FP Series Computer Link SIO 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 7) |

| 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 8) |

| 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 35) |

| 5 | Cable Diagram
This section shows cables and adapters for connecting the Display and the External Device. | ☞ "5 Cable Diagram" (page 40) |

Operation

1 System Configuration

The system configuration in the case when the External Device of Panasonic Electric Works Co., Ltd. and the Display are connected is shown.

Series	CPU	Link I/F		SIO Type	Setting Example	Cable Diagram
FP	FPΣ	Tool port of the control unit		RS232C	Setting Example 1 (page 8)	Cable Diagram 8 (page 65)
		AFPG801				Cable Diagram 1 (page 40)
		AFPG802				Cable Diagram 2 (page 42)
		AFPG806				Cable Diagram 4 (page 53)
		AFPG803		RS485 (2wire)	Setting Example 2 (page 10)	Cable Diagram 3 (page 44)
		AFPG806				Cable Diagram 5 (page 54)
	FP0	Tool port of the control unit		RS232C	Setting Example 3 (page 12)	Cable Diagram 8 (page 65)
		RS232C port of the control unit[*1]		RS232C		Cable Diagram 6 (page 63)
	FP1	Tool port of the control unit		RS232C	Setting Example 4 (page 14)	Cable Diagram 9 (page 66)
		RS232C port of the control unit[*2]		RS232C		Cable Diagram 7 (page 64)
	FP-M	Tool port of the control unit		RS232C	Setting Example 5 (page 16)	Cable Diagram 8 (page 65)
		RS232C port of the control unit[*3]		RS232C		Cable Diagram 7 (page 64)
	FP2 FP2SH	Tool port of the control unit		RS232C	Setting Example 6 (page 18)	Cable Diagram 8 (page 65)
		RS232C port of the control unit		RS232C		Cable Diagram 7 (page 64)
		AFP2462		RS232C		Cable Diagram 7 (page 64)
		AFP2465[*4]	AFP2803	RS232C	Setting Example 6 (page 18)	Cable Diagram 7 (page 64)
			AFP2804	RS422 (4wire)	Setting Example 7 (page 21)	Cable Diagram 11 (page 68)
			AFP2805	RS485 (2wire)	Setting Example 8 (page 23)	Cable Diagram 3 (page 44)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
FP	FP3	Tool port of the control unit	RS232C	Setting Example 9 (page 25)	Cable Diagram 10 (page 67)
		AFP3462	RS232C		Cable Diagram 7 (page 64)
	FP-e	Tool port of the control unit	RS232C	Setting Example 10 (page 27)	Cable Diagram 8 (page 65)
		AFPE224300	RS232C		Cable Diagram 12 (page 71)
		AFPE224305			
		AFPE214325			
		AFPE224302	RS485 (2wire)	Setting Example 11 (page 29)	Cable Diagram 13 (page 72)
		AFPE214322			
	FP10S	RS232C port of the control unit	RS232C	Setting Example 12 (page 31)	Cable Diagram 7 (page 64)
		AFP3462	RS232C		Cable Diagram 7 (page 64)
	FP10SH	Tool port of the control unit	RS232C	Setting Example 12 (page 31)	Cable Diagram 14 (page 81)
		RS232C port of the control unit	RS232C		Cable Diagram 7 (page 64)
		AFP3462	RS232C		Cable Diagram 7 (page 64)

*1 Only FP0 (C10CRM/C10CRS/C14CRM/C14CRS/C16CT/C16CP/C32CT/C32CP) is equipped with the RS232C port. Other models are not.

*2 Only FP1 (C24/C40/C56/C72) is equipped with the RS232C port. Other models are not.

*3 Only FP-M (C20R/C20T/C32T) is equipped with the RS232C port. Other models are not.

*4 AFP2465 is the multicommunication unit of FP2/FP2SH.
AFP2803, AFP2084 and AFP2085 are the communication blocks attached to AFP2465.

NOTE
• When the time of GP-4100 series is updated in [Clock Update Settings] of GP-Pro EX, there are some restrictions as shown below.
For details on [Clock Update Settings], refer to GP-Pro EX Reference Manual.
  • FP0 and FP-e do no support [Clock Update Settings].
  • When [Clock Update Settings] is used in FP2, any of the extension memory unit FP2-EM1, FP2-EM2 or FP2-EM3 is required.
  • When [Clock Update Settings] is used in FP3, any of the AFP3210C-F, AFP3211C-F, AFP3212C-F or AFP3220C-F is required.

■ 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, PS3000-BA, PS3001-BD	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, PS-3451A, PS3000-BA and PS3001-BD, turn ON the set value.
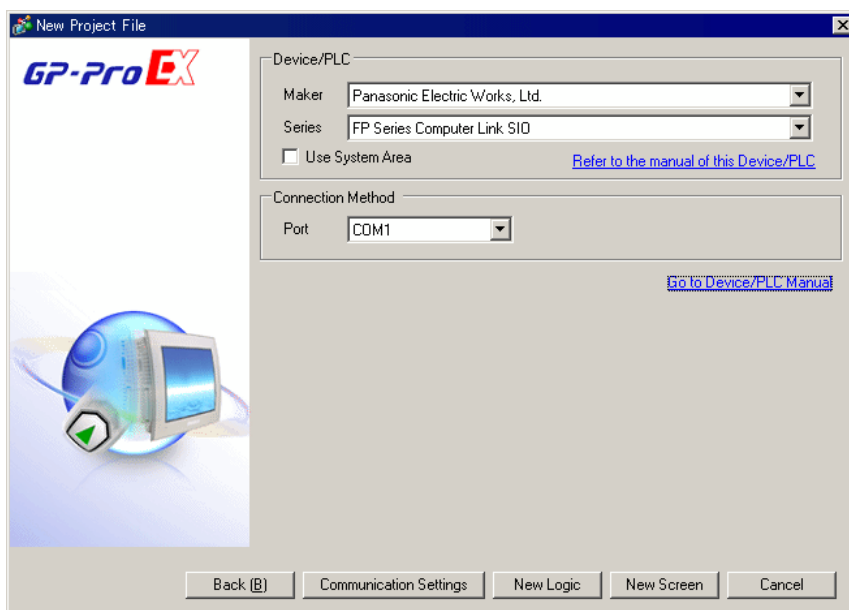
DIP switch setting: RS-422/485 (4 wire)

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 "Panasonic Electric Works, Ltd.".
Driver	Select a model (series) of the External Device to be connected and connection method. Select "FP Series Computer Link SIO". Check the External Device which can be connected in " FP Series Computer Link SIO" 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 also be set in GP-Pro EX or in the Display's off-line mode. 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 you use the FP 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.

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the tool port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Modem Connection	Disable
Unit No.	1

◆ When using the communication cassette

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM1(2) Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Communication Mode	Computer link
Modem Connection	OFF
Unit No.	1

* For COM1 of AFPG806, you need to set the built-in switch on the rear of the cassette.

DIP Switch	Settings	Setup Description
SW1-2	OFF	Line Speed

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.

■ Setting of External Device

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM1(2) Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Communication Mode	Computer link
Modem Connection	OFF
Unit No.	1

* For COM1 of AFPG806, you need to set the built-in switch on the rear of the cassette.

DIP Switch	Settings	Setup Description
SW1-2	OFF	Line Speed

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 ![icon] ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

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

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the tool port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Modem Connection	Disable
Unit No.	1

◆ When using the RS232C port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Operation Selection	Computer link
Modem Connection	OFF
Unit No.	1

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.

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the programming tool connection port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Use the [Baud Rate Toggle Switch] on the side of the programming tool connection port on the CPU to set the speed. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Modem Connection	Disable
Not automatically change to 2400bps when connecting the modem	OFF
Unit No.	1

◆ When using the RS232C port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Operation Selection	Computer link
Modem Connection	OFF
Not automatically change to 2400bps	OFF
Unit No.	1

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.

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the programmer connector on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Modem Connection	Disable
Not automatically change to 2400bps when connecting the modem	OFF
Unit No.	1

◆ When using the serial port connector on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Operation Selection	Computer link
Modem Connection	OFF
Not automatically change to 2400bps	OFF
Unit No.	1

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.

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the tool port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

- Ladder Software Setting

Setup Items	Setting Value
Speed	19200
Data Length	8
Modem Connection	Disable
Operation Mode Setting Switch	SW1: OFF
Unit No.	1

- Operation Mode Setting Switch

DIP Switch	Settings	Setup Description
SW1	OFF	Transmission speed: 19200bps

◆ When using the RS232C port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity	Odd
Stop Bit	1
Communication Mode	Computer link
Modem Connection	OFF
Unit No.	1

◆ When using the computer communication unit AFP2462

Set the transmission format setting switch on the rear of the unit as below.

DIP Switch	Settings	Setup Description
SW1	ON	System reservation
SW2	ON	Transmission speed on the COM1 19200bps
SW3	OFF	
SW4	ON	Data length on the COM1: 8 bits
SW5	ON	System reservation
SW6	ON	Transmission speed on the COM2 19200bps
SW7	OFF	
SW8	ON	Data length on the COM2: 8 bits

◆ When using the multicommunication unit AFP2465 combined with the communication block AFP2803

Set the station setting switch to [1] and set the transmission format setting switch as below.

DIP Switch	Settings	Setup Description
SW1	ON	Operation mode on the COM1 Computer link
SW2	ON	
SW3	ON	Transmission speed on the COM1 19200bps
SW4	OFF	
SW5	ON	Operation mode on the COM2 Computer link
SW6	ON	
SW7	ON	Transmission speed on the COM2 19200bps
SW8	OFF	

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/PLC 1

Summary   Change Device/PLC

Maker   Panasonic Electric Works, Ltd.   Series   FP Series Computer Link SIO   Port   COM1

Text Data Mode   2   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   0   (ms)

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   Monitor Register=ON,Station No.=1,Command Header=<

◆ 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.

Individual Device Settings

PLC1

☑ Monitor Register

Command Header   ○ %   ⊙ <

Station No.   1

OK (O)   Cancel

■ Setting of External Device

◆ When using the multicommunication unit AFP2465 combined with the communication block AFP2804

Set the station setting switch to [1] and set the transmission format setting switch as below.

DIP Switch	Settings	Setup Description
SW1	ON	Operation mode on the COM1 Computer link
SW2	ON	
SW3	ON	Transmission speed on the COM1 19200bps
SW4	OFF	
SW5	ON	Operation mode on the COM2 Computer link
SW6	ON	
SW7	ON	Transmission speed on the COM2 19200bps
SW8	OFF	

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.

■ Setting of External Device

◆ When using the multicommunication unit AFP2465 combined with the communication block AFP2805

Set the station setting switch to [1] and set the transmission format setting switch as below.

DIP Switch	Settings	Setup Description
SW1	ON	Operation mode on the COM1 Computer link
SW2	ON	
SW3	ON	Transmission speed on the COM1 19200bps
SW4	OFF	
SW5	ON	Operation mode on the COM2 Computer link
SW6	ON	
SW7	ON	Transmission speed on the COM2 19200bps
SW8	OFF	

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/PLC 1			
Summary			Change Device/PLC
Maker	Panasonic Electric Works, Ltd.	Series FP Series Computer Link SIO	Port COM1
Text Data Mode	2 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	0 (ms)		

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	Monitor Register=ON,Station No.=1,Command Header=<	

◆ 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.

Individual Device Settings

PLC1

☑ Monitor Register

Command Header ● % ○ <

Station No.   1

Default

OK (O)   Cancel

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the tool port on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Use the [Operation Mode Setting Switch] inside the CPU unit for setting the baud rate. Please refer to the manual of the External Device for more details.

• Ladder Software Setting

Setup Items	Setting Value
Data Length	8
Modem Connection	Disable
Unit No.	1

• Operation Mode Setting Switch

DIP Switch	Settings	Setup Description
SW2	OFF	Baud rate: 19200bps

◆ When using the computer communication unit AFP3462

Set the DIP switch on the rear of the unit as below.

DIP Switch	Settings	Setup Description
SW1	ON	Transmission speed: 19200bps
SW2	OFF	
SW3	OFF	
SW4	ON	Data Length: 8 bits
SW5	ON	Parity check: Enable
SW6	OFF	Parity setting = Odd parity
SW7	OFF	Stop bit: 1 bit
SW8	OFF	Disable CS, CD

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   Panasonic Electric Works, Ltd.   Series   FP Series Computer Link SIO   Port   COM1

Text Data Mode   2   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   0   (ms)

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   Monitor Register=ON,Station No.=1,Command Header=<

◆ 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.

Individual Device Settings

PLC1

☑ Monitor Register

Command Header ⊙ %   ○ <

Station No.   1

                 OK (O)   Cancel

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the programmer connector on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Tool Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Modem Connection	Disable
Unit No.	1

◆ When using the computer communication unit AFPE224300/AFPE224305/AFPE214325

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM Port Setting] tab to set as below. Please refer to the manual of the External Device for more details.

Setup Items	Setting Value
Speed	19200
Data Length	8
Parity Setting	Odd
Stop Bit	1
Operation Selection	Computer link
Modem Connection	OFF
Not automatically change to 2400bps	OFF
Unit No.	1

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 [Setting] from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

■ Setting of External Device

◆ When using the computer communication unit AFPE224300/AFPE224305/AFPE214325

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [COM Port Setting] tab to set as below. In addition, you need to set the internal switch in the main unit. Please refer to the manual of the External Device for more details.

• Ladder Software Setting

Setup Items	Setting Value
Data Length	8
Parity	Odd
Stop Bit	1
Operation Selection	Computer link
Modem Connection	OFF
Not automatically change to 2400bps	OFF
Unit No.	1

• Internal Switch in the Main Unit

Settings	Setup Description
19200	Line Speed

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.

■ Setting of External Device

Settings of the External Device vary depending on the connecting port.

◆ When using the tool connector on CPU

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Port Setting] tab to set as below. In addition, you need to perform the same settings in the [Operation Mode Setting Switch] and the station setting switch inside the CPU unit. Please refer to the manual of the External Device for more details.

• Ladder Software Setting

Setup Items	Setting Value
Speed	19200

• Operation Mode Setting Switch

DIP Switch	Settings	Setup Description
SW1	OFF (19200)	Line Speed
SW2	OFF (8)	Data Length
SW3	OFF (Disable)	Modem control

• Station Setting Switch

Settings	Setup Description
1	Unit No.

◆ When using the COM port of FP10S

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Port Setting] tab to set as below. In addition, you need to perform the same settings in the [Operation Mode Setting Switch] and the station setting switch inside the CPU unit. Please refer to the manual of the External Device for more details.

• Ladder Software Setting

Setup Items	Setting Value
RS232C port Connect Modem	OFF

• Operation Mode Setting Switch

DIP Switch	Settings	Setup Description
SW4	OFF (19200)	Baud Rate
SW5	ON (8)	Data Length
SW6	ON (Enable)	Parity Check
SW7	OFF (Odd)	Parity
SW8	OFF (1)	Stop Bit

• Station Setting Switch

Settings	Setup Description
1	Unit No.

◆ When using the COM port of FP10SH

Select [PLC System Register Setting] from [Option] of the tool bar in the ladder software to display the [PLC System Register Setting] dialog box. Select the [Port Setting] tab to set as below. In addition, you need to perform the same settings in the [Operation Mode Setting Switch] and the station setting switch inside the CPU unit. Please refer to the manual of the External Device for more details.

• Ladder Software Setting

Setup Items	Setting Value
COM port Operation Selection	Computer link
Baud Rate	19200

• Operation Mode Setting Switch

DIP Switch		Settings	Setup Description
DIP SW2	SW6	ON	Baud Rate
	SW7	ON	
	SW8	OFF (19200)	
DIP SW1	SW8	ON (8)	Data Length
	SW6	ON (Odd)	Parity Check
	SW7	ON (Odd)	
	SW5	ON (1)	Stop Bit
	SW2	ON STX(02h) disabled	Data Length
	SW3	OFF	Termination code
	SW4	ON CR(0Dh) code	

• Station Setting Switch

Settings	Setup Description
1	Unit No.

◆ When using the computer communication unit AFP3462

Set the DIP switch on the rear of the unit as below.

DIP Switch	Settings	Setup Description
SW1	ON	Transmission speed: 19200bps
SW2	OFF	
SW3	OFF	
SW4	ON	Data Length: 8 bits
SW5	ON	Parity check: Enable
SW6	OFF	Parity setting = Odd parity
SW7	OFF	Stop bit: 1 bit
SW8	OFF	Disable CS, CD

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 8)

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.
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.
RI/VCC	Switch the 9th pin setting 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 the External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

When [Allowable No. of Device/PLCs] is multiple, you can click ▦ from [Device-Specific Settings] of [Device/PLC Settings] to add the External Device which is available to set.

Setup Items	Setup Description
Monitor Register	Setting of communication optimization. Check this option when you connect the Display to one communication unit. Not check when you connect the Display to more than two communication units attached to one CPU unit respectively. **IMPORTANT** • Monitor register option is effective in the default setting. Check the setting according to your system configuration. • When you connect the GP to FP-e Series, Please configure the setting not to use Monitor Registration.
Command Header	Setting of communication format. Select "%" when the External Device to communicate is FP2, FP2SH, FP3, FP10S, FP10SH, and select "<" for other models.
Station No.	Use an integer 1 to 32 to enter the station number of the External Device to communicate.

4.2 When setting in off-line mode

• 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"

• The number of the setup items to be displayed for 1 page in the off-line mode depends on the
Display in use. Please refer to the Reference manual for details.

■ 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.

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 (s)	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 (ms)	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].

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])
Monitor Register	Setting of communication optimization. Select [Valid] when you connect the Display to one communication unit. Select [Invalid] when you connect the Display to more than two communication units attached to one CPU unit respectively. IMPORTANT • Monitor register option is valid in the default setting. Check the setting according to your system configuration.
Command Header	Setting of communication format. Select "%" when the External Device to communicate is FP2, FP2SH, FP3, FP10S, FP10SH, and select "<" for other models.
Station No.	Use an integer 1 to 32 to enter the station number of the External Device to communicate.

■ 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		

FP Series Computer Link SIO   [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 13:19:21 |

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.

NOTE   • GP-4100 series do not have the [Option] setting in the off-line mode.

5   Cable Diagram

The cable diagram shown below may be different from the cable diagram recommended by Panasonic Electric Works Co., Ltd. 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
GP3000 (COM1) ST (COM1) IPC[1] PC/AT	1A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	1B	User-created cable	

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

)■ IPC COM Port (page 5)

1A)

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

Display

Shield

1B)

Display side Terminal block	External Device side
Signal name	Signal name
RD(RXD)	SD
SD(TXD)	RD
ER(DTR)	RS
SG	CS
DR(DSR)	SG
RS(RTS)	
CS(CTS)	

Display

Shield
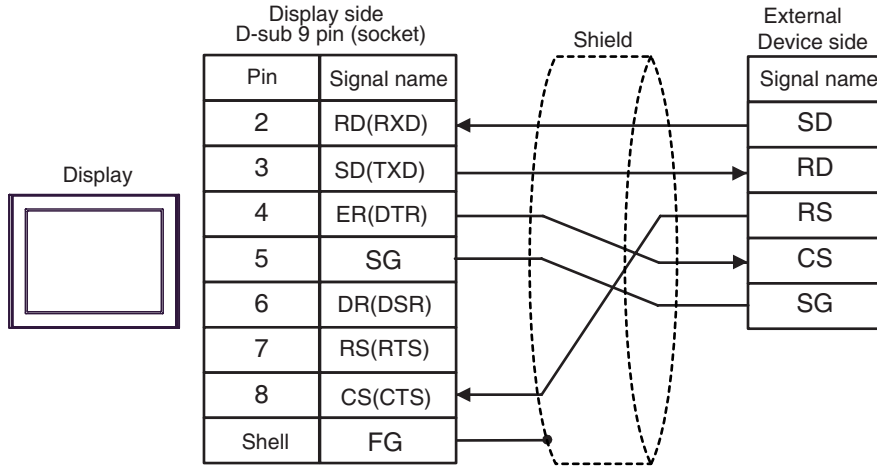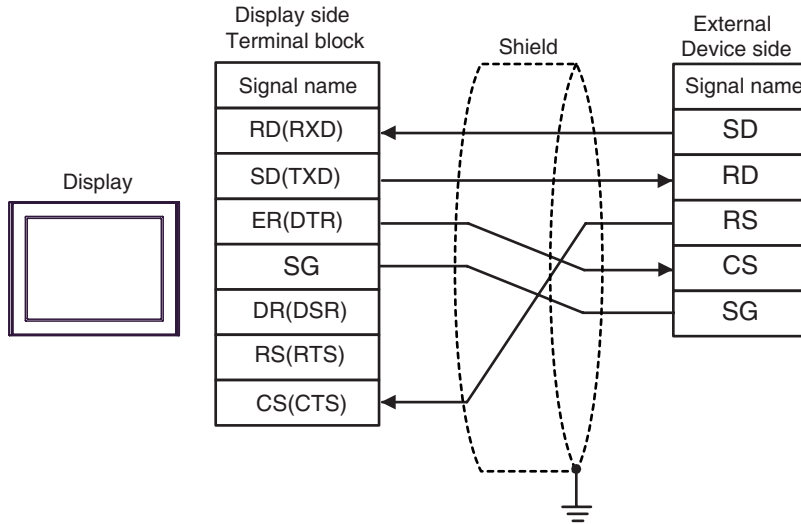
Cable Diagram 2

Display (Connection Port)	Cable		Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	2A	User-created cable (When using the COM.1 port)	The cable length must be 15m or less.
	2B	User-created cable (When using the COM.2 port)	
GP-4105 (COM1)	2C	User-created cable (When using the COM.1 port)	
	2D	User-created cable (When using the COM.2 port)	

*1   Only the COM port which can communicate by RS-232C can be used.
  ☞ ■ IPC COM Port (page 5)

2A)
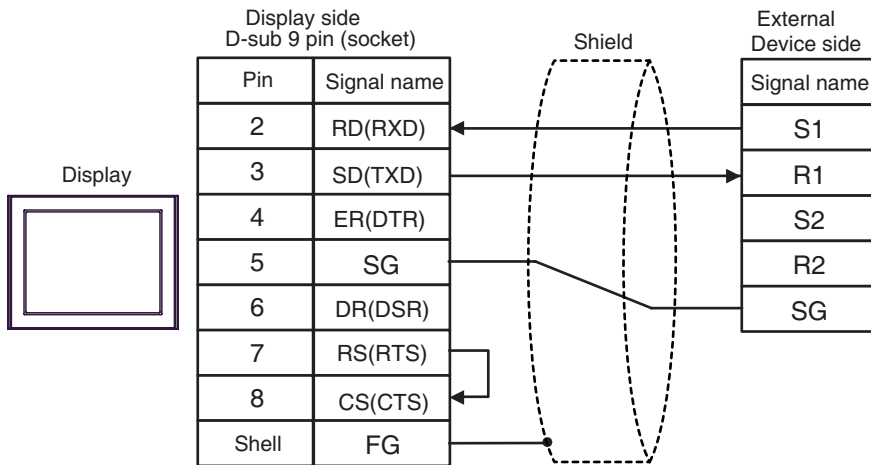
2B)
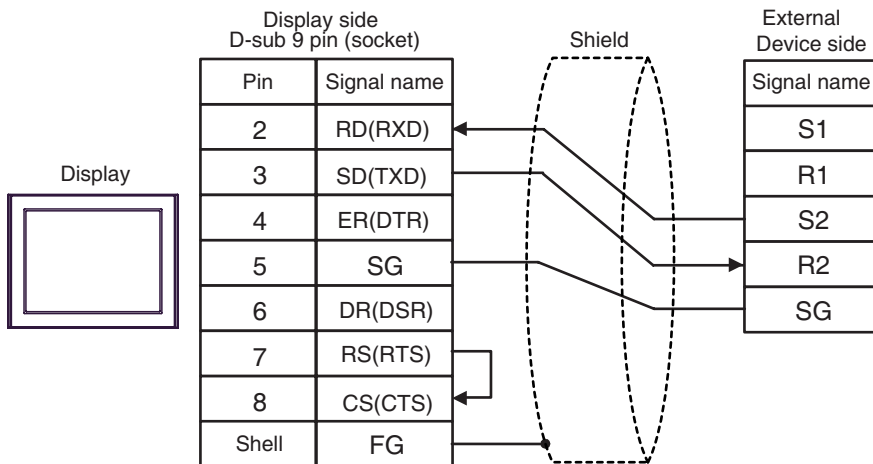
2C)
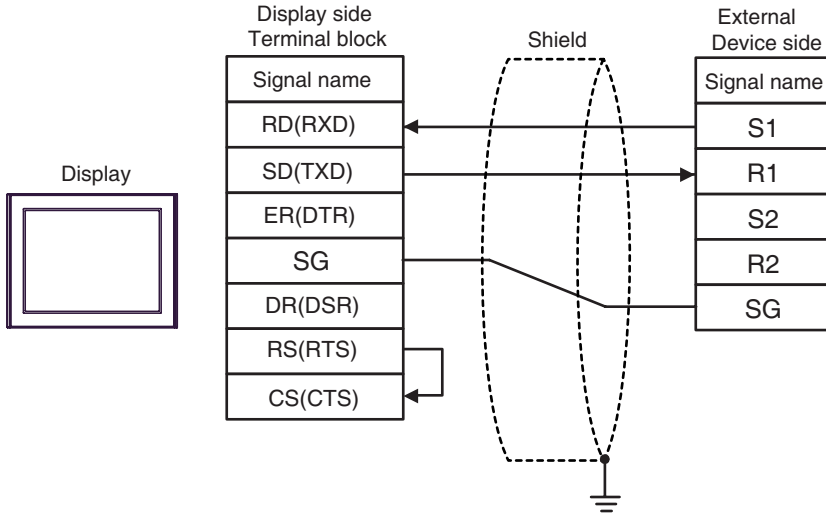
2D)
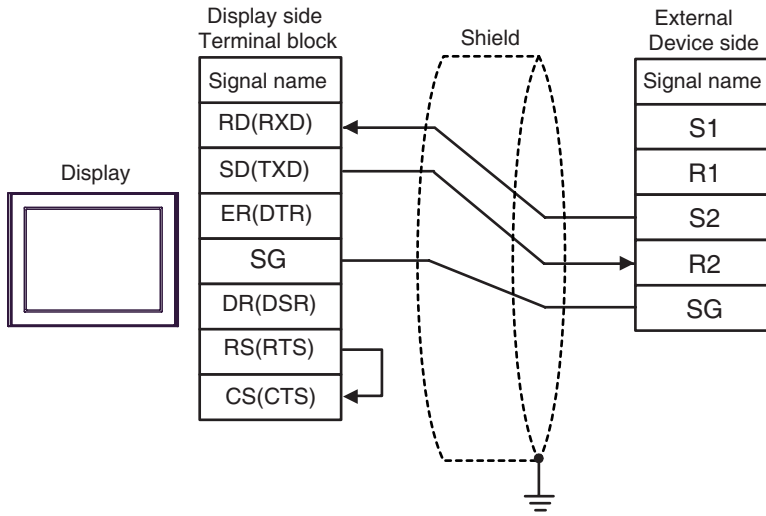
Cable Diagram 3

Display (Connection Port)		Cable	Notes
GP3000[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	3A	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	3B	User-created cable	
GP3000[*3] (COM2)	3C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	3D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC[*4]	3E	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	3F	User-created cable	
GP-4106 (COM1)	3G	User-created cable	
GP-4107 (COM1)	3H	User-created cable	

*1   All GP3000 models except AGP-3302B

*2   All ST models except AST-3211A and AST-3302B

*3   All GP3000 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.
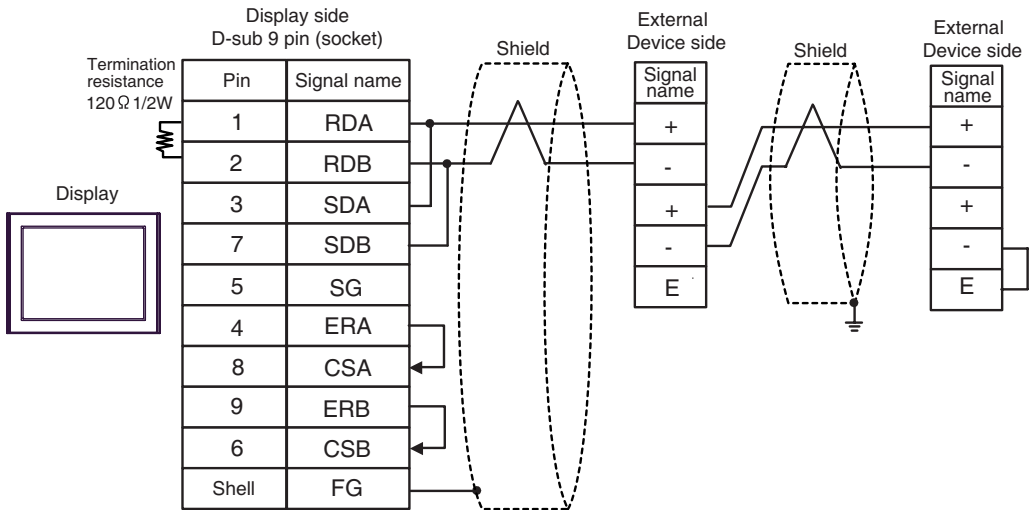   ☞ ■ IPC COM Port (page 5)

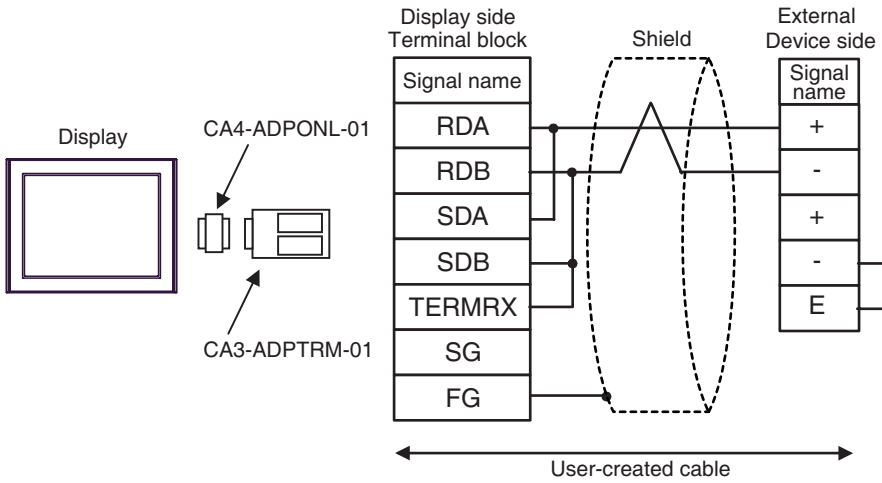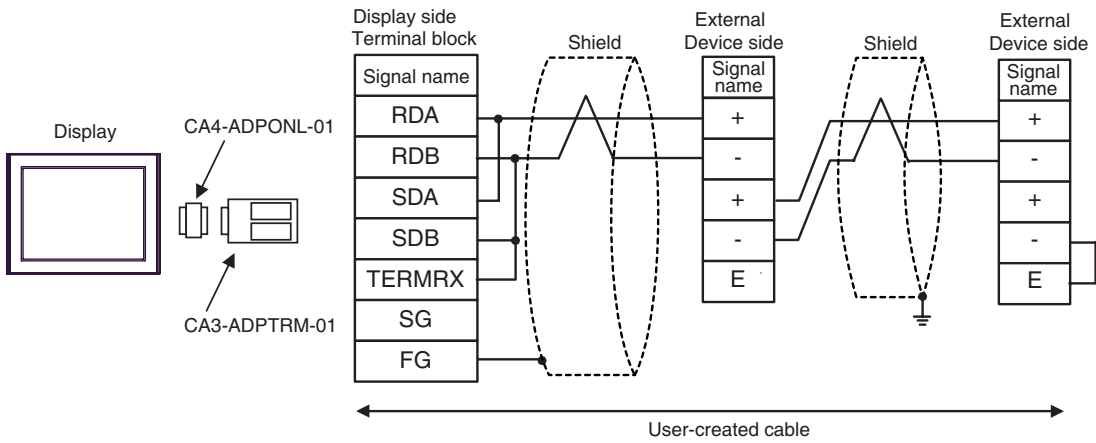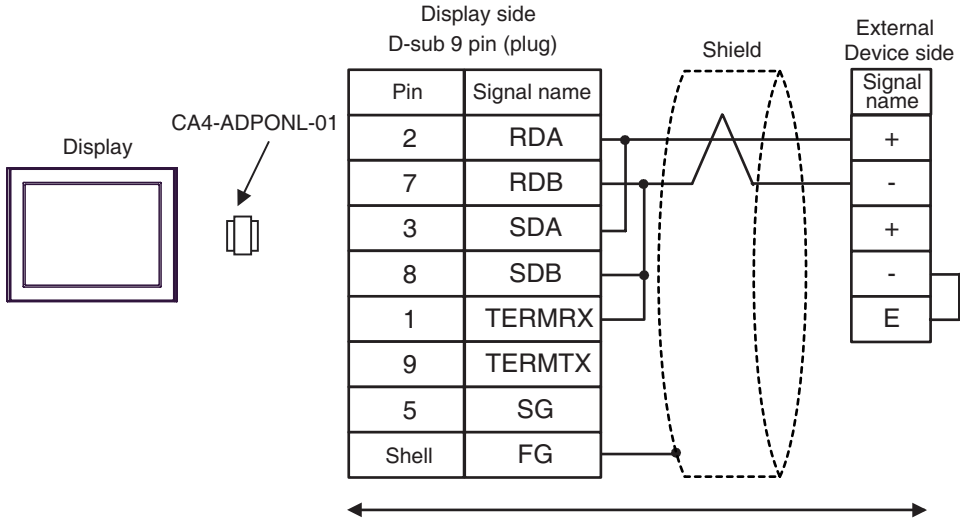3A)

• 1:1 Connection
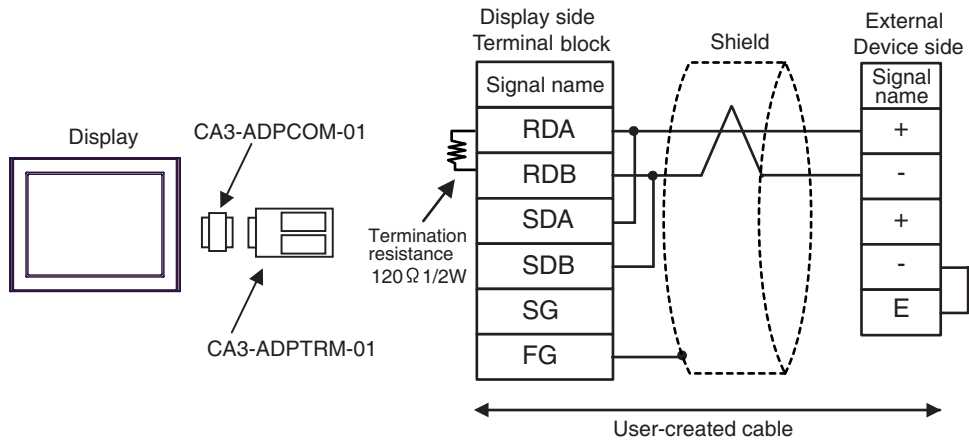
| | IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection. |
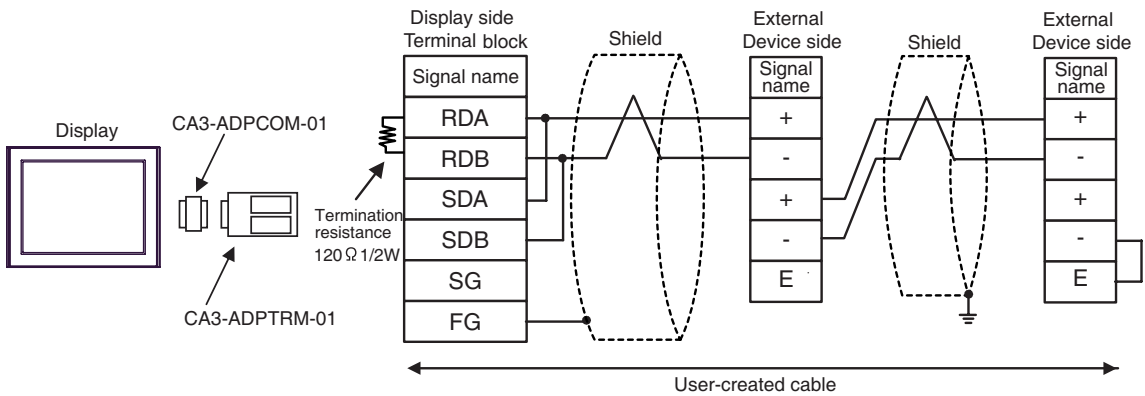
• 1:n Connection

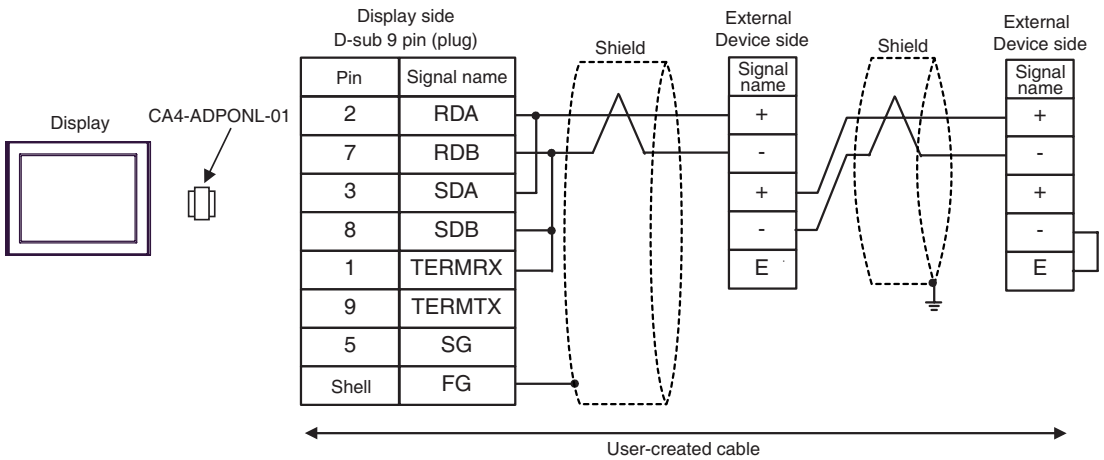| | IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection. |

3B)

- 1:1 Connection
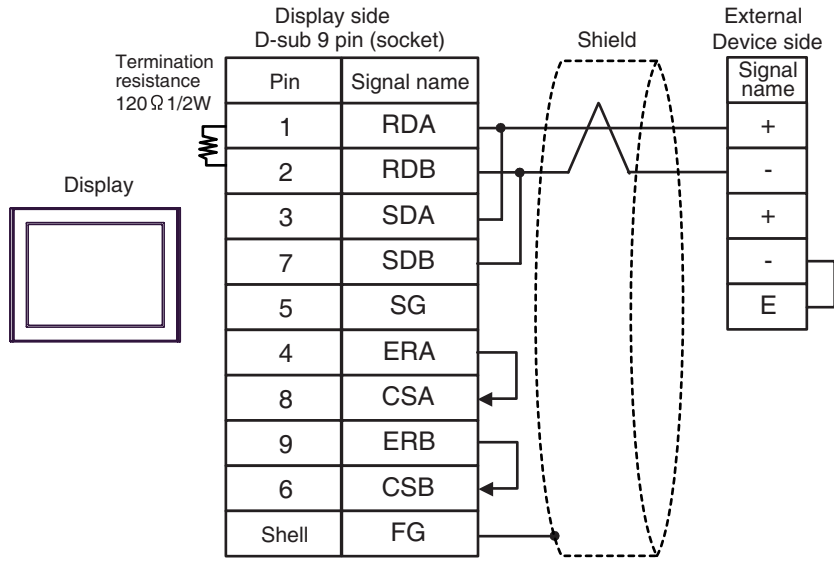
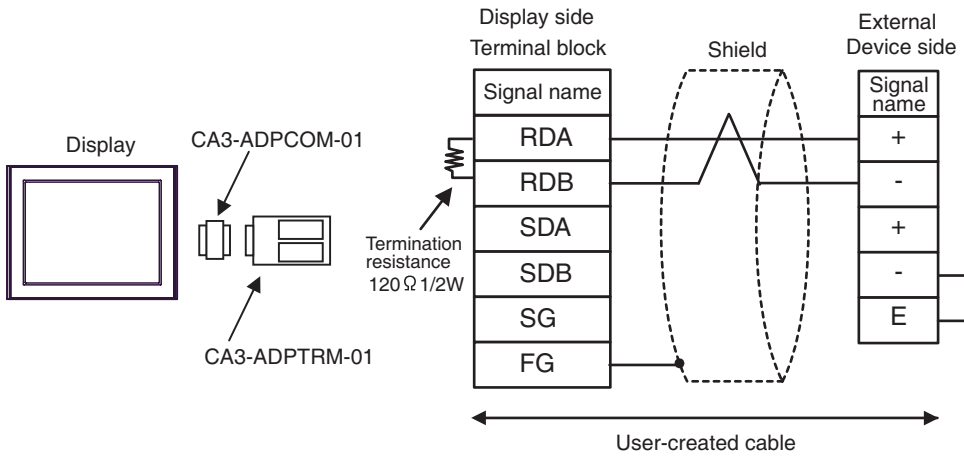| | IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection. |

- 1:n Connection

| | IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection. |

3C)

• 1:1 Connection

Display side Terminal block		Shield	External Device side
Signal name			Signal name
RDA			+
RDB			-
SDA			+
SDB			-
TERMRX			E
SG			
FG			

User-created cable

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.
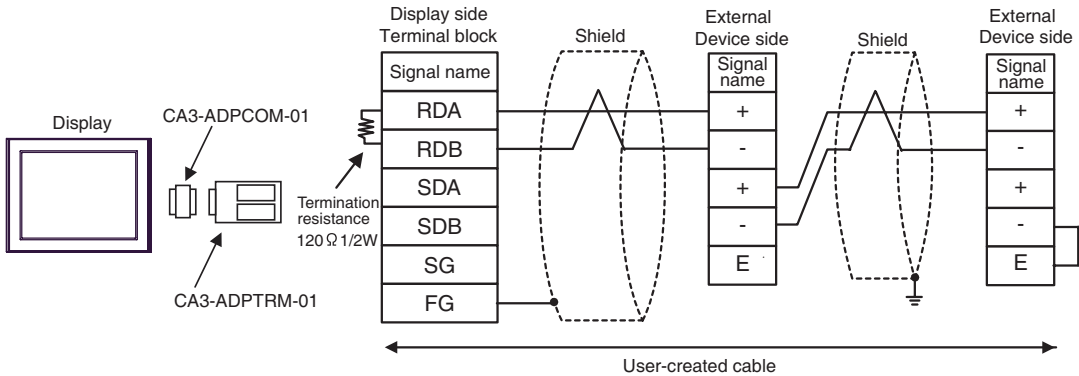
• 1:n Connection

User-created cable

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

3D)

• 1:1 Connection

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

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.
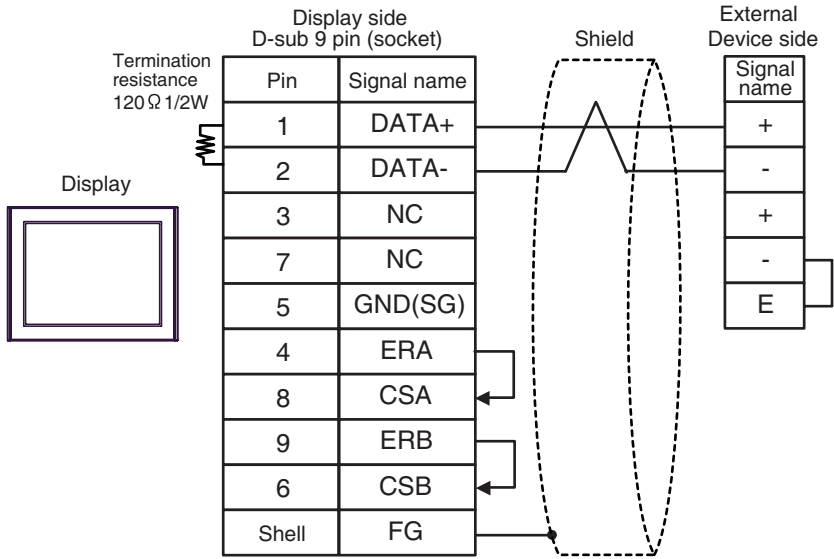
• 1:n Connection

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

User-created cable

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

3E)

• 1:1 Connection

Display side
Terminal block
Shield
External
Device side

Signal name
RDA
RDB
SDA
SDB
SG
FG

CA3-ADPCOM-01

Display

Termination
resistance
120 Ω 1/2W

CA3-ADPTRM-01

Signal name
+
-
+
-
E

User-created cable

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External
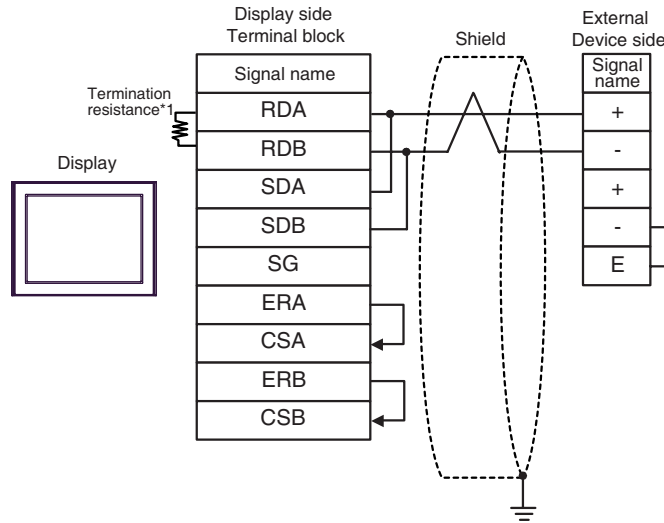Device which terminates the connection.

• 1:n Connection


Display side
Terminal block
Shield
External
Device side
Shield
External
Device side

Signal name
RDA
RDB
SDA
SDB
SG
FG

Display

CA3-ADPCOM-01

Termination
resistance
120 Ω 1/2W

CA3-ADPTRM-01

Signal name
+
-
+
-
E

Signal name
+
-
+
-
E

User-created cable

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External
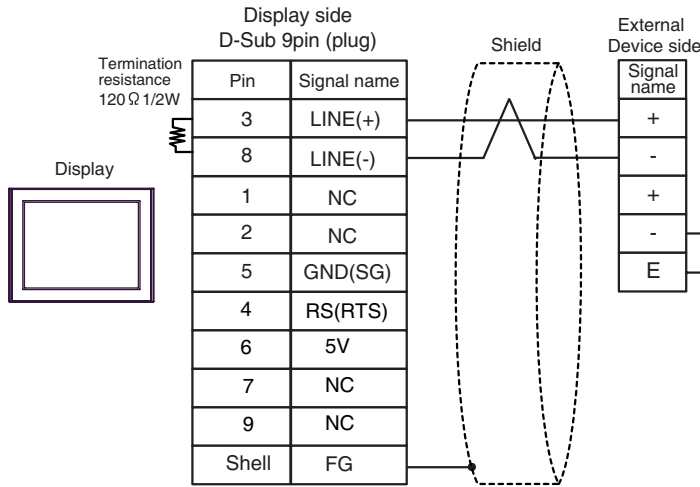Device which terminates the connection.

3F)

• 1:1 Connection

|	Display side D-sub 9 pin (socket)	Shield	External Device side
Termination resistance 120Ω 1/2W	Pin	Signal name		Signal name
	1	DATA+		+
Display	2	DATA-		-
	3	NC		+
	7	NC		-
	5	GND(SG)		E
	4	ERA		
	8	CSA		
	9	ERB		
	6	CSB		
	Shell	FG		

IMPORTANT

• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.
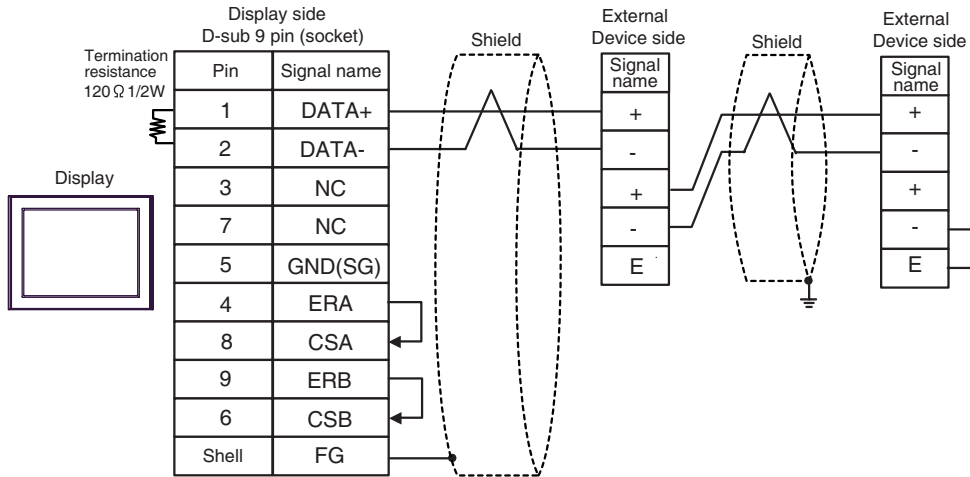
• 1:n Connection

IMPORTANT

• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

3G)

• 1:1 Connection

| IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection. |
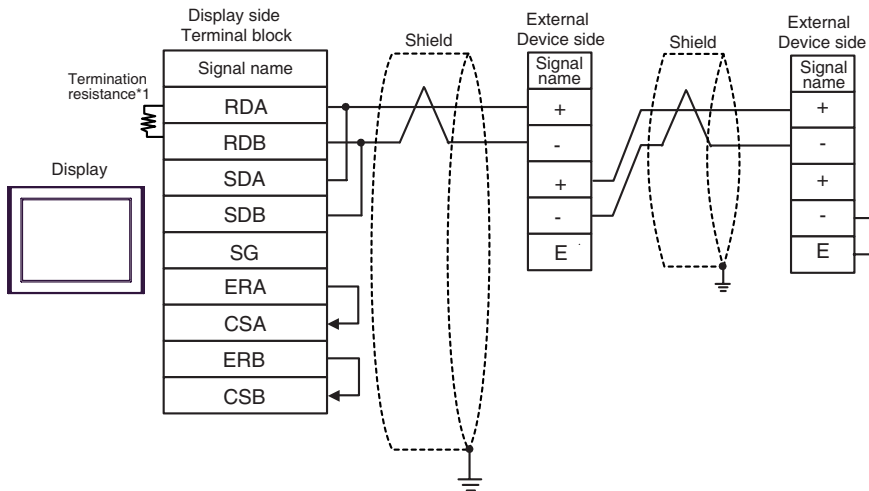
• 1:n Connection

| IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection. |

*1   The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

3H)

• 1:1 Connection

Pin	Signal name
3	LINE(+)
8	LINE(-)
1	NC
2	NC
5	GND(SG)
4	RS(RTS)
6	5V
7	NC
9	NC
Shell	FG

IMPORTANT
• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.
• The 5V output (Pin #6) on the GP-4107 is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE
• In COM on the GP-4107, the SG and FG terminals are isolated.

• 1:n Connection

Pin	Signal name
3	LINE(+)
8	LINE(-)
1	NC
2	NC
5	GND(SG)
4	RS(RTS)
6	5V
7	NC
9	NC
Shell	FG
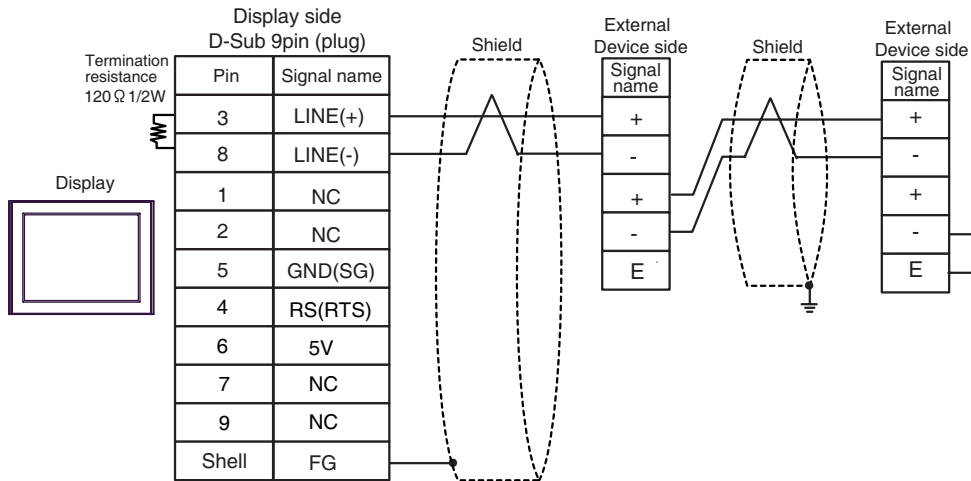
IMPORTANT
• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.
• The 5V output (Pin #6) on the GP-4107 is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE
• In COM on the GP-4107, the SG and FG terminals are isolated.

Cable Diagram 4

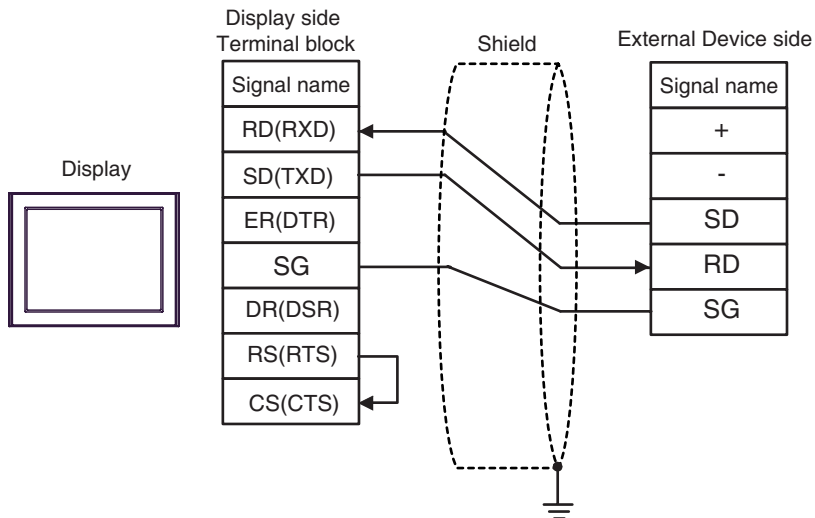| Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	4A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	4B	User-created cable	

*1 Only the COM port which can communicate by RS-232C can be used.
☞ ■ IPC COM Port (page 5)

4A)

Display side
D-sub 9 pin (socket)

Shield

External Device side

Display

Pin	Signal name
2	RD(RXD)
3	SD(TXD)
4	ER(DTR)
5	SG
6	DR(DSR)
7	RS(RTS)
8	CS(CTS)
Shell	FG

Signal name
+
-
SD
RD
SG

4B)

Display side
Terminal block

Shield

External Device side

Display

Signal name
RD(RXD)
SD(TXD)
ER(DTR)
SG
DR(DSR)
RS(RTS)
CS(CTS)

Signal name
+
-
SD
RD
SG
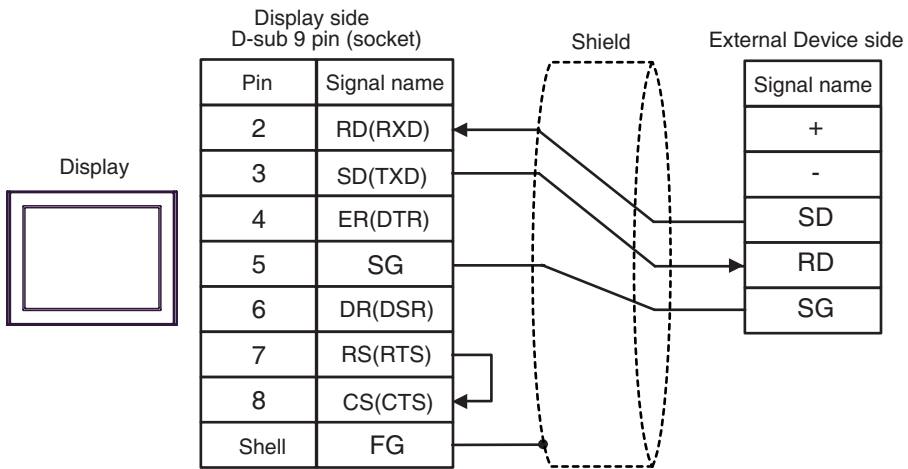
Cable Diagram 5

Display (Connection Port)		Cable	Notes
GP3000[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	5A	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	5B	User-created cable	
GP3000[*3] (COM2)	5C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	5D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC[*4]	5E	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	5F	User-created cable	
GP-4106 (COM1)	5G	User-created cable	
GP-4107 (COM1)	5H	User-created cable	

*1   All GP3000 models except AGP-3302B

*2   All ST models except AST-3211A and AST-3302B

*3   All GP3000 models except GP-3200 series and AGP-3302B

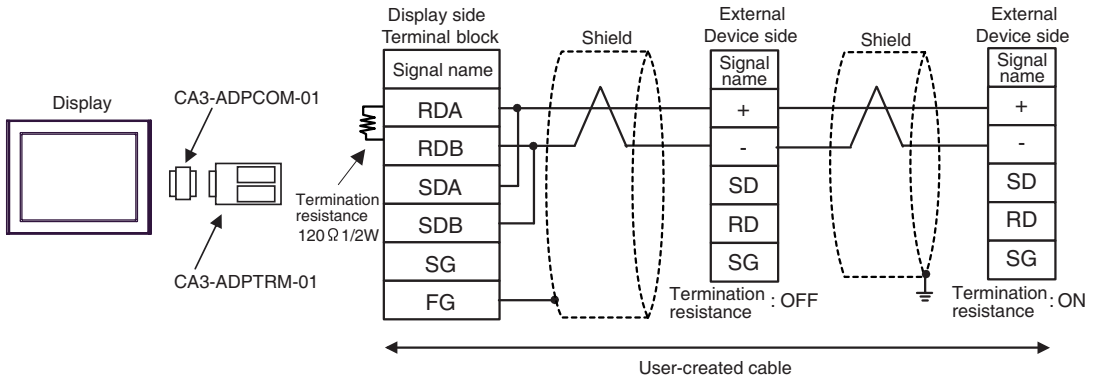*4   Only the COM port which can communicate by RS-422/485 (2 wire) can be used.

5A)
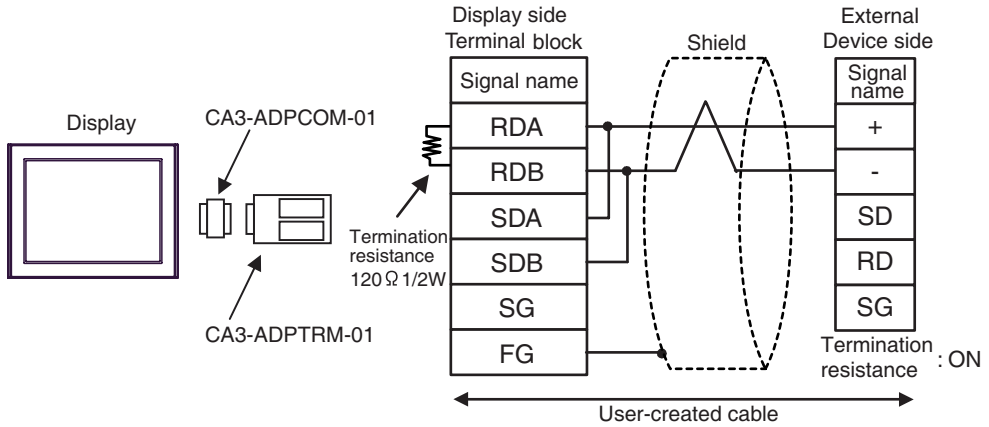
• 1:1 Connection

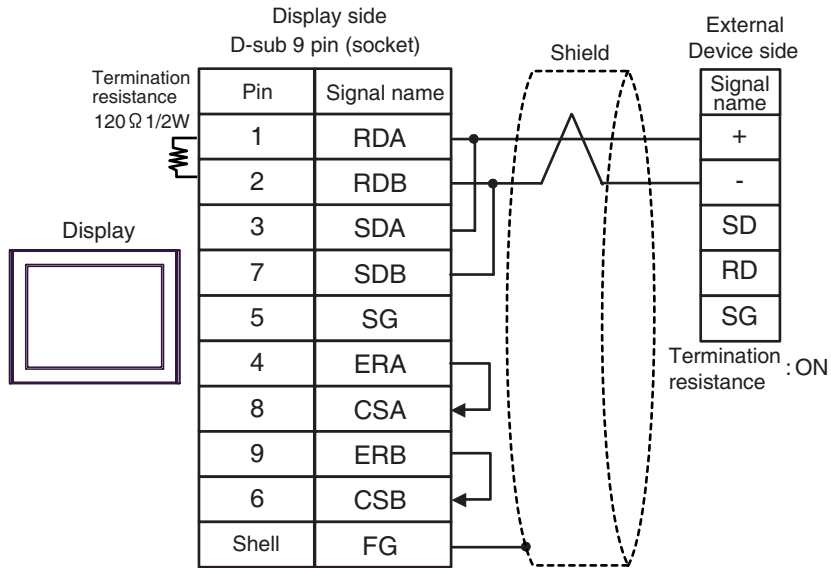| NOTE	• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection

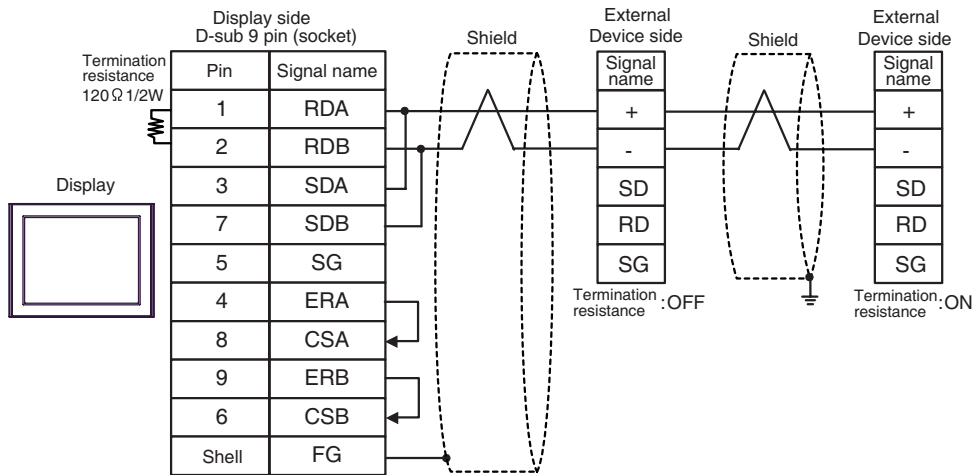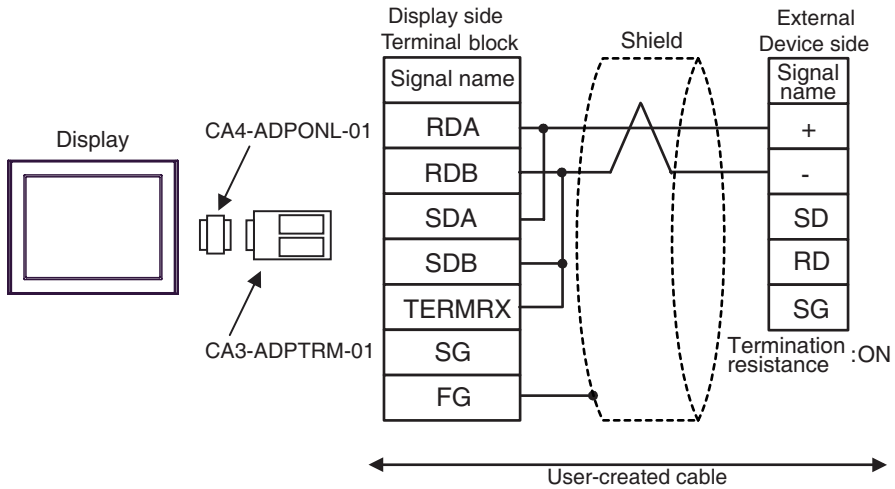| NOTE	• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.

5B)

• 1:1 Connection

NOTE	• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection

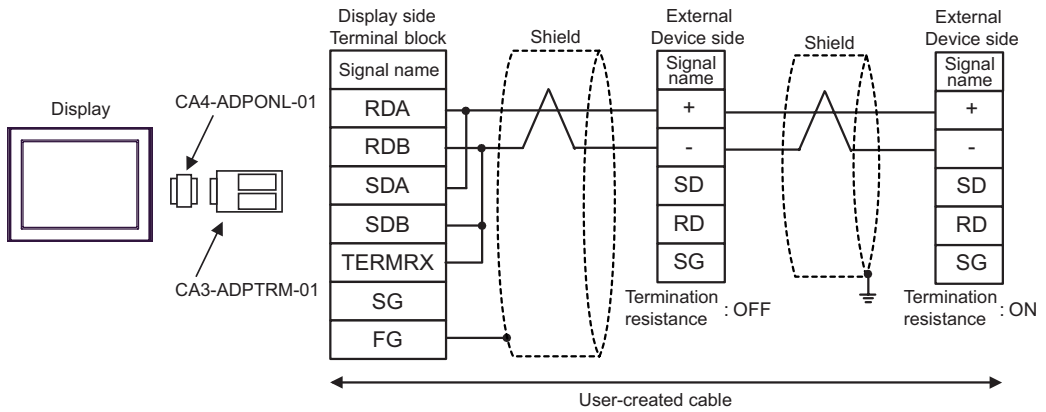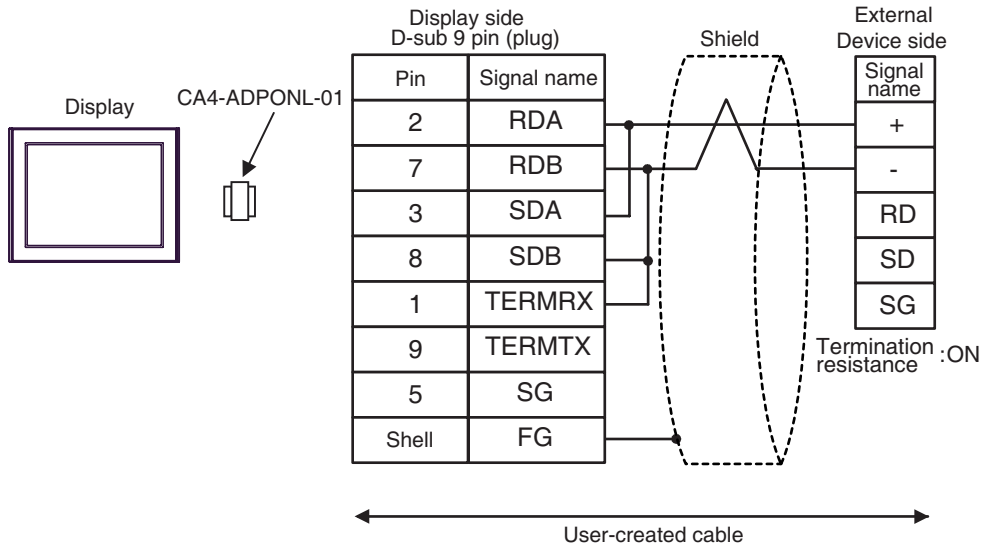| NOTE	• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.

5C)

• 1:1 Connection

Display side Terminal block		Shield	External Device side	
Signal name			Signal name	
RDA			+	
RDB			-	
SDA			SD	
SDB			RD	
TERMRX			SG	
SG			Termination resistance :ON	
FG				

User-created cable

NOTE • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection

User-created cable

NOTE • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.
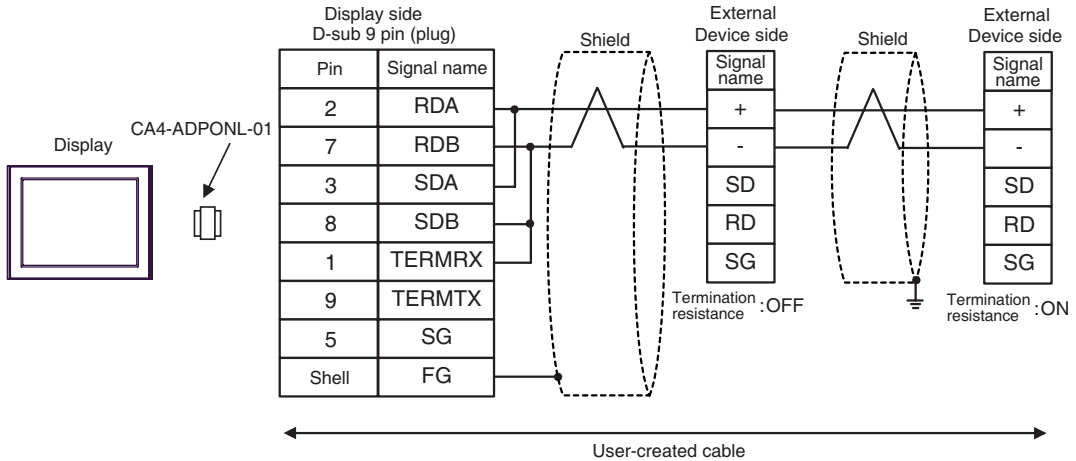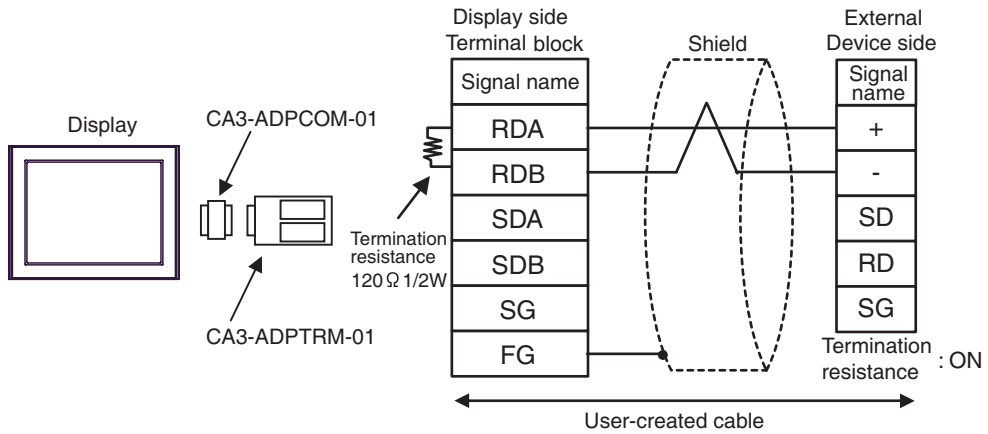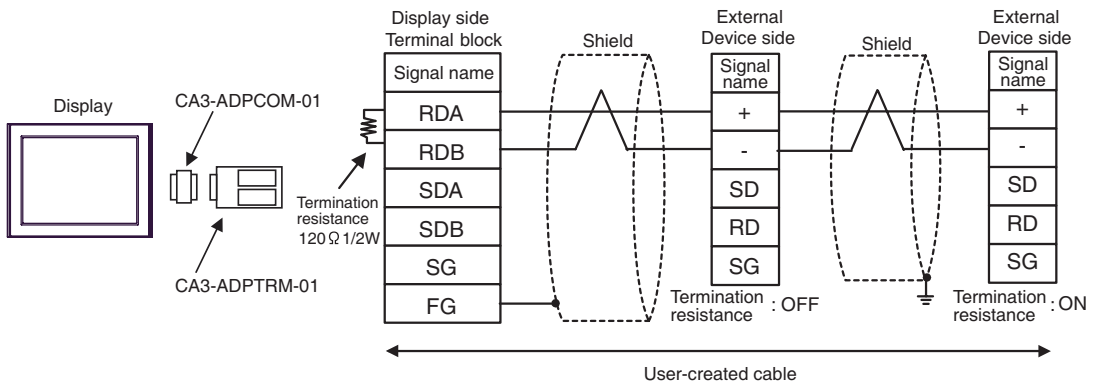
5D)

• 1:1 Connection

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

Display side
D-sub 9 pin (plug)

Shield

External
Device side

Signal name
+
-
RD
SD
SG

Termination resistance :ON

CA4-ADPONL-01

Display

User-created cable

NOTE
• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection

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

Display side
D-sub 9 pin (plug)

Shield

External
Device side

Signal name
+
-
SD
RD
SG

Termination resistance :OFF

Shield

External
Device side

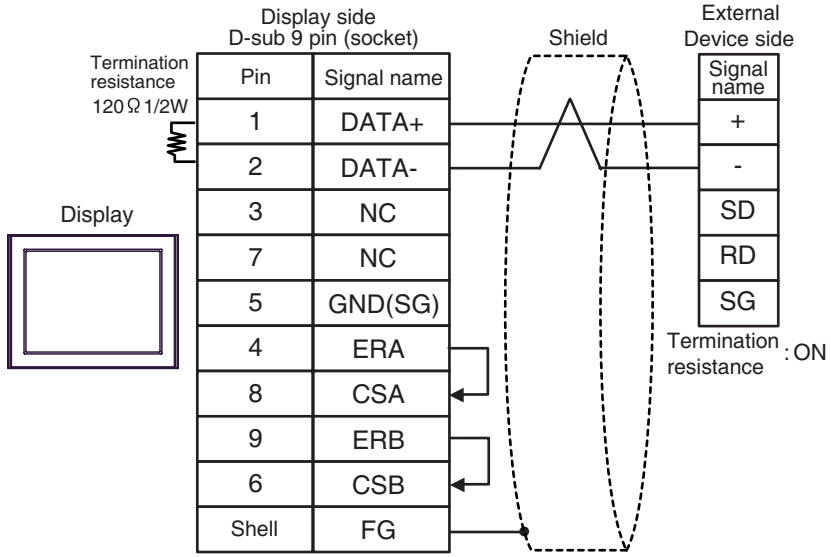| Signal name |
|-------------|
| + |
| - |
| SD |
| RD |
| SG |

Termination resistance :ON

CA4-ADPONL-01

Display

User-created cable

NOTE
• Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.
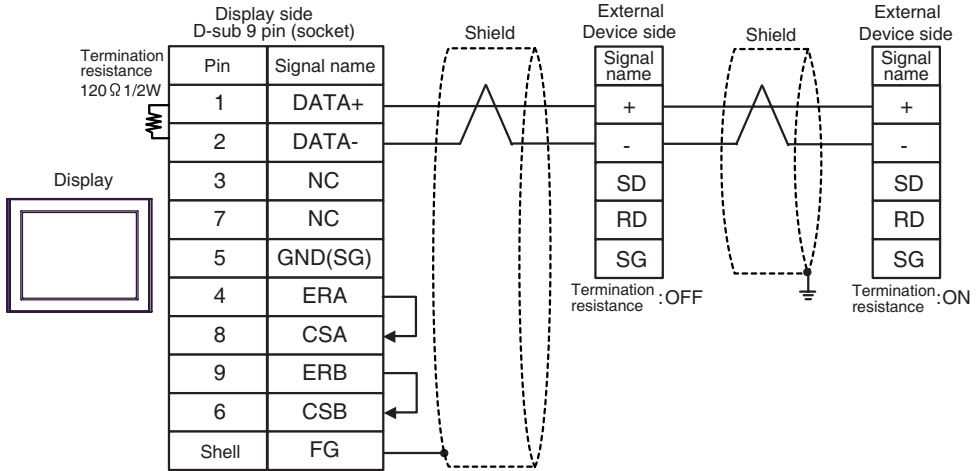
5E)

- 1:1 Connection

Display side Terminal block | Shield | External Device side

Signal name		Signal name
RDA		+
RDB		-
SDA		SD
SDB		RD
SG		SG
FG		

Display

CA3-ADPCOM-01

Termination resistance 120Ω 1/2W

CA3-ADPTRM-01

Termination resistance : ON

User-created cable

| NOTE | • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON. |

- 1:n Connection


Display side Terminal block | Shield | External Device side | Shield | External Device side

Signal name		Signal name		Signal name
RDA		+		+
RDB		-		-
SDA		SD		SD
SDB		RD		RD
SG		SG		SG
FG				

Display

CA3-ADPCOM-01

Termination resistance 120Ω 1/2W

CA3-ADPTRM-01

Termination resistance : OFF

Termination resistance : ON

User-created cable

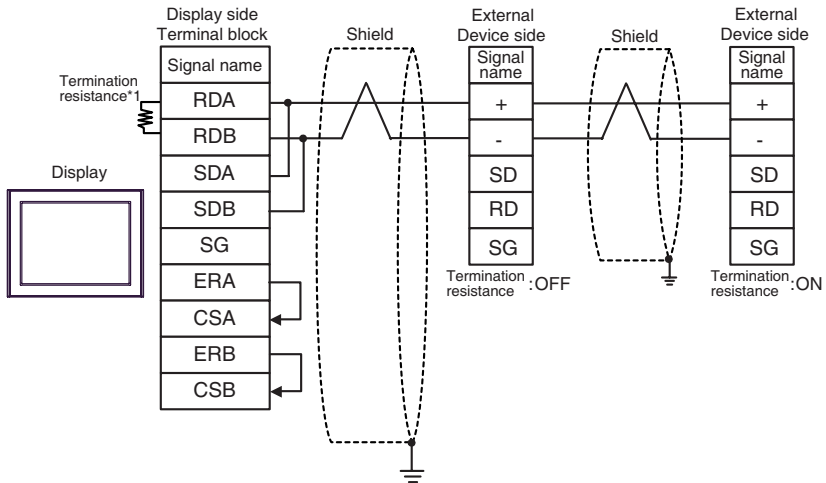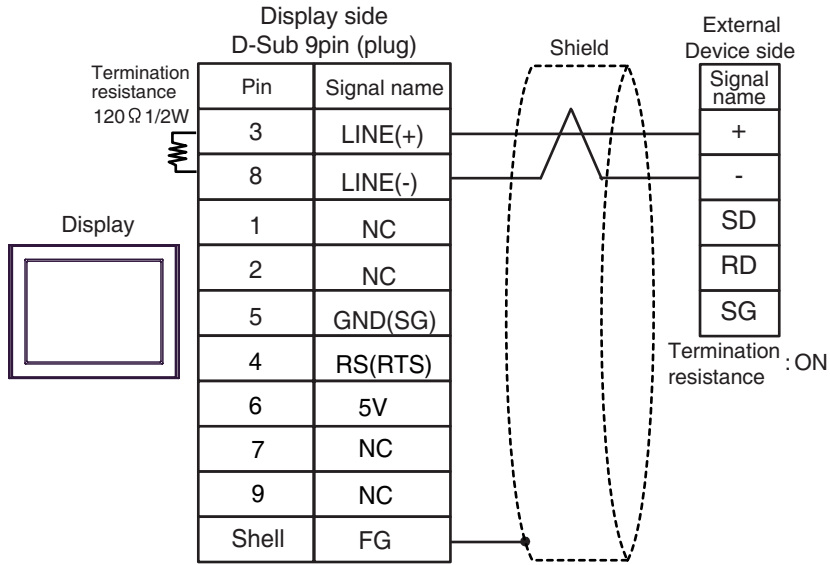| NOTE | • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON. |

5F)

• 1:1 Connection

Display side
D-sub 9 pin (socket)

Termination
resistance
120Ω 1/2W

Shield

External
Device side

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

Display

Termination
resistance : ON

> **NOTE**
> • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.

• 1:n Connection

Display side
D-sub 9 pin (socket)

Termination
resistance
120Ω 1/2W

Shield

External
Device side

Shield

External
Device side

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

Display

Termination
resistance : OFF

Termination
resistance : ON

> **NOTE**
> • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.

5G)

• 1:1 Connection
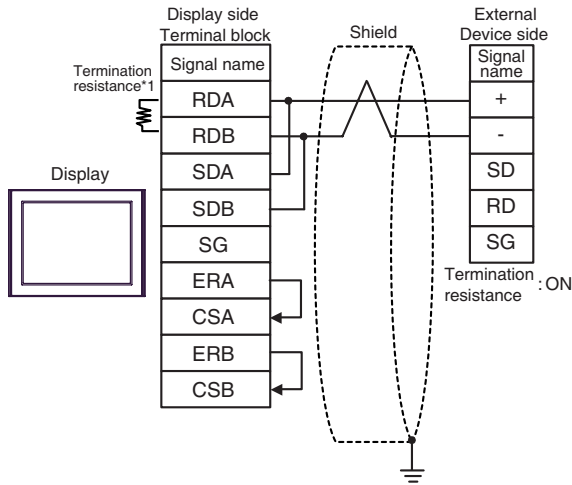
| NOTE | • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON. |

• 1:n Connection

| NOTE | • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON. |

*1   The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

5H)

• 1:1 Connection

Display side
D-Sub 9pin (plug)

Pin	Signal name
3	LINE(+)
8	LINE(-)
1	NC
2	NC
5	GND(SG)
4	RS(RTS)
6	5V
7	NC
9	NC
Shell	FG

Termination resistance 120Ω 1/2W

Display

Shield

External Device side

Signal name
+
-
SD
RD
SG

Termination resistance : ON

IMPORTANT • The 5V output (Pin #6) on the GP-4107 is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device to ON.
• In COM on the GP-4107, the SG and FG terminals are isolated.
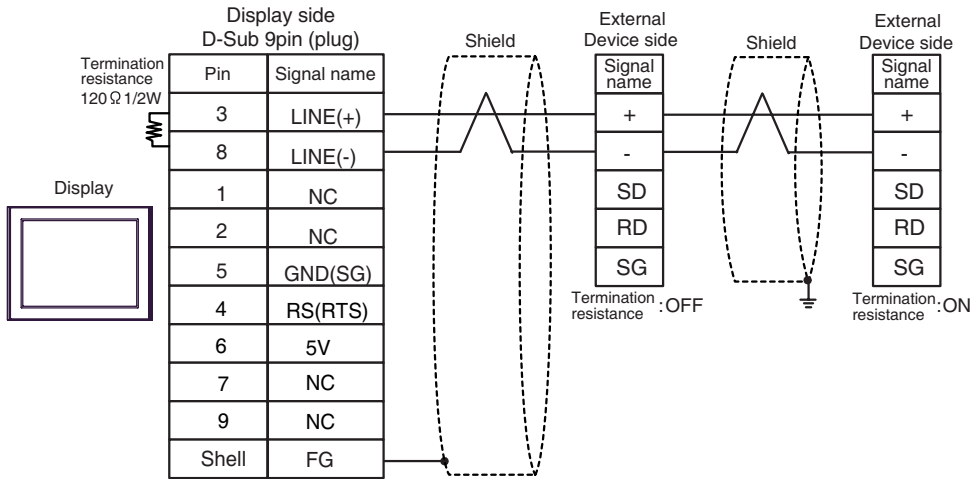
• 1:n Connection

Display side
D-Sub 9pin (plug)

Pin	Signal name
3	LINE(+)
8	LINE(-)
1	NC
2	NC
5	GND(SG)
4	RS(RTS)
6	5V
7	NC
9	NC
Shell	FG

Termination resistance 120Ω 1/2W

Display

Shield

External Device side

Signal name
+
-
SD
RD
SG

Termination resistance : OFF

Shield

External Device side

Signal name
+
-
SD
RD
SG

Termination resistance : ON

IMPORTANT • The 5V output (Pin #6) on the GP-4107 is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE • Use the DIP switch in the communication cassette to set the termination resistance. Set SW1-1 of the External Device which terminates the connection to ON.
• In COM on the GP-4107, the SG and FG terminals are isolated.

Cable Diagram 6

Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	6A	User-created cable	The cable length must be 3m or less.
GP-4105 (COM1)	6B	User-created cable	

*1 Only the COM port which can communicate by RS-232C can be used.
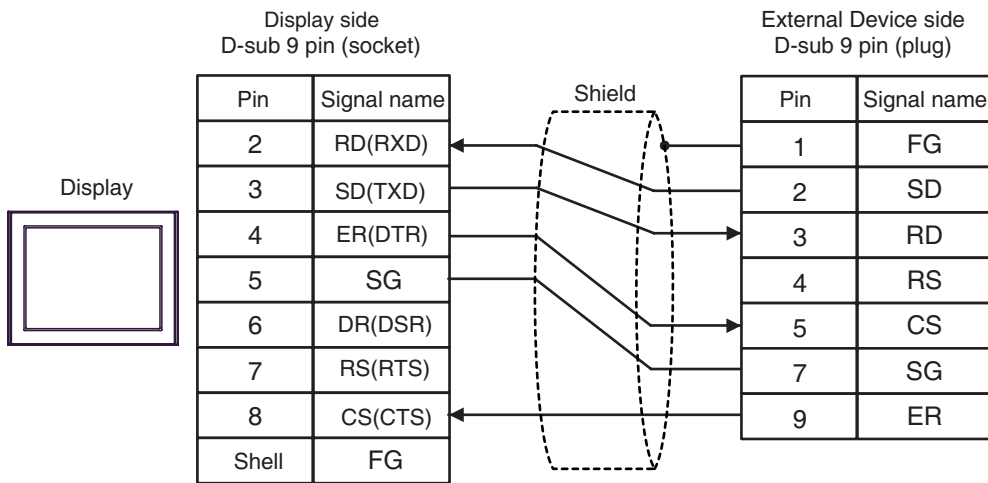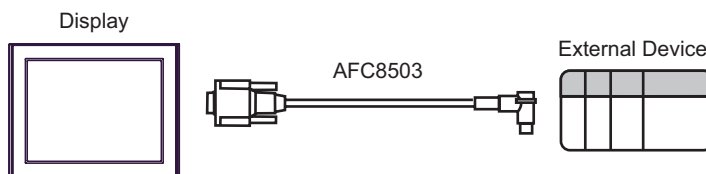☞ ■ IPC COM Port (page 5)

6A)

Display side
D-sub 9 pin (socket)

External Device side

Display

Pin	Signal name
2	RD(RXD)
3	SD(TXD)
4	ER(DTR)
5	SG
6	DR(DSR)
7	RS(RTS)
8	CS(CTS)
Shell	FG

Shield

Signal name
SD
RD
SG

6B)

Display side
Terminal block

External Device side

Display

Signal name
RD(RXD)
SD(TXD)
ER(DTR)
SG
DR(DSR)
RS(RTS)
CS(CTS)

Shield

Signal name
SD
RD
SG
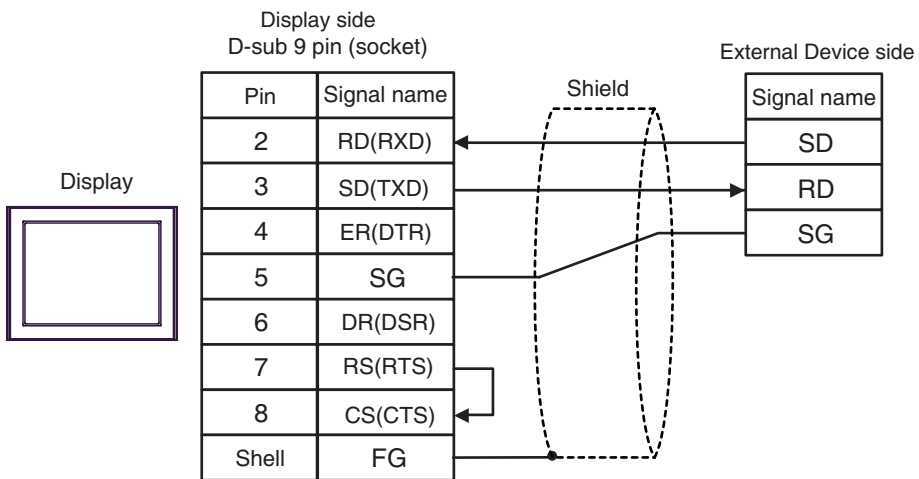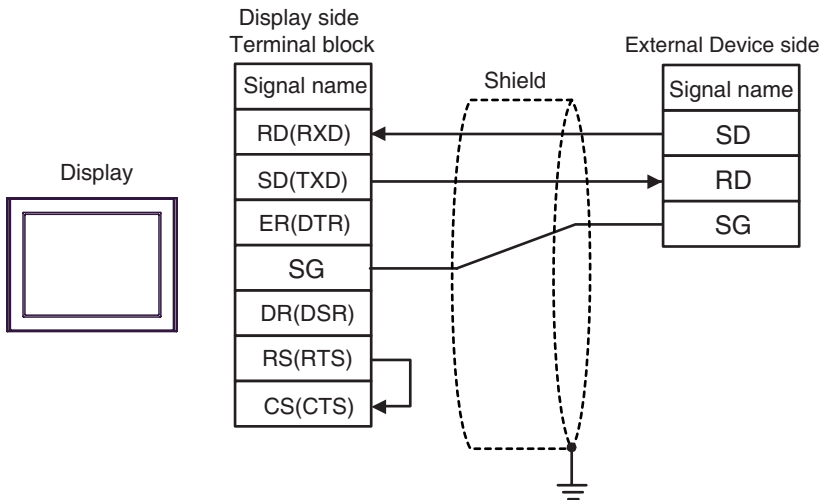
Cable Diagram 7

Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	7A	User-created cable	The cable length must be 15m or less. When you use the multicommunication unit (AFP2465) in FP2, FP2SH and set the speed to 115200 bps or faster, however, the cable length must be 3m or less.
GP-4105 (COM1)	7B	User-created cable	

*1 Only the COM port which can communicate by RS-232C can be used.
☞ ■ IPC COM Port (page 5)

7A)

Display side
D-sub 9 pin (socket)

External Device side
D-sub 9 pin (plug)

Display

Pin	Signal name	Shield	Pin	Signal name
2	RD(RXD)		1	FG
3	SD(TXD)		2	SD
4	ER(DTR)		3	RD
5	SG		4	RS
6	DR(DSR)		5	CS
7	RS(RTS)		7	SG
8	CS(CTS)		9	ER
Shell	FG			

7B)

Display side
Terminal block

External Device side
D-sub 9 pin (plug)

Display

Signal name	Shield	Pin	Signal name
RD(RXD)		1	FG
SD(TXD)		2	SD
ER(DTR)		3	RD
SG		4	RS
DR(DSR)		5	CS
RS(RTS)		7	SG
CS(CTS)		9	ER

Cable Diagram 8

Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	8A	FP0/FP2/FP-M ↔ DOS-V PC connection cable by Panasonic Electric Works Co., Ltd. AFC8503 (3m)	
GP-4105 (COM1)	8B	Panasonic Electric Works PLC FP Series CPU Cable by Pro-face ZC9CBFP21(2m)	

*1 Only the COM port which can communicate by RS-232C can be used.
☞ ■ IPC COM Port (page 5)

8A)

Display   AFC8503   External Device

8B)

Display side
Terminal block

Signal name	Cable color
RD(RXD)	Green
SD(TXD)	Yellow
SG	Brown
	Orange
RS(RTS)	Blue
CS(CTS)	Blue

Display   ZC9CBFP21   External Device
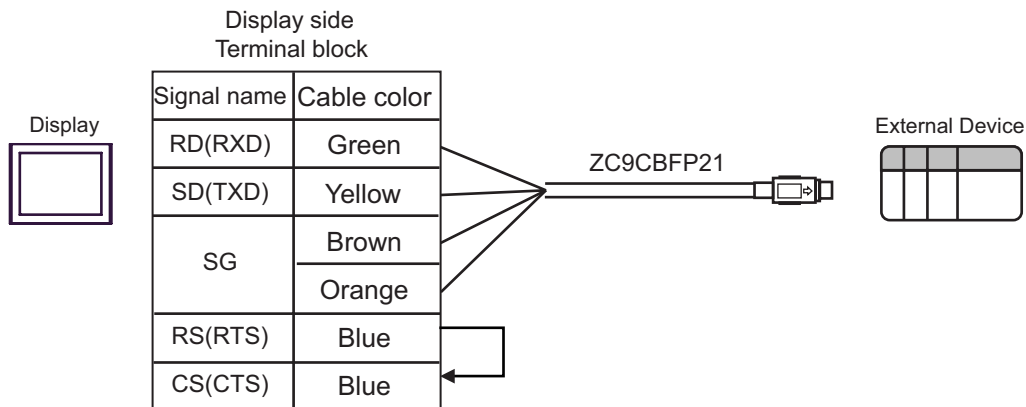
Cable Diagram 9

Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	9A	RS232C cable by Pro-face CA3-CBL232/5M-01 (5m) + RS422/232C conversion adapter by Panasonic Electric Works Co., Ltd. AFP8550 + Programming cable by Panasonic Electric Works Co., Ltd. AFP1523 (3m) or AFP15205 (0.5m)	
GP-4105 (COM1)	9B	User-created cable + RS422/232C conversion adapter by Panasonic Electric Works Co., Ltd. AFP8550 + Programming cable by Panasonic Electric Works Co., Ltd. AFP1523 (3m) or AFP15205 (0.5m)	

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

9A)

9B)

User-created cable
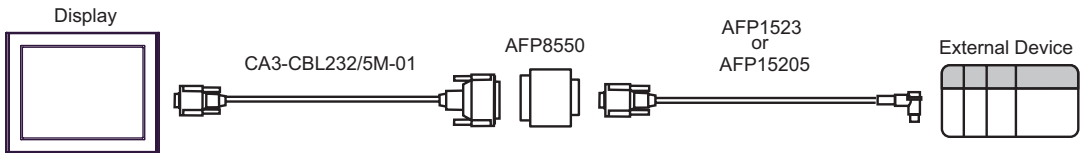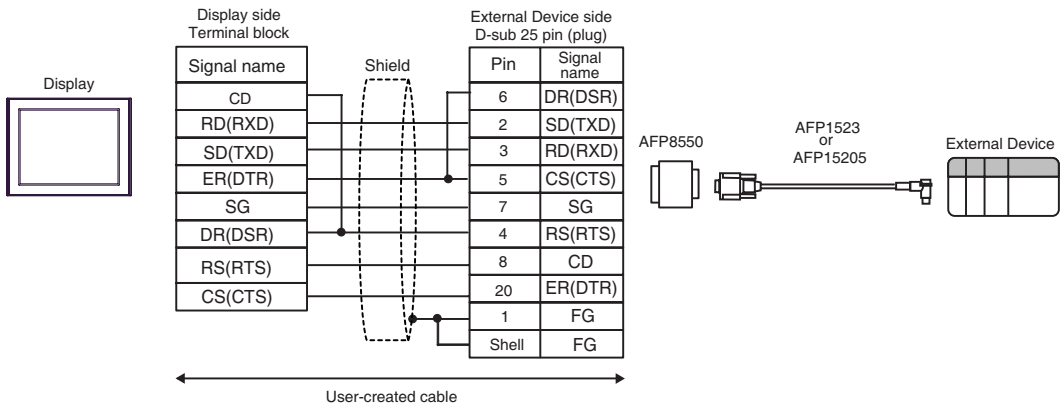
Cable Diagram 10

Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	10A	RS232C cable by Pro-face CA3-CBL232/5M-01 (5m) + RS422/232C conversion adapter by Panasonic Electric Works Co., Ltd. AFP8550 + Programming cable by Panasonic Electric Works Co., Ltd. AFP5523 (3m)	
GP-4105 (COM1)	10B	User-created cable + RS422/232C conversion adapter by Panasonic Electric Works Co., Ltd. AFP8550 + Programming cable by Panasonic Electric Works Co., Ltd. AFP5523 (3m)	

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

☞ ■ IPC COM Port (page 5)

10A)
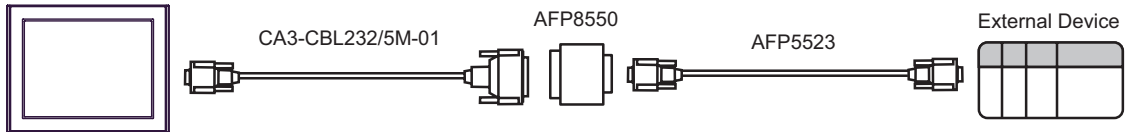
10B)
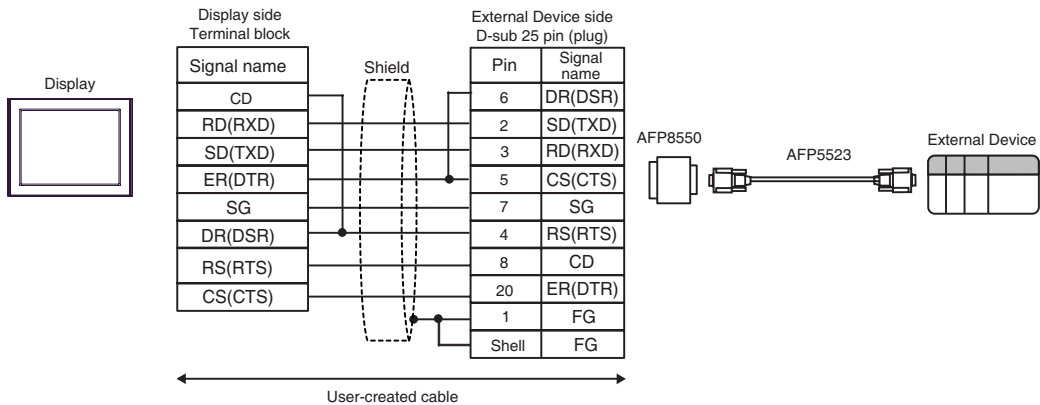
Cable Diagram 11

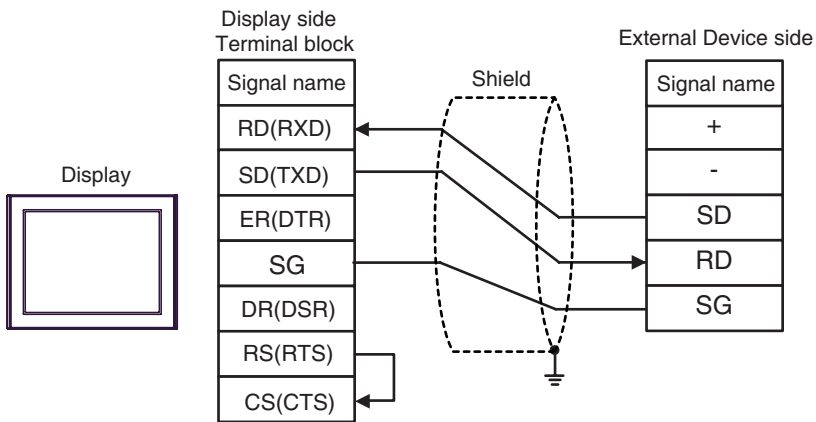| Display (Connection Port)		Cable	Notes
GP3000[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2) IPC[*3]	11A	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 400m or less.
	11B	User-created cable	
GP3000[*4] (COM2)	11C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	11D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	11E	User-created cable	

*1 All GP3000 models except AGP-3302B

*2 All ST models except AST-3211A and AST-3302B

*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
   ☞ ■ IPC COM Port (page 5)

*4 All GP3000 models except GP-3200 series and AGP-3302B

11A)

11B)

Display side D-sub 9 pin (socket)			External Device side D-sub 9 pin	
Pin	Signal name	Shield	Pin	Signal name
1	RDA		2	SD+
2	RDB		4	SD-
3	SDA		3	RD+
7	SDB		5	RD-
5	SG			
4	ERA			
8	CSA			
9	ERB			
6	CSB			
Shell	FG			

Termination resistance 120Ω 1/2W

Display

11C)

Display side Terminal block		External Device side D-sub 9 pin	
Signal name	Shield	Pin	Signal name
RDA		2	SD+
RDB		4	SD-
SDA		3	RD+
SDB		5	RD-
TERMRX			
SG			
FG			

Display

CA4-ADPONL-01

CA3-ADPTRM-01

User-created cable

11D)

Display side D-sub 9 pin (plug)				External Device side D-sub 9 pin	
Pin	Signal name			Pin	Signal name
2	RDA			2	SD+
7	RDB			4	SD-
3	SDA			3	RD+
8	SDB			5	RD-
1	TERMRX				
9	TERMTX				
5	SG				
Shell	FG				

CA4-ADPONL-01

Display

Shield

User-created cable

11E)

Display side Terminal block				External Device side D-sub 9 pin	
Signal name				Pin	Signal name
RDA				2	SD+
RDB				4	SD-
SDA				3	RD+
SDB				5	RD-
SG					
ERA					
CSA					
ERB					
CSB					

Termination resistance*1

Display

Shield

*1   The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

Cable Diagram 12

Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	12A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	12B	User-created cable	

*1 Only the COM port which can communicate by RS-232C can be used.
☞ ■ IPC COM Port (page 5)

12A)

Display side
D-sub 9 pin (socket)

External Device side

Pin	Signal name		Signal name
2	RD(RXD)	Shield	+
3	SD(TXD)		-
4	ER(DTR)		SD
5	SG		RD
6	DR(DSR)		SG
7	RS(RTS)		
8	CS(CTS)		
Shell	FG		

Display

12B)

Display side
Terminal block

External Device side

Signal name		Signal name
RD(RXD)	Shield	+
SD(TXD)		-
ER(DTR)		SD
SG		RD
DR(DSR)		SG
RS(RTS)		
CS(CTS)		
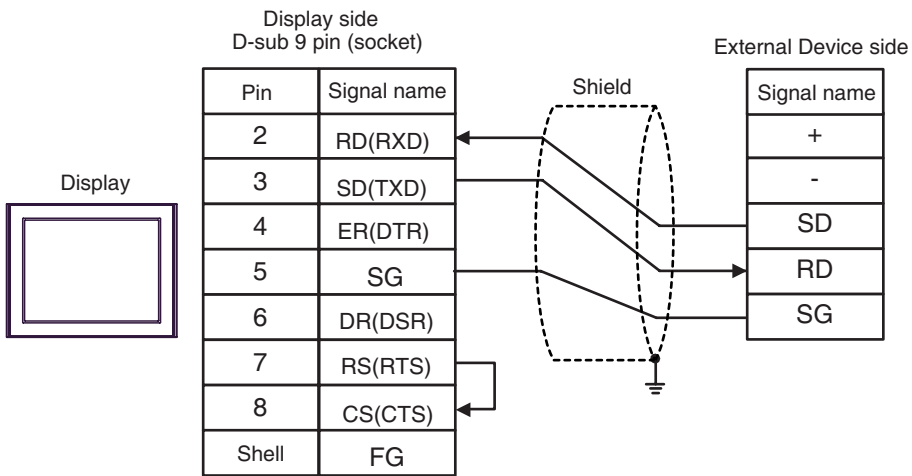
Display

Cable Diagram 13

Display (Connection Port)		Cable	Notes
GP3000[*1] (COM1) AGP-3302B (COM2) ST[*2] (COM2)	13A	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1200m or less.
	13B	User-created cable	
GP3000[*3] (COM2)	13C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	13D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC[*4]	13E	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	13F	User-created cable	
GP-4106 (COM1)	13G	User-created cable	
GP-4107 (COM1)	13H	User-created cable	

*1   All GP3000 models except AGP-3302B

*2   All ST models except AST-3211A and AST-3302B

*3   All GP3000 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 5)

13A)

• 1:1 Connection
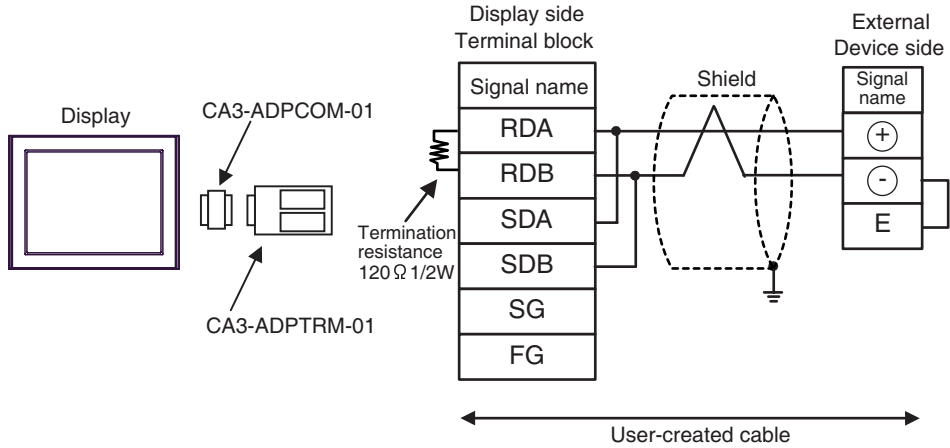
• 1:n Connection
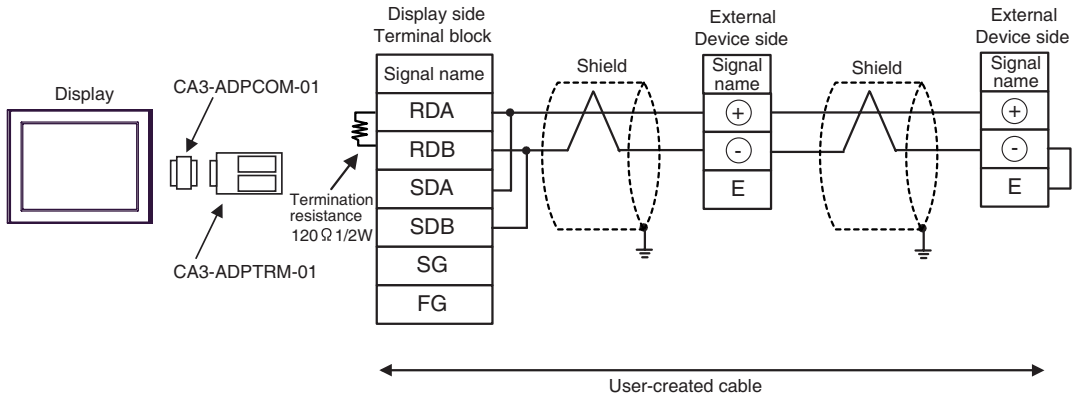
IMPORTANT	• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

13B)

• 1:1 Connection
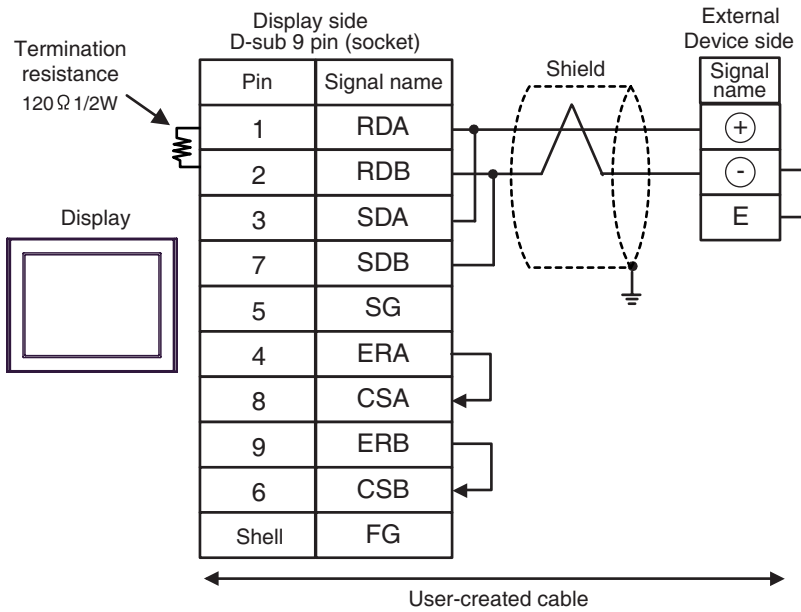
• 1:n Connection
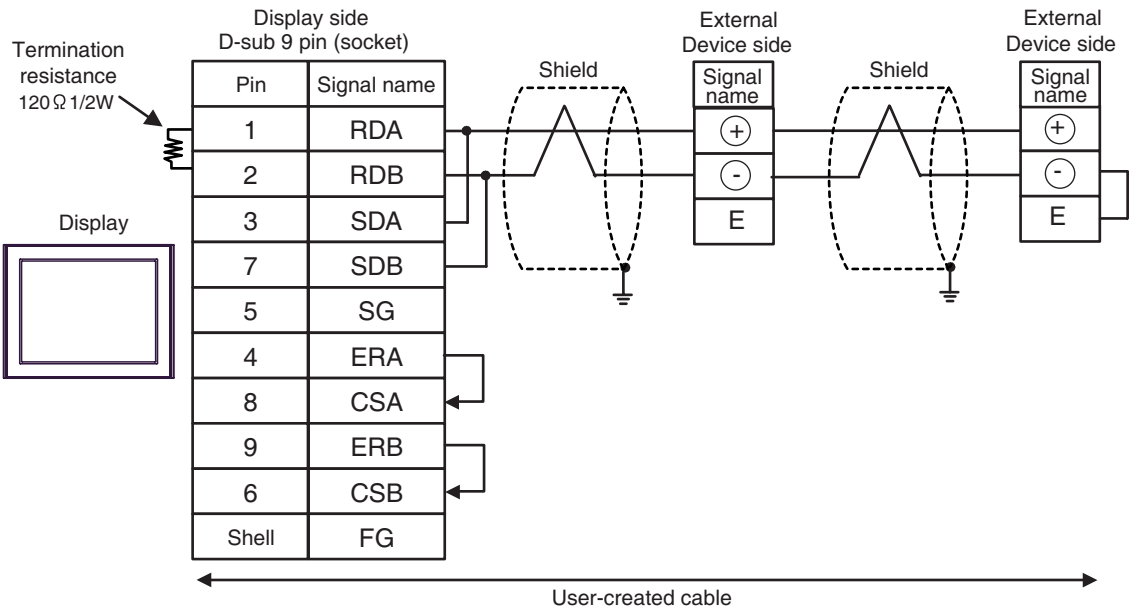
IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External
Device which terminates the connection.

13C)

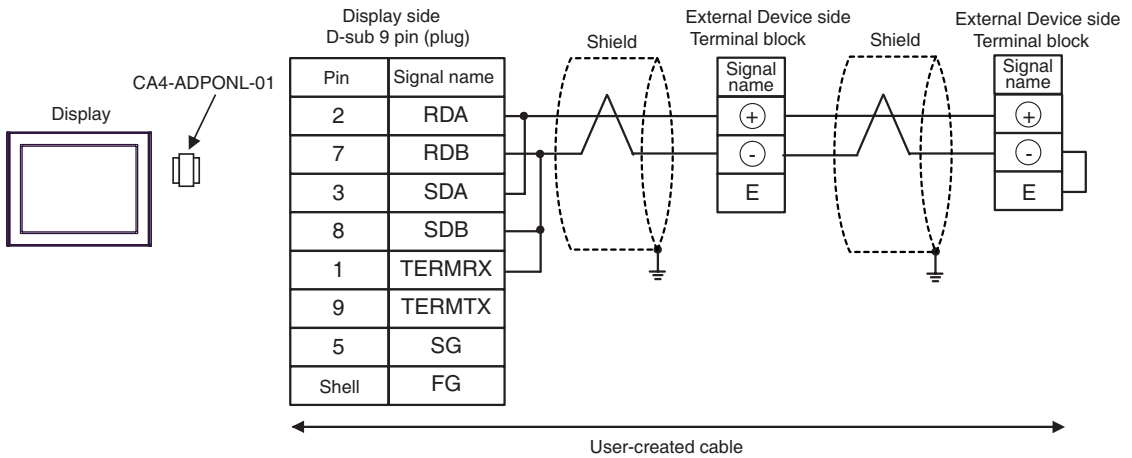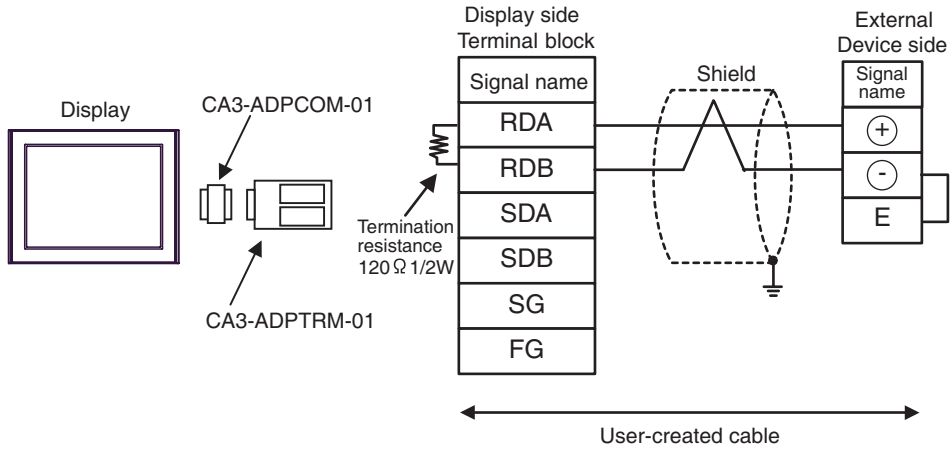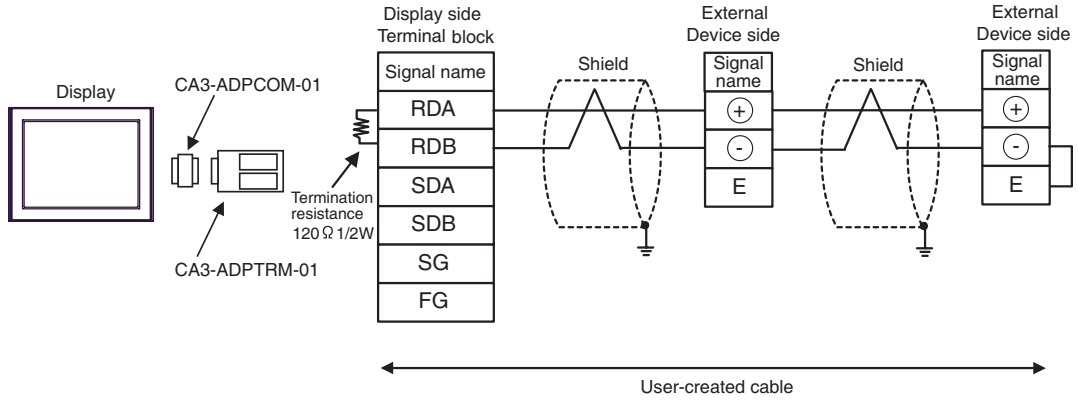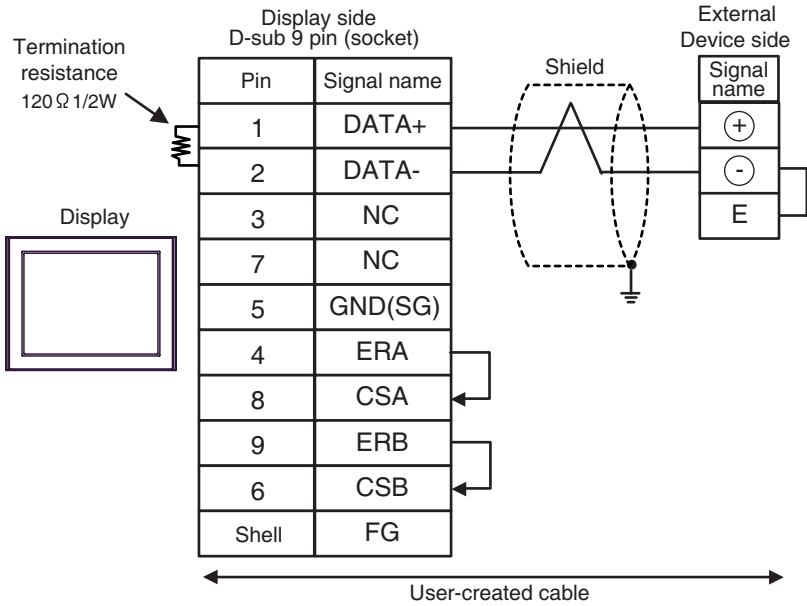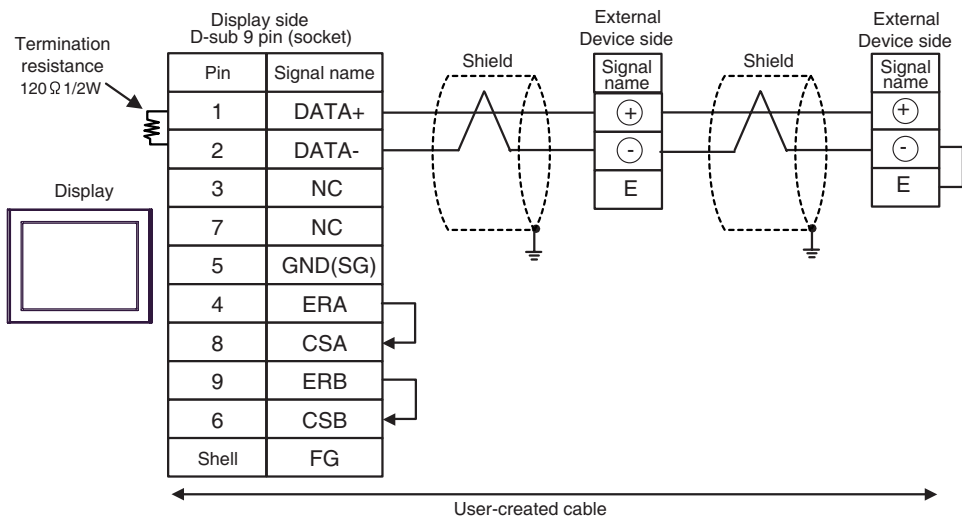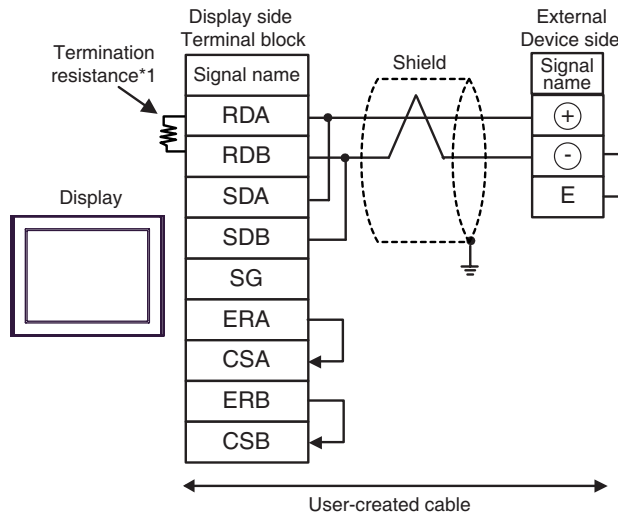• 1:1 Connection
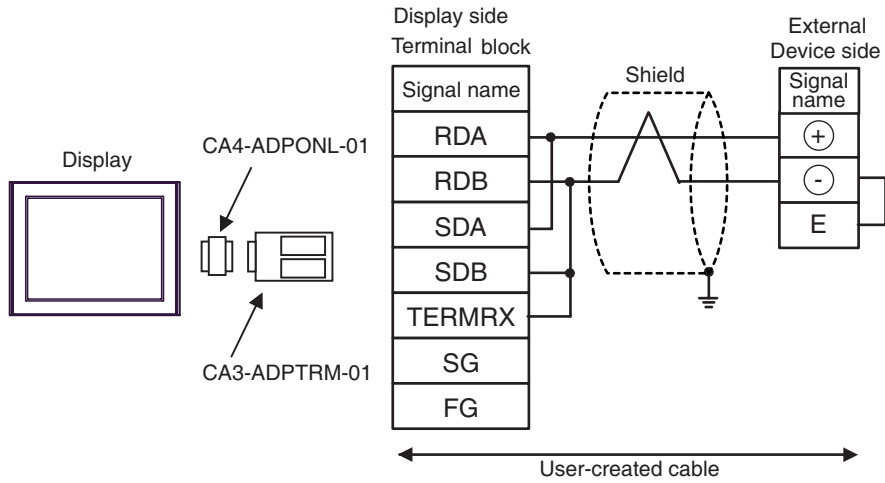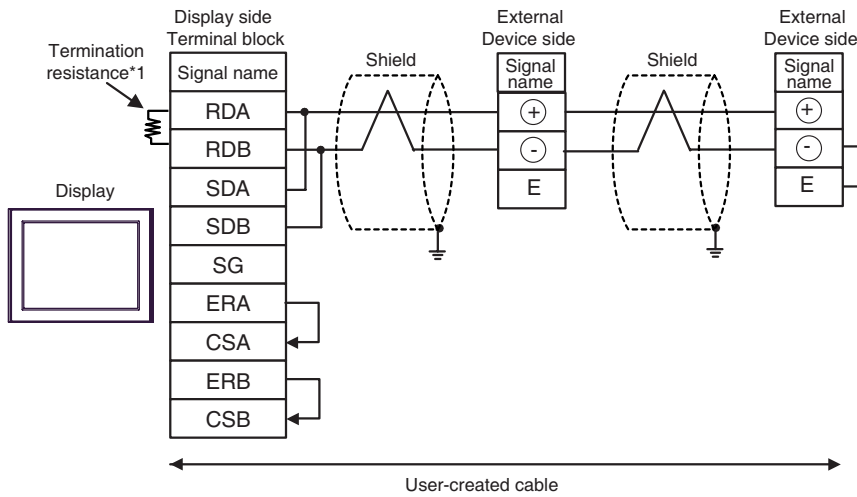

• 1:n Connection
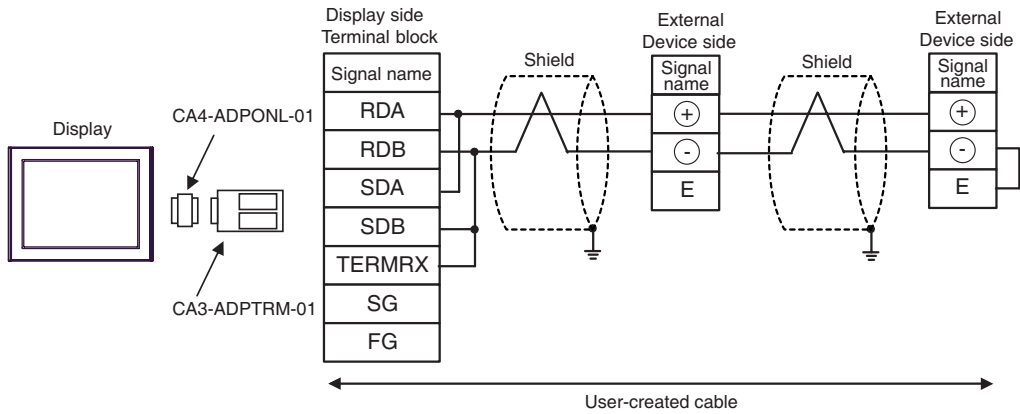
IMPORTANT | • Use the lead wire to connect between "-" terminal and "E" terminal in the External
Device which terminates the connection.

13D)

• 1:1 Connection
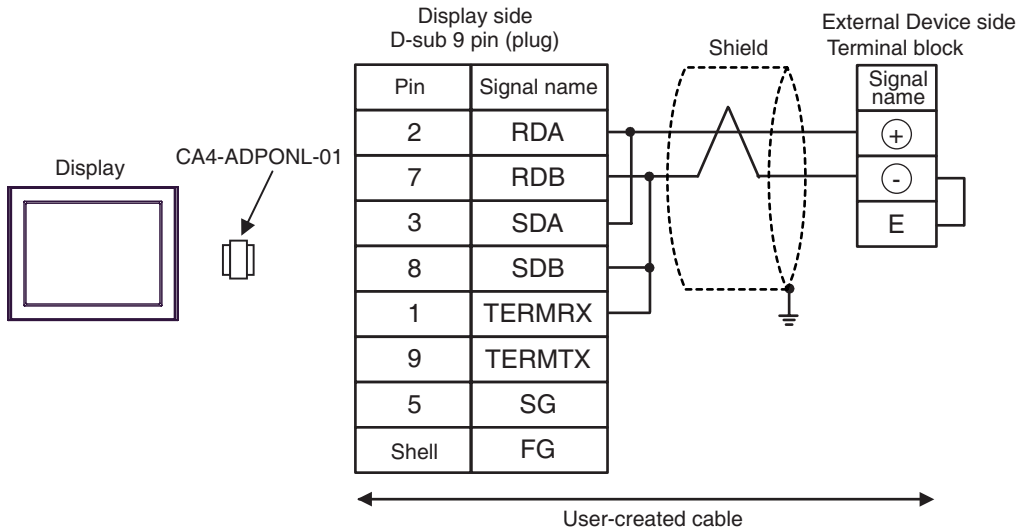
Display side
D-sub 9 pin (plug)

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

User-created cable

1:n Connection

Display side
D-sub 9 pin (plug)

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

User-created cable

IMPORTANT

• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

13E)

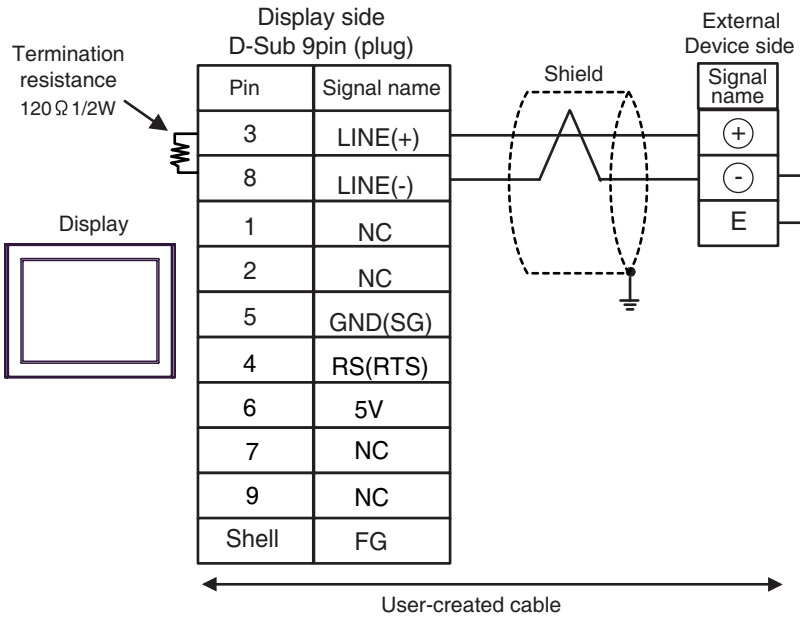- 1:1 Connection

- 1:n Connection

IMPORTANT	• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

13F)

• 1:1 Connection

• 1:n Connection

IMPORTANT • Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

13G)

• 1:1 Connection

• 1:n Connection

IMPORTANT	• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.

*1   The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

13H)

• 1:1 Connection
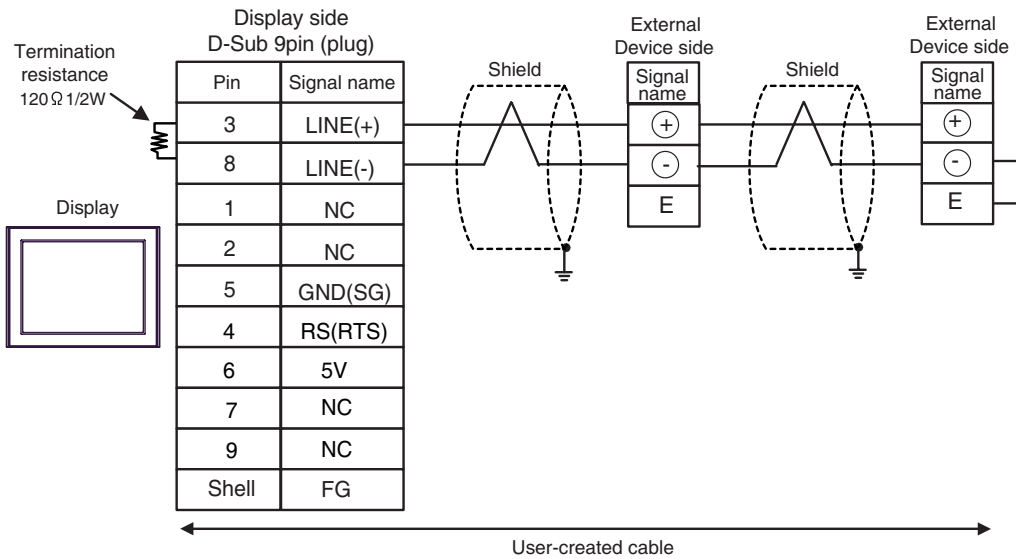
Pin	Signal name
3	LINE(+)
8	LINE(-)
1	NC
2	NC
5	GND(SG)
4	RS(RTS)
6	5V
7	NC
9	NC
Shell	FG

Display side D-Sub 9pin (plug)

External Device side

User-created cable

• 1:n Connection

Pin	Signal name
3	LINE(+)
8	LINE(-)
1	NC
2	NC
5	GND(SG)
4	RS(RTS)
6	5V
7	NC
9	NC
Shell	FG

Display side D-Sub 9pin (plug)

User-created cable

IMPORTANT
• Use the lead wire to connect between "-" terminal and "E" terminal in the External Device which terminates the connection.
• The 5V output (Pin #6) on the GP-4107 is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE
• In COM on the GP-4107, the SG and FG terminals are isolated.

Cable Diagram 14

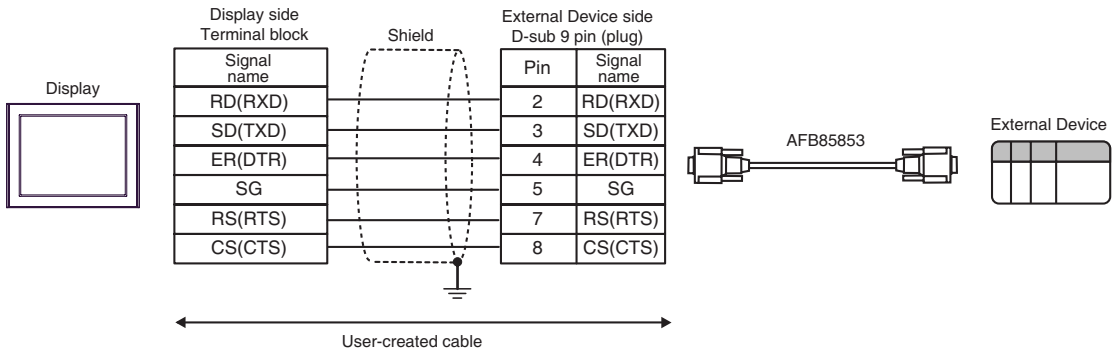| Display (Connection Port)		Cable	Notes
GP3000 (COM1) ST (COM1) IPC[*1] PC/AT	14A	Connection cable for FP10SH by Panasonic Electric Works Co., Ltd. AFB85853 (3m)	
GP-4105 (COM1)	14B	User-created cable + Connection cable for FP10SH by Panasonic Electric Works Co., Ltd. AFB85853 (3m)	

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

)■ IPC COM Port (page 5)

14A)

14B)

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 External Device.

[⬜⬜⬜⬜⬜] This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Input Relay	X0000 - X511F	WX000 - WX511		*1
Output Relay	Y0000 - Y511F	WY000 - WY511		
Internal Relay	R0000 - R886F	WR000 - WR886		
Link Relay	L0000 - L639F	WL000 - WL639		
Special Relay	R9000 - R910F	WR900 - WR910		*1
Timer (Contact)	T0000 - T3071	--------		*1
Counter (Contact)	C0000 - C3071	-------	⌊L / H⌋	*1
Timer/Counter (Setting Value)	-----	SV0000 - SV3071		
Timer/Counter (Elapsed Value)	-----	EV0000 - EV3071		
Data Register		DT00000 - DT10239*2		[Bit F] *3
Link Register		LD0000 - LD8447		[Bit F]
File Register		FL00000 - FL32764		[Bit F]
Special Data Register		DT90000 - DT90511		[Bit F] *1*4

*1   Write disable

*2   You can specify the area of DT0000 - DT8999 only as system data area.

*3   The following addresses of DT09000 are handled as special data register in FP0 (C10/C14/C16/C32/SL1), FP1, FP-e, FP-M, FP3.

*4   Can be used only in FP0 (T32C), FPΣ, FP2, FP2SH, FP10S, FP10SH.

> 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.

Device	Device Name	Device Code (HEX)	Address Code
Input Relay	WX	0080	Word Address
Output Relay	WY	0081	Word Address
Internal Relay	WR	0082	Word Address
Link Relay	WL	0084	Word Address
Special Relay	WR9	0083	Word Address
Timer/Counter (Setting Value)	SV	0060	Word Address
Timer/Counter (Elapsed Value)	EV	0061	Word Address
Data Register	DT	0000	Word Address
Link Register	LD	0002	Word Address
File Register	FL	0010	Word Address
Special Data Register	DT9	0001	Word Address

8   Error Messages

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

Item	Description
No.	Error No.
Device Name	Name of the External Device where error occurs. Device name is a title of the 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 the External Device where error occurs, or error codes received from the 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.