Vision System FH-series

Practices Guide

ProfiNet communication

FH-1□□□/FH-1□□□-□□

FH-2□□□/FH-2□□□-□□

FH-3□□□/FH-3□□□-□□

FH-5□□□/FH-5□□□-□□

FH-L□□□/FH-L□□□-□□

Contents

1. Related Manuals

No.	Model	Title
Z365-E1-04	FH	User's Manual
Z342-E1-10	FH	User's Manual for Communications Settings

1.1. Intended audience

The details and information provided are intended to supplement the Vision System FH Series - User's Manual for Communications Settings (Z342-E1-10). It is not intended to provide a ProfiNet manual but a Practical Guide to configure the communication between the devices.

2. Precautions

(1) When building an actual system, check the specifications of the component devices of the system, use within the ratings and specified performance, and implement safety measures such as safety circuits to minimize the possibility of an accident.
(2) For safe use of the system, obtain the manuals of the component devices of the system and check the information in each manual, including Safety Precautions, Precautions for Safe Use.
(3) It is the customer's responsibility to check all laws, regulations, and standards that the system must comply with.
(4)
(5) The information in this guide is current as of October 2018.
It is subject to change without notice because of product's update.

Special information in this document is classified as follows:

Precautions for Safe Use

Describes precautions on what to do and what not to do to ensure safe usage of the product.

Precautions for Correct Use

Describes precautions on what to do and what not to do to ensure proper operation and performance.

Additional Information

Additional information to read as required.
It contains helpful and reference information for the users.

Copyrights and Trademarks

3. ProfiNet communication configuration

- It should be considered the data transmission configured in the FH to configure the IO-Controller accordingly.
- It will be shown two communication examples:
  - FH-series (IO-Device) with CJ1W-PNT21 (IO-Controller).
  - FH-series (IO-Device) with Siemens PLC S7-1500 series (IO-Controller).

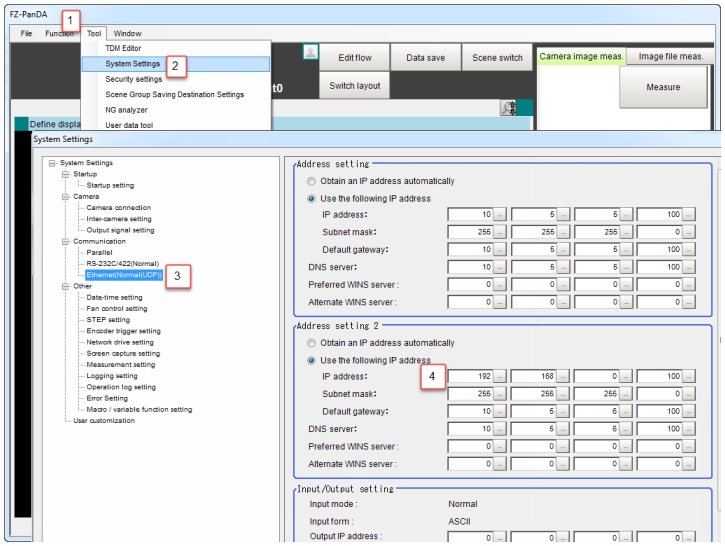
3.1. FH-series configuration:

For the different Output data sizes (with/without User Area) configurations refer to Vision System FH Series - User's Manual for Communications Settings (Z342-E1-10).
In this example, it will be defined **128 Bytes as Output data size without User Area**. Operation mode will be '**Standard**' but could be configured with Multi-line mode following the same steps described below.

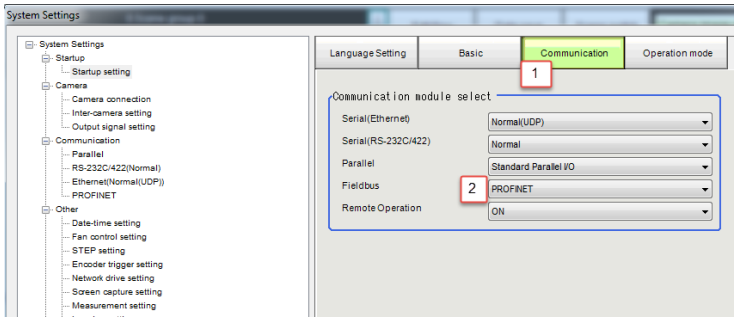
1 Startup FZ-PanDA Tool.

Click [Tool] – [System Settings] – [Ethernet((Normal(UDP))]:

- Set IP address under Address setting 2 ('**192.168.0.100**' for our example).
- Click [Apply].



2 Click [Tool] – [System Settings] – [Communication] tab and select PROFINET as Fieldbus.

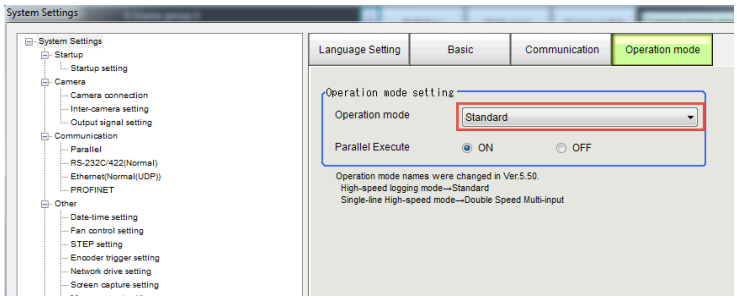


3

Click [Startup setting] under Startup tab in System Settings configuration tree.

- Operation mode: **Standard**.
- Click [Apply].

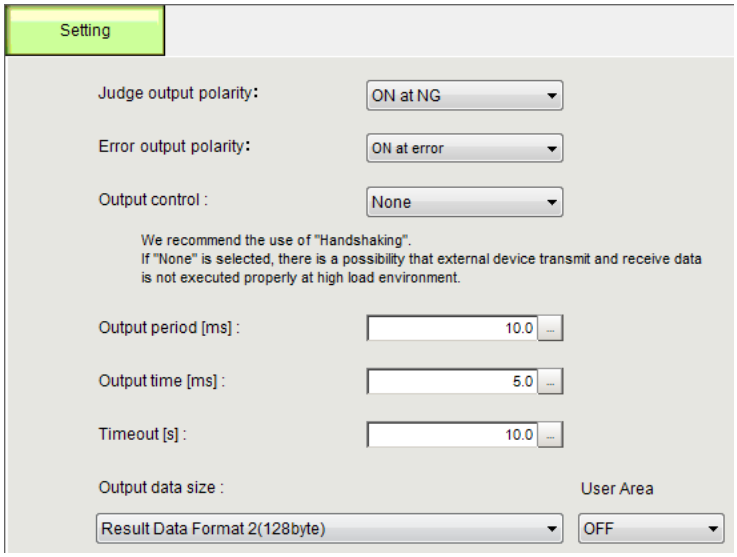
Restart the FH to apply the changes.



4

Click [PROFINET] under Communication tab in System Settings configuration tree.

- Judge output polarity: ON at NG.
- Error output polarity: ON at error.
- Output control: None.
- Output period [ms]: 10.0
- Output time [ms]: 10.0
- Timeout [s]: 10.0
- Output data size: **Result Data Format 2 (128Byte)**.
- User Area: **OFF**.
- Click [Apply].

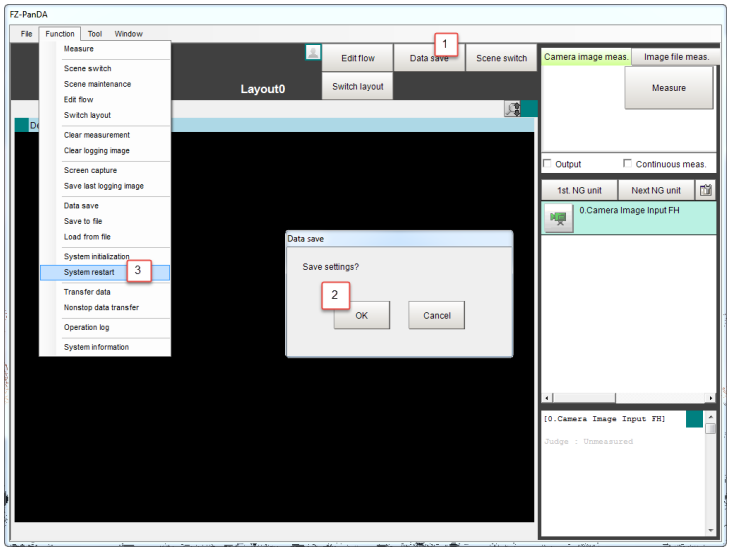


5

Close configuration window: Click [Close].

Save the modifications: Click [Function] – [Data save] – [OK].

Restart the system: Click [Function] – [System restart] – [OK].



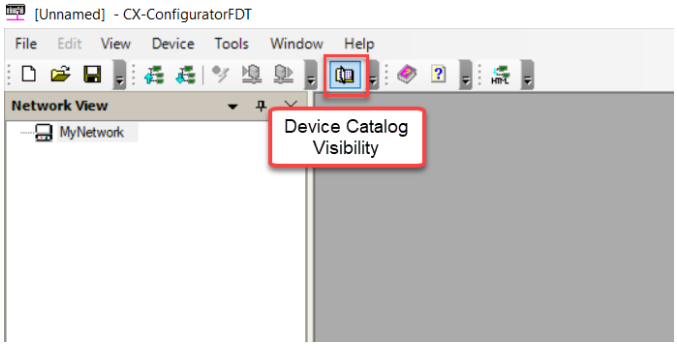
3.2. CJ1W-PNT21 configuration:

To configure the IO-Controller it will be used CX-ConfiguratorFDT tool.

1 **Startup CX-ConfiguratorFDT tool.**

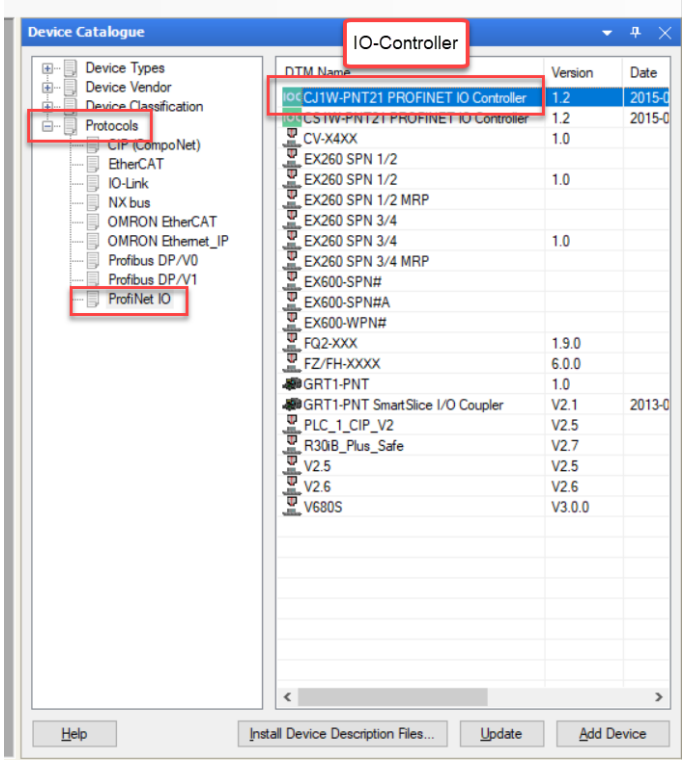
Open Device Catalog:

- Click on [Device Catalog Visibility].



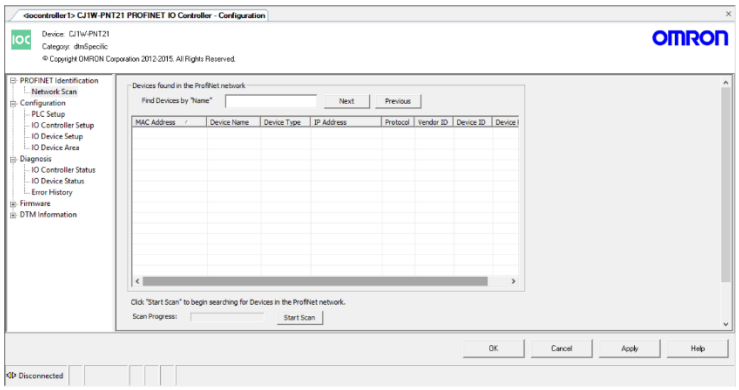
2 **Attach the IO-Controller to your network:**

- Select [ProfiNet IO] under [Protocols].
- Select the IO-Controller (CJ1W-PNT21 in our example).
- Use double-click to add it to your network.



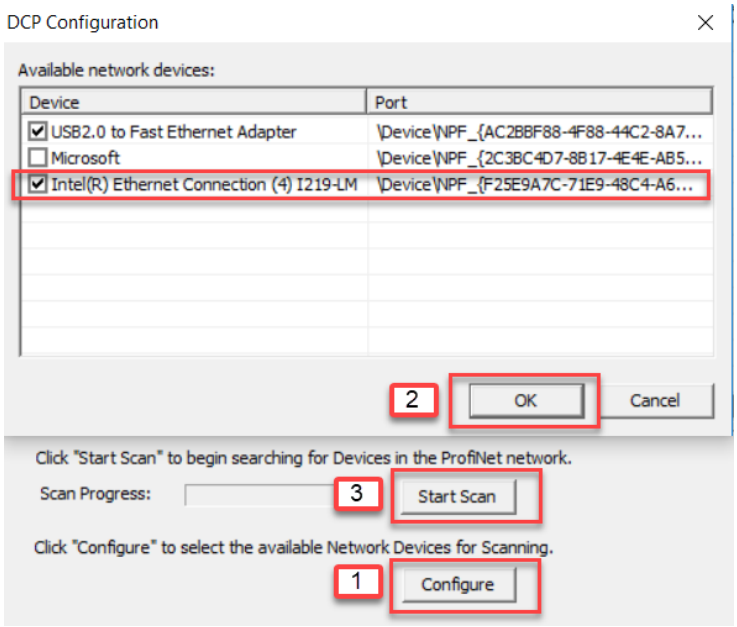
3 Open IO-Controller configuration window:

- Double-click on the IO-Controller included in your network on Step 2.



4 Scan the network to attach the IO-Device (FH-series) to your IO-Controller:

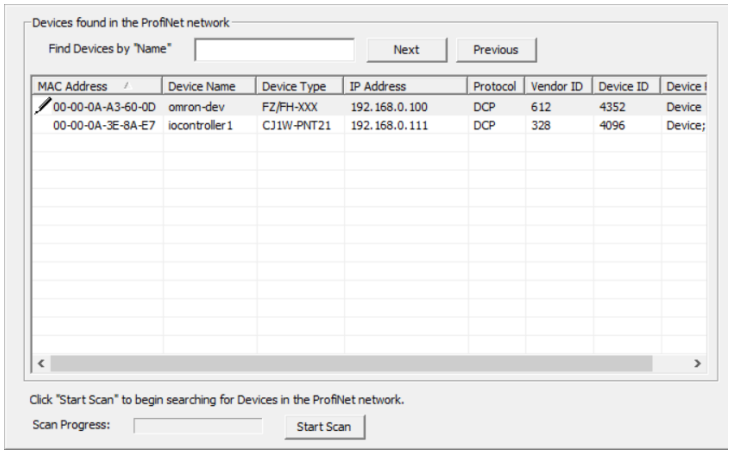
- Open configuration window: PROFINET Identification – Network Scan.
- Select your communication device (Ethernet board from your PC).
- Scan the network: Start Scan.



5 Attach the IO-Device (FH-series) to your IO-Controller:

- Right-click on the FH - Add Device to IO Controller.

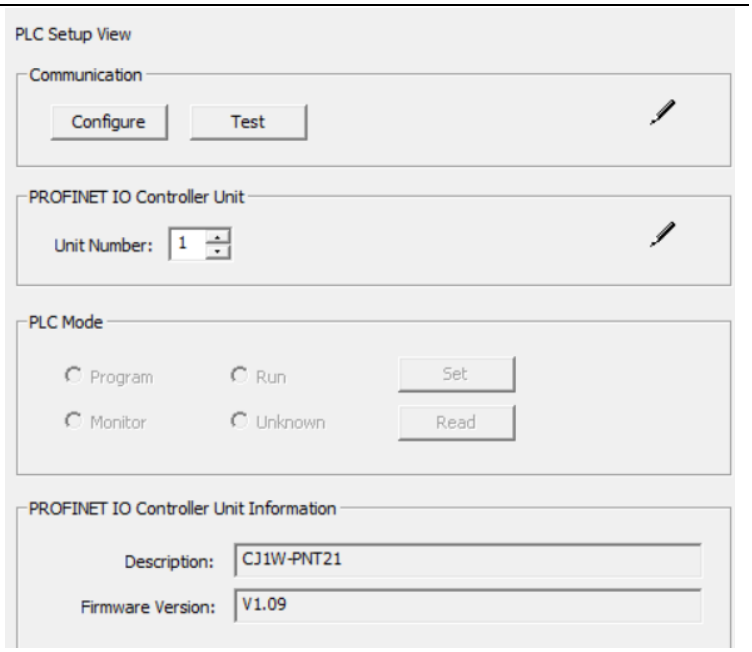
On this screen you can verify the IP Address of your IO-Controller and IO-Device, the Device Names…



6 Test communication:

- Open PLC setup view: Configuration – PLC setup.
- Select the PLC where CJ1W-PNT21 is mounted on:
- Select the Unit number where the ProfiNet IO Controller is mounted.
- Start test and receive IO-Controller information: Click on Test.
- Apply changes.

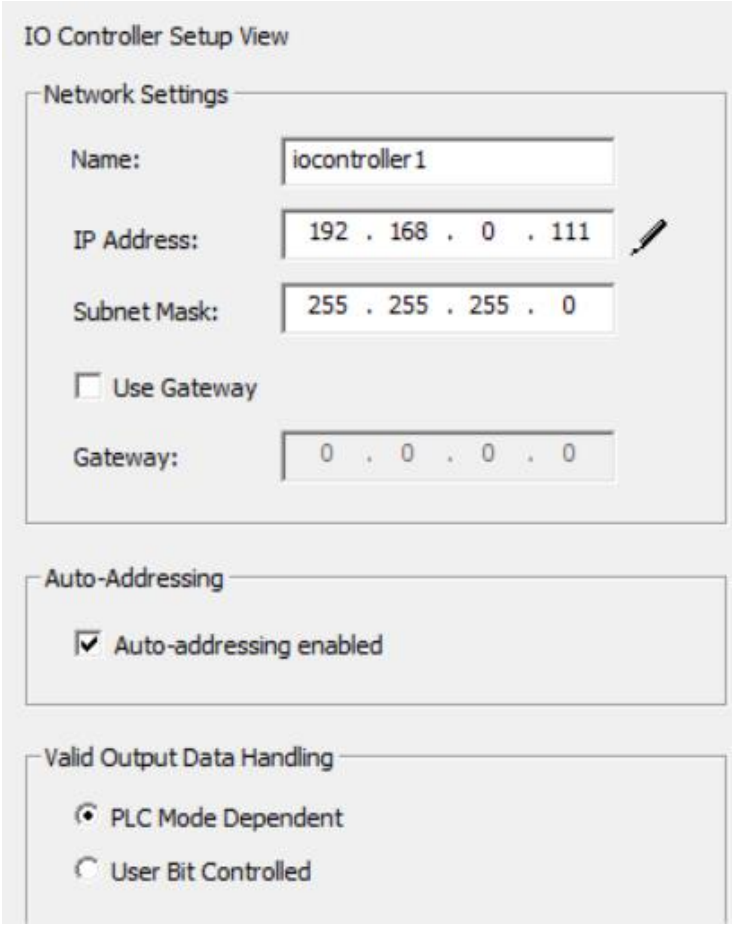
Description and Firmware Version of your IO-Controller will be shown.



7 IO-Controller setup:

- Open IO-Controller setup view: Configuration – IO Controller Setup.
- Set the name and IP-Address.

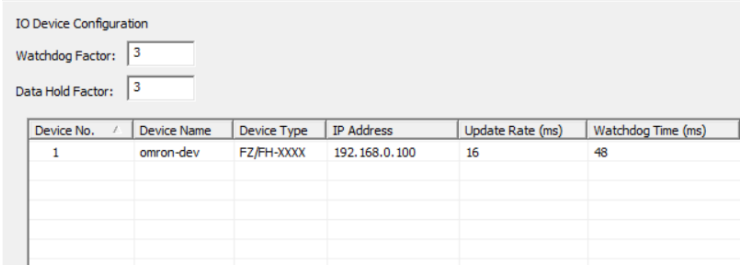
Fields modified will show a pencil until changes are applied.



8 IO-Device setup:

- Open IO-Device setup view: Configuration – IO Device Setup.
- Change (if necessary) the name and IP-Address of the device.

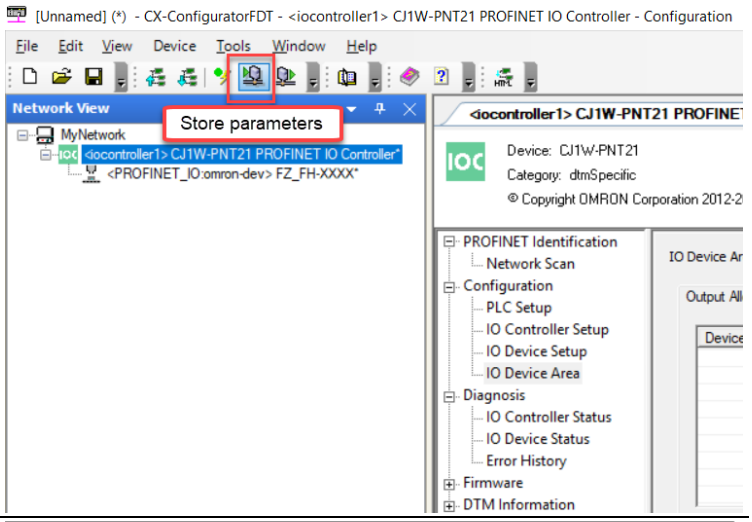
Update Rate can be updated and Watchdog Time and Data Hold Time will be modified according to a Factor stablished previously.



9 Store parameter set to device:

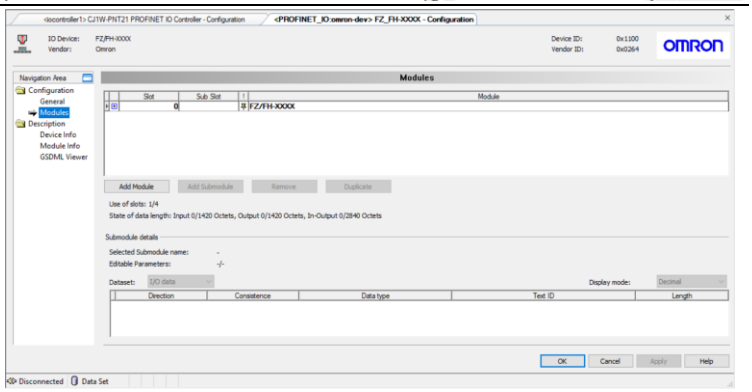
- Select Store Parameter Set to Device option.

PLC will be switched to Program/Run mode respectively.



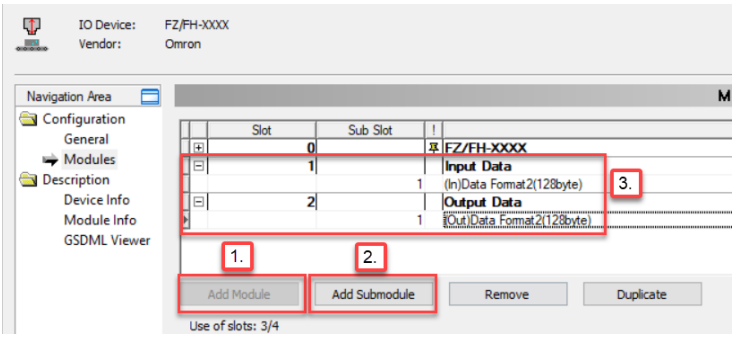
10 Open IO-Device configuration window:

- Double-click on the IO-Device included in your network on Step 5.



11 Add modules/submodules:

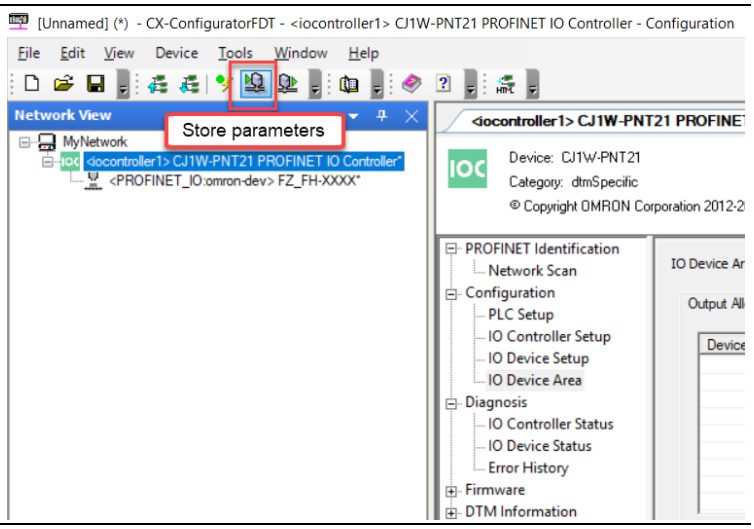
- Add Module – Select module type (Input/Output Data).
- Add Submodule – Select Data Format previously defined in Section 3.1 - Step 2 of this Connection Guide.
- Select Apply to validate the changes.
- Press OK to accept IO-Device configuration.



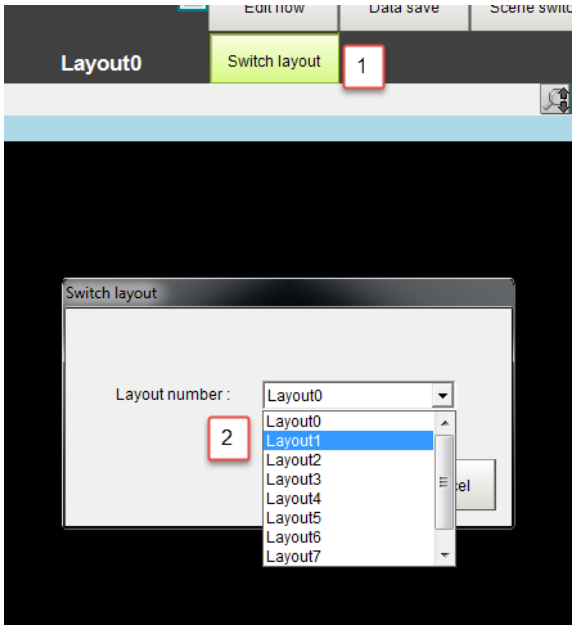
12 **Store parameter set to device:**

- Select Store Parameter Set to Device option.

PLC will be switched to Program/Run mode respectively.



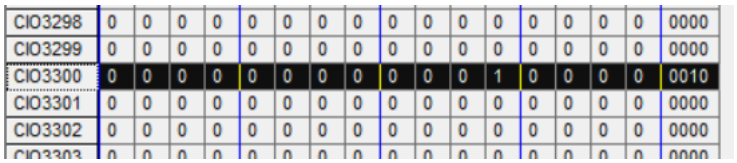
13 **FZ-PanDA: Switch to Layout1 and make sure that the RUN LED is on.**



14 **Verify communication between PLC and FH-series:**

- Open CX-Programmer and connect to PLC.
- Address CIO3300 (bit 5) will be set to 1 (default IO Device Area).

In the picture are shown the results.



CIO3298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3299	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3300	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0010
CIO3301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000
CIO3302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0000

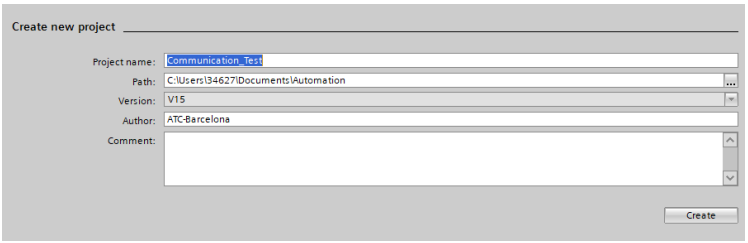
3.3. S7-1500 configuration (TIA Portal):

To configure the IO-Controller it will be used TIA (Totally Integrated Automation) Portal V15. For this communication manual it has been used a CPU 1515F-2 PN V1.6.

1 **Startup TIA Portal tool.**

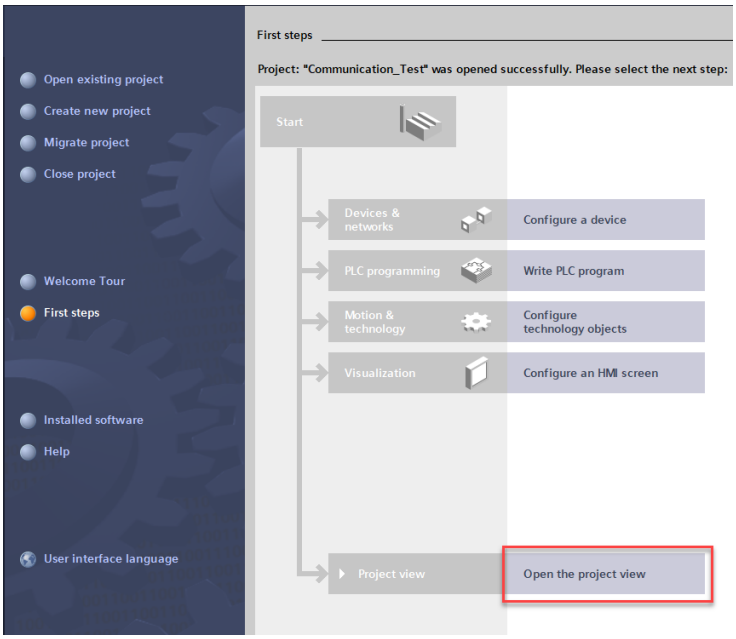
Create a New Project:

- Define the Project name, Path and Author of your project.



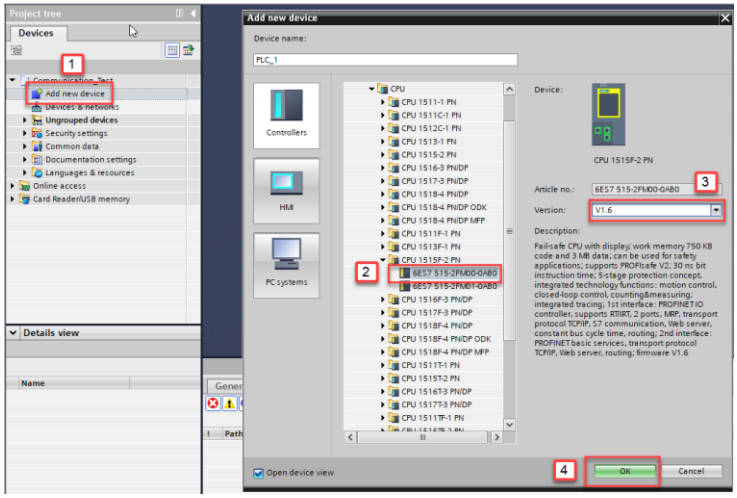
2 **Open the project view:**

- Select [Open the project view] under [First steps] configuration tree.



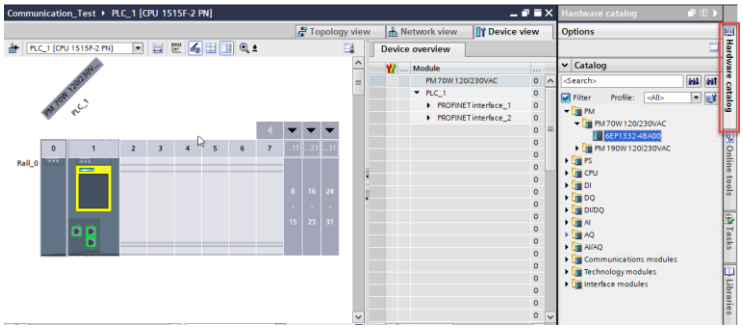
3 Add IO-Controller to the project:

- Add new device – Select CPU model – Define CPU version – Click OK.



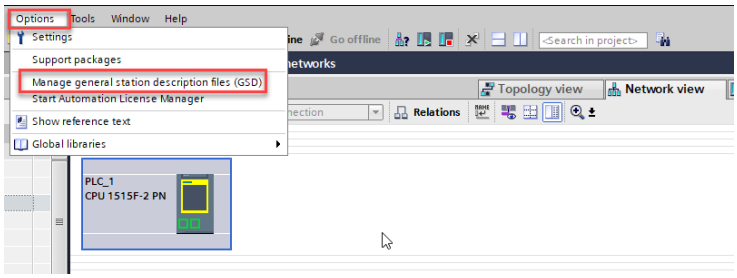
4 IO-Controller HW configuration:

- Add the different modules which are mounted on the IO-Controller with the Hardware catalog.



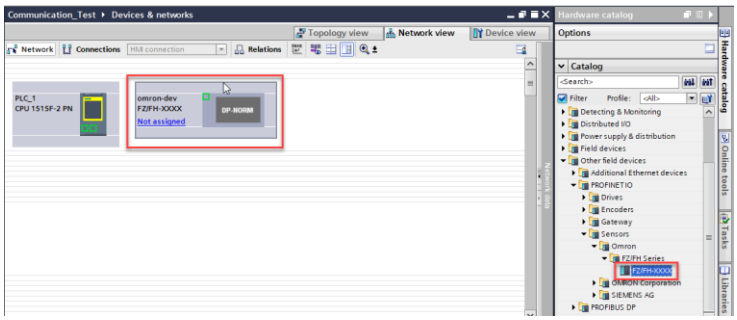
5 Install GSDML file in TIA Portal:

- [Options] – [Manage general station description files (GSD)] – Look for the path where your GSDML file is located – [Install].



6 Add IO-Device to the network:

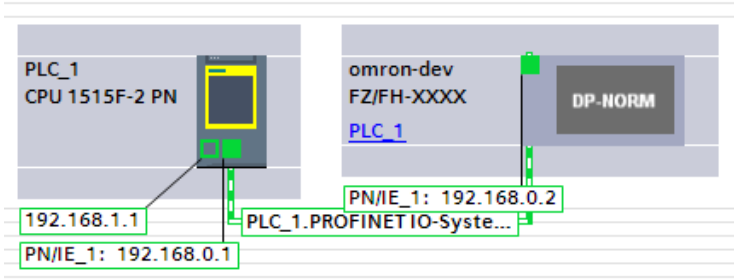
- FH-series can be found under [Other field devices] – [PROFINET IO] – [Sensors] – [Omron] – [FZ/FH Series].
- Double click to add it to the network.



7 Create the ProfiNet network:

- Select the IO-Controller port where your IO-Device is connected to.
- Select the IO-Device port.

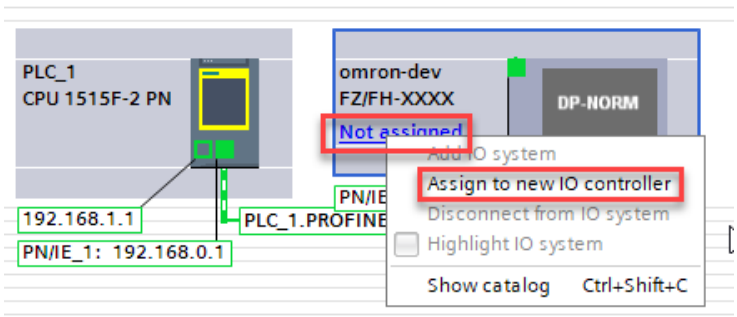
The Network will be created as shown in the picture.



8 Assign IO-Device to IO-Controller:

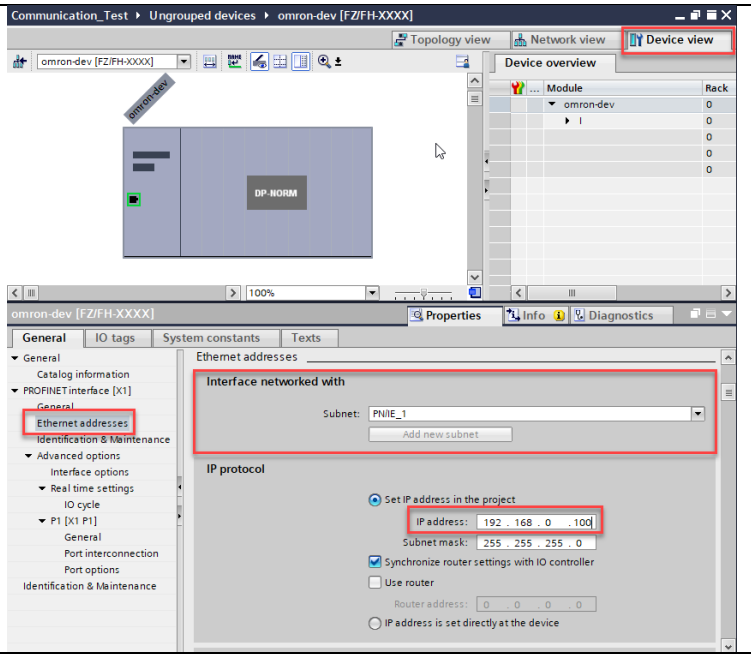
- Right-click on “Not assigned” message shown in blue – [Assign to new IO controller].

Note: This should be carried out in case that the IO-Device is not assigned correctly to the IO-Controller.



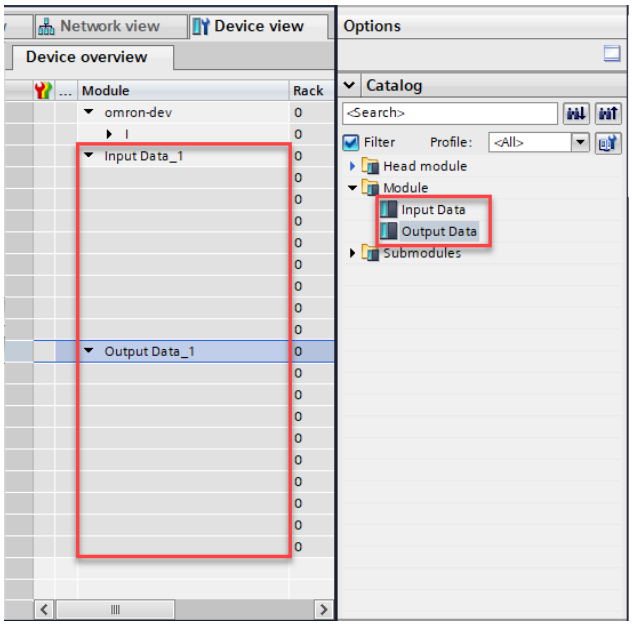
9 Configure IO-Device (I):

- Go to [Device view] of your FH-series IO-Device.
- Configure the Subnet (this is done automatically in Step 8).
- Configure the IP address (192.168.0.100 in this example).



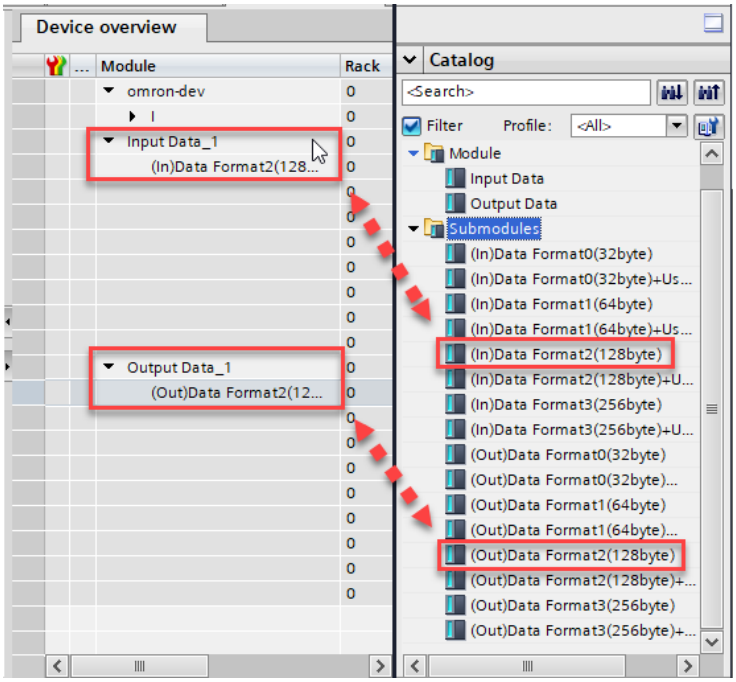
10 Configure IO-Device (II):

- Add Input Data and Output Data modules to the IO-Device with double-click.



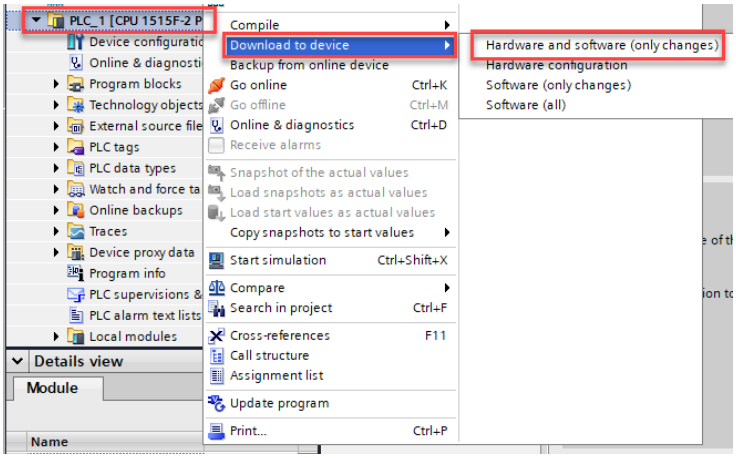
11 Configure IO-Device (III):

- Add Submodule: Select Data Format previously defined in Section 3.1 - Step 2 of this Connection Guide.



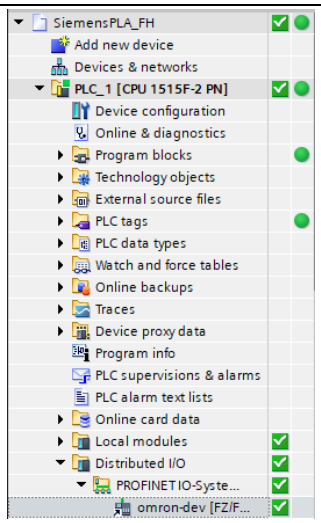
12 Store parameter set to device:

- Right-click on PLC folder – [Download to device] – [Hardware and software (only changes)] – [Load].

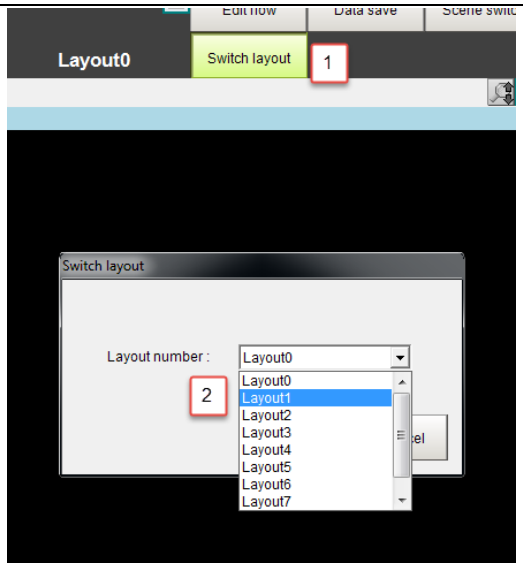


13 **Verify communication between Siemens PLC and FH-series (I):**

- Verify that the offline configuration matches with the online configuration data.



14 **FZ-PanDA: Switch to Layout1 and make sure that the RUN LED is on.**

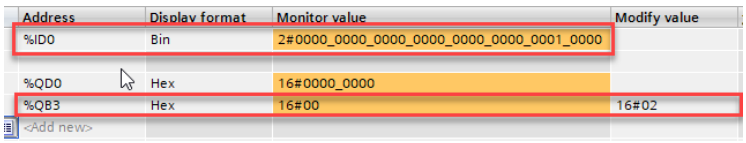


15 **Verify communication between Siemens PLC and FH-series (II):**

- Verify that IO-Controller is receiving and sending information/trigger to IO-Device.

Notes:

1. Create a Watch Table and check ID0 – bit 5 (Run).
2. Set QB3 to #02 (Step) and a trigger should be sent to FH-series to perform a measurement.



4. Revision History

Revision Code	Date	Revised Content
01	October 2018	Original production