All Lines Protected.

One portfolio. Zero gaps.

End-to-End Surge Protection
from Pepperl+Fuchs



Your automation, our passion.

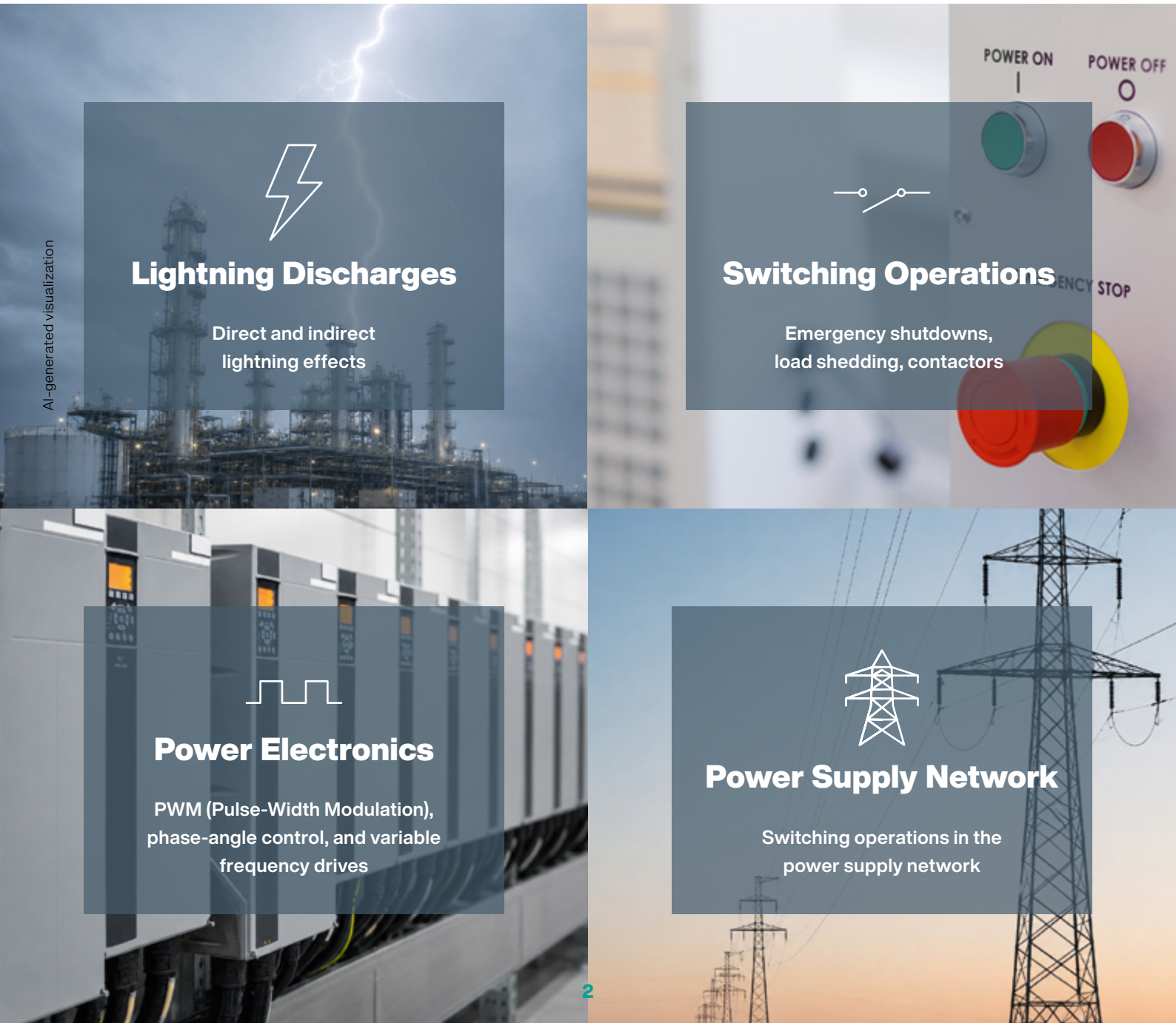
PEPPERL+FUCHS

Surge Protection for Industrial Automation

Comprehensive Protection for Maximum Plant Availability

Transient overvoltages are among the most common causes of damage to electrical and electronic components. While overvoltages are often associated with lightning strikes, they are not caused by lightning alone. They can also result from everyday events within electrical installations, such as switching operations, load changes, or the operation of power electronic equipment. Other contributing factors include electrostatic discharge, disturbances in the power supply network, and fault conditions such as ground faults or short circuits.

The wide range of causes of transient overvoltages requires a comprehensive protection concept. Our portfolio offers the right solution for every application—from power supply and signal transmission to industrial data networks.



AI-generated visualization

Lightning Discharges

Direct and indirect lightning effects

Switching Operations

Emergency shutdowns, load shedding, contactors

Power Electronics

PWM (Pulse-Width Modulation), phase-angle control, and variable frequency drives

Power Supply Network

Switching operations in the power supply network

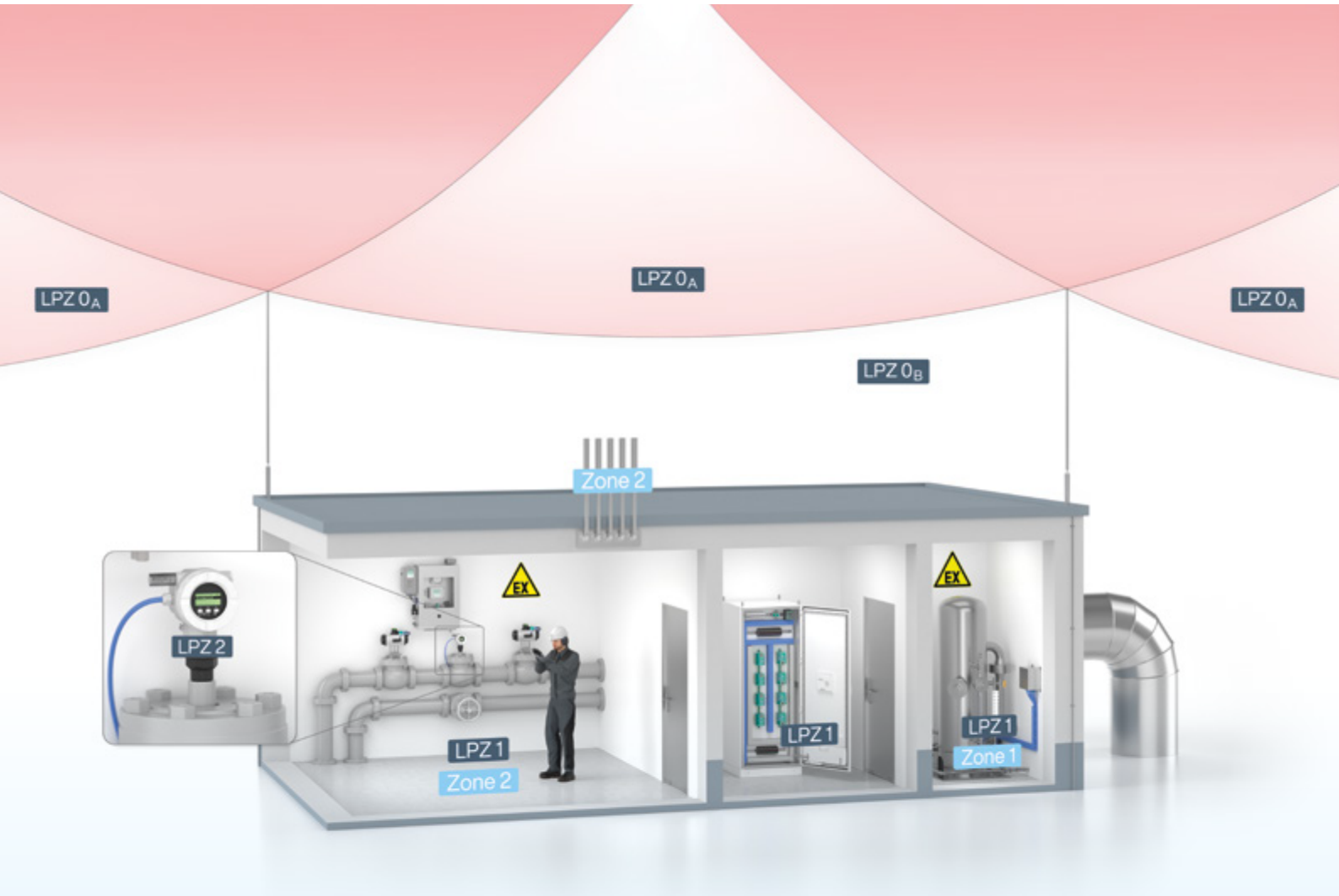
Impact on Plants and Processes

Overvoltages can have significant consequences, particularly in process and automation systems. In addition to damaging sensitive components such as control systems, power supplies, field devices, and communication systems, they can lead to unplanned downtime, production losses, and increased maintenance requirements.

One Protection Concept for the Entire Plant

A coordinated surge protection concept safeguards the entire automation infrastructure – from power supply and signal lines to data networks and field devices, including applications in hazardous areas. This helps reduce downtime, protect investments, and ensure long-term plant availability.

More information:
www.pepperl-fuchs.com/pf-surge



Coordinated surge protection safeguards electrical and electronic components throughout the lightning protection zones—from the power supply to the field device.

Protection for Power Supply Lines

Reliable Protection for the Power Supply Lines of Automation Systems

The power supply is a key entry point for lightning- and switching-related overvoltages. If these transients enter the installation, they can damage power supplies, control systems, and other automation components, potentially resulting in unplanned downtime.



M-LB Series

The M-LB system provides reliable surge protection for power supply lines with rated voltages of up to 230 V. By safely diverting transient overvoltages, it helps increase plant availability and protect sensitive automation equipment.

Designed for Easy Installation and Maintenance

The pluggable system consists of a base module and replaceable protection modules. DIN rail mounting and tool-free replacement of the protection modules enable quick installation and simplify maintenance. Its compact design and flexible connection options make the system suitable for both new installations and retrofit applications.

Key Benefits

- Reliable protection for power supply lines with rated voltages up to 230 V
- Suitable for different power system configurations
- Pluggable protection modules for quick replacement
- Tool-free installation and easy maintenance
- Floating contact for remote status monitoring
- Front-facing status and fault indication
- Modular industrial design for high plant availability

More information:
www.pepperl-fuchs.com/pf-surge-supply-line

Coordinated Surge Protection Solutions for Industrial Signal Transmission

Signal lines are among the most sensitive components of an automation system. Even low-level transient overvoltages can distort measurement signals, disrupt communication, or damage field devices and control systems. Pepperl+Fuchs offers coordinated surge protection solutions for a wide range of signal circuits—from conventional 4 ... 20 mA current loops to sensitive temperature and vibration measurement applications.

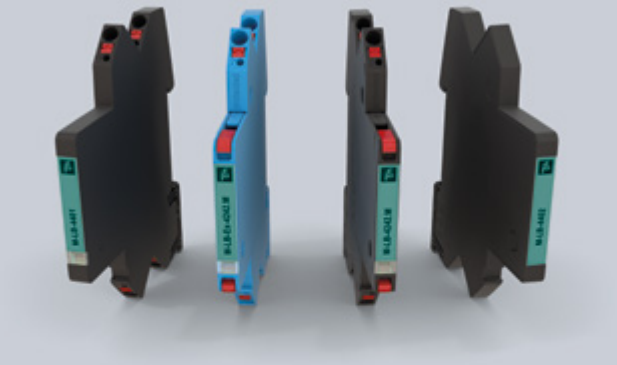
The Right Solution for Every Application

Depending on the application and installation environment, different surge protection systems are available. For installation in control cabinets and junction boxes, the portfolio includes pluggable systems, basic solutions for DIN rail mounting, and specially designed plug-on modules for K-System devices. The portfolio is complemented by screw-in modules for direct protection of field devices.

More information:
www.pepperl-fuchs.com/pf-surge-signal-line



Product Families for Signal Circuit Protection



M-LB-4000

Intelligent Surge Protection with Diagnostics

The modular M-LB-4000 system allows surge protection modules to be replaced during operation without interrupting the signal circuit. The integrated Loop Disconnect function supports insulation tests and loop checks during commissioning. An integrated status indicator, with optional remote signaling, simplifies maintenance and helps maximize plant availability.

Highlights

- Replace protection modules during operation—without interrupting the signal circuit
- Loop Disconnect function for easy insulation tests and loop checks
- Modular, pluggable system for fast maintenance without rewiring
- Integrated status monitoring with optional remote fault signaling
- High plant availability through simplified maintenance and minimized downtime
- International approvals for use in hazardous areas
- Options for use in intrinsically safe control loops



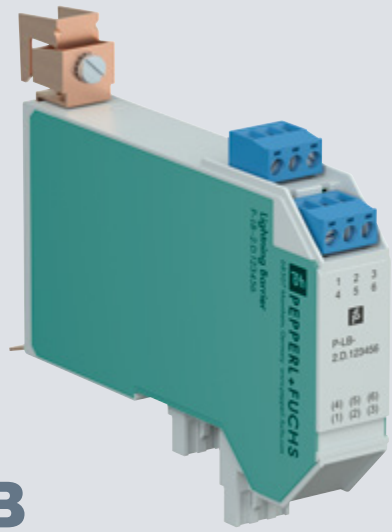
M-LB-2000

Compact Basic Protection for Standard Signals

The M-LB-2000 system is an economical basic solution for surge protection in control cabinets and junction boxes. The compact DIN rail module can be installed without tools and features an integrated Loop Disconnect function to support testing and commissioning. Variants for 3-wire applications are also available.

Highlights

- Cost-effective basic solution
- Tool-free DIN rail mounting for quick installation
- Integrated Loop Disconnect function for testing and commissioning
- Variants available for 3-wire applications
- Compact design for space-saving installation
- International approvals for use in hazardous areas
- Options for use in intrinsically safe control loops



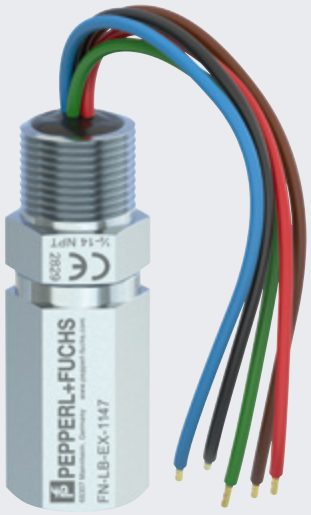
P-LB

Seamless Surge Protection for the K-System

The P-LB system was specifically developed to provide surge protection for K-System signal conditioners. The protection modules are mounted directly onto the KF modules and can be retrofitted into existing installations without additional wiring or space requirements. This enables reliable and cost-effective surge protection to be seamlessly integrated into existing installations.

Highlights

- Direct mounting on K-System KF modules
- Retrofitting without additional wiring
- Integration without additional space requirements
- Auto-reset function for high plant availability
- High discharge capacity for reliable surge protection
- International approvals for use in hazardous areas
- Options for use in intrinsically safe control loops



F-LB

Robust Surge Protection Directly at the Field Device

The F-LB system protects field devices directly at the point of installation, minimizing the distance between the surge protector and the field device for highly effective surge protection. Its robust stainless-steel housing, IP67 degree of protection, and international Ex approvals make it suitable for demanding industrial environments and hazardous areas. Various thread configurations ensure easy integration into existing installations.

Highlights

- Direct installation at the field device for effective surge protection
- High surge current capability for maximum operational reliability
- Robust stainless-steel housing for demanding industrial environments
- IP67 degree of protection for reliable field installation
- Various thread configurations for easy integration
- International approvals for use in hazardous areas
- Options for use in intrinsically safe control loops

Reliable Protection for Industrial Communication Networks

Industrial communication networks form the backbone of modern automation systems. Surge voltages can damage network components, disrupt data communication, or shut down entire sections of a plant. Pepperl+Fuchs offers coordinated surge protection solutions for Ethernet and other industrial communication systems. Specially designed solutions for Ethernet-APL and fieldbus systems such as FOUNDATION™ Fieldbus H1 and PROFIBUS PA ensure reliable, continuously available communication at field level in process plants.

More information:
www. pepperl-fuchs.com/pf-surge-fieldbus



For Industrial Ethernet

The Industrial Ethernet modules of the M-LB-4000 system reliably protect all four wire pairs against surges. Two versions are available to meet different requirements.

High-Performance Version

- Type 1/Type 2 protection in a single device
- Up to 10 Gbit/s, Class EA (500 MHz)
- PoE++/4PPoE and optional remote monitoring

Cost-Effective Version

- Ideal for existing networks and retrofits
- Gigabit Ethernet up to Class E (250 MHz)
- Power over Ethernet and easy integration



For Ethernet-APL

For the first time, Ethernet-APL enables end-to-end Ethernet communication down to the field level of process plants—even in hazardous areas up to Zone 0/Class I, Division 1. Since data transmission and power supply use the same two-wire cable, reliable surge protection is essential for safe, trouble-free network operation.

FieldConnex® offers dedicated surge protection modules for Ethernet-APL field devices:

- DIN rail modules for control cabinet installation (Ex ia, Ex ec)—available with direct or indirect shield grounding
- Threaded modules in robust stainless steel housings for field installation (Ex ia, Ex d, Ex e)
- Intrinsically safe design in accordance with 2-WISE and FISCO

Two-Wire Communication

FieldConnex® is Pepperl+Fuchs' proven technology for modern digital communication infrastructures in the process industry. It enables the reliable integration of field devices into process plants and supports digital data communication and power transmission over the same two-wire cable.

For Fieldbus Systems



For FOUNDATION™ Fieldbus H1 and PROFIBUS PA, FieldConnex® offers a comprehensive portfolio of surge protection solutions for various applications within the fieldbus segment:

- Control cabinet modules (Ex ia) with easy module replacement—for hazardous and non-hazardous applications based on the FISCO and Entity concepts
- Intrinsically safe or flameproof threaded modules for direct mounting on the field device
- Fully intrinsically safe modules (Ex ia) with IECEx certification for worldwide use, including Europe, the USA, and Canada

Pluggable Solutions for Fieldbus Systems



The plug-in modules eliminate an additional wiring level in the control cabinet and field junction box, reducing installation effort as well as enclosure size and weight. The comprehensive portfolio includes plug-in modules for the trunk at the Power Hub, FieldBarrier, or Segment Protector. Spur variants are available for general-purpose and intrinsically safe applications up to Ex ia.

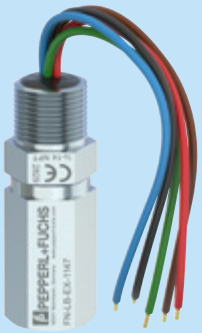
A distinctive feature of this product type is its self-diagnostic function, which indicates wear of the gas discharge tube.

- No intermediate wiring level required
- Optional wear diagnostics with remote transmission via the Advanced Diagnostic Module

Specialized Solutions for Demanding Ex Applications

Maximum Plant Availability, Even Under the Most Challenging Conditions

F*-LB-Ex-1147



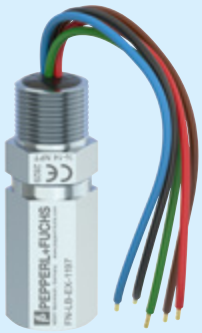
Combined Protection for Ex Field Devices

The F*-LB-Ex-1147 combines protection for two signal circuits, or for both power supply and signal, in a single device. Its integrated Ex i/Ex d solution reduces installation effort while reliably protecting complex measurement circuits with floating signals. High discharge capacity makes the device particularly well suited for demanding process industry applications.

Highlights

- Combined protection for power supply and signal circuits
- Protection of floating measurement circuits without compromising signal integrity
- High discharge capacity for demanding Ex applications
- Reduced installation effort and spare parts requirements
- Suitable for transmitters, positioners, and intelligent field devices
- M20 × 1.5 or ½-14 NPT external thread options

F*-LB-Ex-1197



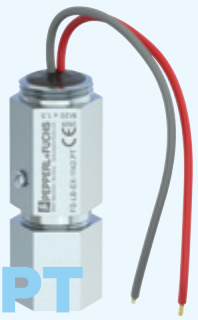
Combined Protection for Power Supply and Communication

The F*-LB-Ex-1197 simultaneously protects the power supply and signal interface of field devices installed in hazardous areas. Direct integration into the field device reduces installation effort. The solution is particularly suitable for mains-powered field devices with measurement or communication interfaces.

Highlights

- Combined protection for 230 V power supply and signal
- Direct integration into field devices without additional housing
- Fail-safe wiring with integrated protection against incorrect connection
- Suitable for use in Zone 1 and 2
- Protection for measuring devices, actuators, and process analyzers
- M20 × 1.5 or ½-14 NPT external thread options

FS-LB-Ex-1142.PT



Precise Protection for Intrinsically Safe Measurement and Bus Systems

The FS-LB-Ex-1142.PT was specifically developed for sensitive intrinsically safe measurement circuits and bus systems. Its energy-coordinated, two-stage protection concept effectively limits residual voltages and meets the requirements of NAMUR NE 21 and the FISCO concept. This makes the module particularly well suited for demanding HART and fieldbus applications.

Highlights

- Two-stage protection concept for sensitive measurement circuits
- NAMUR NE 21-compliant solution for intrinsically safe applications
- Compatible with FISCO for PROFIBUS PA and FOUNDATION™ Fieldbus H1
- Low capacitance for undistorted signal transmission
- Suitable for HART, fieldbus, and temperature measurement applications
- M20 × 1.5 or ½-14 NPT external thread options

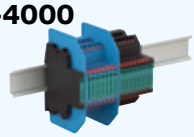
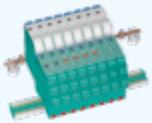
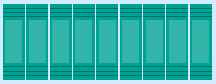
Comprehensive Protection for Maximum Plant Availability

Coordinated Surge Protection from a Single Source

An effective surge protection concept considers the entire plant—from the power supply and signal lines to data networks and field devices. Pepperl+Fuchs' coordinated portfolio provides the right solution for every application, enabling comprehensive protection for industrial automation and process plants.

- Comprehensive protection for power, signal, and data lines
- Coordinated protection concepts from the power input to the field device
- Solutions for control cabinets, junction boxes, and field devices
- Products for standard and hazardous area applications
- Easy installation and maintenance-friendly design
- International approvals for worldwide use

System Overview

System	Application	Positioning	Mounting	Diagnostics	Modularity
M-LB-*.* 	**Supply lines** ■ 1/2/3/4 lines, type 2 ■ 1 line, type 3	Control cabinet	 DIN rail	✓	Two-piece
M-LB-2000 	**Signal lines**	Control cabinet or junction box	 DIN rail	✗	One-piece
M-LB-4000 	**Signal lines**	Control cabinet or junction box	 DIN rail	✓	Two-piece
M-LB-4700 	**Industrial Ethernet**	Control cabinet or junction box	 DIN rail	✓	One-piece
P-LB 	**Signal lines**	Control cabinet or junction box	 KF modules	✗	One-piece
F*-LB 	**Signal lines**	Field device	 Field device	✗	One-piece
Solutions for FieldConnex and Ethernet-APL					
LBF 	**Fieldbus**	Control cabinet or junction box, field device	■ DIN rail ■ Power Hub/ Segment Protector ■ Field device	✓	One-piece and two-piece
LBAS 	**Ethernet-APL**	Control cabinet or junction box, field device	■ DIN rail ■ Field device	✗	One-piece

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- Industrial Communication and Interfaces
- Enterprise Mobility
- Hazardous Area Products and Solutions

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