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Products and solutions for digital communication in process automation

https://industrial.softing.com/en/expertise/fieldbus/process-automation.html

Industrial

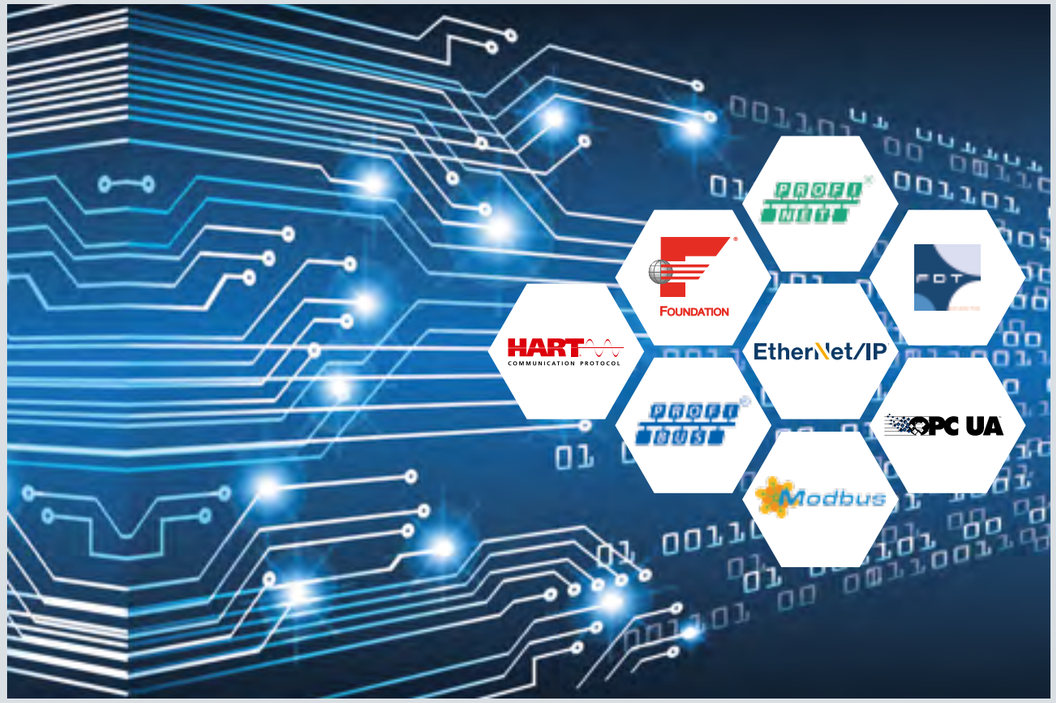
PROCESS DIGITIZATION

The increasing global scarcity of raw materials, the demands of higher energy efficiency, and the increasing demand for customer-specific products, increasingly require higher efficiency and more flexibility of production from the process industry.

The related optimization of plants and production processes is based on information about processes and equipment conditions. Essential prerequisite for obtaining this information is a system-wide exchange of production and plant data.

The transfer of data beyond the pure process value and their integration into superordinate systems, also at the IT level, require digital communication based on interoperable standards.

SOFTING EXPERTISE



The digital data exchange on the basis of industrial communication standards is a core competence of Softing. From an early stage, the focus was on technologies with particular relevance for process automation. Softing's experts contributed substantially to the specification of e.g. PROFIBUS and FOUNDATION fieldbus.

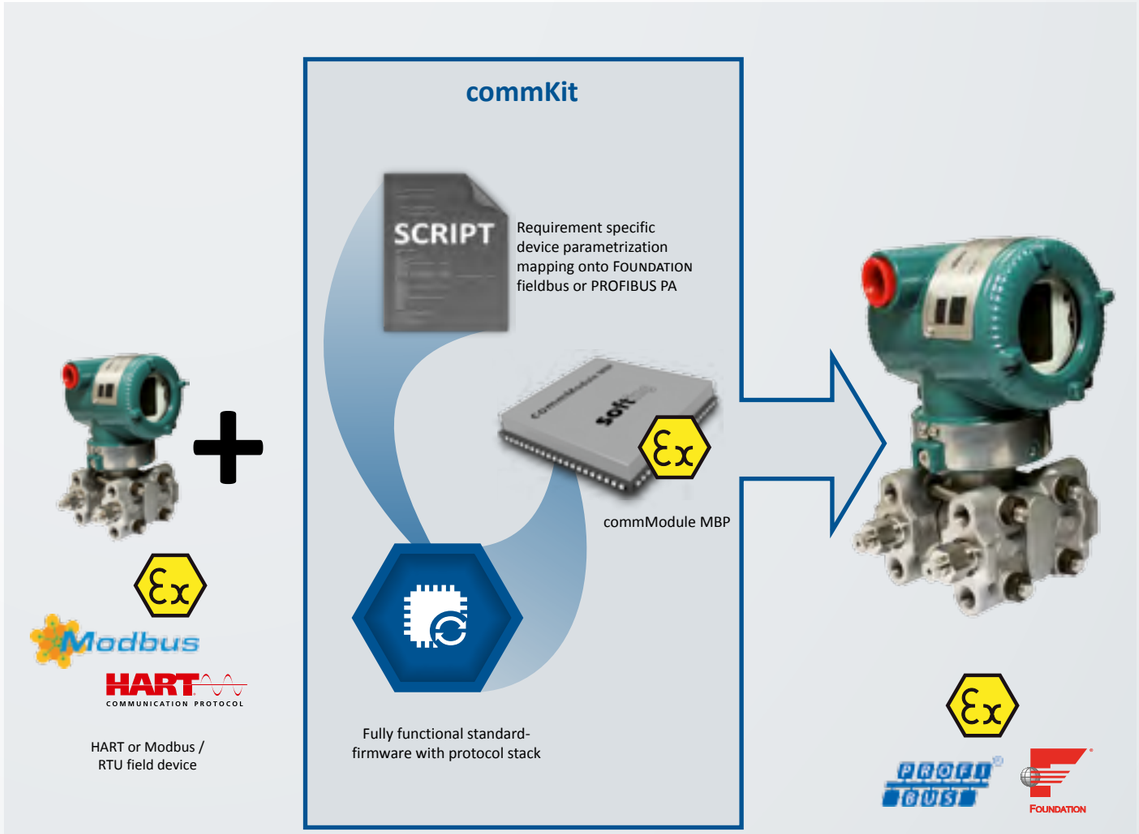
Even today, Softing is actively involved in the technical workgroups of the Fieldcomm Group, the PROFIBUS & PROFINET International and the OPC Foundation in order to be close to technological developments and to help shape them.

On the basis of this technological know-how and the competence for Ex-capable hardware Softing offers solutions for embedding digital communications technologies. In this area Softing is a strategic partner to international equipment and system manufacturers. To system integrators and plant operators Softing offers products for the integration and configuration of devices and networks based on international, digital communications standards.

Integration of HART, fieldbus and Industrial Ethernet technologies for field devices

Scalable module-based solution or portable protocol software

For field device manufacturers, Softing offers various options for integrating FOUNDATION fieldbus H1, PROFIBUS PA, HART, PROFIBUS DP, Ethernet / IP, PROFINET and OPC UA. The most efficient way to integrate FOUNDATION fieldbus H1 and PROFIBUS PA is based on a universal hardware module with Ex certification. A configuration script for the module firmware is used to define the specific scope of the communication interface. The script can be created by the customer himself or as part of a joint project with Softing. A new script allows you to change the amount of data and device information available via the fieldbus at any time, without modifying the hardware. In the case of specific requirements for electronics, such as for example limited space, as well as for HART and Industrial Ethernet technologies portable protocol stacks are the right solution.

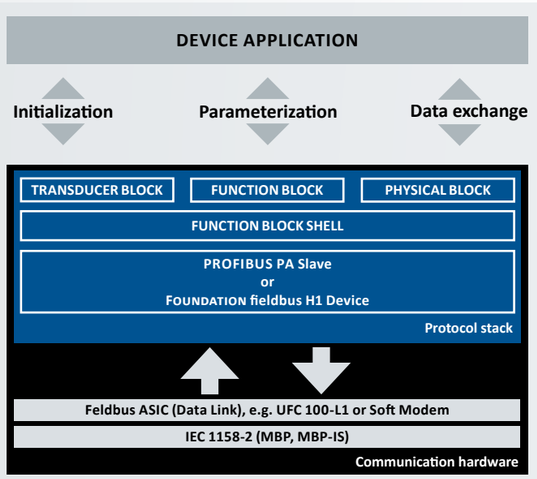


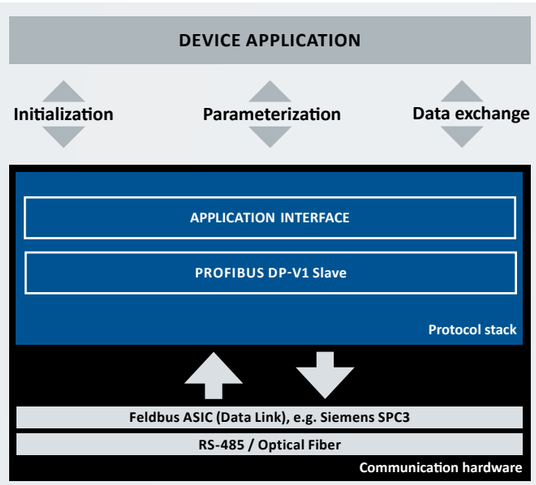
commModule MBP – Universal hardware for PROFIBUS PA and FOUNDATION fieldbus

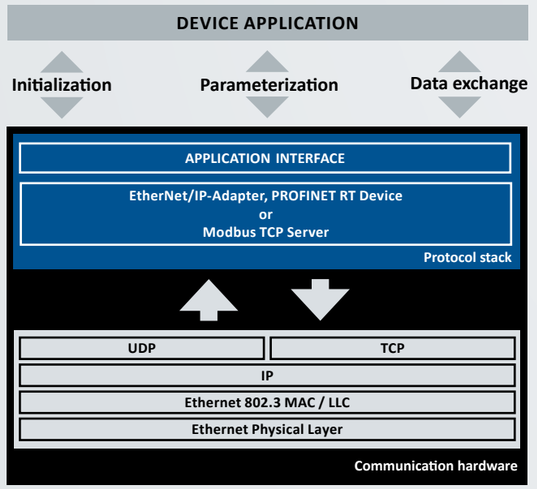
- Piggyback circuit board in compact design (40 mm x 40 mm x 10 mm)
- Pre-certified according to PROFIBUS PA and FOUNDATION fieldbus for fast device certification
- UART, I2C, SPI data interfaces
- Ex certification (ATEX, IECEx, FM)
- „Conformal Coating"

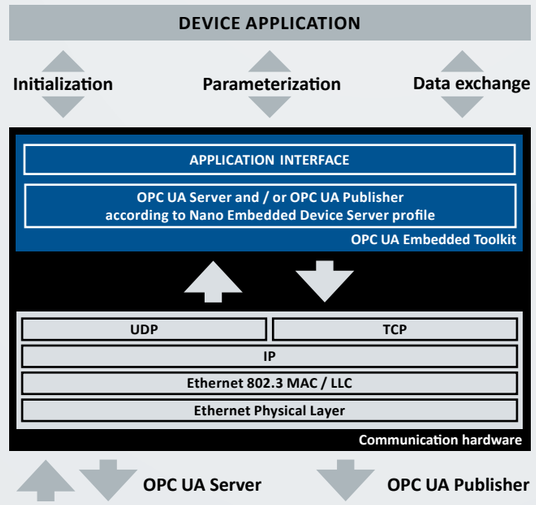
commScript PD – Demand-specific configuration of the module-firmware for PROFIBUS PA and FOUNDATION fieldbus

- Fast integration of a communication interface according to customer requirements and without programming
- Flexible interface functionality through variable mapping of process value and selected device parameters of HART or Modbus RTU on fieldbus
- Project support by Softing developers (option)









commStack – Portable protocol software

- Device stacks for HART, PROFIBUS PA, FOUNDATION fieldbus H1, PROFIBUS DP, EtherNet/IP and PROFINET RT
- Support of all specified protocol functions
- Support for different target platforms (processors, operating systems, memory configurations)

OPC UA embedded Toolkit – Development of in the field device embedded OPC UA servers or OPC UA publishers

- Conformance with OPC UA PubSub Specification V1.04 RC and Nano Embedded Device Server profile
- For Linux or Windows operating systems
- Source code in ANSI C
- Low memory requirements and minimized CPU load

UFC100-L1 – Fieldbus ASIC for customer-specific communication hardware

- Full pin compatibility to Yamaha YTZ 420 (FIND1 +)
- Support for FF H1 and PROFIBUS PA in field devices and hosts
- Reduced communication load for device CPU
- Long-term availability

Services

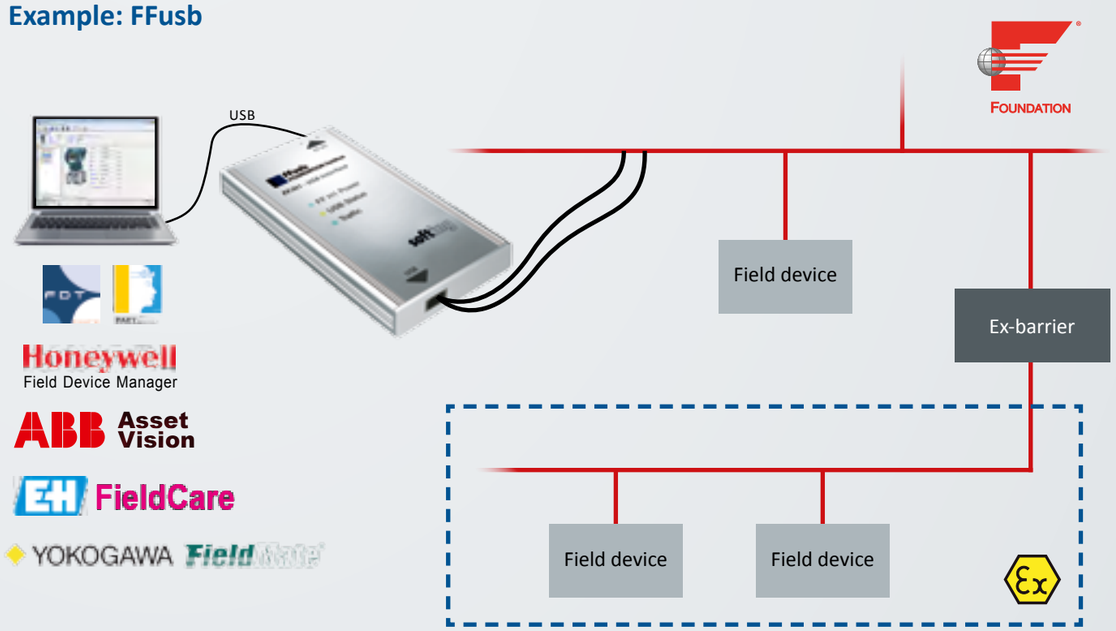
- Support for module-based integration
- Consulting and development of customer-specific, Ex-compatible communication hardware
- Stacking and firmware development
- Pre-certification (Physical layer, Conformance, Interoperability)

Mobile solutions for device parameterization, network configuration and monitoring tasks

USB interfaces and software for commissioning and maintenance

State-of-the-art field devices are complex systems, which provide a variety of information besides the actual process value, like thresholds and limits, trends and historians. For their intended operation, these devices require the presetting of various parameters. For commissioning and maintenance personnel Softing offers mobile USB interfaces for device parameterization for FOUNDATION fieldbus and PROFIBUS. Communication DTMs are included to connect to software tools with the support of the FDT standard, such as ABB DAT200 AssetVision Basic, Endress & Hauser FieldCare, Honeywell FieldManager Express, Yokogawa FieldMate and PACTware. The software for network configuration is also included in the FFusb interface. Manufacturers of application software can directly integrate the PROFIBUS as well as the FF interface via API. The same applies to the CAN bus USB interface, for e.g. as access for wireline and slickline applications in oil and natural gas exploration.

Example: FFusb



FFusb – USB interface for field device configuration and network configuration for FOUNDATION fieldbus H1

- USB 2.0 high speed interface
- Automatic non-reactive connection as a visitor or LAS (Link Access Scheduler)
- Direct support of Yokogawa FieldMate version R2.03 and later
- Integration into FDT-based software tools using communication DTM
- Software for cyclic configuration bus communication
- API for direct integration into customer-specific software applications

PBpro USB – USB interface for parameterization of PROFIBUS devices

- USB 2.0 high-speed interface in the housing of a PROFIBUS connector
- No reflection-induced interference
- Direct support for ToolSuite CDT (auma) and AMS Suite (Emerson)
- Integration into FDT-based software tools using communication DTM
- API for direct integration into customer-applications

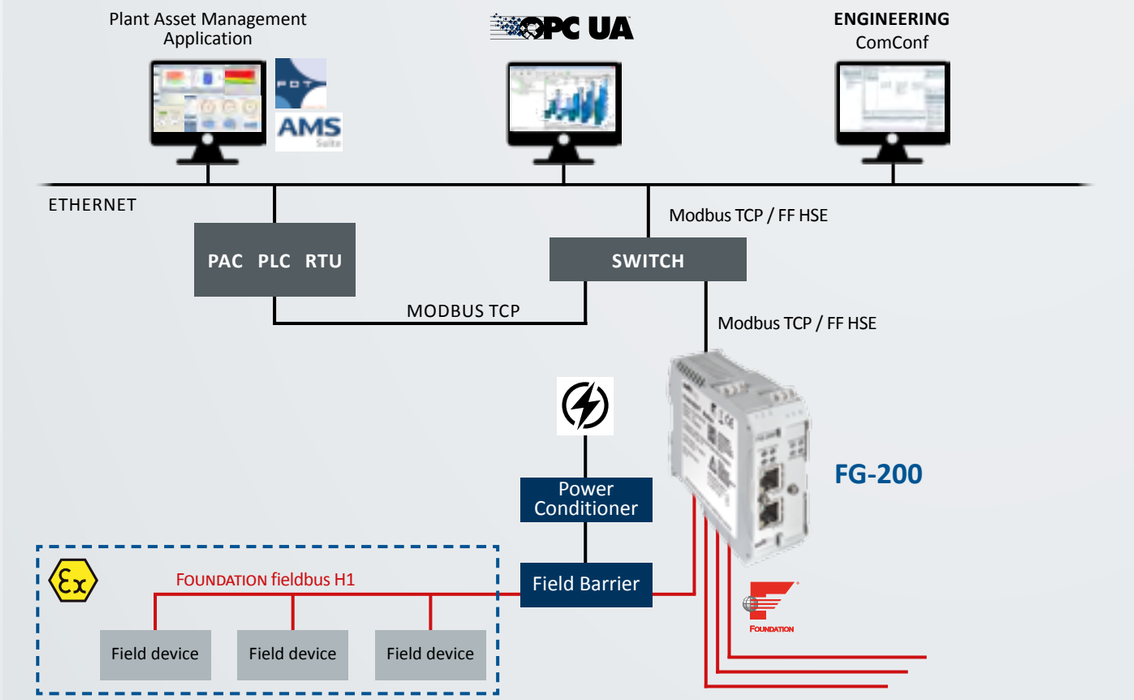
CANpro USB – CAN high-speed USB interface for direct integration into customer-specific software via API

- USB 2.0 high speed interface
- Heavy Duty version with:
  - Snap-in USB cable connector
  - Operating temperature -20 °C ... +70 °C

Ethernet gateways for process control and plant asset management

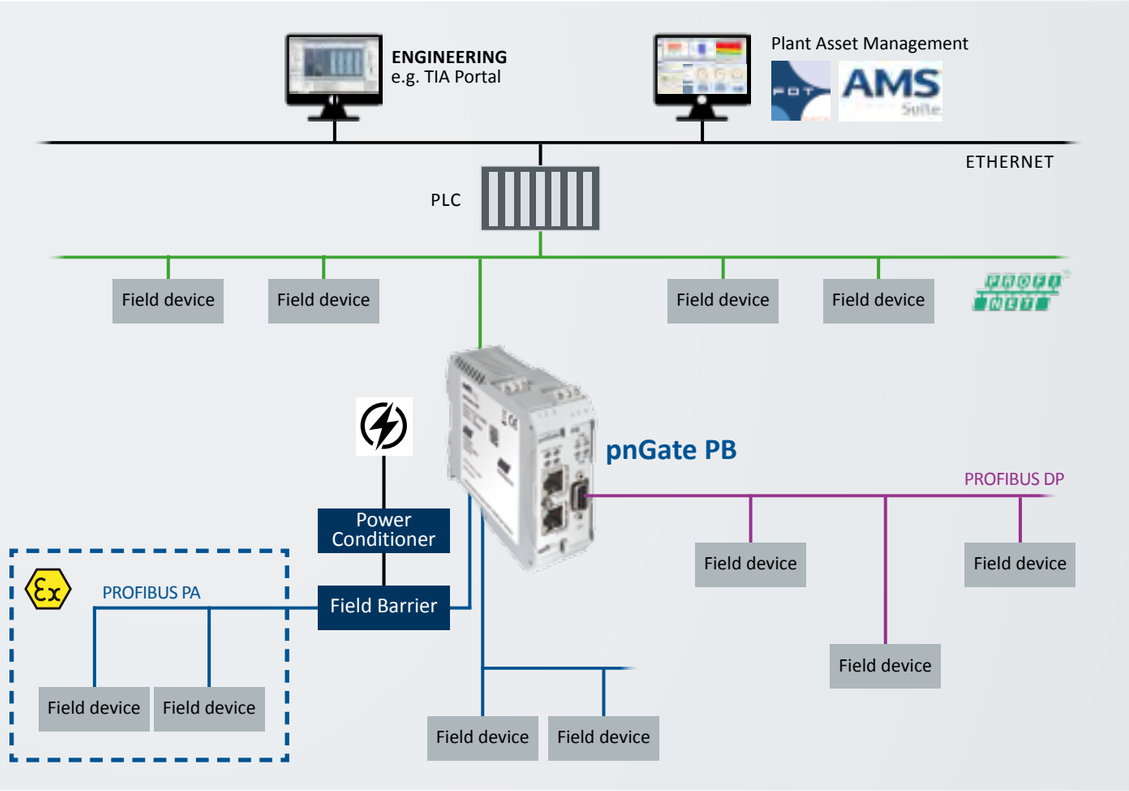
Integration of FOUNDATION fieldbus and PROFIBUS devices

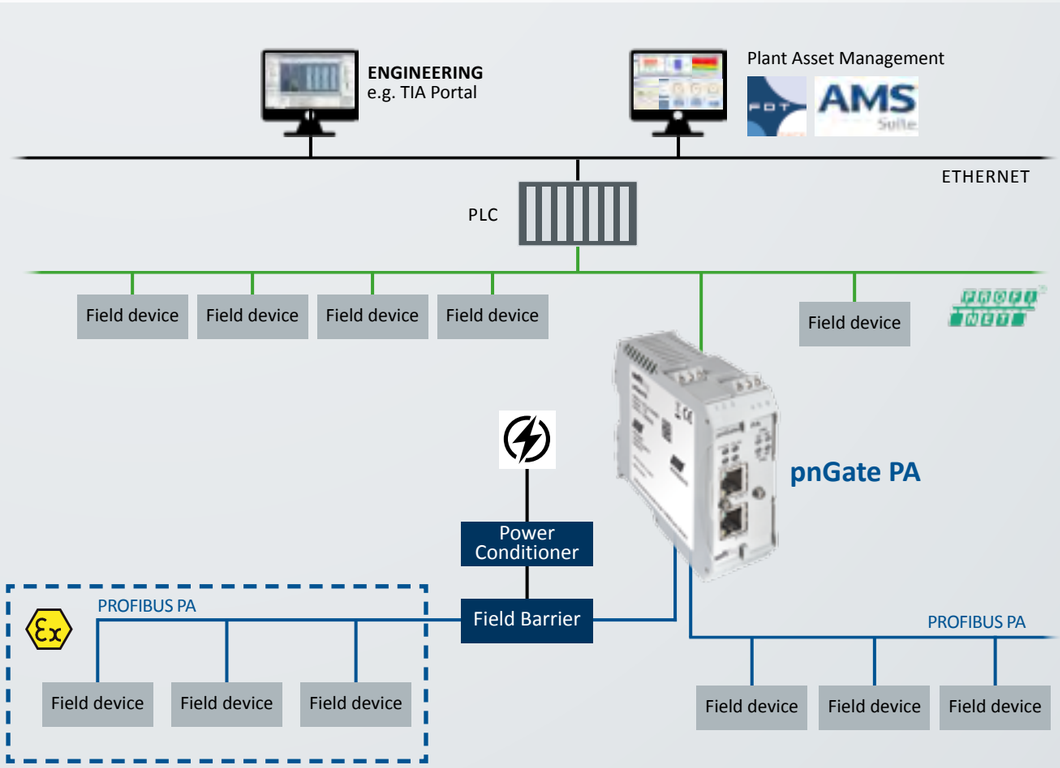
The optimization of production processes and facilities requires a comprehensive integration of production. Digital interconnectivity down to the field level is a prerequisite for its realization. To connect FOUNDATION fieldbus H1 segments via Modbus TCP or FOUNDATION fieldbus HSE into control and plant asset management systems the FG-200 is a proven solution. The direct integration of PROFIBUS PA and PROFIBUS DP devices with PROFINET control systems in e.g. hybrid systems are enabled through pnGate PA and pnGate PB.
TH LINK PROFIBUS enables the access to PROFIBUS DP and HART devices for Plant Asset Management tasks and the central device-parameterization. In combination with the SCOPE diagnostic software, the monitoring of PROFIBUS communication is made possible.



FG-200 – Integration of FOUNDATION fieldbus H1 Devices in Modbus architectures

- Ethernet integration using Modbus TCP and Foundation fieldbus HSE
- Integration of FOUNDATION fieldbus field devices in Modbus RTU systems
- Connection of up to 4 FF segments
- Support of device redundancy (Type D-3 according to specification FF-593)
- Plant Asset Management access via FDT / DTM or direct connection to the Emerson AMS Suite
- FF configuration software for cyclic communication and device parameterization
- Partially automated Modbus register mapping in provided configuration software
- Suitable for use in Zone 2
- Modbus OPC server with preconfigured value mapping for plug and play connection using dataFEED OPC Suite (Option)



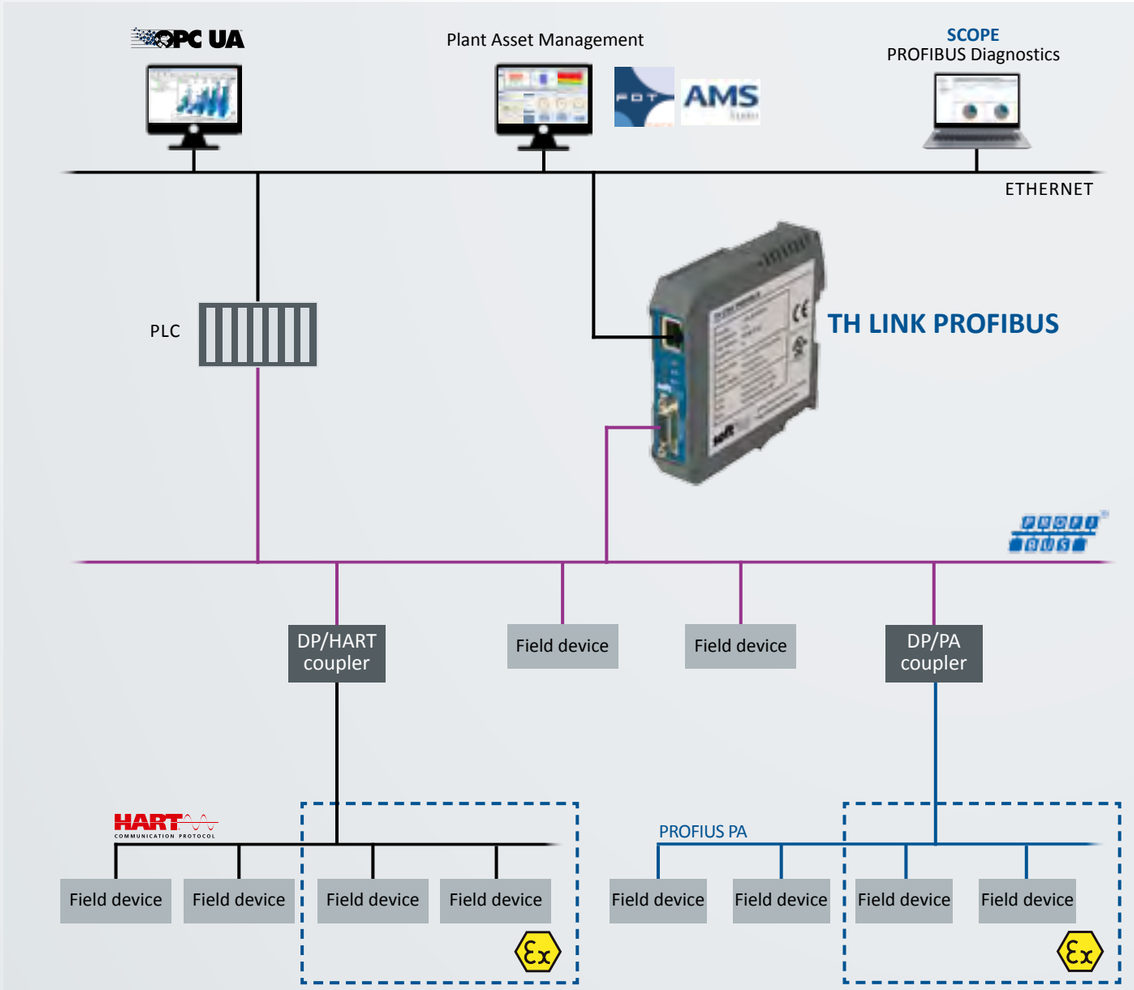


pnGate PB – Integration of PROFIBUS networks in PROFINET systems

- Separate connection to a PROFIBUS DP segment and up to two PROFIBUS PA segments
- Configuration and parameterization based on GSDML, e.g. through the Siemens TIA portal
- Support for FDT / DTM
- Further use of existing power conditioners

pnGate PA – Direct integration of PROFIBUS PA segments into PROFINET systems

- Connection of up to two PROFIBUS PA segments without DP intermediate segment
- Configuration and parameterization based on GSDML, e.g. through the Siemens TIA Portal
- Support for FDT / DTM
- Further use of existing power conditioners



TH LINK PROFIBUS – PROFIBUS DP network access for Plant Asset Management and Network Monitoring

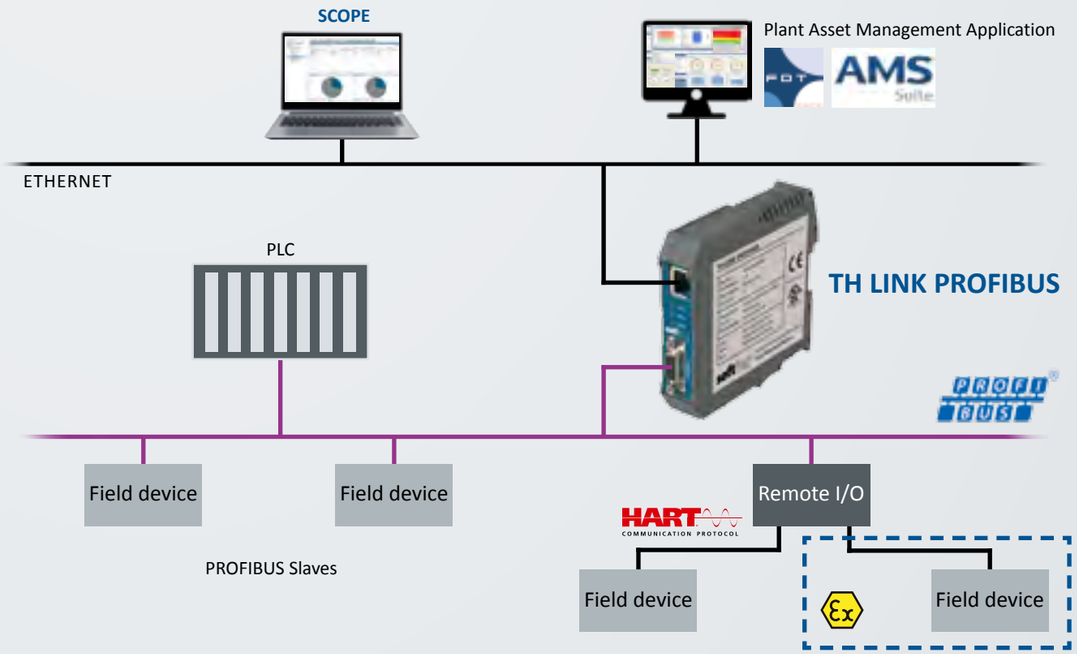
- Support of connected HART segments
- Comprehensive monitoring of process-critical devices
- Central administration of all device parameters and simple device replacement
- Device parameterization directly from the control room
- Support for FDT / DTM and EDDL
- Integration into the Emerson AMS Suite (option)
- PROFIBUS monitoring with diagnostic software SCOPE (option)

Solutions for monitoring, commissioning and troubleshooting of PROFIBUS networks

Mobile and stationary tools for installation, commissioning and maintenance

Ensuring reliable data exchange and the avoidance of unscheduled plant standstills are essential requirements for the communication networks in process industry plants. In order to fulfill these tasks, suitable solutions for quality assurance during installation and commissioning and for maximum plant availability are required. The PROFIBUS Tester 5 is a battery-powered, mobile tool for comprehensive diagnostics and troubleshooting in PROFIBUS installations. The bus-powered BC-230-PB is the right solution for the simple verification of a stable PROFIBUS PA communication in hazardous areas.
The network interface TH LINK PROFIBUS in combination with the monitoring software SCOPE provides predictive maintenance through the communication monitoring of PROFIBUS DP and PROFIBUS PA networks during operation.

Network monitoring and -management



TH LINK PROFIBUS with SCOPE –
Stationary monitoring of PROFIBUS networks

- Impact-free installation in plants, also during operation
- Passive monitoring of the PROFIBUS protocol
- Threshold monitoring for telegram repetitions
- Extensive presentation and evaluation of diagnostic data
- Monitoring for PROFIBUS DP and PA networks
- Error detection with intelligent help
- Statistics to optimize network configuration
- OPC UA interface

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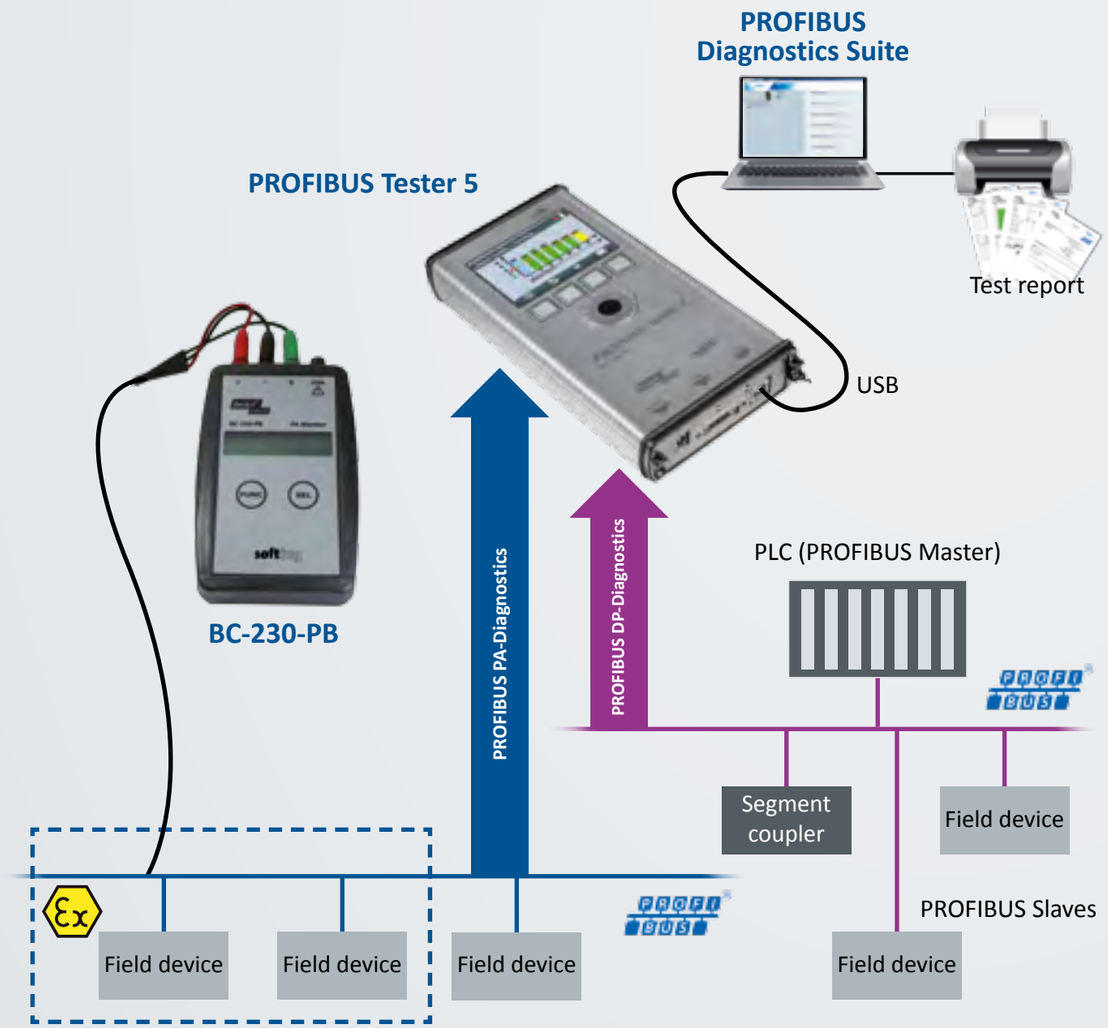
Commissioning, acceptance and troubleshooting



PROFIBUS Tester 5 – Comprehensive mobile diagnostics and troubleshooting of PROFIBUS-networks

- Support for PROFIBUS DP and PROFIBUS PA (option)
  - Complete protocol analysis directly on the PROFIBUS PA segment
  - Specific signal analysis for MBP physics
- Complete device for cable testing, physical signal test and protocol analysis
- Master simulation and integrated storage oscilloscope
- Autonomic operation and extended diagnostics with PC-based software
- Automated creation of test reports

BC-230-PB – Easy mobile check of PROFIBUS PA in hazardous areas

- Measurements during ongoing operation
- Power supply via the fieldbus, no battery or external power supply
- Test of bus physics
- Checking the stable communication of all connected PA devices
- Easy operation with two function buttons

dataCHECK®