Booster Boiler

CONTENTS

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

1. System configuration

The system configuration of TOP and "Booster – Booster Boiler" is as follows:

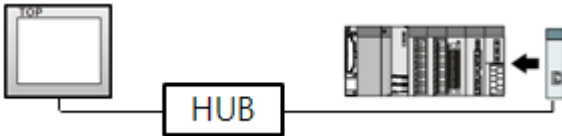| Series	Communication method	Communication setting	Cable
Booster – Booster Boiler	TCP	3. TOP communication setting	Twisted pair Cable*Note 1)

*Note 1) Twisted pair cable

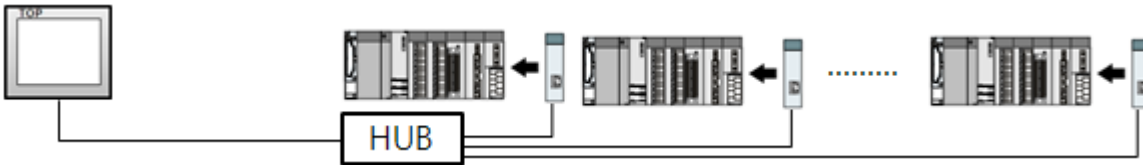- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.

- 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

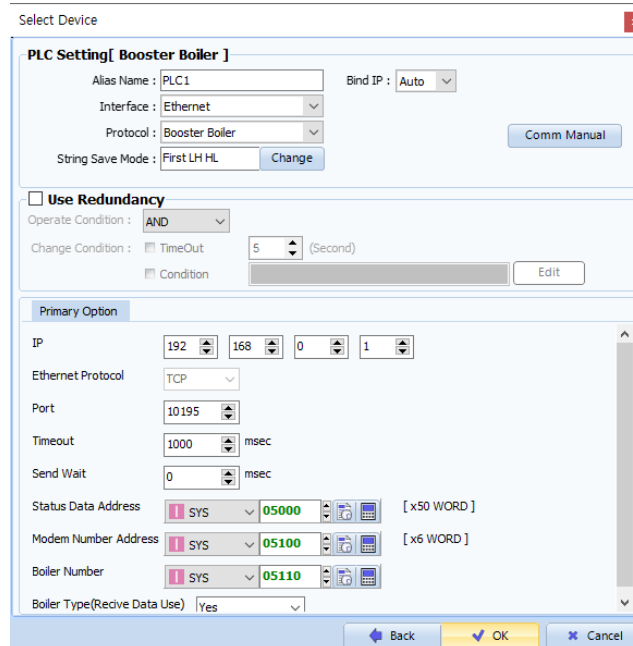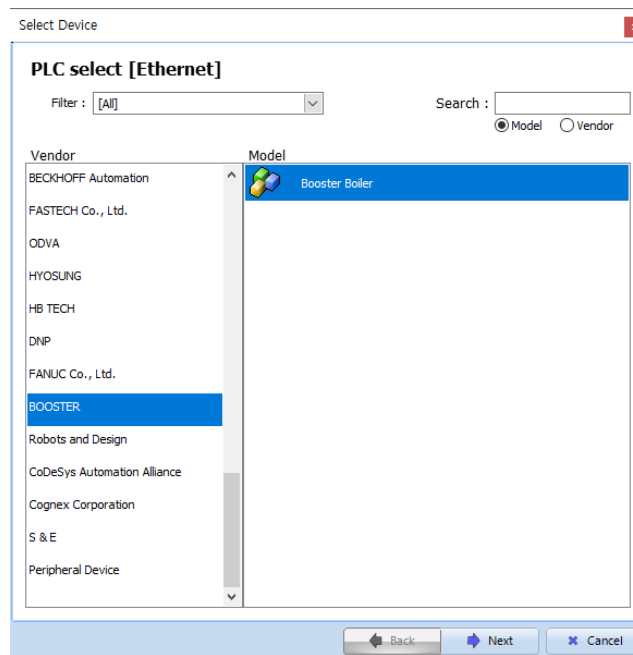· 1:1 connection (one TOP and one external device) connection

· 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 "BOOSTER".
	PLC	Select the external device to be connected to the TOP. **Model** Booster Boiler / **Interface** Ethernet / **Protocol** Booster Boiler 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.

The PLC sub-table:

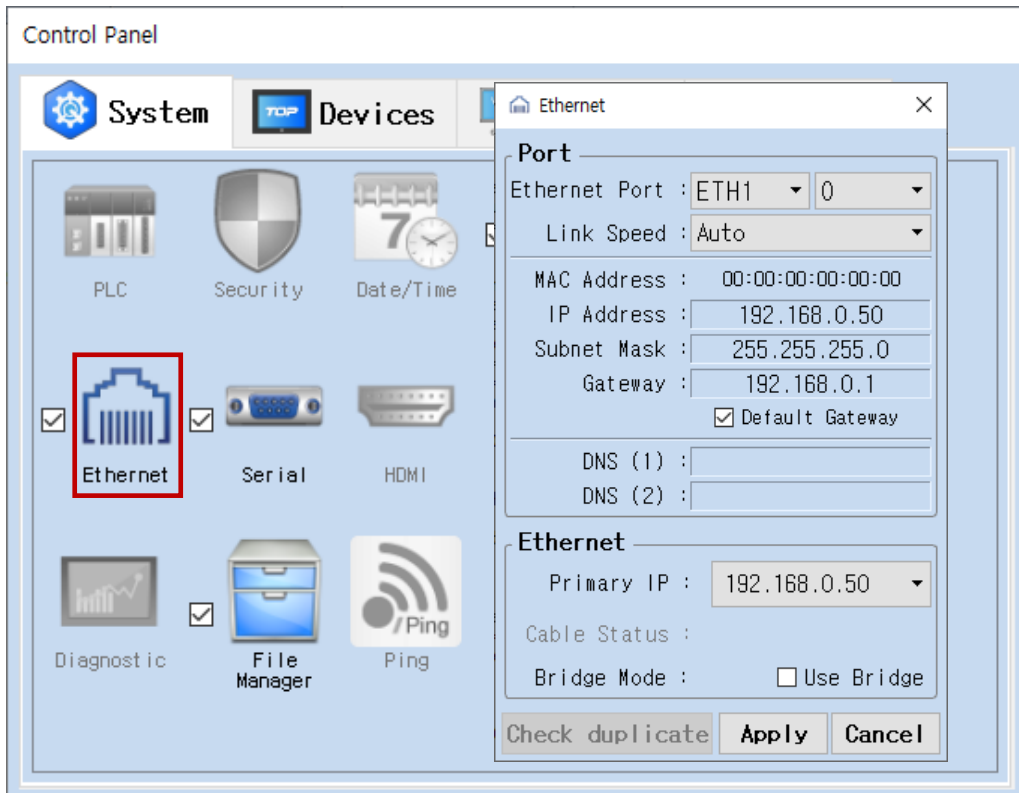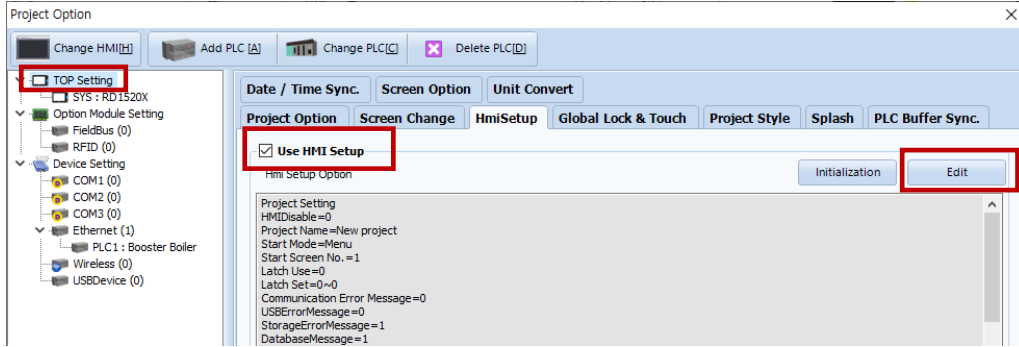| Model	Interface	Protocol
Booster Boiler	Ethernet	Booster Boiler

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)	192.168.255.50	192.168.255.1	
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.
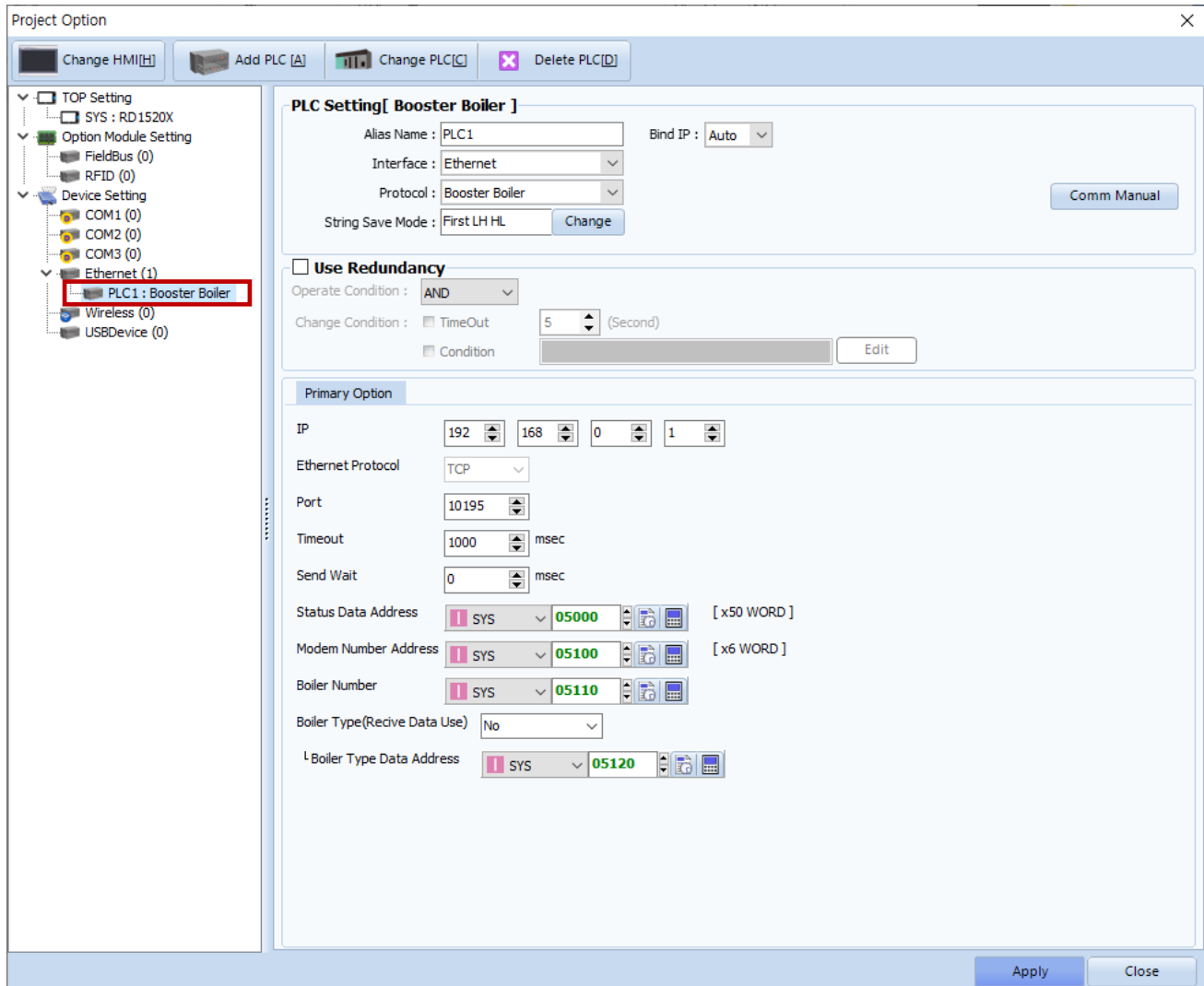
*Note 2) Do not use duplicate IP addresses over the same network.

  * 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 : Booster Boiler"]
  – Set the options of the Booster Boiler communication driver in TOP Design Studio.
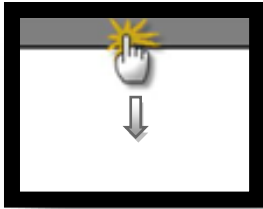

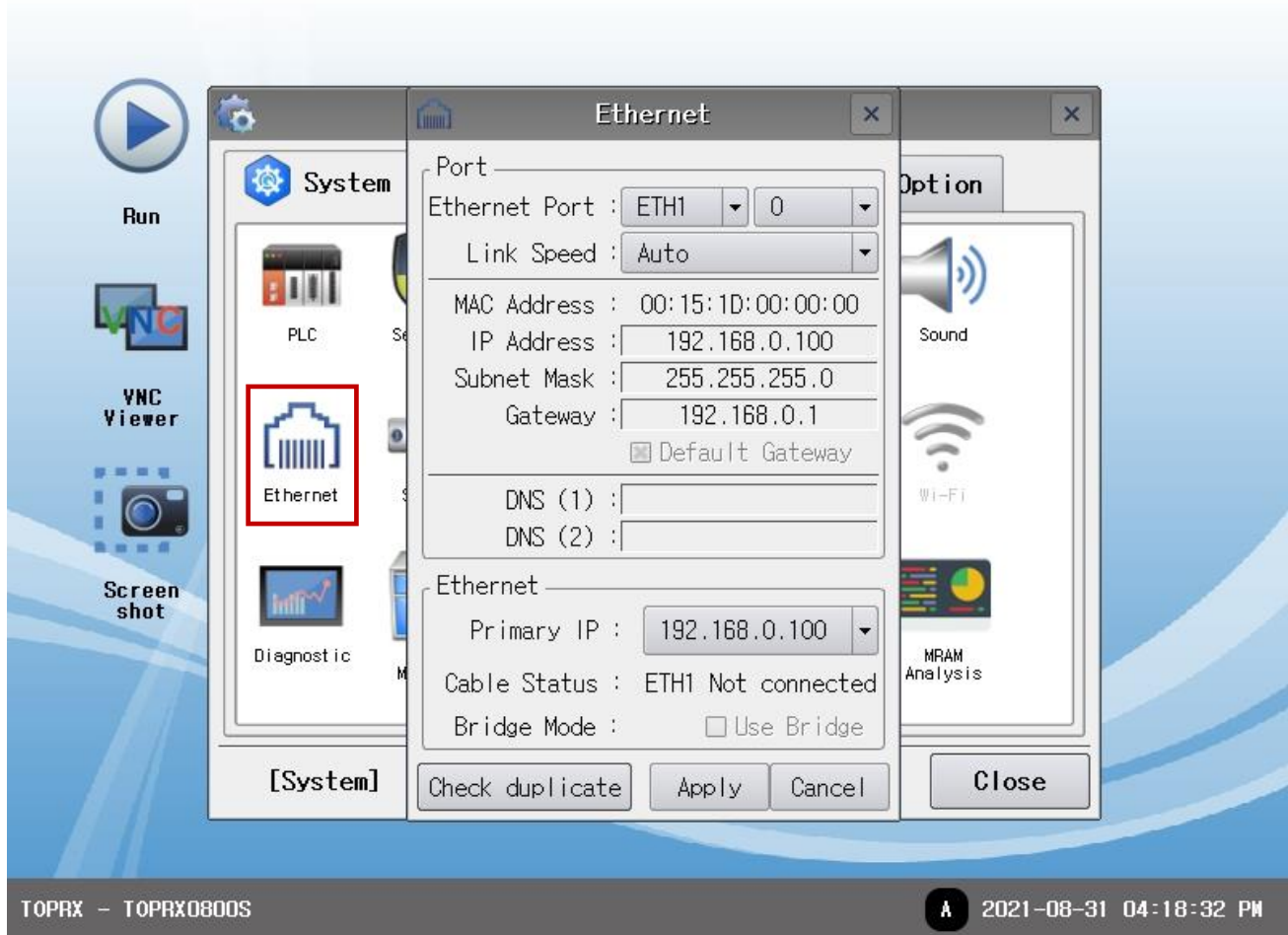| Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection".
Protocol	Select "Booster Boiler".	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Select the Ethernet protocol between the TOP and an external device.	Fixed
Port	Enter the Ethernet communication 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.	
Status Data Address	Configure an address that contains booster boiler status information.	
Modem Address	Set the modem address.	
Boiler Number	Set the boiler product number address	
Boiler Type (Recive Data Use)	Determine whether to send the boiler data as the received type or a custom type. **(For custom type, configure as Boiler Type Data Address shown below)**	
Boiler Type Data Address	If "No" is selected for boiler type (receive data use), send the boiler data as the SYS address value configured by the user.	

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)	192.168.255.50	192.168.255.1	
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.
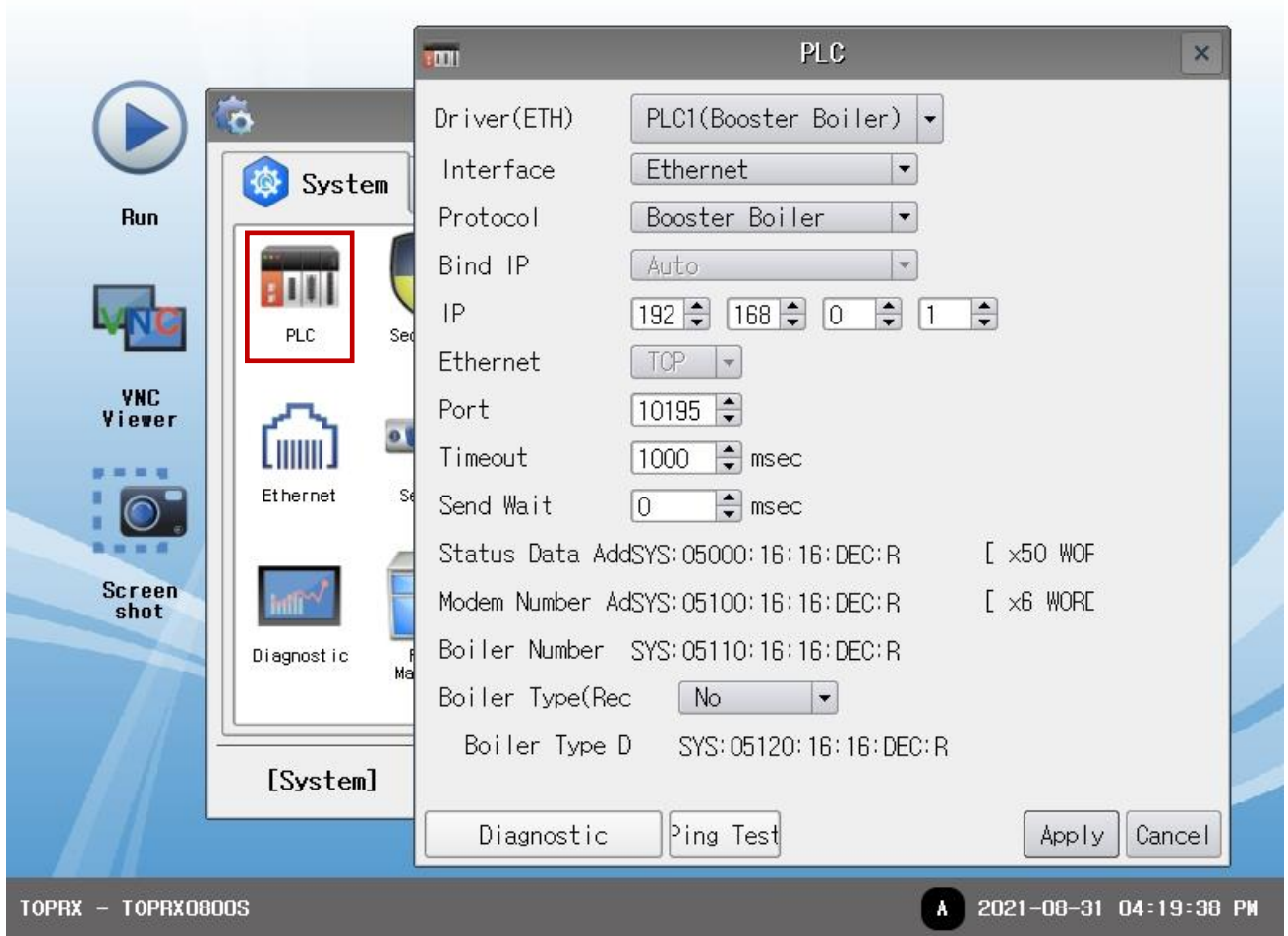
*Note 2) Do not use duplicate IP addresses over the same network.

　 * 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	Select "Booster Boiler".	
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.	
Status Data Address	Configure an address that contains booster boiler status information.	
Modem Address	Set the modem address.	
Boiler Number	Set the boiler product number address	
Boiler Type (Recive Data Use)	Determine whether to send the boiler data as the received type or a custom type. **(For custom type, configure as Boiler Type Data Address shown below)**	
Boiler Type Data Address	If "No" is selected for boiler type (receive data use), send the boiler data as the SYS address value configured by the user.	

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	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	Relative prefix	Project setting	OK	NG	2. External device selection
		Communication diagnostics	OK	NG	3. Communication setting
	Ethernet port setting	IP Address	OK	NG	
		Subnet Mask	OK	NG	
		Gateway	OK	NG	
External device	CPU name		OK	NG	
	Communication port name (module name)		OK	NG	
	Protocol (mode)		OK	NG	
	Setup Prefix		OK	NG	4. External device setting
	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.

Device	Address range	Description	Remarks
DATETIME	DATETIME0 ~ DATETIME5	DATETIME0: year DATETIME1: month DATETIME2: day DATETIME3: hour DATETIME4: minute DATETIME5: second	
START	START0 ~ START0	Communication start trigger	Write-only

*Note) The DATATIME device must be registered on the drawing for communication to occur.

*DATATIME information reception server time

*Note) Communication occurs only when the START device write operation takes place.