

Overview

Today, distributed automation solutions based on open field buses are state-of-the-art in large areas of the manufacturing industry and process engineering. It is only with field buses that the functional benefits of digital communication can be put to full use, e.g. better resolution of measured values, diagnosis options and remote parameterization.

PROFIBUS is today's most successful open field bus with a large installed base for a wide range of application. Standardization to IEC 61158 / EN 50170 provides you with future protection for your investment.

Benefits

- A uniform modular system from the sensor into the control level enables 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 lines for joint energy supply and data transmission
- 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 cross-vendor)
- Fast and error-free installation
- Lower service costs thanks to simpler wiring and plant structure plus extensive diagnosis options
- Greatly reduced commissioning costs through simplified loop check
- Scaling/digitizing of the measured values in the field device already, hence no rescaling necessary in SIMATIC PCS 7

Application

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

The transmission technique of the PROFIBUS PA is tailored to the needs of the process industry. Interoperability between field 10/11 devices from different manufacturers and remote parameterization of the field devices during operation are guaranteed by the standardized communication services.

Using SIMATIC PDM (Process Device Manager), a uniform and cross-vendor tool for configuring, parameterizing, commissioning and diagnosis of intelligent process devices on the PROFIBUS, it is possible to configure a wide variety of process devices from different manufacturers using one uniform graphical user interface.

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

The uniform protocol of PROFIBUS DP and PROFIBUS PA enables the two networks to be interlinked, thus combining time-based performance with intrinsically safe transmission.

Function

PROFIBUS PA expands PROFIBUS DP with near-process components for the direct connection of actuators and sensors.

For PROFIBUS PA the RS 485 transmission technique was replaced by a different technique optimized for intrinsically safe application. Both techniques are internationally standardized in IEC 61158.

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

For PROFIBUS PA the data and energy supply for the field devices can be directed through a 2-wire line.

Integration

Siemens field devices for process automation which are listed in this catalog and can be controlled using PROFIBUS:

PROFIBUS PA

Measuring instruments for pressure

SITRANS P300
 SITRANS P DS III
 SITRANS P410

Measuring instruments for temperature

SITRANS TH400

Flowmeters

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

Measuring instruments for level

Pointek CLS200 and CLS300
 SITRANS Probe LU
 SITRANS LR200
 SITRANS LR250
 SITRANS LR260
 SITRANS LR460
 SITRANS LR560

Electropneumatic positioners

SIPART PS2

Acoustic sensor for pump monitoring

SITRANS DA400

PROFIBUS DP

Measuring instruments for temperature

SITRANS TO500

Flowmeters

SITRANS F M MAG 6000 19" / IP67
 SITRANS F M MAG 6000 I
 SITRANS F C MASS 6000 19" / IP67
 SIFLOW FC070 (via ET200M)

Measuring instruments for level

HydroRanger 200
 MultiRanger 100/200

Acoustic sensor for pump monitoring

SITRANS DA400