ODVA

Ethernet/IP Explicit Messageing Driver

Supported version TOP Design Studio V1.4.11.51 or higher

CONTENTS

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

1. System configuration

The system configuration of TOP and "ODVA –Ethernet/IP Explicit Messaging Driver" is as follows:

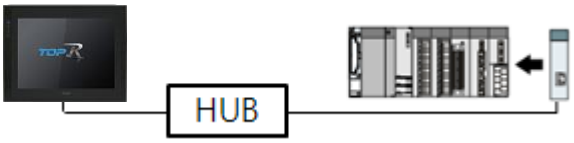
Series	CPU	Link I/F	Communication method	Communication setting	Cable
Ethernet/IP Explicit Messaging	Explicit message server-	Ethernet port on the External Device	TCP	3. TOP communication setting	Twisted pair Cable*Note 1)

*Note 1) Twisted pair cable

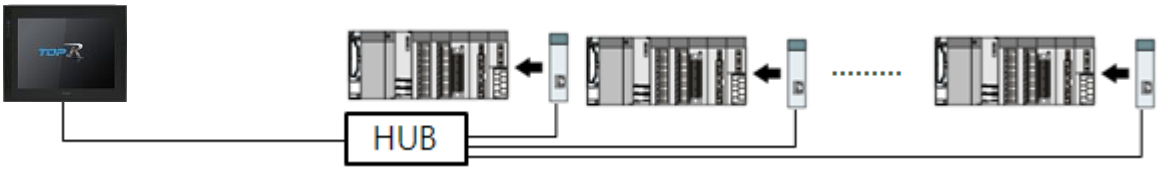
- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.
- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

■ Connectable configuration

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

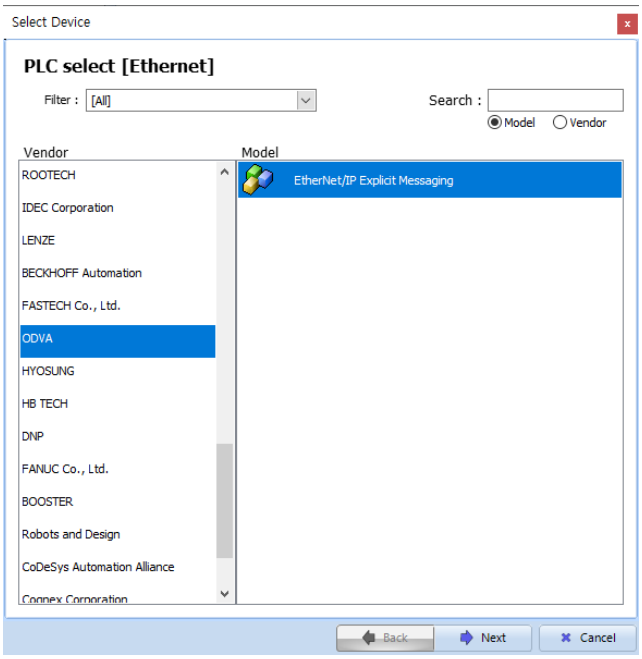


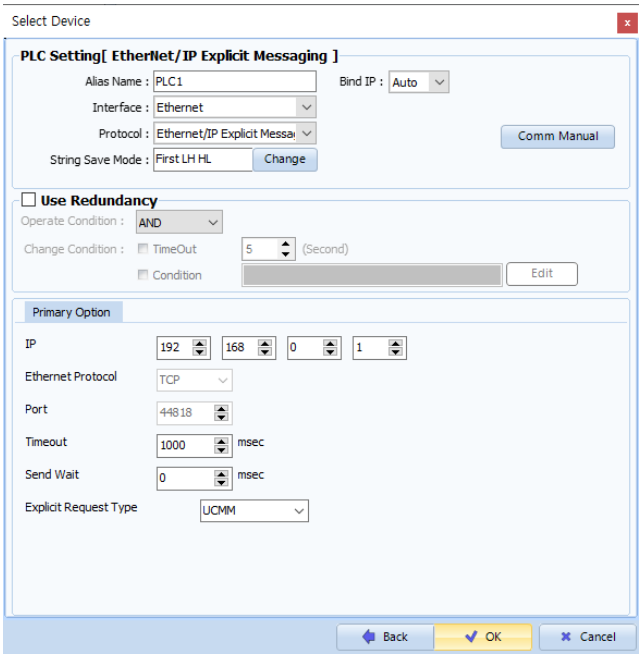
・1:N connection (one TOP and multiple external devices) connection



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. Select "ODVA".
	PLC	Select the external device to be connected to the TOP. **Model** / **Interface** / **Protocol** Ethernet/IP Explicit Messaging / Ethernet / Ethernet/IP Explicit Messaging 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.

3. TOP communication setting

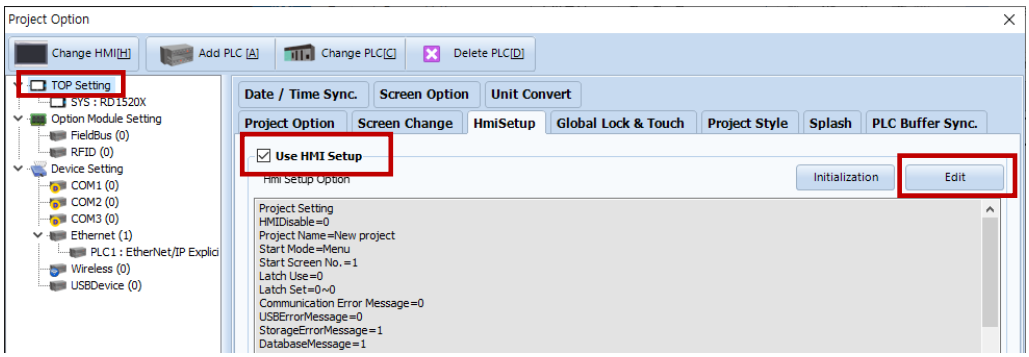
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

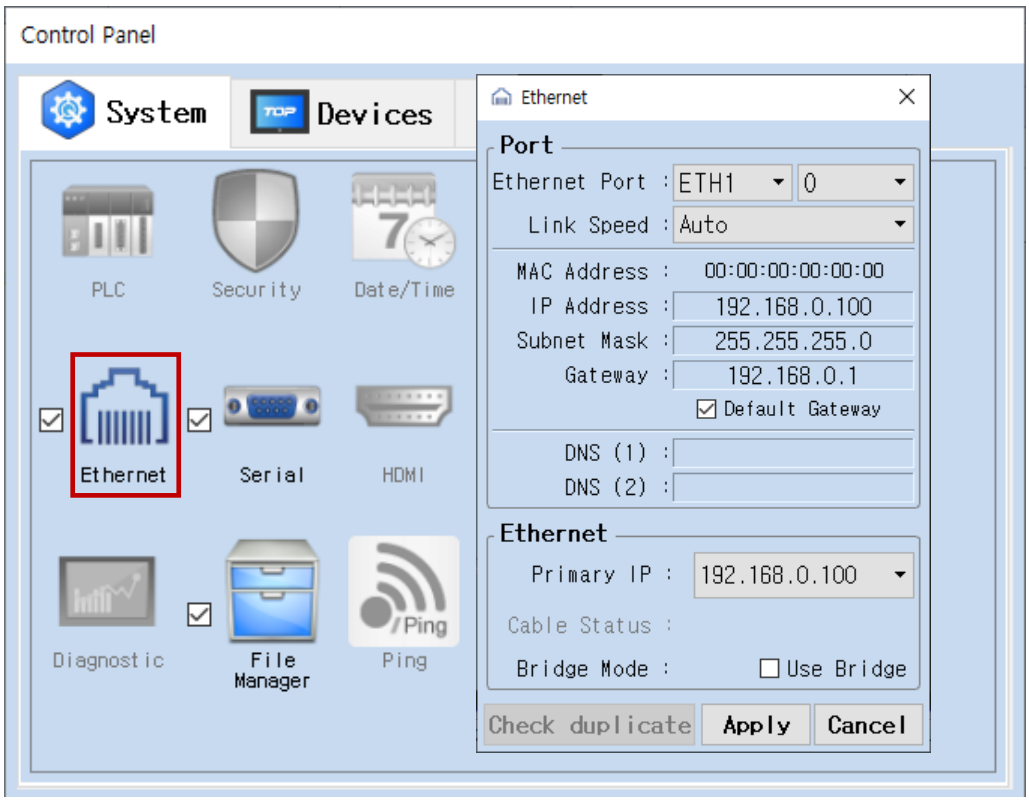
3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project > Project Property > TOP Setting] → [Project Options > "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	192.168.0.51	
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.

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

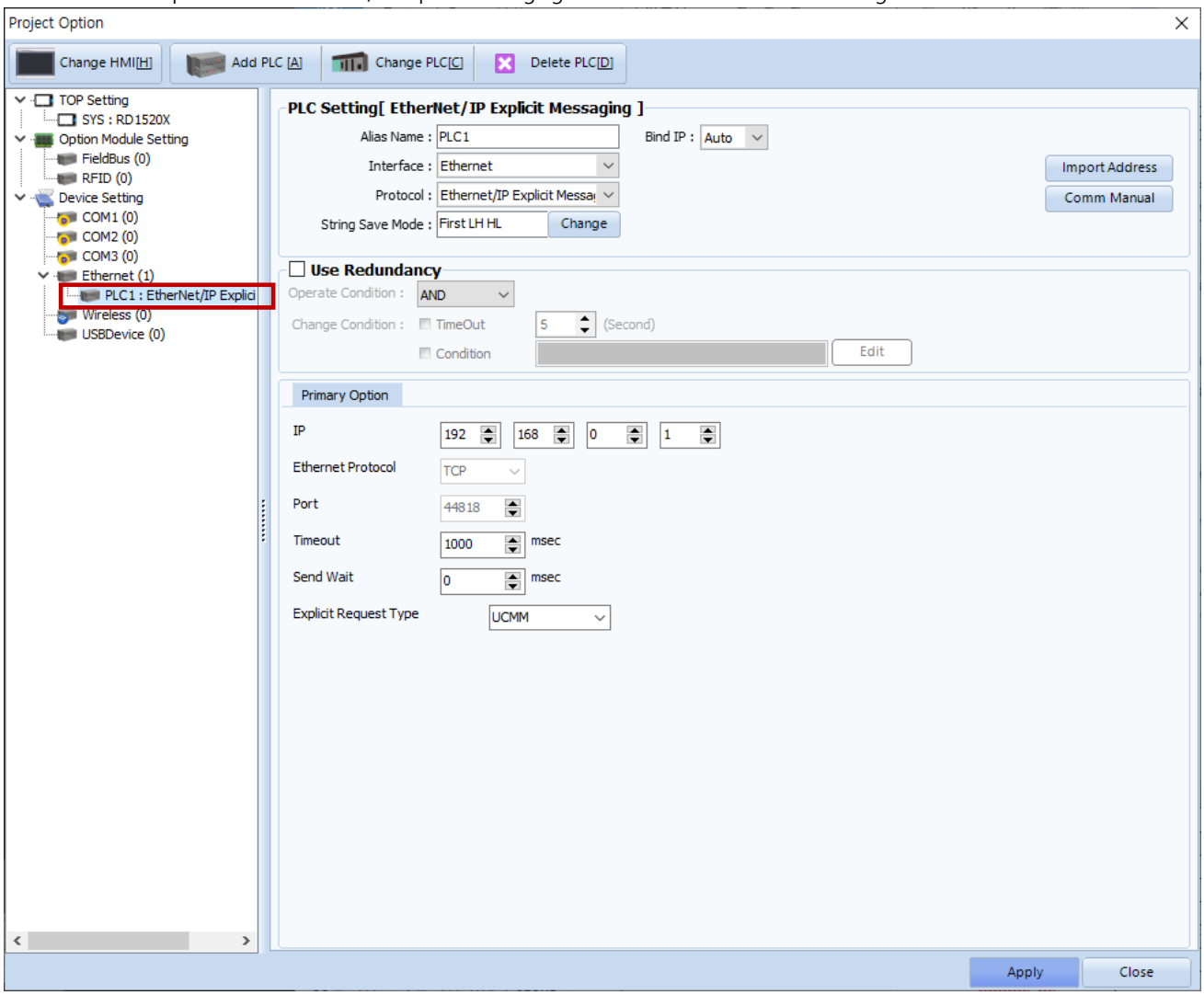
* The above settings are examples recommended by the company.

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 : Ethernet/IP Explicit Messaging"]

– Set the options of the Ethernet/IP Explicit Messaging communication driver in TOP Design Studio.

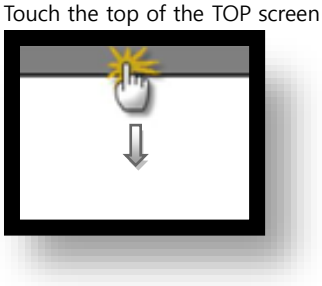


Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection".
Protocol	Select "Ethernet/IP Explicit Messaging".	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	Fixed
Port	Enter the Ethernet communication port number of an external device.	Fixed
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.	
Explicit Request Type	Set Explicit Messaging communication connection type.	

3.2. Communication setting in TOP

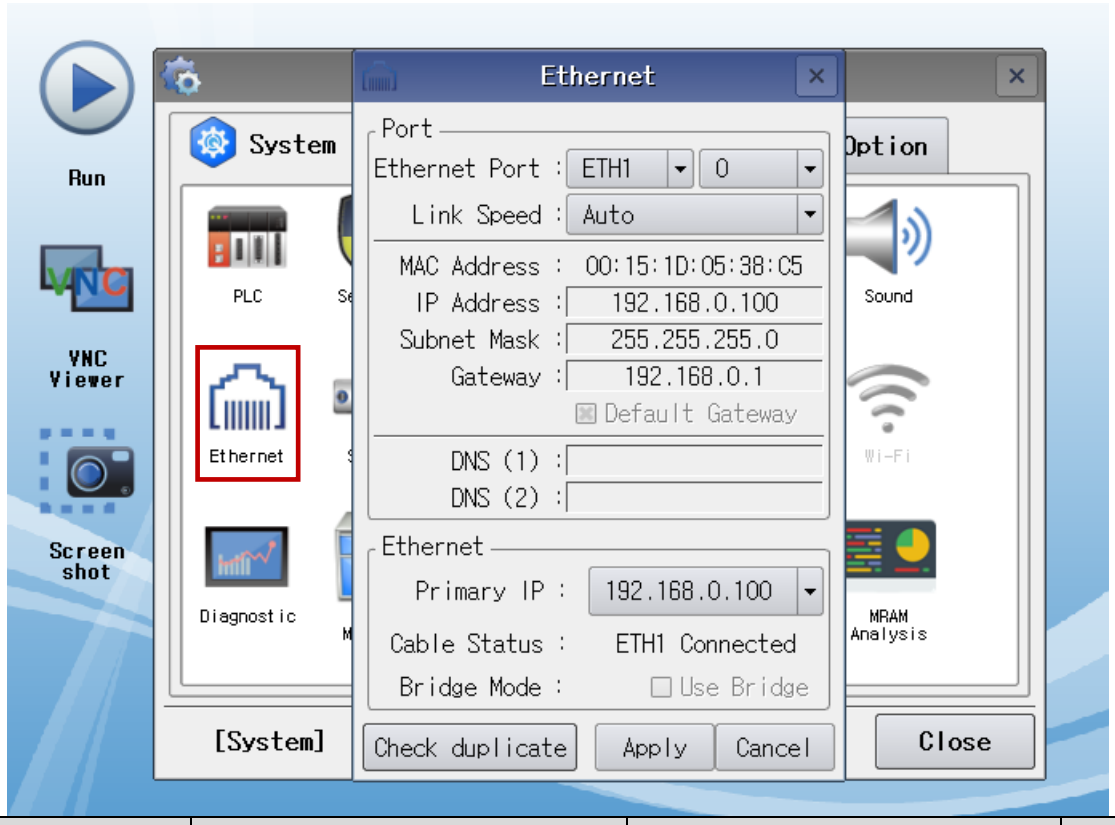
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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	192.168.0.51	
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.

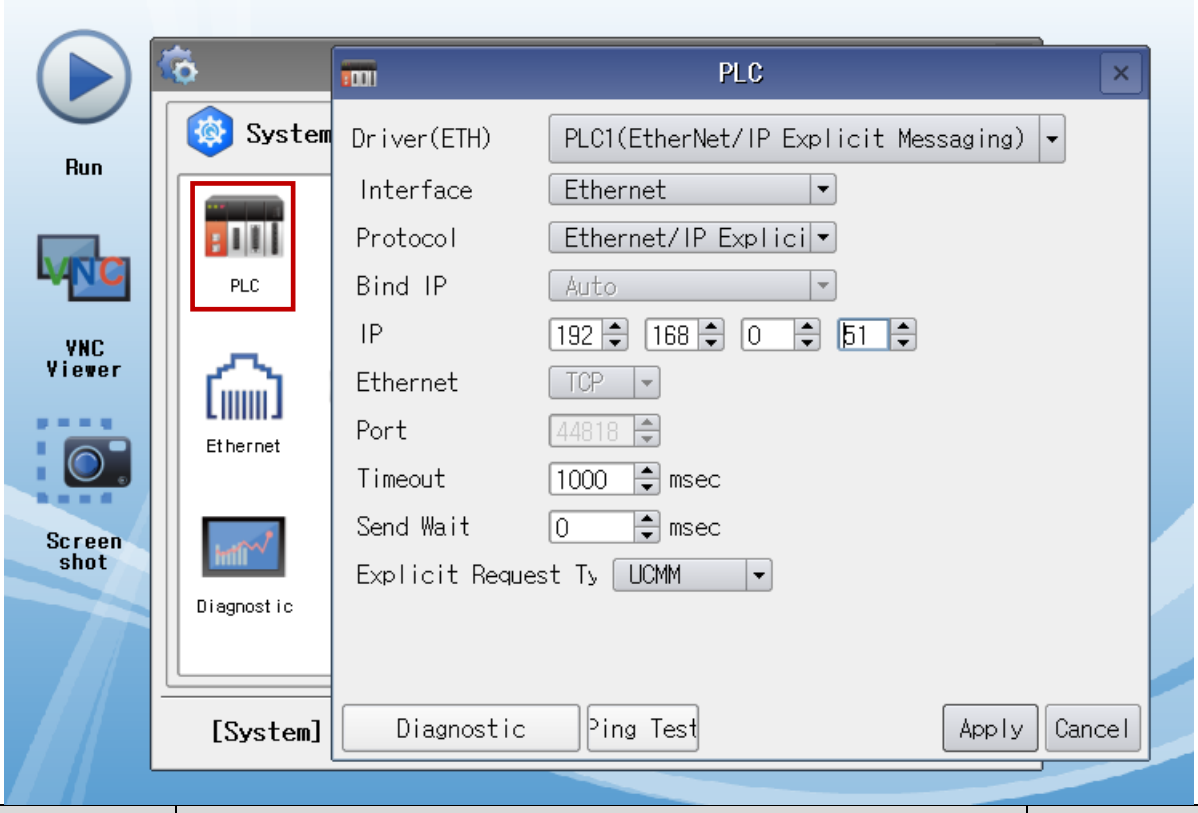
*Note 2) Do not use duplicate IP addresses over the same network.

* 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 Explicit Messaging".	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	Fixed
Port	Enter the Ethernet communication port number of an external device.	Fixed
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 request command request.	
Explicit Request Type	Set Explicit Messaging communication connection type.	*Note 1)

*Note 1)

UCMM : Unconnected Message Manger

Connected : Class 3

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. 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.

■ Support Class

Class Name	Class (Hex)	Class Name	Class (Hex)
Identity	01	Message Router	02
DeviceNet	03	Assembly	04
Connection	05	Connection Manager	06
Register	07	Discrete Input Point	08
Discrete Output Point	09	Analog Input Point	0A
Analog Output Point	0B	Presence Sensing	0E
Parameter	0F	Parameter Group	10
Group	12	Discrete Input Group	1D
Discrete Output Group	1E	Discrete Group	1F
Analog Input Group	20	Analog Output Group	21
Analog Group	22	Position Sensor	23
Position Controller Supervisor	24	Position Controller	25
Block Sequencer	26	Command Block	27
Motor Data	28	Control Supervisor	29
AC/DC Drive	2A	Acknowledge Handler	2B
Overload	2C	Softstart	2D
Selection	2E	S-Device Supervisor	30
S-Analog Sensor	31	S-Analog Actuator	32
S-Single Stage Controller	33	S-Gas Calibration	34
Trip Point	35	File	37
S-Partial Pressure	38	Connection Configuration	F3
Port	F4	TCP/IP Interface	F5
Ethernet Link	F6	Vendor defined	-

■ Supported data type

Data Type	Byte Size	Remarks
BOOL	1 Byte	*Note 1)
SINT	1 Byte	
INT	2 Byte	
DINT	4 Byte	
REAL	4 Byte	
USINT	1 Byte	
UINT	2 Byte	
UDINT	4 Byte	
BYTE	1 Byte	
WORD	2 Byte	
DWORD	4 Byte	
STRING	1 byte per character	
SHORT_STRING	1 byte per character, 1 byte length indicator	
STRUCT	-	*Note 2)

*Note 1) 0 : false (off) , 1 : true (on)

*Note 2)
Structural types defined in ODVA and external device documents

For STRUCT, use the same structure member type and array size as in ODVA and external device documents.
Structure definitions must be made in TOP Design Studio.

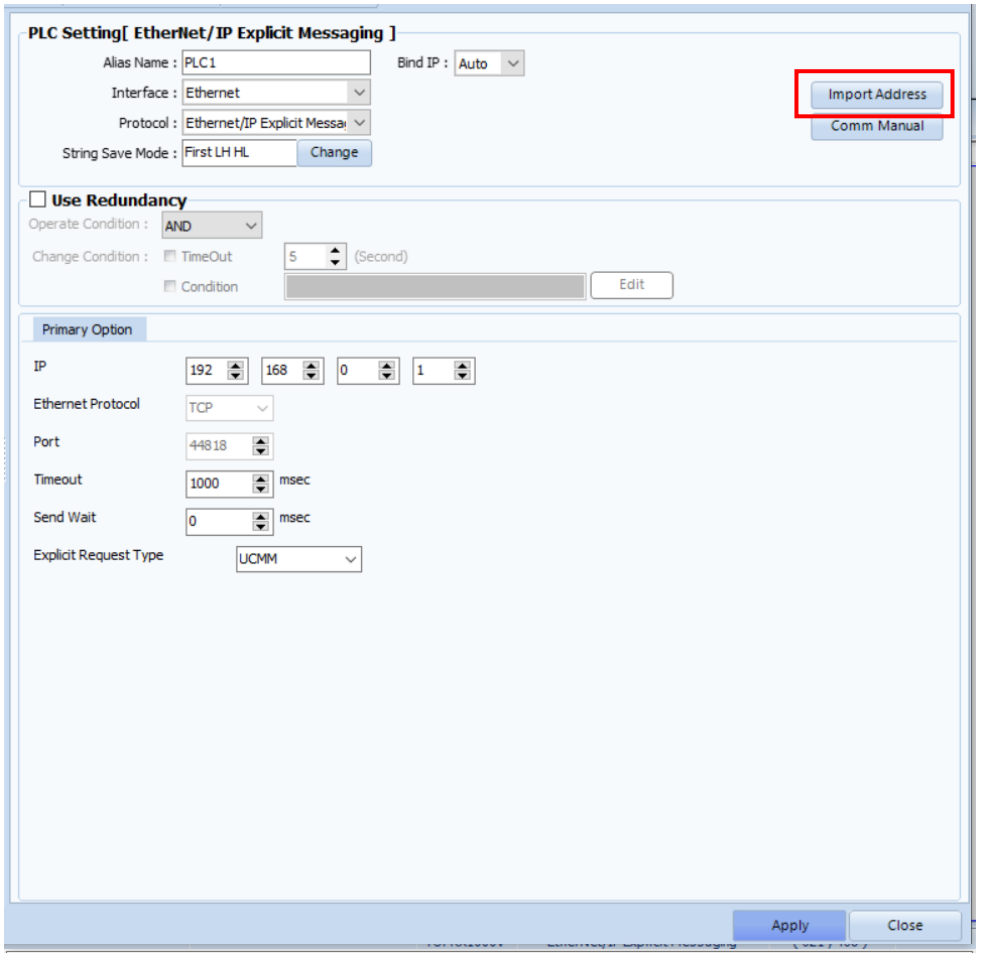
■ Support Service code

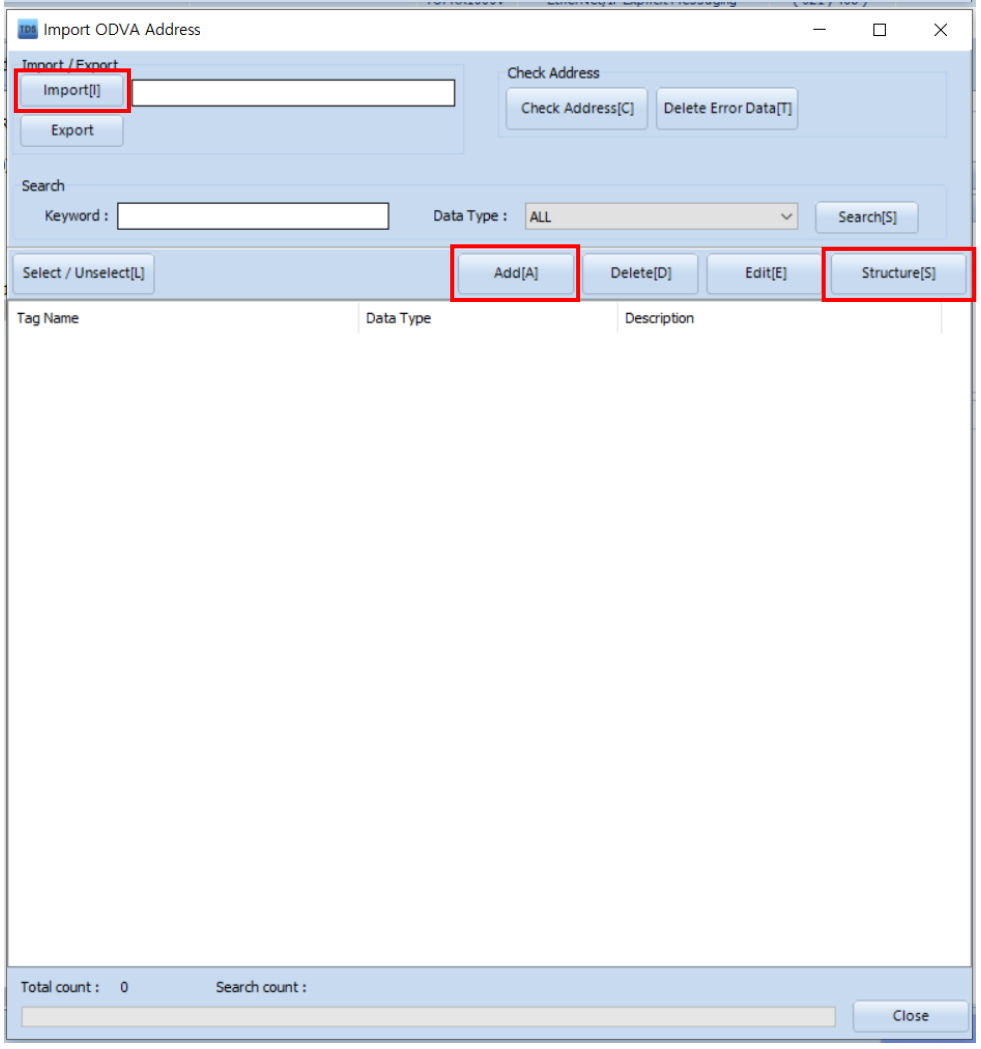
Get_Attribute_Single (0x0E)

Set_Attribute_Single (0x10)

■ TOP Design Studio Address Registration Method

. In TOP Design Studio, run "Import Addresses" in the PLC communication settings.





“ ODVA Import Address Window Function Description

Export : Export the ODVA address currently registered in TOP Design Studio to a CSV file.

Import : Import the exported ODVA address CSV file from TOP Design Studio.

Structure: Defines structure type. (Same definition as the structure of the external device.)

Add: Add ODVA address.

When adding an address, set and add the Class ID, Instance ID, Attribute ID, and DataType that you want to use to communicate with the external device.