



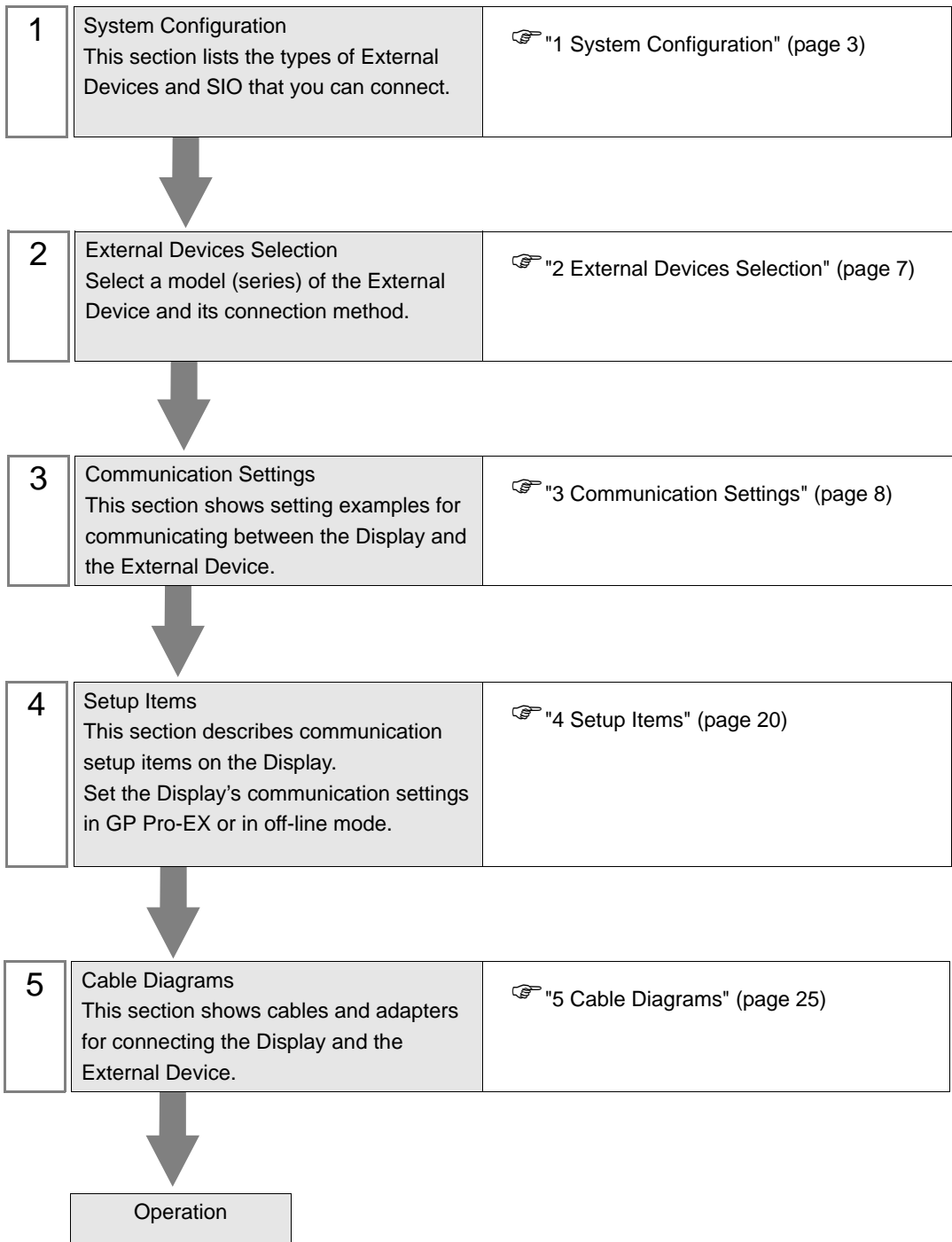
# Si/CutyAxis Series SIO Driver

|   |                                   |    |
|---|-----------------------------------|----|
| 1 | System Configuration.....         | 3  |
| 2 | External Devices Selection .....  | 7  |
| 3 | Communication Settings .....      | 8  |
| 4 | Setup Items .....                 | 20 |
| 5 | Cable Diagrams .....              | 25 |
| 6 | Supported Devices.....            | 53 |
| 7 | Device Code and Address Code..... | 60 |
| 8 | Error Messages.....               | 62 |

## 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:



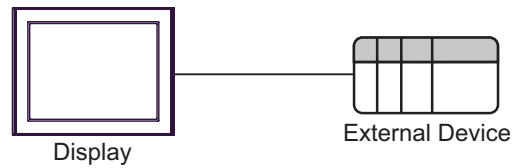
# 1 System Configuration

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

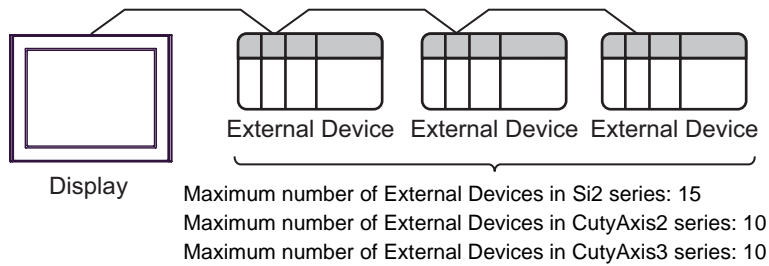
| Series    | CPU  | Link I/F                            | SIO Type               | Setting Example                  | Cable Diagram                  |
|-----------|--|-------------------------------------|------------------------|----------------------------------|--------------------------------|
| Si2       | Si-02LDE<br>Si-02DE<br>Si-05LDE<br>Si-05DE                                 | RM connector on<br>External Device  | RS-422/485<br>(2 wire) | "Setting Example 1"<br>(page 8)  | "Cable Diagram 1"<br>(page 25) |
| CutyAxis2 | QT-0P3AXE<br>QT-0P5AXE<br>QT-001AXE<br>QT-002AXE<br>QT-004AXE              | CN4 connector on<br>External Device | RS-232C                | "Setting Example 2"<br>(page 10) | "Cable Diagram 2"<br>(page 36) |
|           |  |                                     | RS-422/485<br>(4 wire) | "Setting Example 3"<br>(page 12) | "Cable Diagram 3"<br>(page 37) |
| CutyAxis3 | RT-0P3AXE<br>RT-0P5AXE<br>RT-001AXE<br>RT-002AXE<br>RT-004AXE<br>RT-008AXE | CN4 connector on<br>External Device | RS-232C                | "Setting Example 4"<br>(page 14) | "Cable Diagram 2"<br>(page 36) |
|           |  |                                     | RS-422/485<br>(4 wire) | "Setting Example 5"<br>(page 16) | "Cable Diagram 3"<br>(page 37) |
|           |  |                                     | RS-422/485<br>(2 wire) | "Setting Example 6"<br>(page 18) | "Cable Diagram 4"<br>(page 43) |

## ■ Connection Configuration

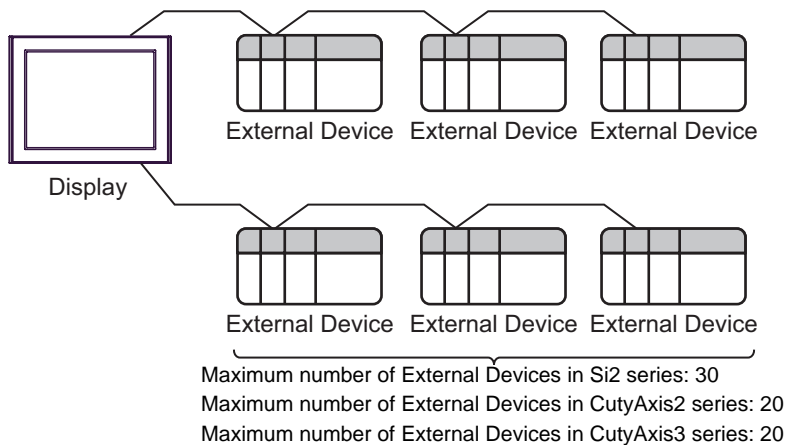
- 1:1 Connection



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



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



## ■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 <sup>*1</sup> , COM2,<br>COM3 <sup>*1</sup> , COM4                | -                    | -                    |
| PS-3450A, PS-3451A,<br>PS3000-BA, PS3001-BD                      | COM1, COM2 <sup>*1*2</sup>   | COM2 <sup>*1*2</sup> | COM2 <sup>*1*2</sup> |
| PS-3650A, PS-3651A   | COM1 <sup>*1</sup>   | -                    | -                    |
| PS-3700A (Pentium®4-M)<br>PS-3710A                               | COM1 <sup>*1</sup> , COM2 <sup>*1</sup> ,<br>COM3 <sup>*2</sup> , COM4 | COM3 <sup>*2</sup>   | COM3 <sup>*2</sup>   |
| PS-3711A   | COM1 <sup>*1</sup> , COM2 <sup>*2</sup>                                | COM2 <sup>*2</sup>   | COM2 <sup>*2</sup>   |
| PL-3000B, PL-3600T,<br>PL-3600K, PL-3700T,<br>PL-3700K, PL-3900T | COM1 <sup>*1*2</sup> , COM2 <sup>*1</sup> ,<br>COM3, COM4              | COM1 <sup>*1*2</sup> | COM1 <sup>*1*2</sup> |

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

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

### DIP switch setting: RS-232C

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

\*1 When using PS-3450A, PS-3451A, PS3000-BA and PS3001-BD, turn ON the set value.

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

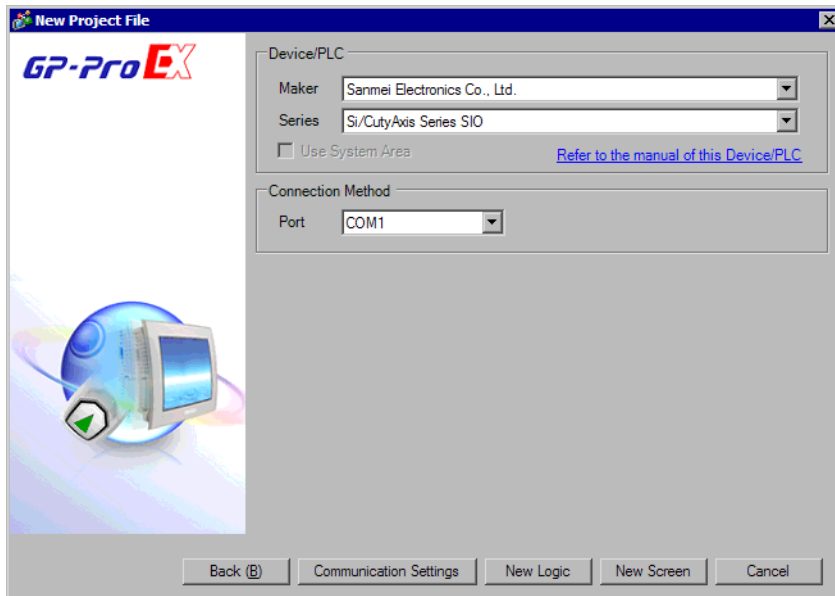
| DIP switch | Setting | Description   |
|------------|---------|---|
| 1          | OFF     | Reserved (always OFF)                                   |
| 2          | ON      | SIO type: RS-422/485                                    |
| 3          | ON      |   |
| 4          | OFF     | Output mode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

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

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

## 2 External Devices Selection

Select the External Device to be connected to the Display.



| Setup Items     | Setup Description  |
|-----------------|--|
| Maker           | Select the maker of the External Device to be connected. Select "Sanmei Electronics Co., Ltd.".  |
| Series          | Select a model (series) of the External Device to be connected and connection method. Select "Si/CutyAxis Series SIO".<br>In System configuration, check to make sure the external device to which you are connecting is supported in "Si/CutyAxis Series SIO".<br>☞ "1 System Configuration" (page 3) |
| Use System Area | Not available for this driver.   |
| Port            | Select the Display port to be connected to the External Device.  |

## 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 [System Settings] workspace, select [Device/PLC].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Includes fields for 'Maker' (Sanmei Electronics Co., Ltd.), 'Series' (Si/CutyAxis Series SIO), and 'Port' (COM1). There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to '1' with a 'Change' link.
- Communication Settings:**
  - SIO Type:** Radio buttons for RS232C, RS422/485(2wire) (selected), and RS422/485(4wire).
  - Speed:** A dropdown menu set to 9600.
  - Data Length:** Radio buttons for 7 and 8 (selected).
  - Parity:** Radio buttons for NONE, EVEN (selected), and ODD.
  - Stop Bit:** Radio buttons for 1 (selected) and 2.
  - Flow Control:** Radio buttons for NONE (selected), ER(DTR/CTS), and XON/XOFF.
  - Timeout:** A spinner box set to 3 (sec).
  - Retry:** A spinner box set to 2.
  - Wait To Send:** A spinner box set to 2 (ms).
- RI / VCC:** Radio buttons for RI (selected) and VCC. A note below explains: '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:** A button to reset settings.
- Device-Specific Settings:**
  - Allowable Number of Devices/PLCs:** Set to 16.
  - Number / Device Name:** A table with one entry: '1' | 'PLC1'.
  - Settings:** A button to open individual settings for the selected device.
  - Series=Si2, Axis Address=0:** A text field showing the current configuration for the selected device.

#### ◆ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window to add another External Device.

The screenshot shows the 'Individual Device Settings' dialog box for 'PLC1'. It contains the following fields and controls:

- Series:** A dropdown menu set to 'Si2'.
- Axis Address:** A spinner box set to '0'.
- Default:** A button to reset settings.
- OK (O) / Cancel:** Standard dialog box buttons.

A note in the dialog states: 'If you change the series, please reconfirm all address settings.'



## ■ 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 [System Settings] workspace, select [Device/PLC].

The screenshot shows the 'Device/PLC 1' configuration window. It includes a 'Summary' section with fields for 'Maker' (Sanmei Electronics Co., Ltd.), 'Series' (Si/CutyAxis Series SIO), and 'Port' (COM1). Below this is the 'Communication Settings' section, which includes radio buttons for 'SIO Type' (RS232C, RS422/485(2wire), RS422/485(4wire)), a 'Speed' dropdown (9600), '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), and 'Wait To Send' (2 ms). There is also a section for 'RI / VCC' with radio buttons and a note: '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.' A 'Default' button is located at the bottom right of this section. At the bottom of the window, there is a 'Device-Specific Settings' section with a table for 'Allowable Number of Devices/PLCs' (16) and a table with columns 'Number' and 'Device Name'. The table contains one entry: '1' | 'PLC1'. To the right of the table is a 'Settings' button and a text field containing 'Series=CutyAxis2, Axis Address=0'.

#### ◆ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window to add another External Device.

The screenshot shows the 'Individual Device Settings' dialog box for 'PLC1'. It has a 'Series' dropdown menu set to 'CutyAxis2'. Below this is a note: 'If you change the series, please reconfirm all address settings.' There is an 'Axis Address' spinner box set to '0'. At the bottom, there are 'Default', 'OK (O)', and 'Cancel' buttons.

## ■ 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 [System Settings] workspace, select [Device/PLC].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Includes fields for 'Maker' (Sanmei Electronics Co., Ltd.), 'Series' (Si/CutyAxis Series SIO), and 'Port' (COM1). There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to '1' with a 'Change' link.
- Communication Settings:**
  - SIO Type:** Radio buttons for RS232C, RS422/485(2wire), and RS422/485(4wire). RS422/485(4wire) is selected.
  - Speed:** A dropdown menu set to '9600'.
  - Data Length:** Radio buttons for 7 and 8. 8 is selected.
  - Parity:** Radio buttons for NONE, EVEN, and ODD. EVEN is selected.
  - Stop Bit:** Radio buttons for 1 and 2. 1 is selected.
  - Flow Control:** Radio buttons for NONE, ER(DTR/CTS), and XON/XOFF. NONE is selected.
  - Timeout:** A numeric spinner set to '3' (sec).
  - Retry:** A numeric spinner set to '2'.
  - Wait To Send:** A numeric spinner set to '2' (ms).
- RI / VCC:** Radio buttons for RI and VCC. VCC is selected. A note below states: "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." A 'Default' button is present.
- Device-Specific Settings:**
  - 'Allowable Number of Devices/PLCs' is set to '16'.
  - A table lists devices:

| Number | Device Name | Settings                         |
|--------|-------------|----------------------------------|
| 1      | PLC1        | Series=CutyAxis2, Axis Address=0 |

##### ◆ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window to add another External Device.

The 'Individual Device Settings' dialog box for 'PLC1' is shown. It contains the following elements:

- Series:** A dropdown menu set to 'CutyAxis2'. A note below reads: "If you change the series, please reconfirm all address settings."
- Axis Address:** A numeric spinner set to '0'.
- Buttons for 'Default', 'OK (O)', and 'Cancel'.

## ■ 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 [System Settings] workspace, select [Device/PLC].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Includes fields for 'Maker' (Sanmei Electronics Co., Ltd.), 'Series' (Si/CutyAxis Series SIO), and 'Port' (COM1). There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to '1' with a 'Change' link.
- Communication Settings:**
  - SIO Type:** Radio buttons for RS232C (selected), RS422/485(2wire), and RS422/485(4wire).
  - Speed:** A dropdown menu set to 9600.
  - Data Length:** Radio buttons for 7 and 8 (selected).
  - Parity:** Radio buttons for NONE, EVEN (selected), and ODD.
  - Stop Bit:** Radio buttons for 1 (selected) and 2.
  - Flow Control:** Radio buttons for NONE (selected), ER(DTR/CTS), and XON/XOFF.
  - Timeout:** A numeric spinner set to 3 (sec).
  - Retry:** A numeric spinner set to 2.
  - Wait To Send:** A numeric spinner set to 2 (ms).
- RI / VCC:** Radio buttons for RI (selected) and VCC. A note below states: "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." A 'Default' button is present.
- Device-Specific Settings:**
  - 'Allowable Number of Devices/PLCs' is set to 16.
  - A table with columns 'Number' and 'Device Name' shows one entry: '1' | 'PLC1'.
  - A 'Settings' button is next to the table.
  - Below the table, it says 'Series=CutyAxis3, Axis Address=0'.

#### ◆ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window to add another External Device.

The screenshot shows the 'Individual Device Settings' dialog box for 'PLC1'. It contains the following elements:

- Title Bar:** 'Individual Device Settings' with a close button.
- Header:** 'PLC1'.
- Series:** A dropdown menu set to 'CutyAxis3'.
- Warning:** A text box stating: "If you change the series, please reconfirm all address settings."
- Axis Address:** A numeric spinner set to 0.
- Buttons:** 'Default', 'OK (O)', and 'Cancel'.

## ■ 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 [System Settings] workspace, select [Device/PLC].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Includes fields for 'Maker' (Sanmei Electronics Co., Ltd.), 'Series' (Si/CutyAxis Series SIO), and 'Port' (COM1). There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to '1' with a 'Change' link.
- Communication Settings:**
  - SIO Type:** Radio buttons for RS232C, RS422/485(2wire), and RS422/485(4wire). RS422/485(4wire) is selected.
  - Speed:** A dropdown menu set to '9600'.
  - Data Length:** Radio buttons for 7 and 8. 8 is selected.
  - Parity:** Radio buttons for NONE, EVEN, and ODD. EVEN is selected.
  - Stop Bit:** Radio buttons for 1 and 2. 1 is selected.
  - Flow Control:** Radio buttons for NONE, ER(DTR/CTS), and XON/XOFF. NONE is selected.
  - Timeout:** A numeric field set to '3' with '(sec)' next to it.
  - Retry:** A numeric field set to '2'.
  - Wait To Send:** A numeric field set to '2' with '(ms)' next to it.
- RI / VCC:** Radio buttons for RI and VCC. VCC is selected. A note below states: '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:** A button to reset settings.
- Device-Specific Settings:**
  - Allowable Number of Devices/PLCs:** Set to '16'.
  - Number:** A table with columns 'Number' and 'Device Name'. Row 1: '1' | 'PLC1'.
  - Settings:** A field for 'Series=CutyAxis3, Axis Address=0'.

#### ◆ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window to add another External Device.

The screenshot shows the 'Individual Device Settings' dialog box for 'PLC1'. It contains the following elements:

- Title Bar:** 'Individual Device Settings' with a close button.
- Series:** A dropdown menu set to 'CutyAxis3'.
- Warning:** A text box stating 'If you change the series, please reconfirm all address settings.'
- Axis Address:** A numeric field set to '0'.
- Buttons:** 'Default', 'OK (O)', and 'Cancel'.



## ■ 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 [System Settings] workspace, select [Device/PLC].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Includes fields for 'Maker' (Sanmei Electronics Co., Ltd.), 'Series' (Si/CutyAxis Series SIO), and 'Port' (COM1). There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to '1' with a 'Change' link.
- Communication Settings:**
  - SIO Type:** Radio buttons for RS232C, RS422/485(2wire) (selected), and RS422/485(4wire).
  - Speed:** A dropdown menu set to 9600.
  - Data Length:** Radio buttons for 7 and 8 (selected).
  - Parity:** Radio buttons for NONE, EVEN (selected), and ODD.
  - Stop Bit:** Radio buttons for 1 (selected) and 2.
  - Flow Control:** Radio buttons for NONE (selected), ER(DTR/CTS), and XON/XOFF.
  - Timeout:** A spinner box set to 3 (sec).
  - Retry:** A spinner box set to 2.
  - Wait To Send:** A spinner box set to 2 (ms).
- RI / VCC:** Radio buttons for RI (selected) and VCC. A note below states: "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." There is a 'Default' button.
- Device-Specific Settings:**
  - 'Allowable Number of Devices/PLCs' is set to 16.
  - A table with columns 'Number' and 'Device Name' shows one entry: '1' | 'PLC1'.
  - A 'Settings' button is next to the table.
  - Below the table, it says 'Series=CutyAxis3, Axis Address=0'.

#### ◆ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window to add another External Device.

The screenshot shows the 'Individual Device Settings' dialog box for 'PLC1'. It contains:

- Series:** A dropdown menu set to 'CutyAxis3'. A note below says: "If you change the series, please reconfirm all address settings."
- Axis Address:** A spinner box set to 0.
- Buttons for 'Default', 'OK (O)', and 'Cancel'.

## ■ 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 off-line mode.

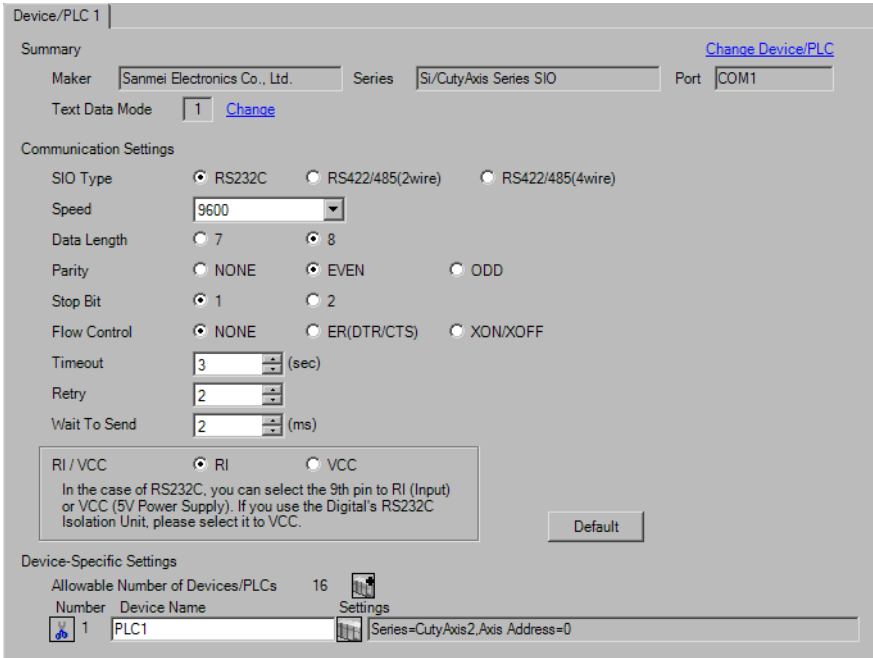
The setting of each parameter must match that of the External Device.

 "3 Communication Settings" (page 8)

### 4.1 Setup Items in GP Pro-EX

#### ■ Communication Settings

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





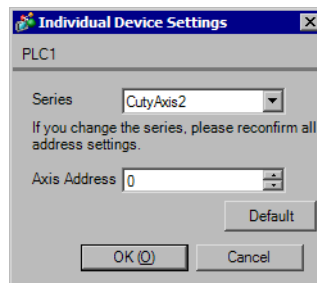
| Setup Items  | Setup Description  |
|--------------|--|
| SIO Type     | Select the SIO type to communicate with the External Device.<br><b>IMPORTANT</b><br>In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the Display.<br>If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed.<br>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.<br>It is necessary to change RI/5V by changeover switch of IPC when connect with IPC.<br>Please refer to the manual of the IPC for more detail. |

## ■ Device Setting

To display the [Individual Device Settings] dialog box, select the external device and click  [Settings] from [Device-Specific Settings] in the [Device/PLC] window. To connect multiple External Devices, click  from [Device-Specific Settings] in the [Device/PLC] window 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.<br><b>NOTE</b> <ul style="list-style-type: none"> <li>Use an integer from 0 to 14 to enter the axis address of the External Device, when using the Si2 series.</li> <li>Use an integer from 0 to 15 to enter the axis address of the External Device, when using the CutyAxis2 series or CutyAxis3 series.</li> </ul> |

## 4.2 Setup Items in Off-line Mode

### NOTE

- Refer to the Maintenance/Troubleshooting manual for information on how to enter off-line mode or about the operation.
- Cf. Maintenance/Troubleshooting Manual "Off-line Mode"
- The number of the setup items to be displayed for 1 page in the off-line mode depends on the Display in use. Please refer to the Reference manual for details.

### ■ Communication Settings

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

| Comm.                  | Device   | Option |          |                        |
|------------------------|--|--------|----------|------------------------|
| Si/CutyAxis Series SIO |  | [COM1] | Page 1/1 |                        |
| SIO Type               | RS422/485(2wire)   |        |          |                        |
| Speed                  | 9600   |        |          |                        |
| Data Length            | <input type="radio"/> 7 <input checked="" type="radio"/> 8                                 |        |          |                        |
| Parity                 | <input type="radio"/> NONE <input checked="" type="radio"/> EVEN <input type="radio"/> ODD |        |          |                        |
| Stop Bit               | <input checked="" type="radio"/> 1 <input type="radio"/> 2                                 |        |          |                        |
| Flow Control           | NONE   |        |          |                        |
| Timeout(s)             | 3  |        |          |                        |
| Retry                  | 2  |        |          |                        |
| Wait To Send(ms)       | 2  |        |          |                        |
| Exit                   |  | Back   |          | 2008/06/16<br>17:03:09 |

| Setup Items  | Setup Description  |
|--------------|--|
| SIO Type     | Select the SIO type to communicate with the External Device.<br><b>IMPORTANT</b><br>In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the Display.<br>If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed.<br>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].

| Comm.                  | Device | Option   |          |                        |
|------------------------|--------|----------|----------|------------------------|
|                        |        |          |          |                        |
| Si/CutyAxis Series SIO |        | [COM1]   | Page 1/1 |                        |
| Device/PLC Name        |        | [PLC1] ▼ |          |                        |
| Series                 |        | Si2      |          |                        |
| Axis Address           |        | [0] ▼ ▲  |          |                        |
| Exit                   |        | Back     |          | 2008/06/16<br>17:03:11 |

| 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    | <p>Enter the axis address of the External Device.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Use an integer from 0 to 14 to enter the axis address of the External Device, when using the Si2 series.</li> <li>Use an integer from 0 to 15 to enter the axis address of the External Device, when using the CutyAxis2 series or CutyAxis3 series.</li> </ul> |

## ■ 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].

| Comm.  | Device | Option |          |                        |
|--|--------|--------|----------|------------------------|
|  |        |        |          |                        |
| Si/CutyAxis Series SIO   |        | [COM1] | Page 1/1 |                        |
| RI / VCC <input checked="" type="radio"/> RI <input type="radio"/> VCC<br>In the case of RS232C, you can select<br>the 9th pin to RI(Input) or VCC(5V<br>Power Supply). If you use the Digital's<br>RS232C Isolation Unit, please select<br>it to VCC. |        |        |          |                        |
|  |        | Exit   | Back     | 2008/06/16<br>17:03:22 |

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

### NOTE

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



## 5 Cable 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<br>(Connection Port)  | Cable |  | Notes                  |
|---|-------|--|------------------------|
| GP3000* <sup>1</sup> (COM1)<br>AGP-3302B (COM2)<br>ST* <sup>2</sup> (COM2)<br>LT (COM1) | 1A    | COM port conversion adapter by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M* <sup>3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS | Cable length: 20m max. |
|   | 1B    | User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M* <sup>3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS   |                        |

Continued on the next page.

| Display<br>(Connection Port) | Cable |  | Notes                  |
|------------------------------|-------|--|------------------------|
| GP3000* <sup>4</sup> (COM2)  | 1C    | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M* <sup>3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS              | Cable length: 20m max. |
|                              | 1D    | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M* <sup>3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS   |                        |
| IPC* <sup>5</sup>            | 1E    | COM port conversion adapter by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M* <sup>3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS |                        |
|                              | 1F    | User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M* <sup>3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS   |                        |

Continued on the next page.


| Display<br>(Connection Port) | Cable |  | Notes                  |
|------------------------------|-------|--|------------------------|
| GP-4106 (COM1)               | 1G    | User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M <sup>*3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS | Cable length: 20m max. |
| GP-4107 (COM1)               | 1H    | User-created cable<br>+<br>RS485 master cable by Sanmei Electronics Co., Ltd.<br>Si-RSM□□M <sup>*3</sup><br>+<br>RS485 slave cable by Sanmei Electronics Co., Ltd.<br>Si-RSS |                        |

\*1 All GP3000 models except AGP-3302B

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

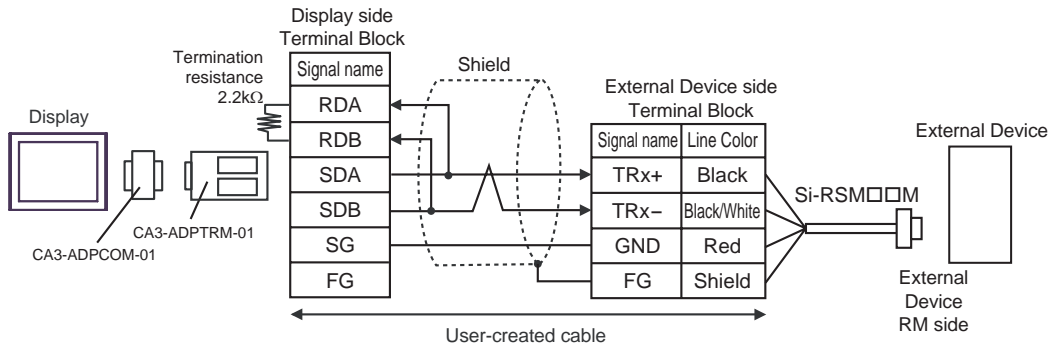
\*3 "□□" represents cable lengths.

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

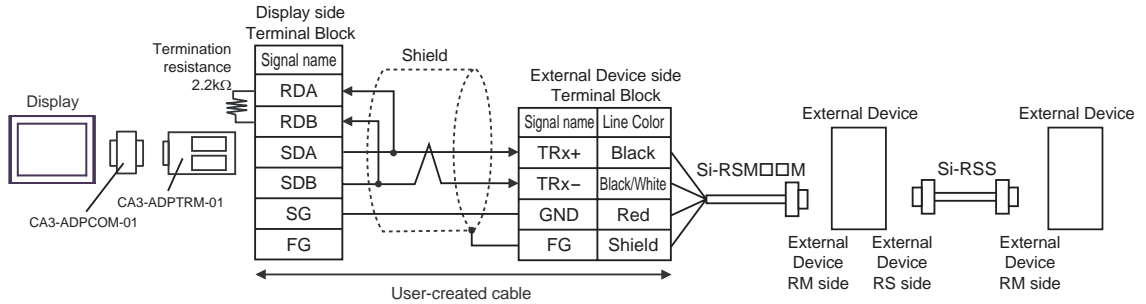
\*5 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.  
 "■ IPC COM Port" (page 5)

1A)

- 1:1 Connection

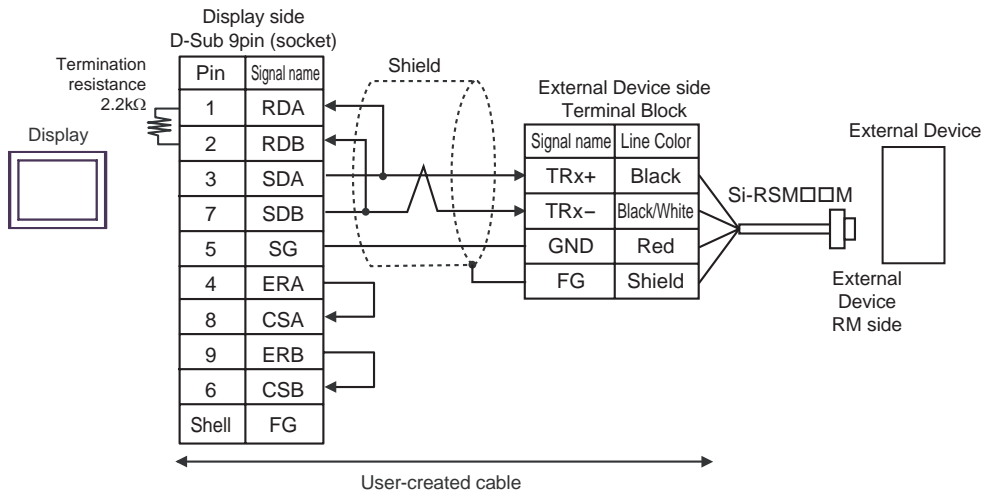


- 1:n Connection

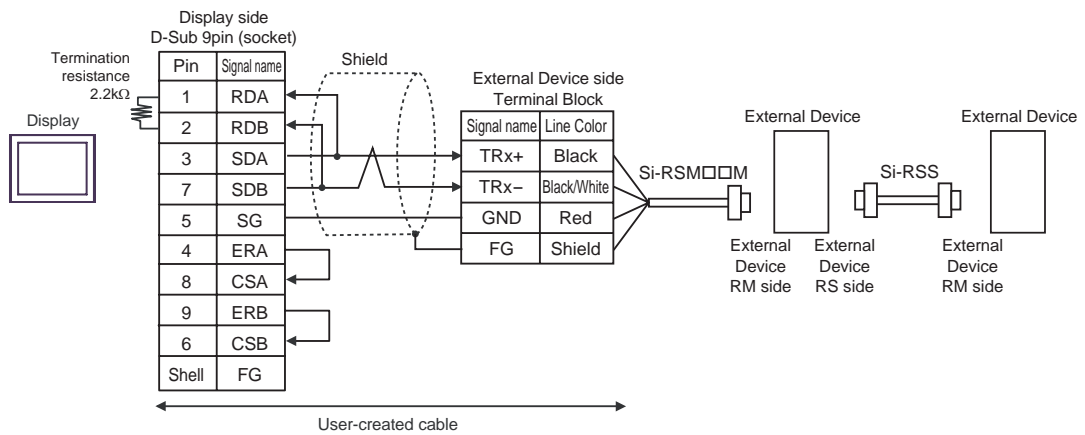


1B)

- 1:1 Connection

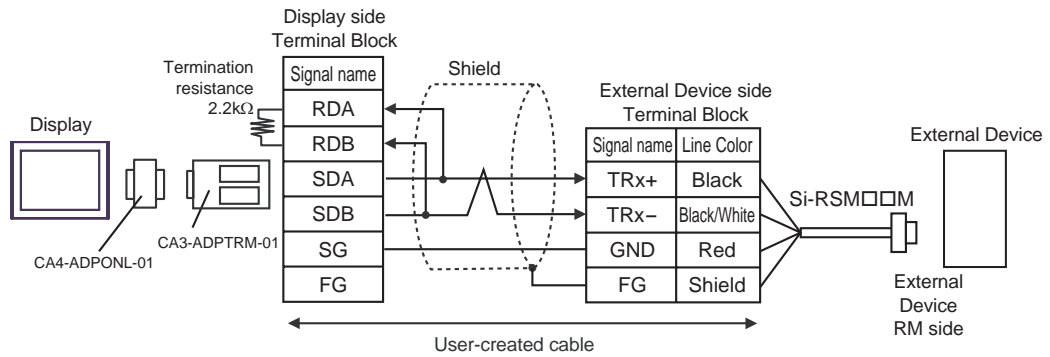


- 1:n Connection

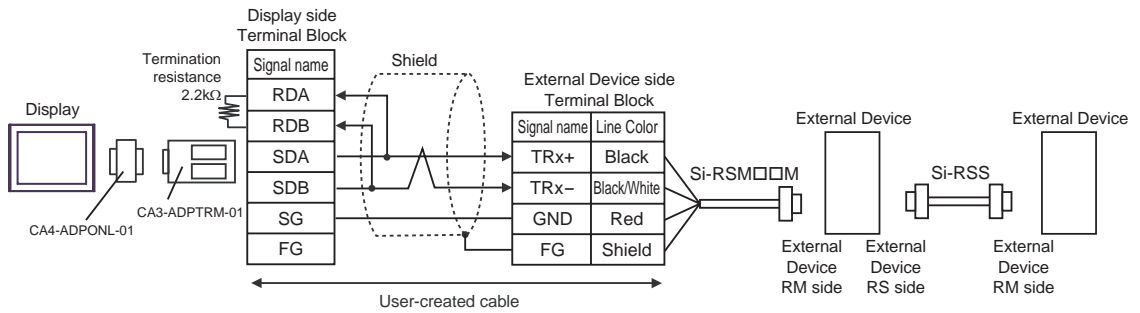


1C)

- 1:1 Connection

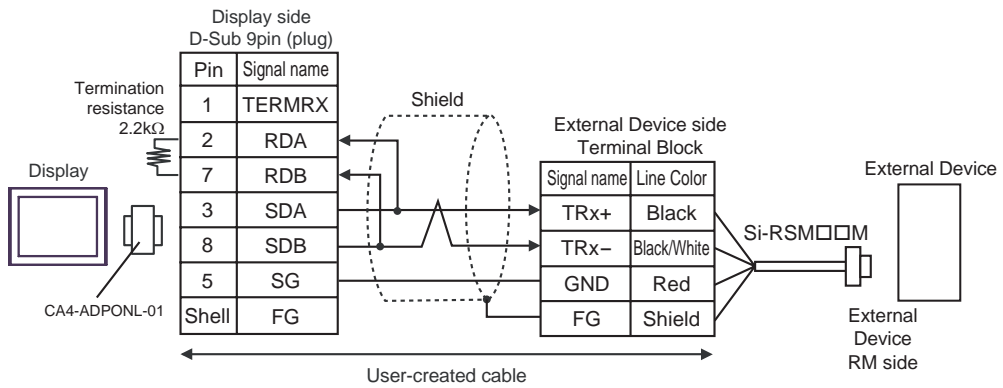


- 1:n Connection

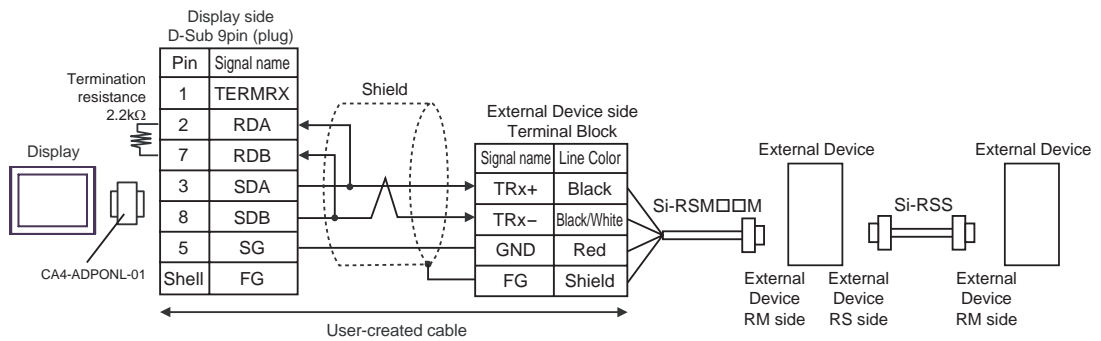


1D)

- 1:1 Connection

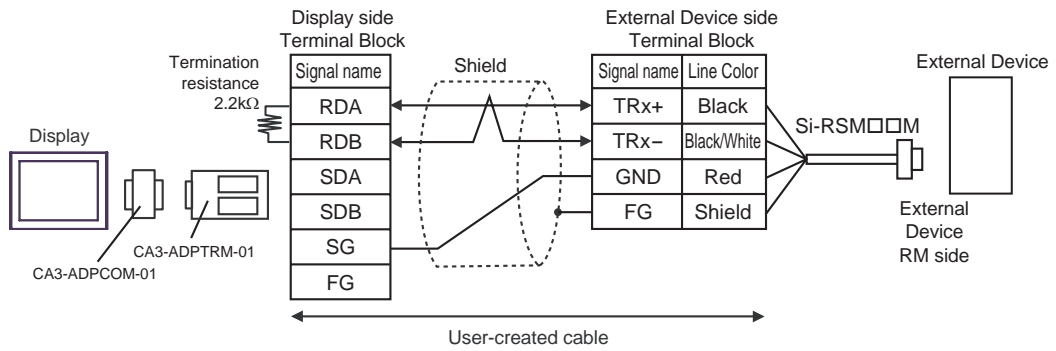


- 1:n Connection

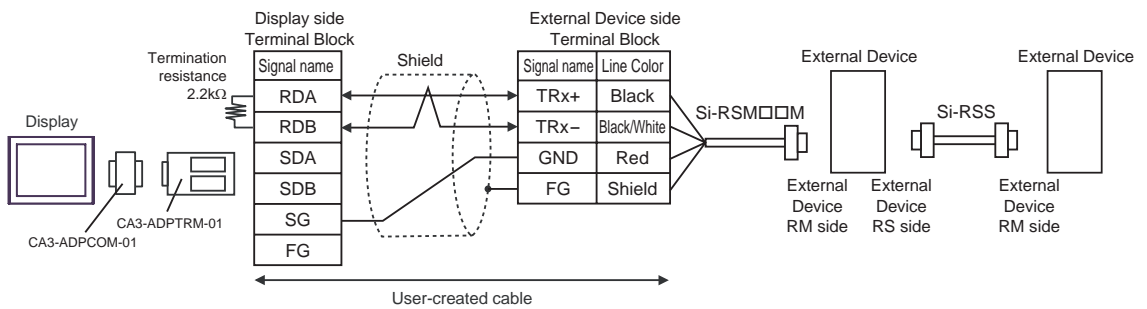


1E)

- 1:1 Connection



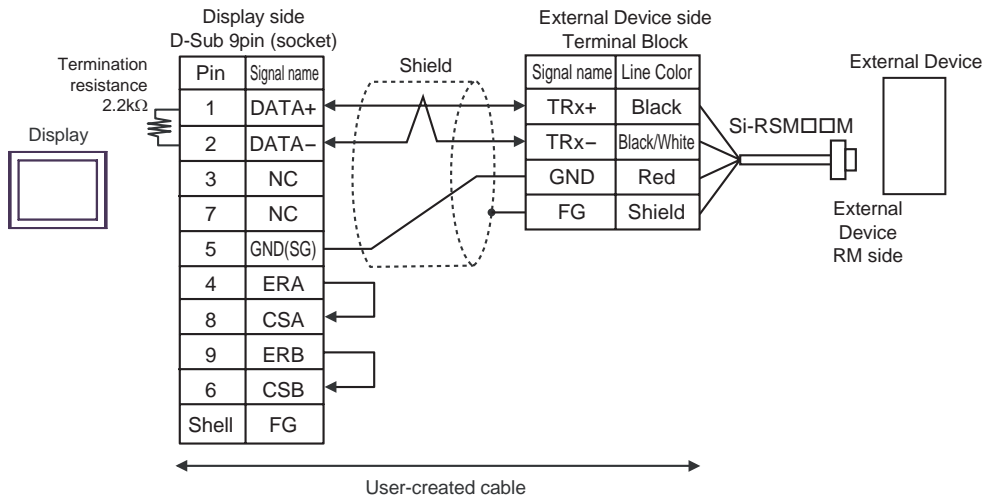
- 1:n Connection



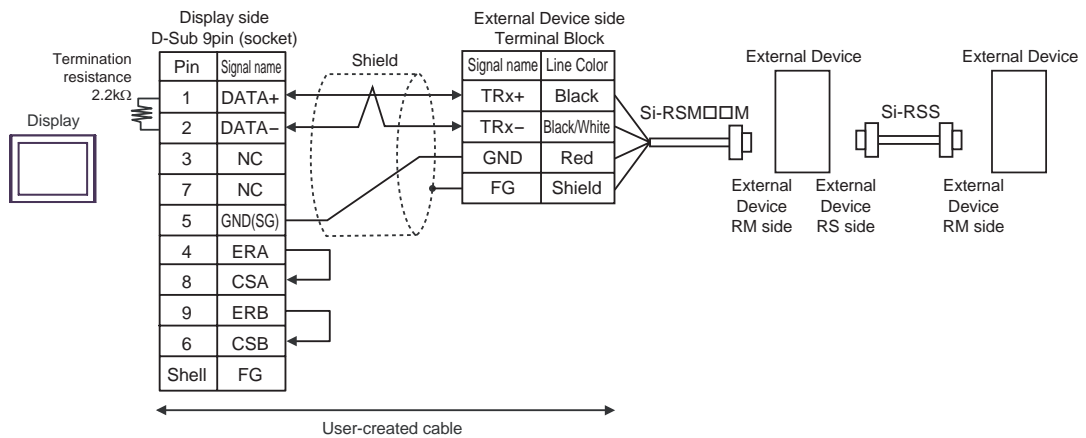


1F)

- 1:1 Connection

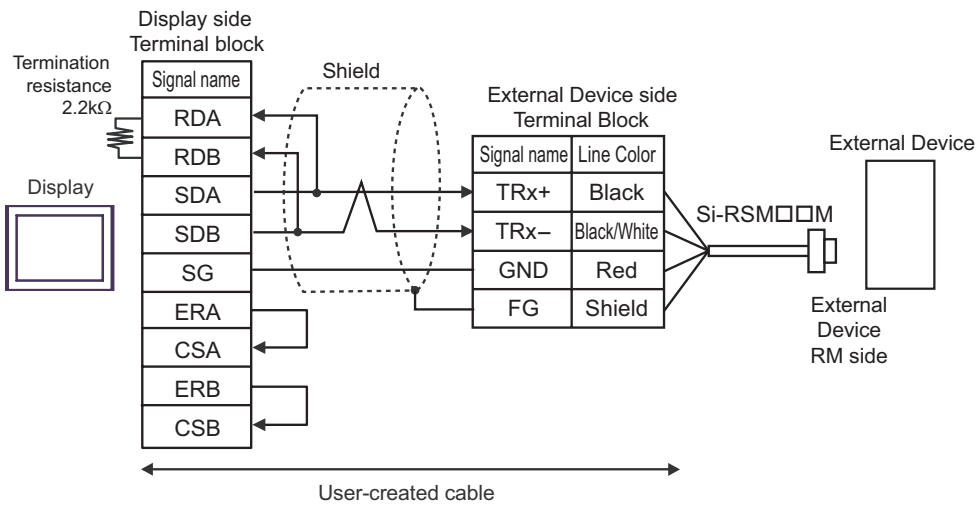


- 1:n Connection

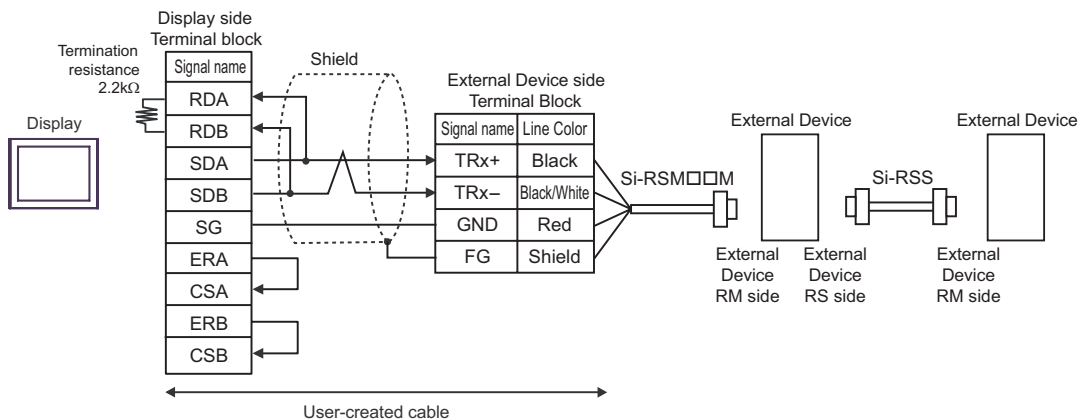


1G)

- 1:1 Connection



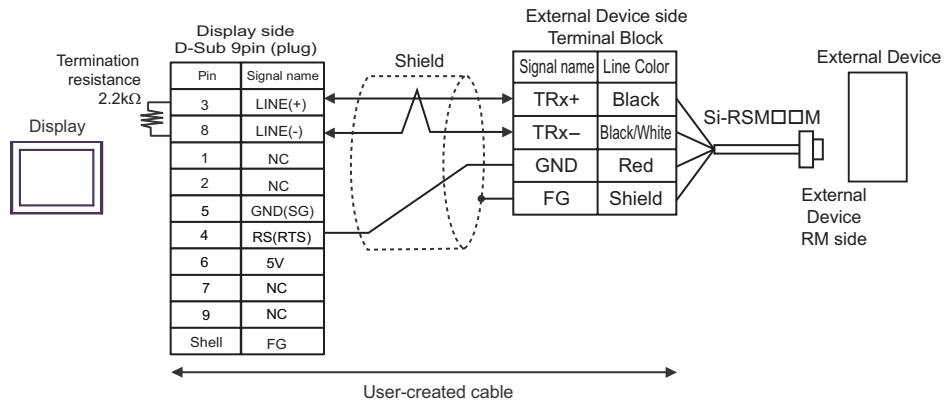
- 1:n Connection

**IMPORTANT**

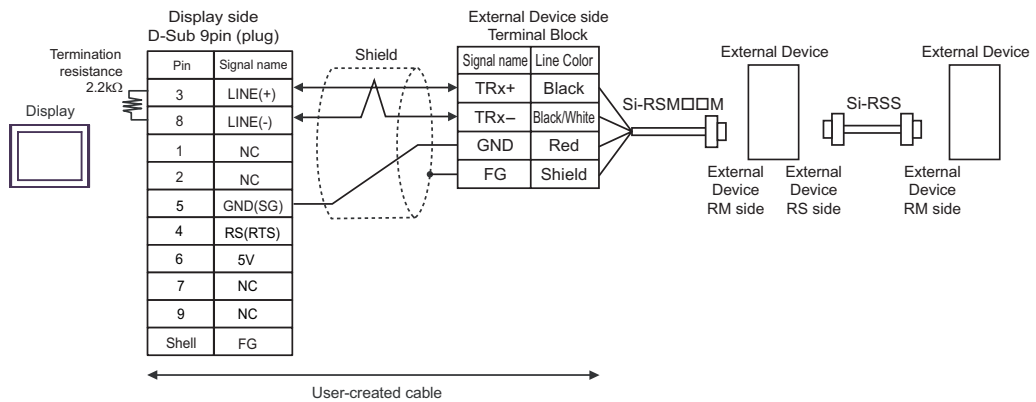
- Set the DIP Switch 1-4 on the rear of the Display to OFF.

1H)

- 1:1 Connection



- 1:n Connection

**IMPORTANT**

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

**NOTE**

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

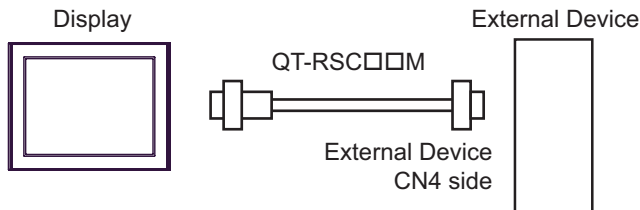
Cable Diagram 2

| Display<br>(Connection Port)  | Cable |  | Notes |
|---|-------|--|-------|
| GP3000 (COM1)<br>ST (COM1)<br>LT (COM1)<br>IPC* <sup>1</sup><br>PC/AT | 2A    | RS232C cable by Sanmei Electronics Co., Ltd.<br>QT-RSC□□M* <sup>2</sup>                            |       |
| GP-4105 (COM1)  | 2B    | User-created cable<br>+<br>RS232C cable by Sanmei Electronics Co., Ltd.<br>QT-RSC□□M* <sup>2</sup> |       |

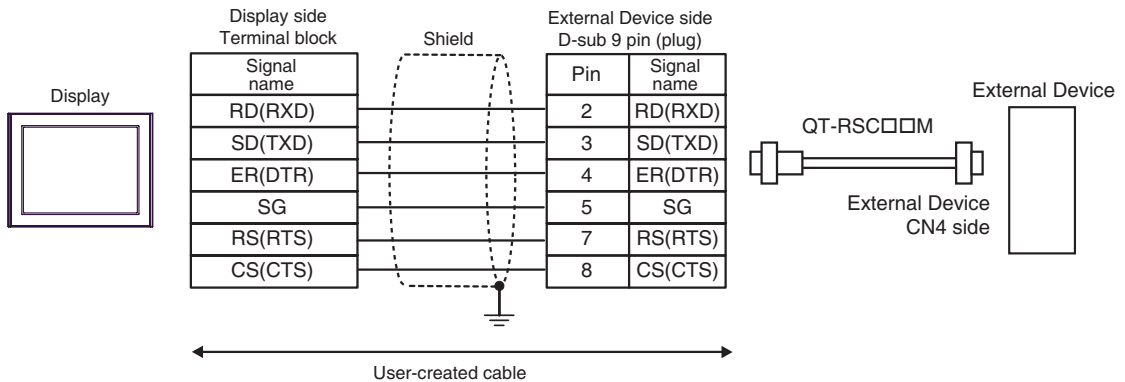
\*1 Only the COM port which can communicate by RS-232C can be used.  
☞ "■ IPC COM Port" (page 5)

\*2 "□□" represents cable lengths.

2A)



2B)



Cable Diagram 3

| Display<br>(Connection Port)   | Cable |  | Notes                                   |
|--|-------|--|---|
| GP3000* <sup>1</sup> (COM1)<br>AGP-3302B (COM2)<br>ST* <sup>2</sup> (COM2)<br>LT (COM1)<br>IPC* <sup>3</sup> | 3A    | COM port conversion adapter by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>4</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS | Cable length: 20m<br>max.* <sup>5</sup> |
|  | 3B    | User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>4</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |   |
| GP3000* <sup>6</sup> (COM2)  | 3C    | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>4</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS              |   |
|  | 3D    | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>4</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |   |
| GP-4106 (COM1)   | 3E    | User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>4</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |   |

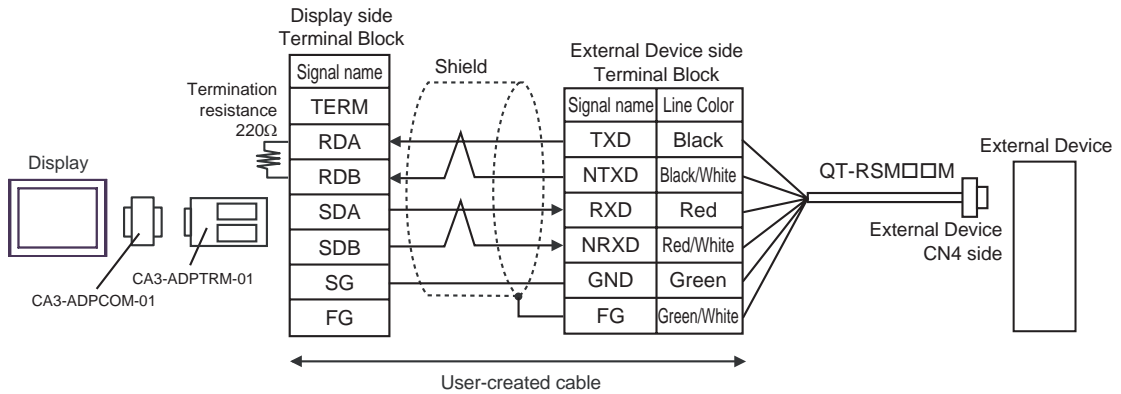
\*1 All GP3000 models except AGP-3302B

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

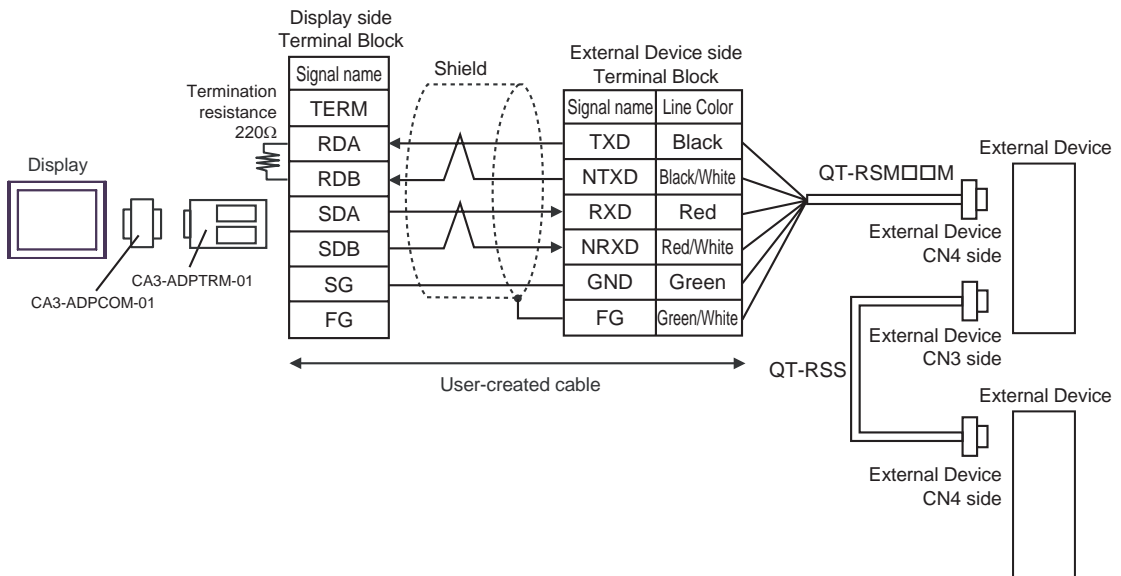
- \*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.  
☞ "■ IPC COM Port" (page 5)
- \*4 "□□" represents cable lengths.
- \*5 When use the CutyAxis3 series, make the length of each cable 10m max.
- \*6 All GP3000 models except GP-3200 series and AGP-3302B

3A)

- 1:1 Connection



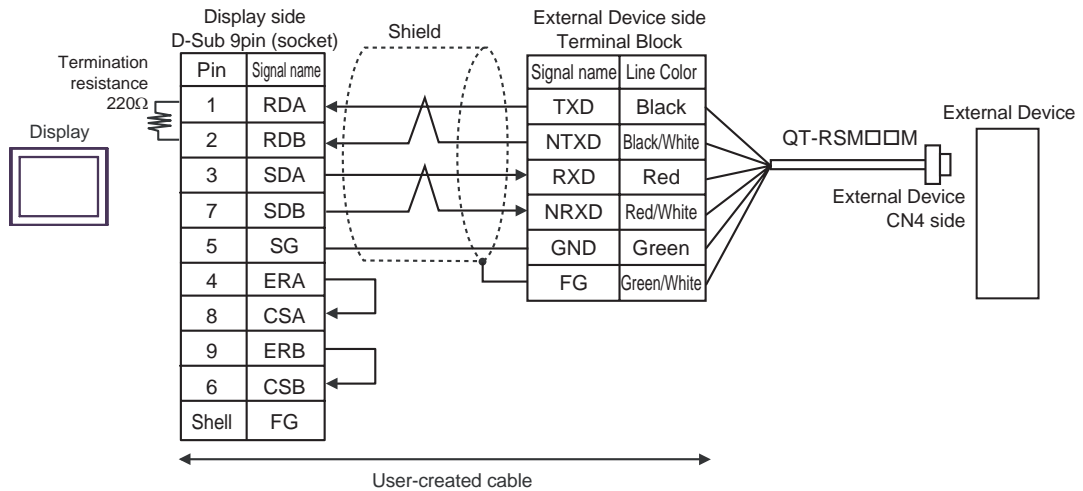
- 1:n Connection

**NOTE**

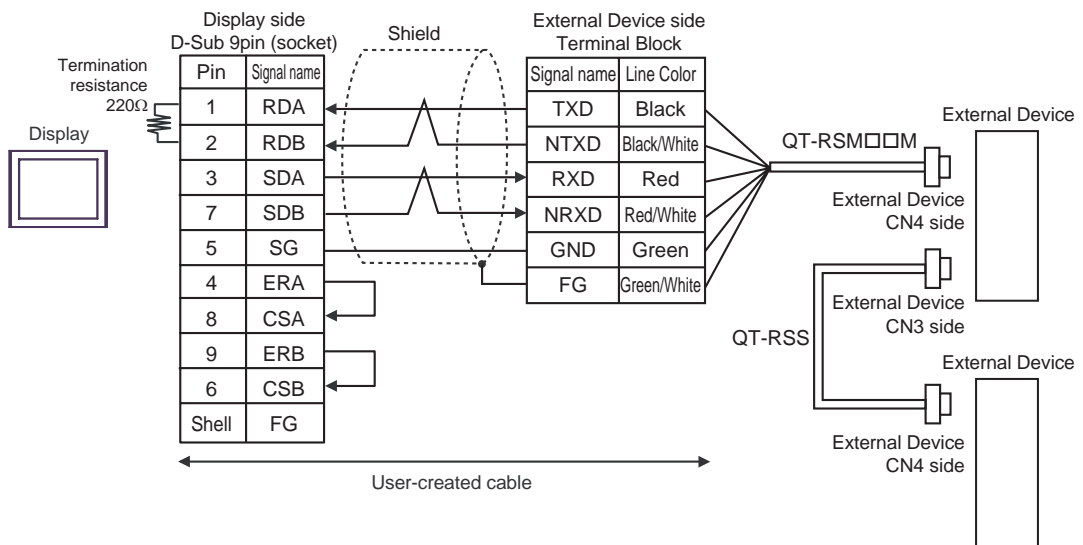
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., Ltd.

3B)

- 1:1 Connection



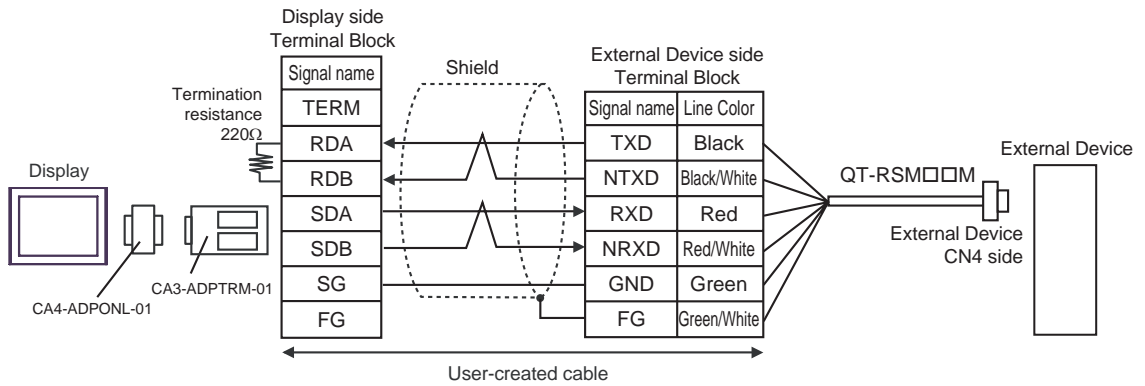
- 1:n Connection

**NOTE**

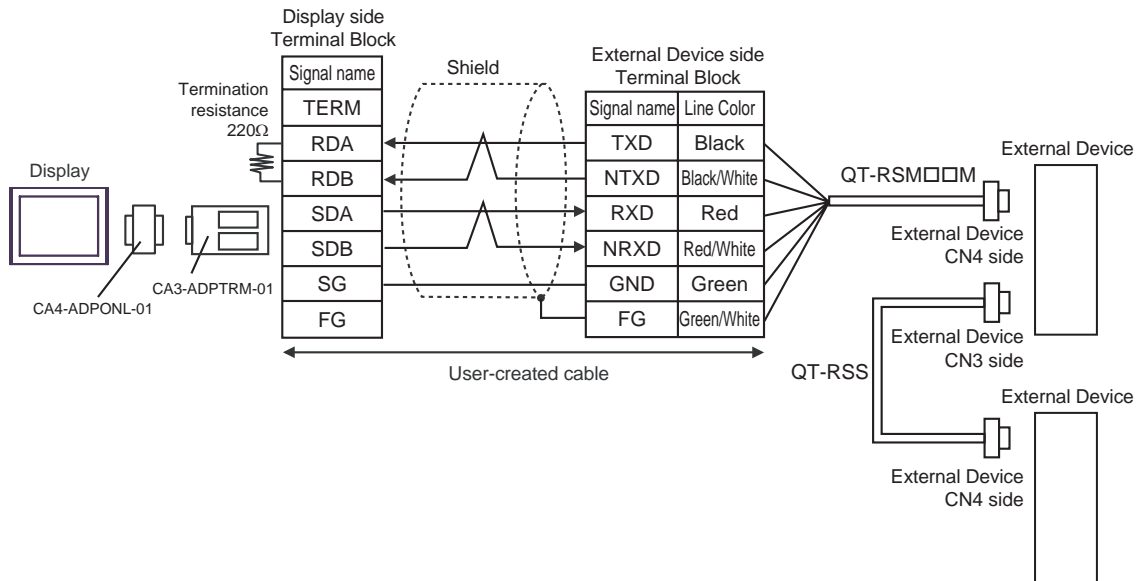
- Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., Ltd.

3C)

- 1:1 Connection



- 1:n Connection

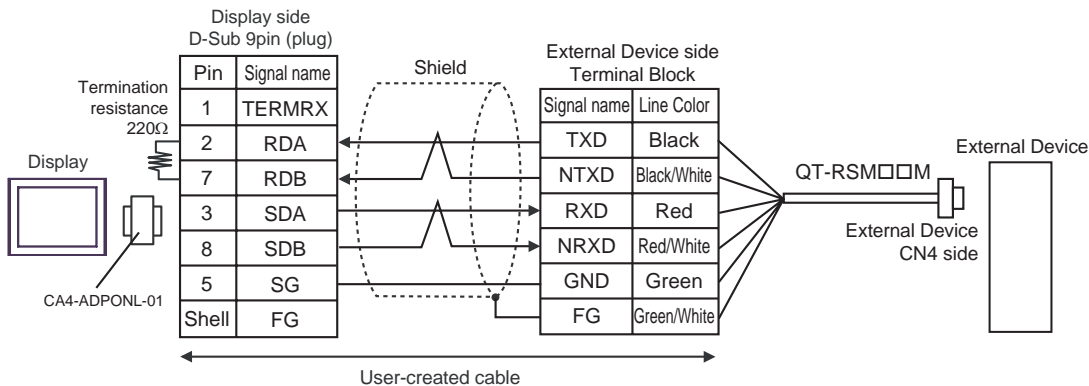
**NOTE**

- 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.

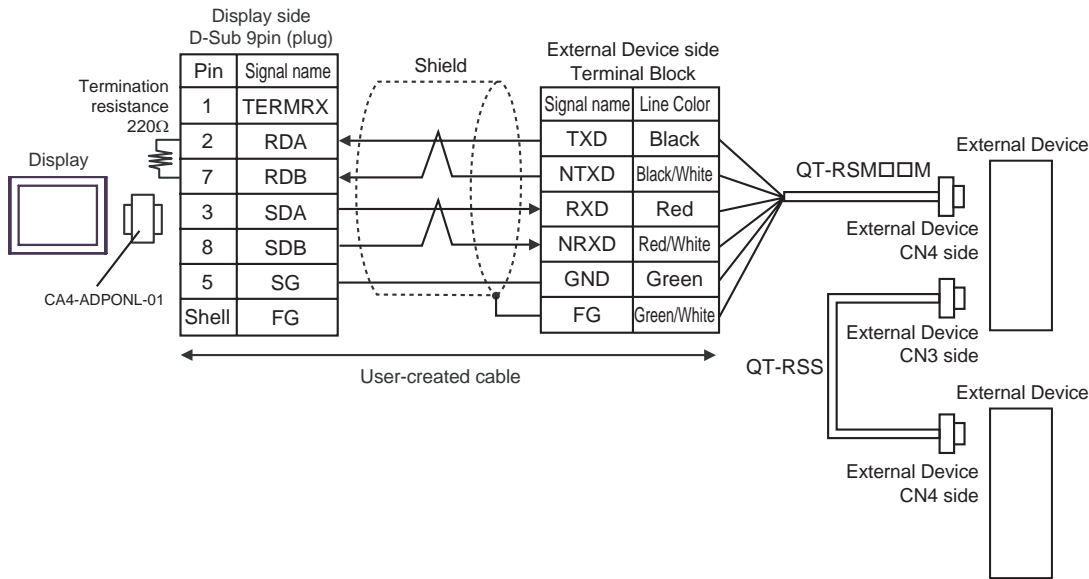


3D)

• 1:1 Connection



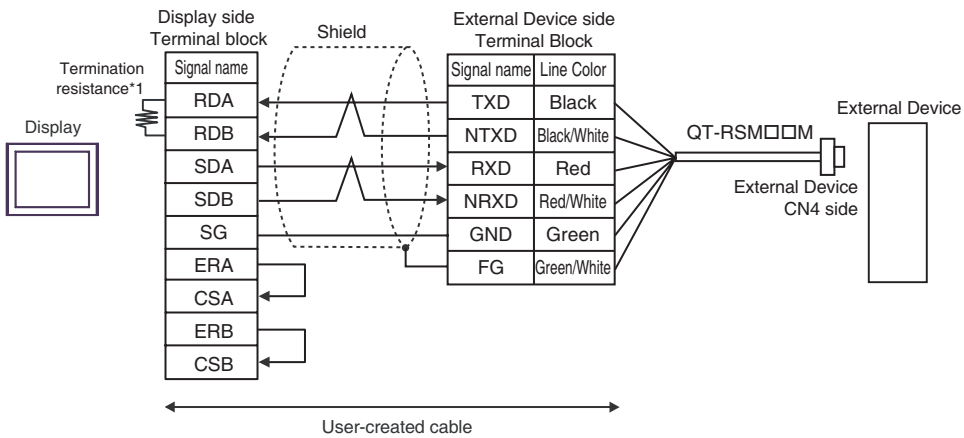
• 1:n Connection



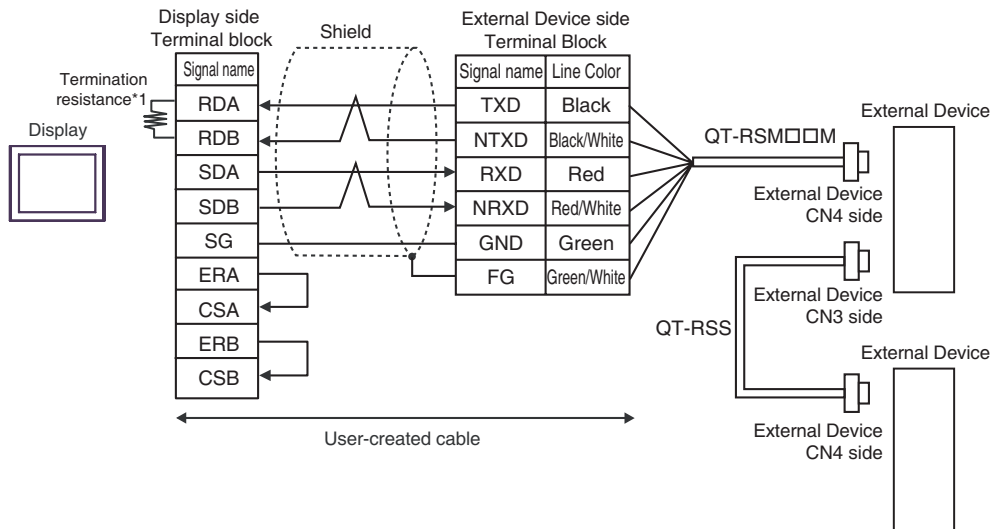
**NOTE** • Short-circuit the CN3's 6 pin (RT) and the 5 pin (NRXD) of the terminated External Device so that 220Ω termination resistance is activated. We recommend using a QT-RST by Sanmei Electronics Co., Ltd.

3E)

## • 1:1 Connection



## • 1:n Connection

**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.

\*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        |

Cable Diagram 4

| Display<br>(Connection Port)  | Cable |  | Notes                                |
|---|-------|--|--------------------------------------|
| GP3000* <sup>1</sup> (COM1)<br>AGP-3302B (COM2)<br>ST* <sup>2</sup> (COM2)<br>LT (COM1) | 4A    | COM port conversion adapter by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>3</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS | Cable length: 20m max.* <sup>4</sup> |
|   | 4B    | User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>3</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |                                      |
| GP3000* <sup>5</sup> (COM2)   | 4C    | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>3</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS              |                                      |
|   | 4D    | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M* <sup>3</sup><br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |                                      |

Continued on the next page.

| Display<br>(Connection Port) | Cable |  | Notes                    |
|------------------------------|-------|--|--------------------------|
| IPC*6                        | 4E    | COM port conversion adapter by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter by Pro-face<br>CA3-ADPTRM-01<br>+<br>User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M*3<br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS | Cable length: 20m max.*4 |
|                              | 4F    | User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M*3<br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |                          |
| GP-4106 (COM1)               | 4G    | User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M*3<br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |                          |
| GP-4107 (COM1)               | 4H    | User-created cable<br>+<br>RS422 master cable by Sanmei Electronics Co., Ltd.<br>QT-RSM□□M*3<br>+<br>RS422 slave cable by Sanmei Electronics Co., Ltd.<br>QT-RSS   |                          |


\*1 All GP3000 models except AGP-3302B

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

\*3 "□□" represents cable lengths.

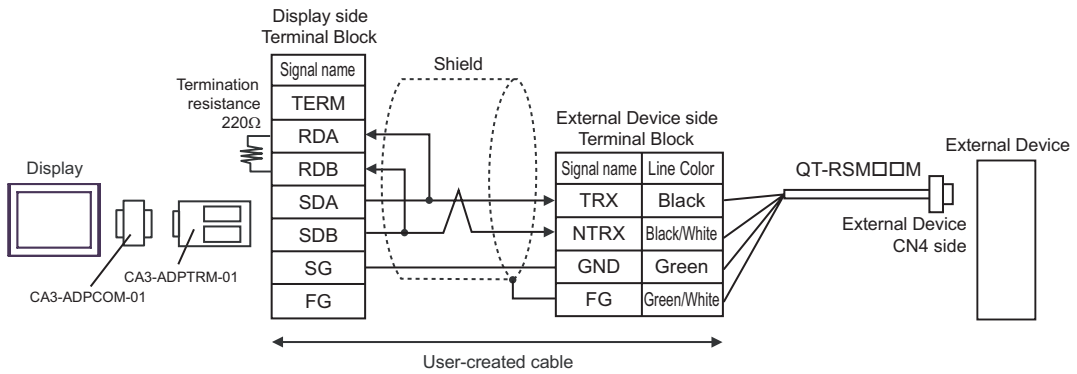
\*4 When using the CutyAxis3 series, make the length of each cable 10m max.

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

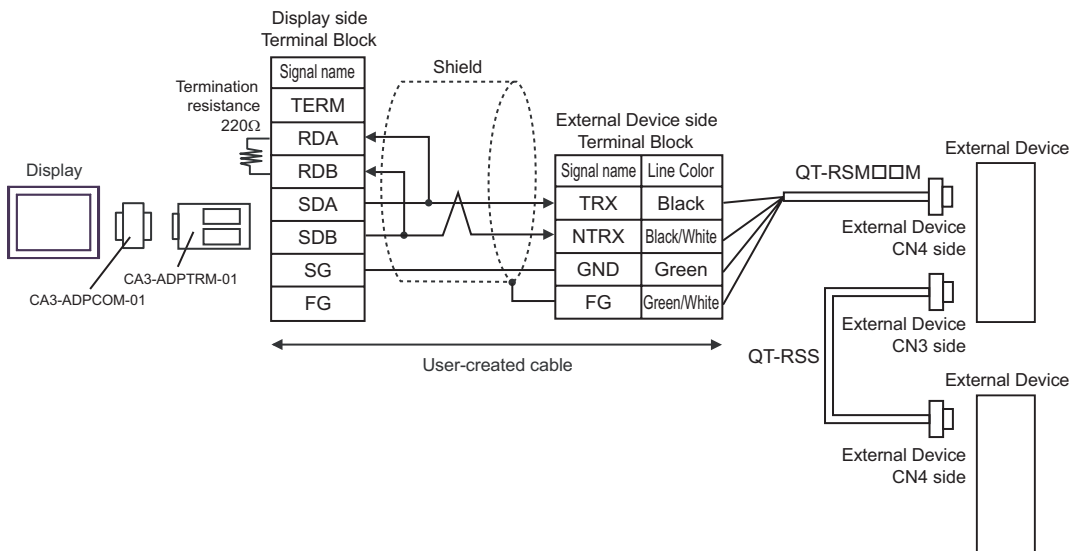
\*6 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.  
 "■ IPC COM Port" (page 5)

4A)

- 1:1 Connection



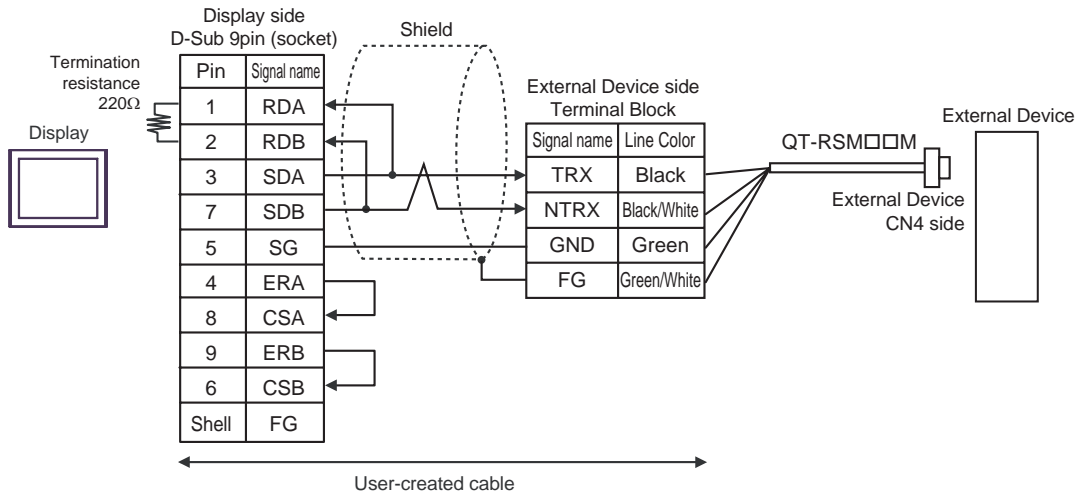
- 1:n Connection

**NOTE**

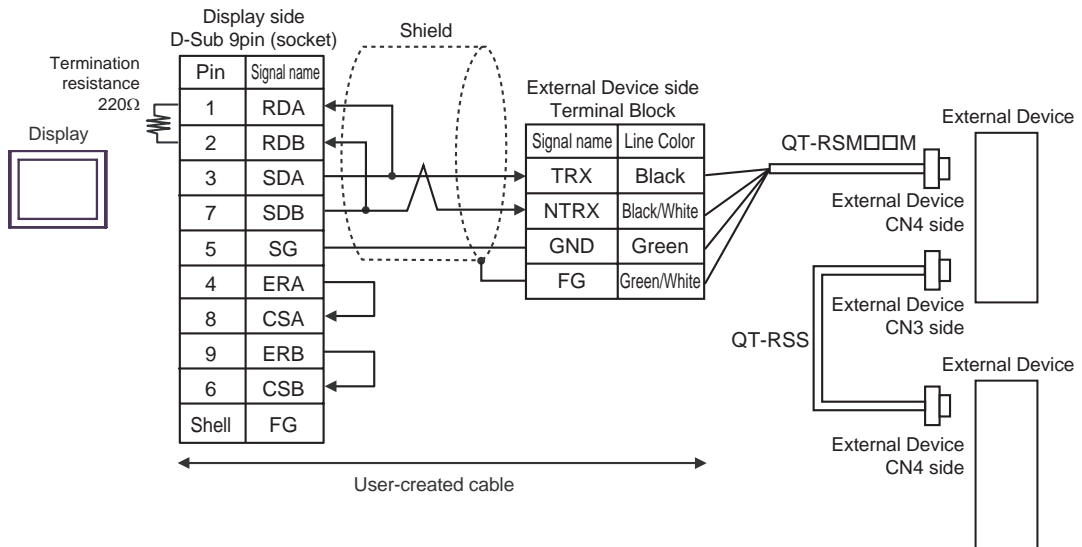
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4B)

- 1:1 Connection



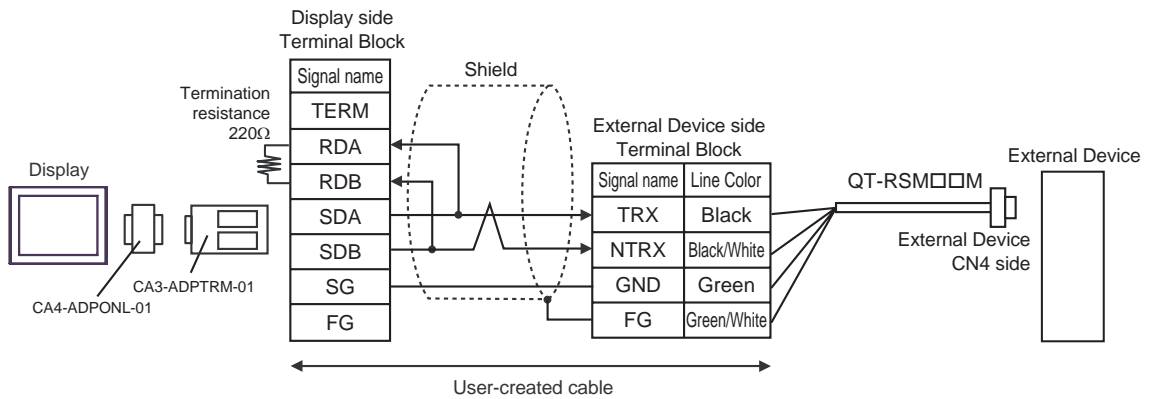
- 1:n Connection

**NOTE**

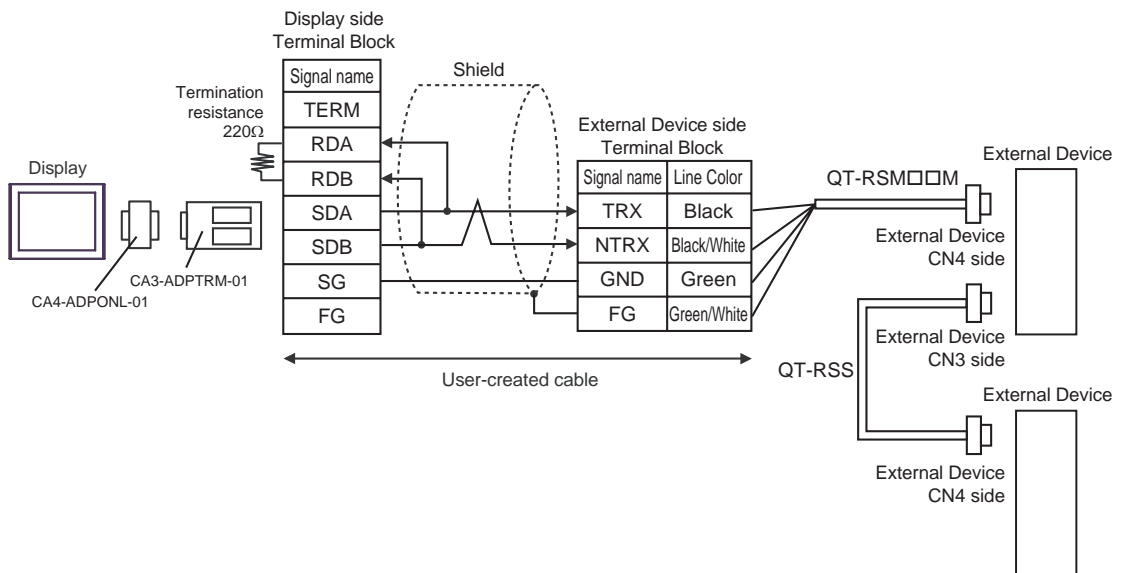
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4C)

- 1:1 Connection



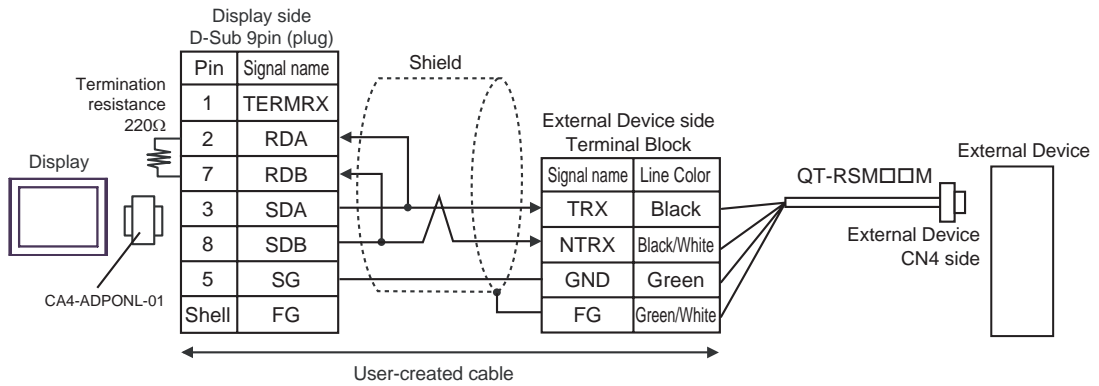
- 1:n Connection

**NOTE**

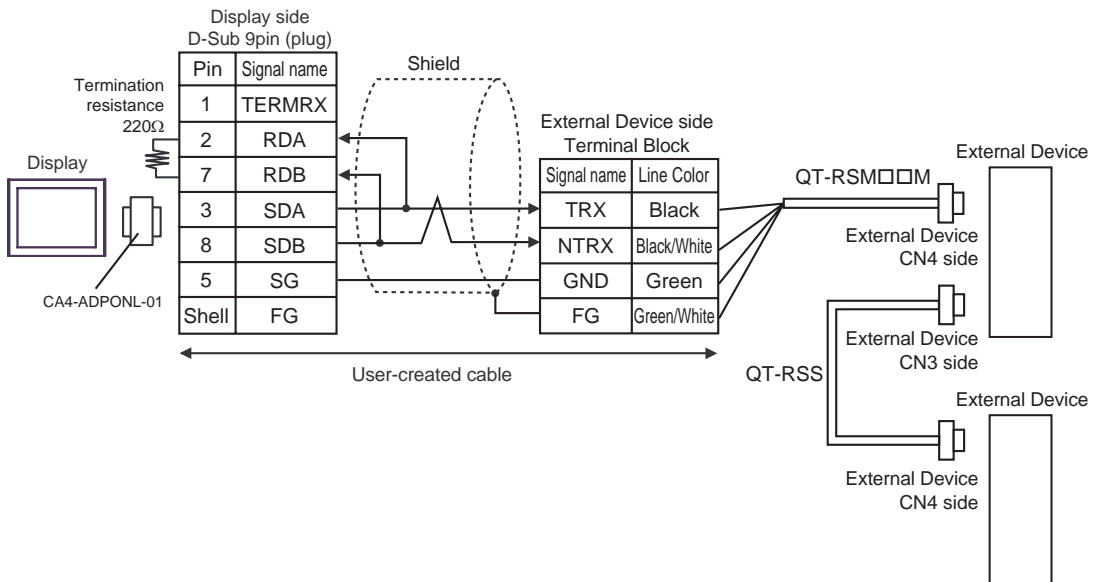
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4D)

- 1:1 Connection



- 1:n Connection

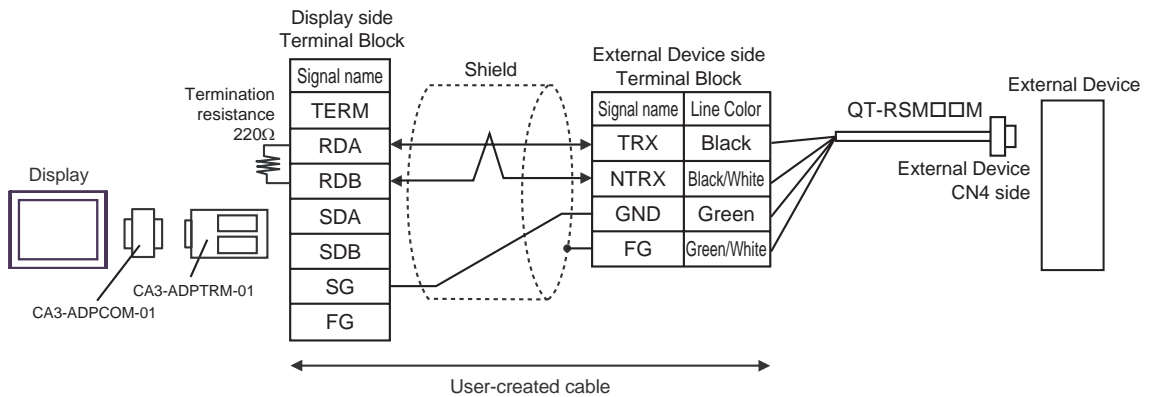
**NOTE**

- 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.

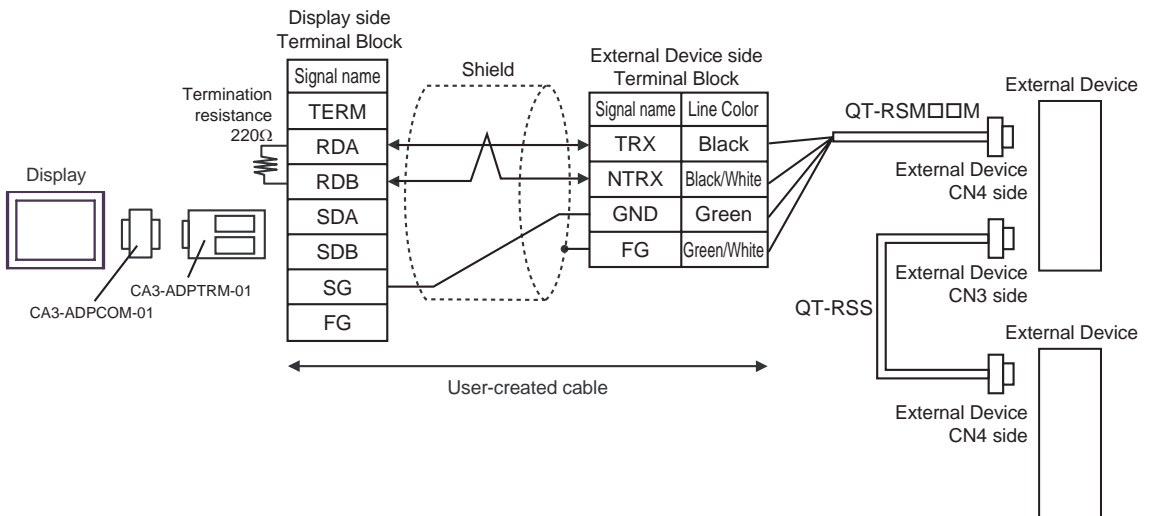


4E)

- 1:1 Connection



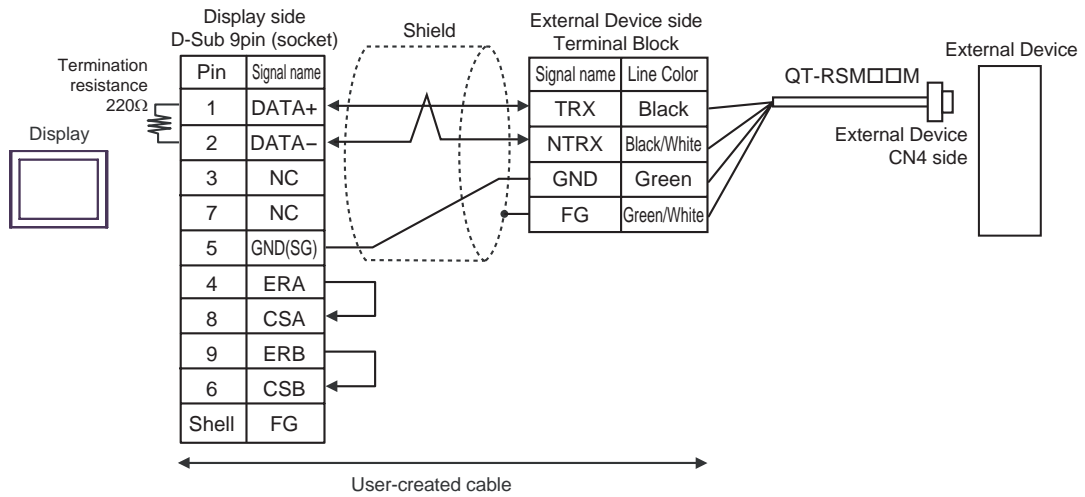
- 1:n Connection

**NOTE**

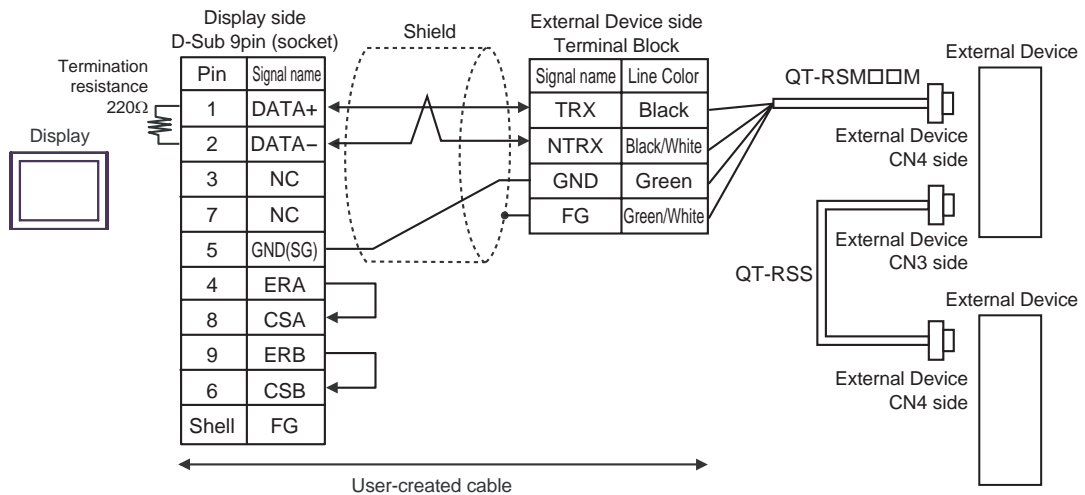
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4F)

- 1:1 Connection



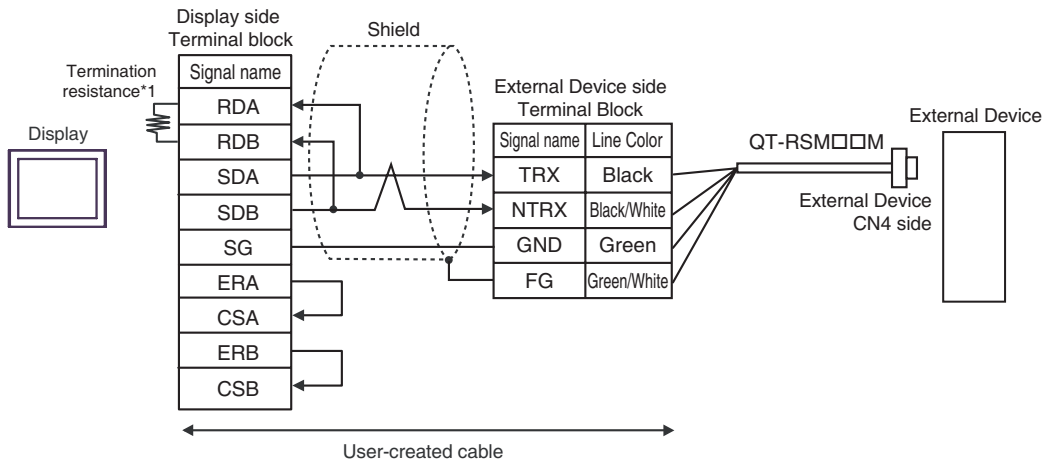
- 1:n Connection

**NOTE**

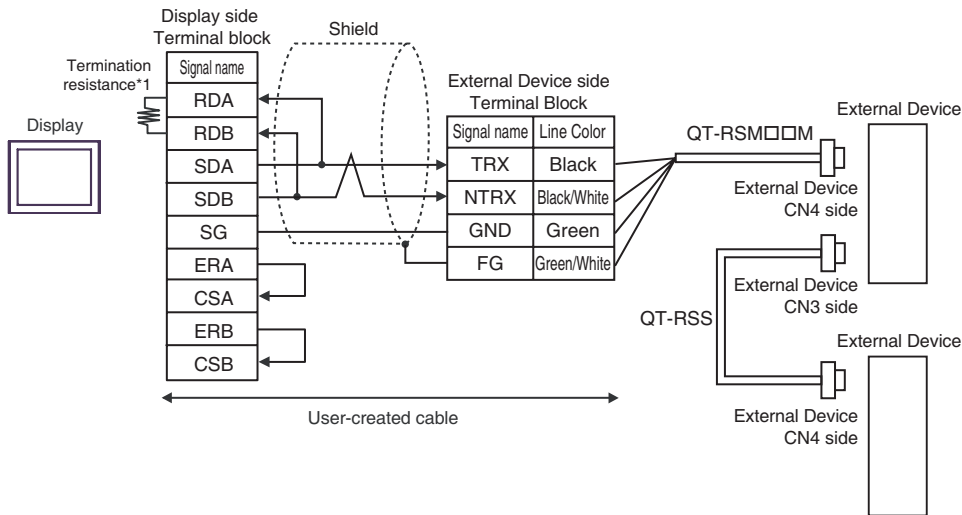
- Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

4G)

- 1:1 Connection



- 1:n Connection



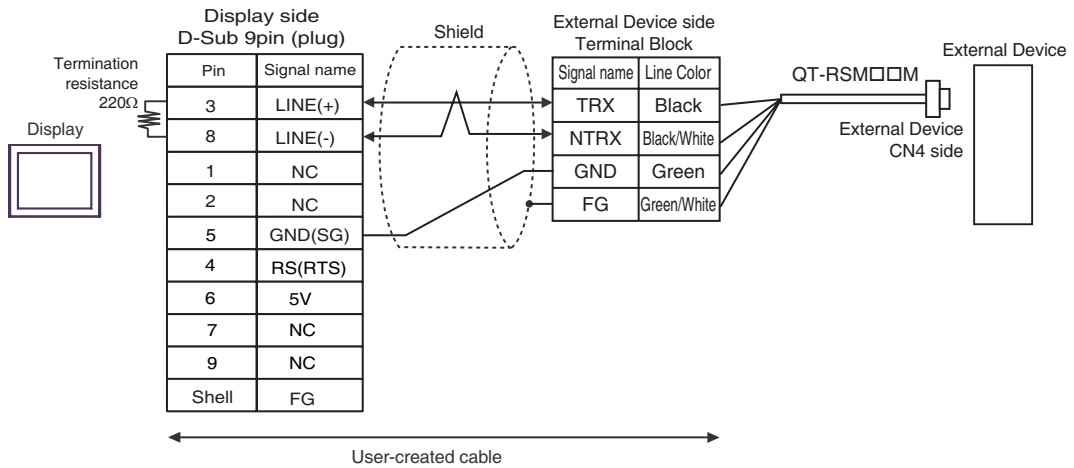
**NOTE** • Short-circuit the CN3's 6 pin (RT) and the 2 pin (NTRX) of the terminated External Device so that 220Ω termination resistance is activated.

\*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.

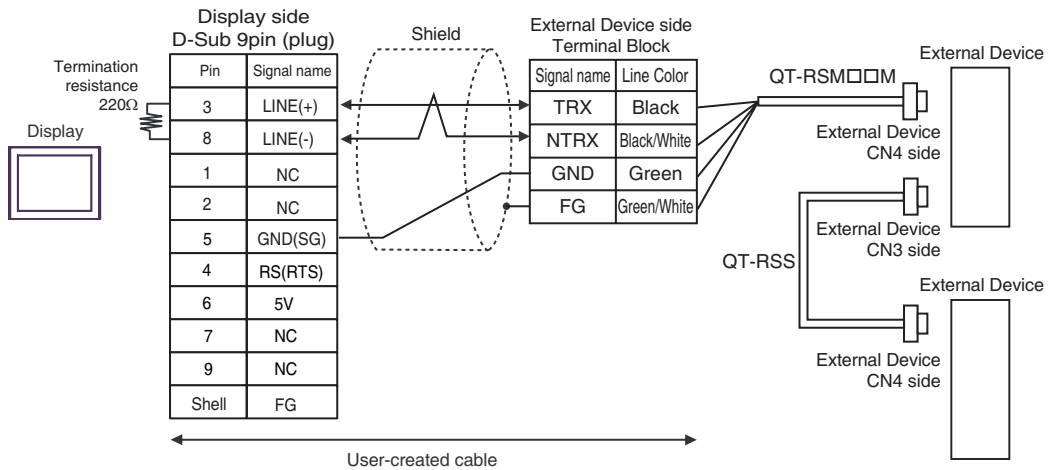
| DIP Switch No. | Set Value |
|----------------|-----------|
| 1              | OFF       |
| 2              | OFF       |
| 3              | OFF       |
| 4              | ON        |

4H)

## • 1:1 Connection



## • 1:n Connection

**IMPORTANT**

- The 5V output (Pin #6) on the GP-4107 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.

## 6 Supported Devices

The following table shows the range of supported device addresses.

### 6.1 CutyAxis2 series

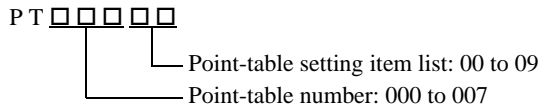
 This address can be specified as system data area.

| Device                       | Bit Address  | Word Address  | 32bits   | Notes  |
|------------------------------|--|---|--|--------|
| Parameter                    | P000.00 - P046.31  |  P000 - P046 |  | *1*2   |
| Point Table                  | PT00000.00 - PT00009.31<br>PT00100.00 - PT00109.31<br>⋮<br>PT00700.00 - PT00709.31       | PT00000 - PT00009<br>PT00100 - PT00109<br>⋮<br>PT00700 - PT00709                              | -  | *1*3   |
| Point Table (Continuation)   | PTC00000.00 - PTC00009.31<br>PTC00100.00 - PTC00109.31<br>⋮<br>PTC00700.00 - PTC00709.31 | PTC00000 - PTC00009<br>PTC00100 - PTC00109<br>⋮<br>PTC00700 - PTC00709                        | -  | *1*4*5 |
| Monitor                      | M00.00 - M17.31  | M00 - M17   |  | *1*6   |
| IO monitor                   | IO0.00 - IO0.31  | IO  |    | *1*6*7 |
| Alarm                        | ALM0.00 - ALM8.15  | ALM0 - ALM8   |  | *6*5   |
| Mechanical Origin Rewriting  | -  | ZSET  | -  | *5*8   |
| Positional Error Counter Set | -  | ESET  |  | *5*8   |
| Point Table Selection        | -  | PNT   |  | *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   |

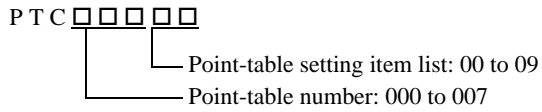
\*1 32-bit device.

\*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)"
- 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<br>PT00100.00 - PT00112.31<br>⋮<br>PT25500.00 - PT25512.31       | PT00000 - PT00012<br>PT00100 - PT00112<br>⋮<br>PT25500 - PT25512       | -  | *1*3   |
| Point Table (Continuation)   | PTC00000.00 - PTC00012.31<br>PTC00100.00 - PTC00112.31<br>⋮<br>PTC25500.00 - PTC25512.31 | PTC00000 - PTC00012<br>PTC00100 - PTC00112<br>⋮<br>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  |    | *6*7   |
| Mechanical Origin Rewriting  | -  | ZSET   | -  | *7*8   |
| Positional Error Counter Set | -  | ESET   |  | *7*8   |
| Point Table Selection        | -  | PNT  |  | *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)<br>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)"
- 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 | <p>Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>IP address is displayed as "IP address (Decimal): MAC address (Hex)".</li> <li>Device address is displayed as "Address: Device address".</li> <li>Received error codes are displayed as "Decimal [Hex]".</li> </ul> |

Examples of Error Messages

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

**NOTE**

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

### ■ 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.                   |