expertise allows us to identify new challenges promptly and to work with you to develop the ideal solutions.



WORK WITH US AND REMAIN ONE
STEP AHEAD – NOW AND IN THE
FUTURE.



You will benefit from:

- » Complete, customized solutions, perfectly adapted to your needs
- » One-stop shopping – intelligent turnout setting systems from one source
- » Low life-cycle costs due to the highest levels of efficiency, availability, reliability, maintainability and safety
- » Just-in-time delivery for a drastic reduction in installation costs and time
- » Optimization of the inspection and maintenance periods by using components which require virtually no maintenance
- » Maximization of track availability with the implementation of innovative diagnostic systems
- » Productive and cooperative partnership
- » More than 160 years of experience in the turnout technology industry

HYDROSTAR®

Your setting system for maximum performance

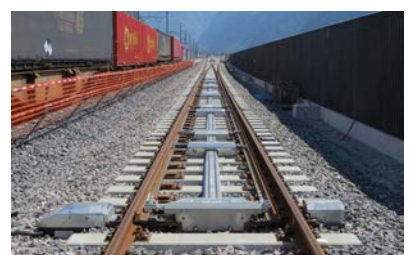


HYDROSTAR® is our complete solution in the field of innovative setting systems. In order to be able to meet your requirements in the high-performance range, we have developed a combined drive, locking and detection system for both switch assemblies and movable crossings. Ideal for use in high-performance tracks, the system features positive locking, even for the open switch blade. As an effective cost benefit for you, all variants only require one drive unit for integration into the signal box.



You will benefit from:

- » Compatibility with different signal box technologies
- » Easy inspection and maintenance
- » Minimal servicing requirements
- » Encapsulated components (protection class IP65)
- » Low life-cycle costs
- » Suitable for all turnout types
- » Availability for switch assemblies and movable crossings
- » Highest level of reliability and availability with maximum safety
- » A system evaluated in accordance with CENELEC 50126/50129 (SIL 4)



REFERENCES:

(extract)
Österreichische
Bundesbahnen ÖBB
Deutsche Bahn DB
Eesti Raudtee
Korea Railways
Alp Transit Gotthard ATG
Căile Ferate Române CFR



MAXIMUM EFFICIENCY FOR A COMPETITIVE EDGE

The HYDROSTAR® setting system provides you with optimum efficiency by consistently minimizing life-cycle costs. This starts at production level, where only the highest-quality materials are used in state-of-the-art production processes to create reliable systems which meet the highest demands. The use of individually tested assemblies and just-in-time delivery to the installation point guarantee maximum availability of your railway track. Easy maintenance and long periods between inspections also help to secure your competitive advantage.

INTELLIGENT TECHNOLOGY THAT MAKES ALL THE DIFFERENCE

Our extensive experience and comprehensive expertise in the field of turnout systems enable us to offer you innovative solutions now for the technical challenges of the future. The HYDROSTAR® setting system is suitable for all turnout geometries and track superstructures. Optimum noise minimization can be ensured through the use of hydraulics. The system also features high environmental compatibility in accordance with ISO and OHSAS standards as well as resistance against temperature fluctuations. Fully automated tamping when installing in hollow sleepers also guarantees the highest level of efficiency.

YOUR BENEFITS:

- Cost efficiency
- Quality controls
- Punctual delivery
- Reliability
- Close customer relationship



UNISTAR HR

Innovative switch machines for the highest demands



The UNISTAR HR series was developed in order to guarantee you maximum reliability and safety even under the most adverse environmental conditions. As a modular point machine system, the UNISTAR HR series meets the highest demands, is certified to SIL 4 and can be used universally regardless of the type of turnout, power supply and control technology. The series is implemented worldwide and achieves impressive results in mixed-traffic, heavy haul and metro systems.

The system offers high flexibility and enables diverse installation options due to the separate arrangement of the drive and setting/locking unit in two IP67-certified, water-tight and dust-tight housings. A motor unit with hydraulic drive operates several setting and locking units in the turnout. The compact dimensions of the modules significantly reduce the space required and the installation time, thus ensuring optimum cost efficiency. At the same time, the use of the highest-quality materials ensures maximum service life, minimal maintenance and maximum track availability.

The UNISTAR HR series demonstrates worldwide market-leading quality and reliability under the most demanding environmental and operating conditions.

FLEXIBLE MOUNTING VARIANTS ON THE TRACK

INSTALLATION ON CONCRETE SLEEPER OR HOLLOW SLEEPER

Due to the low overall height of the drive, installation on the concrete sleeper or in the hollow sleeper is possible without any influence on the automatic track tamping. At the same time, the patented installation on the concrete sleeper increases the stability of the track, thereby avoiding unwanted changes in the steel sleeper in the ballast bed.

STOCK RAIL FASTENING

An installation frame – for fastening on the stock rails – holds the UNISTAR HR modules, enabling the retrofitting of existing turnouts as well as installation in the space between sleepers. In addition, this installation frame also assumes track-holding functions.

MOUNTING BRACKET

Special mounting brackets enable direct fastening onto concrete support slabs as well as fastening onto adjacent wooden sleepers.

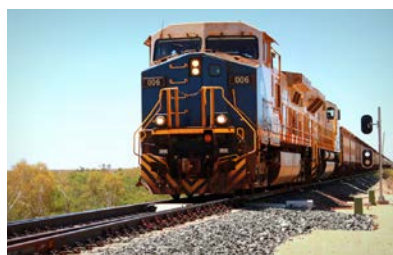
UNISTAR HR COMPACT

COMPACT AND VALUE FOR MONEY

The drive and setting units on our UNISTAR HR compact variant are arranged traditionally in one housing, which can be fixed outside of the track. Due to this classic construction, the compact variant provides a cost-effective alternative in which the drive and setting unit are identical to the innovative technology used in the UNISTAR HR version. In addition to the version with an integrated locking system, UNISTAR HR compact is also available in a version with friction holding for sidings and feeder tracks. For further setting levels, additional locking units are coupled with the main drive.

You will benefit from:

- » The highest level of flexibility for applications in standard gauge railways, heavy haul operations, metro systems and suburban railways
- » Uncompromising reliability even under adverse environmental conditions
- » Maximum service life, minimal maintenance and maximum track availability
- » Optimum cost-effectiveness and efficiency
- » Electrohydraulic or electromechanical drive type
- » Several setting levels
- » Flexible application options in turnouts with or without switch blade connection rods and in crossings with movable nose



REFERENCES:

(extract)
Metro Buenos Aires
Metro Sao Paulo
Metro Sofia
Metro Copenhagen
RATP Paris
BVG Berlin
Iranian Railways
ATM Metro Mailand
Ampang Line
Kuala Lumpur

YOUR BENEFITS:

Water-tight and dust-tight in accordance with IP67
Small module dimensions
Minimized space requirements
Low construction costs
Reduced construction site work



COMBINED SETTING SYSTEMS

Pioneering complete solutions with added value for you

We work with you to develop innovative complete solutions which are individually tailored to your needs within the field of combined setting systems. Our drive, locking and detection systems comprise high-speed, heavy haul, standard and local transport solutions and are suitable for all turnout geometries and track superstructures. The use of encapsulated components reduces maintenance work to a minimum and achieves cost benefits. At the same time, our monitoring systems enable the reliable prevention of errors due to early detection and thus guarantee maximum track availability. In the event of an error, a precise error analysis enables the effective reduction of downtimes and related costs.

You will benefit from:

- » Low life-cycle costs
- » Modern electrohydraulic drive systems
- » The operation of multiple setting levels and movable crossing noses
- » Excellent reliability even under adverse environmental conditions thanks to the encapsulated design (IP67)
- » Massively reduced service work
- » Innovative installation possibilities
- » Highest level of availability and safety (SIL 4)

POINT MACHINES

AH950 AND ECOSTAR

Both of our point machines, AH950 and ECOSTAR, feature extremely compact constructions and are used for setting Vignoles rail turnouts, regardless of the width of the track or the type of construction. They are connected to an external lock and are ideal for both local and long-distance traffic. The excellent functionality of AH950 and ECOSTAR point machines is ensured by an electrohydraulic drive and a detection module to monitor the switch blade end positions, including locking of the detector bars.



REFERENCES:

(extract)
 Österreichische Bundesbahnen ÖBB
 NCA Rosario
 UGOFE
 Fenoco
 TCDD
 BDZ
 Metro Trains Melbourne
 Deutsche Bahn DB
 MÁV
 Bursaray
 Metrô de Salvador
 Mass Rapid Transit
 Manila
 VAG Nürnberg

LOCKING SYSTEMS

SPHEROLOCK®

Our fully encapsulated, long-term lubricated locking system, SPHEROLOCK®, is suitable for all turnout types, including movable crossings. The SPHEROLOCK® features a newly developed locking principle and impresses users with its extremely high level of reliability, low maintenance requirements, environmental compatibility and long service life with low life-cycle costs.



REFERENCES:

(extract)
 Österreichische Bundesbahnen ÖBB
 MÁV
 PKP
 LDZ
 Wiener Linien
 Aurizon
 VALE



FORCE TRANSMISSION SYSTEMS

Power redefined

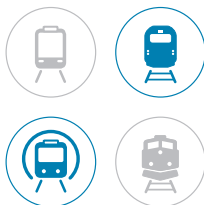
Powerful and reliable back drive systems are essential components to ensure maximum efficiency when operating your railway track and to reduce service costs on a long-term basis. Our polygon and torsion rods as well as our HYDROLINK® system excel in every regard with their excellent material quality, low maintenance requirements and universal usability in all turnout geometries.

You will benefit from:

- » Easy installation and operation, as well as minimal service work
- » Retrofitting capability
- » Combination possibilities with all common locking and drive systems
- » Usability in all turnout geometries

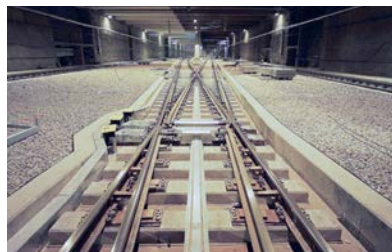
HYDROLINK®

HYDROLINK®, our closed hydraulic system for efficient force transmission, can be combined with all common locking and drive systems and is suitable for all turnout geometries. It features up to 4 setting levels. With its innovative design, the HYDROLINK® system features outstanding noise minimization during operation. Pressure builds in the drive cylinder during the setting process and is subsequently transmitted by hydraulic lines into the further locking levels in the switch assembly or to the movable crossing. Setting cylinders which are connected to the lockings are also actuated there. The easy installation and operation are what make this system so particularly efficient.



REFERENCES:

(extract)
 Österreichische Bundesbahnen ÖBB
 Lietuvos Geležinkeliai
 MÁV
 UGOFE
 TCDD
 LDZ
 Euskotren Trena



POLYGON AND TORSION BACK DRIVES

Our polygon and torsion back drive systems are setting devices for optimum power transmission which are used to operate up to three locking positions. The compact systems are installed in the center or on the side of the track, are fully covered and can be used efficiently for all turnout geometries.



REFERENCES:

(extract)
 Österreichische Bundesbahnen ÖBB
 Aurizon



END POSITION DETECTORS

Our state-of-the-art end position detectors make a crucial contribution to ensuring the availability of railway tracks and to sustainable operational safety. Our universal end position detectors work independently of the signal box technology and can be used with all turnout types, track widths and Vignoles rail designs.

You will benefit from:

- » Independence from signal box technology
- » Easy installation and operation, as well as massively reduced service work
- » Compact and narrow design
- » Highest level of reliability even under adverse environmental conditions (protection class min. IP65)
- » Universal usability for all turnout types, all track widths and Vignoles rail designs

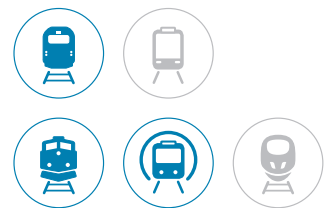
EPD 4.0

We have successfully combined our extensive technological expertise to your advantage for the development of our future-oriented approach to the EPD 4.0 end position detector. This module is an end position detector to be installed outside the track on existing sleepers, which simultaneously monitors the central position of turnouts as well as the position of the closed and the open switch blade and is thus suitable for all track widths and Vignoles rail designs.



IE 2010

Our internal end position detector/field detector, IE 2010, monitors the position of turnout switch blades and detects switch blade end positions, gauge narrowing/expansion and possible turnout trailing indicators. Furthermore, the minimum switch blade opening in the lock area is also monitored. The IE 2010 is particularly characterized by its narrow dimensions which make it ideal for continuously tampable turnouts.



REFERENCES:

(extract)
Österreichische
Bundesbahnen ÖBB
AURIZON



REFERENCES:

(extract)
Österreichische
Bundesbahnen ÖBB
Alp Transit Gotthard ATG
Schweizerische Bundesbahnen
SBB
Korean Railways
CPTM, TCDD

TURNOUT SETTING SYSTEMS FOR LOCAL TRANSPORT

Pioneering technology

The highest levels of safety and reliability are crucial for the sustained, efficient operation of local transport routes. Using future-oriented technology, we can help you increase your competitive edge, achieve maximized track availability for your system, minimize service costs and ensure the latest safety standards. The specific requirements of the local transport sector, such as low noise generation and high resistance to environmental factors, were taken into account throughout the development of our components while also ensuring the greatest possible flexibility and easy integration into existing systems.

You will benefit from:

- » Maximum flexibility and optimum customer benefit
- » Robust components, for use under adverse environmental conditions
- » Highest level of reliability and minimum maintenance work
- » Easy retrofitting capability
- » Low life-cycle costs

UNISTAR CSV 34

Designed for setting grooved rail and Vignoles turnouts from a track width of 900 mm with central installation, our manual turnout setting system, UNISTAR CSV 34, meets the highest demands with regard to quality, durability and safety. The use of the water-tight version in accordance with IP67 has become more prevalent in recent years in order to minimize maintenance work and to ensure maximum reliability. The outstanding quality of the system is also evident in the use of high-quality materials such as stainless steel and induction-hardened special steel. It is possible to convert from fold to fall-back mode within 5 minutes without additional components. The maximum switch blade opening is 80 or 120 mm. Two separately adjustable end position dampers enable the separate damping of both switch blades.

REFERENCES:

(extract)
Kaoshiung Tram
SWM München
SSB Stuttgart
Super Tram Sheffield
ATAC Rom
Bergen Light Rail





UNISTAR CSV 24

Our electric turnout setting system, UNISTAR CSV 24, was developed for setting grooved rail and Vignoles turnouts from a track width of 900 mm with central installation. It features stainless steel housing, a permanently water-tight design thanks to a special sealing system, the monoblock hydraulic unit with integrated setting cylinder, the easily accessible prismatic lock made of high-quality special steel as well as the modular design which significantly simplifies and minimizes maintenance. The setting path can be adjusted continuously from 38 mm to 120 mm. Thanks to the modular design, your investment is future-proof as the lock and detection elements can be retrofitted at any time. UNISTAR CSV 24 can be easily retrofitted into existing ground boxes thanks to its compact and flat structure. The system can also be easily tailored to existing signal technology at any time.



REFERENCES:

(extract)
 BVG Berlin
 Metro Constantine
 Tram Cuiabá
 Hong Kong Tramways
 Le Tram Dijon
 Edinburgh Tram Network
 Tram Edmonton



SIGNALING TECHNOLOGY

Intelligent complete solutions for uncompromising system security

The economical operation of railway tracks requires the latest technologies. With our future-oriented solutions in the field of signaling technology, we can offer you an extensive product range in order to ensure optimized utilization of your tracks. Our systems reliably monitor the central points of your systems and support your employees with the efficient management of operational requirements. This increases safety on a long-term basis and prevents costly failures. At the same time, the outstanding quality of our products' components reduces maintenance work to a minimum, even with high utilization.

You will benefit from:

- » Low service costs
- » High track availability
- » Extensive remote diagnostics possibilities
- » Innovative technology for a competitive advantage
- » Flexible application possibilities for the highest demands

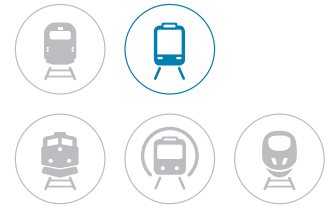
UNILOCK

Our UNILOCK system was developed in order to provide you with the highest level of flexibility and transparency in turnout control, thanks to its module structure. The control system is divided into individual function modules and can be easily adjusted to meet the specific needs of your system using the same components. The design of the control and the detection modules in the 19" plug-in card system makes it much easier to replace the modules if necessary.

Every UNILOCK turnout control comprises 4 modules:

- » Power unit: Power supply, actuator technology for different supply voltages
- » CPU rack: UNILOCK controller modules
- » Peripheral rack: Interface and detection modules
- » Controller: Interface to the track switching device and signals

The modules can be combined in any way using the integrated plug-in connectors.

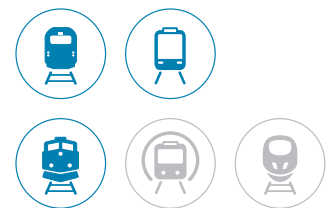
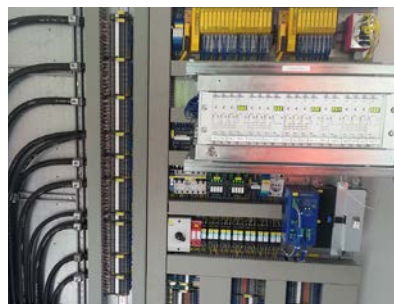


REFERENCES:

(extract)
KVB Köln
Rheinbahn
Sporveien Oslo
BVB Basel
SVF Frankfurt O.

UNILOCK TUZ

UNILOCK TUZ is our innovative system which guarantees safe and economical operation on single-track routes with multi-train operation. As a technical security system, UNILOCK TUZ monitors the track blocks between two railway stations (train reporting points) and can be operated either on the basis of dispatcher control or the axle counting system. The two-channel PLC control secures the individual sections and receives the analyses of our UNIAC axle counting system. In the event of unintended train movement on the single-track route section (collision paths, trailing), the INDUSI magnets remain active and the train is forcibly braked. The system also enables the integration of signals protecting a point of danger. The route sections can be monitored and viewed via the central control room.



REFERENCES:

(extract)
Deutsche Bahn DB
Hohenzollerische
Landesbahn
Rheinland Pfalz Bahn
Erms Neckartalbahn
Württembergische
Eisenbahngesellschaft
Südwesteisenbahngesellschaft

UNILOCK EOW BASIC CONTROL



REFERENCES:

(extract)
 Hafen Stuttgart
 Hafen Linz AG
 Benteler Automotive
 HRW Riyad
 London C-sidings

Our EOW control features the highest degree of reliability and flexibility. It is ideal for setting one or more turnouts with routes. The impressive control features a compact design and was specially designed for harsh environments. The key feature of the EOW system is the SIL-certified secure 4-wire assembly. Depending on the configuration level of the UNILOCK system, requirements up to safety level SIL3 can be met. UNILOCK EOW can implement and give the commands Request, Turnout setting, Turnout locking, Turnout help key, Trailing and Turnout position. All commands are processed reliably by the four-wire card. The periphery around the control can be executed with various components. Route connections are established via an additional secure 2-channel PLC. This enables the highest level of flexibility when integrating, for example, port cranes, roller gates or level-crossing systems.



PHS 1601 POINT HEATING SYSTEM



REFERENCES:

(extract)
 ÜSTRA Hannover
 KVB Köln
 BVB Basel
 T-Bane Oslo
 El Paso

The PHS 1601 point heating system was developed for the control and monitoring of electric turnout heater rods. The system can be remotely monitored using a web browser and has a modern Ethernet interface. The high-performance system can efficiently control and monitor up to 12 turnout heater rods or 12 turnouts, each with two heater rods in three heating groups. The system reliably recognizes defects in the heater rods and indicates these via a potential-free contact. The switching thresholds which turn the points heating on and off are freely adjustable via the intuitive menu navigation. All measured values are shown in detail on the PHS 1601-CPU display.





UNIAC[1] AND UNIAC[2] AXLE COUNTING TECHNOLOGY

UNIAC[1]

The CENELEC SIL4-approved axle counter system, UNIAC[1], is used for the safe monitoring of track and turnout sections. Wheel sensors of type UniAS1 are installed onto the rail using a rail clamp at the beginning and end of a monitored section. Wheels that enter a monitored area are detected and counted by these sensors. Wheels can be counted in and out on the basis of the detected direction of travel. If the detected number of axles counted in and out of a section is identical, then the monitored track section is signaled as free. The occupied and free signal is provided in the inner system via potential-free relay contacts or via a secure Ethernet interface of the signal box technology. UNIAC[1] can be implemented into main lines, tramways, subways and covered track areas.



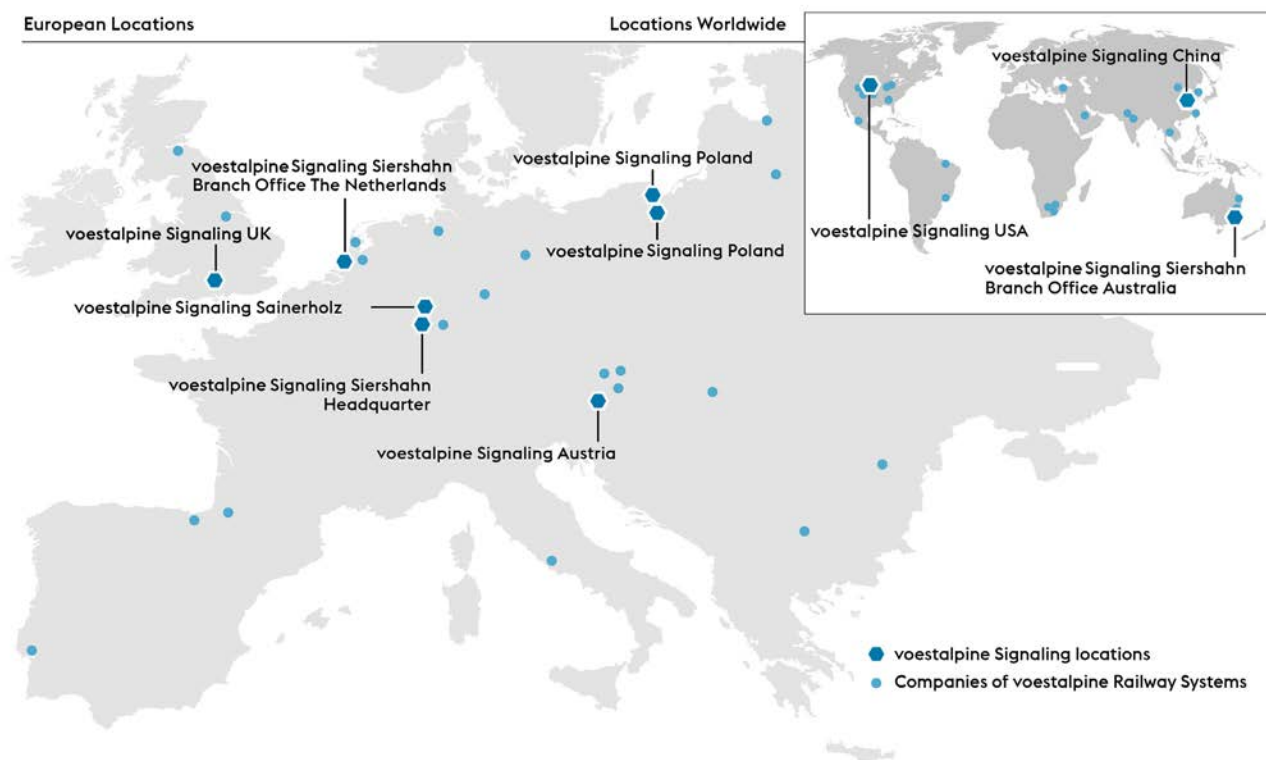
REFERENCES:

(extract)
 PKP
 Hohenzollerische
 Landesbahn
 Häfen Linz Güterbahnhof
 Tramway de
 Sidi-Bel-Abbes

UNIAC[2]

New design approaches in development as well as current network technology form the basis of the axle counter system UNIAC[2]. Every counting point in a network can be integrated into a counting circuit. Above all, this makes it possible to equip cross-station track layouts with axle counting technology simply and cost-effectively. As well as signaling safety, special attention was given to IT security, and cryptography (AES-256) was integrated into the assemblies at hardware level. Additional functions such as eight freely programmable I/Os can take on tasks from other systems easily and securely. It is also possible to integrate signal boxes quickly and smoothly via potential-free relay contacts or via a secure protocol interface.





THINK GLOBAL – ACT LOCAL

With its Signaling division the group is a trendsetter in turnout equipment and signaling technology under the strong voestalpine Railway Systems 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

Innovation, service and customer proximity are the key values of our corporate philosophy. We have therefore divided our expertise in the turnout setting system and signaling technology industry into two locations, in order to stay one step ahead when developing future-oriented technologies for your benefit, and to keep up with your needs.



voestalpine Signaling Austria

Our subsidiaries in Zeltweg and Vienna produce drive, locking and detection systems in the standard and high-speed ranges. This is where we develop individually customizable products as well as complete system solutions in combination with innovative force transmission systems. 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 Sainerholz

Our site in Sainerholz produces switch machines and control systems for turnouts and signals. With 30 years of experience and expertise, we develop systems here to increase train operation safety. This includes signaling solutions such as the control of track guidance and turnouts, the execution of automatic stops and state-of-the-art signaling systems for railway stations and depots.

PERFORMANCE ON TRACK®

voestalpine Railway Systems, a subsidiary company of voestalpine AG, is the global leader for railway infrastructure system solutions, offering outstanding products, logistics and services for rails, turnouts, signaling and monitoring applications. As the global track technology company and full-range supplier, we offer our customers throughout the world fully integrated railway solutions for all types of rail traffic. Creating maximum customer benefit is the driving force behind all our activities.

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voestalpine

ONE STEP AHEAD.