## Software

### SIMATIC PDM

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![SIMATIC PDM Screenshot](image)
SIMATIC PDM

Application

SIMATIC PDM (Process Device Manager) is a uniform, manufacturer-independent tool for configuring, parameterizing, commissioning and diagnosis of intelligent process devices. SIMATIC PDM allows a wide variety of process devices to be configured using one software system and one uniform graphical user interface. This results in reliability, and significantly saves costs for investment and staff training, as well as follow-up costs.

SIMATIC PDM can be used in two manners:
- Independent of system suppliers on a personal computer or programming device under the Windows 95 / 98 / NT operating system
- With an option as an integrated tool in STEP 7, the SIMATIC S7 configuring and programming tool. In this manner, SIMATIC PDM is also integrated into the SIMATIC PCS 7 process control system.

The display of device parameters and functions is uniform for all supported process devices and independent of their communication link, e.g. via PROFIBUS-DP, PROFIBUS-PA or the HART protocol.

The main functions of SIMATIC PDM are
- adjustment and modification,
- comparison,
- plausibility testing,
- simulation,
- management, and
- commissioning functions of process device data.

SIMATIC PDM additionally permits process monitoring with display of selected values, alarms and status signals of the device on the screen.

Graphical user interface

The SIMATIC PDM graphical user interface is designed according to the standard guidelines of Microsoft Windows. Menu structures and toolbars are used as is an Explorer view which simplifies navigation between parameter groups (Fig. 6/3). Even complex devices with several hundred parameters can thus be processed clearly and rapidly.

The user interface supports several views:
- STEP 7 view (Fig. 6/1)
  Process devices are configured using HW Config within STEP 7 and displayed graphically or as a table.
- Process device network view (Fig. 6/2, top)
  The hierarchical structure of networks, communication components, down to the process devices is configured here. Configuring data can be imported from there when integrating in STEP 7; multiple inputs are thus avoided.
- Process device plant view (Fig. 6/2, bottom)
  The devices configured in HW Config or in the process device network view are automatically imported into the process device plant view. Free grouping of these devices will be available soon, and the process devices can then be arranged hierarchically in a tree structure.
- Parameter view (Fig. 6/3)
  The parameters of a selected process device can be displayed, modified and saved here. Communication to the device is also established here. This parameter display is started by double clicking a process device in one of the other views.

The devices with different communication interfaces are displayed homogeneously and user-friendly within the graphical user interface. The main attention is paid to efficiency.
Fig. 6/4 shows a summary of the possible connection points of SIMATIC PDM Version V5 in a plant. The PDM icon shows wherever SIMATIC PDM can be connected.

With SIMATIC PDM V5 you can use the so-called **Routing** for the first time. Routing permits uniform communication from the engineering station up to the field devices. Reconnection of the PC’s DP interface to the respective DP segment is superfluous, and thus a possible source of error is eliminated.

Data collection times are eliminated, the device data are available directly online. In particular, the diagnostics data of the devices are available immediately. This decisively increases the plant safety, and the costs for data collection are significantly reduced.

The PCs/programming devices on which SIMATIC PDM is to be installed are connected to the plant bus. This is either an ES engineering station or an engineering console with SIMATIC PDM. Common operations on a project database using different PCs/programming devices are possible via a LAN.

Devices can be connected in different manners at the field level: PROFIBUS-PD devices to DP/PA coupler and DP/PA link or HART devices to the HART analog input/output modules. HART devices can also be connected to conventional analog input/output modules.

A HART multiplexer is shown on the right via which all connected HART devices can be reached.

The SIPART DR controllers and the SIMOCODE are shown as representatives for PROFIBUS-DP devices.

The PROFIBUS-DP is connected here to a SIMATIC S7-400 automation system. Up to five DP segments can be connected to the S7-400. Further SIMATIC S7-400 systems can be connected to the plant bus.

**Communication**

SIMATIC PDM supports several communication protocols and components for communication with the following devices:

- Devices with PROFIBUS-DP interface
  These are connected directly to PROFIBUS-DP. An example is the SIPART DR90 compact controller.

- Devices with PROFIBUS-PA interface, e.g. the SITRANS P transmitter
  The PROFIBUS-PA devices supported by SIMATIC PDM are connected via a DP/PA link or DP/PA coupler to the PROFIBUS-DP segment. The integrated PROFIBUS-PA devices can be parameterized, as well as almost all PROFIBUS-PA devices via the following PA profiles of Versions 2.0 and 3.0:
  - Pressure and temperature
  - Level and flow
  - Actuators
  - Discrete I/Os
  - Analysis (only PA profile version 3.0)

- Devices with HART interface
  These devices can be connected in different manners:
  - Via the SIMATIC ET 200M distributed I/O system with the HART modules
  - Via a HART modem with which a point-to-point connection is established between the PC or engineering station and the HART device
  - Via multiplexers which pass on the telegrams transparent to the HART devices.

In addition to the fully integrated HART-capable devices, **nearly all HART devices** are also parameterizable.
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SIMATIC PDM

Technical data, ordering data

- Controllers with SIPART DR communication via RS 232 / RS 485
  In addition to the PROFIBUS, the SIPART DR19, DR20, DR21 and DR22 controllers can also be parameterized and configured via the so-called SIPART DR network.
  A summary of the possible connection points of SIMATIC PDM in a plant is shown in Fig. 6/4.

Device Description Language

The Device Description Language exists for parameterization of devices. This language is standardized, manufacturer-independent, and very widely used.
This language describes the parameters, the communication, and the representation of the devices. Using this description, SIMATIC PDM automatically generates its graphical user interface.
The Device Descriptions describe the dependencies between the parameters. In this manner, SIMATIC PDM can recognize faulty inputs early enough and signal them to the user.

The use of Device Descriptions means that all common field devices can be incorporated into SIMATIC PDM independent of their communication interface.
Device Descriptions for devices from many different manufacturers are being permanently generated. The device manufacturers are responsible for the Device Descriptions.
A current list of supported devices can be found in Internet (www.fielddevices.com).

Access rights

SIMATIC PDM differentiates between two different user groups: Specialist and Maintenance engineer. The maintenance engineer can only modify the operating data, the specialist can access all parameters and functions.
A freely-selectable password can be used as the access rights for the specialist.

Technical data

<table>
<thead>
<tr>
<th>Task</th>
<th>Parameterization, commissioning and diagnosis of process devices with PROFIBUS-DP, PROFIBUS-PA, HART and SIPART DR communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required hardware</td>
<td>Personal computer / programming device with Pentium processor and 32 MByte RAM (recommended: 64 MByte and more)</td>
</tr>
<tr>
<td>Operating system</td>
<td>Windows 95/98/NT (with integration in STEP 7: STEP 7 version 5)</td>
</tr>
<tr>
<td>SIMATIC PDM memory requirements</td>
<td>Approx. 10 MByte, plus 70 MByte for SIMATIC PDM without option „Integration in STEP 7“</td>
</tr>
<tr>
<td>Industrial Ethernet connection or TCP/IP connection (interface card for PC)</td>
<td>Communications processor: CP 1411, CP 1511</td>
</tr>
<tr>
<td>PROFIBUS-DP connection</td>
<td>Communications processor: CP 5511*, CP 5611*</td>
</tr>
<tr>
<td>Gateway from PROFIBUS-DP to PROFIBUS-PA</td>
<td>Communications processor: 6GK1 141-1AA00, 6GK1 151-1AA00</td>
</tr>
</tbody>
</table>
| Gateway from PROFIBUS-DP to HART | Communications processor: 6GK1 151-1AA00 *
  - The required drivers are included in the delivery of SIMATIC PDM and in STEP 7 |
| HART point-to-point connection | Communications processor: 6GK1 151-1AA00 *
  - The required drivers are included in the delivery of SIMATIC PDM and in STEP 7 |

Ordering data

<table>
<thead>
<tr>
<th>SIMATIC PDM V5.0.1</th>
<th>7MP5 000-0AA00-0AA0</th>
</tr>
</thead>
<tbody>
<tr>
<td>for operation and parameterization of process devices, including communication via HART modem</td>
<td>Options for SIMATIC PDM V5.0.1</td>
</tr>
<tr>
<td>Order No.</td>
<td>Order No.</td>
</tr>
<tr>
<td>7MP5 000-0AA00-0AA0</td>
<td>Options for SIMATIC PDM V5.0.1</td>
</tr>
<tr>
<td>- Non integrated in STEP 7</td>
<td>- Without communication</td>
</tr>
<tr>
<td>- Integrated in STEP 7</td>
<td>- Without communication via PROFIBUS-DP and -PA</td>
</tr>
<tr>
<td>- 16 tags from basic version</td>
<td>- Without communication via PROFIBUS-DP and -PA</td>
</tr>
<tr>
<td>- Up to 128 tags</td>
<td>- Without communication via PROFIBUS-DP and -PA</td>
</tr>
<tr>
<td>- Unlimited number of tags</td>
<td>- Without communication via PROFIBUS-DP and -PA</td>
</tr>
<tr>
<td>- With communication via PROFIBUS-DP and -PA</td>
<td>- With communication via PROFIBUS-DP and -PA</td>
</tr>
<tr>
<td>- With communication via HART modules in ET 200M</td>
<td>- With communication via HART modules in ET 200M</td>
</tr>
<tr>
<td>7MP4 000-000-0AB</td>
<td>- With communication via standard HART multiplexer</td>
</tr>
<tr>
<td>7MP4 000-000-0AB</td>
<td>- With communication via standard HART multiplexer</td>
</tr>
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1) Only together with the option „Integration in STEP 7“