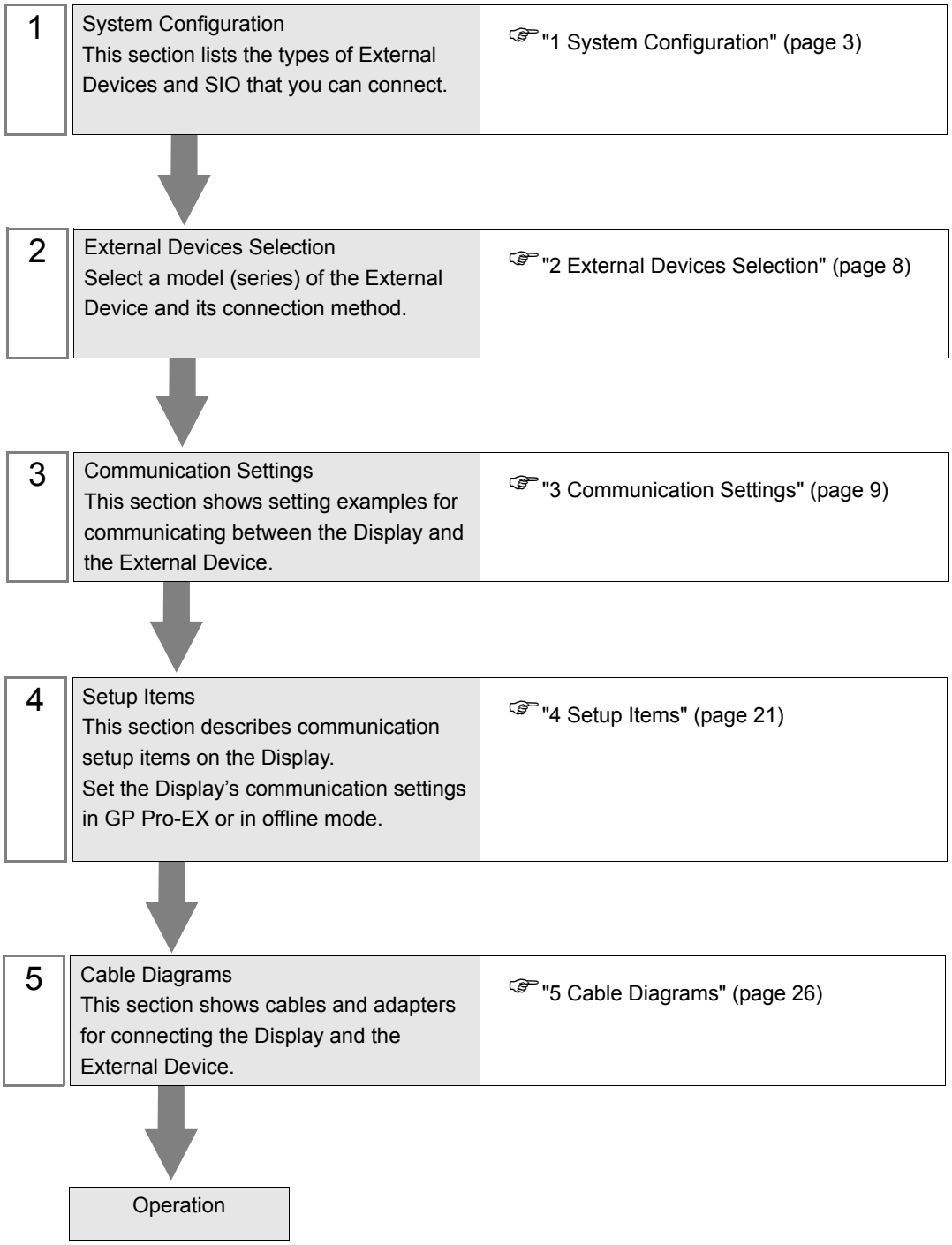
Sanmei Electronics Co., LTD.

Si/CutyAxis Series SIO Driver

Introduction

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

In this manual, the connection procedure is described in the sections identified below:



1 System Configuration

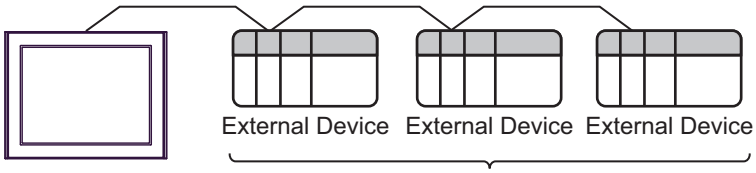
The following table lists system configurations for connecting Sanmei Electronics Co., LTD. External Devices and the Display.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
Si2	Si-02LDE Si-02DE Si-05LDE Si-05DE	RM connector on External Device	RS-422/485 (2 wire)	"Setting Example 1" (page 9)	"Cable Diagram 1" (page 26)
CutyAxis2	QT-0P3AXE QT-0P5AXE QT-001AXE QT-002AXE QT-004AXE	CN4 connector on External Device	RS-232C	"Setting Example 2" (page 11)	"Cable Diagram 2" (page 40)
			RS-422/485 (4 wire)	"Setting Example 3" (page 13)	"Cable Diagram 3" (page 41)
CutyAxis3	RT-0P3AXE RT-0P5AXE RT-001AXE RT-002AXE RT-004AXE RT-008AXE	CN4 connector on External Device	RS-232C	"Setting Example 4" (page 15)	"Cable Diagram 2" (page 40)
			RS-422/485 (4 wire)	"Setting Example 5" (page 17)	"Cable Diagram 3" (page 41)
			RS-422/485 (2 wire)	"Setting Example 6" (page 19)	"Cable Diagram 4" (page 50)

■ Connection Configuration

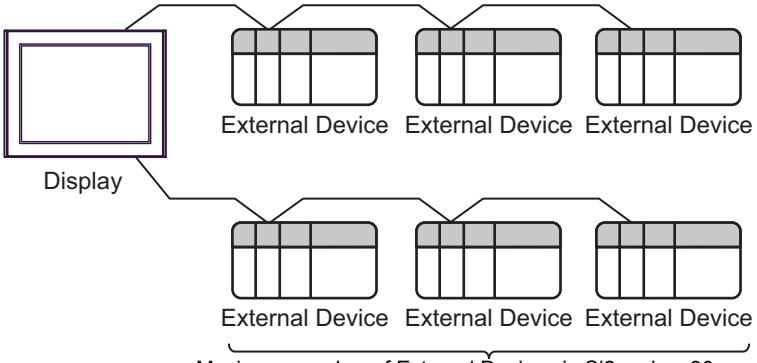
- 1:1 Connection

- 1:n Connection (when using either COM1 or COM2)



Maximum number of External Devices in Si2 series: 15
Maximum number of External Devices in CutyAxis2 series: 10
Maximum number of External Devices in CutyAxis3 series: 10

- 1:n Connection (when using both COM1 and COM2)



Maximum number of External Devices in Si2 series: 30
Maximum number of External Devices in CutyAxis2 series: 20
Maximum number of External Devices in CutyAxis3 series: 20

■ 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
PE-4000B Atom N270	COM1, COM2	-	-
PE-4000B Atom N2600	COM1, COM2	COM3*4 , COM4*4, COM5*4, COM6*4	COM3*4, COM4*4, COM5*4, COM6*4
PS5000 (Slim Panel Type Core i3 Model) *5 *6	COM1, COM2*4	COM2*4	COM2*4
PS5000 (Slim Panel Type Atom Model) *5 *6	COM1, COM2*7	COM2*7	COM2*7
PS5000 (Enclosed Panel Type)*8	COM1	-	-
PS5000 (Modular Type PFXPU/PFXPP)*5 *6 PS5000 (Modular Type PFXPL2B5-6)	COM1*7	COM1*7	COM1*7
PS5000 (Modular Type PFXPL2B1-4)	COM1, COM2*7	COM2*7	COM2*7

*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.

*4 Set up the SIO type with the BIOS. Please refer to the IPC manual for details of BIOS.

*5 When setting up communication between an External Device and the RS-232C/422/485 interface module, use the IPC (RS-232C) or PS5000 (RS-422/485) cable diagrams. However, when using PFXZPBMPR42P2 in a RS-422/485 (4-wire) configuration with no flow control, connect 7.RTS+ and 8.CTS+, and connect 6.RTS- and 9.CTS-.
When using RS-422/485 communication with External Devices, you may need to reduce the transmission speed and increase the TX Wait time.

*6 To use RS-422/485 communication on the RS-232C/422/485 interface module, the DIP Switch setting is required. Please refer to "Knowledge Base" (FAQs) on the support site. (http://www.pro-face.com/trans/en/manual/1001.html)

Settings	FAQ ID
PFXZPBMPR42P2, RS422/485 change method	FA263858
PFXZPBMPR42P2 termination resistor setting	FA263974
PFXZPBMPR44P2, RS422/485 change method	FA264087
PFXZPBMPR44P2 termination resistor setting	FA264088

*7 Set up the SIO type with the DIP Switch. Please refer to the IPC manual for details of DIP Switch. The BOX Atom has not a switch to set the RS-232C, RS-422/485 mode. Use the BIOS for the setting.

*8 For the connection with the External Device, on the user-created cable read as if the connector on the Display-side is a M12 A-coding 8 pin socket. The pin assignment is the same as described in the cable diagram. For the M12 A-coding connector, use PFXZPSCNM122.

DIP Switch settings (PL3000 / PS3000 Series)

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.

RS-422/485 (4 wire)

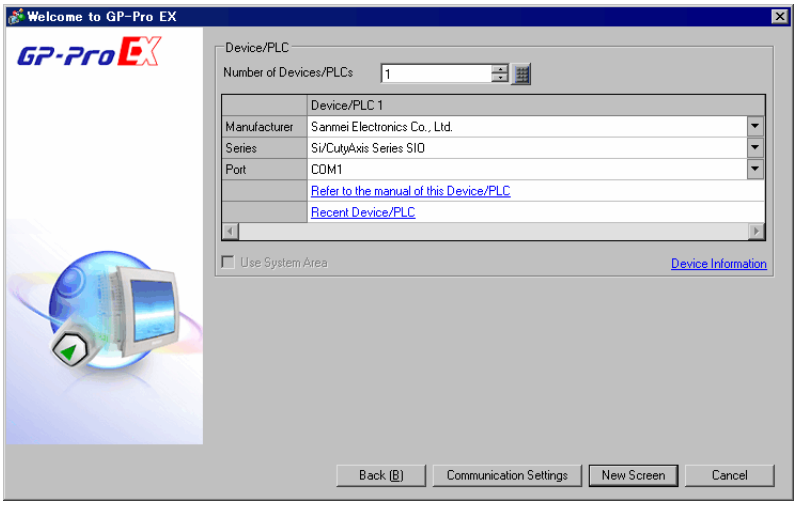
DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (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	

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 External Devices Selection

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 "Sanmei Electronics Co., Ltd.".
Series	Select the External Device model (series) and the connection method. Select "Si/CutyAxis Series SIO". In System configuration, make sure the External Device you are connecting is supported by "Si/CutyAxis Series SIO". ☞ "1 System Configuration" (page 3)
Port	Select the Display port to be connected to the External Device.
Use System Area	Not available for this driver.

3 Communication Settings

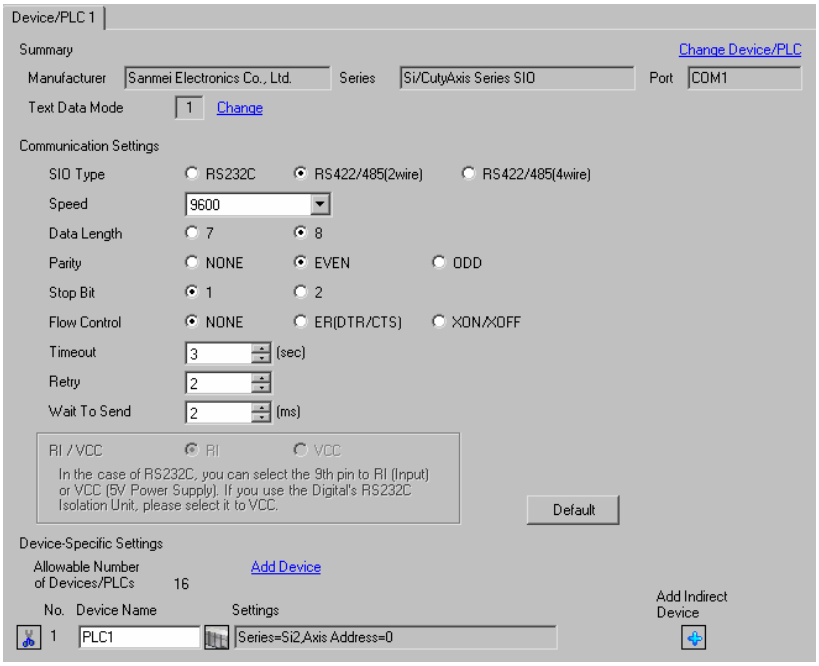
This section provides examples of communication settings recommended by Pro-face for the Display and the External Device.

3.1 Setting Example 1

■ GP-Pro EX Settings

◆ Communication Settings

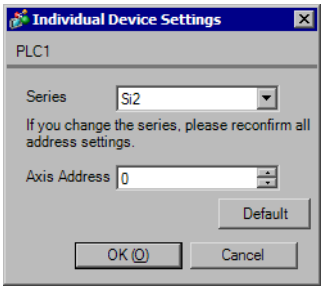
To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ 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.



■ External Device Settings

For External Device communication settings, use the ladder software (Si-Wave V2.08).

Refer to your External Device manual for details.

1 Start up the ladder software.

2 Open [Parameter] window.

3 Select parameter to set.

4 Input setting value as shown below in each parameter.

Parameter No.	Setting Value	Setup Description
00	0	Axis Number
43	0	COM. Format

5 Click [Write in to Servo].

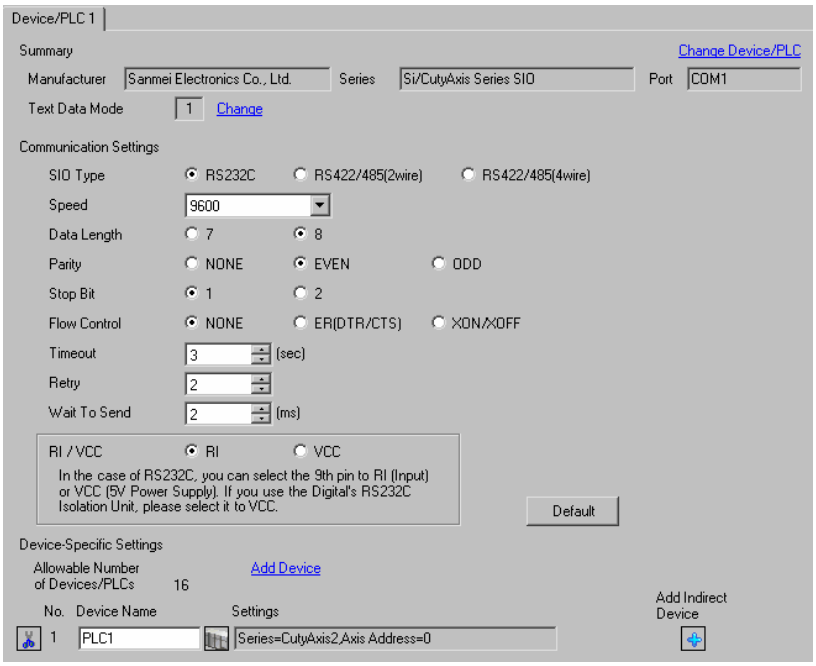
Communication settings are complete.

3.2 Setting Example 2

■ GP-Pro EX Settings

◆ Communication Settings

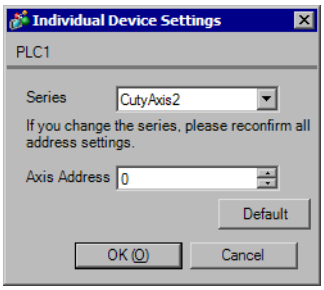
To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ 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.



■ External Device Settings

For External Device communication settings, use the ladder software (CutyWaveII).

Refer to your External Device manual for details.

1 Start up the ladder software.

2 Open [Setting Parameters] window.

3 Select parameter to set.

4 Input setting value as shown below in each parameter.

Parameter No.	Setting Value	Setup Description
27	0	Axis No.

5 Click [Export Data].

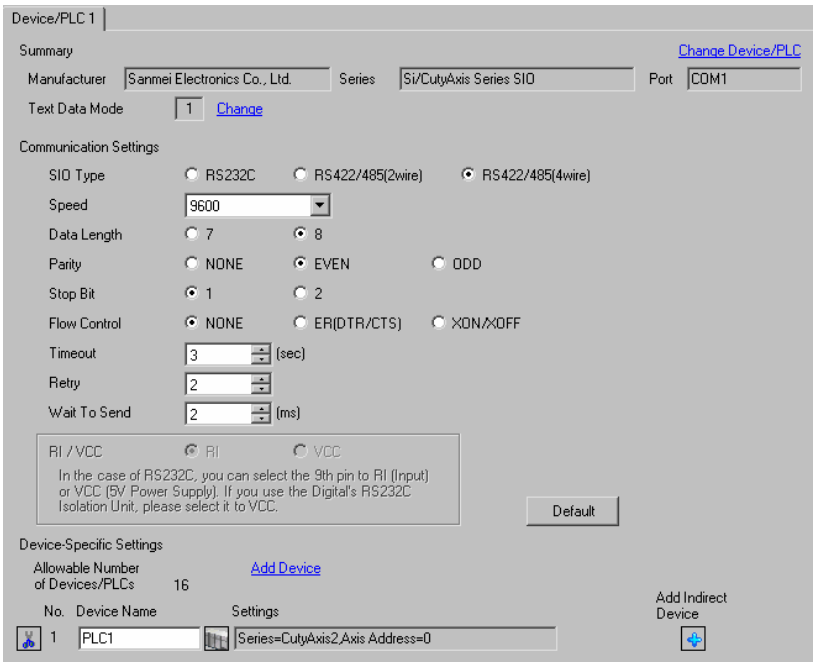
Communication settings are complete.

3.3 Setting Example 3

■ GP-Pro EX Settings

◆ Communication Settings

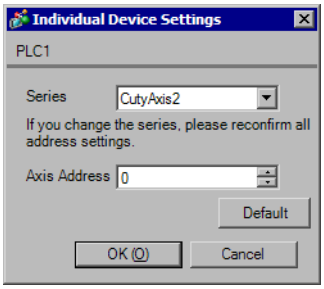
To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ 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.



■ External Device Settings

For External Device communication settings, use the ladder software (CutyWaveII).

Refer to your External Device manual for details.

1 Start up the ladder software.

2 Open [Setting Parameters] window.

3 Select parameter to set.

4 Input setting value as shown below in each parameter.

Parameter No.	Setting Value	Setup Description
27	0	Axis No.

5 Click [Export Data].

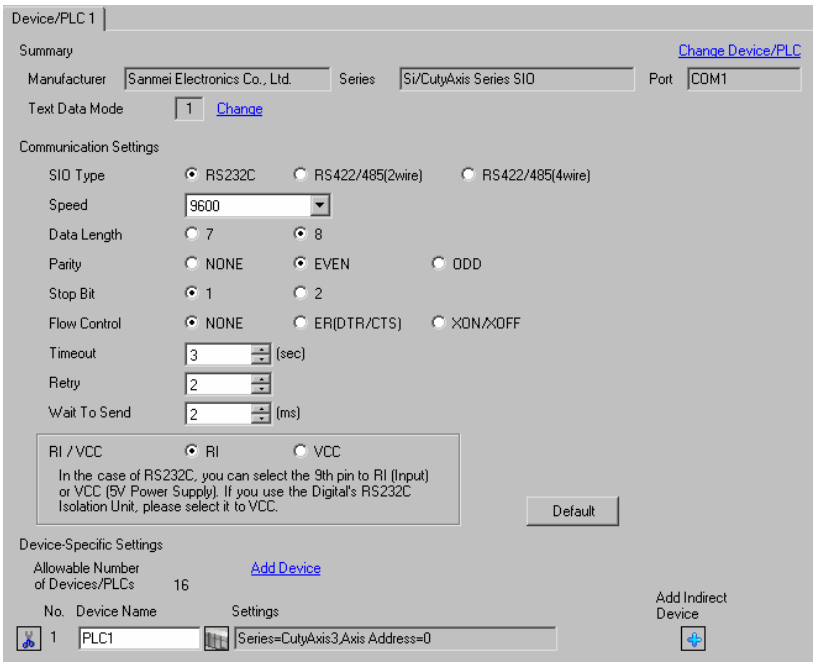
Communication settings are complete.

3.4 Setting Example 4

■ GP-Pro EX Settings

◆ Communication Settings

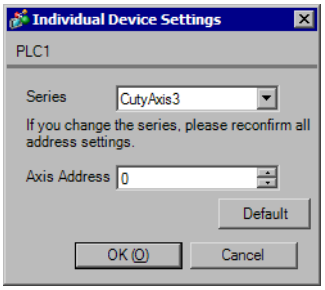
To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ 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.



■ External Device Settings

For External Device communication settings, use the ladder software (CutyWave3).

Refer to your External Device manual for details.

1 Start up the ladder software.

2 Open [Setting Parameters] window.

3 Select parameter to set.

4 Input setting value as shown below in each parameter.

Parameter No.	Setting Value	Setup Description
27	0	Axis No.
34	0	Protocol Setting(bit)

5 Click [Export Data].

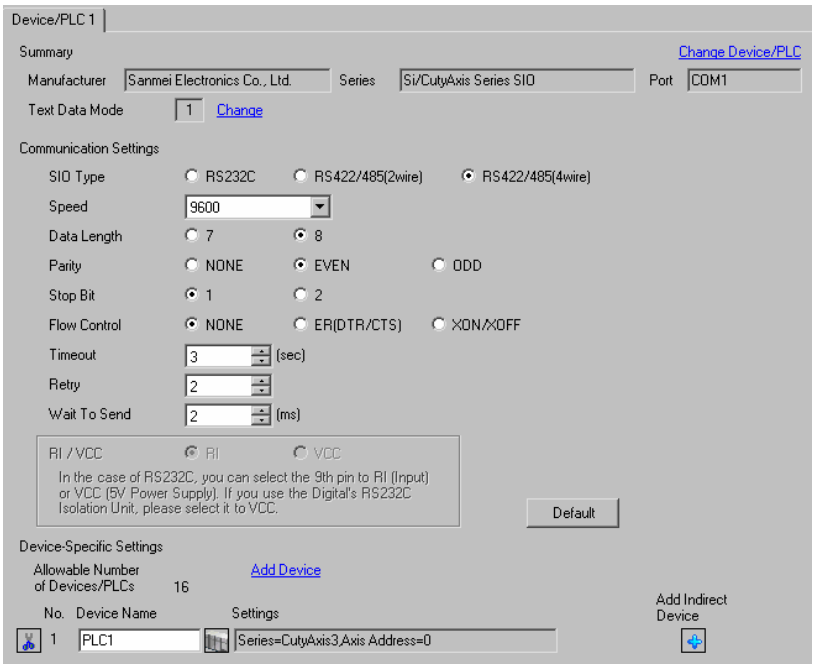
Communication settings are complete.

3.5 Setting Example 5

■ GP-Pro EX Settings

◆ Communication Settings

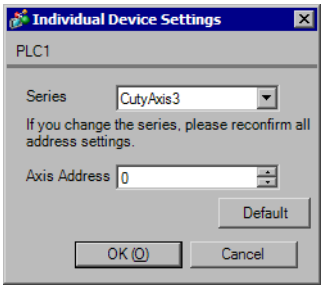
To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ 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.



■ External Device Settings

For External Device communication settings, use the ladder software (CutyWave3).

Refer to your External Device manual for details.

1 Start up the ladder software.

2 Open [Setting Parameters] window.

3 Select parameter to set.

4 Input setting value as shown below in each parameter.

Parameter No.	Setting Value	Setup Description
27	0	Axis No.
34	0	Protocol Setting(bit)

5 Click [Export Data].

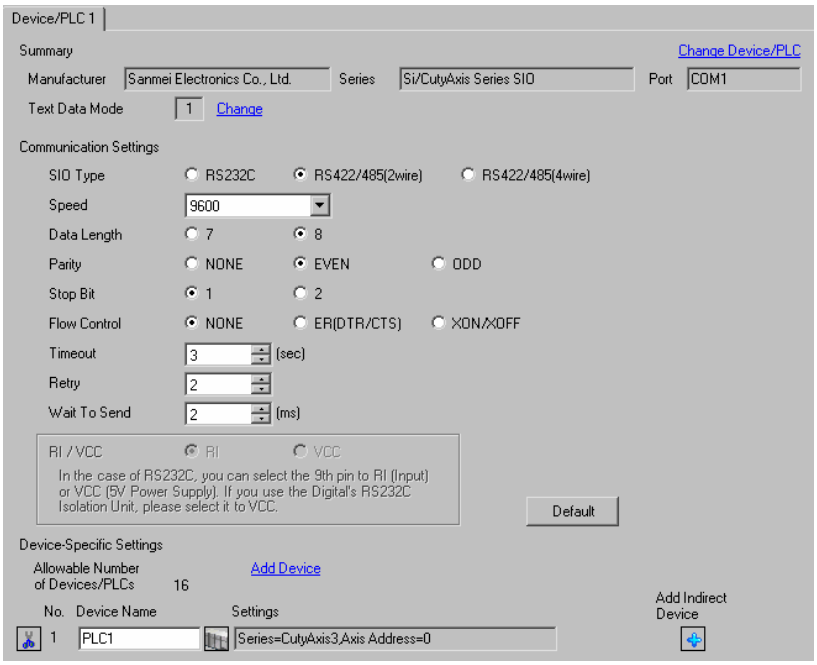
Communication settings are complete.

3.6 Setting Example 6

■ GP-Pro EX Settings

◆ Communication Settings

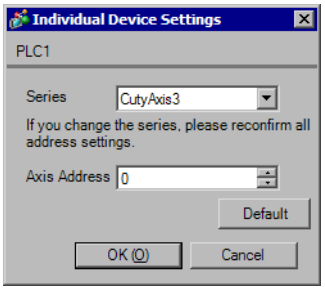
To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ 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.



■ External Device Settings

For External Device communication settings, use the ladder software (CutyWave3).

Refer to your External Device manual for details.

1 Start up the ladder software.

2 Open [Setting Parameters] window.

3 Select parameter to set.

4 Input setting value as shown below in each parameter.

Parameter No.	Setting Value	Setup Description
27	0	Axis No.
34	8	Protocol Setting(bit)

5 Click [Export Data].

Communication settings are complete.

4 Setup Items

Set up the Display's communication settings in GP Pro-EX or in the Display's offline mode.

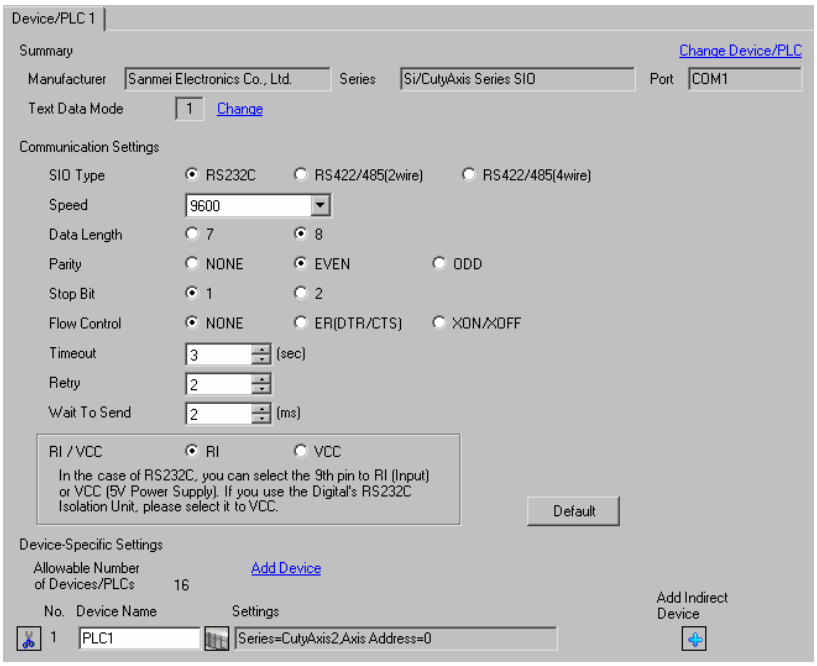
The setting of each parameter must match that of the External Device.

☞"3 Communication Settings" (page 9)

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].



Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device. IMPORTANT In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the Display. If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed. Refer to your Display manual for details on the serial interface specifications.
Speed	Select communication 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.

Continued on the next page.

Setup Items	Setup Description
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	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

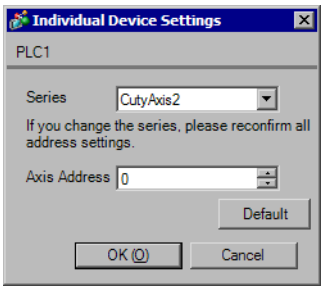
- Refer to the GP-Pro EX Reference Manual for Indirect Device.

  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
Series	Select the series of the External Device.
Axis Address	Enter the axis address of the External Device. **NOTE** • Use an integer from 0 to 14 to enter the axis address of the External Device, when using the Si2 series. • Use an integer from 0 to 15 to enter the axis address of the External Device, when using the CutyAxis2 series or CutyAxis3 series.

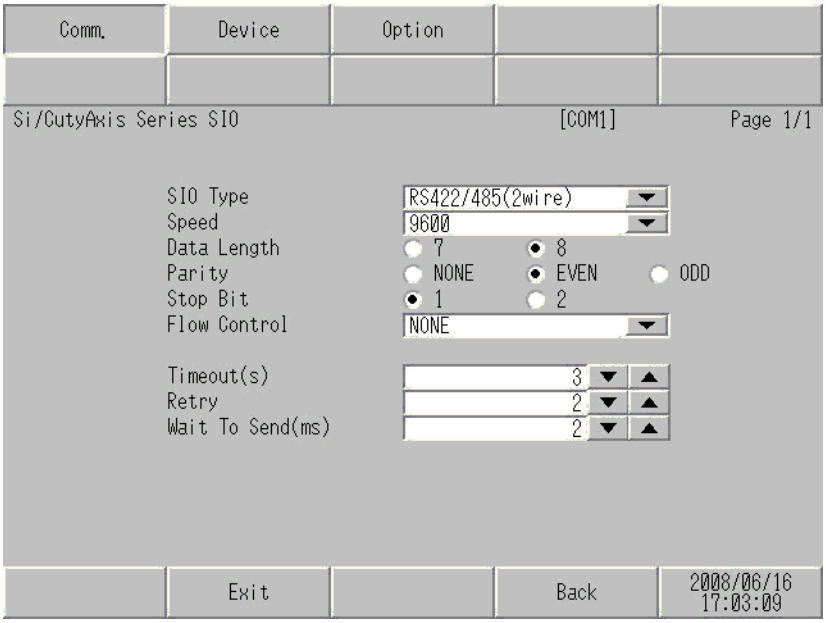
4.2 Setup Items in Offline Mode

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 Equipment Settings] in offline mode. Touch the External Device you want to set from the displayed list.



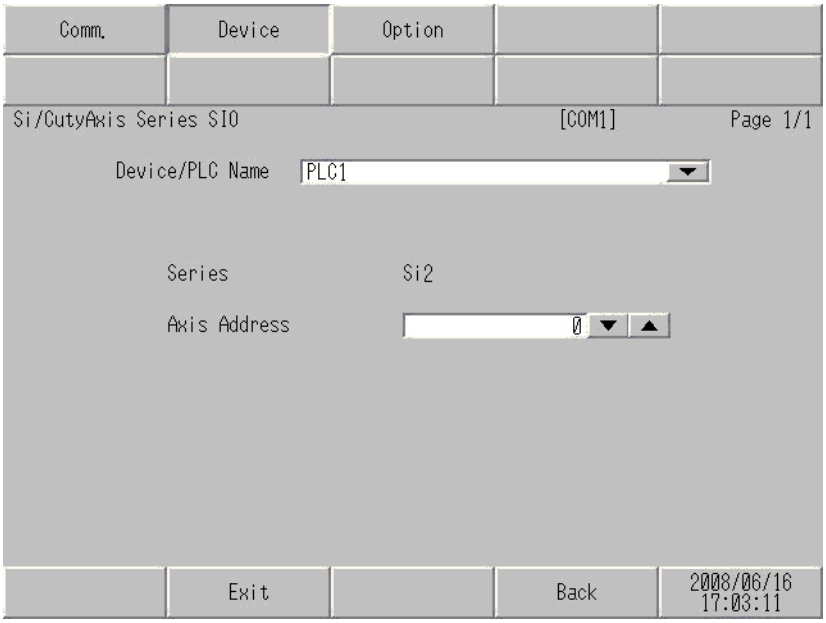
Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device. **IMPORTANT** In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the Display. If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed. Refer to your Display manual for details on the serial interface specifications.
Speed	Select communication 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.

Continued on the next page.

Setup Items	Setup Description
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.

■ Device Setting

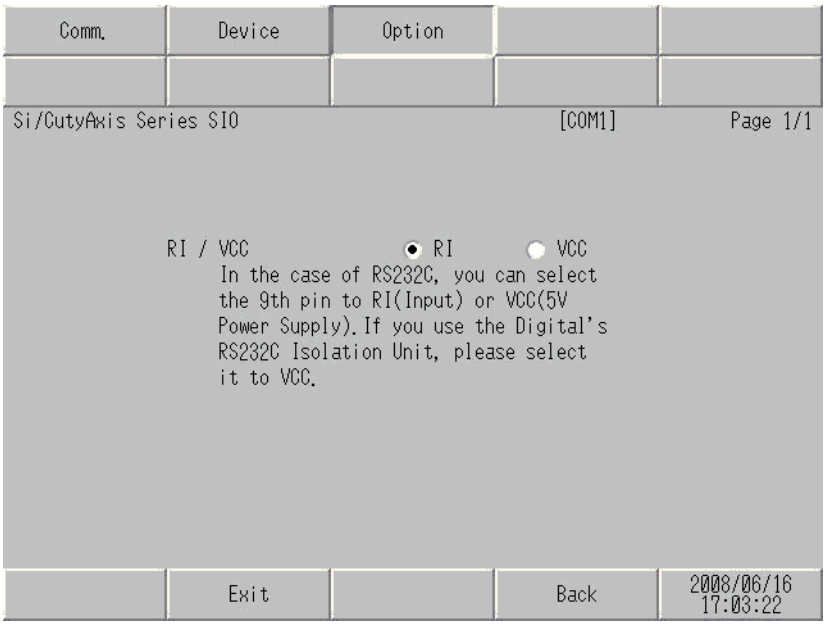
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].



Setup Items	Setup Description
Device/PLC Name	Select the External Device to set. Device name is a title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Series	Display the series of the External Device.
Axis Address	Enter the axis address of the External Device. **NOTE** • Use an integer from 0 to 14 to enter the axis address of the External Device, when using the Si2 series. • Use an integer from 0 to 15 to enter the axis address of the External Device, when using the CutyAxis2 series or CutyAxis3 series.

■ Option

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



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

5 Cable Diagrams

The following cable diagrams may be different from cable diagrams recommended by Sanmei Electronics Co., LTD. Please be assured there is no operational problem in applying the cable diagrams shown in this manual.

- The FG pin of the External Device body must be D-class grounded. 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[*1] (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST[*2] (COM2) LT3000 (COM1)	1A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.
	1B	User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	

Display (Connection Port)	Cable		Notes
GP3000[*4] (COM2)	1C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.
	1D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	
IPC[*5]	1E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.
	1F	User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	
GP-4106 (COM1) GP-4116T (COM1)	1G	User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.

Display (Connection Port)	Cable		Notes
GP-4107 (COM1) GP-4*03T[*6] (COM2) GP-4203T (COM1)	1H	User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.
GP4000[*7] (COM2) GP-4201T (COM1) SP5000[*8] (COM1/2) SP-5B00 (COM2)	1I	RS-422 Terminal Block Conversion Adapterby Pro-face PFXZCBADTM1[*9] + User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.
	1B	User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	
LT-4*01TM (COM1) LT-Rear Module (COM1)	1J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81 + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.
PE-4000B[*10] PS5000[*10]	1K	User-created cable + RS485 master cable by Sanmei Electronics Co., LTD. Si-RSM□□M[*3] + RS485 slave cable by Sanmei Electronics Co., LTD. Si-RSS	Cable length: 20m max.

*1 All GP3000 models except AGP-3302B

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

*3 "□□" represents cable lengths.

*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. (Except PE-4000B, PS5000)
☞"■ IPC COM Port" (page 5)

*6 Except GP-4203T

*7 All GP4000 models except GP-4100 Series, GP-4*01TM, GP-Rear Module, GP-4201T and GP-4*03T

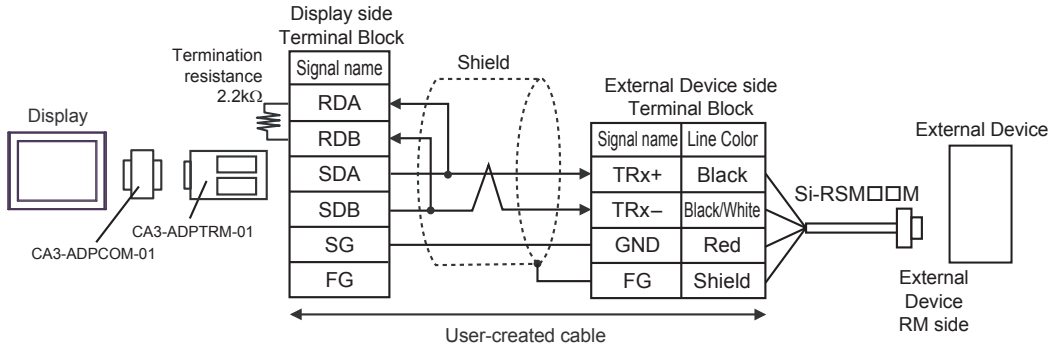
*8 Except SP-5B00

*9 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 1A.

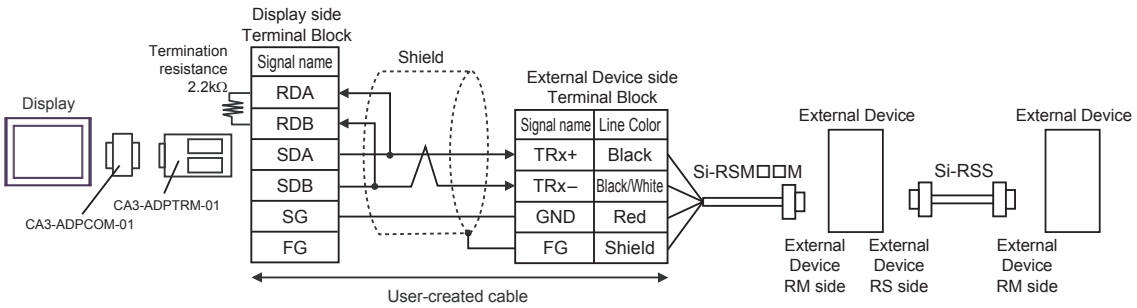
*10 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
☞"■ IPC COM Port" (page 5)

1A)

- 1:1 Connection

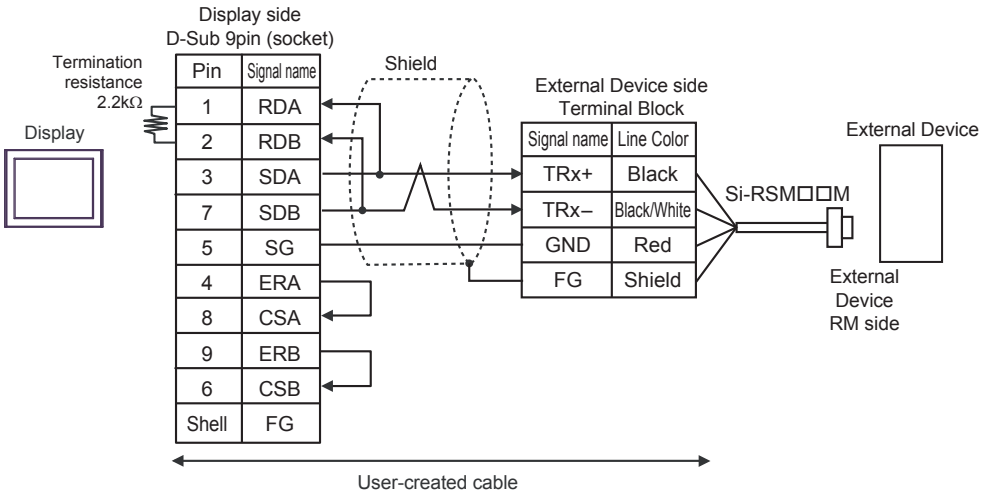


- 1:n Connection

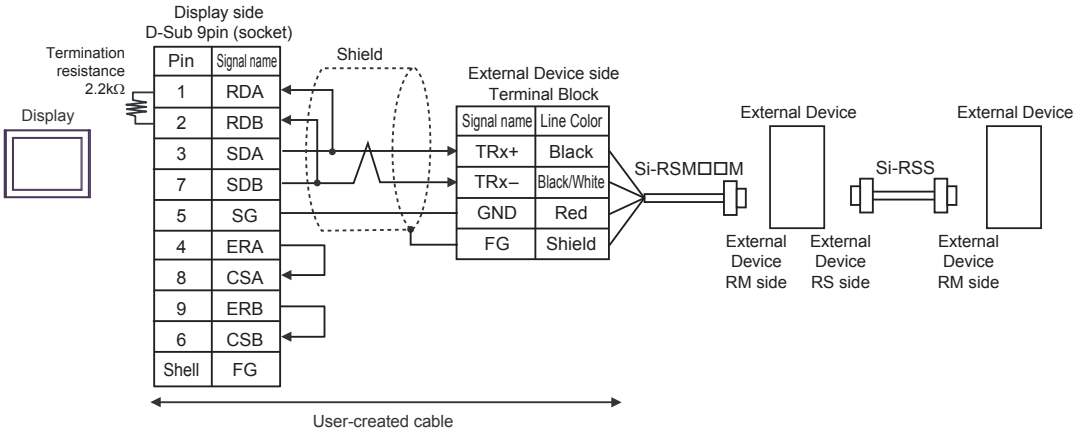


1B)

- 1:1 Connection

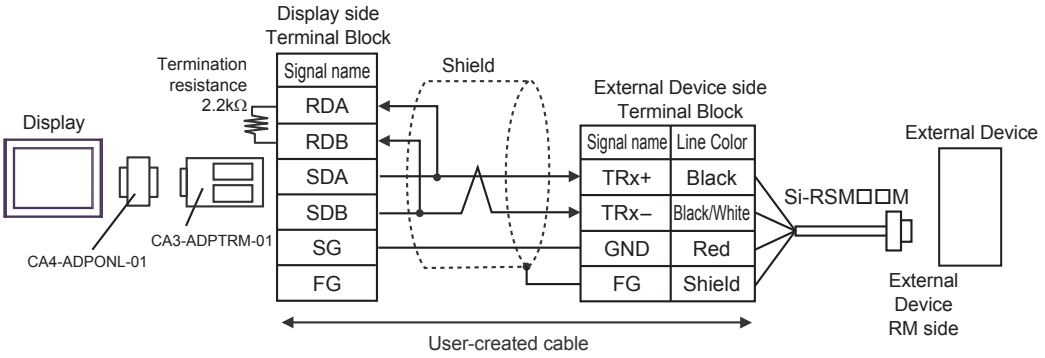


- 1:n Connection

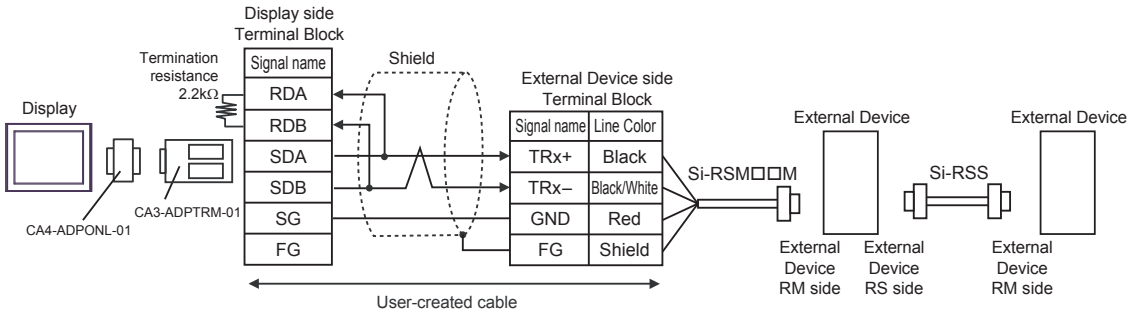


1C)

- 1:1 Connection

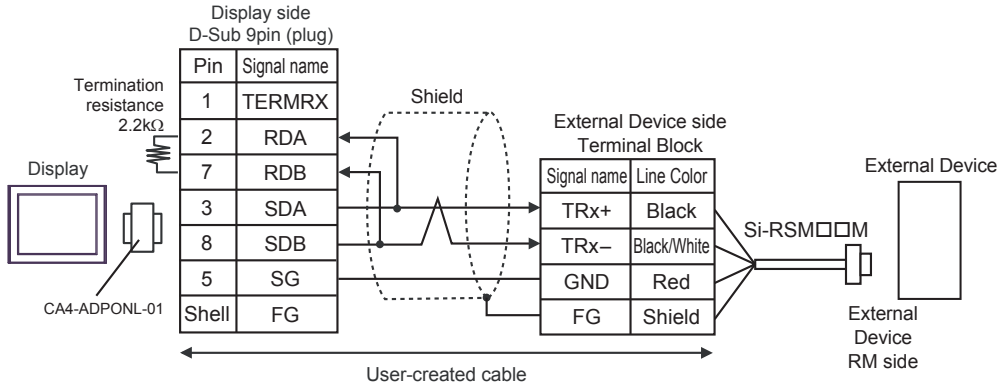


- 1:n Connection

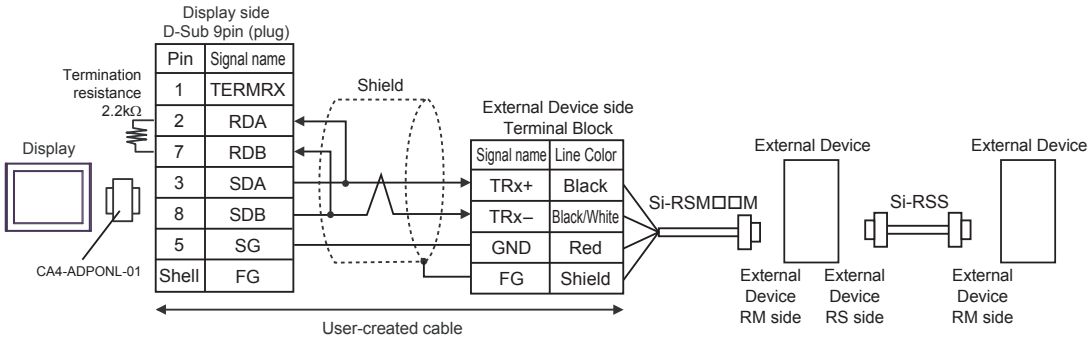


1D)

- 1:1 Connection

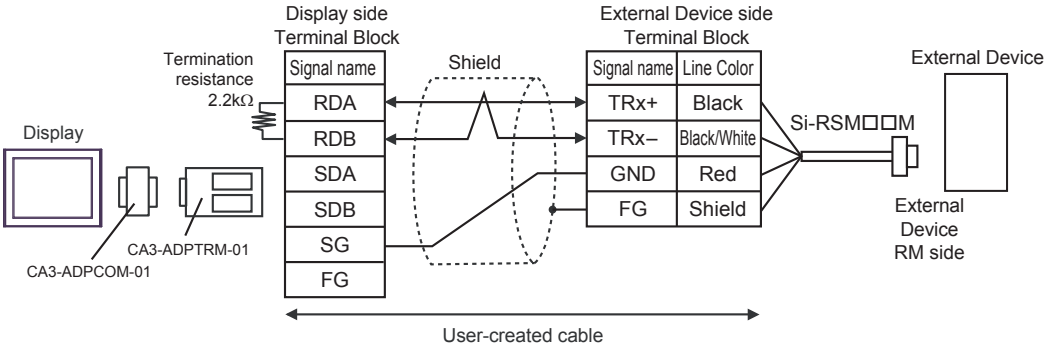


- 1:n Connection

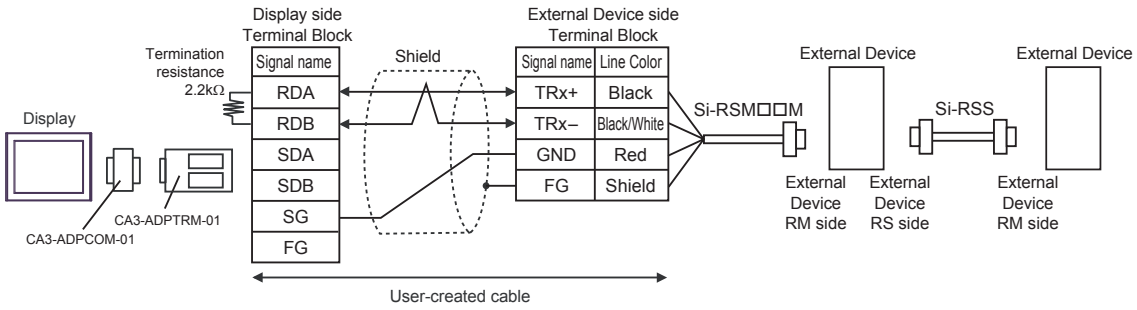


1E)

- 1:1 Connection

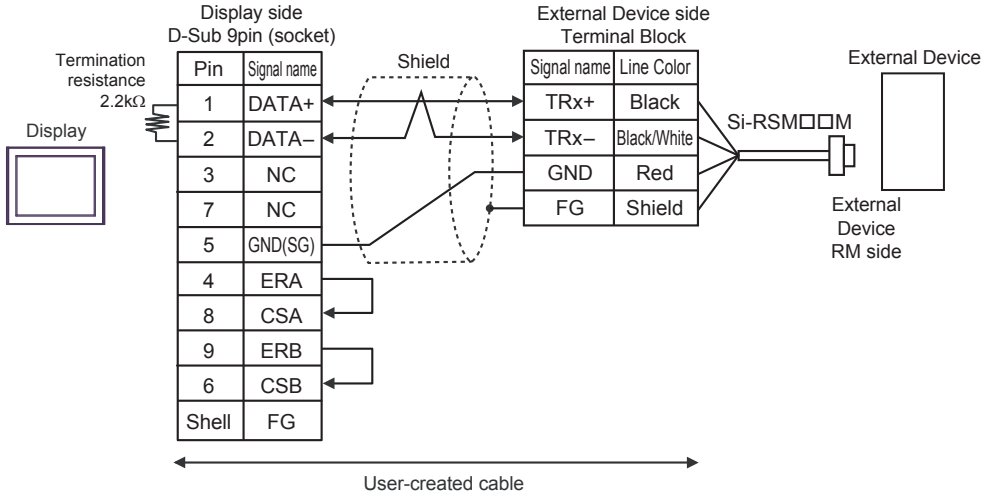


- 1:n Connection

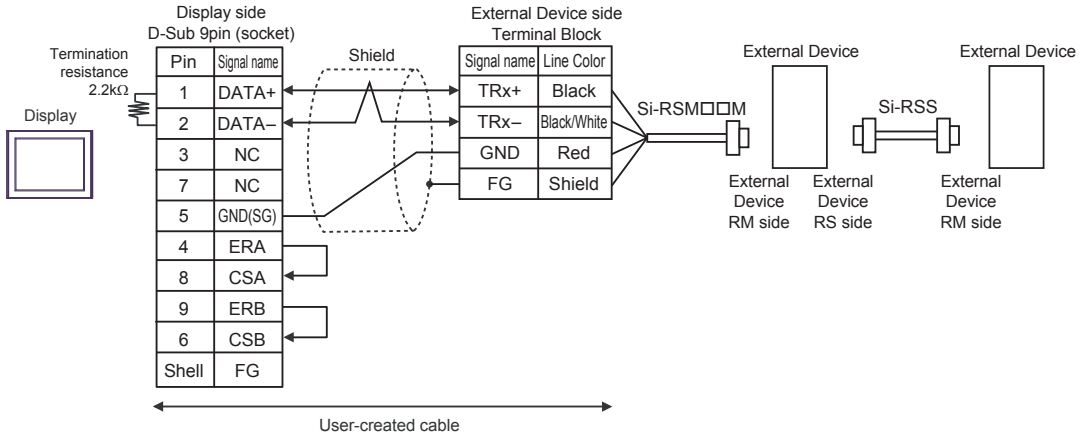


1F)

- 1:1 Connection

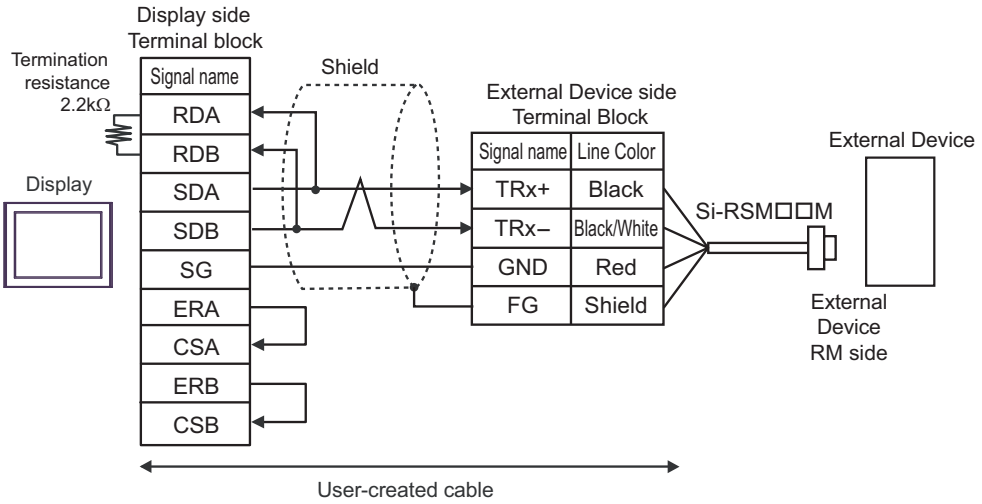


- 1:n Connection

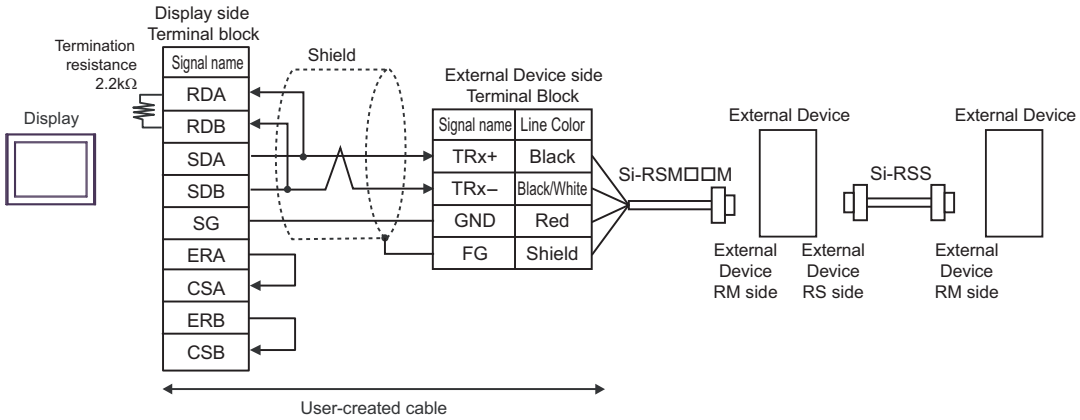


1G)

- 1:1 Connection



- 1:n Connection

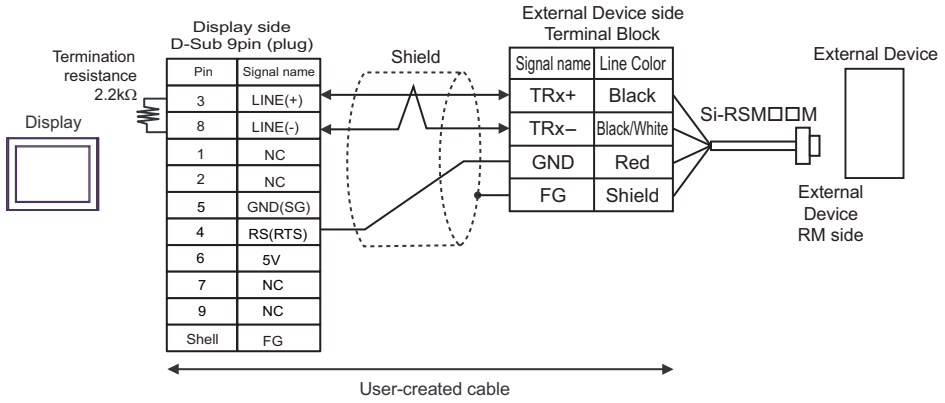


IMPORTANT

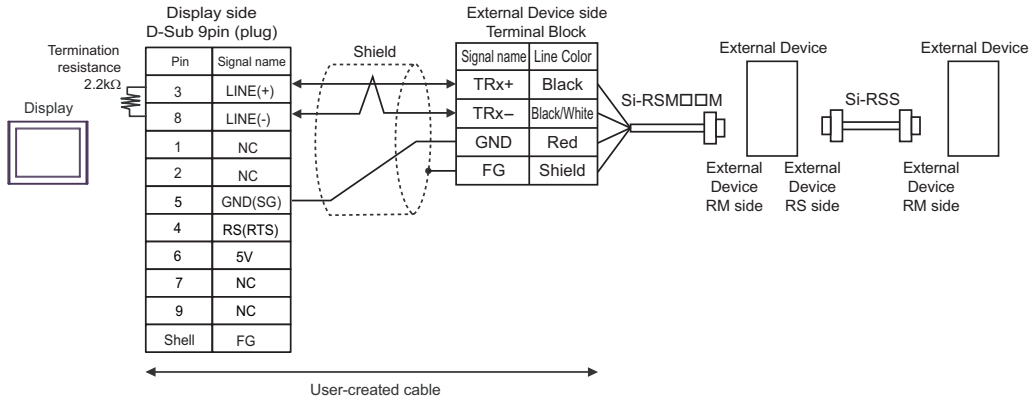
- Set the DIP Switch 1-4 on the rear of the Display to OFF.

1H)

- 1:1 Connection



- 1:n Connection



IMPORTANT

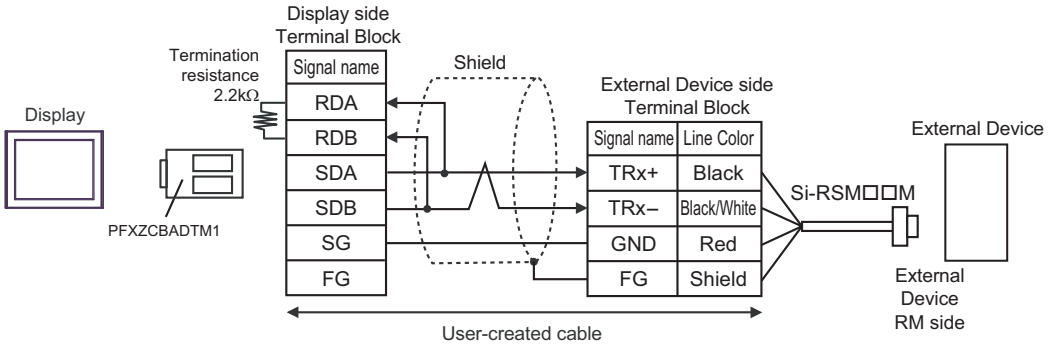
- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE

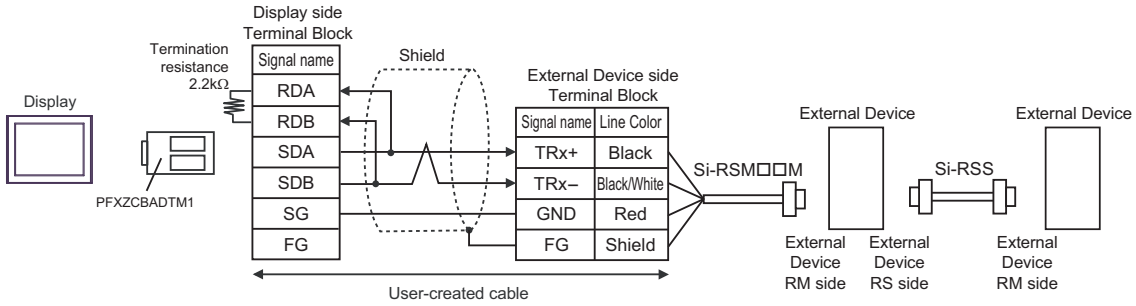
- In COM on the GP-4107, the SG and FG terminals are isolated.

1l)

- 1:1 Connection

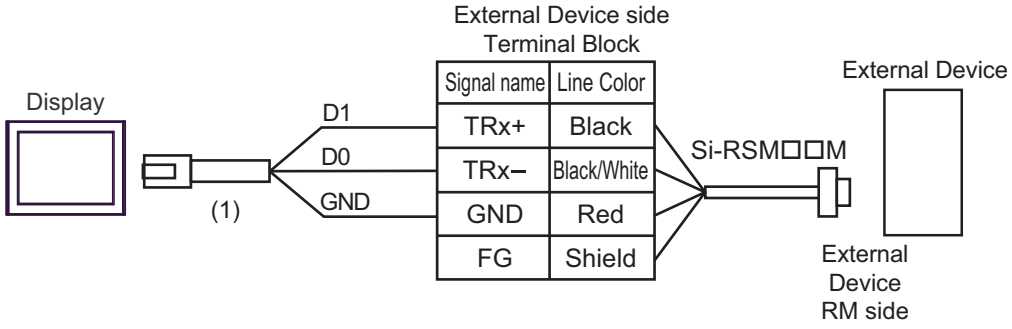


- 1:n Connection

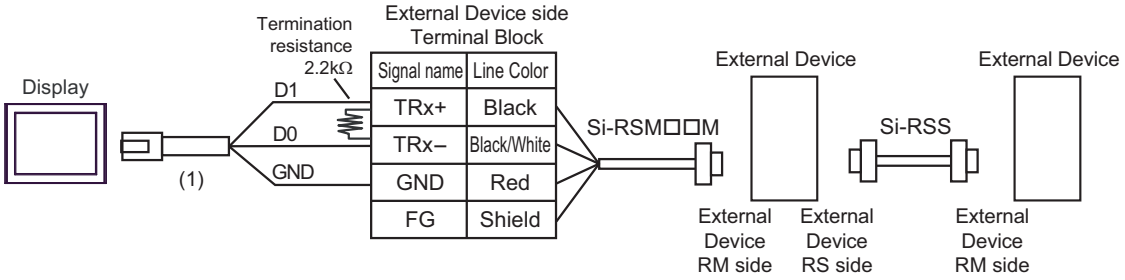


1J)

- 1:1 Connection



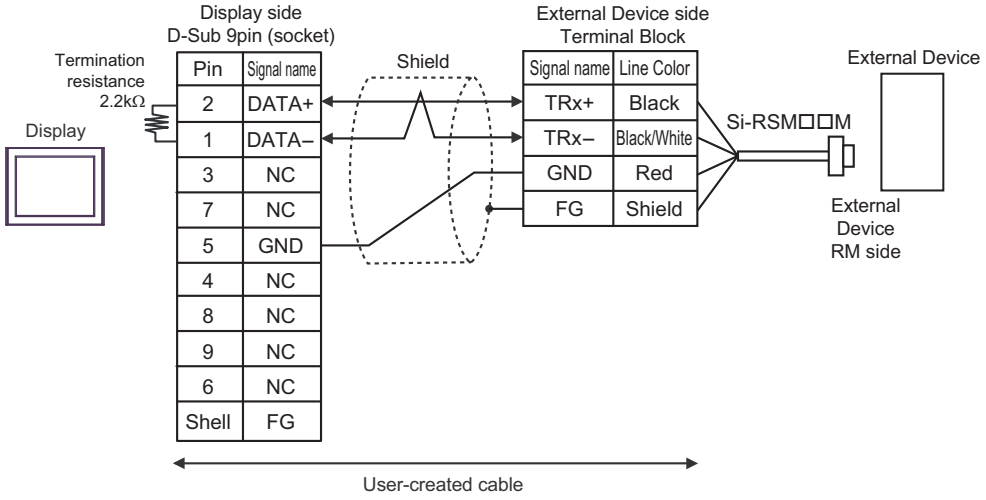
- 1:n Connection



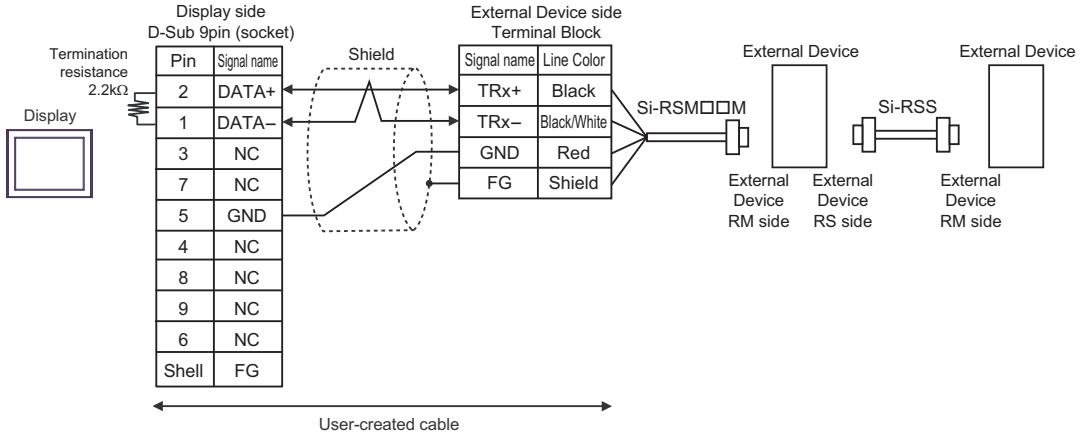
Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

1K)

- 1:1 Connection



- 1:n Connection



Cable Diagram 2

Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000*1 (COM1) SP5000*2 (COM1/2) SP-5B00 (COM1) ST (COM1) LT3000 (COM1) IPC*3 PC/AT	2A	RS232C cable by Sanmei Electronics Co., LTD. QT-RSC□□M*4	
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	2B	User-created cable + RS232C cable by Sanmei Electronics Co., LTD. QT-RSC□□M*3	

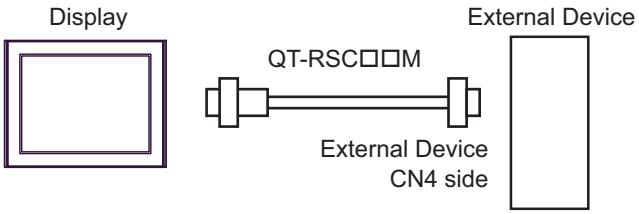
*1 All GP4000 models except GP-4100 Series and GP-4203T

*2 Except SP-5B00

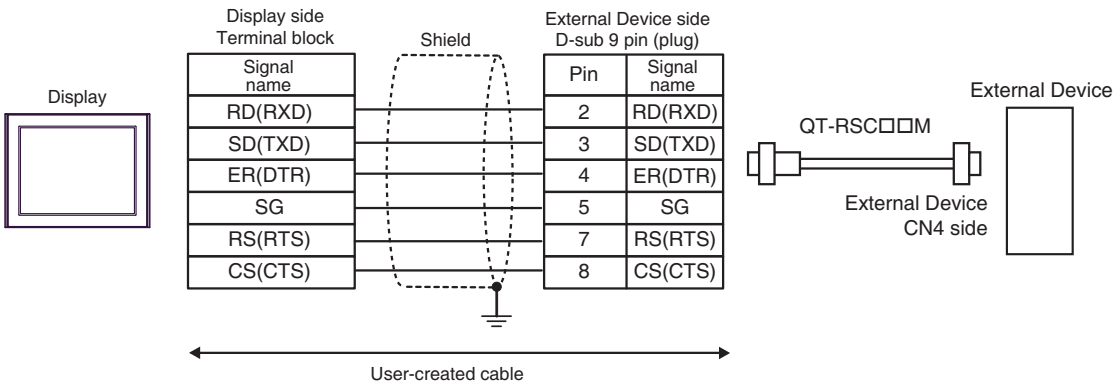
*3 Only the COM port which can communicate by RS-232C can be used.
☞"■ IPC COM Port" (page 5)

*4 "□□" represents cable lengths.

2A)



2B)



Cable Diagram 3

Display (Connection Port)	Cable		Notes
GP3000[*1] (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST[*2] (COM2) LT3000 (COM1) IPC[*3]	3A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*5]
	3B	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	
GP3000[*6] (COM2)	3C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*5]
	3D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	
GP-4106 (COM1) GP-4116T (COM1)	3E	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*5]

Display (Connection Port)	Cable		Notes
GP4000[*7] (COM2) GP-4201T (COM1) SP5000[*8] (COM1/2) SP-5B00 (COM2)	3F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1[*9] + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*5]
	3B	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	
PE-4000B[*10] PS5000[*10]	3G	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*4] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*5]

*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. (Except PE-4000B, PS5000)
☞"■ IPC COM Port" (page 5)

*4 "□□" represents cable lengths.

*5 When use the CutyAxis3 series, make the length of each cable 10m max.

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

*7 All GP4000 models except GP-4100 Series, GP-4*01TM, GP-Rear Module, GP-4201T and GP-4*03T

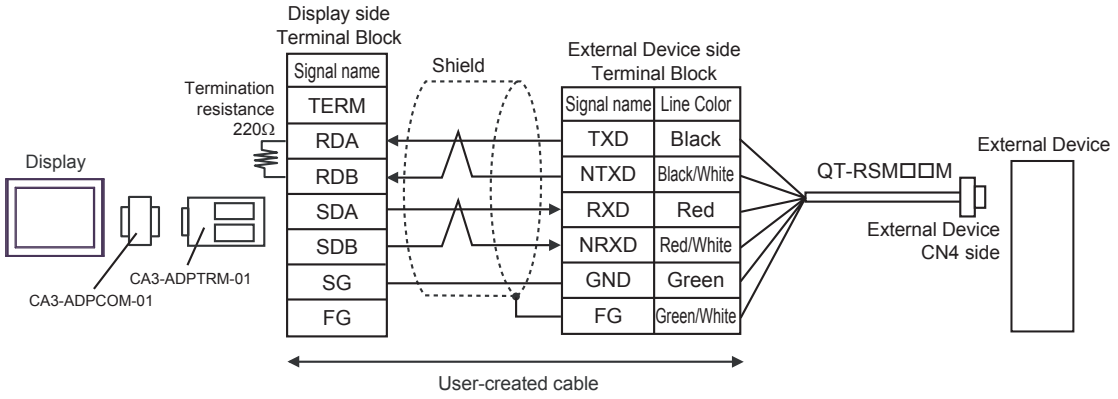
*8 Except SP-5B00

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

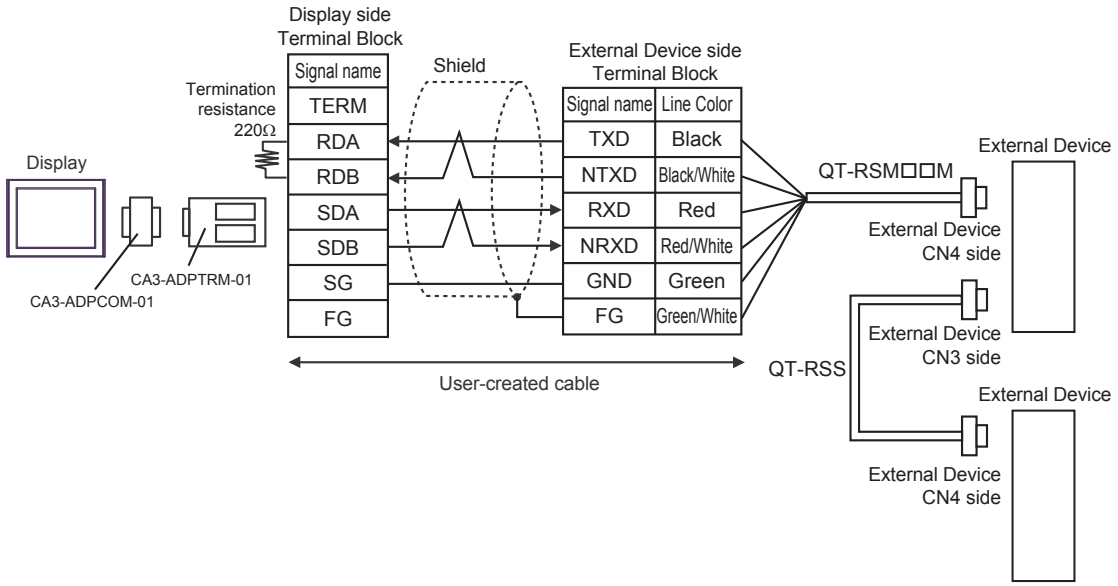
*10 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
☞"■ IPC COM Port" (page 5)

3A)

- 1:1 Connection



- 1:n Connection

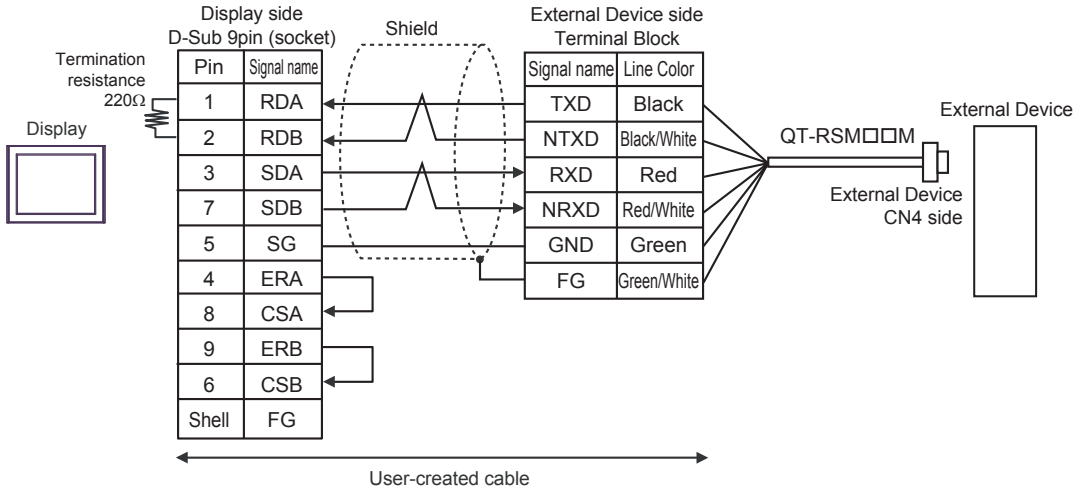


NOTE

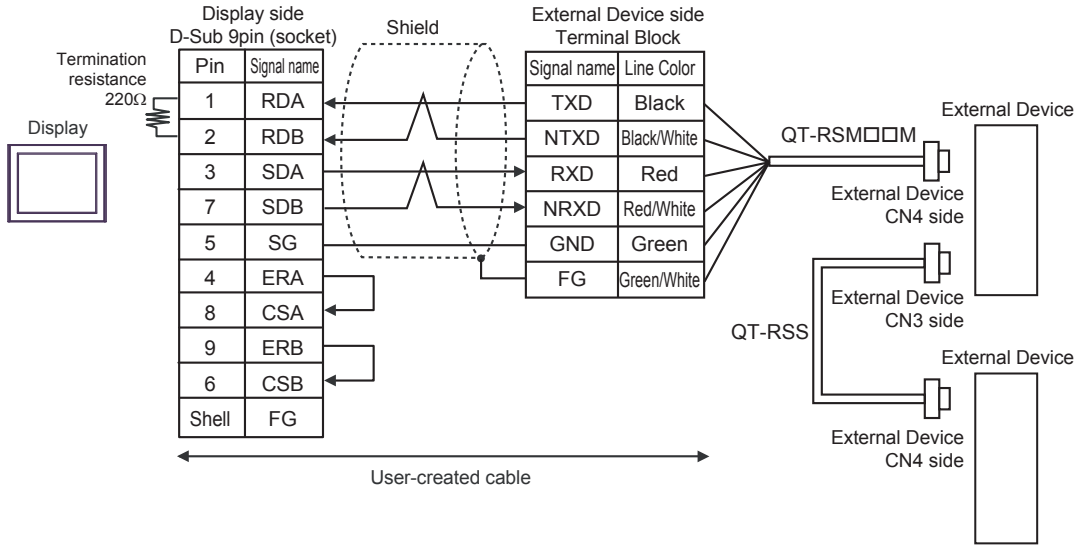
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., LTD.

3B)

- 1:1 Connection



- 1:n Connection

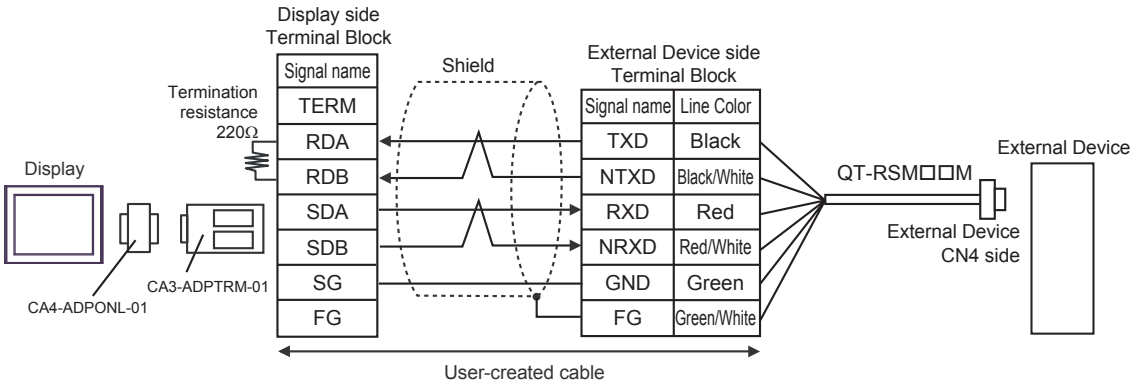


NOTE

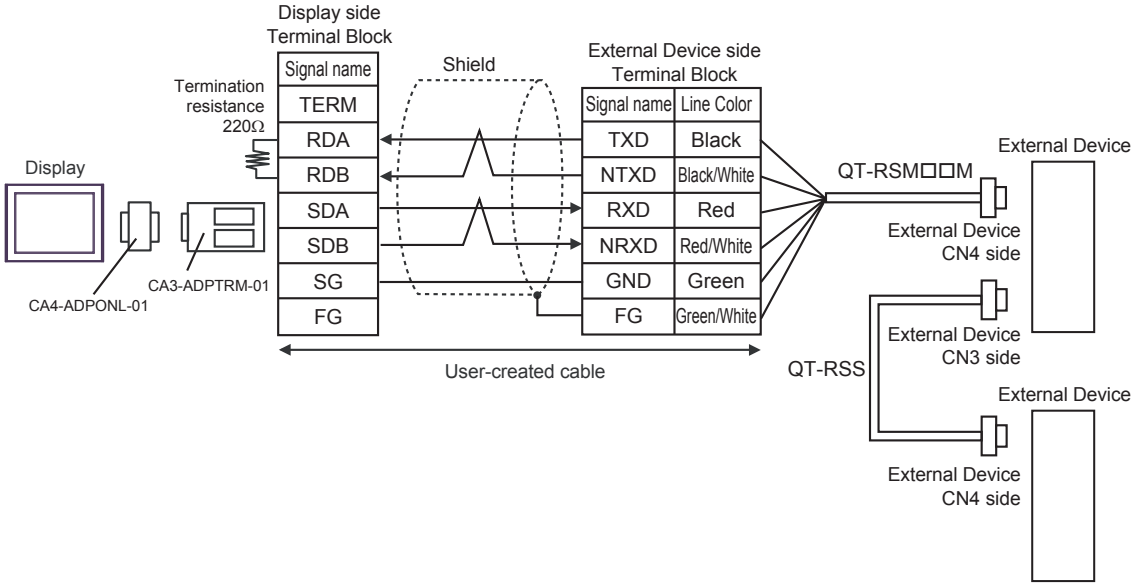
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., LTD.

3C)

- 1:1 Connection



- 1:n Connection

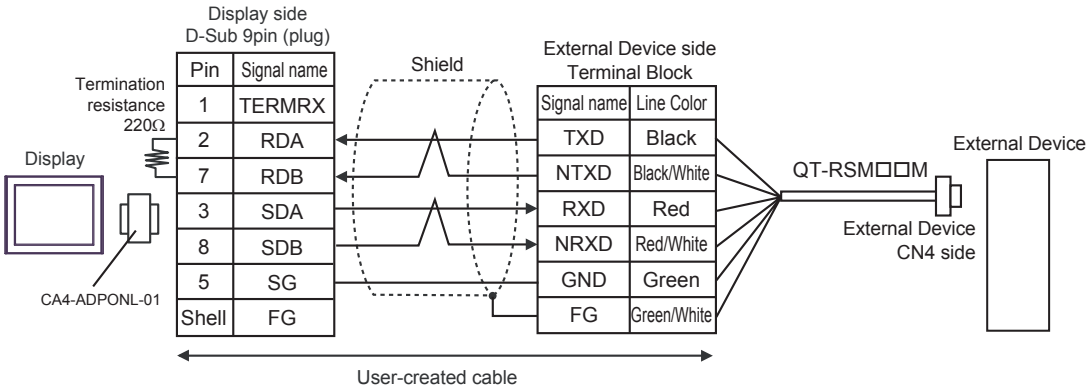


NOTE

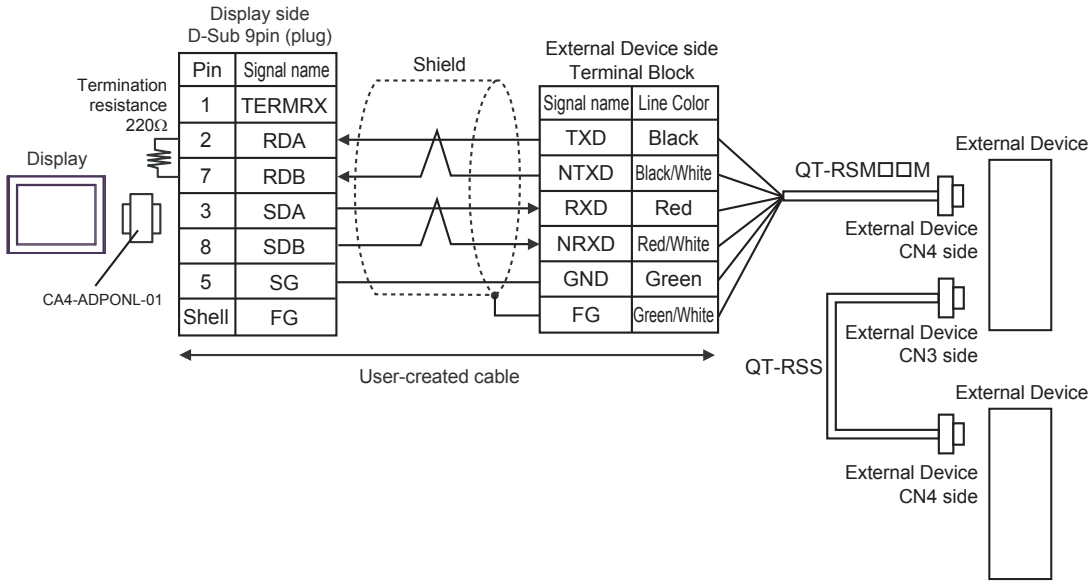
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., LTD.

3D)

- 1:1 Connection



- 1:n Connection

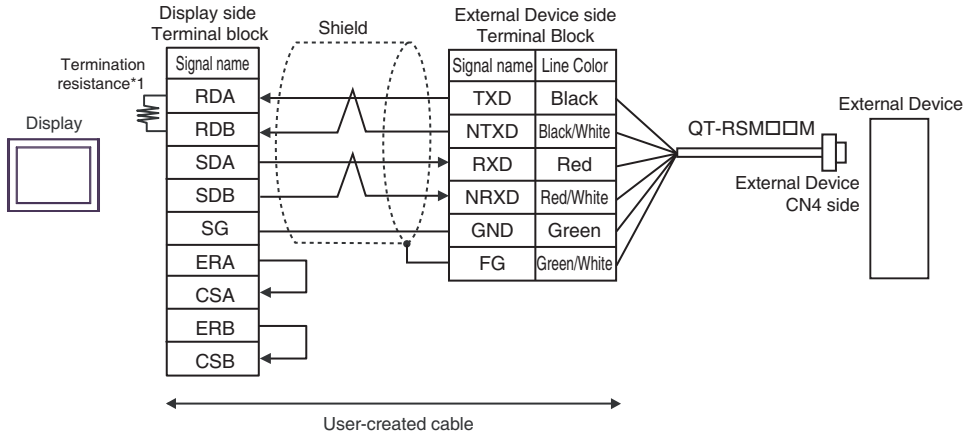


NOTE

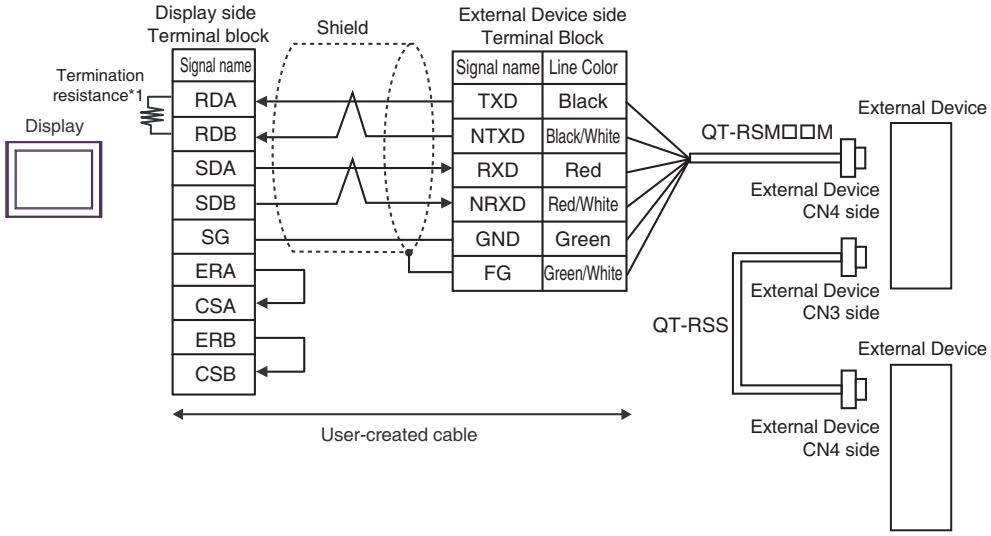
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., LTD.

3E)

- 1:1 Connection



- 1:n Connection

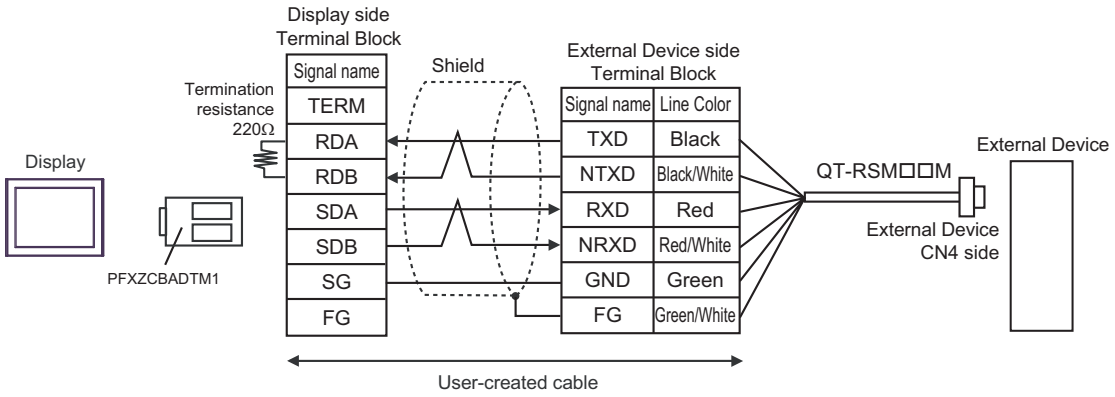


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

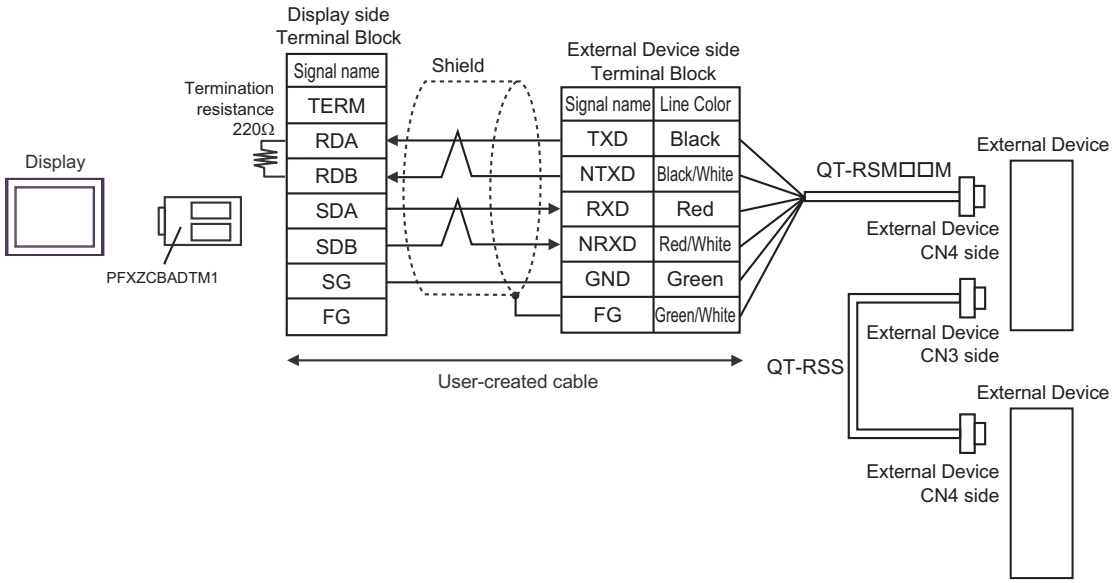
DIP Switch No.	Set Value
1	OFF
2	OFF
3	OFF
4	ON

3F)

- 1:1 Connection



- 1:n Connection

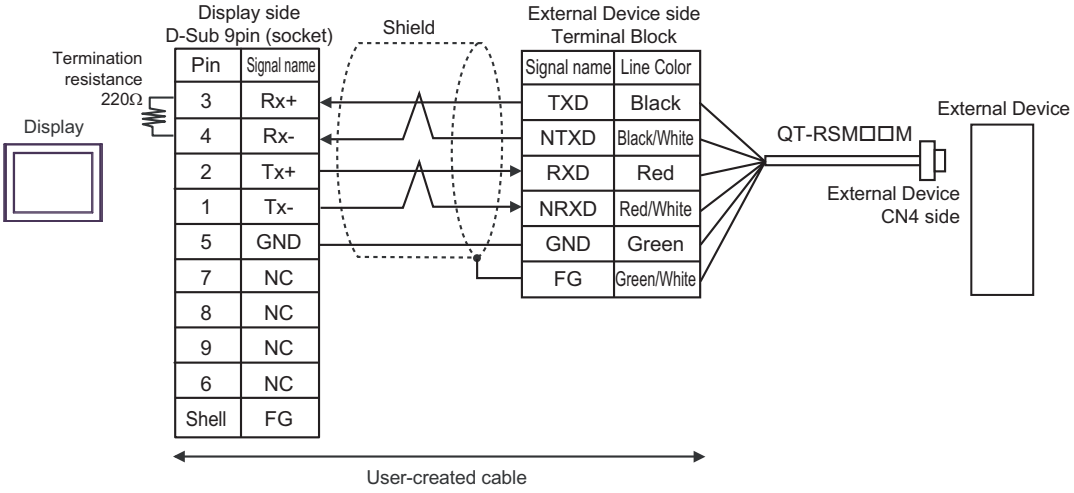


NOTE

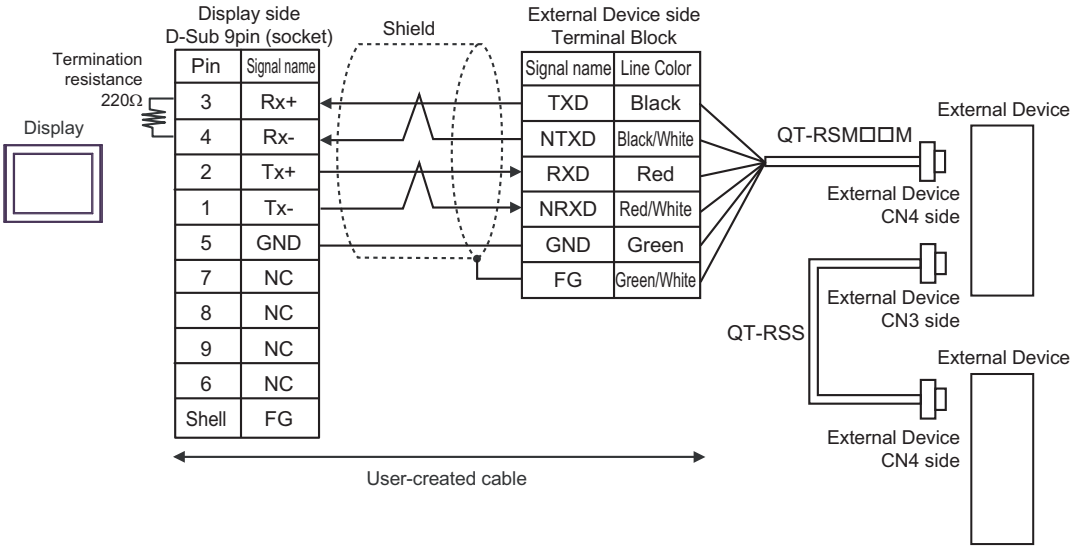
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., LTD.

3G)

- 1:1 Connection



- 1:n Connection



NOTE

- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., LTD.

Cable Diagram 4

Display (Connection Port)	Cable		Notes
GP3000[*1] (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST[*2] (COM2) LT3000 (COM1)	4A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*4]
	4B	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	
GP3000[*5] (COM2)	4C	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*4]
	4D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	

Display (Connection Port)	Cable		Notes
IPC[*6]	4E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*4]
	4F	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	
GP-4106 (COM1) GP-4116T (COM1)	4G	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*4]
GP-4107 (COM1) GP-4*03T[*7] (COM2) GP-4203T (COM1)	4H	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*4]
GP4000[*8] (COM2) GP-4201T (COM1)) SP5000[*9] (COM1/2) SP-5B00 (COM2)	4I	RS-422 Terminal Block Conversion Adapterby Pro-face PFXZCBADTM1[*10] + User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.[*4]
	4B	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M[*3] + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	

Display (Connection Port)	Cable		Notes
LT-4*01TM (COM1) LT-Rear Module (COM1)	4J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81 + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M*3 + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.*4
PE-4000B*11 PS5000*11	4K	User-created cable + RS422 master cable by Sanmei Electronics Co., LTD. QT-RSM□□M*3 + RS422 slave cable by Sanmei Electronics Co., LTD. QT-RSS	Cable length: 20m max.*4

*1 All GP3000 models except AGP-3302B

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

*3 "□□" represents cable lengths.

*4 When using the CutyAxis3 series, make the length of each cable 10m max.

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

*6 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000)
☞"■ IPC COM Port" (page 5)

*7 Except GP-4203T

*8 All GP4000 models except GP-4100 Series, GP-4*01TM, GP-Rear Module, GP-4201T and GP-4*03T

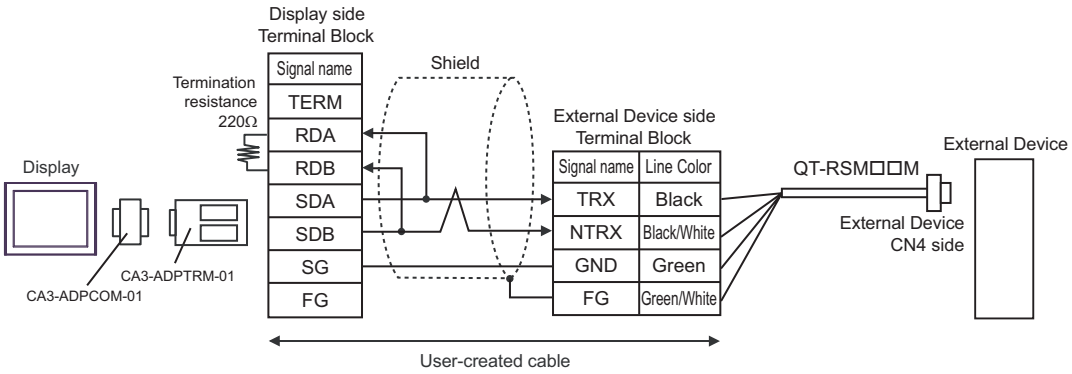
*9 Except SP-5B00

*10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 4A.

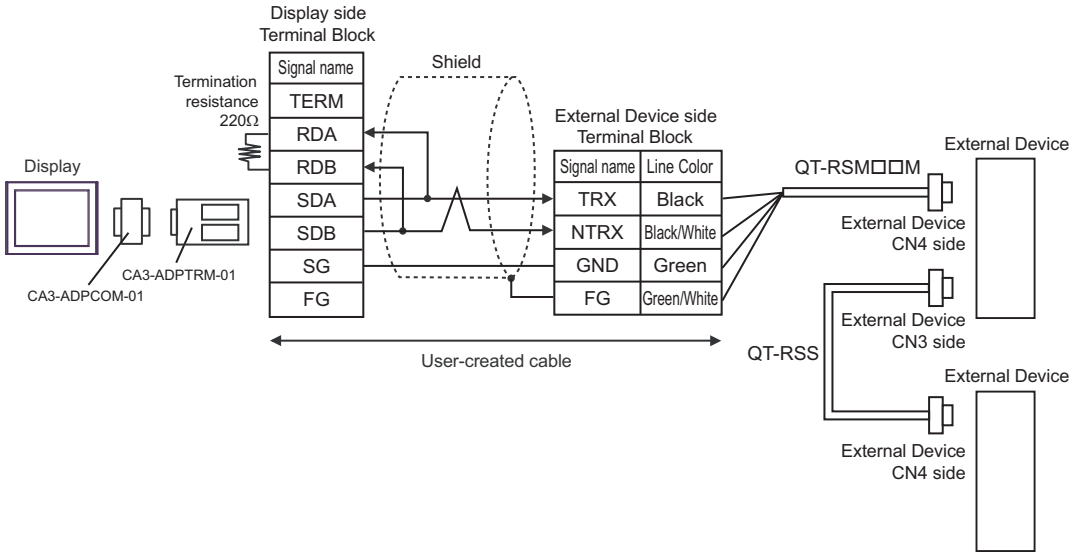
*11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
☞"■ IPC COM Port" (page 5)

4A)

- 1:1 Connection



- 1:n Connection

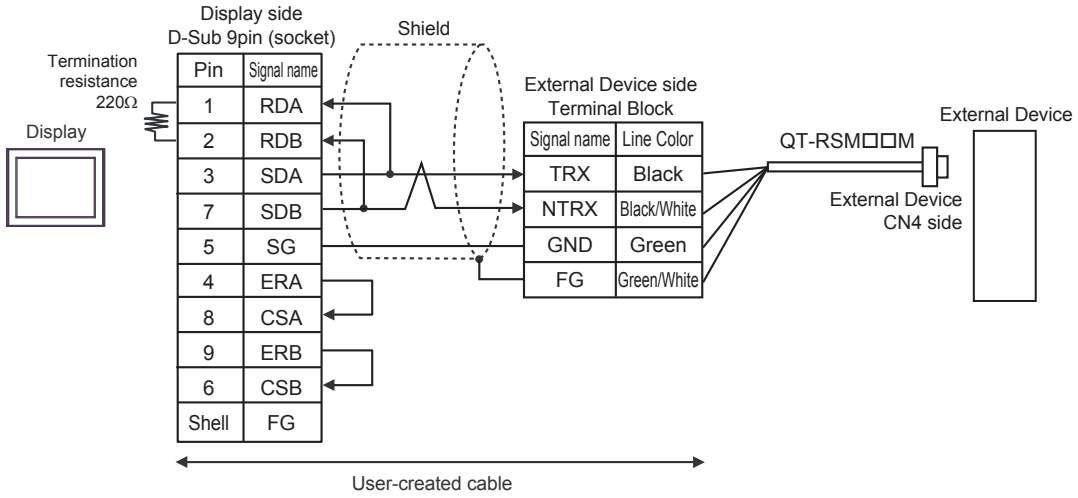


NOTE

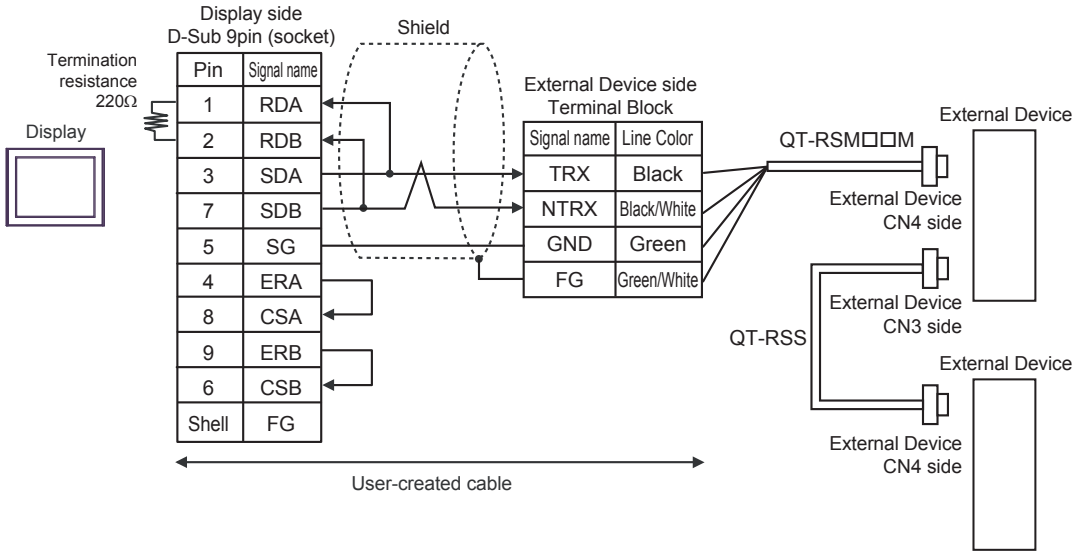
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4B)

- 1:1 Connection



- 1:n Connection

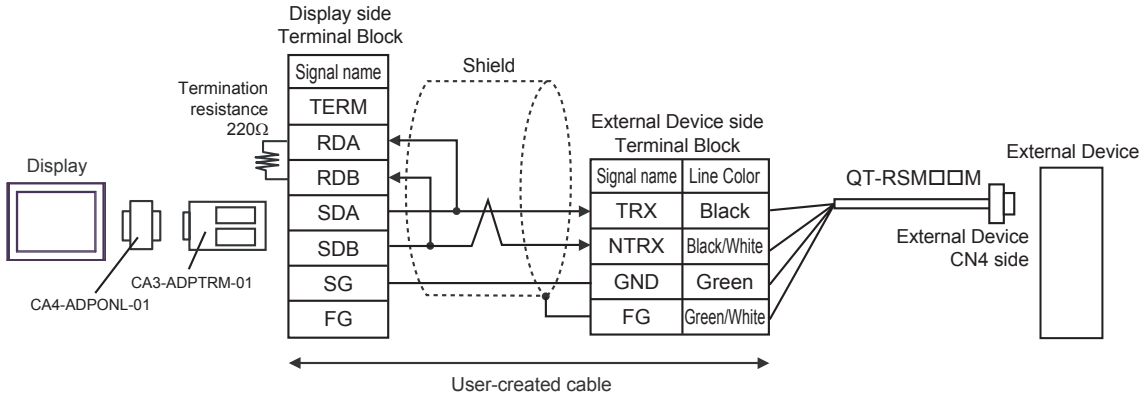


NOTE

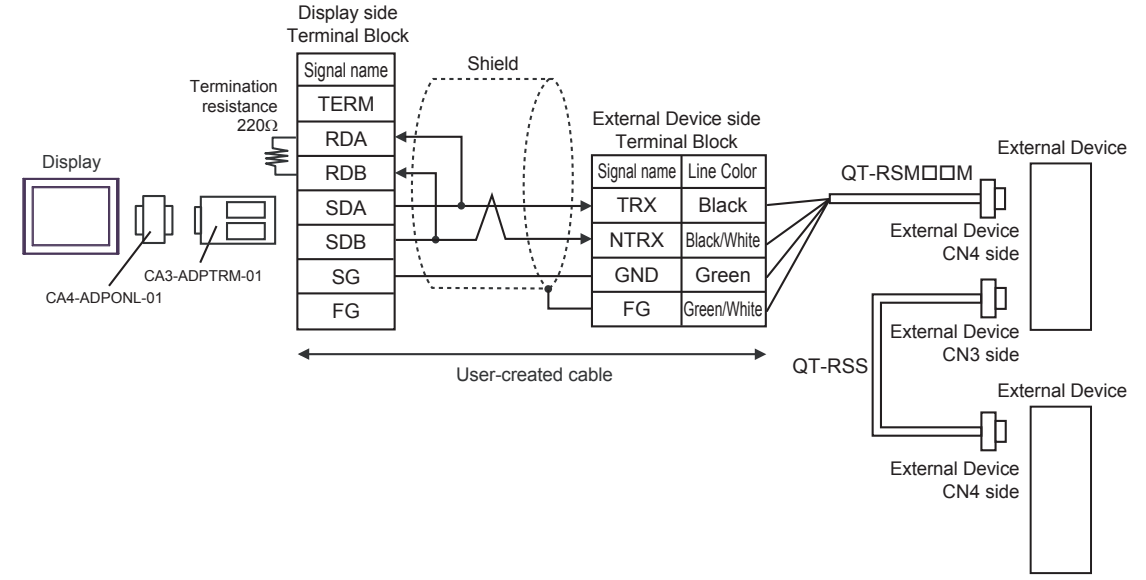
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4C)

- 1:1 Connection



- 1:n Connection

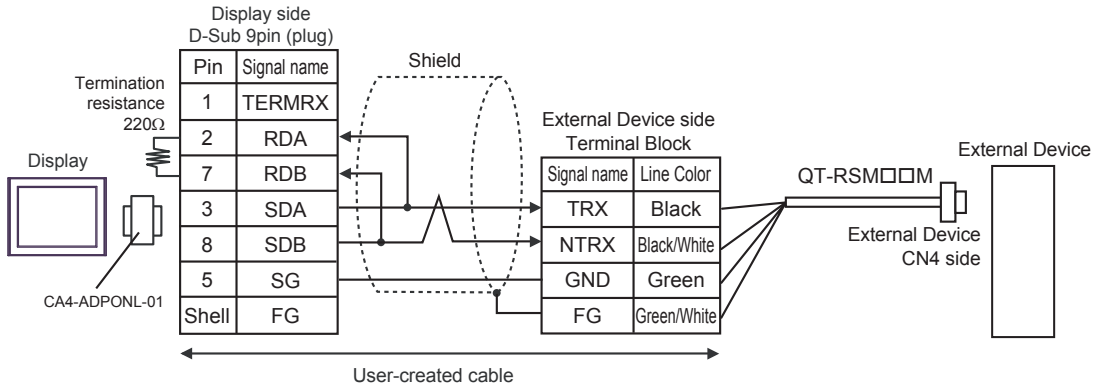


NOTE

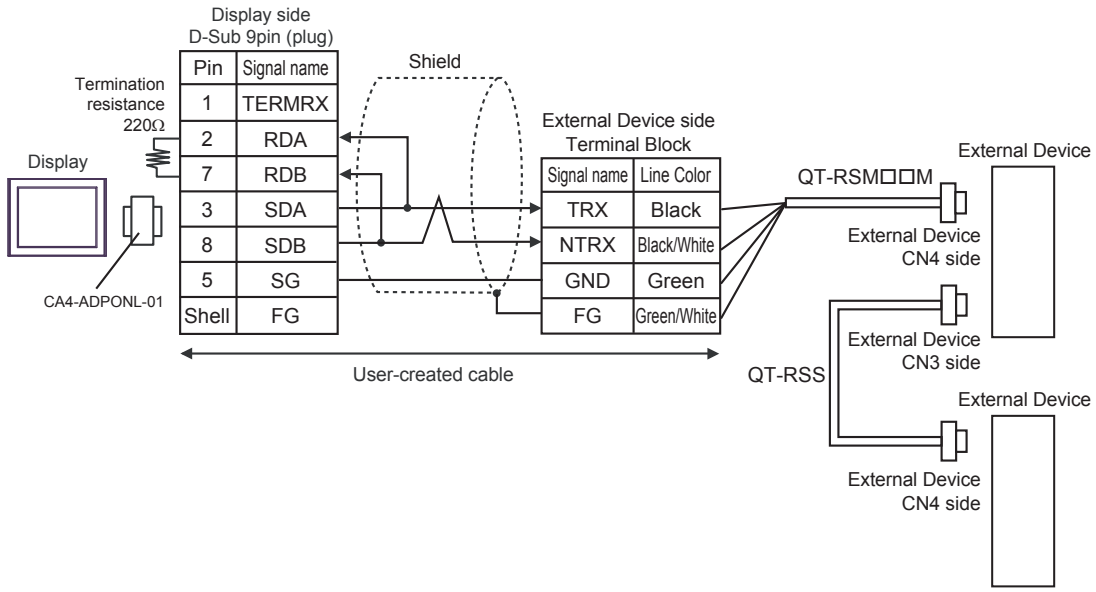
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4D)

- 1:1 Connection



- 1:n Connection

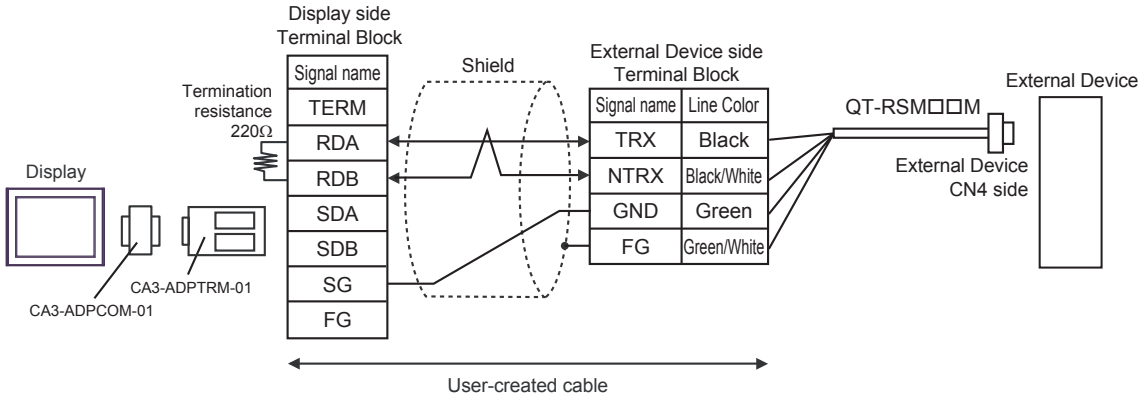


NOTE

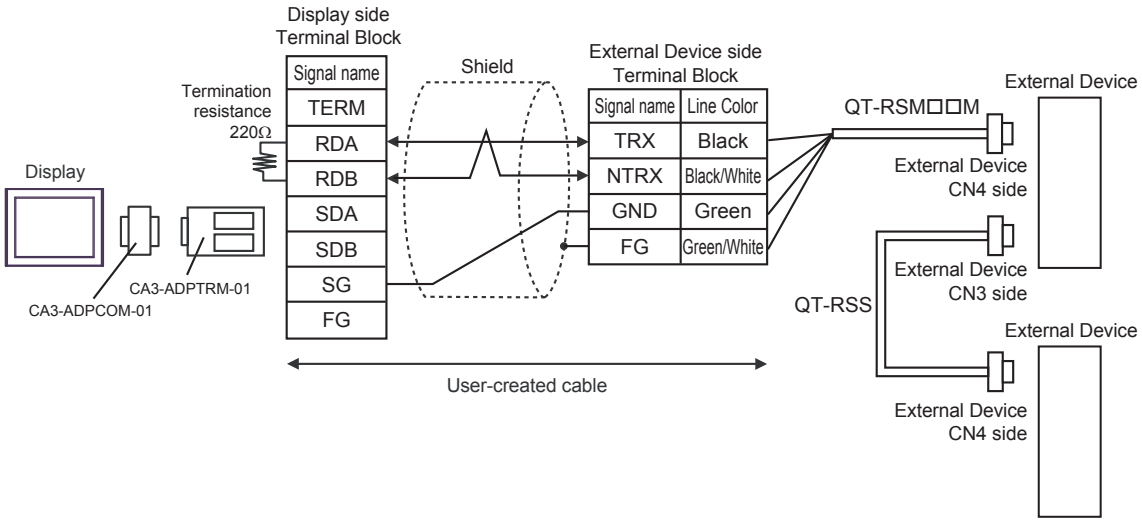
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4E)

- 1:1 Connection



- 1:n Connection

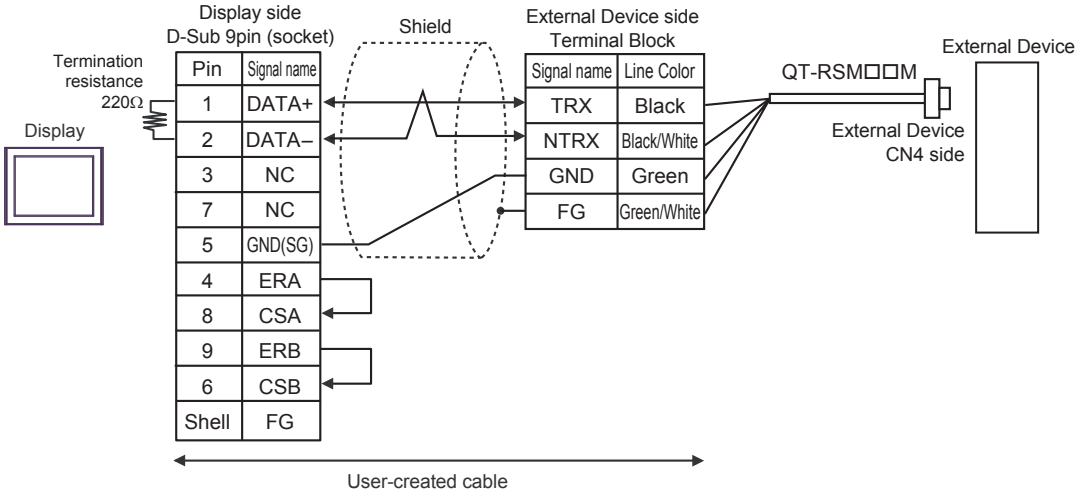


NOTE

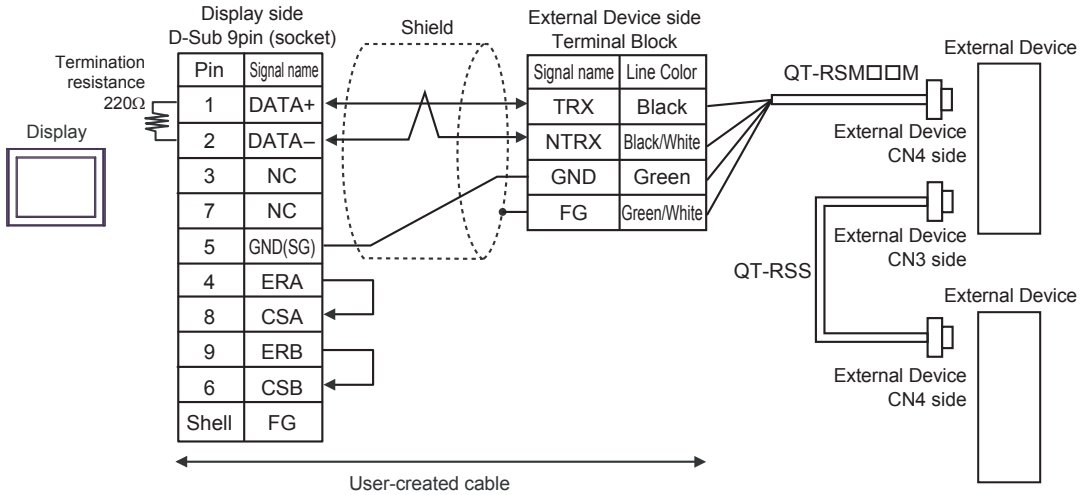
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4F)

- 1:1 Connection



- 1:n Connection

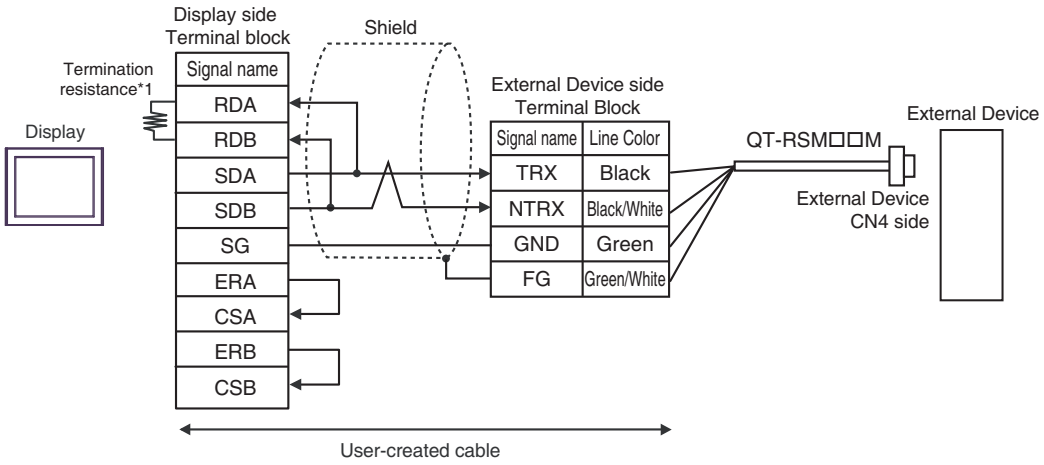


NOTE

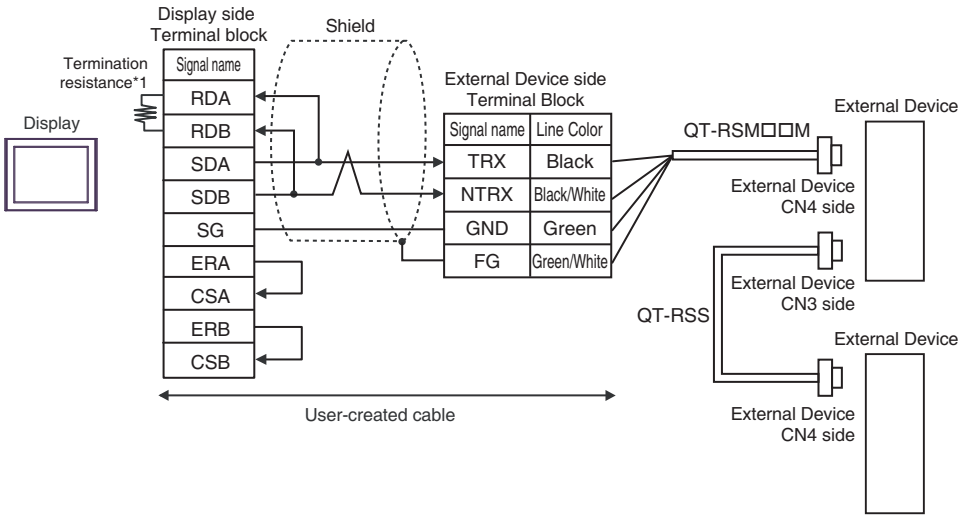
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4G)

- 1:1 Connection



- 1:n Connection



NOTE

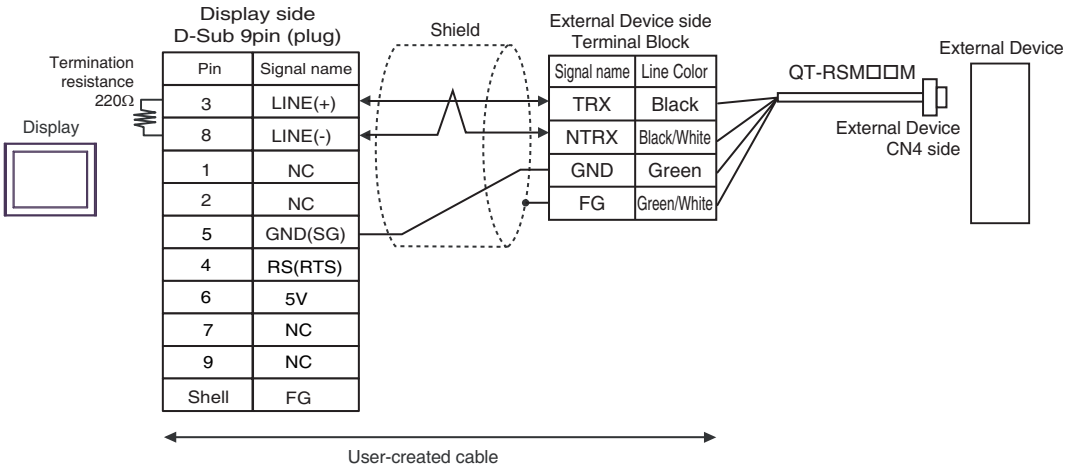
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

*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.

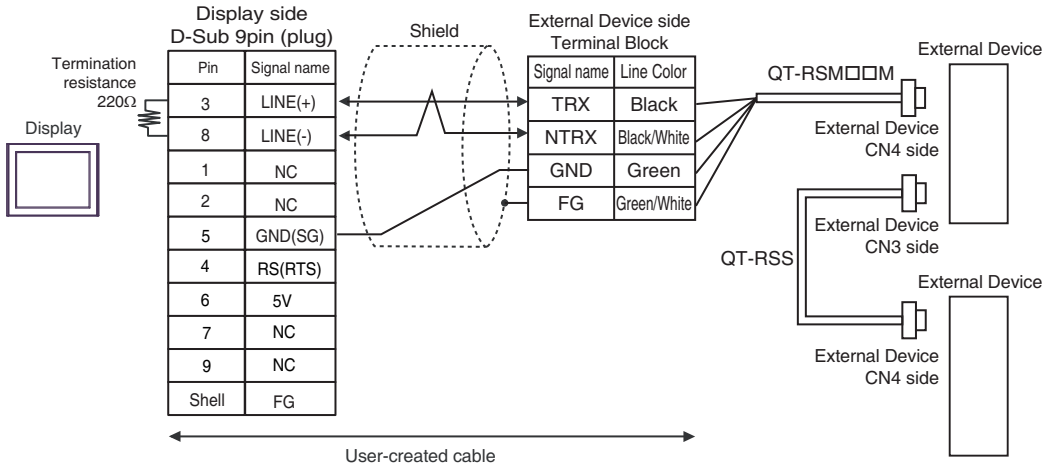
DIP Switch No.	Set Value
1	OFF
2	OFF
3	OFF
4	ON

4H)

- 1:1 Connection



- 1:n Connection



IMPORTANT

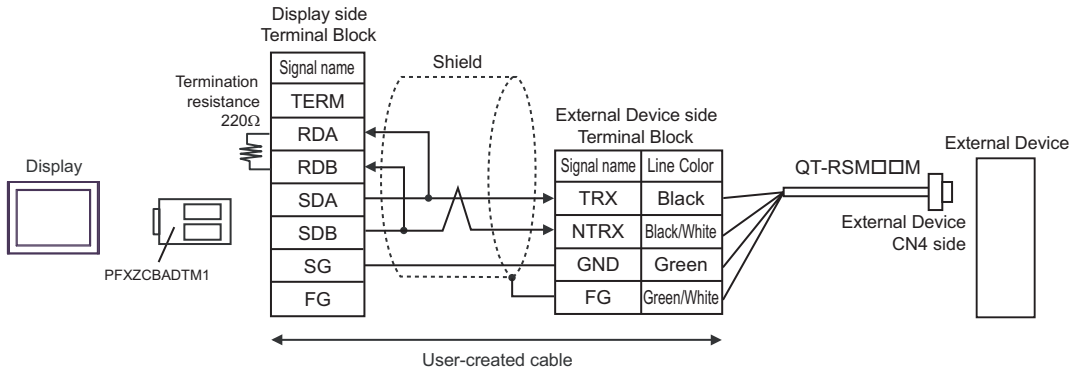
- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE

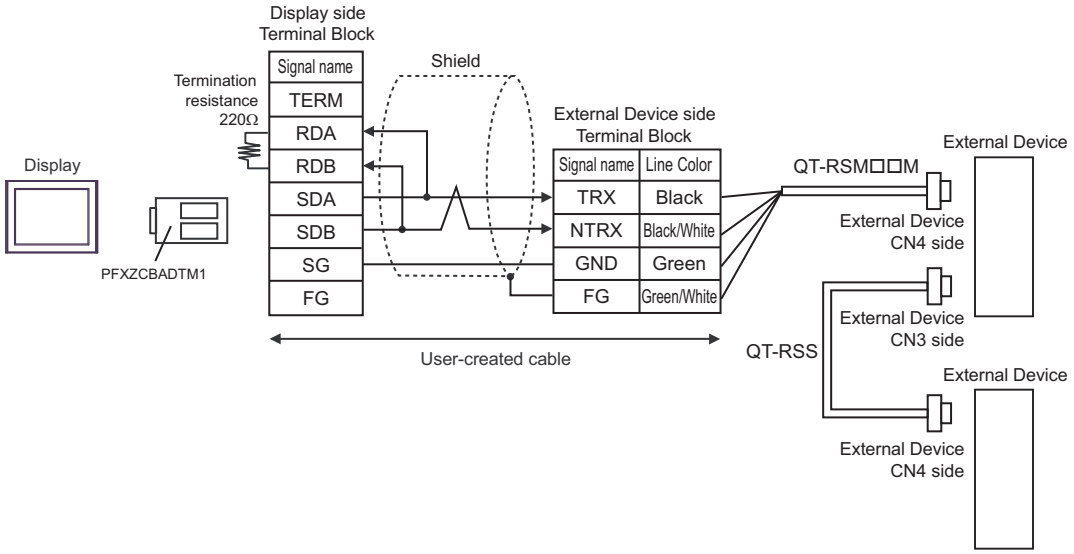
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated
- In COM on the GP-4107, the SG and FG terminals are isolated.

4l)

- 1:1 Connection



- 1:n Connection

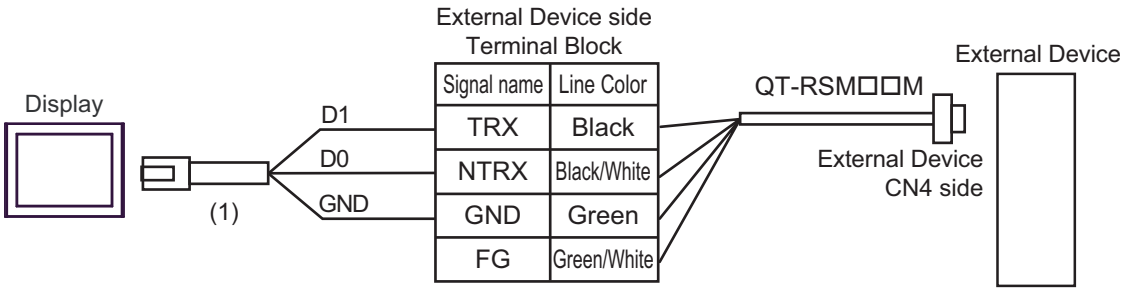


NOTE

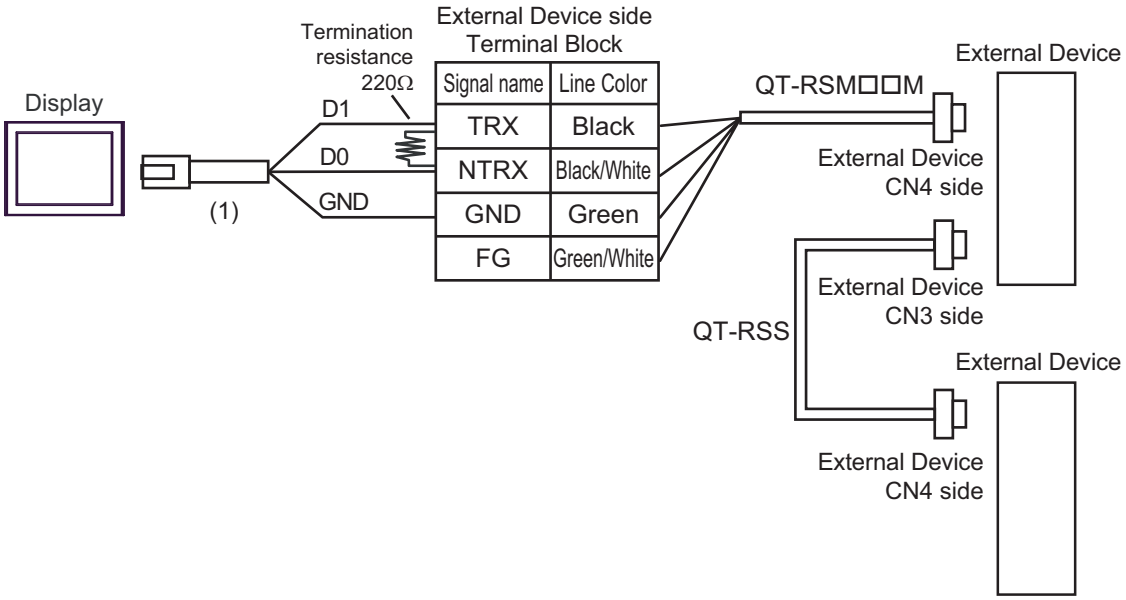
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4J)

- 1:1 Connection



- 1:n Connection



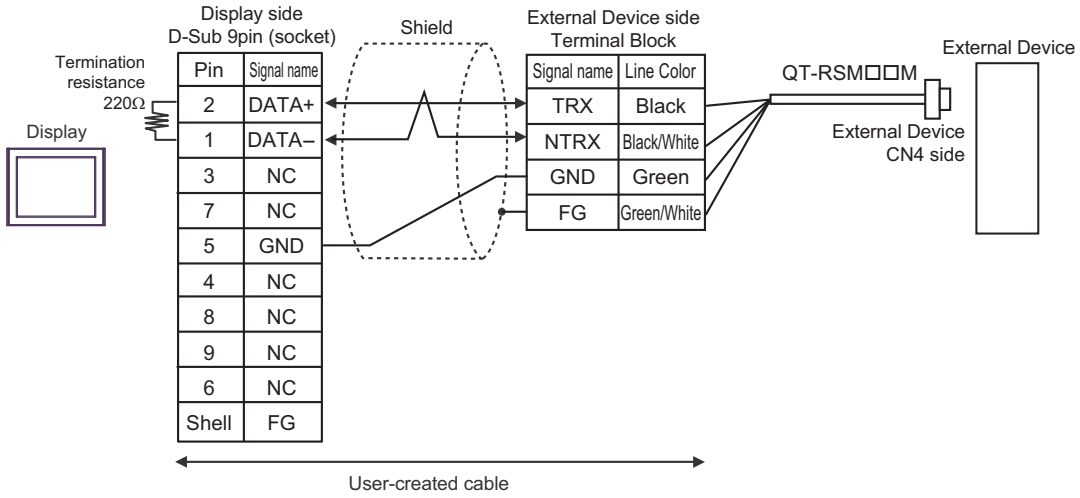
NOTE

- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

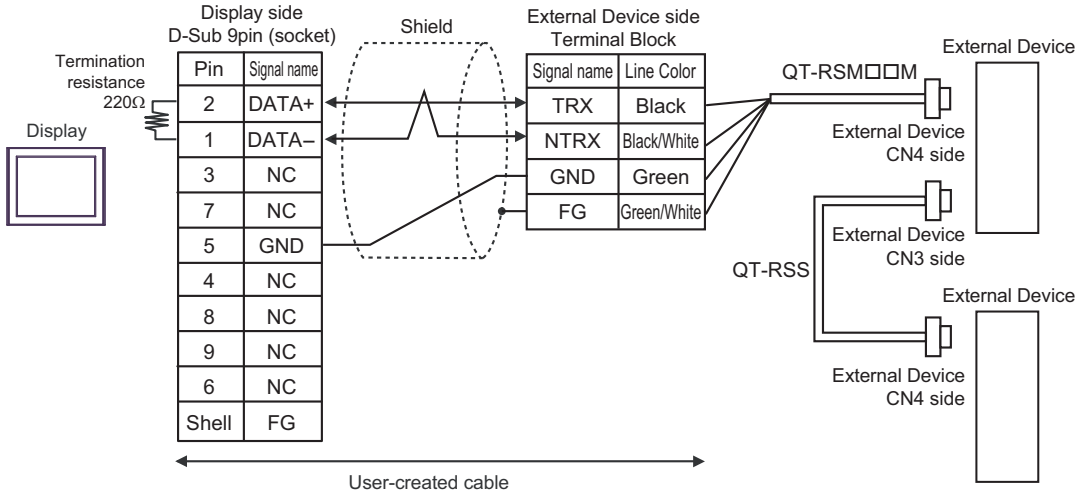
Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

4K)

- 1:1 Connection



- 1:n Connection



NOTE

- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

6 Supported Devices

The following table shows the range of supported device addresses.

6.1 CutyAxis2 series

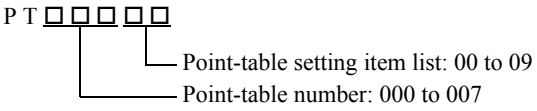
This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Parameter	P000.00 - P046.31	P000 - P046	-	*1 *2
Point Table	PT00000.00 - PT00009.31 PT00100.00 - PT00109.31 ⋮ PT00700.00 - PT00709.31	PT00000 - PT00009 PT00100 - PT00109 ⋮ PT00700 - PT00709		*1*3
Point Table (Continuation)	PTC00000.00 - PTC00009.31 PTC00100.00 - PTC00109.31 ⋮ PTC00700.00 - PTC00709.31	PTC00000 - PTC00009 PTC00100 - PTC00109 ⋮ PTC00700 - PTC00709		*1*4*5
Monitor	M00.00 - M17.31	M00 - M17		*1*6
IO monitor	IO0.00 - IO0.31	IO	L/H	*1*6*7
Alarm	ALM0.00 - ALM8.15	ALM0 - ALM8		*6*5
Mechanical Origin Rewriting	-	ZSET	-	*1*5*8
Positional Error Counter Set	-	ESET		*1*5*8
Point Table Selection	-	PNT	L/H	*5*8
Emergency Stop	-	EMC		*5*8
JOG Operation	-	JOG		*5*8
Teaching	-	TDIN		*5*8
Alarm Reset	-	ARST		*5*8
Alarm History Clear	-	HCL		*5*8
CPU Reset	-	RESET		*5*8
EEPROM Writing	-	FLASH		*5*8
Servo ON/OFF	SV	-	-	*5*8
Point Table Start ON / OFF	STR	-		*5*8
ZRTN Start-ON/OFF	ZSTR	-		*5*8
Zero Slowdown LS ON/ OFF	DEC	-		*5*8
Input Branch ON/OFF	EXIN	-		*5*8
HOLD-ON / HOLD-OFF	HOLD	-		*5*8
Single-Block ON/OFF	SBK	-		*5*8

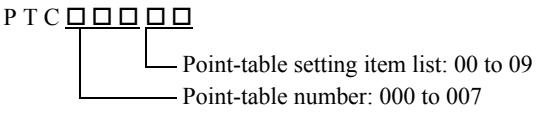
*1 32-bit device.

*2 Usable parameter differs depending on the External Device.
Refer to your External Device manual for details.

*3 Device address designation:



*4 Device address designation:



*5 In Point Table (Continuation) Device, reading and writing for the continuous addresses that extend from one point table number range to another can be specified.

*6 Write disabled.

*7 Command is assigned to each device. Refer to the table on the next page for the corresponding device and command.

*8 Read disabled.

■ Corresponding Device and Command

Device	Setting Value	Command	Function
IO	-	IO	The Status of IO
ALM0-ALM8	-	ALM	Alarm Occurrence Situation
PNT	Point table No.	PNT	Point Table Selection
EMC	0	EMCON	Emergency Stop ON
	1 or more	EMCOFF	Emergency Stop OFF
JOG	0	PJOG	Forward JOG
	1	NJOG	Reverse JOG
	2 or more	JOGOFF	Suspending JOG operation
ZSET	Setting value	ZSET	Mechanical Origin Rewriting
ESET	Setting value	ESET	Position Error Counter Set
TDIN	Arbitrary value	TDIN	Teaching
ARST	Arbitrary value	ARST	Alarm Reset
HCL	Arbitrary value	HCL	Alarm History Clear
RESET	Arbitrary value	RESET	CPU Reset
FLASH	Arbitrary value	FLASH	EEPROM Writing
SV	SET	SVON	Servo ON
	RESET	SVOFF	Servo OFF
STR	SET	STRON	Point Table Start ON
	RESET	STROFF	Point Table Start OFF
ZSTR	SET	ZSTRON	ZRTN Start ON
	RESET	ZSTROFF	ZRTN Start OFF
DEC	SET	DECON	Zero Slowdown LS ON
	RESET	DECOFF	Zero Slowdown LS OFF
EXIN	SET	EXINON	Input Branch ON
	RESET	EXINOFF	Input Branch OFF
HOLD	SET	HOLDON	HOLD-ON
	RESET	HOLDOFF	HOLD-OFF
SBK	SET	SBKON	Single-Block On
	RESET	SBKOFF	Single-Block OFF

NOTE

- You can only set the Read Area Size for the system area available to use in the External Device. Please refer to the GP Pro-EX Reference Manual for Read Area Size.
  Cf. GP Pro-EX Reference Manual "LS Area (Direct Access Method Area)"
- Refer to the precautions on manual notation for icons in the table.
  ☞ "Manual Symbols and Terminology"

6.2 Si2 series/CutyAxis3 series

This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Parameter (Si2 series)	P000.00 - P076.31	P000 - P076	-	*1*2
Parameter (CutyAxis3 series)	P000.00 - P079.31	P000 - P079		*1*2
Point Table	PT00000.00 - PT00012.31 PT00100.00 - PT00112.31 ⋮ PT25500.00 - PT25512.31	PT00000 - PT00012 PT00100 - PT00112 ⋮ PT25500 - PT25512		*1*3
Point Table (Continuation)	PTC00000.00 - PTC00012.31 PTC00100.00 - PTC00112.31 ⋮ PTC25500.00 - PTC25512.31	PTC00000 - PTC00012 PTC00100 - PTC00112 ⋮ PTC25500 - PTC25512		*1*4*5
Monitor (Si2 series)	M00.00 - M16.31	M00 - M16		*1*6
Monitor (CutyAxis3 series)	M00.00 - M20.31	M00 - M20		*1*6
IO monitor	IO0.00 - IO0.31	IO		*1*6*7
Alarm	ALM0.00 - ALM8.15	ALM0 - ALM8	L / H	*6*7
Mechanical Origin Rewriting	-	ZSET	-	*1*7*8
Positional Error Counter Set	-	ESET		*1*7*8
Point Table Selection	-	PNT	L / H	*7*8
Torque Selection ON/OFF	-	TSEL		*7*8
Emergency Stop	-	EMC		*7*8
JOG Operation	-	JOG		*7*8
STEP Feed	-	STEP		*7*8
Teaching	-	TDIN		*7*8
Alarm Reset	-	ARST		*7*8
Alarm History Clear	-	HCL		*7*8
CPU Reset	-	RESET		*7*8
Torque Peak Reset	-	TRST		*7*8
EEPROM Writing	-	FLASH		*7*8
Point Table Start-ON Edge	-	STRP		*7*8
ZRTN Start-ON Edge	-	ZSTRP		*7*8
Operation Stop	-	STOP		*7*8

Continued on the next page.

Device	Bit Address	Word Address	32bits	Notes
Servo ON/OFF	SV	-	-	*7*8
Point Table Start ON / OFF	STR	-		*7*8
ZRTN Start-ON/OFF	ZSTR	-		*7*8
Zero Slowdown LS ON/ OFF	DEC	-		*7*8
Input Branch ON/OFF	EXIN1-EXIN3	-		*7*8
HOLD-ON / HOLD-OFF	HOLD	-		*7*8
Single-Block ON/OFF	SBK	-		*7*8
M-Completion ON/OFFM	MFIN	-		*7*8
Resolution Selection	RSEL	-		*7*8

*1 32-bit device.

*2 Usable parameter differs depending on the External Device.
Refer to your External Device manual for details.

*3 Device address designation:

P T □ □ □ □ □

- Point-table setting item list: 00 to 12
- Point-table number: 000 to 255

*4 Device address designation:

P T C □ □ □ □ □

- Point-table setting item list: 00 to 12
- Point-table number: 000 to 255

*5 In Point Table (Continuation) Device, reading and writing for the continuous addresses that extend from one point table number range to another can be specified.

*6 Write disabled.

*7 Command is assigned to each device. Refer to the table on the next page for the corresponding device and command.

*8 Read disabled.

■ Corresponding Device and Command

Device	Setting Value	Command	Function
IO	-	IO2	The Status of IO
ALM0-ALM8	-	ALM	Alarm Occurrence Situation
ZSET	Setting value	ZSET	Mechanical Origin Rewriting
ESET	Setting value	ESET	Position Error Counter Set
PNT	Point table No.	PNT	Point Table Selection
TSEL	0	TSELON 0	Torque selection 0
	1	TSELON 1	Torque selection 1
	2	TSELON 2	Torque selection 2
	3	TSELON 3	Torque selection 3
	4	TSELON 4	Torque selection 4
	5 or more	TSELOFF	Torque selection OFF
EMC	0	EMCON 0	Emergency stop by servo-free (Si2 series) Emergency stop by dynamic brake (CutyAxis3 series)
	1	EMCON 1	Emergency stop by servo-free
	2	EMCON 2	Emergency stop by control damping
	3 or more	EMCOFF	Emergency stop OFF
JOG	0	PJOG	Forward JOG
	1	NJOG	Reverse JOG
	2 or more	JOGOFF	Suspending JOG operation
STEP	0	STEPON 0	Step Feed 0
	1	STEPON 1	Step Feed 1
	2	STEPON 2	Step Feed 2
	3	STEPON 3	Step Feed 3
	4 or more	STEPOFF	Suspending Step feed operation
TDIN	Arbitrary value	TDIN	Teaching
ARST	Arbitrary value	ARST	Alarm Reset
HCL	Arbitrary value	HCL	Alarm History Clear
RESET	Arbitrary value	RESET	CPU Reset
TRST	Arbitrary value	TRST	Torque Peak Reset
FLASH	Arbitrary value	FLASH	EEPROM Writing
STRP	Arbitrary value	STRP	Point Table Start-ON Edge
ZSTRP	Arbitrary value	ZSTRP	ZRTN Start-ON Edge
STOP	Arbitrary value	STOP	Operation Stop
SV	SET	SVON	Servo ON
	RESET	SVOFF	Servo OFF
STR	SET	STRON	Point Table Start ON
	RESET	STROFF	Point Table Start OFF
ZSTR	SET	ZSTRON	ZRTN Start ON
	RESET	ZSTROFF	ZRTN Start OFF
DEC	SET	DECON	Zero Slowdown LS ON
	RESET	DECOFF	Zero Slowdown LS OFF
EXIN1	SET	EXINON1	Input Branch 1 ON
	RESET	EXINOFF1	Input Branch 1 OFF
EXIN2	SET	EXINON2	Input Branch 2 ON
	RESET	EXINOFF2	Input Branch 2 OFF

Device	Setting Value	Command	Function
EXIN3	SET	EXINON3	Input Branch 3 ON
	RESET	EXINOFF3	Input Branch 3 OFF
HOLD	SET	HOLDON	HOLD-ON
	RESET	HOLDOFF	HOLD-OFF
SBK	SET	SBKON	Single-Block On
	RESET	SBKOFF	Single-Block OFF
MFIN	SET	MFINON	M-Completion ON
	RESET	MFINOFF	M-Completion OFF
RSEL	SET	RSELON	Resolution selection ON
	RESET	RSELOFF	Resolution selection OFF

NOTE

- You can only set the Read Area Size for the system area available to use in the External Device. Please refer to the GP Pro-EX Reference Manual for Read Area Size.

  Cf. GP Pro-EX Reference Manual "LS Area (Direct Access Method Area)"
- 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 set "Device Type & Address" for the address type of the data display or other devices.

7.1 CutyAxis2 series

Device	Device Name	Device Code (HEX)	Address Code
Parameter	P	0080	Word Address
Point Table	PT	0081	Point-table number x 100 + Point-table setting item list
Piont Table (Continuation)	PTC	0091	Point-table number x 10 + Point-table setting item list
Monitor	M	0082	Word Address
IO monitor	IO	0083	Word Address
Alarm	ALM	0084	Word Address
Teaching	TDIN	0060	Word Address
Alarm Reset	ARST	0061	Word Address
Alarm History Clear	HCL	0062	Word Address
CPU Reset	RESET	0063	Word Address
EEPROM Writing	FLASH	0064	Word Address
Mechanical Origin Rewriting	ZSET	0065	Word Address
Positional Error Counter Set	ESET	0066	Word Address
Point Table Selection	PNT	0067	Word Address
Emergency Stop	EMC	0068	Word Address
JOG Operation	JOG	0069	Word Address

7.2 Si2 series/CutyAxis3 series

Device	Device Name	Device Code (HEX)	Address Code
Parameter	P	0080	Word Address
Point Table	PT	0081	Point-table number x 100 + Point-table setting item list
Piont Table (Continuation)	PTC	0091	Point-table number x 13 + Point-table setting item list
Monitor	M	0082	Word Address
IO monitor	IO	0083	Word Address
Alarm	ALM	0084	Word Address
Teaching	TDIN	0060	Word Address
Alarm Reset	ARST	0061	Word Address
Alarm History Clear	HCL	0062	Word Address
CPU Reset	RESET	0063	Word Address
EEPROM Writing	FLASH	0064	Word Address
Mechanical Origin Rewriting	ZSET	0065	Word Address
Positional Error Counter Set	ESET	0066	Word Address
Point Table Selection	PNT	0067	Word Address
Emergency Stop	EMC	0068	Word Address
JOG Operation	JOG	0069	Word Address
Torque Selection ON/OFF	TSEL	006A	Word Address
STEP Feed	STEP	006B	Word Address
Address Torque Peak Reset	TRST	006C	Word Address
Point Table Start-ON Edge	STRP	006D	Word Address
ZRTN Start-ON Edge	ZSTRP	006E	Word Address
Operation Stop	STOP	006F	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 number
Device Name	Name of the External Device where an error has occurred. Device/PLC name is the title of the External Device set with GP Pro-EX. (Initial value [PLC1])
Error Message	Displays messages related to an error that has occurred.
Error Occurrence Area	Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device. NOTE • IP address is displayed as "IP address (Decimal): MAC address (Hex)". • Device address is displayed as "Address: Device address". • Received error codes are displayed as "Decimal [Hex]".

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.

■ Error Codes Unique to External Device

Error Code	Description
02	Mechanical Origin Rewriting Failure
03	Input Value Outside the Range
04	Input Method Not Selected
06	RESET Failure
07	Servo-on Failure 1
08	Servo-on Failure 2
0A	Point-Table Command Rule Violation (only Cuty Axis)
0B	Data number disagreement (only Si servo, version 2.28 or later)

■ Error Messages Unique to External Device

Error Number	Error Message	Description
RHxx128	(Node Name): The Input data is out of range (Address: (Device Address))	As for device PT, PNT, if the set value is out of the range, the error will display.
RHxx129	(Node Name): During servo-on, an attempt was made to execute the command [RESET] (CPU reset).	Execute the RESET command during servo ON, the error will display.