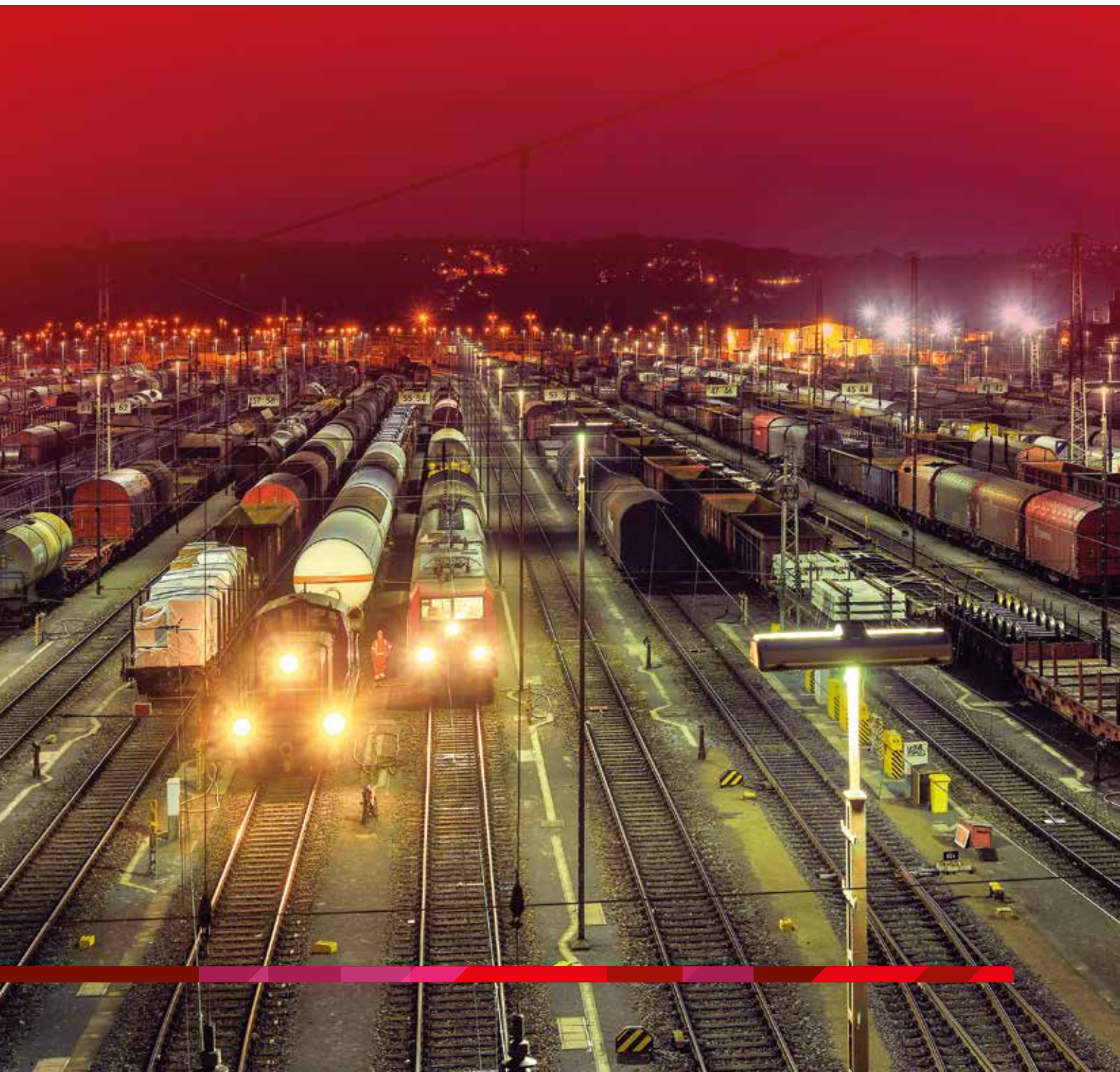


We set Priorities.  
System Solutions for Rail Infrastructure.



Nomen est omen   <b>Our PINTSCH Product Family</b>	4-5
Axle Counting Technology and Sensors   <b>PINCLIRIO</b>	6-7
DEOW   <b>PINMOVIO</b>	8-9
Diagnosis   <b>PINDIAGON</b>	10-11
Haulage Technology   <b>PINPOSITON</b>	12-13
Interlocking System Technology   <b>PINMOVIO</b>	14-15
Level Crossing Technology   <b>PINPROTEGIO</b>	16-17
Lighting Technology   <b>PINLUXON</b>	18-19
Point Heating Systems   <b>PINCALIO</b>	20-21
Point Machine   <b>PINMOVIO</b>	22-23
Planning and Projectmanagement	24-25
Service	26-27

# CONTENTS



Dear customer and partner,

We like to say it again and again: The PINTSCH brand stands for safety and availability in national and international rail traffic. As a manufacturer of safety-relevant products for railway infrastructure, we focus our range of products on the provision of systems, components and services, from the initial design, development, approval and planning, production and assembly on to commissioning and turnkey handover. Our system solutions are tailor-made, individually dimensioned and precisely adapted to their respective requirements. To transform operational requirements into reliable technology.

For you, we are constantly working to competently and reliably realize every feasible customer requirement. We always have the changing markets in mind. Far-sighted investments in the development of our products and employees, clear goals and the courage to change ensure that we can produce and supply you with high-quality and reliable products with sustainable quality.

And in case you wonder how it all started: with inventiveness, expertise and a gut feeling for business. Julius Pintsch laid the foundation stone for the company's steep rise more than 175 years ago. From the German master plumber, who founded his own workshop in a small cellar room in Berlin in April 1843, specialising early on in the manufacturing and installation of gas lighting in railway carriages - an absolute novelty at the time, by the way - to the renowned entrepreneur of a public limited company named after him, who produced, among other things, steam heating systems for railway carriages and - being the only one in Europe - gas incandescent light burners.

Since then, our company has never stopped looking ahead, taking new paths, thinking outside the box and growing. Then as now, our particular strength lies in our high flexibility and innovative power. We keep a close eye on the rail infrastructure market and, regardless of the task, always focus on: safety for the railways - safety for people.

We look forward to working with you!

The employees of PINTSCH GmbH





[https://youtu.be/vKX\\_P7dzQa4](https://youtu.be/vKX_P7dzQa4)

## We proudly present – the names of our PINTSCH product family

There is a Latin saying "Nomen est omen". We say: "These names tell the story". Until now, our product names consisted of letters and numbers. Now we have changed that.

The current names reflect precisely the business areas to which our product fields are assigned to. In order to establish the connection and recognition to our company name, all product names begin with the three letters PIN. With this naming system and the ending with -io and -on, the names sound sustainable and strong and ... they have a good sound.

The corresponding film is available in our media center at <https://pintsch.net/en/about-pintsch/media-library>.



### **PINPROTEGIO** Level Crossing Technology

The word PROTEGIO is derived from the Latin term „protegere“ and means „to protect“. And this is exactly where our focus lies in level crossing technology: the protection of people.



### **PINMOVIO**

#### **Interlocking and Shunting Technology**

The word MOVIO is derived from the English „to move“. In other words: we move the flow of goods, the flow of goods remains in flux.



### **PINPOSITON**

#### **Haulage Technology**

The word POSITON is derived from English and means „to place“. With the help of our technology, PINTSCH positions heavy goods and trains.



### **PINCLIRIO**

#### **Axle Counting Technology**

The word CLIRIO is derived from the English „to clear“ and means „to release“. And that's what our axle counting technology, among other things, does with its wheel sensors: they clear the tracks and ensure safe maneuvering and onward travel.



### **PINCALIO**

#### **Point Heating**

The word CALIO is derived from the Latin word „CALOR“ and means „warmth“. With our point heating we keep the moving parts of the points free of snow and ice and thus ensure smooth train traffic.



### **PINLUXON**

#### **Signals**

The word LUXON contains the word „LUX“. This is derived from Latin and means „light“. Our signals provide unmistakable safety on railway tracks, level crossings or as switch position and order detectors and as shunting signals.



### **PINDIAGON**

#### **Diagnostics**

The word DIAGON is derived from the terms „diagnosis“ and „diagonal“. A data server collects all information from the field and processes this data for web pages that can be displayed using different internet browsers. This way, the user has „everything in view and therefore everything under control“ in the shortest possible way.





## Axle Counting Technology and Sensors. PINCLIRIO. We provide more than just impulses.



As component manufacturer, we supply various inductive or magnetic sensors for the industry as well as sensors for detection and axle counting of rolling stock, based upon our previous activity as a specialised supplier in the coal mining area and the experience gathered there.

We also deliver axle counting systems to signal vacant and occupied states of points and tracks in interlocking system technology, for controlling level crossings by approaching rail vehicles and for other tasks.

### **Sensors for industry and mining**

Compared to other commercially available sensors, our proximity switches, solenoid switches and fill level monitors (level switches) feature a unique sturdiness and longevity even under extreme environmental conditions.

Examples are hot rolling mills and presses in steel plants as well as underground mining or applications in the chemical industry with additional requirements regarding intrinsic safety and explosion protection.

Our customers benefit from our know-how and longstanding experience due to our application-oriented consulting, combined with additional devices for the evaluation of sensor signals. This guarantees the ideal solution for the specific application.

### **Wheel sensors for railways**

Our wheel sensors refined the principle of the inductive proximity switch and adapted it for the railway infrastructure. The sensors are attached to the rail and contactlessly capture the metallic flange of rail vehicle wheels. These characteristics open up a broad range of applications, starting from simple switching and positioning tasks up to direction detection and axle counting.

Our know-how in developing and manufacturing wheel sensors for railway and light rail systems is based upon more than 30 years of experience, in which these products have been constantly improved.

### **Axle counting systems - track vacancy detection and more**

Main tasks of our axle counting systems is the failsafe detection of vacant and occupied states. Wheel sensors are used to build track sections where an evaluation system counts the single impulses caused by the wheels as incoming or outgoing "axles". A comparison of the results provides the vacant and occupied information.

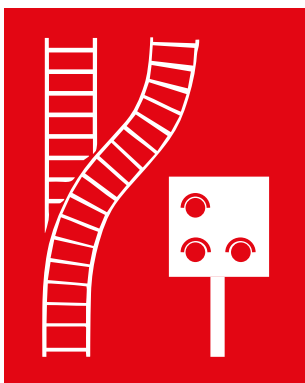
Our axle counting systems are certified for the highest safety integrity level SIL 4. As subsystems, they are being used worldwide in signal boxes, train protection systems and level crossings, while at the same time being a central feature of our own system applications. Axle counting systems are also used in the automation of operational sequences whenever high availability is key, e.g. for hotbox detection systems, weighbridges or for the control of track gates and hall doors.







## DEOW – Relief for driving staff. PINMOVIO. Efficient and reliable.



Digital Electric Locally-Set Points (DEOW) are used in areas where only shunting speed is used and points are operated locally (local setting areas) for safe and rational operations.

Thus our DEOW enables efficient operations in shunting areas of freight traffic as well as in depots and maintenance plants of long-distance and local passenger services. From the setting of individual points to the selection and storage of complex track routes and their automatic dissolution and resetting.

Tailored to the respective operational requirements of our customers and completely planned, we provide the various operating equipment available for this purpose, such as

- > Pushbuttons and advanced control points (VB)
- > Track-side control panels (FT),
- > Route setting terminals with memory (FTS),
- > Route setting terminals with numerical input (FTN),
- > Screen workstations and mobile tablets



at your disposal. For this purpose, our modern track switching equipment and track vacancy detection devices based on axle counters protect the points from untimely setting and thus support automated track control.

In contrast to interlocking systems, EOW areas only use light signals for the points, which are observed by the shunting personnel on site. Here, the point signals signal the current status of the points with all necessary information such as point circulation, monitored end position and changeover lock.

Our DEOW control systems are decentralised. This means: the control technology is either housed in the points signal or in compact outdoor housings near the points. This enables us to save a considerable amount of cabling and construction costs. We also offer the possibility of modernising existing EOW plants by using the existing cabling with new, digital controls and points signals (plant migration).

Our integrated diagnostic facilities ensure the shortest possible response times in fault scenarios and thus higher operational availability of the systems. With the analysis and evaluation of the collected diagnostic data, PINTSCH will enable new concepts of condition-based and predictive maintenance in the future.

The modules and components used in the DEOW technology with standardized logical interfaces, which are also used in PINTSCH's marshalling yards and train formation yards, ensure economical spare parts storage for the operator. In addition, this results in advantages in product maintenance by the manufacturer, which ensures a correspondingly long service life of the systems for the operator.

Our digital interfaces ensure that the switch controls and track vacancy detection devices are networked by means of Ethernet via Cu data cable, fiber optic or wireless networks. The data connectivity thus created - directly at the switch - enables us to integrate switch heating, switch diagnosis and other systems into the network, thus further advancing the digitalization of rail infrastructure.





## Diagnosis.

# PINDIAGON. Everything in sight. Everything under control.



For many years, our company has been a qualified and reliable supplier for diagnostic systems.

Whether they be point heating systems, track lighting controls or tunnel safety controls, all are remotely monitored and controlled by the visualisation and diagnosis system PA LINE WEB. PA LINE WEB is an in-house development, based upon HTML5 technology. A data server collects all information from the field and processes these data for web sites, which can be shown in different web browsers. This makes our customers independent from device platforms, operating systems and monitor sizes.



The data sets are centrally maintained on the server. Neither client updates nor installation of a special software is required. For you, this means that you can use a wide range of different devices to centrally access the data you require via the company network.

A central user administration manages sifting through the available evaluation modules and switching authorisations, based on information previously given.

### Your current and future benefits

Process visualisations for many other mechanical facilities besides PINTSCH-specific systems can be created and stored in the visualisation system. Our company consistently uses the freely assignable IOs (Input and Outputs) of the control units that are already available in the field, to gather data of foreign device or to control these devices. The newly developed controller MCU XIO is even capable to group its IOs to defined stations with their own addresses in a flexible way. By this, several foreign devices can be integrated by a single controller. Ideally, the existing communication channels, e.g. from the point heating, are used.

Thanks to the server and the HTML5 technology, no software installation on the client computers is necessary. Therefore data base and system maintenance only takes place in one central location. The responsive web design ensures independence from display sizes and adapts itself automatically to PC systems, tablets and smartphones. The visualisation system itself offers you a user management including language switching. Cartographical facility overviews, freely definable facility groups and status and failure overviews provide you with the necessary overview of all connected facilities.





## Haulage Technology. PINPOSITON. Automated transportation of railway vehicles.



Our towing and conveying systems with wheelset working point enable optimal solutions wherever movement sequences of wagons or trains have to be automated, whether for train formation in marshalling yards such as Maschen, Rotterdam-Kijfhoek and St. Petersburg-Luzhskaja or for transporting and positioning in train washing facilities, industrial tracks and maintenance depots. Our company has built more than 1,000 systems in almost 50 years.

Through continuous advancement and modularization of the main components, we have been able to significantly reduce costs and maintenance expenditure.

An important milestone was the transition to gearless torque motors with frequency converter control for gentle and energy-saving waggon handling. Another milestone was the modularisation and standardization of the pits for the cable winch.



Supplemented by the products of our signal technology division and the possibility to manufacture of our own control systems, we can implement complete solutions for almost all technical shunting tasks, ranging from haulage stroke lengths of 700 m and speeds of up to 1.5 m/s in high-performance train formation yards to ICE washing plants with 600 m/h washing capacity or for particularly high haulage power in logistics centres.

We can also perform the complete maintenance of your systems

### **Quality and reliability all along the line**

Our haulage technology offers many advantages over conventional shunting using locomotives: reduced personnel and operating costs, avoidance of cargo damage and significantly increased work safety, as hazardous work in the track area is reduced by both automation and standardization of movements.

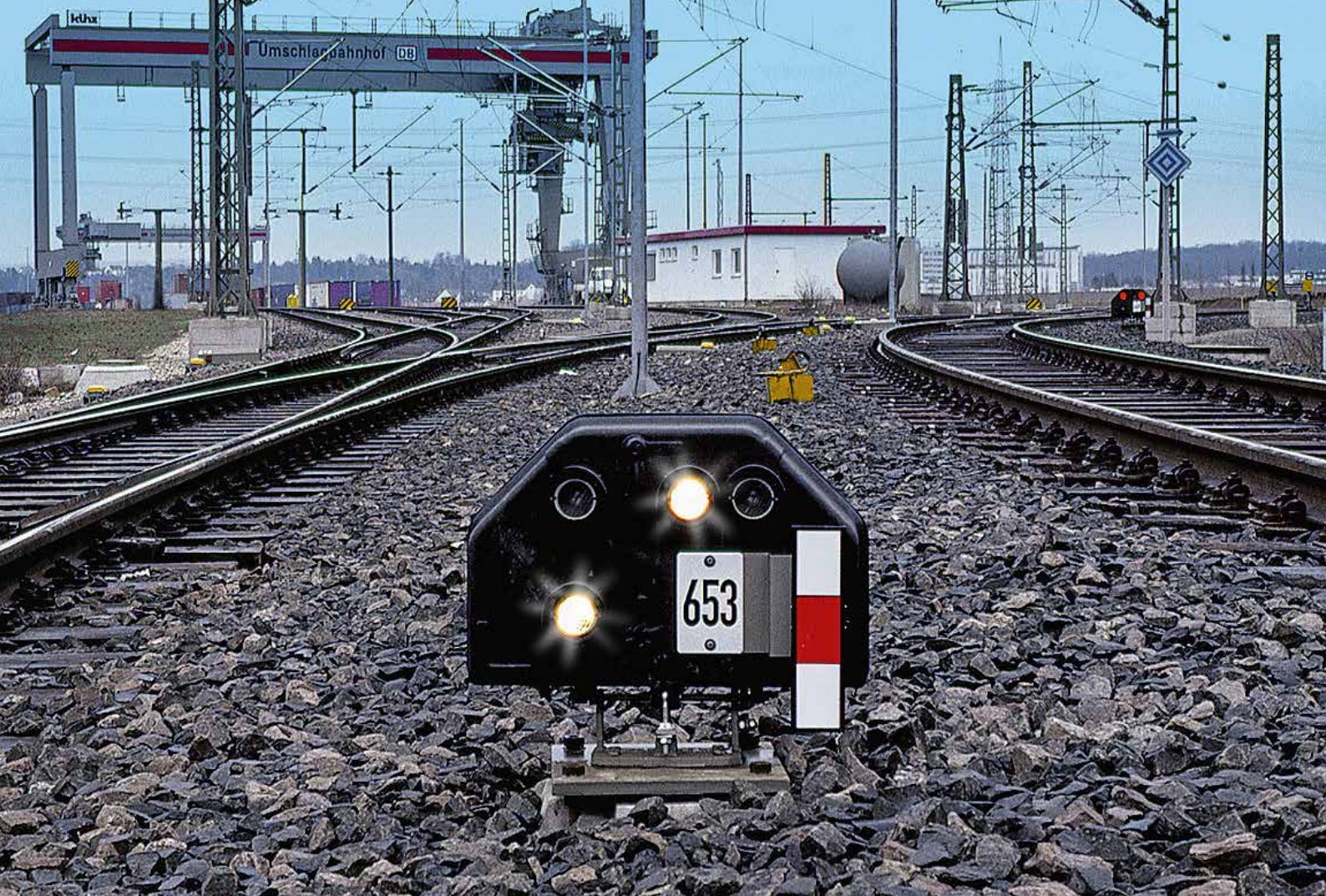
By largely dispensing with locomotive shunting operations, cycle times are shortened and performance is increased. The constant availability of the conveyor systems leads to a reduction in wagon processing times, reduces pollutant emissions compared to diesel locomotive operation and minimizes operating noise due to the controlled work flow.

Additionally, our haulage systems can be crossed by rail vehicles in both directions due to their low height below the standard clearance profile. All system components are located inside the track, the drive unit is mounted under the floor in a standard concrete pit. The trolley is guided in the existing rails, therefore additional guard rails are not required. All this results in advantages when planning the trackage, for example for limited surface areas.

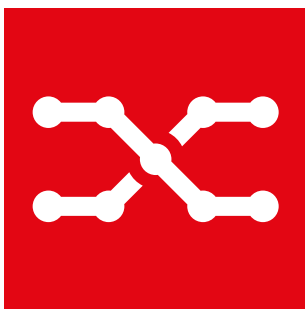
Bespoke turnkey solutions for your tasks are our speciality!







## Interlocking System Technology. PINMOVIO. We set the course.



As a system vendor, we supply specialised interlocking system technology for shunting and ancillary areas, which can be scaled from a single pair of points up to a complex train formation yard, depending on the required performance. Due to this high flexibility, the deployment of technology can be adjusted to the operational requirements in an optimal way.

### **Locally operated electrical points (EOW)**

Our decentral EOW controls enable an easy and efficient setting of the points in locally operated shunting areas by the shunting personnel or the train crews using pushbuttons or route set panels in the field. Points signals in LED technology signal the monitored end position and axle counters prevent untimely throwing of the points. Thanks to networked controls, even these simple systems allow to control and secure complete routes up to the storage of route lists and their automatic processing.



### **Electronic interlocking systems (ERaStw)**

Electronic interlocking systems are used in areas, where signalled shunting and train routes are preferred over free shunting using EOWs due to operational requirements. In this case, the points are remotely thrown electrically. Axle counters ensure safe signalling of points and track sections and light signals with multicolour LEDs signal the secured routes to the driving personnel. Typical areas of application of this interlocking system technology are depots and maintenance facilities of rail passenger traffic as well as goods traffic areas in different occurrences such as shunting yards, freight terminals or core areas of industrial railways.

### **Train formation yards (ZBA)**

A special form of electronic interlocking is used in train formation yards for goods traffic, which fully automatically control the composition and de-composition of freight trains by the aid of a hump, thus rationalising and optimizing the cumbersome marshalling operations, especially for single cars or groups of cars, with regards to time and costs.

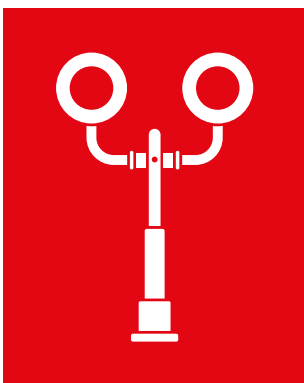
Here too, wheel sensors and axle counting are used for points and track vacancy detection, which are also used for speed measurement and filling level monitoring of the tracks.

Modern networked computer systems control and monitor the points, having interfaces to the process controls of the retarders, haulage systems and to the radio-controlled hump locomotive as well as to the multi-sensor environment of wheel sensors, light grids, radar devices and balises used here.





## Level Crossing Technology. PINPROTEGIO. Safe. Reliable. Capable.



Level crossings are neuralgic points, because here the railway traffic intersects with road vehicles and pedestrians. For the drivers of road vehicles, the rail tracks are often not observable. The stopping distance of the trains is too long to react quickly if the level crossing is blocked. Trains are driven on signal, not on sight.

This requires level crossings to be failsafe, even if single components fail. We ensure this by developing, reviewing and approving our level crossing technology according to CENELEC norms and SIL4 standard or equivalent processes of railway signalling and its main principles.

Safety first. But at the same time we must guarantee, that the systems are highly available in order to not affect the ever-increasing traffic flow. With more than a century of experience, we meet these requirements with our level crossing protection system in an excellent manner, which is documented in evaluations by DB Netz AG.



Level crossings must always be adapted to specific local conditions, such as complicated routeing, multi-track lines, level crossings in industrial areas, on factory sites or in ports – or in the middle of a roundabout, for a change. Efficient and economic planning and realisation of level crossings requires the proper technological base, complete with interfaces to electronic and classic railway control centres, paired with a lot of experience.

Our level crossing technology can be adapted to electronic and classic railway control centres by manufacturer-specific interfaces.

### **Serviceability and maintenance - simple and reliable**

Diagnostic analysis and serviceability are key elements for our customers. Continuous self-tests in connection with a multilevel diagnostic system and the easy to service installations support your operational management.

Our diagnostic and maintenance systems allow our customers to quickly locate and analyse a report. The intervals of preventive maintenance can be adapted to the usage intervals of the system. "Diagnostics at a glance" allows quick and simple status evaluation on site without any further technical aids.

Our elaborate and sustainable obsolescence management guarantees an economic investment, which ensures spare part availability for many years.

### **Level crossing components**

The PINTSCH GmbH develops, manufactures, assembles and maintains complete level crossing protection systems including housing, power supply, battery charging units and peripheral elements such as barrier, acoustic, street signal, supervision signals and rail sensors. All PINTSCH components are approved by the German Federal Railway Authority (EBA).





## Lighting Technology. PINLUXON. Seeing and being seen.



### Lighting technology in signalling equipment

The subject "light" has been an integral component of PINTSCH since the foundation of the company in 1843 – i.e. long before the invention of the electric light. Like so many aspects of our company, the lighting technology developed over time. Introducing the LED technology in our lighting technology components was linked with new challenges regarding optical systems, measurement technology and obsolescence.

Besides a high degree of availability and reliability, there are considerable requirements regarding the photometric properties, which can be seen in the specifications for the luminous intensity distribution, the colour location, the phantom light and the service life. Due to its long-standing experience in lighting technology and its outstanding measurement technology, the PINTSCH GmbH is well suited to meet these challenges.



### Measurement - Testing - Safety

The company-owned lighting laboratory, assists in the development of lighting technology products. It measures the illuminance, the luminous flux, the distribution of the luminous intensity and fast changes of the luminous intensity. Additionally, there are image-resolving luminance measurements, determination of standard colour values of primary light sources according to the tristimulus method, determination of the spectral composition of the light of primary light sources and determination of the most similar colour temperature.

### Track signals - highly visible for the sake of safety

In addition to the lighting technology for level crossing modules SP200 LED and P145 LED, the PINTSCH GmbH also put emphasis on the track signals. The LED supplementary indicator (developed according to CENELEC EN5012X, safety integrity level SIL 4) was type approved by the German Federal Railway Authority (EBA) in October 2016 and has been released for series production by the Deutsche Bahn DB.

The product range is completed by a 70 mm insert for a multi-colour LED signalling device, which has an EBA approval for field testing since April 2018, if integrated in a light signal (Tiefenbach type) and an insert for a 136 mm multi-colour LED signalling device, which is currently under development. With these components, our company is well positioned for the new requirements on light signals (multi-colouredness and low power consumption).





## Point Heating Systems. PINCALIO. Safety in spite of ice and snow.



As infrastructure operator, ensuring maximum availability of your rail network is a challenge, especially during the winter months. Our point heating systems keep the moving parts of the points free of snow and ice and thus ensure smooth train traffic.

Intelligent control and monitoring systems stand for a minimum heating energy input with guaranteed functionality of the points based on local measurement data as well as forecasted weather events. With the modular architecture of the control, we can meet your requirements regarding system complexity in a range from low-cost systems to high-end solutions. The control unit of a point heating system automatically performs all controlling and diagnosis tasks.

Our PA LINE WEB software ensures location-independent visualisation and evaluation of both current and archived data in the process and control level. This enables you to plan and perform maintenance work preventively and to continuously increase plant availability.



For economic and ecological reasons, the main challenge for all point heating systems is an optimised energy consumption, since the operating costs outweigh the purchase costs many times over. The analogy to electric point heating would be a residential house with open windows and electric heating.

### **Electric point heating**

Different control concepts, from separate control of stock rail and lock compartment heaters, to the prioritization of points within a railway station, and to comprehensive control management allow for a resource-saving use of energy while ensuring the maximum availability of the point.

Simple installation of the heating equipment and variability characterize our electrical point heating. Effective heating capacity and system size can be easily varied: Long-life system components reduce maintenance to a minimum while increasing reliability. The required electrical energy can be taken from the catenary or from the public grid.

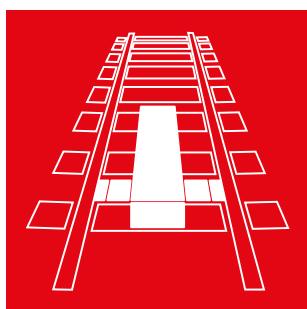
### **Gas infrared point heating**

With the immediately available high heating capacity, our gas infrared point heating system is predestined for areas with high snowfall. You can use natural or propane gas. Gas as primary energy source means low operating costs and reduced CO<sub>2</sub> emissions, while corrosion-resistant components for the heating equipment ensure a long service life with low maintenance costs.





## WOLBER Point Machine. PINMOVIO. Innovation by Experience.



The point machine **PINMOVIO WA 550** contains an internal mechanical locking system (patent). Common external high-maintenance locking systems such as clamp locks become dispensable.

We offer a complete throwing system including:

- brackets and rods
- rod covers
- protection shields

Due to its minimal height the point machine **PINMOVIO WA 550** is installable in between the rails without works on the existing track system.

The points can be installed on a gap-free ballast ground. Therefore we ensure proper track conditions and reduce the strain on the points. Long-term operations at the sites of well-known railway companies give proof of the high reliability.

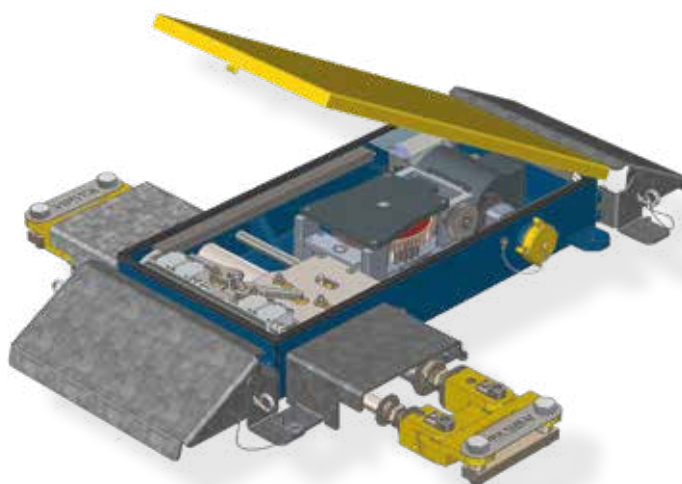


### POINT MACHINE WA90-160i-V

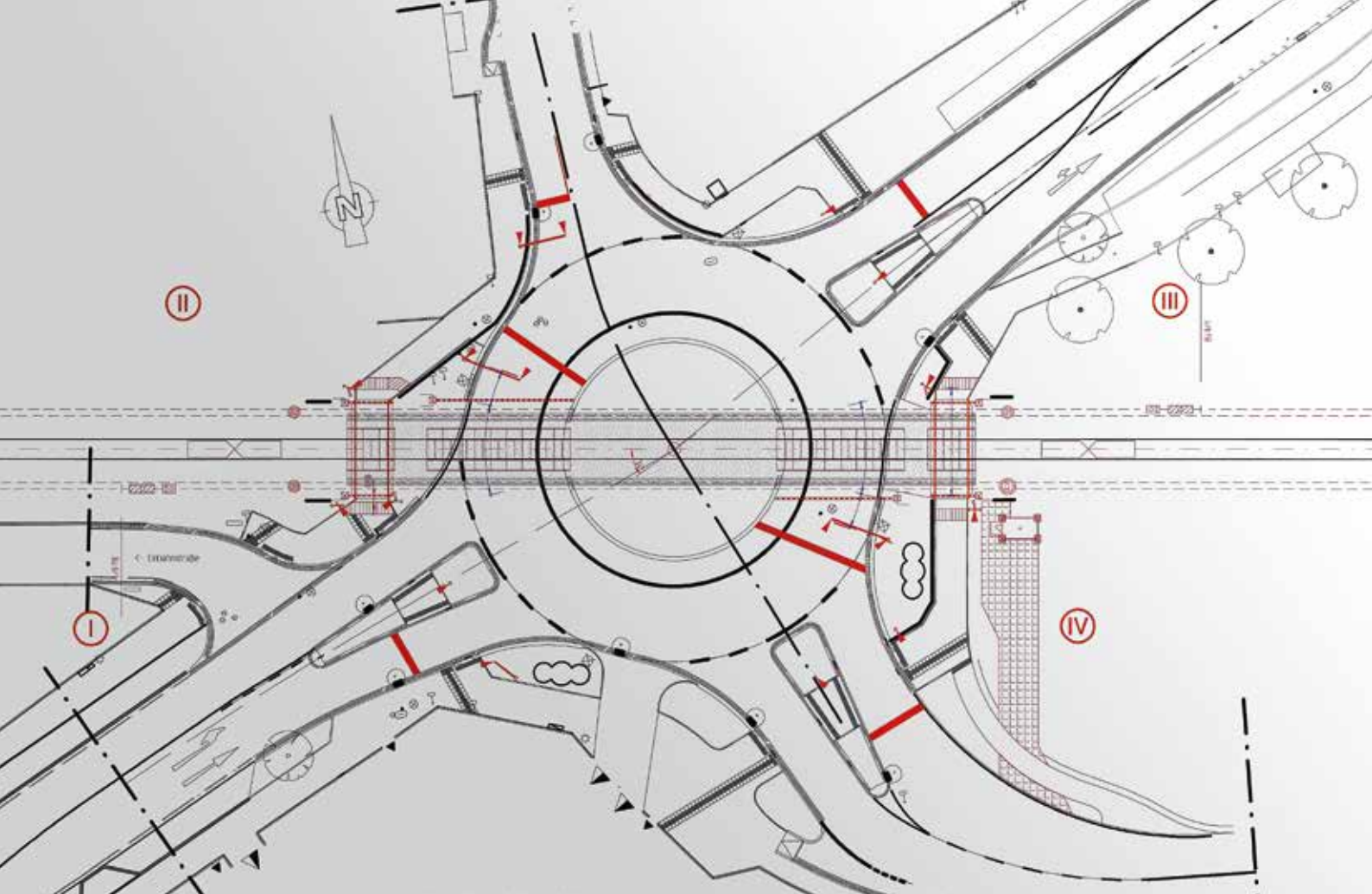
The point machine PINMOVIO WA 550 with its robust and compact construction perfectly meets your requirements for the rough conditions of railroad traffic.

#### BENEFITS

- Trailable and non-trailable versions
- Internal mechanical locking system
- Modular constructions
- Available with various
  - Throw strokes
  - Throw times
  - Throw forces,
  - Operation voltages
  - Internal wirings
- Compatible interface to existing controls and systems
- Power switch-off and manual operation with common disconnecting keys and hand cranks
- Increased work safety due to free shunting paths
- Highly robust, reliable and easy to maintain



Ready for delivery – our WA 160i-V point machines.



## Planning and Project Management. Safety from a single source.



### **Plan - connect - implement**

As a system supplier, the PINTSCH GmbH covers the whole range of services for the realisation of technically protected systems such as level crossings or interlocking systems. Therefore our customers involve us early on in the planning stage. Our services include the object planning for signalling and construction, design planning, approval planning and implementation planning including PT1 and PT2. Apart from the planning of our current systems, we are also recognized in the marketplace as a competent contact for the adaptation of legacy technology.

### **Managing projects successfully from start to finish**

In the area of system equipment and component supply, project management is key. Therefore, for us to understand the challenges of our customers is paramount.



Be it depots, train formation yards, point heatings or the large-scale technical equipment of railway networks with level crossings: All these tasks require the project management to have comprehensive skills, be they technically or in the project management itself.

The most diverse requirements coming from very customer-specific projects ask for versatile utilisation of all available solutions, among others also the adaptation of the interfaces.

A close coordination with the customer is our basis for the efficient handling of complex projects.

### **Setting a good example**

The project "Hüttenwerke Krupp Mannesmann GmbH, Duisburg" shows an innovative solution for operators of systems in railway infrastructure.

For the "TMC-RaStw 2.0", 5 interlocking areas, 5 distribution stations including fire alarm systems and intrusion protection systems, 131 points, 189 signals, 295 wheel sensors, 4 level crossings, 1 track gate, 49 point heating systems, 1 operator workstation, 6 maintenance viewing stations were set up, coordinated and technically harmonised.

As general contractor, we were also in charge of the complete cable civil engineering, structural engineering, track adjustments, securing work, construction and power supply. The complete reconstruction and commissioning took place under rolling wheels.





## Service.

We are always personally available for you.



Trusting in our services starts a reliable partnership with a quality and service oriented company. This applies to every stage of our business relation. Starting with planning, development and production of our solutions, to assembly, testing and commissioning up, and to repair, service and maintenance.

Our skilled and experienced technicians attend to your needs by phone, by remote control as well as on site. Upon request our skilled staff trains your teams in the operation and maintenance of all deployed systems.

Upon request, we also service and maintain your installations. To optimize availability and service life of your installations, we perform pre-emptive maintenance based upon evaluation of operation status data.

We dispose of a multitude of components and modules on stock and can immediately rely on spare parts, if worst comes to worst.. This is how we guarantee smooth processes and permanent availability.





Due to the transgenerational expertise of our employees, we are able to repair all kind of different technical systems. Depending on the demand, our technicians are available for you day and night.



**PINTSCH GmbH**

Hünxer Str. 149  
46537 Dinslaken  
Germany

T +49 2064 / 602-0  
F +49 2064 / 602-266

[www.pintsch.net](http://www.pintsch.net)  
[info@pintsch.net](mailto:info@pintsch.net)

**PINTSCH B.V.**

Krommewetering 91  
3543 AN Utrecht  
The Netherlands

T +31 346 / 58 39 58  
F +31 346 / 55 43 93

[www.pintsch.net](http://www.pintsch.net)  
[info-nl@pintsch.net](mailto:info-nl@pintsch.net)

**PINTSCH WOLBER GmbH**

Röttgenstr. 41  
42549 Velbert  
Germany

T +49 2051 / 800 99-0  
F +49 2051 / 800 99-22

[www.pintsch.net](http://www.pintsch.net)  
[info-wolber@pintsch.net](mailto:info-wolber@pintsch.net)

Version 03/2022

