Application of the SIMATIC PDM Software

SIMATIC PDM

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Question

How do you use the different versions of SIMATIC PDM software to access the devices that can be configured with SIMATIC PDM?

Answer

The instructions and notes listed in this document provide a detailed answer to this question.

Table of contents

1 Introduction

SIMATIC PDM is a software package for configuration, parameter assignment, commissioning, and maintenance of devices (for example, transducers) and for configuring networks and PCs.

This entry shows you how to use the different versions of SIMATIC PDM to access the devices that can be configured with SIMATIC PDM.

The SIMATIC PDM delivery release includes a list of the devices that can be configured with SIMATIC PDM (see \3\).

2 Using SIMATIC PDM to Access PROFIBUS PA Field Devices

Figure 2-1

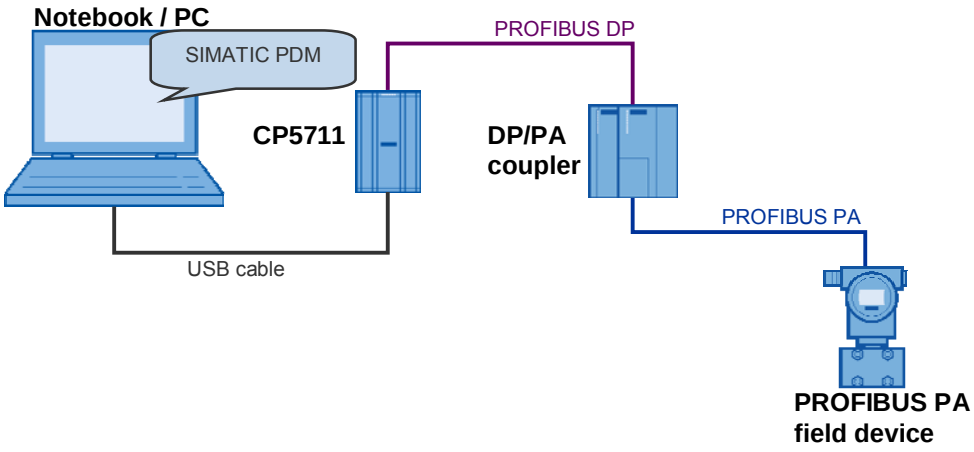


Table 2-1 shows the hardware and software components you need to use SIMATIC PDM to access a PROFIBUS PA field device that can be configured with SIMATIC PDM.

Table 2-1

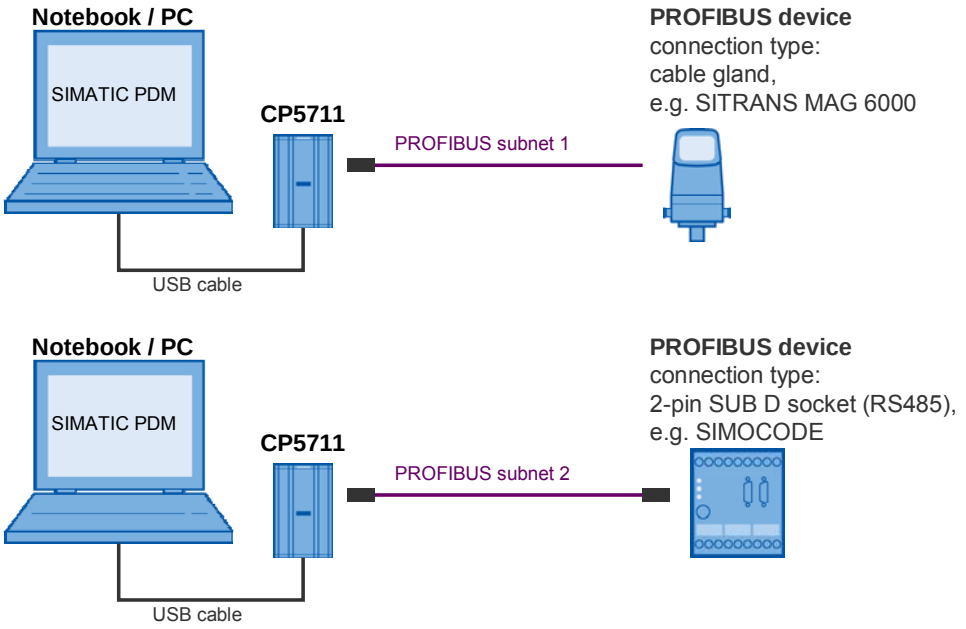
	Hardware / Software	MLFB	Note
1.	SIMATIC PDM BASIC software	6ES7658-3AX06-0YA5	Install the following version of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM BASIC (4-TAG license)
2.	CP5711 (USB adapter)	6GK1571-1AA00	Use the communication processors to connect the notebook or PC to the PROFIBUS DP.
3.	CP5512 (PCMCIA 32 bits)	6GK1551-2AA00	
4.	Plug-in cable for PROFIBUS	6ES7901-4BD00-0XA0	The 3m cable for PROFIBUS is prefabricated with 2 x 9-pin Sub-D male connectors. You use this to connect the communication processors or the SIMATIC Field PG with the DP/PA coupler.
5.	DP/PA coupler FDC157-0	6ES7157-0AC83-0XA0	The PROFIBUS DP and PROFIBUS PA bus systems are connected with the DP/PA coupler. It is for connecting PA field devices to the PROFIBUS DP.
6.	DP/PA coupler EX	6ES7157-0AD82-0XA0	The DP/PA coupler EX is for connecting PA field devices to the PROFIBUS DP in explosion-hazardous areas.
7.	Power supply (24V DC / 2A)	6ES7307-1BA01-0AA0	SIMATIC S7-300 PS307 Input: AC 120/230 V Output: DC 24 V/2 A
8.	SIMATIC S7-300	6ES7390-1AE80-0AA0	You mount the power supply

	Hardware / Software	MLFB	Note
	mounting channel (L=480mm)		and DP/PA coupler on the mounting channel.
9.	PROFIBUS FC Process Cable	6XV1830-5FH10	You use the PROFIBUS FC Process Cable to connect the PA field devices to the DP/PA coupler.
10.	PA field device	The SIMATIC PDM software delivery release includes a list of the devices that are supported by SIMATIC PDM (see \1\).	

Note If you use a SIMATIC Field PG instead of a laptop or PC, you do not need a communication processor. The SIMATIC Field PG has an integrated PROFIBUS interface (CP5611-compatible).

3 Using SIMATIC PDM to Access PROFIBUS DP Devices

Figure 3-1



PROFIBUS segment 1

Table 3-1 shows the hardware and software components you need to use SIMATIC PDM on the PROFIBUS DP to access a device that can be configured with SIMATIC PDM.

Table 3-1

	Hardware / Software	MLFB	Note
1.	SIMATIC PDM BASIC software	6ES7658-3AX06-0YA5	Install the following version of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM BASIC (4-TAG license)
2.	CP5711 (USB adapter)	6GK1571-1AA00	Use the communication processors to connect the notebook or PC to the PROFIBUS DP.
3.	CP5512 (PCMCIA 32 bits)	6GK1551-2AA00	
4.	PROFIBUS bus cable	6XV1830-0EH10	PROFIBUS FC standard cable, for example. This PROFIBUS bus cable is not prefabricated with 9-pin Sub-D male connectors. You need PROFIBUS male bus connectors in addition.
5.	PROFIBUS male bus connectors	6ES7972-0BA52-0XA0	PROFIBUS FC male bus connector with 90° cable exit, for example.

A PROFIBUS DP device, whose PROFIBUS connection is not a 9-pin Sub-D female connector, but a cable gland, is connected to PROFIBUS DP Segment 1.

The PROFIBUS bus cable is connected directly to the PROFIBUS DP device and screwed tight.

In this case, you need only one PROFIBUS male bus connector to connect the communication processor or the SIMATIC Field PG with the PROFIBUS bus cable.

Note If you use a SIMATIC Field PG instead of a laptop or PC, you do not need a communication processor. The SIMATIC Field PG has an integrated PROFIBUS interface (CP5611-compatible).

PROFIBUS segment 2

Table 3-2 shows the hardware and software components you need to use SIMATIC PDM to access PROFIBUS DP devices.

Table 3-2

	Hardware / Software	MLFB	Note
1.	SIMATIC PDM BASIC software	6ES7658-3AX06-0YA5	Install the SIMATIC PDM software on a laptop, PC or SIMATIC Field PG.
2.	CP5711 (USB adapter)	6GK1571-1AA00	Use the communication processors to connect the notebook or PC to the PROFIBUS DP.
3.	CP5512 (PCMCIA 32 bits)	6GK1551-2AA00	
4.	Plug-in cable for PROFIBUS	6ES7901-4BD00-0XA0	The 3m cable for PROFIBUS is prefabricated with 2 x 9-pin Sub-D male connectors. You use this to connect a PROFIBUS DP device that has an RS485 interface (9-pin Sub-D female connector) to the communication processor or the SIMATIC Field PG.
5.	PROFIBUS bus cable	6XV1830-0EH10	PROFIBUS FC standard cable, for example. This PROFIBUS bus cable is not prefabricated with 9-pin Sub-D male connectors. You need PROFIBUS male bus connectors in addition.
6.	PROFIBUS male bus connectors	6ES7972-0BA52-0XA0	PROFIBUS FC male bus connector with 90° cable exit, for example.

A PROFIBUS DP device whose PROFIBUS connection is a 9-pin Sub-D female connector (RS485 interface) is connected to PROFIBUS DP Segment 2.

In this case, you need a plug-in connection for PROFIBUS with prefabricated PROFIBUS male bus connectors to connect the communication processor or the SIMATIC Field PG with the PROFIBUS DP device.

Alternatively, you can use a non-prefabricated PROFIBUS bus cable. In this case, you need two PROFIBUS male bus connectors in addition.

Note If you use a SIMATIC Field PG instead of a laptop or PC, you do not need a communication processor. The SIMATIC Field PG has an integrated PROFIBUS interface (CP5611-compatible).

4 Using SIMATIC PDM on a Stand-alone Computer in the PROFIBUS Network

Figure 4-1

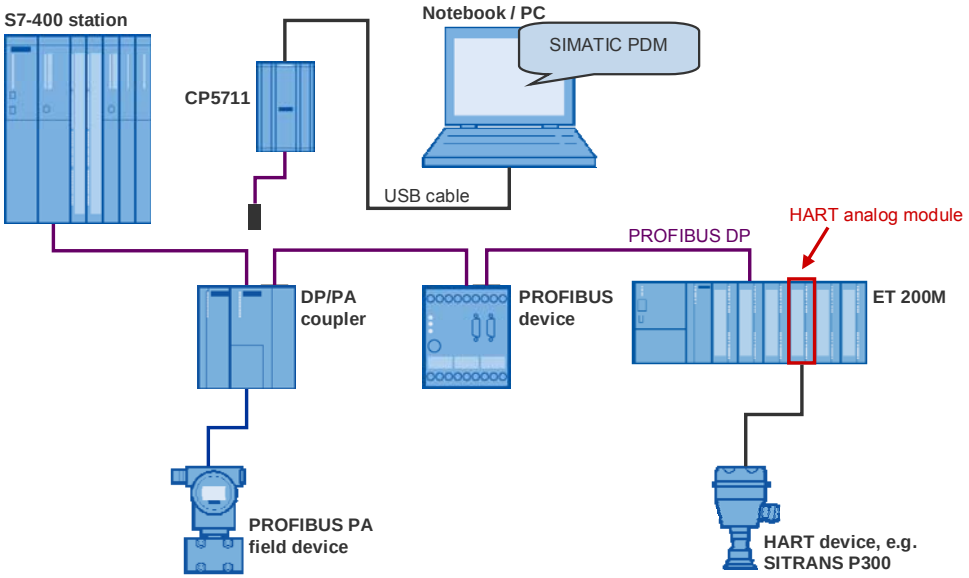


Table 4-1 shows the hardware and software components you need to use SIMATIC PDM to access from a notebook, PC or SIMATIC Field PG all the devices that can be configured with SIMATIC PDM on the connected PROFIBUS DP segment including the PROFIBUS PA and HART subsegments.

Table 4-1

	Hardware / Software	MLFB	Note
1.	**Minimum requirements:** SIMATIC PDM BASIC software	6ES7658-3AX06-0YA5	Install one of the following versions of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM BASIC (4-TAG license) • SIMATIC PDM SERVICE (contains SIMATIC PDM BASIC + 128-TAG license)
2.	**Recommendation:** SIMATIC PDM SERVICE software	6ES7658-3JX06-0YA5	
3.	CP5711 (USB adapter)	6GK1571-1AA00	Use the communication processors to connect the notebook or PC to the PROFIBUS DP.
4.	CP5512 (PCMCIA 32 bits)	6GK1551-2AA00	
5.	Plug-in cable for PROFIBUS	6ES7901-4BD00-0XA0	The 3m cable for PROFIBUS is prefabricated with 2 x 9-pin Sub-D male connectors. You use this to connect the communication processors or the SIMATIC Field PG to the PROFIBUS DP.

SIMATIC PDM has access to all the configurable devices of the PROFIBUS DP segment, including the PROFIBUS PA and HART subsegments, to which the notebook, PC or SIMATIC Field PG is connected.

Note If you use a SIMATIC Field PG instead of a laptop or PC, you do not need a communication processor. The SIMATIC Field PG has an integrated PROFIBUS interface (CP5611-compatible).

5 Using SIMATIC PDM on an Engineering Station

5.1 Using SIMATIC PDM on an Engineering Station in the PROFIBUS Network

Figure 5-1

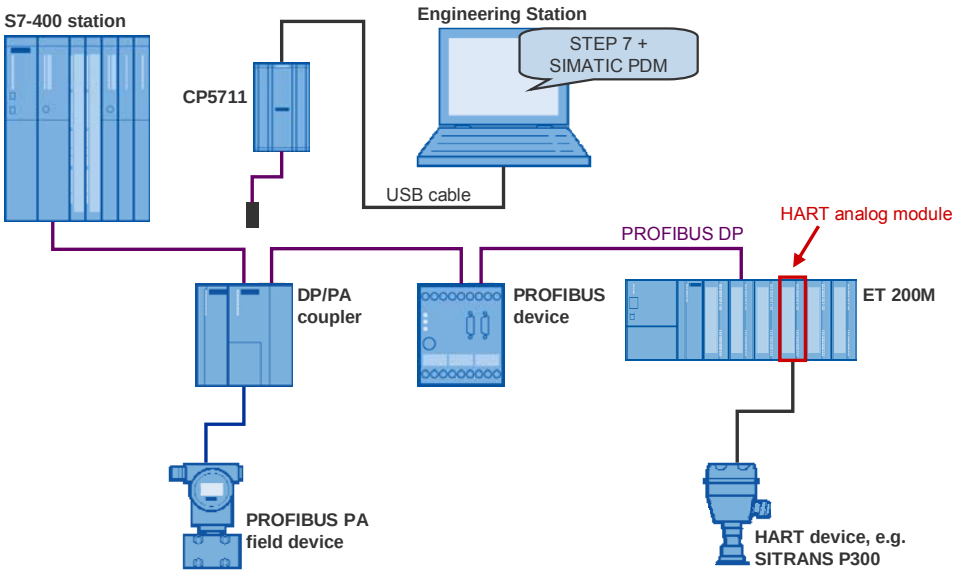


Table 5-1 shows the hardware and software components you need to use SIMATIC PDM to access from an Engineering Station all the devices that can be configured with SIMATIC PDM on the connected PROFIBUS DP segment including the PROFIBUS PA and HART subsegments.

Table 5-1

	Hardware / Software	MLFB	Note
1.	SIMATIC PDM S7 software	6ES7658-3KX06-0YA5	Install the following version of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM S7 (contains SIMATIC PDM BASIC + Integration in STEP 7 + 128-TAG license)
2.	CP5711 (USB adapter)	6GK1571-1AA00	Use the communication processors to connect the notebook or PC to the PROFIBUS DP.
3.	CP5512 (PCMCIA 32 bits)	6GK1551-2AA00	
4.	Plug-in cable for PROFIBUS	6ES7901-4BD00-0XA0	The 3m cable for PROFIBUS is prefabricated with 2 x 9-pin Sub-D male connectors. You use this to connect the communication processors or the SIMATIC Field PG to the PROFIBUS DP.

STEP 7 is installed on the Engineering Station in this configuration, where SIMATIC PDM is integrated for central data management.

SIMATIC PDM has access to all the configurable devices of the PROFIBUS DP segment, including the PROFIBUS PA and HART subsegments, to which the notebook, PC or SIMATIC Field PG is connected.

Note If you use a SIMATIC Field PG instead of a laptop or PC, you do not need a communication processor. The SIMATIC Field PG has an integrated PROFIBUS interface (CP5611-compatible).

5.2 Using SIMATIC PDM on an Engineering Station via the Industrial Ethernet Interface

Figure 5-2

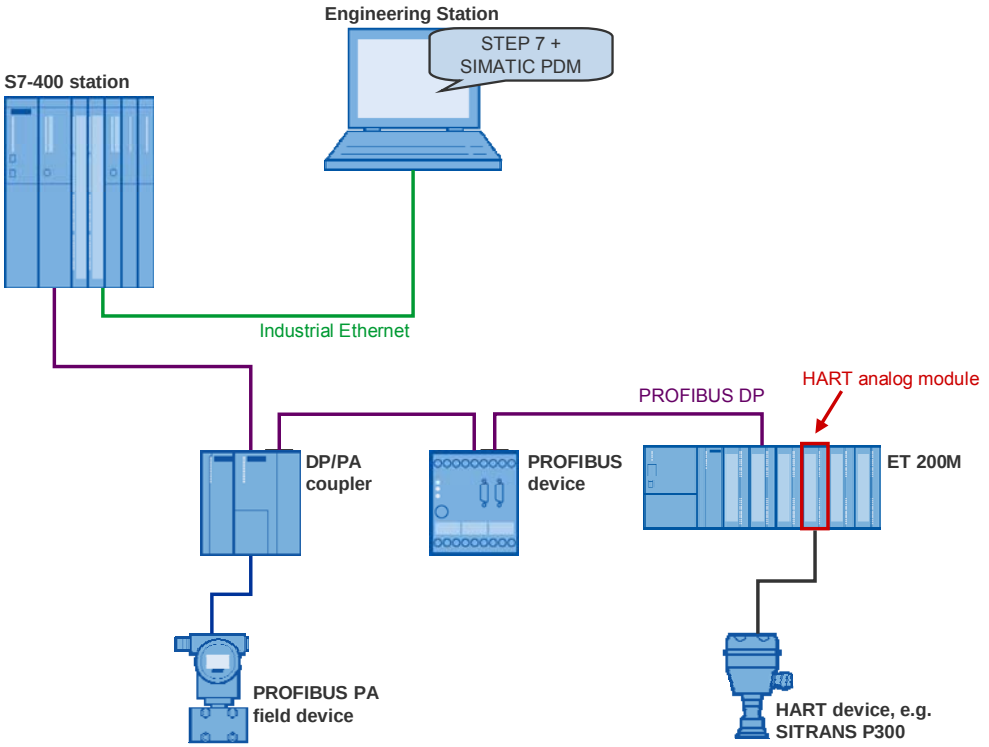


Table 5-2 shows the software components you need to use SIMATIC PDM to access from an Engineering Station via Industrial Ethernet all the devices that can be configured with SIMATIC PDM and which are connected to the PROFIBUS DP and the PROFIBUS PA and HART sub segments.

Table 5-2

	Software	MLFB	Note
1.	SIMATIC PDM PCS7 software	6ES7658-3LX06-0YA5	Install the following version of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM PCS7 (contains SIMATIC PDM BASIC + Integration in STEP 7 + 128-TAG

	Software	MLFB	Note
			license + Routing)

STEP 7 is installed on the Engineering Station in this configuration, where SIMATIC PDM is integrated for central data management. The Engineering Station is connected via Industrial Ethernet to the S7 station that enables SIMATIC PDM to access the PROFIBUS DP segment including the PROFIBUS PA and HART sub segments.

SIMATIC PDM uses the data record routing function to access all the devices that can be configured with SIMATIC PDM.

Note Refer to the technical data of the CPUs and devices you are using to see whether or not the data record routing is supported.

6 Using SIMATIC PDM to Access HART Modules

6.1 Access to a HART Modules on a Power Supply (24V DC)

Figure 6-1

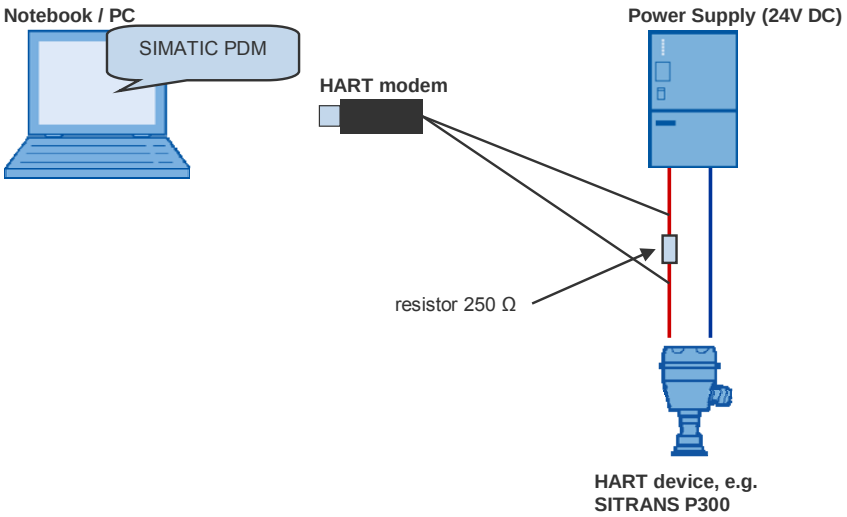


Table 6-1

	Hardware / Software	MLFB	Note
1.	SIMATIC PDM SINGLE POINT software	6ES7658-3HX06-0YA5	Install one of the following versions of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM SINGLE POINT (1-TAG license) • SIMATIC PDM BASIC (4-TAG license)
2.	**Alternative:** SIMATIC PDM BASIC software	6ES7658-3AX06-0YA5	
3.	Resistor 250 Ω	-	Connect a 250 Ω resistor in series with one of the 4-20mA wires connected to the HART module. This ensures that there is enough resistance for the HART modules in the closed circuit. Connect the two connecting wires of the HART modem above and below the 250 Ω resistor.
4.	HART modem with USB interface	7MF4997-1DB	Use one of the following HART modems: • HART modem with USB interface • HART modem with RS232 interface (e.g. if the notebook has only one RS232 COM interface)
5.	HART modem with RS232 interface	7MF4997-1DA	

Note

The SIMATIC PDM BASIC version can be extended with other SIMATIC PDM licenses.

SIMATIC PDM is not released with interface converters, e.g. serial to USB.

6.2 Access to HART Modules on a Remote I/O without HART Analog Modules

Figure 6-2

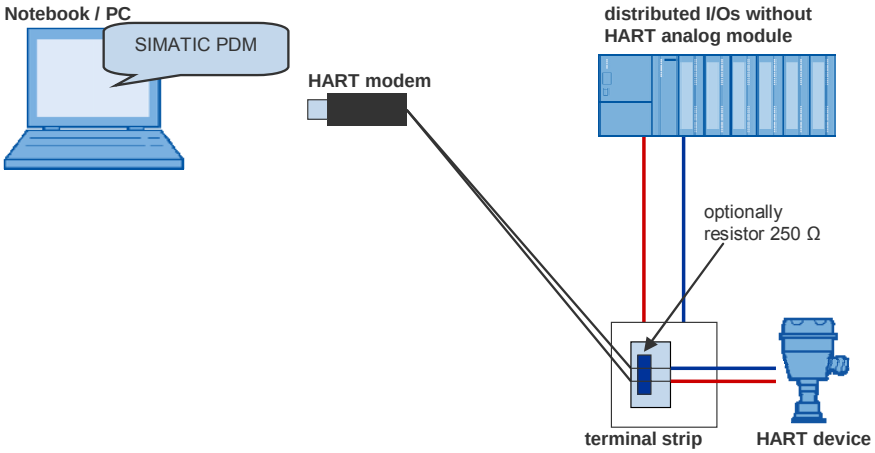


Table 6-2

	Hardware / Software	MLFB	Note
1.	SIMATIC PDM SINGLE POINT software	6ES7658-3HX06-0YA5	Install one of the following versions of SIMATIC PDM on a laptop, PC or SIMATIC Field PG: • SIMATIC PDM SINGLE POINT (1-TAG license) • SIMATIC PDM BASIC (4-TAG license)
2.	**Alternative:** SIMATIC PDM BASIC software	6ES7658-3AX06-0YA5	

In this configuration, the remote I/O is equipped with 4-20mA analog input basic modules. This means that you cannot use SIMATIC PDM to access the HART module from the PROFIBUS DP via the remote I/O access.

The HART modem is connected directly to the remote I/O circuit.

Depending on the load in this 2-wire circuit, it might be necessary to connect a resistor in series to one of the 4-20mA wires and then connect the connecting wires of the HART modem above and below the resistor.

Note

The SIMATIC PDM BASIC version can be extended with other SIMATIC PDM licenses.

If the HART module is in an intrinsically safe circuit, then use a HART modem that is authorized and certified for use in intrinsically safe circuits.

7 References

	Subject area	Title
\1\	SIMATIC PDM delivery release	http://support.automation.siemens.com/WW/view/en/35125626
\2\	SIMATIC PDM manual	http://support.automation.siemens.com/WW/view/en/37565982
\3\	SIMATIC PDM V6.0 SP5 delivery release	http://support.automation.siemens.com/WW/view/en/37565982