

Giddings & Lewis Motion Control Inc.

Digital MMC Controller

Ethernet Driver

Supported version

TOP Design Studio

V1.4 or higher



CONTENTS

We want to thank our customers who use the Touch Operation Panel.

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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 9](#)

Describes how to set up communication for external devices.

5. Supported addresses [Page 10](#)

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

1. System configuration

The system configuration of TOP and "Giddings&Lewis Motion Control Inc. –Digital MMC Controller" is as follows:

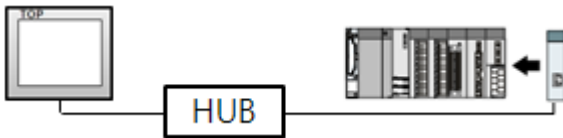
Series	CPU	Link I/F	Communication method	System setting	Cable
MMC	Digital MMC	ENET Port on MMC	Ethernet (UDP)	3. TOP communication setting 4. External device setting	Twisted pair cable* Note 1)

*Note 1) Twisted pair cable

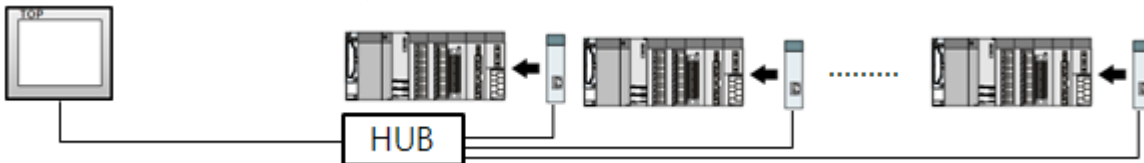
- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.
- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

■ Connectable configuration

- 1:1 connection (one TOP and one external device) connection

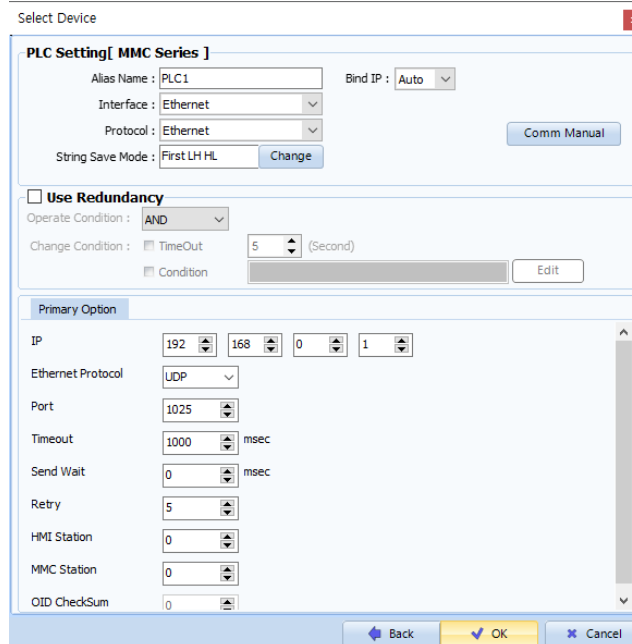
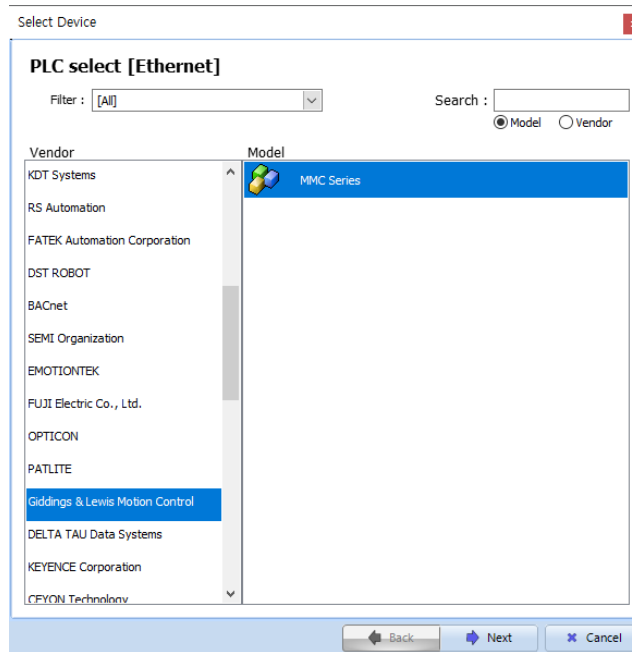


- 1:N connection (one TOP and multiple external devices) connection



2. External device selection

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



Settings		Contents					
TOP	Model	Check the TOP display and process to select the touch model.					
External device	Vendor	Select the vendor of the external device to be connected to TOP. Choose "Giddings & Lewis Motion Control".					
	PLC	Select the external device to be connected to the TOP. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>MMC Series</td> <td>Ethernet</td> <td>Ethernet</td> </tr> </tbody> </table> <p>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.</p>	Model	Interface	Protocol	MMC Series	Ethernet
Model	Interface	Protocol					
MMC Series	Ethernet	Ethernet					

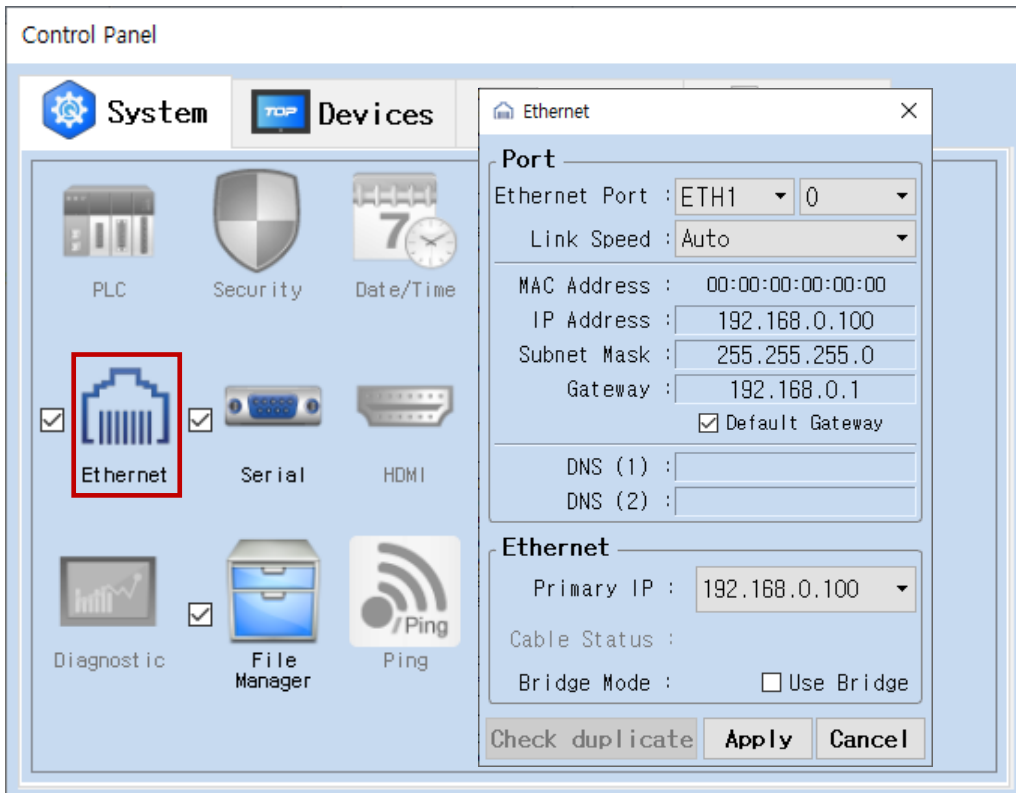
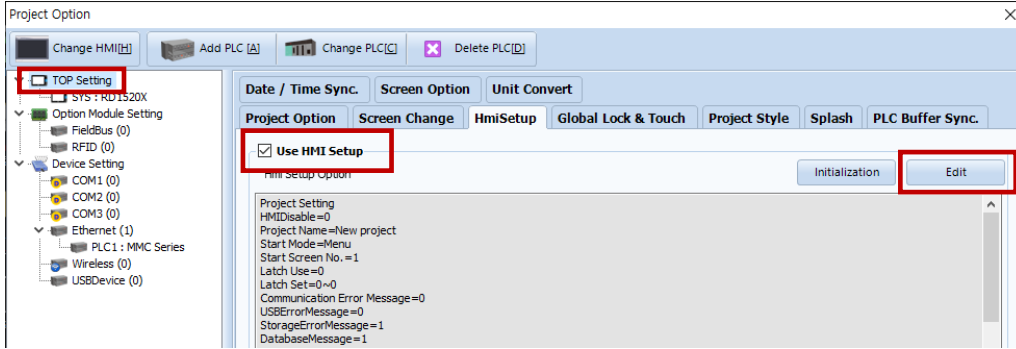
3. TOP communication setting

The communication can be set in TOP Design Studio or 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 > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Ethernet]
- Set the TOP communication interface in TOP Design Studio.



Items	TOP	External device	Remarks
IP Address*Note 1) Note 2)	192.168.0.100	192.168.0.50	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

*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.

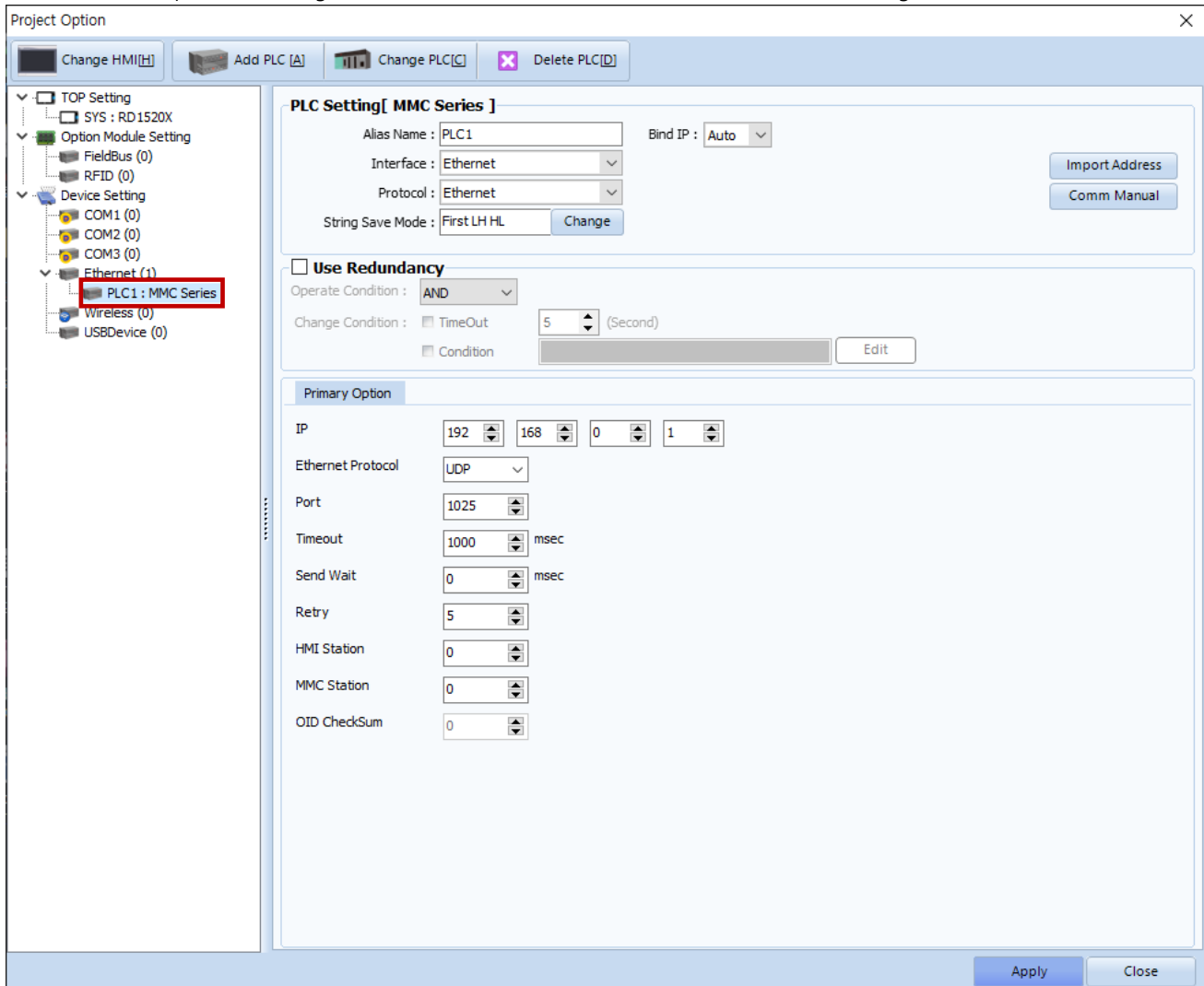
* The above settings are examples recommended by the company.

Items	Description
IP Address	Set an IP address to be used by the TOP to use over the network.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.

(2) Communication option setting

■ [Project > Project Property > PLC Settings > ETHERNET > "PLC1 : MMC Series"]

– Set the options of the Digital MMC Controller Ethernet communication driver in TOP Design Studio.



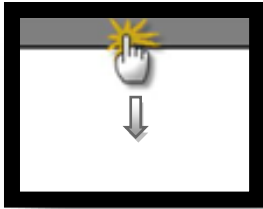
Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection".
Protocol	Select "Ethernet".	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP to wait 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 command request.	
HMI Station	Enter the TOP prefix number.	
MMC Station	Enter the external device prefix number.	
MMC Port	Enter the Ethernet communication port number of the external device.	
OID CheckSum	Required information for communication between external device and TOP. The *.oid file is automatically entered when imported.	Fixed

※The Digital MMC Ethernet communication driver imports and creates the *.oid file exported by the Digital MMC program.
For a detailed explanation, please reference **[5. Supported addresses]**.

3.2. Communication setting in TOP

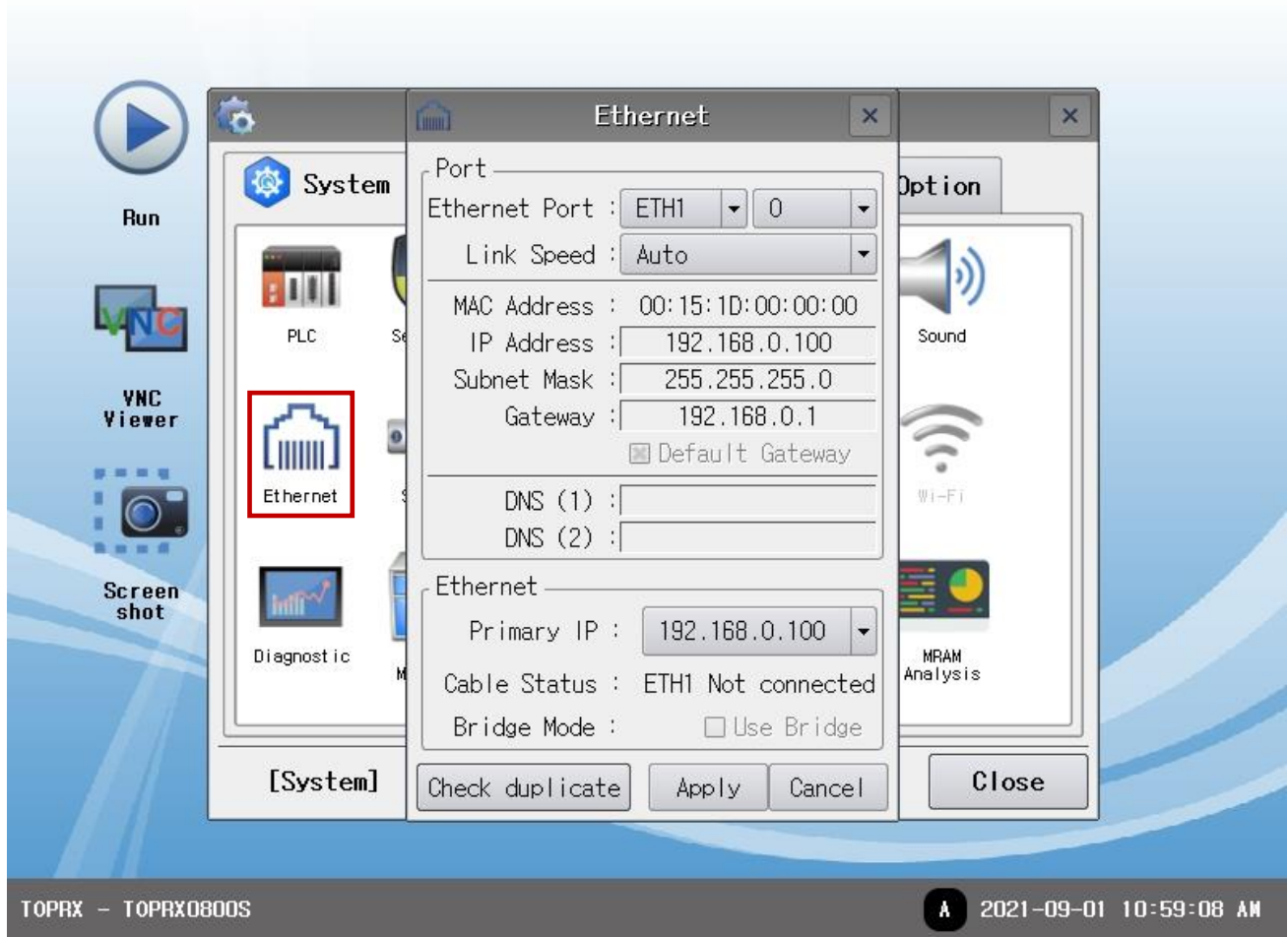
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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

- [Main Screen > Control Panel > Ethernet]



Items	TOP	External device	Remarks
IP Address*Note 1) Note 2)	192.168.0.100	192.168.0.50	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

*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.

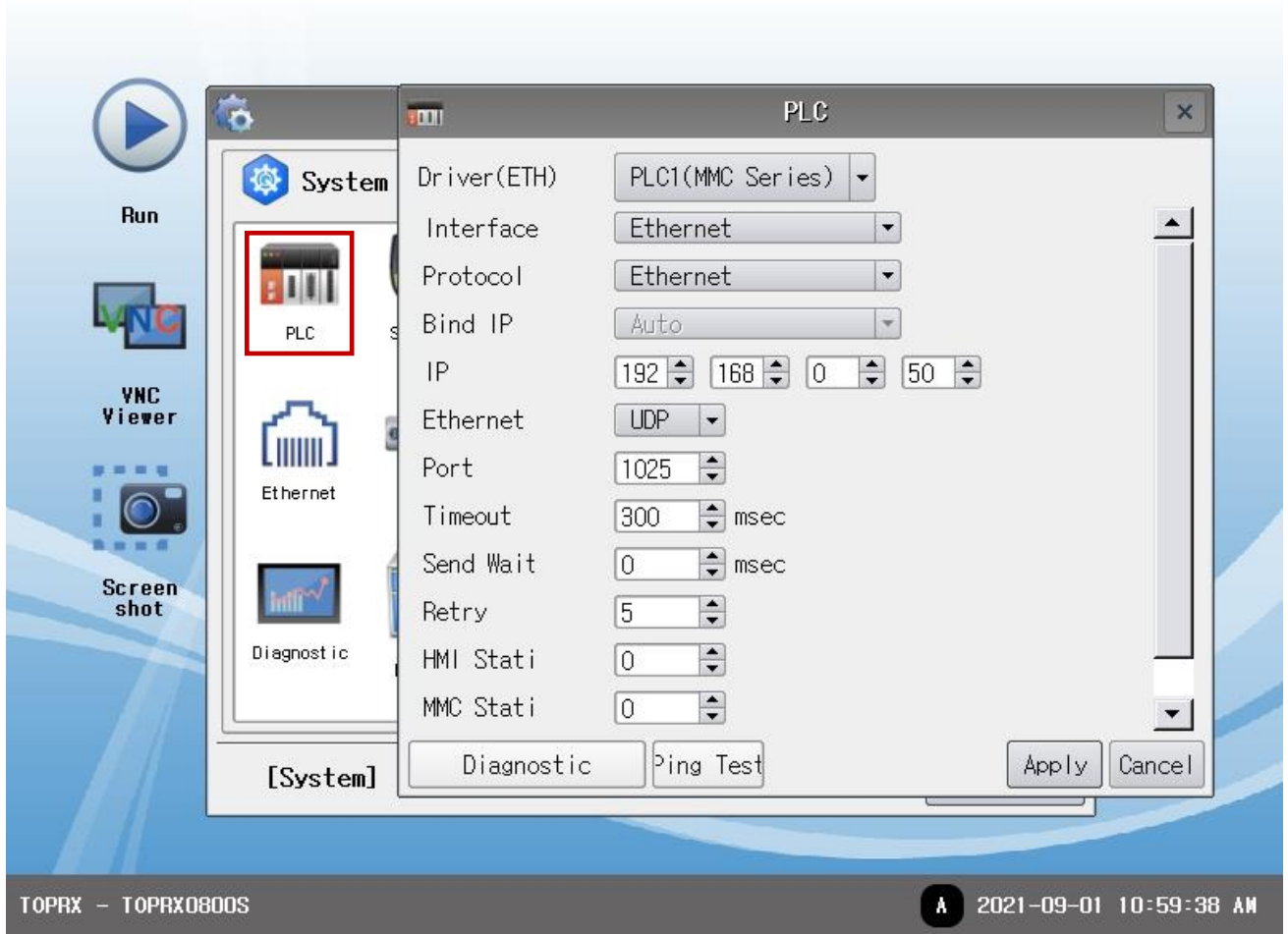
*Note 2) Do not use duplicate IP addresses over the same network.

* The above settings are examples recommended by the company.

Items	Description
IP Address	Set an IP address to be used by the TOP to use over the network.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.

(2) Communication option setting

■ [Main Screen > Control Panel > PLC]



Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection" .
Protocol	Select "Ethernet".	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP 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 command request.	
HMI Station	Enter the TOP prefix number.	
MMC Station	Enter the external device prefix number.	
MMC Port	Enter the Ethernet communication port number of the external device.	
OID CheckSum	Required information for communication between external device and TOP. The *.oid file is automatically entered when imported.	Fixed

※The Digital MMC Ethernet communication driver imports and creates the *.oid file exported by the Digital MMC program.
For a detailed explanation, please reference **[5. Supported addresses]**.

3.3 Communication diagnostics

- Check the interface setting status between the TOP and an external device.
 - Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.
 - Check if the ETH port settings you want to use in [Control Panel > Ethernet] are the same as those of the external device.

- Diagnosis of whether the port communication is normal or not
 - Touch "Communication diagnostics" in [Control Panel > PLC].
 - The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

OK	Communication setting normal
Time Out Error	Communication setting abnormal - Check the cable, TOP, and external device setting status. (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 address range	OK	NG	5. Supported addresses (For details, please refer to the PLC vendor's manual.)		

4. External device setting

Set using Digital MMC Software "PicPro" for communication setup. For detailed setup instructions, see the User's Manual in the Digital MMC Controller. When setup is complete, download the settings with the appropriate equipment.

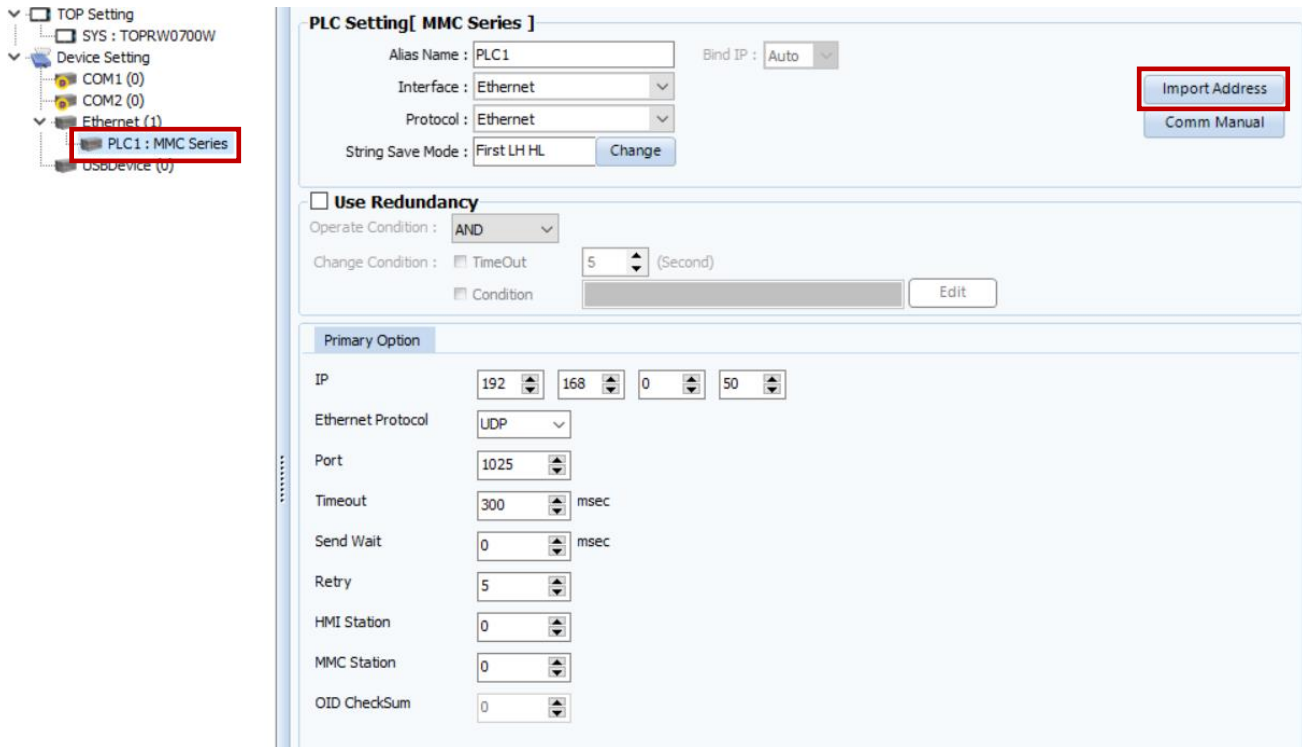


Do not use duplicate IP addresses over the same network.

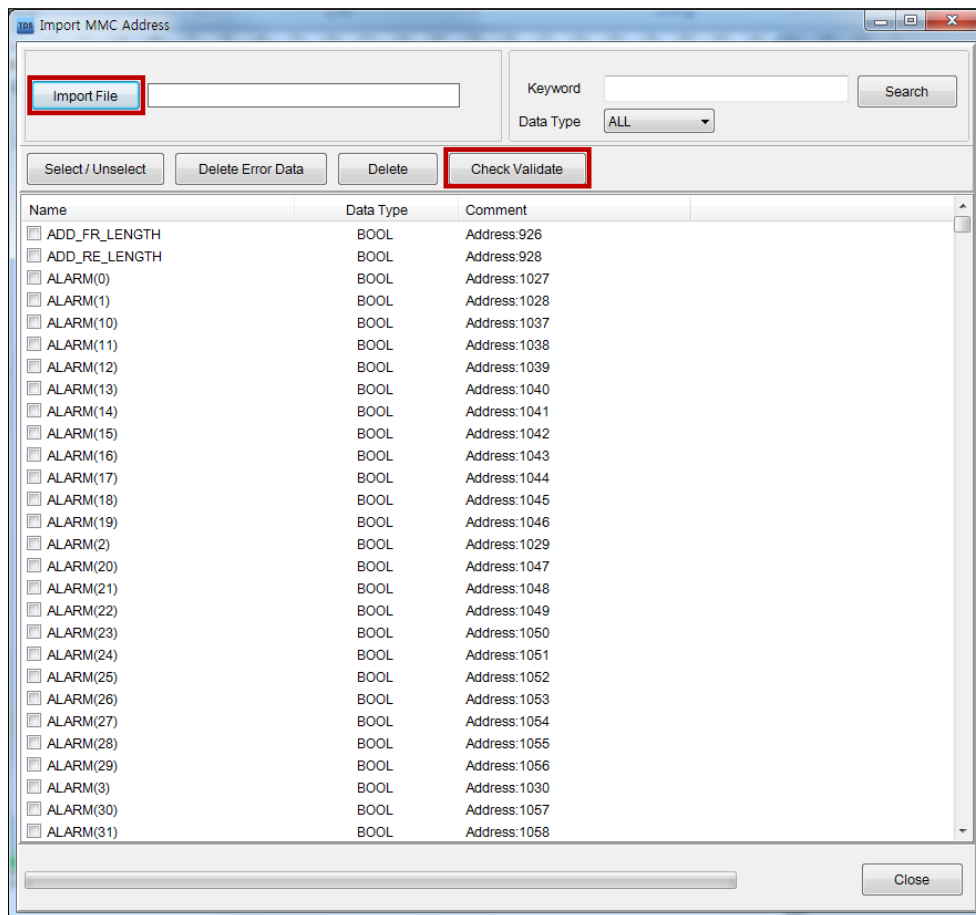
5. Supported addresses

TOP Giddings&Lewis Digital MMC Controller Ethernet communication driver imports and creates the MMC's *.oid file.

Step 1. [Project > Project Property > PLC Settings > ETHERNET > "PLC1 : MMC Series > Import Address"]



Step 2. Click "Import File" and choose *.oid file, then click "Check Validate" to import used object information from MMC.



※ TOP Giddings&Lewis Digital MMC Ethernet communication driver supported data types are as follows.

Numeric	Size	Bitwise	Size	Time	Size
SINT	1 Byte	BOOL	1 Byte	TIME	4 Byte
INT	2 Byte	BYTE	1 Byte		
DINT	4 Byte	WORD	2 Byte		
USINT	1 Byte	DWORD	4 Byte		
UINT	2 Byte				
UDINT	4 Byte				
REAL	4 Byte				