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Communication and Software

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HART protocol

Overview

HART is a widely used communication standard for field devices. Specification of HART devices takes place through the HCF (HART Communication Foundation).

The HART standard expands the analog 4 to 20 mA signal for modulated, industry-proven, digital signal transmission.

Benefits

- Service-proven analog measured value transmission
- Simultaneous digital communication with bidirectional data transmission
- Possibility of transmitting several measured variables from one field device (e.g. diagnosis, maintenance and process data)
- Connection to higher-level systems such as PROFIBUS DP
- Easy installation and startup

Use in conjunction with SIMATIC PDM

- Cross-vendor operation of all HART devices by means of standardized parameter records
- HART field devices that are described by HART DD are integrated in SIMATIC PDM through the HCF catalog. HART DD (Device Description) is standardized in SIMATIC PDM, multivendor and very widely used. Other HART field devices are integrated in SIMATIC PDM through EDD (Electronic Device Description)
- Easy operation and startup of field devices, also in hard-to-reach locations
- Expanded diagnosis, evaluation and logging functions

Application

These devices can be connected in different ways:

- Using the distributed I/O system
  - SIMATIC ET 200M with the HART modules
  - SIMATIC ET 200iSP with the HART modules
  or with analog modules 4 to 20 mA and a HART handheld communicator
- Using a HART modem, with which a point-to-point connection is established between the PC or engineering station and the HART device
- Using HART multiplexers, which are contained in the HART server of the HCF

Integration

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

Measuring instruments for pressure
SITRANS P DS III
SITRANS P P300
SITRANS P P500
Measuring instruments for temperature
SITRANS TF
SITRANS TH300
SITRANS TR300
SITRANS TW
Flowmeters
SITRANS F M MAG 5000
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 F C FCT030
SITRANS FUS060
SITRANS FX300
Measuring instruments for level
Pointek CLS500
SITRANS Probe LR
SITRANS Probe LU
SITRANS LUT400
SITRANS LR200
SITRANS LR250
SITRANS LR260
SITRANS LR400
SITRANS LR460
SITRANS LR560
SITRANS LC500
Positioners
SIPART PS2
Power supply units and isolation amplifiers
SITRANS I

Selection and Ordering data

		Article No.
HART modem		
• With RS 232 connection	►	**7MF4997-1DA**
• With USB connection	►	**7MF4997-1DB**

► Available ex stock

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Overview

WirelessHART is the first international industry standard for wireless communication at field level in the area of process automation. Hence this is the first time users are provided with a standard for wireless communication at field level which ensures the interoperability of instruments and components from different manufacturers.

Benefits

WirelessHART enables access to the following:

- Measuring and control values
- Parameters

of field devices with HART interface. These usually include pressure, temperature, level or flow transmitters or actuators.

WirelessHART allows for the following:

- wireless transmission of measured values and their status
- wireless parameterization and diagnosis of field devices

The WirelessHART adapter can be used to enable field devices with HART interfaces (that are designed for wired communication) for wireless communication. This allows users to continue using their proven devices while benefiting from and participate in addition in advantages offered by wireless communication.

Application

Looking at the large number of possible applications and configurations, we generally differentiate between two application types.

Background for the first type is the fact that according to estimates forwarded by the HART Communication Foundation (HCF), approximately 85 % of the over 30 million HART devices in operation are used in an environment where only the 4 to 20 mA interface rather than the HART interface of the device is used on a system level. Generally, data on the device can only be read on site. This is of particular disadvantage with devices that contain self-diagnostic functions - that's what we call "stranded diagnosis".

In these cases, a WirelessHART adapter can offer assistance. Connected to the 4 to 20 mA loop, it allows central access to the device based on wireless communication. It does not affect process control systems which continue to receive the measured value using the 4 to 20 mA loop.

Central access is enabled through a diagnostic station with SIMATIC PDM and SITRANS MDS software.

Main advantages:

- Increases the availability of the plant
- Increases plant transparency
- Reduces costs due to employing a predictive rather than preventative maintenance concept
- Reduces travel time in larger systems based on central access to field instrumentation

In the second application the 4 to 20 mA loop is omitted, all data including measured process values and diagnostic information are transmitted wirelessly to a process control system, for example.

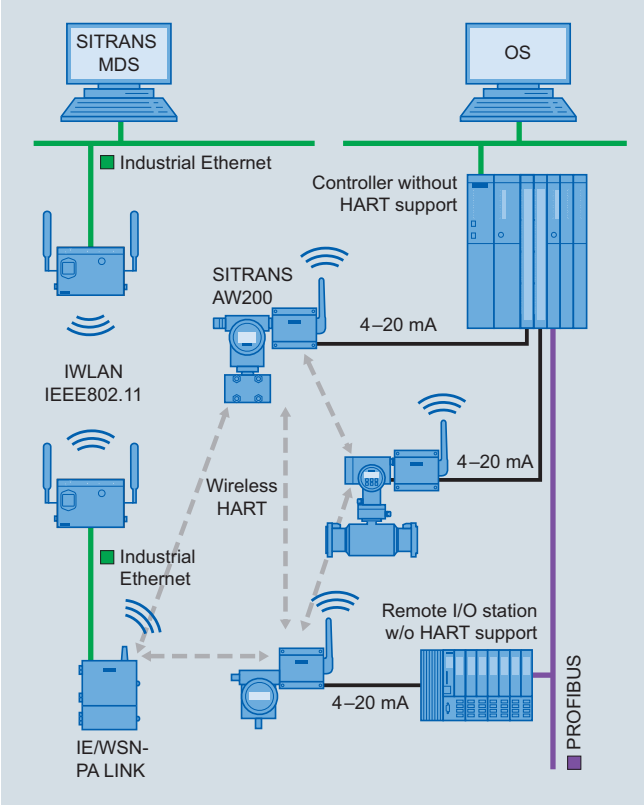
Main advantages are:

- No planning and installation of data cables, resulting in significant cost reductions
- Higher system transparency due to additional and hitherto unfeasible installation of measuring points
- Process optimization due to flexible, temporary and cost-effective measuring points via wireless communication
- Utilization of proven devices by using adapters
- The WirelessHART meshed network also makes it possible to bridge longer distances

Design

This section introduces the application types described in the previous section in greater detail.

The figure below shows a typical situation for the first application type.



The adapter is connected to the 4 to 20 mA loop, which is used to transmit the measured value to the control system, or transmit the setpoint to an actuator. The existing control system is not affected by the WirelessHART adapter.

The data, in particular diagnostic data from the devices is transmitted to the IE/WSN-PA LINK via the connected adapter and the WirelessHART network. The link provides this data to a diagnostic and maintenance station with installed SITRANS MDS software and SIMATIC PDM via an industrial Ethernet. Industrial wireless LAN can be used to save on the installation costs required for Ethernet wiring. An extensive product portfolio of Scalance W components is available for this purpose.

The functionality of related to the SITRANS MDS is described in great detail on page 8/9 of this catalog.

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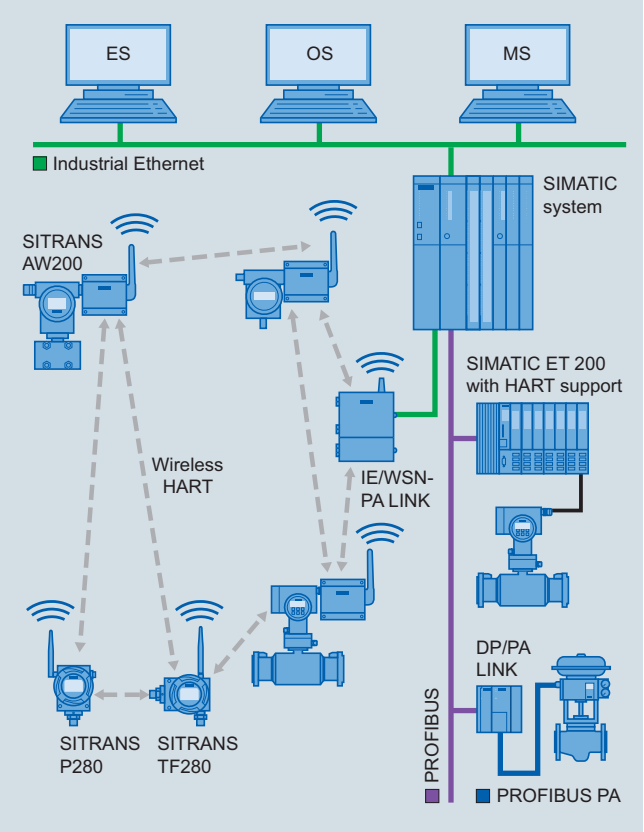
WirelessHART

The figure below shows a typical situation for the second application type.



WirelessHART is integrated into SIMATIC systems parallel to the wire-connected devices with HART or PROFIBUS interfaces. In this case, the 4 to 20 mA line to the control system is not required: all data, i.e. process values, parameters, diagnostic information and functions, is supplied to the automation system on a wireless basis. This is mainly useful for replacement and expansion measures related to existing systems, and of course also new systems, but also for temporary and mobile measurements.

The field devices are standard instruments with connected adapters, or those with integrated wireless communication.

In principle, a differentiation needs to be made between wireless communication and the power supply for the devices.

When installing a field device, the planning and installation of the data cable to the control system is usually considered a significant cost driver. This factor is greatly reduced when using wireless communication.

When using 4 to 20 mA/HART field devices with adapters, the question of powering up always arises - in contrast to battery-powered field devices with integrated wireless modules.

It is important to distinguish between two and four-wire devices here. Under certain circumstances, the SITRANS AW200 adapter can take over the supply of a connected two-wire device. The power consumption of the field device plays an important role here. If it is too high, an additional power supply becomes necessary. If more than one device is connected to the SITRANS AW200 adapter, an additional power supply is required.

Four-wire devices always require an additional power supply.

Function

The properties of WirelessHART can be summarized as follows:

- Simplicity in handling and engineering
- Secure communication
- Availability in network

Simplicity in handling and engineering

- Utilize current tools, same workflow
  The description of devices and adapter is carried out using proven EDDL technology. SIMATIC PDM continues to be used as a tool.
- Multiple power supply options
  Devices can be operated externally with 24 V DC, external or integrated battery packs as well as solar cells. The option of using energy from the process or the environment has been researched at universities and industry for some time. It is expected that results and products will be available in the medium term.
- Reduced installation costs
  Depending on use, installation costs for data cables or power supply cables are not required.
- Coexists with other wireless networks
  WirelessHART only uses the ISM band in the 2.4 GHz area, since it is available across the globe. However, it is also used by Industrial Wireless LAN (IWLAN), for example. For this reason, a requirement to allow WirelessHART to co-exist with Wireless LAN networks was an absolute requirement when this technology was defined. This coexistence has been achieved by constantly changing the channels and hence frequencies. This is also called "channel hopping".
  Moreover, individual channels can be completely disabled through so-called "blacklisting", for example if they are locally used by IWLAN.
- Support of star-shaped and meshed network topologies
  Networks can be built in both a star-shaped as well as meshed structure. The advantage of star-shaped networks with a gateway as the centre is that it allows for fast update cycles. However, the range of the network is limited to a maximum of approx. 200 m without obstacles between the gateway and the devices.
  The advantage of meshed networks is their greater range, since each participant in the network is also a repeater and forwards the data of remote participants towards the gateway. The disadvantage: increased transmission times for data between the field device and the gateway.
- Faster commissioning
  Once the device is installed, it can usually be commissioned right away, since the usual waiting time for completing the installation of the cables does not apply in this case.
- Self-organizing and self-healing networks
  WirelessHART networks are automatically organized, built and administered by the Network Manager. Engineering is usually not required.
  The Network Manager is implemented in the IE/WSN-PA LINK, the WirelessHART gateway from Siemens.
  It calculates the optimal connection routes between the network participants and defines an alternative path that can be used in the case of disruptions in advance. In that sense, the network can be considered self-healing.
  In addition, the Network manager also defines the channels or frequencies to be used for all communication.
  Statistics regarding communication are compiled automatically and are available to users.
- Security - always active
  All designated mechanisms with regard to security are available automatically, and do not require any engineering.
- Make changes in the network without the need for configuration. The Network Manager automatically adds and withdraws participants to/from the network.

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Secure communication

- Encryption - All information is automatically encrypted with 128 bit AES prior to transmission
- Specific keys for each data packet
- Data integrity - Each data packet is checked for changes or damage during transport.
- Device authentication
  Each device must know the network identification number as well as the join key. Otherwise the Network Manager does not include it in the network.
- Channel Hopping
  The channel which is used will be changed according to the Network manager's specifications after each telegram. This provides an added level of security against spying activities.
- Failed authentification report
  Each unsuccessful attempt by a participant to join the network will be recorded and made available to the user.

Availability in network

- Communication based on IEEE 802.15.4-2006
  Wireless communication takes place on the basis of a proven industry standard. It allows for very minimal power consumption.
- Utilization of ISM band (2.4 GHz)
  This band can be used worldwide without incurring additional costs.
- Channel hopping overcomes disruptions
  Disruptions are usually limited to a small frequency range. By constantly changing the channel, it is possible to overcome the effects of such disruptions and hence increase the network's reliability.
- Channel Black Listing permanently blocks disrupted channels.
  When operating another network at the same location, the channels occupied by that network can be blocked in the WirelessHART network.
- Self-healing network
  This aspect has already been discussed
- Redundant communication paths
  The Network manager automatically calculates redundant communication paths. This significantly increases the level of availability.

Software Overview

Applications 1 and 2 will require the following software products

	Component	Products	Article No.
Application type 1	Maintenance Diagnostic Station	SITRANS MDS	[1]
		SIMATIC PDM and Options	
		SIMATIC PDM Basic (4 Tags)	**6ES7658-3AX16-0YA5**
		Extend Basic to 128 Tags	**6ES7658-3XA16-2YB5**
		Extend Basic to up to 512 Tags	**6ES7658-3XB16-2YB5**
		Extend Basic to up to 1,024 Tags	**6ES7658-3XC16-2YB5**
		Extend Basic to up to 2,048 Tags	**6ES7658-3XD16-2YB5**
		SIMATIC PDM service (128 Tags)	**6ES7658-3JX16-0YA5**
		SIMATIC PDM Option HART Mux	**6ES7658-3EX16-2YB5**
		HART OPC Server V3.2	**Included in SIMATIC PDM[1]**
	WirelessHART gateway	IE/WSN-PA LINK with integrated non-removable antenna	**6GK1411-6CA40-0AA0**
	WirelessHART adapter	SITRANS AW200[2]	**7MP3112-1AA00-0AA0**
Application type 2	Process control system	SIMATIC PCS 7	
		SIMATIC S7/SIMATIC PCS 7 function blocks for communicating with WirelessHART devices using the IE/WSN-PA LINK	**9AE4110-3AA00**
	WirelessHART gateway	IE/WSN-PA LINK with integrated non-removable aerial[2]	**6GK1411-6CA40-0AA0**
	Field devices	SITRANS AW200[2]	**7MP3112-1AA00-0AA0**
		SITRANS AW210[2]	**7MP3111-...**
		SITRANS P280[2]	**7MP1120-...**
		SITRANS TF280[2]	**7MP1110-...**

[1] You can also contact your Siemens contact person.
[2] Other versions and accessories can be found in the product descriptions of this catalog.

More information

More detailed information on the required WirelessHART software and hardware components can be found in the FI 01 catalog or at www.siemens.com/wirelesshart.

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PROFIBUS

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 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 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 P DS III PA
SITRANS P300
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
Pointek CLS300
SITRANS Probe LU
SITRANS LR200
SITRANS LR250
SITRANS LR260
SITRANS LR400
SITRANS LR460
SITRANS LR560
Electropneumatic positioners
SIPART PS2
Acoustic sensor for pump monitoring
SITRANS DA400

PROFIBUS DP

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
SITRANS LU 01, LU 02, LU 10
Acoustic sensor for pump monitoring
SITRANS DA400

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Overview

Today, distributed automation solutions based on open field buses are state-of-the-art in large areas of the process engineering industry. 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.

Like PROFIBUS PA, the FF bus (FOUNDATION Fieldbus) is an 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 to the connection to the control level enables new plant concepts
- 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 energy 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, 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

The transfer technology of the FOUNDATION Fieldbus is tailored to the needs of the process industry. Interoperability between field devices from different manufacturers and remote parameterization of the field devices during operation are guaranteed by the standardized communication services.

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

Function

FOUNDATION Fieldbus enables the direct connection of actuators and sensors.

FOUNDATION Fieldbus is based on a transfer optimized for intrinsically safe application. The transfer technology is internationally standardized in IEC 61158.

For FOUNDATION Fieldbus the data and energy supply for the field devices can be directed through a 2-wire cable.

FOUNDATION Fieldbus enables device-to-device communication ("control in the field").

Integration

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

Measuring instruments for pressure
SITRANS P300 FF
SITRANS P DS III FF
Measuring instruments for temperature
SITRANS TH400 FF
Electropneumatic positioners
SIPART PS2 FF
Flowmeters
SITRANS F M MAG 6000
SITRANS F M MAG 6000 I / I Ex
SITRANS F C MASS 6000
Level meters
SITRANS LR250
SITRANS LR560

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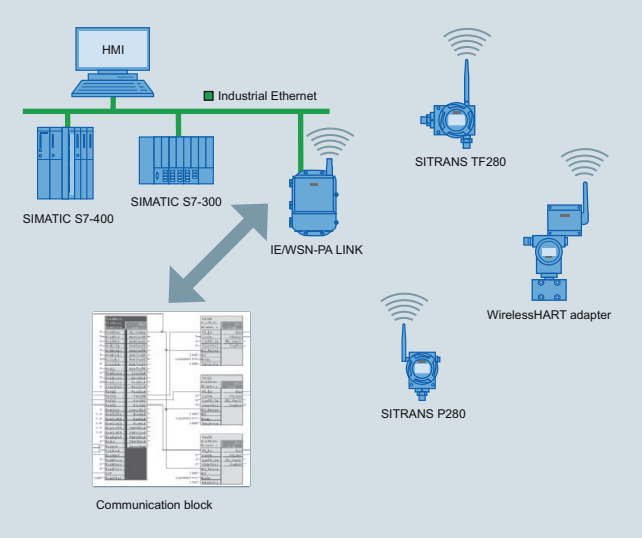
Communication blocks

Overview



The WirelessHART communication blocks implement the communication between S7/PCS 7 automation systems and WirelessHART field devices. They communicate via the IE/WSN-PA LINK using the Modbus TCP/IP protocol. Preconfigured communication blocks simplify the engineering process. Symbols and face plates are included in the delivery for use with SIMATIC PCS 7 OS or SIMATIC WinCC.

Benefits

A library, which can be installed, offers pre-fabricated blocks and hence an easy way to integrate WirelessHART devices into the SIMATIC automation world.

Simple configuration thanks to:

- Prefabricated function blocks for IE/WSN-PA LINK and WirelessHART devices
- SIMATIC PCS 7 OS or SIMATIC WinCC symbols and face plates are included
- Configuring help for IE/WSN-PA LINK in line with function blocks
- Output of quality codes for respective process values
- Analysis of IE/WSN-PA LINK diagnostic information

Application

WirelessHART communication blocks are used where SIMATIC automation systems communicate with WirelessHART devices via the IE/WSN-PA LINK gateway.

Function

The function blocks cyclically communicate with the IE/WSN-PA LINK via Modbus TCP/IP. Process values of WirelessHART devices as well as their status are read and made available at the function block outputs. Furthermore, selected status information of the IE/WSN-PA LINK is also made available at another building block. This information includes connection status, condition of the wireless network and other diagnostics. Precondition of the usage of these communication blocks is a TCP/IP connection, engineered in NetPro in the Engineering Station of Simatic PCS 7. Currently this requires a CP343 or a CP443-1.

Configuration

The standard S7 or PCS 7 engineering tools CFC, KOP, FUP can be used for the communication block engineering. Connection planning is done in NetPro. A configuration example for configuring the IE/WSN-PA LINK makes it easy to assign the WirelessHART devices to the communication blocks which need to be engineered.

More information

You can obtain function blocks and technical support for integrating the IE/WSN-PA LINK in PCS 7 at the following address:

Siemens AG
Industry Sector
Industry Solutions Division
Industrial Technologies
Roland Heid
Siemensallee 84
76187 Karlsruhe
Germany
Tel: +49 721 595-6380
E-Mail: function.blocks.industry@siemens.com

Selection and Ordering data

	Article No.
S7/PCS 7 function blocks for communicating with WirelessHART devices using the IE/WSN-PA LINK S7-300 or S7-400, including face plate	**9AE4110-3AA00**

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Overview

Maintenance Diagnostic Station

SITRANS MDS for flexible and automated diagnostic processing:

- Central display of diagnostic information from HART devices, which was only readable on site until now.
- Adjustable updating period for each device
- Clear visualization of diagnostic status of all devices
- Simply transfer of SIMATIC PDM configuring data
- Windows-based application

Benefits

SITRANS MDS in cooperation with SIMATIC PDM increases significantly the transparency of a plant.

The main advantages of SIMATIC MDS are as follows:

- Increase transparency of the plant by reading diagnostic information from accessible devices and providing a well-organized representation of this information
- Representation of diagnostic status of a device as in SIMATIC PCS 7 or NAMUR NE 107 (switchable)
- Ease of use through use of SIMATIC PDM project data
- The update cycle for the diagnostic status can be uniformly set as the default value for all devices ...
- ... as well as for each device individually

Application

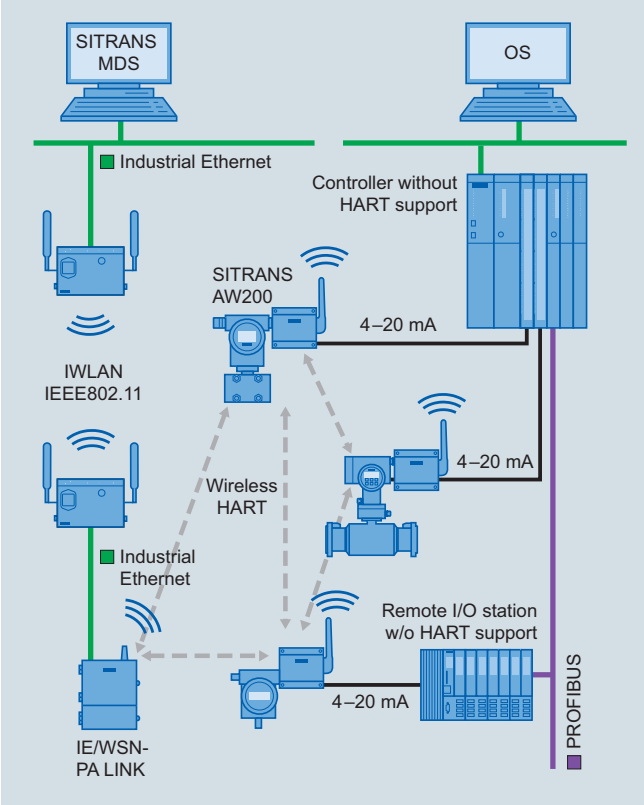
SITRANS MDS increases the transparency of a plant by centrally collecting diagnostic information, directly from the accessible field devices. In principle, all devices that are integrated in SIMATIC PDM can be included in the collecting process.

SITRANS MDS can be used where the installed automation system does not support an integrated acyclic communication of parameters and diagnostic information with the devices. In the case of HART devices, this applies to 85% of all installed devices.

The modern SIMATIC PCS 7 process control system allows for this type of continuous communication from the engineering system up to the devices. It also features a decidedly higher performance asset management system. The use of SIMATIC MDS therefore does not make sense in a SIMATIC PCS 7 environment and is hence not approved for that purpose.

Design

SITRANS MDS uses SIMATIC PDM project data to read and display diagnostic data from accessible devices.



Integration

SITRANS MDS is installed on a PC together with SIMATIC PDM. Only the stand-alone version is used in this case.

Configuration

Configuration required for SITRANS MDS is adopted from SIMATIC PDM. Only the project name must be entered.

Very few other entries are required, such as the definition of update periods.

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SITRANS MDS - Maintenance Diagnostic Station

Technical specifications

SITRANS MDS Maintenance Diagnostic Station	
Operating system	Microsoft Windows XP professional SP2/SP3
Additionally required software	
SIMATIC PDM as of V 6.05 and options	
• SIMATIC PDM Basic (4 Tags)	6ES7 658-3AX16-0YA5
• SIMATIC PDM service (128 Tags)	6ES7 658-3JX16-0YA5
• SIMATIC PDM Option HART Mux	6ES7 658-3EX16-2YB5
	Additional options to increase number of measuring points
PC hardware	600 MHz 256 MB *) XGA 1024 x 768 16 Bit color depth
	*) main memory of at least 512 MB is recommended
	Up-to-date information can be found in the description for SIMATIC PDM

Selection and Ordering data

SITRANS MDS is a software package which is delivered together with the IE/WSN-PA LINK for Version 1.0.

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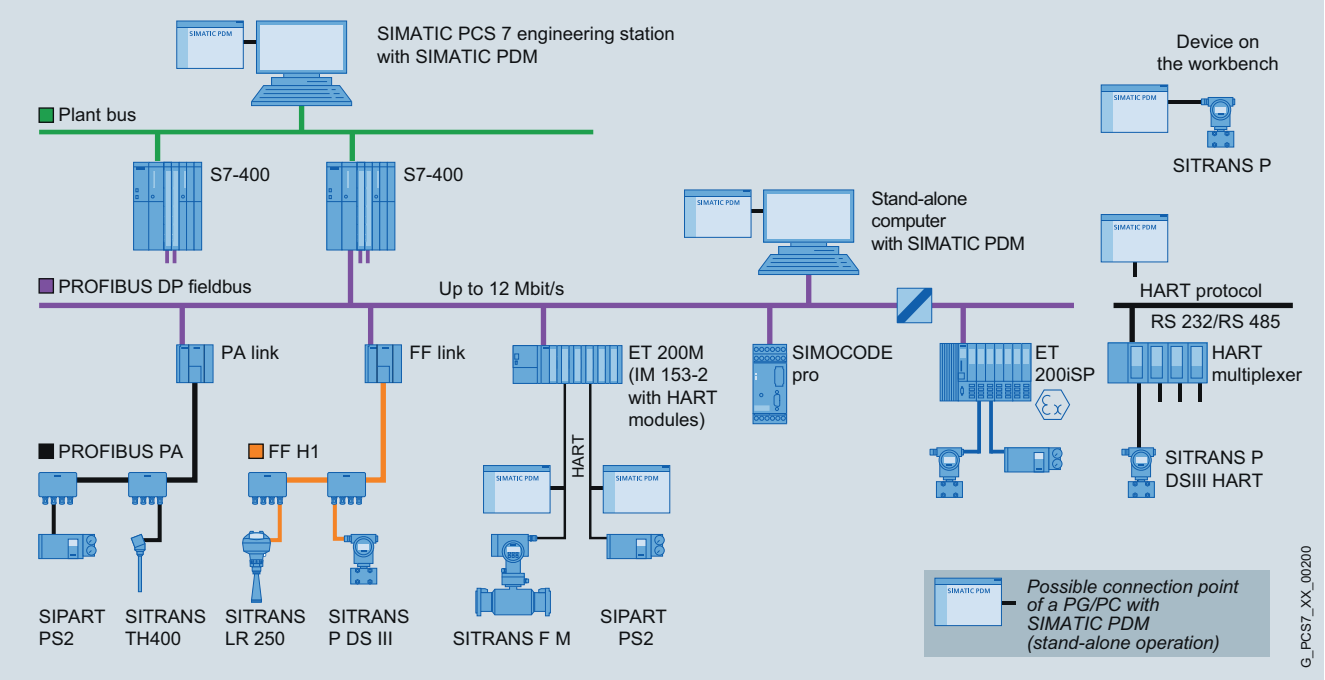
Overview



Configuration options with SIMATIC PDM

SIMATIC PDM (Process Device Manager) is a universal, vendor-independent tool for the configuration, parameter assignment, commissioning, diagnostics and servicing of intelligent field devices (sensors and actuators) and field components (remote I/Os, multiplexers, control-room devices, compact controllers), which in the following sections will be referred to simply as devices.

Using *one* software, SIMATIC PDM enables the processing of more than 2 500 devices from Siemens and over 200 vendors worldwide on *one* homogeneous user interface.

The user interface satisfies the requirements of the VDI/VDE GMA 2187 and IEC 65/349/CD directives. Parameters and functions for all supported devices are displayed in a consistent and uniform fashion independent of their communications interface. Even complex devices with several hundred parameters can be represented clearly and processed quickly. Using SIMATIC PDM it is very easy to navigate in highly complex stations such as remote I/Os and even connected field devices.

From the viewpoint of device integration, SIMATIC PDM is the most powerful open device manager available in the world. Devices which previously were not supported can be easily integrated in SIMATIC PDM at any time by importing their device descriptions (EDD). This provides security for your investment and saves you investment costs, training expenses and follow-up costs.

SIMATIC PDM supports the operative system management in particular through:

- Uniform presentation and operation of devices
- Uniform representation of diagnostics information
- Indicators for preventive maintenance and servicing
- Detection of changes in the project and device
- Increasing the operational reliability
- Reducing the investment, operating and maintenance costs
- Forwarding of device information to higher-level Maintenance Stations

When used in SIMATIC PCS 7, SIMATIC PDM is integrated in the asset management of the process control system. You can change directly to the SIMATIC PDM views from the diagnostics faceplates in the Maintenance Station.

The Process Device Manager provides more detailed information for all devices described by means of an Electronic Device Description (EDD), e.g.:

- Detailed diagnostics information (manufacturer information, information on error diagnostics and troubleshooting, further documentation)
- Results of internal condition monitoring functions
- Status information (e.g. local configuration changes)
- Information on changes (audit trail report)
- Parameter information

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Application

Components		Product packages										
		SIMATIC PDM stand-alone						SIMATIC PDM system-integrated				
		Minimum configuration		Basic configuration		Application-specific configurations						
		SIMATIC PDM Single Point		**SIMATIC PDM Basic**		**SIMATIC PDM Service**		**SIMATIC PDM S7**		**SIMATIC PDM PCS 7**		
		V6.1	V8.1	V6.1	V8.1	V6.1	V8.1	V6.1	V8.1	V6.1	V8.1	FF V8.1
SIMATIC PDM TAGs[1] in product package		1	1	4	4	128	100	128	100	128	100	100
SIMATIC PDM expansion options												
TAG options	- 128 TAGs - 512 TAGs - 1 024 TAGs - 2 048 TAGs	*cannot be expanded*		o	–	–	–	–	–	–	–	–
PowerPacks	- 128 to 512 TAGs - 512 to 1 024 TAGs - 1 024 to 2 048 TAGs - 2 048 to unlimited TAGs			o	–	o	–	o	–	o	–	–
Count Relevant Licenses (accumulative)	- 10 TAGs - 100 TAGs - 1 000 TAGs			–	o	–	o	–	o	–	o	o
SIMATIC PDM Basic				●	●	●	●	●	●	●	●	●
SIMATIC PDM Extended				–	o	–	o	–	●	–	●	●
SIMATIC PDM integration in STEP 7/PCS 7				o	o	o	o	●	●	●	●	●
SIMATIC PDM routing				o	o	o	o	o	o	●	●	●
SIMATIC PDM Communication FOUNDATION Fieldbus				–	o	–	o	–	o	–	o	●
SIMATIC PDM Communication via standard HART multiplexer				o	–	o	–	o	–	o	–	–

Table with SIMATIC PDM product structure

● Product component is part of the product package
o Optional product component for the product package; order additive
– Product component is not relevant for the product package or not available

1) For TAG definition, refer to sections "SIMATIC PDM TAGs for SIMATIC PDM V8.1" and "TAG options/PowerPacks for SIMATIC PDM V6.1"

8

Customer-oriented product structure

SIMATIC PDM can be implemented in different ways within the framework of Totally Integrated Automation (TIA) - as a stand-alone system or integrated in a SIMATIC PCS 7/SIMATIC S7 configuration environment.

The customer-oriented products structure of SIMATIC PDM helps you to adapt the scope of functions and performance to your individual requirements. You have the following options:

SIMATIC PDM stand-alone

- Product packages for operation on a mobile computer on PROFIBUS or with direct connection to the device, optionally as:
  - Minimal configuration SIMATIC PDM Single Point for processing of a single field device via point-to-point coupling
  - Application-specific configuration SIMATIC PDM Service for extended service tasks
- Product package SIMATIC PDM Basic as the basis for an individual SIMATIC PDM configuration with optional product components (see table)

SIMATIC PDM system-integrated

- Product packages for integration of SIMATIC PDM in the engineering system (engineering toolset) and Maintenance Station of the SIMATIC PCS 7 process control system:
  - SIMATIC PDM PCS 7
  - SIMATIC PDM PCS 7-FF (also supports the FOUNDATION Fieldbus H1)
- Product package SIMATIC PDM S7 for integration in a SIMATIC S7 configuration environment

In some circumstances, the various product packages can be expanded with optional product components (for details, see the Design section).

Selection criteria

The current range of solutions comprises products of SIMATIC PDM versions 6.1 and 8.1. In addition to considering the environment of use and the functional and performance features (for details, see section "Design"), also observe the different system requirements of these SIMATIC PDM versions when selecting the product (see section "Technical specifications").

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Design

Function and performance characteristics	SIMATIC PDM										
	Single Point		Basic		Service		S7		PCS 7		
	V6.1	V8.1	V6.1	V8.1	V6.1	V8.1	V6.1	V8.1	V6.1	V8.1	FF V8.1
TAGs contained	1	1	4	4	128	100	128	100	128	100	100
Project: Create online	●	–	●	●	●	●	●	●	●	●	●
Project: Create offline	–	●	●	●	●	●	●	●	●	●	●
Project: Usable TAG extensions	–	–	●	●	●	●	●	●	●	●	●
Project: Network view	–	●	●	●	●	●	●	–	●	–	–
Project: Plant view	–	●	●	●	●	●	●	●	●	●	●
Project: Export/import devices	–	–	●	●	●	●	●	–	●	–	–
Project: HW Config	–	–	o	o	o	o	●	●	●	●	●
Project: Utilization of SIMATIC PDM options	–	–	●	●	●	●	●	●	●	●	●
Project: Integration in STEP 7/PCS 7	–	–	o	o	o	o	●	●	●	●	●
Communication: HART modem	●	●	●	●	●	●	●	–	●	–	–
Communication: HART interface	●	●	●	●	●	●	●	–	●	–	–
Communication: PROFIBUS	●	●	●	●	●	●	●	●	●	●	●
Communication: FF H1	–	–	–	o	–	o	–	o	–	o	●
Communication: Modbus	●	–	●	–	●	–	●	–	●	–	–
Communication: SIPART DR	●	–	●	–	●	–	●	–	●	–	–
Communication: SIREC	●	–	●	–	●	–	●	–	●	–	–
Communication: Ethernet	–	–	●	–	●	–	●	–	●	–	–
Communication: PROFINET	–	–	–	–	–	–	–	●	–	●	●
Devices: Export/import parameters	●	–	●	o	●	●	●	●	●	●	●
Devices: Comparison of values (online/offline)	●	–	●	o	●	●	●	●	●	●	●
Devices: Comparison of values of two devices	–	–	●	o	●	●	●	●	●	●	●
Devices: Saving parameters	–	●	●	●	●	●	●	●	●	●	●
Devices: Logbook (Audit Trail)	–	–	o	o	●	●	●	●	●	●	●
Devices: Calibration report	–	–	o	o	●	●	●	●	●	●	●
LifeList: Export Scan	–	–	●	o	●	●	●	–	●	–	–
LifeList: Device diagnostics	–	–	o	o	●	●	●	●	●	●	●
LifeList: Define scan area	–	●	o	o	●	o	●	●	●	●	●
LifeList: Save scan	–	–	o	o	●	–	●	–	●	–	–
LifeList: Scan from HW Config	–	–	o	o	o	o	●	●	●	●	●
Communication: S7 routing	–	–	o	o	o	o	o	o	●	●	●
Communication: HART multiplexer	–	–	o	–	o	–	–	–	–	–	–
Function: HART SHC mode (increased communication speed)	–	●	●	●	●	●	●	●	●	●	●
Function: "HART-Long TAG"	–	●	–	●	–	●	–	●	–	●	●

Overview of functions and performance for SIMATIC PDM
● Product component is part of the product package
o Optional product component for the product package, can be purchased separately
– Product component is not relevant or not available for the product package

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SIMATIC PDM Process Device Manager

SIMATIC PDM V8.1 product range

SIMATIC PDM stand-alone

SIMATIC PDM Single Point V8.1

This minimum configuration with handheld functionality is designed for processing exactly *one* field device via point-to-point coupling. It cannot be expanded with functions or TAG options/PowerPacks. The device functions are supported as defined in the device description.

The following types of communication are possible:

- PROFIBUS DP/PA
- HART communication (modem, RS 232)

SIMATIC PDM Basic V8.1

Provided the system requirements are met, SIMATIC PDM Basic V8.1 can be used for stand-alone operation on any computers (IPC/notebook) with local connection to bus segments or direct connection to the device. The product package features all the basic functions required for operation and parameter assignment of the devices and is enabled for the following communication modes:

- PROFIBUS DP/PA
- HART communication (modem, RS 232 and via PROFIBUS)

As a basic block for individual configuration, SIMATIC PDM Basic V8.1 can be upgraded with all the functional options for SIMATIC PDM V8.1 as well as with cumulative 10, 100 or 1 000 SIMATIC PDM TAGs (quantity option as of SIMATIC PDM V7.0). Without TAG expansion, SIMATIC PDM Basic V8.1 is suitable for projects with up to 4 TAGs.

SIMATIC PDM Service V8.1

This product package based on SIMATIC PDM Basic V8.1 for projects with up to 100 TAGs is intended for mobile use in service.

Similar to SIMATIC PDM Basic V8.1, SIMATIC PDM Service V8.1 can be upgraded with all the functional options for SIMATIC PDM V8.1 as well as with cumulative 10, 100 or 1 000 SIMATIC PDM TAGs.

SIMATIC PDM system-integrated

SIMATIC PDM S7 V8.1

Similar to SIMATIC PDM S7 V6.1, SIMATIC PDM S7 V8.1 is also designed for use in a SIMATIC S7 configuration environment, but differs functionally (for details, see the table "Overview of functions and performance for SIMATIC PDM") and due to the number of TAGs it features (100 TAGs included). SIMATIC PDM S7 V8.1 is therefore not a functionally compatible successor to SIMATIC PDM S7 V6.1.

SIMATIC PDM S7 V8.1 requires the installation of STEP 7 V5.5+SP2 (for using PROFINET communication STEP 7 V5.5+SP3). When selecting a product, note that SIMATIC PDM S7 V8.1 is not backwards compatible, and multiple SIMATIC PDM versions cannot be operated simultaneously.

SIMATIC PDM S7 V8.1 can be expanded with the functional options "SIMATIC PDM Routing V8.1" and "SIMATIC PDM Communication FOUNDATION Fieldbus V8.1" and with cumulative sets of 10, 100 or 1 000 SIMATIC PDM TAGs.

SIMATIC PDM PCS 7 V8.1 and SIMATIC PDM PCS 7-FF V8.1

SIMATIC PDM PCS 7 V8.1 and SIMATIC PDM PCS 7-FF V8.1 focus on functions different from those of SIMATIC PDM PCS 7 V6.1 (for details, see the table "Overview of functions and performance for SIMATIC PDM"). They additionally support projects with "PROFINET" and "FOUNDATION Fieldbus" communication. FOUNDATION Fieldbus functionality is already integrated in SIMATIC PDM PCS 7-FF V8.1.

SIMATIC PDM PCS 7 V8.1 can be appropriately expanded if required using the option "SIMATIC PDM Communication FOUNDATION Fieldbus".

SIMATIC PDM PCS 7 V8.1 and SIMATIC PDM PCS 7-FF V8.1 are initially provided with 100 TAGs. This quantity can be further cumulatively expanded with sets of 10, 100 or 1 000 SIMATIC PDM TAGs (quantity option with SIMATIC PDM V7.0 or higher).

SIMATIC PDM PCS 7 V8.1 and SIMATIC PDM PCS 7-FF V8.1 are not functionally compatible successors to SIMATIC PDM PCS 7 V6.x, and are not downward-compatible. The two product packages require installation of SIMATIC PCS 7 as of V8.0 (V8.0+SP1 for the use of PROFINET communication).

When selecting a product, note that it is not possible to operate multiple SIMATIC PDM versions at the same time.

Optional product components for SIMATIC PDM V8.1

SIMATIC PDM Extended V8.1 option

The SIMATIC PDM V8.1 Extended option enables you to unlock other system functions of SIMATIC PDM V8.1 for use, for example:

- Change log
- Calibration report
- Extended information in the Lifelist
- Export and import functions
- Print functions
- Document manager
- Comparison function

SIMATIC PDM integration option in STEP 7/PCS 7 V8.1

This option is used for the integration of SIMATIC PDM V8.1 in a SIMATIC S7 or SIMATIC PCS 7 configuration environment. SIMATIC PDM V8.1 can then be started directly from the hardware configurator (HW Config) in STEP 7/SIMATIC PCS 7.

SIMATIC PDM Routing V8.1 option

If SIMATIC PDM V8.1 is used on a central engineering station, the SIMATIC PDM Routing V8.1 option enables handling of every device in the field that can be configured per EDD throughout the plant and across different bus systems and remote I/Os.

SIMATIC PDM Communication FOUNDATION Fieldbus V8.1 option

With this option, SIMATIC PDM can communicate in a SIMATIC S7/PCS 7 engineering environment with field devices on the FOUNDATION Fieldbus H1 via the FF link.

SIMATIC PDM TAGs for SIMATIC PDM V8.1

Depending on the project size, the TAGs supplied with a product can be cumulatively expanded with 10, 100 or 1 000 SIMATIC PDM TAGs. A TAG corresponds to a SIMATIC PDM object, which represents individual field devices or components within a project, e.g. measuring instruments, positioners, switching devices or remote I/Os. TAGs are also relevant for diagnostics with the lifelist of SIMATIC PDM. In this case, TAGs are considered to be all recognized devices with diagnostics capability, whose detailed diagnostics is effected through the device description (EDD).

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SIMATIC PDM V6.1 product range

SIMATIC PDM stand-alone

SIMATIC PDM Single Point V6.1

This minimum configuration with handheld functionality is designed for processing exactly *one* field device via point-to-point coupling. It cannot be expanded with functions or TAG options/PowerPacks. The device functions are supported as defined in the device description.

The following types of communication are possible:

- PROFIBUS DP/PA
- HART communication (modem, RS 232)
- Modbus

SIMATIC PDM Basic V6.1

Provided the system requirements are met, SIMATIC PDM Basic V6.1 can be used for stand-alone operation on any computer (IPC/notebook) with local connection to bus segments or direct connection to the device. The product package features all the basic functions required for operation and parameter assignment of the devices and is enabled for the following communication modes:

- PROFIBUS DP/PA
- HART communication (modem, RS 232 and via PROFIBUS)
- Modbus
- SIREC bus
- SIPART DR
- Ethernet

As basic module for individual configuration, SIMATIC PDM Basic V6.1 can be expanded with all optional product components, TAG options and PowerPacks for SIMATIC PDM V6.1. Without TAG expansion, SIMATIC PDM Basic V6.1 can manage projects with up to 4 TAGs. Use of the following functions requires at least 128 TAGs:

- Change log
- Calibration report
- Detailed diagnostics in the lifelist

SIMATIC PDM Service V6.1

This is a configured product package especially for mobile use in servicing for projects with up to 128 TAGs. It offers service rengineers all functions of SIMATIC PDM Basic V6.1 and special service functions such as change log, calibration report and detailed diagnostics in the lifelist.

SIMATIC PDM Service V6.1 can be expanded by the functional options "SIMATIC PDM Integration in STEP 7/PCS 7 V6.1", "SIMATIC PDM Routing V6.1" and "SIMATIC PDM Communication via Standard HART-Multiplexer V6.1" as well as by SIMATIC PDM PowerPacks.

SIMATIC PDM system-integrated

SIMATIC PDM S7 V6.1

SIMATIC PDM S7 V6.1 is a product package for projects with up to 128 TAGs and is configured for the use of SIMATIC PDM in a SIMATIC S7 configuration environment. In addition to SIMATIC PDM Service V6.1, it also offers functions for integration in the hardware configurator (HW Config) of STEP 7 (corresponds to the option "SIMATIC PDM Integration in STEP 7/PCS 7").

SIMATIC PDM S7 V6.1 can be expanded by the functional options "SIMATIC PDM Routing V6.1" and "Communication via Standard HART-Multiplexer V6.1" as well as by SIMATIC PDM PowerPacks.

SIMATIC PDM PCS 7 V6.1

The SIMATIC PDM PCS 7 V6.1 product package is designed for projects with up to 128 TAGs. It extends the functionality of SIMATIC PDM Service V6.1 with routing from the central engineering system to the devices in the field and integrates SIMATIC PDM in the SIMATIC PCS 7 configuration environment by means of HW Config.

SIMATIC PDM PCS 7 V6.1 can be expanded by the options "SIMATIC PDM Communication via Standard HART Multiplexer V6.1" and SIMATIC PDM PowerPacks.

Optional product components for SIMATIC PDM V6.1

SIMATIC PDM Integration option in STEP 7/PCS 7 V6.1

This option is used for the integration of SIMATIC PDM V6.1 in a SIMATIC S7 or SIMATIC PCS 7 configuration environment. SIMATIC PDM V6.1 can then be started directly from the hardware configurator (HW Config) in STEP 7/SIMATIC PCS 7.

SIMATIC PDM Routing V6.1 option

If you want to use SIMATIC PDM V6.1 in a central engineering system for plant-wide configuration, parameter assignment, commissioning and diagnostics of the devices in the field, you need the "SIMATIC PDM Routing V6.1" option in addition to the "SIMATIC PDM Integration in STEP 7/PCS 7 V6.1" option. From the central engineering system, you can then reach every device in the field that can be configured per EDD throughout the plant and across different bus systems and remote I/Os.

SIMATIC PDM Communication via Standard HART Multiplexer V6.1 option

This option permits SIMATIC PDM to use the HART server for communication with HART field devices via HART multiplexers.

TAG options/PowerPacks for SIMATIC PDM V6.1

A TAG corresponds to a SIMATIC PDM object, which represents individual field devices or components within a project, e.g. measuring instruments, positioners, switching devices or remote I/Os. TAGs are also relevant for diagnostics with the lifelist of SIMATIC PDM. In this case, TAGs are considered to be all recognized devices with diagnostics capability, whose detailed diagnostics is effected through the device description (EDD).

In contrast to PowerPacks, TAG options are only suitable for individual SIMATIC PDM product configurations on the basis of SIMATIC PDM Basic V6.1. Using the SIMATIC PDM TAG options for SIMATIC PDM V6.1, SIMATIC PDM Basic V6.1 can be expanded from 4 TAGs to 128, 512, 1 024 or 2 048 TAGs, and with the help of an additive PowerPack for SIMATIC PDM V6.1 even to unlimited TAGs.

With the PowerPacks for SIMATIC PDM V6.1, product packages based on SIMATIC PDM V6.1 can be provided with additional TAGs. PowerPacks are available for TAG expansion to 512, 1 024, 2 048 and unlimited TAGs.

Demonstration software

SIMATIC PDM V6.1 and SIMATIC PDM V8.1 are also available with demo software for demonstration purposes. Storage functions, export/import and extended functionality cannot be used with the demo software. The communication functions are restricted.

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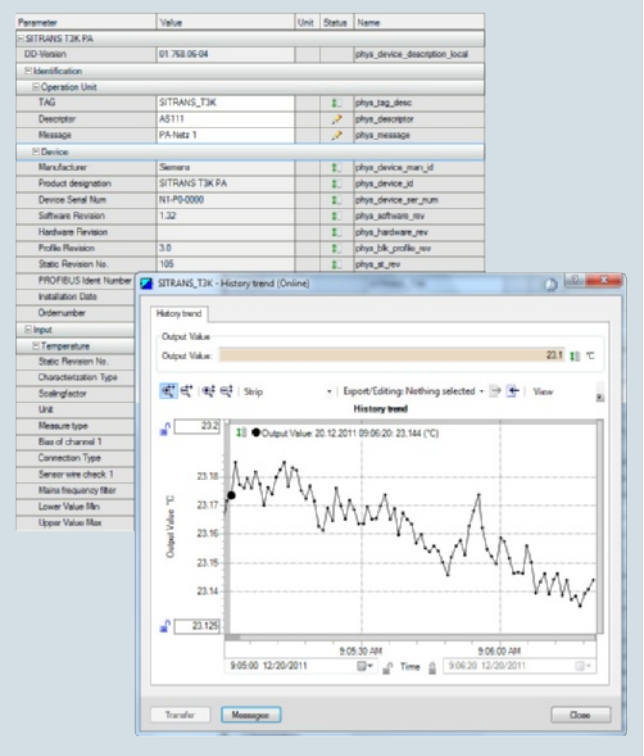
SIMATIC PDM Process Device Manager

Function



SIMATIC PDM, parameter view and trend window

Core functions

- Adjustment and modification of device parameters
- Comparing (e.g. project and device data)
- Plausibility testing of data input
- Device identification and testing
- Device status indication (operating modes, interrupts, states)
- Simulation
- Diagnostics (standard, detailed)
- Export/import (parameter data, logs, documents)
- Management (e.g. networks and PCs)
- Commissioning functions, e.g. measuring circuit tests of device data
- Device management (lifecycle management)
- Global and device-specific modification logbook for user operations (audit trail)
- Device-specific calibration reports
- Graphic presentations of echo envelope curves, trend displays, valve diagnosis results etc.
- Presentation of incorporated manuals
- Document manager for integration of up to 10 multimedia files

Integration

Device integration

SIMATIC PDM supports all devices described by EDD (Electronic Device Description). EDD is standardized to EN 50391 and IEC 61804. Internationally it is the most widely used standardized technology for device integration. At the same time, it is the guideline of the established organizations for

- PROFIBUS and PROFINET (PI – PROFIBUS & PROFINET International)
- HART (HCF: HART Communication Foundation)
- FF (Fieldbus Foundation)

The devices are integrated directly in SIMATIC PDM through a company-specific EDD or the current HCF or Fieldbus Foundation libraries. To achieve improved transparency, they can be managed in project-specific device libraries.

Field devices are described in the EDD in terms of functionality and construction using the Electronic Device Description Language (EDDL). Using this description, SIMATIC PDM automatically creates its user interface with the specific device data. Existing devices can be updated, and further devices integrated into SIMATIC PDM, by simply importing the manufacturer's device-specific EDD.

Fieldbus Foundation provides pre-defined device descriptions (standard DD) for the basic functions of specific field device types. The basic functions are implemented using various standard function and transmission blocks.

Technical support

If you wish to use devices which cannot be found in the SIMATIC PDM device description library, we would be pleased to help you integrate them.

Support Request

You can request support by service specialists at Technical Support by using a "Support Request" on the Internet:

www.siemens.com/automation/support-request

Contacts in the Region

The Technical Support responsible for your Region can be found on the Internet at:

www.automation.siemens.com/partner

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Technical specifications

	SIMATIC PDM V6.1	SIMATIC PDM V8.1
Hardware	• PG/PC/notebook with processor corresponding to operating system requirements	• PG/PC/notebook with processor corresponding to operating system requirements
Operating systems (alternative)	• Microsoft Windows XP Professional SP3, 32-bit • Microsoft Windows Server 2003 R2 SP2, 32-bit, Standard Edition	• Windows XP Professional SP3 (32-bit) • Windows Server 2003 SP2 Standard Edition (32-bit) • Windows Server 2003 R2 SP2 Standard Edition (32-bit) • Windows 7 Professional/Ultimate/Enterprise SP1 (32-bit/64-bit) • Windows Server 2008 SP2 Standard Edition (32-bit) • Windows Server 2008 R2 SP1 Standard Edition (64-bit)
Integration in STEP 7/PCS 7	• STEP 7 V5.3+SP2 • STEP 7 V5.4+SP5 • STEP 7 V5.5 or V5.5+SP1/SP2/SP3 • SIMATIC PCS 7 V6.1+SP4 • SIMATIC PCS 7 V7.1 or V7.1+SP1/SP2/SP3 • SIMATIC PCS 7 V8.0 or V8.0+SP1	• SIMATIC PCS 7 V8.0+SP1 (SIMATIC PCS 7 V8.0 without PROFINET communication) • STEP 7 V5.5+SP3 (STEP 7 V5.5+SP2 without PROFINET communication)

Ordering data

SIMATIC PDM V8.1

SIMATIC PDM stand-alone product packages

Minimum configuration

SIMATIC PDM Single Point V8.1
for operation and configuration of one field device; communication via PROFIBUS DP/PA or HART (modem, RS 232), including 1 TAG

cannot be expanded with respect to functions or with TAG option/PowerPack

6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user

	Article No.
• Delivery form package SIMATIC PDM software and device library on DVD, license key on USB stick, certificate of license	**6ES7658-3HA18-0YA5**
• Delivery form online Software image download (SIMATIC PDM and device library), license key download, online certificate of license Note: E-mail address required!	**6ES7658-3HA18-0YH5**

Basic configuration for individual product packages

SIMATIC PDM Basic V8.1
Product package for operation and configuration of field devices and components, communication via PROFIBUS DP/PA or HART (modem, RS 232, PROFIBUS), including 4 TAGs

6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user

	Article No.
• Delivery form package SIMATIC PDM software and device library on DVD, license key on USB stick, certificate of license	**6ES7658-3AB18-0YA5**
• Delivery form online Software image download (SIMATIC PDM and device library), license key download, online certificate of license Note: E-mail address required!	**6ES7658-3AB18-0YH5**

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SIMATIC PDM Process Device Manager

Application-specific configuration for mobile service	
SIMATIC PDM Service V8.1 Product package for stand-alone user in service, with • SIMATIC PDM Basic • 100 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user	
• Delivery form package SIMATIC PDM software and device library on DVD, license key on USB stick, certificate of license	**6ES7658-3JD18-0YA5**
• Delivery form online Software image download (SIMATIC PDM and device library), license key download, online certificate of license Note: E-mail address required!	**6ES7658-3JD18-0YH5**
Application-specific configuration for integration in SIMATIC S7 configuration environment	
SIMATIC PDM S7 V8.1 Product package for use in a SIMATIC S7 engineering environment, with - SIMATIC PDM Basic and Extended - Integration in STEP 7/PCS 7 - 100 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user Note: SIMATIC PDM S7 V8.1 requires the installation of STEP 7 V5.5+SP2/SP3! PROFINET communication is supported as of STEP 7 V5.5+SP3.	
• Delivery form package SIMATIC PDM software and device library on DVD, license key on USB stick, certificate of license	**6ES7658-3KD18-0YA5**
• Delivery form online Software image download (SIMATIC PDM and device library), license key download, online certificate of license Note: E-mail address required!	**6ES7658-3KD18-0YH5**

Application-specific configuration for integration in SIMATIC PCS 7 configuration environment	
SIMATIC PDM PCS 7 V8.1 Complete package for integration into the engineering toolset of the SIMATIC PCS 7 engineering system 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit or Windows Server 2008 R2 Standard 64-bit, Floating license for 1 user, with - SIMATIC PDM Basic and Extended - Integration in STEP 7/PCS 7 - Routing - 100 TAGs Note: SIMATIC PDM PCS 7 V8.1 requires the installation of SIMATIC PCS 7 V8.0 or higher! PROFINET communication is supported as of SIMATIC PCS 7 V8.0+SP1.	
• Delivery form package (without SIMATIC PCS 7 Software Media Package) SIMATIC PDM software and device library on DVD, license key USB stick, certificate of license	**6ES7658-3LD18-0YA5**
• Delivery form online (without SIMATIC PCS 7 Software Media Package) Software image download (SIMATIC PDM and device library), license key download, online certificate of license Note: E-mail address required!	**6ES7658-3LD18-0YH5**

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SIMATIC PDM PCS 7-FF V8.1 Complete package for integration into the engineering toolset of the SIMATIC PCS 7 engineering system 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit or Windows Server 2008 R2 Standard 64-bit, Floating license for 1 user, with • SIMATIC PDM Basic and Extended • Integration in STEP 7/PCS 7 • Routing • Communication FOUNDATION Fieldbus • 100 TAGs Note: SIMATIC PDM PCS 7-FF V8.1 requires the installation of SIMATIC PCS 7 V8.0 or higher! PROFINET communication is supported as of SIMATIC PCS 7 V8.0+SP1.	
• Delivery form package (without SIMATIC PCS 7 Software Media Package) SIMATIC PDM software and device library on DVD, license key USB stick, certificate of license	**6ES7658-3MD18-0YA5**
• Delivery form online (without SIMATIC PCS 7 Software Media Package) Software image download (SIMATIC PDM and device library), license key download, online certificate of license Note: E-mail address required!	**6ES7658-3MD18-0YH5**
Optional product components for SIMATIC PDM V8.1	
SIMATIC PDM Extended V8.1 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user	
• Delivery form package License key on USB stick, certificate of license	**6ES7658-3NX18-2YB5**
• Delivery form online License key download, online certificate of license Note: E-mail address required!	**6ES7658-3NX18-2YH5**
SIMATIC PDM Integration in STEP 7/SIMATIC PCS 7 V8.1 only required for integration of SIMATIC PDM into HW Config 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user	
• Delivery form package License key on USB stick, certificate of license	**6ES7658-3BX18-2YB5**
• Delivery form online License key download, online certificate of license Note: E-mail address required!	**6ES7658-3BX18-2YH5**
SIMATIC PDM Routing V8.1 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user	
• Delivery form package License key on USB stick, certificate of license	**6ES7658-3CX18-2YB5**
• Delivery form online License key download, online certificate of license Note: E-mail address required!	**6ES7658-3CX18-2YH5**
SIMATIC PDM Communication FOUNDATION Fieldbus V8.1 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit, or Windows Server 2008 R2 Standard 64-bit, floating license for 1 user	
• Delivery form package (without SIMATIC PCS 7 Software Media Package) License key USB stick, certificate of license	**6ES7658-3QX18-2YB5**
• Delivery form online (without SIMATIC PCS 7 Software Media Package) License key download, online certificate of license Note: E-mail address required!	**6ES7658-3QX18-2YH5**

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SIMATIC PDM Process Device Manager

SIMATIC PDM TAGs for SIMATIC PDM V8.1	
SIMATIC PDM TAGs TAG licenses for expanding SIMATIC PDM product packages V7.0 or higher, can be accumulated, software class A, floating license for 1 user	
• Delivery form package License key on USB stick, certificate of license	
- 10 TAGs	**6ES7658-3XC00-2YB5**
- 100 TAGs	**6ES7658-3XD00-2YB5**
- 1 000 TAGs	**6ES7658-3XE00-2YB5**
• Delivery form online License key download, online certificate of license Note: E-mail address required!	
- 10 TAGs	**6ES7658-3XC00-2YH5**
- 100 TAGs	**6ES7658-3XD00-2YH5**
- 1 000 TAGs	**6ES7658-3XE00-2YH5**

Demonstration software	
SIMATIC PDM Demo V8.1 Storage functions, export/import and advanced functionality disabled; communication functions restricted 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional 32-bit, Windows 7 Ultimate 32/64-bit, Windows Server 2003 R2 Standard 32-bit or Windows Server 2008 R2 Standard 64-bit Delivery form package SIMATIC PDM software and device library on DVD	**6ES7658-3GX18-0YT8**

SIMATIC PDM V6.1

SIMATIC PDM stand-alone product packages	
Minimum configuration	
SIMATIC PDM Single Point V6.1 for operation and configuration of one field device; communication via PROFIBUS DP/PA, HART modem or Modbus, including 1 TAG cannot be expanded with respect to functions or with TAG option/PowerPack 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/ Server 2003, floating license for 1 user Delivery form package SIMATIC PDM software and device library on CD/DVD, license key on USB stick, certificate of license	**6ES7658-3HX16-0YA5**
Basic configuration for individual product packages	
SIMATIC PDM Basic V6.1 Product package for operator input and configuration of field devices and components, communication via PROFIBUS DP/PA, HART (modem, RS 232, PROFIBUS), SIREC bus, SIPART DR, Modbus or Ethernet, including 4 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/ Server 2003, floating license for 1 user Delivery form package SIMATIC PDM software and device library on CD/DVD, license key on USB stick, certificate of license	**6ES7658-3AX16-0YA5**

Application-specific configuration for mobile service	
SIMATIC PDM Service V6.1 Product package for stand-alone user in service, with • SIMATIC PDM Basic V6.1 • 128 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/ Server 2003, floating license for 1 user Delivery form package SIMATIC PDM software and device library on CD/DVD, license key on USB stick, certificate of license	**6ES7658-3JX16-0YA5**
SIMATIC PDM system-integrated product packages	
Application-specific configuration for integration in SIMATIC S7 configuration environment	
SIMATIC PDM S7 V6.1 Product package for use in a SIMATIC S7 configuration environment, with • SIMATIC PDM Basic V6.1 • Integration in STEP 7/PCS 7 • 128 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/ Server 2003, floating license for 1 user Delivery form package SIMATIC PDM software and device library on CD/DVD, license key on USB stick, certificate of license	**6ES7658-3KX16-0YA5**

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Application-specific configuration for integration in SIMATIC PCS 7 configuration environment	
SIMATIC PDM PCS 7 V6.1 Complete package for integration into the engineering toolset of the SIMATIC PCS 7 engineering system 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/Server 2003 Floating license for 1 user, with • SIMATIC PDM Basic • Integration in STEP 7/PCS 7 • Routing • 128 TAGs Delivery form package (without SIMATIC PCS 7 Software Media Package): SIMATIC PDM software and device library on CD/DVD, license key on USB stick, certificate of license	**6ES7658-3LX16-0YA5**
Optional product components for SIMATIC PDM V6.1	
SIMATIC PDM integration in STEP 7/SIMATIC PCS 7 V6.1 only required for integration of SIMATIC PDM into HW Config 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/Server 2003, floating license for 1 user Delivery form package License key on USB stick, certificate of license	**6ES7658-3BX16-2YB5**
SIMATIC PDM Routing V6.1 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/Server 2003, floating license for 1 user Delivery form package License key on USB stick, certificate of license	**6ES7658-3CX16-2YB5**
SIMATIC PDM Communication via standard HART multiplexer V6.1 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/Server 2003, floating license for 1 user Delivery form package License key on USB stick, certificate of license	**6ES7658-3EX16-2YB5**
TAG options/PowerPacks for SIMATIC PDM V6.1	
SIMATIC PDM TAG option for TAG expansion, additive to SIMATIC PDM Basic V6.1 Software class A, runs with Windows XP Professional/Server 2003, floating license for 1 user Delivery form package License key on USB stick, certificate of license	
• Up to 128 TAGs	**6ES7658-3XA16-2YB5**
• Up to 512 TAGs	**6ES7658-3XB16-2YB5**
• Up to 1 024TAGs	**6ES7658-3XC16-2YB5**
• Up to 2 048 TAGs	**6ES7658-3XD16-2YB5**
SIMATIC PDM PowerPack for TAG expansion, for any SIMATIC PDM V6.1 product packages Software class A, runs with Windows XP Professional/Server 2003, floating license for 1 user Delivery form package License key on USB stick, certificate of license	
• 128 TAGs to 512 TAGs	**6ES7658-3XB16-2YD5**
• 512 TAGs to 1 024 TAGs	**6ES7658-3XC16-2YD5**
• 1 024 TAGs to 2 048 TAGs	**6ES7658-3XD16-2YD5**
• 2 048 TAGs to unlimited TAGs	**6ES7658-3XH16-2YD5**
Demonstration software	
SIMATIC PDM Demo V6.1 Without online communication and storage functionality 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows XP Professional/Server 2003 Delivery form package (without SIMATIC PCS 7 Software Media Package) SIMATIC PDM software and device library on CD/DVD	**6ES7658-3GX16-0YC8**

More information

Update/Upgrade

Product packages and optional product components from the product range of SIMATIC PDM V6.0, V6.1 or V8.0 can be directly upgraded to V8.1 (exception: SIMATIC PDM Single Point and SIMATIC PDM Communication via standard HART multiplexer).

Product packages and optional product components from the product range of SIMATIC PDM V7.0 can first be upgraded to V8.0 and then to V8.1.

When upgrading to SIMATIC PDM V8.1, be aware of the compatible versions of SIMATIC PCS 7 and STEP 7.

A Software Update Service in the form of a subscription is also offered for SIMATIC PDM.

For further information, see catalog ST PCS 7.

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SITRANS DTM

Overview

SITRANS DTM provides an easy way for Field Device Tool (FDT)/ Device Type Manager (DTM) users to parameterize Siemens Instruments using international standards.

Benefits

- Same look and feel for all Siemens field instruments
- Support for Quick start wizards and other dialog boxes
- Quick overview using table and tree views
- Online and offline configuration
- Conformity to IEC profiles for HART and Profibus

Application

Electronic Device Description (EDD) is a proven way to describe the behavior and functionality of field instruments and other automation components.

For many years, EDD-based tools such as SIMATIC PDM from Siemens or handheld communicator have been used successfully in the process industry. Some years ago, an additional technology called FDT / DTM with the same approach was introduced to the market. To support the FDT DTM Technology for Siemens devices, the software SITRANS DTM has been developed which combines both EDD and FDT technologies.

SITRANS DTM uses EDDs as the device description and provides the DTM interface to allow the integration of our field instruments into FDT-frame applications.

The following field instruments are currently available in SITRANS DTM:

- SITRANS TH300 HART
- SITRANS TH400 PA
- SITRANS P300 HART
- SITRANS P DSIII HART
- SITRANS P F M MAGFLO MAG6000 DP/PA
- SITRANS F C MASSFLO MASS6000 PA/PA
- SITRANS PROBE LU HART 6 m, 12 m
- SITRANS LR200 HART, PA
- SITRANS LR250 HART, PA
- SITRANS LR260 HART, PA
- SITRANS LR560 HART, PA
- SIPART PS2 HART, PA

Additionally, the SIPART PS2 FF has a DTM.

Technical specifications

SITRANS DTM	
Version	
Current Version	3.1
• Compatible with PACTware versions	3.6, 4.0, 4.1
• Compatible with Windows	XP, 7
• Certified by FDT group	Yes

Free DTM software can be downloaded from:
http://www.siemens.com/sitransdtm

Click on Support in the collateral list on the right side of the web page, and choose Software downloads.

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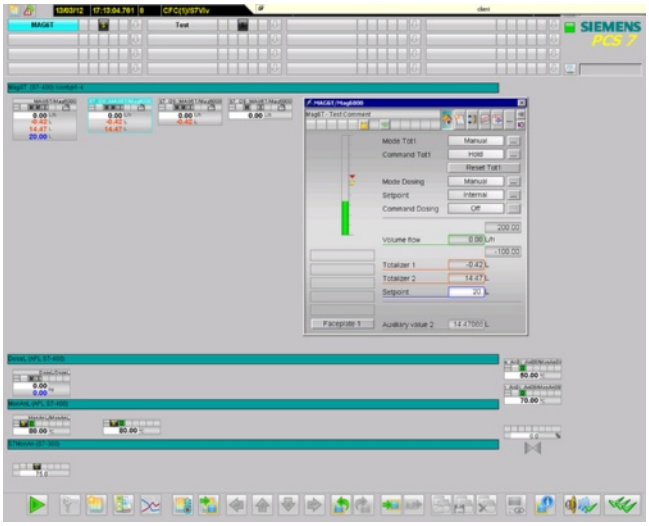
Overview



The SITRANS Library V1.0 for SIMATIC PCS 7 V8.0 extends standard functionality of the SIMATIC PCS 7 V8.0 process control system concentrated in the SIMATIC PCS 7 Advanced Process Library (APL) with technological blocks and faceplates for device-specific functions of the SITRANS field devices.

Benefits

This allows you to easily operate all device functions, such as the dosing of the SITRANS FM MAG6000, in a single faceplate. In addition, it also supports operation and monitoring via Touch Panels as well as the integration in SIMATIC S7 applications. The SITRANS Library is based on the modern design of the Advanced Process Library (APL). Together with the APL, the SITRANS Library enables you to create harmonic solutions with a consistent look & feel and optimum use of the functions of the SITRANS field devices in many industries.

It helps accelerate the engineering process, reduces the time-to-market, and simplifies process control. In addition, operator functions (such as "Dosing") and process-related diagnostic information (such as empty pipe detection and flow direction) are provided.

Note:
SITRANS Library V1.0 can only be used in combination with SIMATIC PCS 7 V8.0.

Application

The total solution described can be used in the following sectors of the process industry:

- Chemical industry
- Pharmaceutical industry
- Water and wastewater
- Glass and solar
- Oil & gas
- Food and beverage industry
- Minerals and mining

Design

The product structure, however, is geared toward the operational environment in the SIMATIC PCS 7 process control system. Consequently, SITRANS Library V8.0 is offered in the form of an engineering component:

- SITRANS Library V1.0
  Engineering software with engineering license for one customer plant
- SITRANS Library V1.0
  Runtime license for one automation system (SIMATIC PCS 7 automation systems of all designs and S7-300 controllers)

The SITRANS Library V1.0 product component enables you to perform configuration work on a SIMATIC PCS 7 engineering station.

The SITRANS Library product component allows you to run blocks from a library on an automation system.

When using function blocks from SITRANS Library V1.0 in SIMATIC PCS 7 automation systems, note that SIMATIC PCS 7 AS Runtime POs are also booked.

Function

SITRANS Library for SIMATIC PCS 7

Sublibrary for the functional expansion of the SIMATIC PCS 7 Advanced Process Library with:

- Function blocks and faceplates for the SITRANS F M MAG6000 DP with dosing function for SIMATIC S7-400, SIMATIC S7-300 and panel interface blocks
- Function blocks and faceplates for the SITRANS LUT 400 for SIMATIC S7-400 and SIMATIC S7-300

The function blocks are configured in CFC.

Control and monitoring from a panel is configured with the panel interface blocks for the SITRANS F M MAG6000 DP. Taking operating rights and hierarchical operating concepts (multi-control room operation) into consideration, the technological function can then be operated from both an operator station and a Touch Panel.

Selection and Ordering Data

	Article No.
SITRANS Library	
Block library for SIMATIC PCS 7 V8.0 and SIMATIC S7 with function blocks and face plates as well as electronic documentation Engineering software, software class A, two languages (English, German), runs under opreation system Windows XP Professional 32 Bit, Windows 7 Ultimate 32/64 Bit, Windows Server 2003 R2 Standard 32 Bit or Windows Server 2008 R2 Standard 64 Bit, single license for 1 installation	
• Engineering license for one customer plant. Delivery form: can be downloaded, with certificate of license	**7MP2990-0AA00**

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Notes