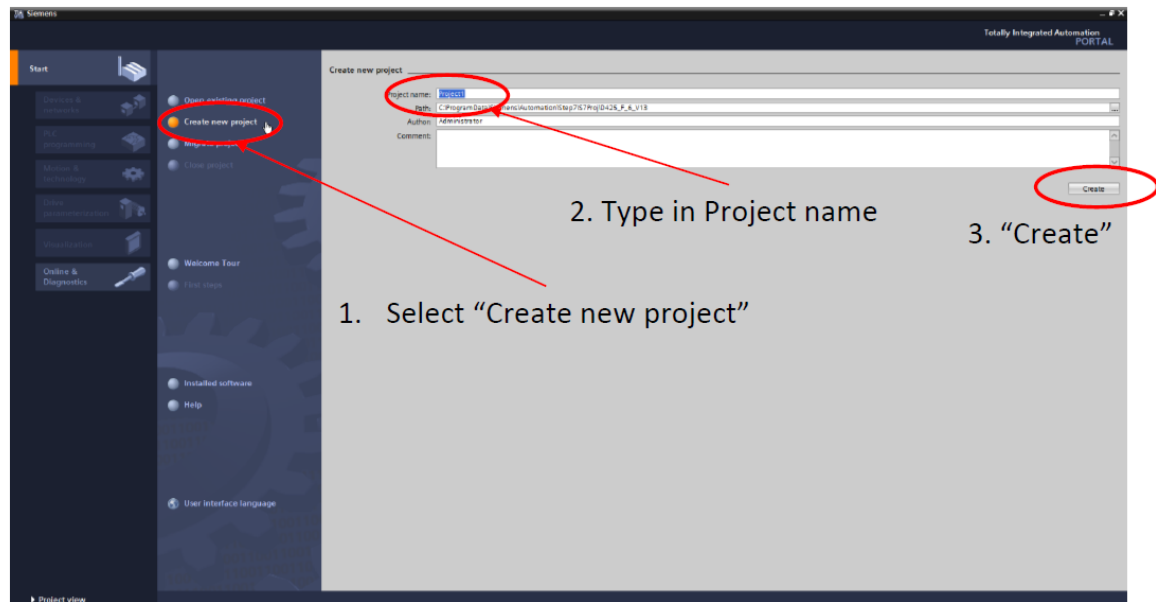
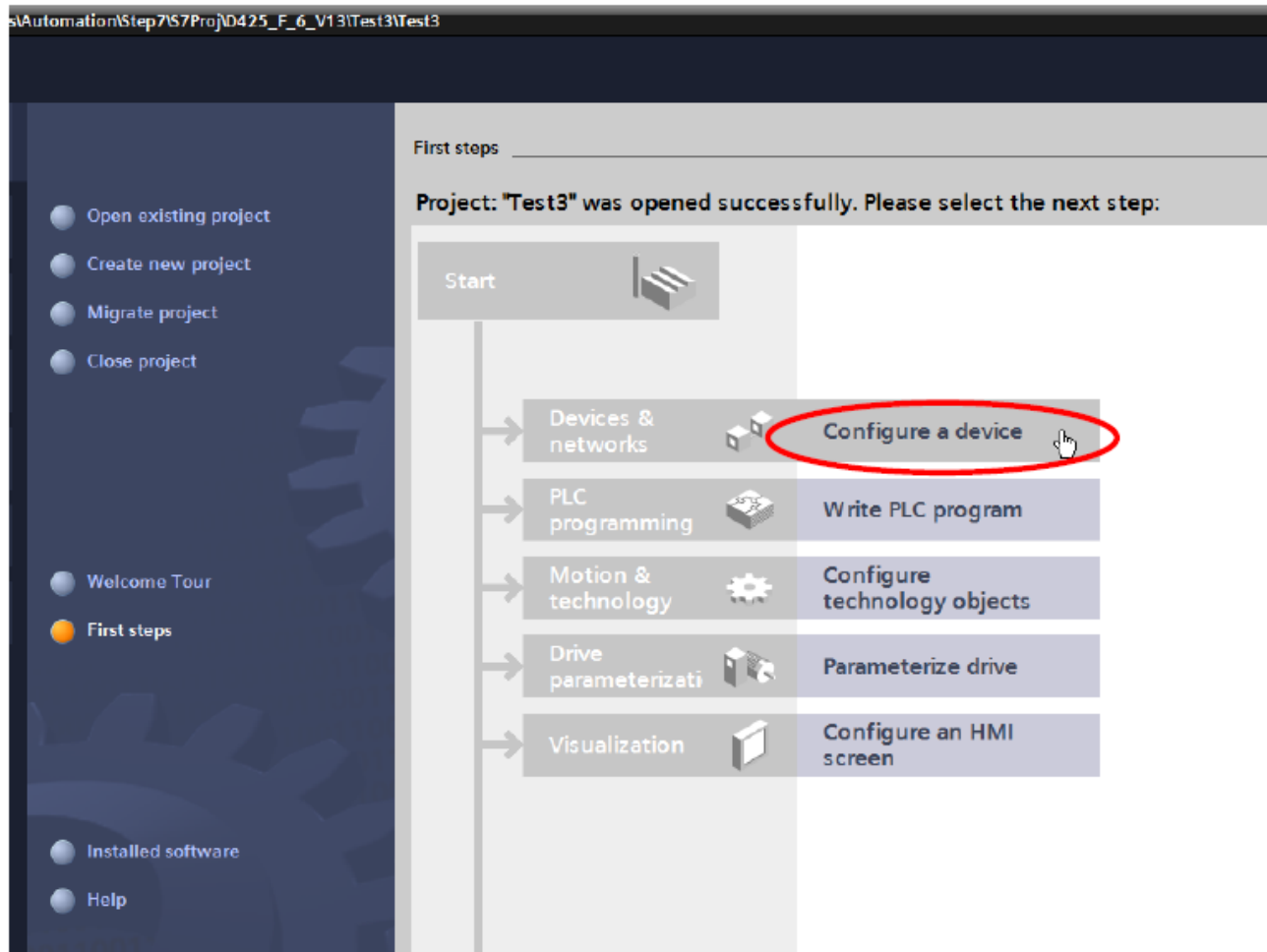


Avtron AV6A, AV6M, HS6A, HS6M
ProfiNet Quick Start Guide
Siemens S7/Step 7 Applications
10/23/2020 v1.1

1. Create a Project



2. Configure a Device



3. Choose & Add the PLC

1. Add new device

Device name: PLC_1

Controllers

- SIMATIC 57-1200
- SIMATIC 57-1500
 - CPU
 - CPU 1511-1 PN
 - CPU 1511C-1 PN
 - CPU 1512C-1 PN
 - CPU 1513-1 PN
 - CPU 1515-2 PN
 - CPU 1516-3 PN/DP
 - CPU 1517-3 PN/DP
 - CPU 1518-4 PN/DP
 - CPU 1511F-1 PN
 - CPU 1511F-1 PN V1.7**
 - CPU 1512F-1 PN
 - CPU 1513F-1 PN
 - CPU 1515F-2 PN
 - CPU 1516F-3 PN/DP
 - CPU 1517F-3 PN/DP
 - CPU 1518F-4 PN/DP
 - Unspecified CPU 1500
 - CPU SIPPLUS
- SIMATIC 57-300
- SIMATIC 57-400
- SIMATIC ET 200 CPU
- Device Proxy

Device: CPU 1511F-1 PN

Article no.: 6ES7 511-1FK00-0AB0

Version: **V1.7**

Description: CPU with display, work memory 225 KB program, 1 MB data; can be used for safety applications, supports PROfinet I/O controllers, support integrated technology functions: motion, closed-loop control, counting/measuring, integrated trace interface, PROfinet I/O controllers, support RTMP, 2 ports, I/O device, NRP, transport protocol TCP/IP, S7 communication, Web server, constant bus cycle time, routing, firmware V1.7

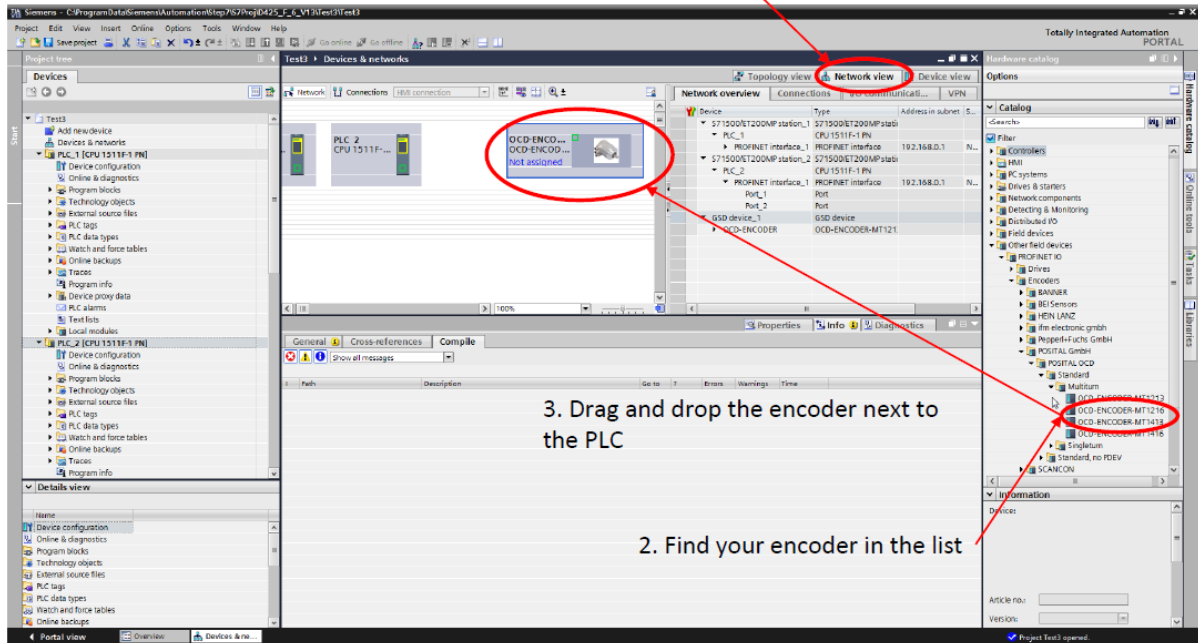
2. Choose your PLC in the list
Make sure you choose the right version

3. Click "Add"

Open device view

4. Add the Avtron Encoder to the Network

1. Go to "Network view" tab



5. Assign the Encoder to the PLC

The screenshot shows the Siemens STEP 7 HW Config software interface. The main workspace displays a network topology with a PLC 1 (CPU 1511F-...) and an encoder (OCD-ENCO...). The encoder is currently labeled "Not assigned". A yellow line connects the encoder to the PLC, with a tooltip that reads "Select IO controller PLC_1_PROFINET interface_1". Red arrows numbered 1 and 2 indicate the steps: 1. Click on "Not Assigned" in the encoder frame. 2. Assign it to the corresponding PLC. The right-hand pane shows the "Network overview" tree, which includes the following structure:

- Device
 - S71500/ET200...
 - PLC_1
 - GSD device_1
 - OCD-ENCO...

Below the screenshot, the following steps are listed:

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

6. Establish the Connection to the Port

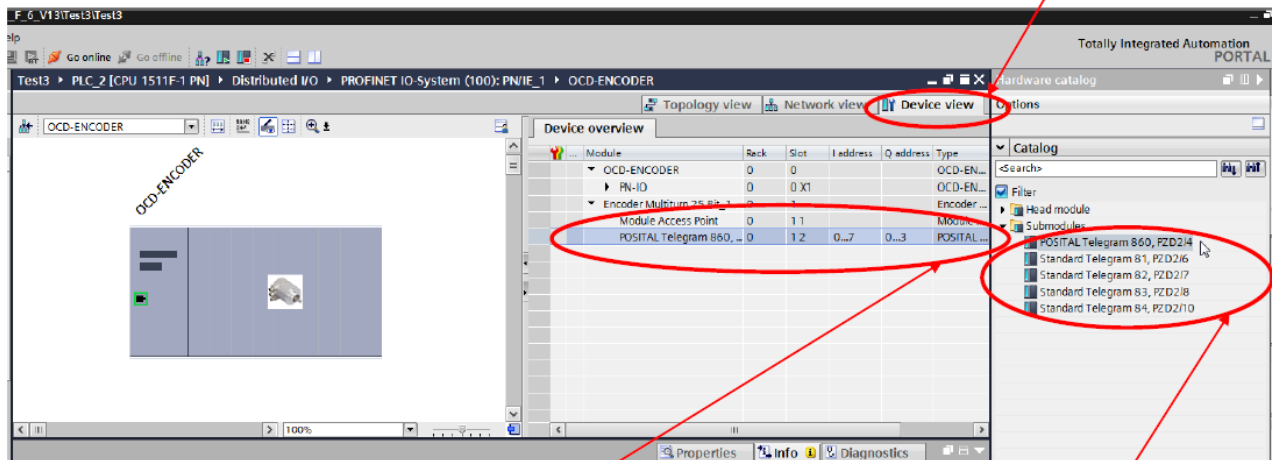
1. Go to "Topology view" tab

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

7. Choose Telegram (860)
 - a. You MUST choose telegram 860 for the example to work

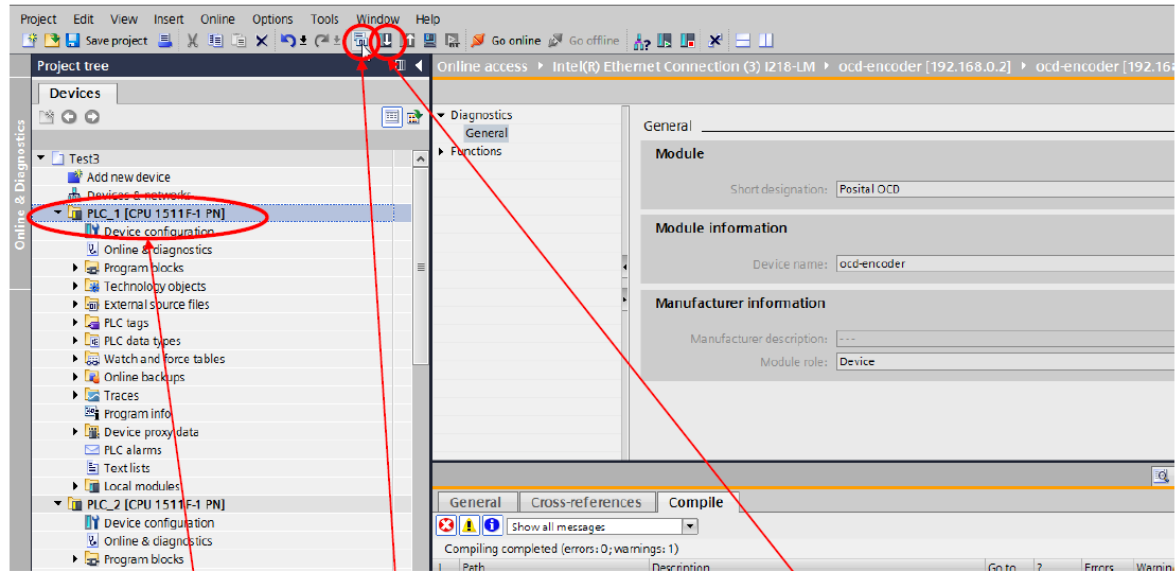
1. Go to the "Device View" Tab



3. Drag and drop the telegram on a free line

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

8. Compile and Download Settings



1. Select the right PLC

2. Click on "Compile"

3. Click on "Download to Device"

9. Assign Address and Name

1. Set the interface information

The screenshot shows the 'Extended download to device' window. It includes a table for 'Configured access nodes of *PLC_1*', a section for setting the PG/PC interface, a table for 'Compatible devices in target subnet', and a 'Start Search' button. Red circles and arrows highlight the steps: setting interface info, starting the search, selecting a device, and clicking the Load button.

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: **PN/IE**
 PG/PC interface: **Intel(R) Ethernet Connection (3) I218-LM**
 Connection to interface/subnet: **PN/IE_1**
 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 → **Start Search**

3. Select the matching PLC → **plc_1**

4. Load → **Load**

Flash LED ☐

Online status information:
 Scan completed. 1 compatible devices of 2 accessible devices found.
 Retrieving device information...
 Scanning and information retrieval completed. 1 problem found.
☐ Display only error messages

10. Monitoring Position and Velocity

- a. %ID0 will be the position register
- b. %ID4 will be the velocity register

3. Click on "Show/Hide"

4. Click on "Monitor value"

The screenshot shows the 'Watch and force tables' window with the 'Force table' tab selected. The table has columns for 'Address', 'Display format', 'Monitor value', 'Monitor with trig...', 'Force value', and 'Comment'. The 'Monitor value' column is highlighted. Red circles and arrows indicate the steps to click on 'Show/Hide' and 'Monitor value'.

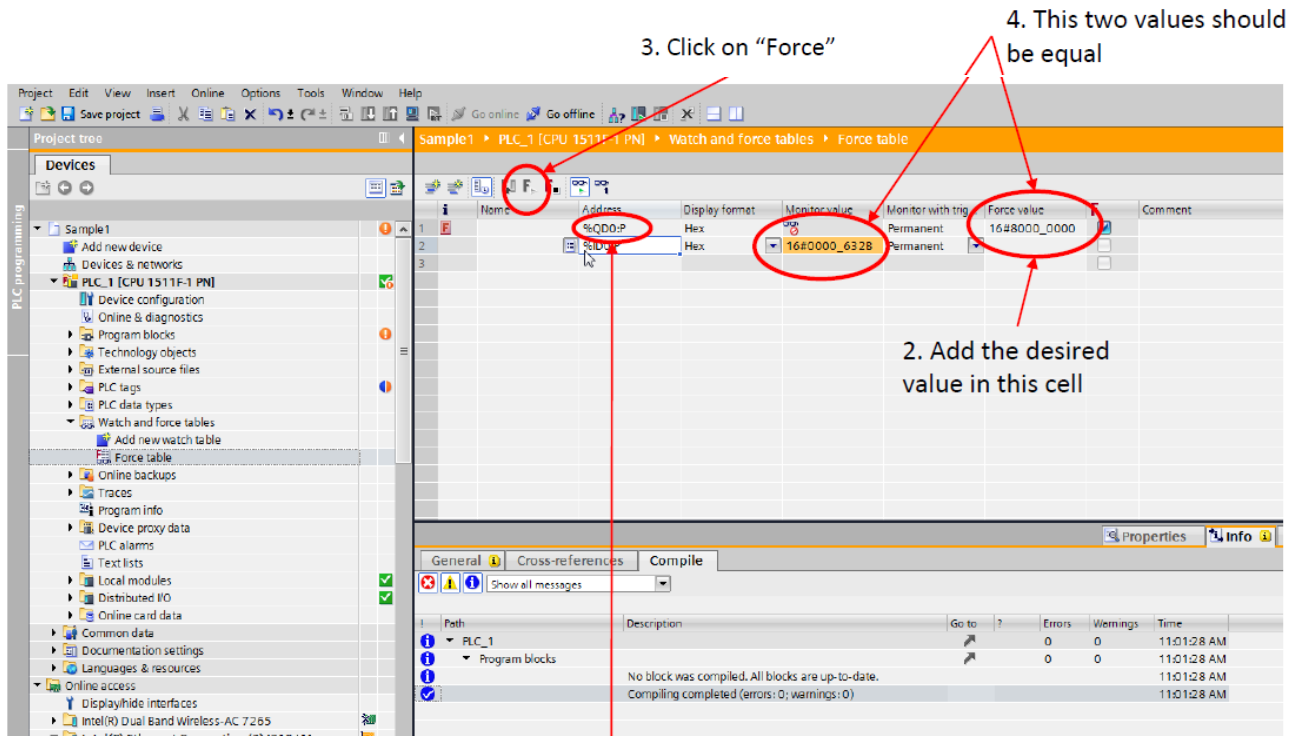
1. Go in
"Force table"

2. In a free row, add:

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

11. Example: Forcing a Preset/Present Position Value

- Important: You must have selected Telegram 860 for this example to work
- %QD0 will be the “forcing” or output register from the PLC to the encoder
- You must force the highest bit (MSB) of the register to “1” to trigger the encoder to accept the forced position value.
- The easiest value to use is hexadecimal: 16#8000_0000
- Or binary: 16#1000_0000_0000_0000_0000_0000_0000_0000



3. Click on “Force”

4. This two values should be equal

2. Add the desired value in this cell

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