



# PROCESS AUTOMATION

PRODUCT

HIGHLIGHTS

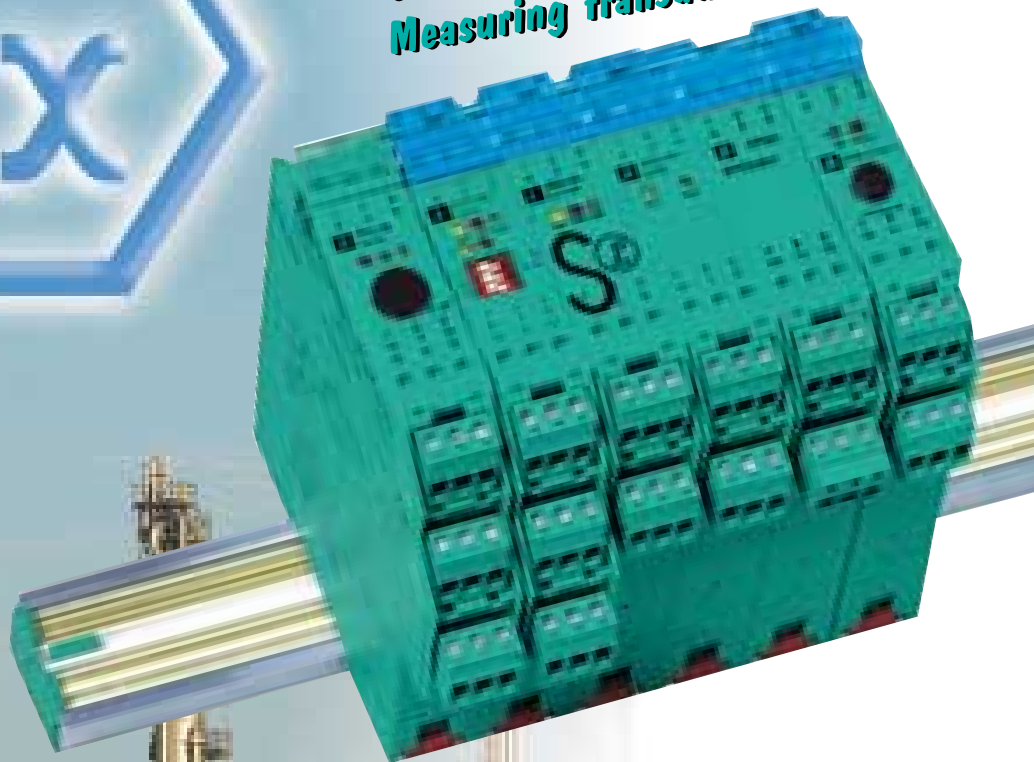
# THE K-SYSTEM – INTERFACE MODULES



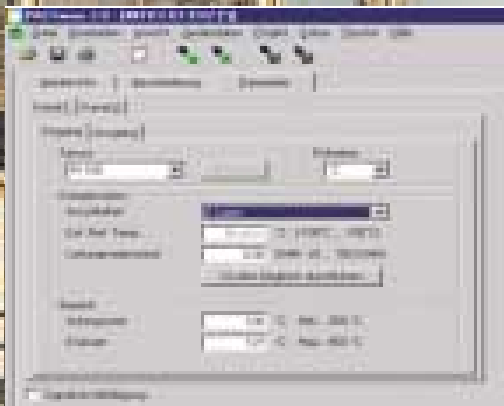
## ON THE DIN RAIL...

The ideal, conventional interface solution connects and isolates the signals between field devices and the control system.

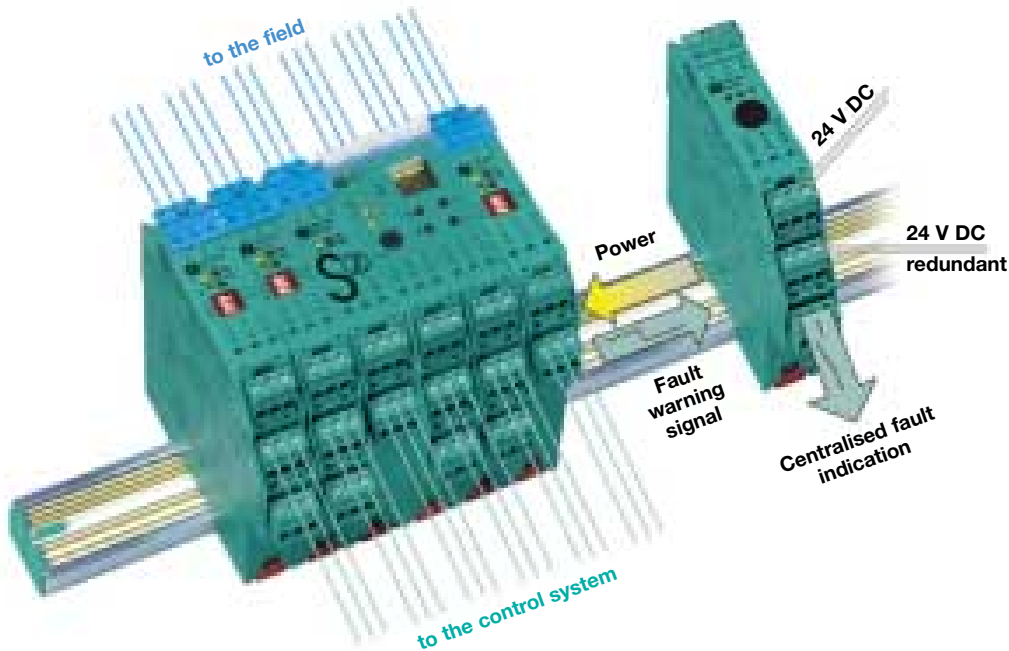
- Transmitter supply**
- Isolating amplifiers**
- Speed monitors**
- Valve control modules**
- Isolating transformers**
- Measuring transducers**



- Simple DIN rail installation with Power Rail
- High quality galvanic isolation
- Non-interacting signal transfer
- Energy limitation for intrinsic safety
- Protection from loss of signal and monitoring of the measuring circuits in the field
- Optical fault indication to NAMUR NE 44

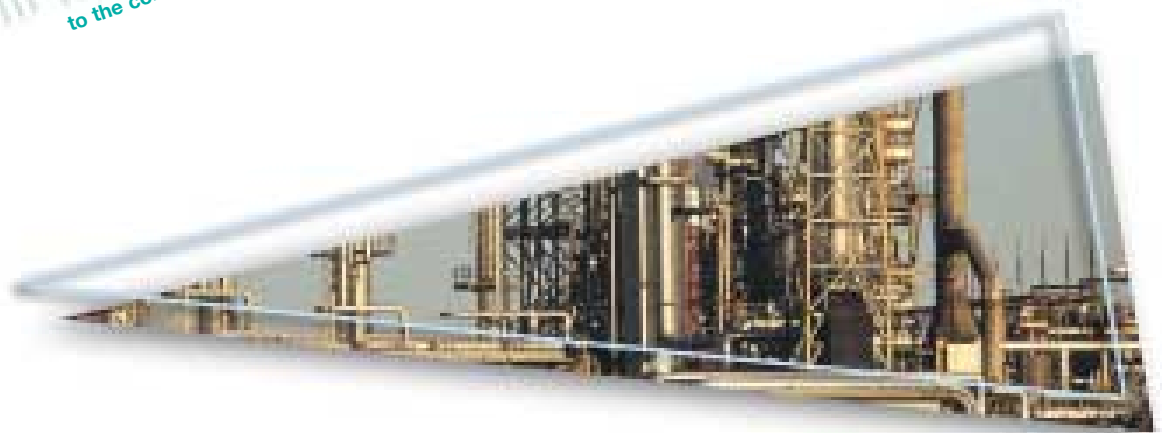


- **PACTware™** configuration tool with DTM in accordance with the FDT concept



### GROUP POWER SUPPLY AND CENTRALISED FAULT ALARM: THE POWER RAIL

- Power supply without additional wiring via the DIN rail with the Power Rail as an option
- Redundant supply
- Group fusing
- Centralised fault alarm without additional expense on wiring



### FUNCTIONAL RELIABILITY WITHOUT EXTRA COST

- Standard devices with IEC 61508 grading
- Unified device documentation
- Accumulated field experience

**SIL**  
IEC61508

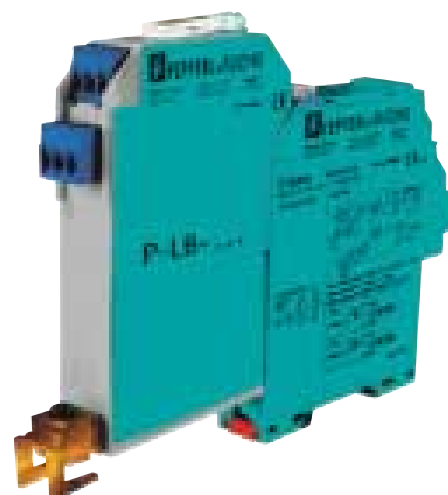


### BI-DIRECTIONAL HART TRANSFER

- Parameter assignment of field devices
- Fault detection and diagnosis
- Prerequisite for preventive maintenance

### OVERVOLTAGE PROTECTION FOR FIELD DEVICES AND CONTROL SYSTEMS: P-LB

- Plug-in overvoltage protection for the K-System
- No additional wiring
- Also for i.s. circuits





The conventional i.s. Interface system on the motherboard for wall and DIN rail installation. The field wiring is fixed on the motherboard. The modules are plug-in devices.



**SIL**  
IEC61508

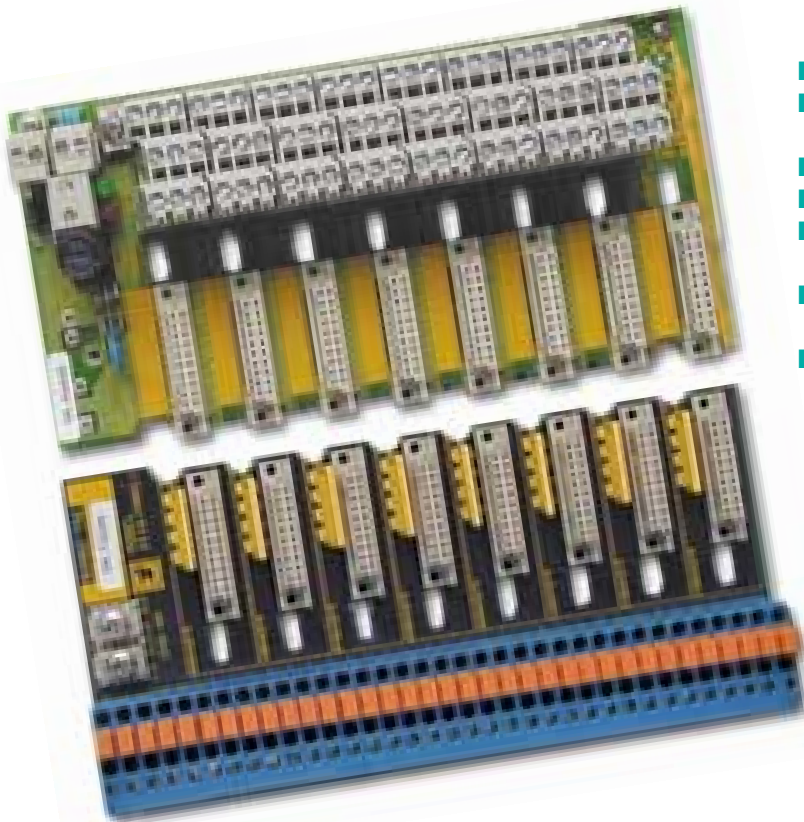
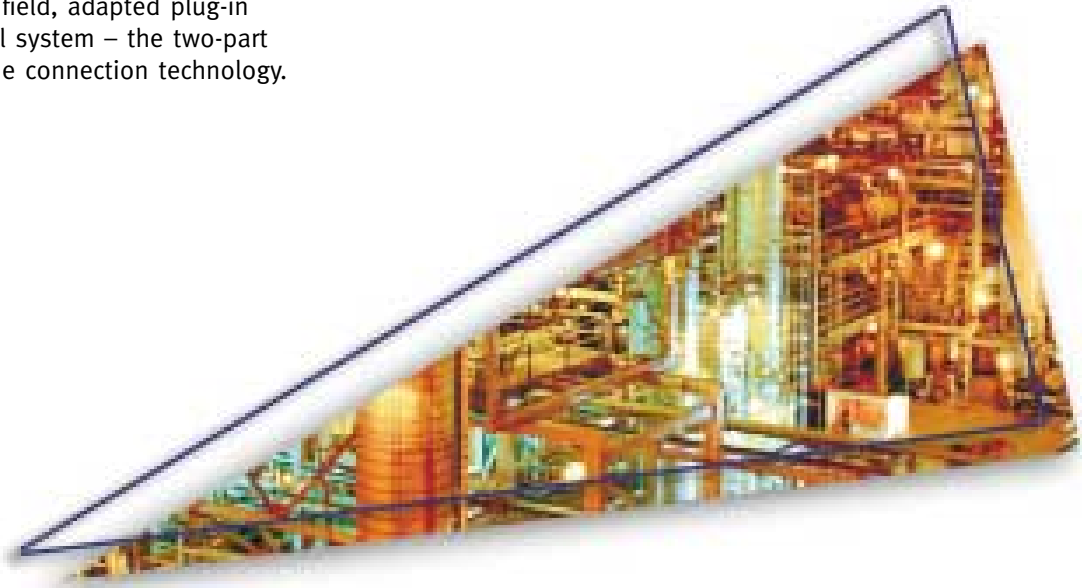


# THE HiD2000 SYSTEM – INTERFACE MODULES



## ON THE MOTHERBOARD

Different terminals for the field, adapted plug-in connections for the control system – the two-part board system optimises the connection technology.



- Modules with up to four channels
- Robust screw terminals or isolating blade terminals for the (Intrinsically safe) field side
- Choice of control system connection technology
- Patented On-Board marshalling
- Centralised fault alarm for monitoring the field circuits
- Integrated HART communication to the field devices
- SIL grading for safety applications (IEC 61 508)

# THE E-SYSTEM – INTERFACE MODULES

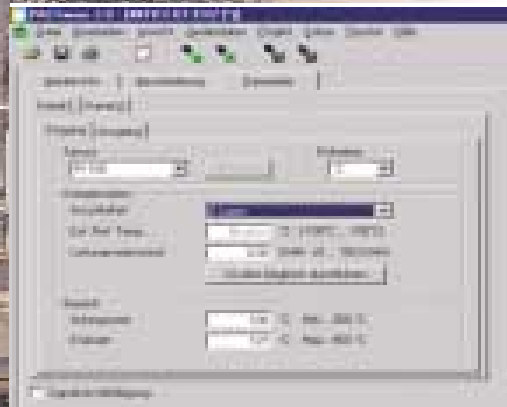


## IN THE 19" RACK

The classic i.s. interface system with Eurocards in the 19" mounting rack



- High packing density
- 8-channel isolating amplifiers
- 2-channel temperature transducers
- Lead breakage and short-circuit monitoring
- Configurable via serial PC interface
- HART communication to the field devices



- **PACTware™** configuration tool with DTM in accordance with the FDT concept



## POWER SUPPLIES



As a rule the Pepperl+Fuchs systems are supplied with 24 V DC. We provide appropriate power supplies for other voltage requirements.

- Universal 115/230 V AC supply inputs
- LED indicators
- Secondary 24 V DC on plug-in terminals and direct for the supply of devices via the Power Rail



**KFA6-STR-1.24.4**

- 24 V DC, 4 A
- UL approval



**KFA6-STR-1.24.500**

- 24 V DC/500 mA

### POWER SUPPLIES FOR CRITICAL APPLICATIONS

With the PS1550 19" system high-availability, redundant power supplies up to 36 A (24 V DC) can be constructed.

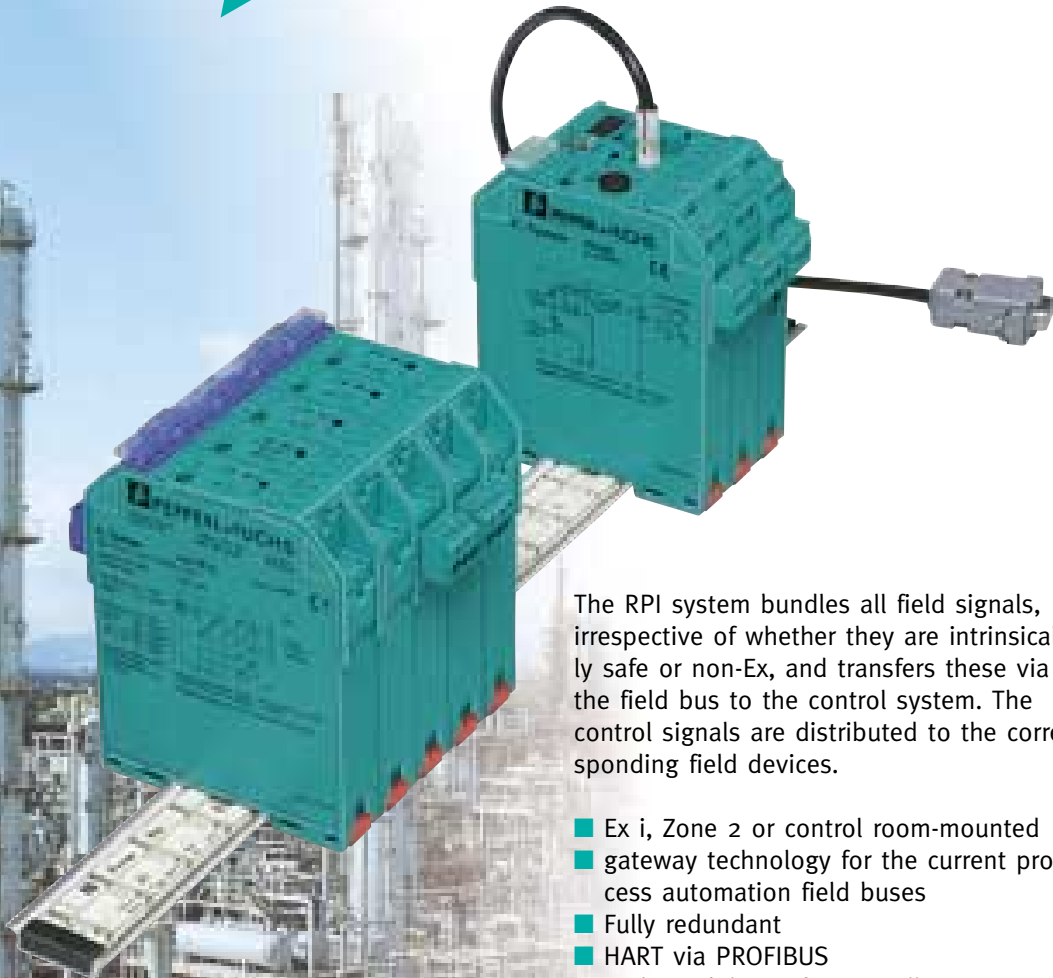
- 115 V AC, 230 V AC or 30 V DC redundant power supplies
- Redundancy of the supply circuits and output modules
- Modules can be removed and plugged-in under load
- Monitoring of all operating states with alarm signals



# RPI – REMOTE PROCESS INTERFACE

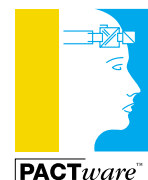


## FOR THE CONTROL ROOM AND ZONE 2



The RPI system bundles all field signals, irrespective of whether they are intrinsically safe or non-Ex, and transfers these via the field bus to the control system. The control signals are distributed to the corresponding field devices.

- Ex i, Zone 2 or control room-mounted
- gateway technology for the current process automation field buses
- Fully redundant
- HART via PROFIBUS
- High modularity, from small temperature multiplexers up to systems with 60,000 and more channels
- Configuration, diagnosis and simulation by means of DTM in accordance with the FDT concept and **PACTware™**
- Simple DIN rail installation with Power Rail
- Overvoltage protection simply connectable



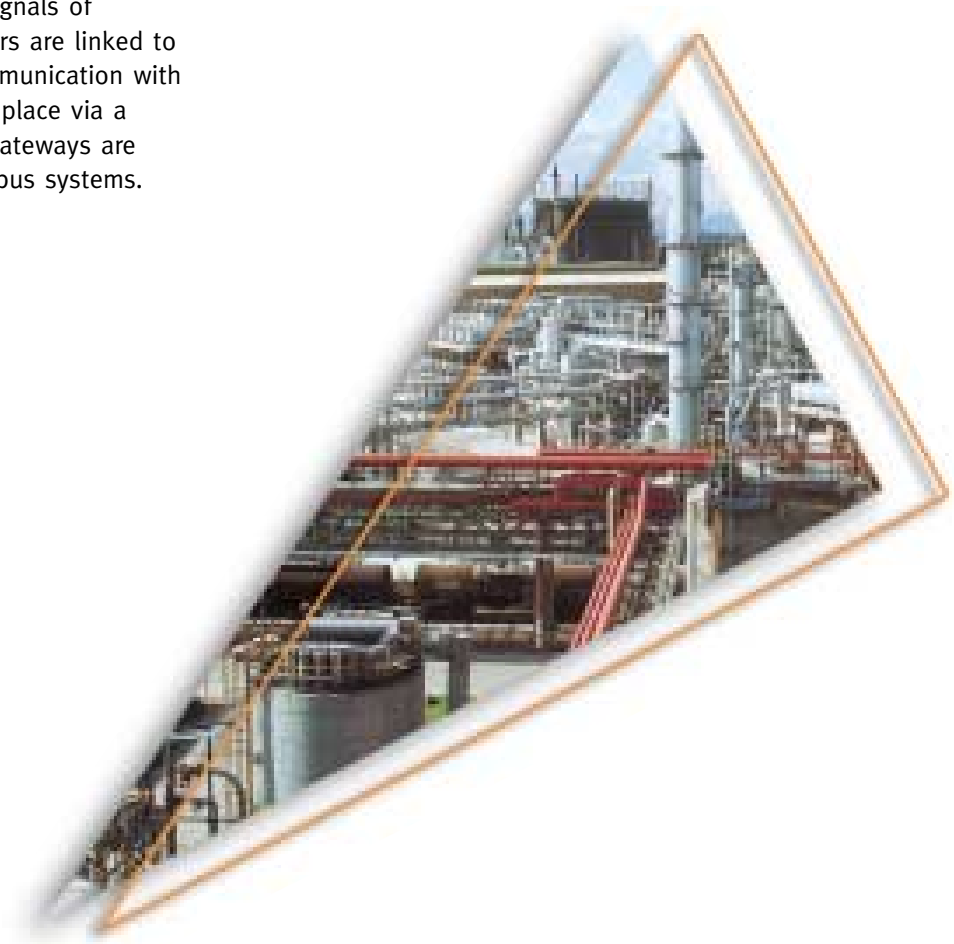
- **PACTware™** configuration tool with DTM in accordance with the FDT concept

# IS-RPI – REMOTE PROCESS INTERFACE

## FOR ZONE 1



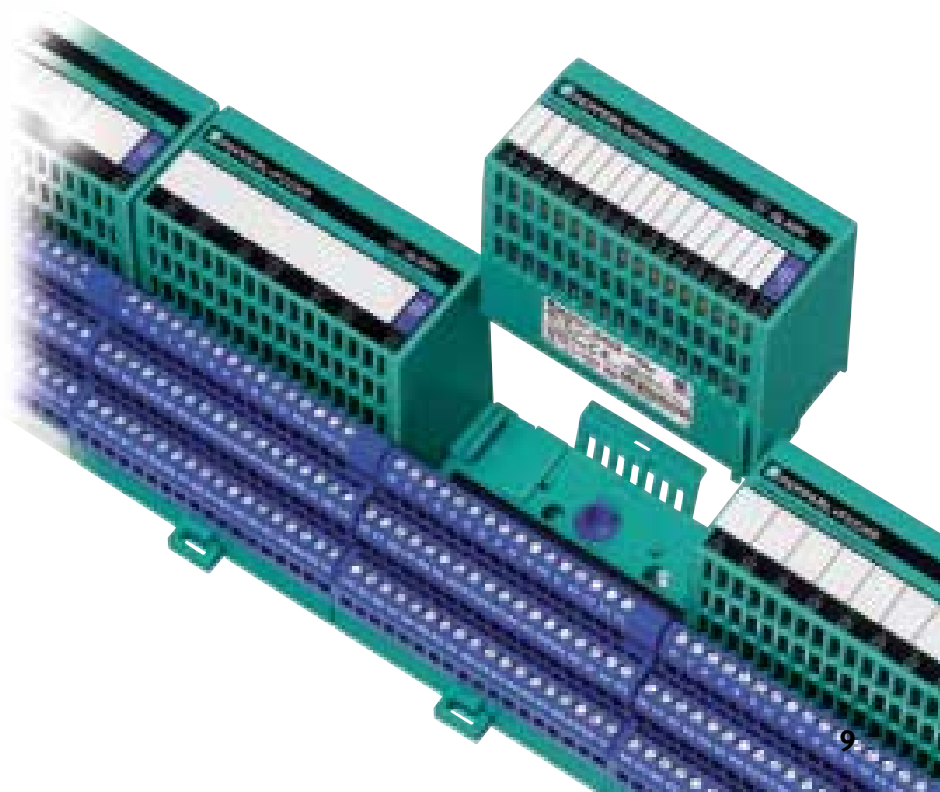
The Intrinsically Safe Remote Process Interface is suitable for installation within Zone 1 in the hazardous area. The measuring signals of conventional sensors and actuators are linked to IS-RPI via short cable paths. Communication with the process control system takes place via a single field bus cable. Standard gateways are available for coupling to Various bus systems.



...and much more...



- Decentralised installation in intelligent distribution boxes on site
- Intrinsically safe I/O modules and gateways
- Intrinsically safe power supply in a flame proof housing
- Signal circuits for the Ex-Zones 0 to 1
- Modular assembly with multi-channel, space-saving devices
- "Hot Swapping" The devices can be replaced under Voltage in the Ex-area
- "High Temperature Proof" Operating temperature range up to 70 °C
- "High Speed Communication" approx. 1.5 ms cycle time for the internal bus
- HART via PROFIBUS



**Manufacturer and field bus-independent  
configuration tool with  
FDT interface (Field Device Tool)**

**PACTware™**

- is an open configuration software for all field devices
- is an FDT framework application
- is a tool for all Pepperl+Fuchs devices
- is used for the implementation of external devices

**FDT**

is an interface definition for the integration of device drivers (DTMs) in an FDT framework application

**DTMs (DEVICE TYPE MANAGERS)**

are device descriptions including the operating interface for field devices, components and communication interfaces in accordance with the FDT standard. A DTM enables a device to be operated in the same way in all FDT framework applications.

With **PACTware™** all field buses and field devices can be configured and assigned parameters in a system, independent of the manufacturer, with a single engineering tool. The unified interface enables the best possible operating concepts to be achieved in simplifying the system documentation. Many functions are available for the representation of trend curves and for monitoring and archiving measured values. **PACTware™** is 'open source' and its transparency guarantees a high software quality.



# HART-MULTIPLEXER SYSTEM AND

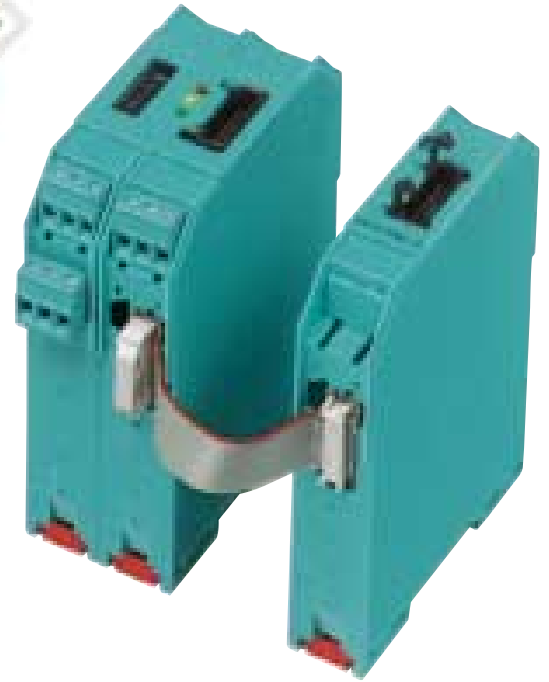


# HIS – HART-INTERFACE SOLUTIONS

The HART-Multiplexer System provides digital access to the configuration and diagnostic data of the field devices. The Pepperl+Fuchs HART-Multiplexer systems are ideally suited for the application of conventional point-to-point interface systems.

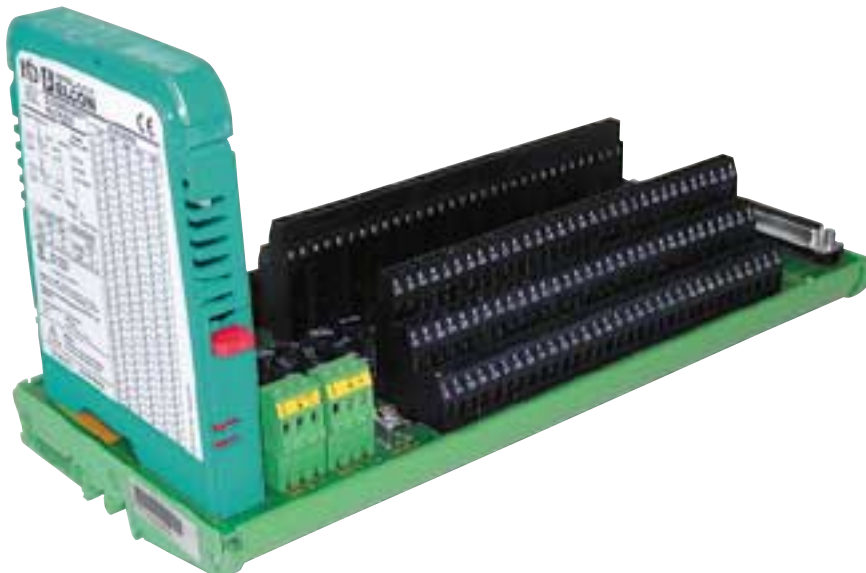
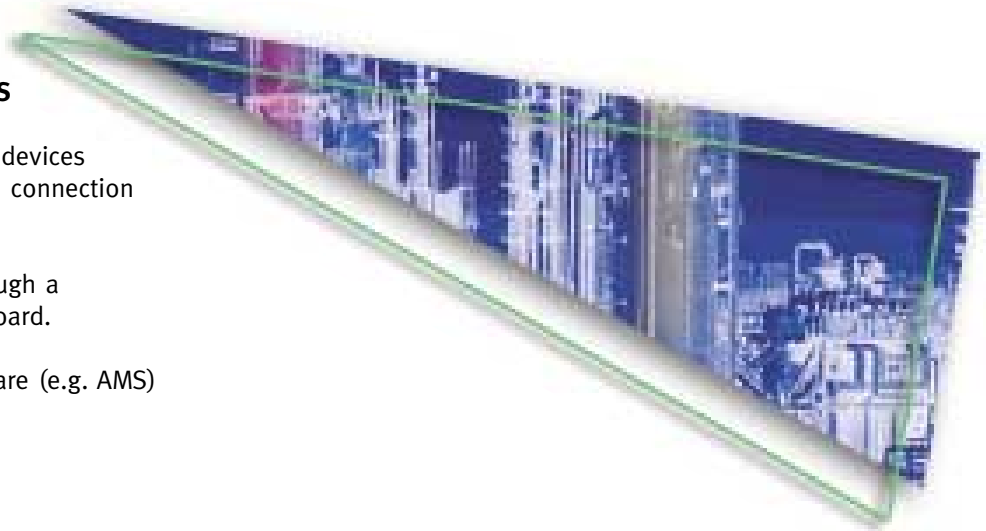
## HART-MULTIPLEXER SYSTEM

- The big system for up to 7936 field devices
- Modular up to 31 Masters, each with 15 Slaves.
- Networking of the Master with RS 485 connection
- Various transfer interfaces for different automation systems through HART plug-in modules.

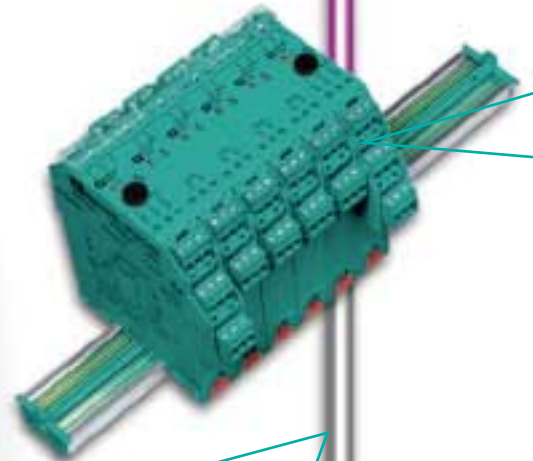


## HIS – HART INTERFACE SOLUTIONS

- The system for up to 992 field devices
- Simple networking with RS 485 connection
- Various transfer connectors for different automation systems
- Safe HART communication through a HART filter integrated on the board.
- Compatible with standard plant Asset Management Software (e.g. AMS)



Host



**Power Feed Concepts:**

- High Power in hazardous areas:  
Ex e / Ex i Concept
- Maximum number of field devices in Zone 2:  
Ex e Concept
- Conduit / Ex i Concept for device supply in  
Div. 1 / Div. 2

**Fieldbus Process Interfaces:**

- Bus communication for nearly all conventional field devices
- Optimised use of fieldbus capacity – several devices on one bus address
- Safe installation even in hazardous areas



**FieldConnex™ is:**

- Independent from DCS and PLC
- For PROFIBUS and FOUNDATION Fieldbus

"The Fieldbus is here, it could be put to use"

This was the initial thesis of a very thorough end-user study: FuRIOS. And the result: fieldbus offers lots of benefits which can be realized by following the recommendations of FuRIOS. FieldConnex™ Fieldbus Installation Technology is the key to easy implementation of these recommendations – and much more!

**Power Supplies:**

- Field device power supply over the bus cable
- High Power in the field
- Flexible designs with reliable modules

**Field Distribution:**

- Compact distributors close to the field devices
- Protects the fieldbus segment against negative feedback

**Fieldbus Termination Resistors:**

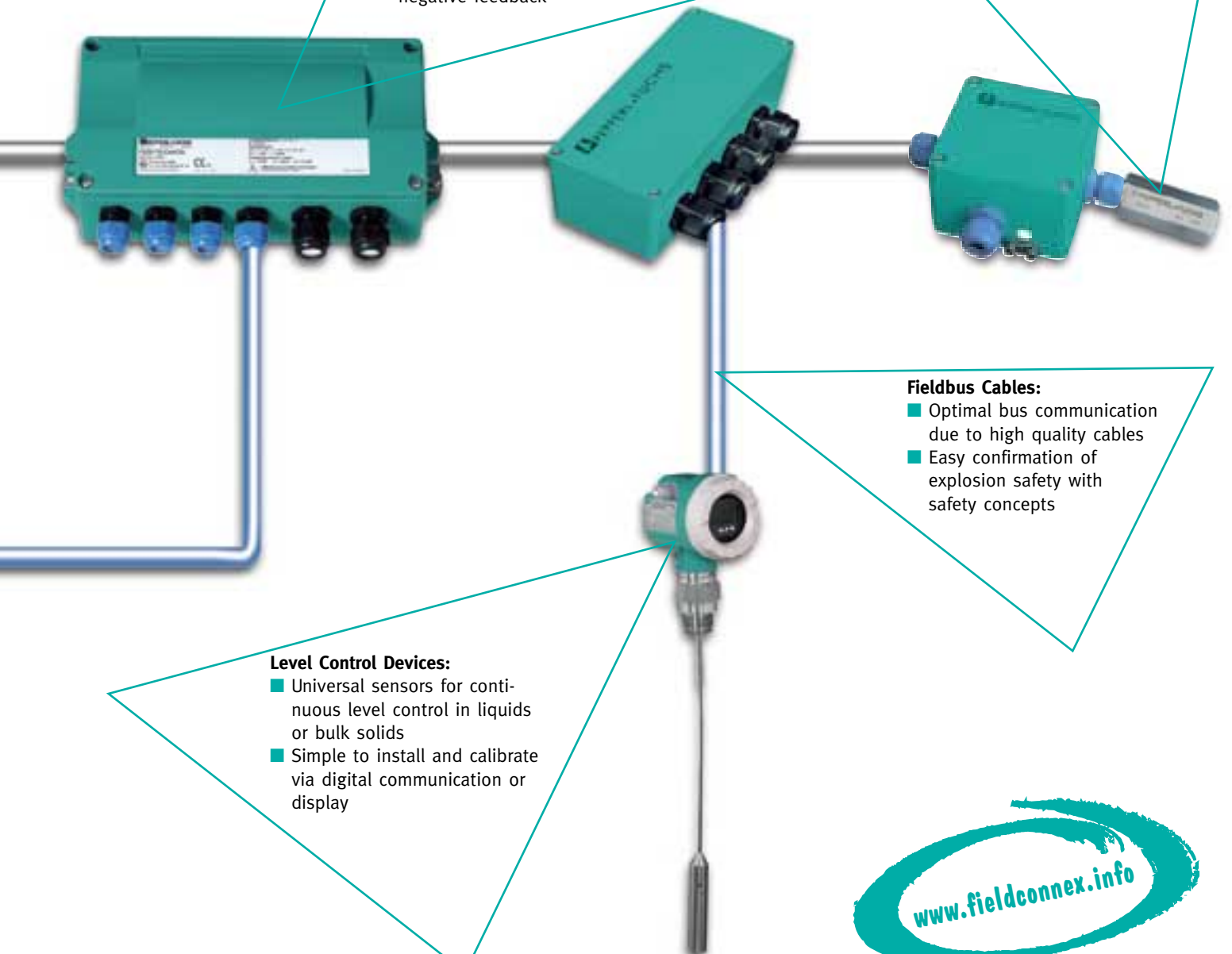
- Clear and reliable bus communication
- Integrated or external

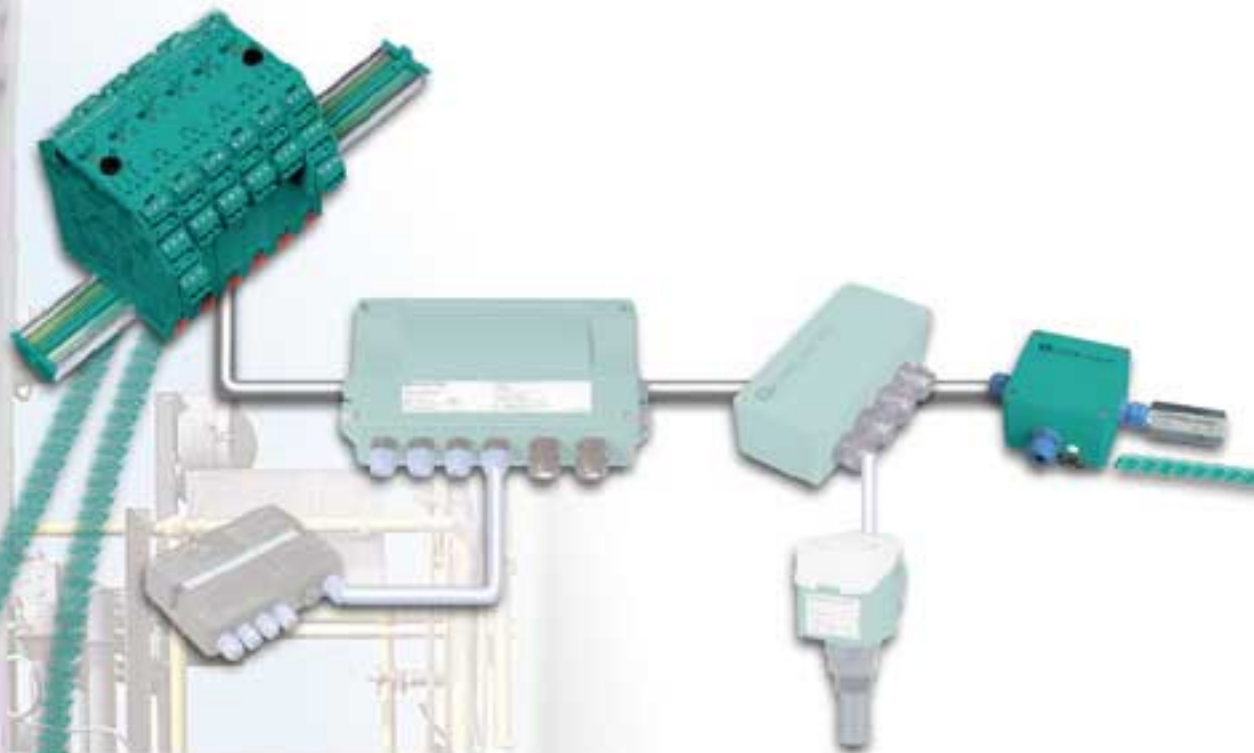
**Fieldbus Cables:**

- Optimal bus communication due to high quality cables
- Easy confirmation of explosion safety with safety concepts

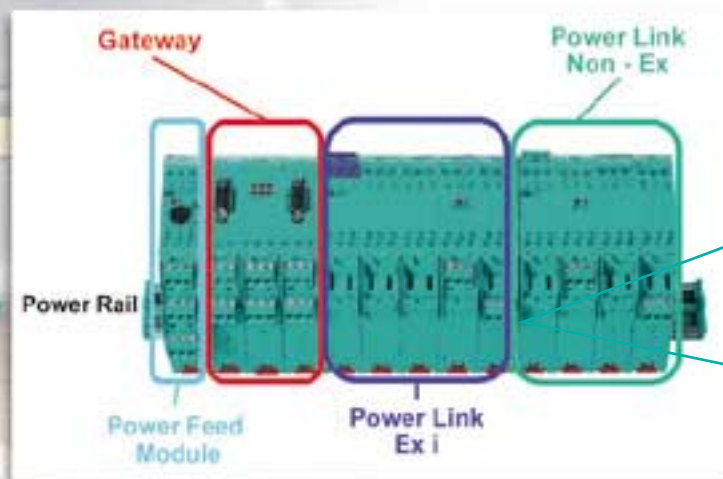
**Level Control Devices:**

- Universal sensors for continuous level control in liquids or bulk solids
- Simple to install and calibrate via digital communication or display

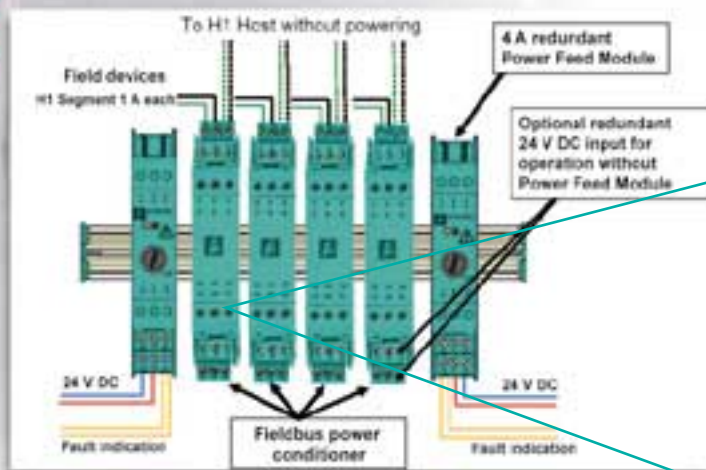




Power Supplies for PROFIBUS PA



Power Supplies for FOUNDATION Fieldbus



**Modular Fieldbus Power Conditioner:**

- Impedance Conditioning Modules combine the supply power with the signals on the fieldbus cable
- Redundant Power Feed Modules allow the use of standard off-the-shelf power sources
- One unit allows the simultaneous supply of four FF H1 segments from redundant power sources



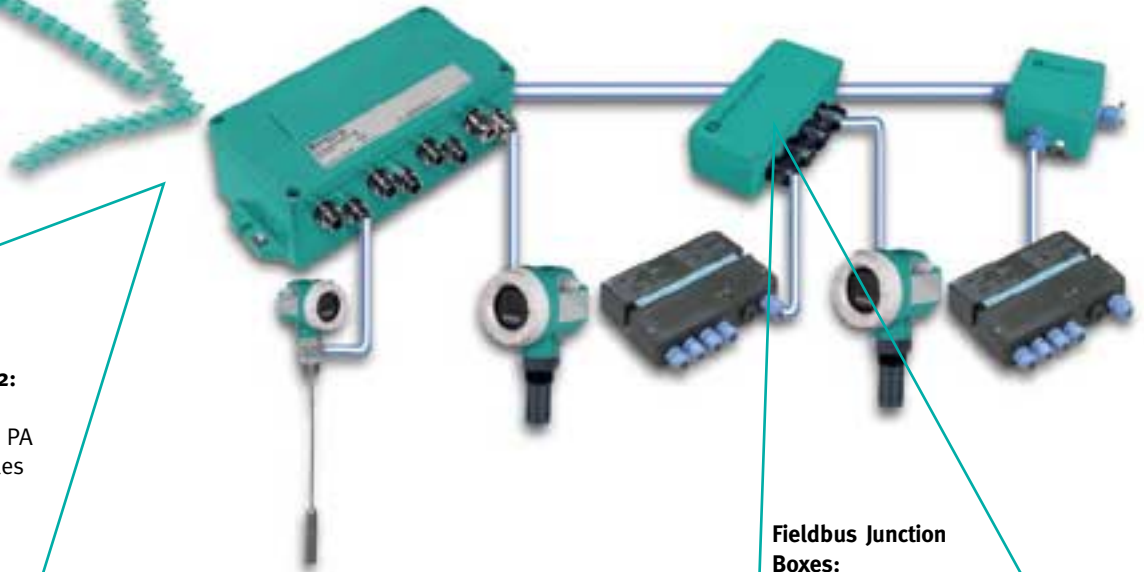
**IN NON-HAZARDOUS AREAS**

”The fieldbus must be immune“

In an unprotected fieldbus topology the communication fails completely in case of a short-circuit at any one of the connected field devices. All devices of this specific segment are lost for process control.

FieldConnex™ offers the cure: the system components Segment Protector and FieldBarrier™ ensure that such a fault at one connected device does not influence the remaining segment; the bus communication keeps on running!

**Fieldbus distribution in the plant**



**Modular Segment Coupler SK2:**

- Converts the protocols between PROFIBUS DP and PA
- Up to 20 Power Link Modules power one PROFIBUS PA segment each
- Large data volumes due to direct communication between master and field device

**Fieldbus Junction Boxes:**

- Distribution to up to eight spurs
- Several termination and plug connection variants

**Fieldbus distribution and protection**

**Segment Protector:**

- Same functionalities as Junction Boxes
- Additionally protection of the fieldbus segment against negative feedback from a short-circuit at a field device





**Fieldbus Distribution in hazardous areas  
Power Feed Concept Ex e / Ex i**

**FieldBarrier™:**

- The four outputs of the FieldBarrier™ allow the connection of powerful field devices to the bus, intrinsically safe and free of negative feedback
- High power in the field in Ex-zone 1 due to explosion protection method "increased safety" – Power Feed Concept Ex e / Ex i
- In Div. 1 there is high power, too, due to Power Feed Concept Conduit / Ex i
- Multiple FieldBarrier™ are possible at one fieldbus segment



**Increased safety Ex e**

**Intrinsic safety Ex i**

## IN HAZARDOUS AREAS



### “Fieldbus Topology and explosion protection“

In fieldbus topologies the connected devices influence each other, especially with peer-to-peer communication between devices. In hazardous areas the secure explosion protection has to be confirmed. Depending on the topology and the specific plant requirements this is a rather complex process. Here are some concepts to make live easier:

**FISCO:** The Fieldbus Intrinsically Safe Concept reduces the confirmation of explosion safety to a few simple calculations. All FieldConnex™ system components meet the requirements of FISCO.

**Segment Design:** For quick and easy topology design with FieldBarrier™ the FieldConnex™ systems offer a software tool for download from [www.fieldconnex.info](http://www.fieldconnex.info).

### Transmission of Signals



#### Fieldbus Cables and Cord Sets:

- All cable types according to IEC 61158-2 and FISCO
- Customisation with M12x1 or 7/8“ plug connections on one or both ends, several lengths

### Integration of non-fieldbus devices into the fieldbus communication



#### Fieldbus Process Interfaces:

- Connection of conventional signals to fieldbus communication
- Linking of simple binary signals and actuator signals for valves to fieldbus communication
- Interfaces for pneumatic actuation of valves
- Intrinsically safe, installation in Ex-Zone 1 / Div. 2

## LEVEL CONTROL

LEVEL

With a wide line of products for Continuous Level Measurement as well as for Point Level Measurement we can solve your specific measurement tasks in different media and application areas.

### VIBRACON MINI

*... it's as small as it gets!*

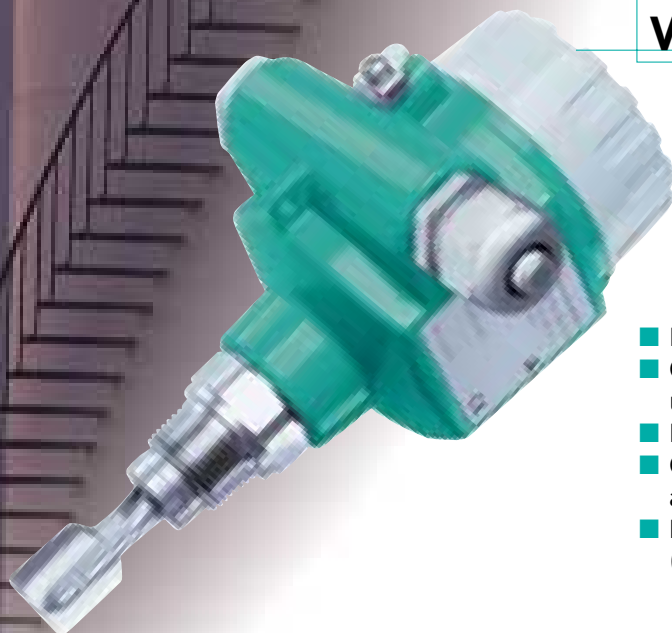
- Proven vibrating fork measuring principle
- Flexibility of application
- Minimum dimensions for applications involving space restrictions
- Installation in pipelines up to 40 mm diameter
- Functional control in-situ by means of switching status display
- Service-friendly plug-in connections as well as versions for DC, AC and AS-Interface



### VIBRACON NAMUR

*... now also with  
PROFIBUS PA  
connection*

- Proven vibrating fork measuring principle
- Compact and extended versions up to 6 m length
- Large selection of process connections
- Coated versions and alloy C4 versions available
- National and international approvals (Exia, Exd, WHG, FM, CSA, EHEDG ...)



# Pulscon – MODERN MICROWAVE TECHNOLOGY



This continuous level measurement for liquids and bulk solids is based on the propagation time measurement of microwave pulses according to the principle time domain reflectometry (TDR), which are guided along a rod or a rope.

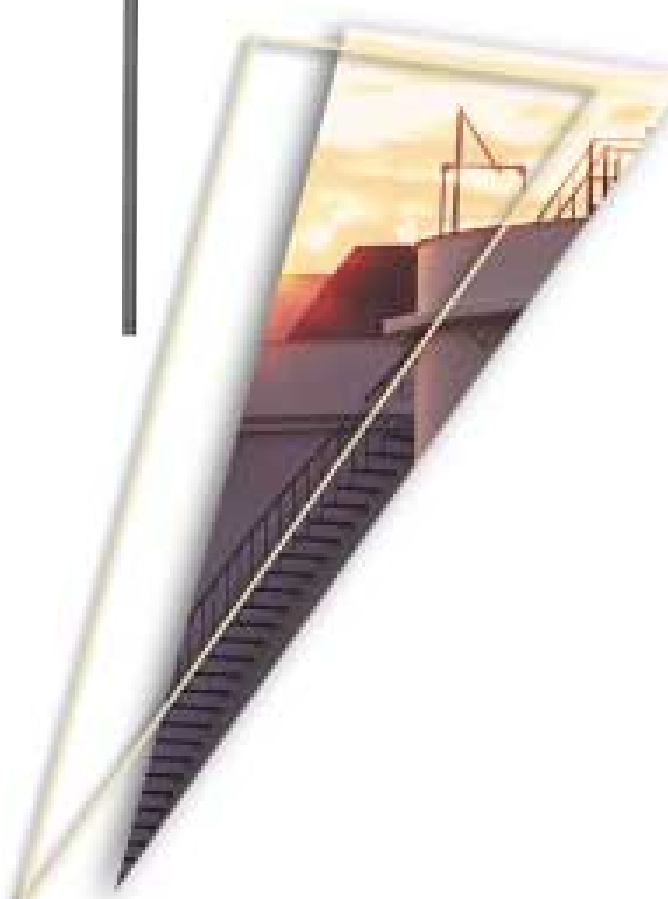
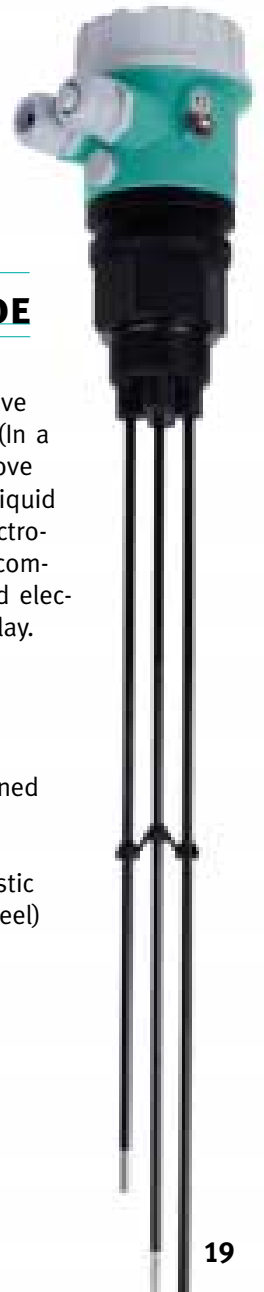
- For liquids and bulk materials
- Measuring range 0.5 m ... 35 m
- Rod, rope and coaxial versions
- Simple calibration and adjustment
- Independent of product properties such as density and weight
- Almost entirely independent of process influences such as pressure, temperature and moving surfaces
- Optional display for easy set up
- Modular process connections
- Various electrical interfaces:  
2-/4-wire, AC/DC, 4 mA ... 20 mA; HART, PROFIBUS PA, FOUNDATION Fieldbus
- Use in the Ex-area, Zone 0
- Approvals: ATEX, FM CSA



## CONDUCTIVE ELECTRODE

Quality limit level detection in conductive liquids. Two, three and five electrodes (In a rod or rope version) are positioned above the medium. As soon as a conductive liquid provides a connection between the electrodes a switching signal is generated. A compact version is available with integrated electronics, or with a separate electrode relay.

- Rod version up to 4 m or rope version up to 15 m length
- 2, 3 or 5 switch points can be obtained with one probe, suitable for simple 2-point control
- Simple, robust construction with plastic housing (Probe material: stainless steel)
- No calibration required
- Various electrical outputs:  
AC relay, DC-pnp; NAMUR
- Approvals ATEX II 2G Ex ia; 3G Ex nA/C; WHG





## OUR PRODUCT GROUPS –

### YOUR OVERVIEW



Point-to-Point – single standard signal lines transmit field signals conventionally to the control system.



Conventional Point-to-Point connections to the process and bus connections to the control system. Our Remote I/O Systems.



Installing – connecting – isolating fieldbus systems with Bus-to-Bus technology



Practical sensors to measure levels in liquids and solids.

[www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

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