

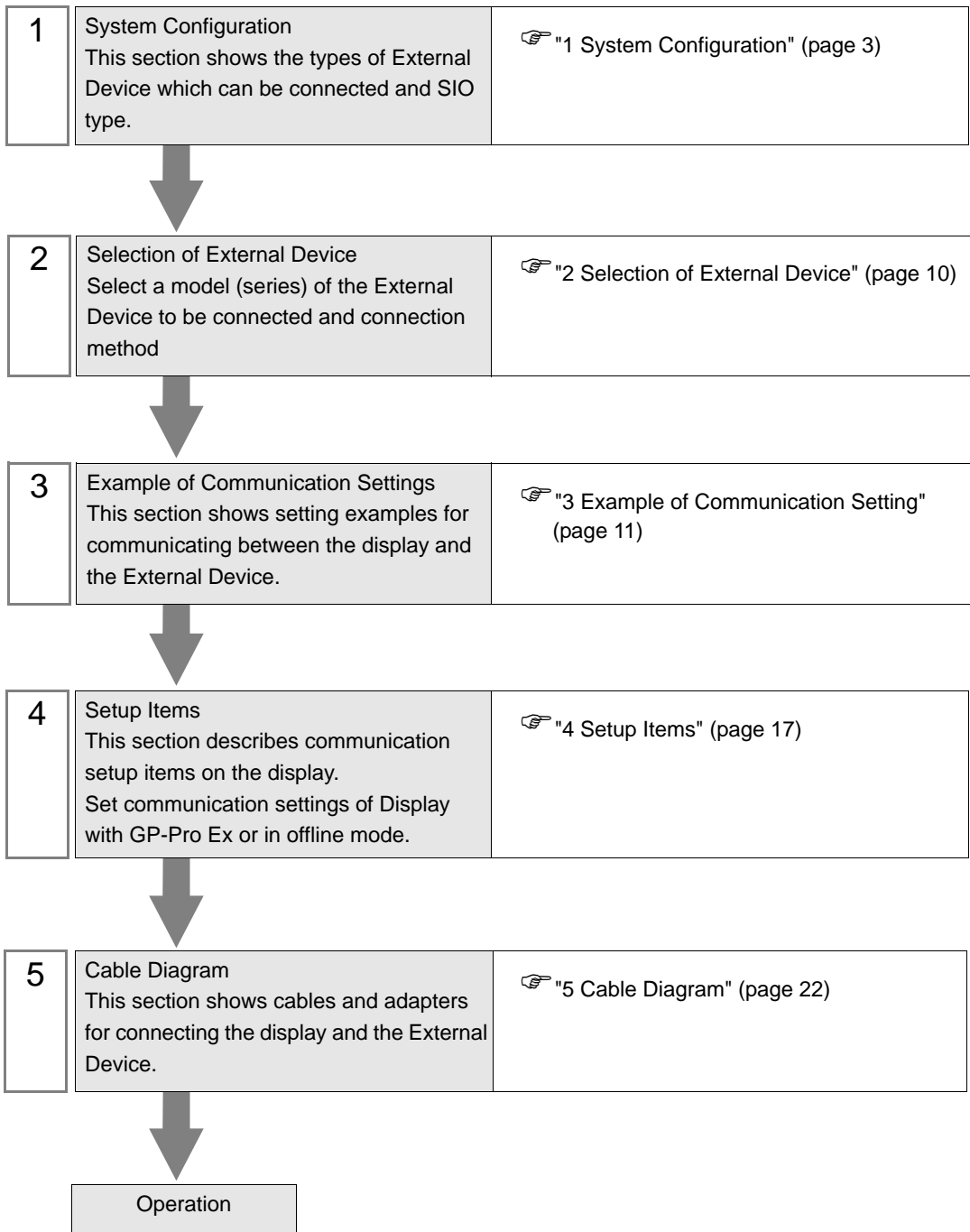
FX Series Computer Link Driver

1	System Configuration.....	3
2	Selection of External Device	10
3	Example of Communication Setting	11
4	Setup Items.....	17
5	Cable Diagram	22
6	Supported Device.....	51
7	Device Code and Address Code.....	53
8	Error Messages.....	54

Introduction

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

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



1 System Configuration

The system configuration in the case when the External Device of Mitsubishi Electric Corporation and the display are connected is shown.

Series	CPU	Link I/F ^{*1}	SIO Type	Setting Example	Cable Diagram
FX Series	FX0N ^{*2} FX1NC FX2NC	FX0N-232ADP	RS232C	Setting Example 1 (page 11)	Cable Diagram 2 (page 24)
		FX2NC-232ADP	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
		FX0N-485ADP, FX2NC-485ADP	RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
			RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)
	FX1S FX1N	FX1N-232-BD, FX2NC-232ADP+FX1N-CNV-BD	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
		FX0N-232ADP+FX1N-CNV-BD	RS232C	Setting Example 1 (page 11)	Cable Diagram 2 (page 24)
		FX1N-485-BD, FX0N-485ADP+FX1N-CNV-BD, FX2NC-485ADP+FX1N-CNV-BD	RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
			RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)
	FX2N ^{*3}	FX2N-232-BD, FX2NC-232ADP+FX2N-CNV-BD	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
		FX0N-232ADP+FX2N-CNV-BD	RS232C	Setting Example 1 (page 11)	Cable Diagram 2 (page 24)
		FX2N-485-BD, FX0N-485ADP+FX2N-CNV-BD, FX2NC-485ADP+FX2N-CNV-BD	RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
			RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)

Series	CPU	Link I/F*1	SIO Type	Setting Example	Cable Diagram
FX Series	FX3UC-32MT-LT(-2)*4 FX3U*4	*When using channel 1 (Ch1) FX3U-232-BD, FX3U-232ADP+FX3U-CNV-BD *When using channel 2 (Ch2) FX3U-232ADP+FX3U-□ □ □-BD, FX3U-232ADP*5+FX3U-■ ■ ■ ADP +FX3U-CNV-BD	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
		*When using channel 1 (Ch1) FX3U-485-BD, FX3U-485ADP+FX3U-CNV-BD *When using channel 2 (Ch2) FX3U-485ADP+FX3U-□ □ □-BD, FX3U-485ADP*6+FX3U-■ ■ ■ ADP +FX3U-CNV-BD	RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
			RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)
	FX3UC (D,DSS)	*When using channel 1 (Ch1) FX3U-232ADP *When using channel 2 (Ch2) FX3U-232ADP*5+FX3U-■ ■ ■ ADP	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
			RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
		*When using channel 1 (Ch1) FX3U-485ADP *When using channel 2 (Ch2) FX3U-485ADP*6+FX3U-■ ■ ■ ADP	RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)
	FX3G (14,24 points type)	FX3G-232-BD, FX3U-232ADP+ FX3G-CNV-ADP	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
			RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
		FX3G-485-BD, FX3U-485ADP+FX3G-CNV-ADP	RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)

Series	CPU	Link I/F*1	SIO Type	Setting Example	Cable Diagram
FX Series	FX3G (40,60 points type)*4	*When using channel 1 (Ch1) FX3G-232-BD (When connecting to Connector 1 for optional units), FX3U-232ADP+FX3G-CNV-ADP	RS232C	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
		*When using channel 2 (Ch2) FX3G-232-BD (When connecting to Connector 2 for optional units), FX3U-232ADP*5+FX3U-■■■ADP +FX3G-CNV-ADP			
		*When using channel 1 (Ch1) FX3G-485-BD (When connecting to Connector 1 for optional units), FX3U-485ADP+FX3G-CNV-ADP	RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
			RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
	FX3GC	*When using channel 2 (Ch2) FX3G-485-BD (When connecting to Connector 2 for optional units), FX3U-485ADP*6+FX3U-■■■ADP +FX3G-CNV-ADP	RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)
			RS-232C Connector on FX3U-232ADP	Setting Example 1 (page 11)	Cable Diagram 1 (page 22)
			RS422/485 (4wire)	Setting Example 3 (page 15)	Cable Diagram 3 (page 25)
			Terminal Block for connecting RS-485 device on FX3U-485ADP	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (4wire) Multilink	Setting Example 3 (page 15)	Cable Diagram 5 (page 44)
			RS422/485 (2wire)	Setting Example 2 (page 13)	Cable Diagram 4 (page 32)

*1 Any of 232, 422, 485 and USB is shown in □ □ □.
Either of 232 or 485 is shown in ■ ■ ■.

*2 System version 1.20 or higher for External Device is required. You can monitor the special register D8001 to check the system version for External Device. Please refer to the manual of External Device for more details.

*3 System version 1.06 or higher for External Device is required. You can monitor the special register D8001 to check the system version for External Device. Please refer to the manual of External Device for more details.

*4 Simultaneous communication of Ch1 and Ch2 is available.

*5 FX3U-232ADP is assigned to Ch2.

*6 FX3U-485ADP is assigned to Ch2.

NOTE

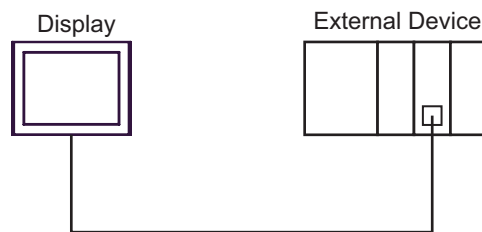
- When the time of GP4000 series is automatically updated in [Clock Update Settings] of GP-Pro EX, there are some restrictions as shown below.

For details on [Clock Update Settings], refer to GP-Pro EX Reference Manual.

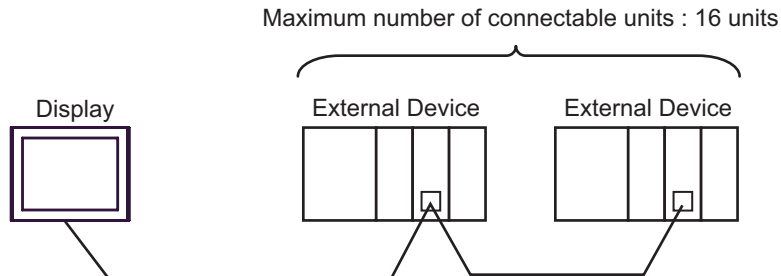
- FX0N does not support automatic update of the time. Specify [Customize] in [Clock Update Settings].
- When the time is automatically updated in FX2NC, the real time clock function board or the E2PROM memory with the real time clock function is required.

■ Connection Configuration

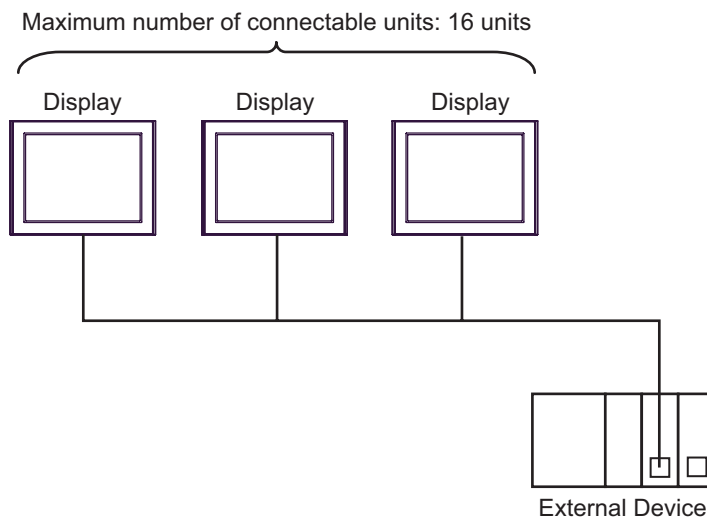
- 1:1 Connection



- 1:n Connection

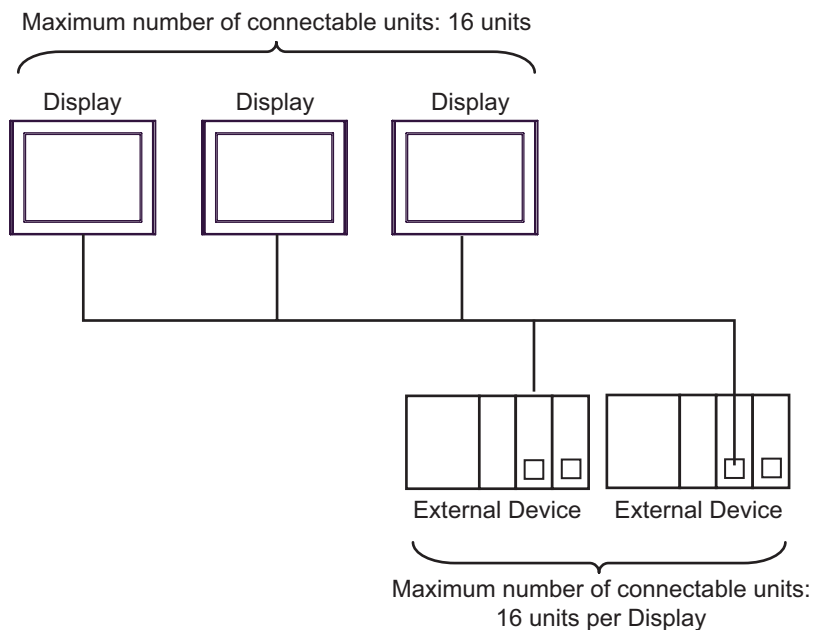


- n:1 Connection (Multilink connection)


NOTE

- The maximum number of connectable Displays is 16 units. However, keeping performance in consideration, the number of Displays that can be substantially used is up to 4.

- n:m Connection (Multilink connection)

**NOTE**

- The maximum number of connectable Displays is 16 units. However, keeping performance in consideration, the number of Displays that can be substantially used is up to 4.

■ 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 (T41 model), PS-3651A (T41 model)	COM1 ^{*1}	-	-
PS-3650A (T42 model), PS-3651A (T42 model)	COM1 ^{*1*2} , COM2	COM1 ^{*1*2}	COM1 ^{*1*2}
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}
PS4000 ^{*3}	COM1, COM2	-	-
PL3000	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.

*3 When making communication between an External Device and COM port on the Expansion slot, only RS-232C is supported. However, ER (DTR/CTS) control cannot be executed because of the specification of COM port.

For connection with External Device, use user-created cables and disable Pin Nos. 1, 4, 6 and 9. Please refer to the IPC manual for details of pin layout.

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 ^{*1}	RS (RTS) Auto control mode: Disabled
10	OFF ^{*1}	

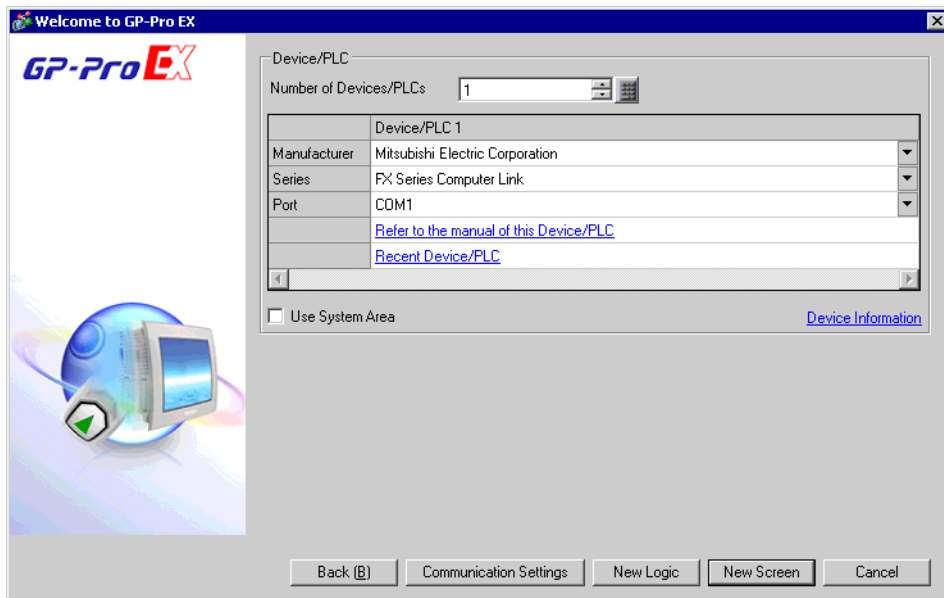
*1 When the connection configuration are the n:1 and n:m connections (both Multilink connections), turn ON the set value.

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
Number of Devices/PLCs	Enter an integer from 1 to 4 to define the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to connect. Select "Mitsubishi Electric Corporation".
Series	Select the External Device model (series) and the connection method. Select "FX Series Computer Link". In System configuration, make sure the External Device you are connecting is supported by "FX Series Computer Link". ☞ "1 System Configuration" (page 3)
Port	Select the Display port to connect to the External Device.
Use System Area	Check this option to synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the External Device's ladder program to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)" This feature can also be set in GP-Pro EX or in the Display's offline mode. Cf. GP-Pro EX Reference Manual "System Settings [Display Unit] - [System Area] Settings Guide" Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

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


3.1 Setting Example 1

■ Setting of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

■ Setting of External Device

Setting of External Device includes the setting with parameter and the setting by writing data to the special data register.

◆ Setting with parameter

Double-click [PC parameter] from [Parameter] in the tree view of the ladder software to display the [FX parameter] dialog box.

Click the [PC system settings (2)] tab for communication settings.

IMPORTANT

- FX0N does not support the setting with parameter. Select the setting by writing data to the special data register.

Setup items and description are shown below.

Setup Items	Setup Description
CH ^{*1}	CH1 or CH2
Protocol	Protocol communication only
Data Length	7
Parity	Even
Stop Bit	2
Line Speed	Match with the speed of Display
Header	None
Terminator	None
H/W Type	Normal/RS232C
Sum Check	Added
Control method	Form 4
Timeout	1

*1 Setting only for FX3UC, FX3U, FX3G and FX3GC.

◆ Setting by writing data to the special data register

Write data to the data register of External Device. After writing, turn the power of External Device from OFF to ON.

IMPORTANT

- When using the FX0N Series, turn ON M8120 for keeping communication settings before turning power from OFF to ON.

Write destination data register and write data are shown below.

Write Destination Data Register		Write data
CH1 of FX3UC, FX3U, FX3G, FX3GC and FX Series except above	CH2 of FX3UC, FX3U, FX3G and FX3GC	
D8120	D8420	0xE89E
D8121	D8421	0
D8129	D8429	1

3.2 Setting Example 2

■ Setting of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer: Mitsubishi Electric Corporation Series: FX Series Computer Link Port: COM1

Text Data Mode: 2 [Change](#)

Communication Settings

SID 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: 1 (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 Number of Devices/PLCs: 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Station No.=0

Add Indirect Device

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

Individual Device Settings

PLC1

Station No. 0

Default

OK (O) Cancel

■ Setting of External Device

Setting of External Device includes the setting with parameter and the setting by writing data to the special data register.

◆ Setting with Parameter

Double-click [PC parameter] from [Parameter] in the tree view of the ladder software to display the [FX parameter] dialog box.

Click the [PC system settings (2)] tab for communication settings.

IMPORTANT

- FX0N does not support the setting with parameter. Select the setting by writing data to the special data register.

Setup items and description are shown below.

Setup Items	Setup Description
CH ^{*1}	CH1 or CH2
Protocol	Protocol communication only
Data Length	7
Parity	Even
Stop Bit	2
Line Speed	Match with the speed of Display
Header	None
Terminator	None
H/W Type	RS-485/RS-422
Sum Check	Added
Control method	Form 4
Timeout	1

*1 Setting only for FX3UC, FX3U, FX3G and FX3GC.

◆ Setting by writing data to the special data register

Write data to the data register of External Device. After writing, turn the power of External Device from OFF to ON.

IMPORTANT

- When using the FX0N Series, turn ON M8120 for keeping communication settings before turning power from OFF to ON.

Write destination data register and write data are shown below.

Write Destination Data Register		Write Data
CH1 of FX3UC, FX3U, FX3G, FX3GC and FX Series except above	CH2 of FX3UC, FX3U, FX3G and FX3GC	
D8120	D8420	0xE09E
D8121	D8421	0
D8129	D8429	1

3.3 Setting Example 3

■ Setting of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary

Manufacturer: Series: Port: [Change Device/PLC](#)

Text Data Mode: [Change](#)

Communication Settings

☐ RS232C
 ☐ RS422/485(2wire)
 ☒ RS422/485(4wire)

Speed:

Data Length: ☒ 7 ☐ 8

Parity: ☐ NONE ☒ EVEN ☐ ODD

Stop Bit: ☐ 1 ☒ 2

Flow Control: ☒ NONE ☐ ER(DTR/CTS) ☐ XON/XOFF

Timeout: (sec)

Retry:

Wait To Send: (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.

Device-Specific Settings

Allowable Number of Devices/PLCs: 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	<input type="text" value="Station No.=0"/> <input type="button" value="Settings"/>

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

Individual Device Settings

PLC1

Station No.

■ Setting of External Device

Setting of External Device includes the setting with parameter and the setting by writing data to the special data register.

◆ Setting with Parameter

Double-click [PC parameter] from [Parameter] in the tree view of the ladder software to display the [FX parameter] dialog box.

Click the [PC system settings (2)] tab for communication settings.

IMPORTANT

- FX0N does not support the setting with parameter. Select the setting by writing data to the special data register.

Setup items and description are shown below.

Setup Items	Setup Description
CH ^{*1}	CH1 or CH2
Protocol	Protocol communication only
Data Length	7
Parity	Even
Stop Bit	2
Line Speed	Match with the speed of Display
Header	None
Terminator	None
H/W Type	RS-485/RS-422
Sum Check	Added
Control method	Form 4
Timeout	1

*1 Setting only for FX3UC, FX3U, FX3G and FX3GC.

◆ Setting by writing data to the special data register

Write data to the data register of External Device. After writing, turn the power of External Device from OFF to ON.

IMPORTANT

- When using the FX0N Series, turn ON M8120 for keeping communication settings before turning power from OFF to ON.

Write destination data register and write data are shown below.

Write Destination Data Register		Write Data
CH1 of FX3UC, FX3U, FX3G, FX3GC and FX Series except above	CH2 of FX3UC, FX3U, FX3G and FX3GC	
D8120	D8420	0xE09E
D8121	D8421	0
D8129	D8429	1

4 Setup Items

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

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

☞ "3 Example of Communication Setting" (page 11)

4.1 Setup Items in GP-Pro EX

■ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary

Manufacturer Series Port [Change Device/PLC](#)

Text Data Mode [Change](#)

Communication Settings

SIO Type ☒ RS232C ☐ RS422/485(2wire) ☐ RS422/485(4wire)

Speed

Data Length ☒ 7 ☐ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☐ 1 ☒ 2

Flow Control ☒ NONE ☐ ER(DTR/CTS) ☐ XON/XOFF

Timeout (sec)

Retry

Wait To Send (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 Number of Devices/PLCs 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Station No.=0

[Add Indirect Device](#)


Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed between External Device and 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 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 Display retransmits the command.

Setup Items	Setup Description
Wait To Send	<p>Use an integer from 0 to 255 to enter standby time (ms) for Display from receiving packets to transmitting next commands.</p> <p>NOTE</p> <ul style="list-style-type: none"> Set the value more than twice as the scanning time of External Device when connecting to FX0N, FX1S, FX1N and FX1NC Series.
RI/VCC	<p>You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.</p> <p>It is necessary to change RI/5V by changeover switch of IPC when connect with IPC.</p> <p>Please refer to the manual of the IPC for more detail.</p>

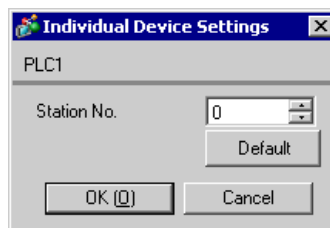
NOTE

- Refer to the GP-Pro EX Reference Manual for Indirect Device.
Cf. GP-Pro EX Reference Manual "Changing the Device/PLC at Runtime (Indirect Device)"

■ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.



Setup Items	Setup Description
Station No.	Enter a station number of External Device, using 0 to F.

4.2 Setup Items in Offline Mode

NOTE

- Refer to the Maintenance/Troubleshooting guide for information on how to enter offline mode or about the operation.

Cf. Maintenance/Troubleshooting Guide "Offline Mode"

- The number of the setup items to be displayed for 1 page in the offline 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 offline mode. Touch the External Device you want to set from the displayed list.

Comm.	Device	Option		
FX Series Computer Link [COM1] Page 1/1				
SIO Type	RS232C			
Speed	19200			
Data Length	<input checked="" type="radio"/> 7 <input type="radio"/> 8			
Parity	<input type="radio"/> NONE <input checked="" type="radio"/> EVEN <input type="radio"/> ODD			
Stop Bit	<input type="radio"/> 1 <input checked="" type="radio"/> 2			
Flow Control	ER(DTR/CTS)			
Timeout(s)	3			
Retry	2			
Wait To Send(ms)	1			
Exit		Back		2005/09/02 12:34:55

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 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 Display retransmits the command.
Wait To Send	<p>Use an integer from 0 to 255 to enter standby time (ms) for Display from receiving packets to transmitting next commands.</p> <p>NOTE</p> <p>Set the value more than twice as the scanning time of External Device when connecting to FX0N, FX1S, FX1N and FX1NC Series.</p>

■ 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		
FX Series Computer Link [COM1] Page 1/1				
Device/PLC Name		[PLC1] ▼		
Station No.		0 ▼ ▲		
Exit		Back		2005/09/02 12:34:58

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])
Station No.	Enter a station number of the External Device, using 0 to F.

■ 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		

FX Series Computer Link [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 12:35:00
--	------	--	------	------------------------

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, GP-4*01TM and LT-4*01TM do not have the [Option] setting in the offline mode.

5 Cable Diagram

The following cable diagrams may be different from cable diagrams recommended by Mitsubishi Electric Corporation. Please be assured there is no operational problem in applying the cable diagrams shown in this manual.

- Please ground the FG pin of the External Device body. Use a grounding resistance of 100Ω 2mm^2 or thicker wire, or your country's applicable standard. Refer to your External Device manual for more details.
- The SG and FG are connected inside the Display. When connecting the External Device to the SG, design your system to avoid short-circuit loops.
- Connect an isolation unit if the communication is not stable due to noise or other factors.

Cable Diagram 1

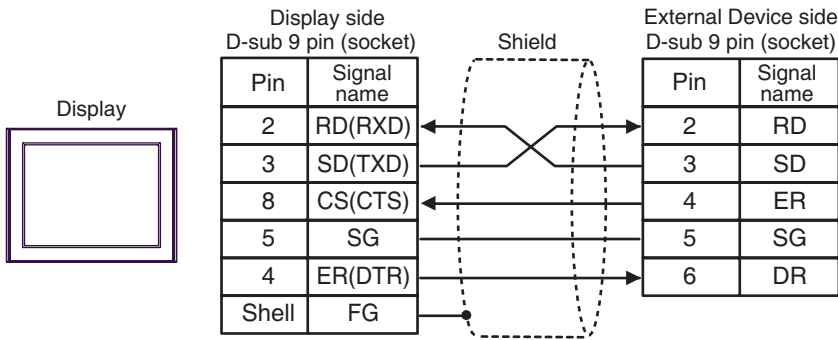
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000*1 (COM1) ST (COM1) LT3000 (COM1) IPC*2 PC/AT	1A	User-created cable	The cable length must be 15 meters or less.
GP-4105 (COM1)	1B	User-created cable	

*1 All GP4000 models except GP-4100 Series and GP-4203T

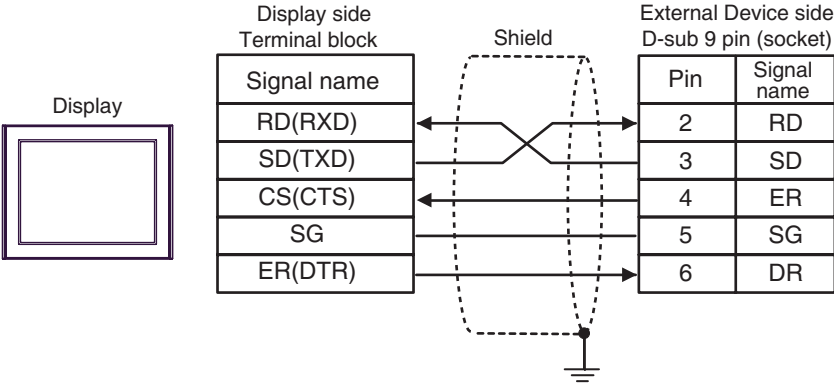
*2 Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 8)

1A)



1B)



Cable Diagram 2

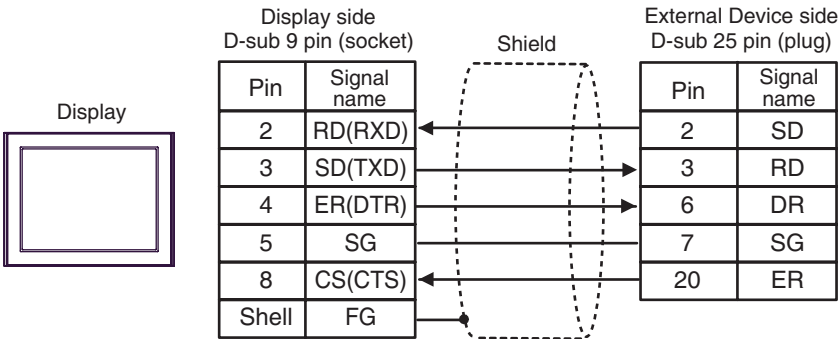
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) ST (COM1) LT3000 (COM1) IPC ^{*2} PC/AT	2A	User-created cable	The cable length must be 15 meters or less.
GP-4105 (COM1)	2B	User-created cable	

*1 All GP4000 models except GP-4100 Series and GP-4203T

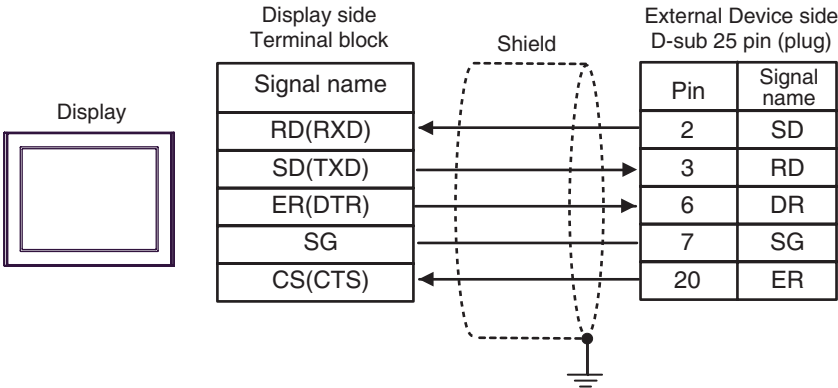
*2 Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 8)

2A)



2B)




Cable Diagram 3

Display (Connection Port)	Cable		Notes
GP3000 ^{*1} (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST ^{*2} (COM2) LT3000 (COM1) IPC ^{*3}	3A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500 meters or less. ^{*4}
	3B	User-created cable	
GP3000 ^{*5} (COM2)	3C	Online adapter by Pro-face CA4-ADPONL-01 + Connector 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	
GP-4106 (COM1)	3E	User-created cable	
GP4000 ^{*6} (COM2) GP-4201T (COM1)	3F	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 ^{*7} + User-created cable	
	3B	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 8)

*4 When using FX1N-485-BD, FX2N-485-BD, FX3U-485-BD or FX3G-485-BD, the cable length must be 50 meters or less.

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

*6 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T

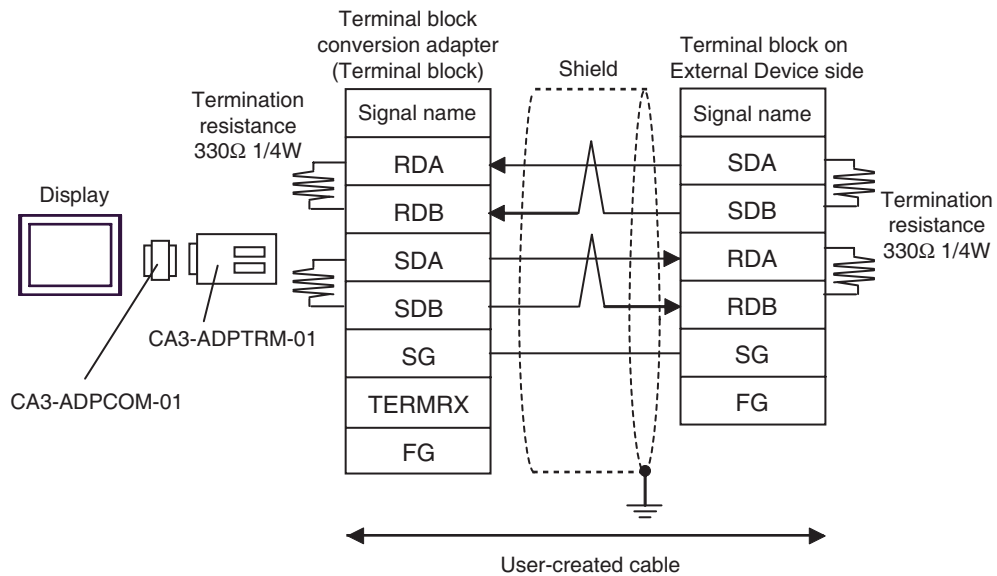
*7 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 3A.

NOTE

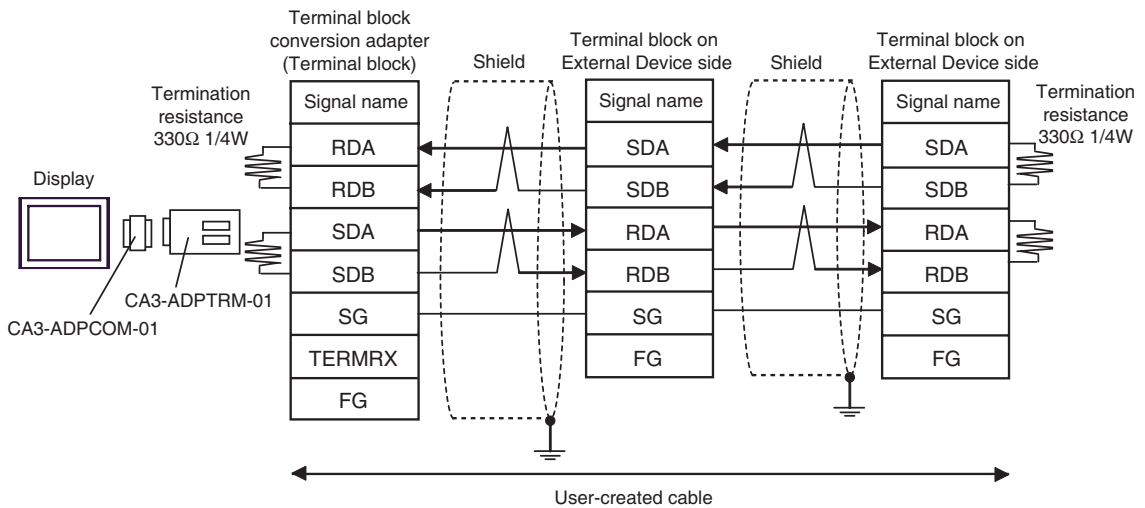
- The shield of cables connected to FX2N-485-BD, FX1N-485-BD, FX2NC-485ADP and FX3U-485ADP must be D-class grounded.
- Connect the shield of cable connected to FX0N-485ADP to the adapter FG terminal. In addition, always connect the FG terminal of FX0N-485ADP to the ground terminal of External Device body with D-class grounded.
- FX3U-485-BD, FX3U-485ADP and FX3G-485-BD have built-in termination resistance. Use the termination resistance switch to set termination resistance.

3A)

- 1:1 connection

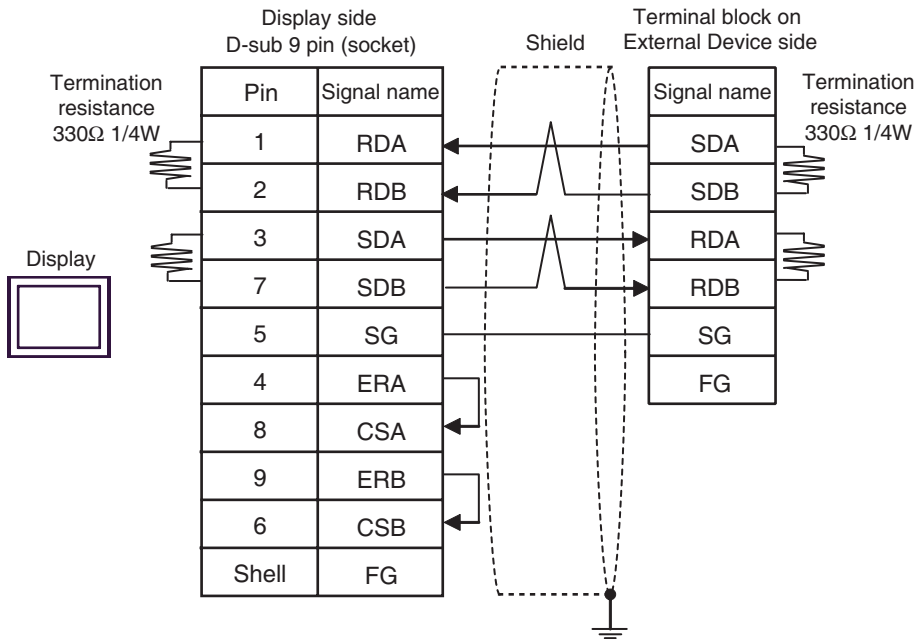


- 1:n connection

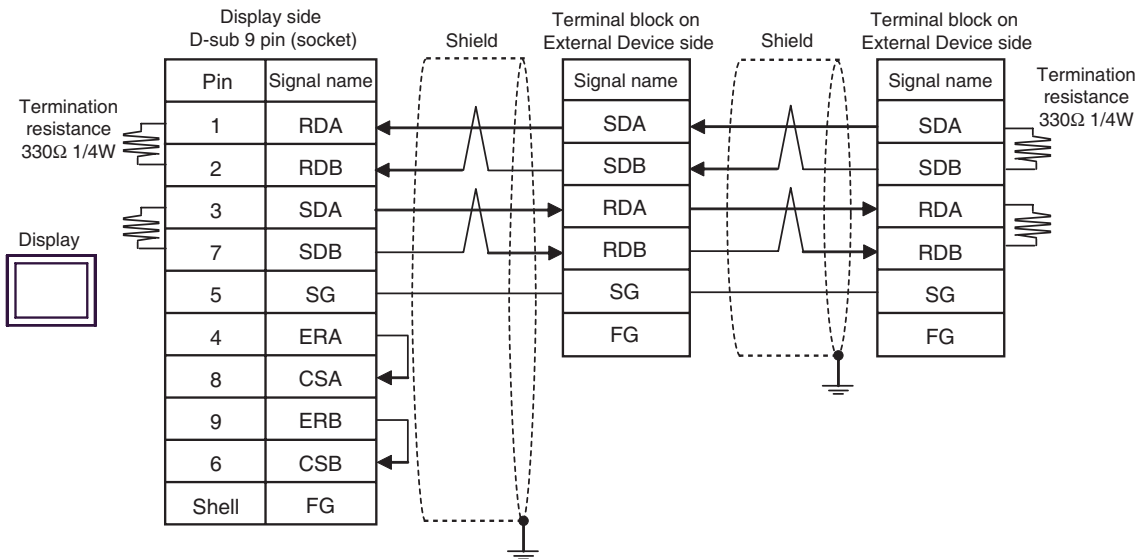


3B)

- 1:1 connection

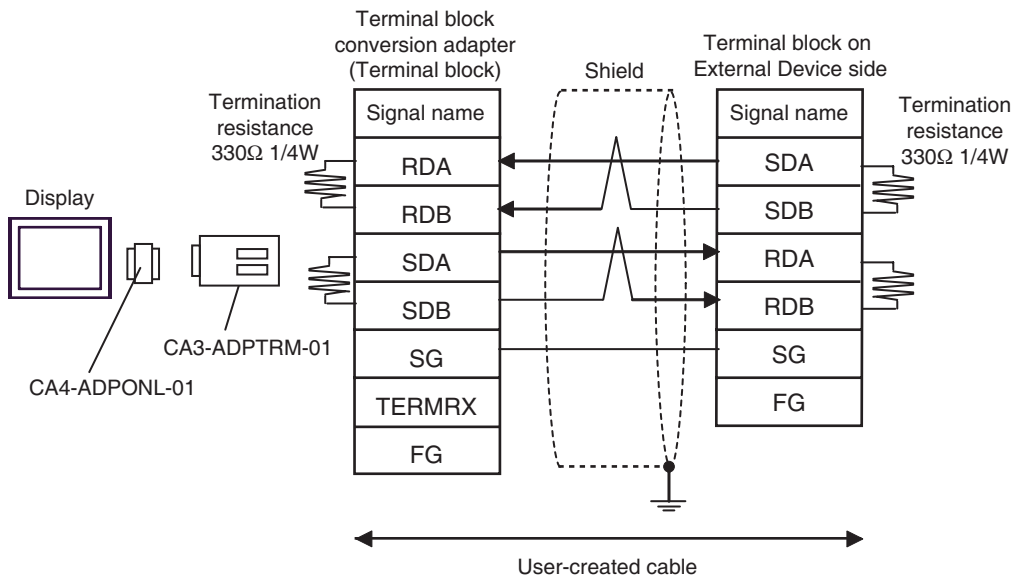


- 1:n connection

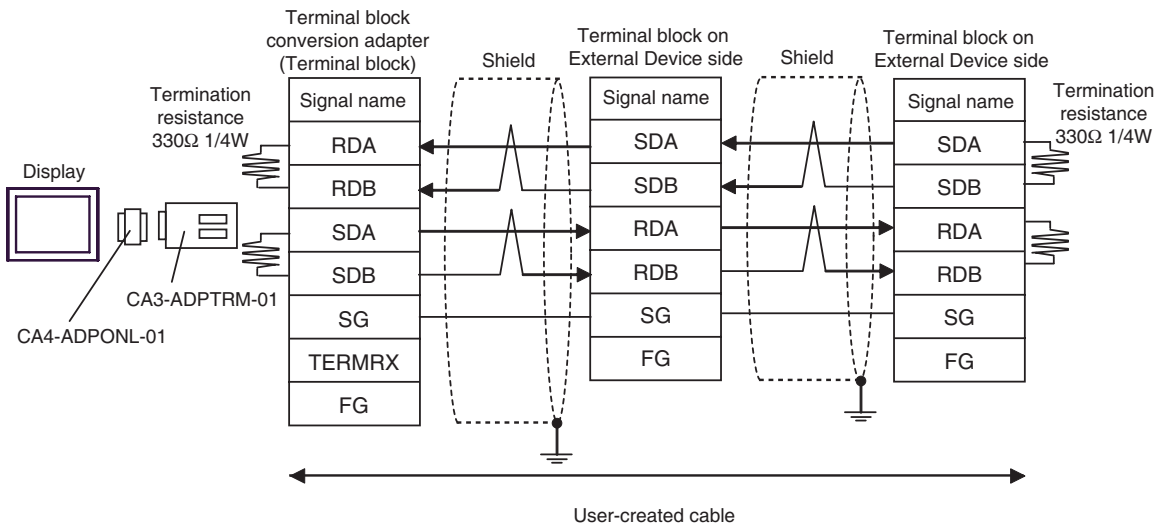


3C)

- 1:1 connection

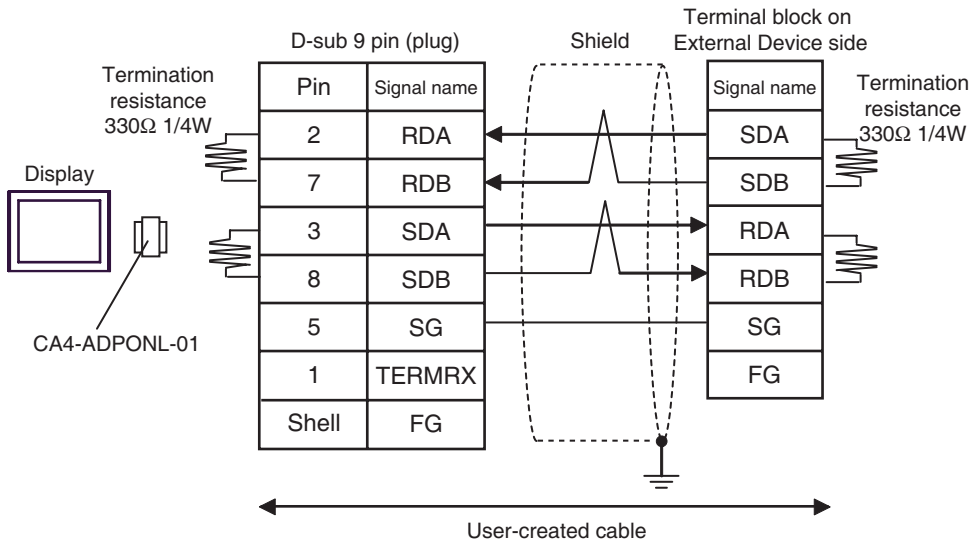


- 1:n connection

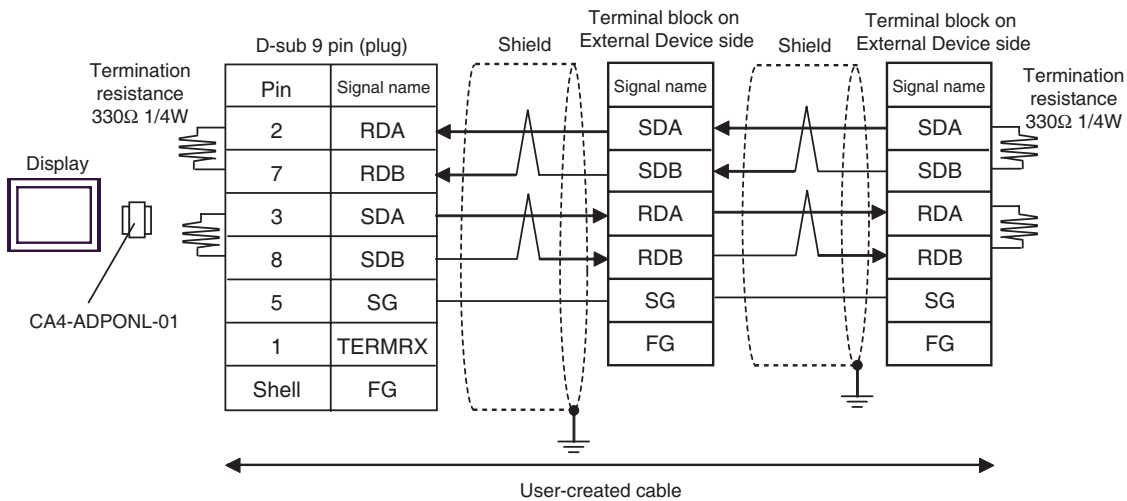


3D)

- 1:1 connection

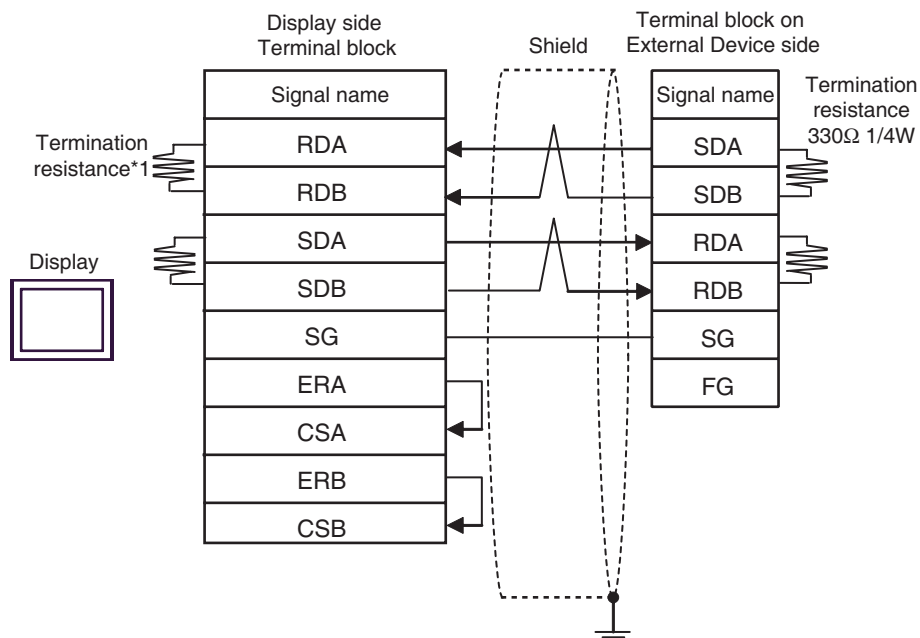


- 1:n connection

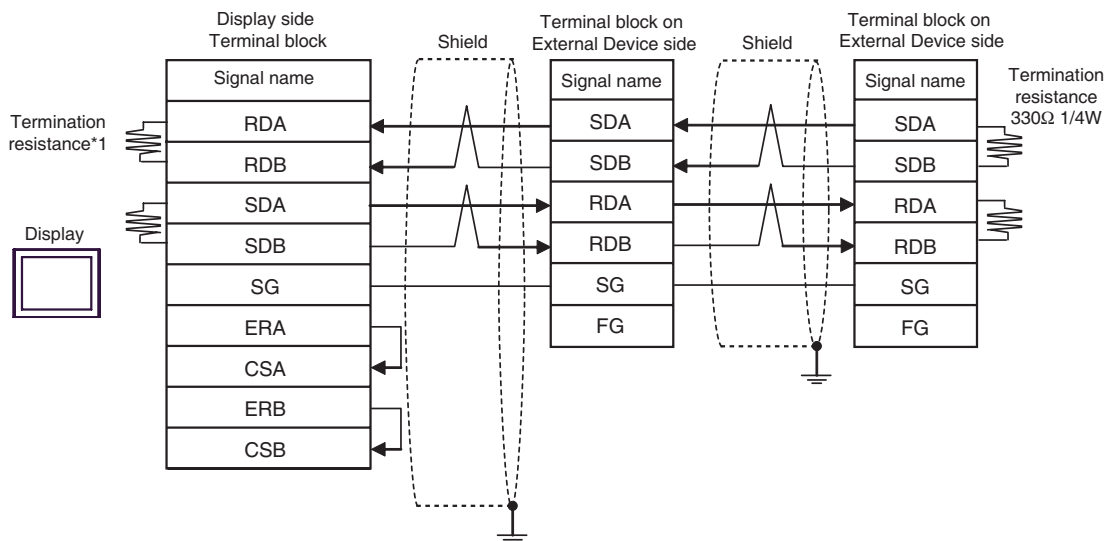


3E)

- 1:1 connection



- 1:n connection

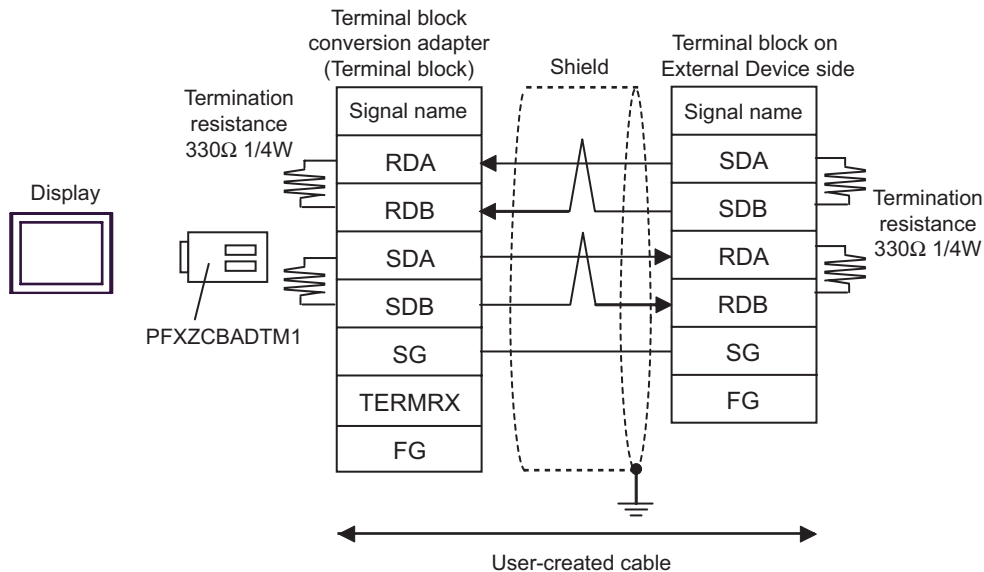


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

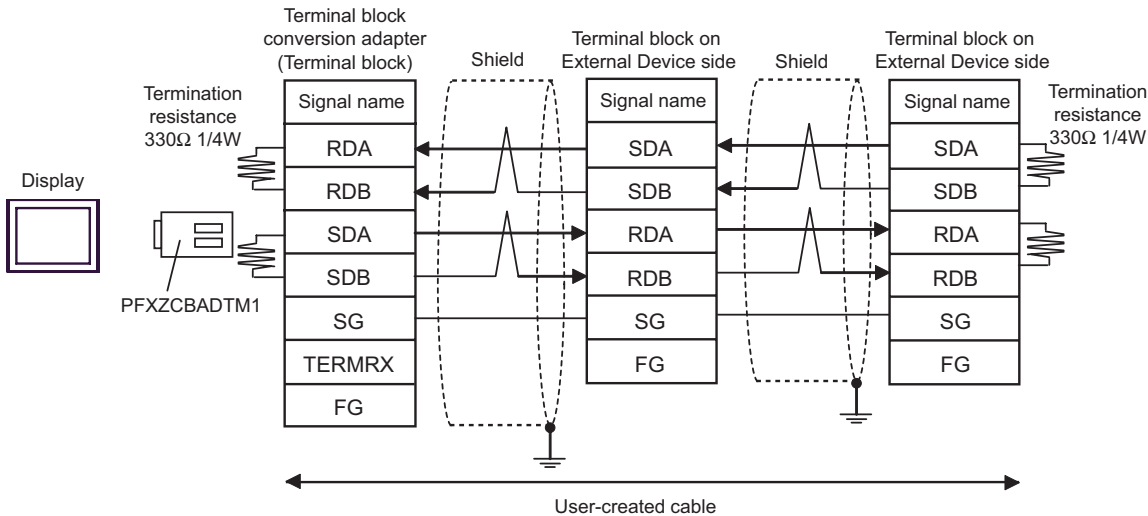
DIP Switch No.	Set Value
1	ON
2	OFF
3	ON
4	OFF

3F)

- 1:1 connection




- 1:n connection



Cable Diagram 4

Display (Connection Port)	Cable		Notes
GP3000 ^{*1} (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST ^{*2} (COM2) LT3000 (COM1)	4A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500 meters or less. ^{*3}
	4B	User-created cable	
GP3000 ^{*4} (COM2)	4C	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	4D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC ^{*5}	4E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	4F	User-created cable	
GP-4106 (COM1)	4G	User-created cable	
GP-4107 (COM1) GP-4*03T ^{*6} (COM2) GP-4203T (COM1)	4H	User-created cable	
GP4000 ^{*7} (COM2) GP-4201T (COM1)	4I	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 ^{*8} + User-created cable	
	4B	User-created cable	
LT-4*01TM (COM1)	4J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJ81	

*1 All GP3000 models except AGP-3302B

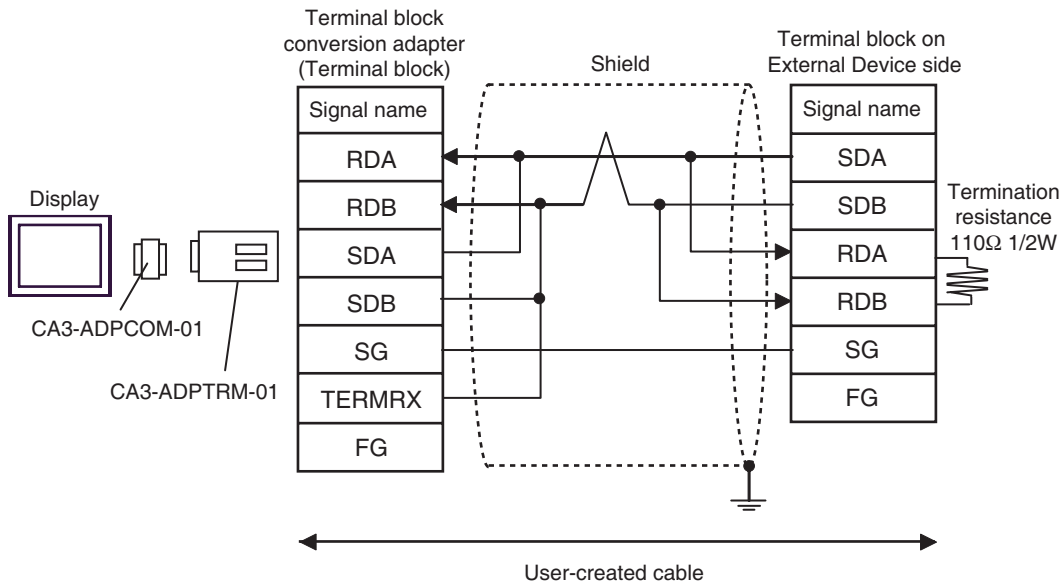
- *2 All ST models except AST-3211A and AST-3302B
- *3 When using FX1N-485-BD, FX2N-485-BD, FX3U-485-BD or FX3G-485-BD, the cable length must be 50 meters or less.
- *4 All GP3000 models except GP-3200 series and AGP-3302B
- *5 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 ■ IPC COM Port (page 8)
- *6 Except GP-4203T
- *7 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T
- *8 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 4A.

NOTE

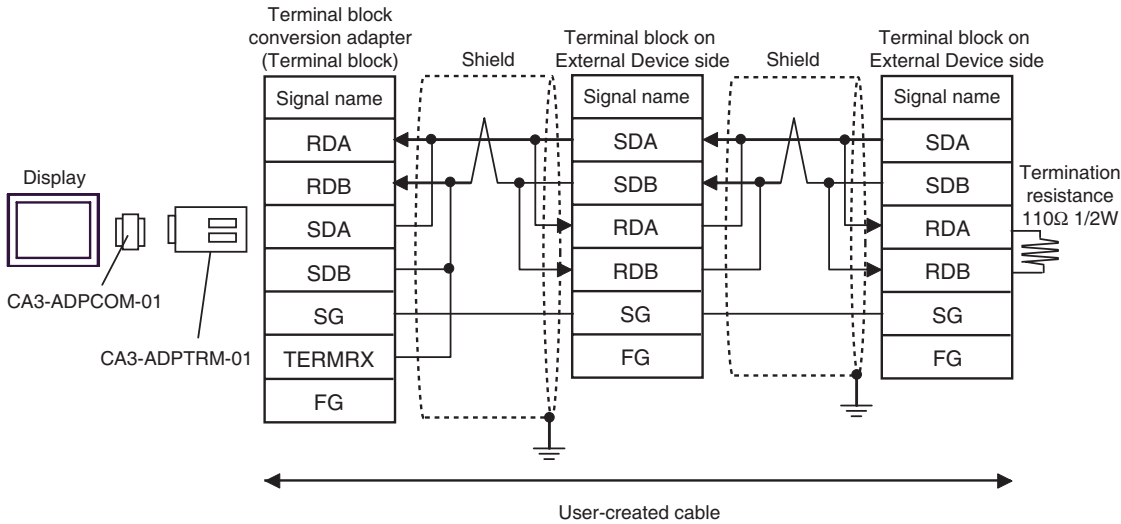
- The shield of cables connected to FX2N-485-BD, FX1N-485-BD, FX2NC-485ADP and FX3U-485ADP must be D-class grounded.
- Connect the shield of cable connected to FX0N-485ADP to the adapter FG terminal. In addition, always connect the FG terminal of FX0N-485ADP to the ground terminal of External Device body with D-class grounded.
- FX3U-485-BD, FX3U-485ADP and FX3G-485-BD have built-in termination resistance. Use the termination resistance switch to set termination resistance.

4A)

- 1:1 connection

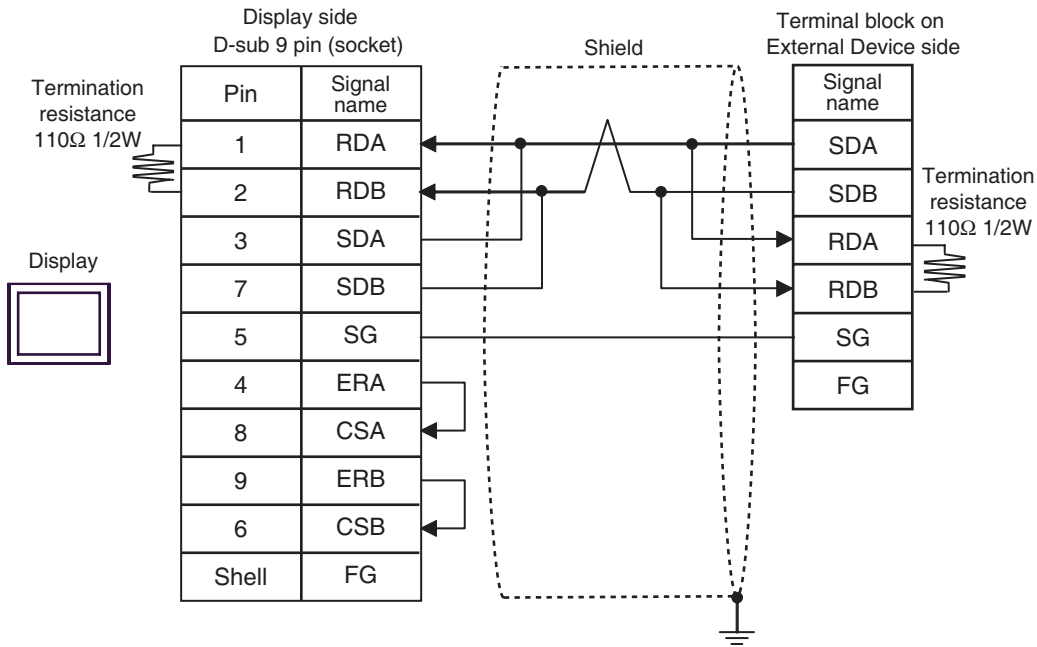


- 1:n connection

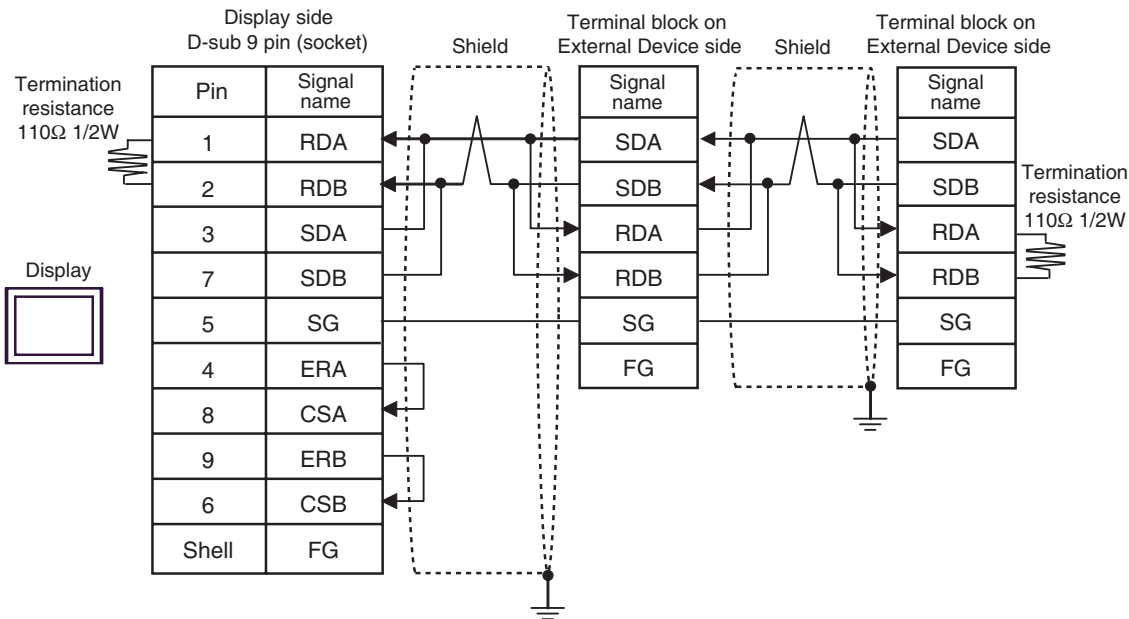


4B)

- 1:1 connection

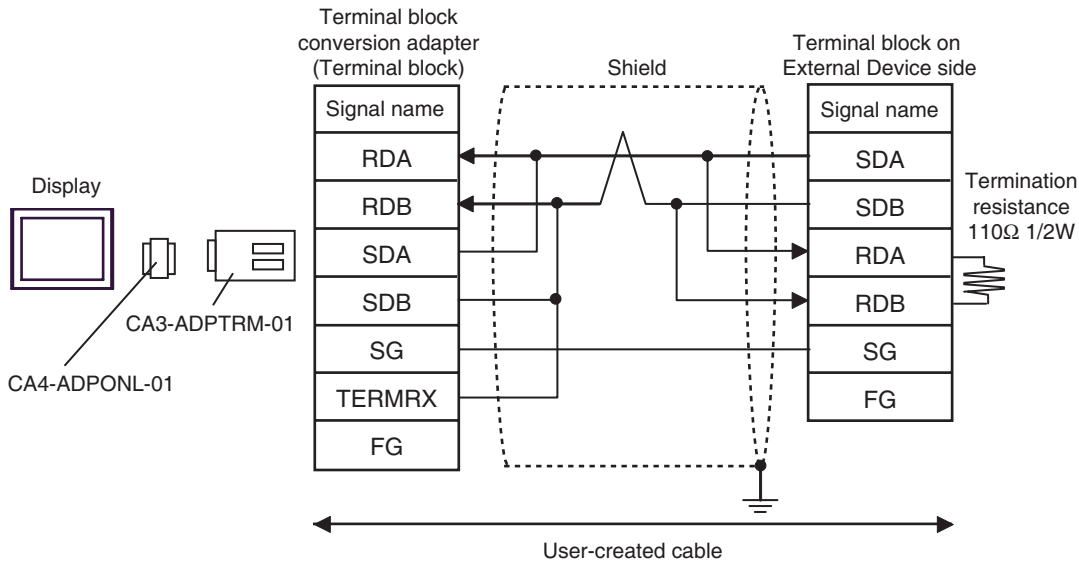


- 1:n connection

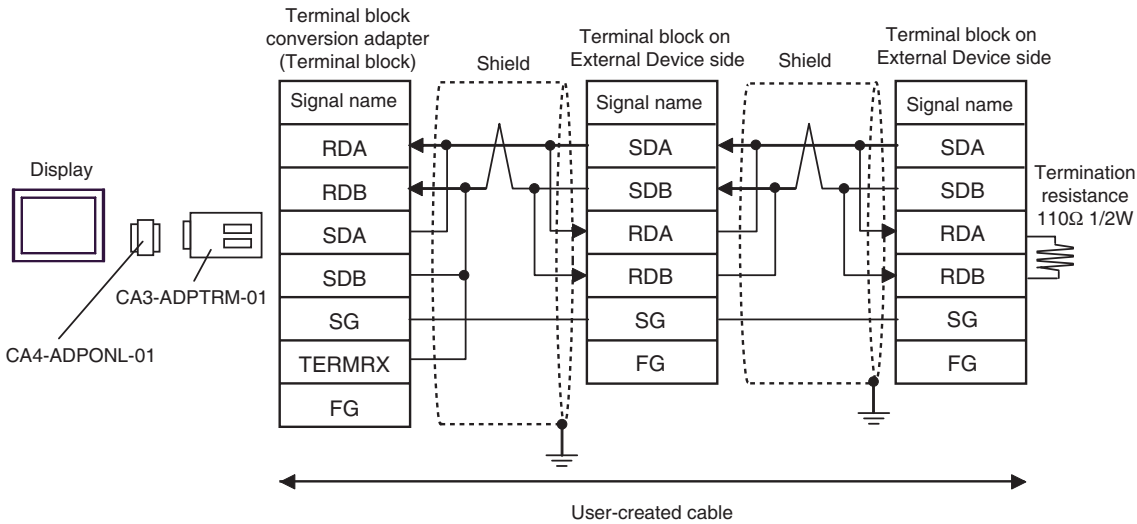


4C)

- 1:1 connection

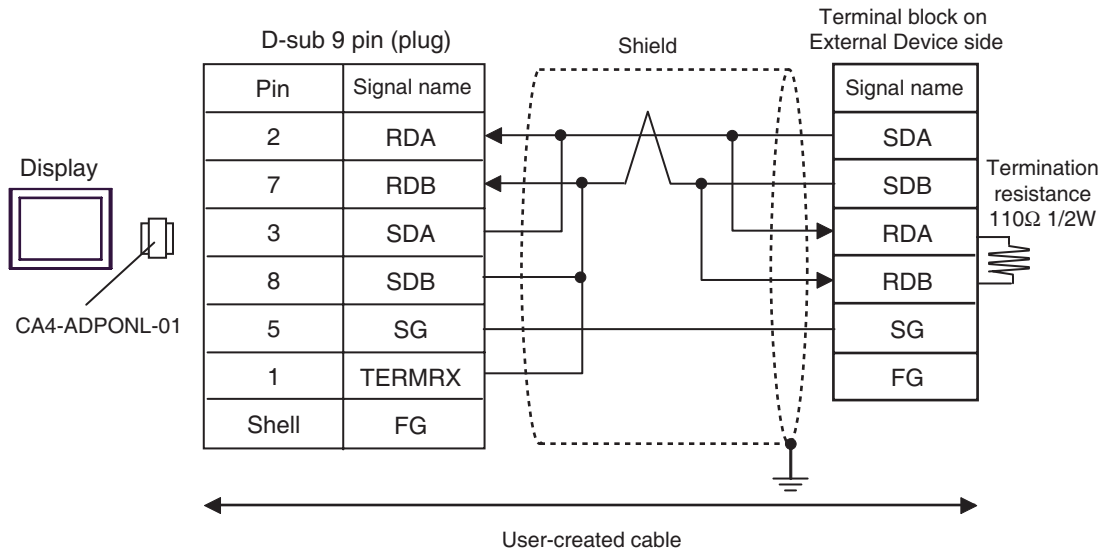


- 1:n connection

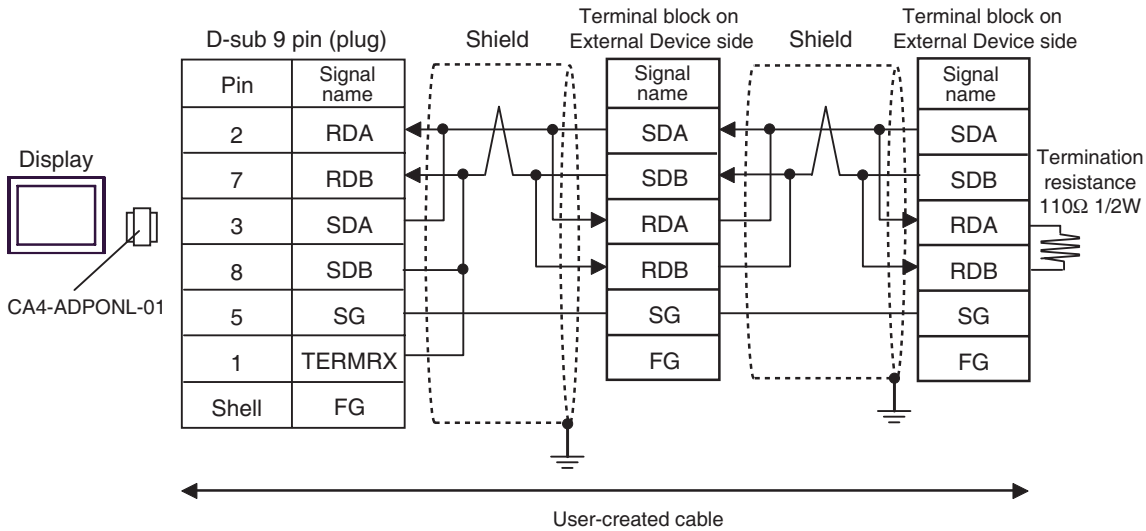


4D)

- 1:1 connection

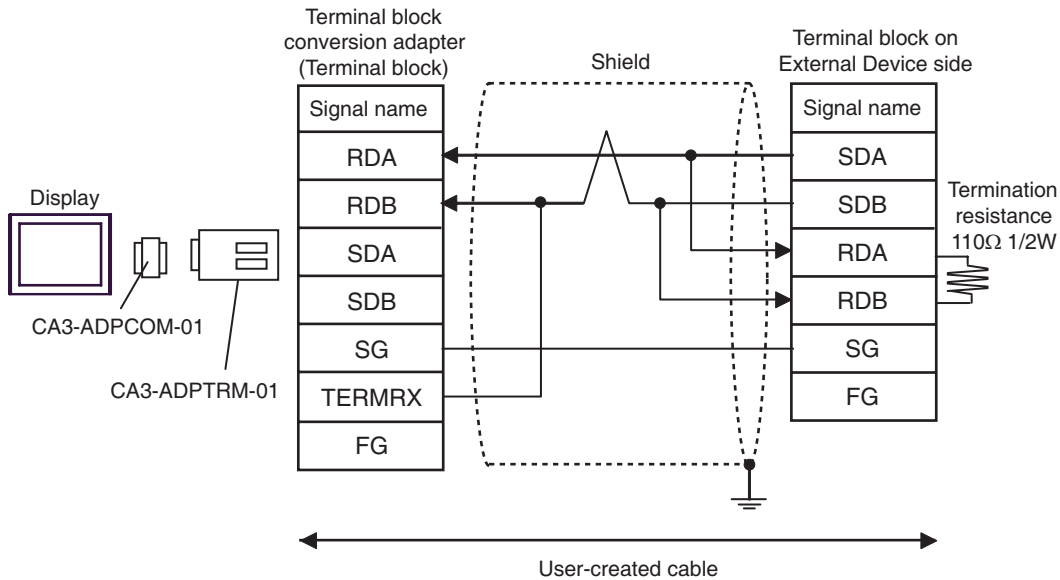


- 1:n connection

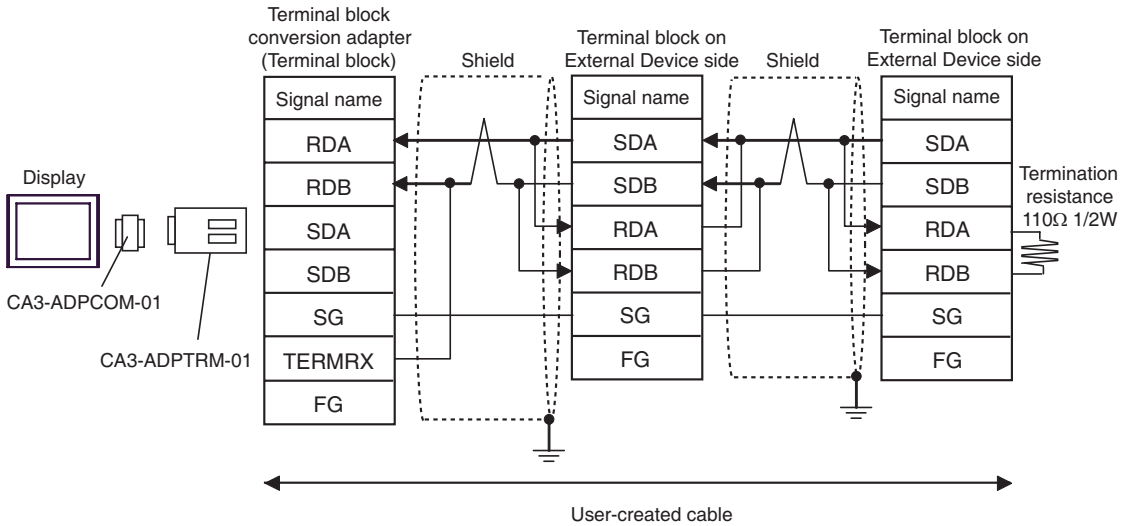


4E)

- 1:1 connection

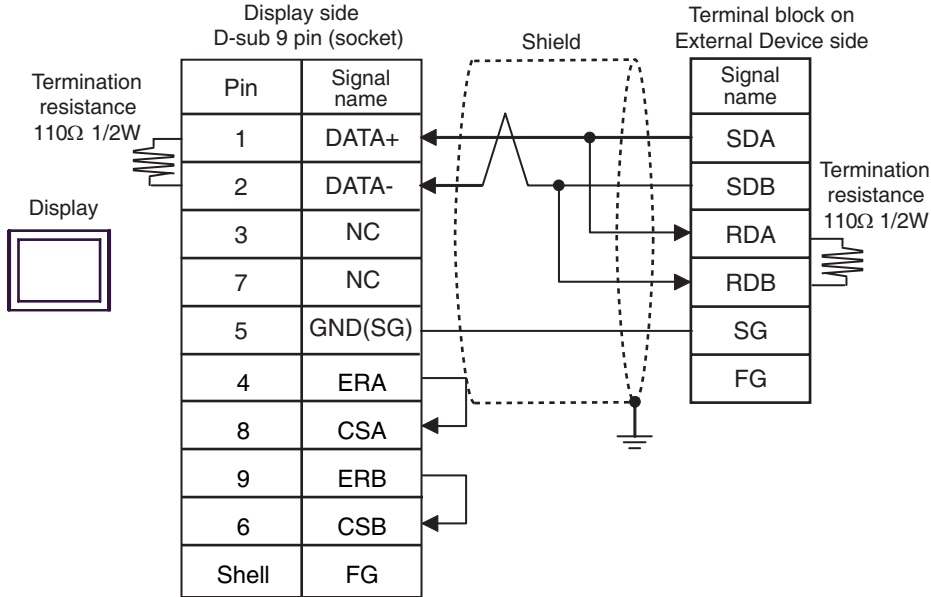


- 1:n connection

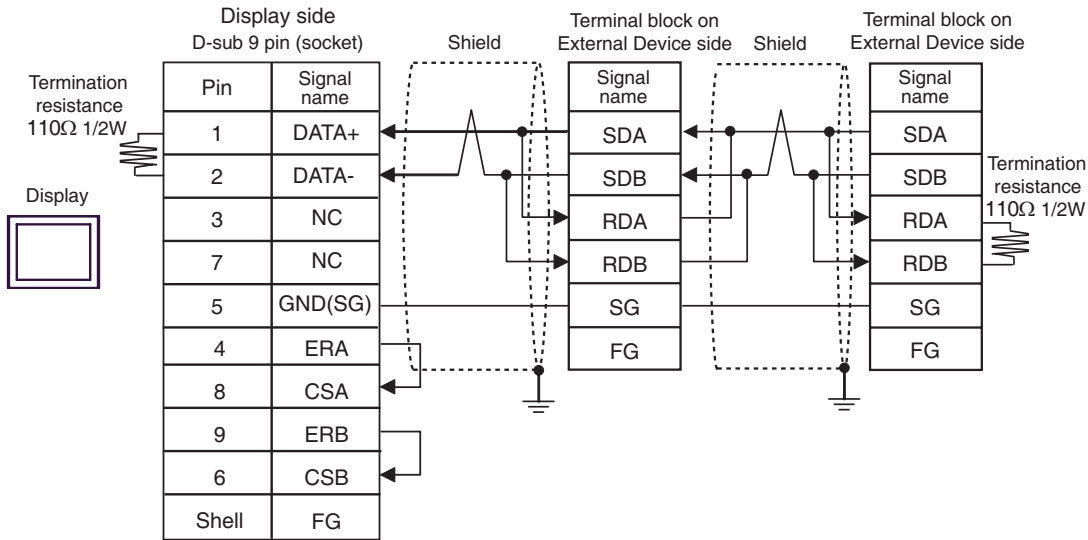


4F)

- 1:1 connection

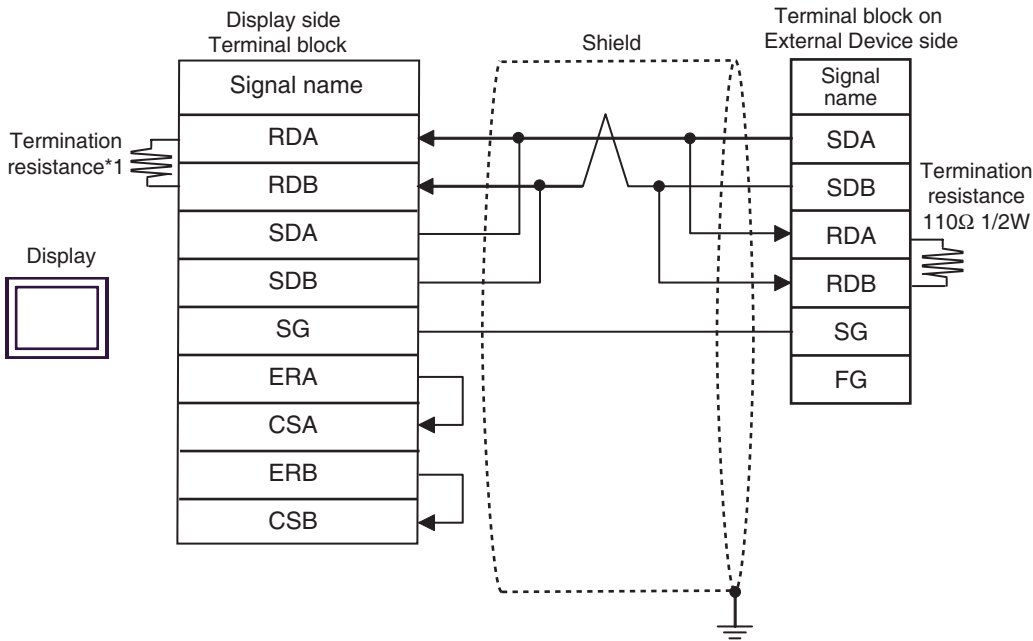


- 1:n connection

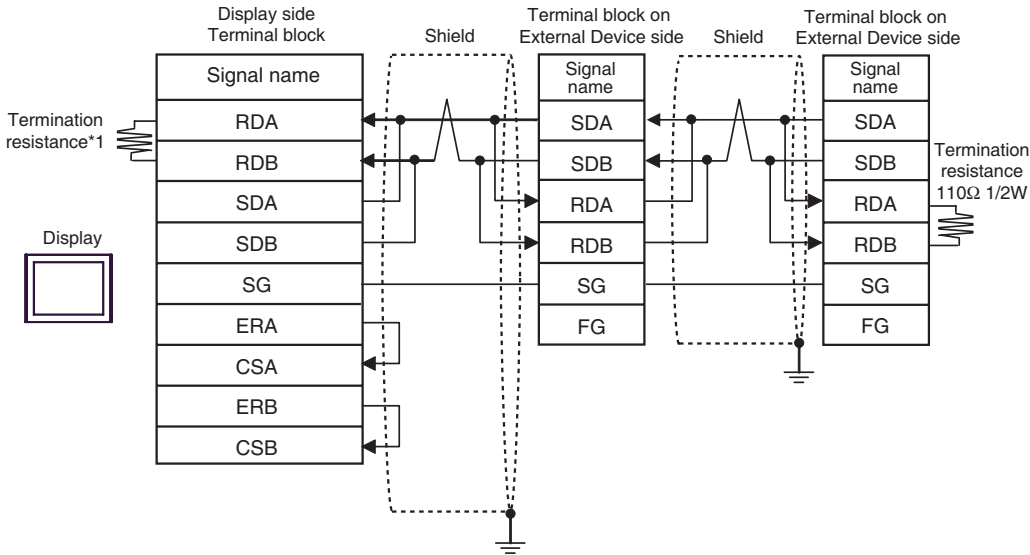


4G)

- 1:1 connection



- 1:n connection

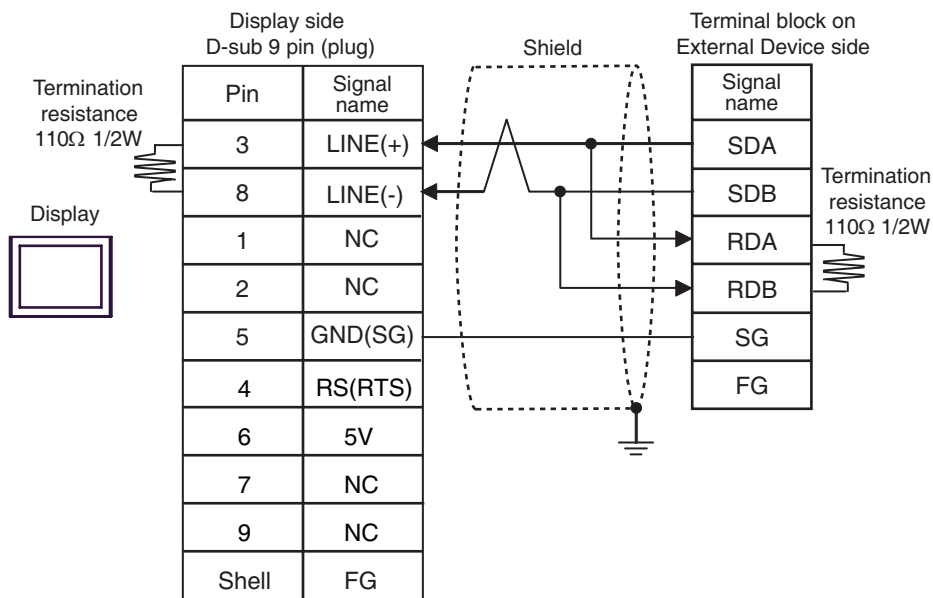


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

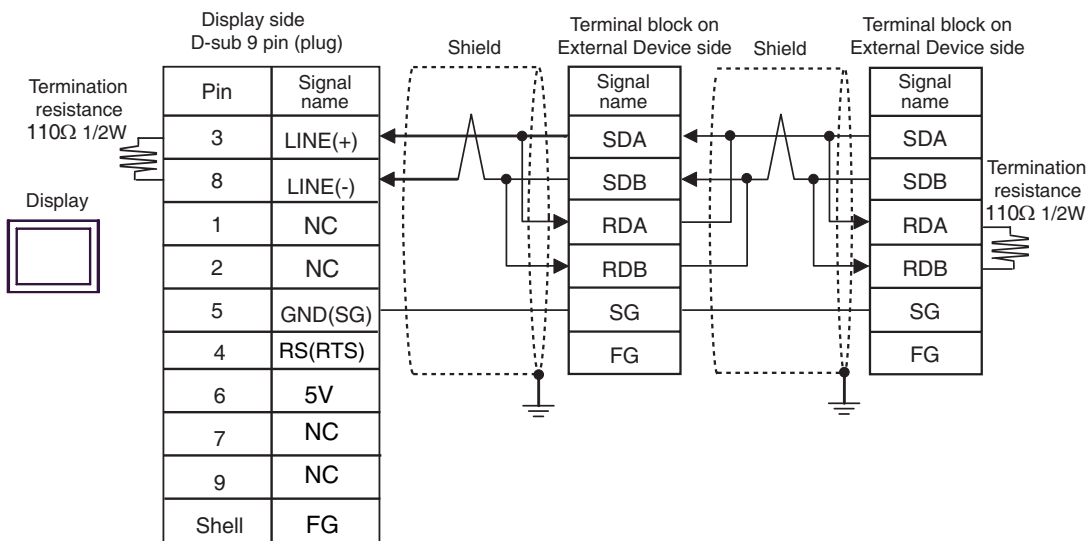
DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

4H)

- 1:1 connection



- 1:n connection

**IMPORTANT**

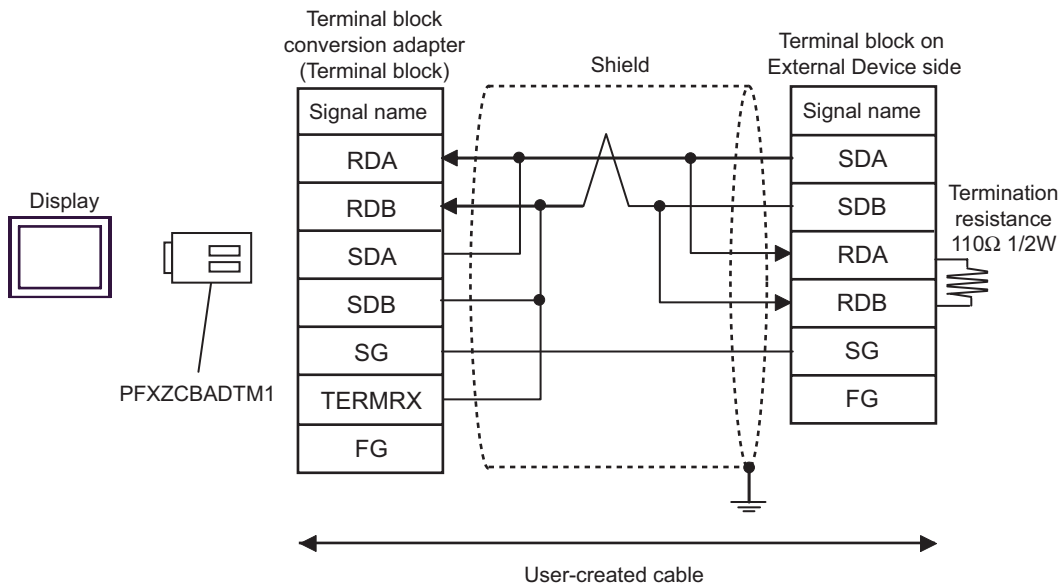
- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE

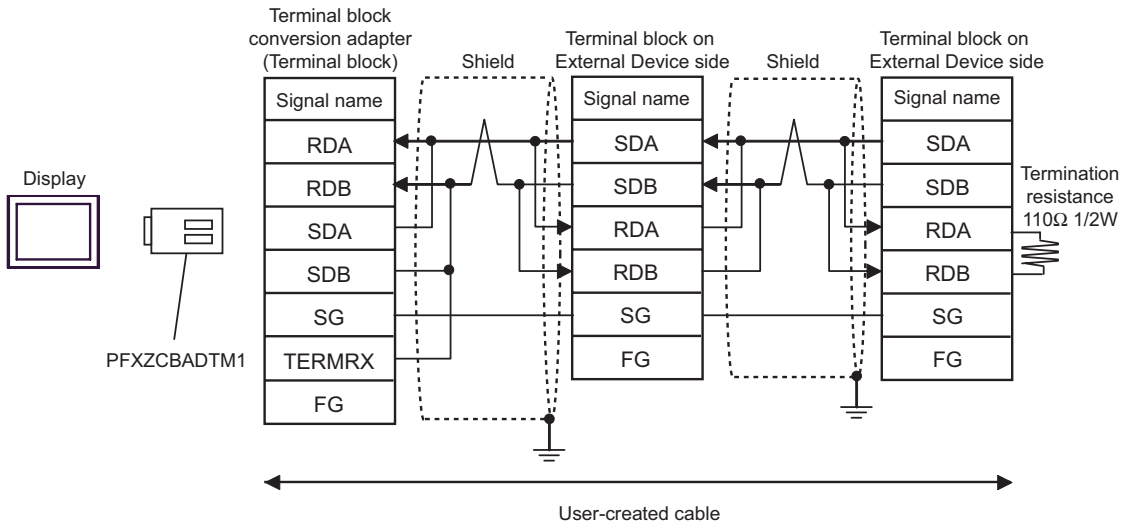
- In COM on the GP-4107, the SG and FG terminals are isolated.

4l)

- 1:1 connection

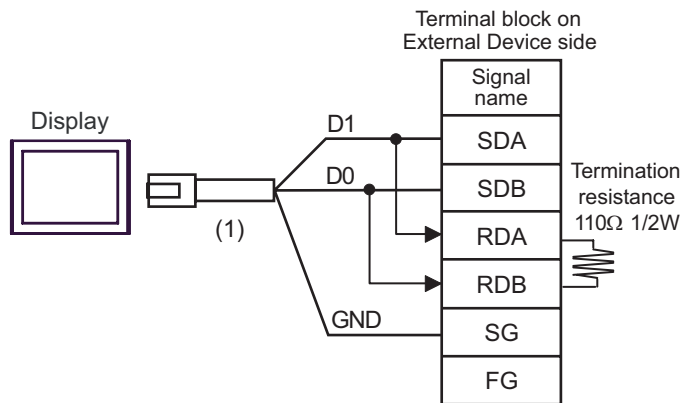


- 1:n connection

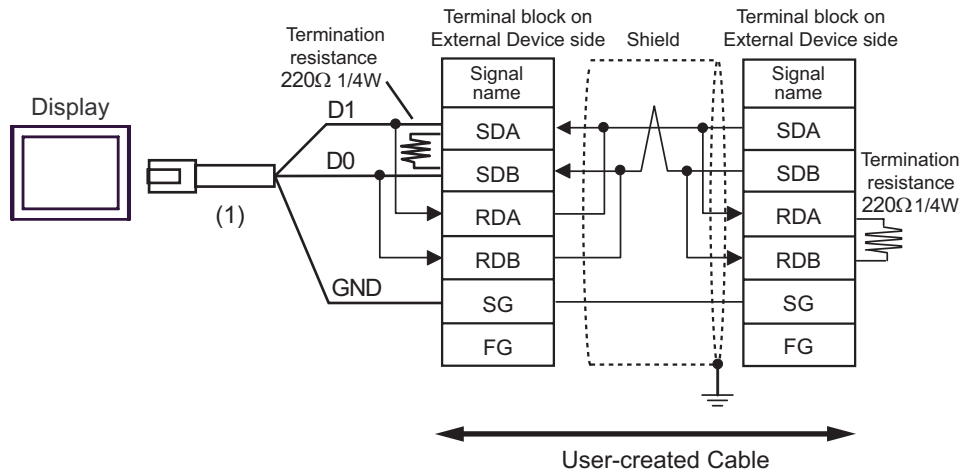


4J)

- 1:1 connection




- 1:n connection



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJ81	

Cable Diagram 5

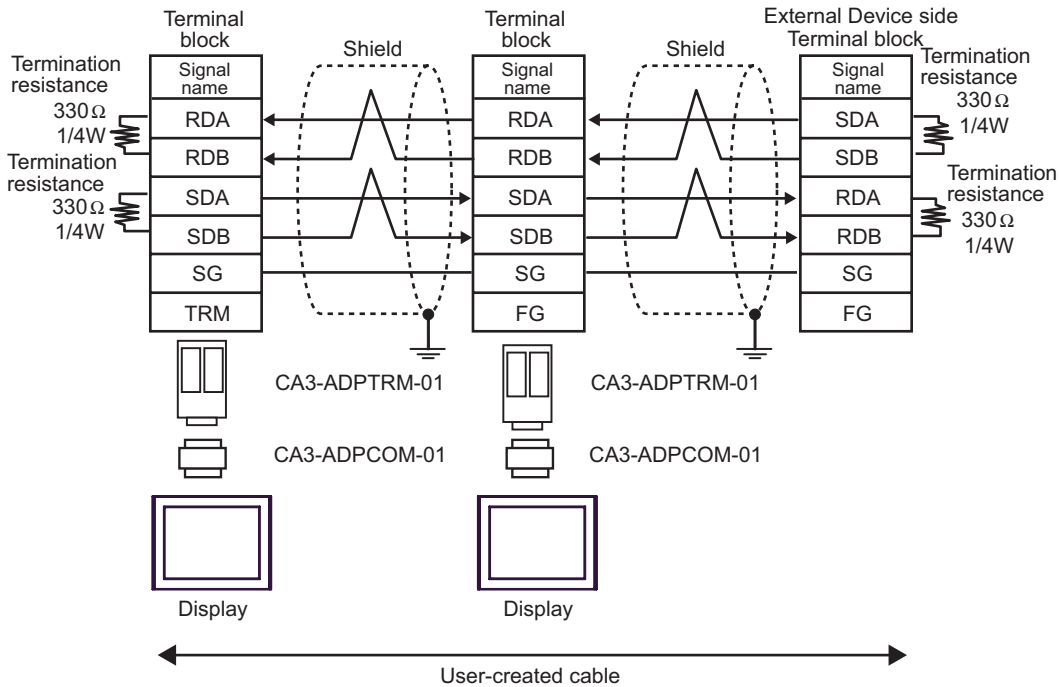
Display (Connection Port)	Cable		Notes
GP3000* ¹ (COM1) AGP-3302B (COM2) GP-4*0ITM (COM1) ST* ² (COM2) LT3000 (COM1) IPC* ³	5A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500 meters or less. * ⁴
	5B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Multilink cable by Pro-face CA3-CBLMLT-01 + User-created cable	
	5C	User-created cable	
GP3000* ⁵ (COM2)	5D	Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	5E	Online adapter by Pro-face CA4-ADPONL-01 + Multilink cable by Pro-face CA3-CBLMLT-01 + User-created cable	
	5F	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	5G	User-created cable	
GP4000* ⁶ (COM2) GP-420IT (COM1)	5H	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1* ⁷ + User-created cable	
	5I	Multilink cable by Pro-face PFXZCBCBML1* ⁸ + User-created cable	
	5C	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 8)
- *4 When using FX1N-485-BD, FX2N-485-BD, FX3U-485-BD or FX3G-485-BD, the cable length must be 50 meters or less.
- *5 All GP3000 models except GP-3200 series and AGP-3302B
- *6 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T
- *7 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 5A.
- *8 When using a Multilink Cable (CA3-CBLMLT-01) instead of the Multilink Cable, refer to Cable Diagram 5B.

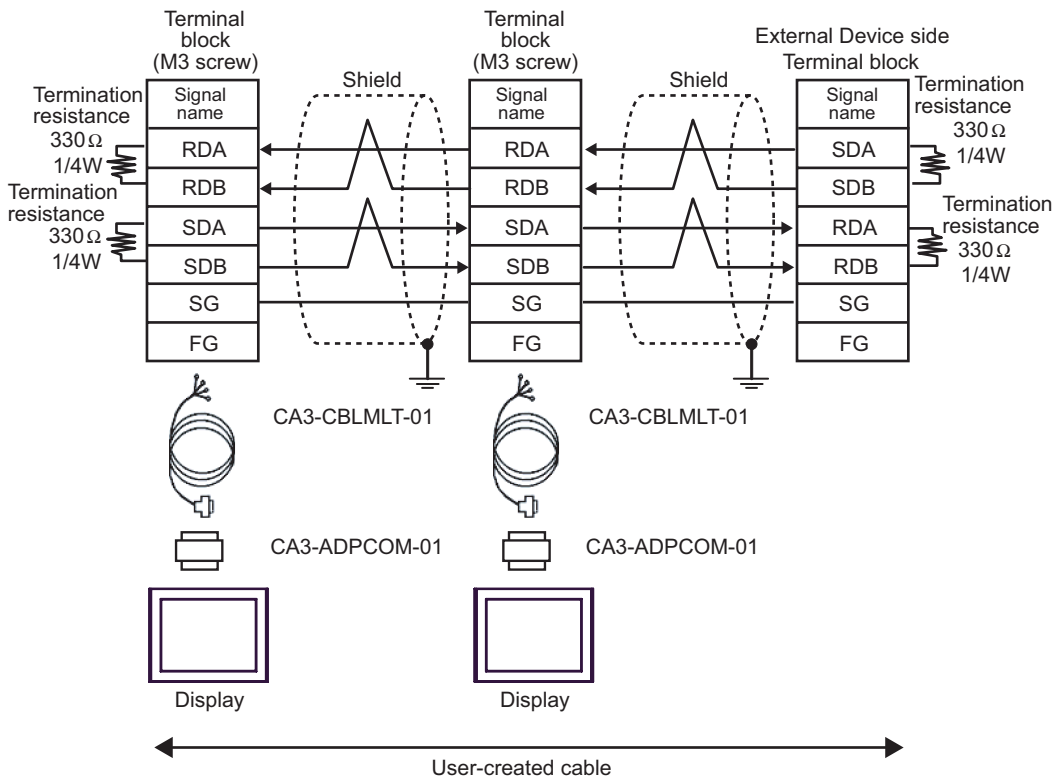
NOTE

- The shield of cables connected to FX2N-485-BD, FX1N-485-BD, FX2NC-485ADP and FX3U-485ADP must be D-class grounded.
- Connect the shield of cable connected to FX0N-485ADP to the adapter FG terminal. In addition, always connect the FG terminal of FX0N-485ADP to the ground terminal of External Device body with D-class grounded.
- FX3U-485-BD, FX3U-485ADP and FX3G-485-BD have built-in termination resistance. Use the termination resistance switch to set termination resistance.

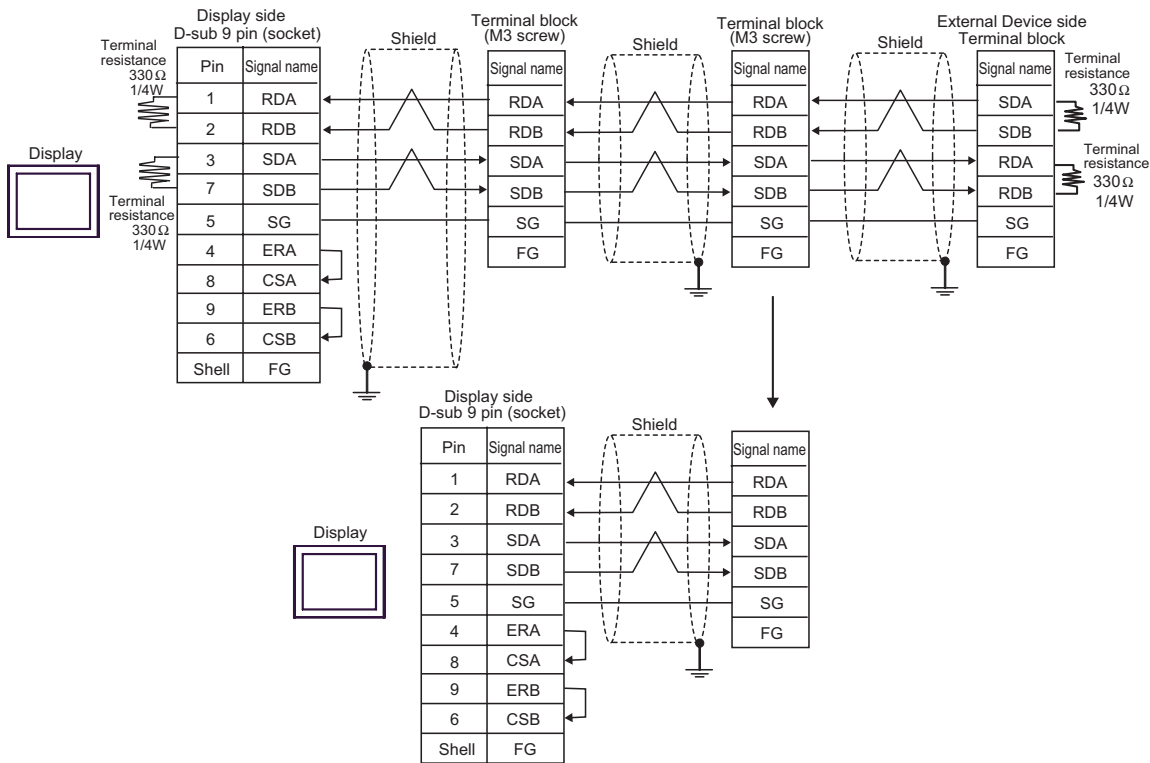
5A)



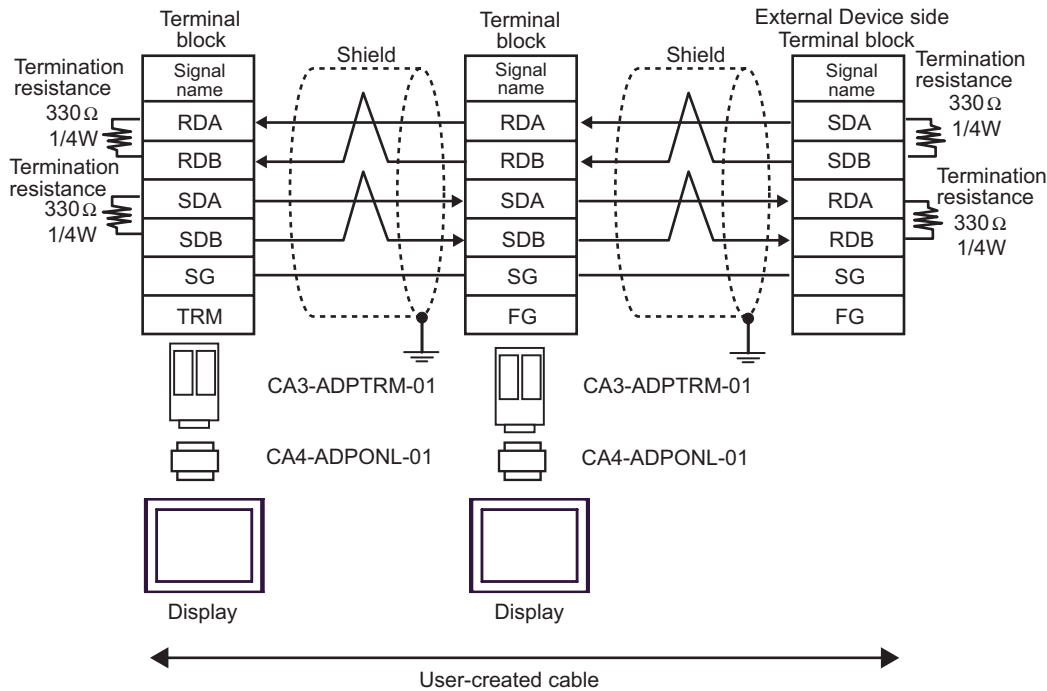
5B)



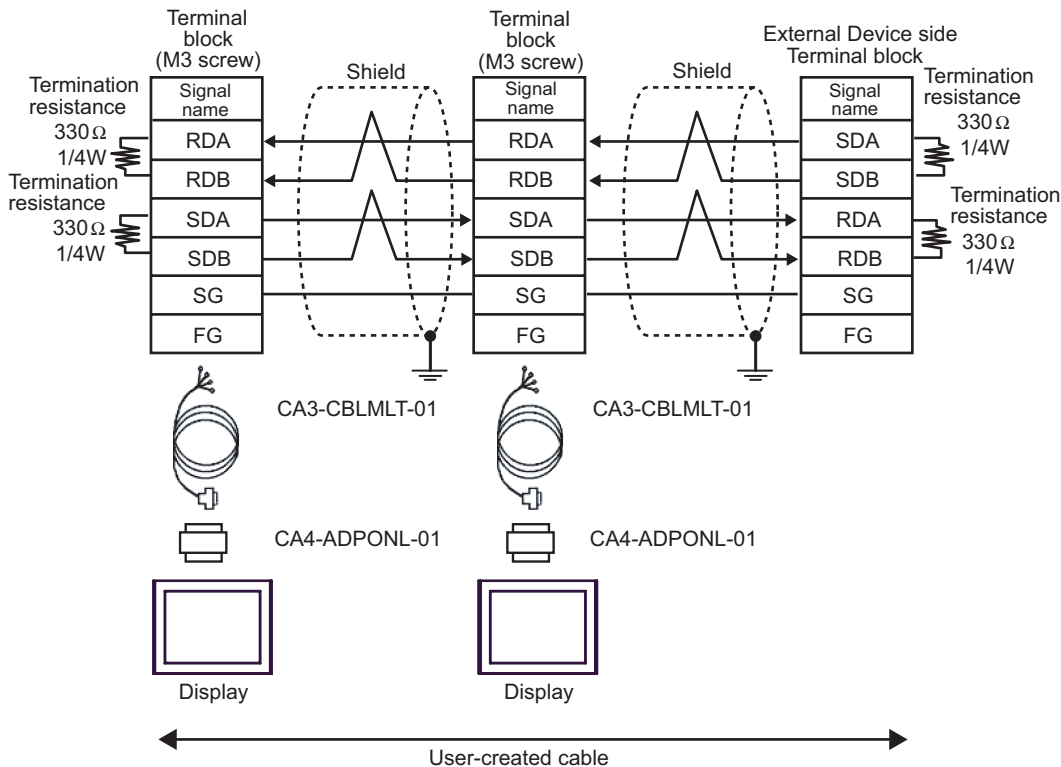
5C)



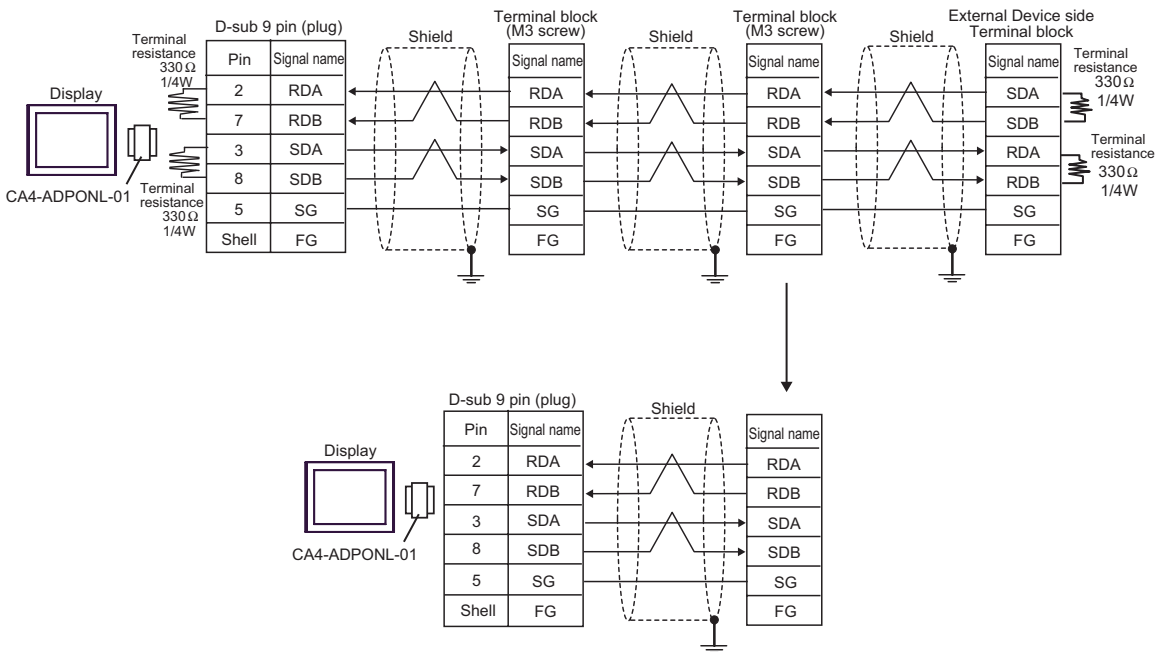
5D)



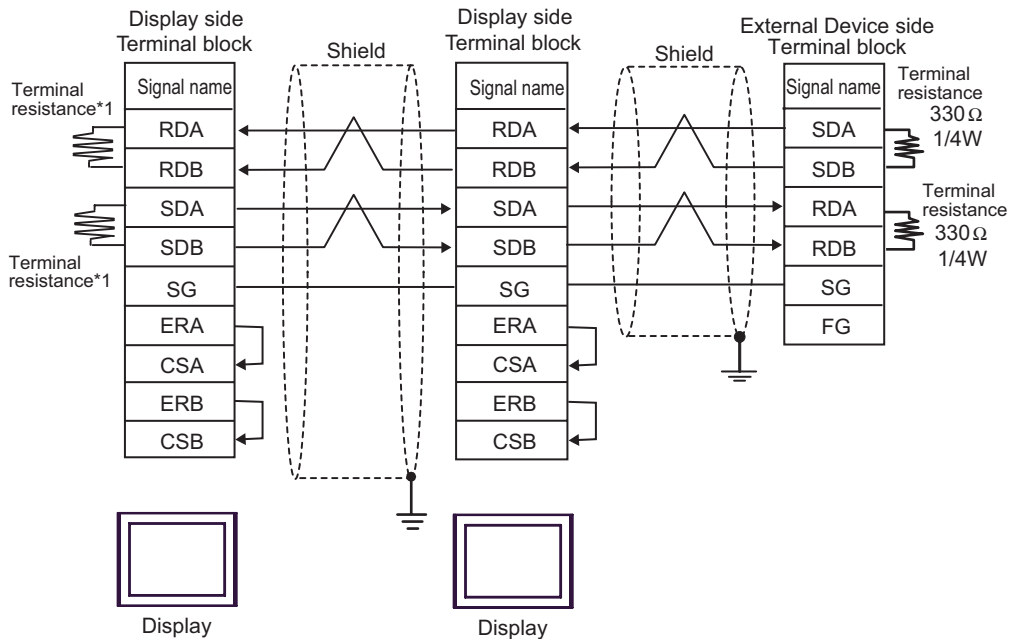
5E)



5F)



5G)

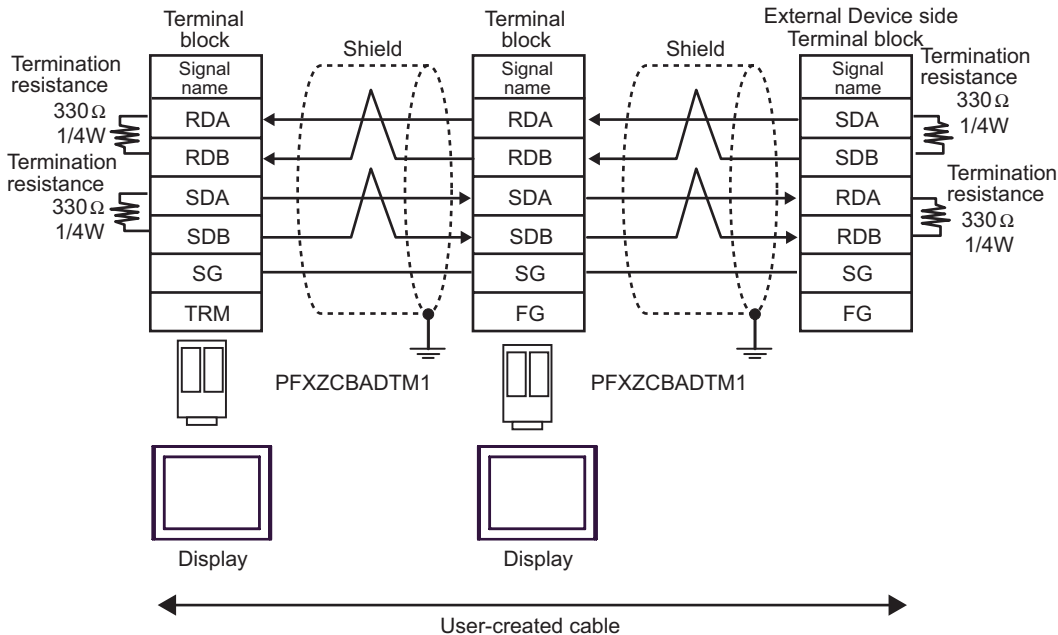


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

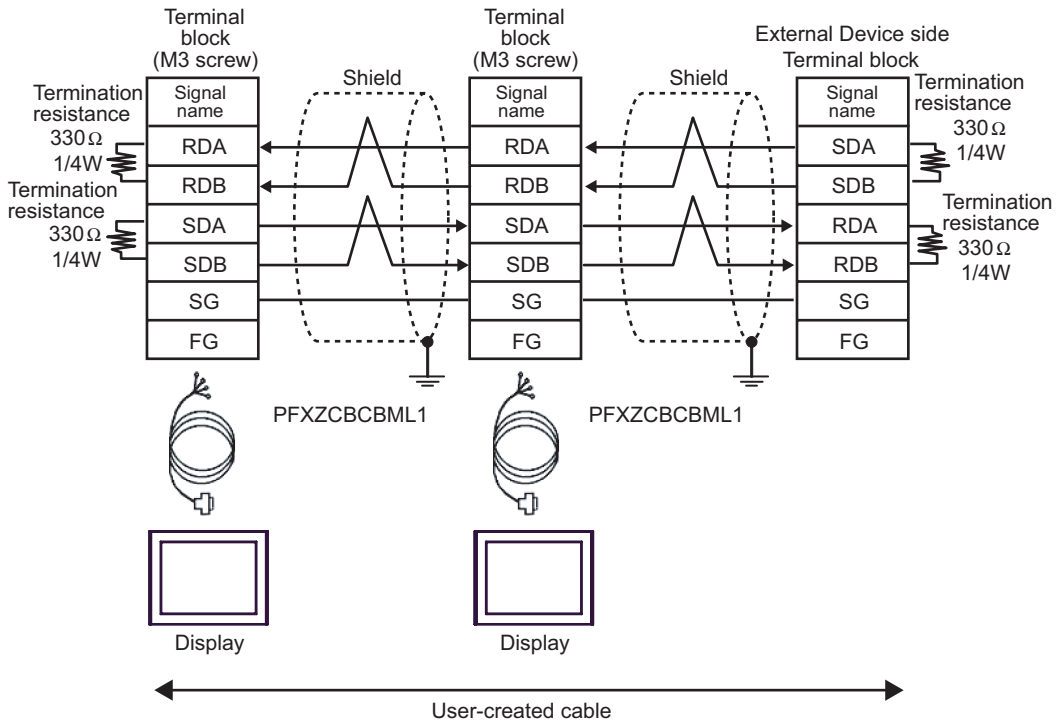
DIP Switch No.	Set Value
1	ON
2	OFF
3	ON
4	OFF

For the Displays other than that used as the terminal, set the DIP Switch 1-4 on the rear of the Display to OFF in the n:1 connection.

5H)



5I)



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	X000 - X377	X000 - X360	<div style="border: 1px solid black; padding: 2px; display: inline-block;">L/H</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">OCT 8</div> *1 *2
Output Relay	Y000 - Y377	Y000 - Y360		<div style="border: 1px solid black; padding: 2px; display: inline-block;">OCT 8</div> *1
Auxiliary Relay	M0000 - M7679	M0000 - M7664		<div style="border: 1px solid black; padding: 2px; display: inline-block;">÷ 16</div>
Special Auxiliary Relay	M8000 - M8511	M8000 - M8496		
State	S0000 - S4095	S0000 - S4080		
Timer (Contact)	TS000 - TS511	-----		
Counter (Contact)	CS000 - CS255	-----		
Timer (Current Value)	-----	TN000 - TN511		
Counter (Current Value)	-----	CN000 - CN199 CN200 - CN255		*3
Data Register	-----	D0000 - D7999		<div style="border: 1px solid black; padding: 2px; display: inline-block;">BIT F</div> *4 *5
Special Data Register	-----	D8000 - D8511		
Extension Register	-----	R00000 - R32767		<div style="border: 1px solid black; padding: 2px; display: inline-block;">BIT F</div> *6

*1 Specify word address only for the divisible value by 20oct. (Example: X0, X20, X40..., X360)

*2 Writing cannot be made to the address, where Input Terminals are allocated on External Device, from Display.

*3 CN200 to CN255 are 32-bit length counter.


Do not step over 32-bit counter to specify the counter address.

For example, when you read or write more than 2 words from CN199, error messages such as "Out of range devices exist in write devices (Address: (Device Address))" or "Out of range devices exist in read devices (Address: (Device Address))" are displayed.

*4 D1000 to D2499 in FX1S Series and FX0N Series are file registers. You can specify the file capacity by the ladder software to access to the file register. When you access the address of the nonexistent file register, error response (error code: 06(0x06)) will be returned from External Device.

- *5 Do not step over the special data register to specify the data register address. For example, when you read or write more than 2 words from D7999, error messages such as "Out of range devices exist in write devices (Address: (Device Address))" or "Out of range devices exist in read devices (Address: (Device Address))" are displayed.
- *6 Supported only by FX3UC, FX3U, FX3G and FX3GC.

NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.
Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
 - 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	X	0080	Value of word address divided by 0x10
Output Relay	Y	0081	Value of word address divided by 0x10
Auxiliary Relay	M	0082	Value of word address divided by 16
Special Auxiliary Relay	M	0083	Value of word address divided by 16
State	S	0087	Value of word address divided by 16
Timer (Current Value)	TN	0060	Word Address
Counter (Current Value) [CN000 - CN199]	CN	0061	Word Address
Counter (Current Value) [CN200 - CN255]	CN	0064	Word Address
Data Register	D	0000	Word Address
Special Data Register	D	0001	Word Address
Extension Register	R	000F	Word Address

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	<p>Displays IP address or device address of External Device where error occurs, or error codes received from External Device.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;"> NOTE </div> <ul style="list-style-type: none"> • IP address is displayed such as "IP address(Decimal): MAC address(Hex)". • Device address is displayed 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 "Display-related errors" in "Maintenance/Troubleshooting Guide" for details on the error messages common to the driver.
-