SAMWONTECH CO.,LTD

Temperature Controller(NOVA500/300, SP790) Series

PCC 0/1 Driver

Giddings Lewis

Supported version TOP Design Studio V4.0 or higher

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

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Describes how to set the TOP communication.

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Describes how to set up communication for external devices.

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Describes the cable specifications required for connection.

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

1. System configuration

The system configuration of TOP and "SAMWONTECH CO., LTD. – Temperature Controller Series" is as follows:

Series	CPU	Link I/F	Communication method	System setting	Cable
NOVA500	SD590 SD560	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
	SL590 SL540	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
	SP590 SP580 SP570 SP540	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
	ST590 ST580 ST570 ST560 ST540	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
NOVA300	SD390 SD360	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
	SS300	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
	ST590 ST580 ST570 ST560 ST540	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)
SP790	SP790 SP791	Terminal Block on the Controller	RS485 (2 wire)	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 8)

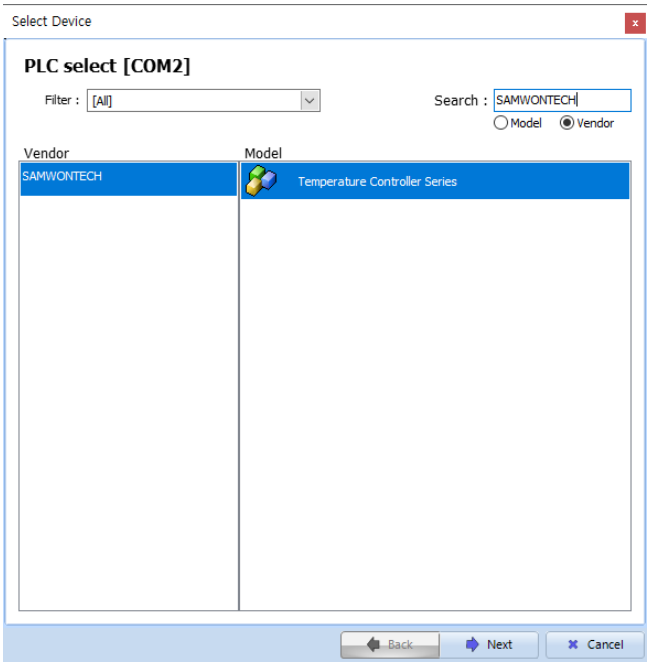
■ Connection configuration

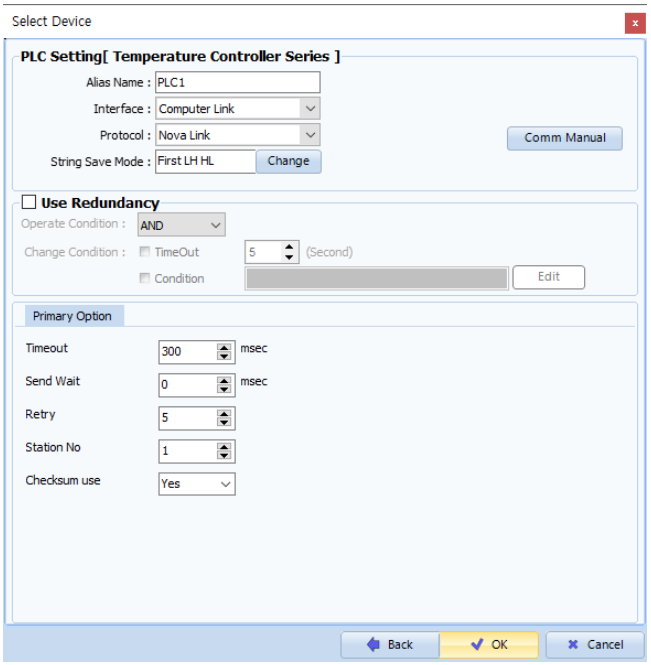
• 1:1 (one TOP and one external device) connection – configuration which is possible in RS232C/422/485 communication.

• 1:N (one TOP and multiple external devices) connection – configuration which is possible in RS422/485 communication.

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 SAMWONTECH CO., LTD.
	PLC	Select an external device to connect to TOP. Select "Temperature Controller - NOVA500/300, SP790 Series PCC 0/1". 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

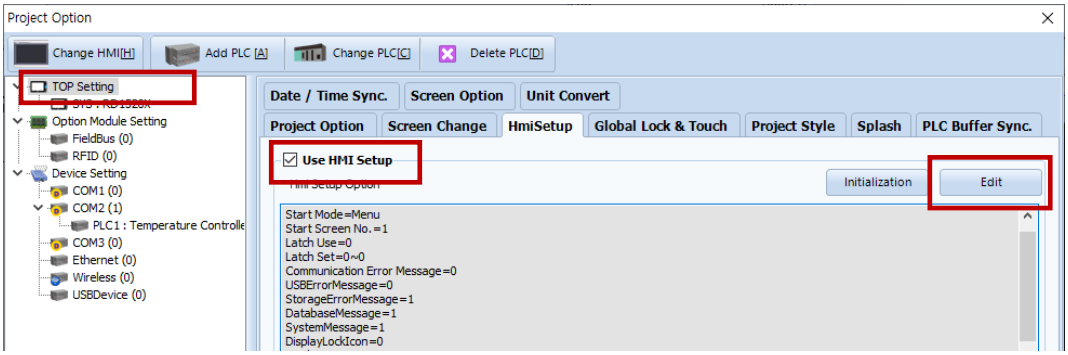
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

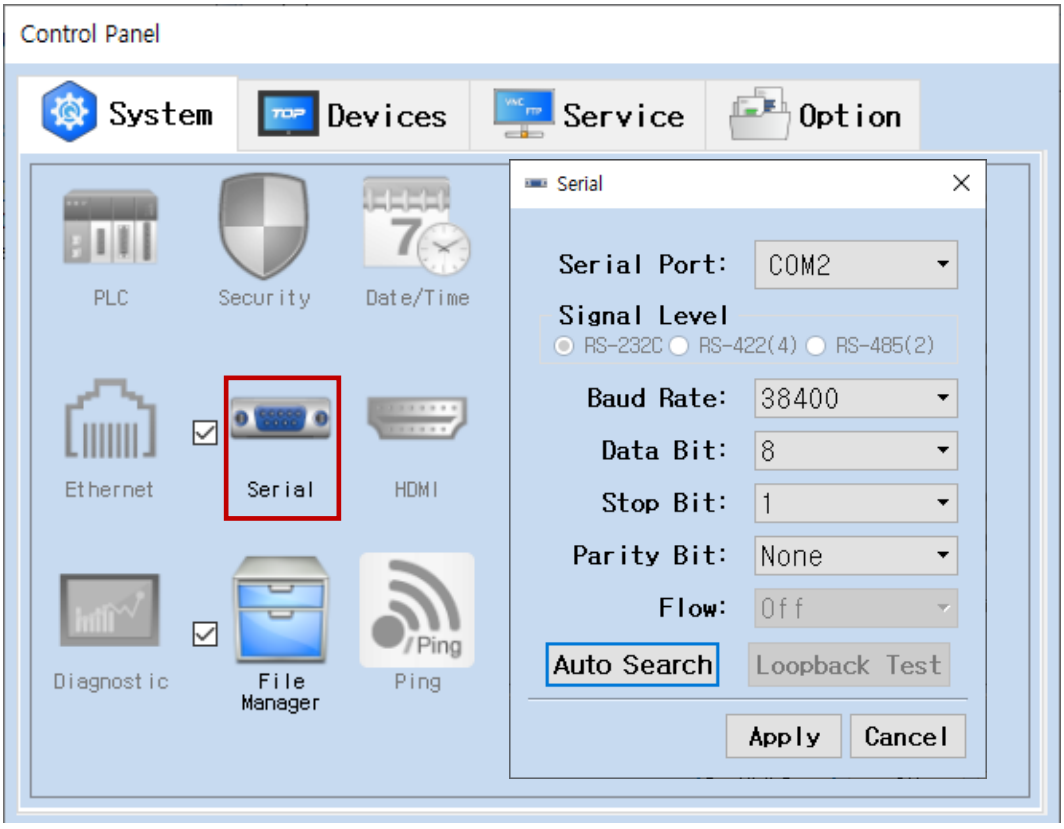
3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Serial]

– Set the TOP communication interface in TOP Design Studio.





Items	TOP	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NONE		

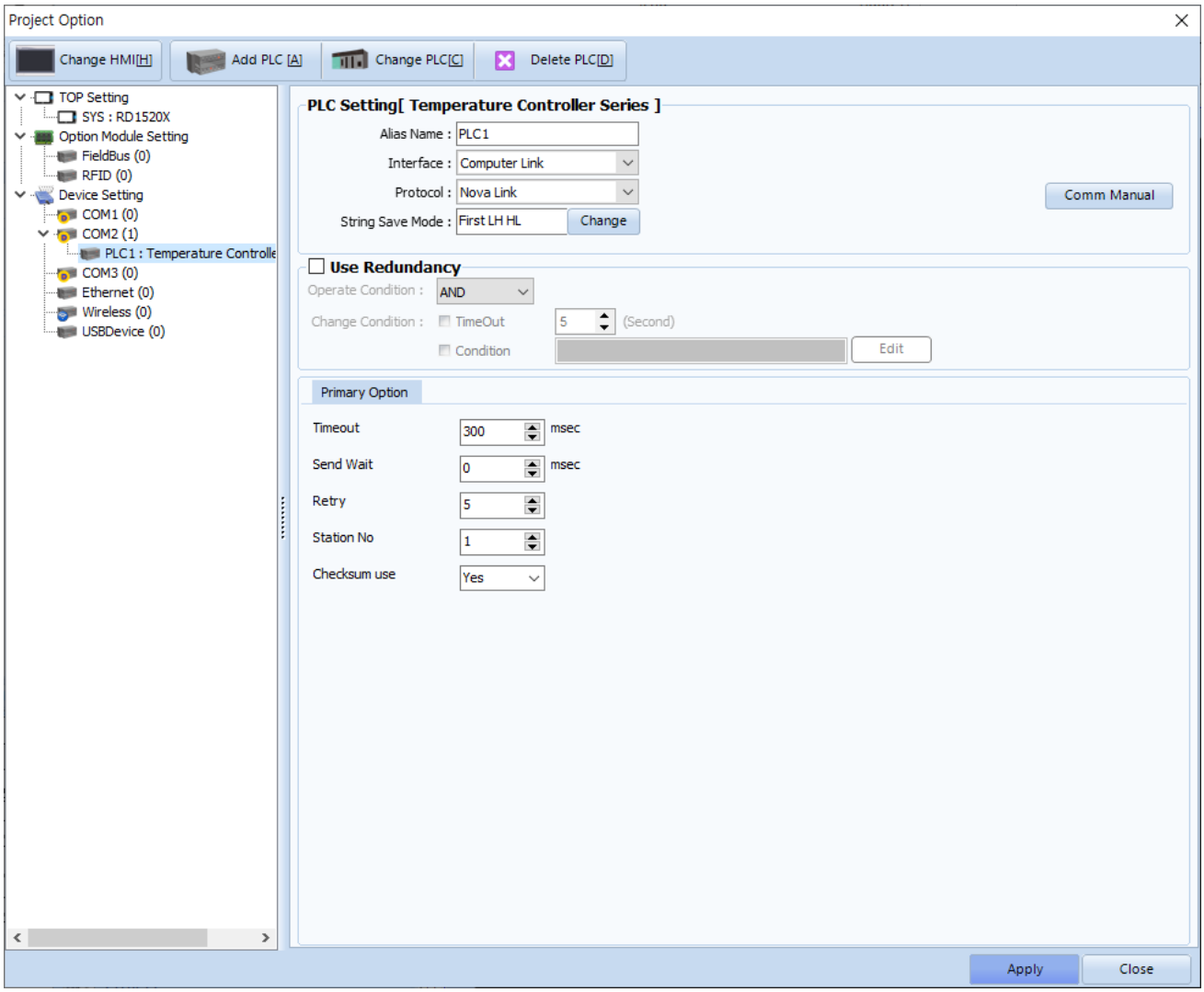
* The above settings are examples recommended by the company.

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 Property > Device Setting > COM > "PLC1 : Temperature Controller - NOVA500/300, SP790 Series PCC 0/1"]

– Set the options of the SAMWONTECH CO., LTD communication driver in TOP Design Studio.

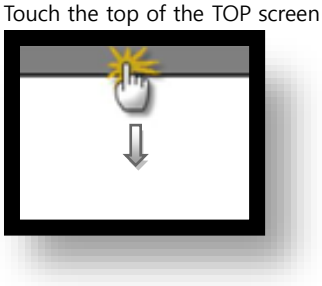


Items	Settings	Remarks
Interface	"Computer Link	Fixed
Protocol	PC Link	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Retry attempts upon communication failure.	

3.2. Communication setting in TOP

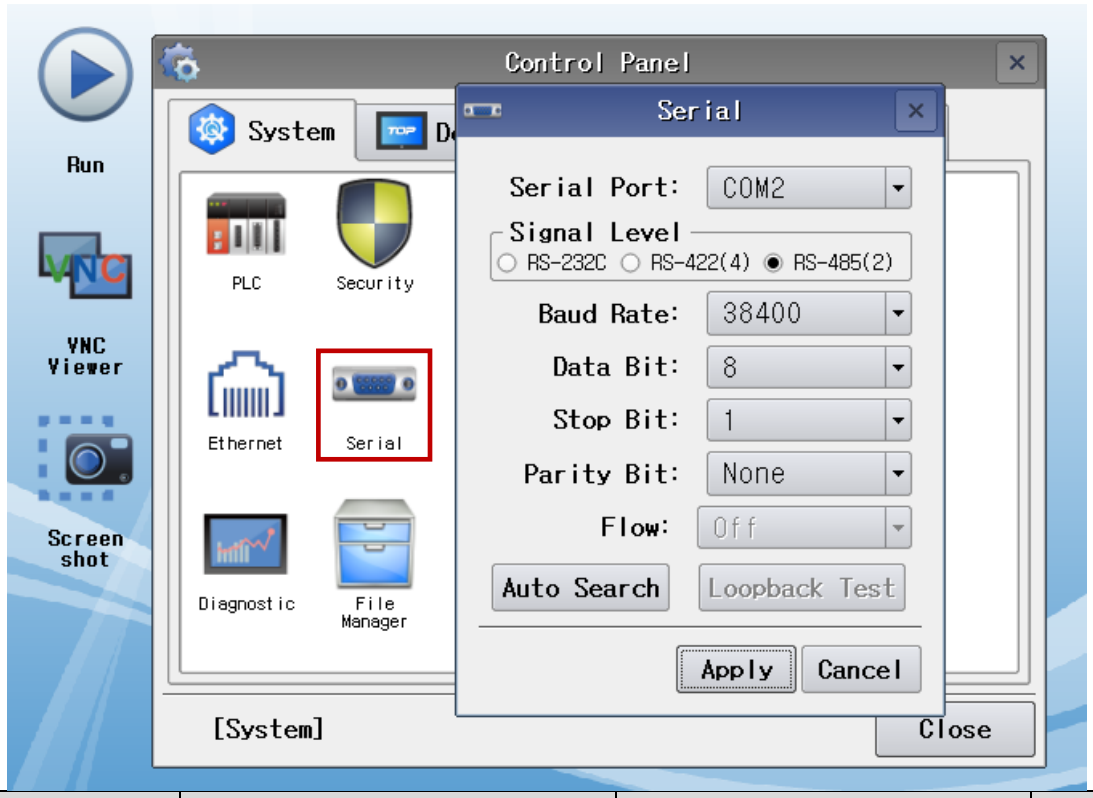
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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]



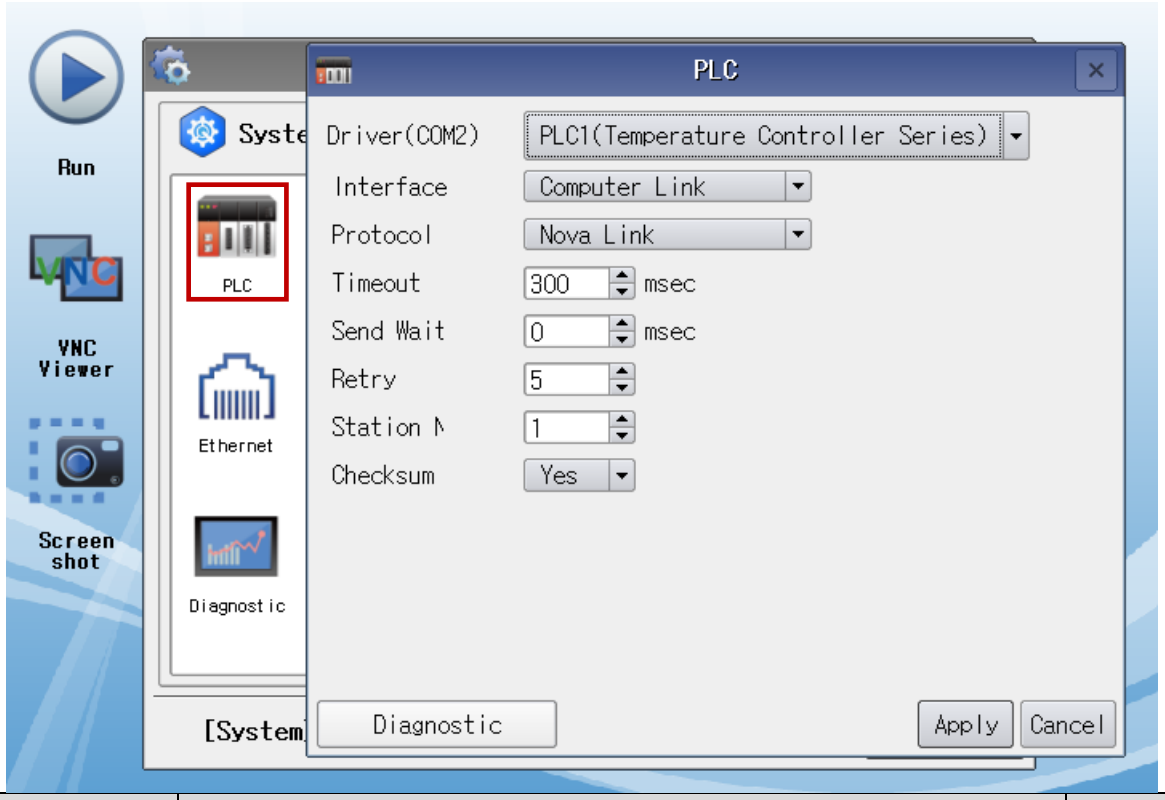
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NONE		

* 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	“Computer Link	Fixed
Protocol	PC Link	
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.	
Retry	Retry attempts upon communication failure.	

3.3 Communication diagnostics

■ 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	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	
	Serial Parameter	Transmission Speed	OK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	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	
	Serial Parameter	Transmission Speed	OK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
	Check address range		OK	NG	6. Supported addresses (For details, please refer to the PLC vendor's manual.)

4. External device setting

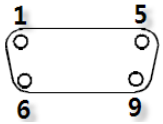
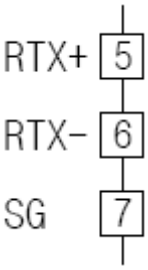
Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP.

5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.
(The cable diagrams described in this section may differ from the external device vendor's recommendations.)

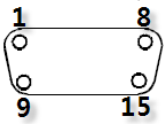
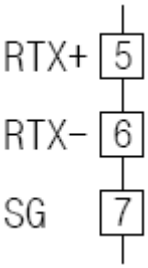
■ 1:1 connection

(A) TOP COM Port (9 pin)

TOP COM			Cable connection	Temperature Controller	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	Pin arrangement
	RDA	1		RTX(+)	
		2		RTX(-)	
		3		SG	
	RDB	4			
Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	SG	5			
	SDA	6			
		7			
		8			
	SDB	9			

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

(B) TOP COM Port (15 pin)

TOP COM			Cable connection	Temperature Controller	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	Pin arrangement
	–	1		RTX(+)	
	(Omitted)			RTX(-)	
				SG	
	–	10			
Based on communication cable connector front, D-SUB 15 Pin male (male, convex)	RDA	11			
	RDB	12			
	SDA	13			
	SDB	14			
	SG	15			

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

■ 1:N connection – Refer to 1:1 connection to connect in the following way.

TOP	Cable connection and signal direction	External device	Cable connection and signal direction	External device
Signal name		Signal name		Signal name
RDA		RTX(+)		RTX(+)
RDB		RTX(-)		RTX(-)
SDA		SG		SG
SDB				
SG				

6. Supported addresses

Parameter	Descriptions								Remarks
COM.P	0	Standard protocol	1	Standard protocol + Check Sum					Select protocol
BAUD	4	9600	5	19200					Transmission speed
SPRY	NONE	No Parity	EVEN	Parity (Even)	ODD	Parity (Odd)			Parity
SBIT	1	1 BIT	2	2BIT					Stop Bit
DLEN	7	7 BIT	8	8 BIT					Data Length
ADDR	1								Device Station ID No.
RPTM	0								Response time: Processing time + RPTM + 10msec

*Note 1) Depending on the equipment, transmission speed of 19200 bps may not be supported.

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 Address	Word Address	Remarks
D Register	**Range supported (ALL)**	**D0000.00 – D9999.15**	**D0000 – D9999**	
	PROCESS	D0000.00 – D0099.15	D0000 – D0099	
	FUNCTION	D0100.00 – D0199.15	D0100 – D0199	
	SET POINT	D0200.00 – D0299.15	D0200 – D0299	
	SIGNAL	D0300.00 – D0399.15	D0300 – D0399	
	ALARM	D0400.00 – D0499.15	D0400 – D0499	
	PID	D0500.00 – D0599.15	D0500 – D0599	
	IN/OUT	D0600.00 – D0699.15	D0600 – D0699	