

# Rockwell Automation, Inc.

## Control/Compact Logix Series

### Ethernet Driver

Supported version

TOP Design Studio

V1.0 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 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 "Rockwell Automation, Inc. – Control/Compact Logix Series Ethernet" is as follows.

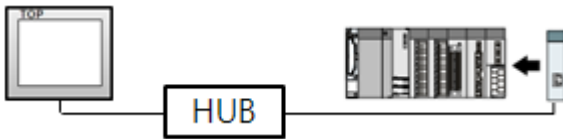
Series	CPU	Link I/F	Communication method	System setting	Cable
ControlLogix	All CPUs	1756-ENET/B 1756-ENET 1756-ENBT	Ethernet (TCP)	<a href="#">3. TOP communication setting</a> <a href="#">4.1. External device setting 1</a>	Twisted pair cable* <b>Note 1)</b>
		1761-NET-ENI	Ethernet (TCP)	<a href="#">3. TOP communication setting</a> <a href="#">4.2. External device setting 2</a>	
CompactLogix	All CPUs	1761-NET-ENI	Ethernet (TCP)	<a href="#">3. TOP communication setting</a> <a href="#">4.2. External device setting 2</a>	
	1769-L32E 1769-L35E	CPU Direct	Ethernet (TCP)	<a href="#">3. TOP communication setting</a> <a href="#">4.3 External device setting 3</a>	

\*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.

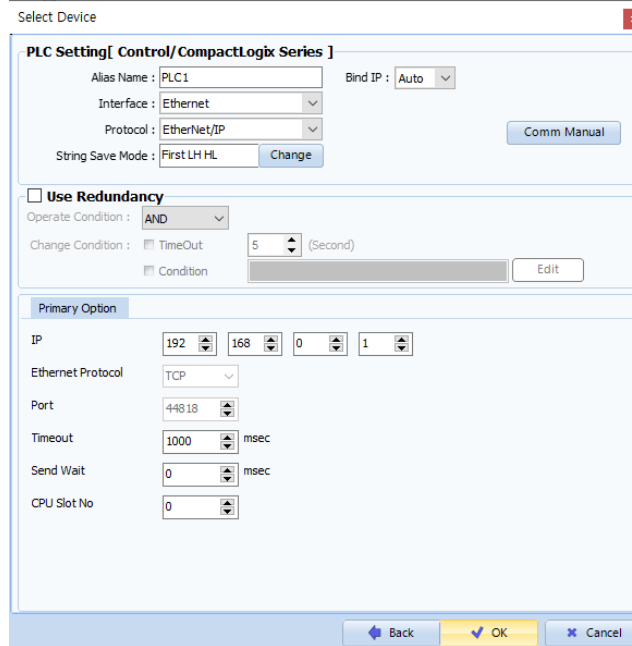
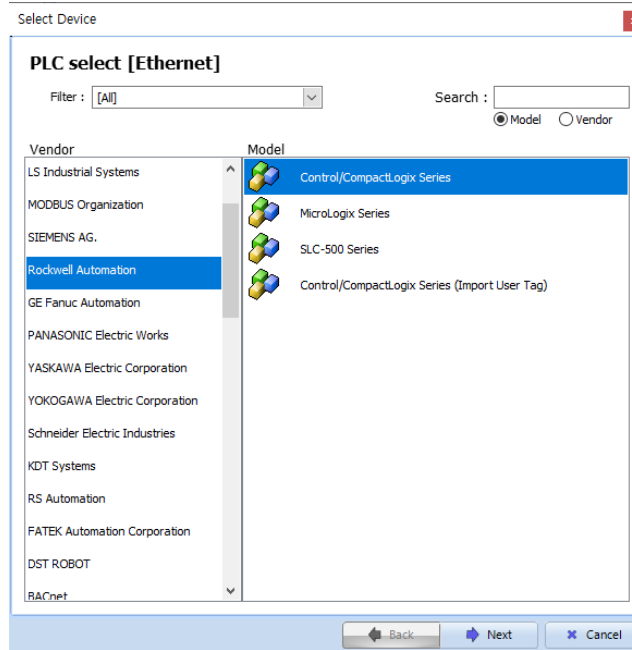
## ■ Connectable configuration

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



## 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. Select "Rockwell Automation (AB)".					
	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>Control/Compact Logix Series</td> <td>Ethernet</td> <td>EtherNet/IP</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	Control/Compact Logix Series	Ethernet
Model	Interface	Protocol					
Control/Compact Logix Series	Ethernet	EtherNet/IP					

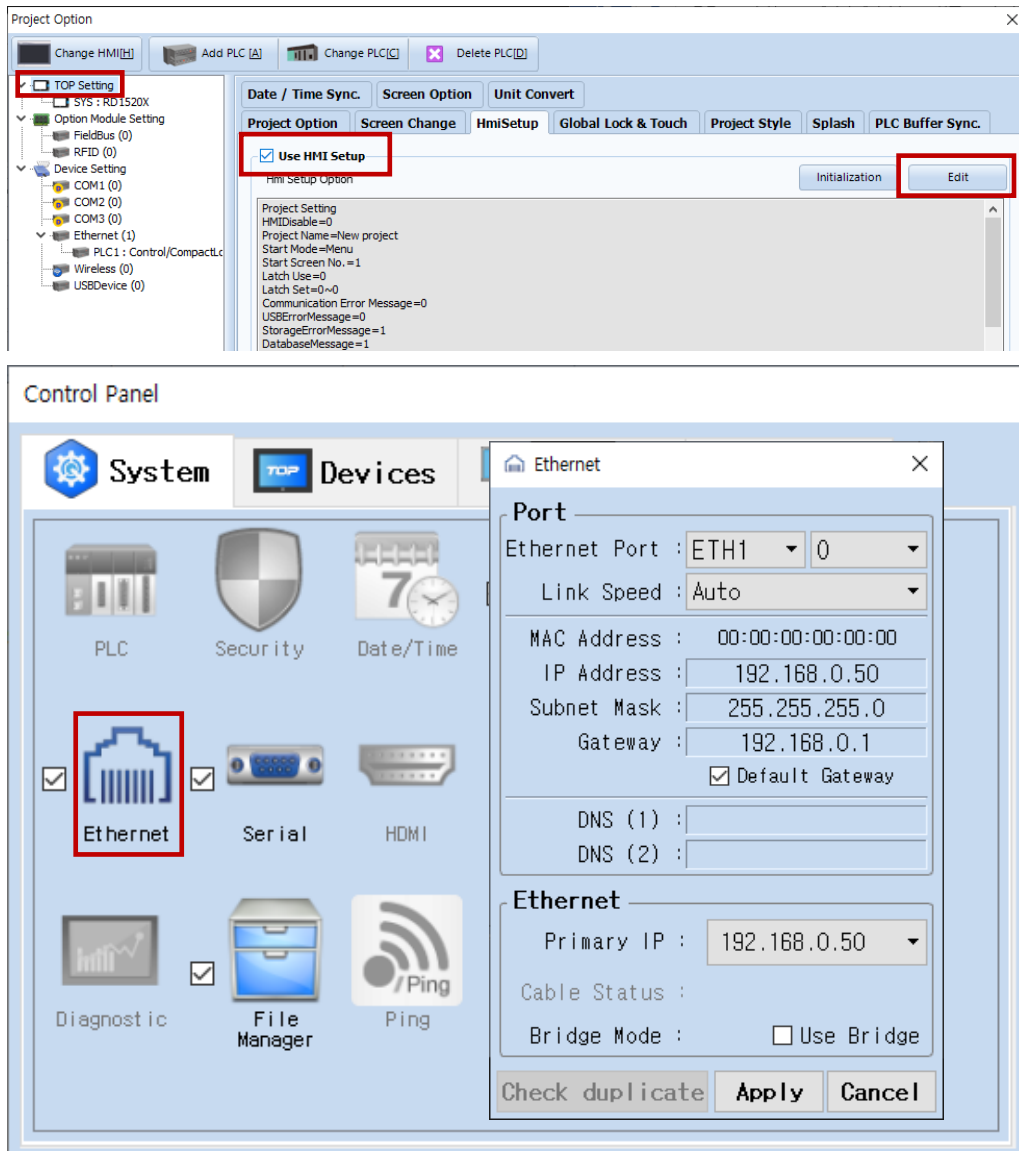
### 3. TOP communication setting

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 properties > TOP settings] → [Project option > Check "Use HMI settings" > Edit > Ethernet]
- Set the TOP communication interface in TOP Design Studio.



Items	TOP	External device	Remarks
IP address* <b>Note 1)</b>	192.168.0.50	192.168.0.51	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

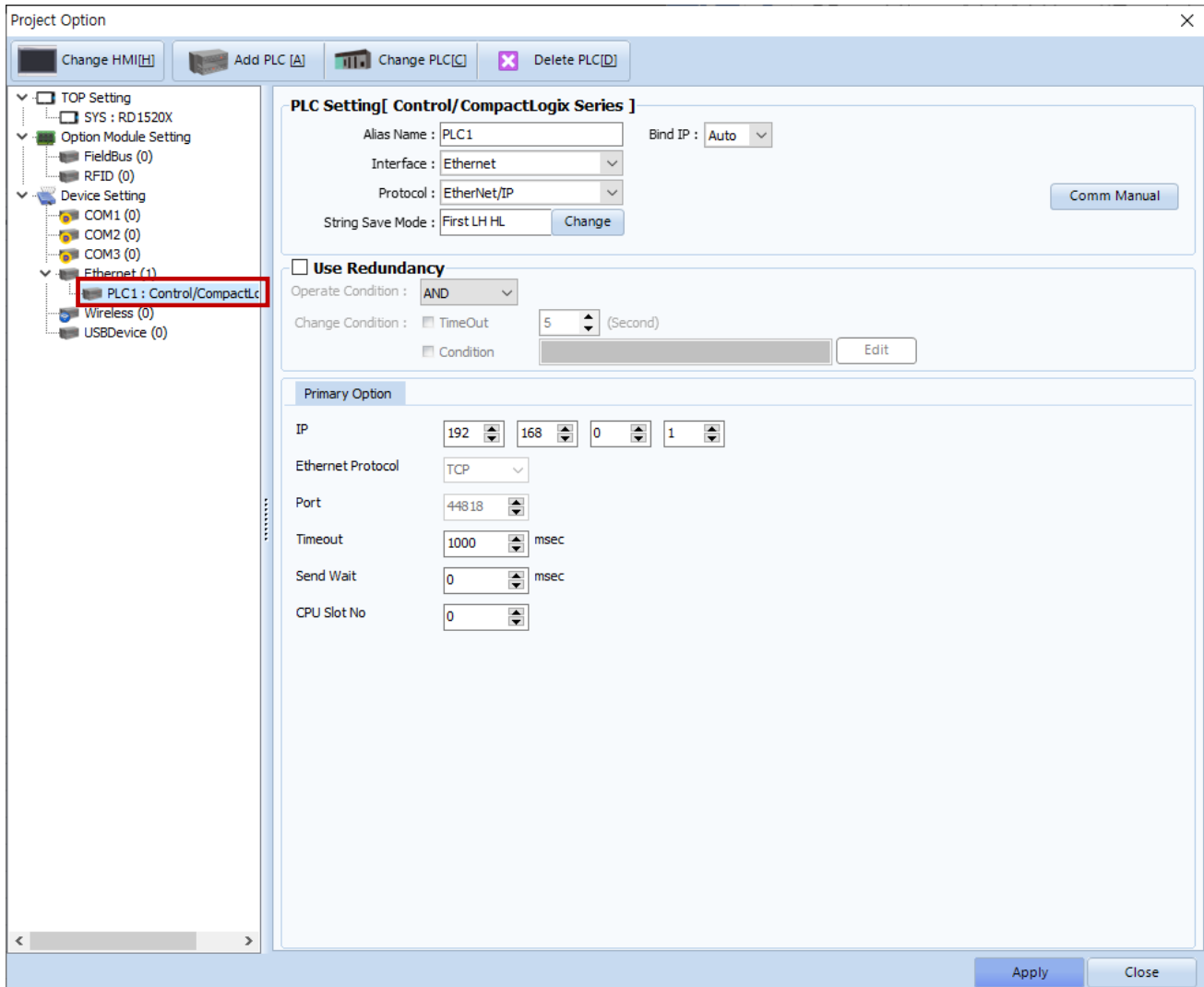
\***Note 1)** The network addresses of the TOP and the external device (the first three digits of the IP, 192 . 168 . 0 . 0) should match.

\* 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(1) > "PLC1 : Control/Compact Logix Series" ]
- Set the options of the communication driver of the Control/Compact Logix Series Ethernet in TOP Design Studio



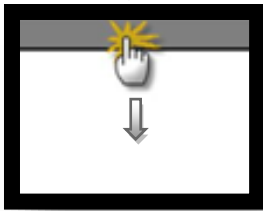
\* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select "Ethernet".	<a href="#">Refer to "2. External device selection"</a> .
Protocol	Select "EtherNet/IP".	
IP	Enter the IP address of the 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.	
Port	Enter the Ethernet communication port number "44818" of the external device.	Fixed
CPU Slot No	Enter the CPU slot number of the external device.	

### 3.2. Communication setting in TOP

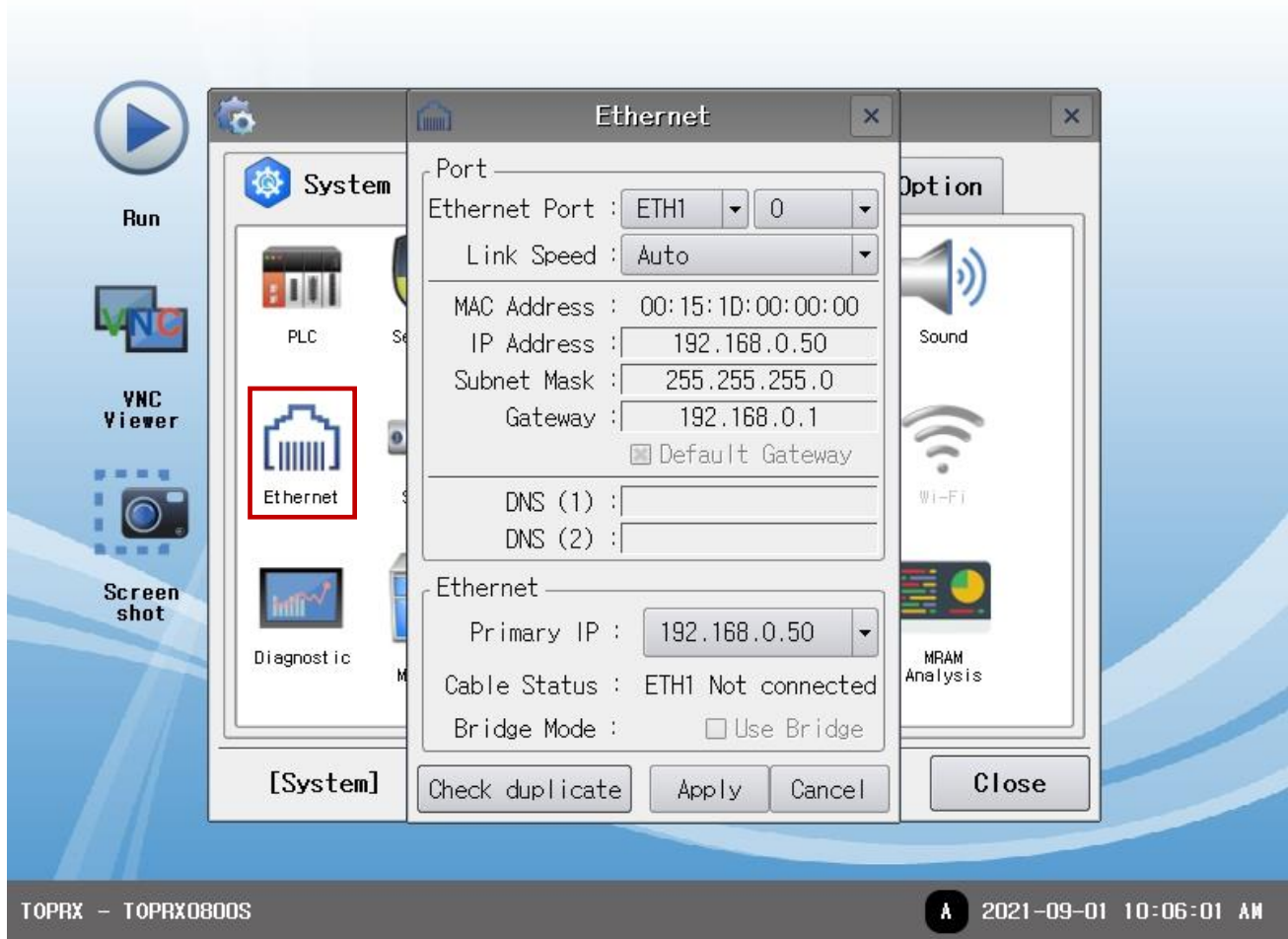
\* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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

- [ Main screen > Control panel > Ethernet ]



Items	TOP	External device	Remarks
IP address* <b>Note 1)</b>	192.168.0.50	192.168.0.51	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

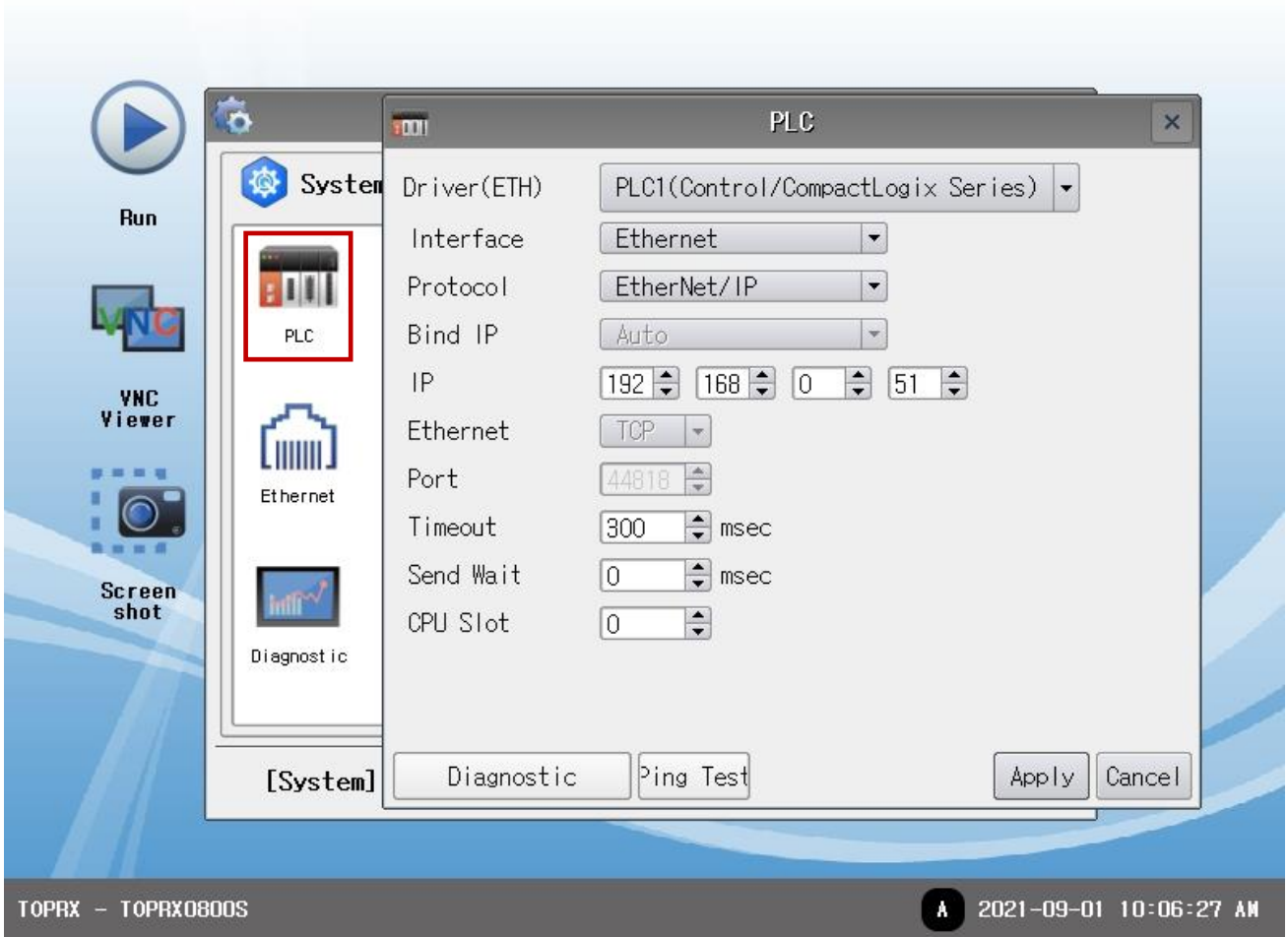
\***Note 1)** The network addresses of the TOP and the external device (the first three digits of the IP, 192 . 168 . 0 . 0) should match.

\* 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 ]



\* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select "Ethernet".	<a href="#">Refer to "2. External device selection".</a>
Protocol	Select "EtherNet/IP".	
IP	Enter the IP address of the 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.	
Port	Enter the Ethernet communication port number "44818" of the external device.	Fixed
CPU Slot No	Enter the CPU slot number of the external device.	

### 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 whether the port (ETH1/ETH2) settings you want to use are the same as those of the external device in [Control panel > Ethernet].

- 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.

<b>OK</b>	<b>Communication setting normal</b>
<b>Time Out Error</b>	<b>Communication setting abnormal</b> - Check the cable, TOP, and external device setting status. <b>(Reference: Communication diagnostics sheet)</b>

- 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	<a href="#">1. System configuration</a>	
	Connection cable name	OK	NG		
TOP	Version information	OK	NG	<a href="#">2. External device selection</a> <a href="#">3. Communication setting</a>	
	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	<a href="#">4. External device setting</a>	
	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	<a href="#">5. Supported addresses</a> (For details, please refer to the PLC vendor's manual.)	



## 4. External device setting

---

### 4.1 External device setting 1 (1756-ENBT, 1756-ENET(/B))

---

Set as below using "Control/CompactLogix Series" Ladder Software "RSLogix5000".

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

**Step 1.** Right-click [I/O Configuration] of the Project tree in "RSLogix5000" to select [New Module].

**Step 2.** Select a module to be used in [Select Module] dialog box.

**Step 3.** Right-click the added module name in the Project tree to select [Properties].

**Step 4.** Set "IP Address: 192.168.0.51" and other matters in [General] tab of the [Module Properties] dialog box.

**Step 5.** Download the settings.

### 4.2 External device setting 2 (1761-NET-ENI)

---

Use [ENI/ENIW Utility] for communication settings to configure as shown below.

For more detailed setting method than that described in this example, refer to the PLC user manual.

**Step 1.** From the [ENI IP Addr] tab of [ENI/ENIW Utility], configure the "IP Address : 192.168.0.51" and other settings.

**Step 2.** Download the configurations for 1761-NET-ENI.

### 4.3 External device setting 3 (CPU Direct)

---

Set as below using "Control/CompactLogix Series" Ladder Software "RSLogix5000".

For more detailed setting method than that described in this example, refer to the PLC user manual.

**Step 1.** Right-click the CPU Direct Ethernet Port of [I/O Configuration] in the Project tree, "RSLogix5000" to select [Properties].

**Step 2.** Set "IP Address: 192.168.0.51" and other matters in [General] tab of the [Module Properties] dialog box.

**Step 3.** Download the settings.

## 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.

	Device notation	TOP Design Studio	→ Data Type File Number : Element
		Ladder Software "RSLogix5000"	→ Tag Name[Element]

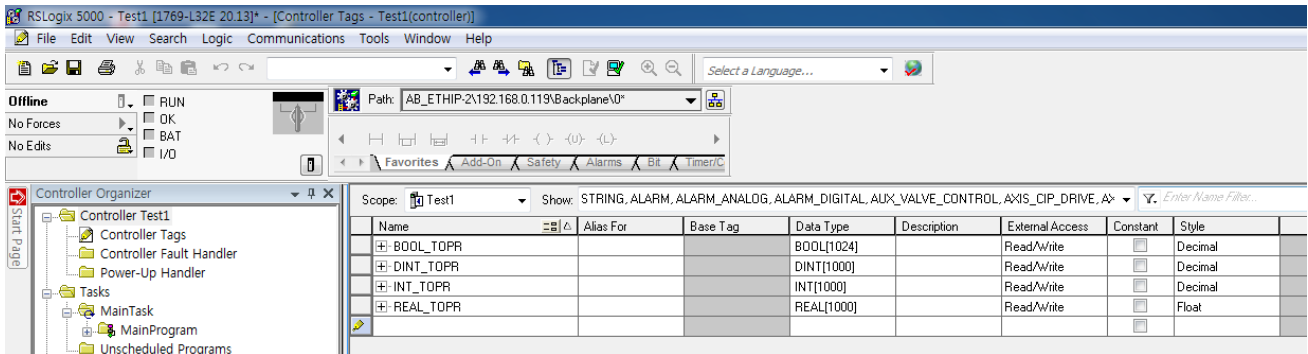
Device	Bit Address	Word Address	32 bits	Remarks
BOOL	BOOL000:00000 – BOOL999:31999	BOOL000:00000 – BOOL999:31999	L/H	
INT	INT000:000/00 – INT999:999/15	INT000:000 – INT999:999		
REAL		REAL000:000 – REAL999:999		
DINT	DINT000:000/00 –DINT999:999/31	DINT000:000 – DINT999:999		

☞ Continued on next page.

※ For communication between TOP and “Control/Compact Logix Series”, [File Number]: [Element] must be set in the corresponding tag. The setting method is as follows.

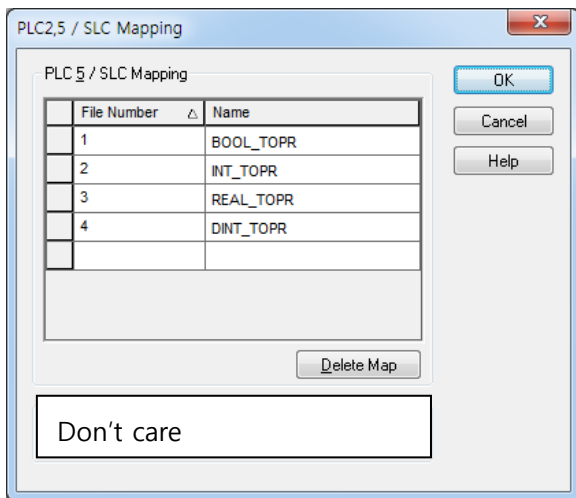
Execute the below in “Control/Compact Logix Series” Ladder Software “RSLogix5000”.

■ Execute [Logic] > [Edit Tags] to create a tag to be used for communication between TOP and Control/Compact Logix.



Items	Contents	
Name	This is the name of the tag used in “RSLogix5000”. (user definition).g For communication connection with TOP, File Number must be mapped to the corresponding tag. ☞ Refer to “■ Map PLC/SLC Messages”.	
Data Type	BOOL	32Bit Data
	DINT	Double Word Data
	INT	Word Data
	REAL	Float data

■ Execute [Logic] > [Map PLC/SLC Messages] to map the tags created in [Edit Tags].



Tag address in TOP Design Studio when set as in this example.

Tag	TOP Design Studio
BOOL_TOPR	BOOL001:00000 ~ BOOL001:01023
INT_TOPR	INT002:000 ~ INT002:999
REAL_TOPR	REAL003:000 ~ REAL003:999
DINT_TOPR	DINT004:000 ~ DINT004:999