

# SEWHA CNM CO., LTD.

## Digital Weighing Indicator SI Series (Command Mode)

### Serial Driver

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Supported version

TOP Design Studio

V1.3.3.2 or higher



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

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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.

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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 "SEWHA CNM Co., Ltd. – Digital Weighing Indicator SI Series (Command Mode) Computer Link" is as follows.

Indicator Model	Link I/F	Communication method	System setting	Cable
SI – 3500 SI – 4000 SI – 4010 SI – 4010R SI – 4100 SI – 4200 SI – 4300 SI – 4400 SI – 4410 SI – 4420 SI – 4500 SI – 4630E	Serial I/F	RS-232C RS-422 RS-485	<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 - possible configuration in RS232C communication.

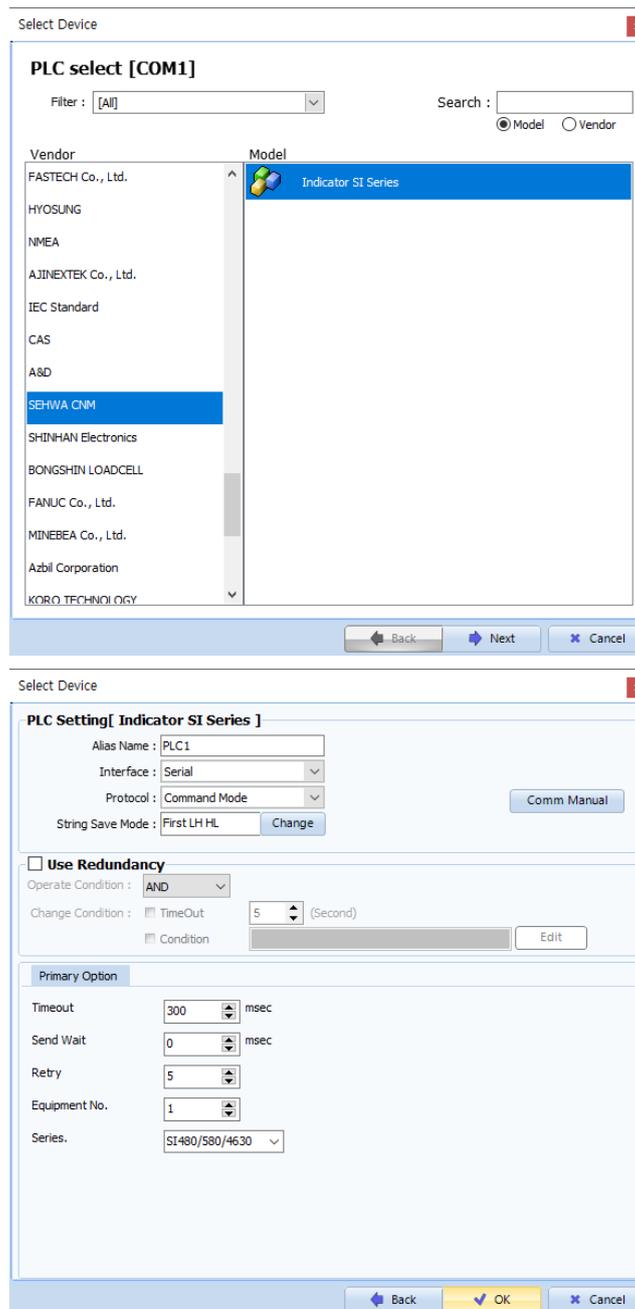


- 1:N (one TOP and multiple external devices) connection - possible configuration in RS422/485 communication.



## 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 "Indicator Series".					
	PLC	Select an external device to connect to TOP. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>SEHWA CNM SI Series</td> <td>Serial</td> <td>Command Mode</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	SEHWA CNM SI Series	Serial
Model	Interface	Protocol					
SEHWA CNM SI Series	Serial	Command Mode					

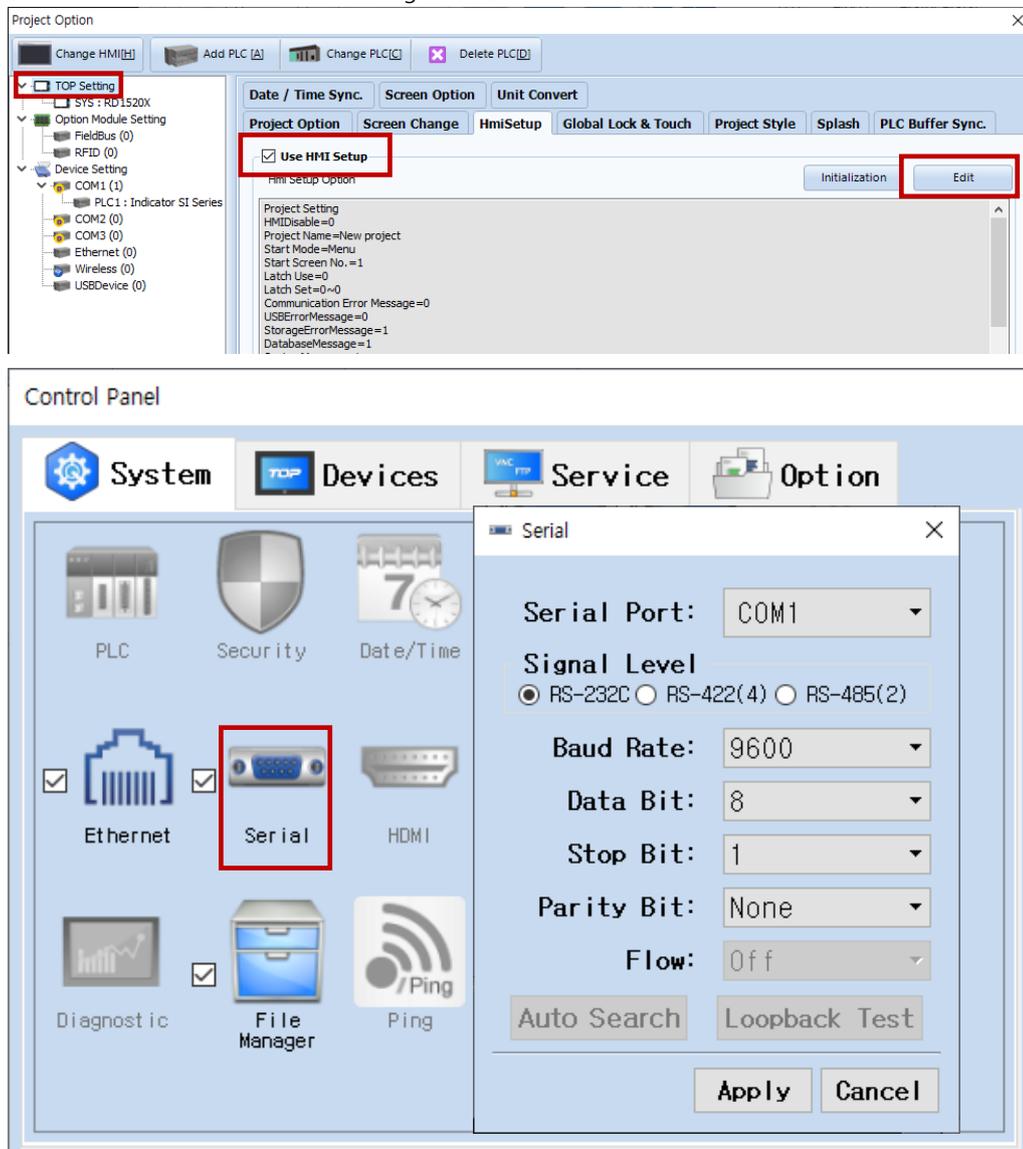
### 3. TOP communication setting

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.



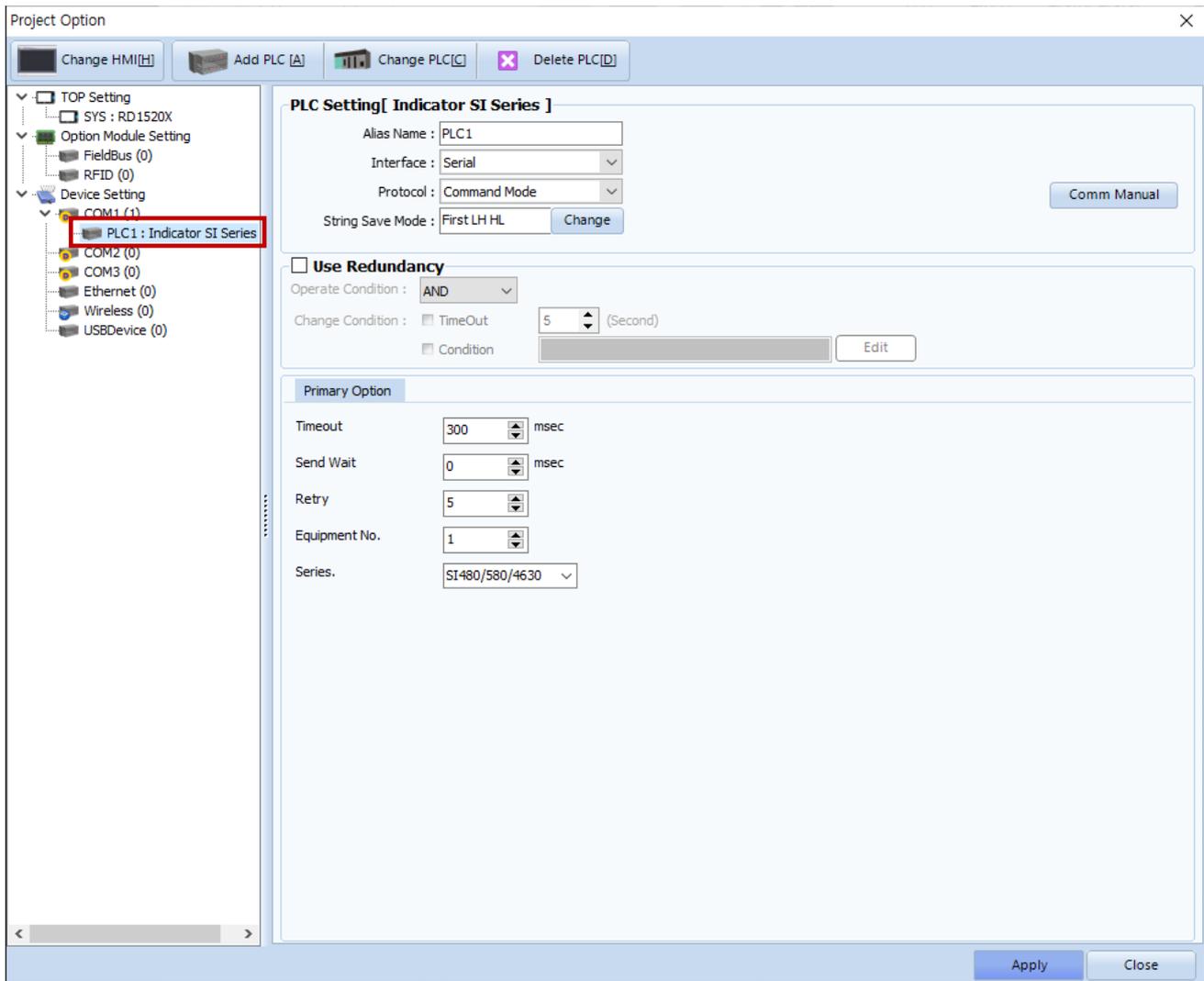
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C RS-422/485	RS-232C RS-422/485	
Baud Rate		9600	
Data Bit		8	
Stop Bit		1	
Parity Bit		None.	

\* 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 > "PLC1 : SEWHA CNM SI Series" ]
  - Set the options of the communication driver of SEWHA CNM Co., Ltd. – Digital Weighing Indicator SI Series Serial in TOP Design Studio.

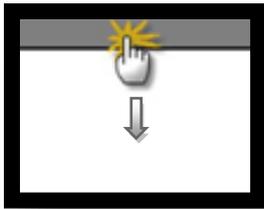


Items	Settings	Remarks
Interface	Select "Serial".	<a href="#">Refer to "2. External device selection".</a>
Protocol	Select the communication protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Equipment No.	Enter the equipment number of the external device.	

### 3.2. Communication setting in TOP

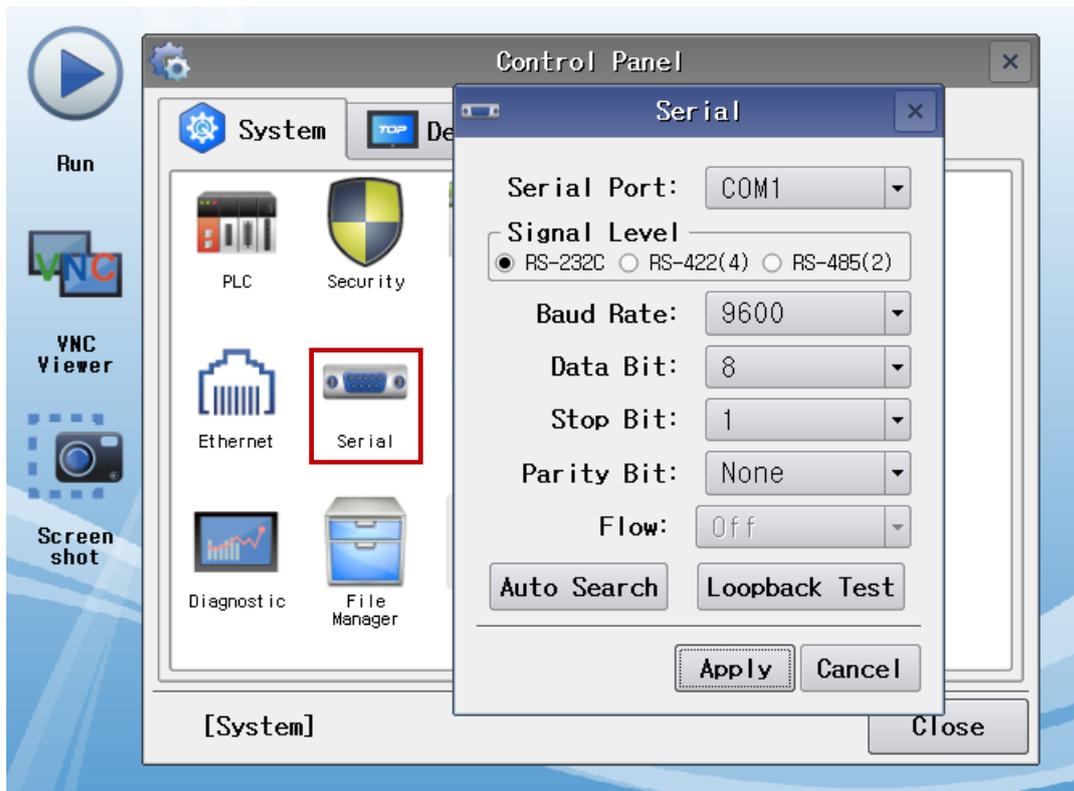
\* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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 ]



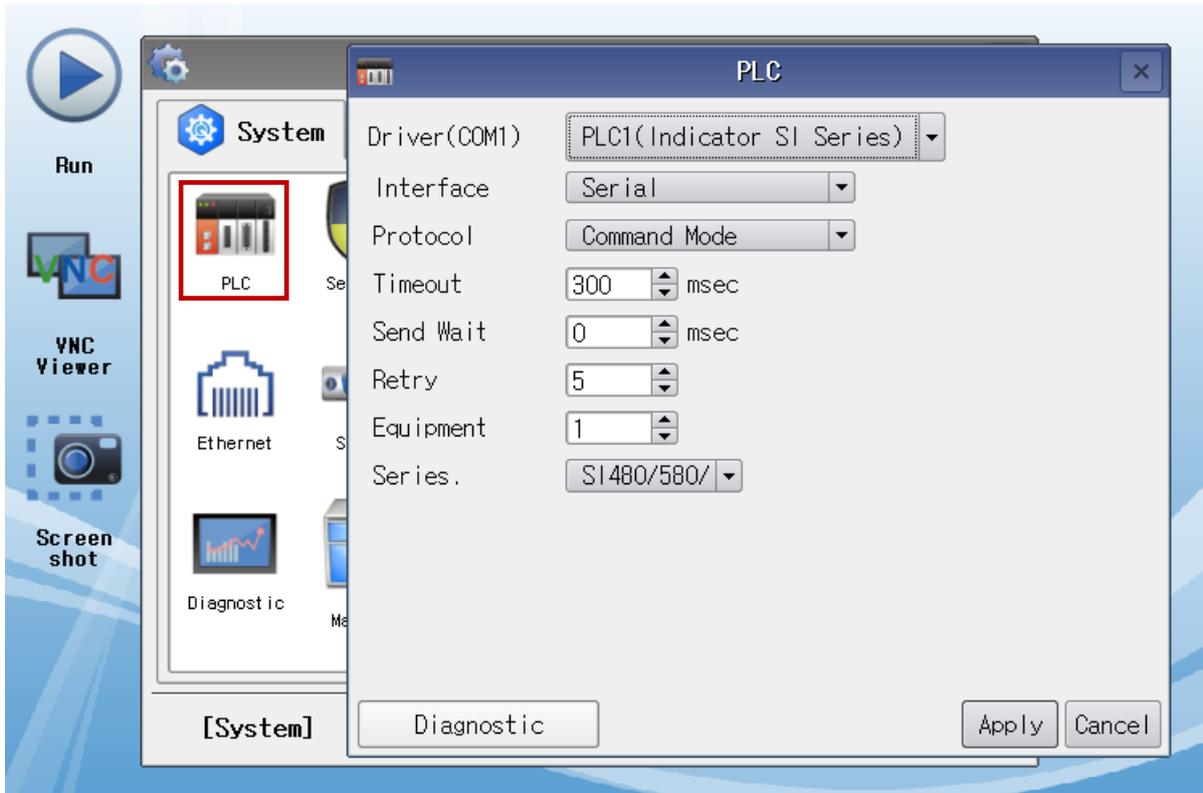
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C RS-422/485	RS-232C RS-422/485	
Baud Rate	9600		
Data Bit	8		
Stop Bit	1		
Parity Bit	None.		

\* 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	Select "Serial".	<a href="#">Refer to "2. External device selection".</a>
Protocol	Select 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.	
Equipment No.	Enter the equipment number of the external device.	

### 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

※ Refer to the manual of the SI model in use to set the Serial I/F as follows.

**Step 1.** Enter the F-FUNCTION setting mode.

**Step 2.** Refer to F-FUNCTION LIST to set the items for Serial I/F as follows.

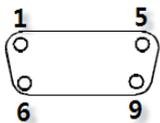
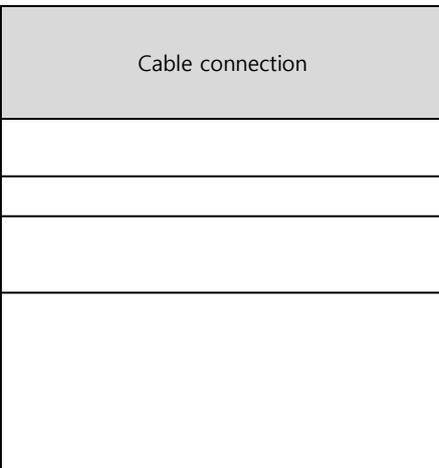
Items	Settings	Remarks
Equipment number setting	1	
Serial communication speed	9600 bps	
Serial communication data bit	8 bits	
Serial communication stop bit	1 bit	
Serial communication parity bit	None	
Data transmission method setting	<b>Command Mode</b>	<b>Fixed</b>
Set "Check Sum" detection in Command Mode.	Error detection characters not included in the transmission data	<b>Fixed</b>

## 5. Cable table

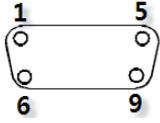
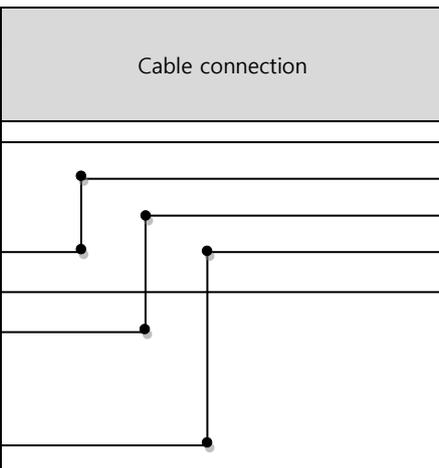
This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.

※ Refer to the manual of the SI model in use to make the cable.

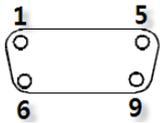
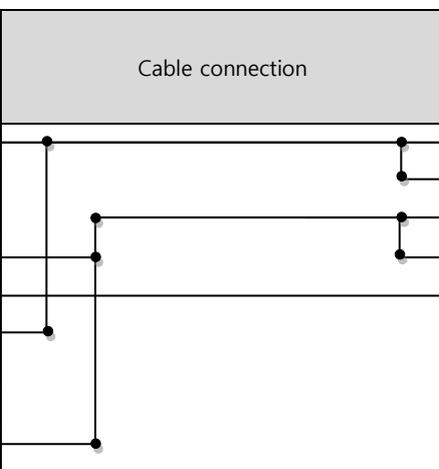
### ■ RS-232C (1 : 1 connection)

COM			Cable connection	External device	
Pin arrangement* <b>Note 1)</b>	Signal name	Pin number		Signal name	
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	CD	1			Serial I/F
	RD	2		TX	
	SD	3		RX	
	DTR	4			
	SG	5		SG	
	DSR	6			
	RTS	7			
	CTS	8			
		9			

### ■ RS-422 (1:1 connection)

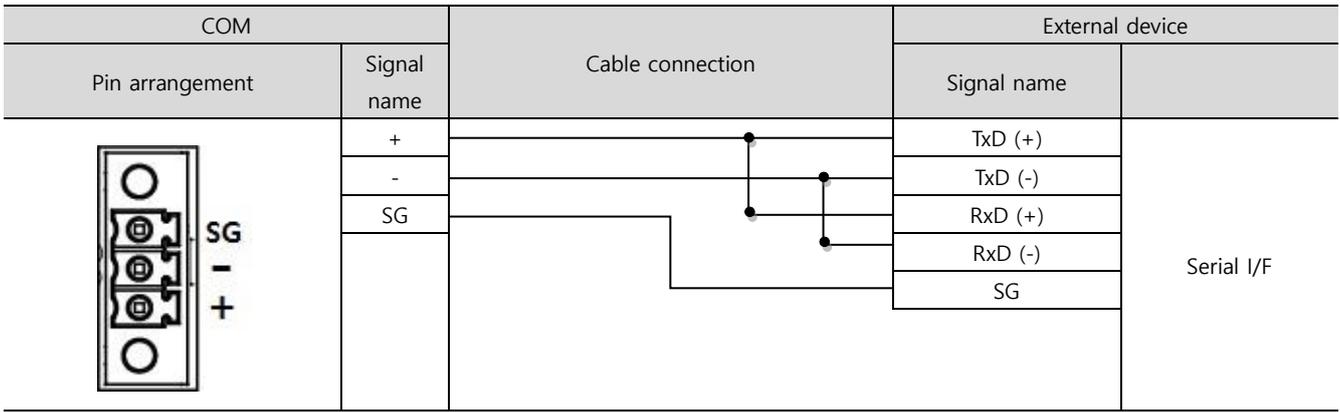
COM			Cable connection	External device	
Pin arrangement* <b>Note 1)</b>	Signal name	Pin number		Signal name	
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA(+)	1		TxD (+)	Serial I/F
		2		TxD (-)	
		3		RxD (+)	
	RDB(-)	4		RxD (-)	
	SG	5		SG	
	SDA(+)	6			
		7			
		8			
	SDB(-)	9			

### ■ RS-485 (1:1 connection)

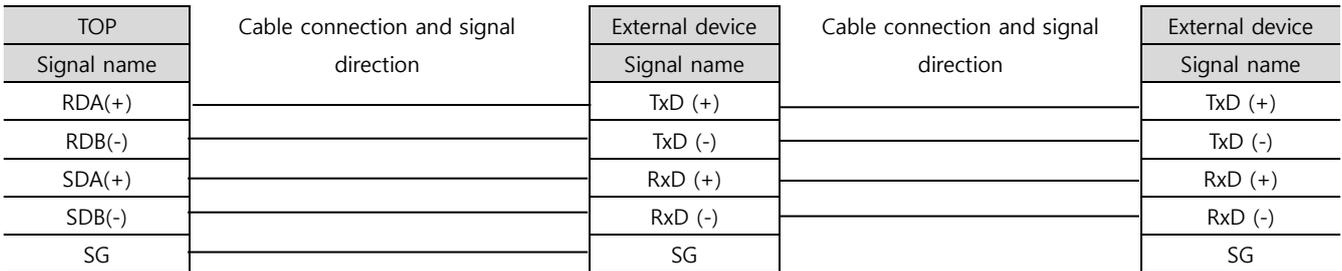
COM			Cable connection	External device	
Pin arrangement* <b>Note 1)</b>	Signal name	Pin number		Signal name	
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA(+)	1		TxD (+)	Serial I/F
		2		TxD (-)	
		3		RxD (+)	
	RDB(-)	4		RxD (-)	
	SG	5		SG	
	SDA(+)	6			
		7			
		8			
	SDB(-)	9			

☞ Continued on next page.

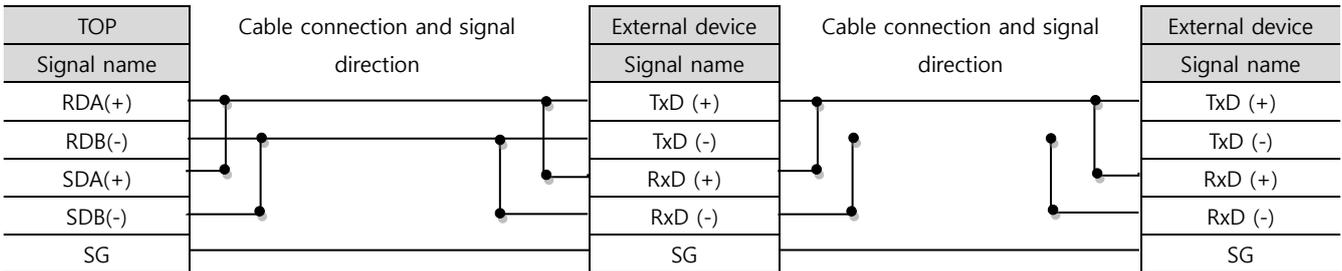
■ RS-485 (1:1 connection)



■ RS-422 1 : N connection - Refer to 1:1 connection to connect in the following method.



■ RS-485 (1 : N connection) - Refer to 1:1 connection to connect in the following method.



## 6. 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 availability differs according to the SI model. Be sure to refer to 'Command Mode' in the SI manual for use.

Device	Displayed contents (or function)	Bit Address	Word Address	Read/Write	SI command	Remarks
CWT.WEIGHT	Current weight value	-	CWT.WEIGHT	Read	RCWT	*Note 1)
CWT.STS	Stable status	CWT.STS0 ~ CWT.STS2	CWT.STS			*Note 2)
CWT.GSNT	Total weight/Net weight	CWT.GSNT0 ~ CWT.GSNT1	CWT.GSNT			*Note 3)
CWT.UNIT	Weight unit	-	CWT.UNIT			*Note 4)
SUB.WEIGHT	Subtotal weight value	-	SUB.WEIGHT	Read	RSUB	*Note 1)
SUB.P/N	P/N	-	SUB.P/N			
SUB.COUNT	Subtotal number of weighings	-	SUB.COUNT			
SUB.UNIT	Weight unit	-	SUB.UNIT			*Note 4)
GRD.WEIGHT	Total weight value	-	GRD.WEIGHT	Read	RGRD	*Note 1)
GRD.P/N	P/N	-	GRD.P/N			
GRD.COUNT	Total number of weighings	-	GRD.COUNT			
GRD.UNIT	Weight unit	-	GRD.UNIT			*Note 4)
SNO	Subtotal number of weighings	-	SNO	Read/Write	RSNO/WSNO	
FIN	Complete weighing value	-	FIN	Read/Write	RFIN/WFIN	*Note 5)
HOUR	Hour	-	HOUR	Read/Write	RTIM/WTIM	*Note 6)
MIN	Min	-	MIN			
SEC	Sec	-	SEC			
YEAR	Year	-	YEAR	Read/Write	RDAT/WDAT	*Note 7)
MONTH	Month	-	MONTH			
DAY	Day	-	DAY			
TAR	Tare set value	-	TAR	Read	RTAR	
SP	SP1~4 set value	-	SP1 ~ SP4	Read/Write	RSP1~4/WSP1~4	*Note 5)
PNO	Current part number	-	PNO	Read/Write	RPNO/WPNO	
CNO	Code set value	-	CNO	Read/Write	RCNO/WCNO	
FML	Weighing formula number	-	FML	Read/Write	RFML/WFML	
BIN	Curren BIN number	-	BIN	Read/Write	RBIN/WBIN	
DRI	Small supply set value	-	DRI	Read/Write	RDRI/WDRI	
FRE	Drop value	-	FRE	Read/Write	RFRE/WFRE	
TTL	Cumulative weight value	-	TTL	Read	RTTL	*Note 5)
PR	1~2 layer set value	-	PR1 ~ PR2	Read/Write	RPR1~2/WPR1~2	
FIL	Set value	-	FIL	Read/Write	RFIL/WFIL	
DIGITAL.INPUT	External input status	DIGITAL.INPUT1 ~ DIGITAL.INPUT4	DIGITAL.INPUT	Read	RWRS	
RELAY.OUT	Relay output status	RELAY.OUT1 ~ RELAY.OUT6	RELAY.OUT	Read		
WZER	Zero setting	WZER	WZER	Write	WZER	

Device	Displayed contents (or function)	Bit Address	Word Address	Read/Write	SI command	Remarks
WTAR	Tare ON	WTAR	WTAR	Write	WTAR	
WZRS	Tare OFF	WZRS	WZRS	Write	WZRS	
WHOL	Hold ON	WHOL	WHOL	Write	WHOL	
WHRS	Hold OFF	WHRS	WHRS	Write	WHRS	
WPRT	Print	WPRT	WPRT	Write	WPRT	
WSPR	Subtotal print	WSPR	WSPR	Write	WSPR	
WGPR	Total print	WGPR	WGPR	Write	WGPR	
WSTC	Subtotal deletion	WSTC	WSTC	Write	WSTC	
WGTC	Total deletion	WGTC	WGTC	Write	WGTC	
WSTR	Start operation	WSTR	WSTR	Write	WSTR	
WSTP	Stop operation	WSTP	WSTP	Write	WSTP	
WAUT	Print auto	WAUT	WAUT	Write	WAUT	
WGRO	GROSS/NET KEY	WGRO	WGRO	Write	WGRO	
WRUN	Start weighing	WRUN	WRUN	Write	WRUN	
WSTB	Stop weighing	WSTB	WSTB	Write	WSTB	
WBRS	Batch weighing initialization	WBRS	WBRS	Write	WBRS	
WRDY	Batch reset	WRDY	WRDY	Write	WRDY	

\*Note 1) Float-type data.

In order to update data such as STS, GSNT, P/N, COUNT, UNIT, etc. that use the same command, it must be registered with this device on the same screen.

\*Note 2)

Response data when the next bit is ON	
STS0	Stable
STS1	Unstable
STS2	Overload

\*Note 3)

Response data when the next bit is ON	
GSNT0	Net weight
GSNT1	Gross weight

\*Note 4) It means the unit being displayed by the indicator. Use it as a string only. (Length: 2)

\*Note 5) Float-type data

\*Note 5) In order to update data of "HOUR" and "SEC" devices, "MIN" devices must be registered together on the same screen.

\*Note 6) In order to update data of "YEAR" and "MONTH" devices, "DAY" devices must be registered together on the same screen.



※ Write-only Device Use Method

① Pop-up the object's property window → ② Effects and actions → ③ Condition setting → ④ Action setting

Set to enter data to the corresponding device when a condition occurs in the action setting.

