SIEMENS

SIMATIC PCS 7

SIMATIC PDM

Process Device Manager

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SIMATIC PDM Process Device Manager

Overview

SIMATIC PDM (Process Device Manager) is a universal, vendor-neutral tool for configuration, parameter assignment, commissioning, diagnostics and service of intelligent field devices, ranging from process instrumentation and process analysis devices as well as remote I/Os, HART multiplexers, motor protection devices, control devices, etc.

Using only one software package, SIMATIC PDM enables the management of more than 3 700 devices and device variants from Siemens and over 200 manufacturers worldwide with a uniform user interface. Device parameters and functions are displayed uniformly for all supported devices and independent of how they communicate with SIMATIC PDM.

SIMATIC PDM supports the following types of communication in principle:

- PROFIBUS DP/PA
- PROFINET
- HART (modem, RS232 and via PROFIBUS/PROFINET/Wireless)
- Modbus
- Ethernet
- FOUNDATION Fieldbus (FF H1)

The type of communication ultimately used depends on the communication options of the device and how SIMATIC PDM is used.

With respect to device integration, SIMATIC PDM is the highest performing open process device manager on the global market. Devices not yet supported up to now can be integrated in SIMATIC PDM by importing their device descriptions (EDD). This provides certainty and saves investment, training and secondary costs.
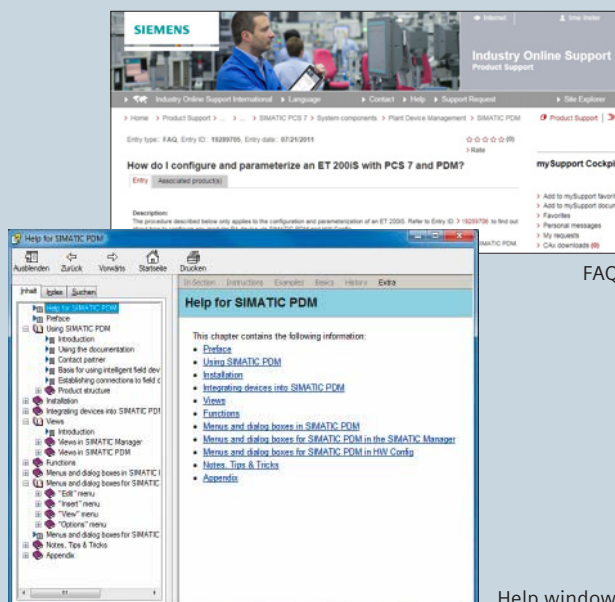
Functions

The universal, vendor-neutral SIMATIC PDM extends device-specific parameter assignment, display and diagnostic functions with a variety of project and life cycle management functions, which are open to all field devices, for example:

- Parameter comparison between product data and device data or between various field devices
- Diagnostics
- Simulation of process values or diagnostics
- Export and import of parameter data, logs and project-specific documents
- Test and identity check of field devices
- Support for commissioning, e.g. with identifiers for work progress
- Device management during field device replacement or update of device description packages
- Logging of project or parameter changes in the change log (Audit Trail)
- Documentation of calibration operations with calibration reports
- Integration of up to 10 multimedia files per field device (document manager)
- Marking of field devices in protective equipment or with special relevance
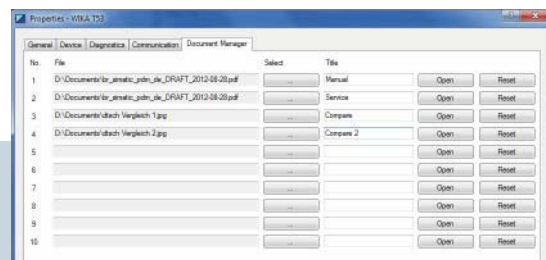- Management of device description packages (EDD/DD, FDI)

SIMATIC PDM enables improvements in operational reliability and significant reductions in investment, operating and maintenance costs for field devices, for example, based on:

- User administration for controlling the rights of service personnel
- Uniform representation and handling of field devices
- Uniform representation of diagnostic information and indicators for maintenance and service status
- Recognition and homogeneous representation of differences between project data and device parameters
- Uniform detection and representation of field device parameter changes
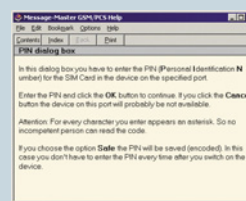- Identical export format for parameter, status and diagnostic data

Document Manager

FAQ

Online help

Help window

Manual

Possible applications

Single point station, local service and parameter assignment station

The product structure and functionality of SIMATIC PDM undergo continuous further development based on user requirements. The main focus here is on consistent support and optimization of especially relevant applications. These range from single point stations for managing individual devices and service and parameter assignment stations in medium and large-sized automation projects to the integrated parameter assignment/service tool in an engineering station or maintenance station of the SIMATIC PCS 7 Process Control System.

With flexibly combinable and scalable functionalities, the scope of functions and performance of SIMATIC PDM can be optimally tuned to these main applications. Multiple SIMATIC PDM stations in different variants and versions can also be used in automation projects.

Single point station

Installed on a mobile computer, SIMATIC PDM in the form of a single point station can be used to manage a single field device. The service technician can connect the single point station directly to the field device or locally to the bus segment (see figure at top of page 5).

Local service and parameter assignment station

When operated as a local service and parameter assignment station on a mobile computer connected to a local fieldbus segment, SIMATIC PDM is suitable for managing multiple field devices that are connected to this fieldbus segment directly or via subsystems. HART field devices connected to subsystems are also supported. Subsystems can be remote I/Os, HART multiplexers or fieldbus segments integrated via a coupler/link (see figure at bottom of page 5).

Scaling of local service and parameter assignment stations

By scaling and combining various possible applications of SIMATIC PDM, a variety of application scenarios can be covered during the installation, commissioning, plant operation and maintenance phases. With multiple local service and parameter assignment stations, several service technicians can work in parallel on field devices in different parts of a production plant. This division of work leaves the engineering station free for other engineering tasks. The service technician requires no special project knowledge and can instead focus on the his work with the field devices. The required project information on the local service and parameter assignment stations can be easily created on the engineering station and transferred to the mobile computer. Because the service technician has no access to the automation project, unintentional changes to the configuration are prevented.

The number of local service and parameter assignment stations can be flexibly adapted to the task. To guarantee an optimal workflow in the commissioning phase or for maintenance work during scheduled plant shutdowns, the number can be temporarily increased as necessary.

Advantages of local service and parameter assignment stations

- The number of local service and parameter assignment stations is not limited and can be changed as necessary.
- Hardware structures and field devices needed for the work task can be easily transferred to the local service and parameter assignment station.
- The central project database can be updated using bulk operations after work is finished.
- Local service and parameter assignment stations set a parameter change flag in the field devices, which the maintenance station can detect and use for synchronization of the project data.
- Because SIMATIC PDM is completely independent of the automation system, its latest version can always be used.

Possible connections of a single point station

Possible connections for a local service and parameter assignment station

Central service and parameter assignment stations
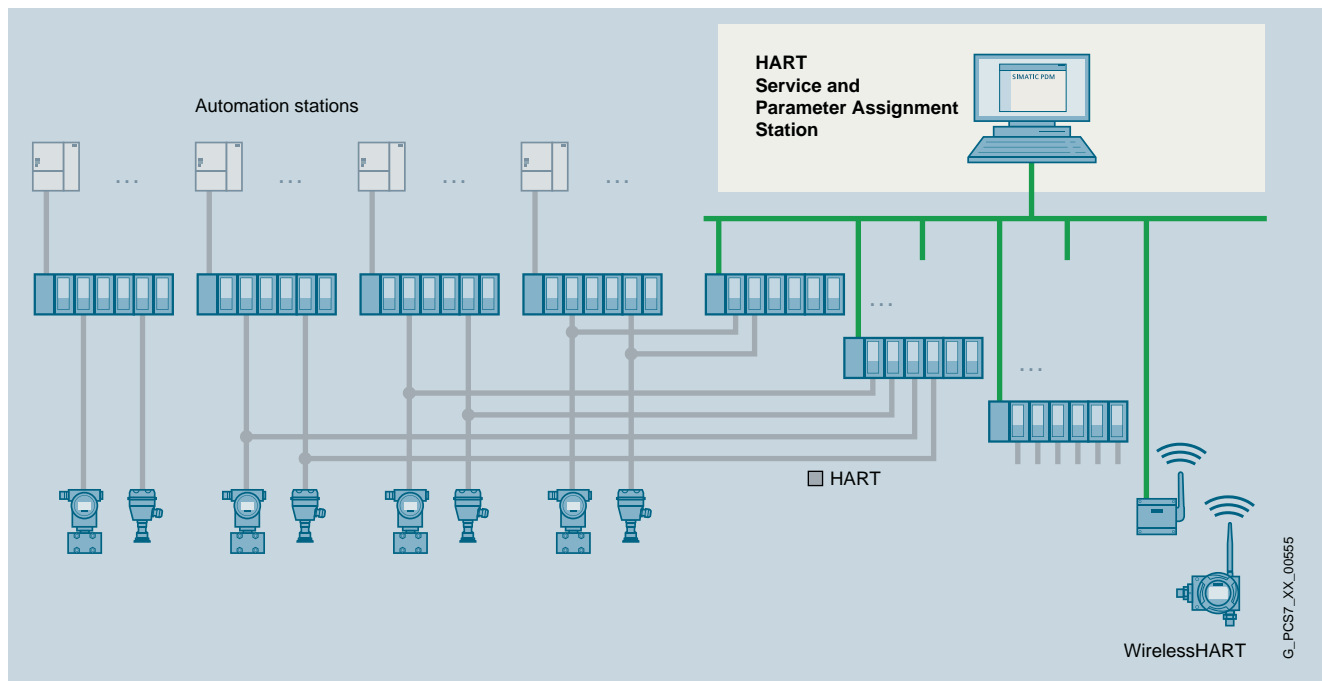
Central service and parameter assignment station

Most field devices of a plant can be managed with central service and parameter assignment stations based on mobile or stationary computers connected to the plant bus. The field devices are connected either directly or via subsystems to fieldbus segments of a SIMATIC automation system of the plant. HART field devices connected to subsystems are also supported. Subsystems can be remote I/Os, HART multiplexers or fieldbus segments integrated via a coupler/link.

Central service and parameter assignment stations can be used as single station systems (see figure at top of page 7) or client-server systems (see figure at bottom of page 7). They can be used multiple times within an automation project, for example as service and parameter assignment stations for various plant units. When used as a client-server system, a central service and parameter assignment station can have up to 30 registered clients depending on the project size. The function rights for device management that are appropriate for the role of the client operating staff can be assigned.
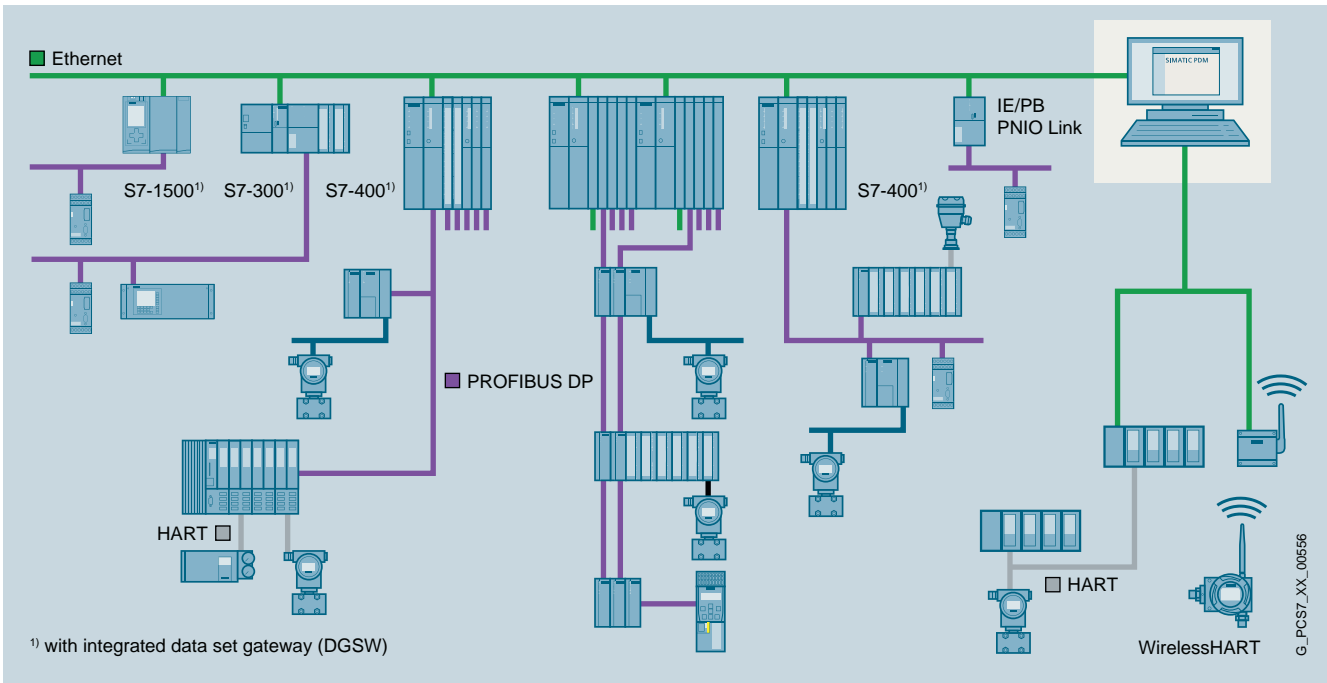
For client-server operation, the SIMATIC Logon Service product is also required.
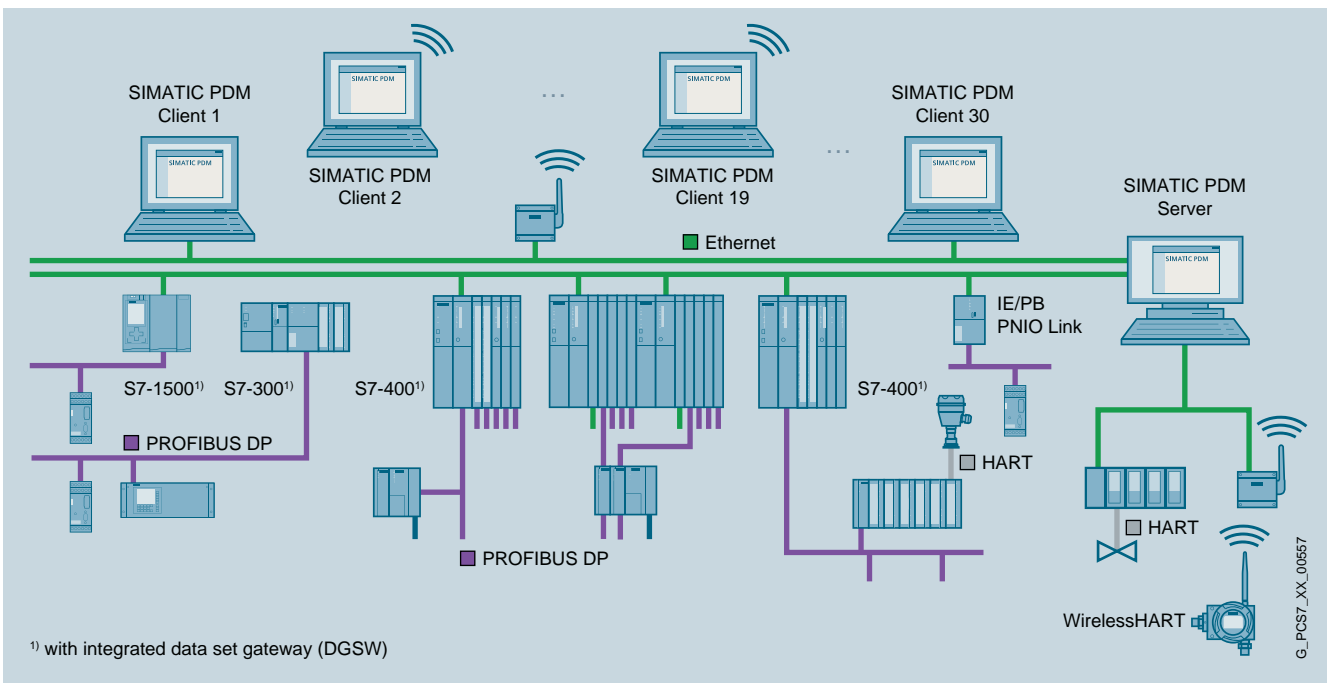
HART service and parameter assignment station

The HART service and parameter assignment station (see figure below) is a variant of the central service and parameter assignment station that establishes a communication network with the help of the HART server of the FCG (Field Communication Group, formerly Hart Communication Foundation). It thus enables management of field devices that are connected to HART multiplexers or that communicate via a "Wireless HART Gateway". Through a combination of the central service and parameter assignment station and the HART service and parameter assignment station, the communication options of both station variants can be joined together.

HART service and parameter assignment station

Central service and parameter assignment station as single station system

Central service and parameter assignment station as client-server system

SIMATIC PDM Integrated in SIMATIC PCS 7

SIMATIC PDM can be integrated in both the engineering system and maintenance station of the SIMATIC PCS 7 Process Control System. Embedded in SIMATIC PCS 7, SIMATIC PDM supports synchronization of the project database and takes over important tasks for engineering and maintenance:

- Device configuration via the engineering station
- Provision of identity data, parameter assignment data and diagnostic information at the request of the maintenance station
- Parameter export, controlled by the maintenance station
- Provision of information about device usage (important process tag or use in a safety-related application) and status (project-specific write protection, test finished) for functions in the maintenance station
- Synchronization of the project database with the parameter data of the field devices when the maintenance station detects a difference with the help of SIMATIC PDM

Field device parameter assignment tool in the SIMATIC PCS 7 Engineering Station
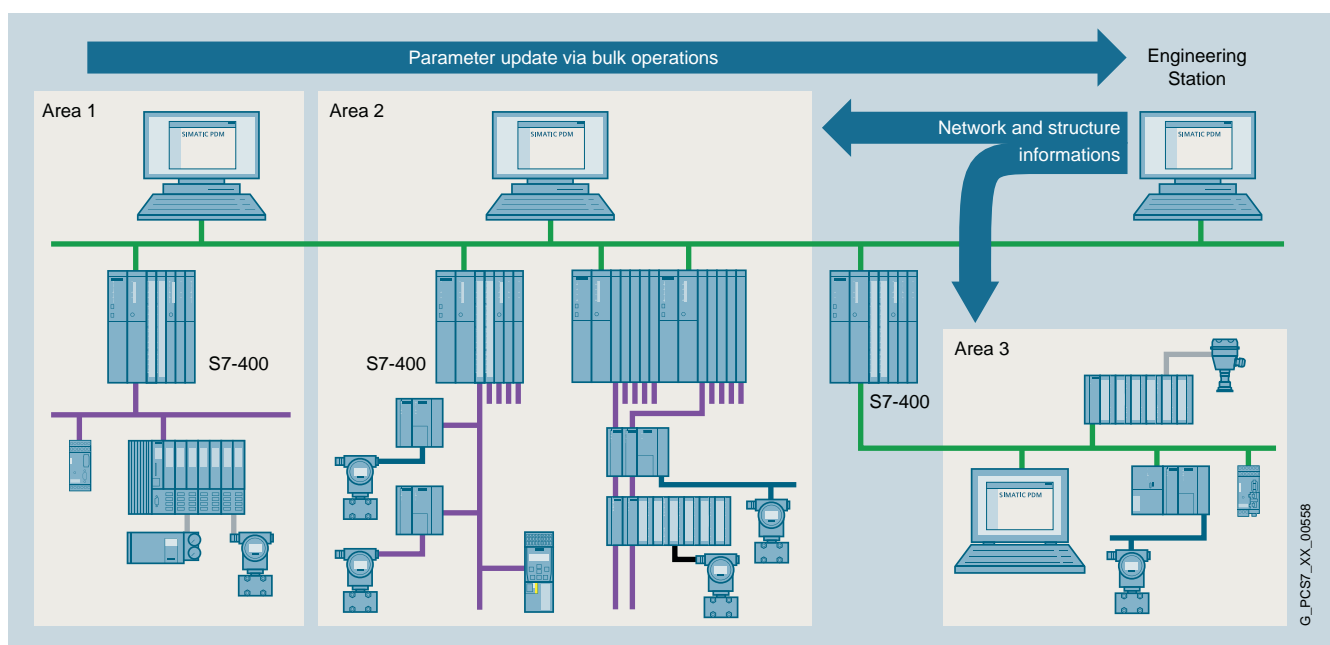
As a field device parameter assignment tool, the SIMATIC PDM Process Device Manager integrated in the SIMATIC PCS 7 engineering station can be used to manage field devices configured via the station configuration editor. From the SIMATIC PCS 7 engineering station, it is possible to navigate across the various bus systems and remote I/Os up to the connected devices. The communication paths of the SIMATIC PCS 7 engineering station are used for the communication with field devices. The parameter assignment interfaces of the field devices can be called directly in the station configuration editor. The parameter data are saved in the SIMATIC PCS 7 project
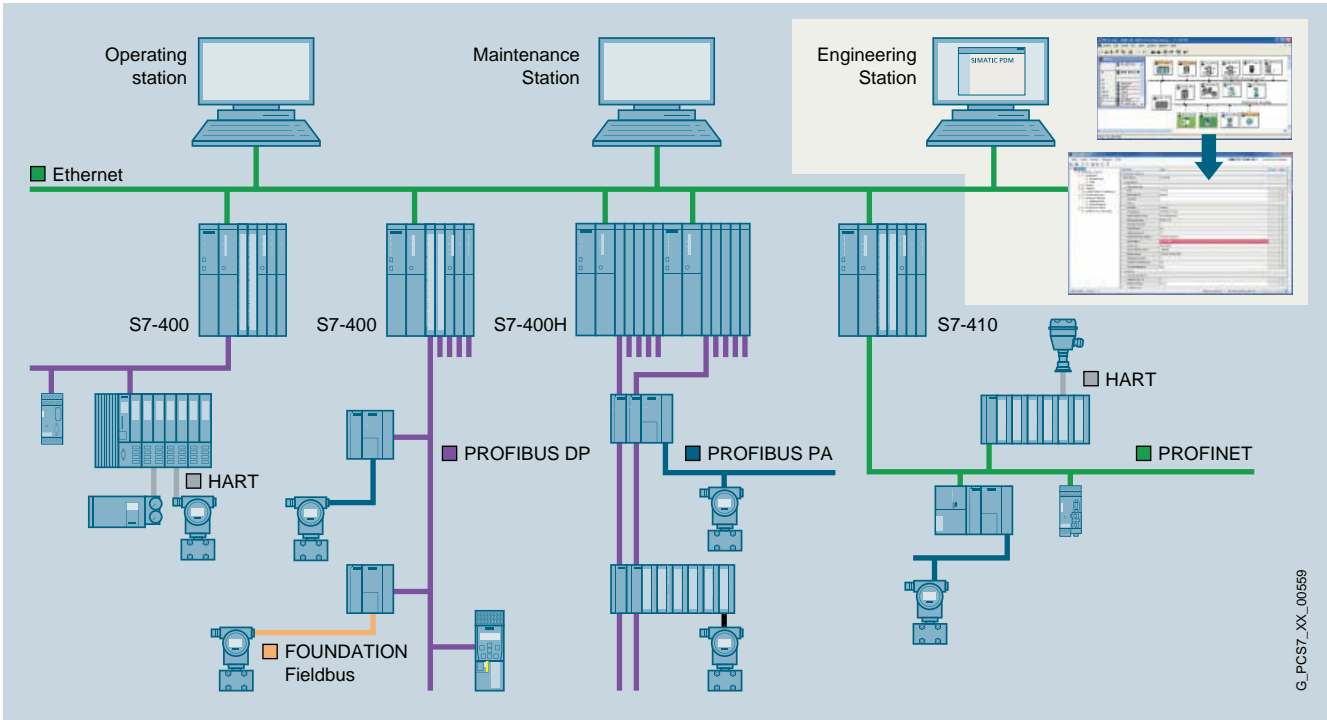
Field device service and parameter assignment tool in the SIMATIC PCS 7 maintenance station

The SIMATIC PDM field device service and parameter assignment tool integrated in the SIMATIC PCS 7 maintenance station via the SIMATIC PCS 7 engineering station can be used to manage devices in the SIMATIC PCS 7 project. Here, SIMATIC PDM is controlled from the higher-level SIMATIC PCS 7 maintenance station. The operating personnel of the SIMATIC PCS 7 maintenance station can be furnished with the appropriate device management rights for their role. SIMATIC PDM uses the communication paths of the SIMATIC PCS 7 for the communication with field devices.

SIMATIC PDM provides identity and parameter data as well as diagnostic information of the field devices to the maintenance station on request. When initiated by monitoring functions or control functions on the maintenance station, SIMATIC PDM synchronizes the parameter database of the project or exports the parameter data of field devices to a selected destination.
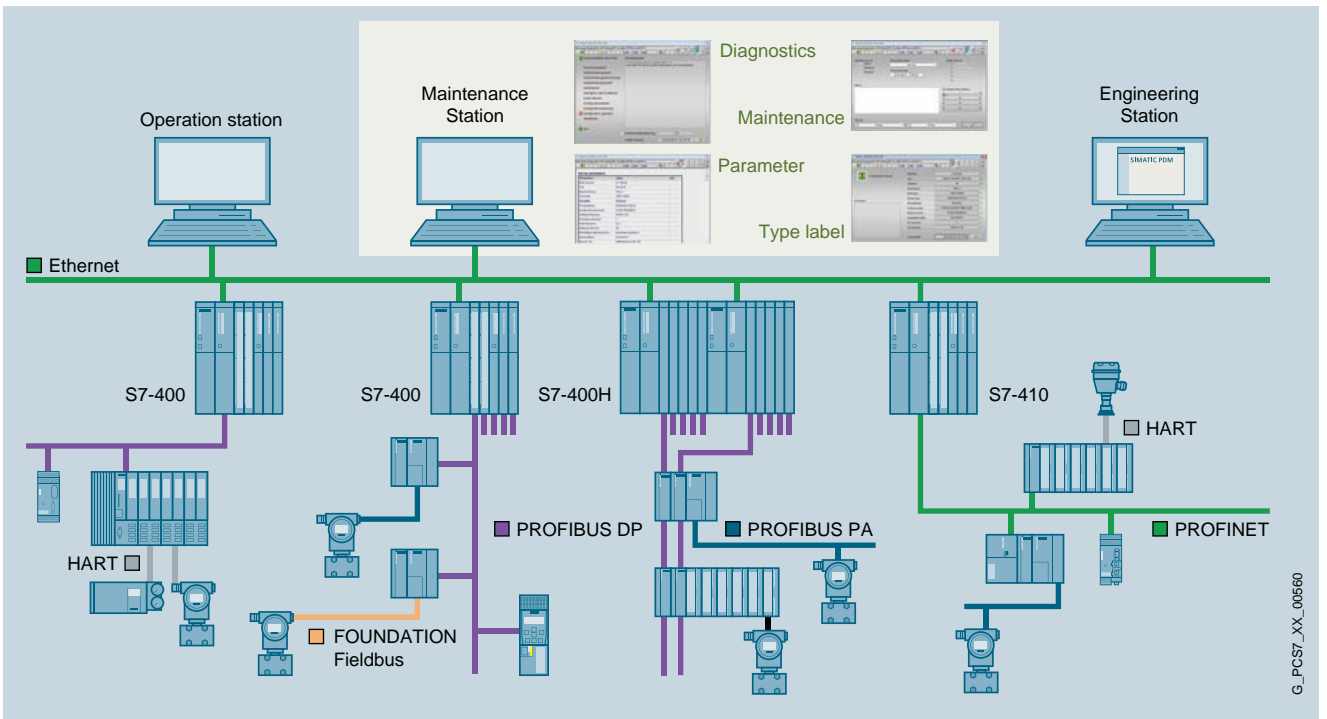

Combination of engineering station and local service and parameter assignment stations

SIMATIC PDM as a field device parameter assignment tool in the SIMATIC PCS 7 engineering station

SIMATIC PDM as a field device service and parameter assignment tool in the SIMATIC PCS 7 maintenance station

Engineering

Clearly structured engineering with coordinated views

The ergonomic operator interface of SIMATIC PDM meets the requirements of VDI/VDE GMA 2187 and IEC 65/349/ CD. Even complex devices with several hundred parameters can be managed in a fast, straightforward way. The extension of the EDDL device description language also enables picture elements to be clearly displayed.

Operators are provided with several views of the project and the devices to be managed. Use of these views depends on the action and how the process device manager is being used:

- **Hardware project view**
  (for SIMATIC PDM integrated in SIMATIC PCS 7/STEP 7)
  View of the SIMATIC PCS 7/S7 hardware project from which the SIMATIC PDM parameter assignment interface for the devices can be directly opened. The devices are configured in the station configuration editor and displayed graphically or in tabular form.

- **Process device network view**
  (preferably for local or central service ad parameter assignment stations)
  Project view for clear representation of the hierarchical hardware structure with all networks, communication components and devices. It can be created by scanning the real plant, via import from the engineering station or manually.

- **Process device plant view**
  View of all devices present in the project (independent of the communication path used) with additional information on the diagnostic status of the devices, communication paths and connection points. Uniform symbols are used for the display of diagnostic status for all devices. Comprehensive filtering, searching, sorting and editing functions are available.

- **Portal view**
  (start window of PDM clients)
  Overview of all devices contained in the project (independent of the communication path used) with additional information on the communication paths, connection points and function rights of the service employee. Extensive filtering, searching and sorting functions are available, as in the process device plant view.
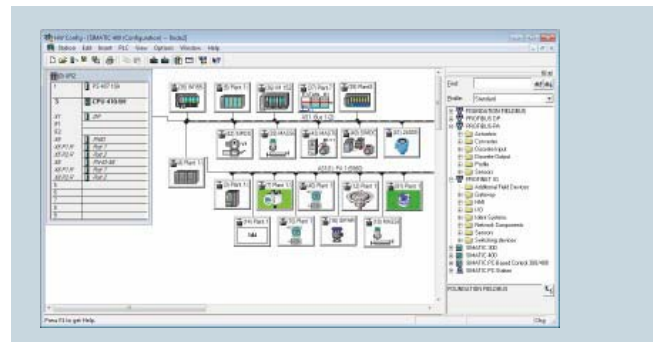
- **Parameter view**
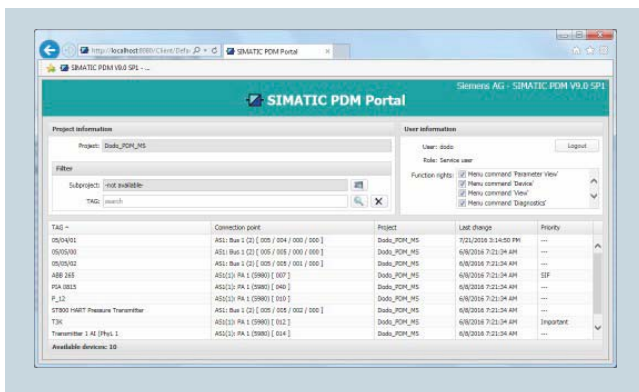 View for device parameter assignment with a variety of different functions:
  – Parameter assignment functions, e.g. measurement unit, measuring range
  – Online functions, e.g. display values, diagrams, diagnostics
  – Calibration functions, e.g. zero point, running times of valves
  – Comparison functions, e.g. devices, saved project data
  – Export/import functions, e.g. parameters, diagnostic information
  – Logging functions
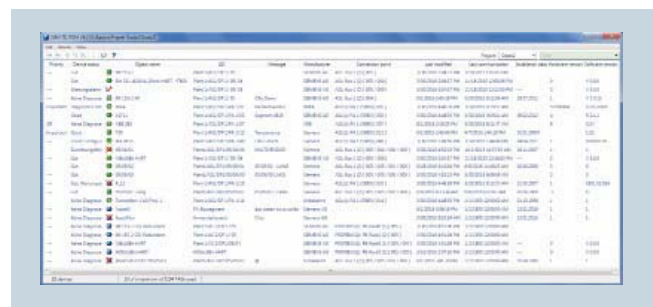
- **LifeList view for commissioning and service**
  Network view generated once or cyclically for identification, diagnostics and addressing of devices. The content of the LifeList can be used for creating a project for a service and parameter assignment station.

Hardware project view

Portal view

Process device plant view

Device integration

Device integration made easy

Electronic Device Description (EDD)

SIMATIC PDM supports all devices described by the Electronic Device Description. EDD is the most widely used standardized technology in the world for device integration. It is also the basis and main component of FDI (Field Device Integration), a new uniform field device integration technology of the following established fieldbus organizations:

- PROFIBUS and PROFINET
  (PI – PROFIBUS & PROFINET International)
- HART and FOUNDATION Fieldbus
  (FCG: Field Communication Group)

The devices are integrated directly in SIMATIC PDM using a company-specific device description package (EDD and additional documents and attachments) or using the current libraries of the Field Communication Group. Management in project-specific device libraries using the Device Integration Manager (DIM) of SIMATIC PDM improves transparency.

Field devices are described in the EDD in terms of functionality and design with the Electronic Device Description Language (EDDL) according to IEC 61804. Based on this description, SIMATIC PDM automatically creates its user interfaces with the specific device information.

Advantages of the EDD

- Independent of the operating system
- Forms an inseparable functional unit together with the device
- Long-term stability throughout the device life cycle, yet can be modified and/or expanded at any time
- Contents can be individually adapted to any device by the device manufacturer
- Gives the device manufacturer plenty of design freedom for generating unique selling points, e.g.
  - Implementation of manufacturer-specific diagnostics functions in addition to standard diagnostics
  - Integration of own documents and help texts
  - Implementation of plans for device-specific handling sequences, e.g. commissioning, calibration, service activities
  - Wizards as a commissioning aid

The current device description library of SIMATIC PDM comprises more than 3 700 device descriptions from over 200 manufacturers world-wide. By simply importing the manufacturer's device-specific EDD, existing devices can be updated and further devices can be integrated in SIMATIC PDM. It is thus possible to keep the device range up to date at all times and to add to the number of manufacturers and devices supported by SIMATIC PDM.

Declaration of conformity (left) and contents of the device library (right)

Device integration

SIMATIC PDM device import with the Device Integration Manager

Device Integration Manager

The Device Integration Manager (DIM) supports user-friendly import of the device descriptions with practical functions and clear displays, e.g.:

- Information on device descriptions
- Information on the device descriptions used
- Filter and search functions
- Direct import from compressed files
- Documentation functions
- Checking functions (semantics, syntax, completeness)
- Creation of project-specific device libraries
- Delete function for imported device descriptions

Quality assurance

As an open parameter assignment tool, SIMATIC PDM is not subject to any restrictions regarding options for integration of device description packages. To guarantee high quality when integrating devices, the device manufacturer must certify conformity for all new entries in the device description library of SIMATIC PDM or for corrections

A declaration of conformity contains:

- Information about the device
- Information on existing certificates and applied specifications
- Changes compared to previous versions
- Verifications for the test with SIMATIC PDM
- Compatibility information

Technical Support

Support Request
You can request support by Technical Support service specialists via a "Support Request" on the Internet:
www.siemens.com/automation/support-request

Regional contact partners
The Technical Support contact partner responsible for your region can be found on the Internet at:
www.automation.siemens.com/partner

Device integration via partner companies

If you would like to use devices that are not found in the SIMATIC PDM device description library, we will be happy to help you integrate them.

Siemens AG does not itself integrate any device descriptions of field device manufacturers in the EDD Device Library of SIMATIC PDM. It has entered into corresponding service agreements with selected partner companies for this.

You can find information on how to contact the partner companies on the Internet:
support.industry.siemens.com/cs/ww/en/view/50898953

Parameter view

Central device view with uniform representation

Parameter view - single

Parameter view - multiview

The parameter view is the main view for managing individual devices and enables a quick comprehensive overview of the parameter assignment and the diagnostic status. It has a clear and well-arranged structure.

Visualization and handling are uniform for all devices, that is, independent of device type, device manufacturer and device communication:

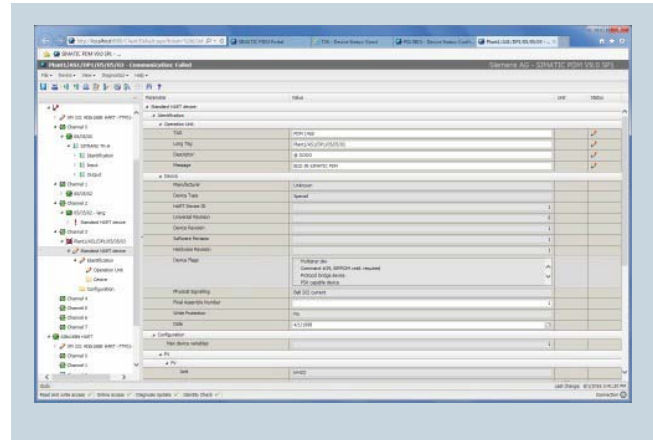- Toolbar for general and frequently used functions, such as writing/reading, measured value display, diagnostics update, setting of "Measuring circuit check finished" identifier
- Menu with device functions, structured according to SIMATIC PDM's own functions and device-specific functions
- Working window divided into two sections with navigation window (left) and parameter window with name, value, unit and status of the parameter
- Parameter status display with a display of totals in the navigation tree (e.g. parameters written/read, changed or invalid)
- User-specific language switching (standard language: English)

Each device can be directly selected, managed and downloaded and all device functions can be accessed.

The parameter structuring, the contents and the device-specific menus of the parameter view are defined by the device description supplied by the manufacturer.

The read/write parameters have a light background and can be easily distinguished from the read-only parameters with their gray background. Changes, invalid values, initial values and read/write status are clearly identified by color and with text.

Since users can easily differentiate the functions provided by SIMATIC PDM from the device-specific functions, they are quickly able to find the right contact for their support request.

Depending on the call, the navigation window of the parameter view is either focused on a single device or it displays the device within the hierarchical network structure (multiview).
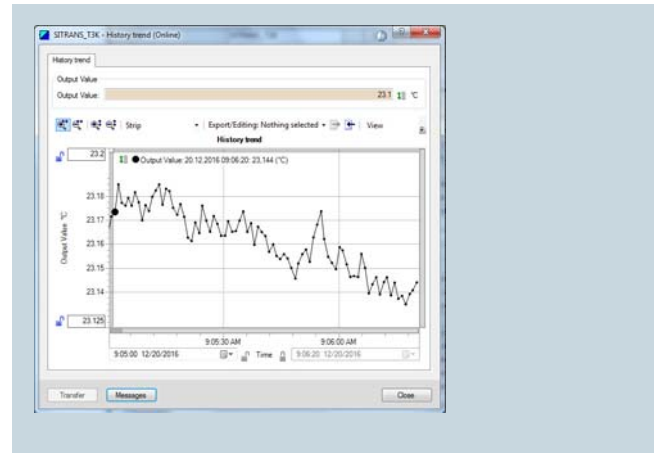
Multiview is very convenient for displaying complete networks or modular components such as remote I/Os with connected HART field devices.
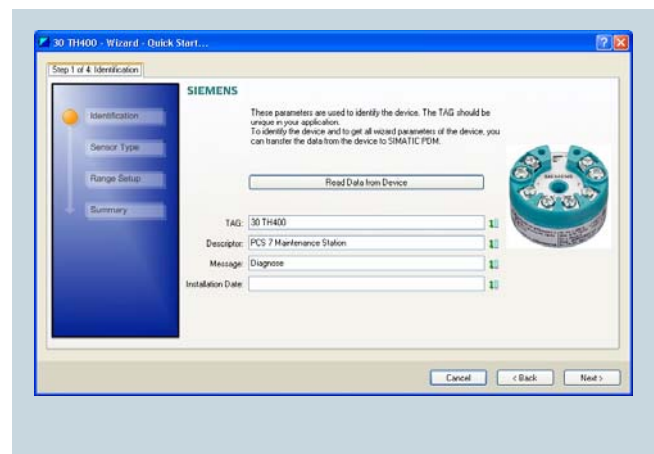
Informative online displays

SIMATIC PDM offers numerous possibilities for online communication with the devices. Values/parameters that can be visualized and controlled online are defined by the respective device manufacturer using the electronic device description (EDD). Standardized online displays are used for the display. They are optimally adjusted to the various functions in relation to the device descriptions and also permit online operations in some cases.

Examples of online functions that can be implemented are:

- Monitoring of process values
- Monitoring of measured signal raw values
- Monitoring of device-internal status or wear values
- Calibration functions
- Zero settings
- Min/Max pointer
- Trend curves with several variables
- X/Y curves, e.g. envelope curves for radar level meters
- Diagnostic states
- Restoring the factory settings
- Operating mode switchover
- Online parameter assignment
- Simulation of process variables, states and diagnostics messages
- Classification of device-specific diagnostics
- Quick commissioning

Trend display

Display of a commissioning wizard

Measured value display

Drive configuration for frequency converters

Device management

Essential criteria for the use of intelligent field devices include:

■ Simple and efficient engineering
■ Stable device descriptions across the entire life cycle of the production plant/device

The device types and versions used in production plants as well as their manufacturers are often not known at the time of planning and configuration. Moreover, commissioning, maintenance 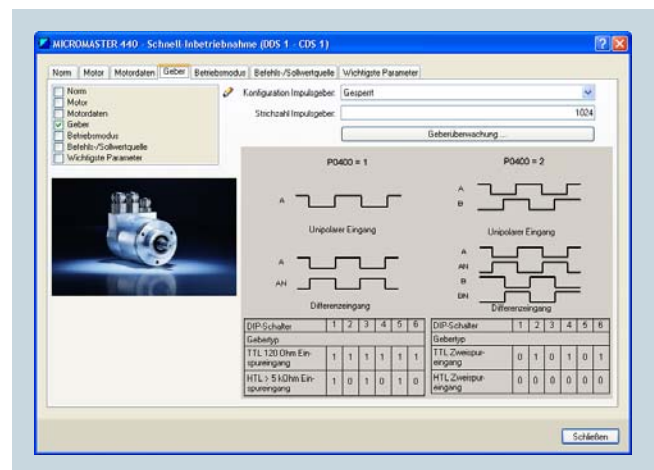and service as well as device replacement must be as easy and trouble-free as possible for plant personnel. The device management functions of SIMATIC PDM and the device-neutral configuration in the SIMATIC automation systems and in the SIMATIC PCS 7 Process Control System fulfill all the necessary conditions for meeting these challenges. With SIMATIC PDM, the solution is conceivable simply through

■ Device-neutral configuration of the communication
■ Device-specific parameter assignment of the device function

Device-neutral configuration of the communication

In the case of device-neutral configuration of process tags in automation systems, the precise device type or the manufacturer of the utilized field device does not have to be known. A typical example of this is the connection of HART field devices to 4 to 20 mA interfaces of HART-enabled analog modules in remote I/O stations. Any field devices with a suitable interface can be connected to these 4 to 20 mA interfaces and operated via a "neutral channel".
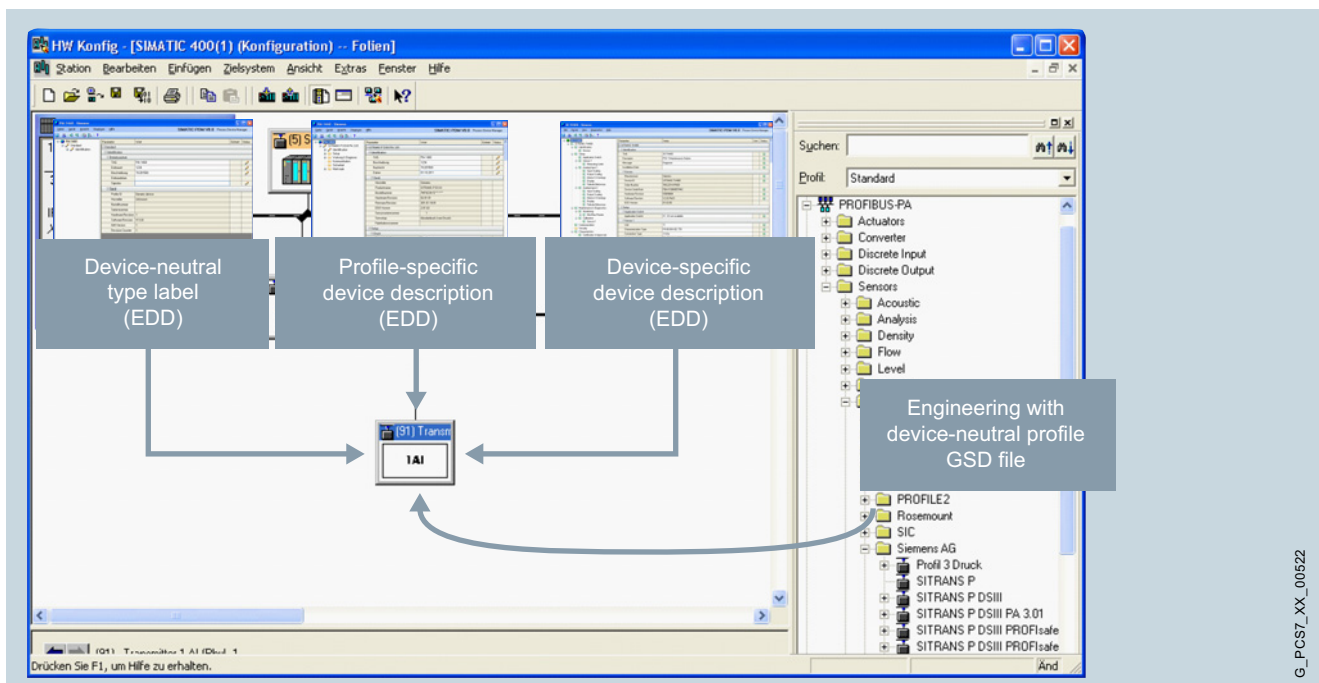
The principle of the "neutral channel" can also be applied when configuring PA Profile field devices on PROFIBUS DP/PA or on PROFINET. In this case, device-neutral profile GSD files of the "PROFIBUS & PROFINET International" organization are used for the hardware configuration of the field devices.

In both cases, the configuration of the communication and the configuration of the process tag in the automation project relate only to the communication between the automation system and field device.

With this configuration, the amount of data is specified for the data exchange between the automation system and field device:

■ For HART field devices, the data transmission via the "neutral channel" through the 4 to 20 mA interface of the interface module is limited to one measured value or manipulated variable value.

■ Via the more convenient "neutral channel" of the PA Profile field devices, by contrast, several values can be transmitted simultaneously in both directions, for example:
  – Several measured values for open-loop and closed-loop control tasks
  – Analog or binary signals to actuators and, in the opposite direction, analog or binary feedback messages (including status information)

Device management

Configuration options for PROFIBUS DP/PA devices

Device-specific parameter assignment of device functions

In the case of device-specific parameter assignment, the precise device type and the manufacturer of the utilized field device must be known. Because the configuration of the communication (hardware configuration) between the automation system and field device using SIMATIC PDM is independent of the parameter assignment of the field device with SIMATIC PDM, the device description package can be assigned to the field device in use at any time.

As long as the field device later to be used is not yet known, a device-neutral device description can be initially assigned using SIMATIC PDM for the period up to commissioning. In this case, for example, the device-neutral device description contains only the process tag data and an electronic rating plate. For use of the complete device functionality, however, the parameter assignment with a device-specific description is required. For this, the device-specific device description is assigned at a later time with SIMATIC PDM. Before replacement of the device description packages, a check can be made to determine whether the right field device was connected using the electronic rating plate of the device-neutral device description.

This device management function of SIMATIC PDM supports not only the configuration and first commissioning of production plants. In the operating phase, it enables

device description updates, device replacement for maintenance reasons and use of another comparable field device in the event of spare part problems – all of this without making changes to the automation project and without stopping plant operation.

Field device management

Depending on the type of communication used, SIMATIC PDM supports different device management scenarios:

- Updating of device descriptions (EDD)
  The Device Integration Manager (DIM) detects compatible corrections and function extensions. It automatically assigns the updated EDD to all devices.

- Upgrading of device descriptions (EDD)
  DIM detects incompatible corrections and function extensions. The EDD is inserted in the device description library for manual assignment.

- Support of field device replacement/substitution with
  – Devices of the same type and version
  – Devices of the same type but different version
  – Devices of a new device generation of the same type from the same manufacturer
  – Devices from different manufacturers on the basis of the PA profile

LifeList

LifeList

User-friendly view for service and commissioning

The LifeList is a network view for identification and diagnostics of field devices that is generated online. It can be generated once or cyclically. As a result of its special orientation, the LifeList is an ideal working environment for service and commissioning.

It permits scanning of PROFIBUS DP and PROFIBUS PA lines including subordinate structures and displays these in a clear form. The determined network structures can be transferred very easily to a stand-alone project. It is therefore no longer absolutely necessary to be knowledgeable about the plant structure during service work.

The LifeList is not just a display and information source, it provides much more:

■ Address and tag can be directly changed online in the LifeList.
■ Existing projects can be synchronized with the LifeList.
■ The contents of the LifeList can be exported as an XML file.

The LifeList displays the devices and all connected components with the following information:

■ Addresses
■ Tag
■ Device type
■ Device status
■ Manufacturer
■ Software revision
■ Profile revision

The device status (diagnostic information) is identified by meaningful, easily recognizable and uniform symbols for all devices.

If there is an EDD for a device, the determined diagnostic information is compiled on the basis of this device description. This results in increased convenience, since the diagnostic information is language-dependent and can be displayed together with additional device-specific information such as causes and effects of errors and information for troubleshooting. Otherwise, the diagnostic information is displayed as defined in the PROFIBUS GSD.

SIMATIC PDM HART server

Detecting the structures of HART multiplexer networks

The optional SIMATIC PDM HART server uses the original HART server of the Field Communication Group (FCG) for communication with HART field devices connected to multiplexers or via WirelessHART gateways. As a central service and parameter assignment station, in particular, SIMATIC PDM thus also provides excellent support for service and commissioning of HART field devices outside a SIMATIC PCS 7/S7 project.

HART multiplexer and WirelessHART networks can be scanned with the HART server. The scanned network structures can be transferred very easily to a SIMATIC PDM project or used to synchronize existing projects. During servicing, therefore, knowledge of the HART multiplexer and WirelessHART network structures is not needed.

Integration of the SIMATIC PDM HART server

WirelessHART temperature and pressure sensors of Siemens

Asset management

Asset management comprises all activities and measures that serve to retain or increase the value of a plant. In addition to system management, process control and process optimization, these primarily include maintenance and repairs that retain and increase the plant value – so-called plant-level asset management.
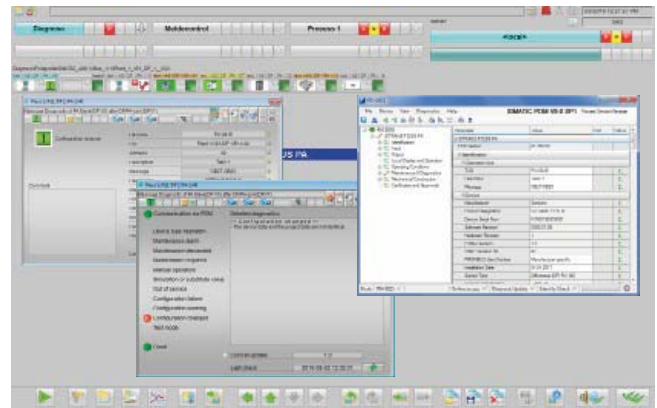
Due to its comprehensive functionalities for configuration, parameter assignment, commissioning, diagnostics and maintenance of intelligent field devices and components, SIMATIC PDM is particularly suited for plant-level asset management.
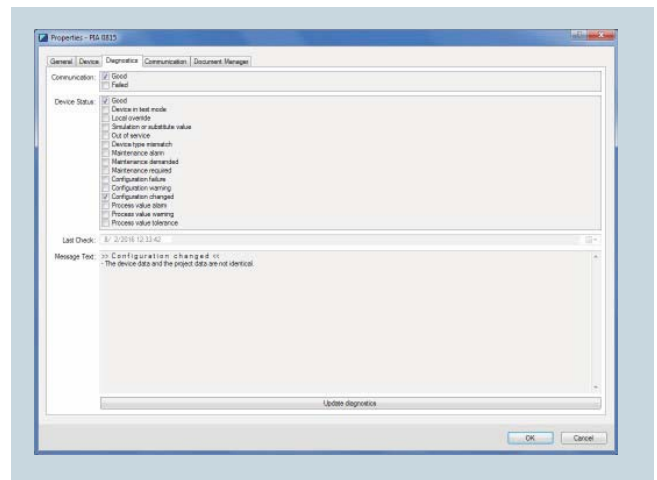
In order to deliver meaningful and reliable results, asset management systems require a large amount of basic information. In real plants, this data is highly heterogeneous and unstructured, which makes it very difficult to access. SIMATIC PDM is able to determine the device data relevant to plant-level asset management and to transfer this in XML format to higher-level asset management systems, such as a SIMATIC PCS 7 maintenance station, via a standardized interface Collecting the data and interpreting the results are independent of the device type. In other words, it makes no difference whether the device is an actuator or sensor, or a PROFIBUS, HART or FF device.

However, SIMATIC PDM is far more than just a data collector for higher-level asset management systems. It also provides a variety of asset management functions itself:

- Determination of differences between the offline data and the current parameters in the device
- Multilingual display of diagnostic data read from the devices (device-specific information and profile information)
- Uniform display and identification of diagnostic and status information of all devices with uniform symbols
- Data transfer to an asset management system when requested
- Extensive logging functions (change log, calibration log)
- Export interface for all field device information and parameters for further processing
- Integration of project-specific and device-specific documents as an aid for service and device management functions

Call of SIMATIC PDM in the SIMATIC PCS 7 maintenance station

Detailed diagnostic display of a device in SIMATIC PDM

Process device plant view with diagnostic status display

Practical functions

Export and import of data

SIMATIC PDM enables you to export configuration and parameter data and conveniently import it again. In this way, data can be exchanged between different projects, computers or field devices, for example. The export is always in XML format.

During the life cycle of a production plant, the export and import functions support device management as follows:

- Export of parameter data, diagnostic information and assigned user documents
- Export of data for individual devices or entire network structures, whereby the parameter data is saved individually for all field devices and made available for individual import
- Import of parameter data with or without process tag designations
- Import of exported device data regardless of device type and version, so that parameter data of the same type can be transferred to field devices of different versions and from different manufacturers

During the import, the data is synchronized and supplemented, if necessary. Parameters of existing field devices or modules are thereby overwritten and field devices or modules not yet available are created. If no device description is assigned, assignment is made in accordance with the contents of the import file. However, no field devices or modules are deleted.

Examples of effective utilization of data export and import are:

- Creation of parameter typicals (default parameter settings) for device types
- Transfer of parameters read from the devices by SIMATIC PDM to the Microsoft Office world (e.g. Excel spreadsheets) or to condition monitoring systems
- Determination of plant configurations and transfer of structure and parameter assignment to a project
- Generation of projects for local or central service and parameter assignment stations from a SIMATIC PCS 7/S7 multiproject
- Transfer of parameters between field devices of different manufacturers or versions during device replacement

Change log

A change log can be activated in SIMATIC PDM. The user who has executed a given action or made a given change is logged there for each field device. The functions of the change log include:

- Archiving functions (manual or automatic)
- Filter and search functions (for texts, actions or field devices)
- Input of user comments on executed actions
- User-defined entries in the change log

Change log

Generating central or plant unit-related service and parameter assignment stations

SIMATIC PDM provides an easy-to-use function for generating a central parameter assignment station or several plant unit-specific service and parameter assignment stations from existing or active automation projects. These service and parameter assignment stations are connected to the plant bus or fieldbus and are functional immediately. Further configuration steps are not necessary, not even for redundant automation systems within the project.
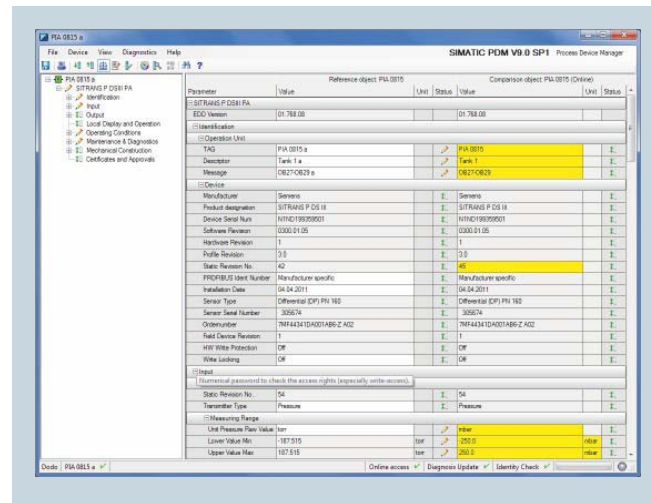
This functionality is independent of the SIMATIC PCS 7 and SIMATIC PDM versions used for the automation project to the greatest extent possible. These service and parameter assignment stations can therefore always be operated with the latest version of SIMATIC PDM.

Logging and documentation

A SIMATIC PDM system function enables an individual calibration report to be produced for each integrated field device. The selected parameters are automatically imported into this report.

Internet links and documents, e.g. device manuals, integrated in the device description by the manufacturer can be quickly and easily accessed using the help menu of the parameter view.

Up to 10 individual multimedia files (text, chart, video, audio) can be added to each device using a documentation manager, which is also integrated in the help menu of the parameter view. These files can be assigned to individual process tags on a plant-specific basis.

Data comparison between two devices

Data comparison

SIMATIC PDM enables various parameters and parameter settings to be compared and a decision to be made as to which will be imported or synchronized. The comparison objects and differences are clearly and unambiguously identified by color. The comparison objects are selected quickly and easily using search and filter functions even if the project contains a large number of field devices.

The following comparison functions are available:

- Comparison of offline data in the project database with the device data
- Comparison of offline data of two different devices in the project database
- Comparison of data of two different devices

Structure

Customer-oriented product structure

Components	Product packages							
	SIMATIC PDM Stand-alone				SIMATIC PDM System-integrated			
	Minimum configuration	Basic con-figuration	Service and parameter assignment station		in the configuration environment			
			Local	Central	SIMATIC S7	SIMATIC PCS 7		
	PDM Single Point	**PDM Basic**	**PDM Service**	**PDM Stand-alone Server**	**PDM S7**	**PDM PCS 7**	**PDM PCS 7 Server**	**PDM PCS 7-FF**
SIMATIC PDM tags in the product package	1	4	4 + 50	4 + 100	4 + 100	4 + 100	4 + 100	4 + 100
SIMATIC PDM expansion options								
Count Relevant Licenses (cumulative): 10/100/1000 tags		○	○	○	○	○	○	○
SIMATIC PDM Basic		●	●	●	●	●	●	●
SIMATIC PDM Extended		○	○	●	●	●	●	●
SIMATIC PDM integration in STEP 7/PCS 7		○	○	○	●	●	●	●
SIMATIC PDM Routing	cannot be expanded	○	○	○	○	●	●	●
SIMATIC PDM Server		○	○	●	○	○	●	○
SIMATIC PDM 1 Client		○	○	● (2 x)	○	○	○	○
SIMATIC PDM Communication FOUNDATION Fieldbus		○	○	○	○	○	○	●
SIMATIC PDM HART server		○	○	○	–	–	–	–

● Product component, integral part of product package   ○ Optional product component (can be ordered additionally)   – Not relevant or not available

The scope of functions and performance of SIMATIC PDM can be flexibly adapted to the individual, project-specific needs of the customer:

SIMATIC PDM Stand-alone product packages

- SIMATIC PDM Single Point, a minimum configuration for single device management
- SIMATIC PDM Basic for local service and parameter assignment stations as well as basic configuration for customized product package with optional product components
- SIMATIC PDM Service for local service and parameter assignment stations
- SIMATIC PDM Stand-alone Server for central service and parameter assignment stations

SIMATIC PDM System-integrated product packages (integrated in SIMATIC S7/PCS 7 configuration environment)

- SIMATIC PDM S7 for local SIMATIC S7 Engineering and Service Stations
- Configurations for central SIMATIC PCS 7 engineering and maintenance stations:
  - SIMATIC PDM PCS 7
  - SIMATIC PDM PCS 7 Server (enables device parameter assignment and diagnostics on clients of the PCS 7 Engineering Station and PCS 7 Maintenance Station)
  - SIMATIC PDM PCS 7-FF (supports the FOUNDATION Fieldbus H1)

SIMATIC PDM Single Point cannot be expanded. All other product packages can be expanded with additional functions and cumulative 10/100/1000 tag licenses (Count Relevant Licenses).

SIMATIC PDM tags

A tag corresponds to a SIMATIC PDM object, which represents individual field devices or components within a project, e.g. measuring devices, positioners, switching devices or remote I/Os. Any diagnostics-capable device detected by diagnostics with the LifeList whose detailed diagnostics is implemented via the device description (EDD) is also counted as a tag. In some cases, multiple tags are booked for an object, for special objects, such as the data record gateway, as well as according to specification of the manufacturer, e.g. for diagnostic EDDs.

SIMATIC PDM Single Point

This low-cost minimum configuration with handheld functionality is intended for managing exactly one field device via a point-to-point connection. It cannot be expanded with additional functions or tags and cannot be updated to a successor version. All device functions are supported as defined in the device description. Possible types of communication are PROFIBUS DP/PA, PROFINET, Modbus, Ethernet and HART.

SIMATIC PDM Basic

The basic building block for creation of customized SIMATIC PDM configurations from individual components contains all the functions required for handling and parameter assignment of the devices and is fully enabled for the communication types PROFIBUS DP/PA, PROFINET, Modbus, Ethernet and HART.

SIMATIC PDM Basic can be used for local service and parameter assignment stations with local connection to a bus segment or with direct connection to the device. Initially, up to four field devices can be managed in one project with SIMATIC PDM Basic.

SIMATIC PDM Service

The product package for extended service is pre-configured for use as a local service and parameter assignment station. It provides service engineers all the functions of SIMATIC PDM Basic for projects with up to 54 tags.

SIMATIC PDM Stand-alone Server

With this product package, service and parameter assignment stations can be operated as client-server systems so that field devices that are integrated via an electronic device description (EDD) can be diagnosed and configured on mobile or stationary SIMATIC PDM clients. The SIMATIC PDM Server is used as the central database for the SIMATIC PDM clients.

SIMATIC PDM S7

The product package designed for use of SIMATIC PDM in a SIMATIC S7 configuration environment is intended for local SIMATIC S7 engineering and service stations. Field devices can thus be managed directly in the station configuration editor of SIMATIC STEP 7.

SIMATIC PDM PCS 7

The product package suitable for use in a SIMATIC PCS 7 configuration environment is intended for central SIMATIC PCS 7 Engineering and maintenance stations. Field devices can thus be managed directly in the SIMATIC PCS 7 station configuration editor.

SIMATIC PDM PCS 7 Server

This product package establishes the client-server operation of SIMATIC PDM in the SIMATIC PCS 7 maintenance station and the SIMATIC PCS 7 engineering station. Field devices that are integrated using an Electronic Device Description (EDD) can be diagnosed and configured on any client of the SIMATIC PCS 7 maintenance station.

In addition, SIMATIC PDM clients connected to the SIMATIC PCS 7 engineering station enable direct local management of field devices.

SIMATIC PDM PCS 7-FF

This product package enables communication with field devices on the FOUNDATION Fieldbus H1 via the FF Link in a SIMATIC PCS 7 configuration environment.

Option SIMATIC PDM Extended

This option for SIMATIC PDM Basic enables the use of additional system functions such as the change log, calibration report, extended information in the LifeList, export and import functions, printing functions, document manager and comparison functions.

Option SIMATIC PDM Integration in STEP 7/PCS 7

This option is used for the integration of SIMATIC PDM in a SIMATIC S7 or SIMATIC PCS 7 configuration environment. SIMATIC PDM can then be started directly from the station configuration editor in SIMATIC STEP 7/PCS 7.

Option SIMATIC PDM Routing

When SIMATIC PDM is used in a central engineering/service station or with a SIMATIC PCS 7 maintenance station client with an Ethernet bus connection to the automation systems, this option enables management of any device in the field that can be configured via EDD across the various bus systems and remote I/Os plant-wide.

Option SIMATIC PDM Server

With this option, field devices can be managed on any client of the SIMATIC PCS 7 maintenance station using the SIMATIC PDM parameter assignment interface.

Option SIMATIC PDM 1 Client

Depending on the project size, SIMATIC PDM Server and SIMATIC PDM PCS 7 Server can be expanded with cumulative client licenses (count-relevant licenses). The client licenses enable the operation of any number of mobile or stationary computers as SIMATIC PDM clients. SIMATIC PDM clients act as web clients and need no SIMATIC software.

Option SIMATIC PDM Communication FOUNDATION Fieldbus

With this option, SIMATIC PDM can communicate with field devices on the FOUNDATION Fieldbus H1 via the FF Link.

Option SIMATIC PDM HART Server

This option enables SIMATIC PDM to use the HART server of the Field Communication Group (FCG) for communication with HART field devices via HART multiplexers from various manufacturers as well as the parameter assignment of WirelessHART field devices.

Additional information

You can find a **device list** (representative cross-section of the field devices and components that can be managed with SIMATIC PDM) in our Industry Online Support in the product announcement about the current device description library:
support.industry.siemens.com/cs/ww/en/ps/16983/pm

Security information

Siemens provides products and solutions with industrial security functions that support secure operation of plants, systems, machines and networks.

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Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks Systems, machines and components should only be connected to the enterprise network or the Internet if necessary and only to the extent necessary and with appropriate protective measures (e.g. use of firewalls and network segmentation) in place.

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