

OPTICON

Barcode Scanner

Ethernet (Normal) Driver

Supported version TOP Design Studio V1.4.10.20 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 "OPTICON – Barcode Scanner" is as follows:

Series	Link I/F	Communication method	System setting	Cable
NLV-□□□□	Serial To Ethernet Converter	TCP	3. TOP communication setting 4. External device setting	Twisted pair cable* Note 1)

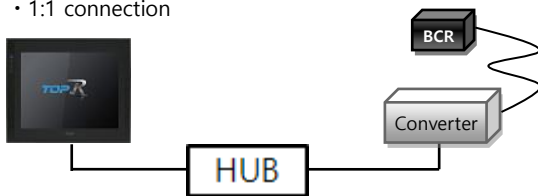
*[Note 1\)](#) Twisted pair cable

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

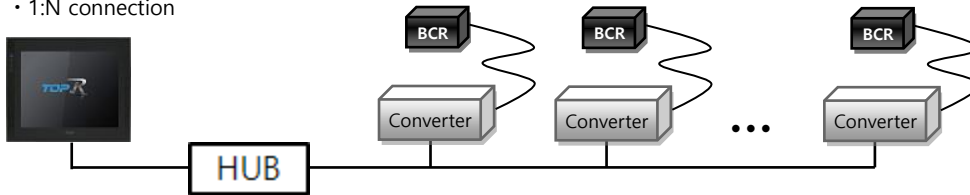
- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

■ Connectable configuration

- 1:1 connection

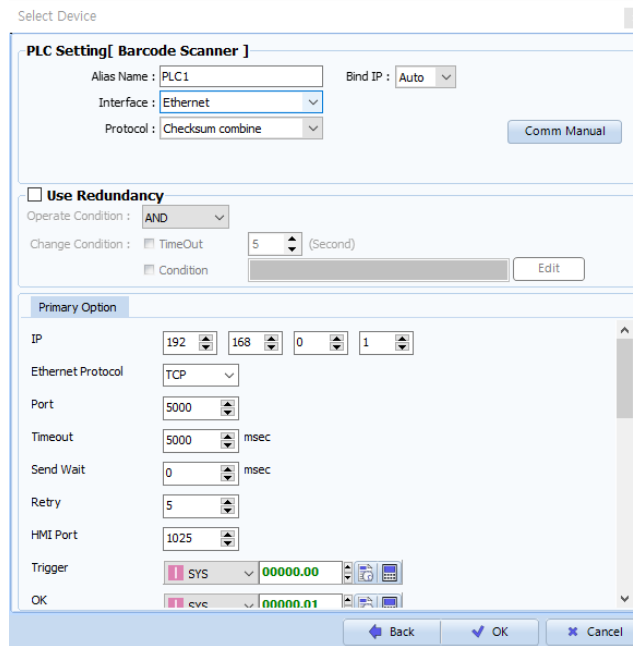
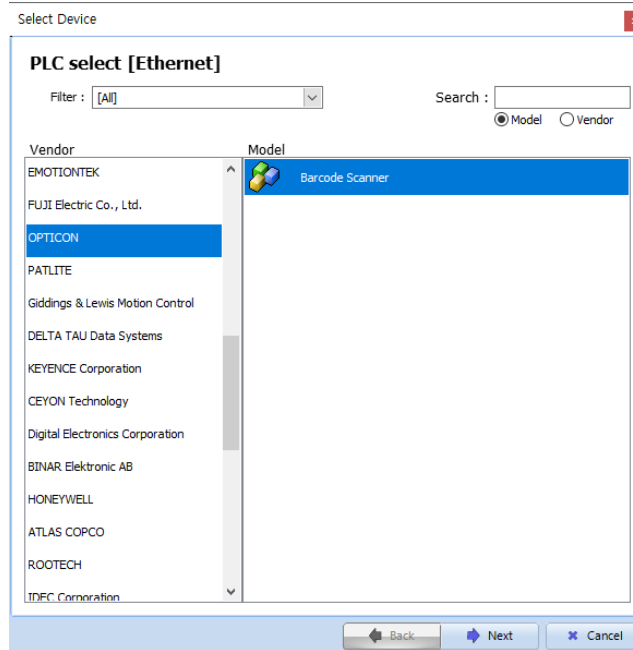


- 1:N connection



2. External device selection

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



Settings		Contents					
TOP	Model	Select the TOP model.					
External device	Vendor	Select the vendor of the external device. Select "OPTICON".					
	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>Barcode Scanner</td> <td>Ethernet</td> <td>Checksum combine</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	Barcode Scanner	Ethernet
Model	Interface	Protocol					
Barcode Scanner	Ethernet	Checksum combine					

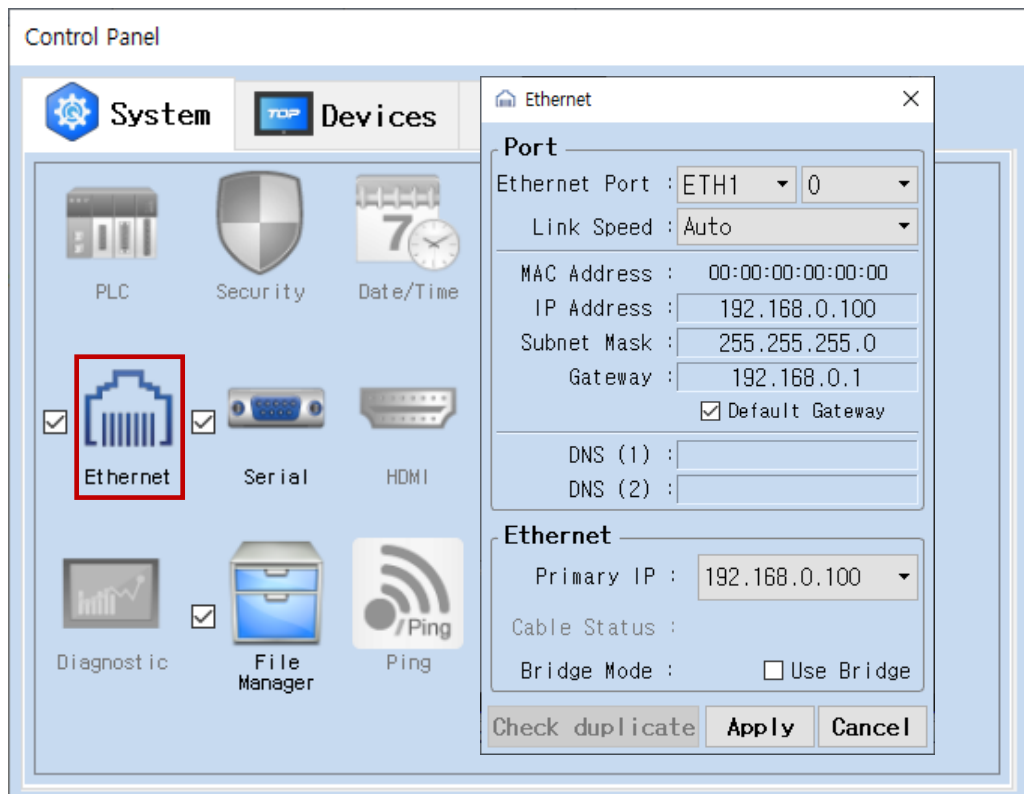
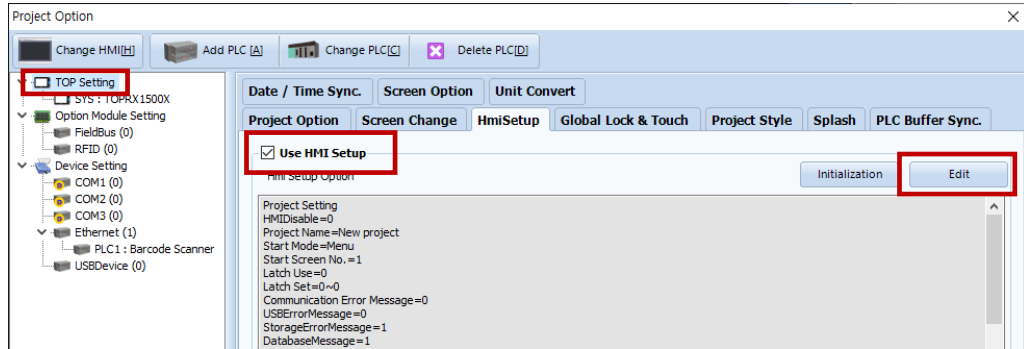
3. TOP communication setting

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] → [Property] → [TOP Setting] → [HMI Setup] → [Use HMI Setup Check] → [Edit] → [System] → [Ethernet]
- Set the TOP communication interface in TOP Design Studio.



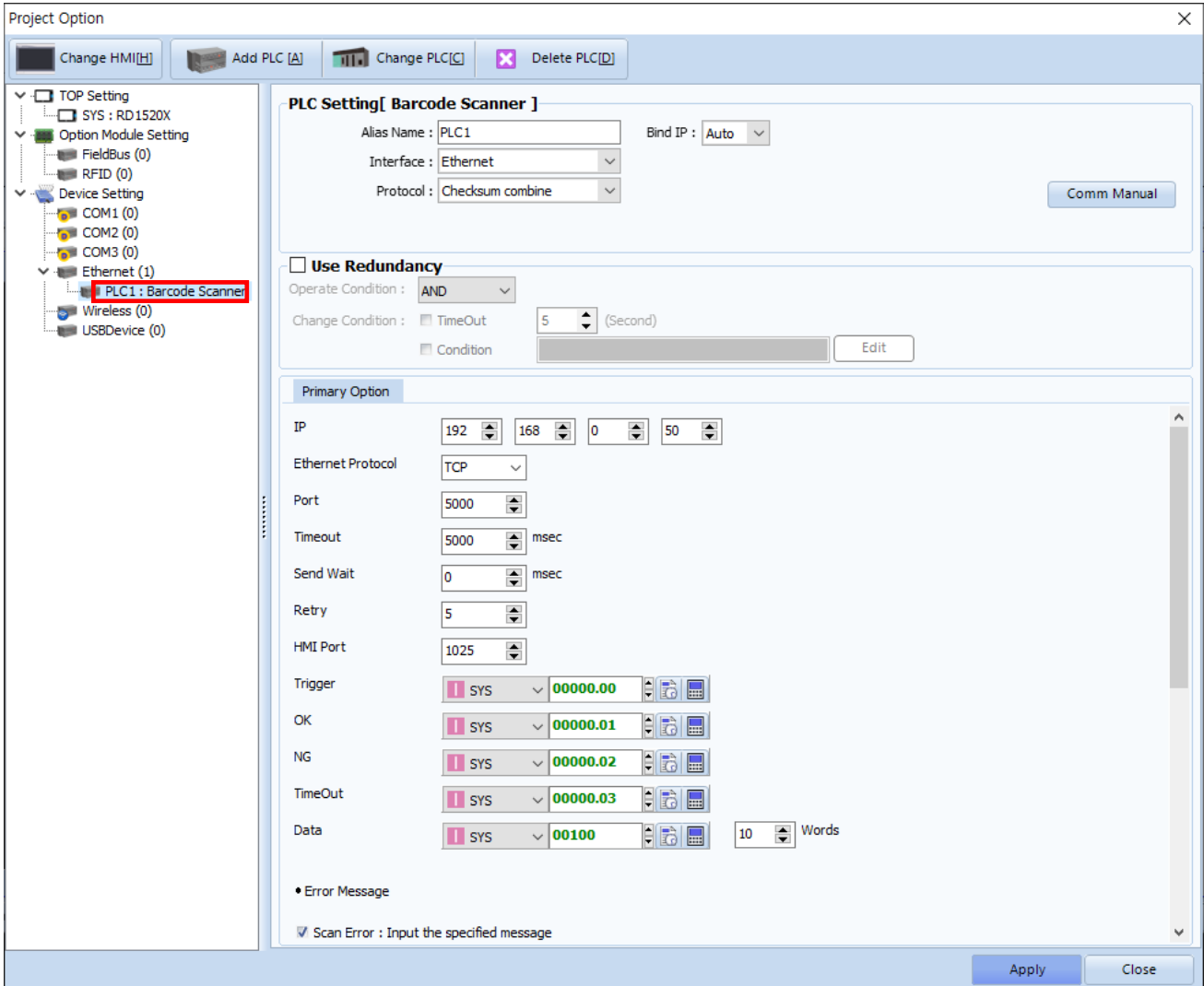
Items	TOP	External device	Remarks
IP Address	192.168.0.100	192.168.0.50	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

* The above settings are examples recommended by the company.

Items	Description
IP Address	Set the IP address of the TOP.
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 > Barcode Scanner]
 - Set the options of the Barcode Scanner communication driver in TOP Design Studio.



* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection" .
Protocol	Select the communication protocol between the TOP and an external device.	
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)
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Configures the number of attempts for data reception upon failure.	
Trigger	Configures the Bit address for executing barcode scan.	
OK	Configures the enabled Bit address upon successful barcode scan.	
NG	Configures the enabled Bit address upon failed barcode scan.	
TimeOut	Set the bit address which becomes ON when timeout occurs.	
Data	Configures the address and word length for entering barcode data.	

***Note 1)** Set it longer than the receiving queue time of the barcode scanner..

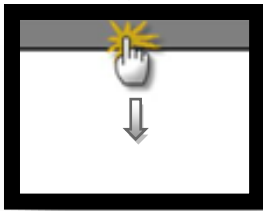
● Error Message

Enter designated message upon failed barcode scan.		
Scan Error : Input the specified Message	Configure to enable or disable.	
Message	Message	
Destination	Enter to data storage address.	
Enter reference message upon failed barcode scan.		
Scan Error : Input a message from address	Configure to enable or disable.	
Message	Message reference address	
Destination	Message input address	
Size	Configures the buffer size of the message reference/input address	Word
Enter designated message upon timeout.		
Time Out : Input the specified Message	Configure to enable or disable.	
Message	Message	
Destination	Enter to data storage address.	
Enter reference message upon timeout.		
Time Out : Input a message from address	Configure to enable or disable.	
Message	Message reference address	
Destination	Message input address	
Size	Configures the buffer size of the message reference/input address	Word

3.2. Communication setting in TOP

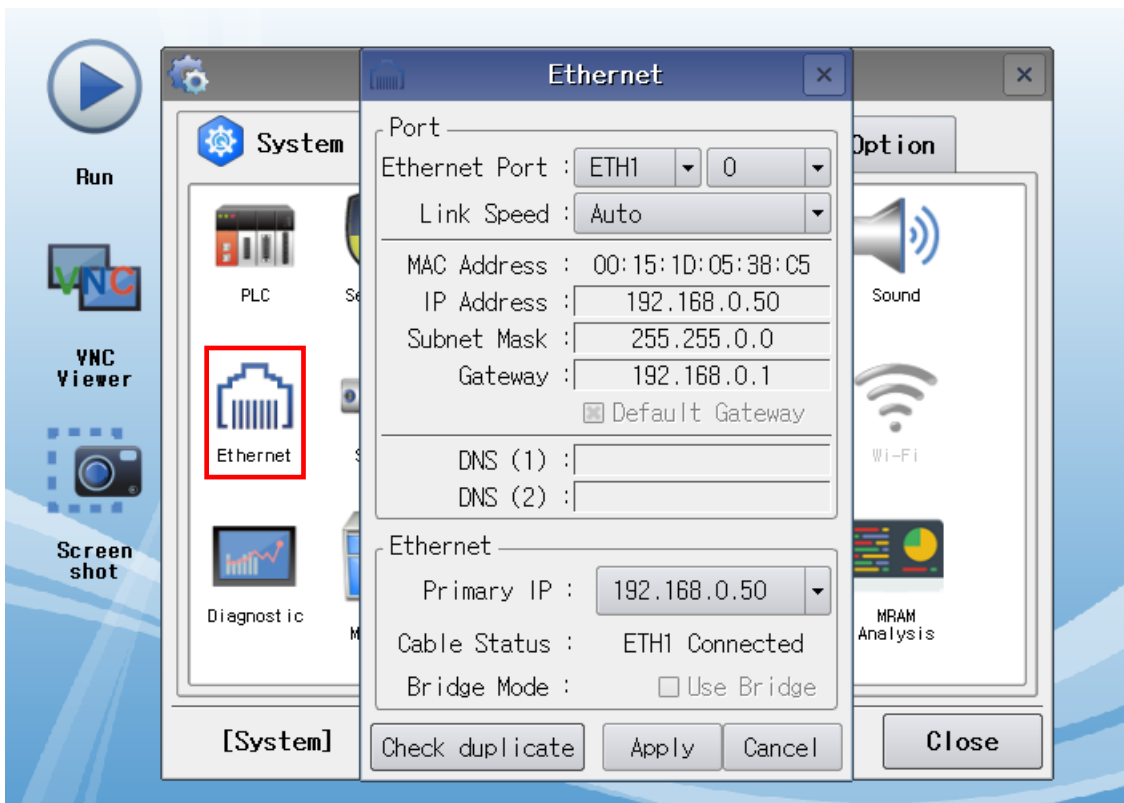
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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

- [Control Panel] → [System] → [Ethernet]



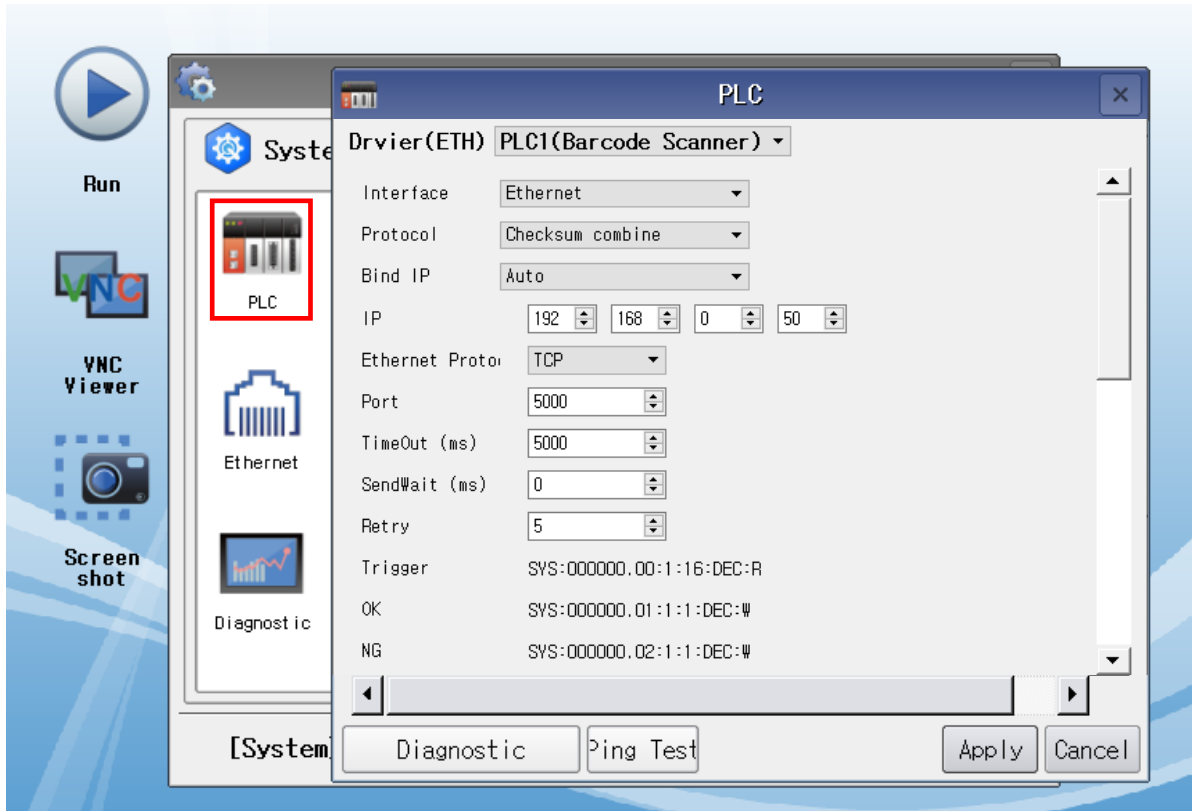
Items	TOP	External device	Remarks
IP Address	192.168.0.100	192.168.0.50	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

* The above settings are examples recommended by the company.

Items	Description
IP Address	Set the IP address of the TOP.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.

(2) Communication option setting

■ [Control Panel] → [System] → [PLC]



* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External device selection" .
Protocol	Select the communication protocol between the TOP and an external device.	
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)
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Trigger	Configures the Bit address for executing barcode scan.	
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*Note 1) Set it longer than the receiving queue time of the barcode scanner.

● Error Message

Enter designated message upon failed barcode scan.		
Scan Error : Input the specified Message	Configure to enable or disable.	
Message	Message	
Destination	Enter to data storage address.	
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Scan Error : Input a message from address	Configure to enable or disable.	
Message	Message reference address	
Destination	Message input address	
Size	Configures the buffer size of the message reference/input address	Word
Enter designated message upon timeout.		
Time Out : Input the specified Message	Configure to enable or disable.	
Message	Message	
Destination	Enter to data storage address.	
Enter reference message upon timeout.		
Time Out : Input a message from address	Configure to enable or disable.	
Message	Message reference address	
Destination	Message input address	
Size	Configures the buffer size of the message reference/input address	Word

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 that the settings of the connected ports in [Control Panel] → [System] → [Ethernet] are the same as the settings of the external device.

- Diagnosis of whether the port communication is normal or not
 - Touch "Communication Diagnostics" in [Control Panel] → [System] → [PLC].
 - Check whether communication is connected or not.

Communication diagnostics succeeded	Communication setting normal
Error message	Communication setting abnormal - Check the cable, TOP, and external device settings. (Refer to 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.

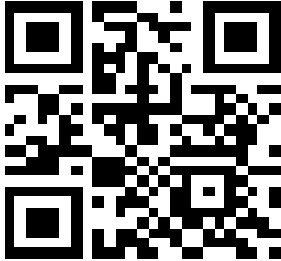
Items	Contents	Check		Remarks	
System configuration	How to connect the system	OK	NG	1. System configuration	
	Connection cable name	OK	NG		
TOP	Version information	OK	NG	2. External device selection 3. Communication setting	
	Port in use	OK	NG		
	Driver name	OK	NG		
	Other detailed settings	OK	NG		
	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		

4. External device setting

Configure the IP and port number of the external device by referring to the vendor's user manual.

Scan the barcodes below in order.

■ Initialize Barcode Scanner



■ Data format settings



* Data format

	A	B	C
Part	Data size (Length)	Code data	Checksum
Length	2 bytes	N bytes	2 bytes
Description	Length of (A+B+C) Hex number	Code data (Read result)	Exclusive OR of (A+B) Hex number