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ProfiNet Absolute Encoder Quick Start Manual



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> 1. Create a Project

Siemens Totally Integrated Automation PORTAL

Create new project

Project name:

Path:

Author: Administrator

Comment:

Create

1. Select "Create new project"

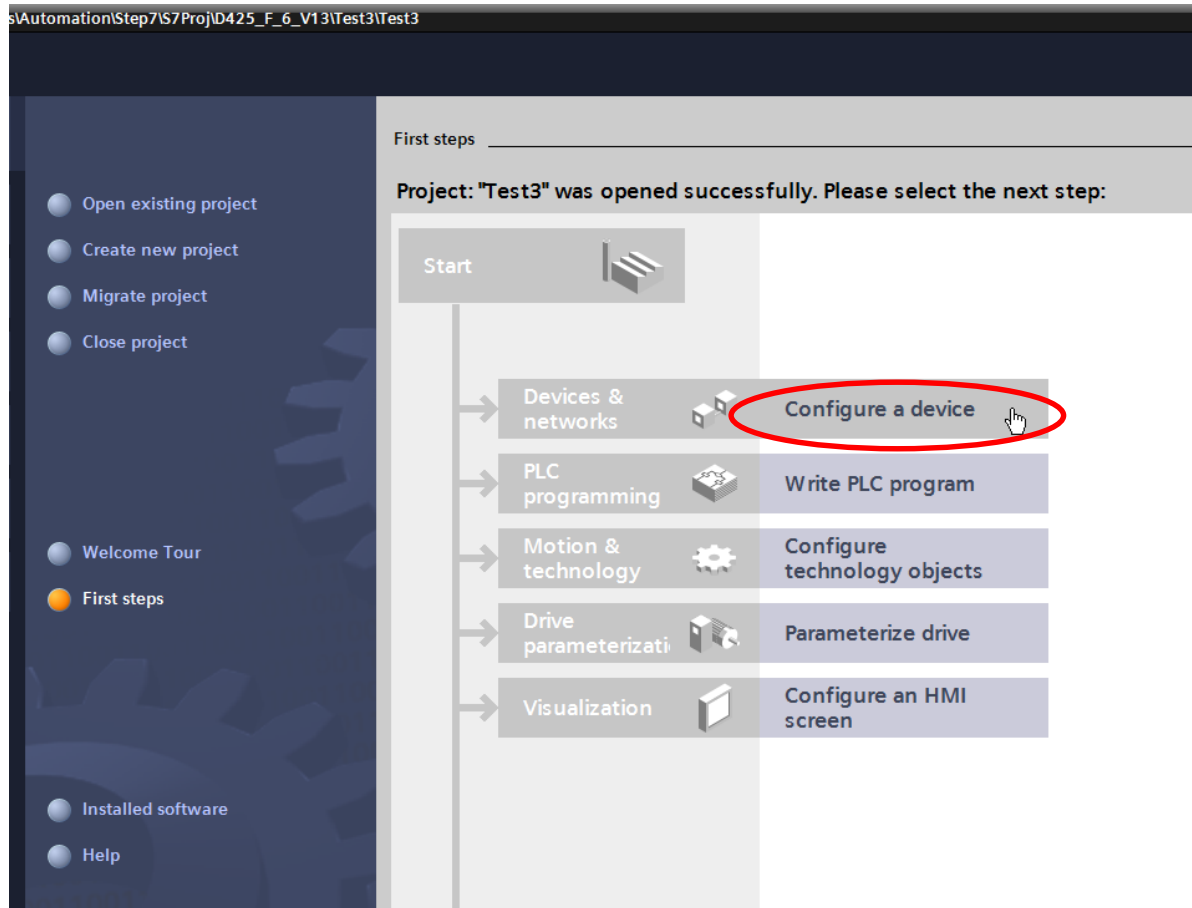
2. Type in Project name

3. "Create"

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> 2. Configure a device



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> 3. Choose the PLC

1. Add new device

Device name: PLC_1

2. Choose your PLC in the list
Make sure you choose the right version

3. Click "Add"

Open device view

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4. Add the encoder

1. Go to "Network view" tab

3. Drag and drop the encoder next to the PLC

2. Find your encoder in the list

The screenshot displays the Siemens SIMATIC Manager interface. The main window shows the 'Network view' tab, which is circled in red. Below this, the 'Network overview' table lists the following components:

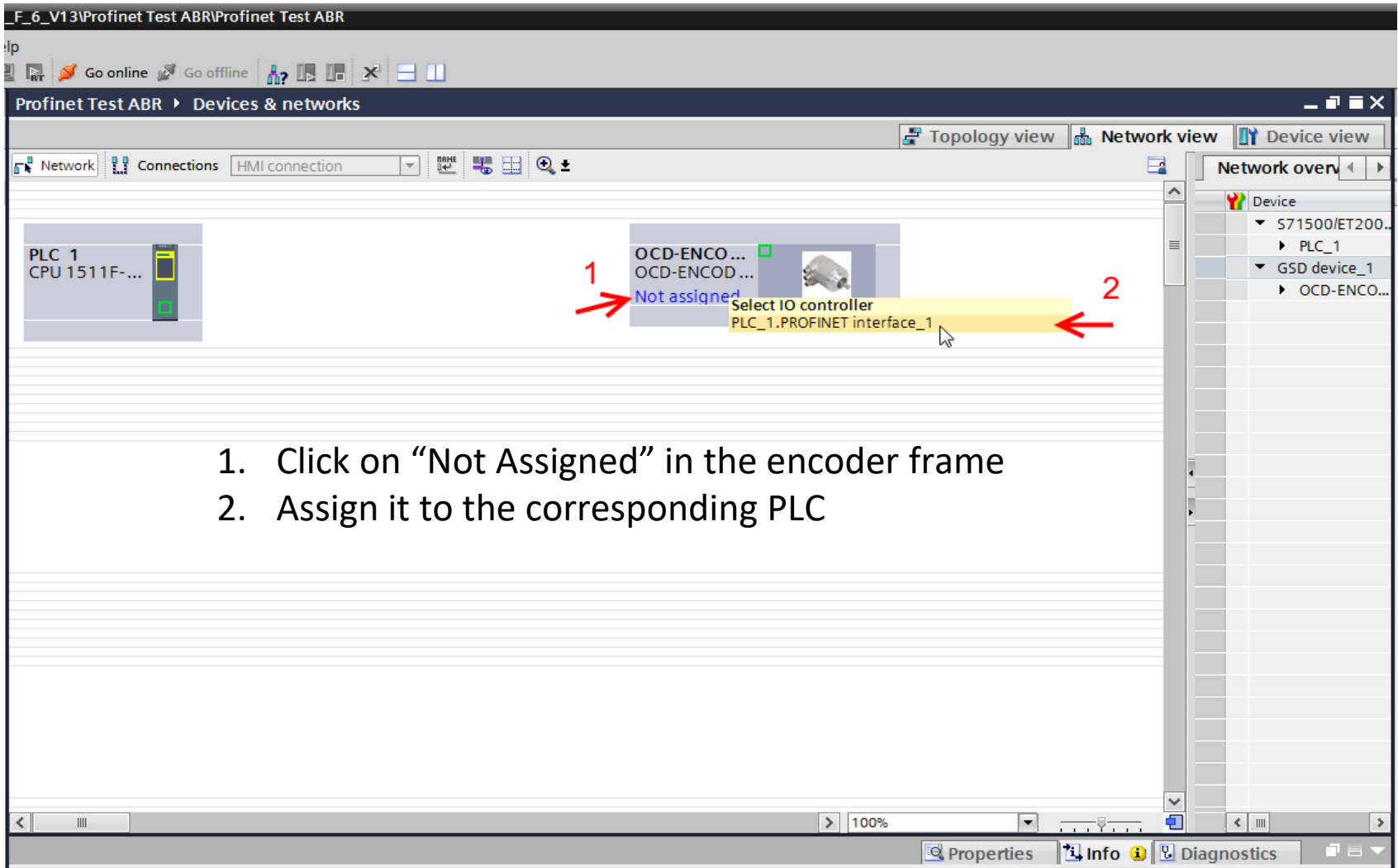
Device	Type	Address in subnet	...
S71500/ET200MP station_1	S71500/ET200MP stati...		
PLC_1	CPU 1511F-1 PN		
PROFINET interface_1	PROFINET interface	192.168.0.1	N...
S71500/ET200MP station_2	S71500/ET200MP stati...		
PLC_2	CPU 1511F-1 PN		
PROFINET interface_1	PROFINET interface	192.168.0.1	N...
Port_1	Port		
Port_2	Port		
GSD device_1	GSD device		
OCD-ENCODER	OCD-ENCODER-MT121		

The 'Hardware catalog' on the right side of the interface shows a tree view of components. Under 'POSITAL OCD', the 'OCD-ENCODER-MT1216' and 'OCD-ENCODER-MT1413' are highlighted with a red circle. Red arrows from the text instructions point to the 'Network view' tab and the encoder in the catalog.

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➤ 5. Assign the encoder to the PLC



The screenshot displays the SIMATIC Manager interface in 'Network view'. On the left, a PLC rack contains 'PLC 1 CPU 1511F-...'. In the center, an encoder component is shown with the text 'OCD-ENCO ...' and 'OCD-ENCOD ...' and a status of 'Not assigned'. A yellow selection bar is positioned over the encoder, with a tooltip that reads 'Select IO controller' and 'PLC_1.PROFINET interface_1'. Two red arrows, labeled '1' and '2', indicate the sequence of actions: arrow 1 points to the 'Not assigned' text, and arrow 2 points to the yellow selection bar. The right-hand pane shows a 'Network overview' tree with a hierarchy: 'Device' -> 'S71500/ET200..' -> 'PLC_1' -> 'GSD device_1' -> 'OCD-ENCO...'. The bottom status bar includes 'Properties', 'Info', and 'Diagnostics' buttons.

1. Click on “Not Assigned” in the encoder frame
2. Assign it to the corresponding PLC

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➤ 6. Establish a connection

1. Go to "Topology view" tab

2. Connect the relevant ports of the device and the PLC via drag and drop

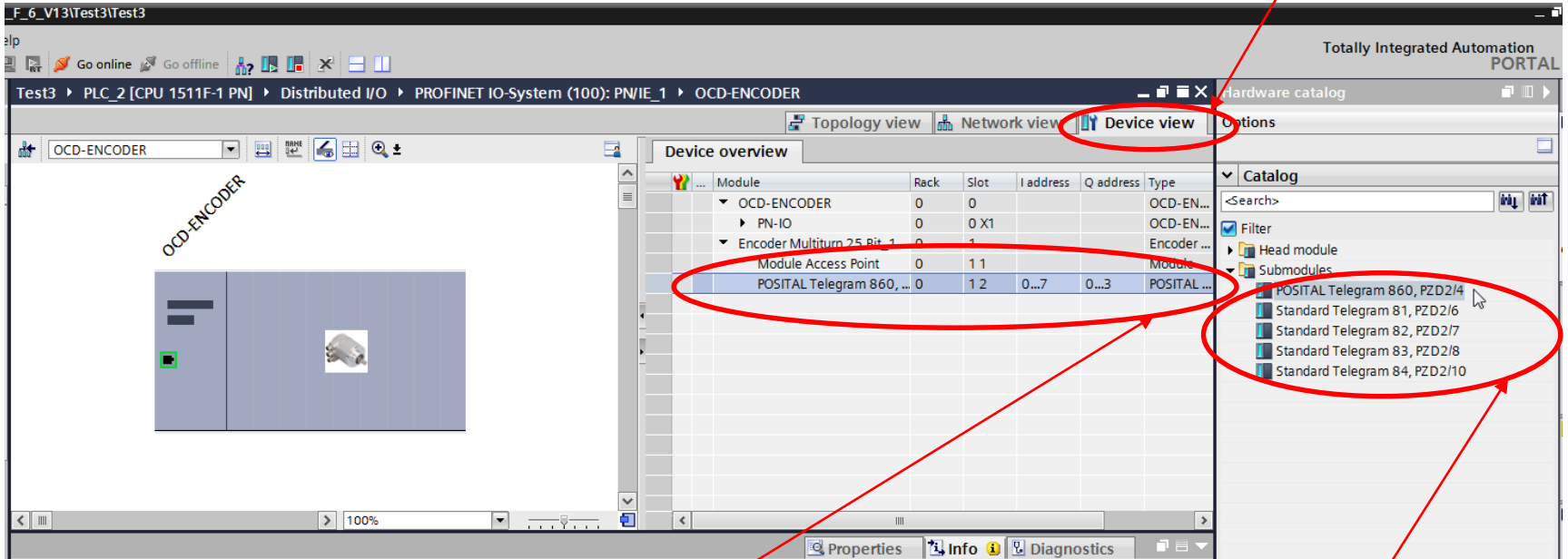
Important:
The port you are using in the project must correspond to the ones actually connected by the cable

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➤ 7. Choose the Telegram to be used

1. Go to the “Device View” Tab



3. Drag and drop the telegram on a free line

2. Choose the Telegram you want to use in the list

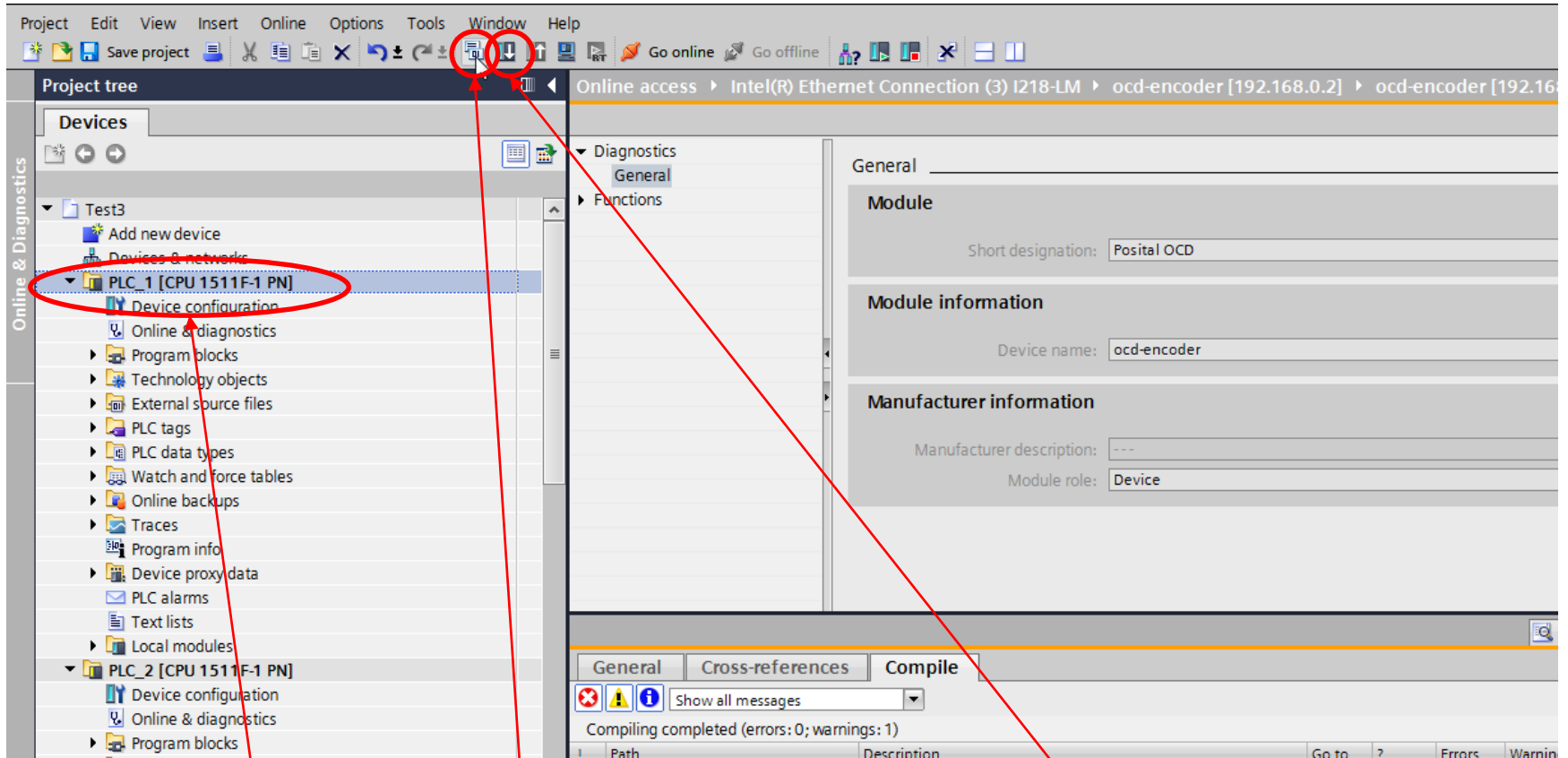
Important:

We recommend to use the Telegram 860

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➤ 8. Compile and Download Settings



1. Select the right PLC

2. Click on "Compile"

3. Click on "Download to Device"

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> 9. Assign Address & Name

1. Set the interface information

The screenshot shows the 'Extended download to device' window. It features a table for 'Configured access nodes of *PLC_1*', a section for 'Type of the PG/PC interface' with dropdown menus, a table for 'Compatible devices in target subnet', a 'Start search' button, and a 'Load' button. Red circles and arrows highlight these key elements.

Device	Device type	Slot	Type	Address	Subnet
PLC_1	CPU 1511F-1 PN	1 X1	PN/IE	192.168.0.1	PN/IE_1

Type of the PG/PC interface:

PG/PC interface:

Connection to interface/subnet:

1st gateway:

Device	Device type	Type	Address	Target device
plc_1	S7-1500	PN/IE	192.168.0.1	---
---	---	PN/IE	Access address	---

2. Start Search

3. Select the matching PLC

4. Load

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➤ 10. Monitor Position & Velocity(*)

3. Click on "Show/Hide"

4. Click on "Monitor value"

The screenshot shows the POSITAL software interface. The 'Project tree' on the left is expanded to 'Watch and force tables', where 'Force table' is selected. The main window displays a table with the following data:

	Address	Display format	Monitor value	Monitor with trig...	Force value	F	Comment
1	%QD0:P	Hex		Permanent	16#8000_0000	<input checked="" type="checkbox"/>	
2	%ID0:P	Hex	16#0000_632B	Permanent		<input type="checkbox"/>	
3						<input type="checkbox"/>	

The bottom panel shows the 'Compile' tab with the following output:

Path	Description	Go to	?	Errors	Warnings	Time
PLC_1				0	0	11:01:28 AM
Program blocks				0	0	11:01:28 AM
No block was compiled. All blocks are up-to-date.						
Compiling completed (errors:0; warnings:0)						

1. Go in
"Force table"

2. In a free row, add:

- "%ID0" to monitor the position
- "%ID4" to monitor the velocity

(*)Important:

The values in red depend on the chosen Telegram (here given for Telegram 860).

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➤ 11. Preset Value

3. Click on "Force"

4. This two values should be equal

2. Add the desired value in this cell

Name	Address	Display format	Monitor value	Monitor with trig	Force value	Comment
1	%QD0:P	Hex	16#0000_632B	Permanent	16#8000_0000	
2		Hex		Permanent		
3						

General Cross-references Compile

Show all messages

Path	Description	Go to	?	Errors	Warnings	Time
PLC_1				0	0	11:01:28 AM
Program blocks				0	0	11:01:28 AM
	No block was compiled. All blocks are up-to-date.					11:01:28 AM
	Compiling completed (errors:0; warnings:0)					11:01:28 AM

1. In a free row, add "%QD0" to set the preset position value

(*)Important:

The value in red depend on the chosen Telegram (here given for Telegram 860).

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> 11. Preset Value Explanations

Referring to step 2. of the previous slide:

The position value that you set in the cell will be defined as the new position value just after you force the value.

The easiest way of defining it is to:

- Physically set the system (or at least the encoder) to its desired 0 position,
- In the cell of the step 2., set 0 as the position and the highest bit as high, choosing one of these formats:
 - In Hexadecimal (HEX): 16#8000_0000
 - In Binary (BIN): 16#1000_0000_0000_0000_0000_0000_0000_0000

We recommend to use the Hexadecimal values.

As it is shorter it is less likely to lead to mistakes.