ASN INC. ASN T&H Sensor Serial Driver

Supported version TOP Design Studio

Studio V1.0 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

Page 2

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.

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

4. External device setting

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	<u>3. TOP</u> communication <u>setting</u> <u>4. External device</u> <u>setting</u>	<u>5. Cable table</u>

■ 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.

Filter : [AI] Filter : [AI] Vendor ANUC Co., Ltd. INNEBEA CO., Ltd. INNEBEA CO., Ltd. INNEBEA CO., Ltd. INNEBEA CO., Ltd. INNEBEA CO., Ltd. IN	~	Model B B B B B B B B B B B B B B B B B B B	SPEEDTECH JISANG : Re ASN : T8H S SNC : Flow I SEORIM : PI MEMORY M/ WILLINGS : SAMAHN TE SI TEC : MUI DONGDO TE Human Auto	: PUI-2000 S ctifier ensor 4eter 4C3000 4P SLAVE Master-K CH : Digital Al 4 CH : ML Serie	Search : [eries r Speed Meter) Model	() Vendor
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lect Device	*	v v v					
ect Device							
ect Device				Back	📫 Ne	d	× Cance
Alias Name : PLC1	ensor]						
Interface : Serial			\sim				
Protocol : ASN (S	Slave)		\sim			Com	m Manual
perate Condition : AND	\sim						
Change Condition : 🔲 TimeOu							
	ut	5	(Second)				
Condition Condition	ut	5	(Second)			Ed	it

Sett	tings		Contents			
TOP	Model	Check the display and process of	of TOP to select the touch mode	l.		
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 con	nect to TOP.			
		Model	Interface	Protocol		
		ASN T&H Sensor	Serial	ASN (Slave)		
		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 properties > TOP settings] → [Project option > Check "Use HMI settings" > Edit > Serial]
 - Set the TOP communication interface in TOP Design Studio.



Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	
Baud Rate	115200		
Data Bit	8		
Stop Bit	1		
Parity Bit	Non	e.	

* 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.

	ption		×
CI	hange HMI[H] 🛛 💓 Add PLC [A] 🚮 Change PLC[C] 🛛 🔀	Delete PLC[D]	
→ -□ TC	P Setting SYS : RD0820S ption Module Setting FieldBus (0) FieldBus (0) PLC1 SENT : T&H Sensor COM1 (1) PLC1 : ASN : T&H Sensor COM2 (0) COM2 (0) COM2 (0) USB Redundancy Operate Condition : AND Change Condition : TimeOut Condition Primary Option	r] 5	Import Address Comm Manual
TIM AS	IN Tag unt : 1 🗭 🚺 🗶 De Address	elete TAG	- D X
1	[SYS:137777376:16] ~ [SYS:137777375:16]	00000000	
2	[SVS+137777376+16] at [SVS+137777375+16]		
3	[313.13////3/0.10] ~ [313.13////3/3.10]	00000000	
	[SYS:137777376:16] ~ [SYS:137777375:16]	00000000	
4	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000	
4	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000	
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4 5 6 7	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000 0000	
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4 5 6 7 8 9	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000 0000	
4 5 6 7 8 9 10	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000 0000	
4 5 6 7 8 9 10 11	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000 0000	
4 5 6 7 8 9 10 11 12	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000 0000	
4 5 6 7 8 9 10 11 11 12 13	[SYS:137777376:16] ~ [SYS:137777375:16] [SYS:137777376:16] ~ [SYS:137777375:16]	00000000 00000000 00000000 00000000 0000	

Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External
Protocol	Configure the communication protocol between the TOP and an external device.	device selection".
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 desription 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]

	Run VNC Viewer Screen shot	System Image: Determinant of the second	Control Pane Serial Port Signal Leve RS-232C O RS Baud Rate Data Bit Stop Bit Parity Bit Flow: Auto Search	I c COM1 -422(4) O RS-485(2) 115200 115200 8 1 None Off Loopback Test Apply Cancel	×	
[System] Close TOPRX - TOPRX0800S A 2021-08-31 02:01:56 PM	TOPRX - TOPRX0800S	[System]		C14 A 20	ose	:01:56 PM

Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	
Baud Rate	1152	00	
Data Bit	8		
Stop Bit	1		
Parity Bit	Non	e.	

* 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]

	5	1001	PLC	×	
Run VNC Viewer	System (PLC S	Driver(COM1) Interface Protocol	PLC1(ASN : T&H Sensor) Serial ASN (Slave)		
Screen	Diagnostic				
	[System]	Diagnostic		Apply Cancel	
Toprx - Toprx080	IOS			2021-08-31 03:05:41 P	H

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



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.

ОК	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		Ch	eck	Remarks	
System	How to connect the sy	stem	OK	NG	1 Cretem configuration	
configuration	Connection cable name	9	ОК	NG	1. System configuration	
ТОР	Version information		OK	NG		
	Port in use	OK	NG			
	Driver name	OK	NG			
	Other detailed settings		ОК	NG		
	Relative prefix	Project setting	OK	NG		
		Communication	OK	NC	2. External device selection	
		diagnostics	ŬK	NG	3. Communication setting	
	Serial Parameter	Transmission	OK	NC		
		Speed	ÜK	NG		
		Data Bit	ОК	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
External device	CPU name	OK	NG			
	Communication port n	ОК	NG			
	Protocol (mode)	OK	NG			
	Setup Prefix		OK	NG		
	Other detailed settings		OK	NG	4. External device cetting	
	Serial Parameter	Transmission	OK	NC	4. External device setting	
		Speed	ÜK	NG		
		Data Bit	ОК	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
	Check address range				6. Supported addresses	
			OK	NG	(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

	Address	TAG	Description	
1	[SYS:00000:16] ~ [SYS:00069:16]	0000000	2 Comption	
2	[SYS:00100:16] ~ [SYS:00169:16]	00000001		
3	[SYS:00200:16] ~ [SYS:00269:16]	0000002		
4	[SYS:00300:16] ~ [SYS:00369:16]	0000003		
5	[SYS:00400:16] ~ [SYS:00469:16]	0000004		
6	[SYS:00500:16] ~ [SYS:00569:16]	00000005		
7	[SYS:00600:16] ~ [SYS:00669:16]	0000006		

Step 2. How to write a project

Charac [SYS:00000]=(<mark>ter object: Import Address Description, SYS:000</mark> GHTJKLMNOPQRSTUV₩XYZZZZZ	<mark>00, sys:00100, ir</mark> [동ys:00100]구GF	n <mark>creases in units of 100</mark> HJJKLMNOPQRSTUV\XYZZZZZ
[SYS:00020]5	[\$Y5:00022]:GHIJ	[SYS:00120]5	Steeled: GHIJ
[SYS:00030]5	System GHIJ	[SYS:00130]5	[SY5:00132]:GHIJ
[SYS:00040]5	SYS:000421:GHIJ	[SYS:00140]5	[SYS:00142]:GHIJ
[SYS:00050]5	SYS:000521:GHIJ	[SYS:00150]5	[SYS:00152]:GHIJ
[SYS:00060]5	SYS:00021:GHIJ	[SYS:00160]5	[SYS:00162]:GHIJ
5 1 5 5 5	Scharacter object: Measurement unit		
Numeri	c object: Tag measurement	2 13 2 13 2 26 2 2 2 2 2 2	
[SYS:00200] = (GHIJKLMNOPQRSTUVWXYZZZZZ	[<u>\$Y5:00300]</u> FGF	HIJKLMNOPQRSTUVWXYZZZZZ
[SYS:00220]5	SYS:00222]:GHIJ	[SYS:00320]5	[SYS:00322]:GHIJ
[SYS:00230]5	[SYS:00232]:GHIJ	[SYS:00330]5	SYS:00322]:GHIJ
[SYS:00240]5	[5Y5:00242]:GHIJ	[SYS:00340]5	[SYS:00342]:GHIJ
[SYS:00250]5	SYS:002521:GHIJ	[SYS:00350]5	[SYS:00352]:GHIJ
[SYS:00260]5	[SYS:00262]:GHIJ	[SYS:00360]5	[SYS:00362]:GHIJ
		1 1 1 1 1	

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.

External device connection manual for TOP Design Studio



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

Mumeric Property		×
PREVIEW	Data Shape Style Input Case Effect & Action	
-123.45	Feature Image: String Strin	
	Address Display Address : SYS V 00020 Type : FLOAT V Size : 32Bit V	

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

String Property		×
PREVIEW	Data Shape Style Input Case Effect & Action	
ABCDEFGHIJ	Feature	Clock
	Address Display Address : SYS v 00022	
ID : 2 SEQ : 1	Max String Length[L] : 10 Byte Swap[B] Use Korean	

Step 2. Project execution screen

MUX: Te	emperature & Humidity	SHT20:	Temperature & Humidity
-30.0 28.2 0.0 0.0 3.0	Temp(`C) Humi(%d) Vatt(V)	27.0 27.8 0.0 0.0 3.0	Temp(`C) Humi(%d) Vatt(V)
Tempera	ature (decimal)	Tempera	ature (integer3)
26.7	Temp(`C)	-16.0	Temp(`C)
0.0		5.0	Temp(`C)
0.0		43.0	Temp(`C)
0.0		0.0	
2.5	Vatt(V)	2.5	Vatt(V)



5. Cable table

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

СОМ				Main Controller			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)	
1 5	RS422	1		1			
$\begin{pmatrix} \circ & \circ \end{pmatrix}$	RXD	2		2	RXD		
	TXD	3		3	TXD	Based on	
Based on	RS422	4		4		communication	
communication	SG	5		5	SG	cable connector	
cable connector	RS422	6		6		Tront,	
front,	5V	7		7			
D-SUB 9 Pin male	GND	8		8		(male, convex)	
(male, convex)	RS422	9		9			

■ RS-232C (1:1 connection)

*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

It can be used within the allowable range of TOP internal address 0 \sim 10239. You can import and use up to 102 RF TAG sensors.