

Maximize transparency.
Increase availability.
Simplify fieldbus.

Product Overview
FieldConnex ® Fieldbus Infrastructure



ETA Process Instrumentation

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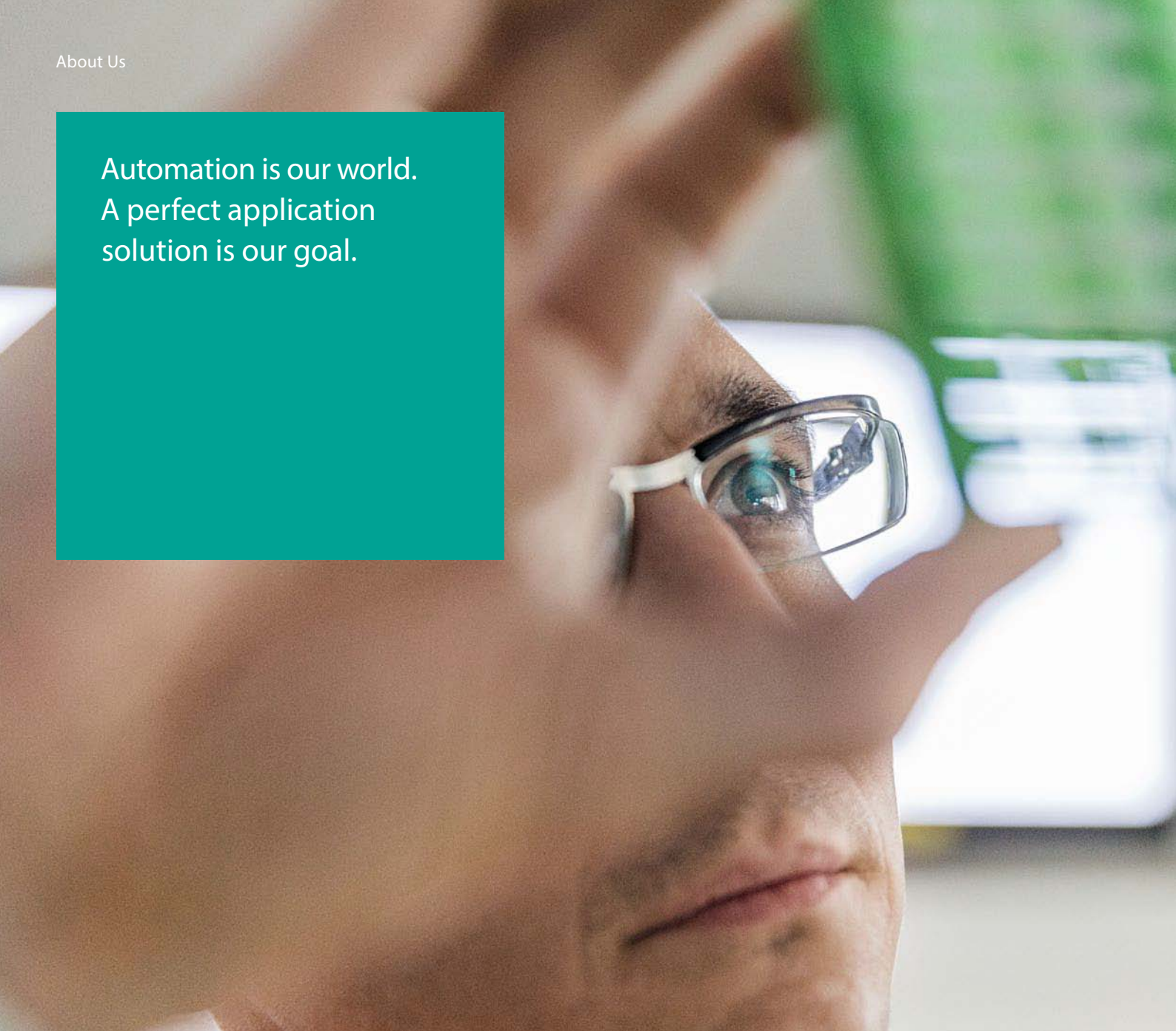
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PEPPERL+FUCHS



Automation is our world.
A perfect application
solution is our goal.

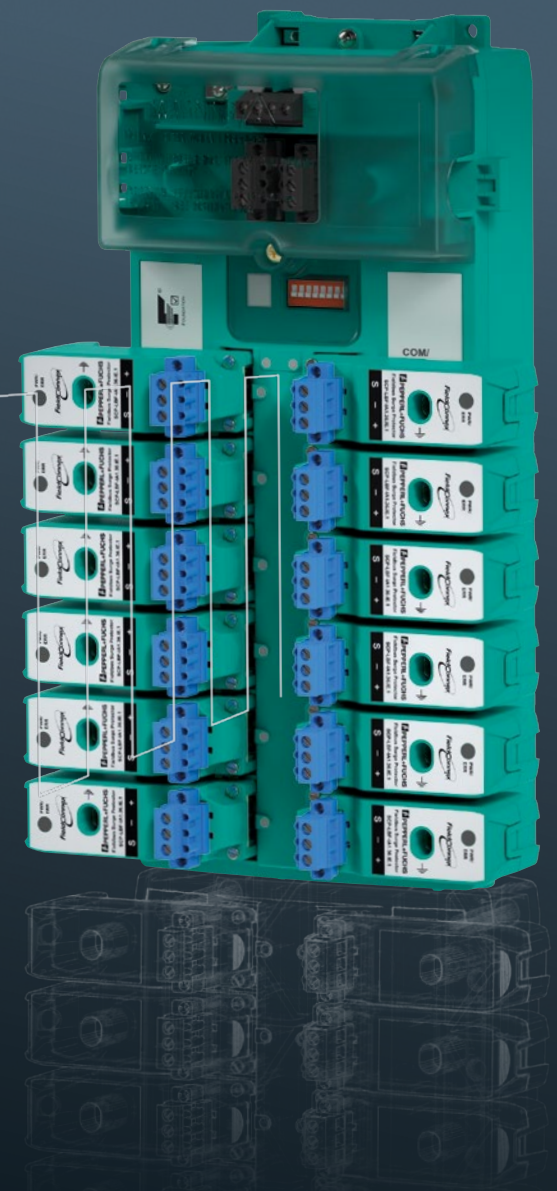
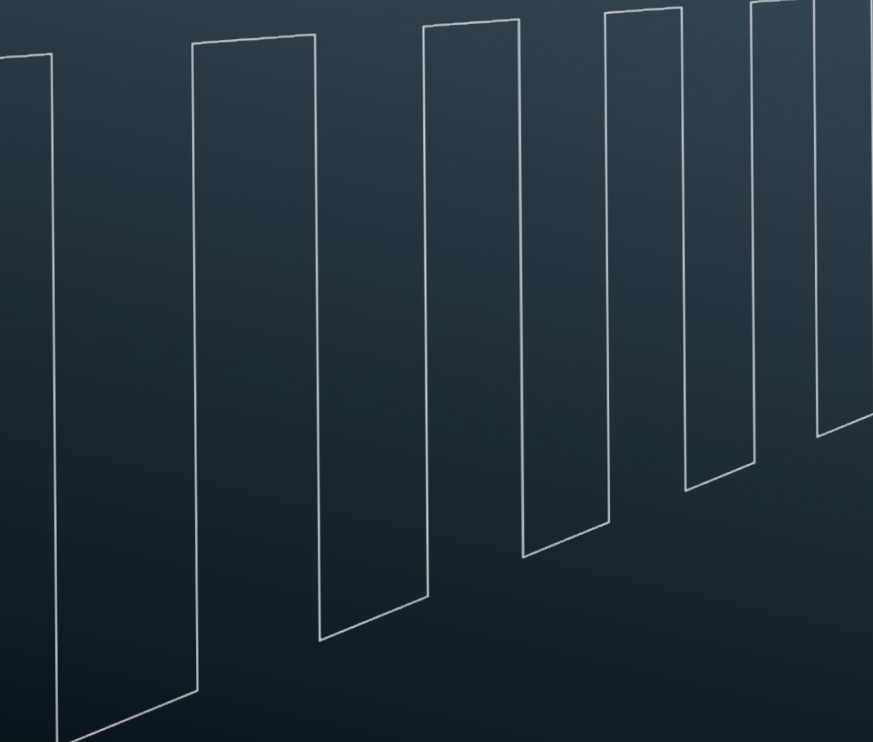
A willingness to take entrepreneurial risks, a pioneering spirit, and a firm belief in their own inventive powers – these were the assets that Walter Pepperl and Ludwig Fuchs started out with when they opened their Mannheim radio repair shop in 1945. Their invention of the proximity switch a few years later proved their strength. It was also the starting point in a successful history defined by close customer relationships as well as innovative automation technologies and procedures.

Then as now, our focus is directed squarely on the individual requirements of each customer. Whether as a pioneer in electrical explosion protection, or as a leading innovator of highly

efficient sensors – the close communication with our customers is what allowed us to become the leader in automation technology. Our main objective is combining state-of-the-art technologies and comprehensive services to optimize our customers' processes and applications.

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Fieldbus Made Easy: FieldConnex[®] from Pepperl+Fuchs

Handling fieldbus infrastructure has never been easier or safer than when using FieldConnex from Pepperl+Fuchs. Once more, Pepperl+Fuchs has taken a major step forward in fieldbus technology, thanks to high levels of engineering expertise and decades of experience. In addition, FieldConnex sets new standards through highly intelligent diagnostic functions – this guarantees complete transparency and maximum plant availability at all times.

State-of-the-Art Technology

Maximum transparency, maximum availability and plant safety: these are the main requirements in the process industry. FieldConnex from Pepperl+Fuchs offers impressive innovative diagnostic functions, which immediately display any deviations from optimal performance. Never before has a fieldbus installation been so seamlessly transparent or so easy to handle.

To guarantee the performance and durability of the fieldbus infrastructure at all times, FieldConnex components are specifically designed for extreme ambient conditions. They effortlessly withstand temperature fluctuations, changes in humidity, or vibrations. They also fulfill all current national and international safety requirements and are marine-certified.

Another crucial advantage: FieldConnex ensures fast, seamless integration into the control technology and that the installation is simple to handle. It is state-of-the-art technology in every respect, providing never-before-seen levels of availability and safety for the process plants.

At Home on All Continents

Pepperl+Fuchs is an expert partner represented by branches and Solution Engineering Centers (SECs) in more than 140 countries. Wherever you are in the world, fieldbus experts can always reach you quickly to support you with specialist knowledge and to provide assistance. The best possible service and support is therefore guaranteed – at any time, on any continent.

At Home in All Markets

Maximum performance, seamless safety and maximum plant availability: with FieldConnex, Pepperl+Fuchs offers state-of-the-art technology that combines these properties in a unique manner with detailed solutions that are customized to the requirements of the process industry – across all sectors.



Offshore and Marine

Storms, salt water, large temperature fluctuations, and vibrations – the complete FieldConnex product portfolio is marine-certified according to international standards and easily able to cope with the extreme ambient conditions in the maritime sector.



Oil and Gas

Decades of experience with fieldbus and explosion protection are highly valued in the oil and gas industry. The diagnostic-enabled, highly reliable FieldConnex components from the technology driver and innovator represent maximum safety and availability.



Energy Production

When dealing with highly explosive coal dust, power plant operators rely on the company's profound expertise and on FieldConnex components that meet all international safety regulations.



Pharmaceutical Industry

Strict guidelines and maximum quality requirements typify the pharmaceutical industry. Diagnostic-enabled FieldConnex components guarantee maximum transparency and process reliability.



Chemical Industry

Highly flammable materials make plant safety a key issue in the chemical industry. FieldConnex components are fully compliant with the strict safety and environmental requirements of this industry.



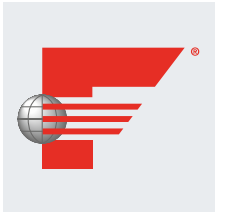
Mining and Metal Processing

The safety of people and the environment are of the utmost important in mining and metal processing – FieldConnex components have all of the necessary approvals. And their robust design stands up to the demanding ambient conditions in this environment.



Water and Waste Water Treatment

With FieldConnex, economic solutions that are simple by design enable digital access for remote maintenance – fit for water and wastewater treatment.



FieldConnex: Simple, Safe, Reliable

Technology of the future and an established standard at the same time: fieldbus installations are an integral part of the modern process industry today. The big advantage of this infrastructure lies in its reliability, high transparency, and, of course, its simplicity. A single pair of wires is used to supply power and to transmit digital communications.

Simple Structure:

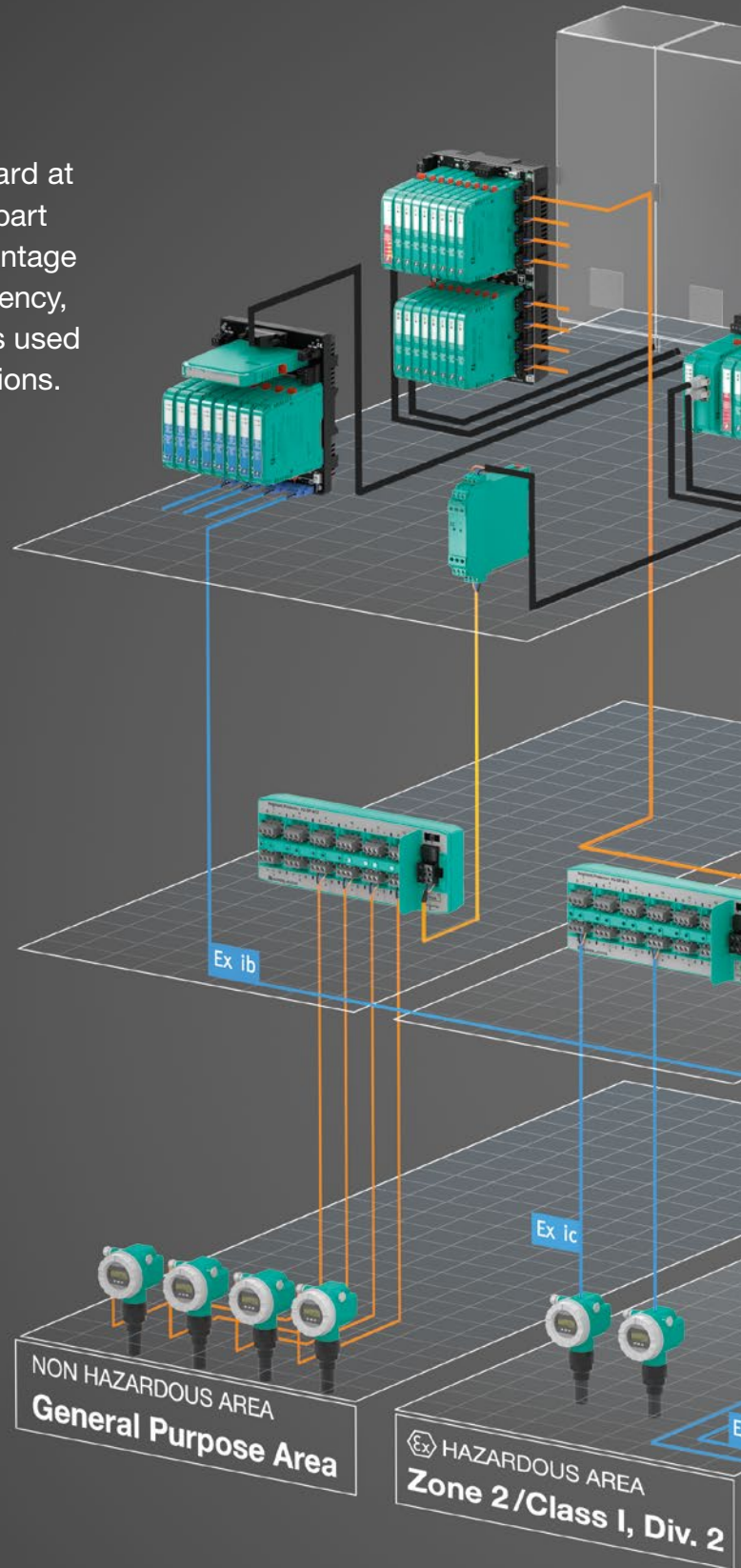
- Convenient fieldbus handling
- Low space requirements
- Uniform for hazardous/non-hazardous area

Maximum Transparency:

- Physical layer diagnostics
- Self-configuring diagnostic function
- Maximum reliability and availability
- Easy and cost-effective maintenance
- Error detection and suppression

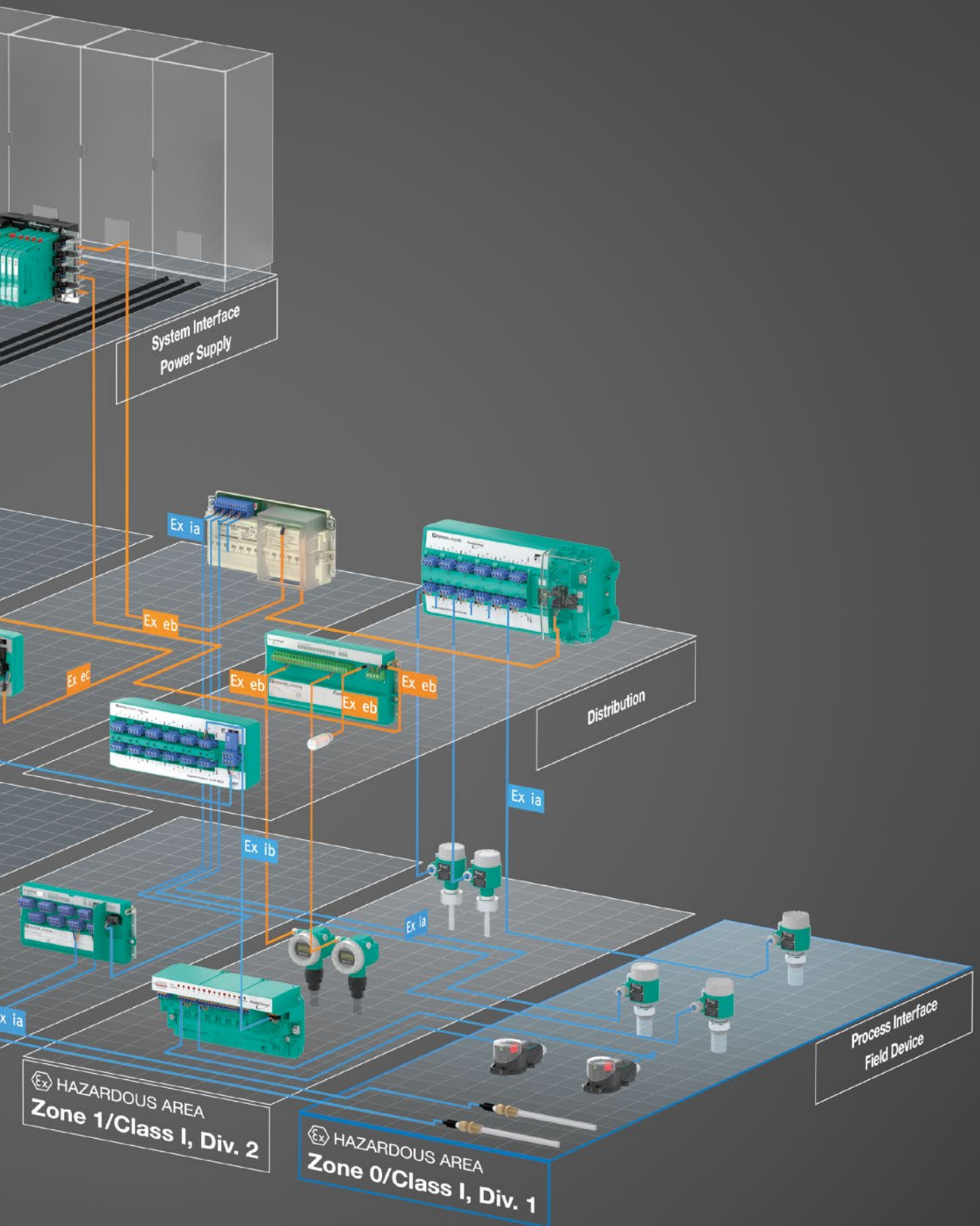
Many Years of Experience:

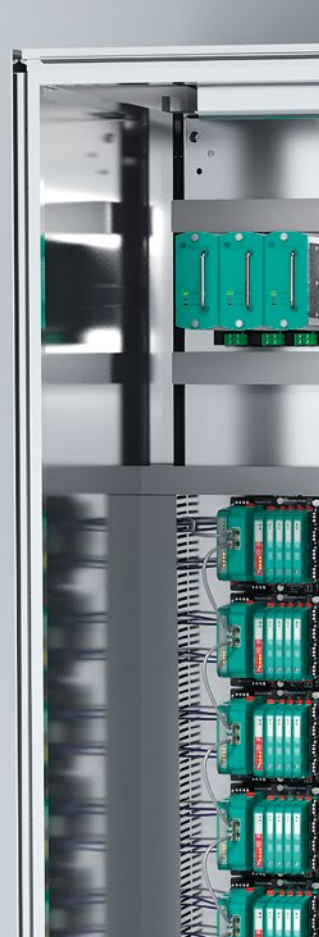
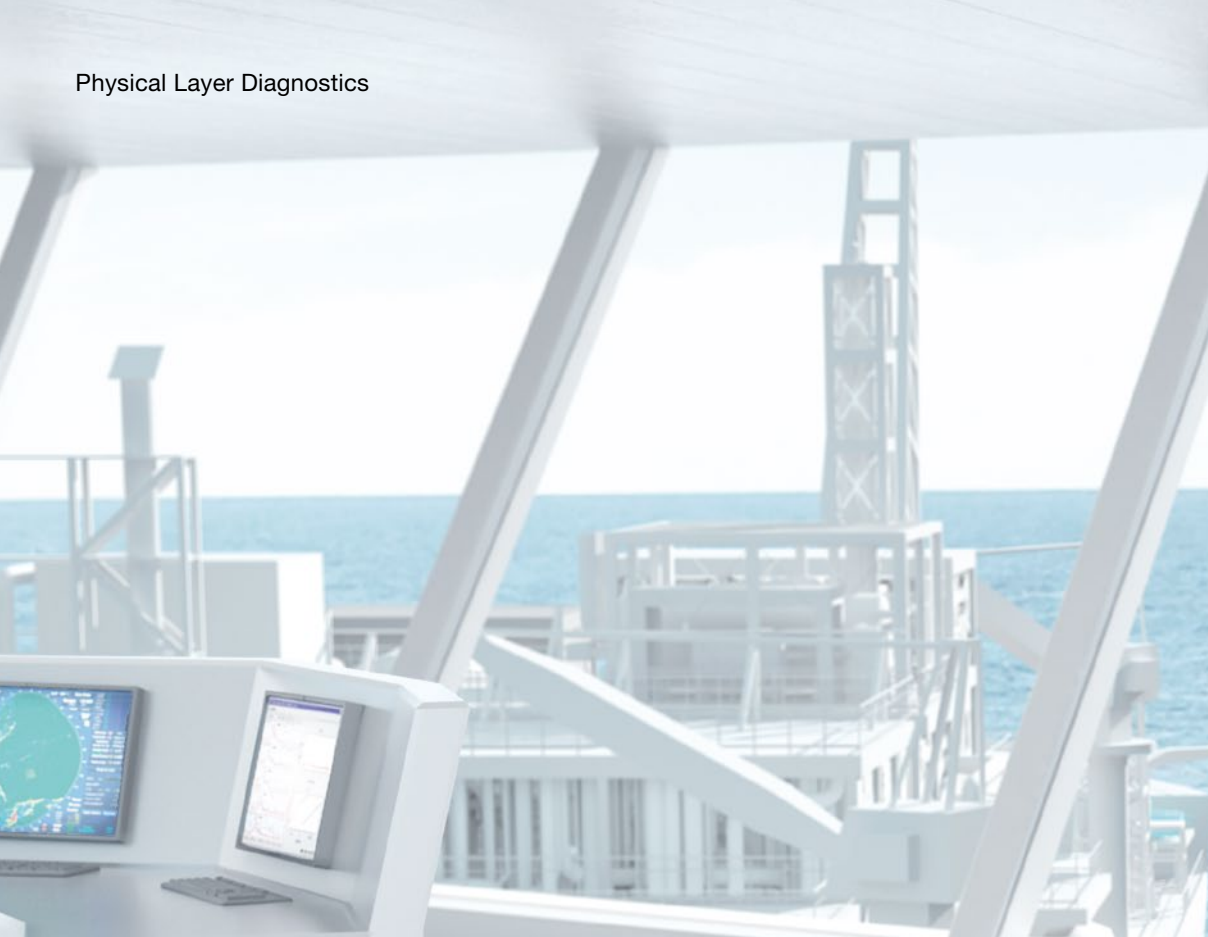
- Technology driver in fieldbus technology
- Profound engineering expertise
- On-site specialists around the world



The free Segment Checker planning tool checks the segment layout quickly and easily.

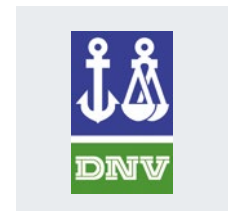
www.segmentchecker.com





Created for Wind and Waves: FieldConnex for Marine Applications

Harsh ambient conditions and a lack of space place high demands on fieldbus technology at sea. FieldConnex components, with their robust, extremely compact design, are predestined for this environment. Continuous monitoring of the physical layer guarantees maximum plant availability at all times, even in the maritime environment.



Seaworthy in Every Respect

Marine-certified FieldConnex solutions are used on tankers, drilling rigs, and floating liquid natural gas facilities (FLNGs) all over the world. Given the confined space at sea, FieldConnex components – which have the most compact design on the market – are ideal for these applications. A further decisive advantage: physical layer diagnostics via the advanced diagnostic module (ADM) or mobile FDH-1. If the installation is monitored on board by fieldbus diagnostics, easy handling and availability of the process plant is guaranteed at all times. Time in the dock is thus kept to a minimum.

- Most compact design and minimal space requirements
- Physical layer diagnostics for maximum availability

Clear advantages for the maritime sector

FieldConnex from Pepperl+Fuchs offers a complete marine-certified portfolio of infrastructure components. The compact and extremely robust design is specially adapted to the cramped and harsh ambient conditions on board.

- Maximum resistance to vibrations
- Electromagnetic compatibility (EMC)
- Low wiring costs
- Marine-certified
- Quickly available standard components



Physical Layer Diagnostics: Fieldbus Handling Made Easy

With FieldConnex advanced diagnostics, constant and seamless monitoring of the physical layer is guaranteed at all times. Continuous monitoring detects any deterioration in the installation quality and allows an intervention to be made before the plant availability is impaired. Even without expert knowledge, the fieldbus is easily manageable at all times. Downtimes are significantly reduced, as are costs and revenue losses, and plant availability is significantly increased.

- Automatic configuration and control system integration
- Monitoring the physical layer
- Actual/target comparison of the planned segment
- Integrated expert system
- Diagnostics can be transferred to technology center
- Maximum plant availability



Mobile Fieldbus Diagnostics: At the First Click

Just as easy to operate as a multimeter: the FieldConnex diagnostic handheld (FDH-1). This mobile device, however, offers the entire range of physical layer diagnostics. Different levels of detail are available thanks to the segment review, comparison between the planned version and the actual version, and fault resistance test. A commissioning wizard documents all data on request. In addition, there is an expert system that interprets the calculated values and proposes corrective measures in clear text that are easy to understand and follow. The fieldbus specialist is always along for the ride.



Quickly and Easily Integrated into Any Control System in the Oil and Gas Industry

Wide geographical area and an extremely high number of measurement points – this is a very typical scenario for refineries in the oil and gas industry. Simple control system integration is crucial to enable such systems to be handled with manageable teams. Pepperl+Fuchs has applied its decades of experience in the industry to develop FieldConnex components that do just that.

Mastering Complex Scenarios Easily

Quick and easy integration into the control system is crucial for efficient handling of the expansive, mostly heterogeneous plants in the oil and gas industry. FieldConnex from Pepperl+Fuchs is exceptionally straightforward to connect and provides maximum reliability. The innovative solutions from Pepperl+Fuchs are used in refineries around the world.

- Low installation costs
- Minimal cabling
- Better quality and shorter FAT

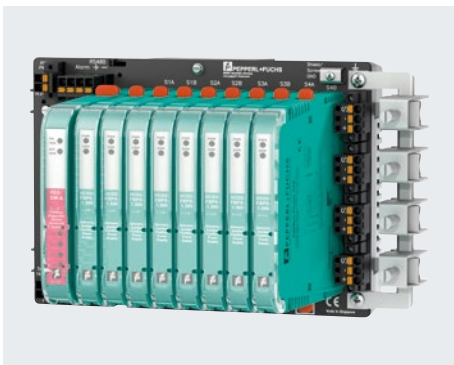
Clear advantages for the oil and gas industry

- Long cable paths can be achieved (400 m...1000 m)
- Approved for all hazardous areas (Zone 2/Div. 2)
- Every type of protection (in particular increased safety)



Control System Integration: Simple and seamless

High reliability and a space-saving design – that is what makes the installation stand out in the control cabinet. FieldConnex Power Hubs are impressive thanks to their low heat dissipation, extremely high packing density and long life. Due to the machine-made connecting cable, no complex manual wiring is required, thus significantly reducing the installation costs. Specific solutions for all common control systems allow for quick and easy integration into the control technology – the overall costs for planning and installation are therefore significantly reduced.



Pre-assembled control cabinets are ideal for anyone who wants to rely fully on the expertise of fieldbus experts. From the planning phase to ready-to-install complete solutions, everything is done by the technical support team. On request, they can also provide certification within the framework of a factory acceptance test (FAT).

- Gateways for PROFIBUS DP, Ethernet
- Connection to IIoT/Industrie 4.0 via digital protocols and gateways
- Advanced, efficient integration into any DCS for FOUNDATION Fieldbus H1
- Protocol can be selected
- Redundancy concepts for control technology integration





Intelligent Fault Protection: Improved Availability for the Chemical Industry

In the chemical industry, fieldbus technology must work under the most difficult of ambient conditions. Reliable explosion protection and seamless monitoring of the infrastructure are crucial in ensuring maximum safety and availability of the plant. A highly demanding task – perfect for the intelligent, diagnostic-enabled FieldConnex components from Pepperl+Fuchs.

Fault-Free, High-Availability Infrastructure

Stable processes and maximum availability must be guaranteed for continuously running operations in the chemical industry. Seamless fault protection is guaranteed by diagnostic-enabled FieldConnex components, which continuously monitor the entire installation.

In the production of paints and coatings, for example, gases can arise in the intermediate processes, which corrode the rubber seals of devices and marshalling cabinets. The enclosure leakage sensor from Pepperl+Fuchs can help with this. Thanks to its compact design, the device can be connected either in the instrument head or inserted directly in the marshalling cabinet. There, it records water ingress and reports it to the control system. The targeted maintenance achieved in this way prevents the process from being impaired.

Explosion Protection: Suitable for Every Application

To ensure the safety of people and the environment, chemical plants require fieldbuses featuring all relevant types of ignition protection. FieldConnex from Pepperl+Fuchs always offers the right choice – no matter what the application requires. 60 years of experience and expertise are the perfect basis for simple, safe, and user-friendly explosion protection for every requirement. The company has therefore developed FieldBarriers and Segment Protectors implementing the high-power trunk concept to meet the demands of long cable paths in the process plants.



Pre-assembled Solutions

Complete solutions provide particularly easy and convenient handling. FieldConnex junction boxes with a wide range of configuration options are tailor-made. Housing size, electronics, and ignition protection are precisely customized to the specific application and planned operating location.

- Customized and certified complete solutions
- Many years of experience, proven technology
- Many options and accessories selectable



Intelligent Fault Protection: Bringing Diagnostic Capabilities into the Field

Rough, highly corrosive ambient conditions and media – chemical plants present an enormous challenge even for the reliable fieldbus technology. The diagnostic-enabled FieldConnex components with intelligent fault protection add seamless transparency to fieldbus infrastructure from the control room to the field device for maximum availability of the process plant.

- Intelligent detection and progressive suppression of typical faults
- Lightning protection with automatic depletion message
- Enclosure leakage sensor
- Configuration-free



Simple, Reliable Detection of Process Signals. FieldConnex for Mining Applications

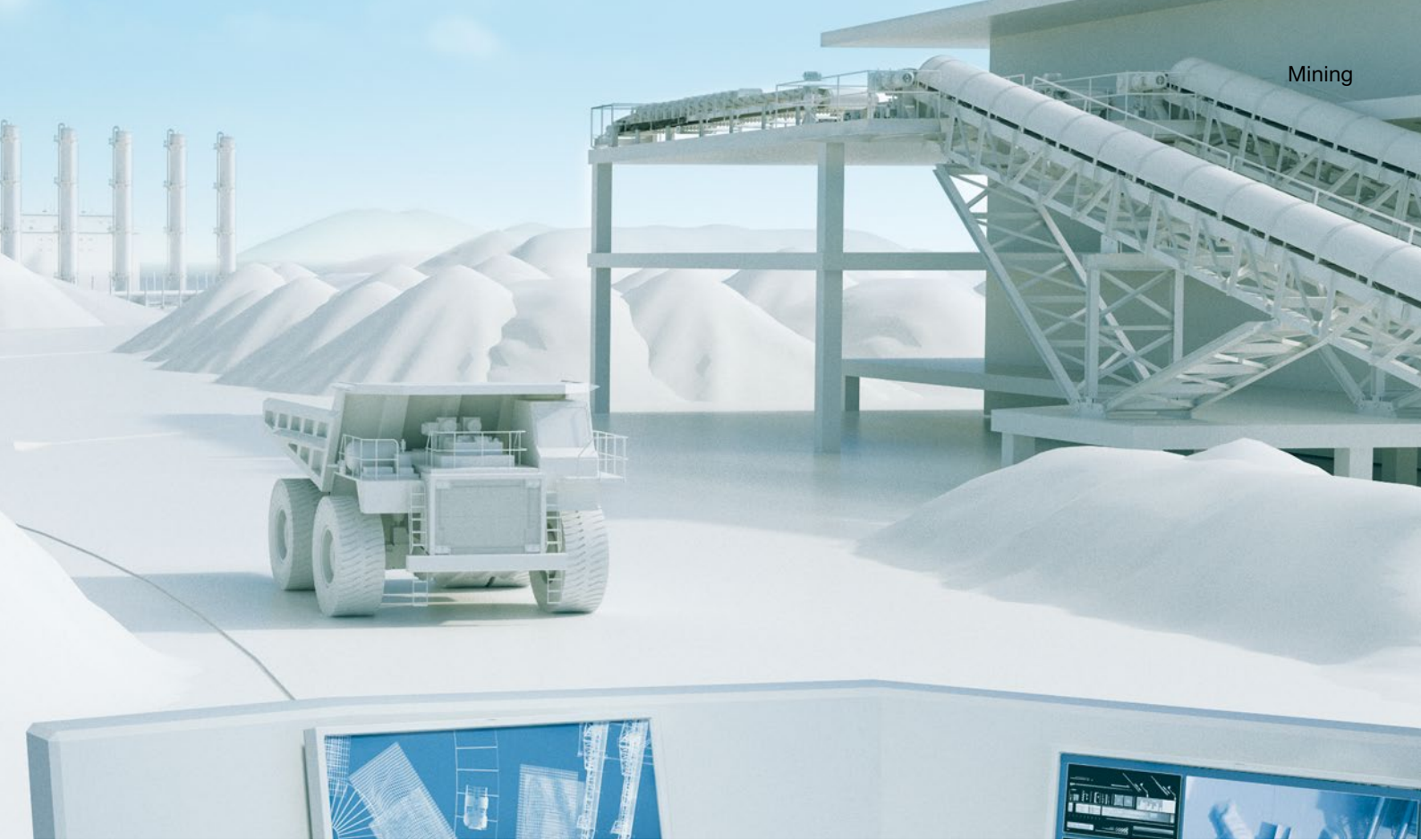
Metals and minerals are extracted in the harshest of conditions in remote mining areas. High demands are placed on the technology used here. And the technical expertise is often only available at central, distant sites. FieldConnex components provide the ideal solution: extensive capabilities for remote diagnostics combined with maximum reliability and easy handling for on-site use.

Simple Solution for Difficult Tasks

Transporting low volumes of spoil from remote mines is crucial for economically efficient mining of metals and minerals. Chemical cleaning processes such as leaching are therefore carried out directly on site. FieldConnex process interfaces are the ideal choice for signals and controls. Specialists can carry out remote diagnostics and configuration from central loca-

tions, guaranteeing safe, fault-free operation on site. The low installation effort is also ideal for remote, challenging terrain.

- Reliable signal acquisition and transmission
- Approval for dusty, hazardous areas
- Extreme temperature ranges up to +70 °C



Temperature Multi-Input Device: Quickly and Conveniently Connected

The temperature multi-input device (TM-I) is capable of bundling up to eight analog signals over a single fieldbus address. Via a twisted-pair main cable, it connects eight temperature measurements to the control system and significantly reduces the wiring complexity. The inputs can be conveniently configured together or individually.

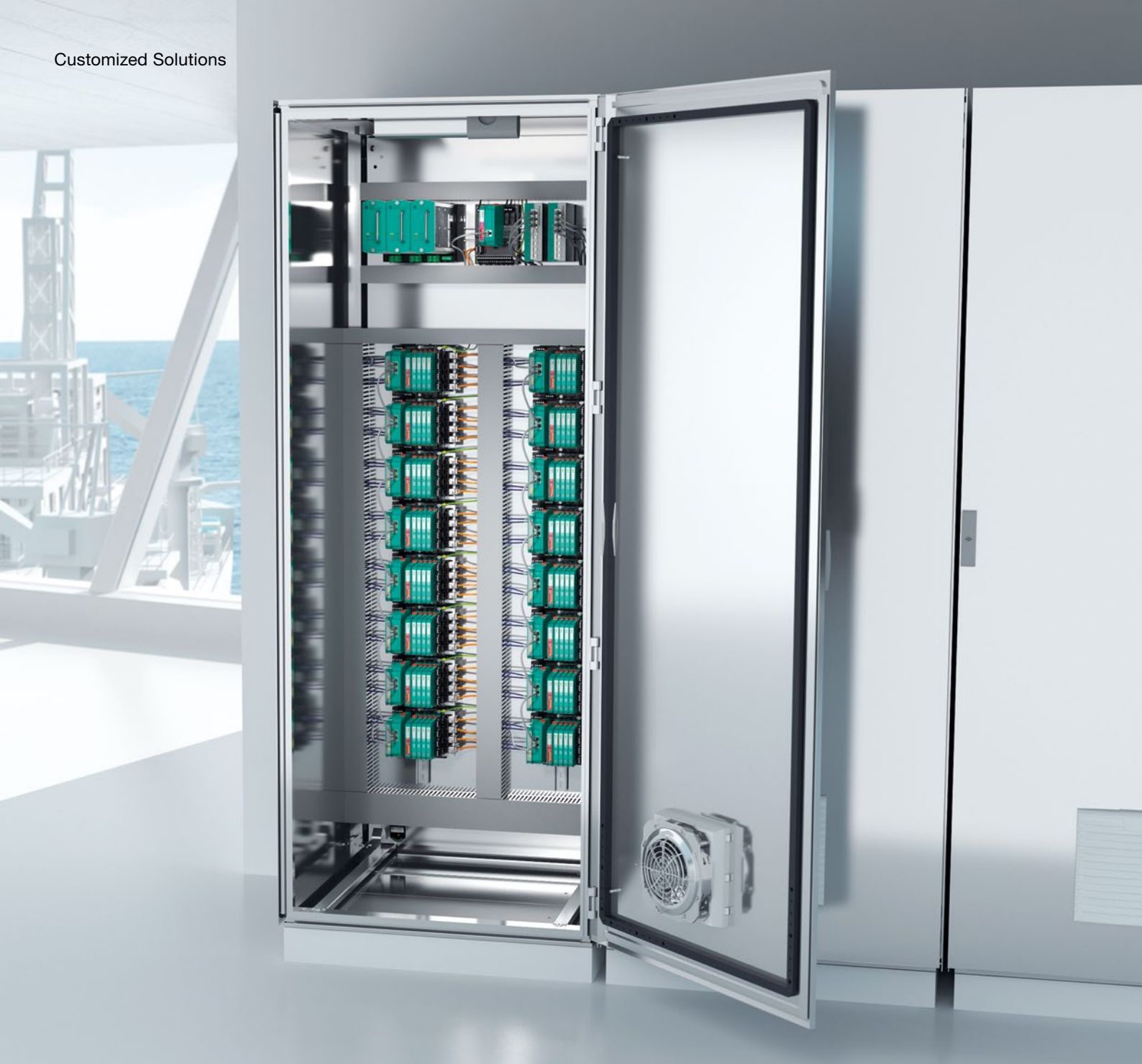
- Up to eight thermocouples or two-, three-, or four-wire temperature probes
- All inputs are intrinsically safe
- Convenient configuration



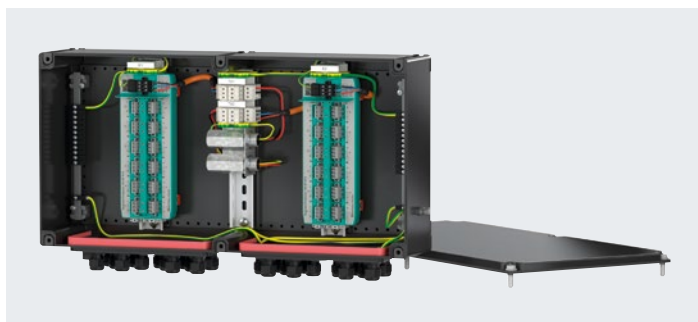
Multi-input/output Sensor Interface: High Efficiency, Reliable Signals

The FieldConnex multi-input/output (MIO) connects up to 12 binary signals to fieldbus via just one fieldbus address. Integrated monitoring of breakaway and runtime automatically sends alarms, and the automatic partial stroke tests keep valves from getting stuck. These functionalities enable targeted, proactive plant upkeep – avoiding unwanted plant shutdown and thus ensuring economical plant operation.

- Controls four valves including end position sensing and partial stroke testing
- Connects 12 discreet inputs (e.g. NAMUR sensors)
- Detects overflow or low level via vibrating forks
- Four frequency inputs (e.g. for standstill monitoring)




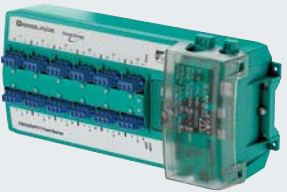
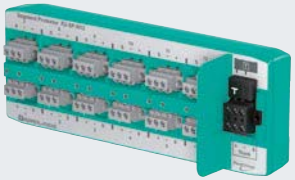




Customized Solutions: As Individual as the Requirements



Specific applications require individual solutions to guarantee reliable protection in hazardous areas. The fieldbus experts at Pepperl+Fuchs know every detail of the requirements of fieldbus installations in process automation. They support their business partners from the initial planning stage through to commissioning of new plants, so the end user receives everything from one source: customized solutions including hazardous area certification and complete documentation.

FieldConnex – The Components

		
<p>Fieldbus Power Hub</p>	<p>Profibus Power Hub</p>	<p>Power Supply and Segment Coupler</p>
<p>Fieldbus Power Supply</p>	<p>Segment Coupler for PROFIBUS PA</p>	<p>For FOUNDATION Fieldbus H1 or PROFIBUS PA</p>
<ul style="list-style-type: none"> ▣ Adaptable to any DCS via FOUNDATION Fieldbus H1 ▣ Redundancy selectable ▣ With advanced diagnostics ▣ High packing density ▣ Engineered cabinet solution with optional FAT 	<ul style="list-style-type: none"> ▣ For PROFINET and PROFIBUS DP ▣ Redundancy selectable ▣ With advanced diagnostics ▣ High packing density ▣ Engineered cabinet solution with optional FAT 	<ul style="list-style-type: none"> ▣ For single segments ▣ Small, all -in-one unit ▣ Engineered cabinet solution with optional FAT
		
<p>FieldBarrier</p>	<p>Segment Protector</p>	<p>Surge Protector/ Enclosure Leakage Sensor</p>
<p>Device Coupler for hazardous area</p>	<p>Device coupler</p>	<p>Diagnostic-enabled accessories</p>
<ul style="list-style-type: none"> ▣ Installation in Zone 1/Div. 1 ▣ Instrumentation in Zone 0/Div. 1, intrinsically safe ▣ The High -power trunk ▣ With intelligent fault protection ▣ Selection of enclosures for outside installation in hazardous areas 	<ul style="list-style-type: none"> ▣ For general purpose area and Zone 1–2/Div. 2 ▣ Instrumentation in Zone 1–2/Div. 2 ▣ Instrument connection intrinsically safe and increased safety ▣ With intelligent fault protection ▣ Selection of enclosures for outside installation in hazardous areas 	<ul style="list-style-type: none"> ▣ Communicate status via fieldbus ▣ No configuration required ▣ End -of life detection for surge protector ▣ Water ingress detection for any enclosure or instrument
		
<p>Multi-input/output</p>	<p>Temperature Multiplexer and Valve Coupler</p>	<p>FDH-1</p>
<p>For simple binary signals</p>	<p>For simple analog signals</p>	<p>Fieldbus Diagnostic Handheld</p>
<ul style="list-style-type: none"> ▣ For low -power valves, NAMUR sensors, vibrating forks and frequency inputs ▣ Supports function blocks ▣ Saves space and wiring, ▣ Alarms for break -away and runtime of valves configurable ▣ Intrinsically safe inputs and outputs ▣ Selection of enclosures for outside installation in hazardous areas 	<ul style="list-style-type: none"> ▣ For RTDs with 2–4 wire connection and thermocouples ▣ Supports function blocks ▣ Saves space and wiring ▣ Intrinsically safe inputs ▣ Selection of enclosures for outside installation in hazardous areas 	<ul style="list-style-type: none"> ▣ With push -button display ▣ Commissioning wizard ▣ Compares planned version to actual version ▣ Expert system gives advice in plain text ▣ Stand -alone operation ▣ For any hazardous area

Your automation, our passion.

Explosion Protection

- Intrinsically Safe Barriers
- Signal Conditioners
- Fieldbus Infrastructure
- Remote I/O Systems
- HART Interface Solutions
- Wireless Solutions
- Level Measurement
- Purge and Pressurization Systems
- Industrial Monitors and HMI Solutions
- Electrical Explosion Protection Equipment
- Solutions for Explosion Protection

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- AS-Interface
- Identification Systems
- Logic Control Units
- Connectivity

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