

OMRON Industrial Automation

CompoWay/F Driver

Supported version TOP Design Studio

V1.4.9.79 or higher



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

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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 OMRON's COMPOWAYF PROTOCOL is as follows.

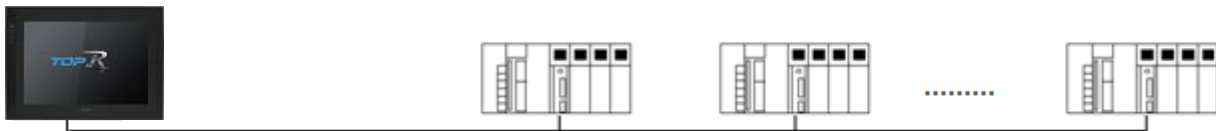
Series	Interface	Communication method	System setting	Cable
Device that supports COMPOWAY/F protocol	Serial	RS-232C RS-422/485	3. Setting example	4. Cable table

■ Connection configuration

- 1 : 1 (one TOP and one external device) connection

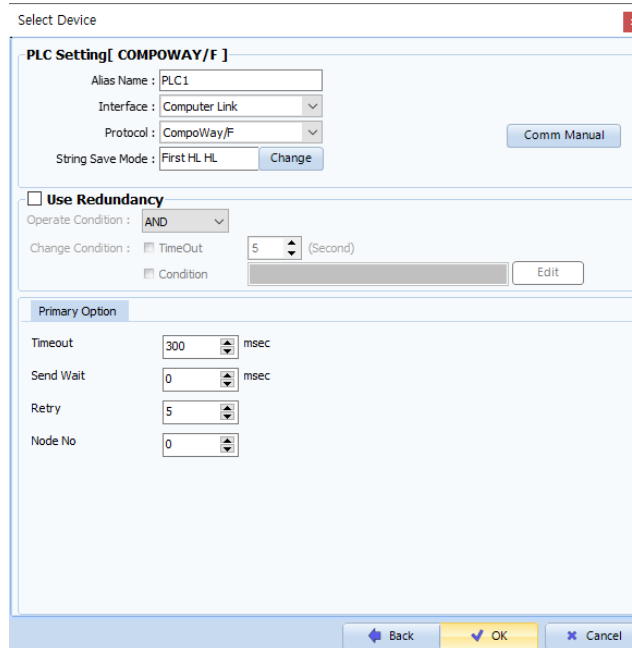
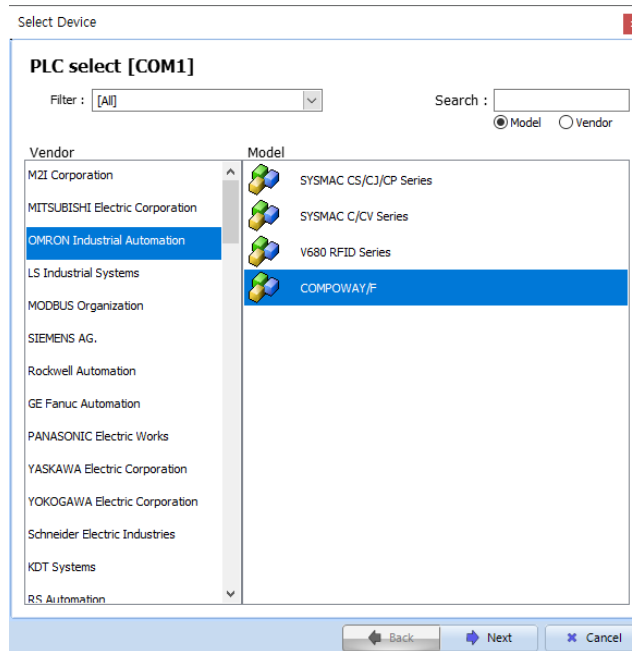


- 1 : N (one TOP and N external devices) connection – This configuration is possible in RS422 communication.



2. External device selection

- Select an external device to be connected to TOP.



Settings		Contents					
TOP	Model	Select the TOP model.					
External device	Vendor	Select the vendor of the external device. Select "OMRON Industrial Automation".					
	Model	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>CompoWay/F</td> <td>Computer Link</td> <td>CompoWay/F</td> </tr> </tbody> </table> 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.	Model	Interface	Protocol	CompoWay/F	Computer Link
Model	Interface	Protocol					
CompoWay/F	Computer Link	CompoWay/F					

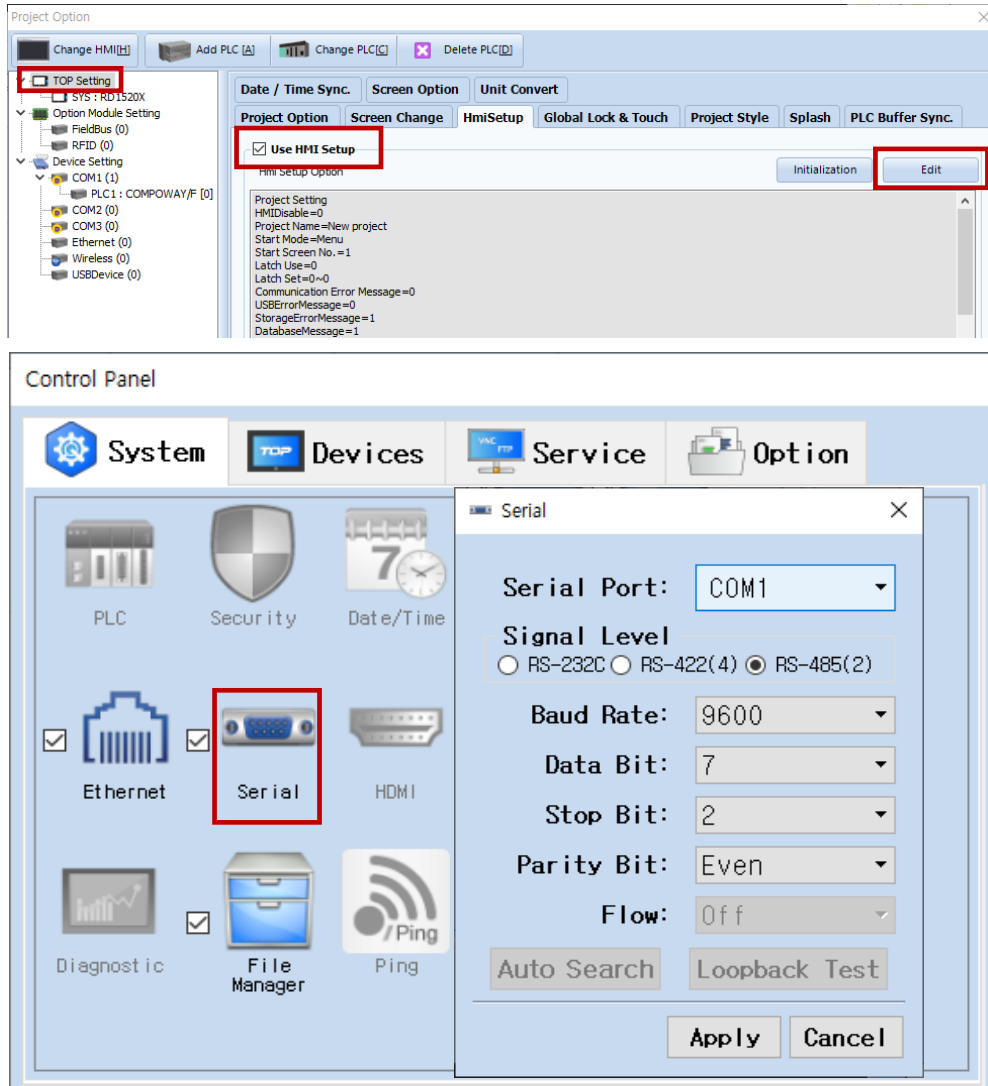
3. TOP communication setting

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.

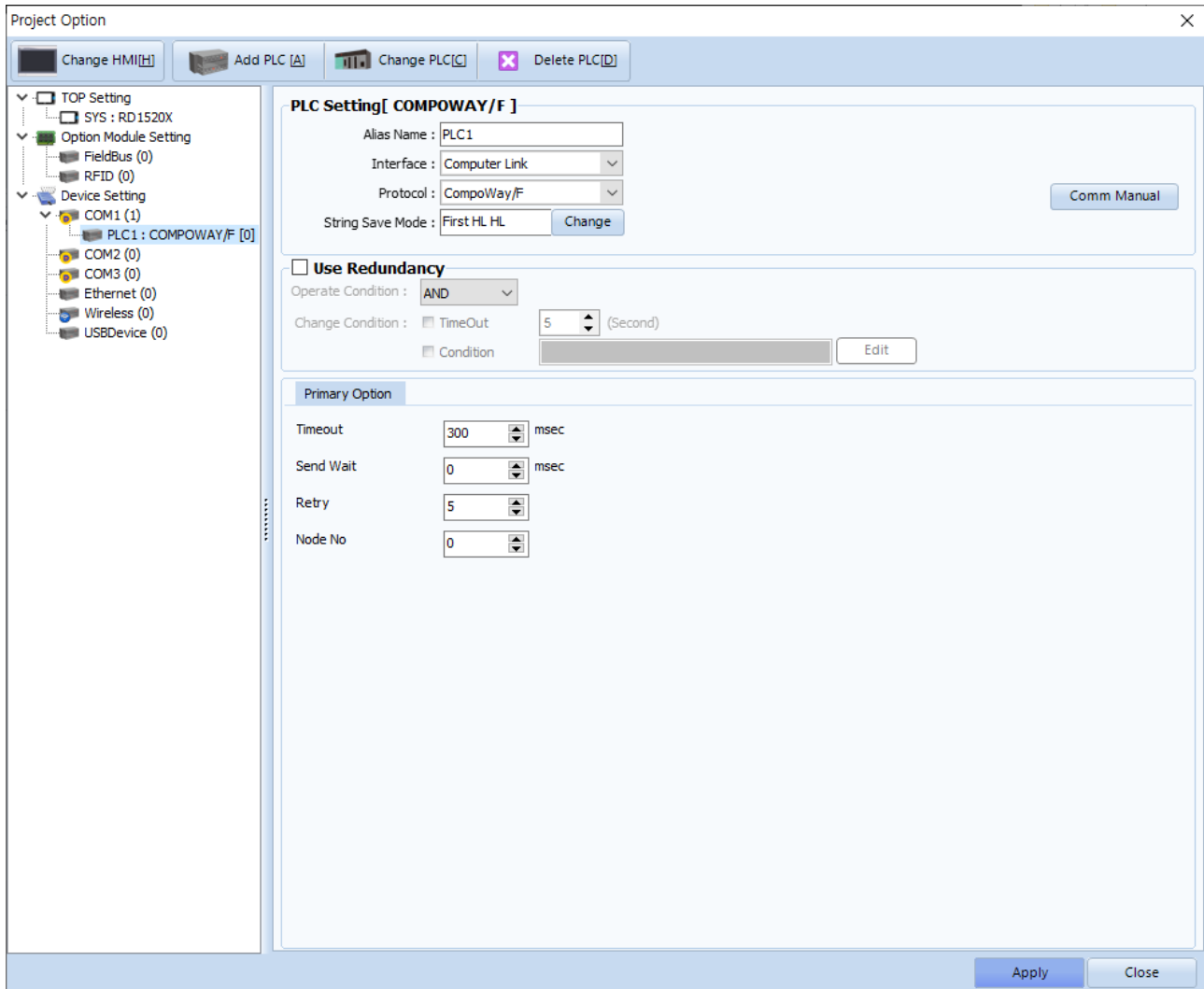


Items	TOP	External device	Remarks
Signal Level (port)	RS-232C RS-422/485	RS-232C RS-422/485	
Baud Rate	9600		
Data Bit	7		
Stop Bit	2		
Parity Bit	Even		

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device. (COM 3 only supports RS-485.)
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 settings

- [Project] → [Project property] → [Device setting → COM Port → CompoWay/F]
- Set the options of the communication driver of the Computer Link in TOP Design Studio

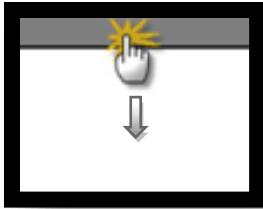


Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External device selection" .
Protocol	Select "Computer Link".	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Node No	Enter the prefix of an external device.	

3.2 Communication setting in TOP

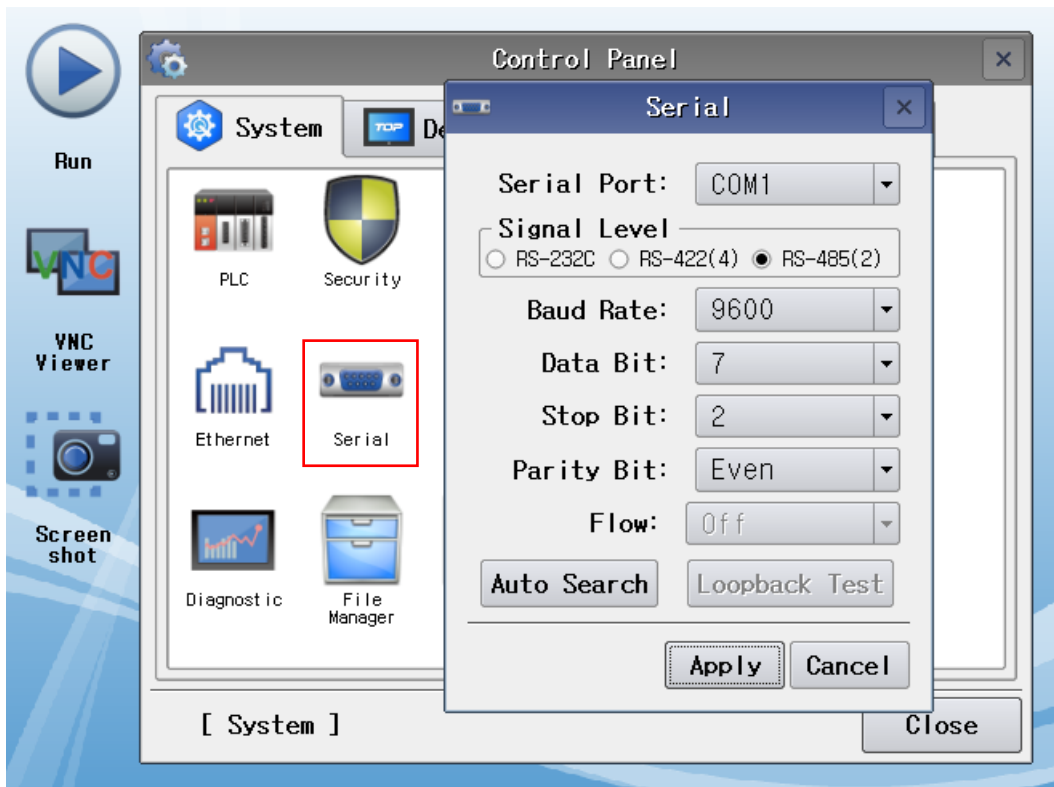
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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]



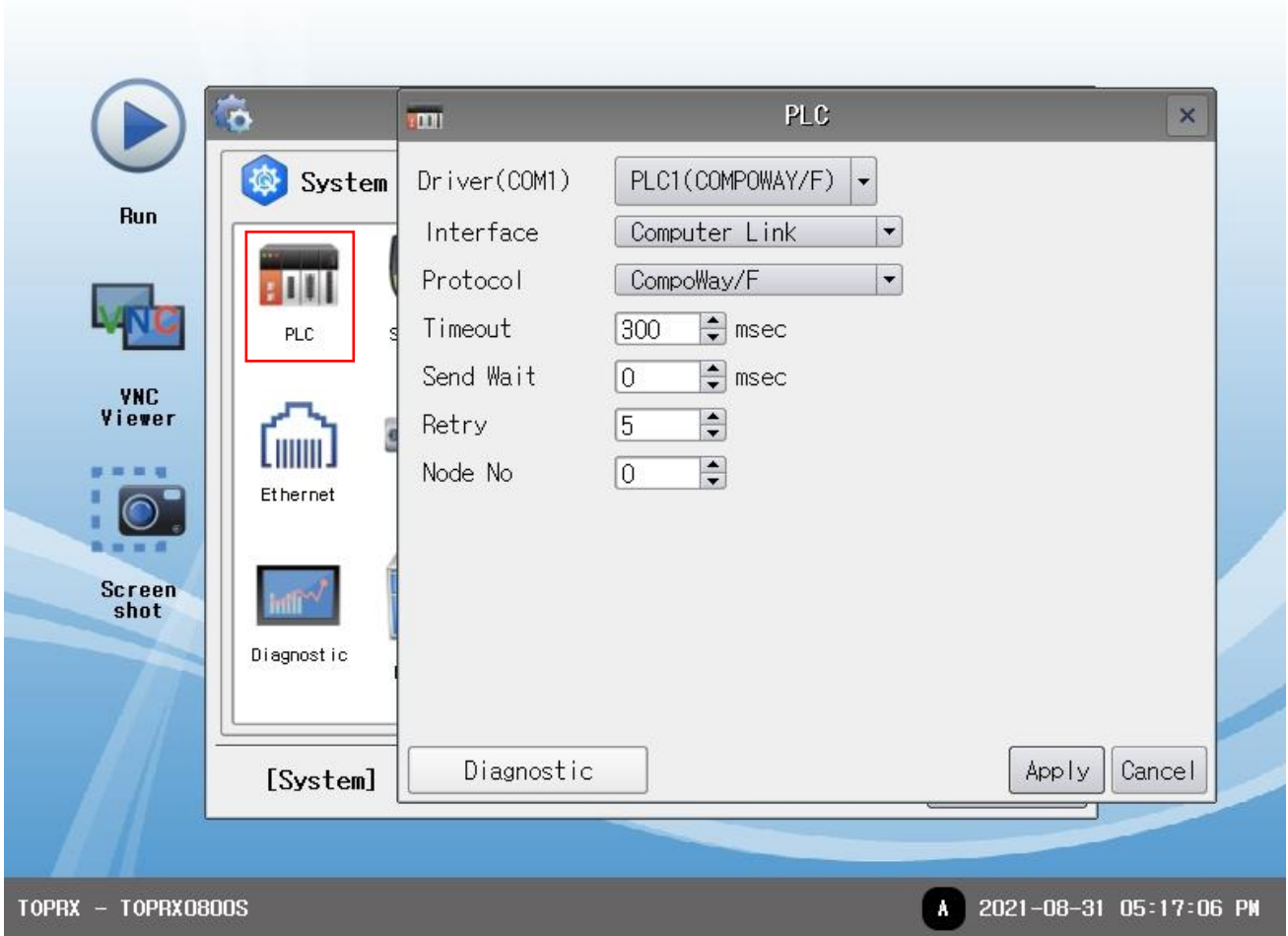
Items	TOP-R	External device	Remarks
Signal Level (port)	RS-232C RS-422/485	RS-232C RS-422/485	
Baud Rate	9600		
Data Bit	7		
Stop Bit	2		
Parity Bit	Even		

* 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. (COM 3 only supports RS-485.)
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 "Computer Link".	Refer to "2. External device selection".
Protocol	Select "CompoWay/F".	
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.	
Node No	Enter the prefix of an 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 whether the port (COM1/COM2/COM3) settings you want to use are the same as those of the external device in [Control panel > Serial].

- 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.

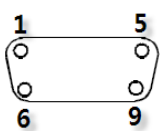
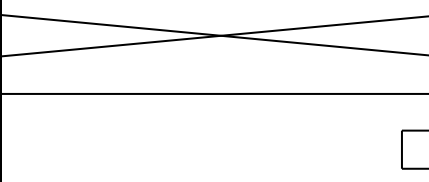
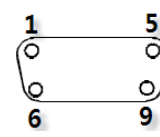
Items	Contents	Check		Remarks	
System configuration	How to connect the system	OK	NG	1. System configuration	
	Connection cable name	OK	NG		
TOP	Version information	OK	NG	2. Select an external device 3. Communication setting	
	Port in use	OK	NG		
	Driver name	OK	NG		
	Other detailed settings	OK	NG		
	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		
	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	5. Supported address (For details, refer to the PLC manufacturer's manual.)	

4. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.
(The cable diagram described in this section may differ from the recommendations of "OMRON Industrial Automation")

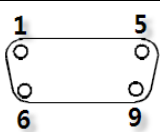
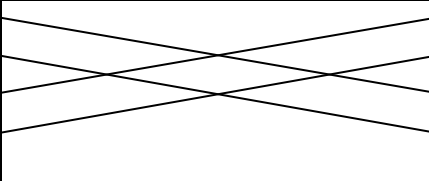
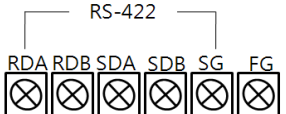
4.1. Cable table 1

■ RS-232C (1:1 connection)

COM1 / COM2			Cable connection	PLC		
Pin arrangement* Note 1)	Signal name	Pin number		Pin number	Signal name	Pin arrangement* Note 1)
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RD	2		2	SD	 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>
	SD	3		3	RD	
	SG	5		5	RS	
					7	
				8	SG	

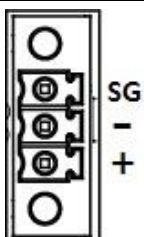
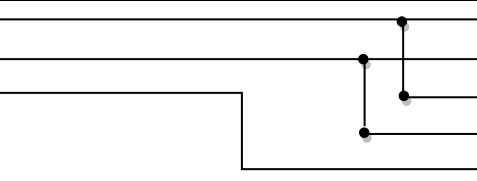
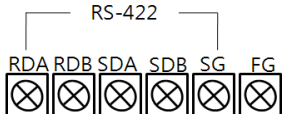
***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-422 (1:1 connection)

COM1 / COM2			Cable connection	PLC	
Pin arrangement* Note 1)	Signal name	Pin number		Signal name	Pin arrangement* Note 1)
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA	1		RDA	 <p>Based on communication cable connector front, Terminal Block 5 Pin</p>
	RDB	4		RDB	
	SDA	6		SDA	
	SDB	9		SDB	
				SG	

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

■ RS-485 (1:1 connection)

COM3		Cable connection	PLC	
Pin arrangement	Signal name		Signal name	Pin arrangement
	+		SDA	 <p>Based on communication cable connector front, Terminal Block 5 Pin</p>
	-		SDB	
	SG		RDA	
			RDB	
			SG	

5. 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	Bit Address	Word Address	NOTE
40	40-0000.00~C0FFFF.31	40-0000~C0FFFF	Different devices have different features.
4000	4000-0000.00 ~ 4000-FFFF.31	4000-0000 ~ 4000-FFFF	
80	80-0000.00~C0FFFF.31	80-0000~C0FFFF	
8000	8000-0000.00 ~ 8000-FFFF.31	8000-0000 ~ 8000-FFFF	
C0	C0-0000.00~C0FFFF.31	C0-0000~C0FFFF	
C1	C1-0000.00~C1FFFF.31	C1-0000~C1FFFF	
C2	C2-0000.00~C2FFFF.31	C2-0000~C2FFFF	
C3	C3-0000.00~C3FFFF.31	C3-0000~C3FFFF	
C4	C4-0000.00~C3FFFF.31	C4-0000~C3FFFF	
C5	C5-0000.00~C3FFFF.31	C5-0000~C3FFFF	
C6	C6-0000.00~C3FFFF.31	C6-0000~C3FFFF	
C7	C7-0000.00~C3FFFF.31	C7-0000~C3FFFF	
C8	C8-0000.00~C3FFFF.31	C8-0000~C3FFFF	
C9	C9-0000.00~C3FFFF.31	C9-0000~C3FFFF	
CA	CA-0000.00~CAFFFF.31	CA-0000~CAFFFF	
CB	CB-0000.00~CBFFFF.31	CB-0000~CBFFFF	
CB	CC-0000.00~CBFFFF.31	CC-0000~CBFFFF	
CB	CD-0000.00~CBFFFF.31	CD-0000~CBFFFF	
CB	CE-0000.00~CBFFFF.31	CE-0000~CBFFFF	
CB	CF-0000.00~CBFFFF.31	CF-0000~CBFFFF	
D0	D0-0000.00~D0FFFF.31	D0-0000~D0FFFF	
D1	D1-0000.00~D1FFFF.31	D1-0000~D1FFFF	
D4	D4-0000.00~D4FFFF.31	D4-0000~D4FFFF	
D5	D5-0000.00~D5FFFF.31	D5-0000~D5FFFF	
D6	D6-0000.00~D6FFFF.31	D6-0000~D6FFFF	
D7	D7-0000.00~D7FFFF.31	D7-0000~D7FFFF	
D8	D8-0000.00~D8FFFF.31	D8-0000~D8FFFF	
D9	D9-0000.00~D8FFFF.31	D9-0000~D8FFFF	
DA	DA-0000.00~D8FFFF.31	DA-0000~D8FFFF	
DB	DB-0000.00~D8FFFF.31	DB-0000~D8FFFF	
DC	DC-0000.00~D8FFFF.31	DC-0000~D8FFFF	
DD	DD-0000.00~D8FFFF.31	DD-0000~D8FFFF	
DE	DE-0000.00~D8FFFF.31	DE-0000~D8FFFF	
DF	DF-0000.00~D8FFFF.31	DF-0000~D8FFFF	
E0	E0-0000.00~E0FFFF.31	E0-0000~E0FFFF	
E1	E1-0000.00~E1FFFF.31	E1-0000~E1FFFF	
C000	C000-0000.00 ~ C000-FFFF.31	C000-0000 ~ C000-FFFF	
COMMAND		COMMAND-00 ~COMMAND-FF	Different devices have different features. Refer to the COMMAND description.

※ COMMAND Address description

For COMMAND address, only write operations are possible.

Use the COMMAND address to send special action commands. (COMMAND 3005)

The address number of COMMAND registered in the object becomes the command code, and the input value is transmitted as the motion content.

COMMAND address	Data of the COMMAND address
Command code	Motion content

COMMAND-[command code] = [motion content]

For external device OMRON E5CN

When entering 0 in COMMAND-[01] → Run motion

When entering 1 in COMMAND-[01] → Stop motion

When entering 0 in COMMAND-[04] → Backup mode

When entering 1 in COMMAND-[09] → Manual mode

*. The COMMAND is different for each device, so refer to the manual of each device.

※ Write-only Device Use Method

[Object's property window pop-up] → [Effects and Motions] → [Condition settings] → [Motion settings → Word → COMMAND-[Command code]]

Set to input data (motion content) to the corresponding device when setting the motion.

