Inter-device Data communication setup between FX5U PLC and GOT2000 HMI

by Regardt Voigt | Dec 14, 2017 | FX5, GOT HMI, GT Designer 3, GT Works 3, GT2000, GX Works 2, Software | 0 comments

Communication setup between hardware devices in the automation and information world has become a fundamental requirement for interfacing and data transition processes. In this case we will have a brief look at Data communication between the FX5U (iQ-F) PLC and the GOT2000 HMI.

## Part 1: HMI Configuration Details

Step 1: Getting started

Prior to this procedure – the following needs to be already in place and finalized as a prerequisite preparation;

1. GT Works 3 installed on a computer.
2. GOT HMI powered up and connected to the computer.
3. New Project created and concluded.

From that point onwards we will commence with the key-aspects surrounding the applicable inter-device communication setup.
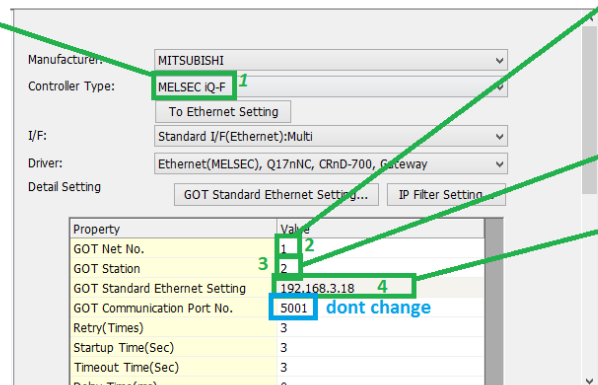
Part 1: HMI Configuration Details

Step 2: The GT Designer 3 – Controller Setting
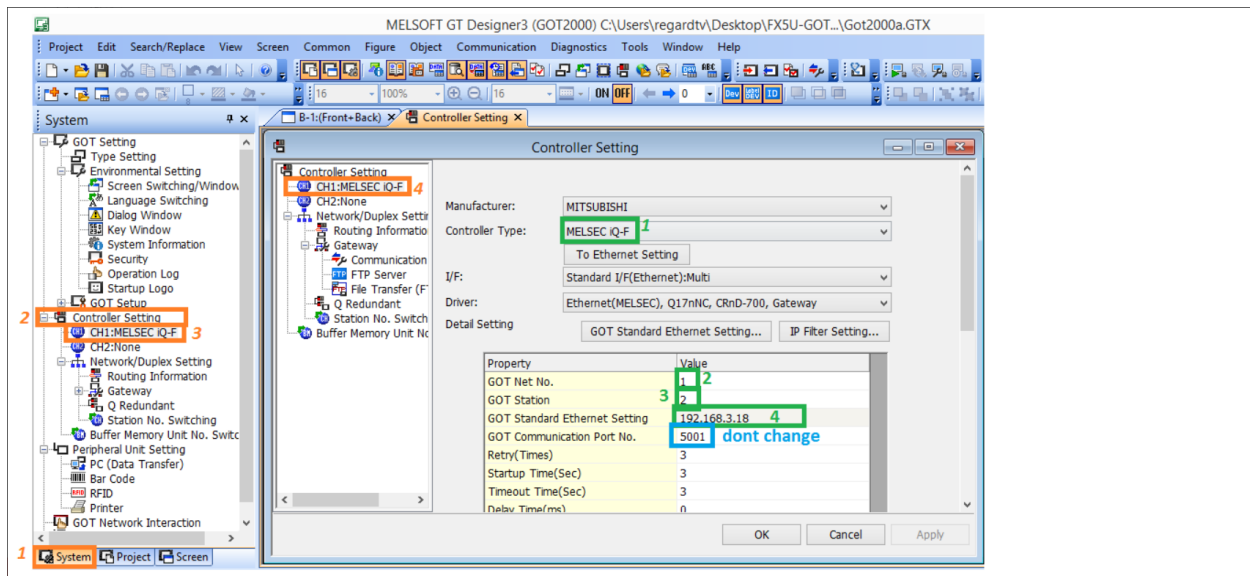
This is the controller type (driver) used for communication with a FX5U PLC

This is the network ID Number. (if the network simplified with few items then all nodes are likely to reside on network 1.

Each network node device should have a unique station ID number. Duplfication will result in communication failure.

The GOT HMI Network IP Address (Must also be unique.)

Under the controller setting window; The controller type must always be iQ-F for FX5U PLC main units. (FX to controllers refers to the FX3 and earlier models CPUs).
Another point to take note of here is the GOT Station number. This number must always be different than that of the PLC (or any other nodes in the particular network). In addition, note that in most cases the PLC is regarded as station 1.
Also take note of the Channel that is being worked with – the controller channel that is applicable. In this example we are working with Channel 1.
Finally, also note that the the GOT Communication port is to remain unchanged (in this case the default port number is 5001.

Part 1: HMI Configuration Details
# Step 3: The GT Designer 3 – PLC Ethernet Setting
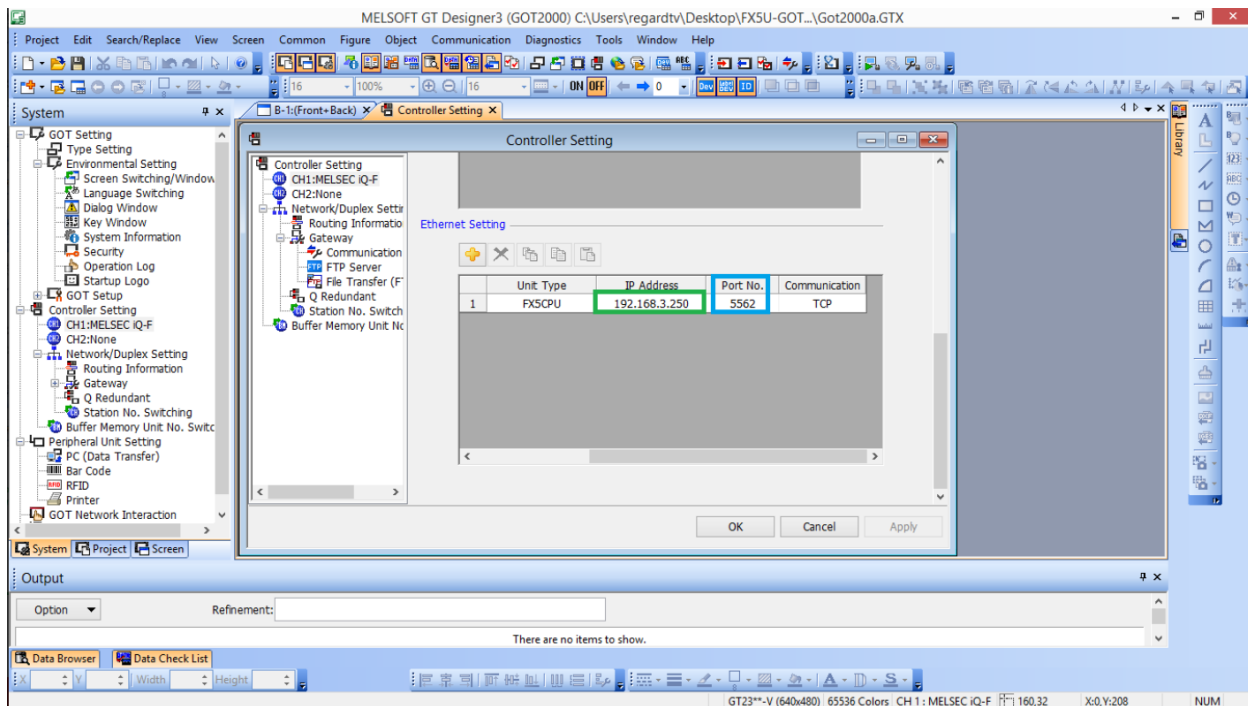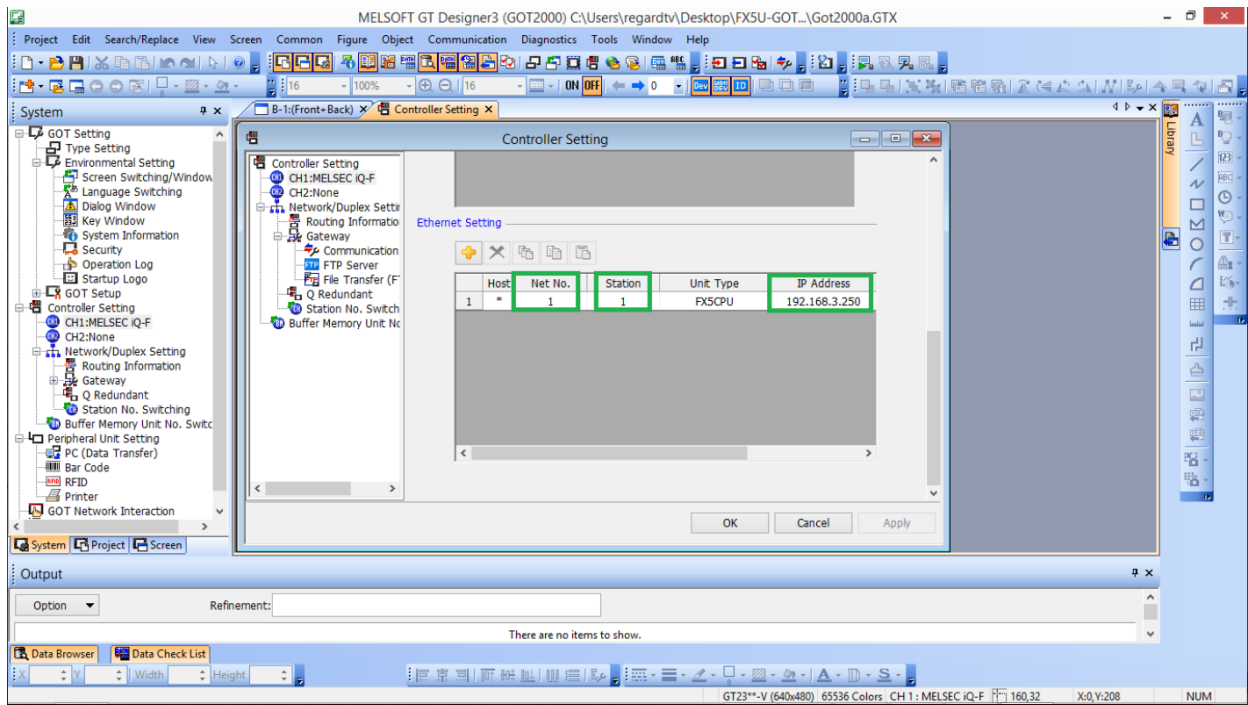
Here the PLC Ethernet communication settings are being indicated from the GOT vantage point. Some key aspects to remember:

1. The Network ID must be correct and reflect the actual PLC network position. In most practical cases the network is the sane as that of the HMI GOT.

2. The Station ID (usually 1) is being indicated here. Note that is must be different from that of the HMI GOT.
3. The IP address must be correct and unique. Any duplicate IP Addresses with result in communication conflict and resultant failure.
4. Communication mode is TCP
5. The port is default selected (usually 5562) and is to remain unchanged,

PLC Communication setting values being setup in the GT Designer engineering software for GOT HMI Communication.
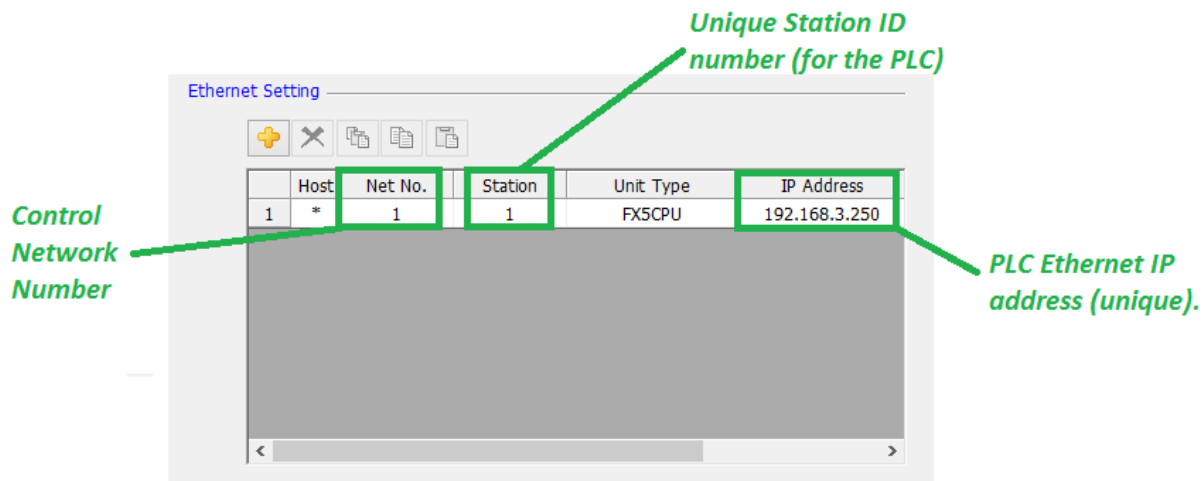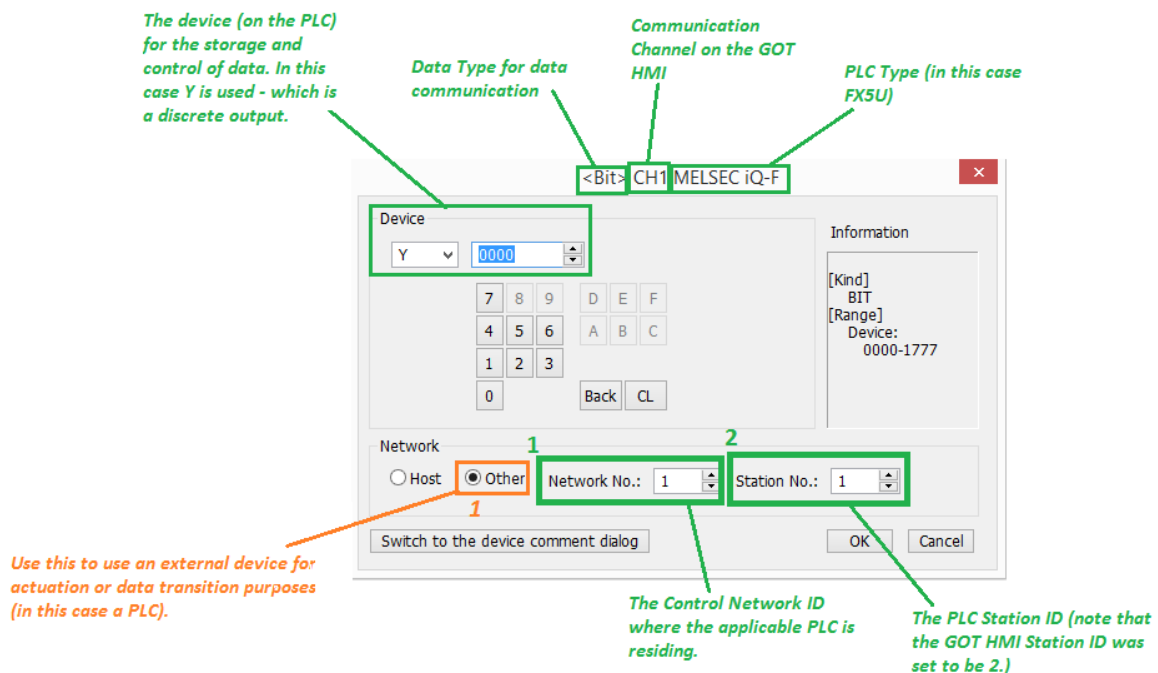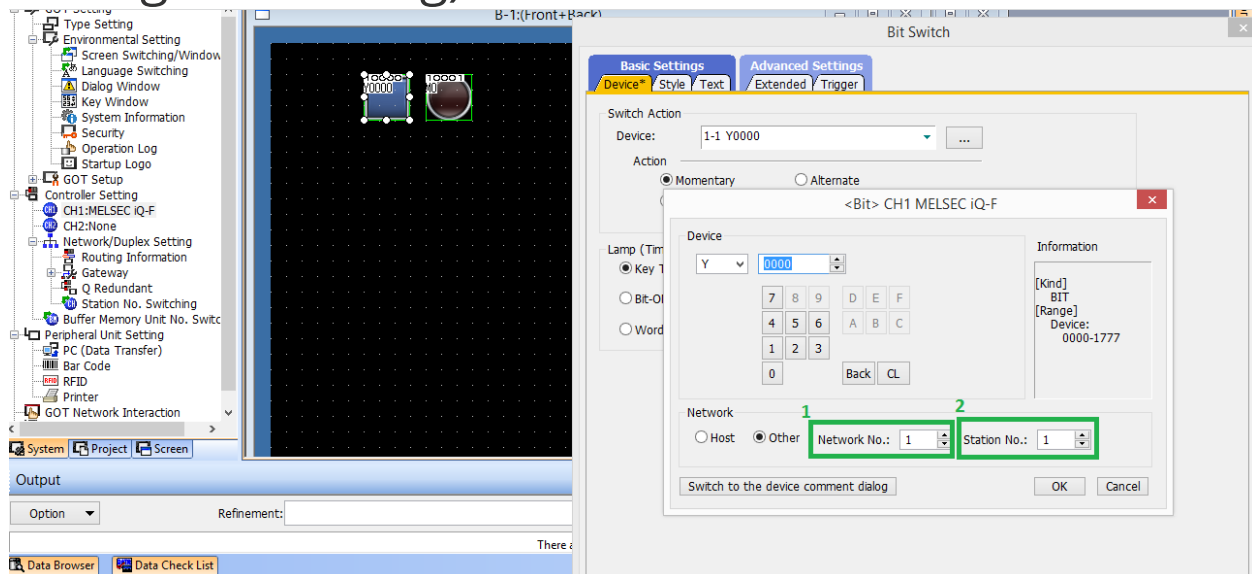

PLC Communication setting values being setup in the GT Designer Engineering Software for GOT HMI Communication.
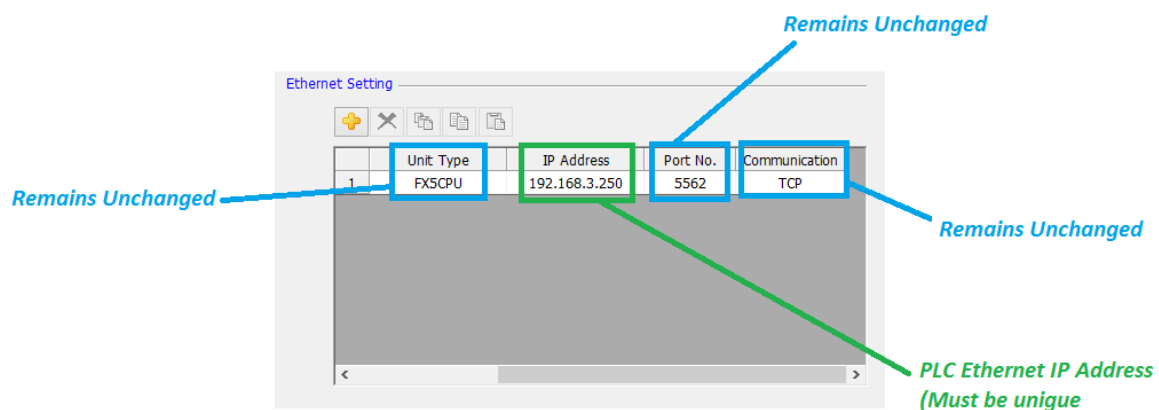
Part 1: HMI Configuration Details

Step 4: The GT Designer 3 – Actual application (PLC linking addressing)

The device (on the PLC) for the storage and control of data. In this case Y is used - which is a discrete output.

Data Type for data communication

Communication Channel on the GOT HMI

PLC Type (in this case FX5U)

Use this to use an external device for actuation or data transition purposes (in this case a PLC).

The Control Network ID where the applicable PLC is residing.

The PLC Station ID (note that the GOT HMI Station ID was set to be 2.)

Here we attempt to interact with the via its register addresses (Devices).
Due to the fact that it is possible for a GOT HMI to interact with various PLCs – it is important to indicate the Network source of these device registers. In this case the external source is the FX5U PLC – which is connected on Network 1 as Station 1.
Confirm that you are working with the correct PLC (connected to the correct Channel – which is connected to channel 1 in this case.

Also that needs to be confirmed is the datatype. In this case the datatype is a bit. (For the testing purposes only.).

# Part 2: PLC Configuration Details
Step 1: Getting started

Prior to this procedure – the following needs to be already in place and finalized as a prerequisite preparation;

1.
2. GX Works 3 installed on a computer.
3. FX5U PLC powered up and connected to the computer.
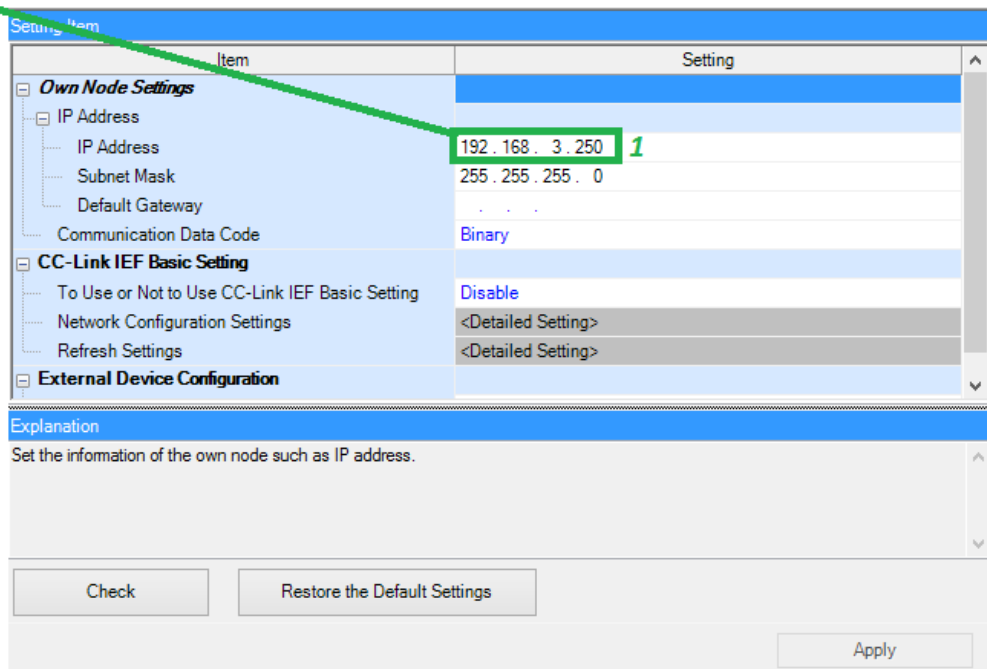4. New Project created and concluded.

From that point onwards we will commence with the key-aspects surrounding the applicable inter-device communication setup.

Part 2: PLC Configuration Details
Step 2: Module Parameters Ethernet Port
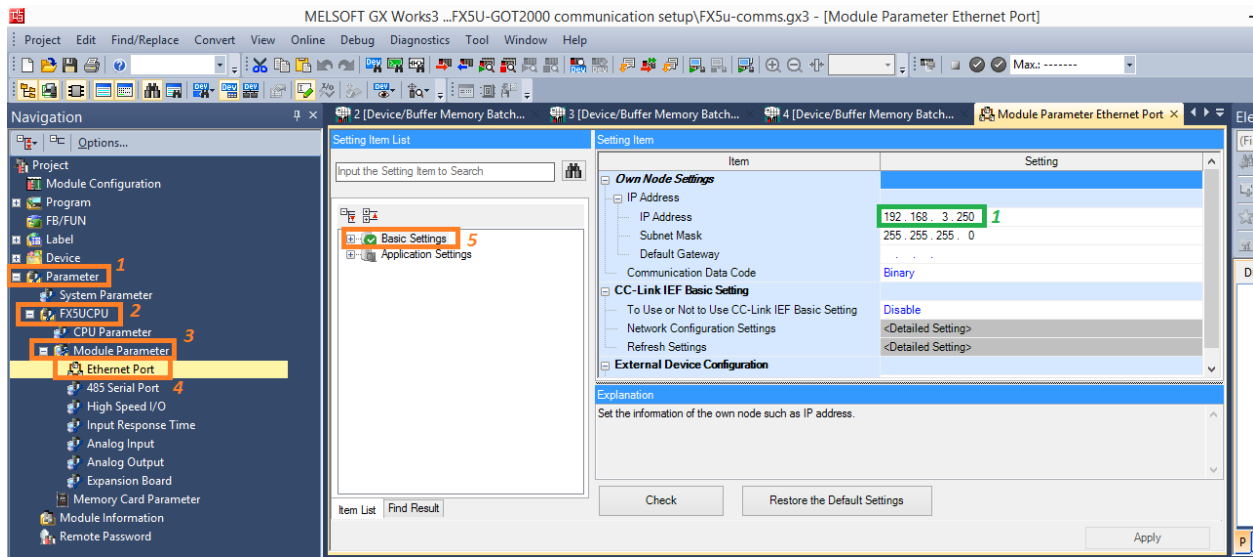
This is the IP
Communication Address
of the PLC

One of the primary strengths of the FX5U PLC is its built-in Ethernet port, along with its wide range connection options and functionalities.

As can be seen, the navigation required – pertaining to reach the relevant Module parameter Ethernet port settings is as follows:

Project > Parameter > FX5UCPU > Module Parameter > Ethernet Port

From there the Module Parameter Ethernet port will be opened. Under the Setting Item List > Basic Settings – the Setting items can be set. Under Own Node settings > IP address, the settings are applied.

Note that the IP Address of the PLC is being specified here. The configuration for the HMI connectivity is not being setup in the FX5u PLC.

Part 2: PLC Configuration Details

Step 3: Built-in Ethernet Port Configuration

Notice that for HMI Communication - It is not necesary to add a dedicated Ethernet communication profile.

In the Module Parameter Ethernet Port Window ; After the the Own node settings have been applied; It is usually required to configure the External Device Configuration settings. This refers to the external network device node with which the FX5U PLC is required to communicate with.

However, in this particular case this is not required – as the FX5U PLC and the GOT2000 HMI are both Mitsubishi Factory Automation products and as such – intercommunication connection is done more seamlessly.

Thus, when one enters the External Device Configuration > Detailed Setting – the Built-in Ethernet Configuration Port window opens, and as such no modules are required to be added here.

Only the Host Station is required to show here.

Click on "Close with Reflecting the setting" button on the top right of the menu bar. Next, click on the check button on the Module Parameter Ethernet Port Window. If no error is shown – click on the apply button.

Next download the program onto the PLC – and test communication. From here onwards succcesfull communication between the PLC and the HMI should commence.

Note that after the download of the configuration and program to the PLC has been successfully concluded – be sure that the PLC is running without any error. Usually, the PLC is required to be reset,