

Maximizing safety.  
Improving signal performance.  
Advancing technology.

Product Overview  
Interface Technology

## ETA Process Instrumentation

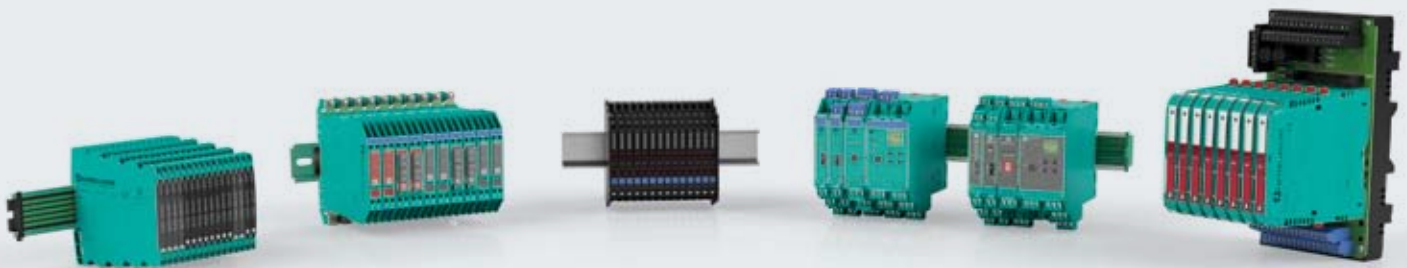
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Your automation, our passion.

 **PEPPERL+FUCHS**

# Reliable Processes—Signal after Signal

Since its introduction, interface technology from Pepperl+Fuchs has formed a core component of the process industry: With more than 60 years of experience and as the inventor of the intrinsic safety barrier, Pepperl+Fuchs is a world leader in hazardous area interfaces. Technical expertise, and in-depth knowledge of the industry ensure that the products we develop are precisely tailored to meet market requirements.

One highlight is our extensive range of modules and systems. No matter the application, we have the right solution as well as millions of installed devices from North sea platforms to clean room applications in the pharmaceutical industry.

## Typical Applications

- Monitoring plant components such as pumps, drives, and boilers
- Controlling processes
- Connecting safety devices to control panels

## Industries

- Chemical
- Oil/gas production and processing
- Pharmaceutical
- Food and beverage
- Wastewater
- Steel production



# Secure Signal Transmission, Optimal Processes

More than  
10 Million SIL  
Safety Products  
Installed

## Large Portfolio for Maximum Flexibility

Interface technology from Pepperl+Fuchs combines maximum process reliability with an enormous variety of applications. The extensive portfolio offers the right solution for virtually any process industry requirement. It is perfectly tailored to applications in hazardous and non-hazardous areas—a highly flexible solution for a wide range of requirements.

- Extensive product range
- Solutions for every requirement
- International approvals

## Explosion Protection with Barriers for Intrinsic Safety

Intrinsic safety provides the highest level of protection for your plants' hazardous areas. Signals can be connected up to Zone 0/Div. 1 in order to limit the energy to the field, thereby ensuring no explosion is possible. Intrinsic safety barriers from Pepperl+Fuchs are installed globally in all major hazardous areas.

## Safety Integrity Level (SIL)

The safety integrity level is a unit of measure for quantifying risk reduction. It is used to assess devices and systems in terms of the reliability of their safety functions. The SIL rating is based on international standard IEC/EN 61508.

## Unrivalled Portfolio of SIL-Rated Products

If products are to be used in signal circuits with a safety integrity level, they must meet a variety of requirements. Pepperl+Fuchs offers a comprehensive portfolio of devices with SIL 2 and SIL 3 ratings. All products with SIL rating and safety manuals are available at no extra charge. This provides customers worldwide with a wide range of modules for SIL applications that offer users even greater flexibility.



# Flexible Technology: DIN Mounting Rail

It is the combination of maximum process reliability, easy operation, and enormous flexibility: K-System from Pepperl+Fuchs offers the most comprehensive portfolio of isolators on the market, with the right solution for any interface requirement. The Power Rail ensures easy, flexible mounting and power supply without the need for labor-intensive point-to-point wiring. A highly flexible system for a wide range of applications.

## Quick and Easy Mounting

K-System offers quick and convenient installation using a DIN mounting rail. The modules are added by simply clipping them in, which eliminates the need for labor-intensive wiring. If modules need to be replaced or expanded, this can be done without tools and without a hot-work permit. This ensures fast, easy, and efficient maintenance.



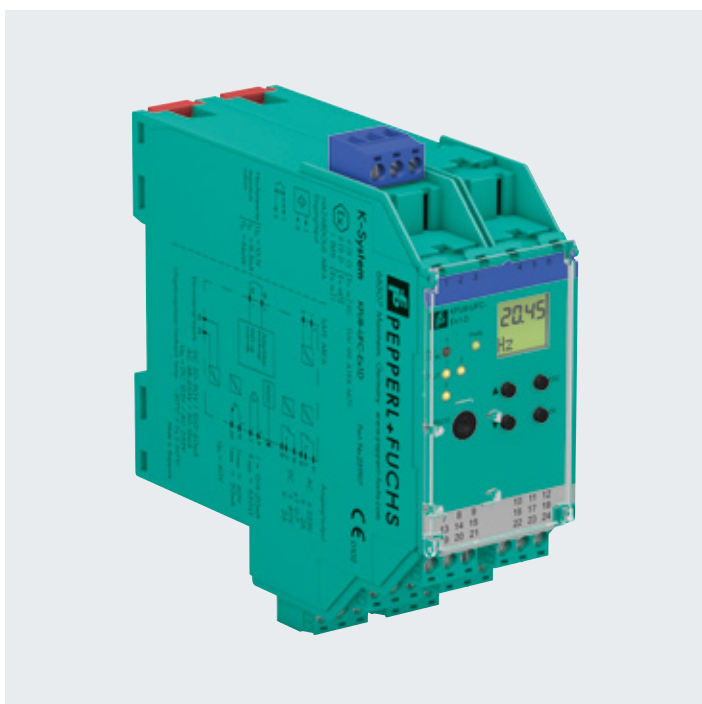


### Power Rail—Reliable Supply and Reduced Wiring

The Power Rail ensures the reliable supply of power to modules and, since there is no separate wiring required, also reduces installation costs. It also transmits a collective error message in the event of faults. The faults detected by the interface module are outputted via the volt-free contact of the power feed module.

### Features of the Modules

- More than 200 different barriers available to cover even the most special applications
- Display for measurements and parameterization in high-functioning modules
- Many devices can be supplied with SIL 2 and SIL 3 as well as safety manuals at no extra cost



### Flexible and Individual Combination

K-System is designed for a mixture of applications involving both Ex modules and non-Ex modules. Whether a simple switch amplifier or a high-performance component, the modules can be combined flexibly on the DIN mounting rail in a space-saving solution. KC modules with a width of 12.5 mm for compact single-loop integrity or multi-channel KF modules with a width of 20 mm or 40 mm for maximum packing density are available.





# Individual Solutions for Control System Manufacturers

The range of termination boards from Pepperl+Fuchs offers special solutions for all major control system manufacturers. A technology that caters to the project and the individual requirements of our customers and offers reliable explosion protection.

## Minimal Planning Effort, Quick Integration

The large range of engineered termination boards from Pepperl+Fuchs is precisely tailored to the requirements of control system manufacturers. The solutions are optimized for switch cabinets and have been tested on original hardware from the manufacturers. Specific system connectors on the termination board guarantee fast and reliable connection of the signals to automation systems (DCS, ESD). In this way, the prefabricated termination boards reduce costs, particularly in the case of large-scale projects.

## Overview of Control System Manufacturers

- Emerson
- HIMA
- Honeywell
- Schneider Electric
- Yokogawa
- Other PLC, ESD, and DCS solutions available



### Minimal Wiring Complexity, Individual Solution

Termination boards are mainly used for contacting the control and instrumentation signals. For this purpose, the modules are mounted on termination boards, via the unique quick lock tabs, so no tools are required. All field wiring is attached directly to the termination board, while standard system cables connect the barriers to the control system. This approach ensures a clean installation as no wiring is on the modules, making the system easy to maintain.

### Your Benefits at a Glance

- Modules for all signal types
- Horizontal and vertical mounting with no reduction in operating values (derating)
- Control-system-specific connectors—fast connection to automation systems
- Tested on original control panels from leading control system manufacturers
- Product portfolio coordinated with DCS manufacturers for short delivery times
- Testing of modules to ensure DCS/ESD system compatibility
- Tool-free mounting
- Module replacement without a hot-work permit
- Clean installation, no wiring on barrier modules



Termination boards are available for all automation systems



# The Universal Solution for Every Signal Type

Full Flexibility and  
New Standards

Innovative technology from the market leader in intrinsic safety—the universal barrier is a universal digital or analog input and output isolated barrier. Just connect the signal and the universal barrier auto detects and adapts to the signal type.



## Simple Handling, Flexible Use

No channel dependence, automatic adaptation to the signal type, and maximum flexibility: the universal barrier from Pepperl+Fuchs is a multifunctional alternative to the traditional isolated barrier. Whether digital or analog input or output—the universal barrier offers quick and simple solutions for every challenge.

## All Benefits at a Glance

- Last-minute changes are possible
- Simplified storage
- Marshalling panel not required
- Automatic adaptation to signal type
- Fast, easy commissioning without any adjustments to hardware or software
- High degree of flexibility when planning projects
- Up to SIL 2 according to IEC 61508





## Surge Protection

# M-LB-2000

## Surge Protection

Protect Your Plant  
Assets with Surge  
Protection

The M-LB-2000 offers basic features in a compact housing: with a width of just 6.2 mm it reduces installation space to a minimum. This cost efficient simple surge protection is a one-piece device for mounting on DIN rail and easy to handle tool-free.



### Your Benefits at a Glance

- Compact 6.2 mm width for reduced installation space
- Plug-in modules for easiest installation
- Loop disconnect for easy maintenance
- Global certifications



# Signal Conditioners for Every Application— Versatile, Compact, Efficient

Pepperl+Fuchs offers the appropriate interface components for virtually any application. K-System features the largest variety, simple mounting, and flexibility. SC-System, with its compact, high-performance design, offers signal conditioning with galvanic isolation for non-hazardous areas.

## Safe Signals for Reliable Processes

Interference on the signal path can cause signals to become distorted and no longer be recognized by the control panel. This can lead to malfunctions that have a substantial impact on the efficiency and availability of the plant. The galvanic isolation of the signal conditioners from Pepperl+Fuchs protects the measurement and control circuits against false signals and dangerous surges. Signal conditioners are used in virtually all automation processes.

## Industries

- Energy production
- Water/wastewater plants
- Steel industry and metal processing
- Food
- Packaging
- Testing facilities
- Cement industry
- Paper industry
- Building automation

## Application Options for Signal Conditioners

- **Secure Communication in the Plant**  
Galvanic isolation prevents transmission and control errors caused by equalizing currents in ground loops.
- **Protection against Short Circuits and Surge Voltage**
- Galvanically isolated outputs provide protection to your plant and personnel against dangerous high voltages.
- **Multiple Use of Signals**  
Signal conditioners with galvanically isolated outputs ensure reliable forwarding of the signal on different systems.
- **Conversion to Standard Signals**  
Signal conditioners can convert signals so that they can be processed—expensive input cards for the control panel are no longer necessary.







### Extra Slim and Powerful

The SC-System was developed by Pepperl+Fuchs specifically for plants that do not have any hazardous areas. The powerful signal conditioners ensure completely fault-free communication between the control level and the field level. Special features of the system include the high standard of isolation quality, an extended temperature range, and an extremely compact design.

### Typical Features

- Compact design
- High isolation quality: optimum protection for personnel and equipment
- Wide temperature range: flexible in use and longer life cycle
- Power bus for optimum supply: low wiring costs, compatible with all customary products, ideal for retrofitting



### Convenient and Highly Versatile

The K-System Portfolio from Pepperl+Fuchs combines process reliability with a large variety of possible applications. It offers the most extensive range of its type on the market and has the right solution for virtually any requirement. The system is perfectly adapted to mixed applications in hazardous and non-hazardous areas.

# HART Connectivity from a Single Source

With more than 30 million HART-compatible field devices in use worldwide, the HART digital standard has been firmly established in the process industry for decades. Benefit from Pepperl+Fuchs HART solutions to unlock your plants' digital communication capabilities.

## HART Technology

The use of HART technology enables more extensive communication between the control level and the field devices. Measurements that are present as digital process data in the field devices can be used by these devices and integrated into conventional control systems. HART allows field devices to be parameterized and their status and diagnostic information to be transmitted. Plants can therefore be modernized simply and efficiently.

## Typical Applications

Additional information from transmitters can be transferred to the control panel as digital HART variables and then evaluated:

- Control of the output from industrial burners in the chemical industry: detection of flow, humidity, and pressure fluctuations of the fuel gas to increase the quality and efficiency of the process
- Calibration of hard-to-access analysis equipment to measure oxygen in exhaust systems for increased safety and efficiency of combustion plants

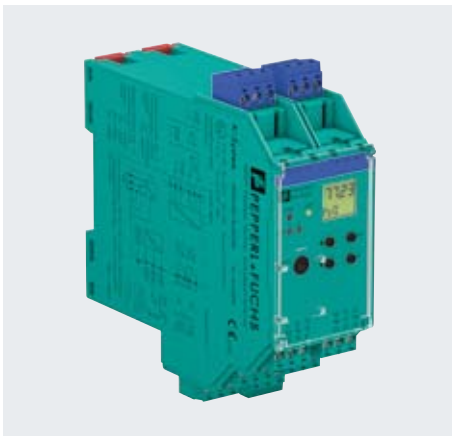






### HART Loop Converter

The HART loop converter can read up to four variables from a HART field device and transmit them as analog output signals. In addition to other data, these variables include maintenance, status, and diagnostic information. Partial stroke tests are also possible.



### HART Multiplexer

Multiplexers of the K- and H-systems extract digital signals without affecting the communication between field devices and the control system. They store the information taken from the field device internally and make it accessible, for example, to an asset management system.

### Viator® HART Modems—Your Simple Access to HART Data

In combination with the Pepperl+Fuchs HART interface solutions, the Viator® portfolio provides access to crucial information from field devices and offers a reliable solution for commissioning and servicing them. A variety of models provide the right connectivity for your application: RS-232, USB, USB with PowerXpress™, as well as Bluetooth® models for general purpose and hazardous locations.

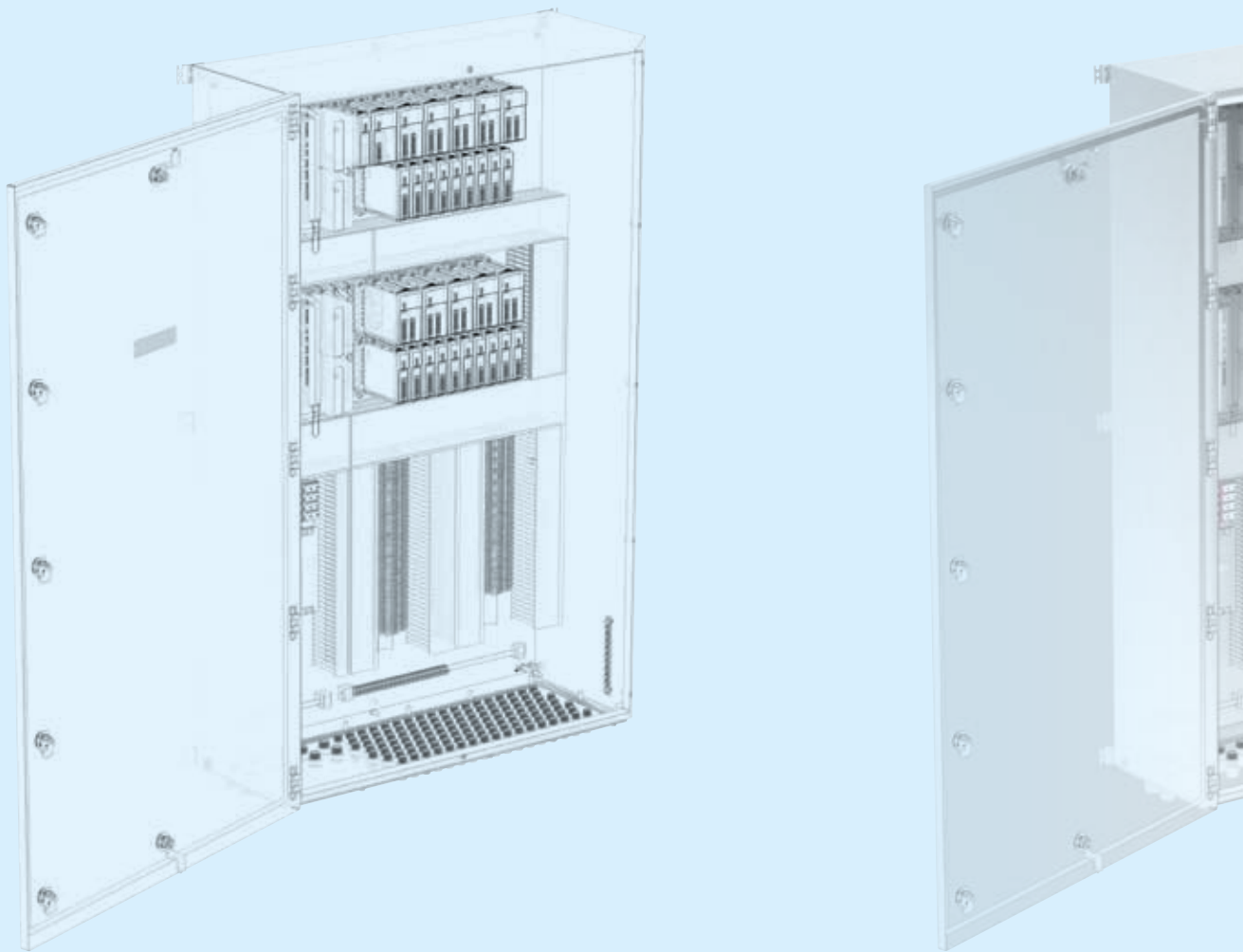
For more information please see our brochure “Viator® HART Interfaces”.



### BULLET Wireless HART Adapter for Flexible and Easy Connection

The BULLET is the only Wireless HART adapter on the market in an Ex d housing. The BULLET comes with all relevant certifications (ATEX, UL, IECEx, and many more) for use all over the world. Simply connect the BULLET to your field device and enable efficient wireless signal transmission.





## Solution Engineering Centers (SECs)

# Custom-Designed Certified Solutions

### Turning Products into Solutions

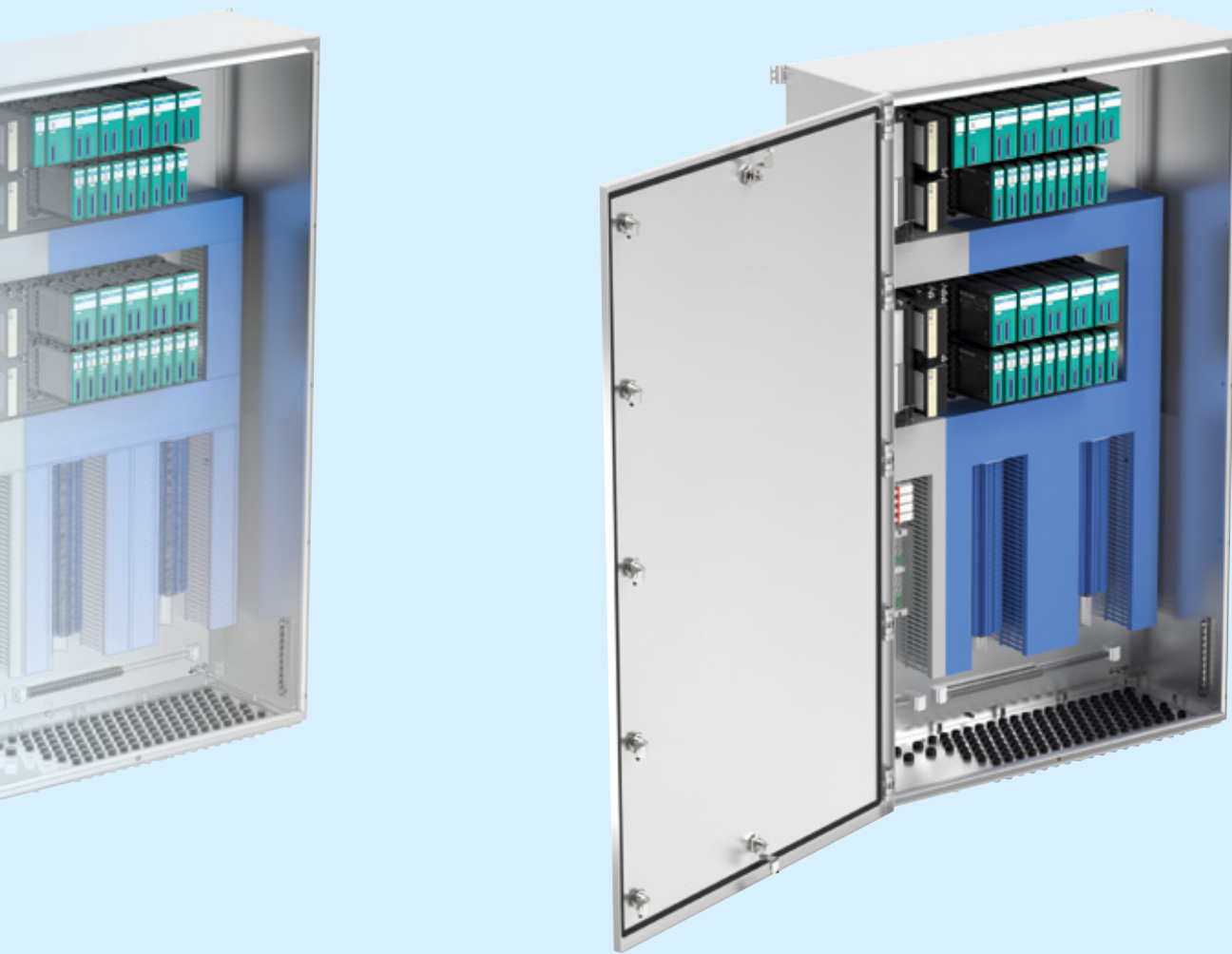
Each process plant comes with its own challenges and requirements. Efficiency, reliability, and availability of the plant call for a process control system that not only offers insight into the operation of the process, but also provides a well-founded basis for informed decision-making.

The remote I/O solutions from Pepperl+Fuchs provide the hardware basis for seamless communication between different technology generations. They represent an innovative solution designed for easy integration. The Pepperl+Fuchs Solution Engineering Centers (SEC) are there to assist plant operators and provide them with custom-designed solutions tailored to individual specifications. This not only guarantees firsthand knowledge and experience, but also greatly reduces on-site efforts for engineering, installation, and configuration. Besides remote I/O Pepperl+Fuchs also offers solutions with Ex e (increased safety), or Ex d (flameproof) type of protection and purge purge and pressurization systems.

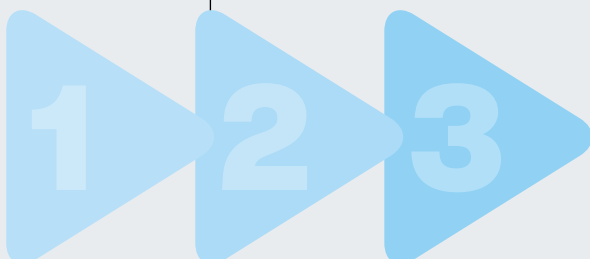
### Global Teams with Local Experience

Pepperl+Fuchs Solution Engineering Centers are available on a global basis. They are familiar with local requirements and know the specific needs of the worldwide process industry. Using their services means tapping into deep insider knowledge and outsourcing responsibilities. As a result, the customer gets far more than just components to upgrade plants and bridge technology generations. They obtain a certified turnkey solution that is guaranteed to seamlessly integrate into the existing PCS to gain more control and enhanced system transparency.





Manufacture, inspections,  
acceptance, and logistics



Customer specifications,  
solution proposal,  
specification, and design

Final certified and  
documented  
customized solution

### Three Steps to Your Next Solution

Plants in the process industry present increasingly complex challenges, not least in terms of explosion protection. Numerous legal regulations must be complied with; after all, people and the environment need to be protected even more so than plants and machinery. Not surprisingly, these changes are impacting the types of problems and tasks that companies face. To ensure that companies can continue to focus on their own core business, customized solutions from Pepperl+Fuchs are developed in collaboration with our customers to meet the global approval standards of a trusted partner.

# Your automation, our passion.

## Explosion Protection

- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus Infrastructure
- Remote I/O Systems
- Electrical Explosion Protection Equipment
- Purge and Pressurization Systems
- HMI Systems
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

## Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Vibration Monitoring
- Industrial Ethernet
- AS-Interface
- IO-Link
- Identification Systems
- Displays and Signal Processing
- Connectivity

### ETA Process Instrumentation

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