

TECH NOTE – BMX60 Profinet Siemens

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Author: Darren Siantama

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Contents

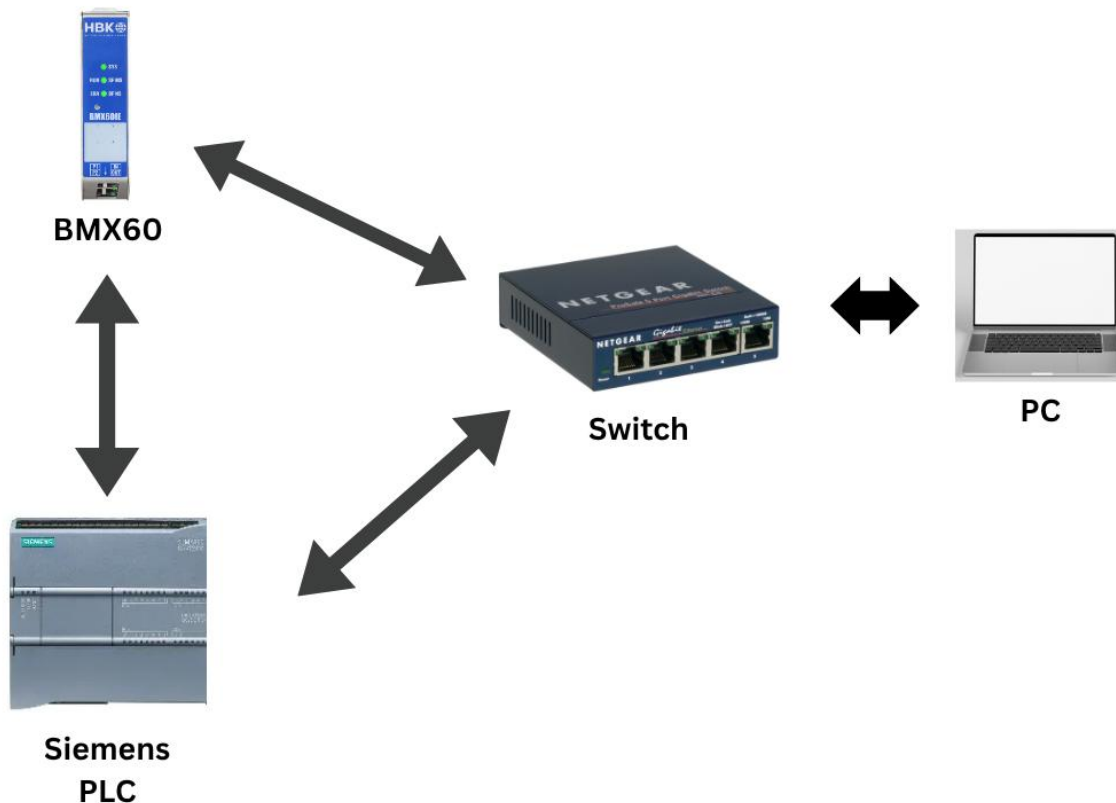
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1. Description

This document explains how to establish a connection to the BMX60 via PROFINET using a Siemens PLC (SPS). It guides you through the necessary hardware and software configuration steps to integrate the device into your automation system and enable communication within TIA Portal. In addition, the document provides a simple example of how to interact with the BMX60, including reading from and writing to objects, to demonstrate basic data exchange between the device and the controller.

2. Hardware Setup

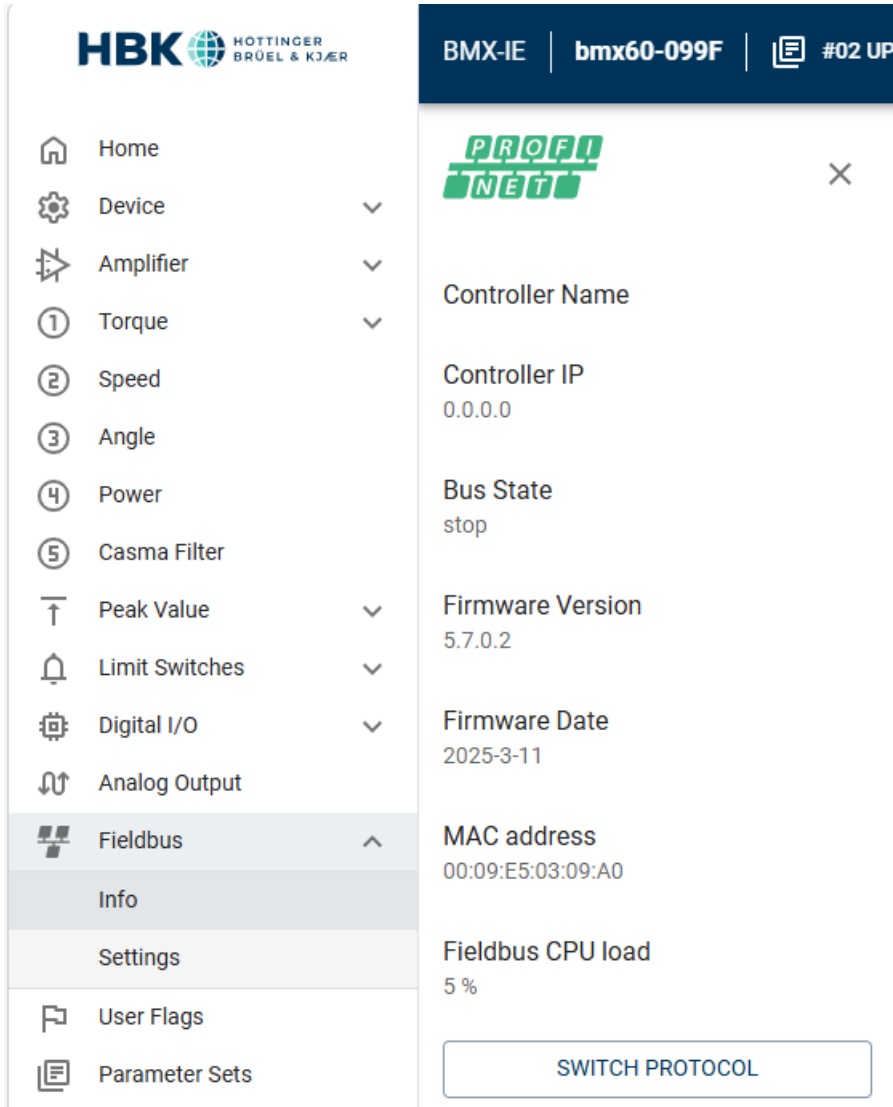
The setup used for this example is the following:



The connection between BMX60 and the PLC is the Profinet connection and the others are all ethernet connections. In this example, the Siemens S7-1518 PLC is used.

3. BMX60 Configuration via Web Interface

First, we are going to configure BMX60 via the web interface. Make sure that the BMX60 is using Profinet communication protocol.



The screenshot shows the HBK BMX60 web interface. On the left is a navigation menu with icons and labels: Home, Device, Amplifier, Torque, Speed, Angle, Power, Casma Filter, Peak Value, Limit Switches, Digital I/O, Analog Output, Fieldbus (highlighted), Info, Settings, User Flags, and Parameter Sets. The main content area has a dark blue header with 'BMX-IE', 'bmx60-099F', and '#02 UPI'. Below the header, the 'PROFINET' logo is displayed with a close button. The configuration details are as follows:

Parameter	Value
Controller Name	
Controller IP	0.0.0.0
Bus State	stop
Firmware Version	5.7.0.2
Firmware Date	2025-3-11
MAC address	00:09:E5:03:09:A0
Fieldbus CPU load	5 %

At the bottom of the main content area is a button labeled 'SWITCH PROTOCOL'.

If it is not on Profinet, you can switch the protocol and then choose Profinet. Next, set the hostname and the Profinet IP-address. Make sure that the IP-address is on the same subnet as the PLC.

 ×

Hostname

bmx60

IP Address

192.168.1.2

Subnet Mask

255.255.255.0

Gateway

192.168.1.5

APPLY

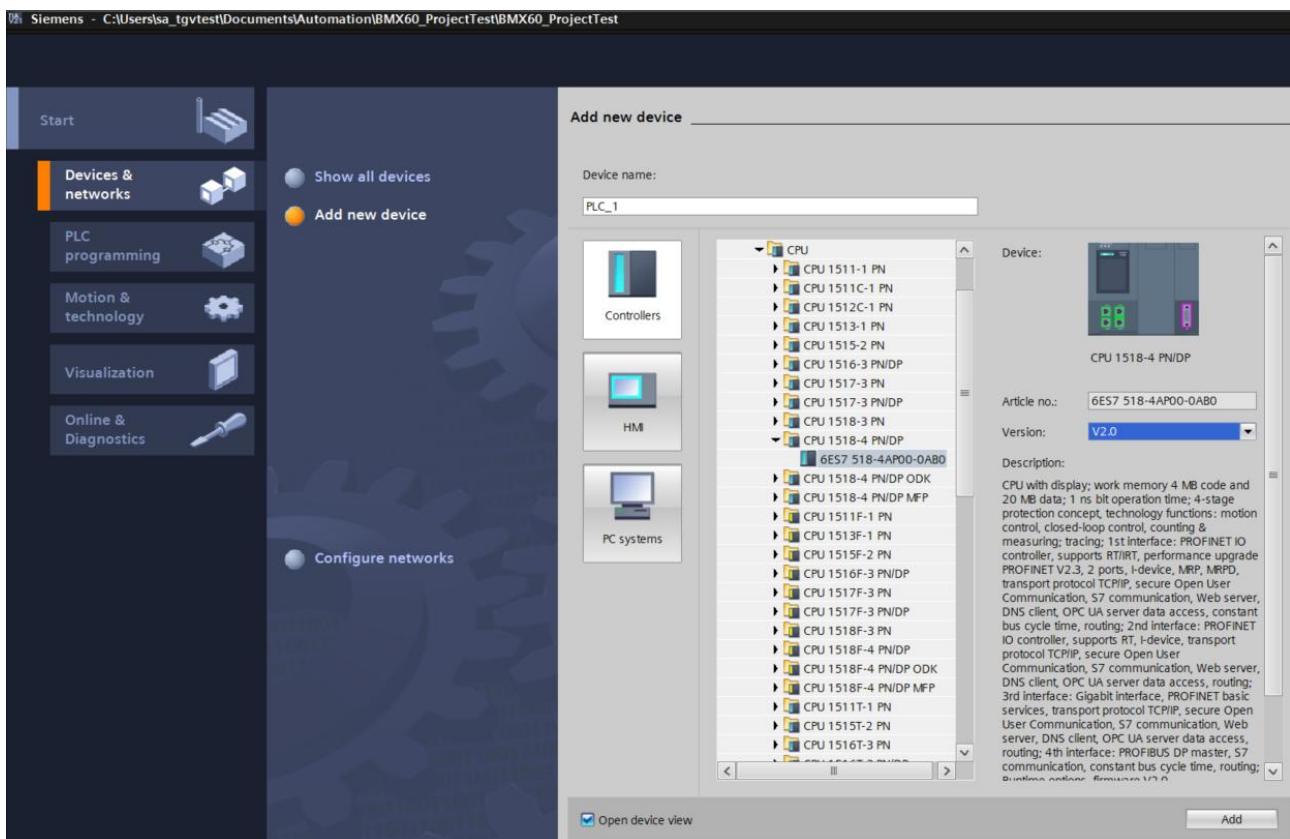
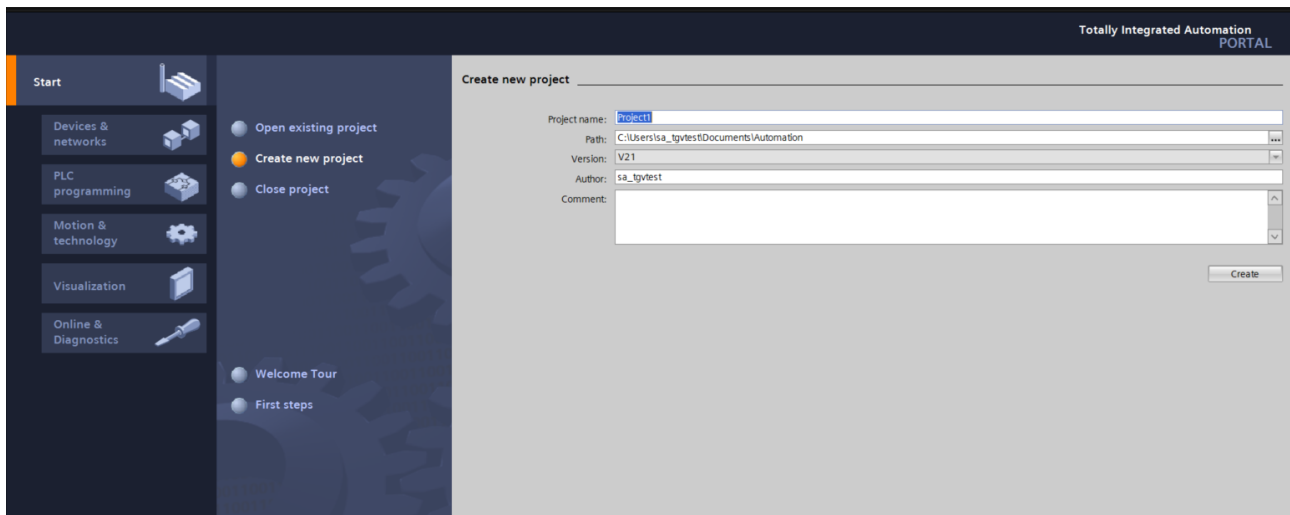
 GSD FILE

Also, download the GSD file of BMX60. We are going to need it later for TIA Portal.

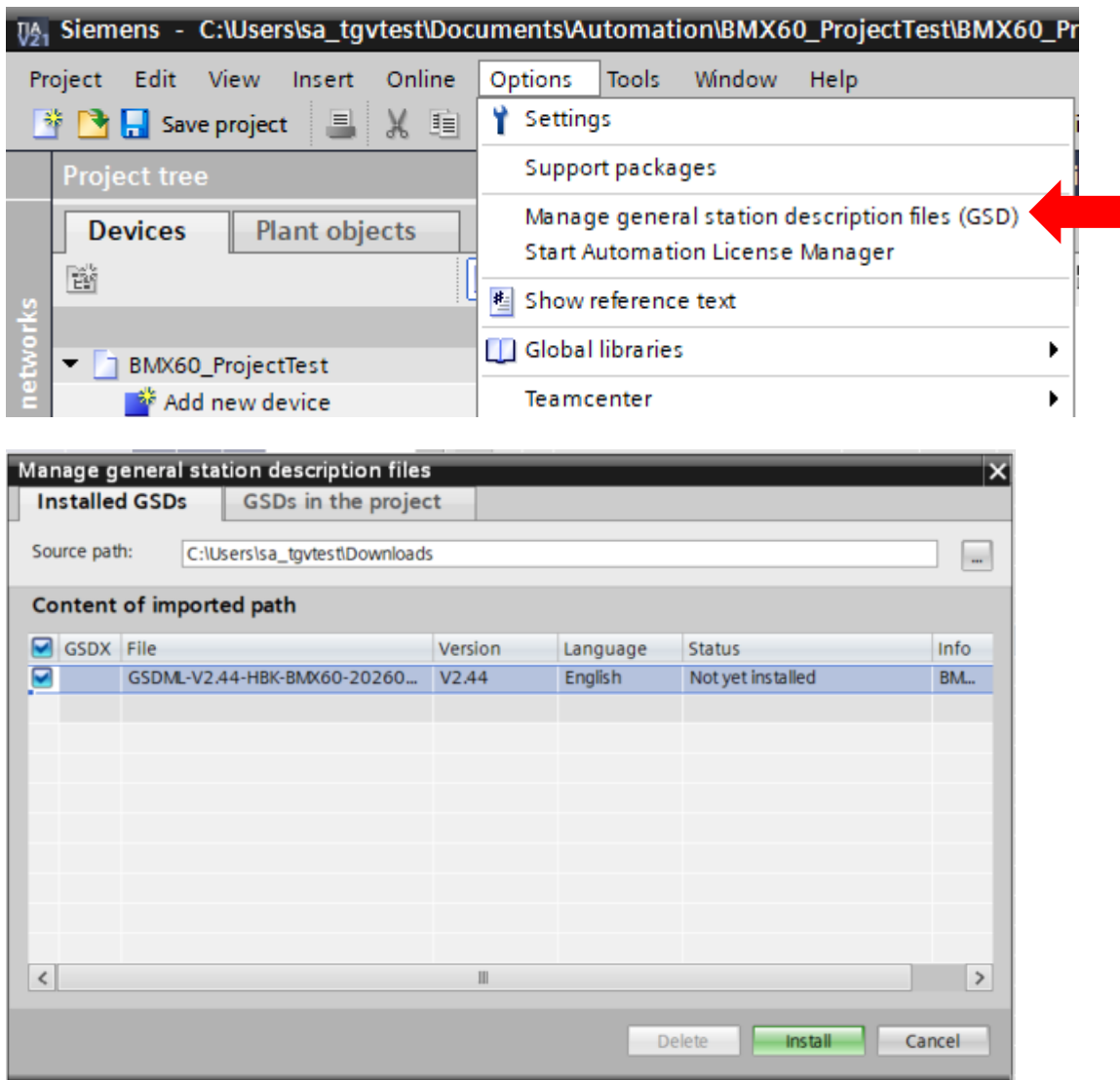
4. TIA Portal

4.1. Initial Setup

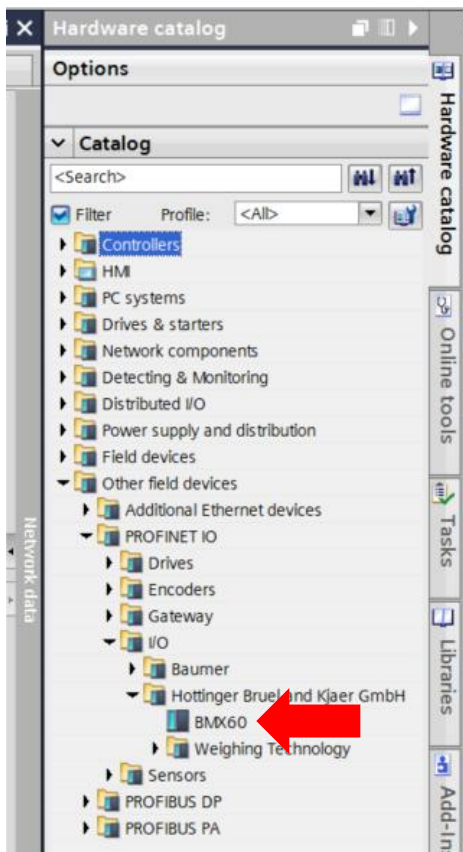
- Create a new project
- Add a new device under “Devices & networks”. Choose the PLC that are used and insert it here. Make sure you have the correct article number and firmware version.



- Insert BMX60 to the project. You need to first install the GSD file to TIA Portal. Go to Options and click on “Manage GSD files”. Then, install the GSD file.



- To add BMX60 to the project, go to "Devices & networks". Click on "Hardware Catalogue" and search for BMX60. It is located in the folder "Other field devices" → "PROFINET IO" → "I/O" → "Hottinger Bruel Kjaer GmbH". Double click on it to add the digiBOX to the project.

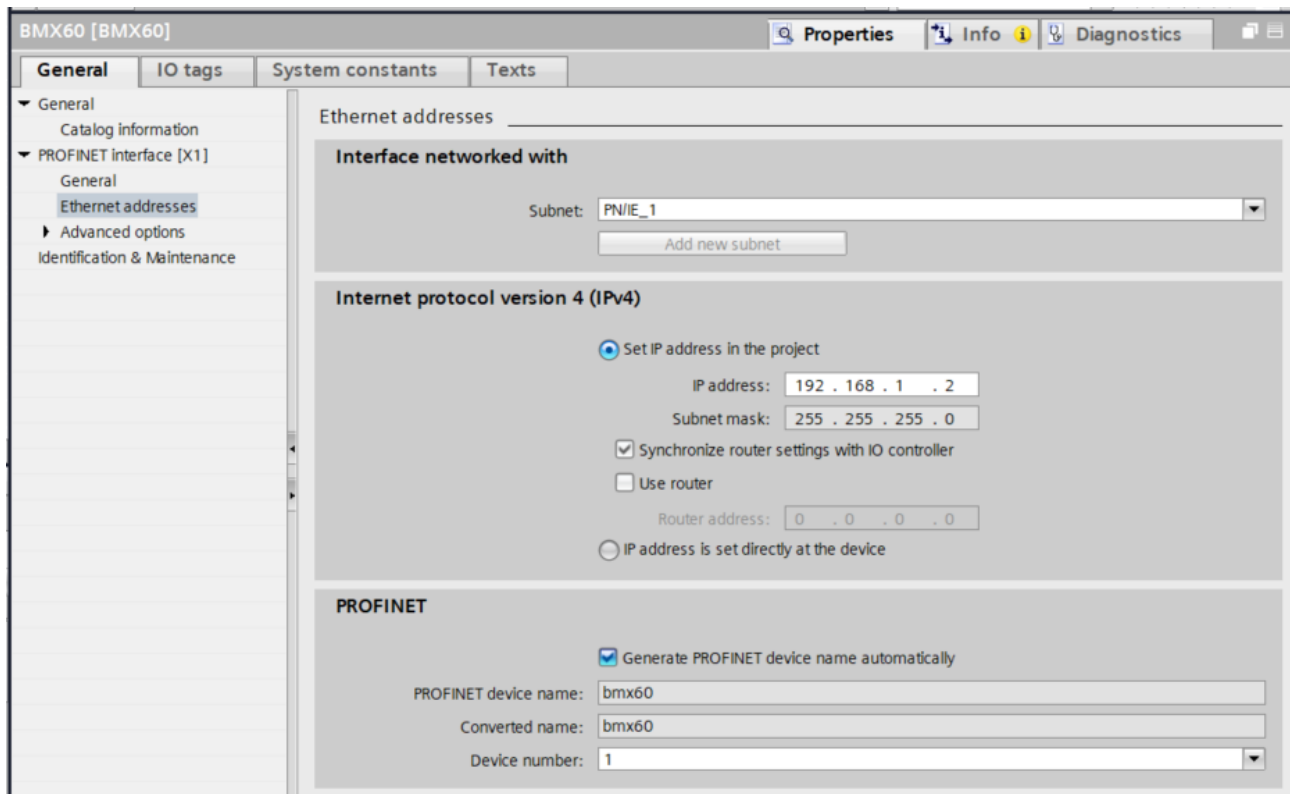


- Now, we connect the devices by dragging a line from the green box from BMX60 to the PLC. Make sure to connect the correct port.

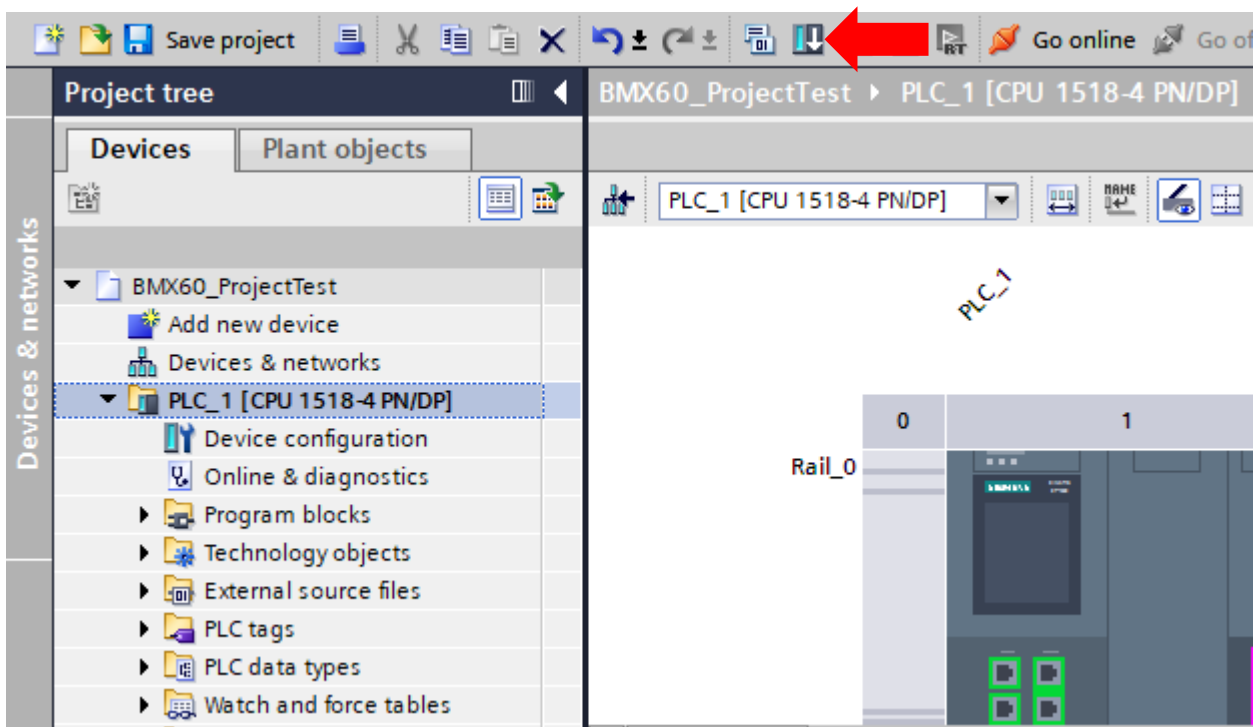


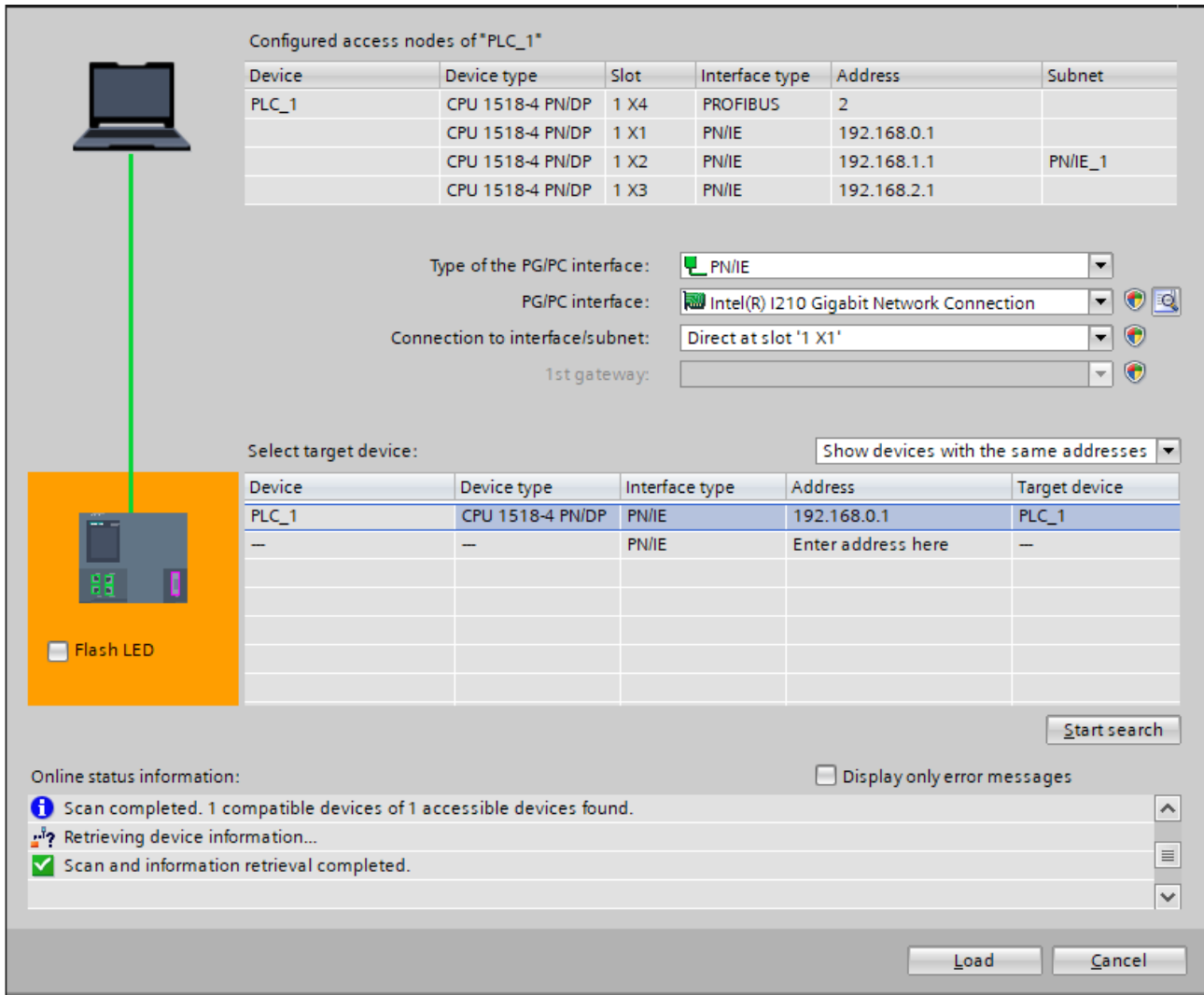
4.2. BMX60 Configuration via TIA Portal

Go to the device properties of BMX60. Make sure the hostname and the Profinet address is the same as on the ones on the web interface.



Save the project and compile the configurations. Now, load the configurations to the PLC.





Configured access nodes of "PLC_1"

Device	Device type	Slot	Interface type	Address	Subnet
PLC_1	CPU 1518-4 PN/DP	1 X4	PROFIBUS	2	
	CPU 1518-4 PN/DP	1 X1	PN/IE	192.168.0.1	
	CPU 1518-4 PN/DP	1 X2	PN/IE	192.168.1.1	PN/IE_1
	CPU 1518-4 PN/DP	1 X3	PN/IE	192.168.2.1	

Type of the PG/PC interface:

PG/PC interface:

Connection to interface/subnet:

1st gateway:

Select target device:

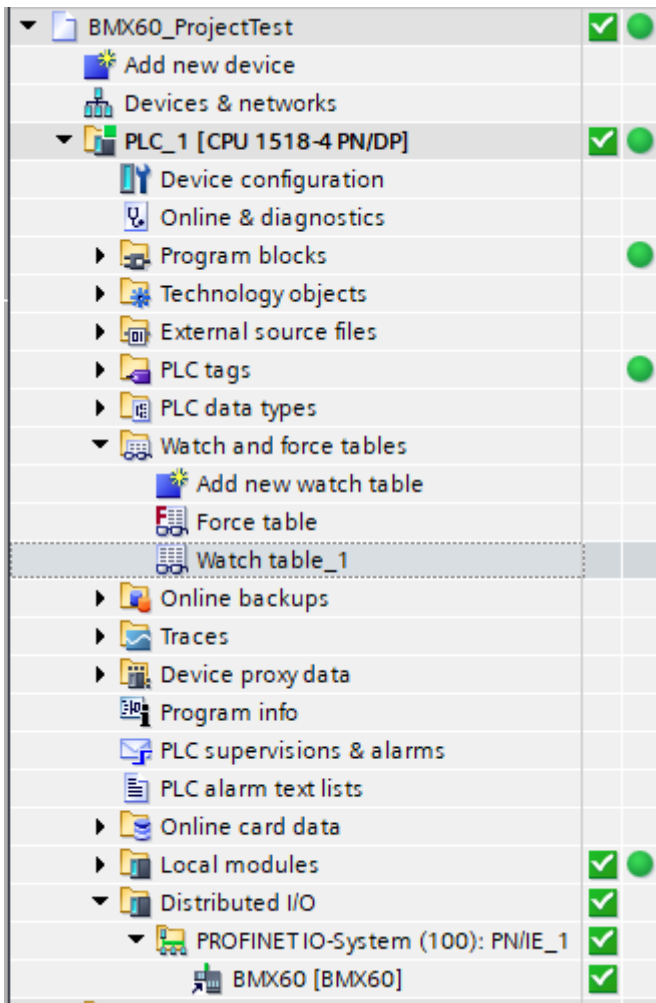
Device	Device type	Interface type	Address	Target device
PLC_1	CPU 1518-4 PN/DP	PN/IE	192.168.0.1	PLC_1
—	—	PN/IE	Enter address here	—

☐ Flash LED

Online status information: ☐ Display only error messages

- Scan completed. 1 compatible devices of 1 accessible devices found.
- Retrieving device information...
- Scan and information retrieval completed.

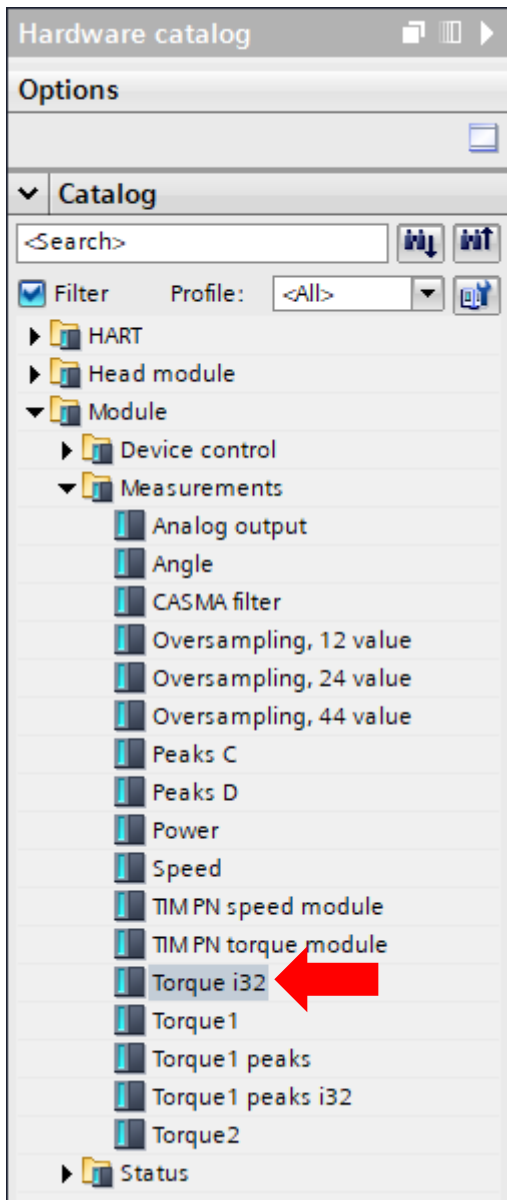
After that, go online. All green here mean that the configurations are all correct and the connections are also online.



5. Reading Data

Now, we are going to try to read data from BMX60 via Profinet. For this example, we are going to read the value of Torque from channel 1.

Go to BMX60 in TIA Portal and open the catalogue. Search for the Torque i32 module and double click on it to insert it to the project.



Check the IO Tags of Torque in channel 1. This is needed because we need to know which input that we are going to access to get the value. We will read the gross value of Torque1 here so click on Torque1 gross and open the IO Tags tab.

BMX60_ProjectTest ▶ Ungrouped devices ▶ BMX60 [BMX60]

Device overview

Module	Rack	Slot	I address	Q address	Type
BMX60	0	0			BMX60
▶ PN-IO	0	0 FB			BMX60
▼ Torque i32_1	0	1			Torque i32
Torque1 gross i32	0	1 1	16...19		Torque1 gross i32
Torque1 offset i32	0	1 2	20...23		Torque1 offset i32
Torque2 gross i32	0	1 3	24...27		Torque2 gross i32
Torque2 offset i32	0	1 4	28...31		Torque2 offset i32

Torque1 gross i32 [Torque1 gross i32]

General | **IO tags** | System constants | Texts

Name	Type	Address	Tag table	Comment
	DInt	%ID16		

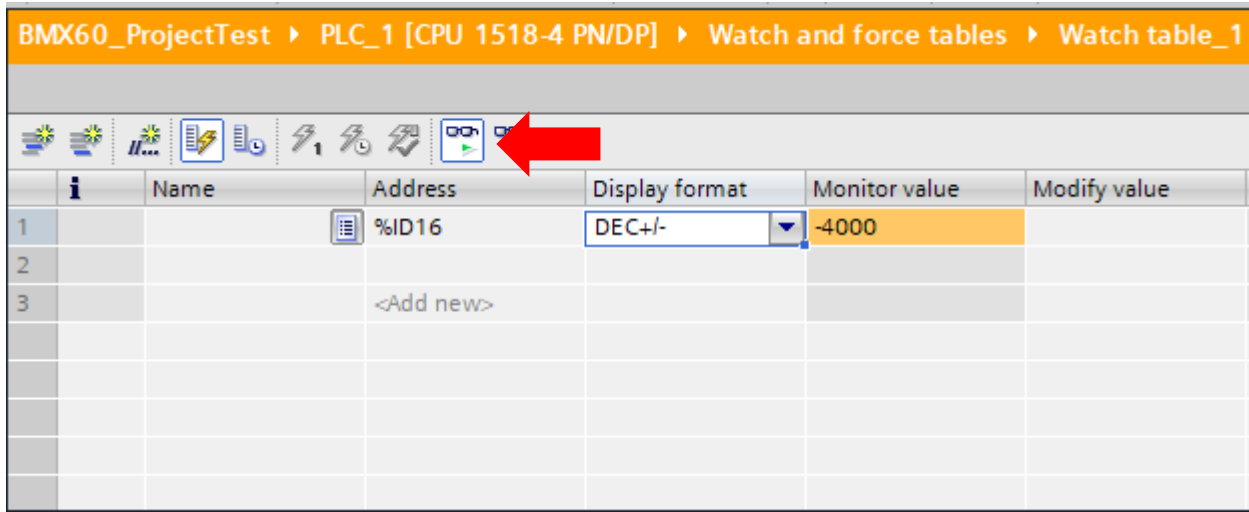
Create a new watch table and insert the address of Torque1 gross.

BMX60_ProjectTest ▶ PLC_1 [CPU 1518-4 PN/DP] ▶ Watch and force tables ▶ Watch table_1

	Name	Address	Display format	Monitor value	Modify value	
1		%ID16	DEC+/-			☐
2						☐
3		<Add new>				☐

Compile the configurations and load the changes to the PLC. Go online after that. Click on “monitor all” to view the value.

BMX60_ProjectTest ▶ PLC_1 [CPU 1518-4 PN/DP] ▶ Watch and force tables ▶ Watch table_1



	i	Name	Address	Display format	Monitor value	Modify value
1			%ID16	DEC+/-	-4000	
2						
3			<Add new>			

The value should match the value on the web interface.

BMX-IE

bmx60-099F

#02 UPLOADED SET

Torque 1

OK

-4.000 Nm

Torque 2

OK

-4.000 Nm

Angle

Error

0.0 degree

Power

OK

0.000 W

Disclaimer

These examples are for illustrative purposes only. They cannot be used as the basis for any warranty or liability claims.