

#### Overview

Today, distributed automation solutions based on open fieldbuses are standard in many areas of the manufacturing industry and in process engineering. It is only with fieldbuses that the functional benefits of digital communication can be put to full use, e.g. better resolution of measured values, diagnostics options and remote parameterization.

Today, PROFIBUS is the most successful open fieldbus with a large installed base for a wide range of applications. Standardization according to IEC 61158 / EN 50170 provides you with future protection for your investment.

#### Benefits

- Fully modular system, from the sensor through to the control level, permits new plant concepts
- Problem-free exchangeability of field devices, including from different manufacturers, that comply with the standard profile
- Networking of transmitters, valves, actuators, etc.
- Implementation of intrinsically safe applications through use of the field bus in hazardous areas
- Easy installation of 2-wire cables for joint power supply and data transfer
- Reduced cabling costs through savings of material and installation time
- Reduced configuration costs through central, simple engineering of the field devices (PROFIBUS PA and HART with SIMATIC PDM, also with multi-vendor support)
- Fast and error-free installation
- Lower service costs thanks to simpler wiring and plant structure plus extensive diagnostics options
- Greatly reduced commissioning costs through simplified loop check
- Scaling/digitizing of the measured value in the field device already, hence no rescaling necessary in SIMATIC PCS 7

#### Application

PROFIBUS is suitable for fast communication with distributed I/O (PROFIBUS DP) in production automation as well as for communication tasks in process automation (PROFIBUS PA). It is the first fieldbus system that meets the demands of both areas with identical communication services.

The transfer technology of PROFIBUS PA is tailored to the requirements of the process industry. The standardized communications services guarantee interoperability between multi-vendor field devices and remote configuration of the field devices during operation.

With SIMATIC PDM (Process Device Manager), a universal tool that is not manufacturer-specific and is used for configuring, parameterizing, commissioning and diagnosing intelligent process devices on PROFIBUS, a variety of process devices of different manufacturers can be configured using a uniform graphic user interface.

PROFIBUS PA can be used both in standard environments and in hazardous areas. For use in hazardous areas, PROFIBUS PA and all connected devices have to be designed with type of protection Ex [i].

The uniform protocol of PROFIBUS DP and PROFIBUS PA enables the linking of both networks and thus the combination of timing performance and intrinsically safe transmission technology.

#### Function

PROFIBUS PA expands PROFIBUS DP with process-level components for direct connection of actuators and sensors. With PROFIBUS PA, the RS 485 transmission method is replaced by a different transmission method optimized for intrinsically safe applications. Both methods are standardized internationally in IEC 61158.

PROFIBUS PA uses the same communication protocol as PROFIBUS DP; communication services and frames are identical.

With PROFIBUS PA, the information and energy supply for supplying the field devices can be conducted via a 2-wire cable.

#### Integration

Siemens field devices for process automation listed in this catalog that can be controlled with PROFIBUS:

##### **PROFIBUS PA**

##### Measuring instruments for pressure

SITRANS P300  
SITRANS P DS III  
SITRANS P410

##### Measuring instruments for temperature

SITRANS TH400

##### Flow meters

SITRANS F M MAG 6000 19" / IP67  
SITRANS F M MAG 6000 I / I Ex  
SITRANS F M TRANSMAG 2  
SITRANS F C MASS 6000 19" / IP67 / Ex d  
SITRANS FUS060

##### Level meters

Pointek CLS 200  
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SITRANS Probe LU  
SITRANS LR200  
SITRANS LR250  
SITRANS LR260  
SITRANS LR460  
SITRANS LR560

##### Electropneumatic positioners

SIPART PS2

##### Acoustic sensors for pump monitoring

SITRANS DA400

##### **PROFIBUS DP**

##### Measuring instruments for temperature

SITRANS TO500

##### Flow meters

SITRANS F M MAG 6000 19" / IP67  
SITRANS F M MAG 6000 I  
SITRANS F C MASS 6000 19" / IP67  
SIFLOW FC070 (via ET 200M)

##### Level meters

HydroRanger 200  
MultiRanger 100/200  
SITRANS LU 01, LU 02, LU 10

##### Acoustic sensors for pump monitoring

SITRANS DA400