MODBUS SIO Master Driver

Introduction

This manual describes how to connect the Display and the External Device (target PLC).

In this manual, the connection procedure will be described by following the below sections:

1	System Configuration This section shows the types of External Devices which can be connected and SIO type.	☞ "1 System Configuration" (page 3)

2	Selection of External Device Select a model (series) of the External Device to be connected and connection method.	☞ "2 Selection of External Device" (page 9)

3	Example of Communication Settings This section shows setting examples for communicating between the Display and the External Device.	☞ "3 Example of Communication Setting" (page 10)

4	Setup Items This section describes communication setup items on the Display. Set communication settings of the Display with GP-Pro Ex or in off-line mode.	☞ "4 Setup Items" (page 46)

5	Cable Diagram This section shows cables and adapters for connecting the Display and the External Device.	☞ "5 Cable Diagram" (page 55)

Operation

1 System Configuration

1.1 Schneider Electric Industries External Devices

The following table lists system configurations for connecting Schneider Electric Industries External Devices and the Display.
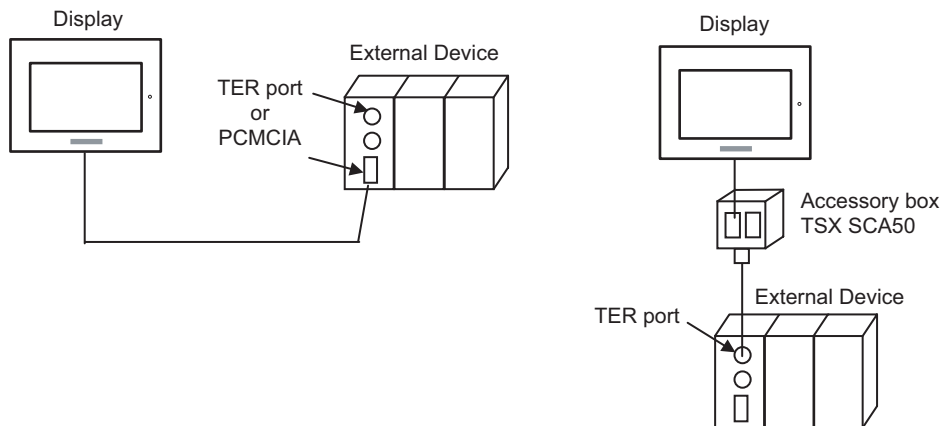
Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
Micro	TSX 37 05 028DR1 TSX 37 08 056DR1 TSX 37 10 128DT1 TSX 37 10 128DR1 TSX 37 10 128DTK1 TSX 37 10 164DTK1 TSX 37 10 028AR1 TSX 37 10 028DR1	TER port on CPU	RS232C	Setting Example 1 (page 10)	Cable Diagram 2 (page 62)
		Accessory box TSX SCA 50	RS485 (2wire)	Setting Example 3 (page 14)	Cable Diagram 3 (page 63)
	TSX 37 21 101 TSX 37 22 101 TSX 37 21 001 TSX 37 22 001	TER port on CPU	RS232C	Setting Example 1 (page 10)	Cable Diagram 2 (page 62)
		Accessory box TSX SCA 50	RS485 (2wire)	Setting Example 3 (page 14)	Cable Diagram 3 (page 63)
		PCMCIA card for RS232C TSX SCP 111	RS232C	Setting Example 2 (page 12)	Cable Diagram 4 (page 70)
		PCMCIA card for RS485 TSX SCP 114	RS485 (2wire)	Setting Example 3 (page 14)	Cable Diagram 5 (page 71)
Premium	TSX P57 103M TSX P57 153M TSX P57 203M TSX P57 253M TSX P57 303M TSX P57 353M TSX P57 453M	PCMCIA card for RS232C TSX SCP 111	RS232C	Setting Example 4 (page 16)	Cable Diagram 4 (page 70)
		PCMCIA card for RS485 TSX SCP 114	RS485 (2wire)	Setting Example 5 (page 18)	Cable Diagram 5 (page 71)
Twido	TWD LCAA 10DRF TWD LCAA 16DRF TWD LCAA 24DRF TWD LMDA 20DTK TWD LMDA 20DUK TWD LMDA 20DRT TWD LMDA 40DTK TWD LMDA 40DUK	Programming port on CPU	RS232C	Setting Example 6 (page 20)	Cable Diagram 2 (page 62)
		TWD NAC 485T	RS485 (2wire)	Setting Example 7 (page 22)	Cable Diagram 1 (page 55)
Quantum	140 CPU 113 02 140 CPU 113 03 140 CPU 434 12A 140 CPU 534 14A	Modbus port on CPU	RS232C	Setting Example 8 (page 24)	Cable Diagram 6 (page 76)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
Momentum	171 CCS 700 00 171 CCS 700 10 171 CCS 760 00 171 CCC 760 10	Modbus port 1 on CPU	RS232C	Setting Example 9 (page 26)	Cable Diagram 7 (page 77)
	171 CCS 780 00 171 CCC 780 10	Modbus port 1 on CPU	RS232C	Setting Example 9 (page 26)	Cable Diagram 7 (page 77)
		Modbus port 2 on CPU	RS485 (4wire)	Setting Example 10 (page 28)	Cable Diagram 8 (page 78)
	171 CCC 980 20 171 CCC 980 30	Modbus port 2 on CPU	RS485 (4wire)	Setting Example 10 (page 28)	Cable Diagram 8 (page 78)

■ Connection Configuration

◆ Micro Series

• 1:1 Connection

◆ Premium Series

• 1:1 Connection
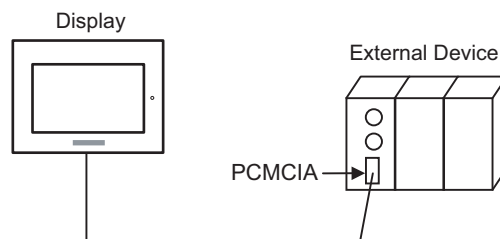
◆ Twido Series

• 1:1 Connection
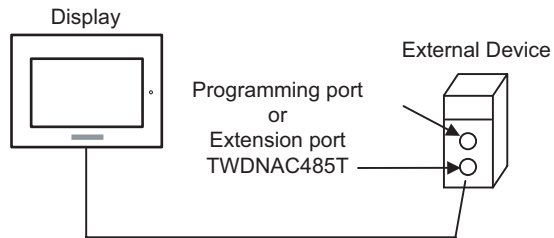
Display

External Device

Programming port
or
Extension port
TWDNAC485T

• 1:n Connection

External Device: Max 16 units

Display

External Device   External Device

Extension port
TWDNAC485T

◆ Quantum Series

• 1:1 Connection

Display

External Device

Modbus port
on CPU

◆ Momentum Series

• 1:1 Connection

Display

Modbus port

External Device

∗Port specification varies
depending on the model.
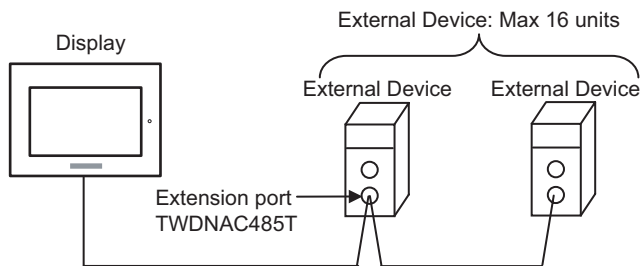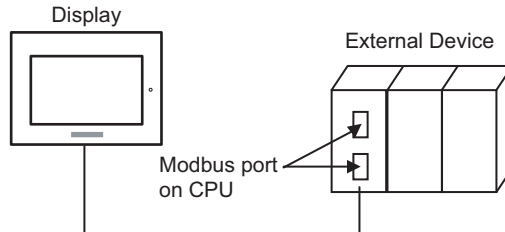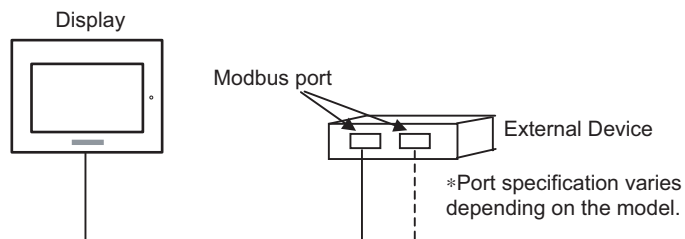
1.2　YOKOGAWA Electric Corporation External Devices

The following table lists system configurations for connecting YOKOGAWA Electric Corp. External Devices and the Display.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
FCN	NFCP100-S00	Serial port on CPU	RS232C	Setting Example 11 (page 30)	Cable Diagram 9 (page 81)
		NFLR111-S00	RS232C	Setting Example 12 (page 34)	Cable Diagram 10 (page 82)
		NFLR121-S00	RS485 (4 wire)	Setting Example 13 (page 38)	Cable Diagram 11 (page 83)
			RS485 (2 wire)	Setting Example 14 (page 42)	Cable Diagram 12 (page 88)
FCJ	NFJT100-S100	Serial port on CONTROL UNIT	RS232C	Setting Example 11 (page 30)	Cable Diagram 9 (page 81)

■ Connection Configuration

◆ FCN/FCJ Series

• 1:1 Connection
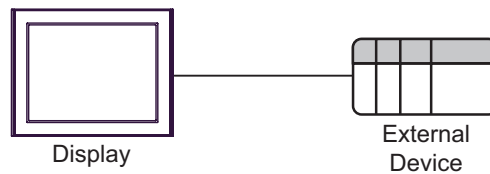
• 1:n Connection
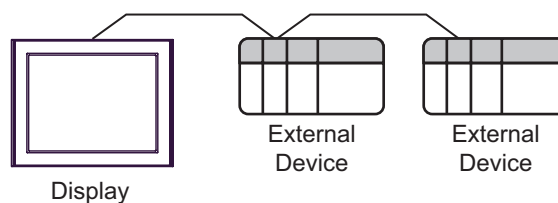
■ IPC COM Port

When connecting IPC with an External Device, the COM port used depends on the series and SIO type. Please refer to the IPC manual for details.

Usable port

Series	Usable Port		
	RS-232C	RS-422/485(4 wire)	RS-422/485(2 wire)
PS-2000B	COM1[*1] , COM2, COM3[*1], COM4	-	-
PS-3450A, PS-3451A	COM1, COM2[*1*2]	COM2[*1*2]	COM2[*1*2]
PS-3650A, PS-3651A	COM1[*1]	-	-
PS-3700A (Pentium®4-M) PS-3710A	COM1[*1], COM2[*1], COM3[*2] , COM4	COM3[*2]	COM3[*2]
PS-3711A	COM1[*1], COM2[*2]	COM2[*2]	COM2[*2]
PL-3000B, PL-3600T, PL-3600K, PL-3700T, PL-3700K, PL-3900T	COM1[*1*2], COM2[*1], COM3, COM4	COM1[*1*2]	COM1[*1*2]

*1   The RI/5V can be switched. Use the IPC's switch to change if necessary.

*2   Set up the SIO type with the DIP switch. Please set up as follows according to SIO type to be used.

DIP switch setting: RS-232C

DIP switch	Setting	Description
1	OFF[*1]	Reserved (always OFF)
2	OFF	SIO type: RS-232C
3	OFF	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Not available
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available
9	OFF	RS (RTS) Auto control mode: Disabled
10	OFF	

*1   When using PS-3450A and PS-3451A, turn ON the set value.

DIP switch setting: RS-422/485 (4 wire)

DIP switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (RXA): Not available
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available
9	OFF	RS (RTS) Auto control mode: Disabled
10	OFF	

DIP switch setting: RS-422/485 (2 wire)

DIP switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	ON	Short-circuit of SDA (TXA) and RDA (RXA): Available
8	ON	Short-circuit of SDB (TXB) and RDB (RXB): Available
9	ON	RS (RTS) Auto control mode: Enabled
10	ON	

2   Selection of External Device

Select the External Device to be connected to the Display.

Setup Items	Setup Description
Maker	Select the maker of the External Device to be connected. Select "Schneider Electric Industries".
Driver	Select a model (series) of the External Device to be connected and connection method. Select "MODBUS SIO Master". Check the External Device which can be connected in "MODBUS SIO Master" in system configuration. ☞ "1 System Configuration" (page 3)
Use System Area	Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the display. 　Cf.　GP-Pro EX Reference Manual "Appendix 1.4 LS Area (Direct Access Method)" This can be also set with GP-Pro EX or in off-line mode of Display. 　Cf.　GP-Pro EX Reference Manual " 5.17.6 [System Settings] Setting Guide, [Display Unit] Settings Guide, System Area Settings" 　Cf.　Maintenance/Troubleshooting Manual "2.15.1 Settings common to all Display models, [Main Unit Settings] Settings Guide, System Area Settings"
Port	Select the Display port to be connected to the External Device.

3 Example of Communication Setting

Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

When using MODBUS Series, use GP-Pro EX and the ladder software to set as below.

3.1 Setting Example 1

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab

[Max Query] tab

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 0	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Transmission speed	9600bps	
Delay between characters	5msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ Notes

• Please refer to the manual of the ladder software for more detail on other setting description.

3.2　　　Setting Example 2

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.
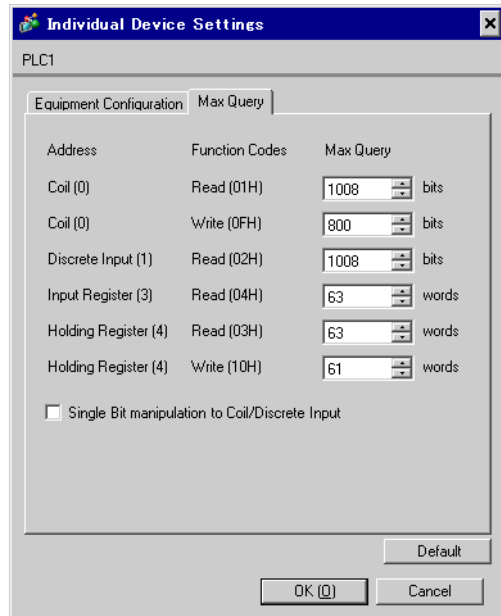
◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 111 RS232 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Type	Slave	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.3 Setting Example 3

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

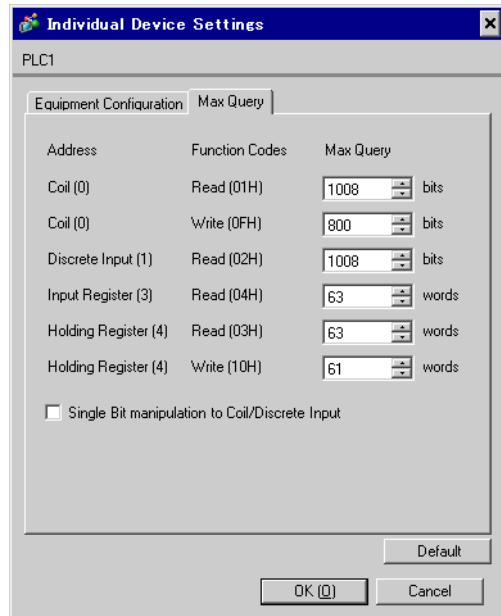[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 114 RS485 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Type	Slave	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.4　　　Setting Example 4

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 111 RS232 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Type	Slave	
Slave number	1	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ Notes

• Please refer to the manual of the ladder software for more detail on other setting description.

3.5　　　Setting Example 5

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.
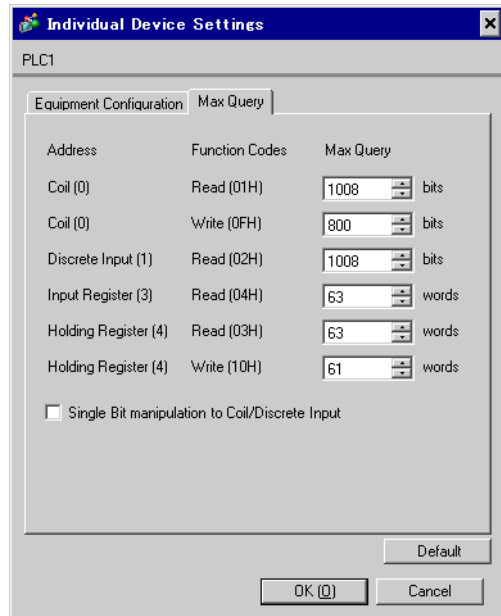
◆ Device Setting

To display the setting screen, click   ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click   from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 114 RS485 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Type	Slave	
Slave number	1	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.6 Setting Example 6

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

Select "Hardware" from "TWDLMDA40DUK" in "Application Browser" of "TwidoSoft", and right-click on "Port 1 : Remote Link, 1" to select "Edit Controller Comm Setup...".

Perform the settings in the "Controller Communication Setup" dialog box displayed next.

Setup Items		Setup Description
Protocol	Type	Modbus
	Address	1
Parameters	Baud Rate	19200
	Data Bits	8
	Parity	None
	Stop Bits	1
End of Frame		10
Response Timeout		10 x 100msec
Frame Timeout		4msec

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.7　　　　Setting Example 7

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.
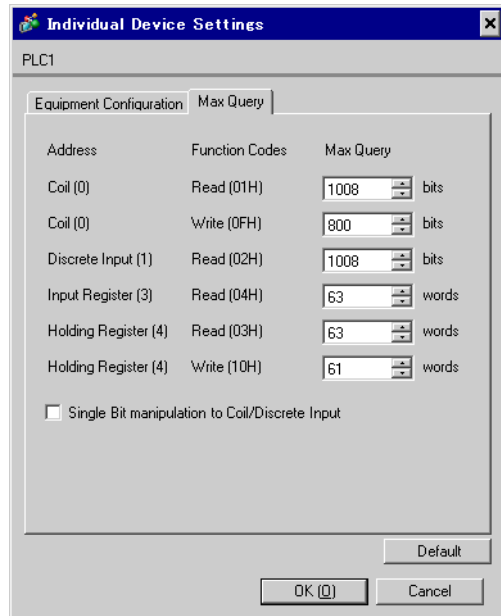
◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

Right-click on "Hardware" from "TWDLMDA40DUK" in "Application Browser" of "TwidoSoft" to select "Add Option...". Right-click on "Port 2 : Modbus, 1" added to "Hardware" in "TWDLMDA40DUK" to select "Edit Controller Comm Setup...".

Perform the settings in the "Controller Communication Setup" dialog box displayed next.

Setup Items		Setup Description
Protocol	Type	Modbus
	Address	1
Parameters	Baud Rate	19200
	Data Bits	8
	Parity	None
	Stop Bits	1
End of Frame		10
Response Timeout		10 x 100msec
Frame Timeout		10msec

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.8   Setting Example 8

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.
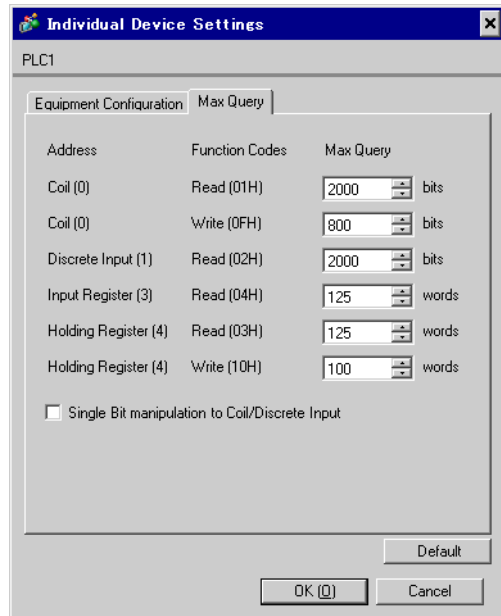
◆ Device Setting

To display the setting screen, click 📰 ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click 📰 from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

Individual Device Settings

PLC1

Equipment Configuration | Max Query |

Equipment Address

　Slave Equipment Address　　　1

Bit manipulation (set/reset) to Holding Register

　Rest of the bits in this word　　○ Clear　　⦿ Do not clear

　Note on when selecting "Do not clear" :
　If the ladder program writes data to Holding Register during the
　read/write process, the resulting data may be incorrect.

☐ IEC61131 Syntax

　Address Mode　　　0-based (Default)

　Please reconfirm all of address settings that you are using if you
　have changed the setting.

Variables

　Double Word word order　　　Low word first(L/H)

☐ Low Security Level

　　　　　　　　　　　　　Default

　　　　　　OK (O)　　　Cancel

Individual Device Settings

PLC1

Equipment Configuration | Max Query |

Address	Function Codes	Max Query	
Coil (0)	Read (01H)	2000	bits
Coil (0)	Write (0FH)	800	bits
Discrete Input (1)	Read (02H)	2000	bits
Input Register (3)	Read (04H)	125	words
Holding Register (4)	Read (03H)	125	words
Holding Register (4)	Write (10H)	100	words

☐ Single Bit manipulation to Coil/Discrete Input

　　　　　　　　　　　　　Default

　　　　　　OK (O)　　　Cancel

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Quantum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS232

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.9　　　Setting Example 9

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.
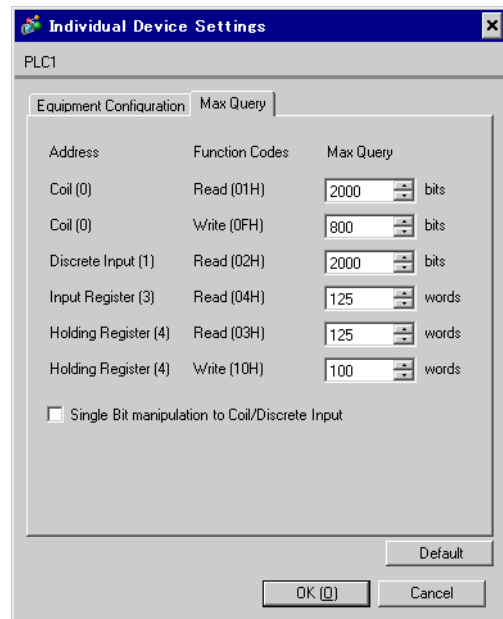
◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

Individual Device Settings

PLC1

Equipment Configuration | Max Query |

Equipment Address

Slave Equipment Address   1

Bit manipulation (set/reset) to Holding Register

Rest of the bits in this word   ○ Clear   ● Do not clear

Note on when selecting "Do not clear":
If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect.

☐ IEC61131 Syntax

Address Mode   0-based (Default)

Please reconfirm all of address settings that you are using if you have changed the setting.

Variables

Double Word word order   Low word first(L/H)

☐ Low Security Level

Default

OK (O)   Cancel

Individual Device Settings

PLC1

Equipment Configuration   Max Query |

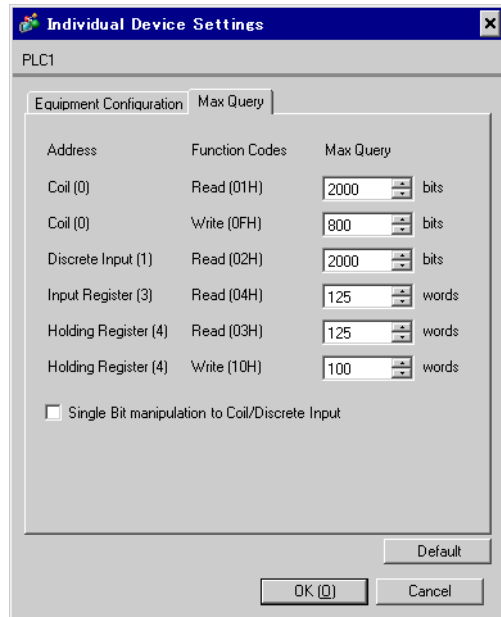| Address	Function Codes	Max Query	
Coil (0)	Read (01H)	2000	bits
Coil (0)	Write (0FH)	800	bits
Discrete Input (1)	Read (02H)	2000	bits
Input Register (3)	Read (04H)	125	words
Holding Register (4)	Read (03H)	125	words
Holding Register (4)	Write (10H)	100	words

☐ Single Bit manipulation to Coil/Discrete Input

Default

OK (O)   Cancel

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Momentum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS232

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.10 Setting Example 10

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Device/PLC 1

Summary   Change Device/PLC

Maker Schneider Electric Industries   Driver MODBUS SIO Master   Port COM1

Text Data Mode   1   Change

Communication Settings

SIO Type   ○ RS232C   ○ RS422/485(2wire)   ● RS422/485(4wire)

Speed   19200

Data Length   ○ 7   ● 8

Parity   ○ NONE   ● EVEN   ○ ODD

Stop Bit   ● 1   ○ 2

Flow Control   ● NONE   ○ ER(DTR/CTS)   ○ XON/XOFF

Timeout   3 (sec)

Retry   2

Wait To Send   3 (ms)   ☑ Default Value

RI / VCC   ● RI   ○ VCC

In the case of RS232C, you can select the 9th pin to RI (Input)
or VCC (5V Power Supply). If you use the Digital's RS232C
Isolation Unit, please select it to VCC.   Default

Device-Specific Settings

Allowable No. of Device/PLCs 16 Unit(s)

No. Device Name   Settings

1   PLC1   Slave Equipment Address=1,Rest of the bits in this word=Do not clear,IEC611
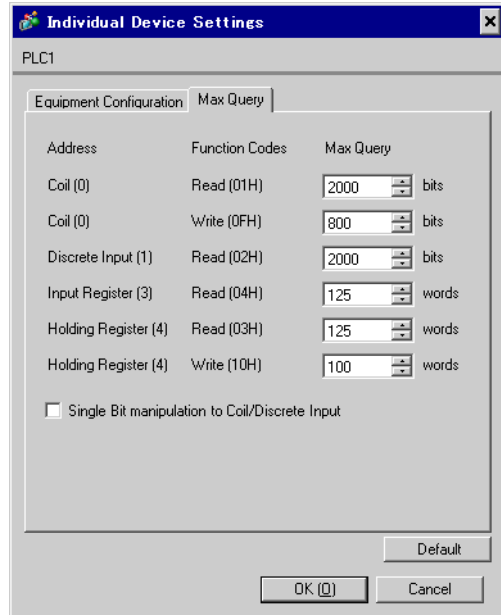
◆ Device Setting
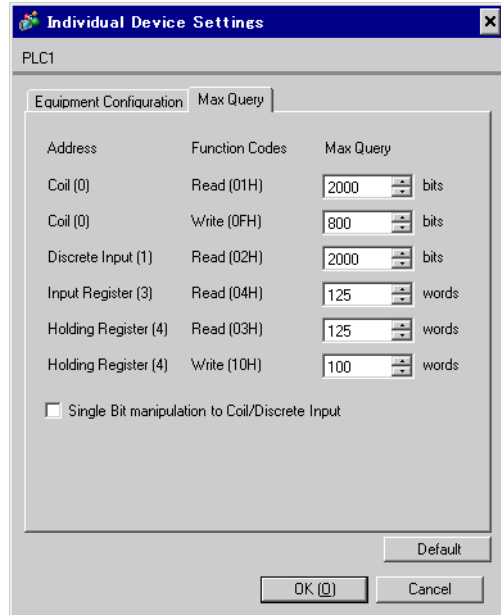
To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Momentum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS485

◆ Notes

Please refer to the manual of the ladder software for more detail on other setting description.

3.11   Setting Example 11

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click [Setting] of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

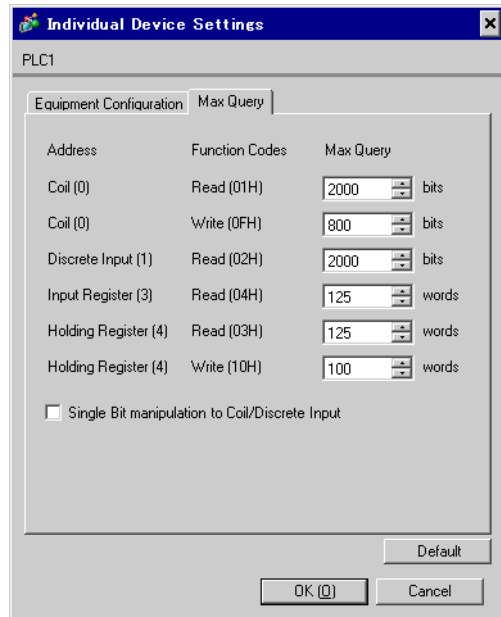When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the Web browser and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Serial Port on CPU>

1 Set IP address of the External Device to "192.168.1.1".

NOTE • For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings (Resource Configurator).

2 Connect both the Ethernet ports between a PC and the External Device using the LAN cable. (Connect via HUB.)

3 Start up the Web browser.

4 Enter "http://192.168.1.1/mnt" in the address input box.

5 Enter [User Name] and [Password] in the displayed dialog box to login.

6 Click [Maintenance Menu] to display the [FCX Maintenance Menu] screen.

7 Click [Reboot] to display the [Reboot FCX] screen.

8 Check the [Reboot(Maintenance Mode)] option.

9 Click [OK] to display the [Reboot] screen.

10 Reboot the External Device. Confirm the reboot is complete.

11 Click [Maintenance Homepage] to display the [STARDOM FCX Maintenance Page] screen.

12 Click [OK] to display the [FCX Maintenance Menu] screen.

13 Click [Edit] to display the [Edit System Setting Files] screen.

14 Check the [COM1 Port Setting File] option and click [OK].

15 Set each item as follows:

Setup Items	Setup Description
Baudrate	19200
DataBitLength	8
StopBitLength	1
Parity	EVEN

16 Click [OK] to display the [Edit System Setting Files(RESULT)] screen.

17 Click [Maintenance Menu] to display the [FCX Maintenance Menu] screen.

18 Click [Reboot] to display the [Reboot FCX] screen.

19 Check the [Reboot(Online Mode)] option and click [OK].

The External Device is rebooted.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

☞ " ◆ Control Logic Example" (page 33)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is requred.

The control logic example is shown below.

```
                          SD_CMDBSM_BS_OPEN1
                        ┌─────────────────────────┐
                        │  SD_CMDBSM_BS_OPEN       │
             TRUE ──────┤ REQ              VALID   ├── RTU_VALID1
           'COM1' ──────┤ PORT             ERROR   ├── RTU_ERROR1
                ● ──────┤ OPTION           STATUS  ├── RTU_STATUS1
           UNIT#1 ──────┤ STATION        POSITION  ├── RTU_POSITION1
             10.0 ──────┤ TOUT_VAL                 │
            FALSE ──────┤ UNIT_CHARTM              │
      ' YOKOGAWA '──────┤ VENDOR                   │
      ' STARDOM ' ──────┤ PRODUCT                  │
      ' R1.80.01 '──────┤ REVISION                 │
             COIL ──────┤ COIL   ────── COIL ──────┤ COIL
             DSCI ──────┤ DSCI   ────── DSCI ──────┤ DSCI
             IREG ──────┤ IREG   ────── IREG ──────┤ IREG
             HREG ──────┤ HREG   ────── HREG ──────┤ HREG
             ESTS ──────┤ ESTS   ────── ESTS ──────┤ ESTS
     RTU_COMERR1 ──────┤ COMERR ──── COMERR ──────┤ RTU_COMERR1
                        └─────────────────────────┘
```

3.12　　　Setting Example 12

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the dedicated tool for basic settings (Resource Configurator) and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Communication Module>

1 Set IP address of the External Device to "192.168.1.1".

NOTE • For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings.

2 Start up the dedicated tool for the basic settings.

3 From the [File] menu, select [Connection] to display the [Connect] dialog box.

4 Enter "192.168.1.1" in [Host].

5 Enter [User Name] and [Password] to login.

6 Select the link I/F to use from the [Controller Configuration] tree view.

7 Enter the port name in [Port Name].

8 Select [Port1] from the link I/F to use the [Controller Configuration] tree view.

9 Set specifications as follows:

Specifications	Setting
Wiring Method	-
Duplex Operation	Full-duplex
Baud Rate	19200
Data Bits	8
Parity Setting	EVEN
Stop Bits	1
Send Signal Check	NONE
Recieve Flow Control	NONE
API Error Detection	YES

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

)" ◆ Control Logic Example" (page 37)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is requred.

The control logic example is shown below.

```
                    SD_CMDBSM_BS_OPEN1
                 ┌──────────────────────────┐
                 │  SD_CMDBSM_BS_OPEN        │
        TRUE ────┤  REQ              VALID   ├──── RTU_VALID1
      'COM1' ────┤  PORT             ERROR   ├──── RTU_ERROR1
           ● ────┤  OPTION          STATUS   ├──── RTU_STATUS1
      UNIT#1 ────┤  STATION        POSITION  ├──── RTU_POSITION1
        10.0 ────┤  TOUT_VAL                 │
       FALSE ────┤  UNIT_CHARTM              │
  ' YOKOGAWA '───┤  VENDOR                   │
  ' STARDOM '────┤  PRODUCT                  │
  ' R1.80.01 '───┤  REVISION                 │
        COIL ────┤  COIL  ─────────  COIL ───┤ COIL
        DSCI ────┤  DSCI  ─────────  DSCI ───┤ DSCI
        IREG ────┤  IREG  ─────────  IREG ───┤ IREG
        HREG ────┤  HREG  ─────────  HREG ───┤ HREG
        ESTS ────┤  ESTS  ─────────  ESTS ───┤ ESTS
 RTU_COMERR1 ────┤  COMERR ──── COMERR ──────┤ RTU_COMERR1
                 └──────────────────────────┘
```

3.13   Setting Example 13

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

Individual Device Settings (PLC1)

Equipment Configuration | Max Query

Equipment Address
- Slave Equipment Address: 1

Bit manipulation (set/reset) to Holding Register
- Rest of the bits in this word: ○ Clear   ⦿ Do not clear
- Note on when selecting "Do not clear": If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect.

☐ IEC61131 Syntax
- Address Mode: 0-based (Default)
- Please reconfirm all of address settings that you are using if you have changed the setting.

Variables
- Double Word word order: Low word first(L/H)

☐ Low Security Level

Default   OK (O)   Cancel

Individual Device Settings (PLC1)

Equipment Configuration | Max Query

Address	Function Codes	Max Query	
Coil (0)	Read (01H)	2000	bits
Coil (0)	Write (0FH)	800	bits
Discrete Input (1)	Read (02H)	2000	bits
Input Register (3)	Read (04H)	125	words
Holding Register (4)	Read (03H)	125	words
Holding Register (4)	Write (10H)	100	words

☐ Single Bit manipulation to Coil/Discrete Input

Default   OK (O)   Cancel

■ Settings of External Device

Use the dedicated tool for basic settings (Resource Configurator) and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Communication Module>

1 Set IP address of the External Device to "192.168.1.1".

NOTE • For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings.

2 Start up the dedicated tool for the basic settings.
3 From the [File] menu, select [Connection] to display the [Connect] dialog box.
4 Enter "192.168.1.1" in [Host].
5 Enter [User Name] and [Password] to login.
6 Select the link I/F to use from the [Controller Configuration] tree view.
7 Enter the port name in [Port Name].
8 Select [Port1] from the link I/F to use the [Controller Configuration] tree view.

9 Set specifications as follows:

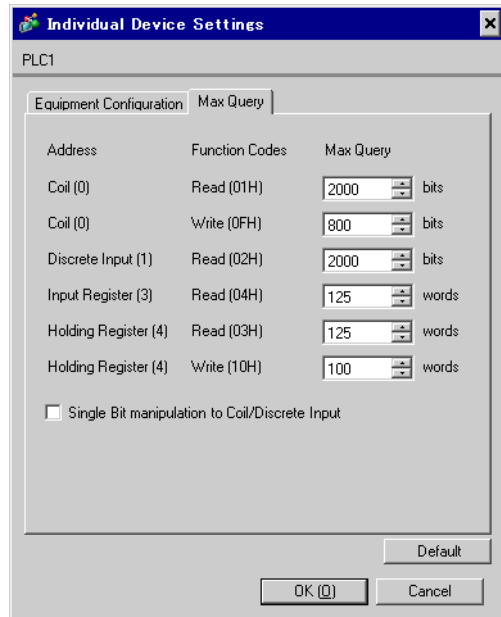| Specifications	Setting
Wiring Method	-
Duplex Operation	Full-duplex
Baud Rate	19200
Data Bits	8
Parity Setting	EVEN
Stop Bits	1
Send Signal Check	NONE
Recieve Flow Control	NONE
API Error Detection	YES

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

☞ " ◆ Control Logic Example" (page 41)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

11 Download the communication settings to the External Device.
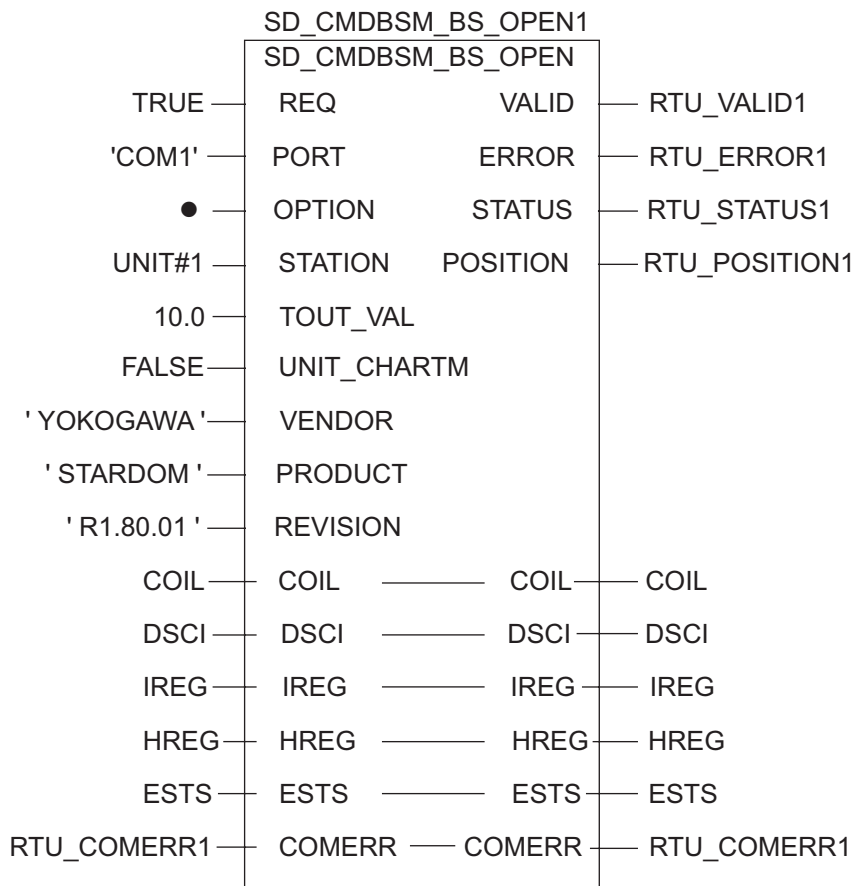
12 Reboot the External Device.

3.14 Setting Example 14

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

◆ Device Setting

To display the setting screen, click ▒▒ ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click ▒▒ from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab   [Max Query] tab

■ Settings of External Device

Use the dedicated tool for basic settings (Resource Configurator) and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Communication Module>

1 Set IP address of the External Device to "192.168.1.1".

NOTE • For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings.

2 Start up the dedicated tool for the basic settings.

3 From the [File] menu, select [Connection] to display the [Connect] dialog box.

4 Enter "192.168.1.1" in [Host].

5 Enter [User Name] and [Password] to login.

6 Select the link I/F to use from the [Controller Configuration] tree view.

7 Enter the port name in [Port Name].

8 Select [Port1] from the link I/F to use the [Controller Configuration] tree view.

9 Set specifications as follows:

Specifications	Setting
Wiring Method	-
Duplex Operation	Full-duplex
Baud Rate	19200
Data Bits	8
Parity Setting	EVEN
Stop Bits	1
Send Signal Check	NONE
Recieve Flow Control	NONE
API Error Detection	YES

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

)" ◆ Control Logic Example" (page 45)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is requred.

The control logic example is shown below.

```
                        SD_CMDBSM_BS_OPEN1
                     ┌─────────────────────────────┐
                     │   SD_CMDBSM_BS_OPEN          │
          TRUE ──────┤ REQ                VALID     ├── RTU_VALID1
        'COM1' ──────┤ PORT               ERROR     ├── RTU_ERROR1
             ● ──────┤ OPTION             STATUS    ├── RTU_STATUS1
        UNIT#1 ──────┤ STATION          POSITION    ├── RTU_POSITION1
          10.0 ──────┤ TOUT_VAL                     │
         FALSE ──────┤ UNIT_CHARTM                  │
    ' YOKOGAWA ' ────┤ VENDOR                       │
    ' STARDOM ' ─────┤ PRODUCT                      │
    ' R1.80.01 ' ────┤ REVISION                     │
          COIL ──────┤ COIL  ──────  COIL ──────────── COIL
          DSCI ──────┤ DSCI  ──────  DSCI ──────────── DSCI
          IREG ──────┤ IREG  ──────  IREG ──────────── IREG
          HREG ──────┤ HREG  ──────  HREG ──────────── HREG
          ESTS ──────┤ ESTS  ──────  ESTS ──────────── ESTS
   RTU_COMERR1 ──────┤ COMERR ───── COMERR ─────────── RTU_COMERR1
                     └─────────────────────────────┘
```

4   Setup Items

Set communication settings of the Display with GP-Pro EX or in off-line mode of the Display.

The setting of each parameter must be identical to that of External Device.

)"3 Example of Communication Setting" (page 10)

4.1   Setup Items in GP-Pro EX

■ Communication Settings

To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed between the External Device and the Display.
Data Length	Select data length.
Parity	Select how to check parity.
Stop Bit	Select stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
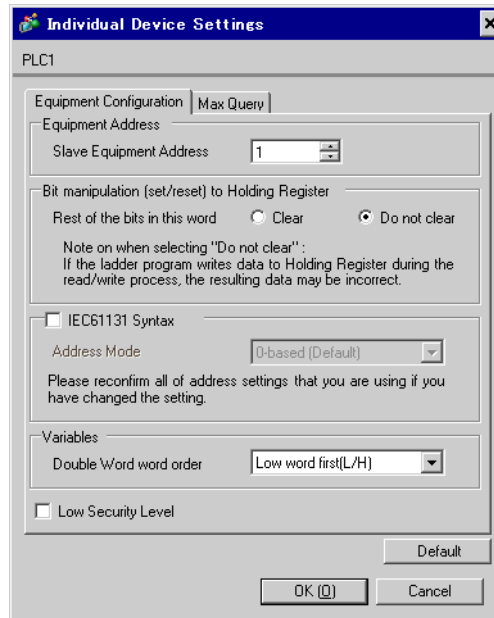
Setup Items	Setup Description
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. When the check box of the default value is checked, the Wait To Send value automatically changes in the formula below by changing each value for Speed/Data Length/Parity/Stop Bit. $$\text{Wait To Send (ms)} = \frac{3500 \times (1 + \text{Data Length} + \text{Stop Bit} + \text{Parity})}{\text{Speed (bps)}}$$ Value for the parity setting is shown below. No Parity = 0 Parity Even = 1 Parity Odd = 1 **NOTE** • After changing the Wait To Send value for the project, of which [Default Value] is checked, in the off-line mode, the Wait To Send value will be recalculated when the project is received and communication settings are displayed.
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

◆ Device Setting

To display the setting screen, click ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When you connect multiple External Device, click from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab

Setup Items		Setup Description
Slave Equipment Address		Use an integer from 1 to 247 to enter the slave equipment address of the External Device.
Bit manipulation (set / reset) to Holding Resister		From "Clear" or "Do not clear", select treatment of the rest of the bits in the same word when the bit manipulation to Holding Register is performed.
	Rest of the bits in this word	
IEC61131 Syntax		Check this item when you use the IEC61131 syntax for variables. In case that you check on, select Address Mode, [0-based] or [1-based].
Double Word word order		Select the order of storing double word data from "Low word first" or "High word first".
Low Security Level		Put a check when lowering the format check level.

[Max Query] tab

The image shows a dialog box "Individual Device Settings" with PLC1, tabs "Equipment Configuration" and "Max Query", with fields.

Setup Items		Setup Description
Coil		Set the number of max data for device [coil] which can be read for one communication, using 16 to 2000 bits.
	Read	**NOTE** • When [Single Bit manipulation to Coil/Discrete Input] is checked, set the data maximum number from 1 to 2000.
Coil		Set the number of max data for device [coil] which can be written for one communication, using 1 to 800 bits.
	Write	
Discrete Input		Set the number of max data for device [discrete input] which can be read for one communication, using 16 to 2000 bits.
	Read	**NOTE** • When [Single Bit manipulation to Coil/Discrete Input] is checked, set the data maximum number from 1 to 2000.
Input Register		Set the number of max data for device [input register] which can be read for one communication, using 1 to 125 words.
	Read	
Holding Register		Set the number of max data for device [holding register] which can be read for one communication, using 1 to 125 words.
	Read	
Holding Register		Set the number of max data for device [holding register] which can be written for one communication, using 1 to 100 words.
	Write	
Single Bit manipulation to Coil/ Discrete Input		Put a check when writing in or reading out coil or discreet input in bits.

4.2 Setup Items in Off-Line Mode

NOTE • Refer to the Maintenance/Troubleshooting manual for information on how to enter off-line mode or about the operation.

Cf. Maintenance/Troubleshooting Manual "2.2 Off-line Mode"

◆ Communication Settings

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings] in off-line mode. Touch the External Device you want to set from the displayed list.

Comm.	Device	Option		

MODBUS SIO Master   [COM1]   Page 1/1

```
        SIO Type        RS232C              ▼
        Speed           19200               ▼
        Data Length     ○ 7      ● 8
        Parity          ○ NONE   ● EVEN   ○ ODD
        Stop Bit        ● 1      ○ 2
        Flow Control    NONE                ▼

        Timeout(s)                3    ▼ ▲
        Retry                     2    ▼ ▲
        Wait To Send(ms)          3    ▼ ▲
```

	Exit		Back	2005/09/02 13:11:46

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device. **IMPORTANT** To make the communication settings correctly, confirm the serial interface specifications of Display unit for [SIO Type]. We cannot guarantee the operation if a communication type that the serial interface does not support is specified. For details concerning the serial interface specifications, refer to the manual for Display unit.
Speed	Select speed between the External Device and the Display.
Data Length	Select data length.
Parity	Select how to check parity.
Stop Bit	Select stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.

Setup Items	Setup Description
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.

◆ Device Setting

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].

.

```
┌─────────────┬─────────────┬─────────────┬─────────────┬─────────────┐
│   Comm.     │   Device    │   Option    │             │             │
├─────────────┼─────────────┼─────────────┼─────────────┼─────────────┤
│             │             │             │             │             │
└─────────────┴─────────────┴─────────────┴─────────────┴─────────────┘

MODBUS SIO Master                              [COM1]          Page 1/1

      Device/PLC Name   │PLC1                         │▼│

         Slave Address           │          1  │▼│▲│
         Bit manipulation to HR  Rest of bits in word are not cleared
         IEC61131 Syntax         OFF
         Double Word word order  Low word first
         Low Security Level      OFF
      Max Query
         Read Coil               2000 bits
         Write Coil              800  bits
         Read Discrete Input     2000 bits
         Read Input Register          │  125 │▼│▲│
         Read Holding Register        │  125 │▼│▲│
         Write Holding Register       │  100 │▼│▲│
         Single Bit manipulation OFF

┌──────┬─────────────┬──────┬─────────────┬─────────────┐
│      │    Exit     │      │    Back     │ 2007/06/28  │
│      │             │      │             │ 12:26:16    │
└──────┴─────────────┴──────┴─────────────┴─────────────┘
```

Setup Items		Setup Description
Device/PLC Name		Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1])
Slave Address		Use an integer from 1 to 247 to enter the slave equipment address of the External Device.
Bit manipulation to HR		From "Rest of bits in word are cleared" or "Rest of bits in word are not cleared", select treatment of the rest of the bits in the same word when the bit manipulation to Holding Register is performed. (Not available to set in off-line mode.)
IEC61131 Syntax		Displays the usage status of the currently set IEC61131 syntax in ON/OFF. (Not available in off-line mode.)
Double Word word order		Displays the currently set order of storing double word data from "Low word first" or "High word first". (Not available to set in off-line mode.)
Low Security Level		When an format check level is lowered, ON/OFF is displayed. When the level is lowered, ON is displayed. (Not available to set in off-line mode.)
Coil	Read	Displays the number of max data for device [coil] which can be read for one communication. (Not available to set in off-line mode.)
Coil	Write	Displays the number of max data for device [coil] which can be written for one communication. (Not available to set in off-line mode.)
Discrete Input	Read	Displays the number of max data for device [discrete input] which can be read for one communication. (Not available to set in off-line mode.)

Setup Items		Setup Description
Input Register		Set the number of max data for device [input register] which can be read for one communication, using 1 to 125 words.
	Read	
Holding Register		Set the number of max data for device [holding register] which can be read for one communication, using 1 to 125 words.
	Read	
Holding Register		Set the number of max data for device [holding register] which can be written for one communication, using 1 to 100 words.
	Write	
Single Bit manipulation		ON/OFF display shows whether the coil or discreet input is written or read out in bits. If ON is displayed, writing or reading can be executed in bits. (Not available to set in off-line mode.)

◆ Option

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings]. Touch the External Device you want to set from the displayed list, and touch [Option].

Comm.	Device	Option		

MODBUS SIO Master   [COM1]   Page 1/1

              RI / VCC   ● RI   ○ VCC
                 In the case of RS232C, you can select
                 the 9th pin to RI(Input) or VCC(5V
                 Power Supply). If you use the Digital's
                 RS232C Isolation Unit, please select
                 it to VCC.

| | Exit | | Back | 2005/09/02 13:11:50 |

Setup Items	Setup Description
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

5　　Cable Diagram

The cable diagram shown below may be different from the cable diagram recommended by Schneider Electric Industries or YOKOGAWA Electric Corporation. Please be assured there is no operational problem in applying the cable diagram shown in this manual.

- The FG pin of the External Device body must be D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the Display. When connecting SG to the External Device, design the system not to form short-circuit loop.
- Connect the isolation unit, when communication is not stabilized under the influence of a noise etc.

Cable Diagram 1

Display (Connection Port)		Cable	Notes
GP[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 200m or less.
	B	Your own cable	
GP[*3] (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	
IPC[*4]	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Your own cable	

*1　All GP models except AGP-3302B

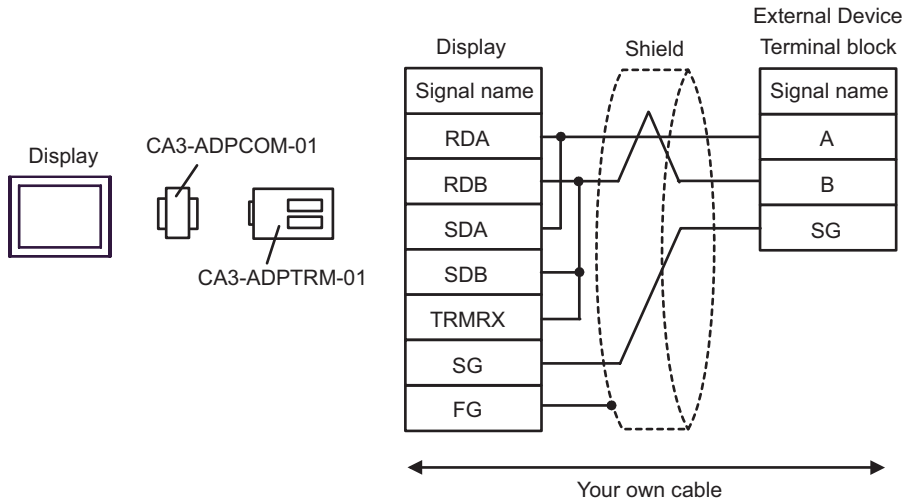*2　All ST models except AST-3211A

*3　All GP models except GP-3200 series and AGP-3302B

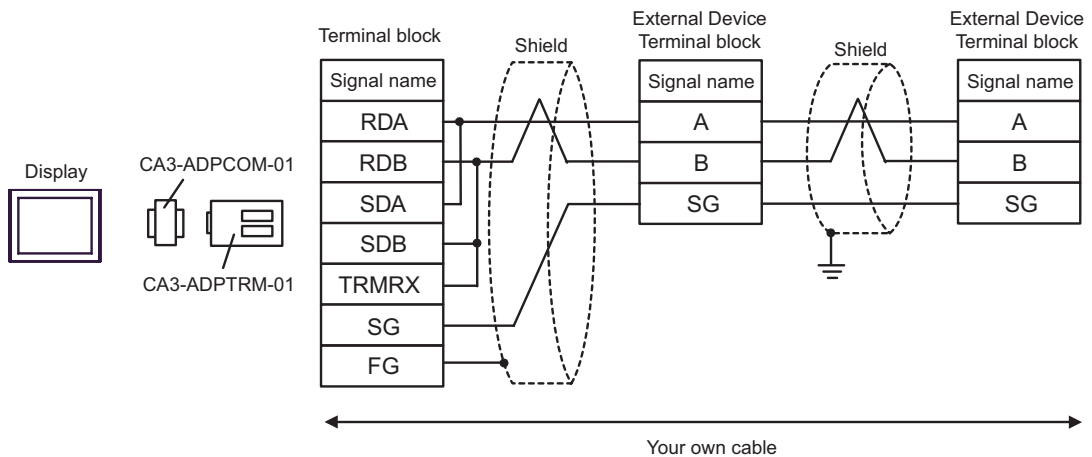*4   Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
☞ ■ IPC COM Port (page 7)

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
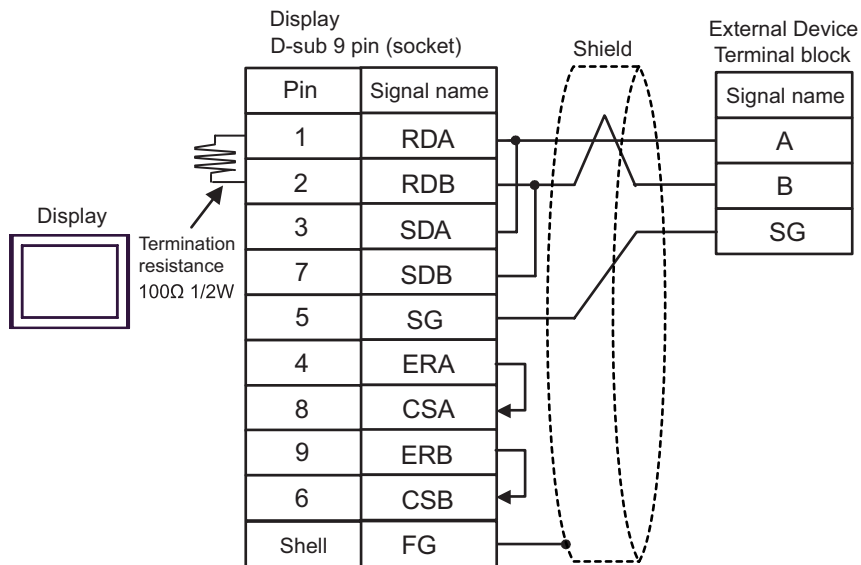
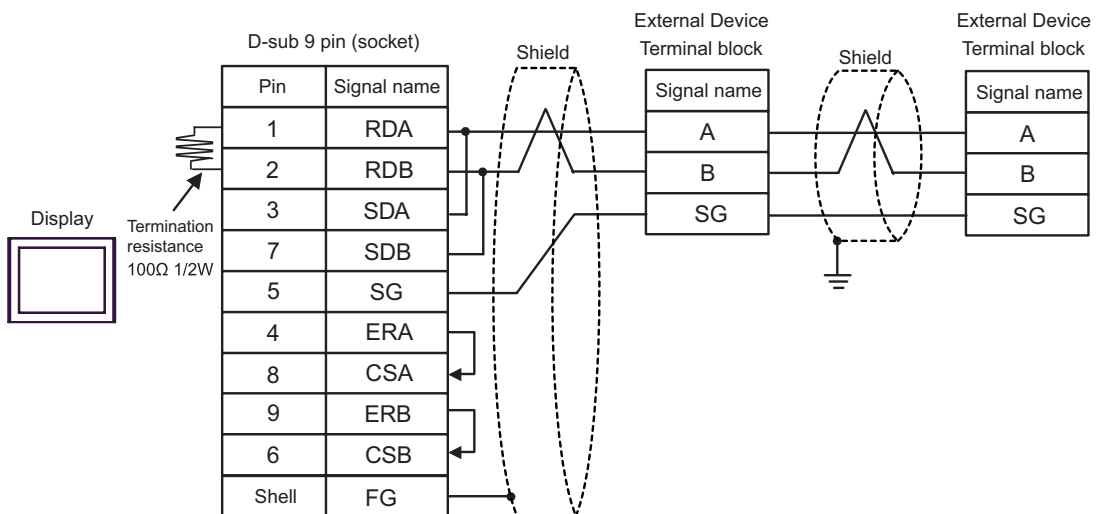•   1:1 Connection

•   1:n Connection
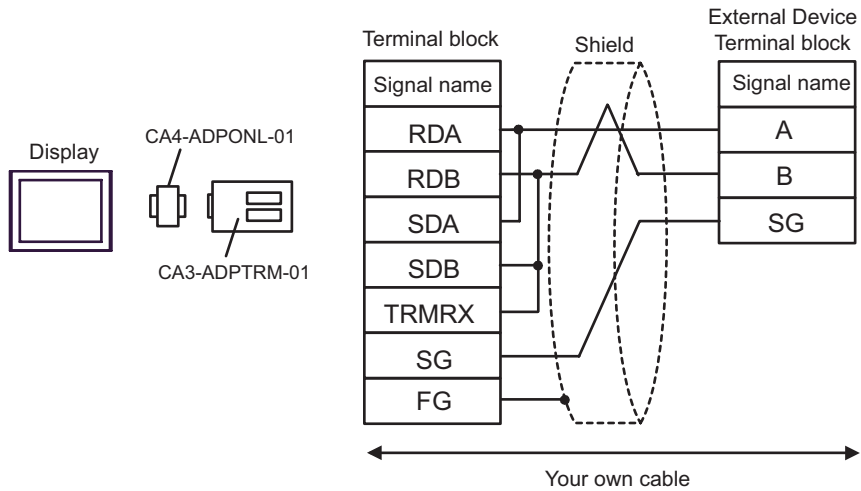
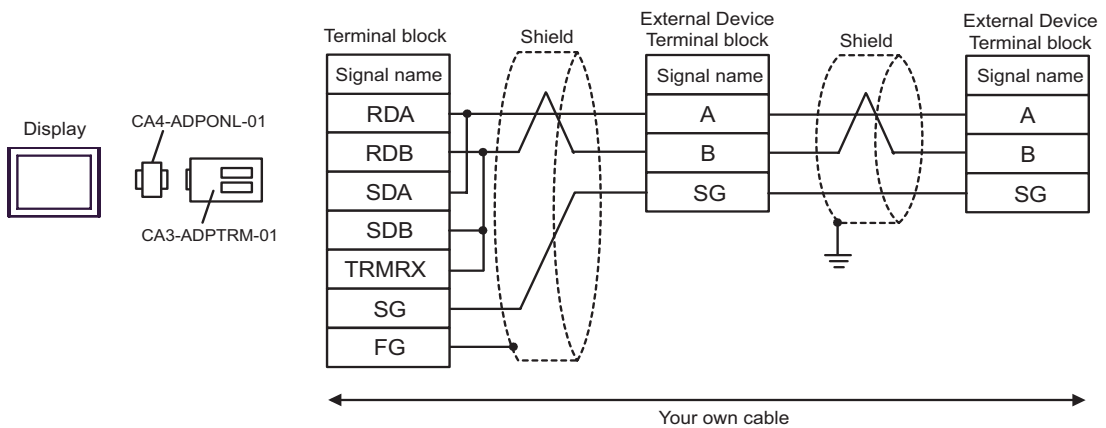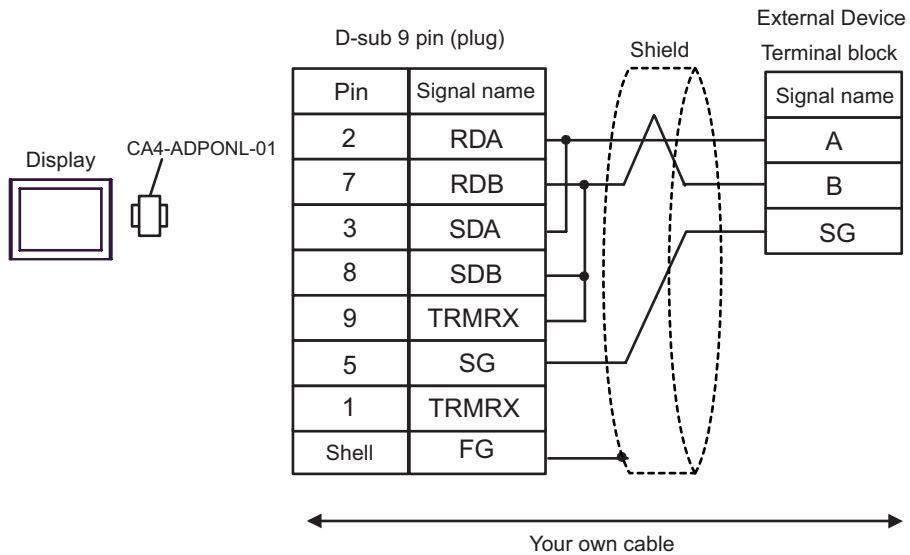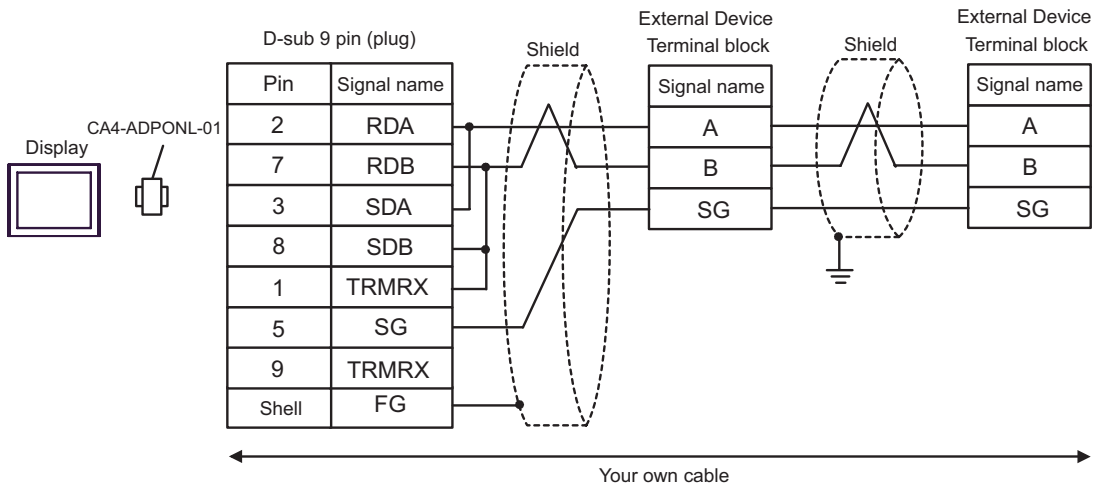B) When using your own cable

• 1:1 Connection

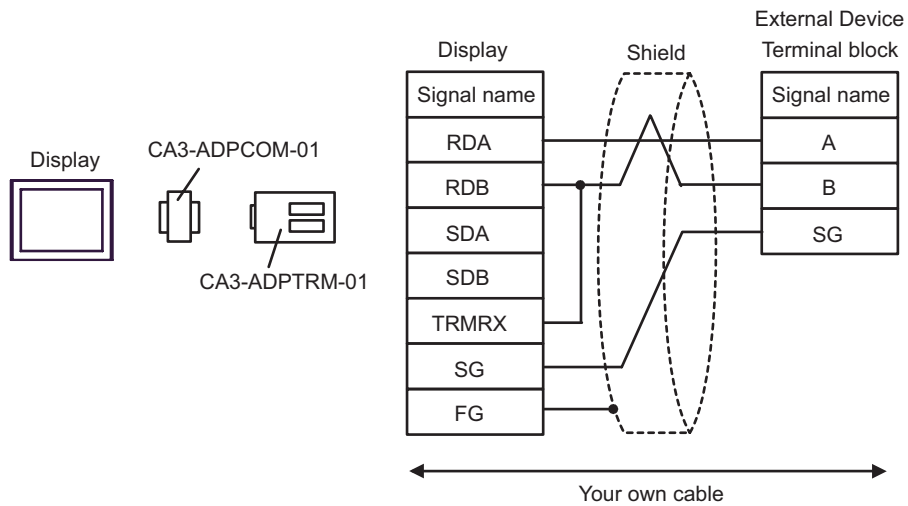• 1:n Connection

C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

• 1:1 Connection

Your own cable

• 1:n Connection

Your own cable

D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

• 1:1 Connection

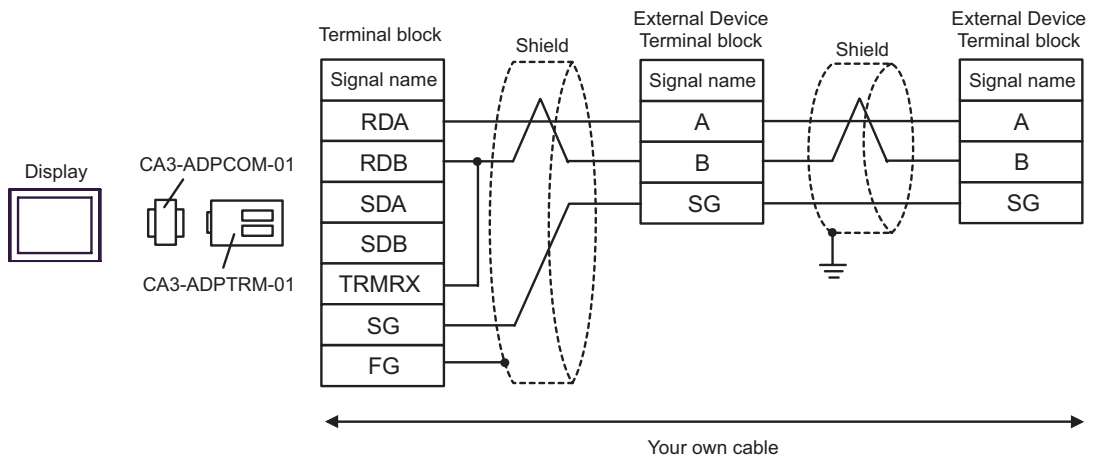Your own cable

• 1:n Connection

Your own cable

E) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
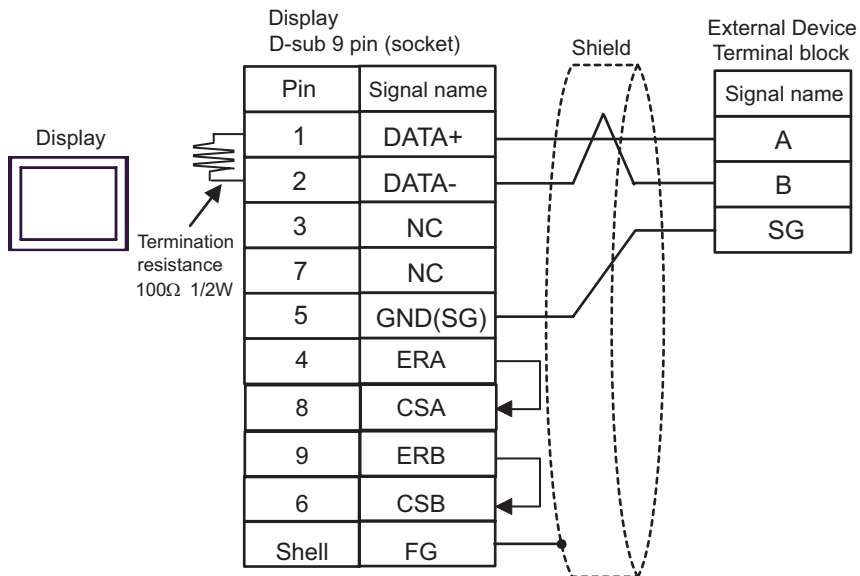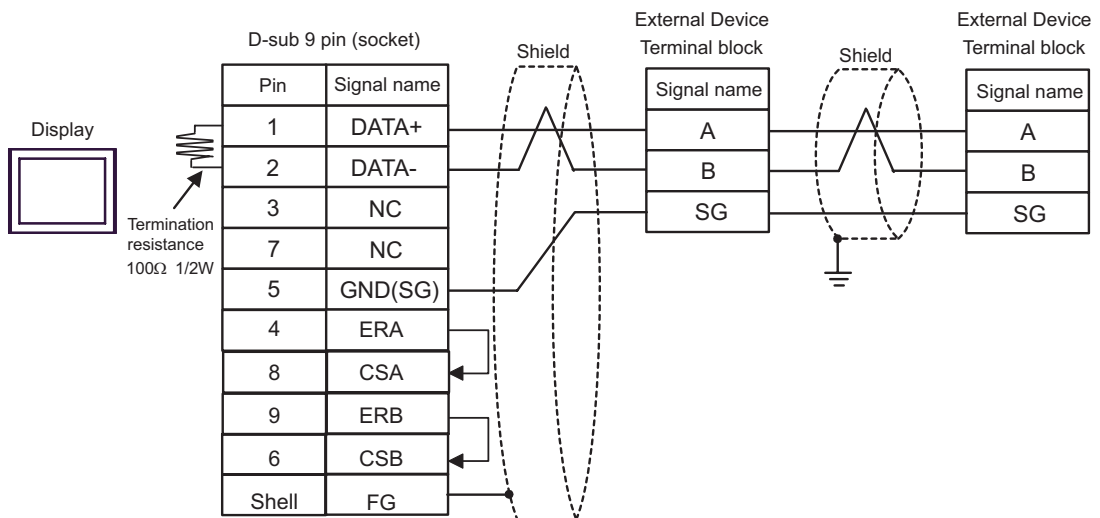
• 1:1 Connection

Your own cable

• 1:n Connection

Your own cable

F) When using your own cable

• 1:1 Connection

• 1:n Connection

Cable Diagram 2

Display (Connection Port)	Cable	Notes
GP (COM1) ST (COM1) IPC[*1] PC/AT	Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)[*2]	

*1   Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 7)
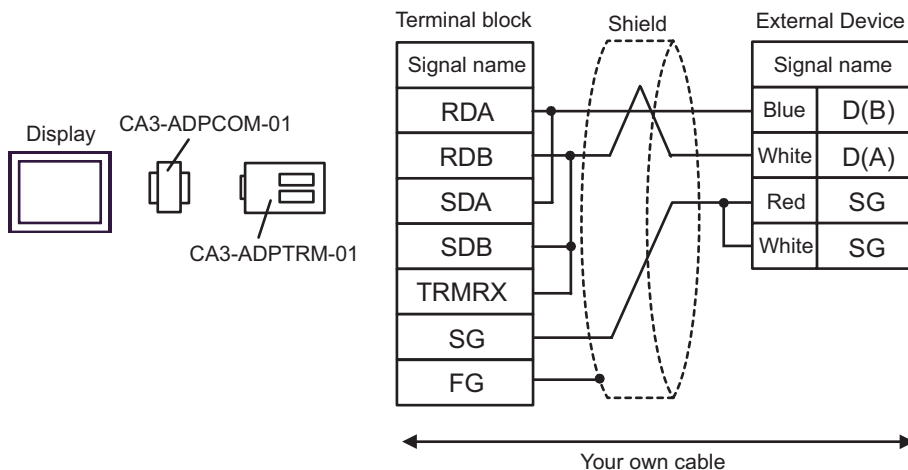
*2   Set the rotary switch to "3 (OTHER DIRECT)".

External Device

Display

TSX PCX 1031

TER port
Mini DIN 8 pin
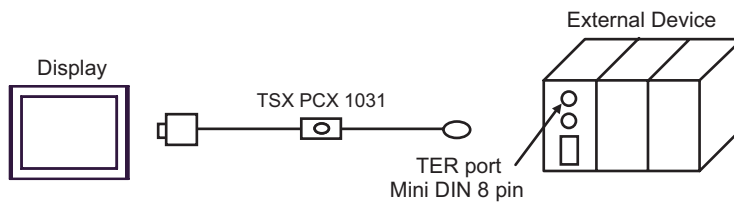
Cable Diagram 3

Display (Connection Port)		Cable	Notes
GP[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.[*3]
	B	Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	
GP[*4] (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	
IPC[*5]	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.[*3]
	F	Your own cable + Accessory box by Schneider Electric Industries TSX SCA 50	

*1   All GP models except AGP-3302B
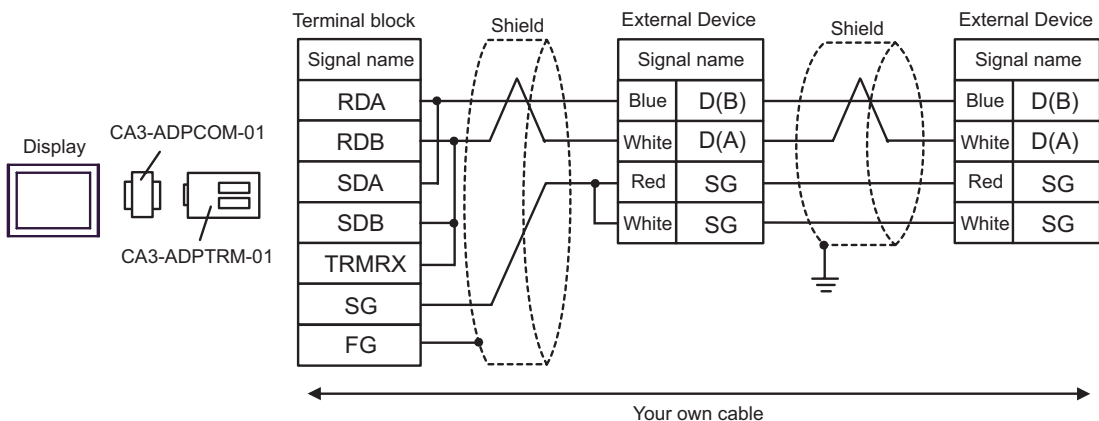
*2   All ST models except AST-3211A

*3   Max length between the "GP" and the "Accessory Box connected to GP". Total cable length between accessory boxes must be 1000m or less.

*4   All GP models except GP-3200 series and AGP-3302B

*5   Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
      ☞ ■ IPC COM Port (page 7)

   A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and the accessory box (TSX SCA 50) by Schneider Electric
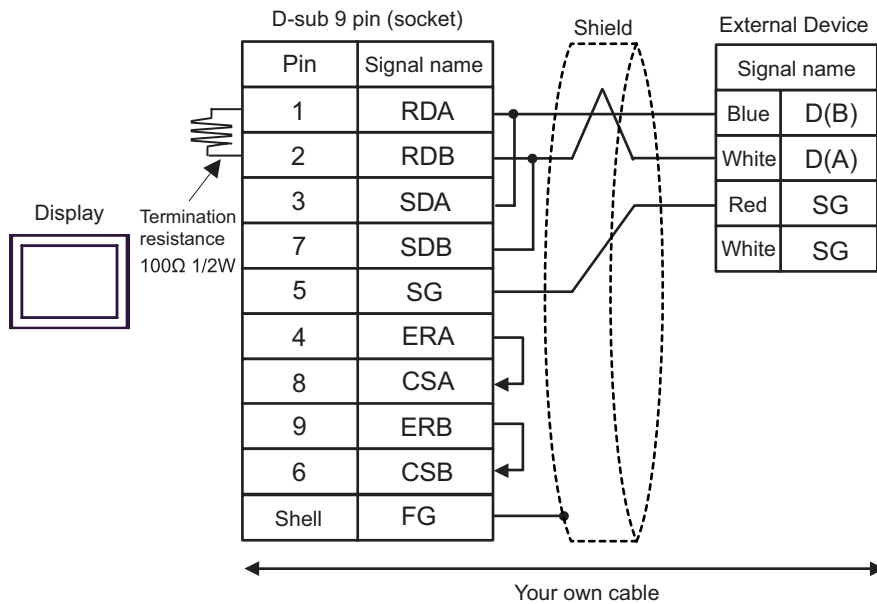
   •   1:1 Connection

Terminal block	Shield	External Device
Signal name		Signal name
RDA		Blue	D(B)
RDB		White	D(A)
SDA		Red	SG
SDB		White	SG
TRMRX		
SG		
FG		

Display CA3-ADPCOM-01 CA3-ADPTRM-01

Your own cable

   •   1:n Connection

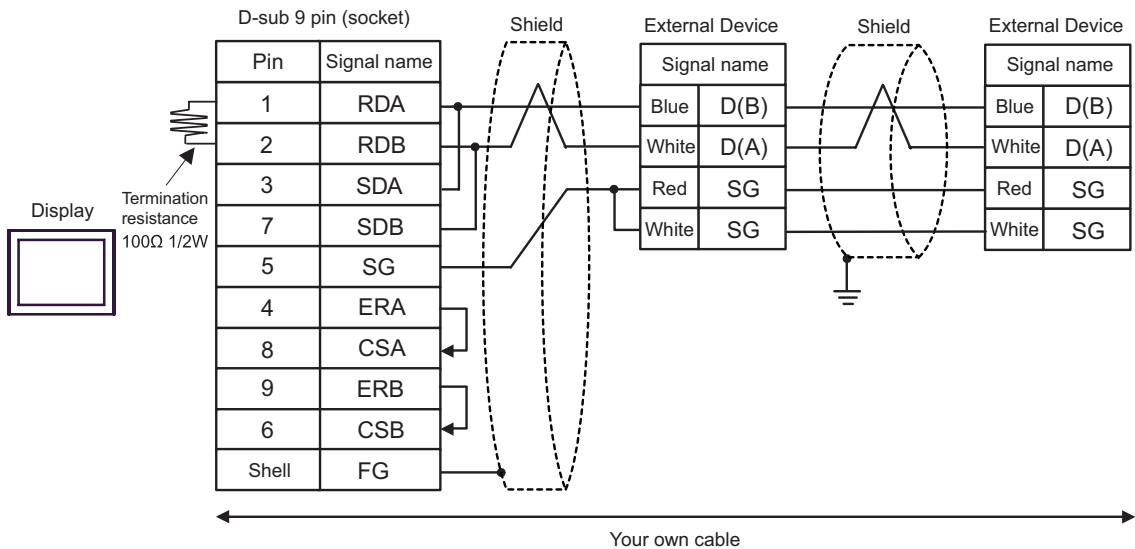| Terminal block	Shield	External Device	Shield	External Device
Signal name		Signal name		Signal name
RDA		Blue	D(B)		Blue	D(B)
RDB		White	D(A)		White	D(A)
SDA		Red	SG		Red	SG
SDB		White	SG		White	SG
TRMRX				
SG				
FG				

Display CA3-ADPCOM-01 CA3-ADPTRM-01

Your own cable

B) When using the accessory box (TSX SCA 50) by Schneider Electric and your own cable
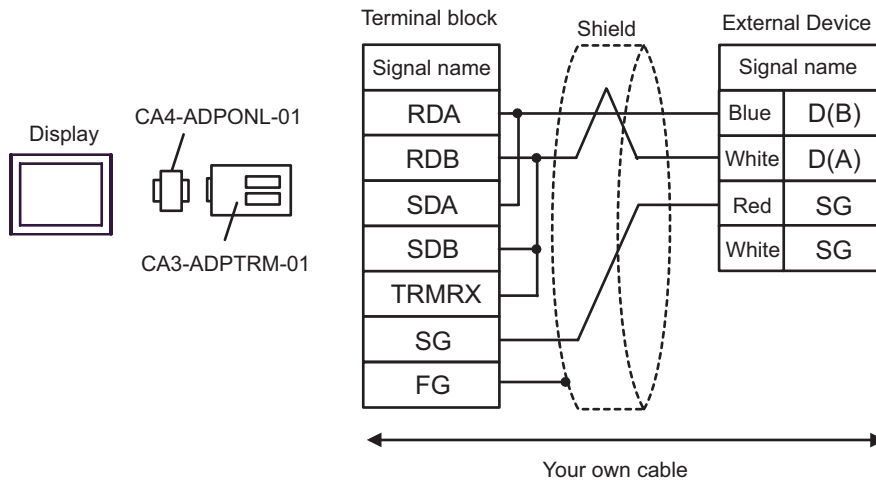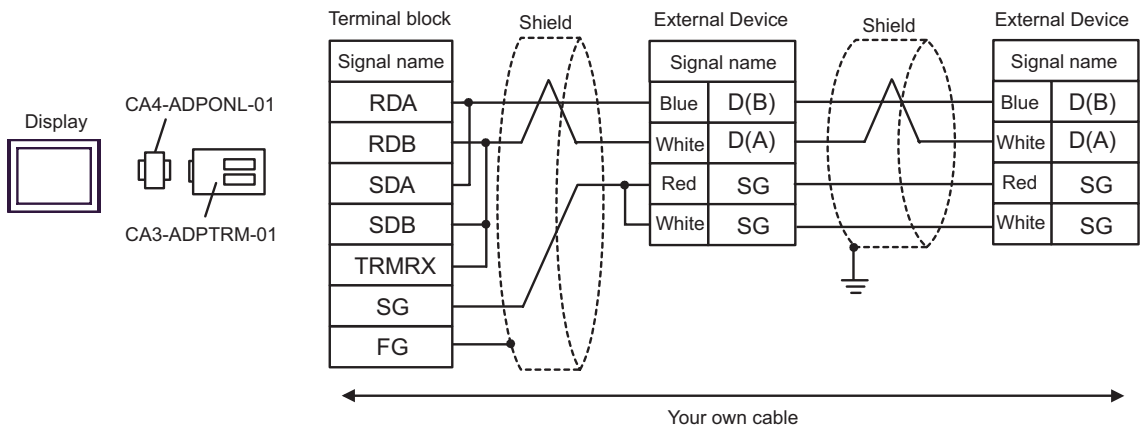
• 1:1 Connection

• 1:n Connection

C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, your own cable and the accessory box (TSX SCA 50) by Schneider Electric
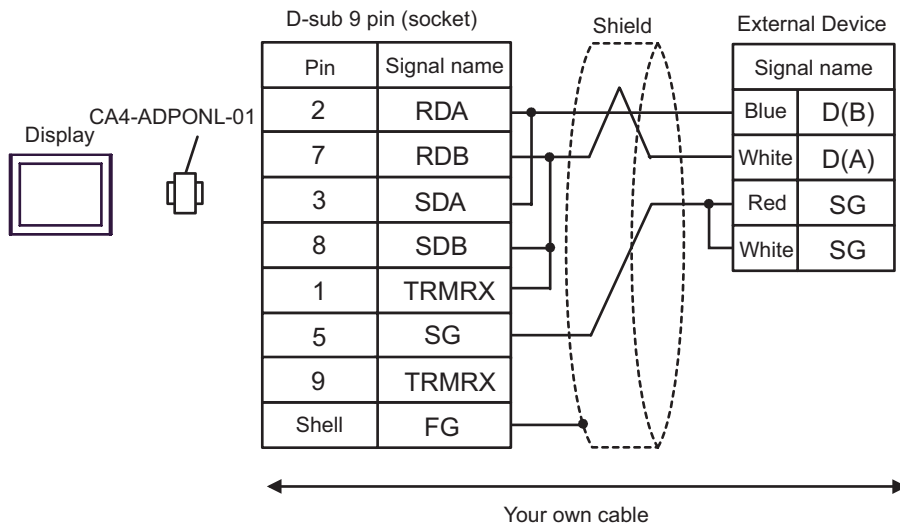
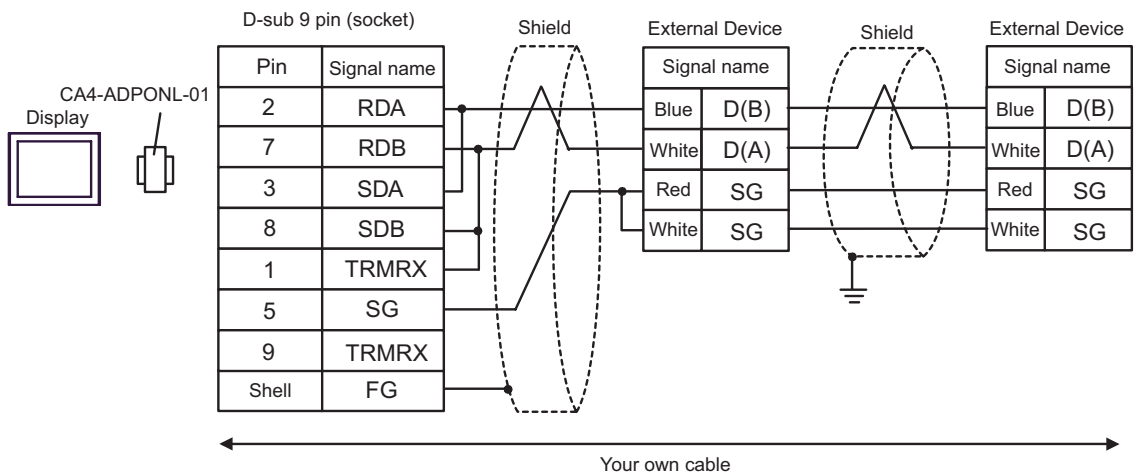• 1:1 Connection

• 1:n Connection

D) When using the online adapter (CA4-ADPONL-01) by Pro-face and the accessory box (TSX SCA 50) by Schneider Electric
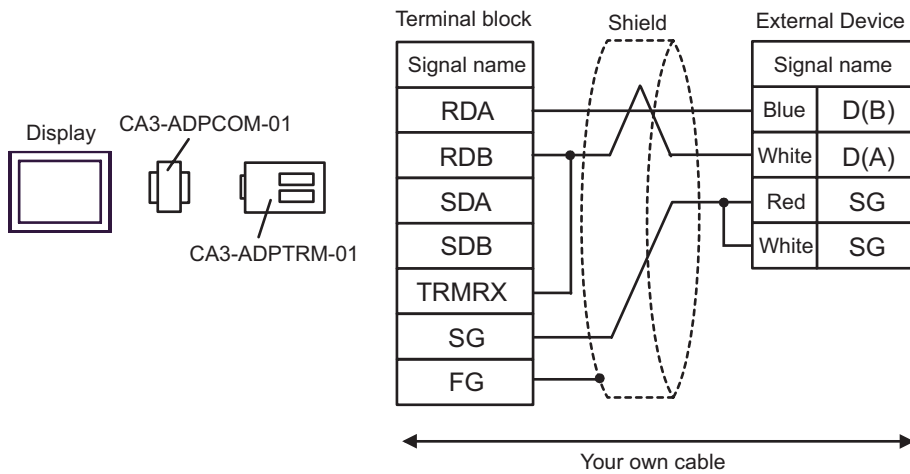
• 1:1 Connection

Pin	Signal name
2	RDA
7	RDB
3	SDA
8	SDB
1	TRMRX
5	SG
9	TRMRX
Shell	FG

D-sub 9 pin (socket)

Shield

External Device

	Signal name
Blue	D(B)
White	D(A)
Red	SG
White	SG

CA4-ADPONL-01

Display

Your own cable

• 1:n Connection

Pin	Signal name
2	RDA
7	RDB
3	SDA
8	SDB
1	TRMRX
5	SG
9	TRMRX
Shell	FG

D-sub 9 pin (socket)

Shield

External Device

	Signal name
Blue	D(B)
White	D(A)
Red	SG
White	SG

Shield

External Device

	Signal name
Blue	D(B)
White	D(A)
Red	SG
White	SG

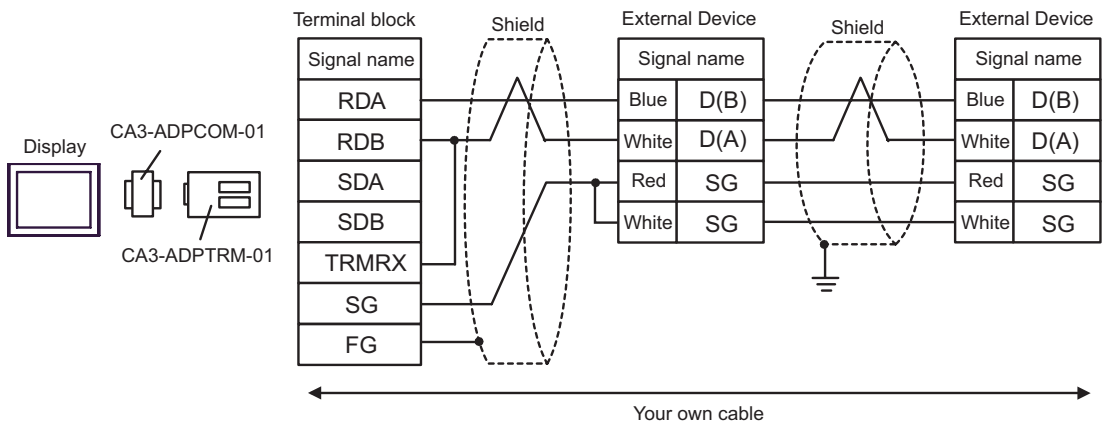CA4-ADPONL-01

Display

Your own cable

E) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and the accessory box (TSX SCA 50) by Schneider Electric
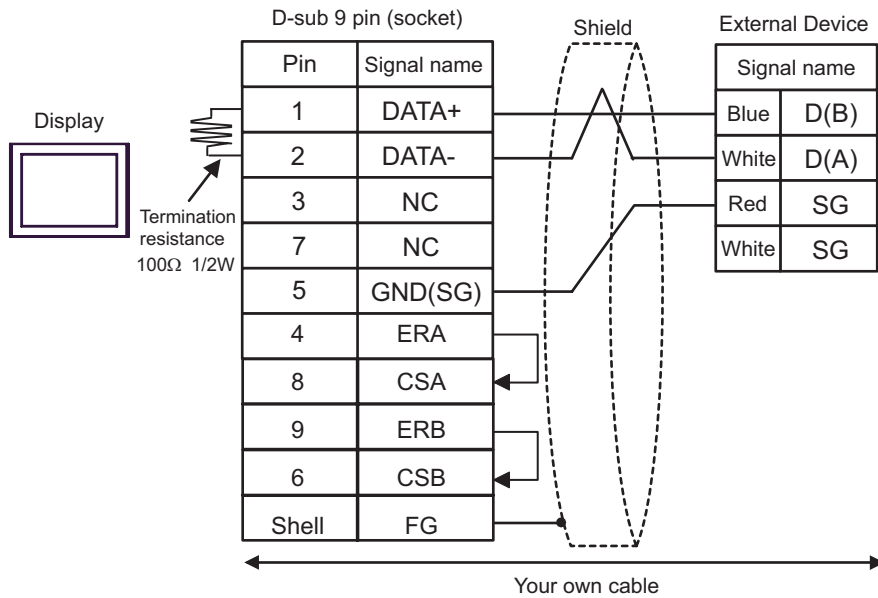
• 1:1 Connection

Your own cable
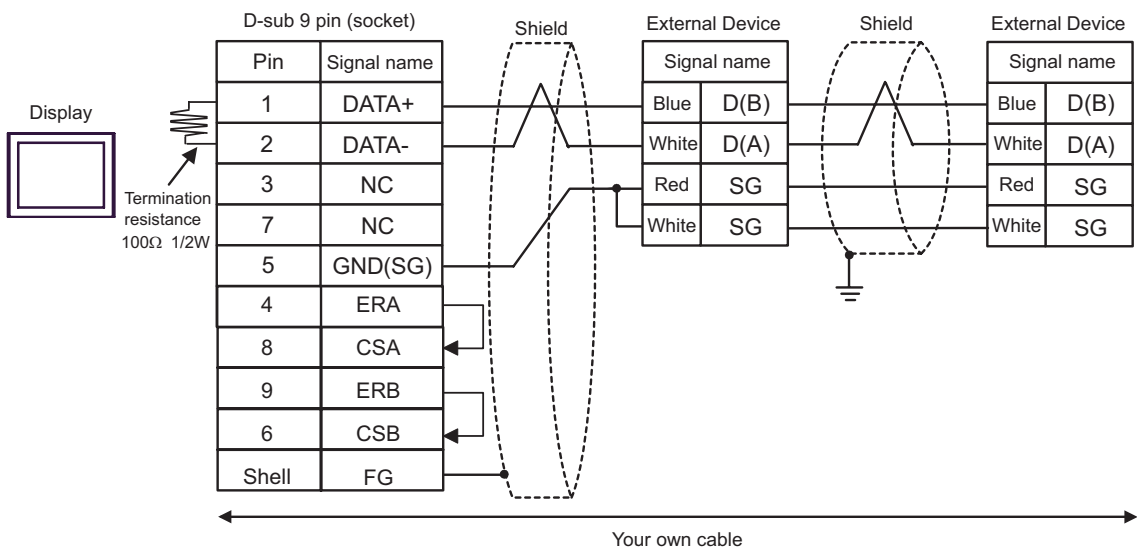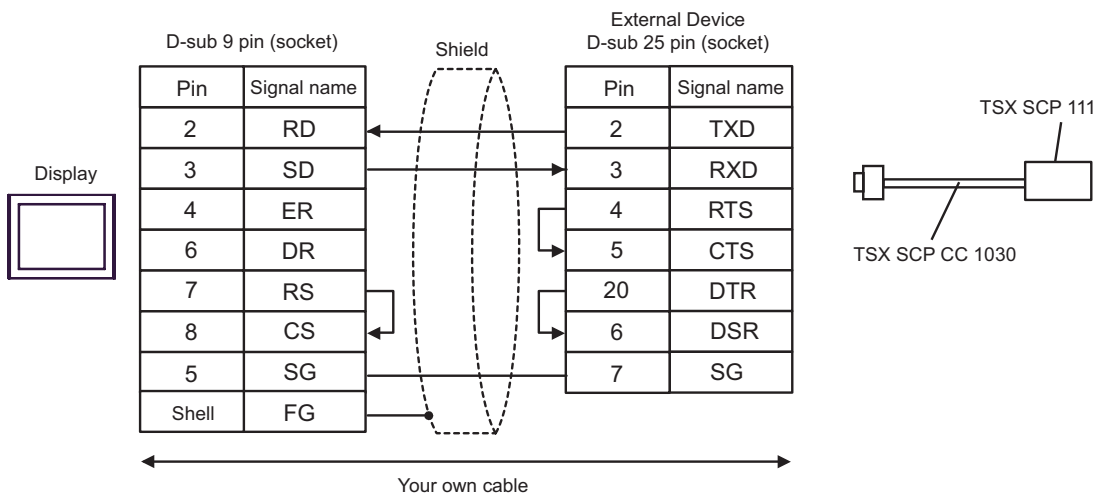
• 1:n Connection

Your own cable

F) When using the accessory box (TSX SCA 50) by Schneider Electric and your own cable

• 1:1 Connection

D-sub 9 pin (socket)

Pin	Signal name
1	DATA+
2	DATA-
3	NC
7	NC
5	GND(SG)
4	ERA
8	CSA
9	ERB
6	CSB
Shell	FG

Display

Termination resistance 100Ω 1/2W

Shield

External Device

	Signal name
Blue	D(B)
White	D(A)
Red	SG
White	SG

Your own cable

• 1:n Connection

D-sub 9 pin (socket)

Pin	Signal name
1	DATA+
2	DATA-
3	NC
7	NC
5	GND(SG)
4	ERA
8	CSA
9	ERB
6	CSB
Shell	FG

Display

Termination resistance 100Ω 1/2W

Shield

External Device

	Signal name
Blue	D(B)
White	D(A)
Red	SG
White	SG

Shield

External Device

	Signal name
Blue	D(B)
White	D(A)
Red	SG
White	SG

Your own cable

Cable Diagram 4

Display (Connection Port)	Cable	Notes
GP (COM1) ST (COM1) IPC[*1] PC/AT	Your own cable + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111	The cable length must be 15m or less. [*2]

*1   Only the COM port which can communicate by RS-232C can be used.
   ☞ ■ IPC COM Port (page 7)

*2   Total length for TSX SCP CC 1030 and your own cable.

When using your own cable, the RS 232 D tapLink cable (TSX SCP CC 1030) by Schneider Electric and the PCMCIA card (TSX SCP 111) for RS232C by Schneider Electric

Cable Diagram 5

Display (Connection Port)		Cable	Notes
GP[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	B	Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
GP[*3] (COM2)	C	Online adapter by Pro-face CA3-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

Display (Connection Port)		Cable	Notes
IPC[*4]	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	F	Your own cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

*1   All GP models except AGP-3302B

*2   All ST models except AST-3211A

*3   All GP models except GP-3200 series and AGP-3302B

*4   Only the COM port which can communicate by RS-422/485 (2 wire) can be used.

☞ ■ IPC COM Port (page 7)

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric


B) When using your own cable, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric
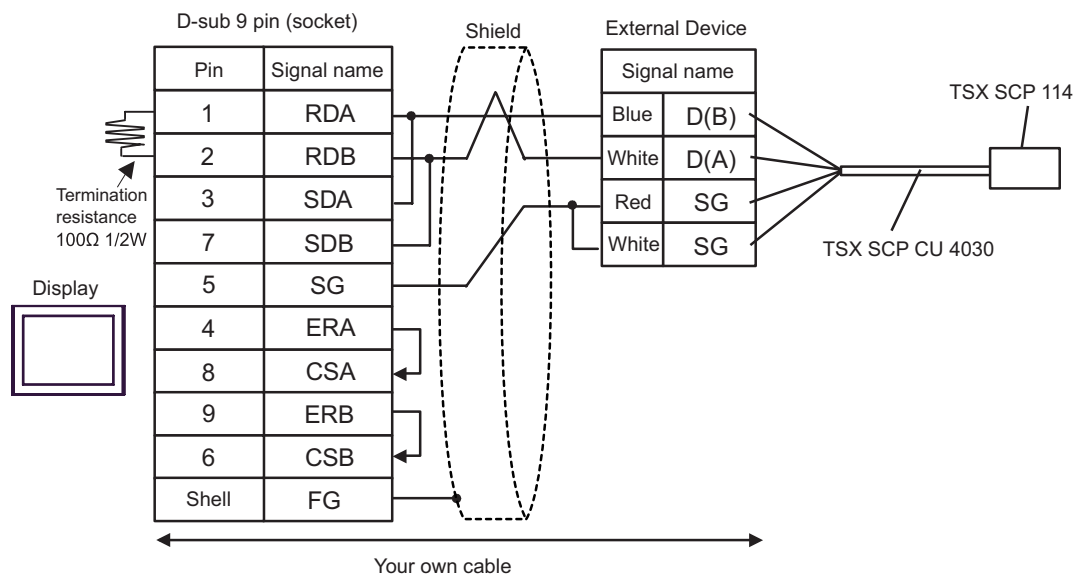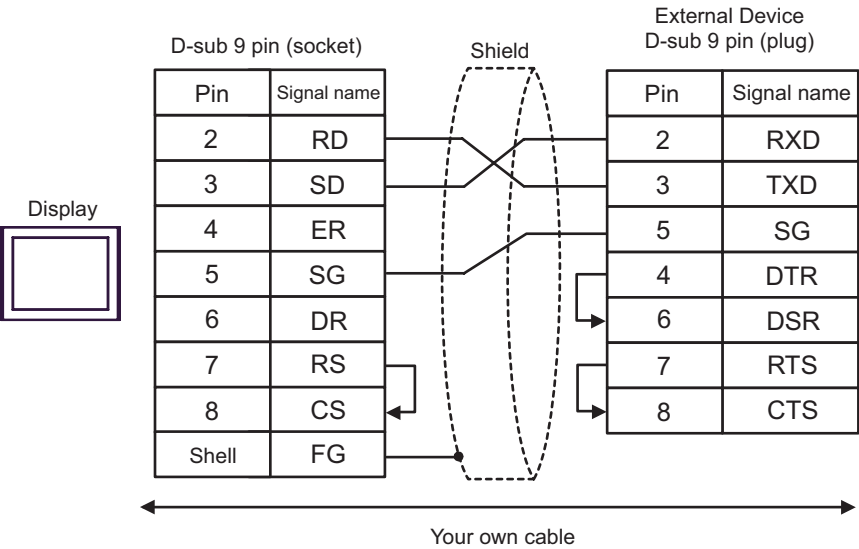
C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric
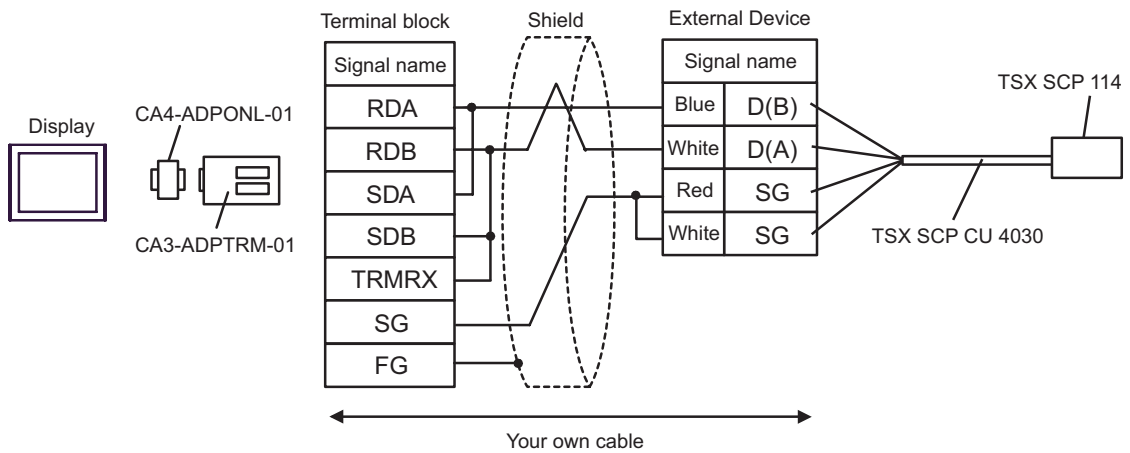
D) When using the online adapter (CA4-ADPONL-01) by Pro-face, your own cable, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric
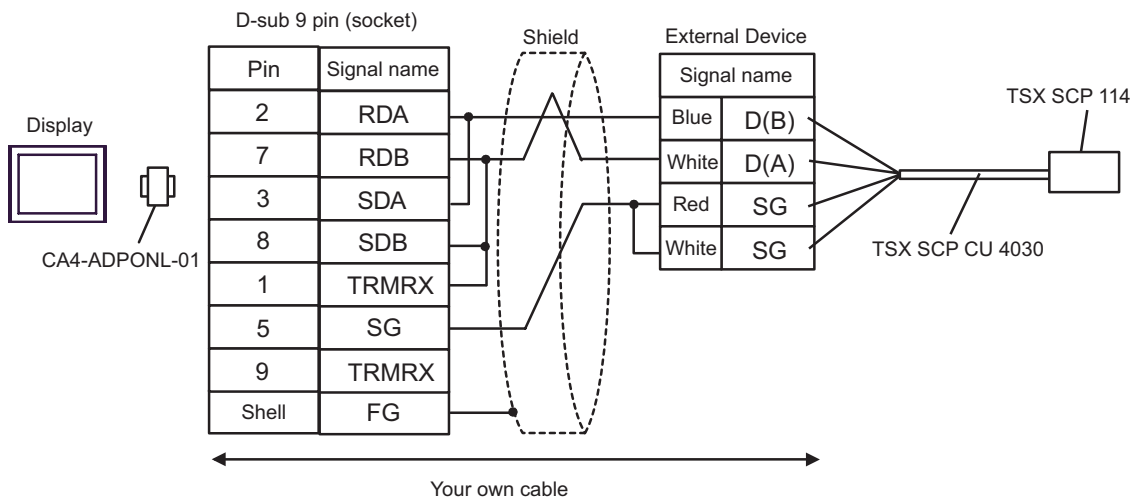
E) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric
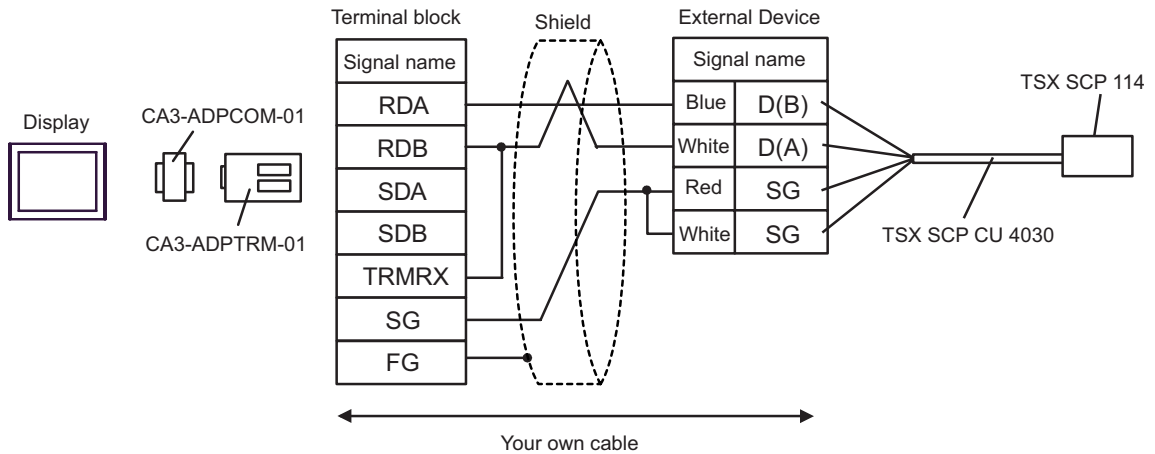
F) When using your own cable, the Uni-Telway connection cable (TSX SCP CU 4030) and the PCMCIA card for RS485 (TSX SCP 114) by Schneider Electric
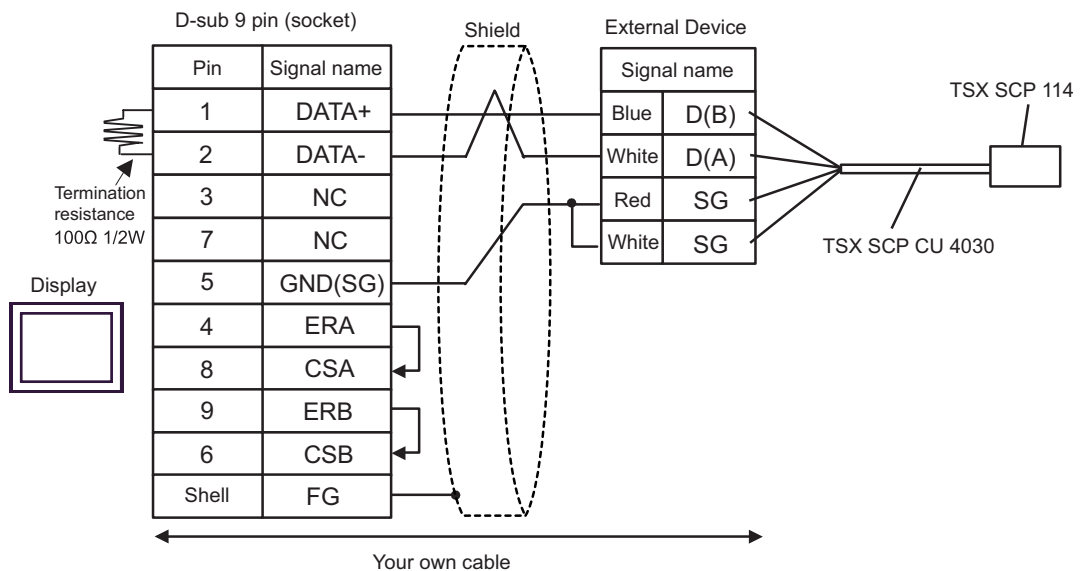
Cable Diagram 6

Display (Connection Port)	Cable	Notes
GP (COM1) ST (COM1) IPC[*1] PC/AT	Your own cable	The cable length must be 15m or less.

*1   Only the COM port which can communicate by RS-232C can be used.

)■ IPC COM Port (page 7)

External Device
D-sub 9 pin (plug)

D-sub 9 pin (socket)   Shield

Pin	Signal name
2	RD
3	SD
4	ER
5	SG
6	DR
7	RS
8	CS
Shell	FG

Display

Pin	Signal name
2	RXD
3	TXD
5	SG
4	DTR
6	DSR
7	RTS
8	CTS

Your own cable

Cable Diagram 7

Display (Connection Port)	Cable	Notes
GP (COM1) ST (COM1) IPC[*1] PC/AT	D-Shell adapter by Schneider Electric 110 XCA 203 00 + Modbus RS485 (RJ45/RJ45) Master Communication cable by Schneider Electric 170 MCI 041 10 (0.3m)	The cable length must be 9.5m or less.

*1   Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 7)
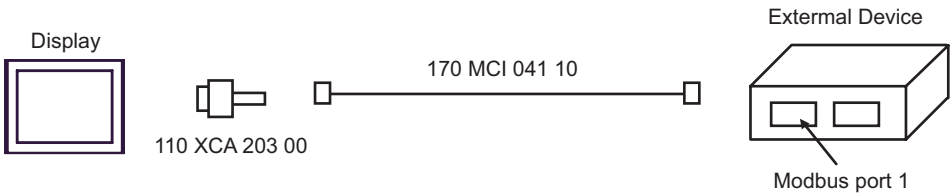
Cable Diagram 8

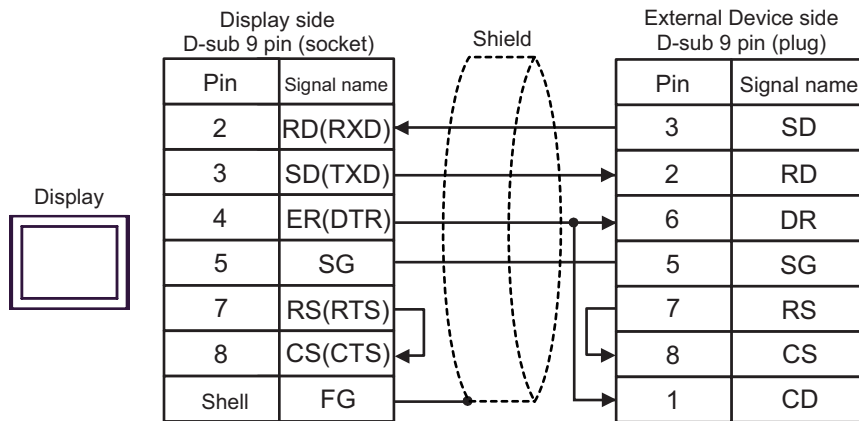| Display (Connection Port)		Cable	Notes
GP[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2) IPC[*3]	A	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 500m or less.
	B	Your own cable	
GP[*4] (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	

*1   All GP models except AGP-3302B

*2   All ST models except AST-3211A

*3   Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
        ☞ ■ IPC COM Port (page 7)

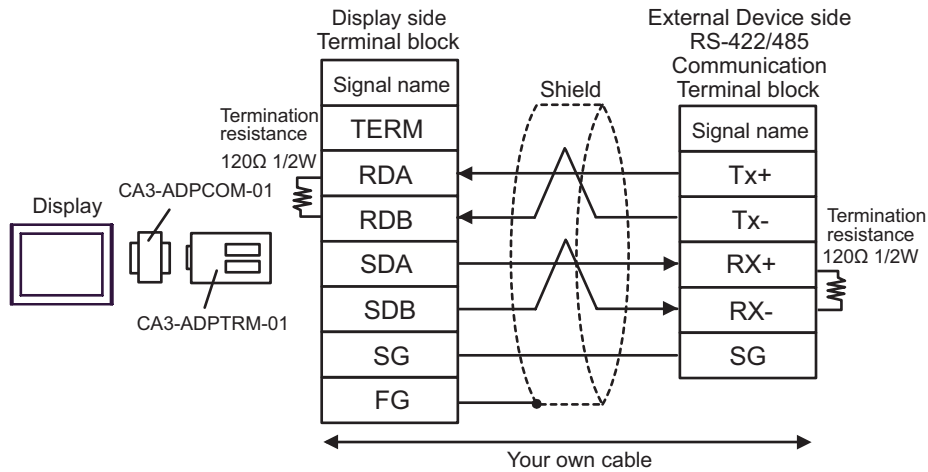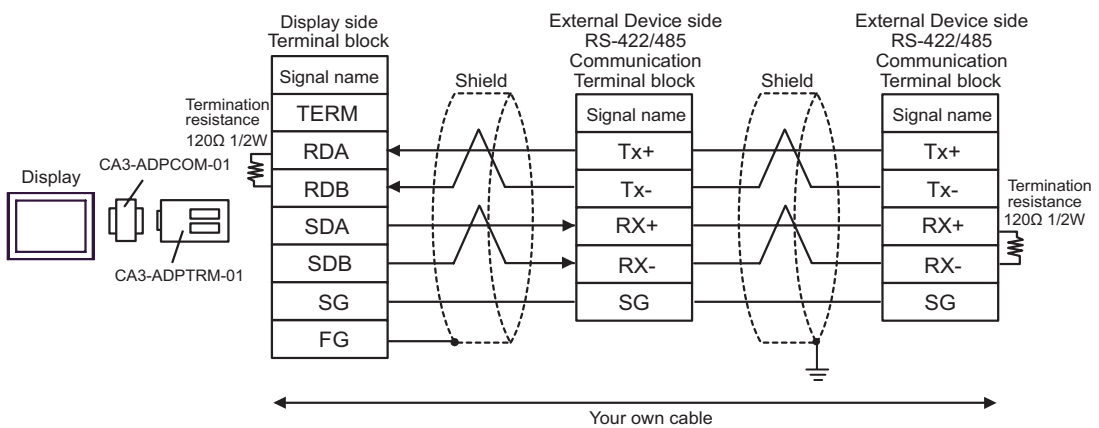*4   All GP models except GP-3200 series and AGP-3302B

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

External Device Modbus port 2
D-sub 9 pin (plug)

Terminal block   Shield

Signal name		Pin	Signal name
RDA		1	TXD+
RDB		6	TXD-
SDA		2	RXD+
SDB		7	RXD-
TRMRX		3	SG
SG			
FG			

Display   CA3-ADPCOM-01

CA3-ADPTRM-01

Your own cable

B) When using your own cable

D-sub 9 pin (socket)   Shield

External Device Modbus port 2
D-sub 9 pin (plug)

Pin	Signal name		Pin	Signal name
1	RDA		1	TXD+
2	RDB		6	TXD-
3	SDA		2	RXD+
7	SDB		7	RXD-
5	SG		3	SG
4	ERA			
8	CSA			
9	ERB			
6	CSB			
Shell	FG			

Display   Termination resistance 100Ω 1/2W

C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

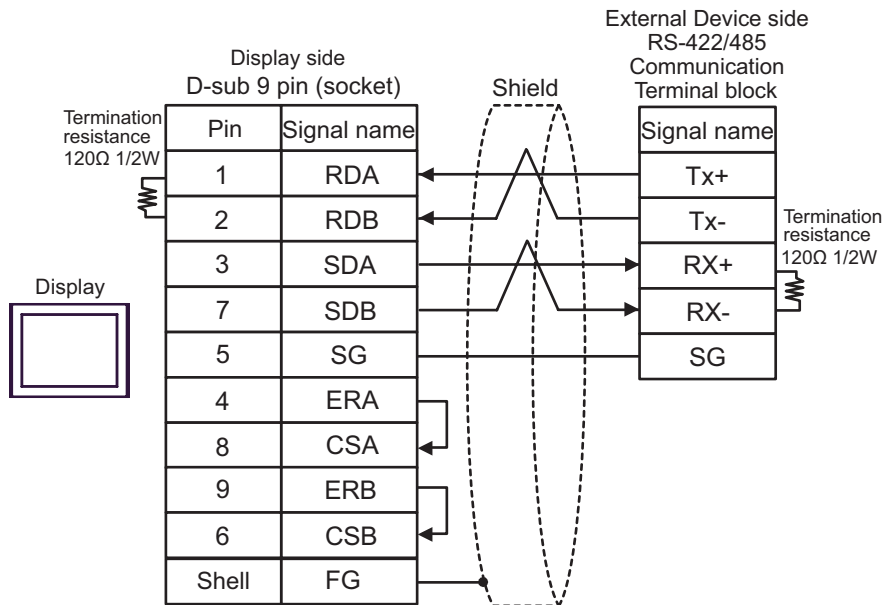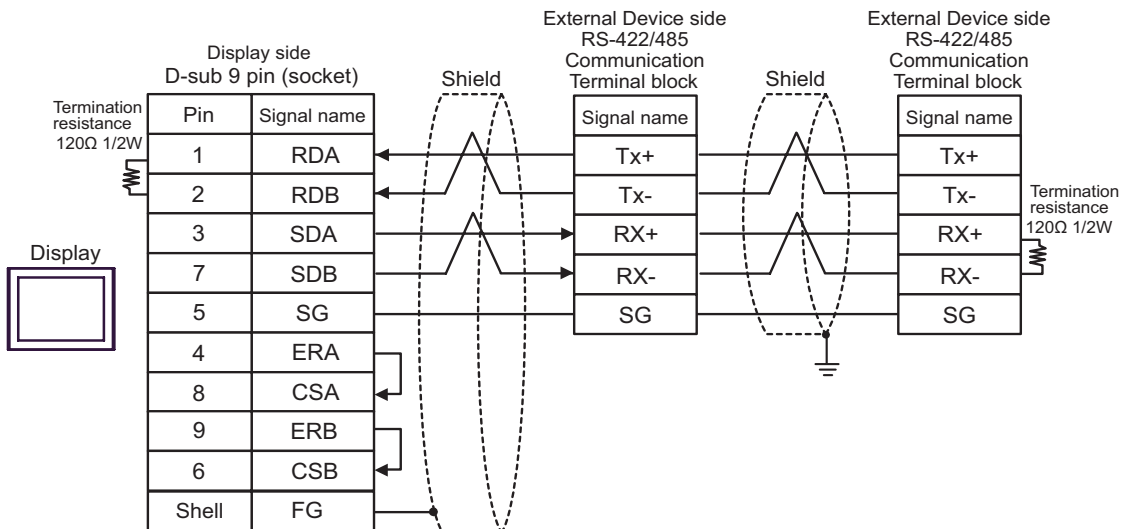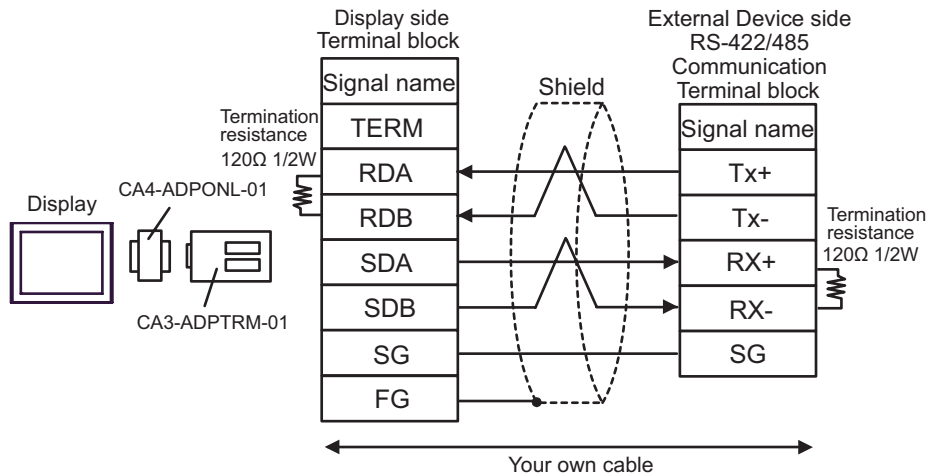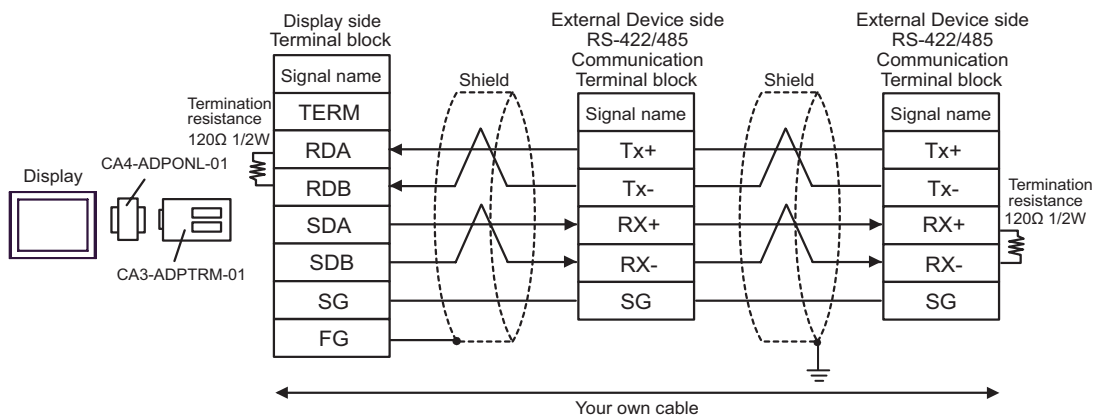D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

Cable Diagram 9

Display (Connection Port)	Cable	Notes
GP (COM1) ST (COM1) IPC[*1] PC/AT	Your own cable	The cable length must be 15m or less.

*1   Only the COM port which can communicate by RS-232C can be used.

)■ IPC COM Port (page 7)

Display side D-sub 9 pin (socket)		Shield	External Device side D-sub 9 pin (socket)	
Pin	Signal name		Pin	Signal name
2	RD(RXD)		3	SD
3	SD(TXD)		2	RD
4	ER(DTR)		6	DR
5	SG		5	SG
7	RS(RTS)		7	RS
8	CS(CTS)		8	CS
Shell	FG			
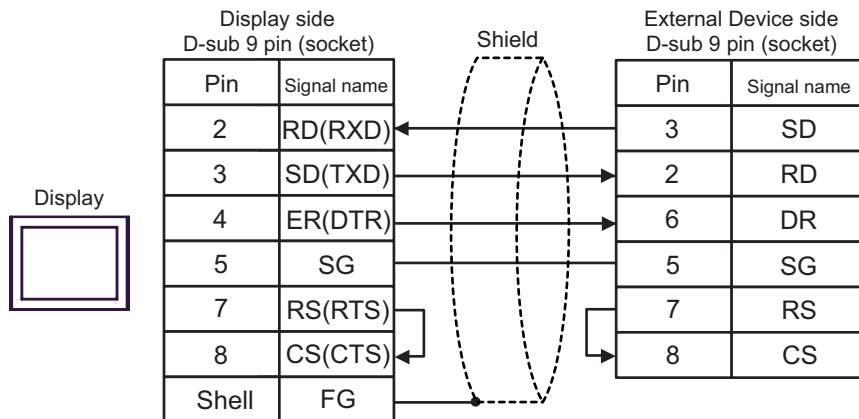
Display

Cable Diagram 10

Display (Connection Port)	Cable	Notes
GP (COM1) ST (COM1) IPC[*1] PC/AT	Your own cable	The cable length must be 15m or less.

*1   Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 7)

Display side D-sub 9 pin (socket)		Shield	External Device side D-sub 9 pin (plug)	
Pin	Signal name		Pin	Signal name
2	RD(RXD)		3	SD
3	SD(TXD)		2	RD
4	ER(DTR)		6	DR
5	SG		5	SG
7	RS(RTS)		7	RS
8	CS(CTS)		8	CS
Shell	FG		1	CD

Display

Cable Diagram 11

Display (Connection Port)		Cable	Notes
GP[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2) IPC[*3]	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 1000m or less.
	B	Your own cable	
GP[*4] (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	

*1   All GP models except AGP-3302B

*2   All ST models except AST-3211A

*3   Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
         ☞ ■ IPC COM Port (page 7)

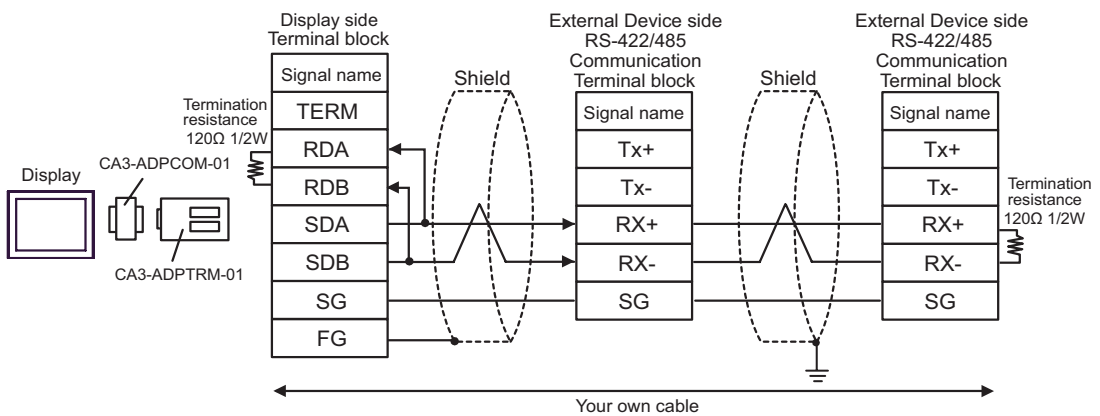*4   All GP models except GP-3200 series and AGP-3302B

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
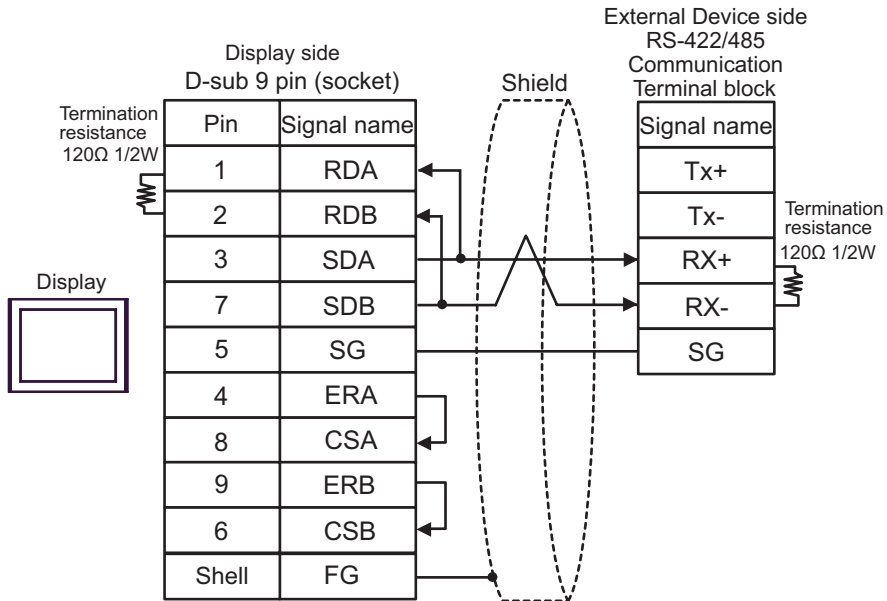
- 1:1 Connection

- 1:n Connection
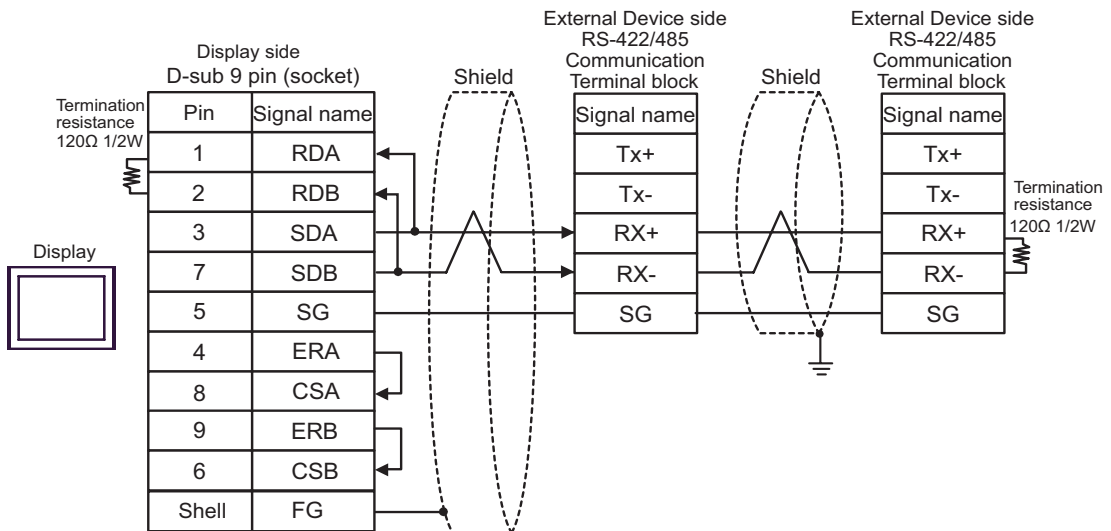
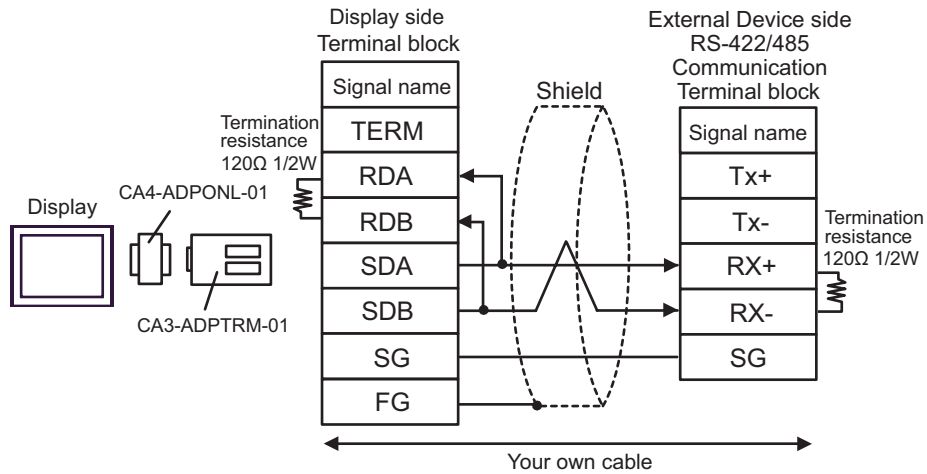B) When using your own cable

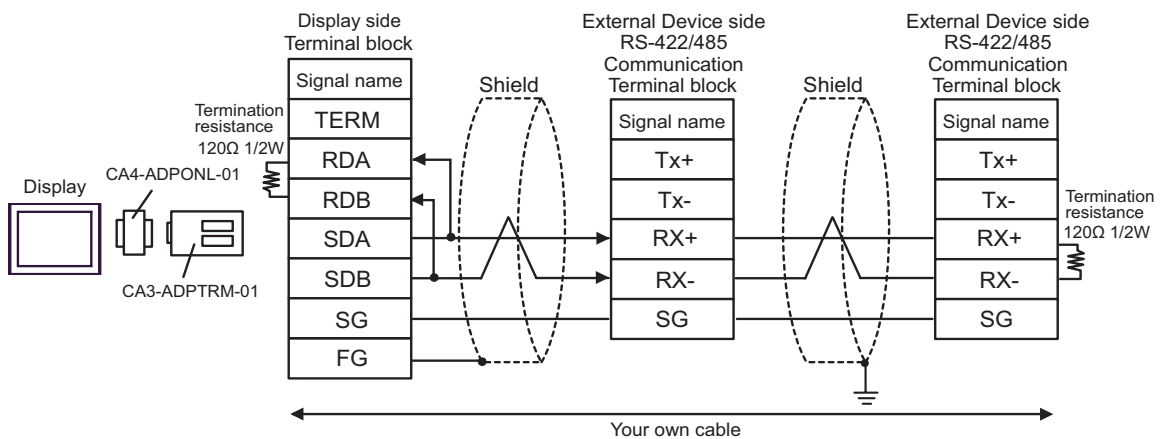- 1:1 Connection

- 1:n Connection

C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
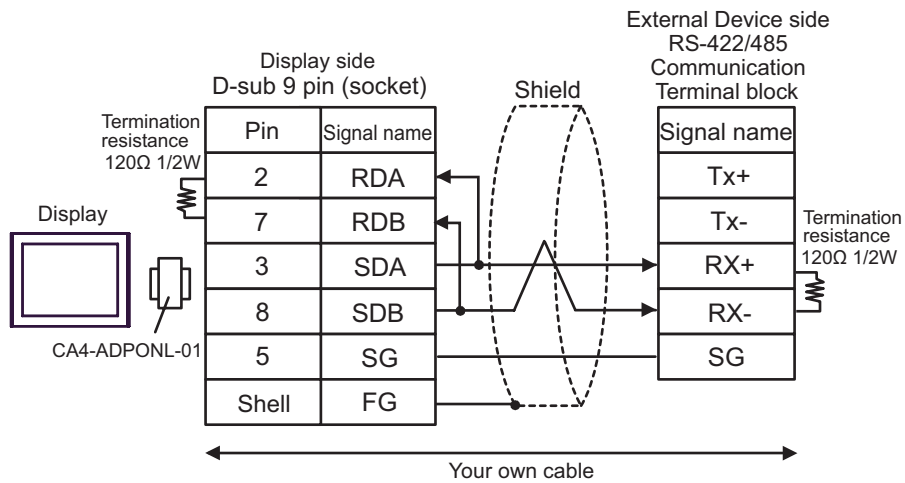
• 1:1 Connection

• 1:n Connection

D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

• 1:1 Connection

Your own cable

• 1:n Connection

Your own cable

Cable Diagram 12

Display (Connection Port)		Cable	Notes
GP[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 1000m or less.
	B	Your own cable	
GP[*3] (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	D	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	
IPC[*4]	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Your own cable	

*1   All GP models except AGP-3302B

*2   All ST models except AST-3211A

*3   All GP models except GP-3200 series and AGP-3302B

*4   Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
      ☞ ■ IPC COM Port (page 7)

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable
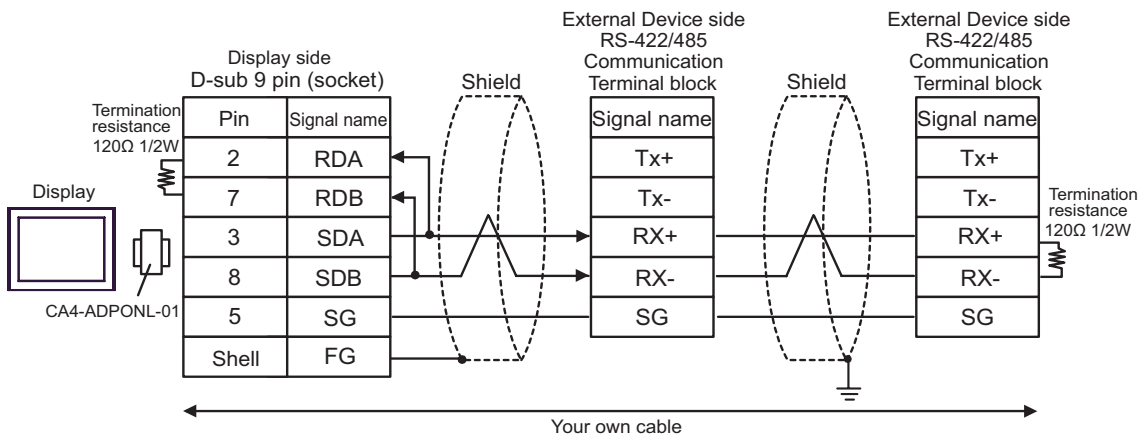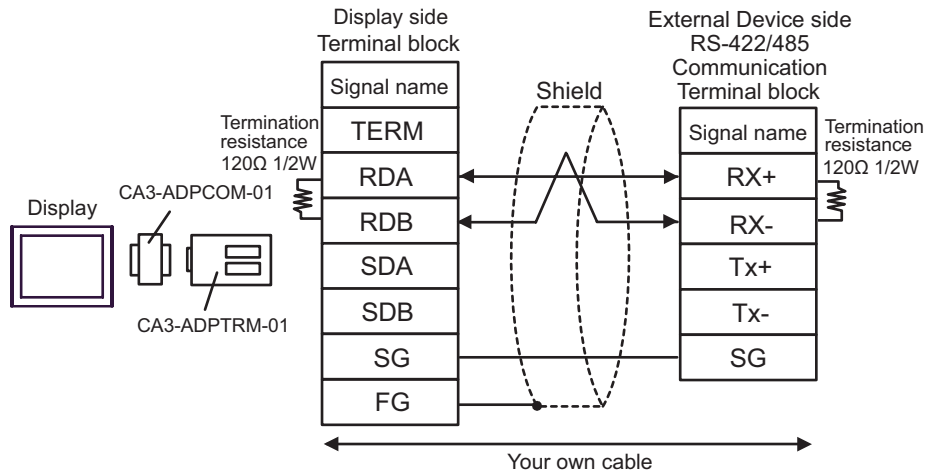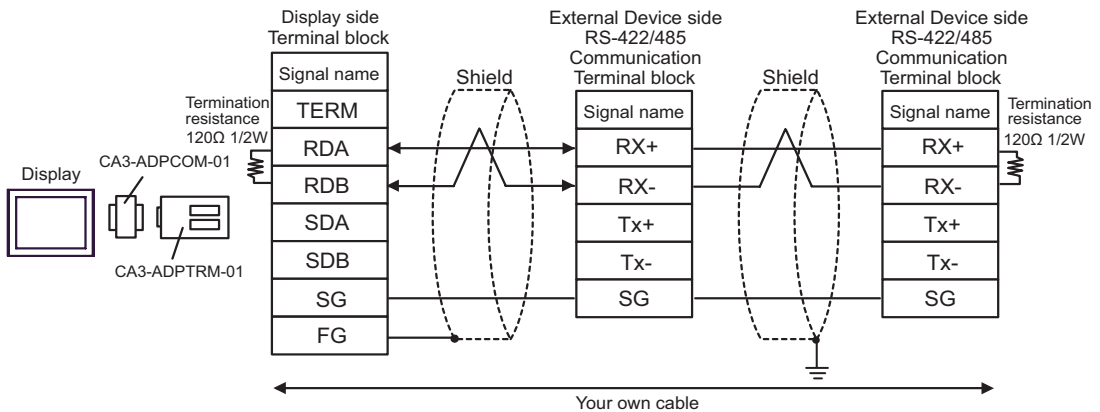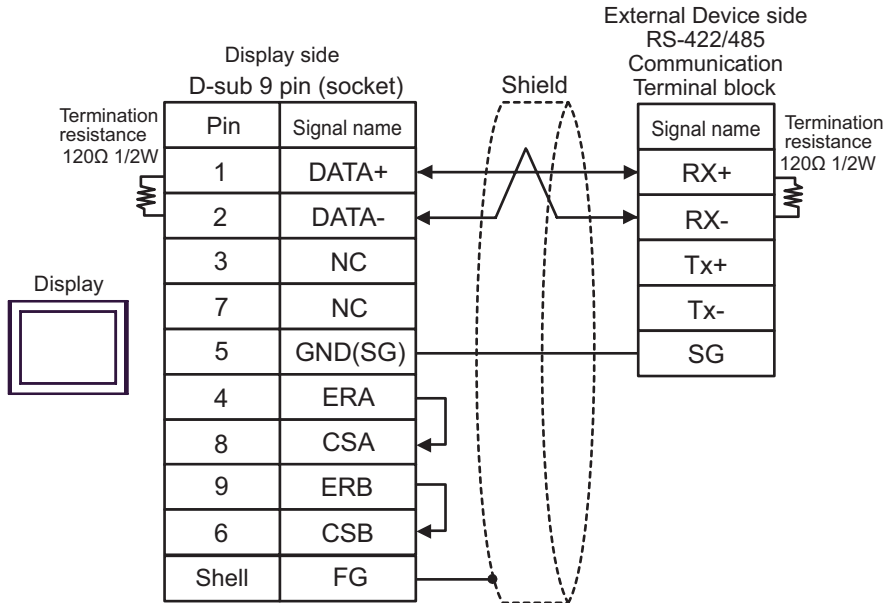
- 1:1 Connection

- 1:n Connection

B) When using your own cable

• 1:1 Connection

• 1:n Connection

C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

• 1:1 Connection

• 1:n Connection

D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

• 1:1 Connection

• 1:n Connection

E) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

• 1:1 Connection

• 1:n Connection

F) When using your own cable

• 1:1 Connection

• 1:n Connection
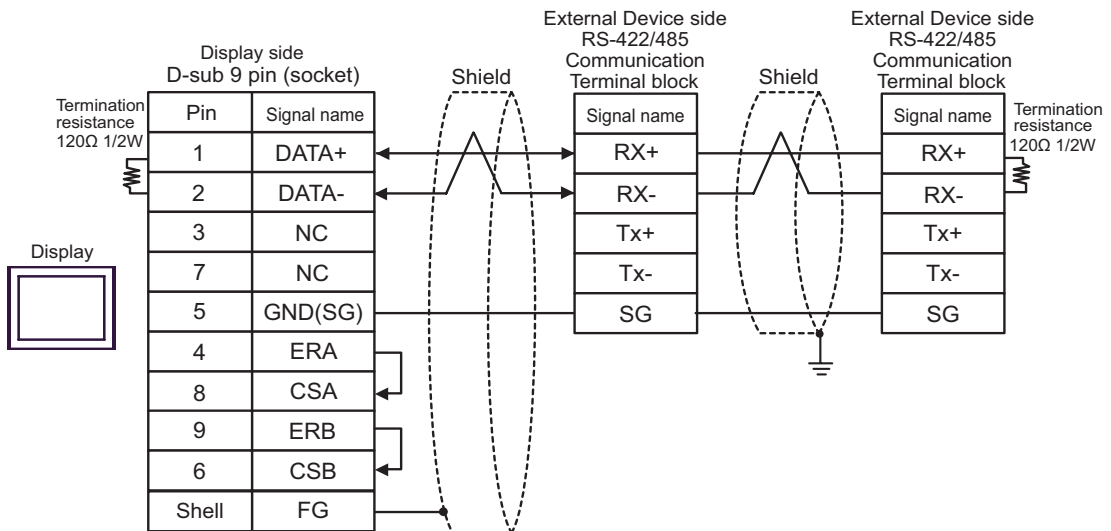
6   Supported Device

Range of supported device address is shown in the table below. Please note that the actually supported range of the devices varies depending on the External Device to be used. Please check the actual range in the manual of your connecting equipment.

■ Micro/Premium/Twido/Quantum/Momentum Series

☐☐☐☐ This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Coil	000001 - 065536	000001 - 065521		⌐÷16+1⌐
Discrete Input	100001 - 165536	100001 - 165521	[L / H]	⌐÷16+1⌐ *2
Input Register	-----	300001 - 365536	or	⌐Bit15⌐ *2
Holding Register	400001,00 - 465536,15*3	400001 - 465536	[H / L] *1	⌐Bit15⌐

*1   High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].
     ☞ "4.1 Setup Items in GP-Pro EX" (page 46)

*2   Write disable

*3   An access method at the time of Bit Set varies depending on the [Rest of the bits in this word] setting of [Device Setting].

     - Clear................ ⌐Bit15⌐
     - Do not clear .... 400001,00 - 465536,15

■ FCN/FCJ Series

☐☐☐☐ This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Coil	000001 - 009984	000001 - 009969		⌐÷16+1⌐ *2
Discrete Input	100001 - 109984	100001 - 109969	[L / H]	⌐÷16+1⌐ *2 *3
Input Register	300001.00 - 309999.15	300001 - 309999	or	⌐Bit15⌐ *3
Holding Register	400001.00 - 409999.15	400001 - 409999	[H / L] *1	⌐Bit15⌐

*1   High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].
   ☞ "4.1 Setup Items in GP-Pro EX" (page 46)

*2   The device access range of the External Device is spcified as 1 to 9999, that of the Display, however, as up to 9984, since the Display device is accessible in 16-bit units.

*3   Write disable

■ Supported Function Code

Below is the list of Supported Function Code.

Function Code (Hex)	Description
FC01 (0x01)	Reads the ON/OFF status of coils (0X references) in the slave.
FC02 (0x02)	Reads the ON/OFF status of discrete inputs (1X references) in the slave.
FC03 (0x03)	Reads the binary content of holding registers (4X references) in the slave.
FC04 (0x04)	Reads the binary content of input registers (3X references) in the slave.
FC05 (0x05)	Forces a single coil (0X references) to either ON or OFF
FC06 (0x06)	Presets a value into a single holding register (4X references).
FC15 (0x0F)	Forces each coil (0X references) in a sequence of coils to either ON or OFF.
FC16 (0x10)	Presets values into a sequence of holding registers (4X references).

NOTE • FC15 / FC16 will be used for writing. In case if the connected controller do not support these function codes, then FC05 / FC06 will be used.

■ IEC61131 address syntax

The following table gives the equivalences between the Modbus syntax and the IEC61131 syntax.

Device	Modbus address syntax			IEC61131syntax				
					0-based		1-based	
	Format	Range	First element	Format	Range	First element	Range	First element
Coil	000001+i	i=0 to 65535	000001	%Mi	i=0 to 65535	%M00000	i=1 to 65536	%M00001
Discrete Input	100001+i	i=0 to 65535	100001	-	-	-	-	-
Input register (word)	300001+i	i=0 to 65535	300001	-	-	-	-	-
Input register (word bit)	300001+i,j	i=0 to 65535 j=0 to15	300001,00	-	-	-	-	-
Holding register (word)	400001+i	i=0 to 65535	400001	%MWi	i=0 to 65535	%MW00000	i=1 to 65536	%MW00001
Holding register (word bit)	400001+i,j	i=0 to 65535 j=0 to15	400001,00	%MWi:Xj	i=0 to 65535 j=0 to 15	%MW00000:X00	i=1 to 65535 j=0 to15	%MW00001:X00

NOTE • The two areas 100000 and 300000 are not accessible with the IEC syntax.
• Once you change the project which you have setup Discrete Input Register to IEC 61131 Syntax, the address will be undefined.

NOTE
- Please refer to the GP-Pro EX Reference Manual for system data area.
  Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (Direct Access Method)"
- Please refer to the precautions on manual notation for icons in the table.

  ☞"Manual Symbols and Terminology"

7   Device Code and Address Code

Use device code and address code when you select "Device Type & Address" for the address type in data displays.

■ Micro/Premium/Twido/Quantum/Momentum Series

Device	Device Name	Device Code (HEX)	Address Code
Coil	0	0080	Value of (word address - 1) divided by 16
Discrete Input	1	0081	Value of (word address - 1) divided by 16
Input Register	3	0001	Value of word address from which 1 is deducted
Holding Register	4	0000	Value of word address from which 1 is deducted

■ FCN/FCJ Series

Device	Device Name	Device Code (HEX)	Address Code
Coil	0	0080	Value of (word address - 1) divided by 16
Discrete Input	1	0081	Value of (word address - 1) divided by 16
Input Register	3	0001	Value of word address from which 1 is deducted
Holding Register	4	0000	Value of word address from which 1 is deducted

8 Error Messages

Error messages are displayed on the screen of Display as follows: "No. : Device Name: Error Message (Error Occurrence Area)". Each description is shown below.

Item	Description
No.	Error No.
Device Name	Name of External Device where error occurs. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1])
Error Message	Displays messages related to the error which occurs.
Error Occurrence Area	Displays IP address or device address of External Device where error occurs, or error codes received from External Device. **NOTE** • IP address is displayed such as "IP address(Decimal): MAC address(Hex)". • Device address is diplayed such as "Address: Device address". • Received error codes are displayed such as "Decimal[Hex]".

Display Examples of Error Messages

"RHAA035: PLC1: Error has been responded for device write command (Error Code: 2 [02H])"

NOTE
• Refer to your External Device manual for details on received error codes.
• Refer to "When an error is displayed (Error Code List)" in "Maintenance/Troubleshooting Manual" for details on the error messages common to the driver.