Simple. Flexible. Scalable.

Integrate decentralized I/O cost-effectively—over hundreds of meters, with just one cable.

Product Overview AS-Interface



Your automation, our passion.

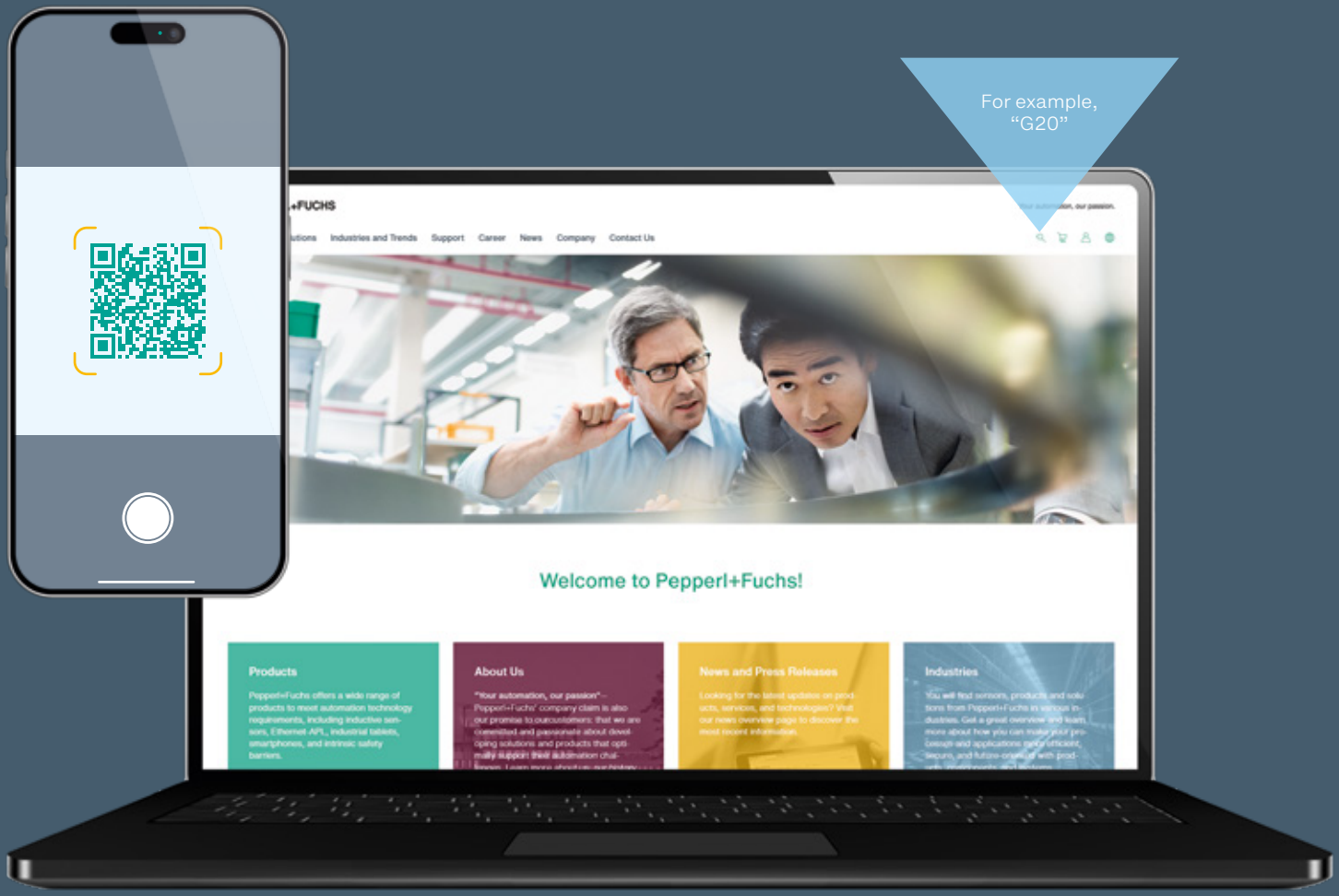
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AS-Interface

Why Use AS-Interface?

AS-Interface, short for actuator-sensor interface, is a simple and cost-effective wiring technology for sensors and actuators in the field. With AS-Interface, both the power supply and data transmission are carried out via a single flat cable that is protected against reverse polarity. With the piercing installation method, ASi devices can be positioned easily and completely flexibly along the entire length of the flat cable.

Easy decentralized installation replaces the clutter, disorder, and frustration that comes with traditional cabling methods. The network connects your lowest-level I/O devices such as discrete I/O, sensors, analog and safety data, encoders, light curtains, and emergency stops to a single network cable.

It's all about simplifying the design of a control system, reducing wiring complexity, cutting installation costs, improving diagnostics, and ultimately making automation more productive.

Successful Low-Level I/O Network

- Cost-effective low-level networking solution
- Millions of AS-Interface field devices installed worldwide
- Supports transmitting standard and safe signals on one cable

Flexible and Efficient

- Enables use of any network topology
- No limitations on how to route, expand, or split network runs
- Easily integrated into a larger fieldbus network
- Adding or removing modules has never been easier without disrupting the network
- Supported by nearly all major industrial PLC manufacturers

Simplicity with a Single Cable

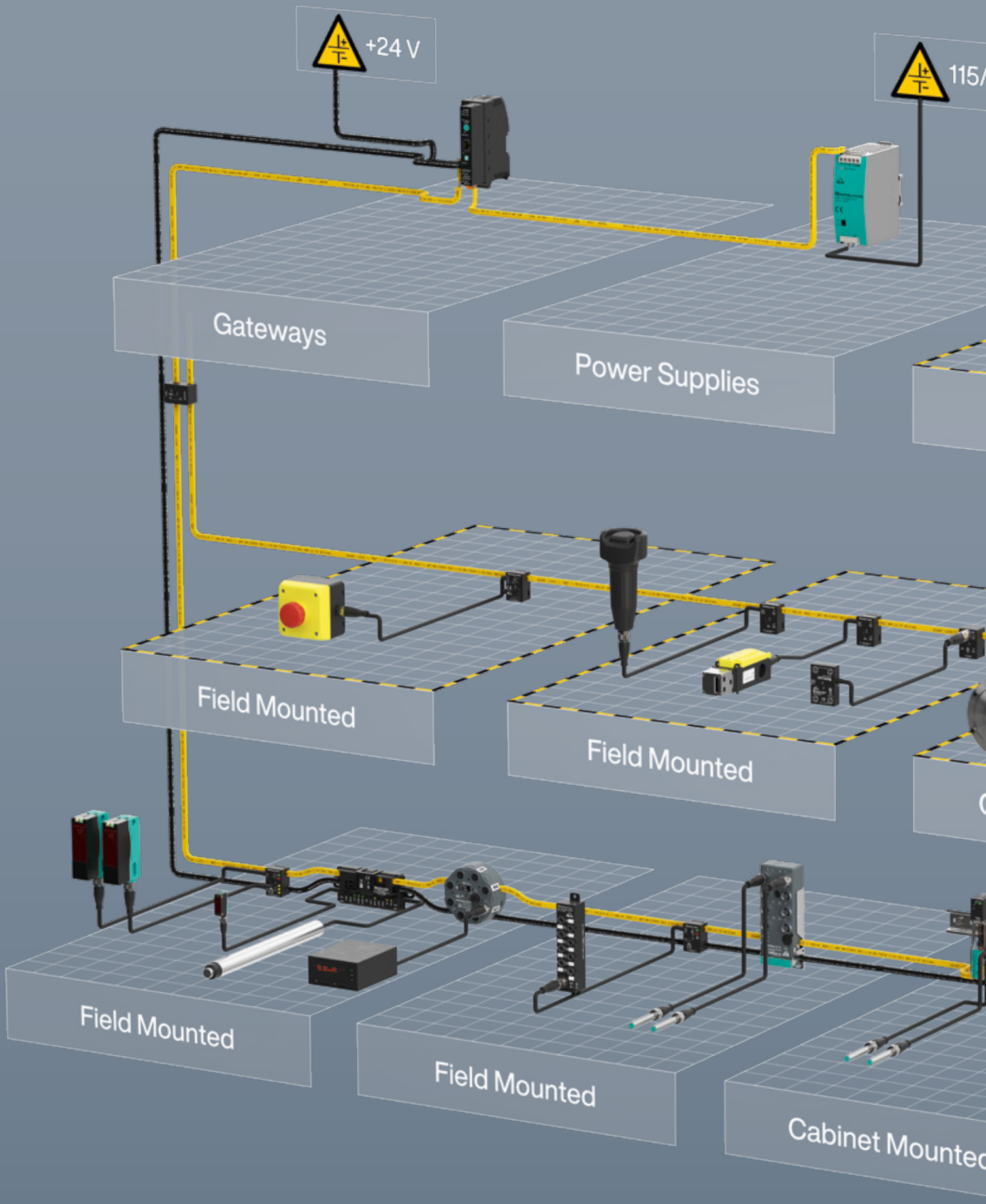
- One two-conductor cable connects I/O modules from any manufacturer
- Efficient installation method
- Cable design eliminates the danger of reverse polarity

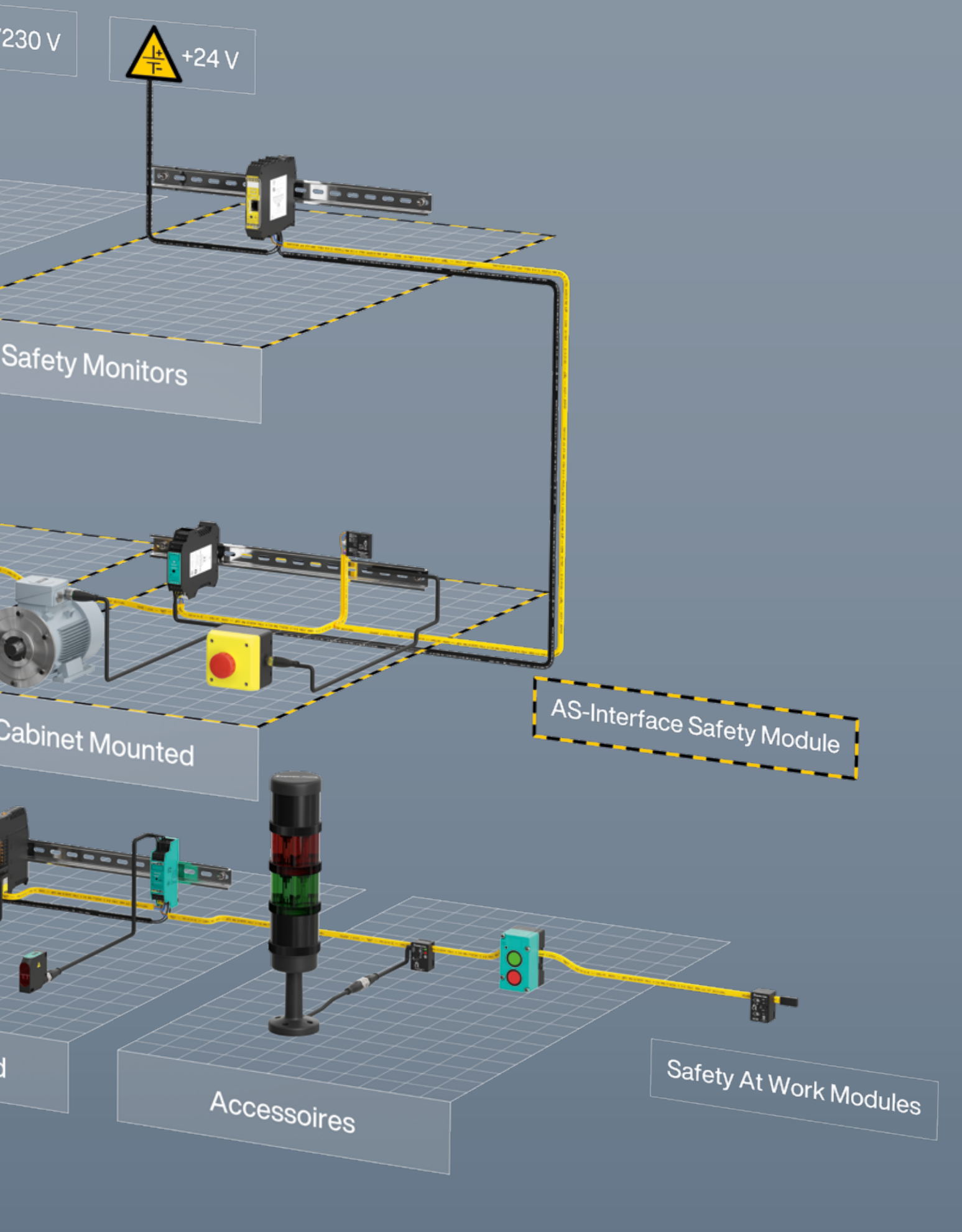
Reliable Technology Guaranteed

- Piercing connection technology cannot be beaten in terms of simplicity and connectivity of devices
- Piercing pins on modules penetrate the conductors of the cable
- Robust and secure electrical connection

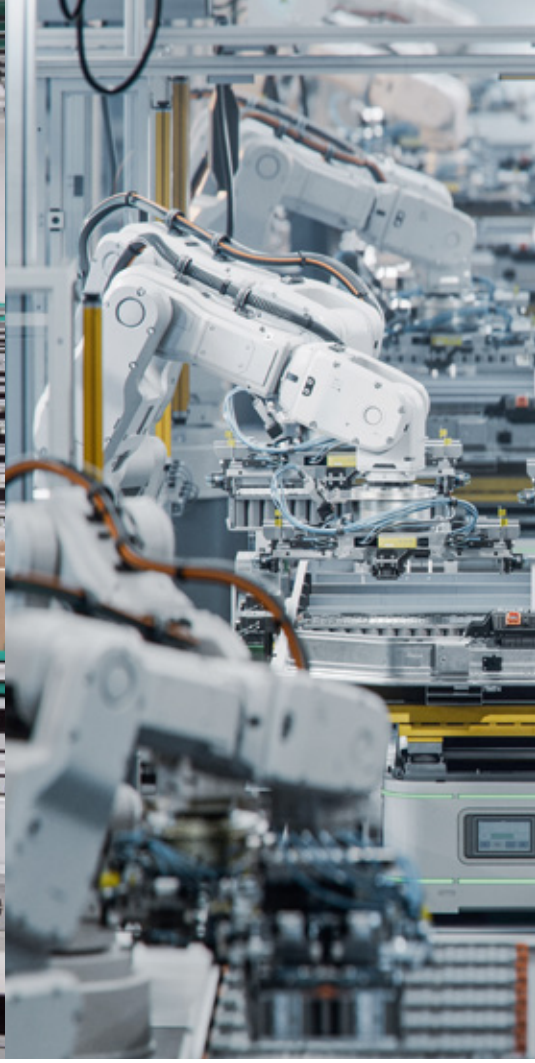
AS-Interface

System Infrastructure




230 V
+24 V
Safety Monitors
Cabinet Mounted
AS-Interface Safety Module
Accessoires
Safety At Work Modules





AS-Interface

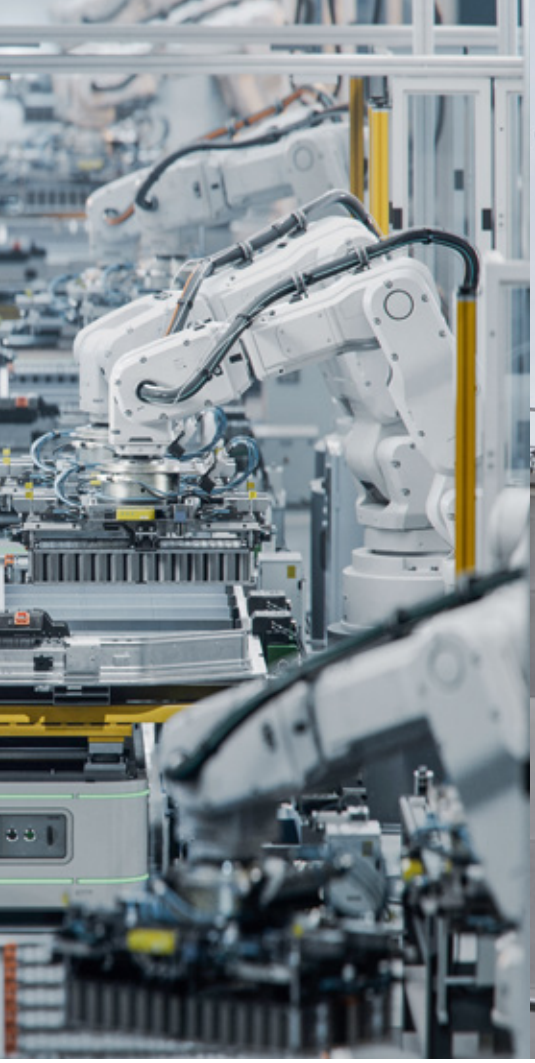
Target Markets

Material Handling Industry

AS-Interface products are a dependable option for the material handling industry where applications demand fast and reliable networks.

Automotive Industry

AS-Interface products are often the technology of choice in the automotive industry where equipment must support lean, flexible manufacturing and provide speed, simplicity, and reliability in I/O networking.





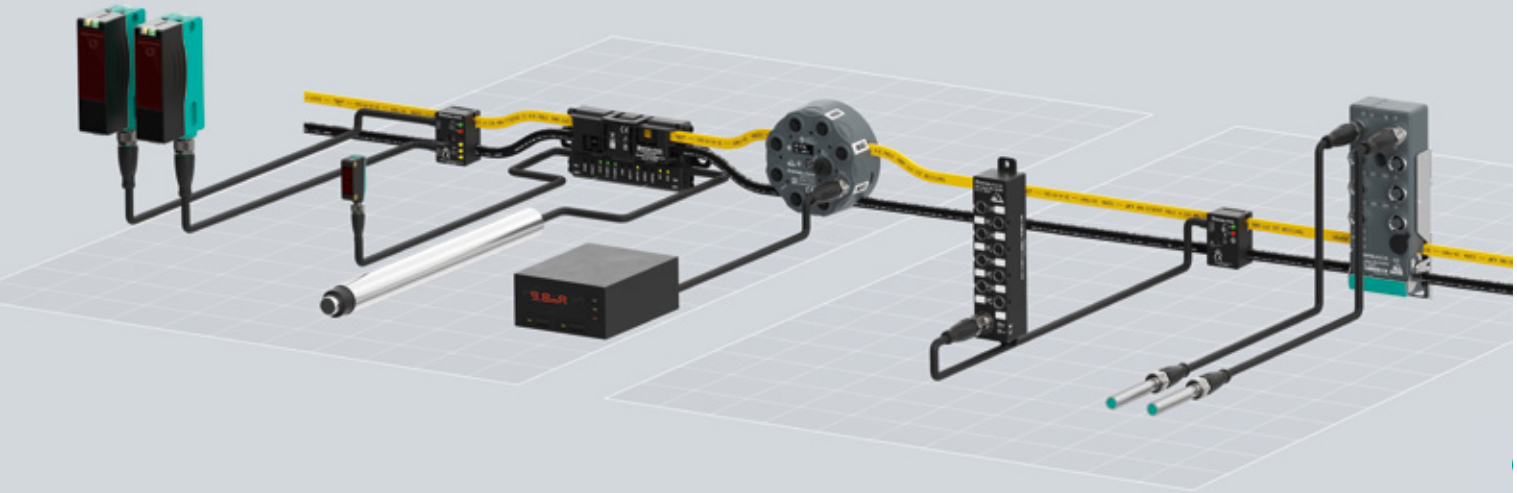
Process Industry

AS-Interface products are frequently used in process industries (chemical plants, paint production, pharmaceuticals, valve positioning and activation) where modules for hazardous areas are required.

AS-Interface Components

Input/Output Modules for Field Mounted Applications

Pepperl+Fuchs offers modules with rugged housings and a high degree of protection, designed for field applications where cost savings, installation time, and module size are crucial. Each module uses high-quality, machined, gold-plated piercing pins that provide superior long-term contact stability without damaging the internal strands of the AS-Interface cable.



G10 modules offer easy installation in tight spaces and support applications with highly distributed I/Os.

pepperl-fuchs.com/g10



With an innovative sealing concept and a robust, compact round design, G11 modules are ideal for machine builders and challenging process environments.

pepperl-fuchs.com/g11



G10 modules feature a one-piece housing that installs in seconds. Insert the flat cable, close the top, tighten the screw, connect, and installation is complete.



G10 Ultra Compact Module

- Simple and cost-effective mounting concept
- Single-piece housing
- No loose parts, nothing to lose or assemble
- Mounting is possible even in confined spaces
- Any sensor or actuator becomes an “AS-Interface device”
- Ideal for heavily distributed I/O systems with up to three I/Os per location

G20 Module—Intelligent DC Motor Control

- Intelligent control of 24 V and 48 V DC motorized drive rollers (MDRs)
- Perfect integration: application-optimized design for installation directly in the mounting rail
- Tool-free piercing technology allows pre-assembly of individual conveyor segments
- All necessary cables integrated directly into the module for increased cost efficiency
- Compatible with all common MDRs

G11, G12, G16 Modules— Minimal or Tool-Free Installation

- Easy to mount or replace with minimal tools needed
- Modules distinguish themselves by their mechanics and I/O configuration options
- Multiple input/output connections with an LED to indicate the presence of a fault
- Diagnostic features available for output overload/short circuit indication
- Analog versions of modules available



G16 modules are specifically designed for installation and use where space is limited.

pepperl-fuchs.com/ g16



G12 modules have a one-piece, flat housing for quick, tool-free connection and replacement.

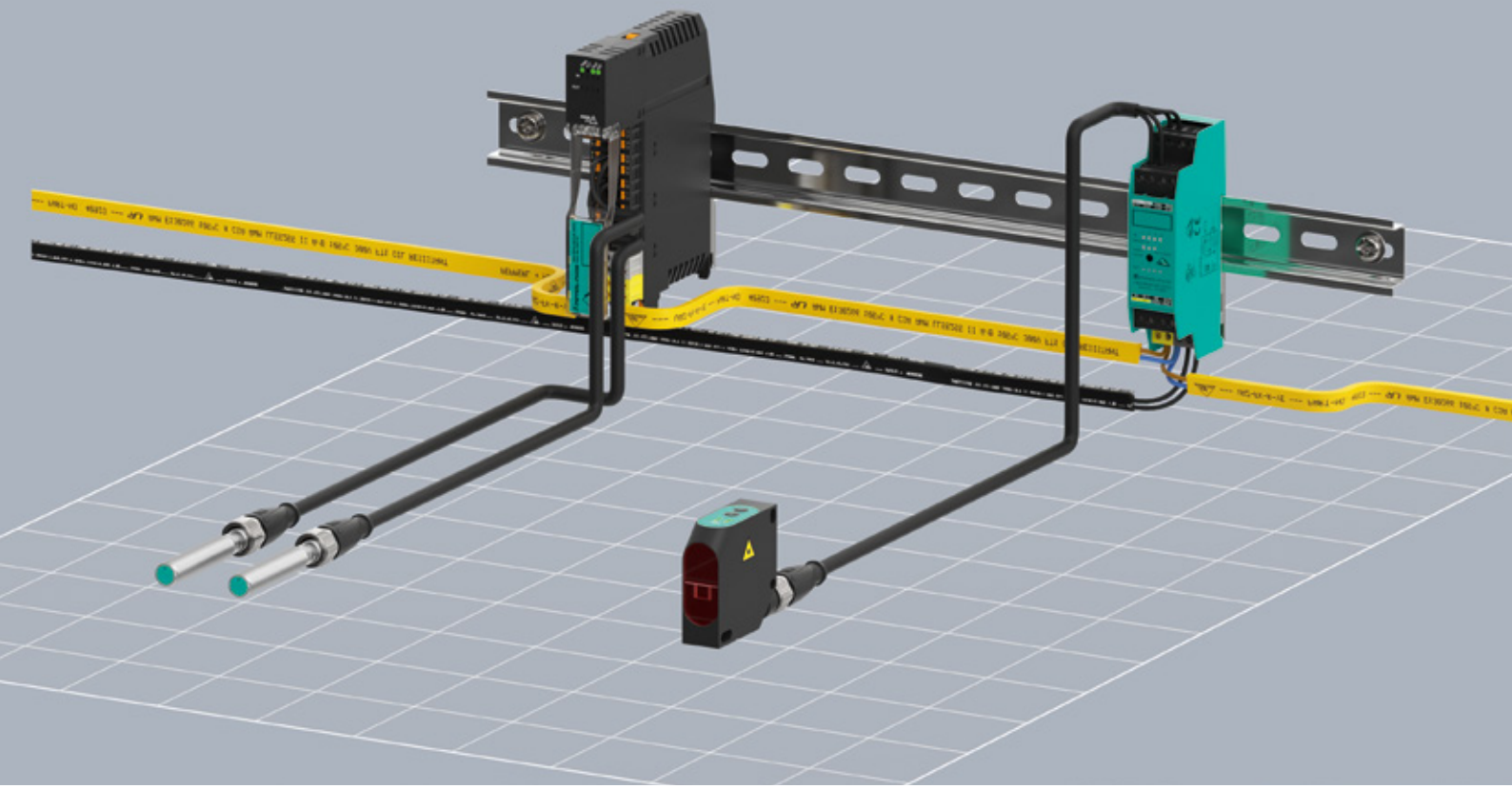
pepperl-fuchs.com/ g12



G20 modules are effective for controlling DC motor rollers in modern, energy-efficient conveyor applications.

pepperl-fuchs.com/ g20-asi

Input/Output Modules for Enclosure Mounted Applications



Pepperl+Fuchs offers compact modules designed for small control cabinets. Their narrow profile saves valuable panel space, while removable, color-coded mechanical terminals simplify installation. The terminals support wire sizes up to 14 AWG for flexible I/O connections. All enclosure modules provide IP20 degree of protection and include diagnostic LEDs that speed up troubleshooting and help maximize system uptime.

KE5 Enclosure Mount Modules with Push-In Technology

- Front side push-in connection for easy mounting
- Backlit I/O identification and status-indication LEDs
- Transparent cover—making all labels visible at all times
- Individually removable connectors enabling simple removal of single terminals
- Functionally safe—modules can be used for safety applications
- Cleaner machine design—cables are hidden behind the cover
- AS-Interface or AUX power—easily selectable

KE1 Enclosure Mount Modules for Junction Boxes

- Snaps easily onto DIN rail for fast installation
- LEDs on front control plate display current switching state for each input



CB10 modules with space-saving design due to hotmelt technology for installation in small housings, control boxes, and operating panels.

pepperl-fuchs.com/cb10



KE1 modules are ideal for compact junction boxes where height may be limited.

pepperl-fuchs.com/ke1



Input/output channels are LED-backlit, with channel-specific overload indicators.

Front push-in connector simplifies installation.

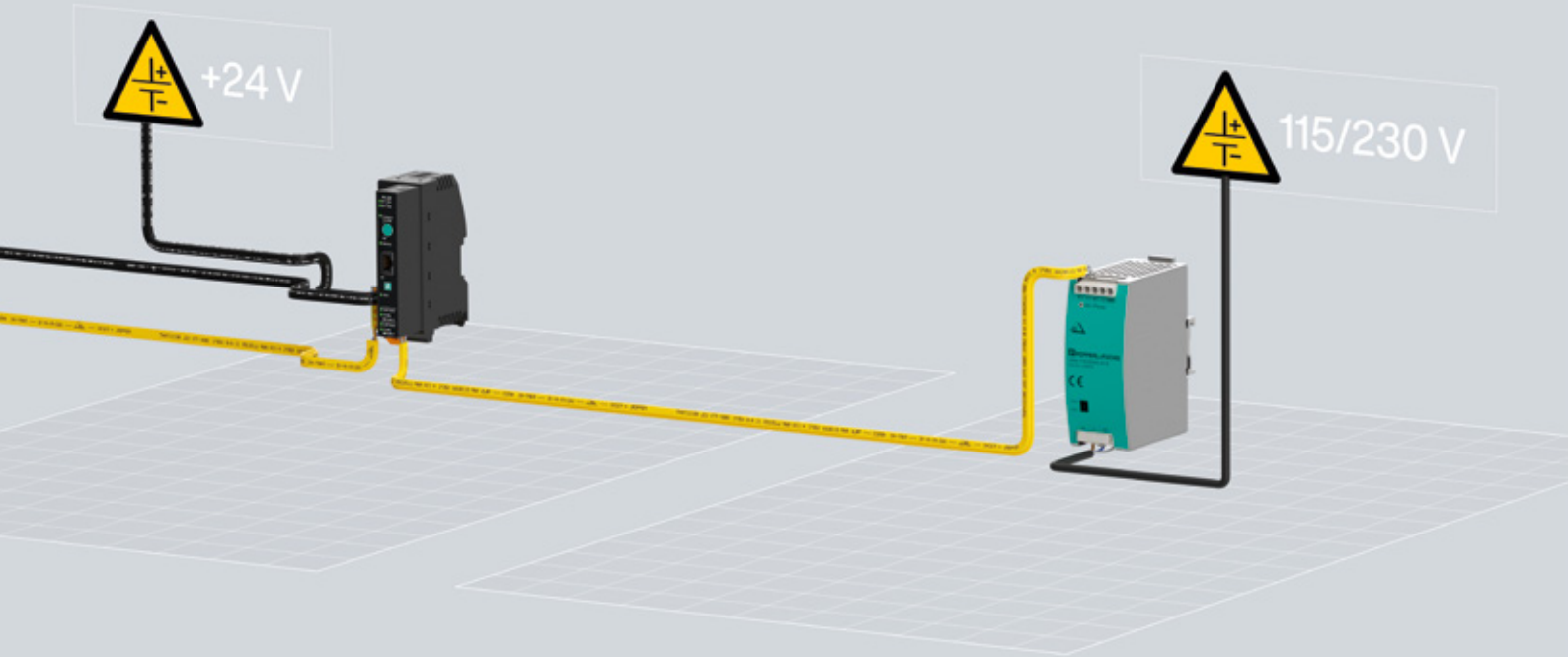


KE5 modules are simple to handle and designed with compact housing achieving up to 50 % space savings.

pepperl-fuchs.com/ke5



Gateways and Power Supplies



Pepperl+Fuchs offers gateways for all standard bus systems such as EtherNet/IP or PROFINET. Gateways control the AS-Interface system and make the process data available to all higher-level networks of the PLC in a defined configuration.

KE5 Gateway

- Simple and convenient commissioning and diagnostics on mobile devices through the integrated web server
- Suitable for use in IoT applications:
  REST API interface enables easy data access parallel to fieldbus communication
- Slim housing design creates more space in the control cabinet
- Multiprotocol: PROFINET and EtherNet/IP in one device

Safety at Work Gateways

- Up to 2 × 31 safety modules per gateway
- Safe outputs onboard
- Relay and electronic
- PL e, SIL 3, CAT 4 rated
- Efficiently deliver safety diagnostics to the PLC
- VAZ-SW-SIMON+ software required for configuration, diagnostics, and programming

AS-Interface Power Supplies

- Power supplies are integral to any AS-Interface network
- Every AS-Interface network segment requires a power supply
- AS-Interface runs at 30.5 V DC
- Power supplies are available from ~ 2.8 A to 8 A

What power supply is right for you?

The AS-Interface network power calculator helps users choose the correct power supply, ensures that voltage drop has not been exceeded, and verifies the configuration of the AS-Interface network.

pepperl-fuchs.com/power-calc

Compact gateway with a slim profile and IP20 degree of protection, designed for up to two AS-Interface networks.

pepperl-fuchs.com/gateway



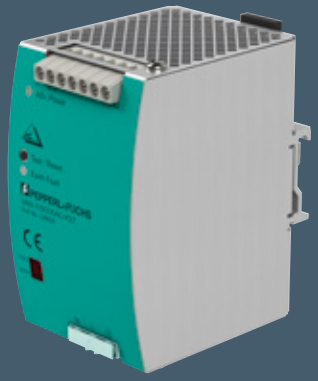
AS-Interface power supplies decouple the power and data signals transmitted over the same cable.

pepperl-fuchs.com/asi-power



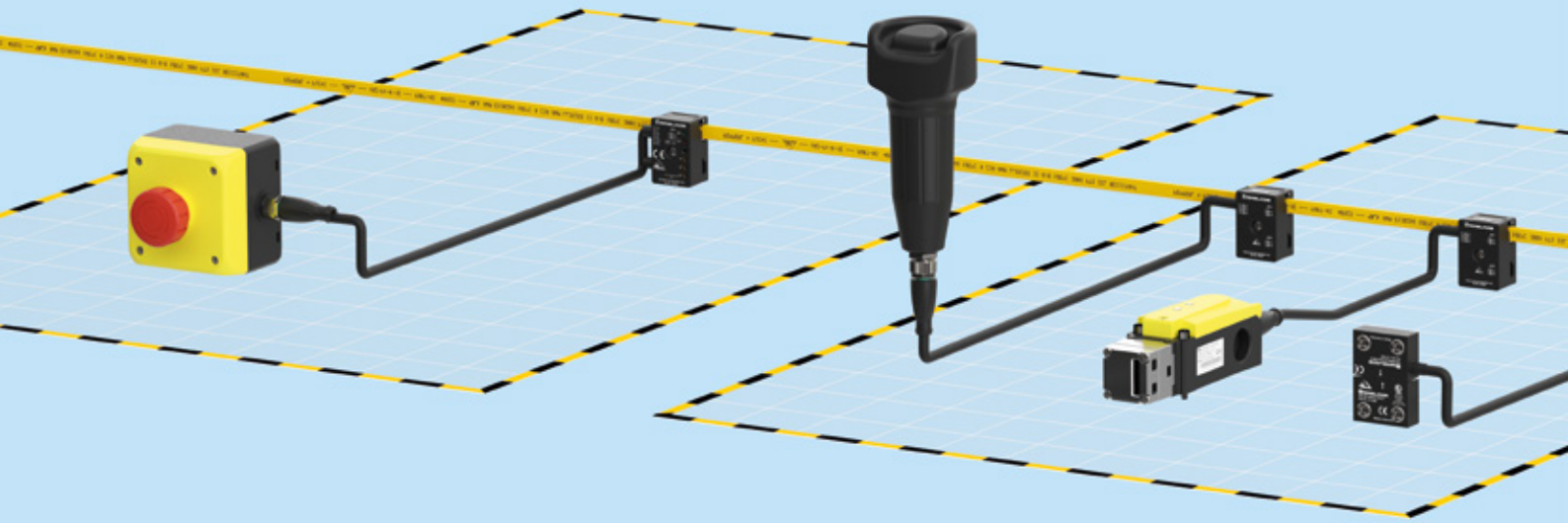
Safety at Work gateways are available with gateway and safety monitor in one housing. These gateways provide connectivity to single or dual AS-Interface networks.

pepperl-fuchs.com/k30

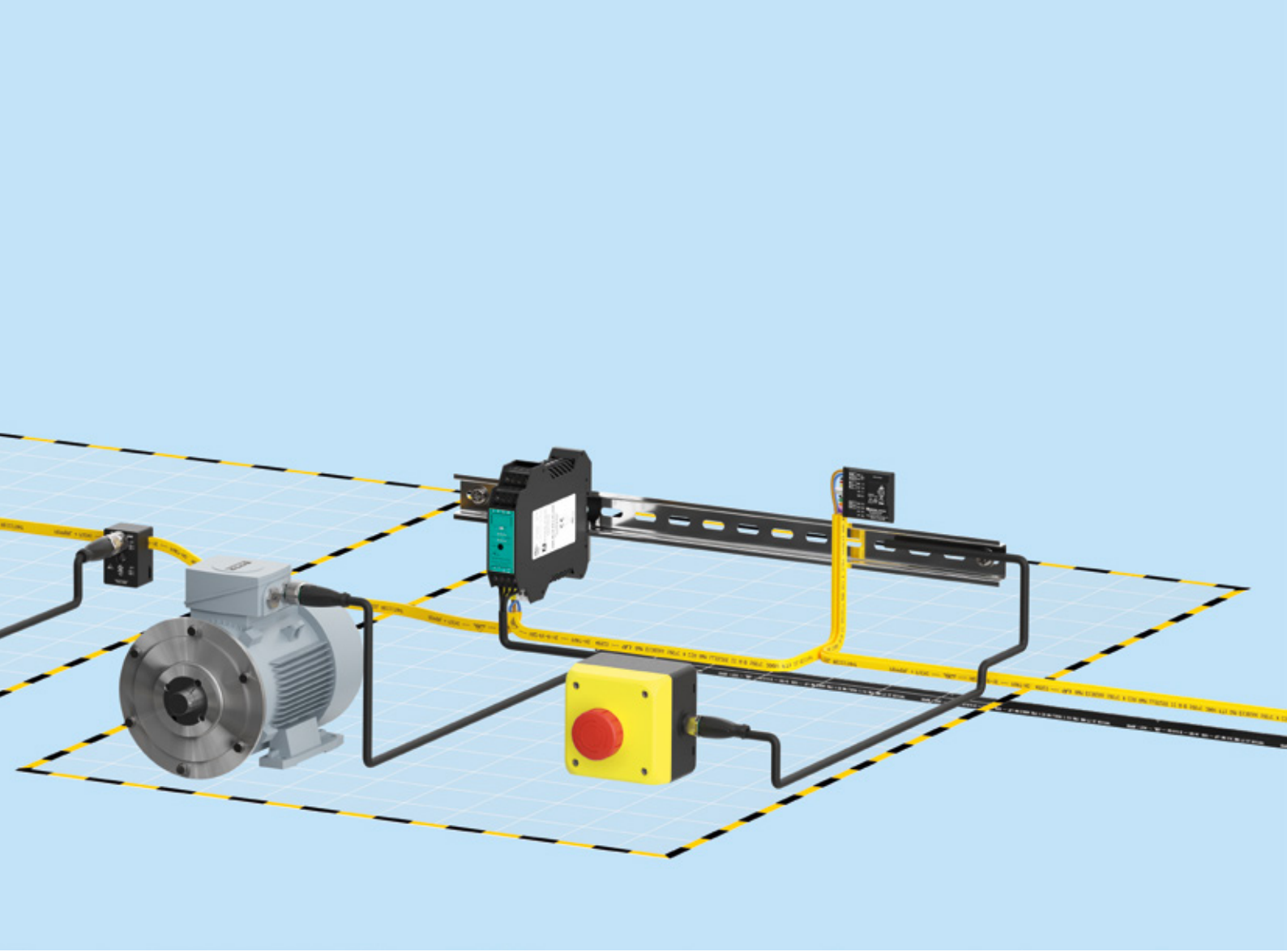


Safety Technology

Why Safety at Work? AS-Interface with Integrated Safety



Pepperl+Fuchs offers AS-Interface with integrated safety. With Safety at Work, users can quickly implement a safety system that meets the rules and regulations required to achieve the most stringent safety levels: PL e, SIL 3, and the EN ISO 13849 standard. Safety at Work can be added to any network, new or old. This is a level of backward compatibility and security that no other solution can offer and the reason why AS-Interface is “investment safe.”



Benefits of AS-Interface Safety at Work

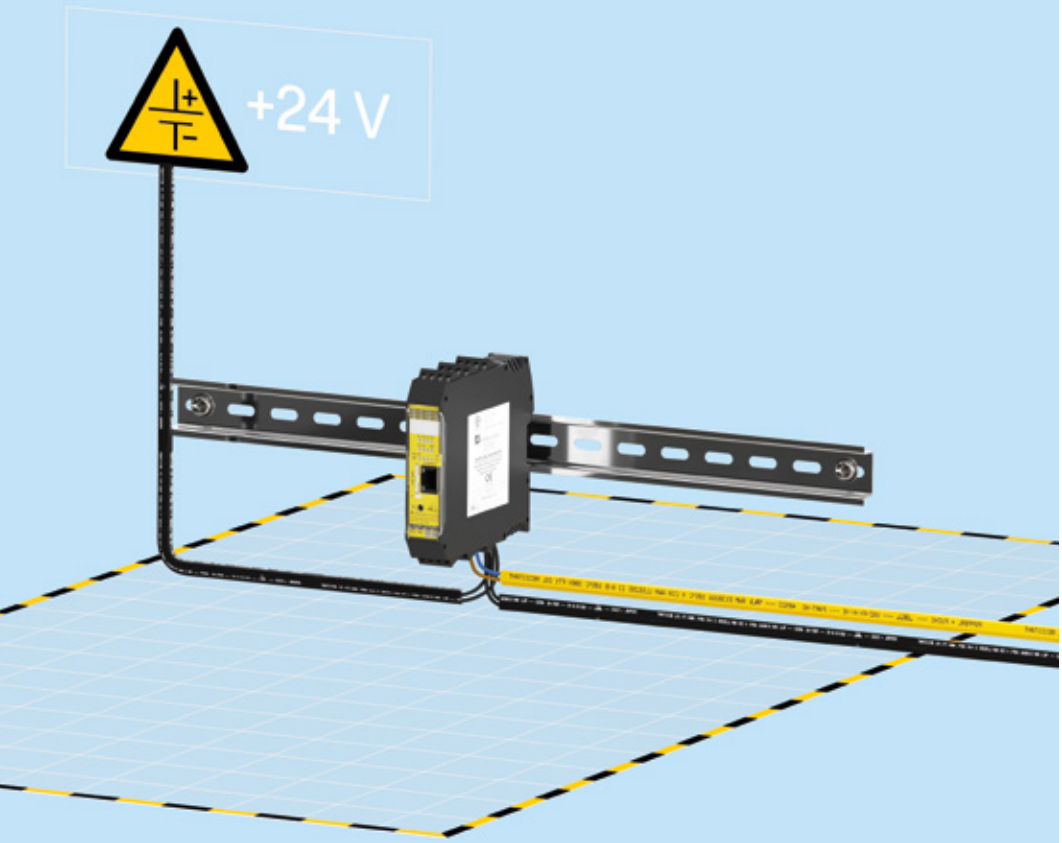
- Enables networking of safety devices (safety door switches, emergency stop push buttons, safety light curtains, etc.) using standard AS-Interface networks
- One network required to transfer safe and unsafe data
- Safety support up to highest performance levels
- No separate safety PLC needed
- Automatic address replacement
- Up to 32 independent safe zones

Configuration and Diagnostics

Using the VAZ-SW-SUITE software's drag-and-drop interface, the safety logic is defined by picking graphical function blocks from the device library. VAZ-SW-SUITE software offers exceptionally clear and intuitive diagnostics using the same graphical symbols used during the configuration: colors indicate operational states. System maintenance is straightforward due to the memory card and removable terminals. Simply replace the safety controller, move the memory card, and apply power.

Safety Technology

Safety Monitors



Pepperl+Fuchs offers safety monitors for AS-Interface Safety at Work which can be used as stand-alone devices or can be combined in a safety monitor/gateway combination. Stand-alone safety monitors offer a cost-effective way to add safe outputs to any AS-Interface installation, regardless of network age or master type.



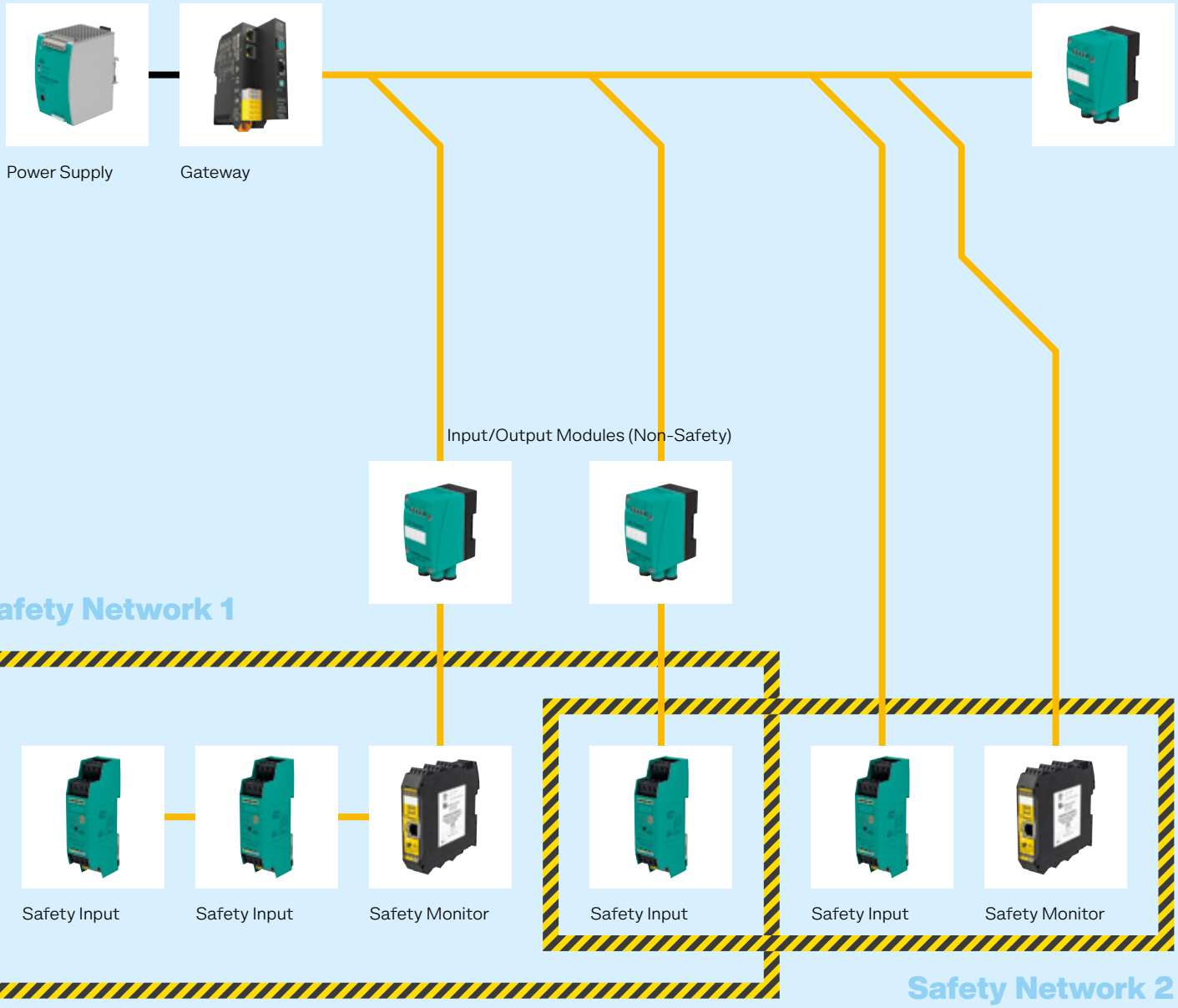
KE4 Safety Monitor

- Functions as a standalone unit, replacing safe Micro PLCs
- Can be added to an existing AS-Interface system where safety is desirable
- Memory card available for easy program transfer
- Safe coupling allows communication between safety monitors
- Equally valuable when third-party AS-Interface gateways (that do not support safety) exist on the AS-Interface network
- VAZ-SW-SUITE software required for configuration, diagnostics, and programming

KE4 Safety Monitors are ideal for introducing safety into existing systems that do not have an AS-Interface gateway.

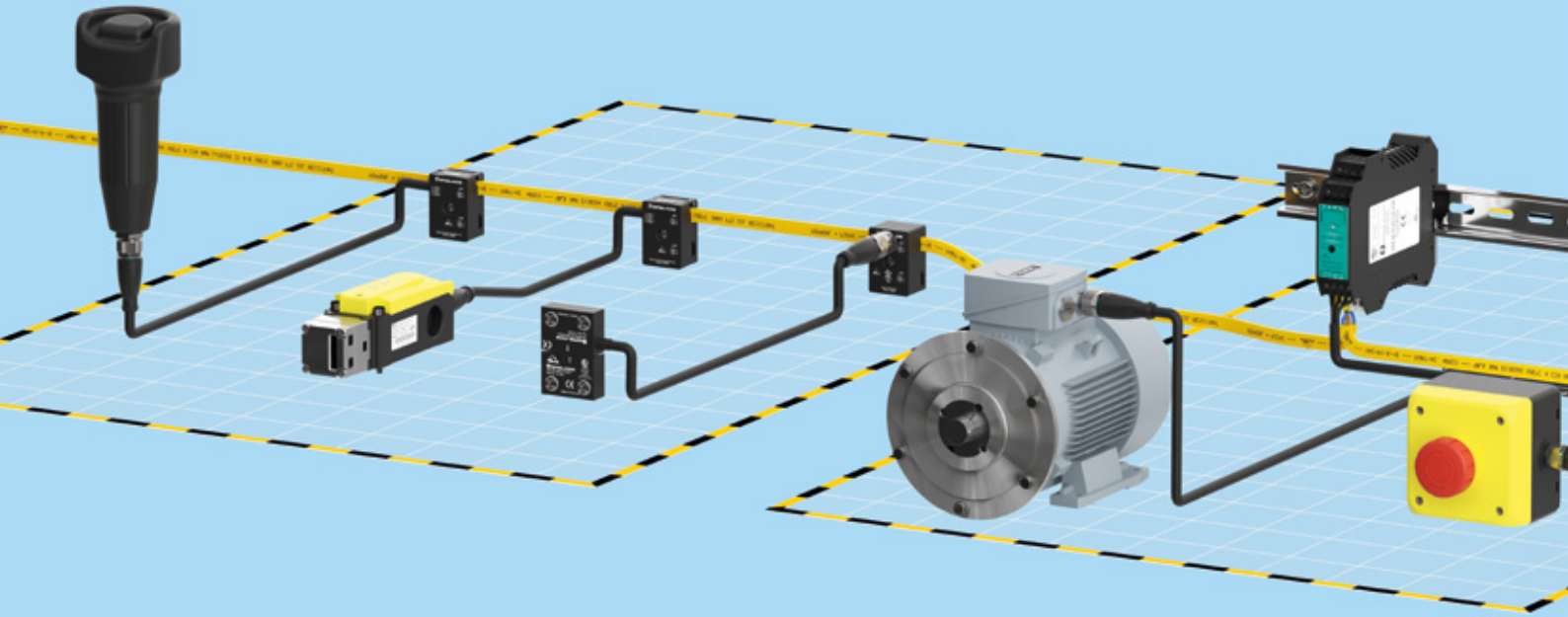
pepperl-fuchs.com/ke4

Networked Safety with AS-Interface Safety at Work



Multiple KE4 safety monitors can monitor the same safety input module on AS-Interface.

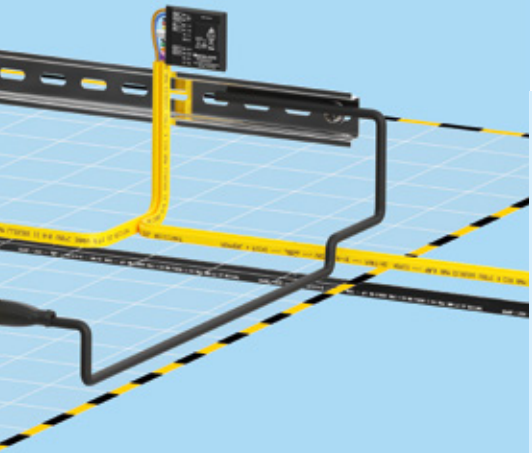
Safety Input/Output Modules



Pepperl+Fuchs offers a variety of safety input and output modules available in field and enclosure mounted versions. These modules are specifically designed and constructed to satisfy rules and regulations necessary to obtain desired safety ratings. This construction includes redundancy at the inputs and internal components.

G12 safety modules connect dry-contact inputs for connection to standard emergency stops and gate switches.





For more information, visit
pepperl-fuchs.com/safety-io



KE3 safe output modules connect redundant relay outputs in the control cabinet. Multiple remote safe output modules can be associated with the same safe data channel if required.

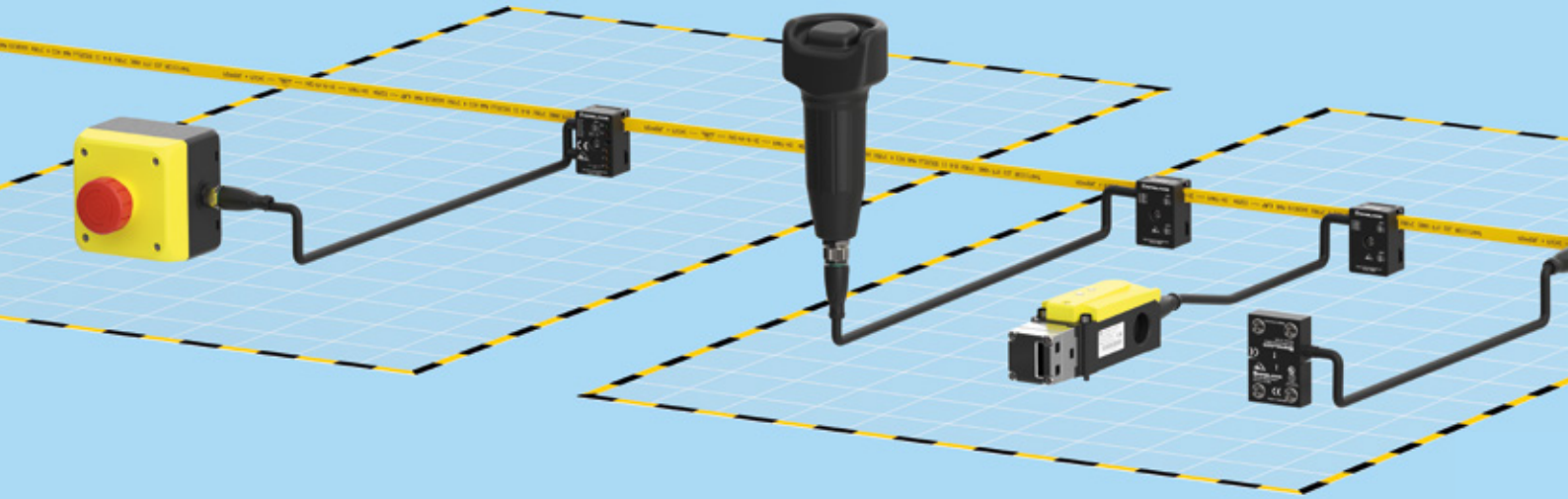


KE1 safe input modules connect safe contacts in the control cabinet or junction box via removable, color-coded terminals.



The CB10 safety module has been specially designed for emergency stop buttons with corresponding safety requirements that are certified according to SIL 3 functional safety and performance level PL e.

Safety Switches



Pepperl+Fuchs offers a variety of safety switches, enabling switches and emergency stops which connect directly to the AS-Interface network, providing seamless integration into standard PLCs and higher-level networks.



Emergency stops can be easily connected to the AS-Interface cable either with a G10 safety module or directly with an integrated CB10 safety module. Four versions are available: illuminated panel mount, non-illuminated panel mount, illuminated field mount, and non-illuminated field mount.

For more information, visit
pepperl-fuchs.com/switches

Safe enabling switches allow operators to enter potentially hazardous areas without stopping the machine. If an unsafe condition occurs, fully pressing or releasing the switch immediately triggers a machine shutdown.



Safety door interlock switches prevent machine operation in the event of a potential hazard. Switches are available with LEDs (optional) and power-to-lock or -unlock options. Every safety switch has two internal contacts that are safely opened when the key is removed.



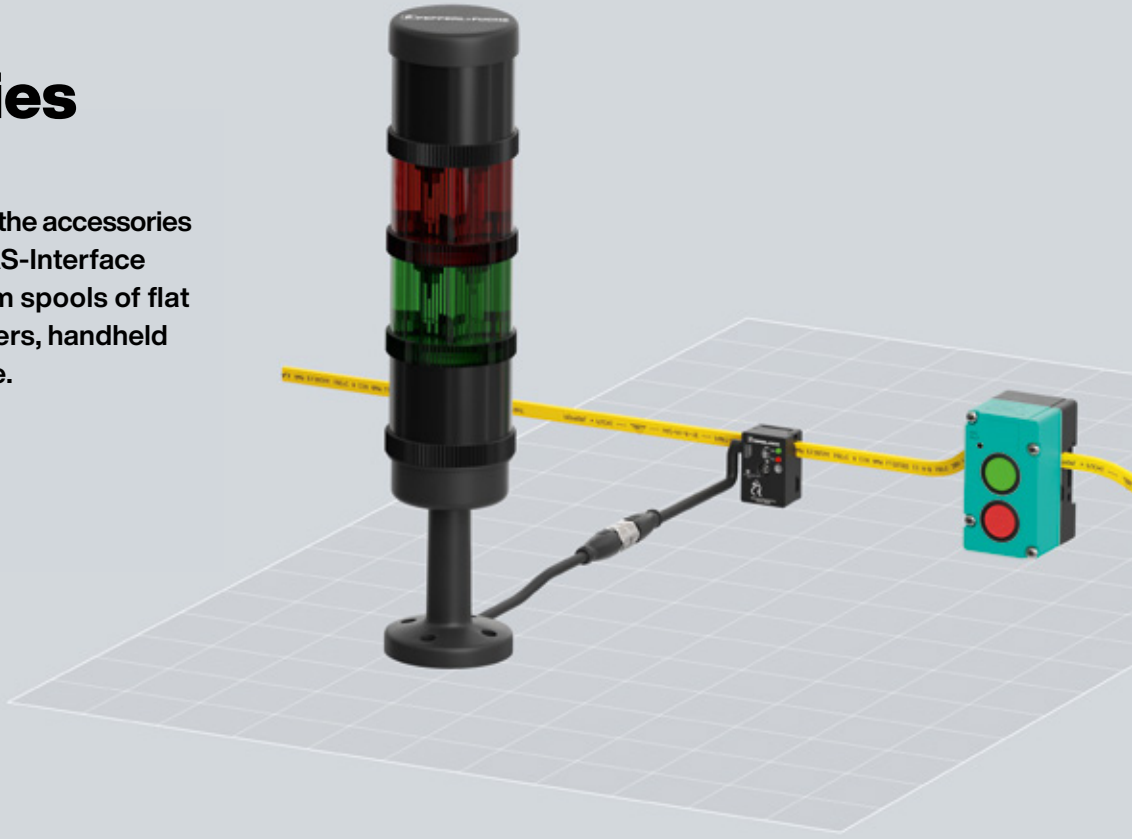
Safe magnetic door switches are designed for use on moveable machine guarding components. Coded magnets make it more difficult to bypass the safety operation. With their rugged, non-contact design, these switches withstand typical mechanical overload and vibration.



AS-Interface

Accessories

Pepperl+Fuchs offers all the accessories you'll need to put your AS-Interface network together—from spools of flat cable to splitters, adapters, handheld programmers, and more.





Signal towers show system status, safety states, and alert operators to problems. With AS-Interface, the signal tower is no longer required to be wired to the cabinet-mounted PLC.



Push button modules and signal towers are frequently used on AS-Interface networks. Operating buttons with a flat cable connection and integrated indicator lights are provided for manual operation. System components can be easily controlled using the START/STOP buttons, providing the operator with visual feedback on their system.

For more information, visit
pepperl-fuchs.com/indicators



A variety of M8 and M12 connectors are available bringing easy connectivity options to AS-Interface networks.



The preferred way to install AS-Interface is using the industry-standard yellow flat cable, which ensures correct polarity through mechanical keying. Also, the yellow cable ensures that the network operates at peak electrical performance, regardless of the network length (up to 100 meters per segment) and network topology.



Repeaters enable segments to be strung together, extending the length of an AS-Interface network. Up to two repeaters can be connected in series to achieve a maximum network expansion of 1,000 m in combination with the terminators.



A handheld programmer is the easiest way to assign addresses to AS-Interface modules on the network. It can also be used as a diagnostic tool to read the module profile, set parameters, read inputs, and set outputs.



Terminators enable segments to be increased from 100 m to over 200 m. The terminator reduces reflections at the cable ends and improves communication. With the integrated multiple impedance and two options for inserting the flat cable, a network length of 200 m can be achieved with all tested topologies and cable loads.



A variety of G10 AS-Interface splitters are available for flat cable branching and connecting modules to AS-Interface networks.

For more information, visit
pepperl-fuchs.com/asi-accessories

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