AH EN AXL E PN S7 TIA PARTNER PORT CHANGE

Changing the partner ports with AXL E PROFINET devices under STEP 7 in TIA Portal

Data sheet
107279_en_00

1 Information about the document

This application note describes how you can change the partner ports with Axioline E PROFINET devices. In order to do this, you need to set the topology in the engineering system.

It is assumed the user has knowledge of and experience in the operation of PCs and Windows operating systems, and knowledge of TIA Portal and Ethernet basics.

2 Software

TIA Portal SP1 Update 7 is used in this example.

3 Hardware structure

- Controller: S7-317-2 PN/DP
- AXL E PROFINET devices:
  - AXL E PN DIO16 M12 6M
  - AXL E PN DI16 M12 6M
  - AXL E PN DI8 DO8 M12 6M

4 Table of contents

Make sure you always use the latest documentation.
It can be downloaded at phoenixcontact.net/products.

This document is valid for all Axioline E PROFINET devices.

5 Creating the project

- Create the project.
- Configure the hardware structure.

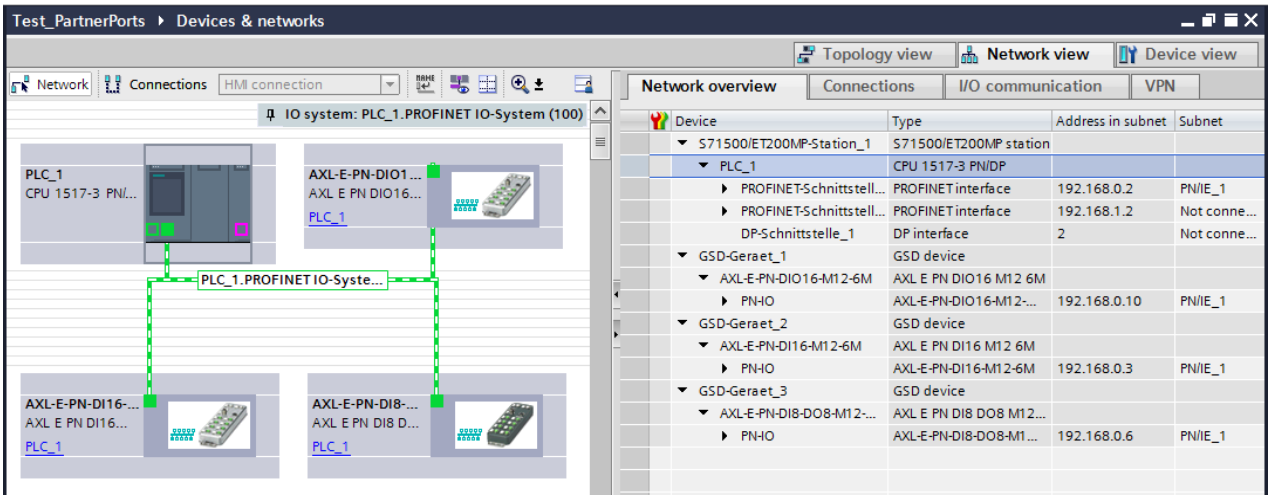

Figure 1 Creating the project and configuring the hardware structure

6 Starting up the system

Proceed as follows to start up the system:

- Assign the PROFINET name.
- Make the other necessary settings.

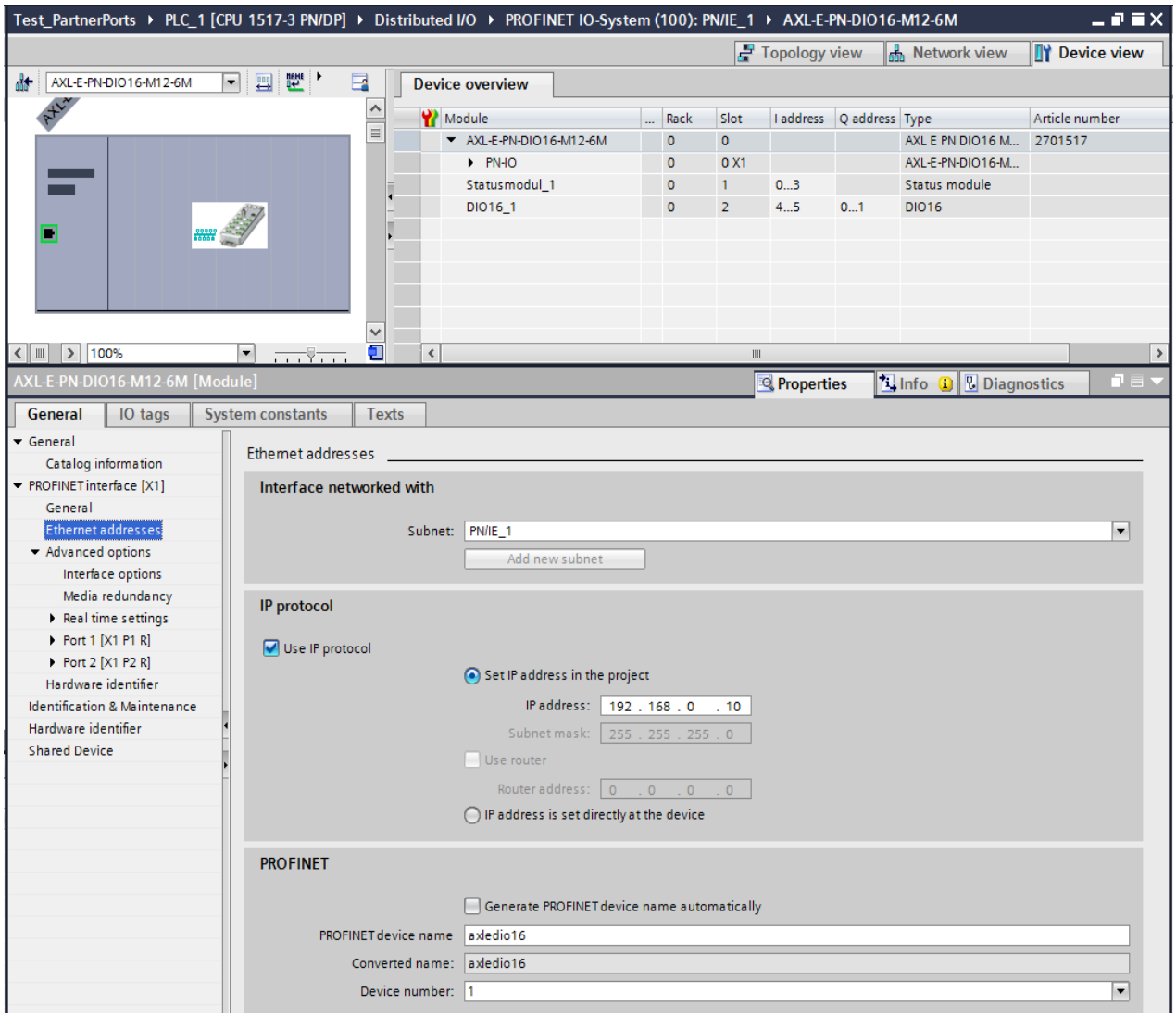

Figure 2 Assigning a PROFINET name and making other settings

7 Setting alternating partner ports

Set the ports on the PROFINET device to which you wish to connect two other devices.
Proceed as follows:

- Open the “General” tab.
- Under “Advanced options, select the “Port interconnection” menu item for the second port.
- In the “Partner port” area, activate the “Alternative partners” check box.
- Next, in the “Partner ports” area, set all the partner ports that you wish to connect to this device.

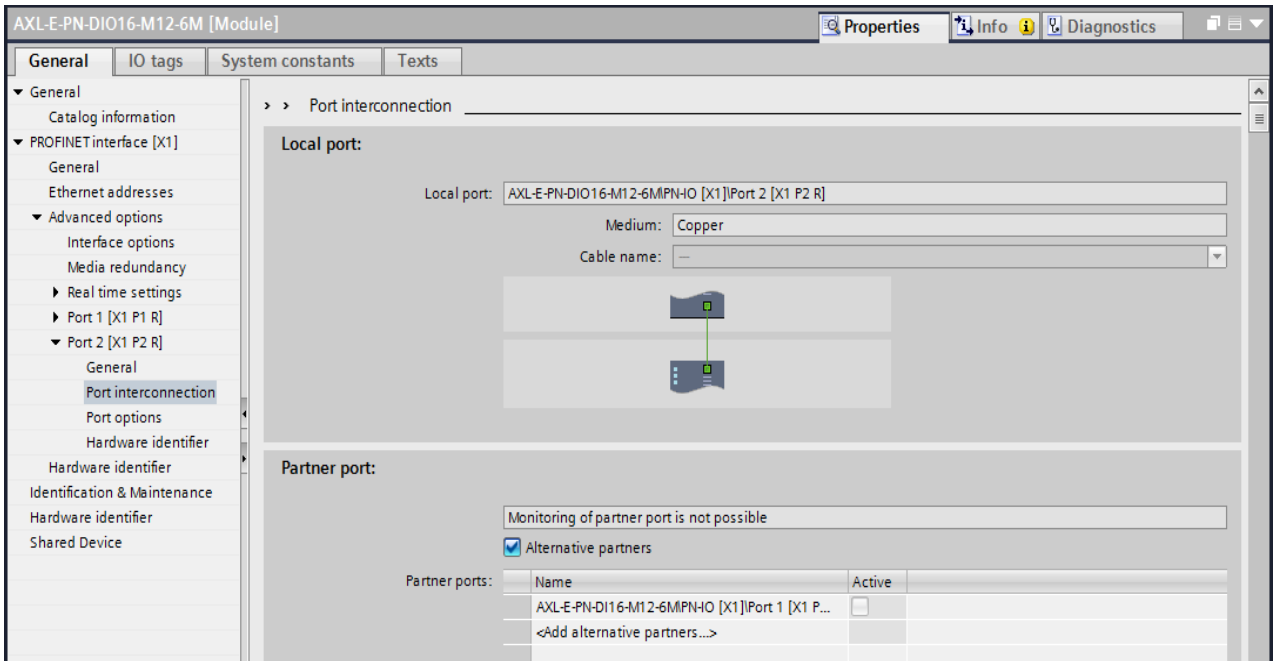

Figure 3 Setting alternating partner ports

Due to the settings made, the dashed lines are automatically drawn. All interconnections are listed once again in the “Topology overview” tab.

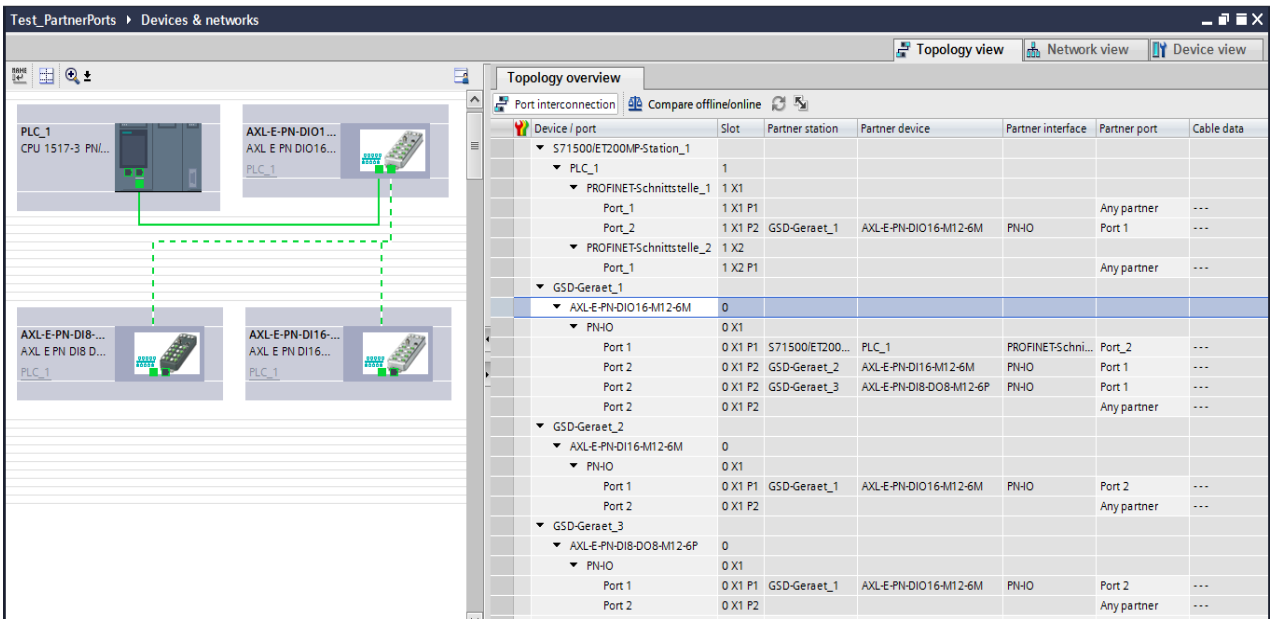

Figure 4 “Topology overview” tab

- Next, connect the controller to the first PROFINET device.

8 Downloading the project to the controller

- Now download the project to the controller to test the settings made so far.
  The last two devices should be deactivated.
  In the “Network overview” tab, you can see that these devices are deactivated by the icons that appear before them.

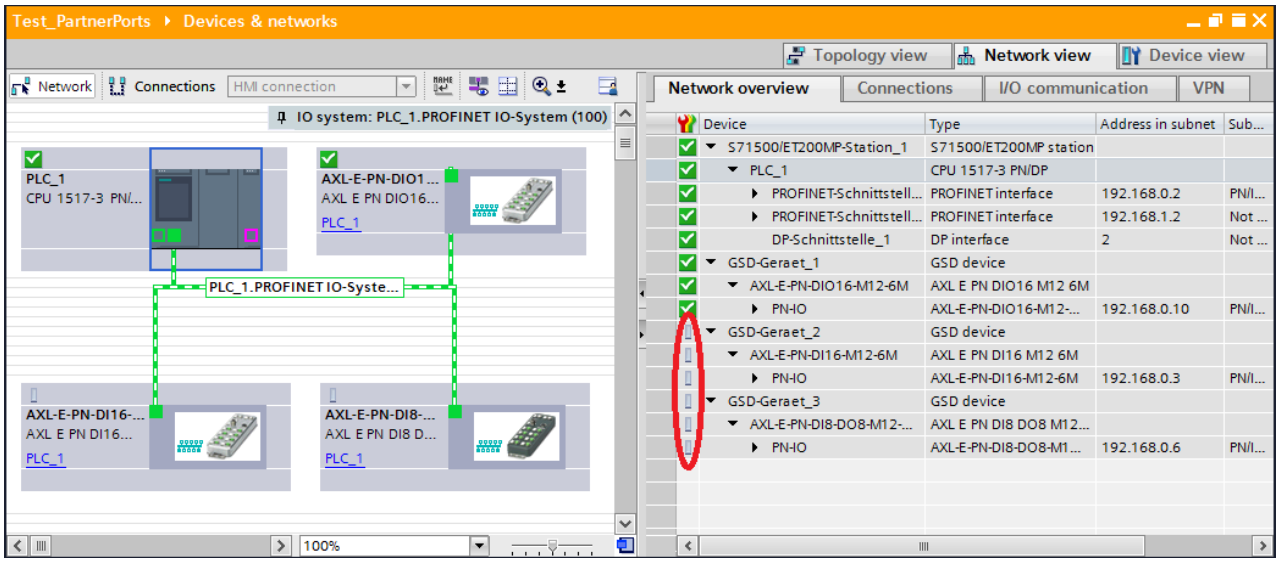

Figure 5 Deactivated devices

Diagnostic icons for modules and devices

The following table shows the possible icons and their meaning.

Icon	Meaning
	The connection with a CPU is currently being established.
	The CPU is not reachable at the set address.
	The configured CPU and the CPU actually present are of incompatible types.
	On establishment of the online connection to a protected CPU, the password dialog was terminated without specification of the correct password.
	No fault
	Maintenance required
	Maintenance demanded
	Error
	The module or device is deactivated.
	The module or the device cannot be reached from the CPU (valid for modules and devices below a CPU).
	No input or output data are available, because the (sub)module has blocked its input or output channels.
	Diagnostics data are not available because the current online configuration data differ from the offline configuration data.
	The configured module or device and the module or device actually present are incompatible (valid for modules or devices under a CPU).
	The configured module does not support display of the diagnostics status (valid for modules under a CPU).
	The connection is established, but the module status has not yet been determined or is unknown.
	The configured module does not support display of the diagnostics status.
	Hardware error in lower-level component: A hardware error is present in at least one lower-level hardware component. (occurs as a separate icon only in the project tree)

- To activate the devices, use control function SFC45 (D_ACT_DP). This function can activate and deactivate selected PROFINET and PROFIBUS slaves.

The table below contains the settings for parameterization:

Parameter	Declaration	Data type	Memory area	Description
REQ	INPUT	BOOL	E, A, M, D, L or constant	Level-triggered control parameter REQ = 1 Carry out activation/deactivation
MODE	INPUT	USINT	E, A, M, D, L or constant	Order ID, possible values:
				0: obtain information as to whether the addressed component is activated or deactivated; output via RET_VAL parameter
				1: activate DP slave/PROFINET IO device
				2: deactivate DP slave/PROFINET IO device
LADDR	INPUT	HW_Device	E, A, M, D, L or constant	Hardware ID of the DP slave (HW_DPSlave)/ PROFINET IO device (HW_Device) The number can be taken from the DP slave/PROFINET IO device properties in the network overview or the "System constants" tab of the standard variables table. If the ID for the device diagnostics as well as the ID for the operating state transitions is output there, you must use the ID for the device diagnostics.
RET_VAL	RETURN	INT	E, A, M, D, L	If an error occurs when processing the application, the return value contains an error code.
BUSY	OUTPUT	BOOL	E, A, M, D, L	Activation: Busy = 1: the order is still active. Busy = 0: the order has been finished.

9 OB 1: block wiring

- The SFC45 block wiring and wiring with flags can be seen in the following window. They are easily controlled in the example later.

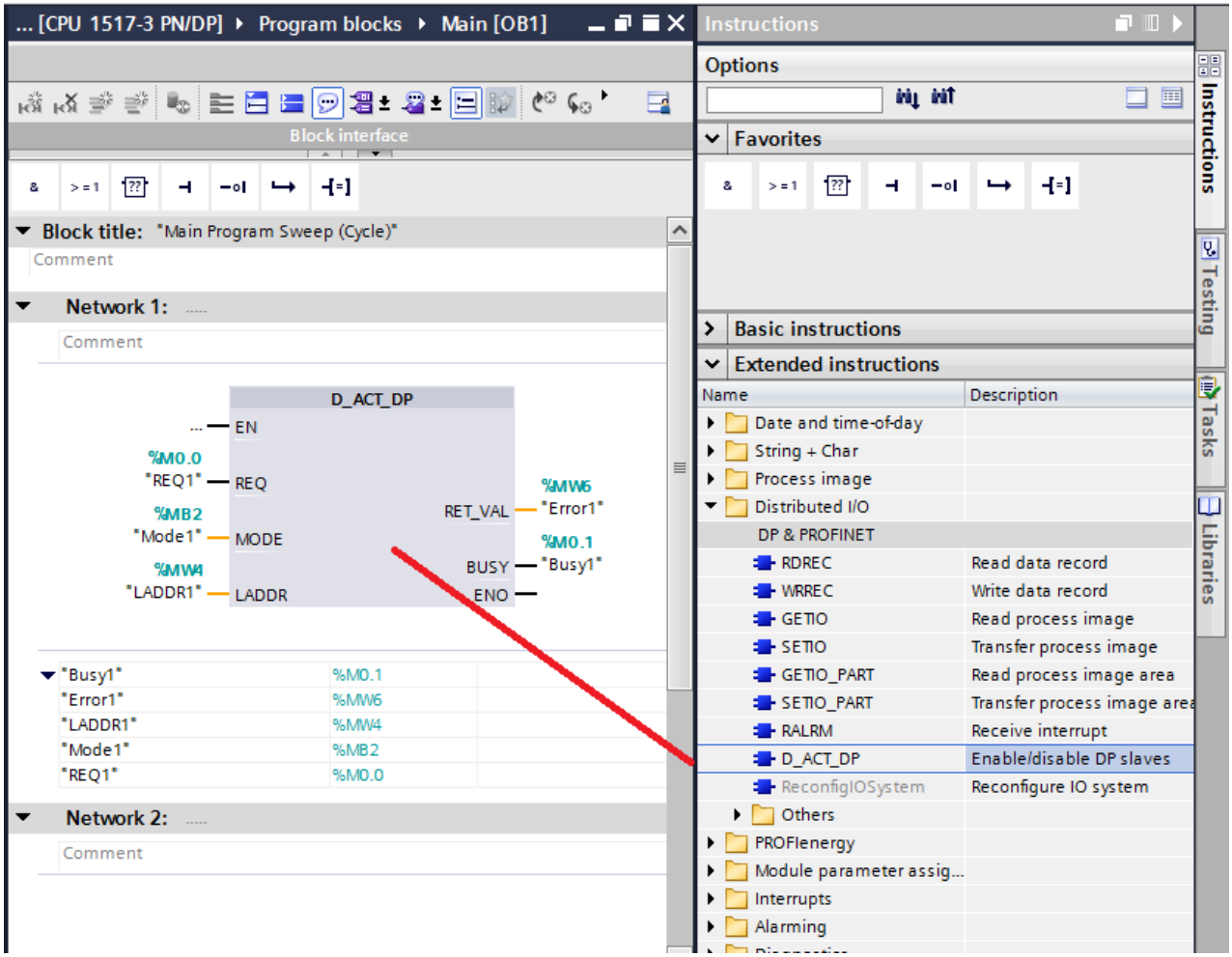

Figure 6 Block wiring

10 Activating the device

To activate the AXL E PN DI16 M12 6M device, wire control function SFC45 as follows:

- REQ = 1 (block activation)
- MODE = 2_{hex} (activate slave)
- LADDR = $10B_{hex}$
  (267_{dec} = hardware ID; DI16 -> IO device)

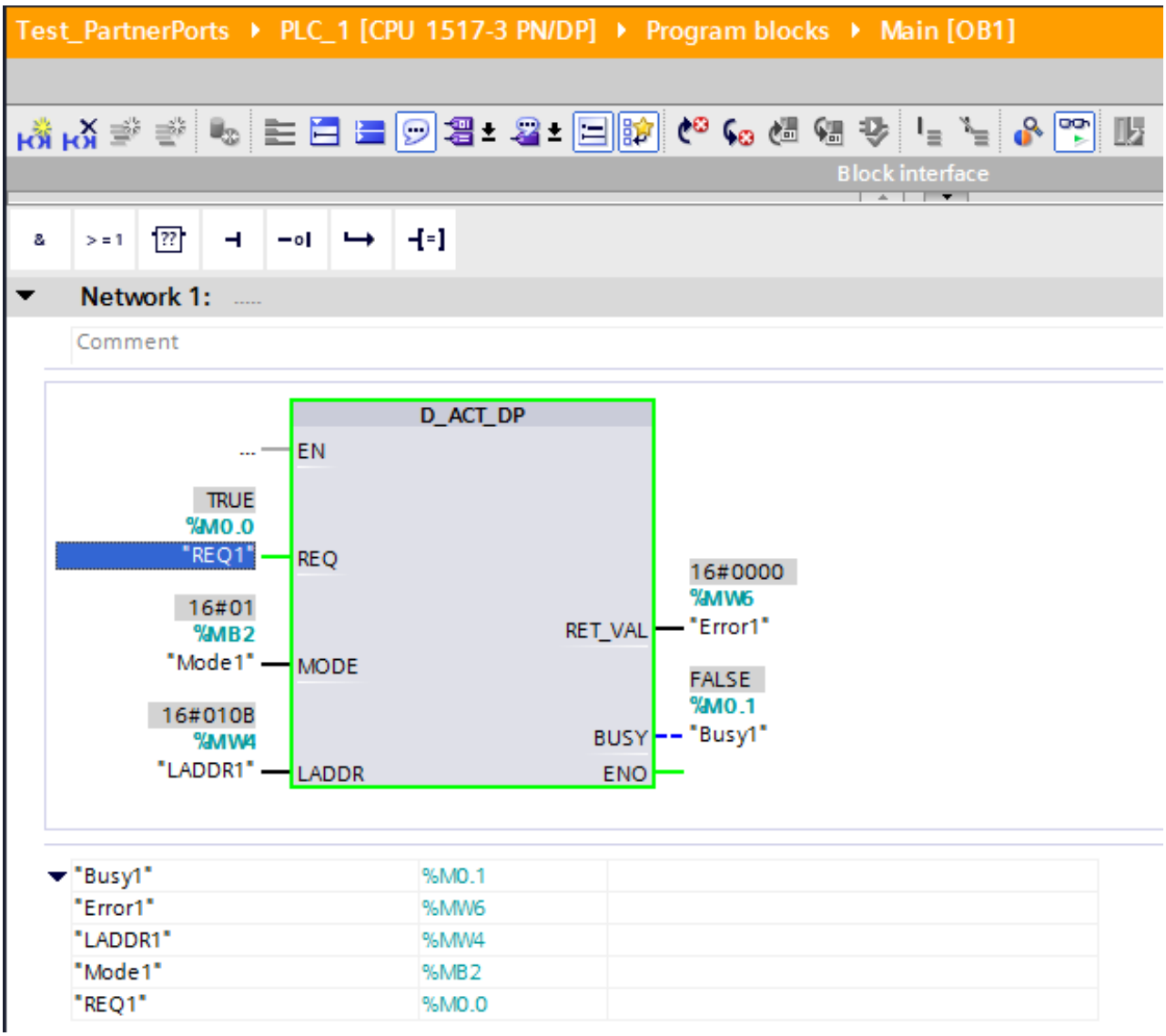

Figure 7 Control function SFC45

The device hardware ID is required for “LADDR”. There are two ways of determining the device hardware ID.

Option 1:

- In the network overview, select the **entire device**.
- Under “Properties”, select the “System constants” tab.
- The hardware ID appears there.

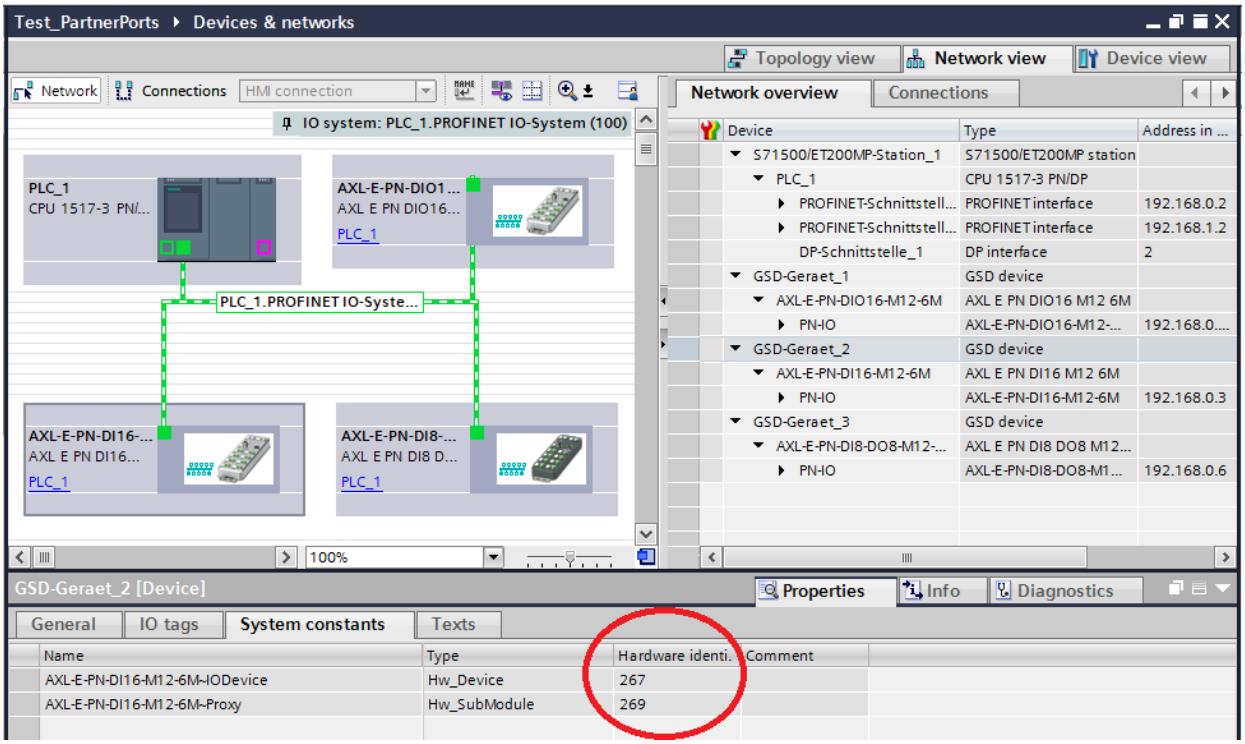

Figure 8 Option 1: displaying the hardware ID

Option 2:

- In the variables table (all variables), select the “System constants” tab.
- The device hardware ID appears there.

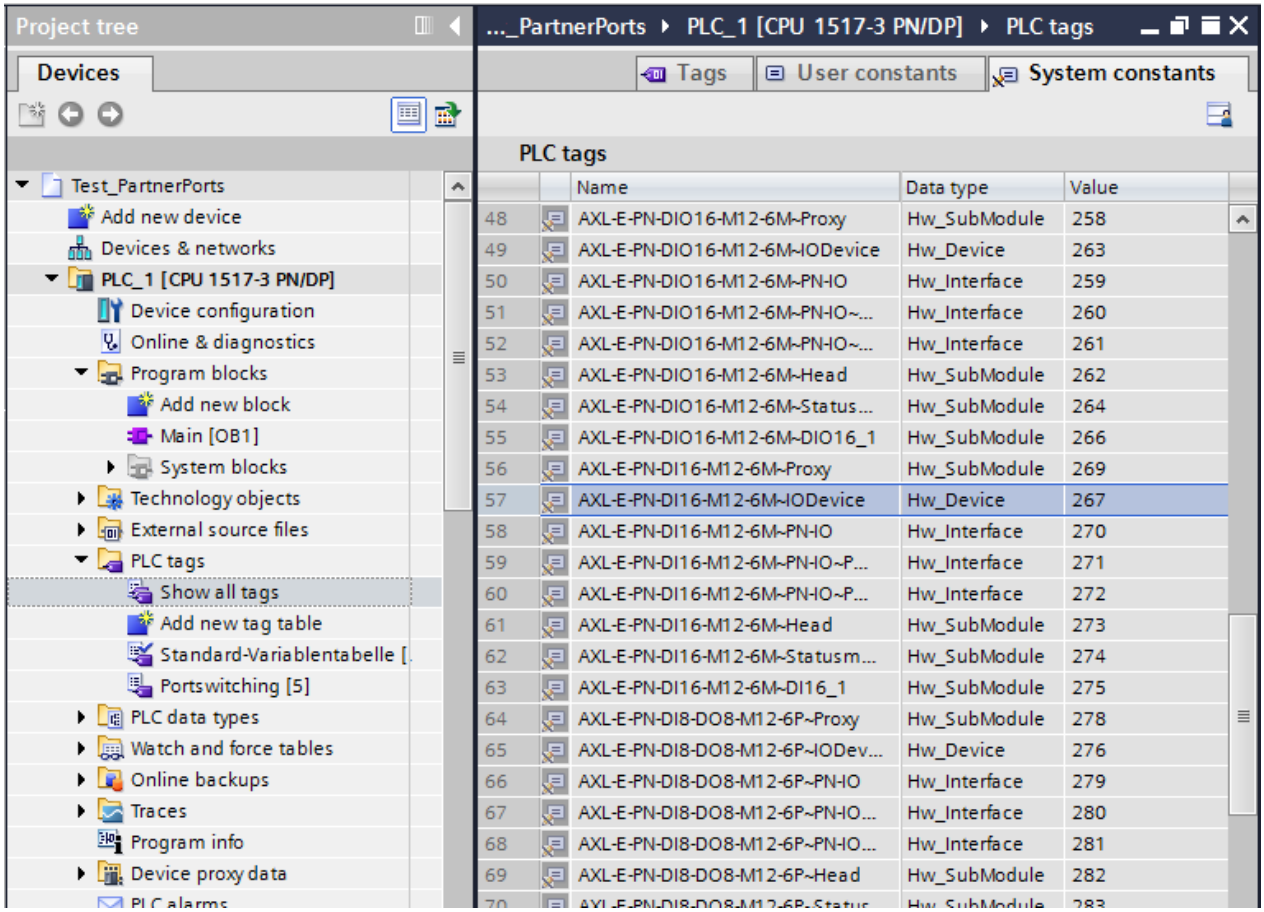

Figure 9 Option 2: displaying the hardware ID

The device is now activated and ready to operate.

- To activate the other device, you must deactivate the first device again.

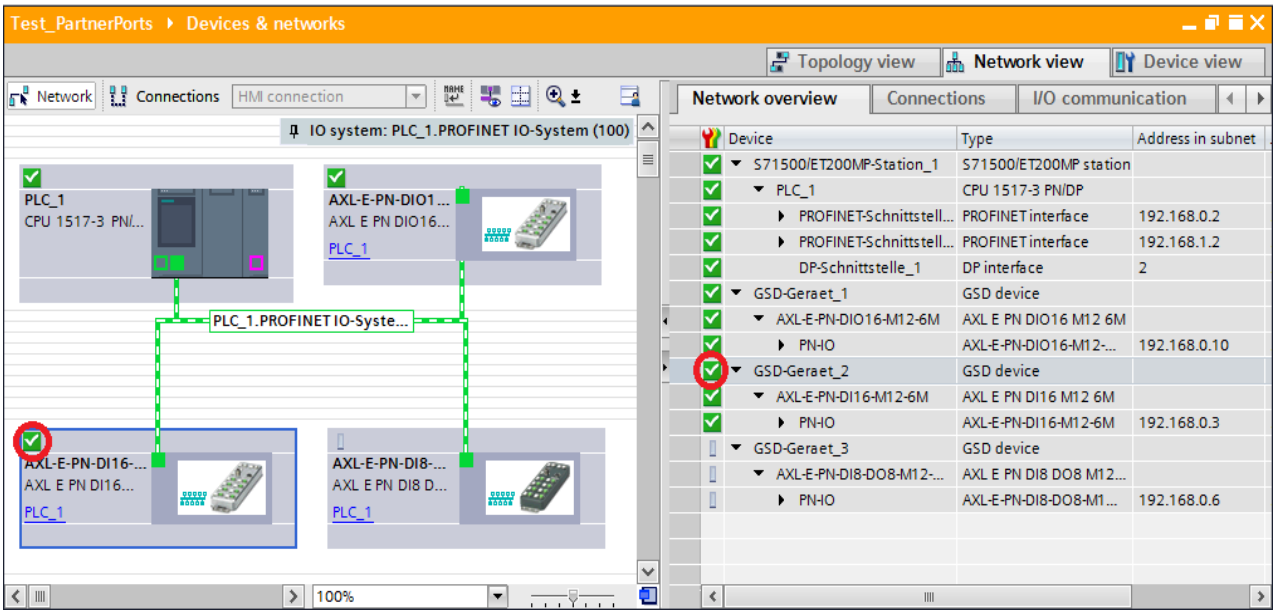

Figure 10 Device ready for operation

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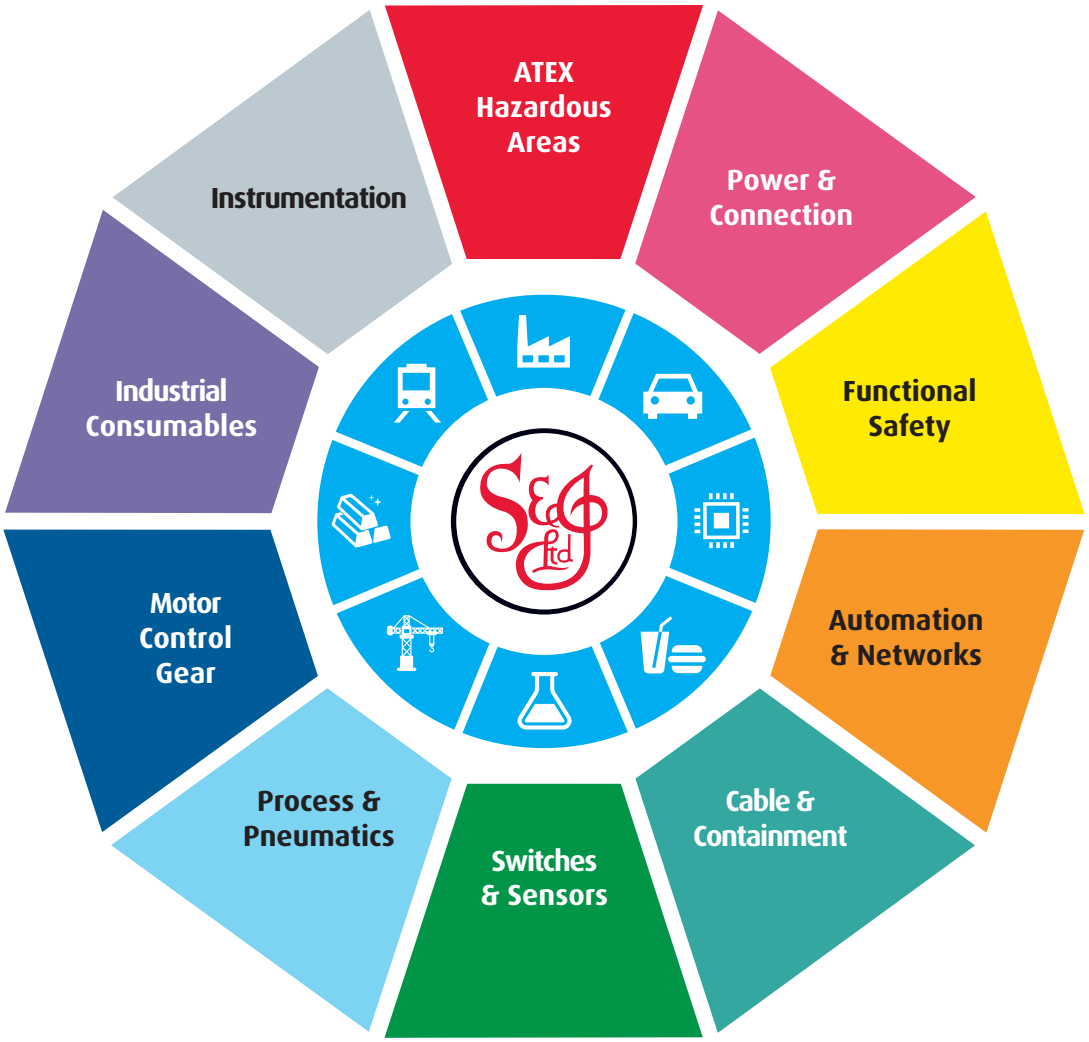

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