SAMWONTECH CO.,LTD Temperature Controller(NOVA500/300, SP790) Series PCC 0/1 Driver Giddings Lewis

Supported version TOP Design Studio



V4.0 or higher

CONTENTS

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

1. System configuration	Page 2
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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

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
	SD590	Terminal Block	RS485	3.1 Settings example 1	5.1. Cable table 1
	SD560	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
	SL590	Terminal Block	RS485	3.1 Settings example 1	5.1. Cable table 1
	SL540	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
	SP590				
	SP580	Terminal Block	RS485	3.1 Settings example 1	5.1. Cable table 1
NOVA500	SP570	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
	SP540				
	ST590				
	ST580	Terresia el Die els	DC 405	2.1. Catting an average 1	C.1. Cable table 1
	ST570	ierminal BIOCK	KS485	3.1 Settings example 1	
	ST560	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
	ST540				
	SD390	Terminal Block	RS485	3.1 Settings example 1	5.1. Cable table 1
	SD360	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
	66300	Terminal Block	RS485	3.1 Settings example 1	5.1. Cable table 1
	22300	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
NOVA300	ST590				
	ST580	Taurainal Dia ak	DC 405	2.1. Catting an augurate 1	C.1. Cable table 1
	ST570		KS485	3.1 Settings example 1	
	ST560	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>
	ST540				
60700	SP790	Terminal Block	RS485	3.1 Settings example 1	5.1. Cable table 1
24/20	SP791	on the Controller	(2 wire)	(<u>Page 4)</u>	<u>(Page 8)</u>

■ 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.

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Tilder . [Alij			~		Search .) Model	Vendor
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lect Device PLC Setting[Temp Alias Name : Interface : Protocol : String Save Mode :	PLC1 Computer Link Nova Link First LH HL	troller Se	eries]			Con	nm Manual
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lect Device PLC Setting[Temp Alias Name : Interface : Protocol : String Save Mode : Use Redundance perate Condition : Change Condition :	PLC1 Computer Link Nova Link First LH HL V ID TimeOut Condition	Chang	eries]			Con	nm Manual
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lect Device PLC Setting[Temp Alias Name : Interface : Protocol : String Save Mode : Use Redundance Operate Condition : Primary Option Timeout Send Wait Retry Station No Checksum use	erature Com PLC1 Computer Link First LH HL y D Condition 300 5 0 1 1 V Yes V	Chang	(Second)			Con	nm Manual
lect Device PLC Setting[Temp Alias Name : Interface : Protocol : String Save Mode : Use Redundance Operate Condition : Primary Option Timeout Send Wait Retry Station No Checksum use	erature Com PLC1 Computer Link First LH HL y Condition 5 5 1 Yes v	s s msec	ries]			Con	nm Manual
lect Device PLC Setting[Temp Alias Name : Interface : Protocol : String Save Mode : Use Redundance Permary Option Timeout Send Wait Retry Station No Checksum use	erature Com PLC1 Computer Link First LH HL y ineOut Condition 5 0 1 ¥es V Yes V	troller Se	ries]			Con	nm Manual

Sett	ings	Contents
ТОР	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 Sel		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	ТОР	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	NON	NE	

* 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.

Project Option				×
Change HMI[H] Add PLC	[A] Thange PLC[(Delete PLC[D]		
 TOP Setting SYS: RD1520X Option Module Setting FieldBus (0) RFID (0) Device Setting COM2 (1) COM2 (1) COM3 (0) Ethernet (0) Wireless (0) USBDevice (0) 	PLC Setting[Tempe Alias Name : Interface : Protocol : String Save Mode : Use Redundanc Operate Condition : AN Change Condition : Primary Option Timeout Send Wait Retry Station No Checksum use	rature Controller Series] PLC1 Computer Link Nova Link First LH HL Change		mm Manual
			Apply	Close

Items	Settings	Remarks
Interface	"Computer Link	Fixed
Protocol	PC Link	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.	
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	ТОР	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	384		
Data Bit	8		
Stop Bit	1		
Parity Bit	NOI	NE	

* 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]

	Ö		PLC	×
\smile	🔯 Syste	Driver(COM2)	PLC1(Temperature Controller Series) -	
Run		Interface	Computer Link 💌	
		Protocol	Nova Link 💌	
WNC	PLC	Timeout	300 🜩 msec	
VNC		Send Wait	0 🖨 msec	
Viewer	` ``	Retry	5	
	Ethernet	Station N	1	
		Checksum	Yes 💌	
Screen shot	httl: 1			
	Diagnostic			
	[System]	Diagnostic		ncel
tems	Settings			Remarks
iterface	"Computer I	ink		
rotocol	PC Link			FIXE

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.

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	Conte	ents	Check		Remarks
System	How to connect the sy	stem	OK	NG	1 System configuration
configuration	Connection cable name	5	OK	NG	1. System configuration
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	
		Communication	OK	NG	2. External device selection
		diagnostics	ŬK	NG	3. Communication setting
	Serial Parameter	Transmission	OK	NG	
		Speed	ÜK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
External device	CPU name		OK	NG	
	Communication port n	ame (module name)	OK	NG	
	Protocol (mode)		OK	NG	
	Setup Prefix		OK	NG	
	Other detailed settings		OK	NG	4. External device setting
	Serial Parameter	Transmission	ОК	NG	4. External device setting
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
	Check address range		ÖR	110	6 Supported addresses
	check dudiess runge		ОК	NG	(For details, please refer to the PLC
			ÖK		vendor's manual.)
			L		



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



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

(B) TOP COM Port (15 pin)

тор сом				٦	Temperature Controller
Pin	Signal	Pin	Cable connection	Signal	Pin arrangement
arrangement*Note 1)	name	number		name	
1 8	-	1		RTX(+)	
	(Om	itted)		RTX(-)	
9 15				SG	RTX+ 5
Based on	_	10	┝──┩		
communication	RDA	11	┝╼╋ ┝────┘ │ │		RTX-6
cable connector	RDB	12	╞┼╺┥		
front,	SDA	13	┝━┫		SG 7
D-SUB 15 Pin male	SDB	14			
(male, convex)	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	External device
Signal name		Signal name	direction	Signal name
RDA	•	RTX(+)		RTX(+)
RDB		RTX(-)		RTX(-)
SDA	┝━�	SG		SG
SDB	├ ──�			
SG				



6. Supported addresses

Parameter	Des	Descriptions						Remarks	
COM.P	0	Standa	rd protocol	1	Star	Standard protocol + Check Sum			Select protocol
BAUD	4	9600		5	192	00			Transmission speed
SPRY	N	ONE	No Parity	E∖	/EN	Parity (Even)	ODD	Parity (Odd)	Parity
SBIT	1	1 BIT		2	2BI	2BIT		Stop Bit	
DLEN	7	7 BIT		8	8 E	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	