

# ASN INC.

## ASN T&H Sensor Serial Driver

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Supported version

TOP Design Studio

V1.0 or higher



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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".

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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. Cable table** [Page 10](#)

Describes the cable specifications required for connection.
- 6. Supported addresses** [Page 11](#)

Check for addresses that can communicate with an external device.

# 1. System configuration

The system configuration of TOP and "ASN T&H Sensor" is as follows.

Series	CPU	Link I/F	Communication method	Communication setting	Cable
ASN T&H Sensor	Main Controller	Built-in RS-232C port	RS-232C	<a href="#">3. TOP communication setting</a> <a href="#">4. External device setting</a>	<a href="#">5. Cable table</a>

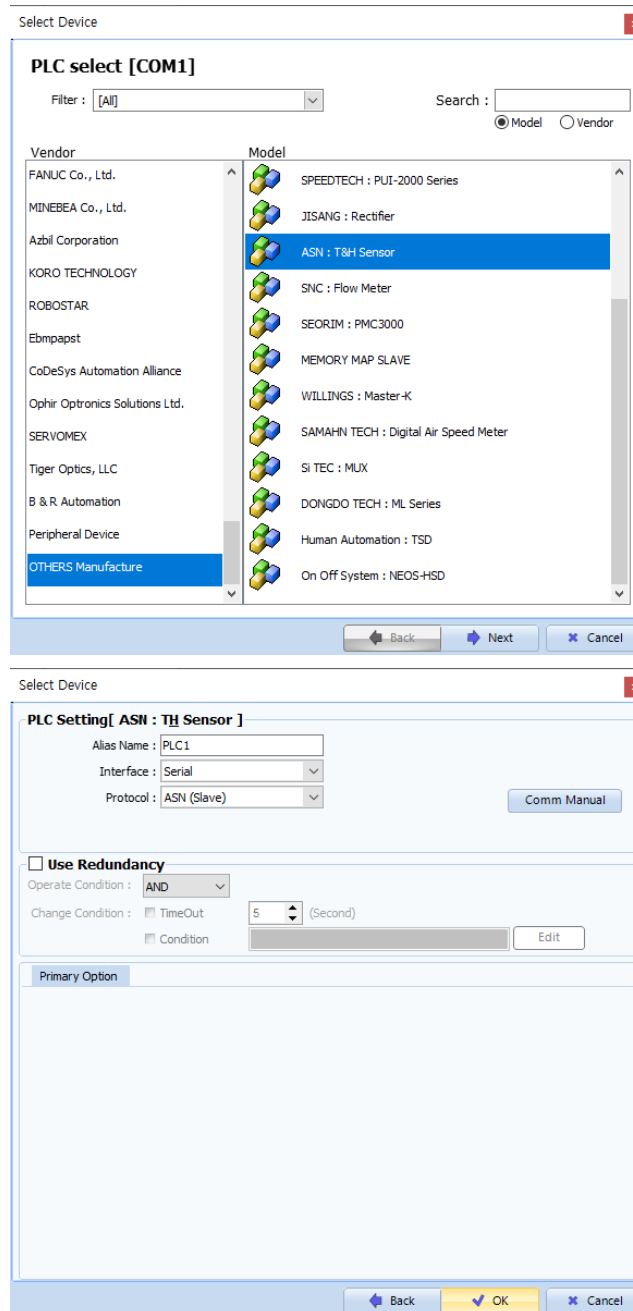
## ■ Connection configuration

- 1:1 (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 display and process of TOP to select the touch model.					
External device	Vendor	Select the vendor of the external device to be connected to TOP. Select "OTHERS Manufacture > ASN T&H Sensor."					
	PLC	Select an external device to connect to 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>ASN T&amp;H Sensor</td> <td>Serial</td> <td>ASN (Slave)</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	ASN T&H Sensor	Serial
Model	Interface	Protocol					
ASN T&H Sensor	Serial	ASN (Slave)					

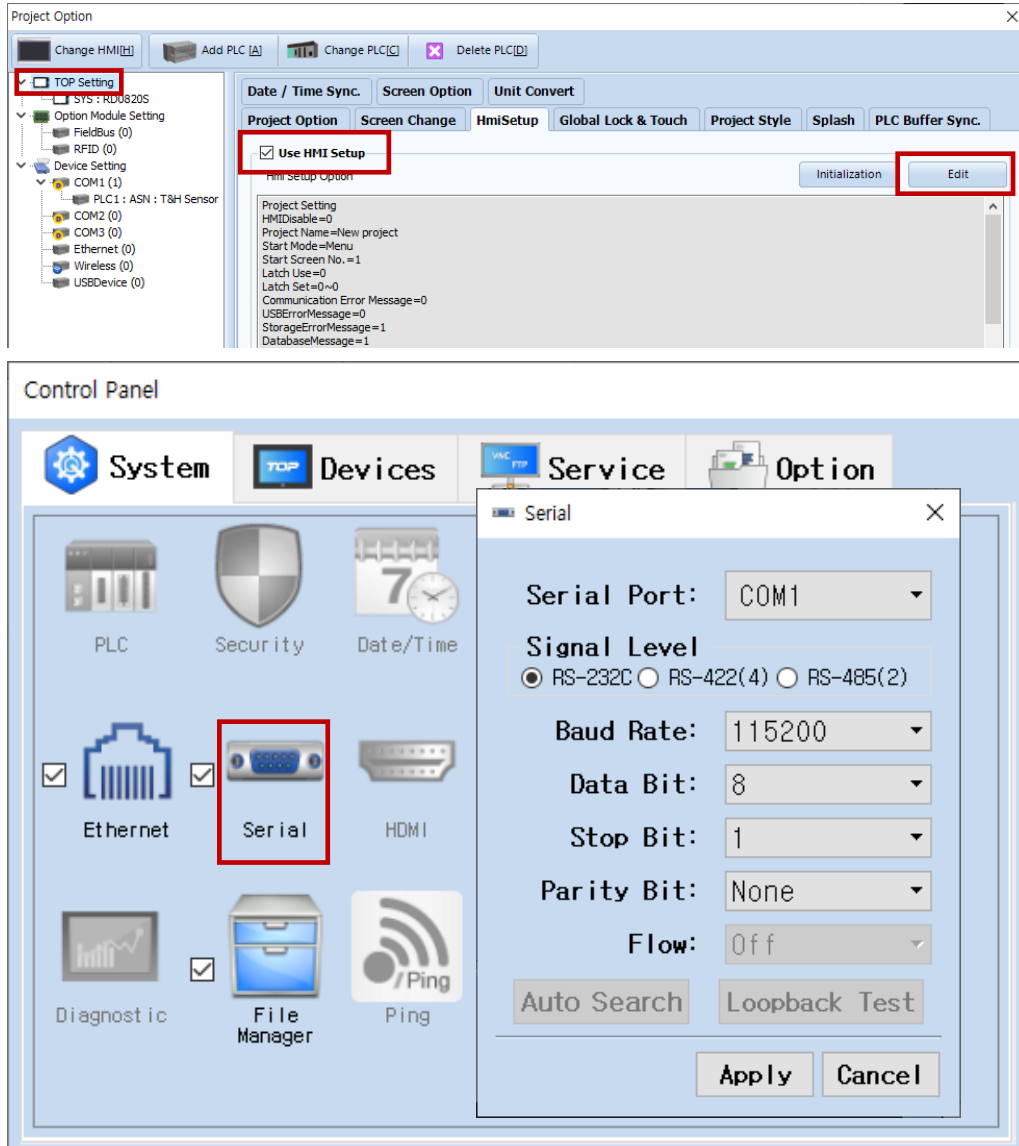
### 3. TOP communication setting

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 > Serial ]
- Set the TOP communication interface in TOP Design Studio.



Items	TOP	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	
Baud Rate	115200		
Data Bit	8		
Stop Bit	1		
Parity Bit	None.		

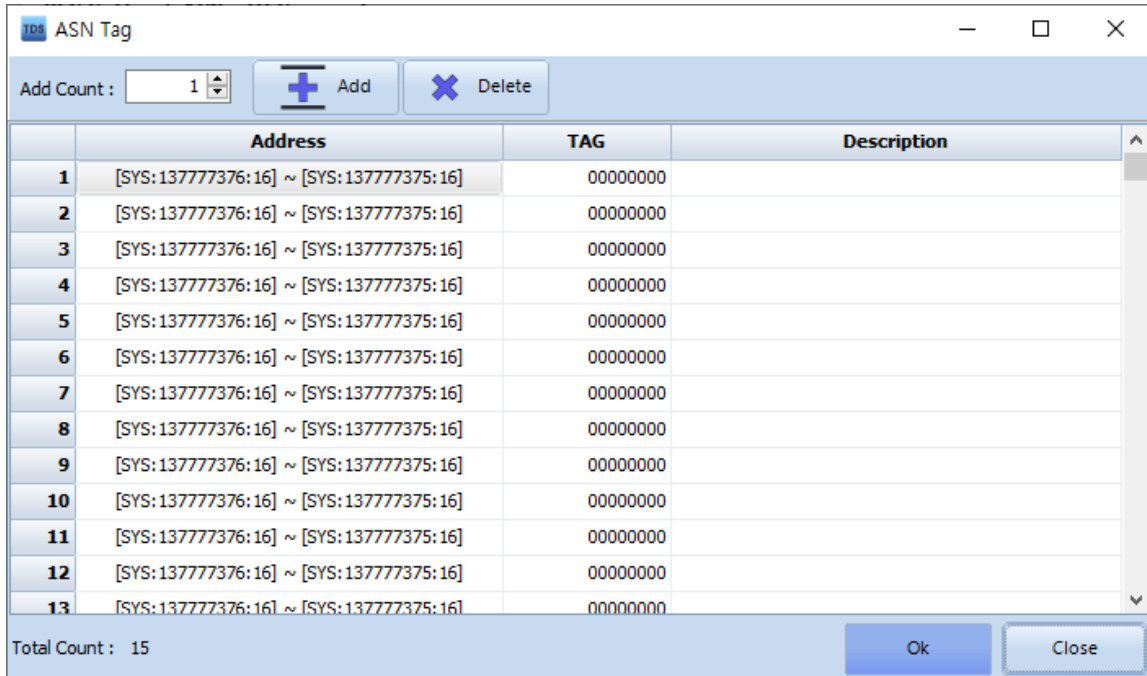
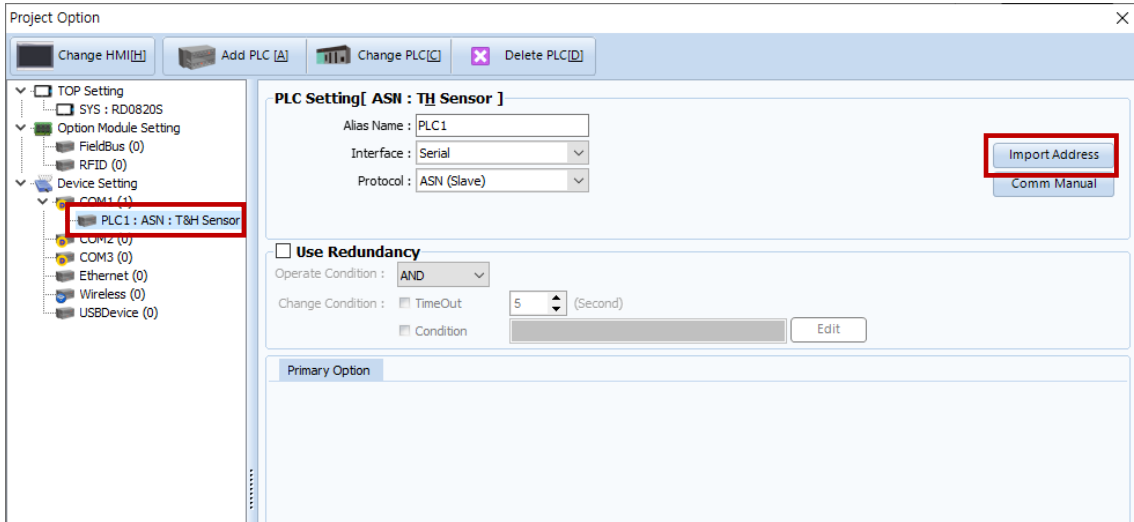
\* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.

**(2) Communication option setting**

- [ Project > Project properties > PLC settings > COM > "ASN T&H Sensor" ]

Set the options of the communication driver in TOP Design Studio.

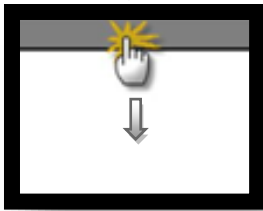


Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	<a href="#">Refer to "2. External device selection".</a>
Protocol	Configure the communication protocol between the TOP and an external device.	<a href="#">Refer to "2. External device selection".</a>
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.	
Import Address	Address: Incremented by 100 words for each addition, use 70 words per tag. Tag: Enter the tag number. Description: Enter a description for each tag.	

### 3.2. Communication setting in TOP

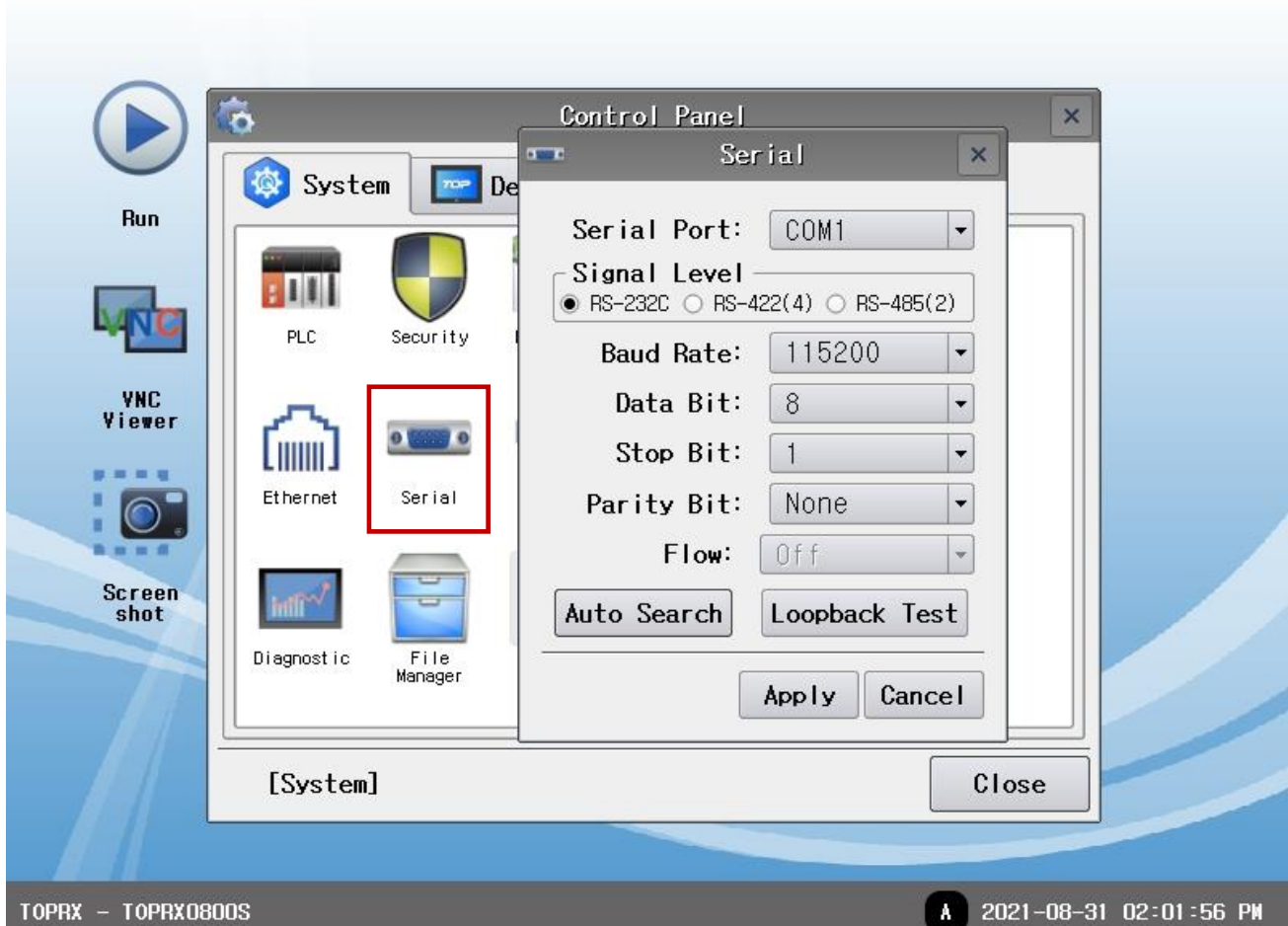
\* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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 > Serial ]



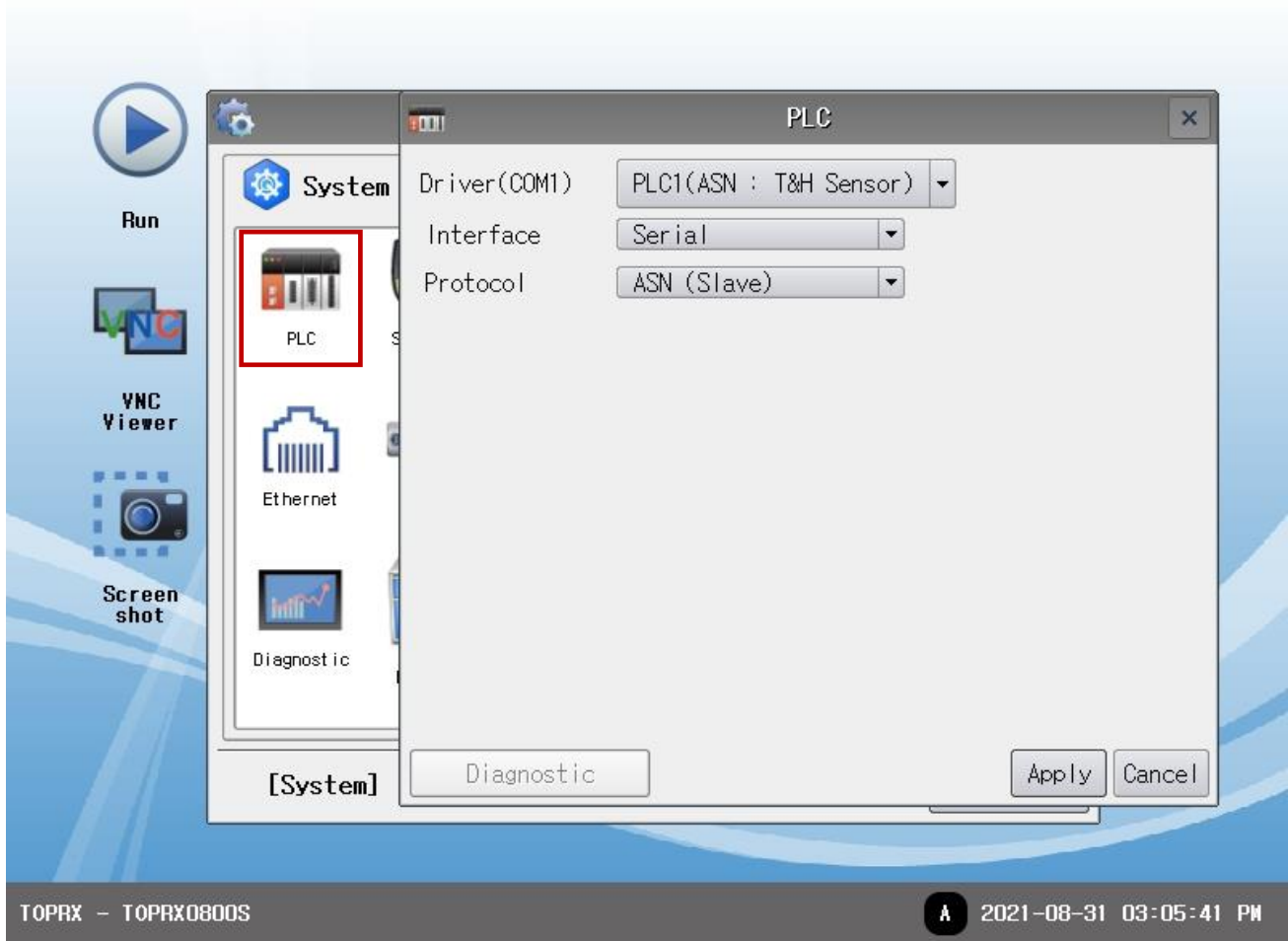
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	
Baud Rate	115200		
Data Bit	8		
Stop Bit	1		
Parity Bit	None.		

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

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.

(2) Communication option setting

■ [ Main screen > Control panel > PLC ]



Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	<a href="#">Refer to "2. External device selection".</a>
Protocol	Configure the communication protocol between the TOP and an 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.	
ImportAddress	<p>You can add or remove tags.</p> <p>When holding down the top of the screen and dragging it down during the run, a pop-up window will appear.</p> <p>Press the EXIT button to exit the menu mode.</p> <p>Click Desktop &gt; Control panel &gt; Communication device &gt; PLC &gt; Import Address (picture above) to add/delete/modify tag information.</p>	

### 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 COM port settings you want to use in [Control Panel > Serial] 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.

<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.

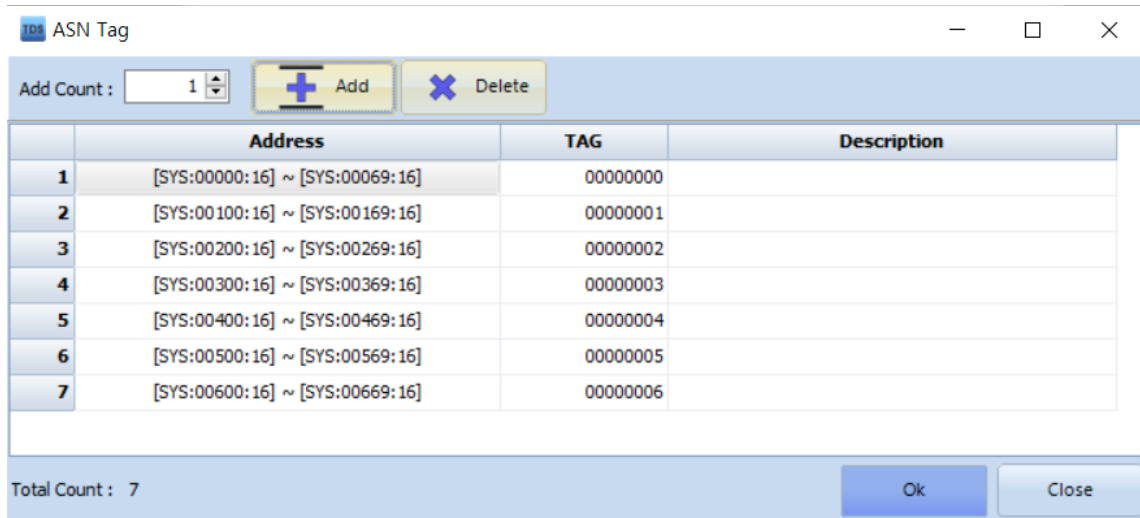
Items	Contents	Check		Remarks	
System configuration	How to connect the system	OK	NG	<a href="#">1. System configuration</a>	
	Connection cable name	OK	NG		
TOP	Version information	OK	NG	<a href="#">2. External device selection</a> <a href="#">3. Communication setting</a>	
	Port in use	OK	NG		
	Driver name	OK	NG		
	Other detailed settings	OK	NG		
	Relative prefix	Project setting	OK		NG
		Communication diagnostics	OK		NG
	Serial Parameter	Transmission Speed	OK		NG
Data Bit		OK	NG		
Stop Bit		OK	NG		
Parity Bit		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		
	Serial Parameter	Transmission Speed	OK		NG
		Data Bit	OK		NG
		Stop Bit	OK		NG
Parity Bit		OK	NG		
Check address range	OK	NG	<a href="#">6. Supported addresses</a> (For details, please refer to the PLC vendor's manual.)		



## 4. External device setting

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

### Step 1. Add tag information



### Step 2. How to write a project



The address of the character Object that describes the tag uses (SYS:0, SYS:100, SYS:200...) entered in Import Address. The length of the character can be up to 40 English characters.

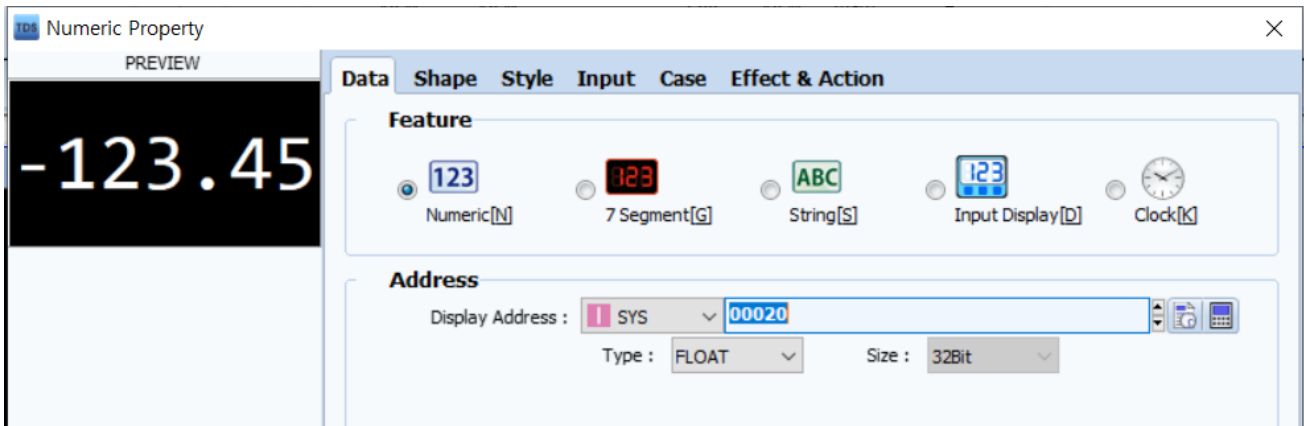
Refer to the following table for the address of the numeric Object representing the sensor value, and the character Object representing the sensor unit.

Sensor value	SYS address of numeric Object	Sensor unit	SYS address of character Object
Sensor 1 value	Start address of the tag + SYS:20	Sensor 1 unit	Start address of the tag + SYS:22
Sensor 2 value	Start address of the tag + SYS:30	Sensor 2 unit	Start address of the tag + SYS:32
Sensor 3 value	Start address of the tag + SYS:40	Sensor 3 unit	Start address of the tag + SYS:42
Sensor 4 value	Start address of the tag + SYS:50	Sensor 4 unit	Start address of the tag + SYS:52
Sensor 5 value	Start address of the tag + SYS:60	Sensor 5 unit	Start address of the tag + SYS:62

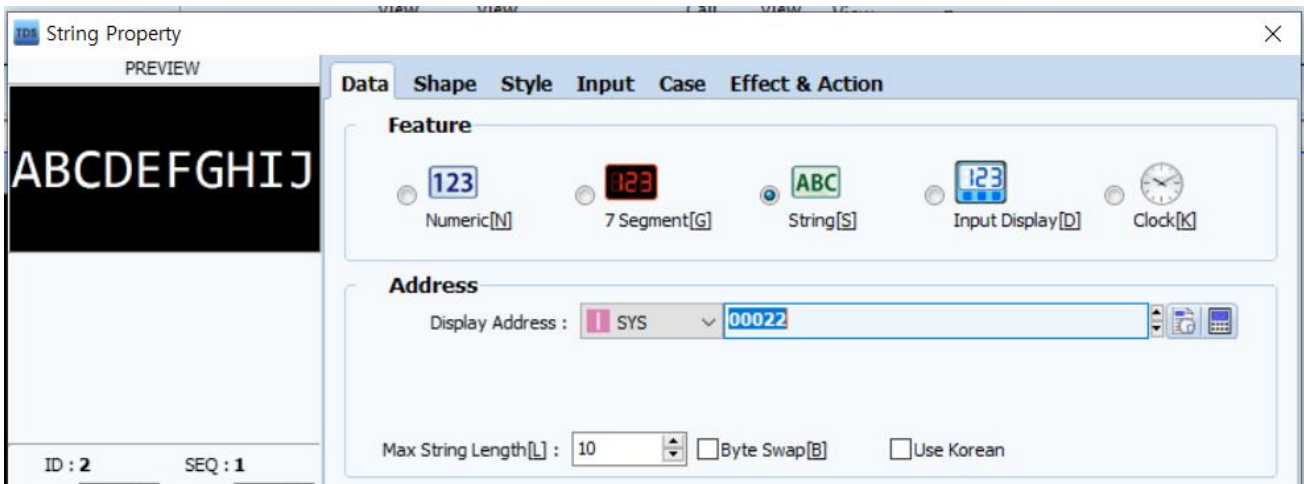
Each tag is assigned in units of 100 SYS addresses.

One tag can have up to 5 sensor values.

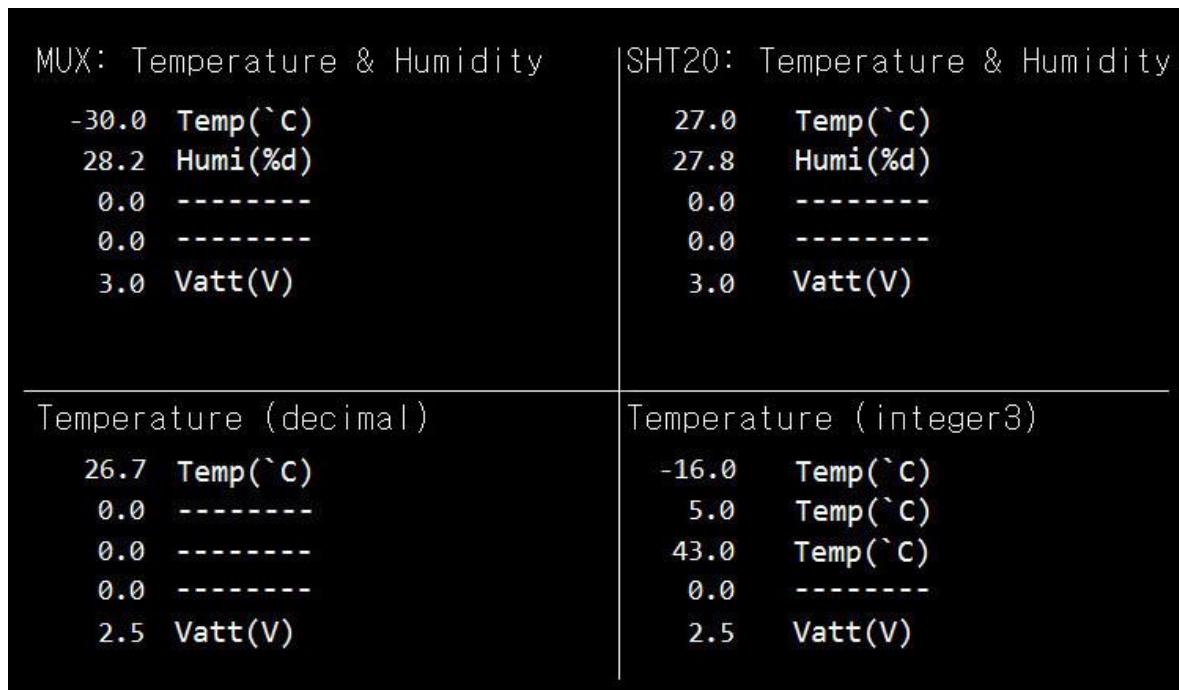
The numeric Object representing the sensor value is set as a Float type.



Select a character string for the character Object representing the sensor unit, and enter 10 for the number of strings.



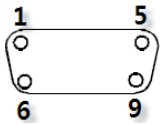

**Step 2.** Project execution screen



## 5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.

### ■ RS-232C (1:1 connection)

COM			Cable connection	Main Controller			
Pin arrangement* <i>Note 1)</i>	Signal name	Pin number		Pin number	Signal name	Pin arrangement* <i>Note 1)</i>	
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RS422	1		1		<p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	
	RXD	2		2	RXD		
	TXD	3		3	3		TXD
	RS422	4		4	4		
	SG	5		5	5		SG
	RS422	6		6	6		
	5V	7		7	7		
	GND	8		8	8		
	RS422	9		9	9		

\**Note 1)* The pin arrangement is a view looking at the connection side of the cable connector. Do not connect pins not to be used.

## 6. Supported addresses

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It can be used within the allowable range of TOP internal address 0 ~ 10239.

You can import and use up to 102 RF TAG sensors.