

MITSUBISHI Electric Corporation

MELSEC iQ-F

Ethernet

Supported version TOP Design Studio V1.4.11.31 or higher



CONTENTS

We would like to thank our customers for using M2I's "Touch Operation Panel (M2I TOP) Series". Read this manual and familiarize yourself with the connection method and procedures of the "TOP and external device".

1. System configuration [Page 2](#)

Describes the devices required for connection, the setting of each device, cables, and configurable systems.

2. External device selection [Page 3](#)

Select a TOP model and an external device.

3. TOP communication setting [Page 4](#)

Describes how to set the TOP communication.

4. External device setting [Page 10](#)

Describes how to set up communication for external devices.

5. Supported addresses [Page 14](#)

Refer to this section to check the addresses which can communicate with an external device.

1. System configuration

The system configuration of TOP and "MITSUBISHI Electric Corporation - MELSEC iQ-F Ethernet" is as follows.

| Series | CPU | Link I/F | Communication method | Communication setting | Cable |
|-------------|---------------|------------------------|-----------------------|--|--|
| MELSEC iQ-F | FX5U FX5UC | Built in Ethernet Port | Ethernet (TCP/UDP) | 3. TOP communication setting 4. External device setting | Twisted pair cable* Note 1 |

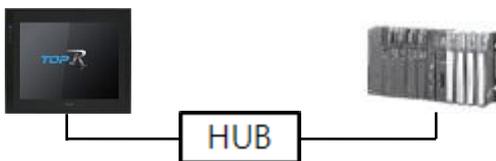
*[Note 1](#)) Twisted pair cable

- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.

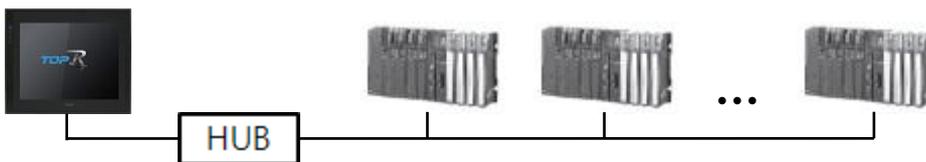
- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

■ Connectable configuration

- 1:1 connection

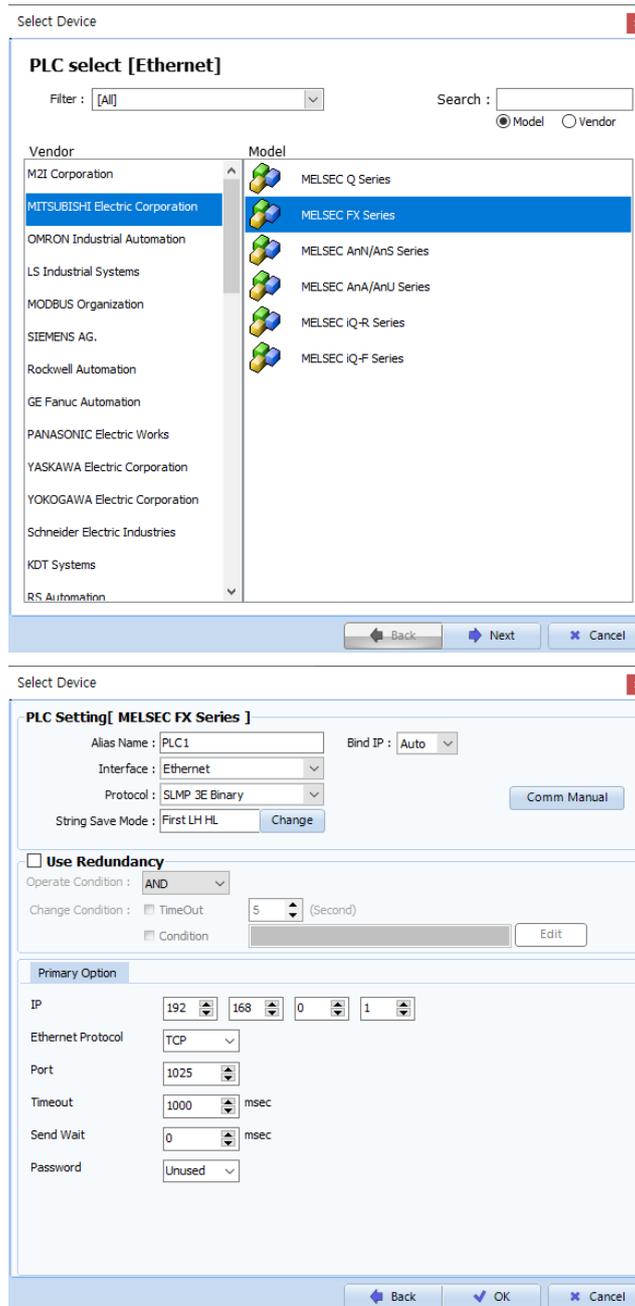


- 1:N connection



2. External device selection

- Select a TOP model and a port, and then select an external device.



| Settings | | Contents | | | | | | | | | |
|--------------------|----------------|--|-------|-----------|----------|------------------|----------|-----------|--------------------|--|---------------|
| TOP | Model | Check the display and process of TOP to select the touch model. | | | | | | | | | |
| External device | Vendor | Select the vendor of the external device to be connected to TOP. Please select "MITSUBISHI Electric Corporation". | | | | | | | | | |
| | PLC | Select the external device to be connected to the TOP. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: black; color: white;">Model</th> <th style="background-color: black; color: white;">Interface</th> <th style="background-color: black; color: white;">Protocol</th> </tr> </thead> <tbody> <tr> <td>MELSEC FX Series</td> <td>Ethernet</td> <td>Set Users</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #e1eef6;">Supported Protocol</th> </tr> </thead> <tbody> <tr> <td>SLMP 3E Ascii</td> <td>SLMP 3E Binary</td> </tr> </tbody> </table> Please check the system configuration in Chapter 1 to see if the external device you want to connect is a model whose system can be configured. | Model | Interface | Protocol | MELSEC FX Series | Ethernet | Set Users | Supported Protocol | | SLMP 3E Ascii |
| Model | Interface | Protocol | | | | | | | | | |
| MELSEC FX Series | Ethernet | Set Users | | | | | | | | | |
| Supported Protocol | | | | | | | | | | | |
| SLMP 3E Ascii | SLMP 3E Binary | | | | | | | | | | |

3. TOP communication setting

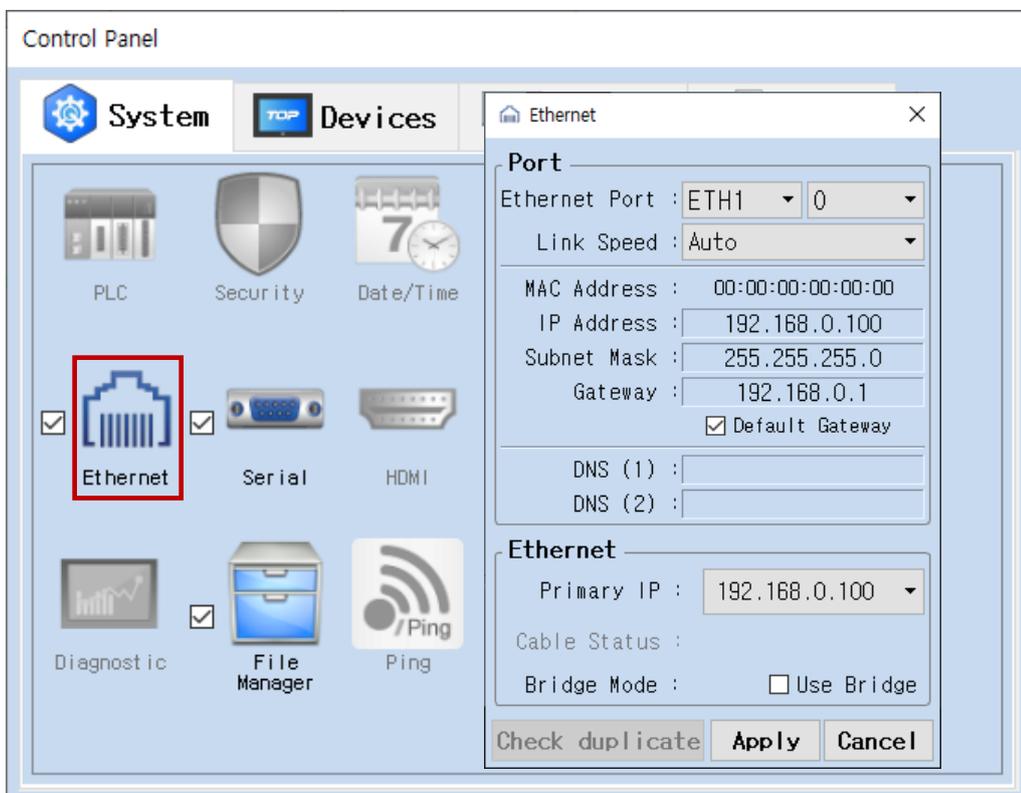
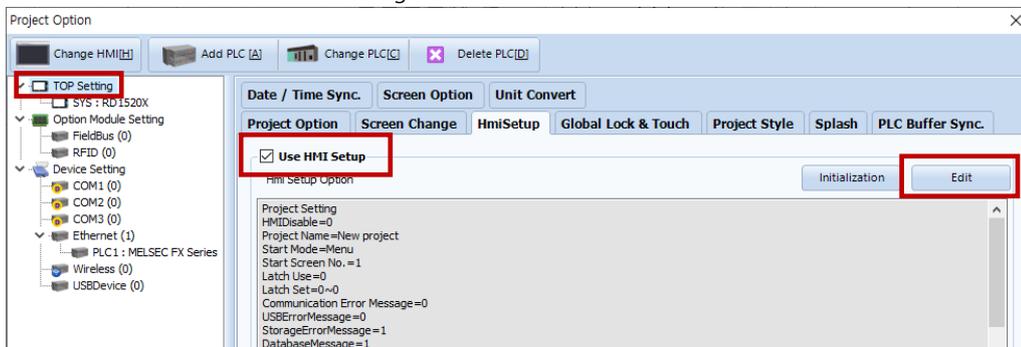
The communication can be set in TOP Design Studio or the TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project] → [Property] → [TOP Setting] → [HMI Setup] → [Use HMI Setup Check] → [Edit] → [Ethernet]

– Set the TOP communication interface in TOP Design Studio.



| Items | TOP | External device | Remarks |
|-------------|---------------|-----------------|----------------|
| IP Address | 192.168.0.100 | 192.168.0.50 | *Note *Note 2) |
| Subnet Mask | 255.255.255.0 | 255.255.255.0 | |
| Gateway | 192.168.0.1 | 192.168.0.1 | |

* The above settings are examples recommended by the company.

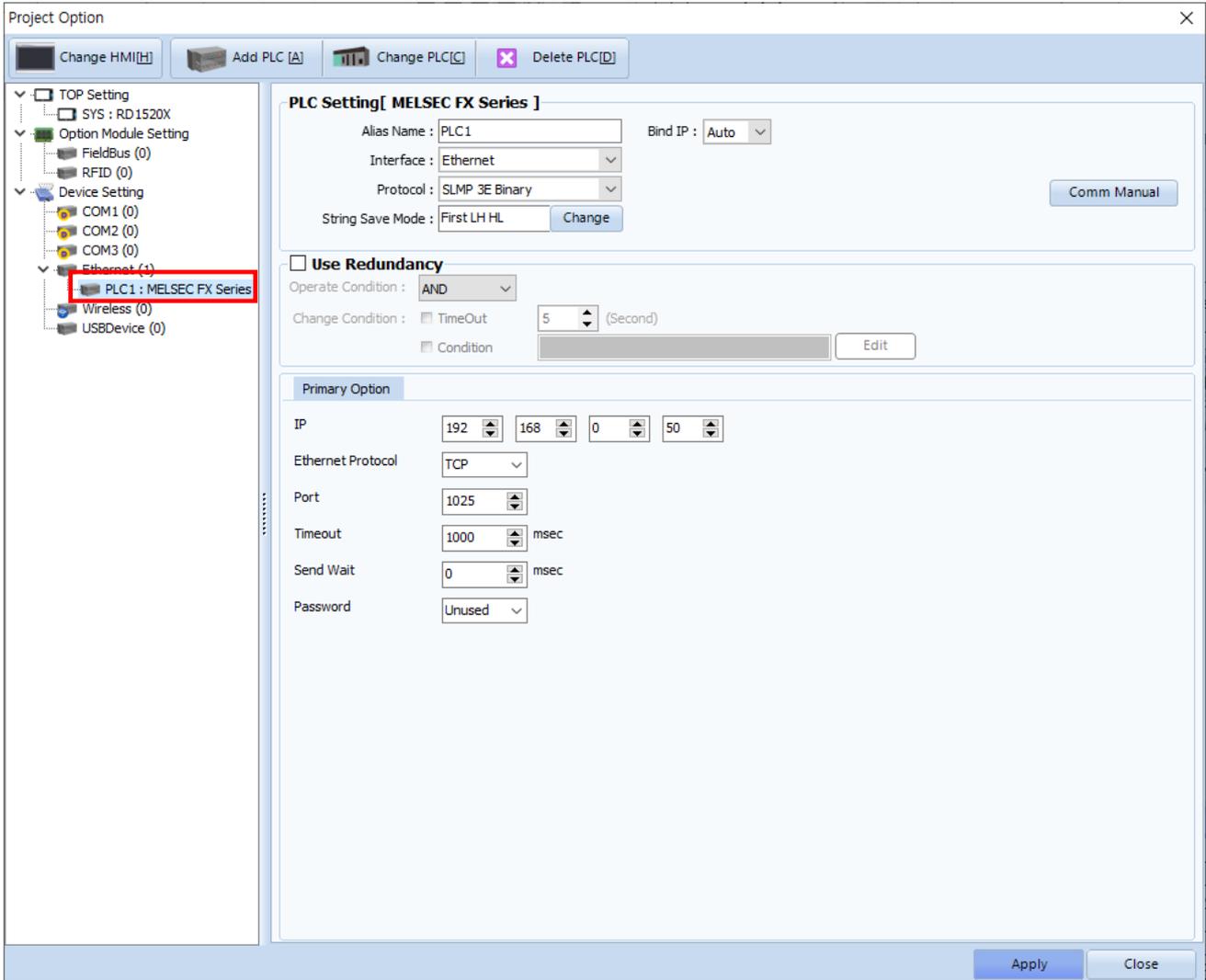
*Note 1) The network addresses of the TOP and the external device (the first three digits of the IP, 192 . 168 . 0 . 0) should match.

*Note 2) Do not use duplicate IP addresses over the same network.

| Items | Description |
|-------------|---------------------------------------|
| IP Address | Set the IP address of the TOP. |
| Subnet Mask | Enter the subnet mask of the network. |
| Gateway | Enter the gateway of the network. |

(2) Communication option setting

- [Project] → [Project properties] → [PLC settings > Ethernet > "PLC1 : MELSEC-FX Series"]
 - Set the options of the communication driver of MELSEC FX Series in TOP Design Studio.

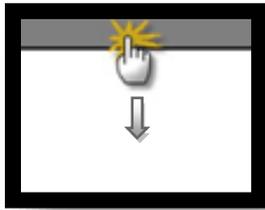


| Items | Settings | Remarks |
|-------------------|---|---|
| Interface | Select Ethernet. | Refer to "2. External device selection" . |
| Protocol | Select the communication protocol between the TOP and an external device. | |
| IP | Enter the IP address of the external device. | |
| Ethernet Protocol | Select the Ethernet protocol between the TOP and an external device. | |
| Port | Enter the Ethernet communication port number of an external device. | |
| TimeOut (ms) | Set the time to wait for a response from an external device. | |
| SendWait (ms) | Set the waiting time between TOP's receiving a response from an external device and sending the next request. | |
| Password | Enter the password of the external device. | |

3.2. Communication setting in TOP

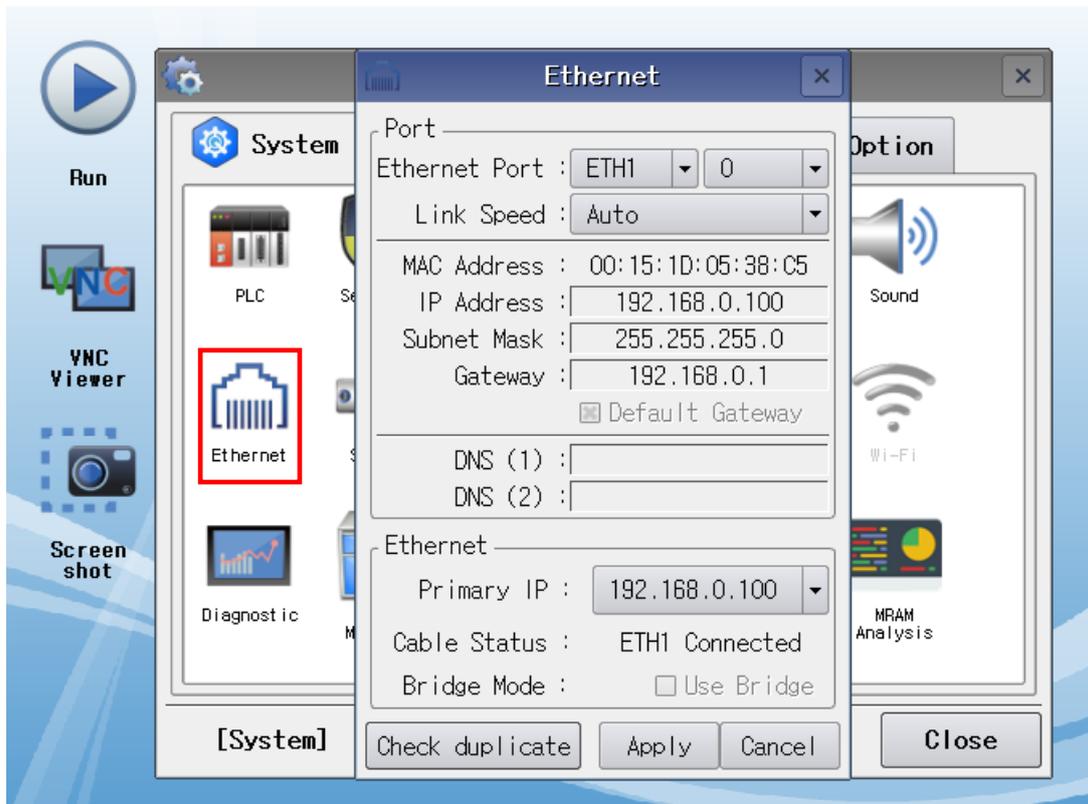
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

■ Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

■ [Control Panel] → [Ethernet]



| Items | TOP | External device | Remarks |
|-------------|---------------|-----------------|----------------|
| IP Address | 192.168.0.100 | 192.168.0.50 | *Note *Note 2) |
| Subnet Mask | 255.255.255.0 | 255.255.255.0 | |
| Gateway | 192.168.0.1 | 192.168.0.1 | |

* The above settings are examples recommended by the company.

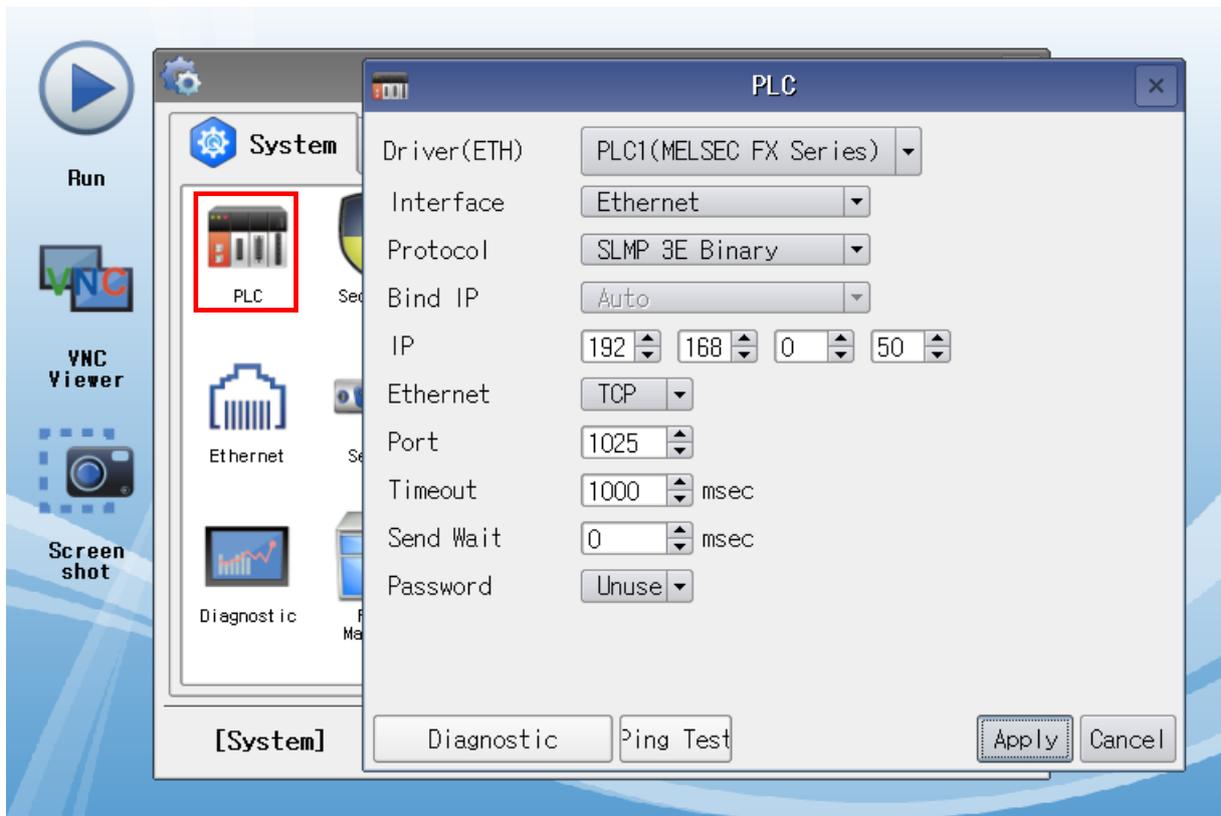
*Note 1) The network addresses of the TOP and the external device (the first three digits of the IP, 192 . 168 . 0 . 0) should match.

*Note 2) Do not use duplicate IP addresses over the same network.

| Items | Description |
|-------------|---------------------------------------|
| IP Address | Set the IP address of the TOP. |
| Subnet Mask | Enter the subnet mask of the network. |
| Gateway | Enter the gateway of the network. |

(2) Communication option setting

■ [Control Panel] → [PLC]



| Items | Settings | Remarks |
|-------------------|---|--|
| Interface | Select Ethernet. | Refer to "2. External device selection". |
| Protocol | Select the communication protocol between the TOP and an external device. | |
| IP | Enter the IP address of the external device. | |
| Ethernet Protocol | Select the Ethernet protocol between the TOP and an external device. | |
| Port | Enter the Ethernet communication port number of an external device. | |
| TimeOut (ms) | Set the time to wait for a response from an external device. | |
| SendWait (ms) | Set the waiting time between TOP's receiving a response from an external device and sending the next request. | |
| Password | Enter the password of the external device. | |

3.3 Communication diagnostics

- Check the interface setting status between the TOP and an external device.
 - Touch and drag the top of the TOP screen down to move to the main screen by touching "EXIT" on the top menu.
 - Check whether the port setting is correct in [Control panel] → [Ethernet].

- Diagnosis of whether the port communication is normal or not
 - Touch "Communication diagnostics" in [Control Panel] → [PLC].
 - Check whether communication is connected or not.

| | |
|--|--|
| Communication diagnostics succeeded | Communication setting normal |
| Error message | Communication setting abnormal - Check the cable, TOP and the external device settings. (Reference: Communication diagnostics sheet) |

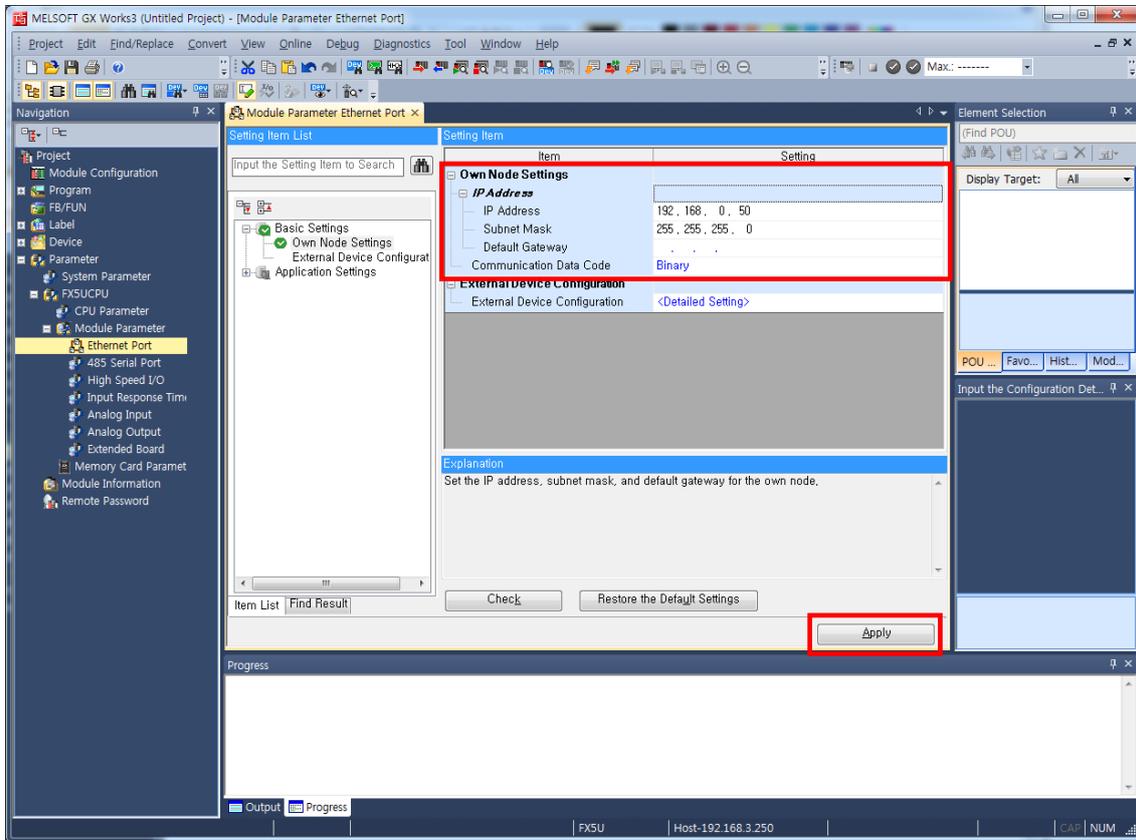
- Communication diagnostics sheet
 - If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

| Items | Contents | Check | | Remarks | |
|--------------------------|---------------------------------------|---------------------------|----|---|----|
| System configuration | How to connect the system | OK | NG | 1. System configuration | |
| | Connection cable name | OK | NG | | |
| TOP | Version information | OK | NG | 2. External device selection 3. Communication setting | |
| | Port in use | OK | NG | | |
| | Driver name | OK | NG | | |
| | Other detailed settings | OK | NG | | |
| | Relative prefix | Project setting | OK | | NG |
| | | Communication diagnostics | OK | | NG |
| | Ethernet port setting | IP Address | OK | | NG |
| Subnet Mask | | OK | NG | | |
| Gateway | | OK | NG | | |
| External device | CPU name | OK | NG | 4. External device setting | |
| | Communication port name (module name) | OK | NG | | |
| | Protocol (mode) | OK | NG | | |
| | Setup Prefix | OK | NG | | |
| | Other detailed settings | OK | NG | | |
| | Ethernet port setting | IP Address | OK | | NG |
| | | Subnet Mask | OK | | NG |
| Gateway | | OK | NG | | |
| Check the address range. | | OK | NG | 5. Supported addresses (For details, please refer to the PLC vendor's manual.) | |

4. External device setting

For more detailed setting methods than described in this example, refer to the manufacturer's user manual.

Step 1. Set the PLC's Ethernet parameters in Navigation window → [Parameter] → [FX5UCPU] → [Module Parameter] → [Ethernet Port] → [Basic Settings] → [Own Node Settings].

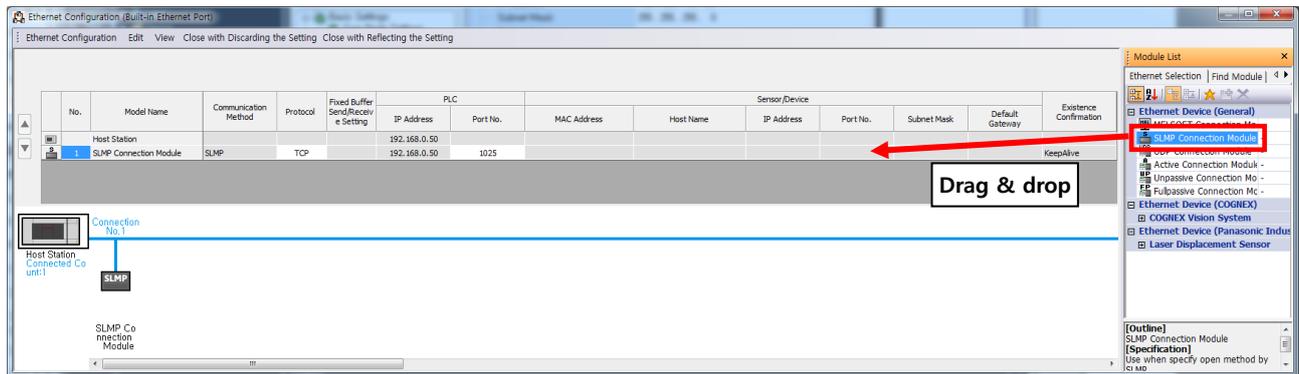
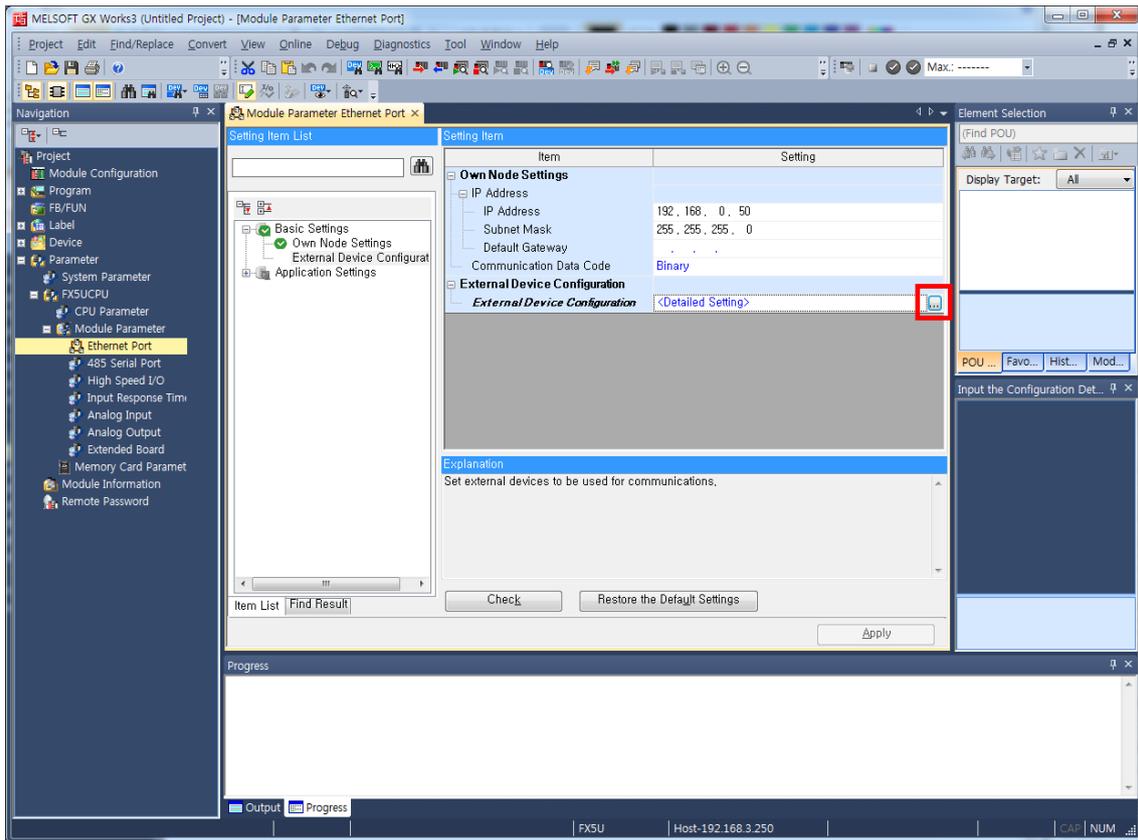


| Items | Settings | Remarks |
|-------------------------|--|----------|
| IP Address | Set the IP of PLC. | |
| Subnet Mask | Enter the subnet mask of the network. | |
| Default Gateway | Enter the gateway of the network. | |
| Communication Data Code | Set the data code of communication data. | *Note 1) |

*Note 1) For ASCII, set it as ASCII(X, Y OCT).

※ After entering the parameters, press Apply button.

Step 2. Add SLMP Connection Module in the navigation window → [Parameter] → [FX5UCPU] → [Module Parameter] → [Ethernet Port] → [Basic Settings] → [External Device Configuration].



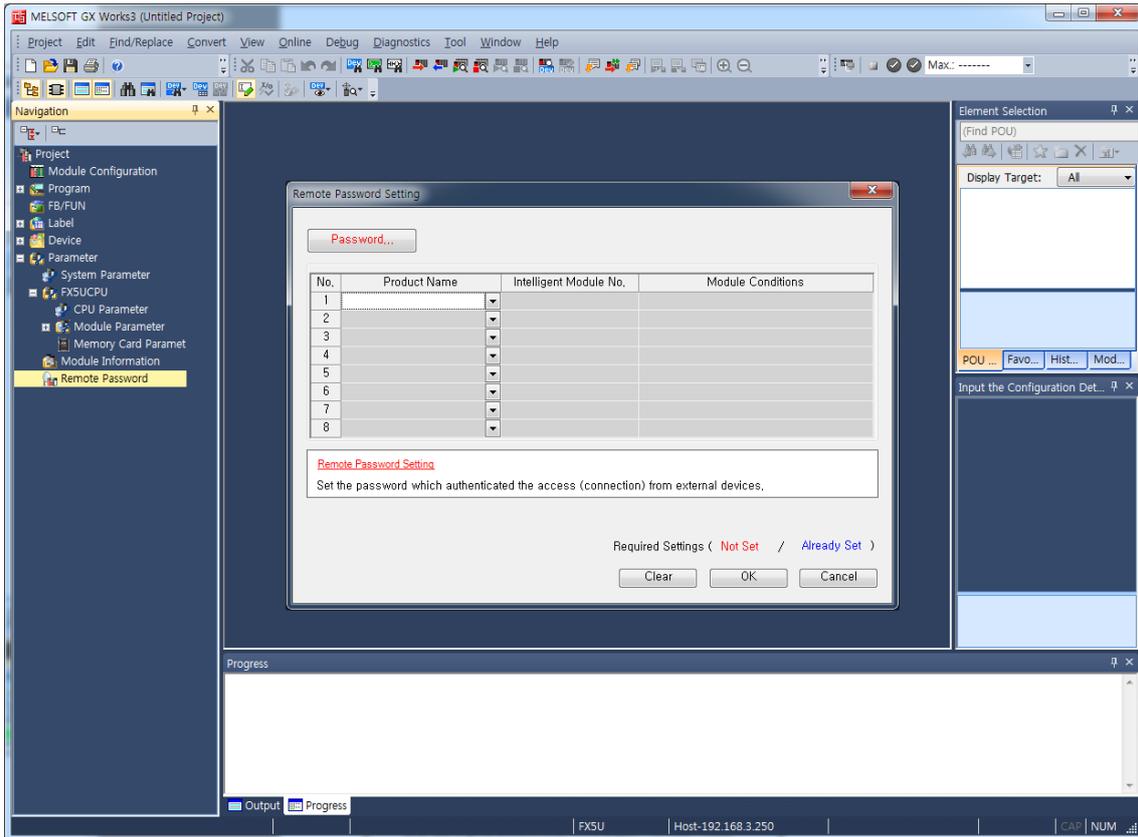
Drag & drop the SLMP Connection Module in the Module List on the left side of the screen. Set the protocol item (TCP or UDP) and the port no. (Port no. setting range: 1025~4999, 5010~65534)

※ After closing the Ethernet Configuration (Built-in Ethernet Port) window, press Apply button.

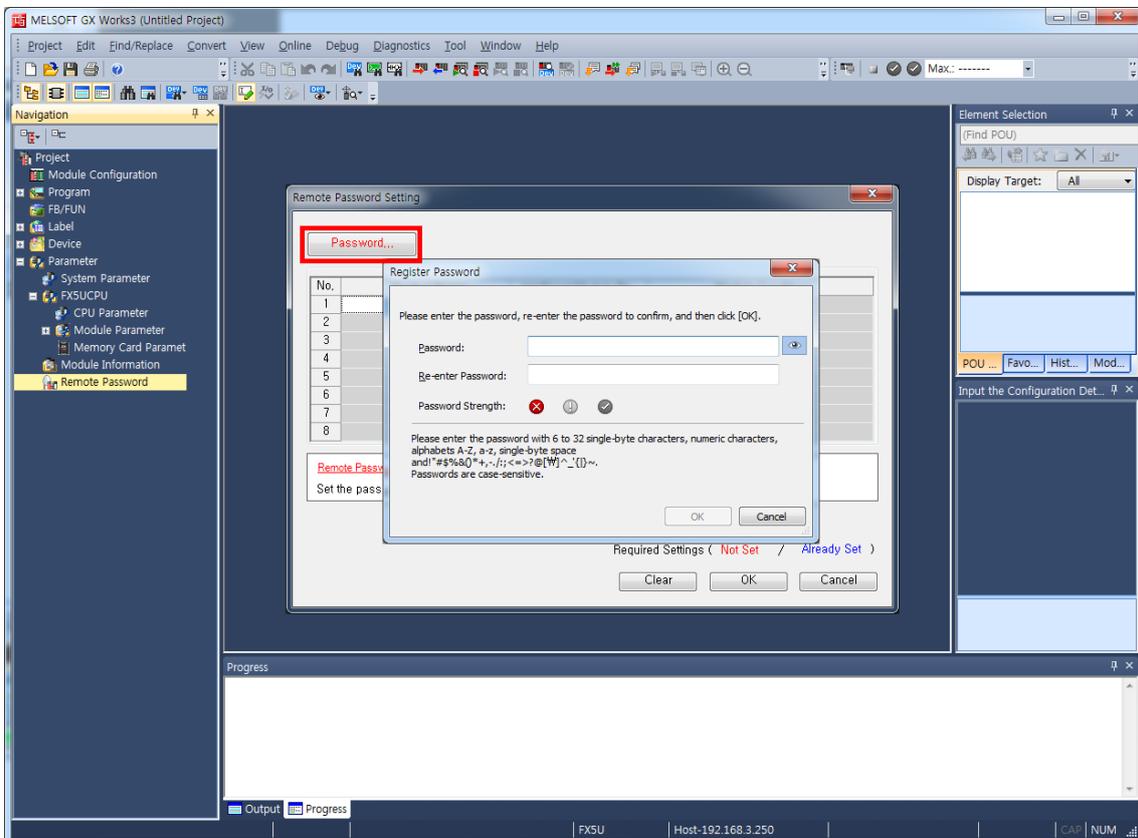
Step 3. Download the [Online] → [Write to PLC] execution program and reset.

※ Remote Password (Optional)

① Navigation window → [Parameter] → [Remote Password]

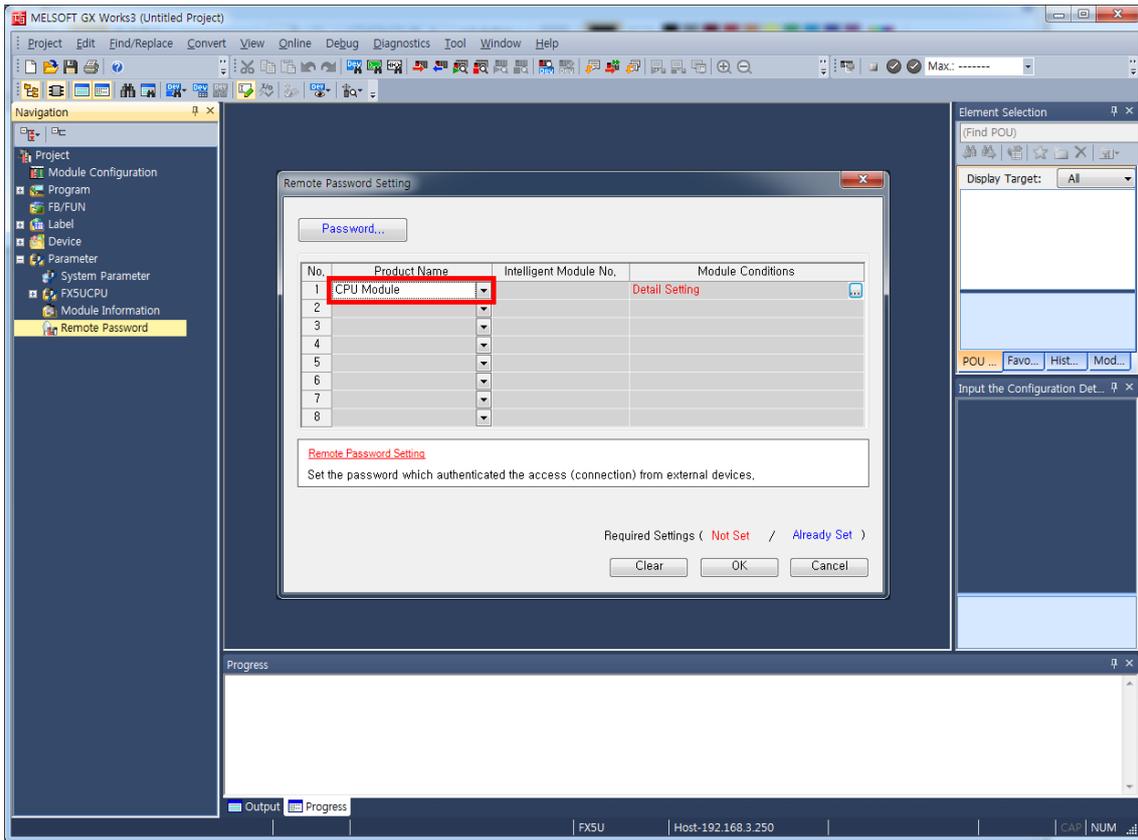


② Set the password.

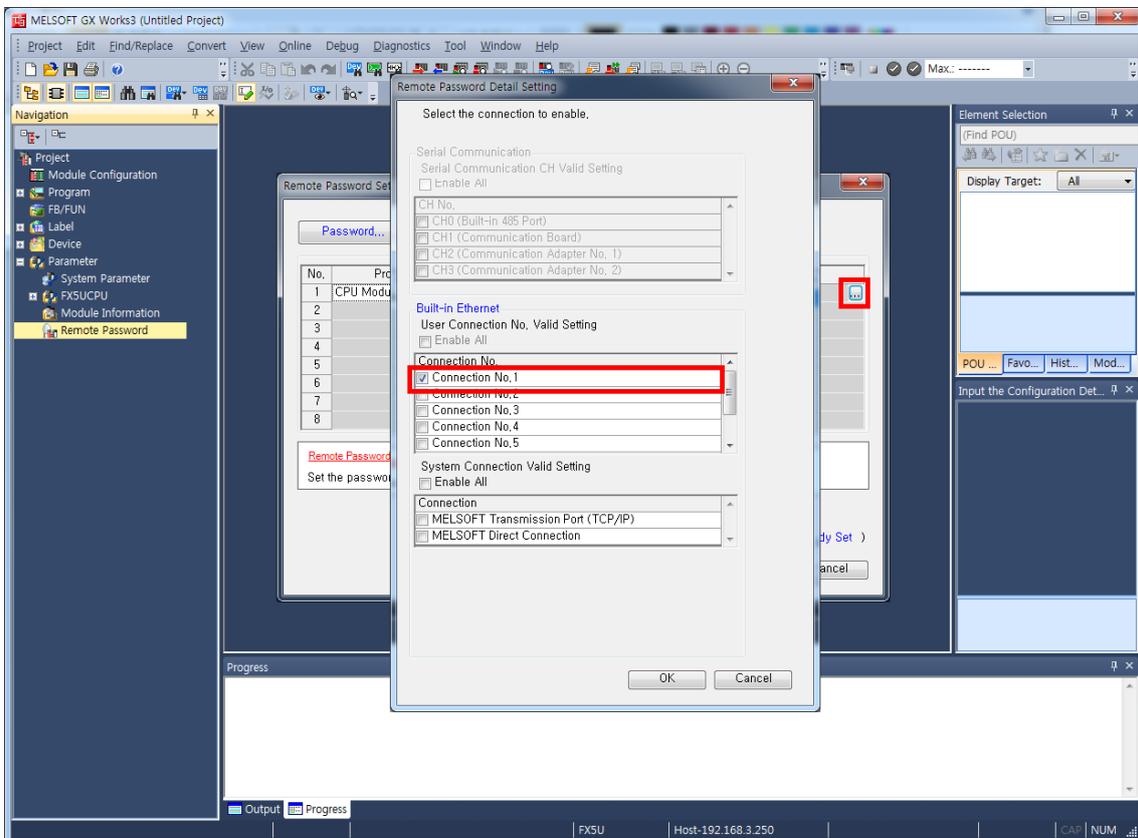




③ Select a module to apply the password to.



④ Select the connection to apply the password to in the Remote Password Detail Setting window.





5. Supported addresses

The devices available in TOP are as follows:

The device range (address) may differ depending on the CPU module series/type. The TOP series supports the maximum address range used by the external device series. Please refer to each CPU module user manual and be take caution to not deviate from the address range supported by the device you want to use.

| Address | Bit | Word | Remarks |
|-----------------------|-----------------------|---------------------|---------------|
| Input Relay | X0000 – X1777 | X0000 – X1760 | |
| Output Relay | Y0000 - Y1777 | Y0000 - Y1760 | |
| Internal Relay | M0000 – M7679 | M0000 – M7664 | |
| Special Relay | SM0000 – SM9999 | SM0000 – SM9984 | |
| Latch Relay | L0000 - L7679 | L0000 - L7664 | |
| Annunciator | F000 – F127 | F000 – F112 | |
| Step Relay | S0000 – S4095 | S0000 - S4080 | |
| Link Relay | B000 – B0FF (HEX) | B000 – B0F0 (HEX) | |
| Special Link Relay | SB000 - SB0FF (HEX) | SB000 - SB0F0 (HEX) | |
| Timer | Contact | TS000 – TS511 | |
| | Coil | TC000 - TC511 | |
| | Current | | TN000 - TN511 |
| Aggregate Timer | Contact | SS000 – SS015 | |
| | Current | | SN000 – SN015 |
| Counter | Contact | CS000 - CS255 | |
| | Coil | CC000 - CC255 | |
| | Current | | CN000 – CN255 |
| Data Register | D0000.00 – D7999.15 | D0000 – D7999 | |
| Special Data Register | SD00000.00–SD11999.15 | SD00000 – SD11999 | |
| Link Register | W000.00~W1FF.15 | W000~W1FF | |
| File Registers | R00000.00~R32767.15 | R00000~R32767 | |
| Link Special Register | SW000.00~SW1FF.15 | SW000~SW1FF. | |