

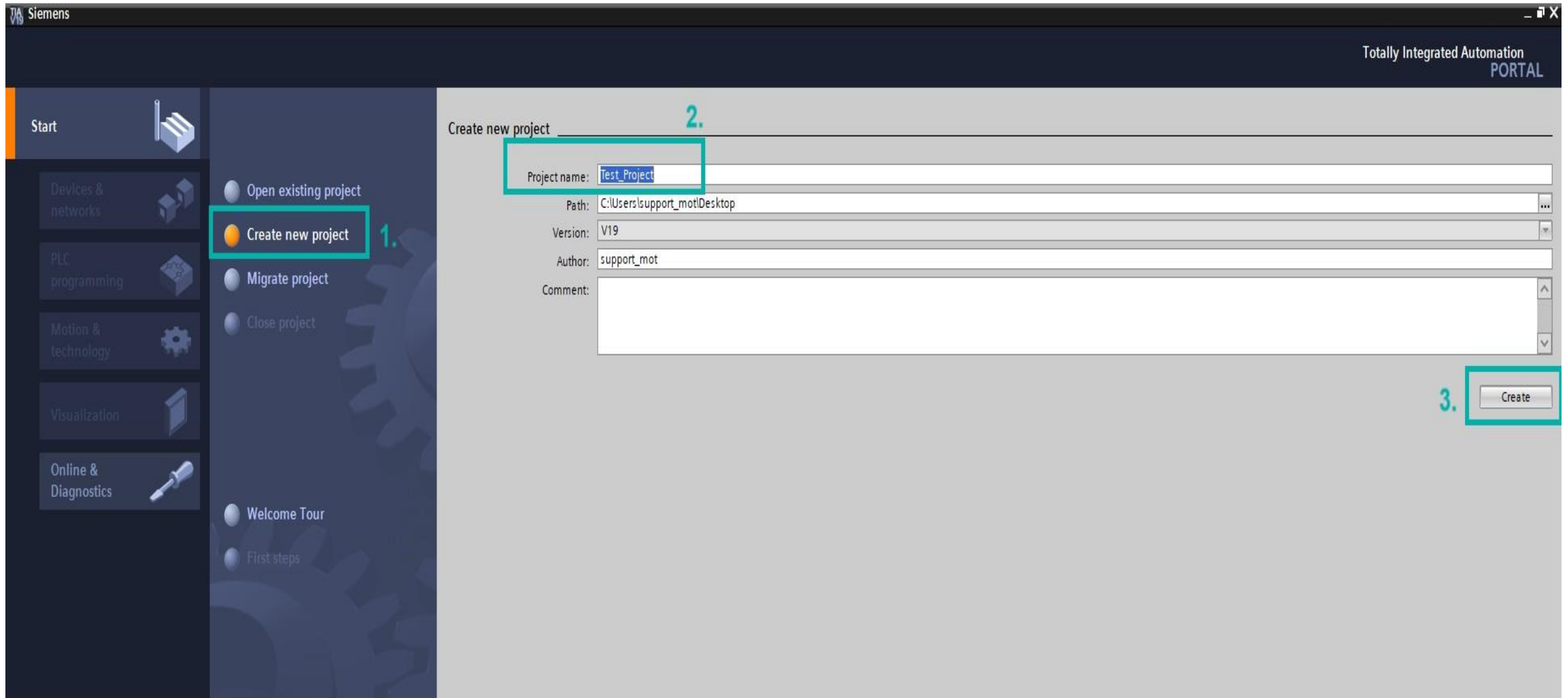


QUICKSTART INSTRUCTIONS



ABSOLUTE ENCODER WITH PROFINET INTERFACE

> Create a New Project



Siemens

Totally Integrated Automation
PORTAL

Start

Devices & networks

PLC programming

Motion & technology

Visualization

Online & Diagnostics

Open existing project

Create new project 1.

Migrate project

Close project

Welcome Tour

First steps

Create new project 2.

Project name: Test_Project

Path: C:\Users\support_mot\Desktop

Version: V19

Author: support_mot

Comment:

Create 3.

➤ 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

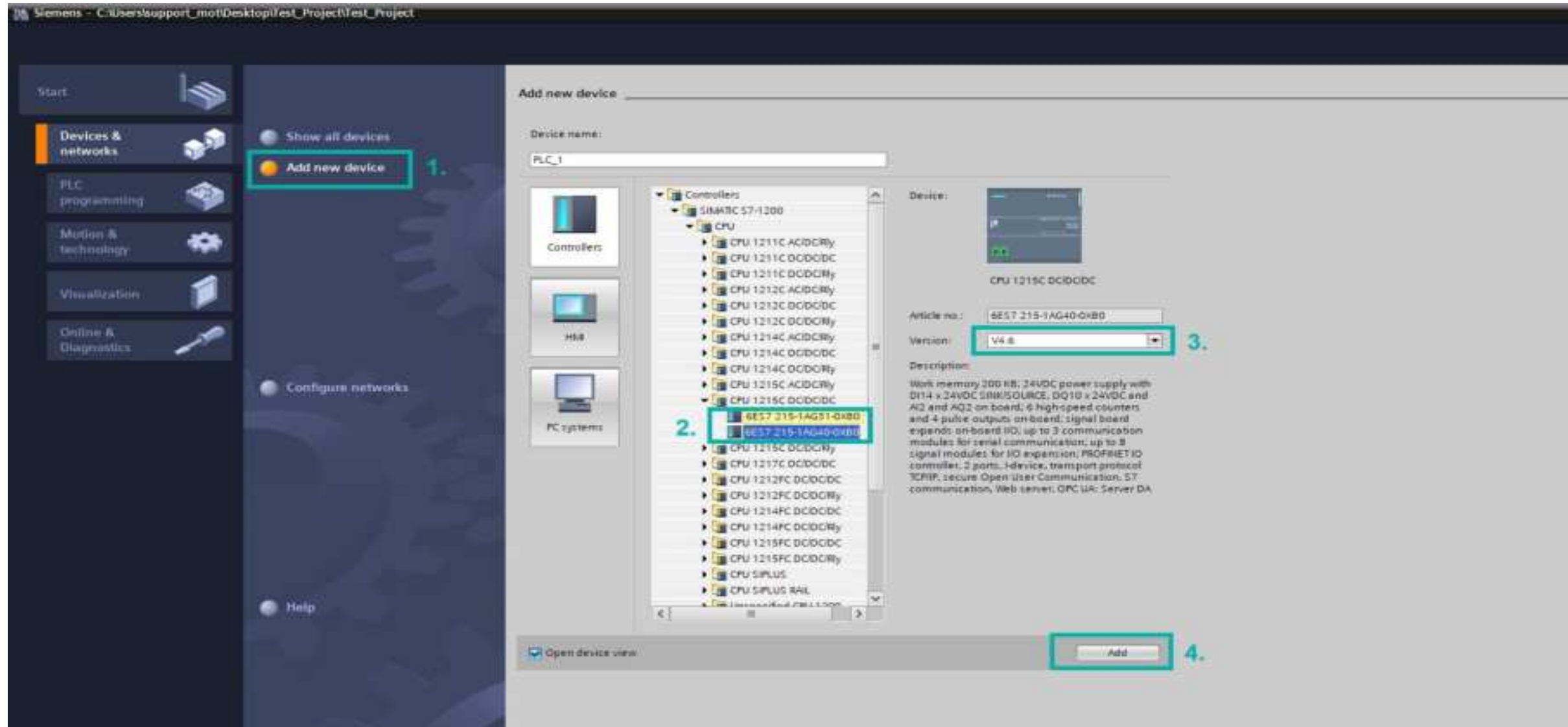
First steps

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



> Download the correct GSDML File from our Website

← ↻ 🔒 https://www.posital.com/en/products/absolute-encoders/absolute-encoder-finder/OCD-EIC1B-1213-C100-PRM/220372601/detail.php 🔊 ☆ 📄 ☆ 📁 📶 ...

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 POSITAL

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

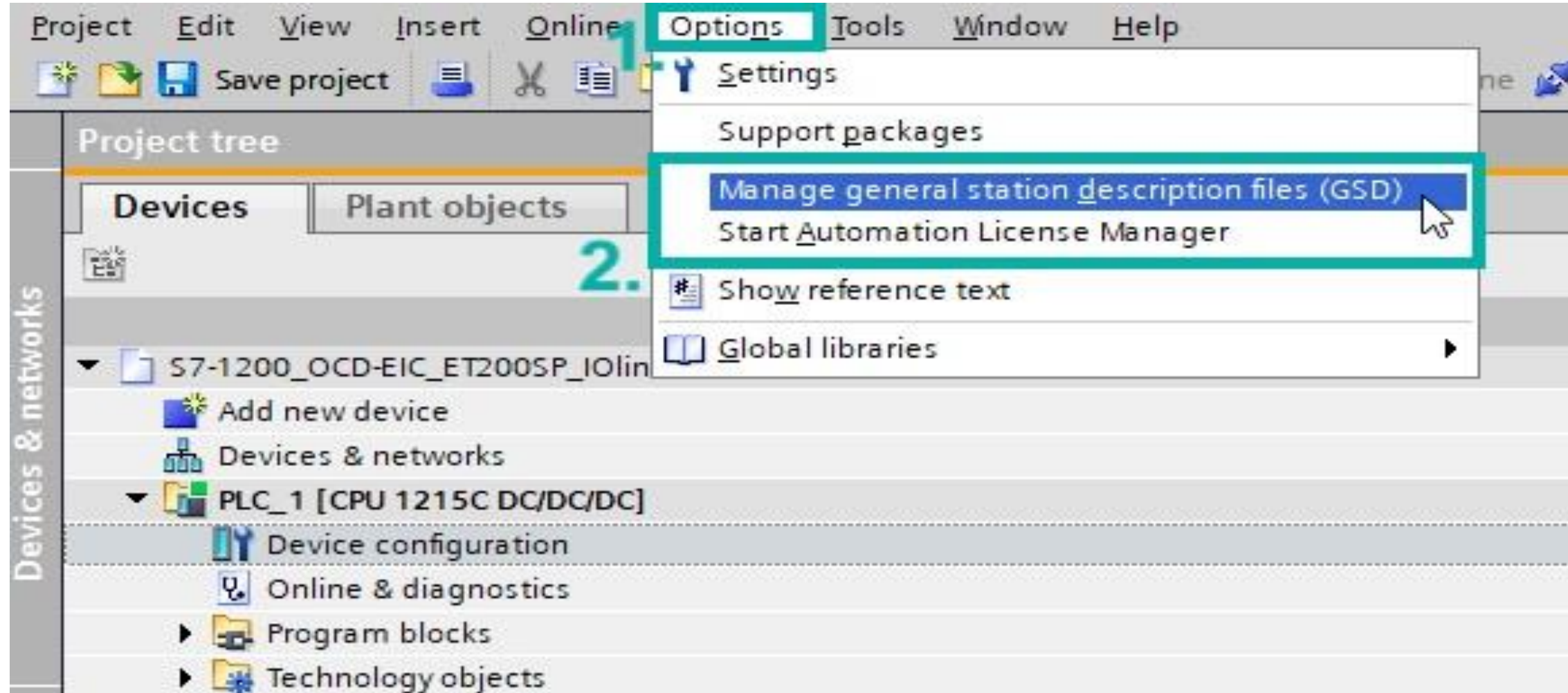


Interface

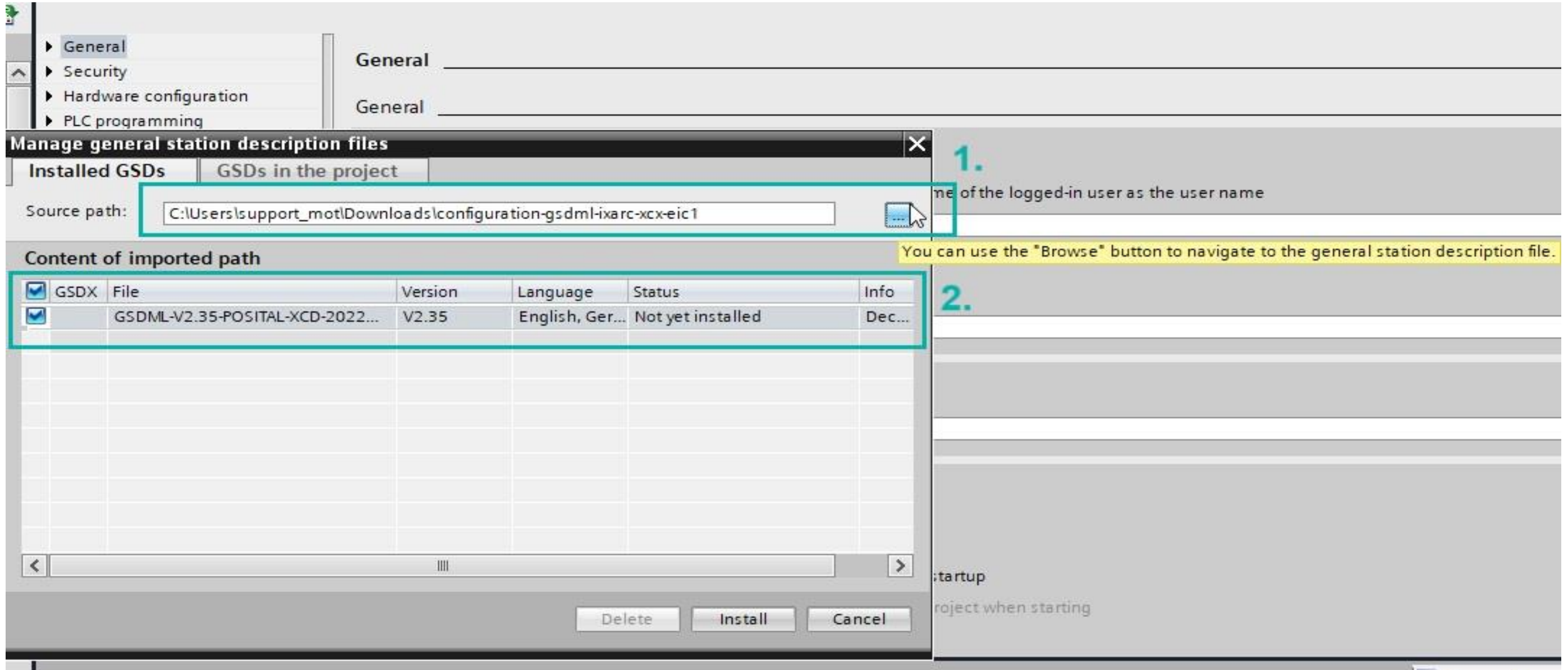
Downloads

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

➤ Add the GSDML File



> Install the GSDML file



Manage general station description files

General

General

Source path:

Content of imported path

☒	GSDX	File	Version	Language	Status	Info
☒		GSDML-V2.35-POSITAL-XCD-2022...	V2.35	English, Ger...	Not yet installed	Dec...

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

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

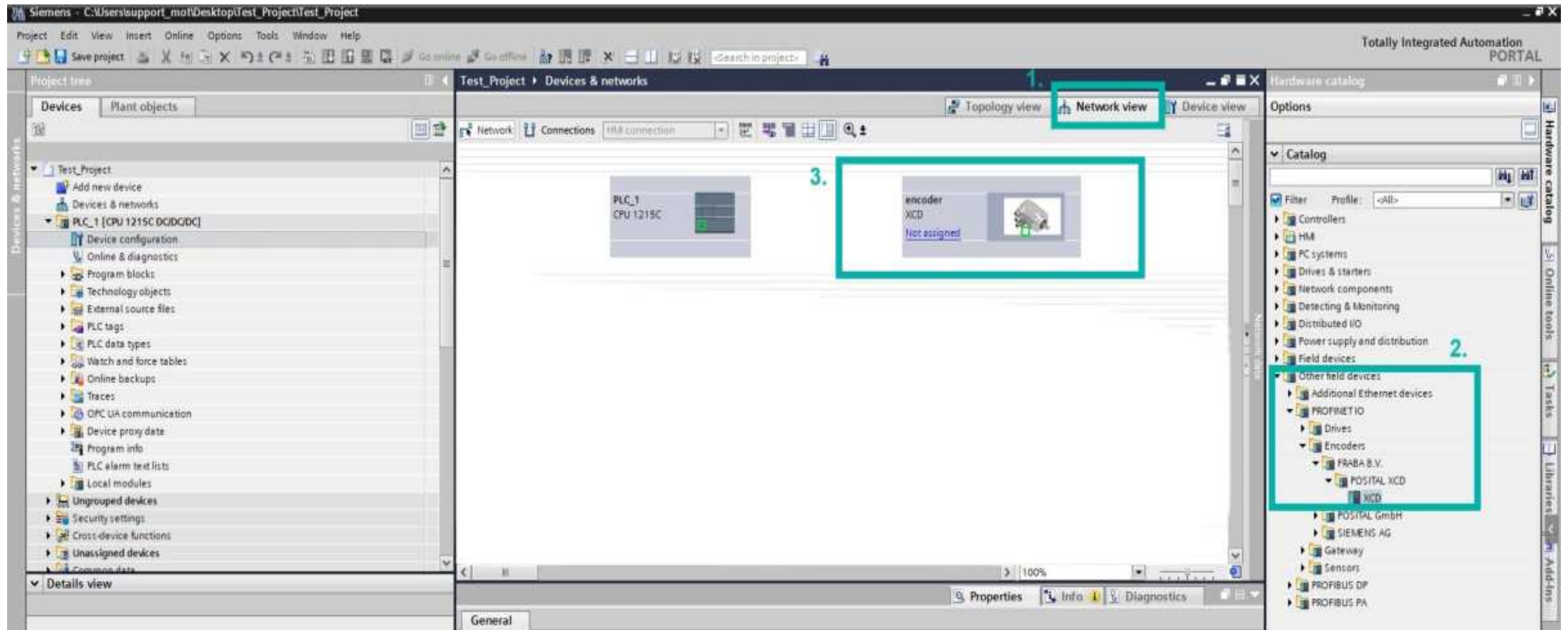
2.

Startup

Project when starting

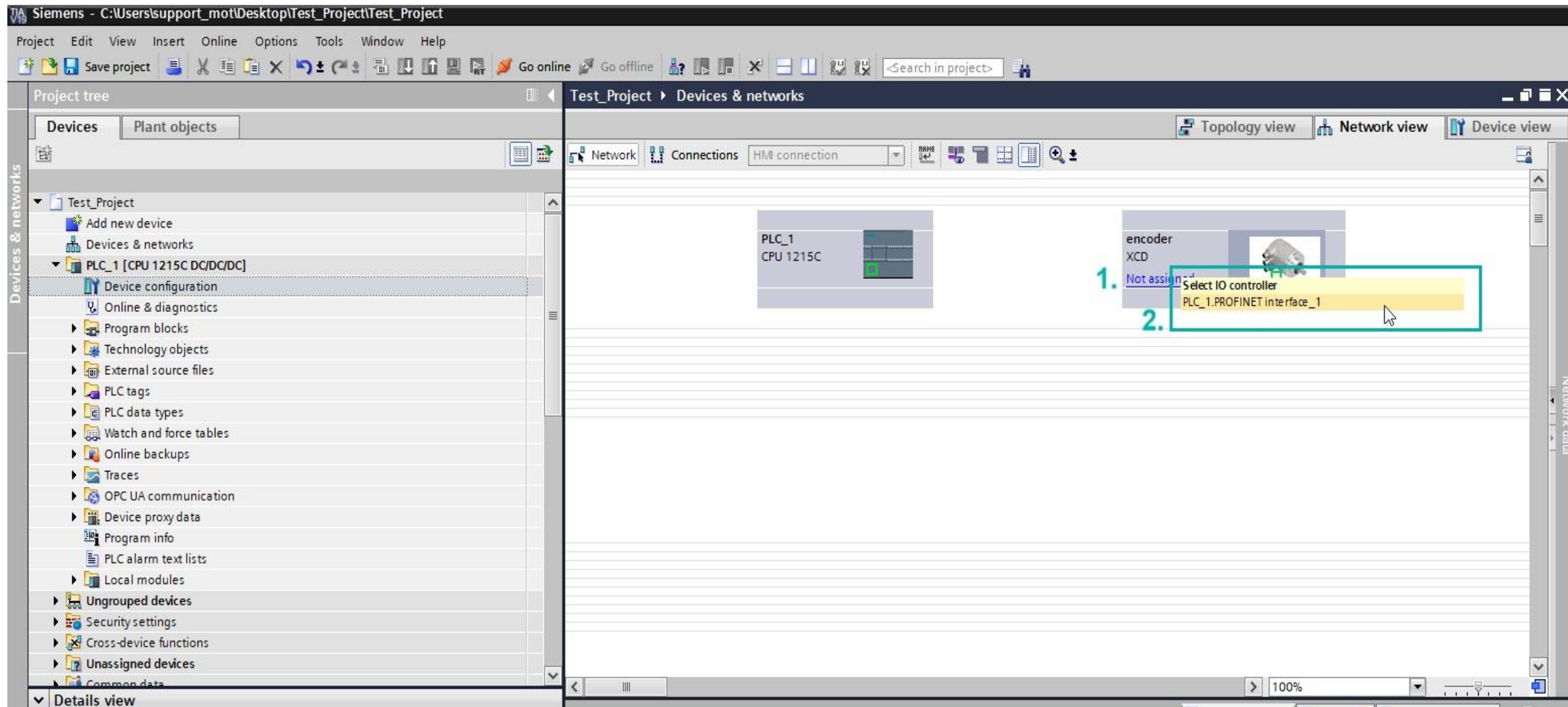
Delete Install Cancel

➤ Add the Encoder



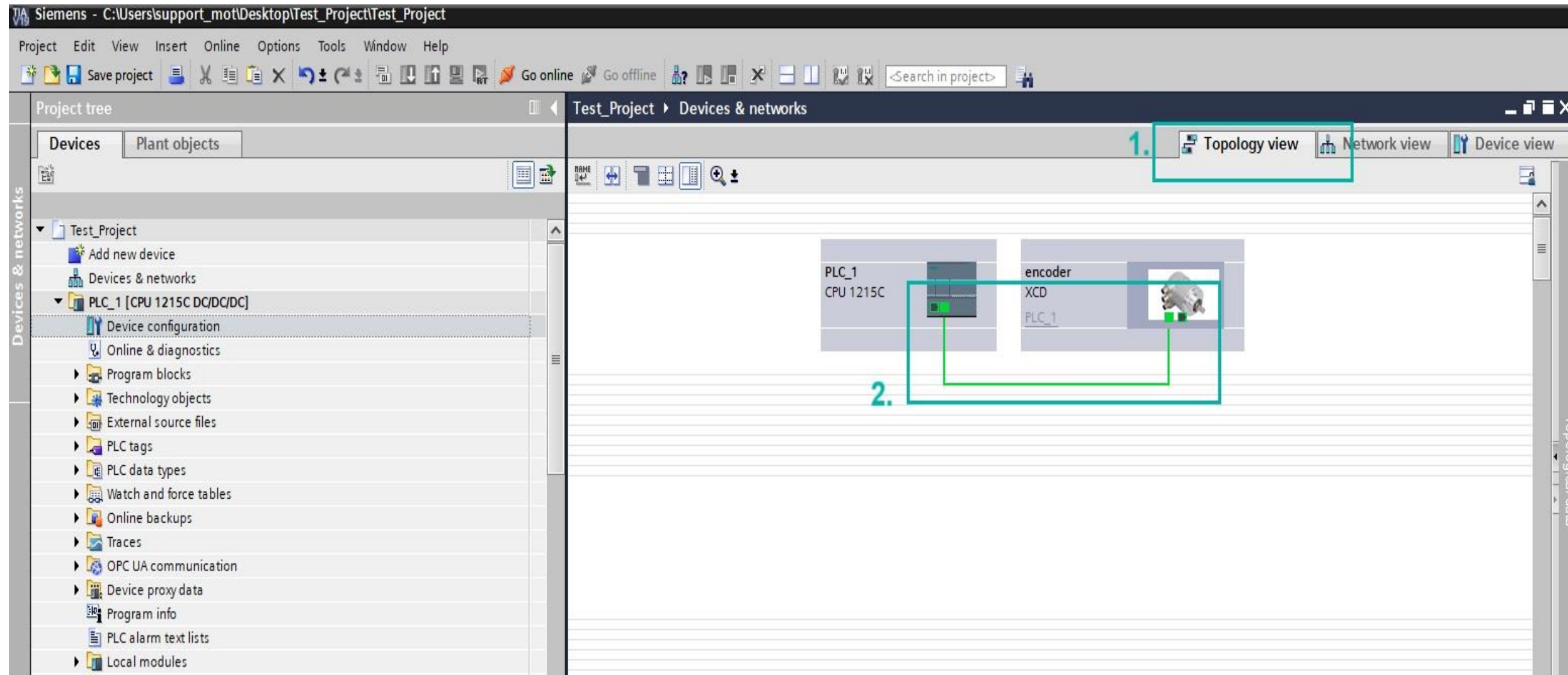
> Assign the Encoder

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

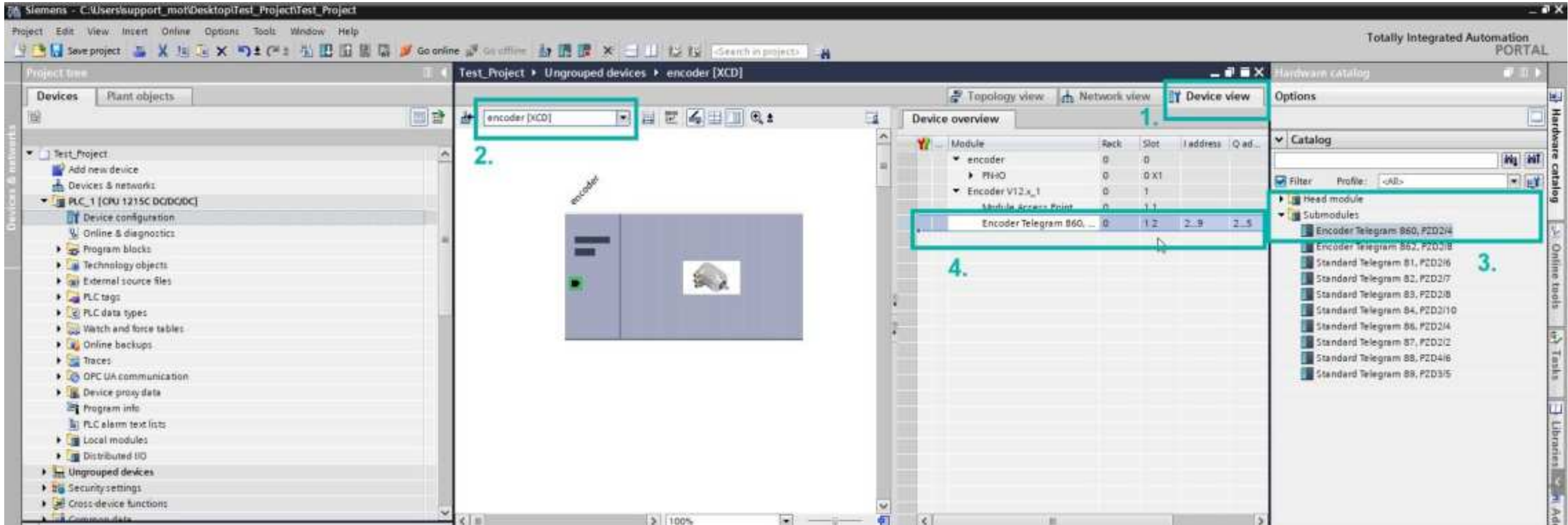


> Establish the Connection

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



➤ Choose the Telegram



The screenshot shows the Siemens TIA Portal interface for configuring a device. The main workspace displays a device icon labeled "encoder". The "Device overview" table lists the modules and their properties:

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	2-8	2-5

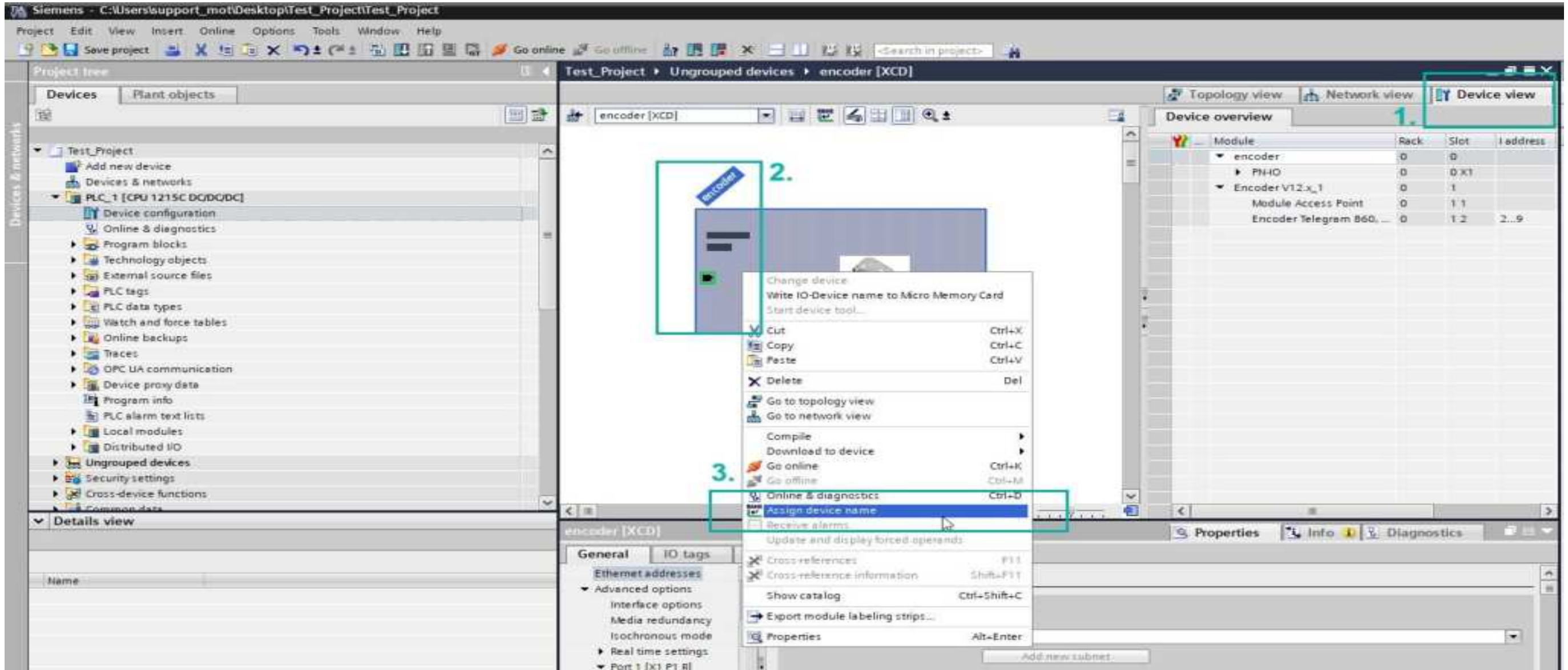
The "Hardware catalog" on the right shows the "Catalog" tree with the following structure:

- Head module
- Submodules
 - Encoder Telegram 860, PZD2/4
 - Encoder Telegram 862, PZD3/8
 - 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 88, PZD3/5

Numbered callouts in the image indicate the following steps:

1. Select the "Device view" tab in the top right.
2. Select the "encoder [XCD]" device in the top left toolbar.
3. Select the "Encoder Telegram 860, PZD2/4" submodule in the hardware catalog.
4. Select the "Encoder Telegram 860, ..." row in the "Device overview" table.

> Assign Device Name



The screenshot shows the Siemens STEP 7 interface with the following components:

- Project tree (left):** Shows the project structure under 'Test_Project' > 'Ungrouped devices' > 'encoder [XCD]'. A green box labeled '2.' highlights the 'encoder [XCD]' device in the tree.
- Device overview (right):** A table showing the module configuration. A green box labeled '1.' highlights the 'Device view' tab.
- Context menu (center):** A right-click menu is open over the device. A green box labeled '3.' highlights the 'Assign device name' option.
- Device properties (bottom):** The 'General' tab is active, showing the 'Name' field.

Device overview table:

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.




Flash LED

Configured PROFINET device

PROFINET device name:

Converted name:

Device type:

Online access

1. Type of the PG/PC interface:

PG/PC interface:

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	☒ OK

2.

Online status information:

i Search completed. 1 of 4 devices were found.

i Search completed. 0 of 0 devices were found.

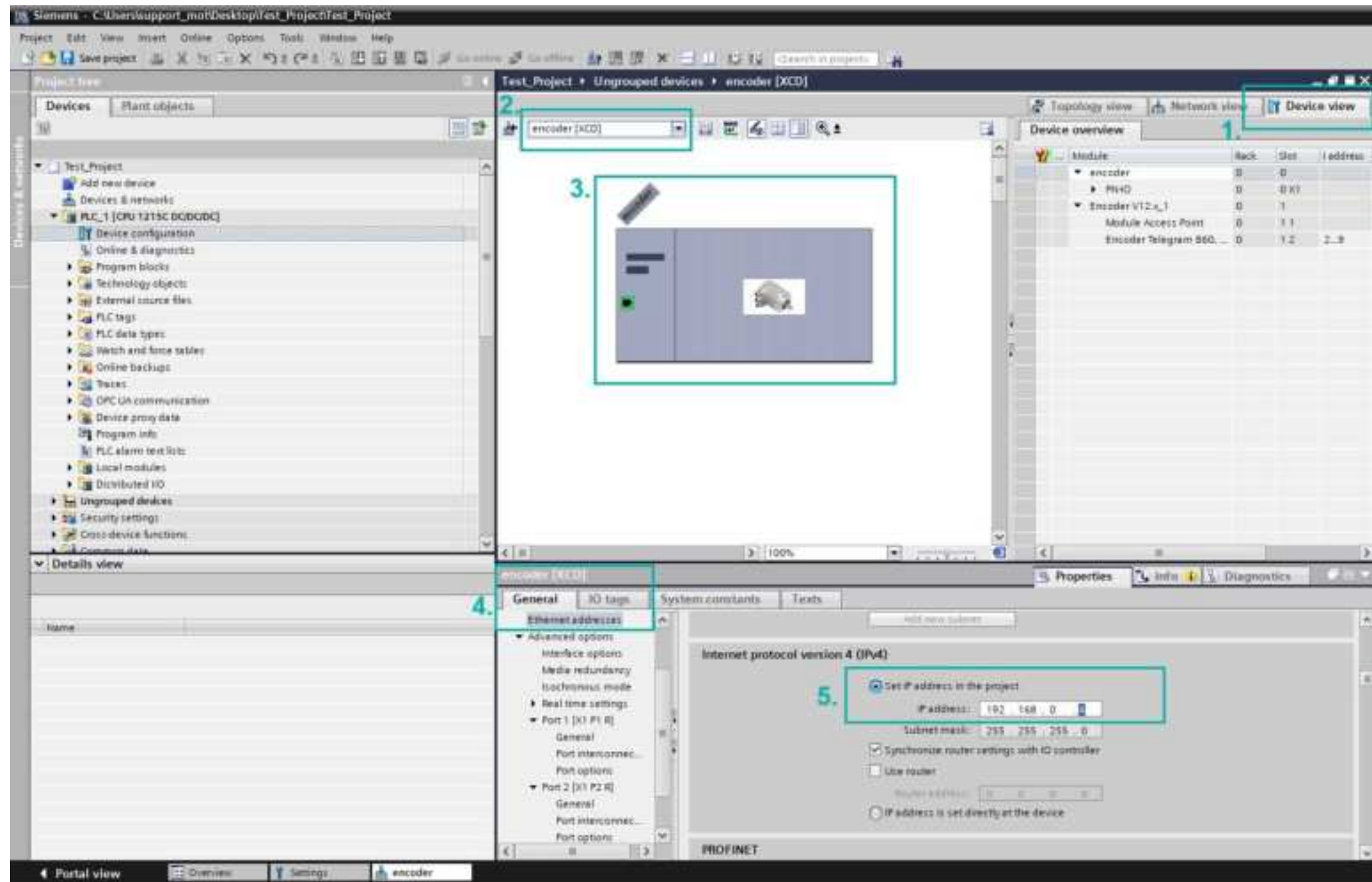
i Search completed. 1 of 4 devices were found.

Update list

Assign name

Close

➤ Set the IP address of the Encoder



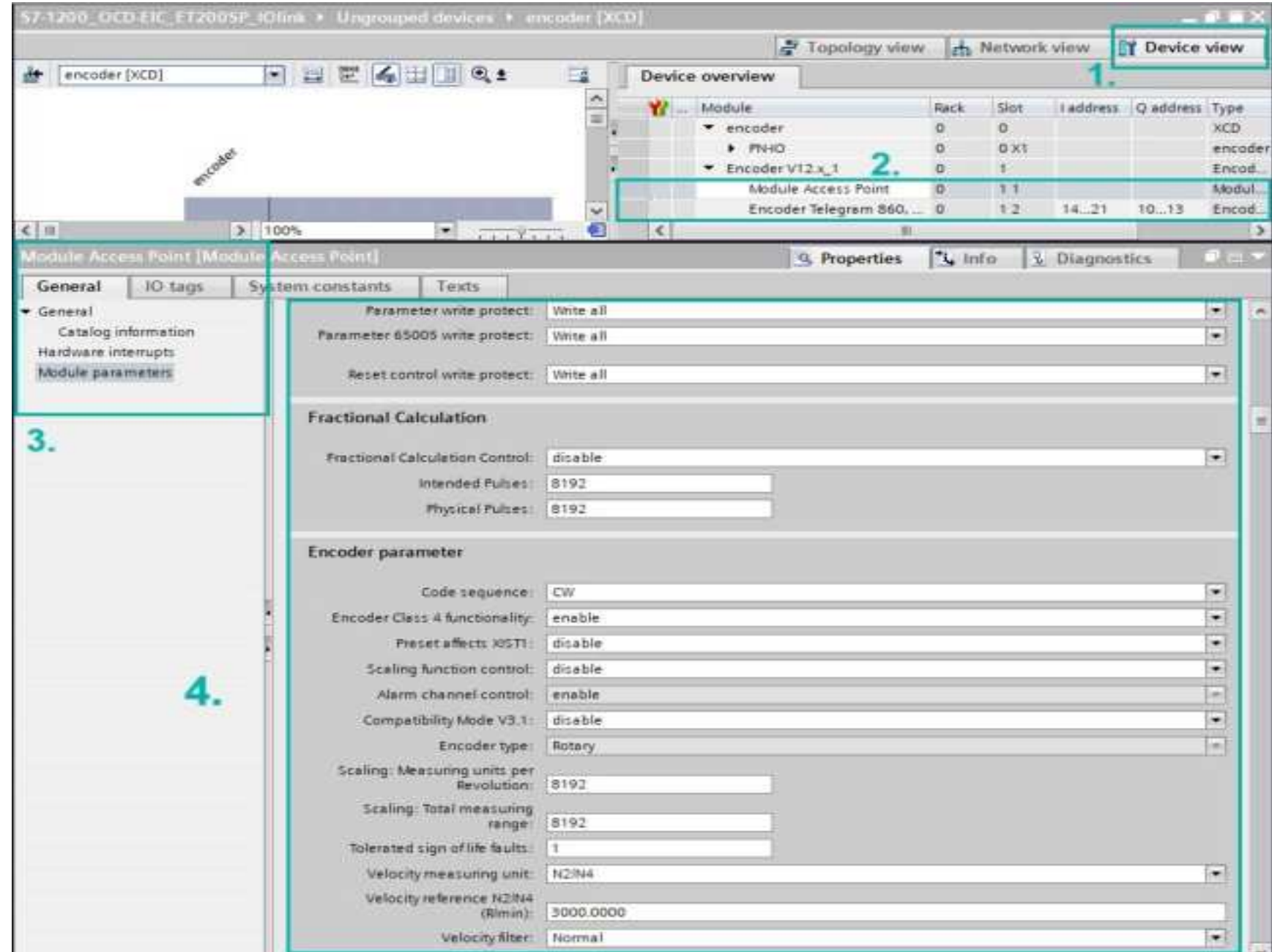
The screenshot shows the Siemens SIMATIC Manager interface with the following components and annotations:

- 1. Device Overview:** A table on the right showing the device configuration. The 'encoder' module is highlighted in the first row.

Module	Rack	Slot	IP address
encoder	0	0	
PI40	0	0 X1	
Encoder V12-x_1	0	1	
Module Access Point	0	1.1	
Encoder Telegram S60...	0	1.2	2.2
- 2. Device Selection:** The 'encoder [XCD]' is selected in the top toolbar.
- 3. Device Representation:** A graphical representation of the encoder module is shown in the main workspace.
- 4. Properties View:** The 'Properties' window is open, showing the 'General' tab. The 'Ethernet addresses' section is expanded.
- 5. IP Address Configuration:** The 'Internet protocol version 4 (IPv4)' section is selected. The 'Set IP address in the project' radio button is chosen. The IP address is set to 192.168.0.1.

➤ 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 POSITAL software interface for configuring an encoder module. The 'Device overview' table lists the modules in the system:

Module	Rack	Slot	I address	Q address	Type
encoder	0	0			XCD
PHIO	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 'Module Access Point' configuration panel is shown with the 'General' tab selected. The 'Module parameters' section is expanded, showing the following parameters:

- Parameter write protect: White all
- Parameter 65005 write protect: White all
- Reset control write protect: White all

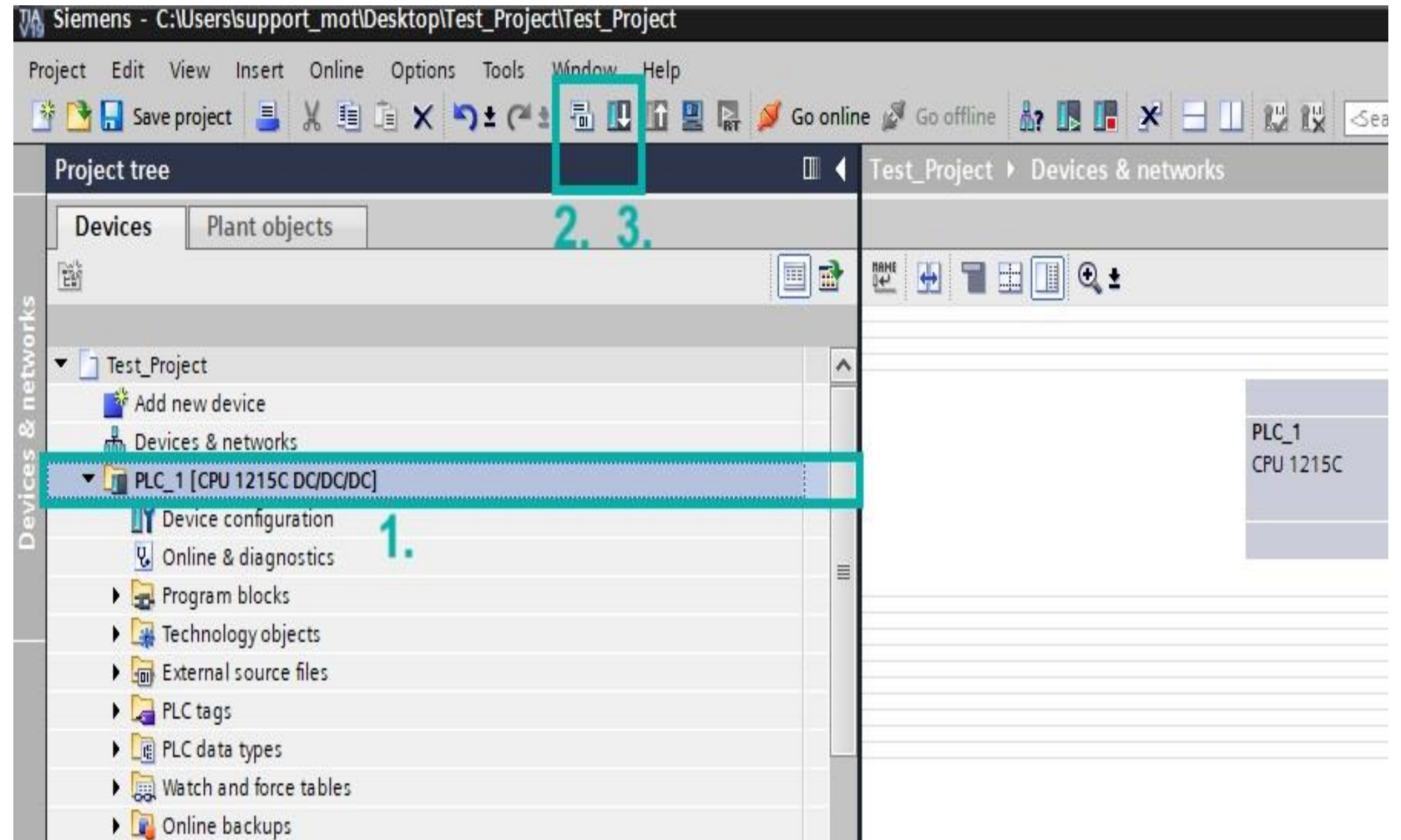
The 'Fractional Calculation' section shows:

- Fractional Calculation Control: disable
- Intended Pulses: 8192
- Physical Pulses: 8192

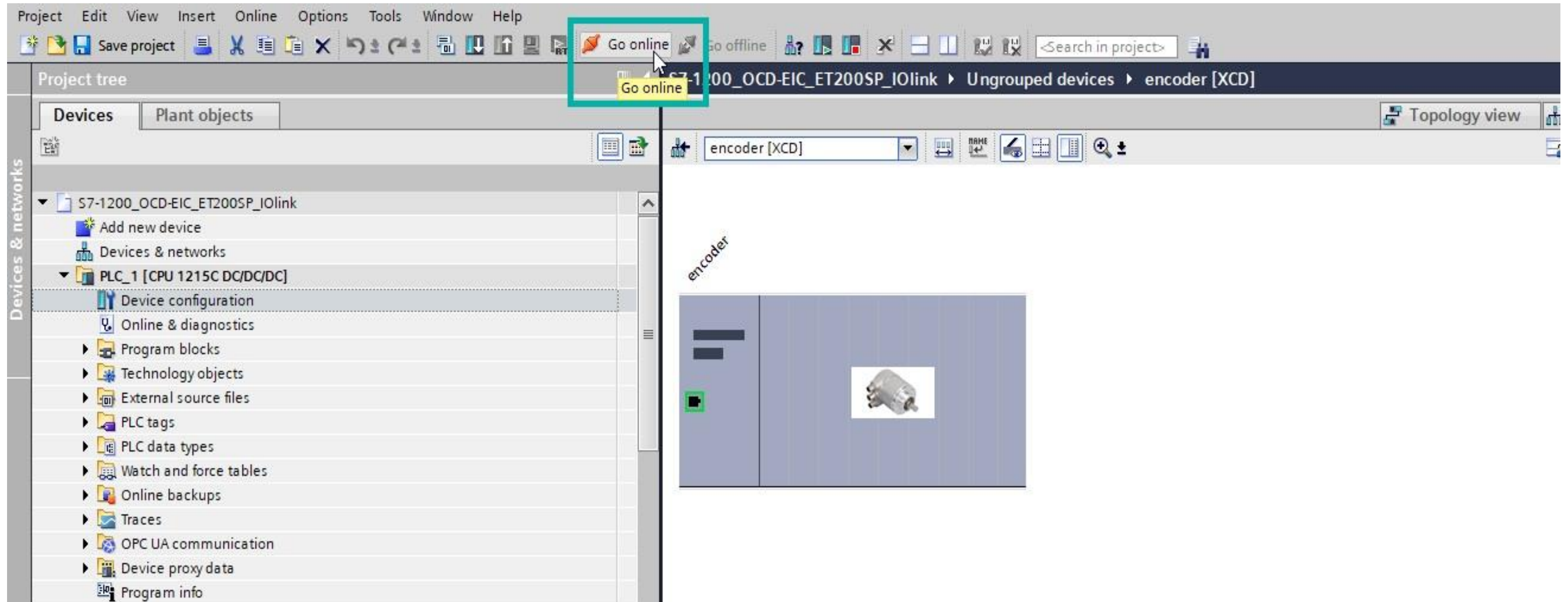
The 'Encoder parameter' section shows:

- Code sequence: CW
- Encoder Class A functionality: enable
- Preset affects XST1: 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

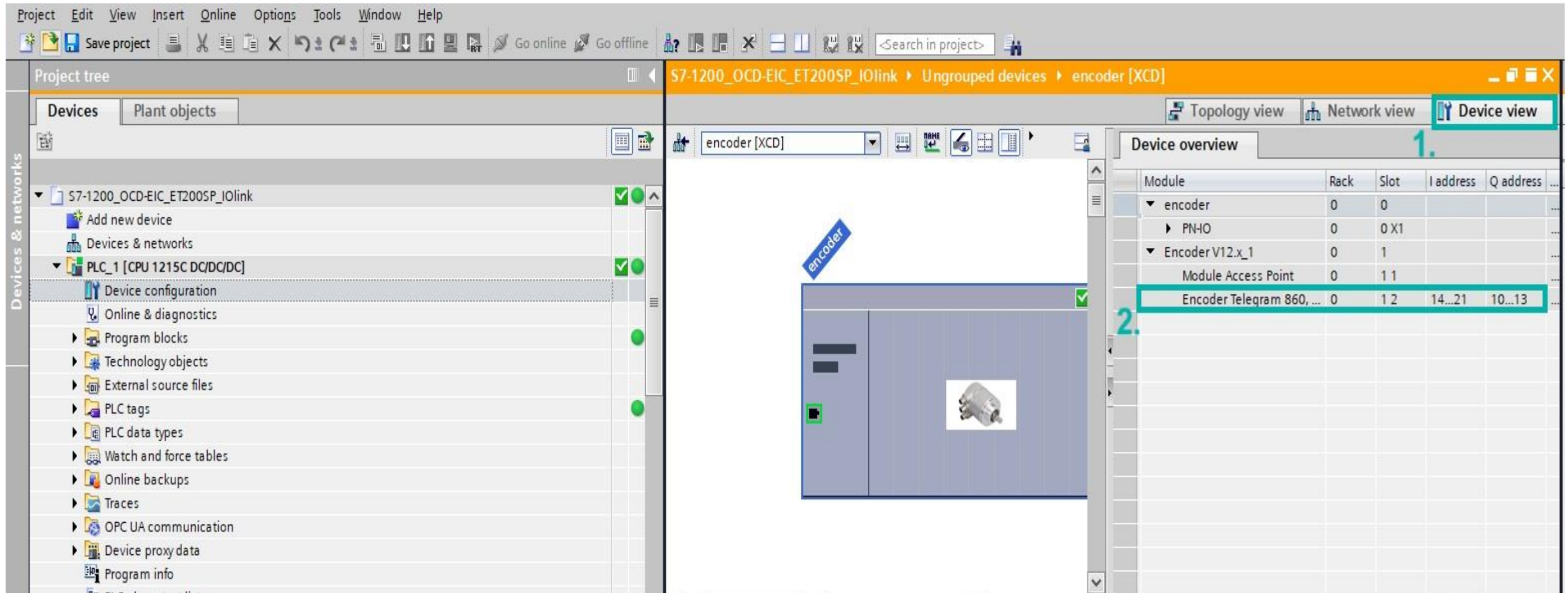


> Go Online



➤ 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 STEP 7 software interface. The left pane displays the 'Project tree' with the following structure:

- Devices
 - 57-1200_OCD-EIC_ET200SP_IOlink
 - 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

The main workspace shows the 'encoder [XCD]' module in the 'Device view'. A blue label 'encoder' is placed above the module icon. The right pane displays the 'Device overview' table, which lists the modules and their addresses. The table is highlighted with a red box and a red '1.' label. The table has the following data:

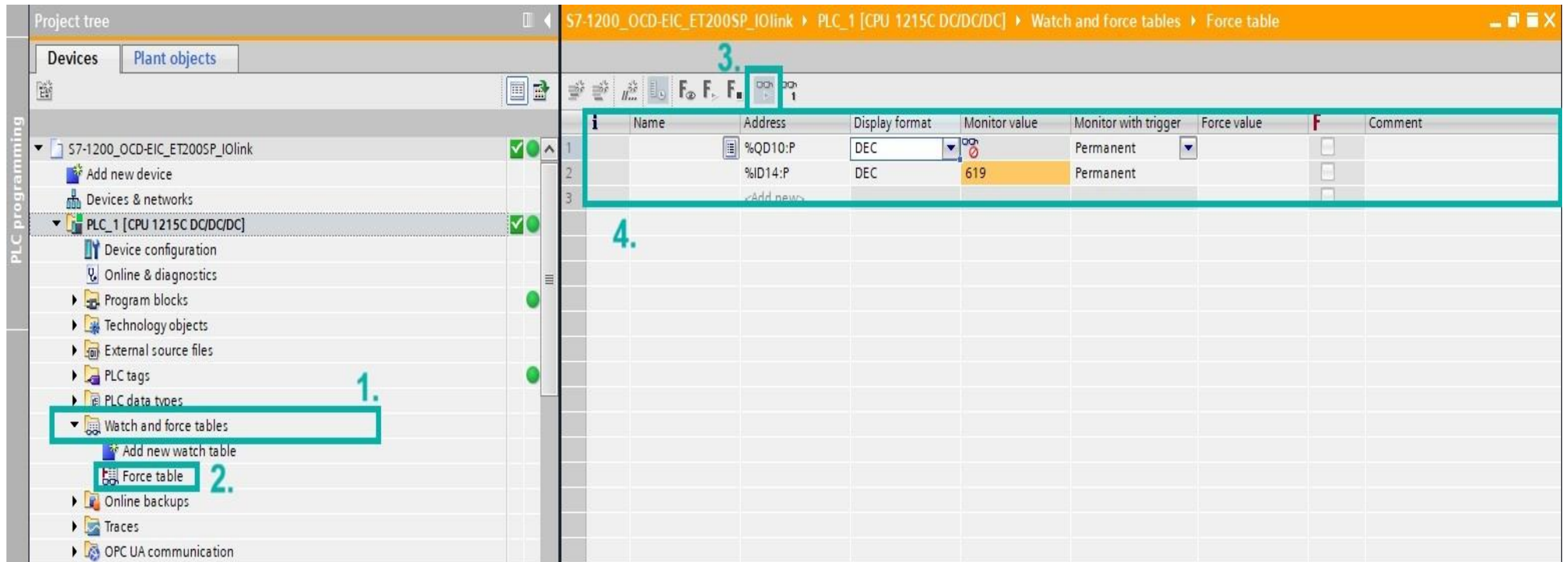
Module	Rack	Slot	I address	Q address
encoder	0	0		
PN-IO	0	0 X1		
Encoder V12.x_1	0	1		
Module Access Point	0	1 1		
Encoder Telegram 860, ...	0	1 2	14...21	10...13

The 'Encoder Telegram 860, ...' row is highlighted with a red box and a red '2.' label.

> 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 with the following components:

- Project tree (left):**
 - PLC programming
 - S7-1200_OCD-EIC_ET200SP_IOlink
 - 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** (Annotation 1)
 - Add new watch table
 - Force table** (Annotation 2)
 - Online backups
 - Traces
 - OPC UA communication

- Main window (right):**
- Path: S7-1200_OCD-EIC_ET200SP_IOlink > PLC_1 [CPU 1215C DC/DC/DC] > Watch and force tables > Force table
- Toolbar: Includes icons for Watch, Force, and Monitor values (Annotation 3).
- Table:**

	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1		%QD10:P	DEC	0	Permanent		☐	
2		%ID14:P	DEC	619	Permanent		☐	
3		<Add new>					☐	

> 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).

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

	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	Comment
1		%QD10:P	Hex		Permanent	16#8000_0000	
2		%ID14:P	DEC	619	Permanent		
3		<Add new>					

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

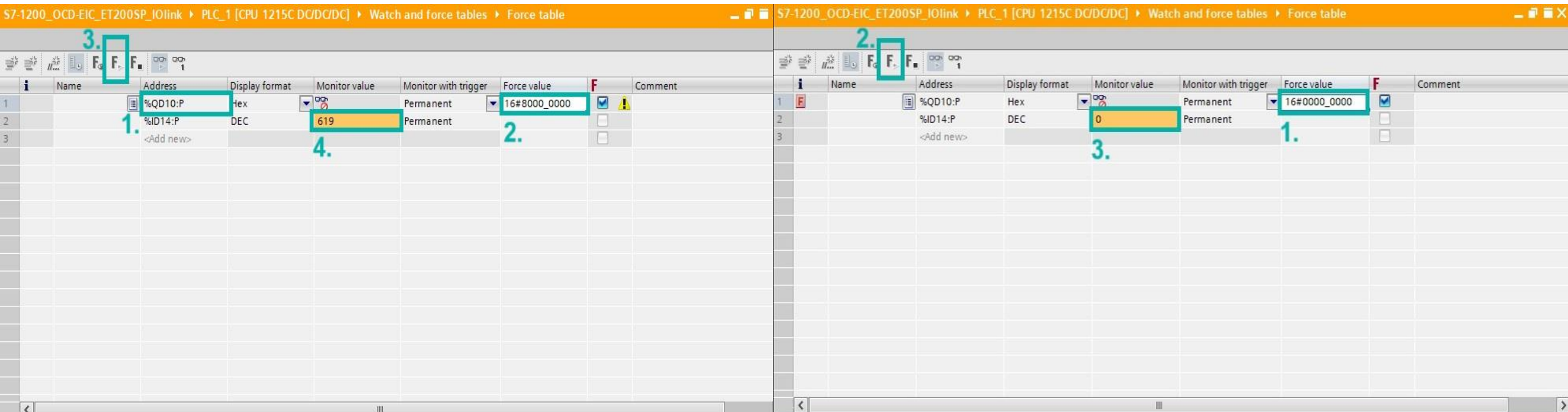
	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	Comment
1		%QD10:P	Hex		Permanent	16#0000_0000	
2		%ID14:P	DEC	0	Permanent		
3		<Add new>					

> 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



Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	%QD10:P	Hex	619	Permanent	16#8000_0000	☒	
2	%ID14:P	DEC	619	Permanent	16#8000_0000	☐	
3	<Add new>					☐	

Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	%QD10:P	Hex	0	Permanent	16#0000_0000	☒	
2	%ID14:P	DEC	0	Permanent	16#0000_0000	☐	
3	<Add new>					☐	

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)
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

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

2.

	i	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	1. F	Comment
1	F		%QD10:P	Hex	5	Permanent	16#8000_0005	☒	
2			%ID14:P	DEC		Permanent		☐	
3			<Add new>					☐	

3.

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

5.

	i	Name	Address	Display format	Monitor value	Monitor with trigger	Force value	F	Comment
1	F		%QD10:P	Hex	5	Permanent	16#0000_0005	☒	
2			%ID14:P	DEC		Permanent		☐	
3			<Add new>					☐	

4.

6.

> 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			%QD10:P	Hex		Permanent	16#0000_0005	☒	
2			%ID14:P	DEC	5	Permanent		☐	
3			%ID18:P	DEC	0	Permanent		☐	
4			<Add new>					☐	

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	☒	
2			%ID14:P	DEC	19725	Permanent		☐	
3			%ID18:P	DEC	46449	Permanent		☐	
4			<Add new>					☐	

2.