FUJI Electric Co., Ltd
MICREX-SX Series
Ethernet Driver

Supported version   TOP Design Studio   V1.4.4.0 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

Describes the devices required for connection, the setting of each device, cables, and configurable systems.

2. External device selection

Select a TOP model and an external device.

3. TOP communication setting

Describes how to set the TOP communication.

4. Supported addresses

Refer to this section to check the addresses which can communicate with an external device.

1. System configuration

The system configuration of TOP and "FUJI Electric Co., Ltd – MICREX-SX Series" is as follows:

| Series	CPU	Link I/F	Communication method	System setting	Cable
MICREX-SX	SPH3000 SPH300 SPH2000 SPH200	CPU port	Ethernet (TCP/UDP)	3. TOP communication setting	Twisted pair cable *Note 1)
		NP1L-RS□ (General Purpose Communication Module)			

*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
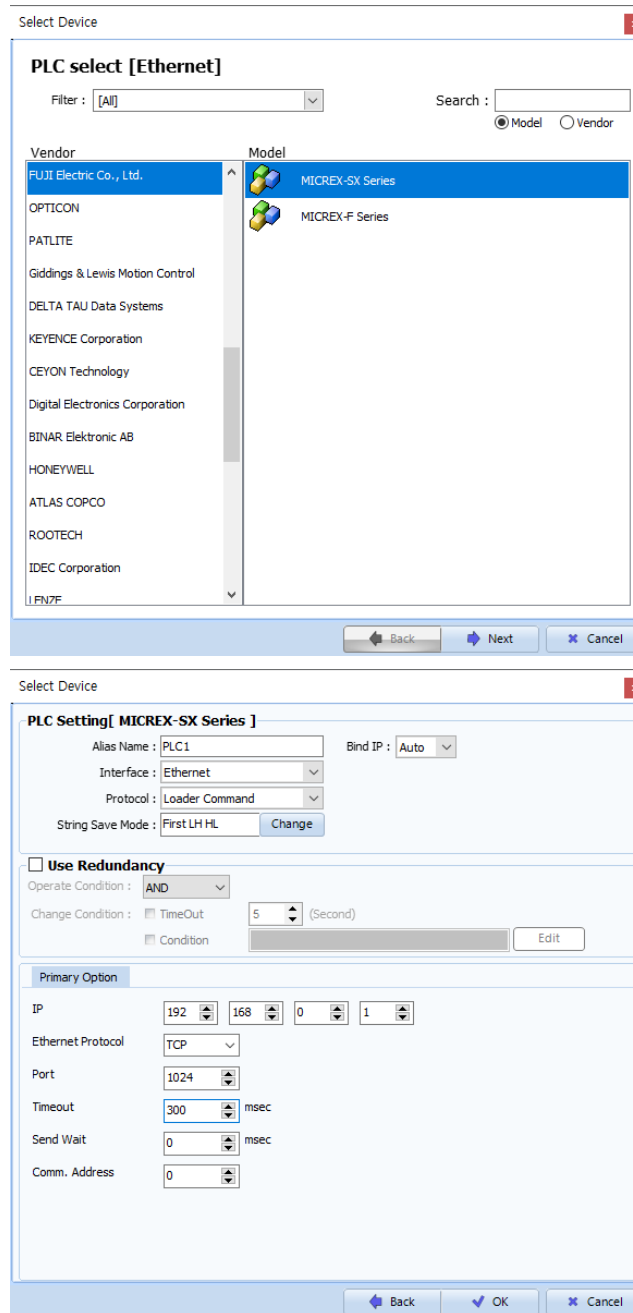
・1:1 (one TOP and one external device) connection
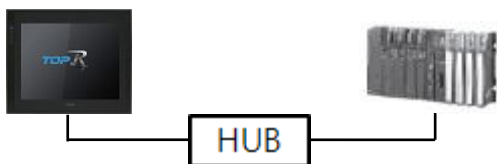
・1:N (one TOP and multiple external devices) connection
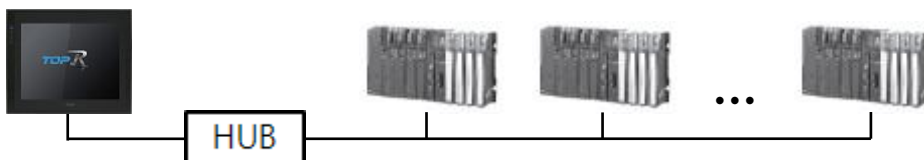
2. External device selection

■ 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 "FUJI Electric Co., Ltd".
	PLC	Select the external device to be connected to the TOP.

Model	Interface	Protocol
MICREX-SX Series	Ethernet	Loader Command

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 Option > "Use HMI Setup" Check > Edit > Ethernet]

   – Set the TOP communication interface in TOP Design Studio.
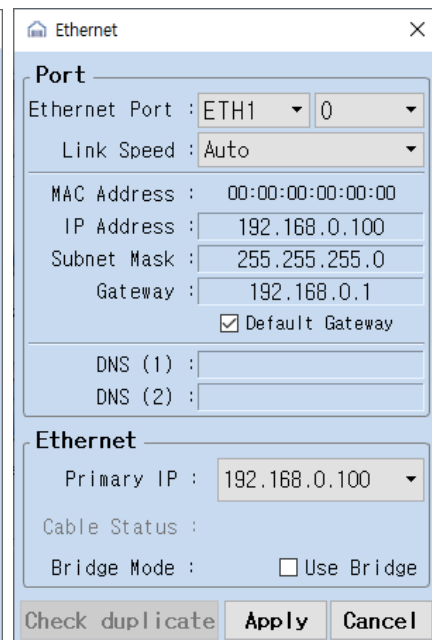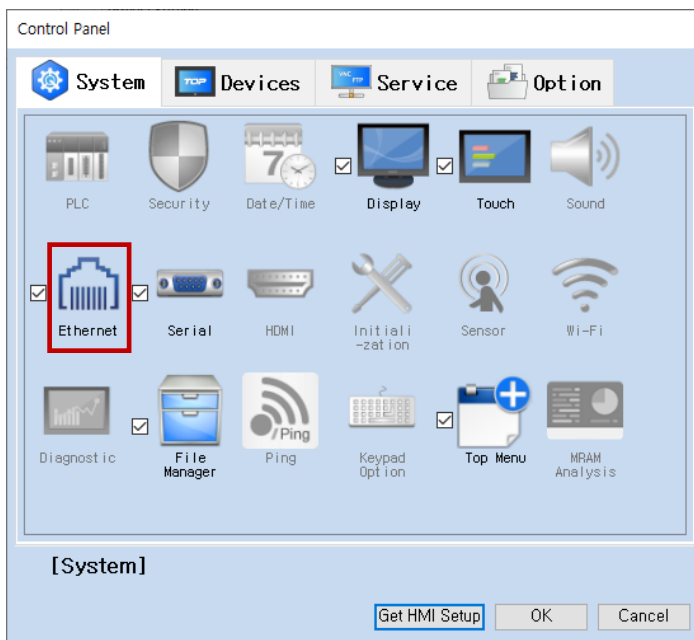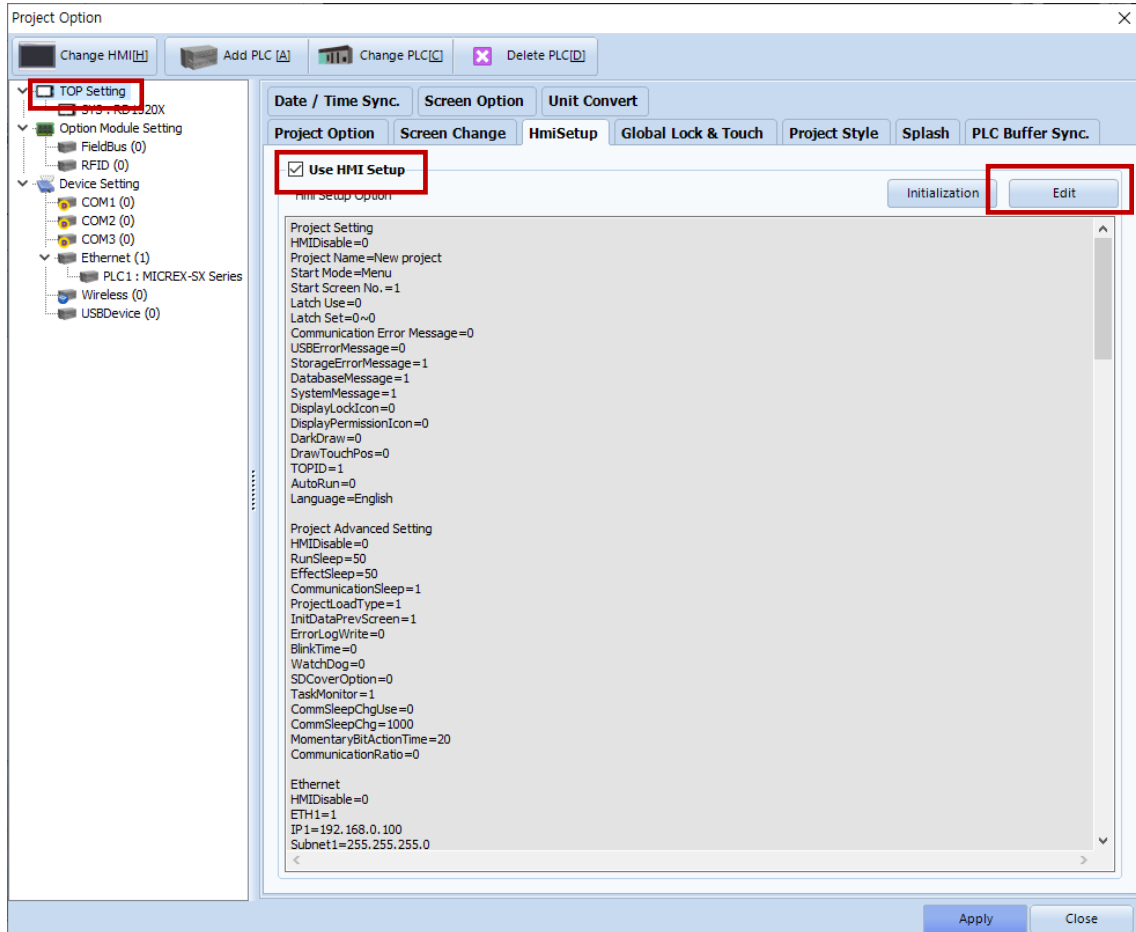
Items	TOP	External device	Remarks
IP Address*Note 1) Note 2)	192.168.0.50	192.168.0.51	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

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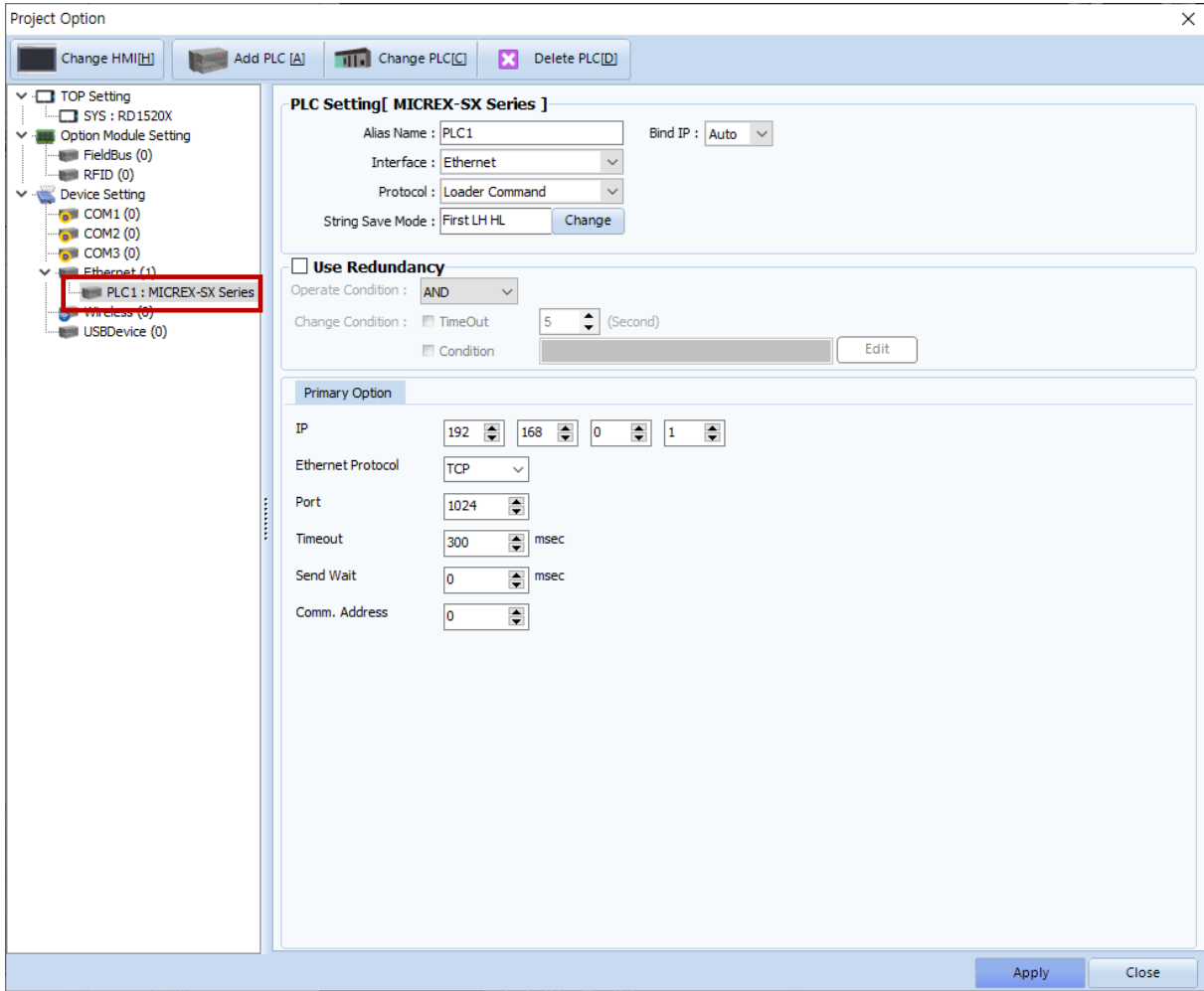
*Note 2) Do not use duplicate IP addresses over the same network.

* 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.

*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.

(2) Communication option setting

■ [Project > Project Property > Device Setting > ETHERNET(1) > "PLC1 : MICREX-SX Series"]

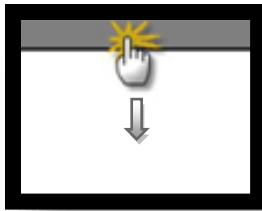– Set the options of the MICREX-SX Series communication driver in TOP Design Studio.

* The above settings are examples recommended by the company.

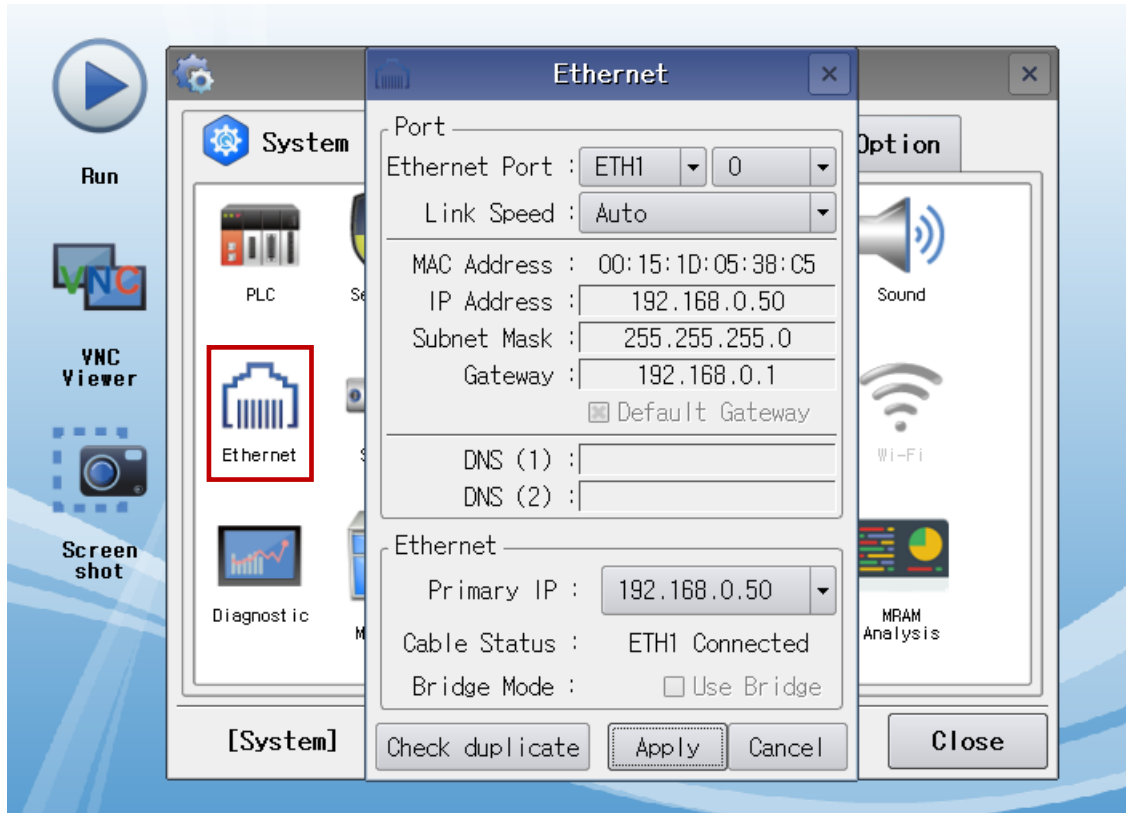| Items	Settings	Remarks
Interface	Select the TOP communication interface.	Refer to "2. External device selection".
Protocol	Select the TOP communication protocol.	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Selects the Ethernet Protocol between the TOP and an external device.	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.	
Comm. Address	Enters the SX Bus Station number of the external device.	

(2) Communication option setting

■ [Main Screen > Control Panel > PLC]

* The above settings are examples recommended by the company.

Items	Settings	Remarks
Interface	Select the TOP communication interface.	Refer to "2. External device selection".
Protocol	Select the TOP communication protocol.	
IP	Enter the IP address of the external device.	
Ethernet Protocol	Selects the Ethernet Protocol between the TOP and 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.	
Comm. Address	Enters the SX Bus Station number of the external device.	

3.3 Communication diagnostics

■ Check the interface setting status between the TOP and 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 port (ETH1/ETH2) 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	
	Other detailed settings		OK	NG	
	Ethernet port setting	IP Address	OK	NG	
		Subnet Mask	OK	NG	
		Gateway	OK	NG	
	Check address range		OK	NG	4. 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	Bit	Word	Double word	Remarks
Input Memory	IX000.00 – IX511.15	IW000 – IW511	ID000 – ID510	
Output Memory	QX000.00 – QX511.15	QW000 – QW511	QD000 – QD510	
Standard Memory	MX1.0.0 – MX1.4999999.15	MW1.0 – MW1.4999999	MD1.0 – MD1.4999998	
Retain Memory	MX3.0.0 – MX3.3388607.15	MW3.0 – MW3.3388607	MD3.0 – MD3.3388606	
System Memory	MX10.0.0 – MX10.65535.15	MW10.0 – MW10.65535	MD10.0 – MD10.65534	