

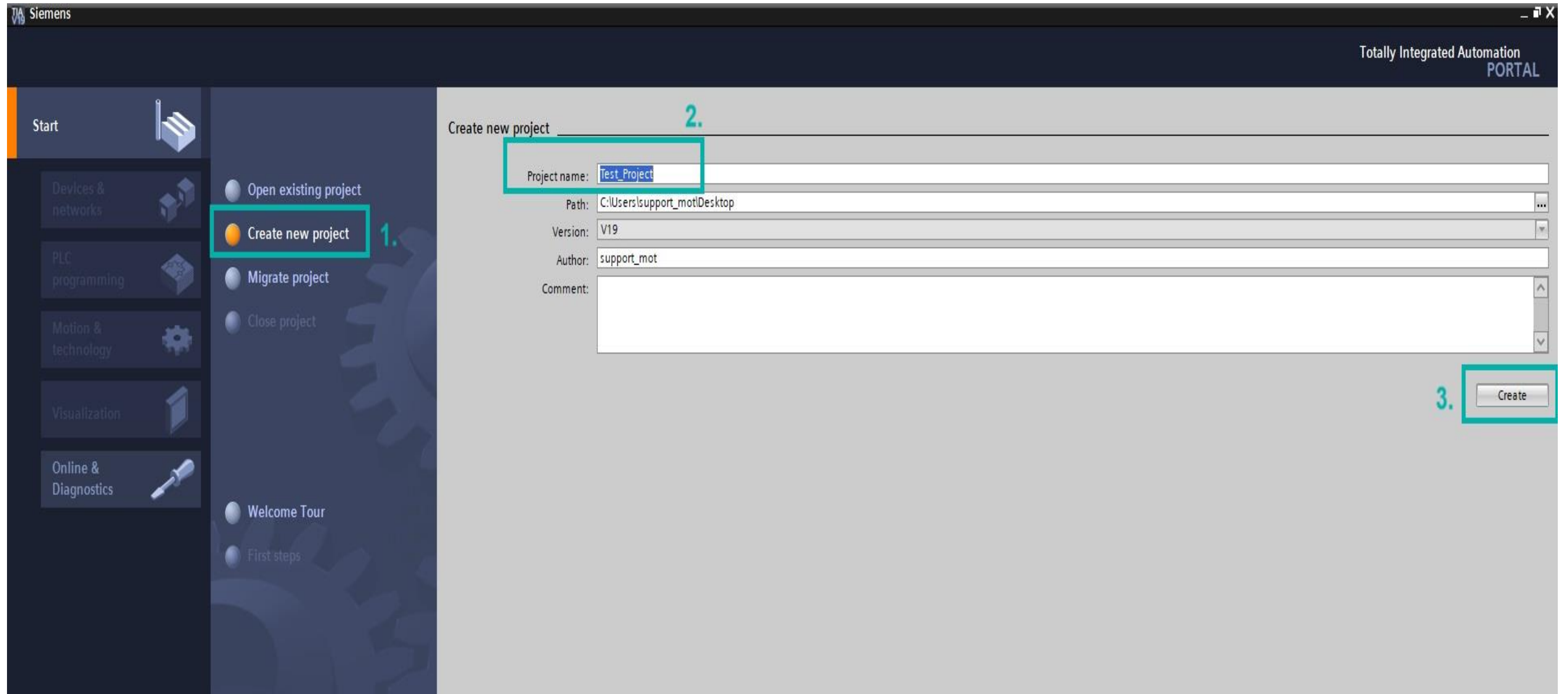


QUICKSTART INSTRUCTIONS



ABSOLUTE ENCODER WITH PROFINET INTERFACE

> Create a New Project



The screenshot shows the Siemens Totally Integrated Automation PORTAL software interface. The title bar at the top left reads "Siemens" and the top right reads "Totally Integrated Automation PORTAL". The left sidebar contains several menu items: "Start", "Devices & networks", "PLC programming", "Motion & technology", "Visualization", and "Online & Diagnostics". In the center of the sidebar, the "Create new project" option is highlighted with a red box and labeled "1.". The main workspace displays the "Create new project" dialog box, which is titled "Create new project" and labeled "2.". The dialog box contains the following fields: "Project name:" with the value "Test_Project" (highlighted with a red box), "Path:" with the value "C:\Users\support_mot\Desktop", "Version:" with the value "V19", "Author:" with the value "support_mot", and a "Comment:" text area. At the bottom right of the dialog box, there is a "Create" button, which is highlighted with a red box and labeled "3.". The background of the main workspace is a light gray color.

> Configure a Device

Siemens - C:\Users\support_mot\Desktop\Test_Project\Test_Project

Start

- Devices & networks
- PLC programming
- Motion & technology
- Visualization
- Online & Diagnostics

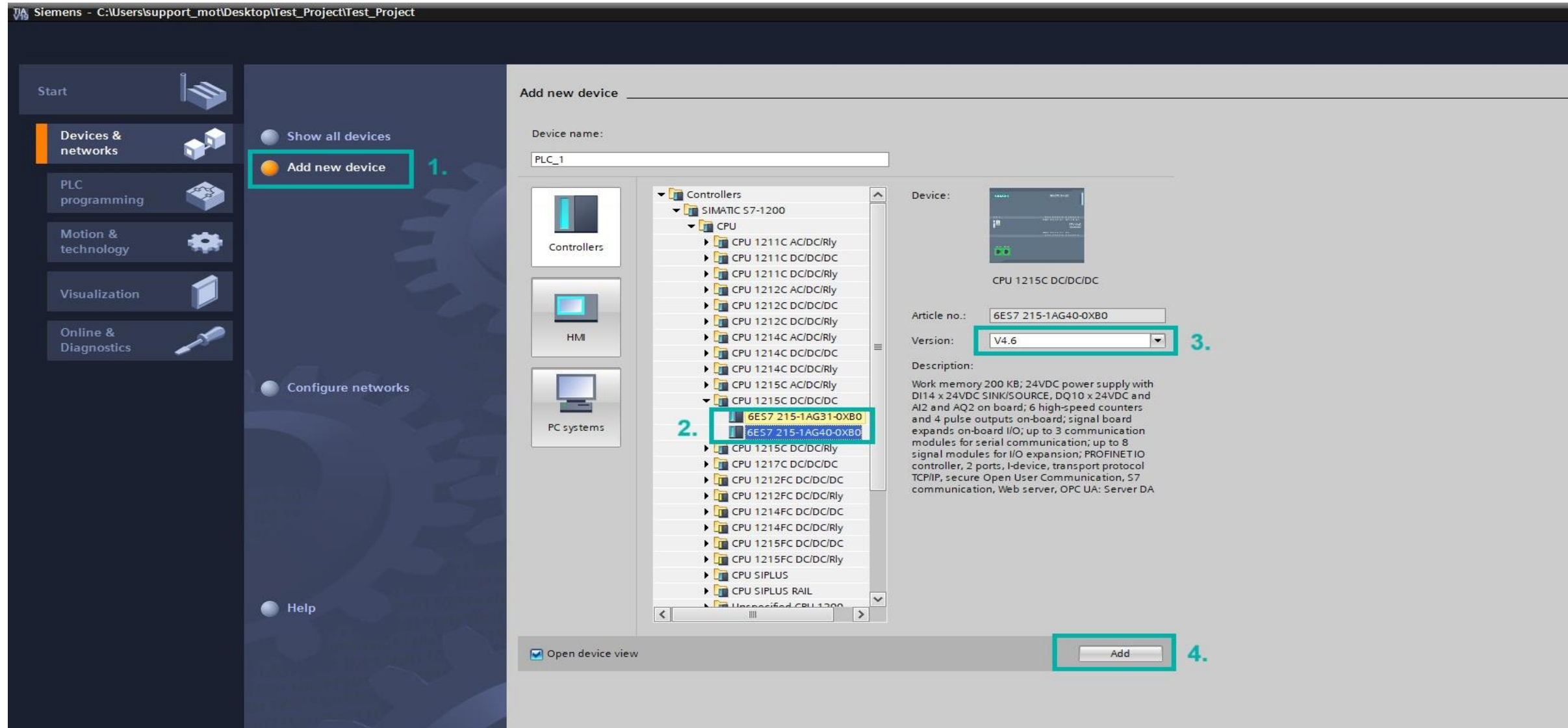
- Open existing project
- Create new project
- Migrate project
- Close project
- Welcome Tour
- First steps**
- Installed software
- Help
- User interface language

First steps

Project: "Test_Project" was opened successfully. Please select the next step:

- Start
- Devices & networks** - Configure a device
- PLC programming - Write PLC program
- Motion & technology - Configure technology objects
- Visualization - Configure an HMI screen
- Project view - Open the project view

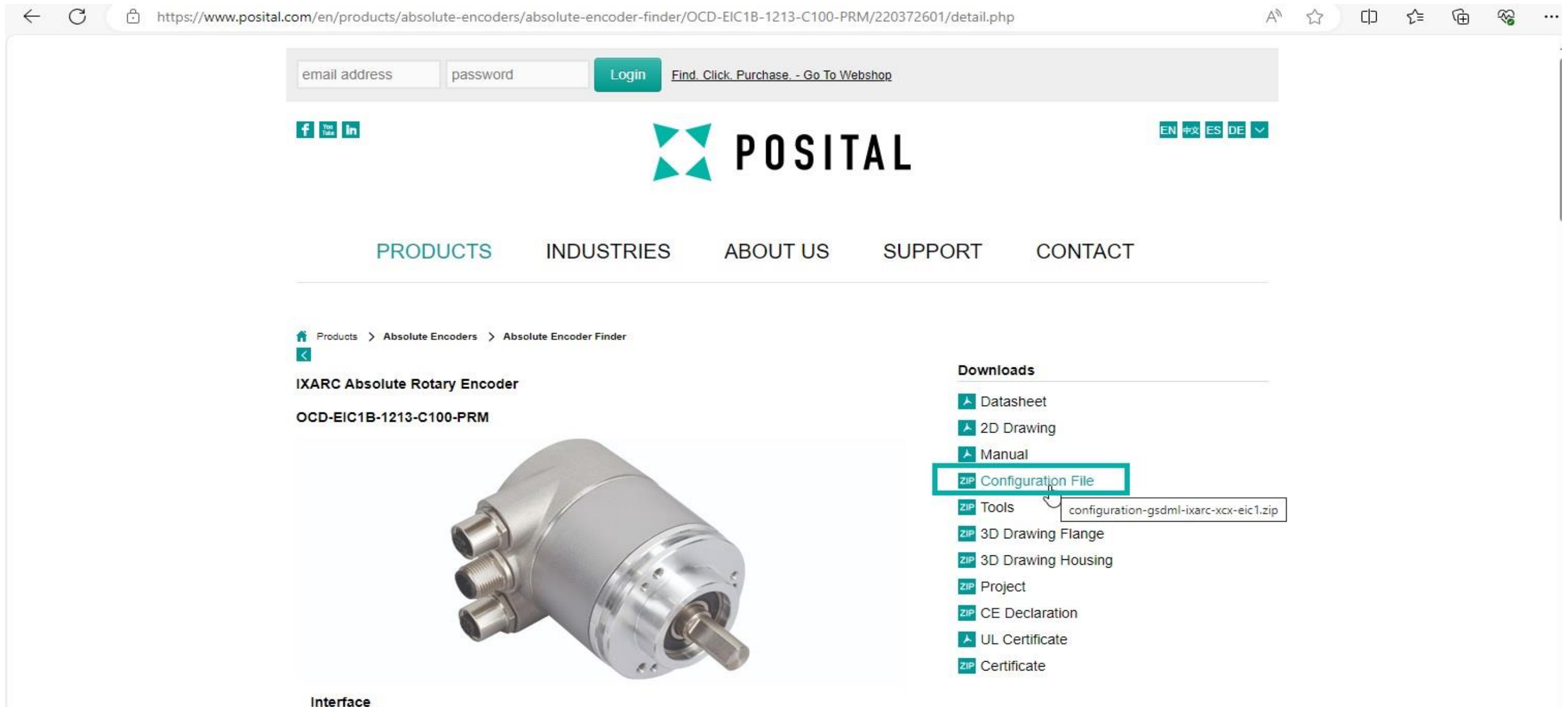
> Add a PLC



The screenshot shows the 'Add new device' dialog in Siemens SIMATIC Manager. The interface is divided into several sections:

- Left Panel:** A navigation menu with options: Start, Devices & networks (highlighted), PLC programming, Motion & technology, Visualization, Online & Diagnostics, Configure networks, and Help.
- Top Section:** 'Add new device' title and a 'Device name:' field containing 'PLC_1'.
- Device Selection:** A tree view under 'Controllers' > 'SIMATIC S7-1200' > 'CPU'. Two items are highlighted with a red box and labeled '2.':
 - 6ES7 215-1AG31-0XB0
 - 6ES7 215-1AG40-0XB0
- Device Details:** On the right, a preview of the selected device 'CPU 1215C DC/DC/DC' is shown. Below it, the 'Article no.' is '6ES7 215-1AG40-0XB0' and the 'Version' is 'V4.6' (highlighted with a red box and labeled '3.'). A 'Description' field provides technical specifications.
- Bottom Section:** A checkbox for 'Open device view' is checked. An 'Add' button is highlighted with a red box and labeled '4.'.

> Download the correct GSDML File from our Website




email address password Login Find. Click. Purchase. - Go To Webshop

f YouTube in EN 中文 ES DE

PRODUCTS INDUSTRIES ABOUT US SUPPORT CONTACT

Products > Absolute Encoders > Absolute Encoder Finder

IXARC Absolute Rotary Encoder
OCD-EIC1B-1213-C100-PRM

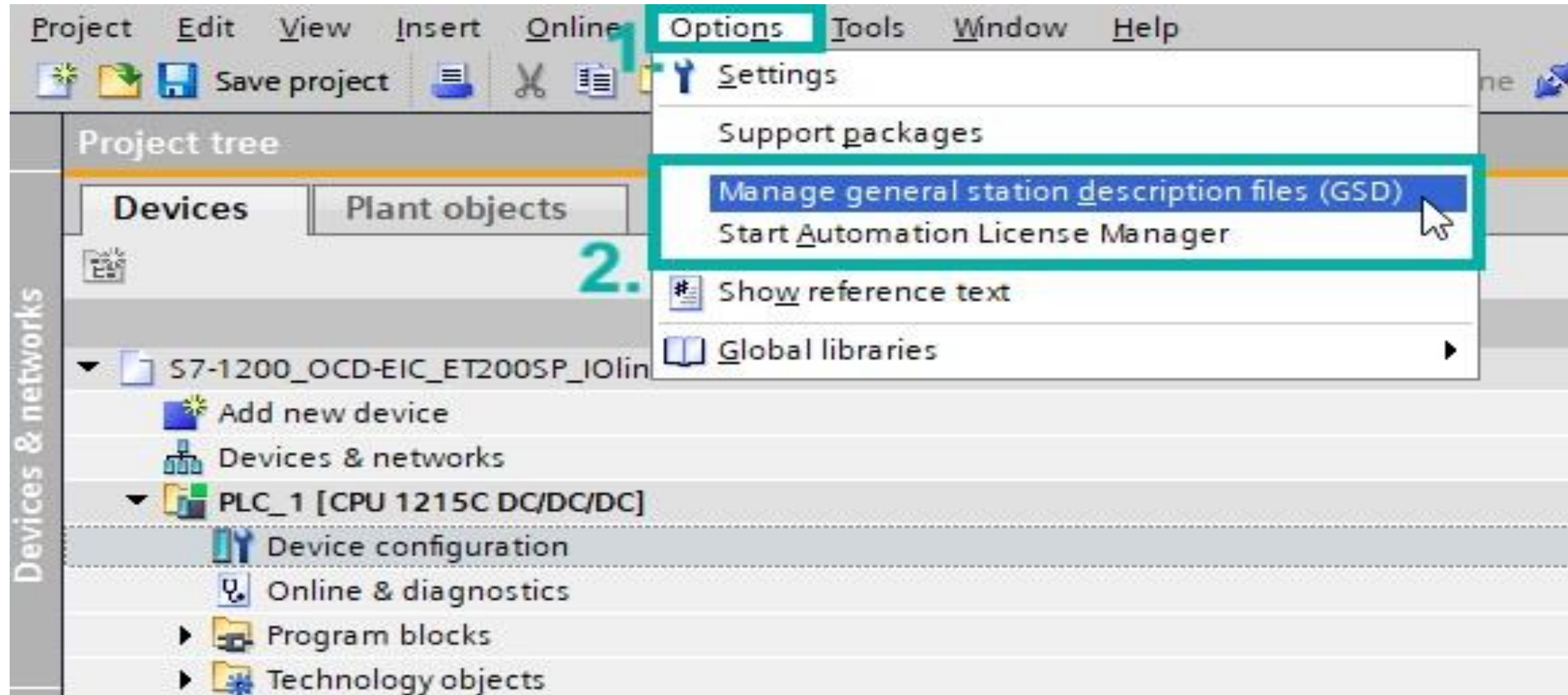


Interface

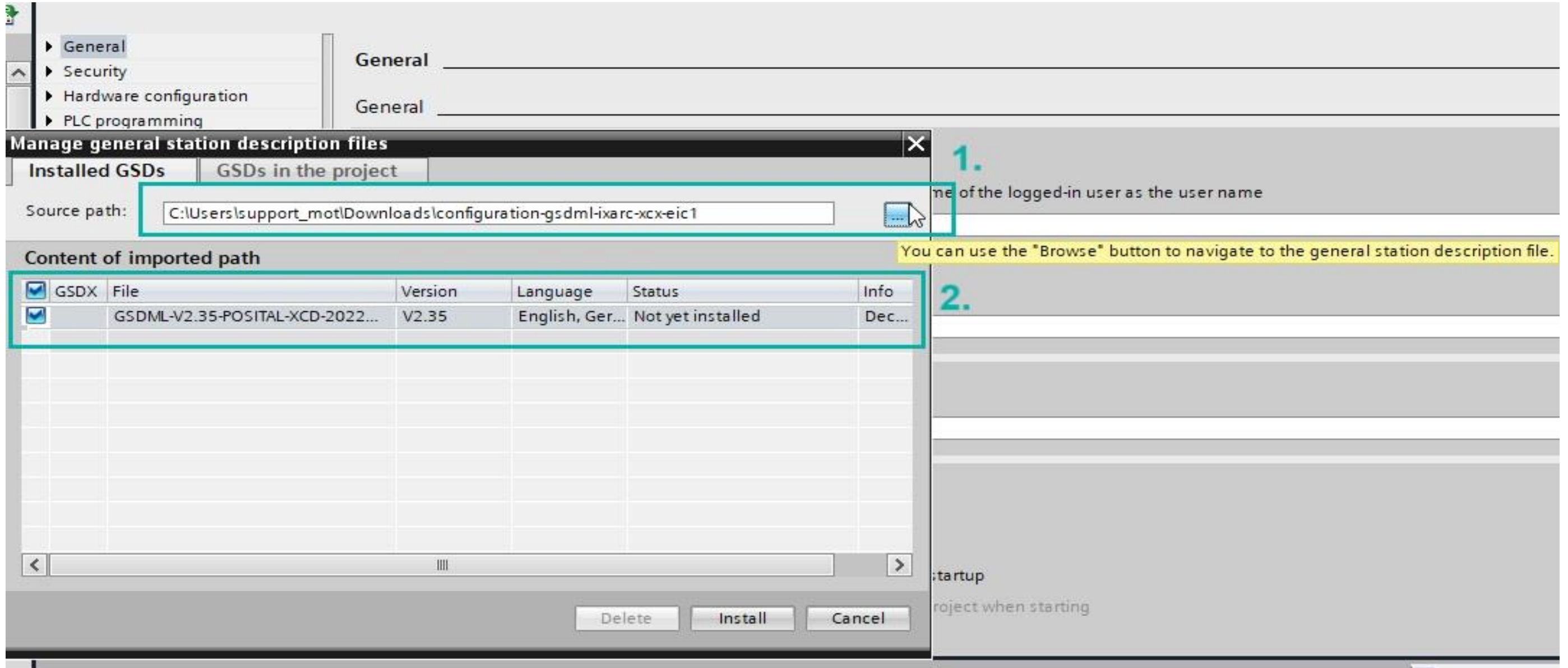
Downloads

- Datasheet
- 2D Drawing
- Manual
- ZIP Configuration File**
- Tools configuration-gsdml-ixarc-xcx-eic1.zip
- 3D Drawing Flange
- 3D Drawing Housing
- Project
- CE Declaration
- UL Certificate
- Certificate

➤ Add the GSDML File



➤ Install the GSDML file



The screenshot shows the 'Manage general station description files' dialog box. The 'Source path' field is highlighted with a red box and contains the path: `C:\Users\support_mot\Downloads\configuration-gsdml-ixarc-xcx-eic1`. A yellow callout box highlights the 'Browse' button and the table below it. The table is titled 'Content of imported path' and contains the following data:

<input checked="" type="checkbox"/>	GSDX	File	Version	Language	Status	Info
<input checked="" type="checkbox"/>		GSDML-V2.35-POSITAL-XCD-2022...	V2.35	English, Ger...	Not yet installed	Dec...

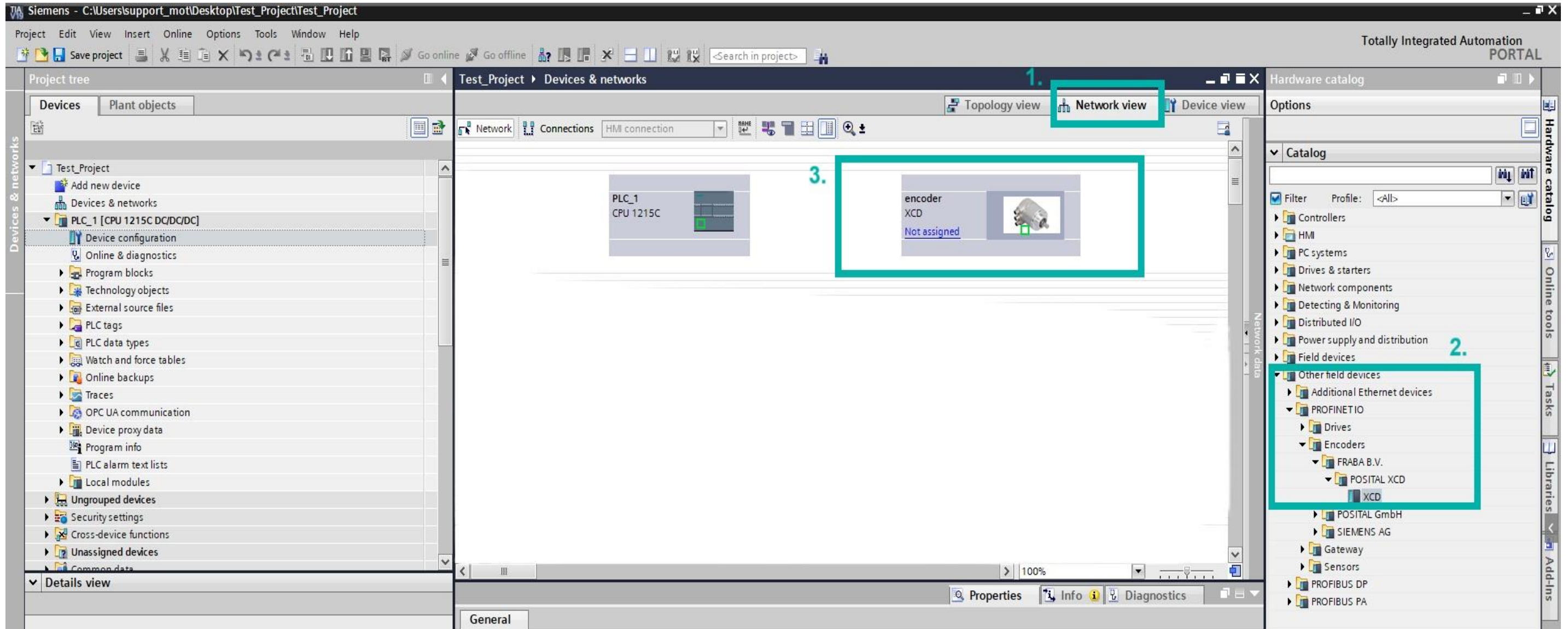
1.
me of the logged-in user as the user name

You can use the "Browse" button to navigate to the general station description file.

2.

startup
project when starting

➤ Add the Encoder



The screenshot displays the Siemens TIA Portal interface for a project named "Test_Project". The main workspace is in "Network view", showing a network diagram with a "PLC_1 CPU 1215C" and an "encoder XCD" (labeled "Not assigned"). A red box highlights the "Network view" tab, and another red box highlights the "encoder XCD" device. A third red box highlights the "encoder XCD" device in the hardware catalog on the right. The hardware catalog shows a tree structure under "Field devices" > "Other field devices" > "PROFINET IO" > "Encoders" > "FRABA B.V." > "POSITAL XCD" > "XCD". The "Details view" at the bottom shows the "General" tab.

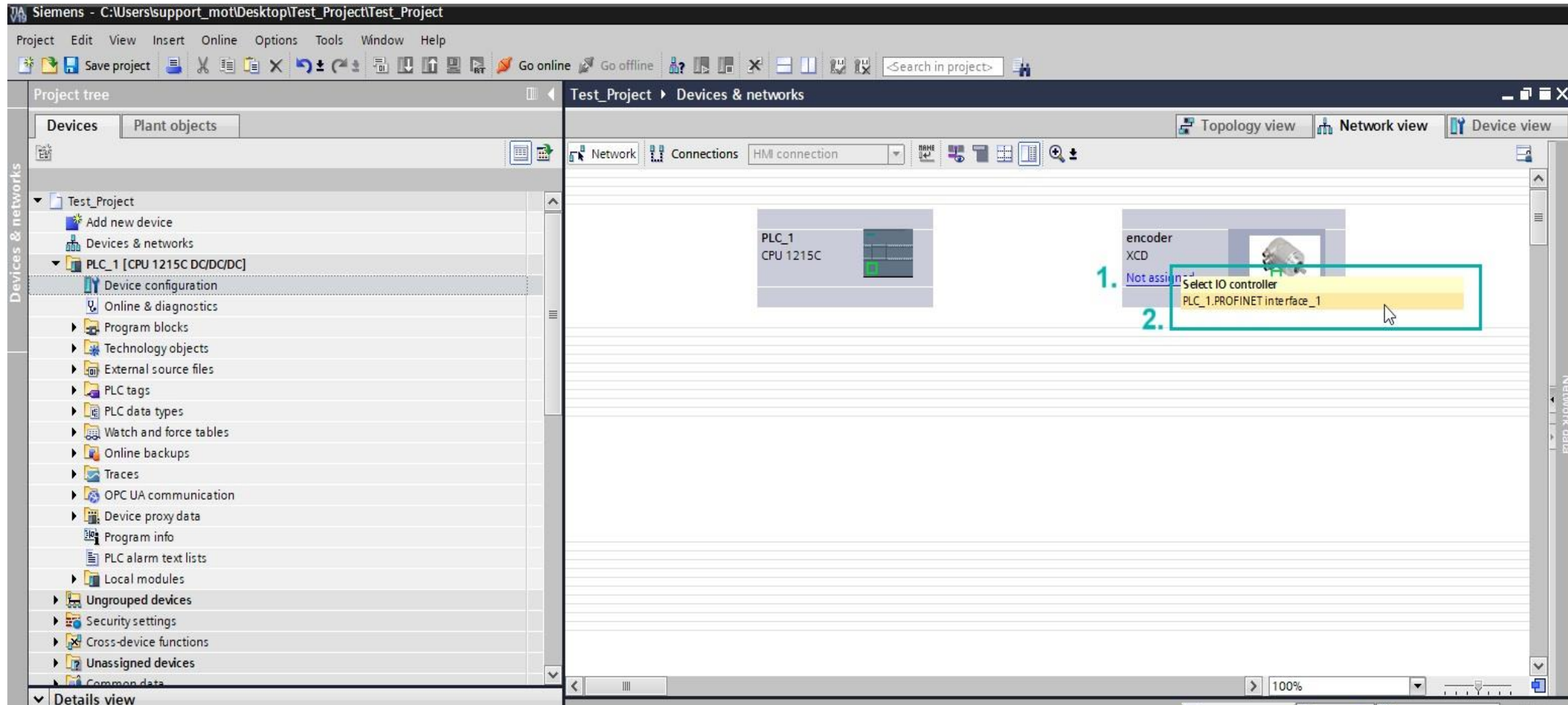
1. Network view

2. XCD

3. encoder XCD

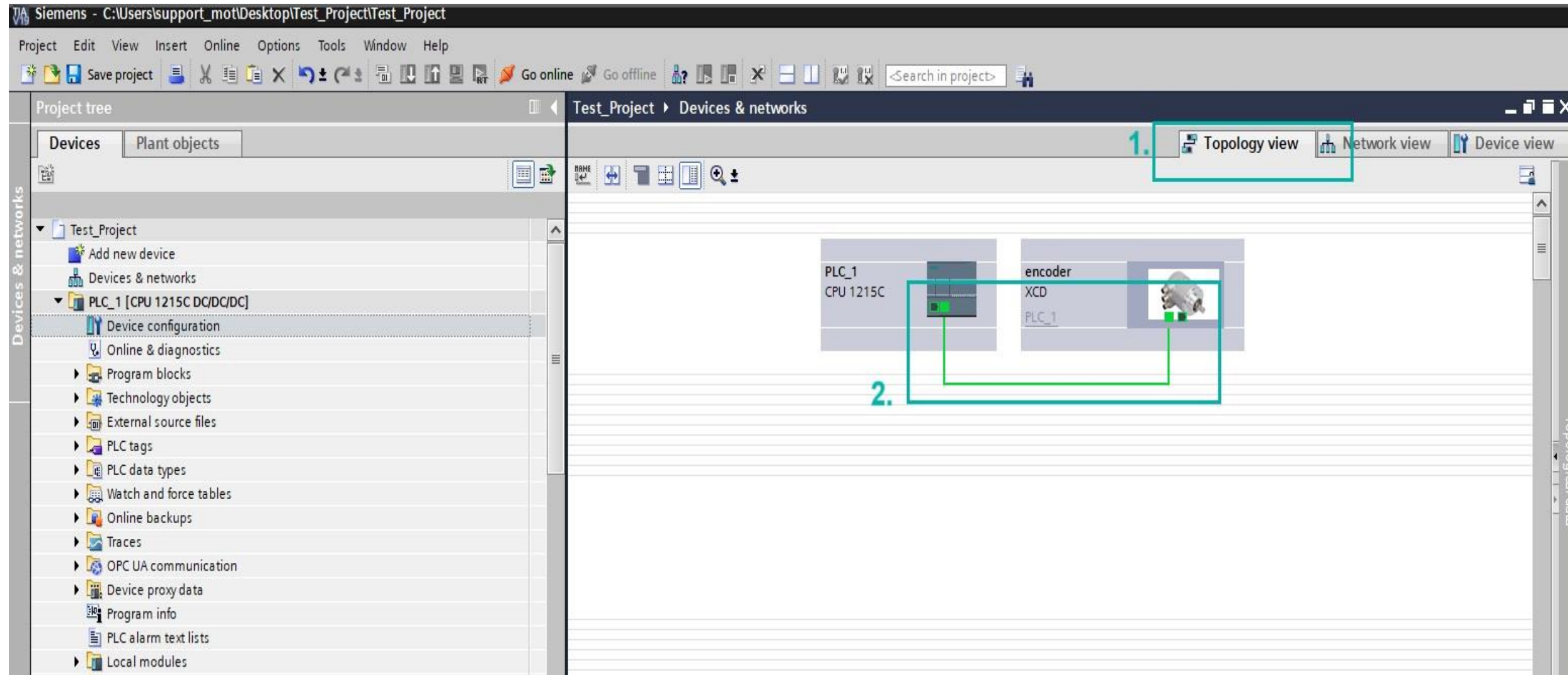
> Assign the Encoder

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



> Establish the Connection

Important: The connection must correspond with the onsite cable connection of your system.

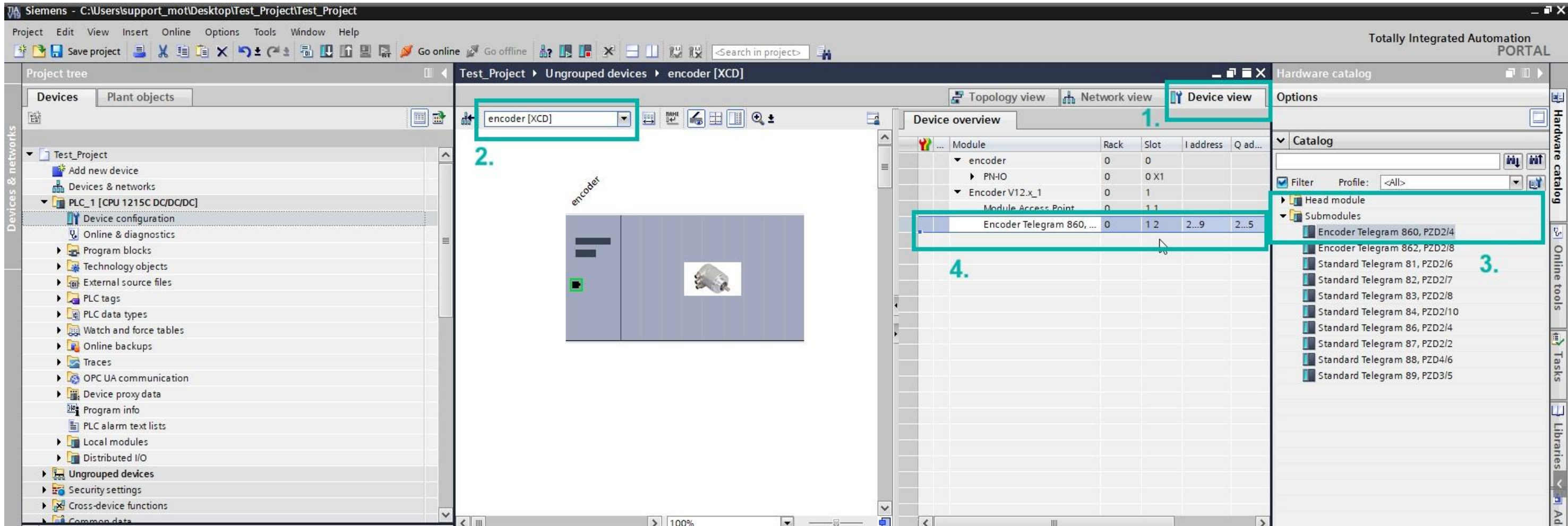


The screenshot displays the Siemens SIMATIC Manager interface. The left-hand pane shows the 'Project tree' with the following structure:

- Test_Project
 - Add new device
 - Devices & networks
 - PLC_1 [CPU 1215C DC/DC/DC]
 - Device configuration
 - Online & diagnostics
 - Program blocks
 - Technology objects
 - External source files
 - PLC tags
 - PLC data types
 - Watch and force tables
 - Online backups
 - Traces
 - OPC UA communication
 - Device proxy data
 - Program info
 - PLC alarm text lists
 - Local modules

The main workspace is titled 'Test_Project > Devices & networks' and is in 'Topology view'. It shows two device icons: 'PLC_1 CPU 1215C' and 'encoder XCD PLC_1'. A green line connects the two devices, representing the connection. A red box highlights the 'Topology view' button in the top toolbar, with a red '1.' next to it. A red '2.' is placed next to the connection line between the two devices. The bottom right corner of the workspace is labeled 'Topological data'.

➤ Choose the Telegram



Siemens - C:\Users\support_mot\Desktop\Test_Project\Test_Project

Project Edit View Insert Online Options Tools Window Help

Save project Go online Go offline Search in project

Totally Integrated Automation PORTAL

Project tree Test_Project ▶ Ungrouped devices ▶ encoder [XCD]

Devices Plant objects

encoder [XCD]

Topology view Network view Device view

Device overview

Module	Rack	Slot	I address	Q ad...
encoder	0	0		
▶ PN-IO	0	0 X1		
▶ Encoder V12_x_1	0	1		
Module Access Point	0	1.1		
Encoder Telegram 860, ...	0	1 2	2...9	2...5

Hardware catalog

Options

Catalog

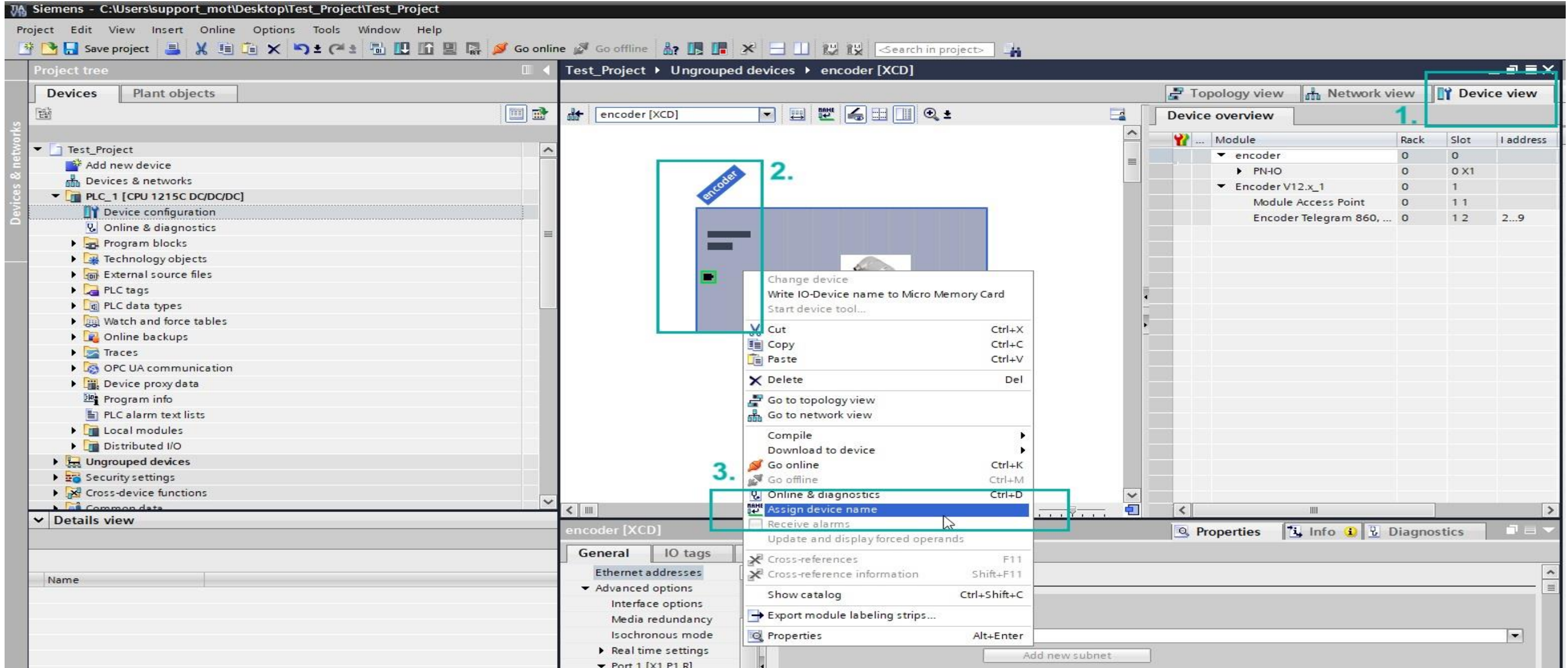
Filter Profile: <All>

Head module

Submodules

- Encoder Telegram 860, PZD2/4
- Encoder Telegram 862, PZD2/8
- Standard Telegram 81, PZD2/6
- Standard Telegram 82, PZD2/7
- Standard Telegram 83, PZD2/8
- Standard Telegram 84, PZD2/10
- Standard Telegram 86, PZD2/4
- Standard Telegram 87, PZD2/2
- Standard Telegram 88, PZD4/6
- Standard Telegram 89, PZD3/5

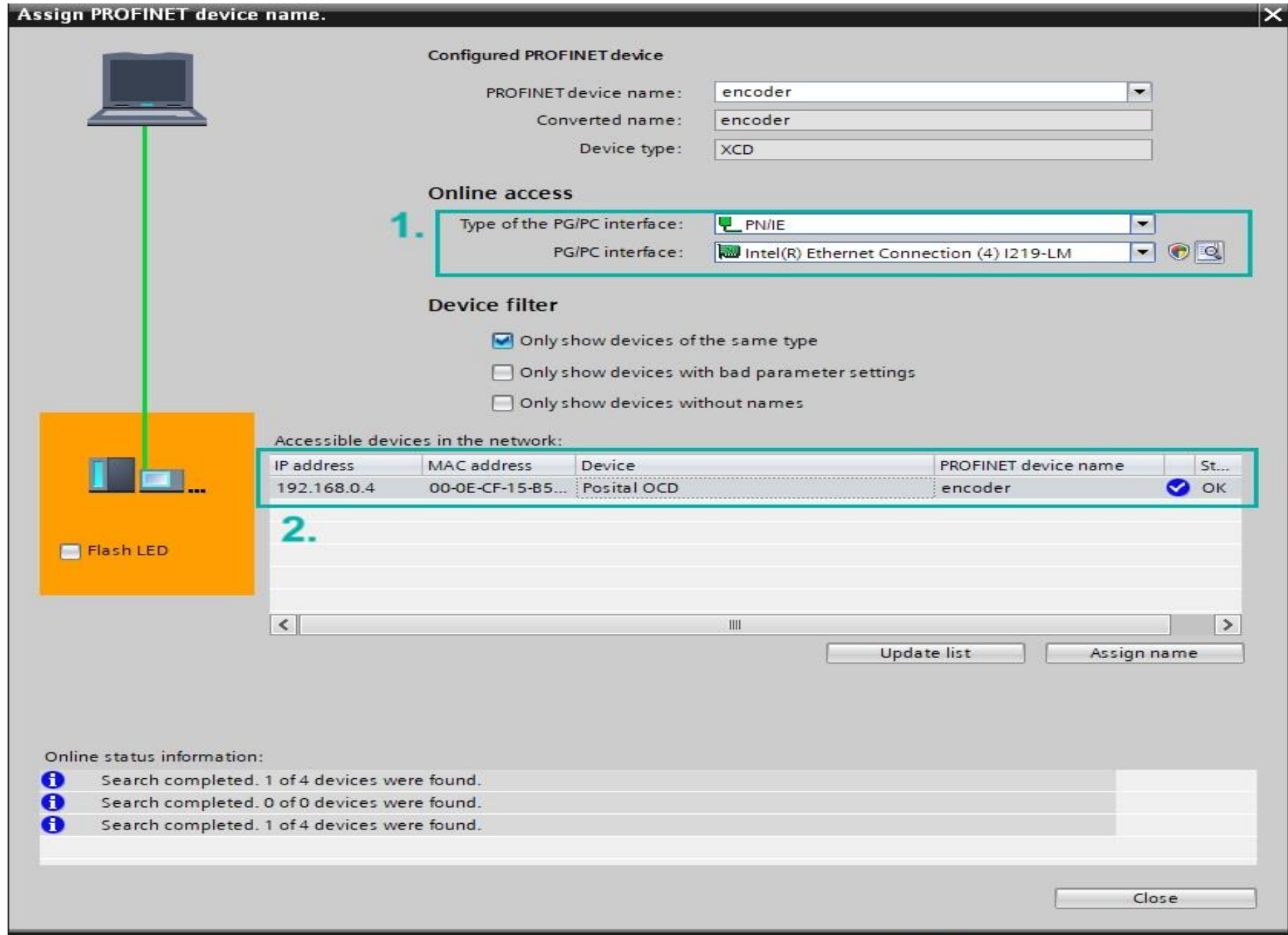
➤ Assign Device Name



The screenshot shows the Siemens SIMATIC Manager interface. The main workspace displays a rack diagram with an encoder module highlighted. A context menu is open over the encoder, and the 'Assign device name' option is selected. The 'Device overview' table on the right shows the following data:

Module	Rack	Slot	I address
encoder	0	0	
▶ PN-IO	0	0 X1	
▶ Encoder V12.x_1	0	1	
Module Access Point	0	1 1	
Encoder Telegram 860, ...	0	1 2	2...9

➤ Select the encoder to be assigned



Assign PROFINET device name.

Configured PROFINET device

PROFINET device name: encoder

Converted name: encoder

Device type: XCD

1. Online access

Type of the PG/PC interface: PN/IE

PG/PC interface: Intel(R) Ethernet Connection (4) I219-LM

Device filter

Only show devices of the same type

Only show devices with bad parameter settings

Only show devices without names

Accessible devices in the network:

IP address	MAC address	Device	PROFINET device name	St...
192.168.0.4	00-0E-CF-15-B5...	Posital OCD	encoder	<input checked="" type="checkbox"/> OK

2.

Flash LED

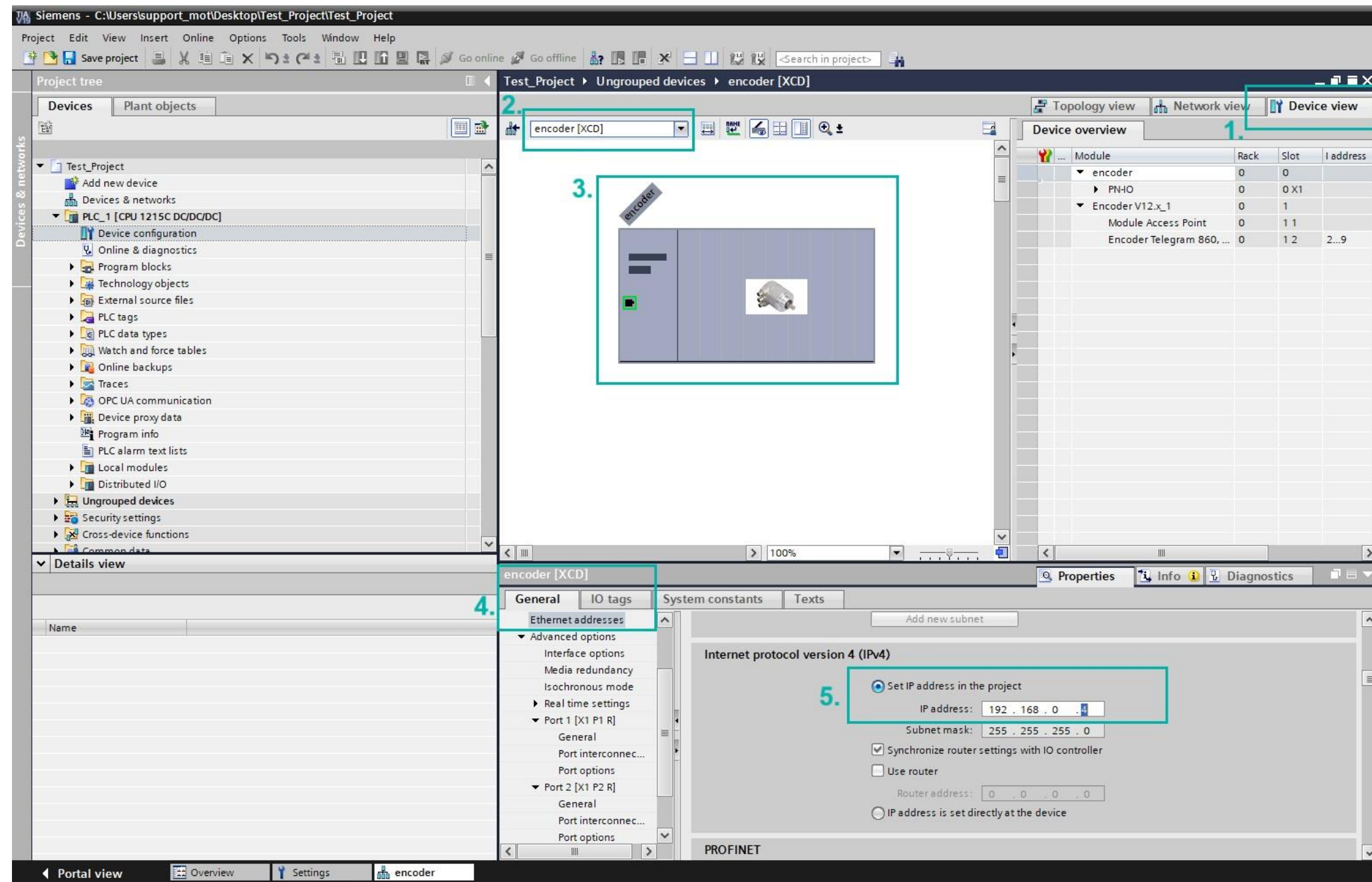
Update list Assign name

Online status information:

- i** Search completed. 1 of 4 devices were found.
- i** Search completed. 0 of 0 devices were found.
- i** Search completed. 1 of 4 devices were found.

Close

➤ Set the IP address of the Encoder



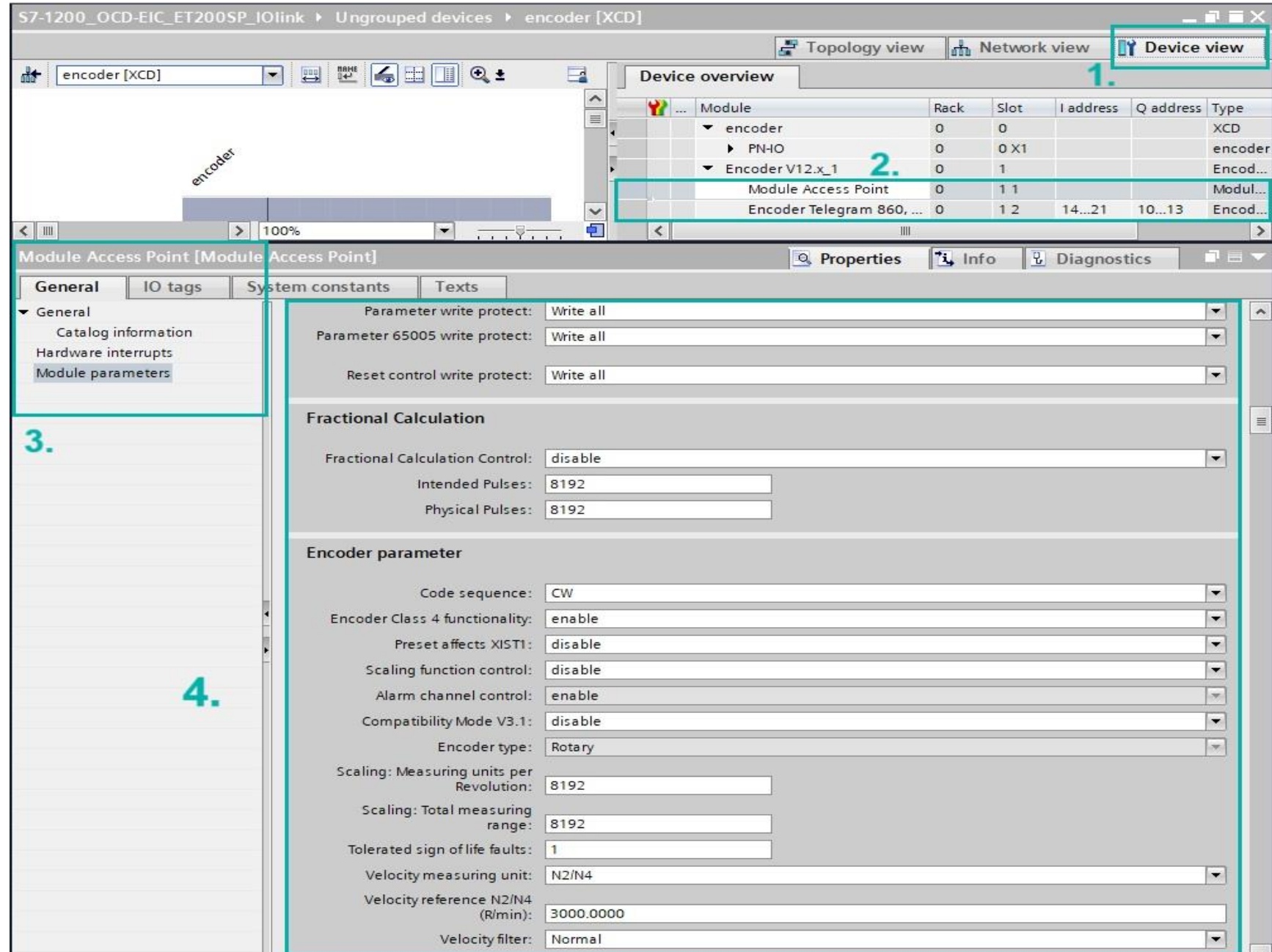
The screenshot shows the Siemens SIMATIC Manager software interface. The main window displays the configuration for an 'encoder [XCD]' device. The interface is divided into several panes:

- Project tree (left):** Shows the project structure, including 'Test_Project', 'Devices & networks', and 'PLC_1 [CPU 1215C DC/DC/DC]'. The 'Ungrouped devices' folder is expanded, showing the 'encoder [XCD]' device.
- Device overview (top right):** A table showing the device's location in the rack and slot. The table is as follows:

Module	Rack	Slot	IP address
encoder	0	0	
PN-IO	0	0 X1	
Encoder V12.x_1	0	1	
Module Access Point	0	1 1	
Encoder Telegram 860, ...	0	1 2	2...9
- Details view (bottom):** Shows the configuration for the 'encoder [XCD]' device. The 'General' tab is selected, and the 'Ethernet addresses' section is expanded. The 'Internet protocol version 4 (IPv4)' settings are visible, with the 'Set IP address in the project' option selected. The IP address is set to '192 . 168 . 0 . 4'.
 - Internet protocol version 4 (IPv4) settings:**
 - Set IP address in the project
 - IP address: 192 . 168 . 0 . 4
 - Subnet mask: 255 . 255 . 255 . 0
 - Synchronize router settings with IO controller
 - Use router
 - Router address: 0 . 0 . 0 . 0
 - IP address is set directly at the device

Multiple parameters can be configured in Module Access Point

You can configure several parameters you need: Measuring units per revolution, Total measuring range, etc.



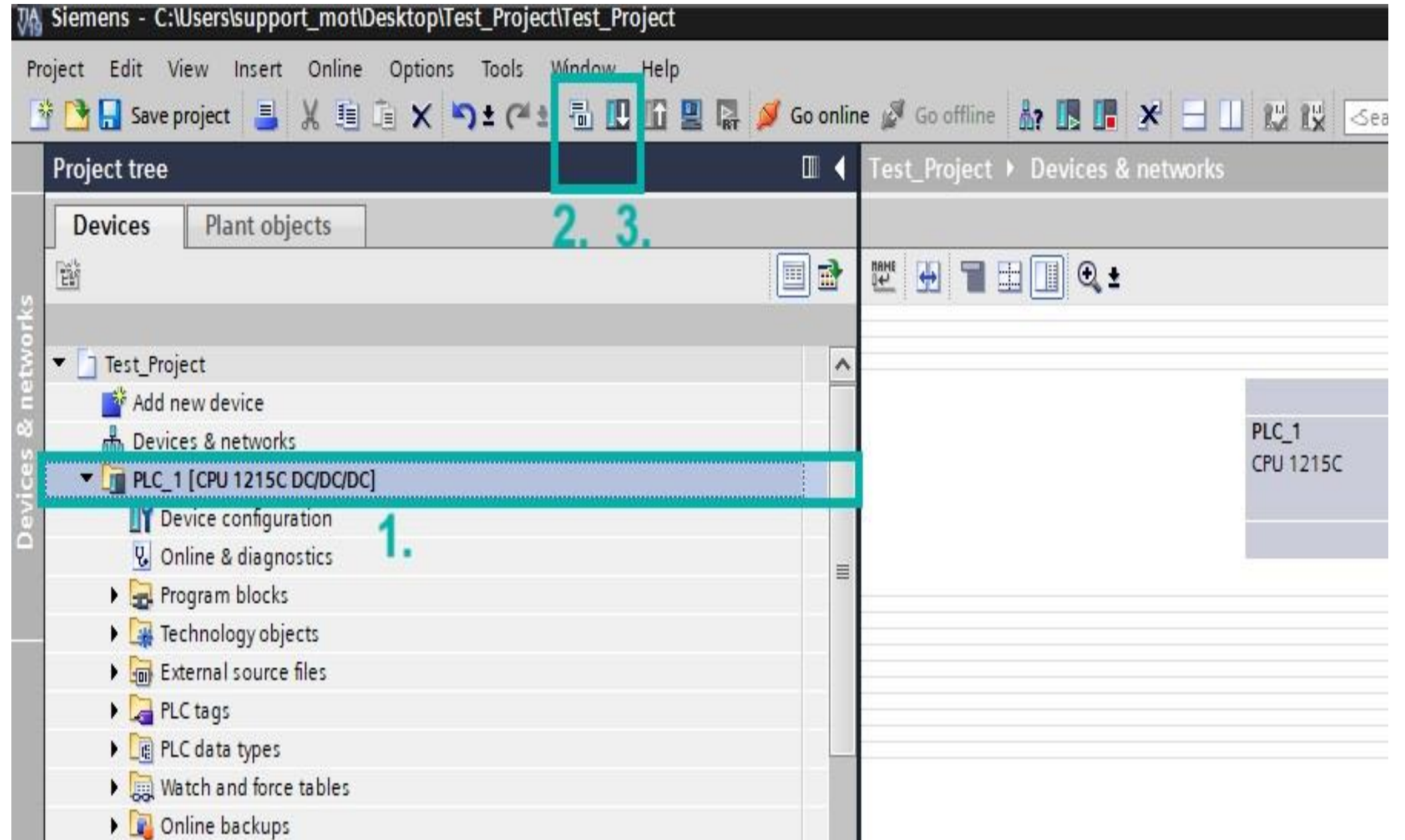
The screenshot shows the SIMATIC Manager interface for configuring an encoder module. The main window is titled "S7-1200_OCD-EIC_ET200SP_IOlink" and displays a "Device overview" table. The table lists modules in a rack, with the "Module Access Point" highlighted in row 2. The configuration panel for the "Module Access Point" is open, showing various parameters under the "General" tab.

Module	Rack	Slot	I address	Q address	Type
encoder	0	0			XCD
PN-HO	0	0 X1			encoder
Encoder V12.x_1	0	1			Encod...
Module Access Point	0	1 1			Modul...
Encoder Telegram 860, ...	0	1 2	14...21	10...13	Encod...

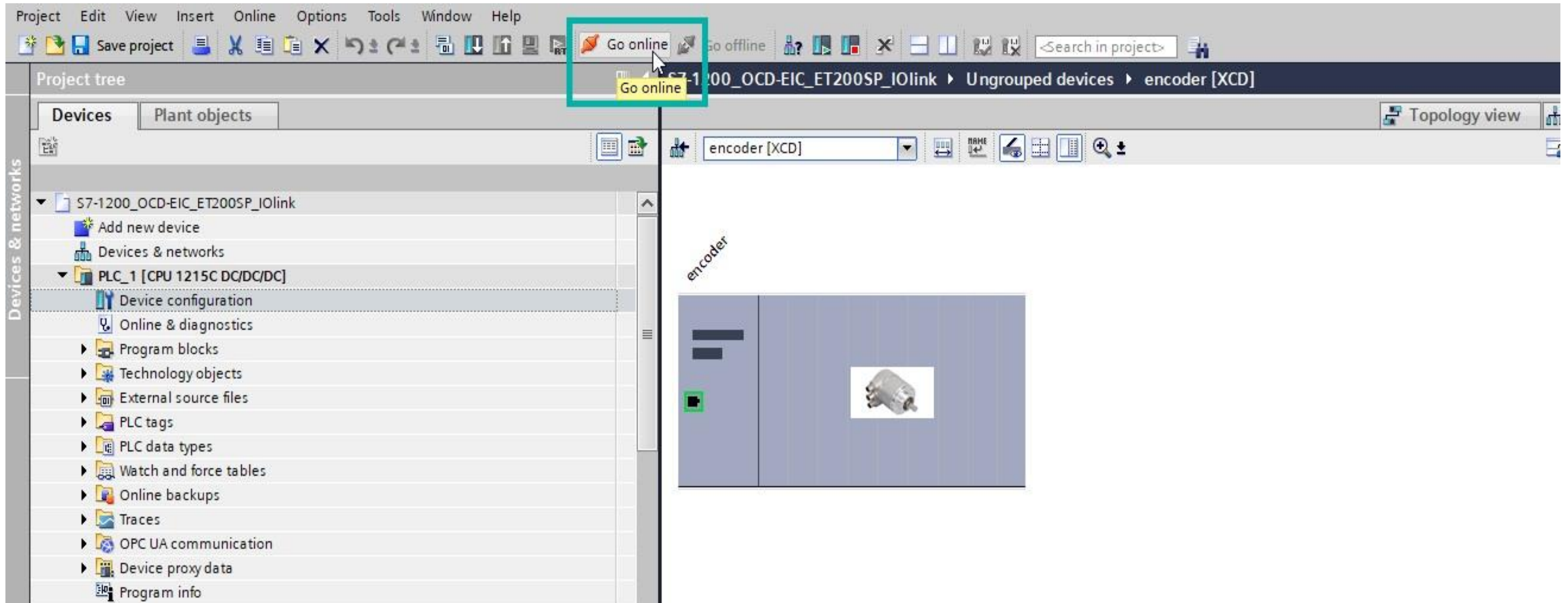
The configuration panel for the "Module Access Point" includes the following parameters:

- Parameter write protect: Write all
- Parameter 65005 write protect: Write all
- Reset control write protect: Write all
- Fractional Calculation Control: disable
- Intended Pulses: 8192
- Physical Pulses: 8192
- Encoder parameter:
 - Code sequence: CW
 - Encoder Class 4 functionality: enable
 - Preset affects XIST1: disable
 - Scaling function control: disable
 - Alarm channel control: enable
 - Compatibility Mode V3.1: disable
 - Encoder type: Rotary
 - Scaling: Measuring units per Revolution: 8192
 - Scaling: Total measuring range: 8192
 - Tolerated sign of life faults: 1
 - Velocity measuring unit: N2/N4
 - Velocity reference N2/N4 (R/min): 3000.0000
 - Velocity filter: Normal

> Compile and Download the Project

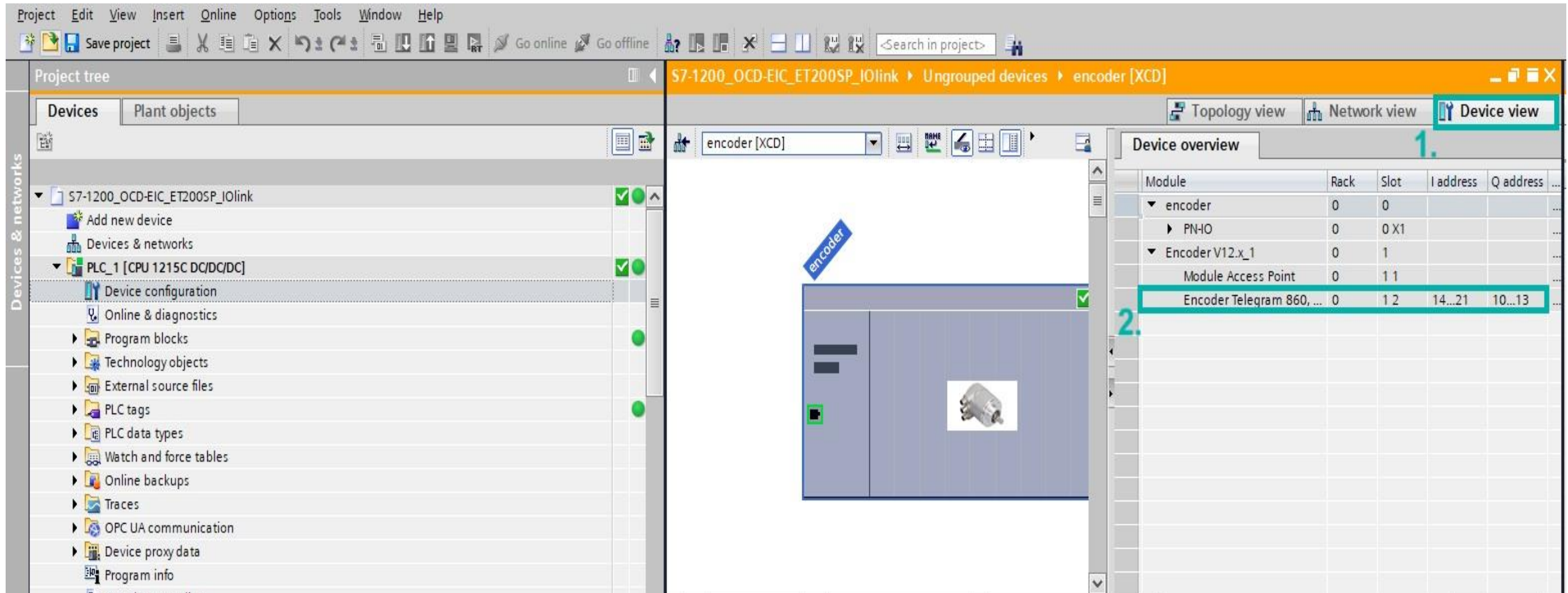


> Go Online



> Check the IO Addresses in the Telegram

Important: Pay attention to the I/O addresses. You need them later when the position values are monitored.



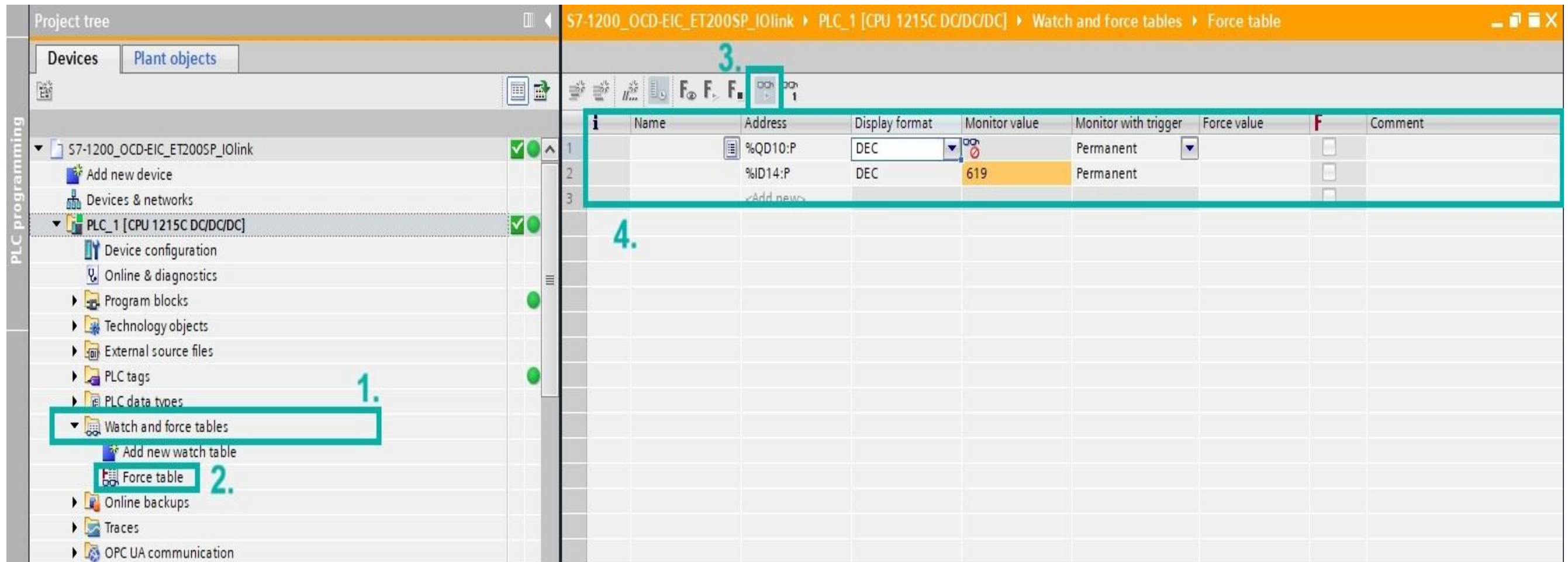
The screenshot shows the Siemens SIMATIC Manager interface. The 'Device overview' table is displayed in the 'Device view' tab, showing the configuration of the encoder module. The table is highlighted with a red box, and the 'Encoder Telegram 860, ...' row is highlighted with a blue box. The table columns are Module, Rack, Slot, I address, and Q address.

Module	Rack	Slot	I address	Q address
encoder	0	0		
PN-IO	0	0 X1		
Encoder V12.x_1	0	1		
Module Access Point	0	1 1		
Encoder Telegram 860, ...	0	1 2	14...21	10...13

> Monitor Values

1. Use the Watch and force tables to monitor values
2. Go to Force table
3. Click on Monitor Values
4. In a free row add the address: “%ID14” to monitor position value

Important: The value in blue depends on the chosen Telegram (here Telegram 860). Check the manual for more information.



The screenshot shows the SIMATIC Manager interface for configuring Watch and Force tables. The Project tree on the left is expanded to 'PLC_1 [CPU 1215C DC/DC/DC]', and the 'Watch and force tables' folder is selected. The 'Force table' sub-menu is open, and the 'Monitor Values' icon is highlighted. The main table displays the following data:

	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1		%QD10:P	DEC	0	Permanent		<input type="checkbox"/>	
2		%ID14:P	DEC	619	Permanent		<input type="checkbox"/>	
3		<Add new>					<input type="checkbox"/>	

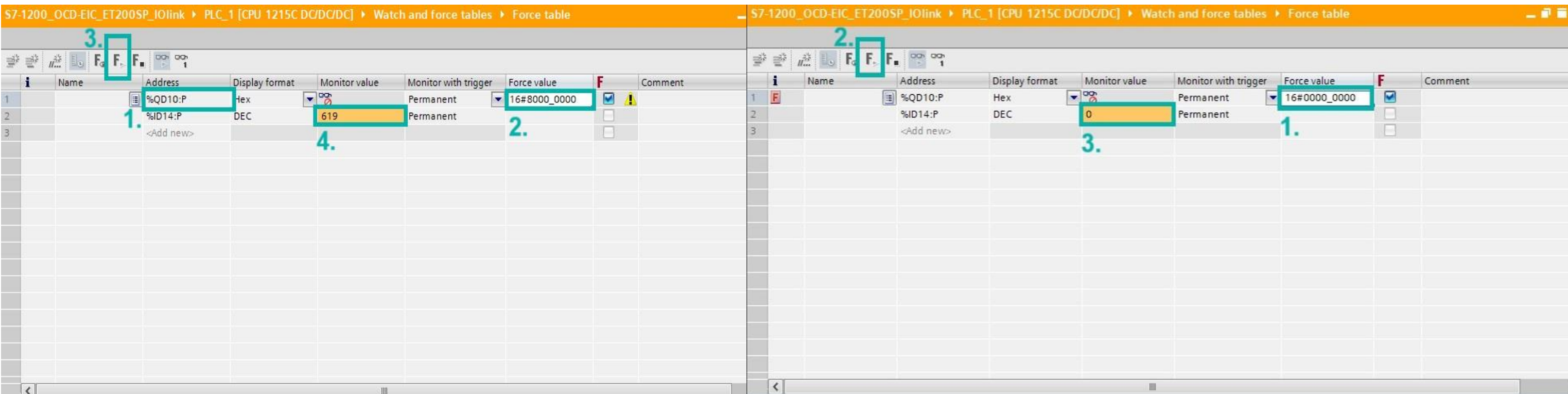
> Preset Value

1. In a free row add the address: “%QD10” for preset position value
2. Add the desired value(Bit 31 is set to “1” for Preset Control)
3. Click on Force

1. Save the Preset: Bit 31 is set back to “0” for saving the preset
2. Click on Force
3. Now the Preset is set to “0”

Now Values in cell 1 and cell 3 are equal. Value from cell 1 was “forced” in cell 3

Important: The value in blue depends on the chosen Telegram (here given for Telegram 860).



The image displays two screenshots of the SIMATIC Manager 'Force table' interface, illustrating the process of setting a preset value.

Left Screenshot (Initial State):

Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	%QD10:P	Hex	619	Permanent	16#8000_0000	<input checked="" type="checkbox"/>	
2	%ID14:P	DEC		Permanent		<input type="checkbox"/>	
3	<Add new>					<input type="checkbox"/>	

Right Screenshot (After Force):

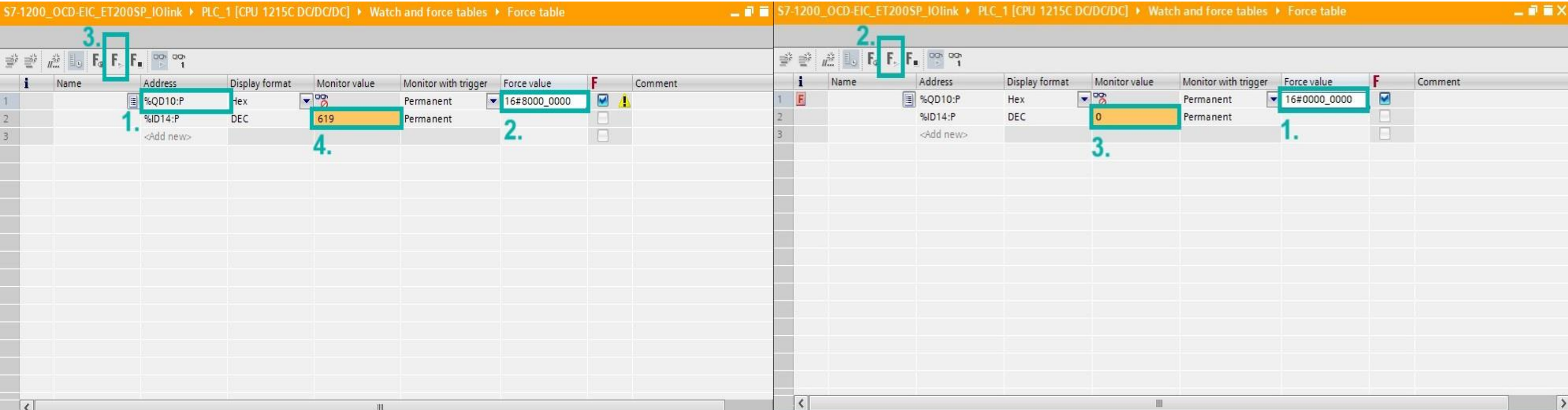
Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	%QD10:P	Hex	0	Permanent	16#0000_0000	<input checked="" type="checkbox"/>	
2	%ID14:P	DEC		Permanent		<input type="checkbox"/>	
3	<Add new>					<input type="checkbox"/>	

➤ Preset Value - Explanation

The way of defining the preset value: Preset Control: Bit 31 must be set the to “1”

In HEX it is: 16#8000_0000

In BIN it is: 2#1000_0000_0000_0000_0000_0000_0000_0000



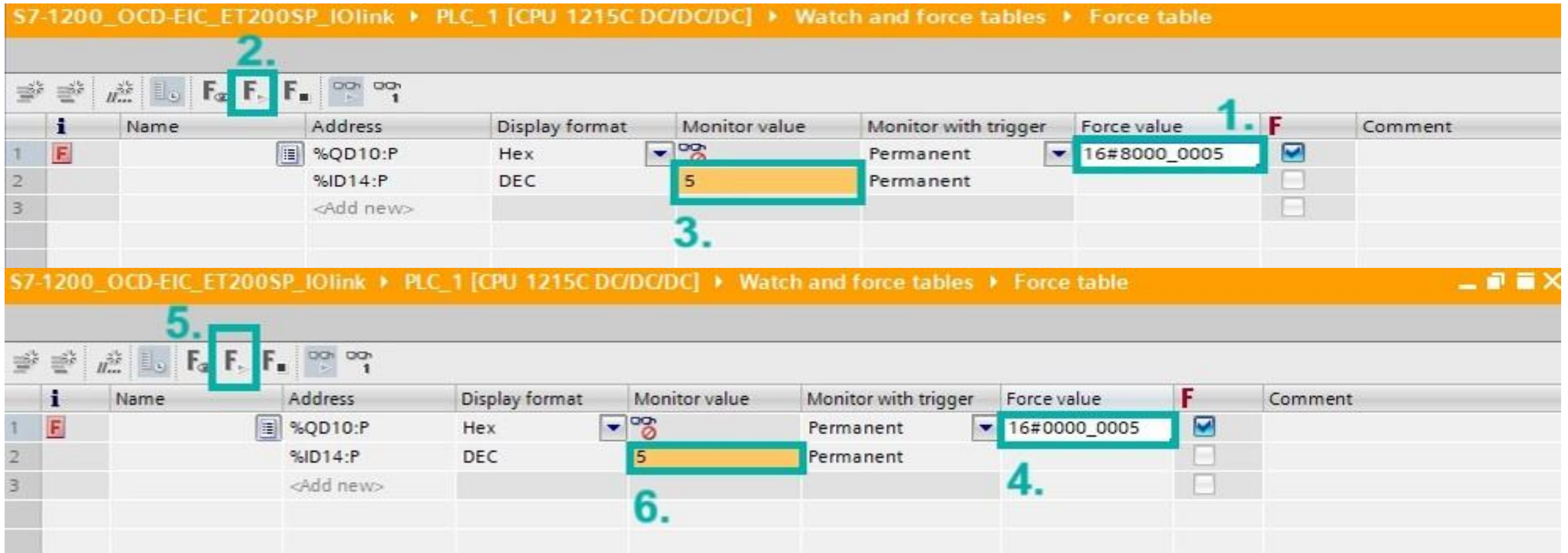
We recommend to use the Hexadecimal values. As it is shorter, it is less likely to lead to mistakes.

Important: For more information check “Preset Value” chapter in the manual

➤ Example: Set the Preset to “5”

1. In cell 1 preset control is active (31 bit is set to “1” HEX: 16#8000_0000) and the desired value is set: “5”
2. Click on Force
3. The value is set to 5

4. Save the Preset: 31 bit back to “0”
5. Click on Force
6. The value is set and saved to 5



Screenshot 1 (Top): The 'Force table' interface shows the 'Force' button highlighted with a red box and the number '2.' above it. The 'Monitor value' field contains '5' and is highlighted with a red box and the number '3.' below it. The 'Force value' field contains '16#8000_0005' and is highlighted with a red box and the number '1.' above it.

	i	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	F		%QD10:P	Hex	5	Permanent	16#8000_0005	<input checked="" type="checkbox"/>	
2			%ID14:P	DEC		Permanent		<input type="checkbox"/>	
3			<Add new>					<input type="checkbox"/>	

Screenshot 2 (Bottom): The 'Force table' interface shows the 'Force' button highlighted with a red box and the number '5.' above it. The 'Monitor value' field contains '5' and is highlighted with a red box and the number '6.' below it. The 'Force value' field contains '16#0000_0005' and is highlighted with a red box and the number '4.' below it.

	i	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	F		%QD10:P	Hex	5	Permanent	16#0000_0005	<input checked="" type="checkbox"/>	
2			%ID14:P	DEC		Permanent		<input type="checkbox"/>	
3			<Add new>					<input type="checkbox"/>	

> Monitor the Velocity

1. Add the Address for the Velocity : ID18 (ID14 +4) in that case
2. When moving the shaft, the velocity is monitored

S7-1200_OCD-EIC_ET200SP_IOlink ▶ PLC_1 [CPU 1215C DC/DC/DC] ▶ Watch and force tables ▶ Force table

	i	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	<input checked="" type="checkbox"/>		%QD10:P	Hex		Permanent	16#0000_0005	<input checked="" type="checkbox"/>	
2			%ID14:P	DEC	5	Permanent		<input type="checkbox"/>	
3			%ID18:P	DEC	0	Permanent		<input type="checkbox"/>	
4			<Add new>					<input type="checkbox"/>	

1.

S7-1200_OCD-EIC_ET200SP_IOlink ▶ PLC_1 [CPU 1215C DC/DC/DC] ▶ Watch and force tables ▶ Force table

	i	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1			%QD10:P	Hex		Permanent	16#0000_0005	<input checked="" type="checkbox"/>	
2			%ID14:P	DEC	19725	Permanent		<input type="checkbox"/>	
3			%ID18:P	DEC	46449	Permanent		<input type="checkbox"/>	
4			<Add new>					<input type="checkbox"/>	

2.