

M2I Corporation

User Define Protocol

Ethernet Driver

Supported version

TOP Design Studio

V1.4.9.0 or higher



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

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1. System configuration

The system configuration of TOP and external devices is as follows:

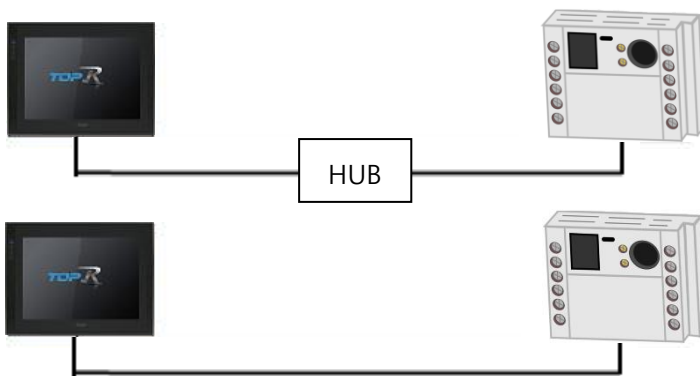
Series	CPU	Communication method	System setting	Cable
All devices supporting Ethernet		TCP/ UDP	3. TOP communication setting	Twisted pair cable* Note 1)

***Note 1)** Twisted pair cable

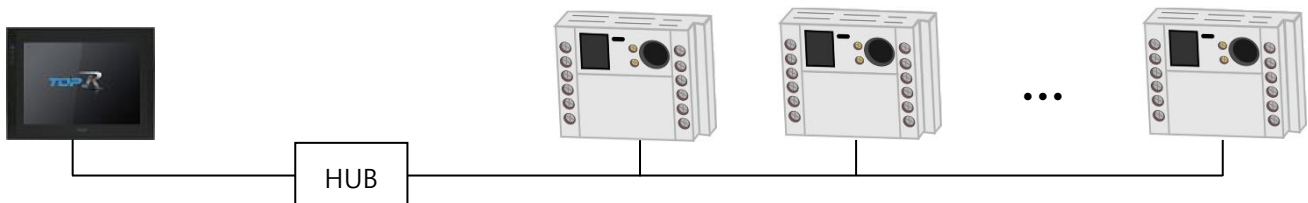
- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.
- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

■ Connection configuration

- 1:1 connection

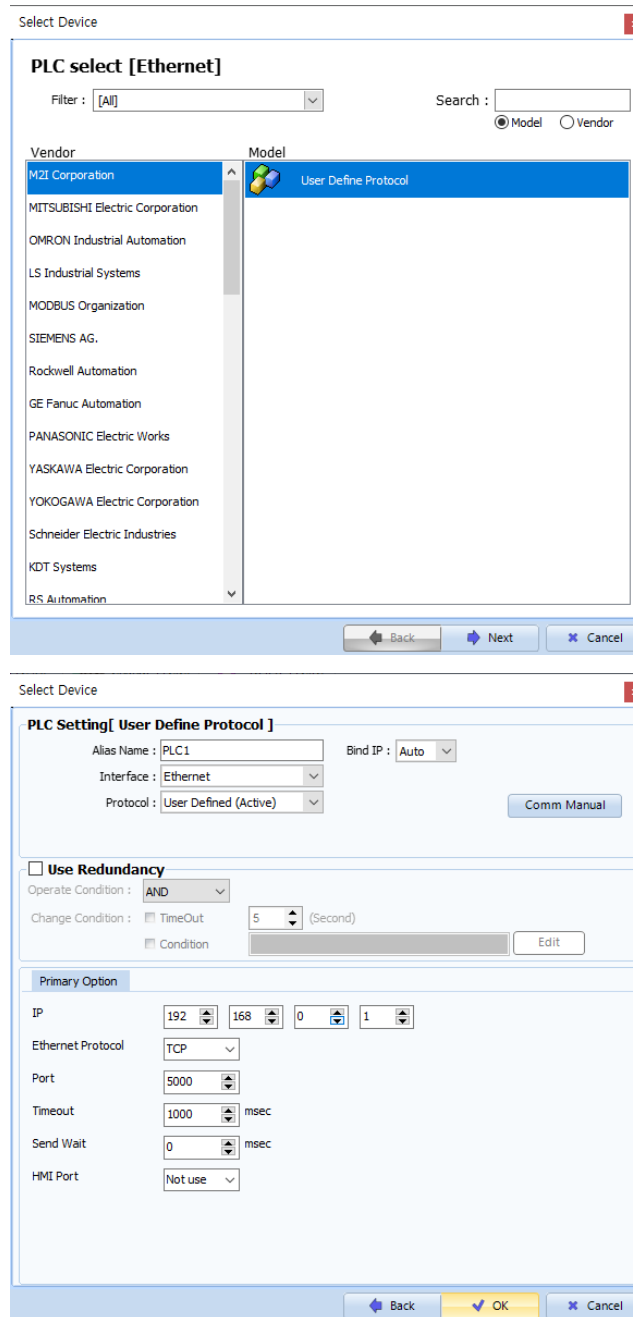


- 1:N connection



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 "M2I Corporation".								
	Model	Select the external device to be connected to the TOP. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>User Define Protocol</td> <td>Ethernet</td> <td>User Defined (Active)</td> </tr> <tr> <td></td> <td></td> <td>User Defined (Passive)</td> </tr> </tbody> </table>	Model	Interface	Protocol	User Define Protocol	Ethernet	User Defined (Active)		
Model	Interface	Protocol								
User Define Protocol	Ethernet	User Defined (Active)								
		User Defined (Passive)								

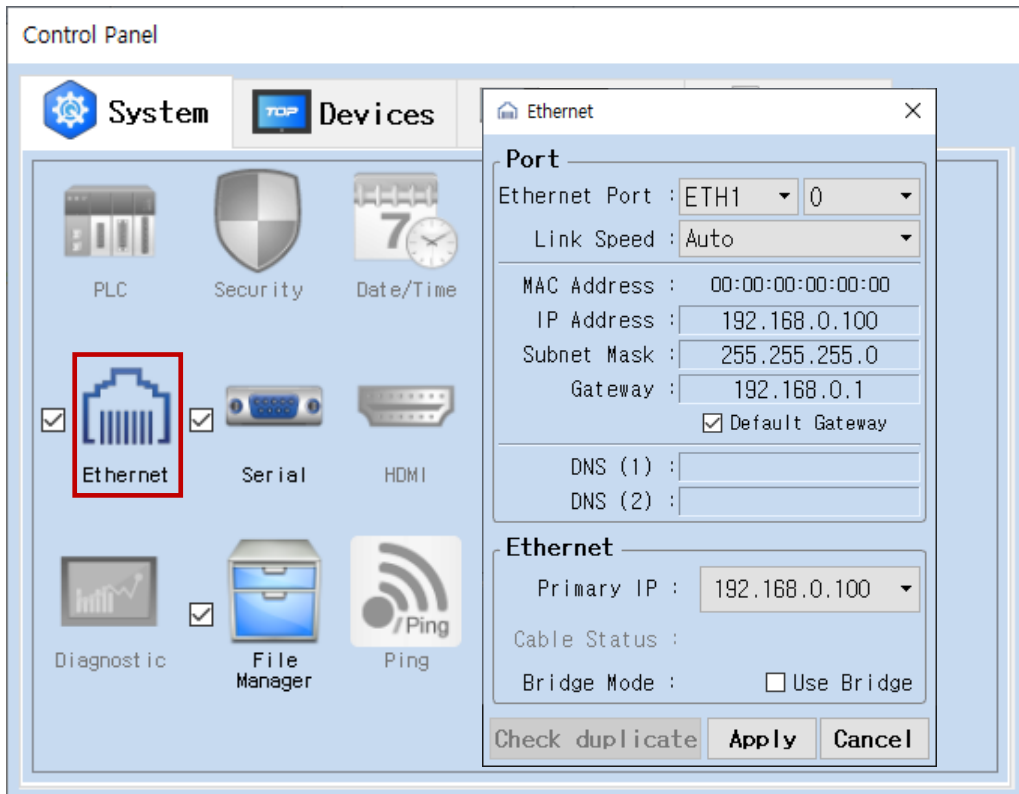
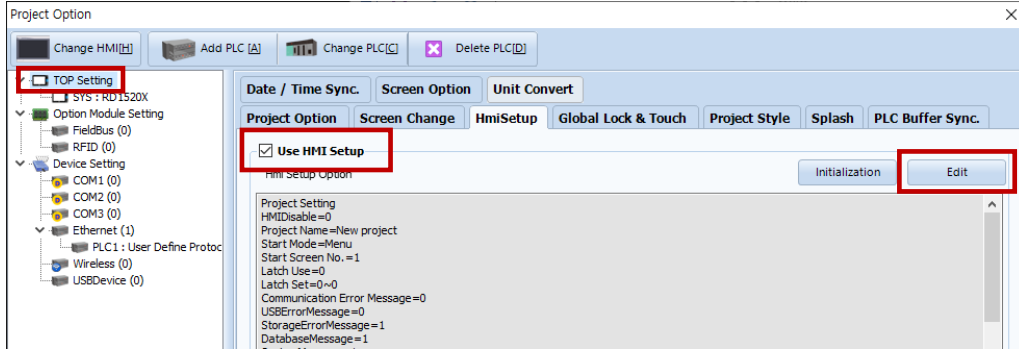
3. TOP communication setting

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] → [HMI Setup > "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	192.168.0.1	
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.

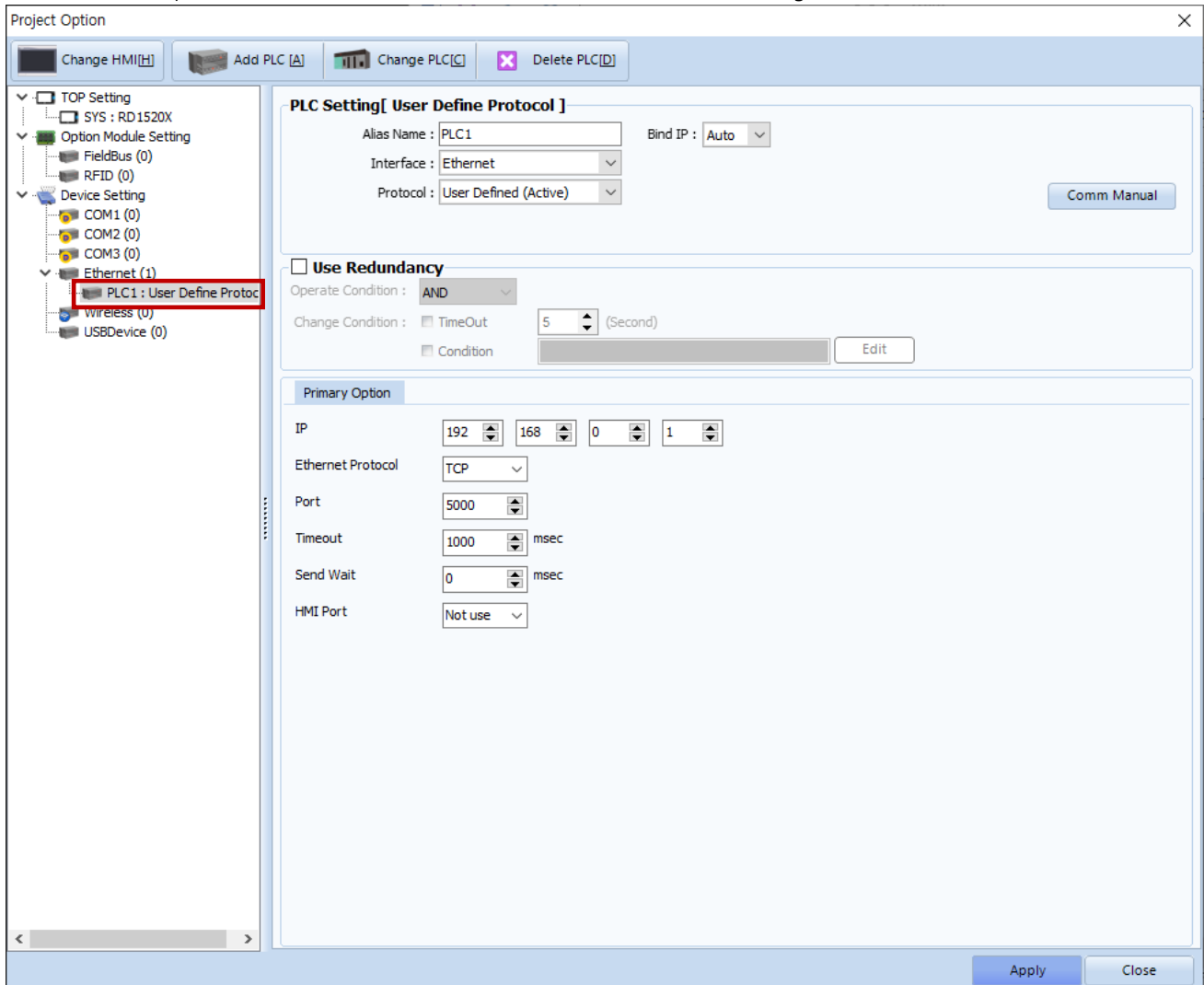
* The above settings are examples recommended by the company.

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 > Device Setting > Ethernet > "PLC1 : User Define Protocol"]

– Set the options of the User Define Protocol communication driver in TOP Design Studio.



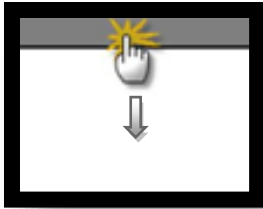
Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection".
Protocol	If the client (Master) is making a connection request, select "User Defined (Active)", if the server (Slave) is receiving a connection request, select "User Defined (Passive)".	
IP	Enter the IP address 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 for the TOP to wait for a response from an external device.	*Note 1)
Send Wait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Configure the amount of redelivery attempts from TOP to external device.	UDP date/time
HMI Port	Enter the Ethernet communication port number of the TOP.	

***Note 1)** This is the TOP internal response delay, so you don't need to set it.

3.2. Communication setting in TOP

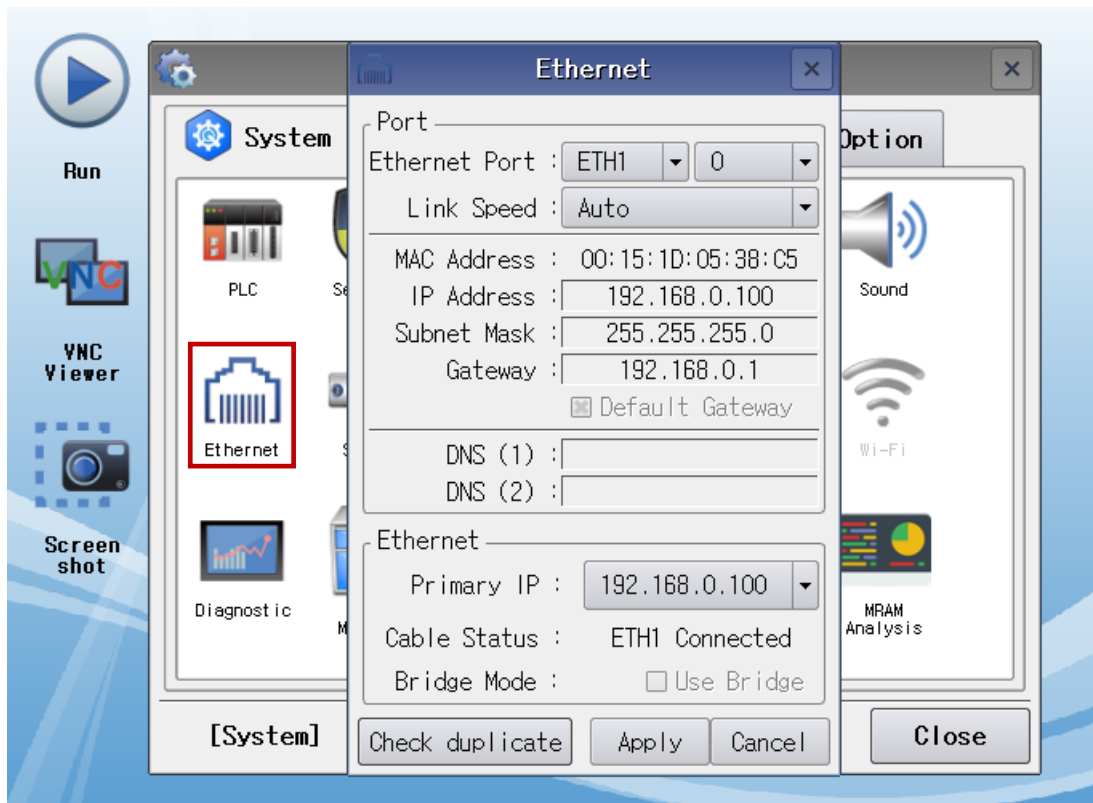
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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	192.168.0.1	
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.

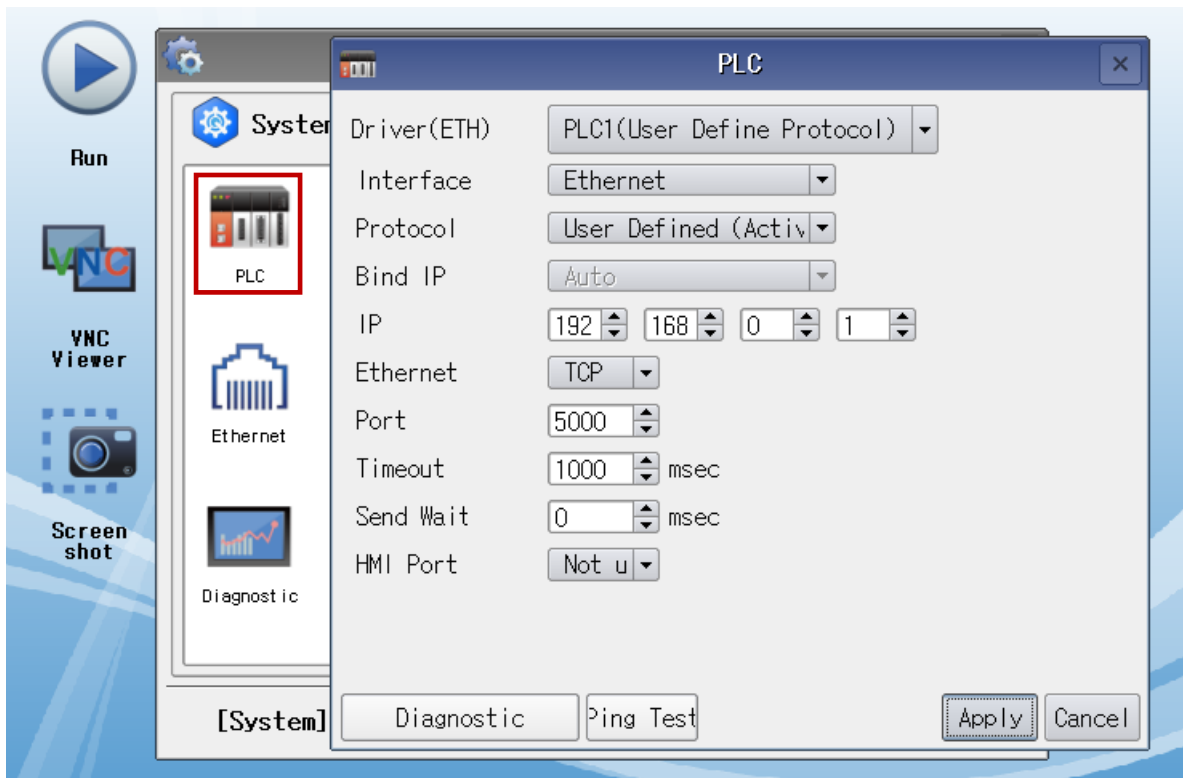
*[Note 2](#)) Do not use duplicate IP addresses over the same network.

* 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	If the client (Master) is making a connection request, select "User Defined (Active)", if the server (Slave) is receiving a connection request, select "User Defined (Passive)".	
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 for the TOP to wait for a response from an external device.	*Note 1)
Send Wait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Configure the amount of redelivery attempts from TOP to external device.	UDP date/time
HMI Port	Enter the Ethernet communication port number of the TOP.	

*Note 1) This is the TOP internal response delay, so you don't need to set it.

3.3 Communication diagnostics

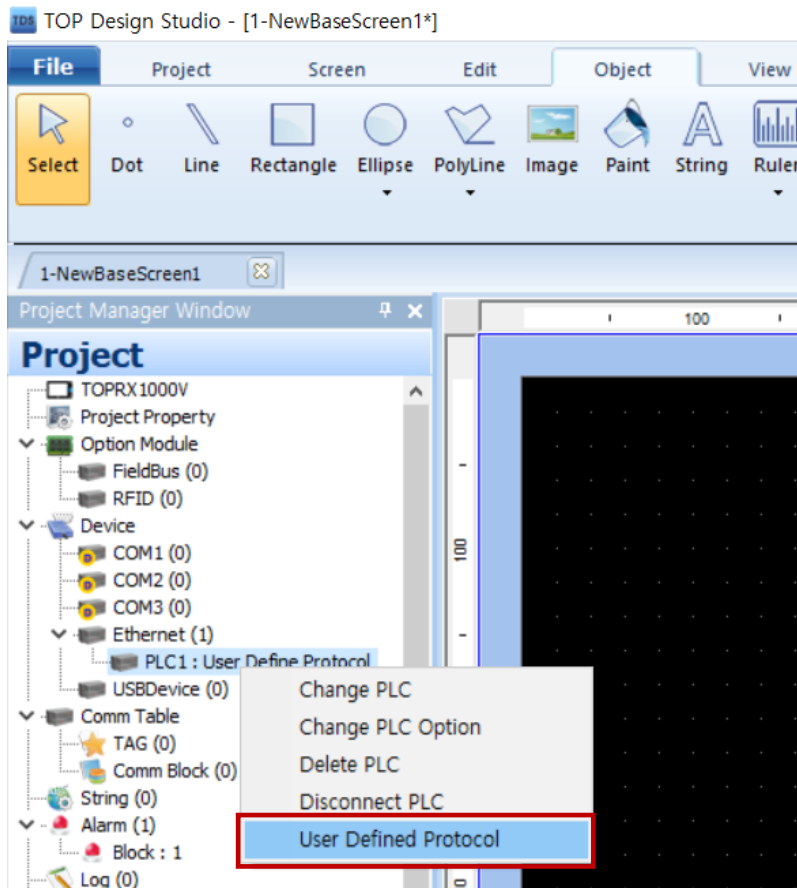
- ※ The relevant driver does not support communications diagnostics with the other device .

4. External device setting

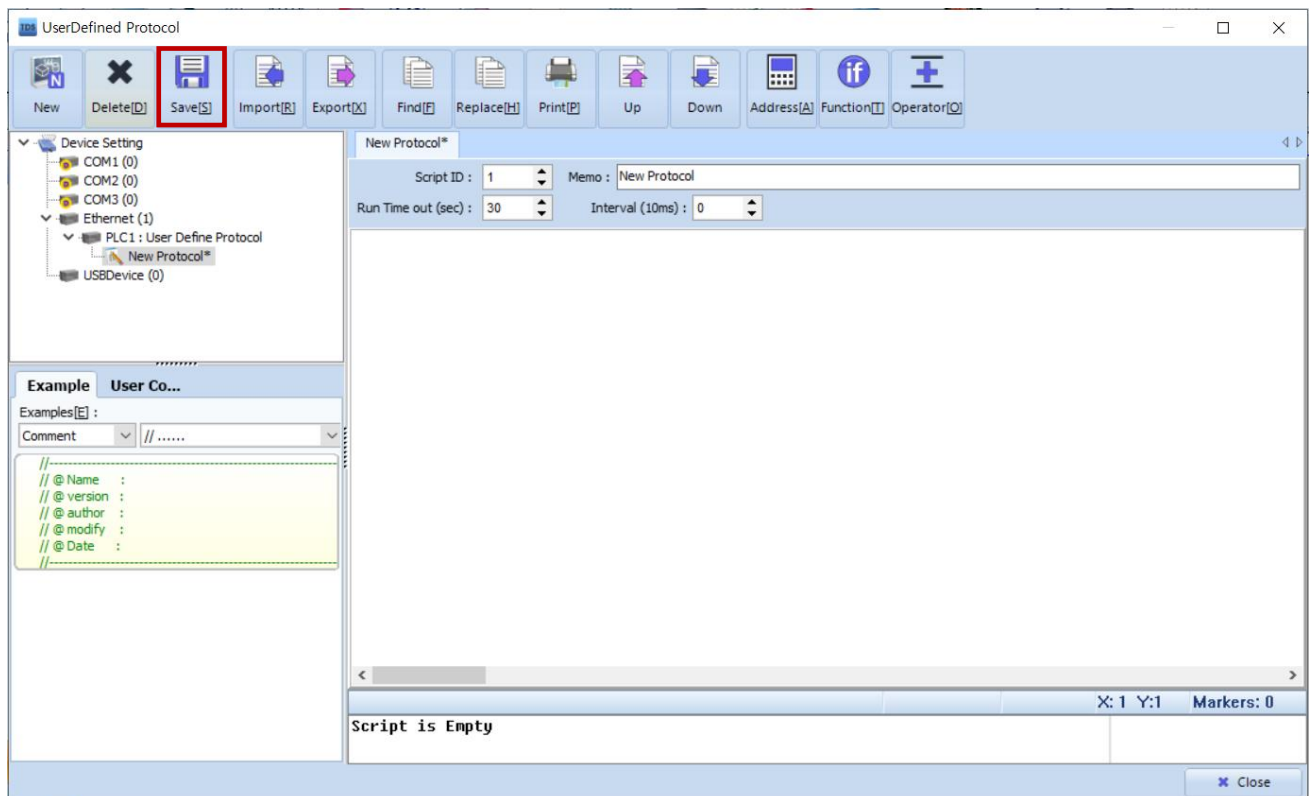
*Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP.

5. Script setting

Step 1. [Project > Device > Ethernet > "PLC1 : User Define Protocol" right click> User-defined protocol]



Step 2. Write scripts for communication and save.



■ User-defined protocol function

Items	Description	Remarks
CommAsciiWrite(value)	Runs an ASCII data value write to an external device.	
CommAsciiRead(size)	Runs as many reads as the ASCII data size from the external device.	
CommReset()	Initializes communication state with the external device.	
CommWait(msec)	Sets the driver's stand-by time. (Units are in msec)	
CommErrorMsg(value)	Displays an external device communication error message.	
CommErrorClear()	Deletes an external device communication error message.	