

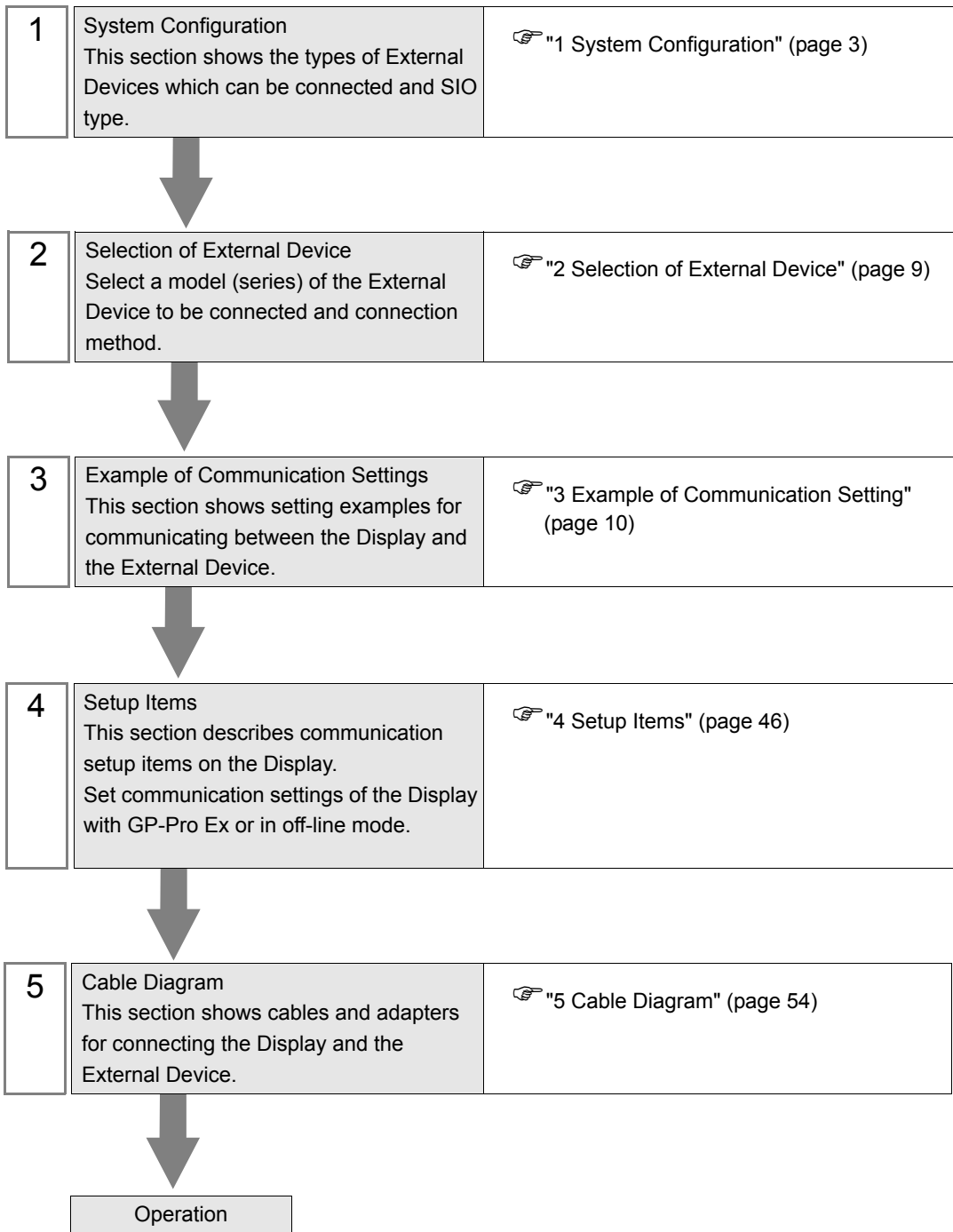
MODBUS SIO Master Driver

| | | |
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Introduction

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

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



1 System Configuration

1.1 Schneider Electric Industries External Devices

The following table lists system configurations for connecting Schneider Electric Industries External Devices and the Display.

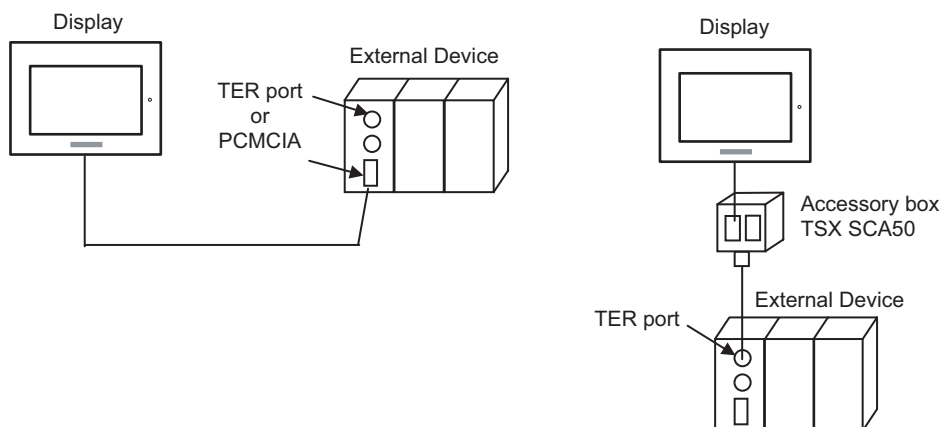
| Series | CPU | Link I/F | SIO Type | Setting Example | Cable Diagram |
|---------|--|---------------------------------------|------------------|--------------------------------|------------------------------|
| Micro | TSX 37 05 028DR1 TSX 37 08 056DR1 TSX 37 10 128DT1 TSX 37 10 128DR1 TSX 37 10 128DTK1 TSX 37 10 164DTK1 TSX 37 10 028AR1 TSX 37 10 028DR1 | TER port on CPU | RS232C | Setting Example 1 (page 10) | Cable Diagram 2 (page 63) |
| | | Accessory box TSX SCA 50 | RS485 (2wire) | Setting Example 3 (page 14) | Cable Diagram 3 (page 64) |
| | TSX 37 21 101 TSX 37 22 101 TSX 37 21 001 TSX 37 22 001 | TER port on CPU | RS232C | Setting Example 1 (page 10) | Cable Diagram 2 (page 63) |
| | | Accessory box TSX SCA 50 | RS485 (2wire) | Setting Example 3 (page 14) | Cable Diagram 3 (page 64) |
| | | PCMCIA card for RS232C TSX SCP 111 | RS232C | Setting Example 2 (page 12) | Cable Diagram 4 (page 74) |
| | | PCMCIA card for RS485 TSX SCP 114 | RS485 (2wire) | Setting Example 3 (page 14) | Cable Diagram 5 (page 76) |
| | TSX P57 103M TSX P57 153M TSX P57 203M TSX P57 253M TSX P57 303M TSX P57 353M TSX P57 453M | PCMCIA card for RS232C TSX SCP 111 | RS232C | Setting Example 4 (page 16) | Cable Diagram 4 (page 74) |
| | | PCMCIA card for RS485 TSX SCP 114 | RS485 (2wire) | Setting Example 5 (page 18) | Cable Diagram 5 (page 76) |
| Twido | TWD LCAA 10DRF TWD LCAA 16DRF TWD LCAA 24DRF TWD LMDA 20DTK TWD LMDA 20DUK TWD LMDA 20DRT TWD LMDA 40DTK TWD LMDA 40DUK | Programming port on CPU | RS232C | Setting Example 6 (page 20) | Cable Diagram 2 (page 63) |
| | | TWD NAC 485T | RS485 (2wire) | Setting Example 7 (page 22) | Cable Diagram 1 (page 54) |
| Quantum | 140 CPU 113 02 140 CPU 113 03 140 CPU 434 12A 140 CPU 534 14A | Modbus port on CPU | RS232C | Setting Example 8 (page 24) | Cable Diagram 6 (page 83) |

| Series | CPU | Link I/F | SIO Type | Setting Example | Cable Diagram |
|----------|--|----------------------|------------------|---------------------------------|------------------------------|
| Momentum | 171 CCS 700 00 171 CCS 700 10 171 CCS 760 00 171 CCC 760 10 | Modbus port 1 on CPU | RS232C | Setting Example 9 (page 26) | Cable Diagram 7 (page 84) |
| | 171 CCS 780 00 171 CCC 780 10 | Modbus port 1 on CPU | RS232C | Setting Example 9 (page 26) | Cable Diagram 7 (page 84) |
| | | Modbus port 2 on CPU | RS485 (4wire) | Setting Example 10 (page 28) | Cable Diagram 8 (page 85) |
| | 171 CCC 980 20 171 CCC 980 30 | Modbus port 2 on CPU | RS485 (4wire) | Setting Example 10 (page 28) | Cable Diagram 8 (page 85) |

■ Connection Configuration

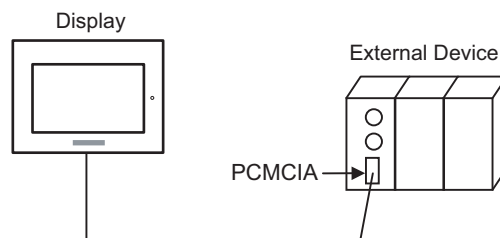
◆ Micro Series

- 1:1 Connection



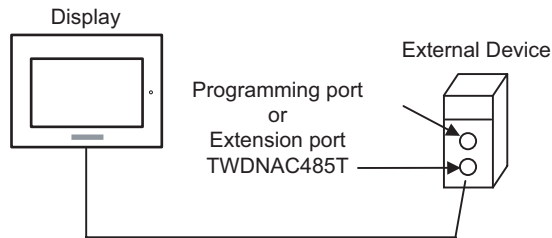
◆ Premium Series

- 1:1 Connection

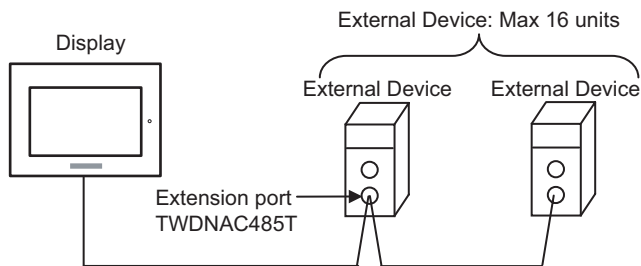


◆ Twido Series

- 1:1 Connection

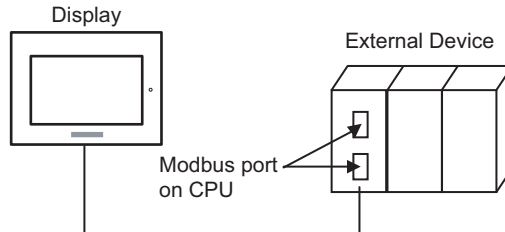


- 1:n Connection



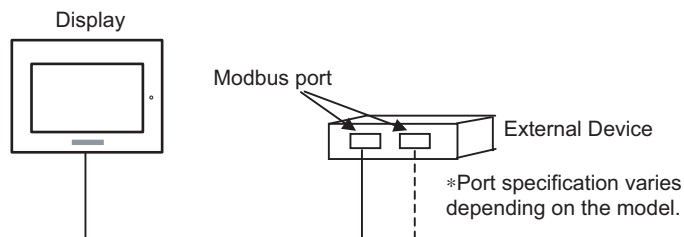
◆ Quantum Series

- 1:1 Connection



◆ Momentum Series

- 1:1 Connection



1.2 YOKOGAWA Electric Corporation External Devices

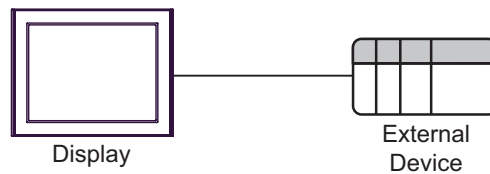
The following table lists system configurations for connecting YOKOGAWA Electric Corp. External Devices and the Display.

| Series | CPU | Link I/F | SIO Type | Setting Example | Cable Diagram |
|--------|--------------|-----------------------------|----------------|------------------------------|----------------------------|
| FCN | NFCP100-S00 | Serial port on CPU | RS232C | Setting Example 11 (page 30) | Cable Diagram 9 (page 89) |
| | | NFLR111-S00 | RS232C | Setting Example 12 (page 34) | Cable Diagram 10 (page 90) |
| | | NFLR121-S00 | RS485 (4 wire) | Setting Example 13 (page 38) | Cable Diagram 11 (page 91) |
| | | | RS485 (2 wire) | Setting Example 14 (page 42) | Cable Diagram 12 (page 97) |
| FCJ | NFJT100-S100 | Serial port on CONTROL UNIT | RS232C | Setting Example 11 (page 30) | Cable Diagram 9 (page 89) |

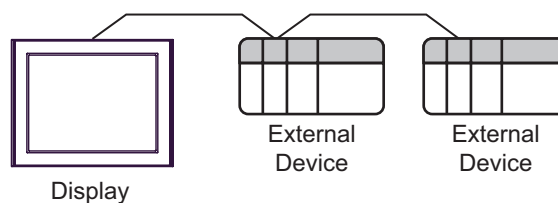
■ Connection Configuration

◆ FCN/FCJ Series

- 1:1 Connection



- 1:n Connection



■ IPC COM Port

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

Usable port

| Series | Usable Port | | |
|--|--|----------------------|----------------------|
| | RS-232C | RS-422/485(4 wire) | RS-422/485(2 wire) |
| PS-2000B | COM1 ^{*1} , COM2, COM3 ^{*1} , COM4 | - | - |
| PS-3450A, PS-3451A, PS3000-BA, PS3001-BD | COM1, COM2 ^{*1*2} | COM2 ^{*1*2} | COM2 ^{*1*2} |
| PS-3650A, PS-3651A | COM1 ^{*1} | - | - |
| PS-3700A (Pentium®4-M) PS-3710A | COM1 ^{*1} , COM2 ^{*1} , COM3 ^{*2} , COM4 | COM3 ^{*2} | COM3 ^{*2} |
| PS-3711A | COM1 ^{*1} , COM2 ^{*2} | COM2 ^{*2} | COM2 ^{*2} |
| PL-3000B, PL-3600T, PL-3600K, PL-3700T, PL-3700K, PL-3900T | COM1 ^{*1*2} , COM2 ^{*1} , COM3, COM4 | COM1 ^{*1*2} | COM1 ^{*1*2} |

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

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

DIP switch setting: RS-232C

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

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

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

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

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

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

2 Selection of External Device

Select the External Device to be connected to the Display.

New Project File

Device/PLC

Maker: Schneider Electric Industries

Driver: MODBUS SIO Master

☐ Use System Area [Refer to the manual of this Device/PLC](#)

Connection Method

Port: COM1 [Go to Device/PLC Manual](#)

Back Communication Detail Settings New Screen Cancel

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

3 Example of Communication Setting

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

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

3.1 Setting Example 1

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


Default

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

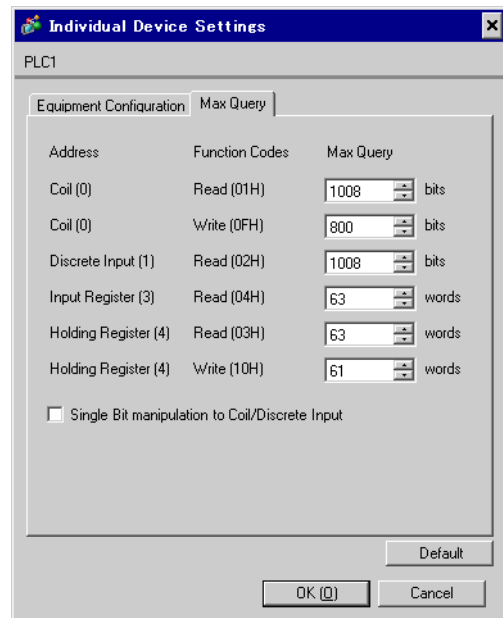
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' (with 'Do not clear' selected), 'IEC61131 Syntax' (unchecked), 'Address Mode' (set to '0-based (Default)'), and 'Double Word word order' (set to 'Low word first(L/H)'). A note states: 'Please reconfirm all of address settings that you are using if you have changed the setting.' There are 'Default', 'OK (O)', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of settings for various PLC components:

| Address | Function Codes | Max Query |
|----------------------|----------------|-----------|
| Coil (0) | Read (01H) | 1008 bits |
| Coil (0) | Write (0FH) | 800 bits |
| Discrete Input (1) | Read (02H) | 1008 bits |
| Input Register (3) | Read (04H) | 63 words |
| Holding Register (4) | Read (03H) | 63 words |
| Holding Register (4) | Write (10H) | 61 words |

There is an unchecked checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK (O)', and 'Cancel' buttons are at the bottom.

■ Settings of External Device

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

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

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

◆ Notes

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

3.2 Setting Example 2

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


Default

Device-Specific Settings

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

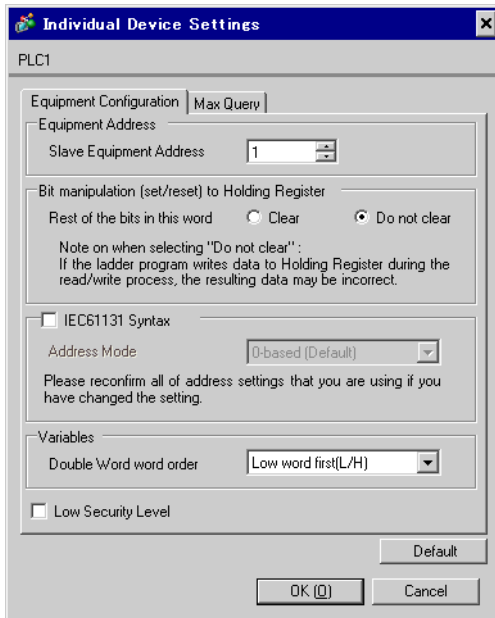
| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

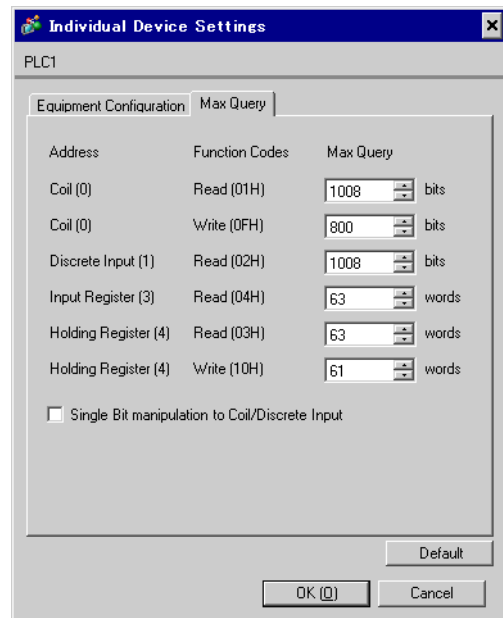
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Equipment Address' (Slave Equipment Address: 1), 'Bit manipulation (set/reset) to Holding Register' (Rest of the bits in this word: Clear, Do not clear), 'IEC61131 Syntax' (Address Mode: 0-based (Default)), and 'Variables' (Double Word word order: Low word first(L/H)). There are 'Default', 'OK (Q)', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of settings for various PLC addresses and function codes, including 'Coil (0)', 'Discrete Input (1)', 'Input Register (3)', and 'Holding Register (4)'. Each entry has a 'Max Query' value in bits or words. There is a checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK (Q)', and 'Cancel' buttons are at the bottom.

| Address | Function Codes | Max Query |
|----------------------|----------------|-----------|
| Coil (0) | Read (01H) | 1008 bits |
| Coil (0) | Write (0FH) | 800 bits |
| Discrete Input (1) | Read (02H) | 1008 bits |
| Input Register (3) | Read (04H) | 63 words |
| Holding Register (4) | Read (03H) | 63 words |
| Holding Register (4) | Write (10H) | 61 words |

■ Settings of External Device

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

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

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

◆ Notes

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

3.3 Setting Example 3

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

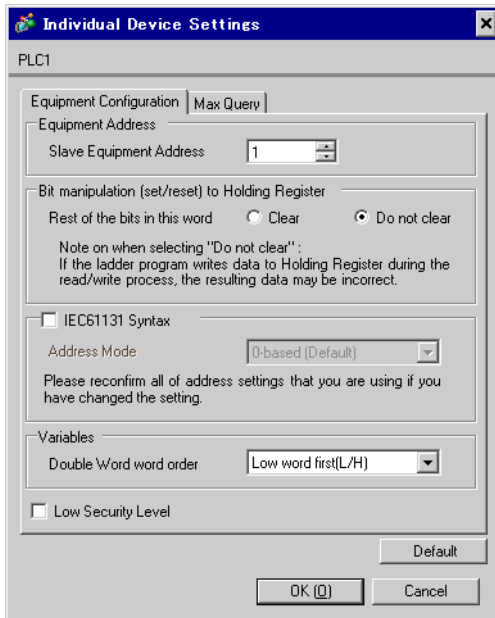
| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

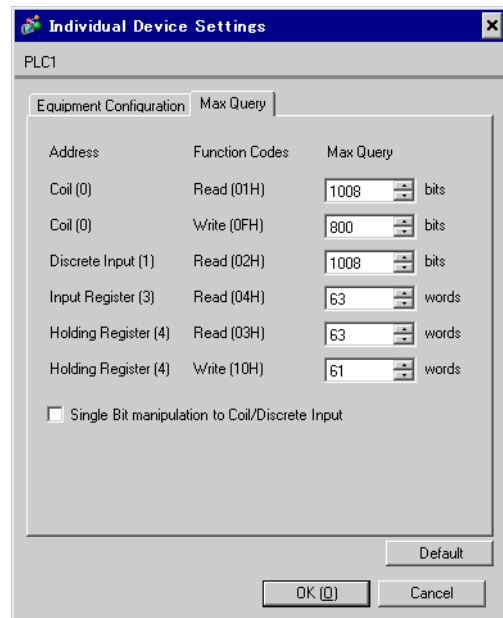
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Equipment Address' (Slave Equipment Address: 1), 'Bit manipulation (set/reset) to Holding Register' (Rest of the bits in this word: Clear/Do not clear), 'IEC61131 Syntax' (Address Mode: 0-based (Default)), and 'Variables' (Double Word word order: Low word first(L/H)). There are 'Default', 'OK (Q)', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of query limits:

| Address | Function Codes | Max Query |
|----------------------|----------------|-----------|
| Coil (0) | Read (01H) | 1008 bits |
| Coil (0) | Write (0FH) | 800 bits |
| Discrete Input (1) | Read (02H) | 1008 bits |
| Input Register (3) | Read (04H) | 63 words |
| Holding Register (4) | Read (03H) | 63 words |
| Holding Register (4) | Write (10H) | 61 words |

There is a checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK (Q)', and 'Cancel' buttons are at the bottom.

■ Settings of External Device

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

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

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

◆ Notes

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

3.4 Setting Example 4

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


Default

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

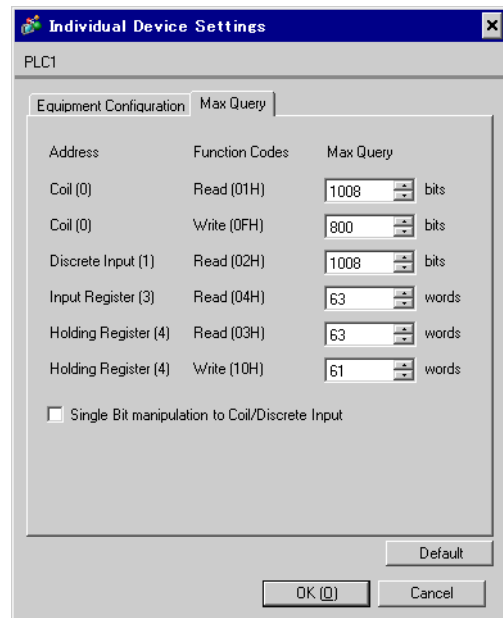
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Equipment Address' (Slave Equipment Address: 1), 'Bit manipulation (set/reset) to Holding Register' (Rest of the bits in this word: Clear/Do not clear), 'IEC61131 Syntax' (Address Mode: 0-based (Default)), and 'Variables' (Double Word word order: Low word first(L/H)). There are 'Default', 'OK (Q)', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of settings for various PLC addresses and function codes, including 'Coil (0)', 'Discrete Input (1)', 'Input Register (3)', and 'Holding Register (4)'. Each entry has a 'Max Query' value in bits or words. There is a checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK (Q)', and 'Cancel' buttons are at the bottom.

| Address | Function Codes | Max Query |
|----------------------|----------------|-----------|
| Coil (0) | Read (01H) | 1008 bits |
| Coil (0) | Write (0FH) | 800 bits |
| Discrete Input (1) | Read (02H) | 1008 bits |
| Input Register (3) | Read (04H) | 63 words |
| Holding Register (4) | Read (03H) | 63 words |
| Holding Register (4) | Write (10H) | 61 words |

■ Settings of External Device

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

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

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

◆ Notes

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

3.5 Setting Example 5

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC


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

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

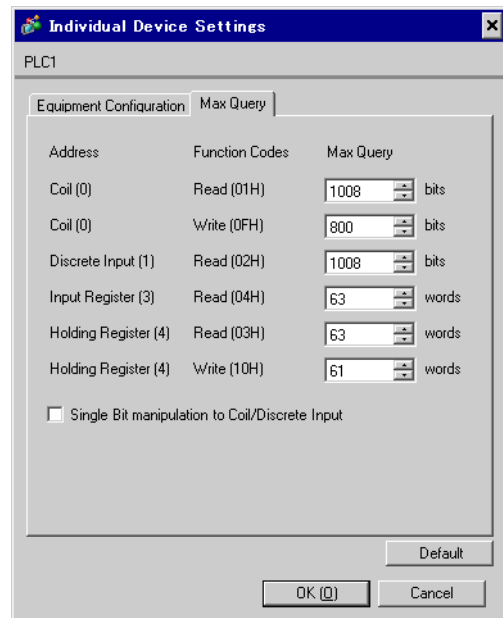
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Equipment Address' (Slave Equipment Address: 1), 'Bit manipulation (set/reset) to Holding Register' (Rest of the bits in this word: Clear, Do not clear), 'IEC61131 Syntax' (Address Mode: 0-based (Default)), and 'Variables' (Double Word word order: Low word first(L/H)). There are 'Default', 'OK (Q)', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of settings for various PLC addresses and function codes, with 'Max Query' values in spinners. The table is as follows:

| Address | Function Codes | Max Query |
|----------------------|----------------|-----------|
| Coil (0) | Read (01H) | 1008 bits |
| Coil (0) | Write (0FH) | 800 bits |
| Discrete Input (1) | Read (02H) | 1008 bits |
| Input Register (3) | Read (04H) | 63 words |
| Holding Register (4) | Read (03H) | 63 words |
| Holding Register (4) | Write (10H) | 61 words |

There is a checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK (Q)', and 'Cancel' buttons are at the bottom.

■ Settings of External Device

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

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

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

◆ Notes

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

3.6 Setting Example 6

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☒ NONE ☐ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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


| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

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

[Equipment Configuration] tab



Individual Device Settings

PLC1

Equipment Configuration | Max Query

Equipment Address

Slave Equipment Address: 1

Bit manipulation (set/reset) to Holding Register

Rest of the bits in this word: ☐ Clear ☒ Do not clear

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

☐ IEC61131 Syntax

Address Mode: 0-based (Default)

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

Variables

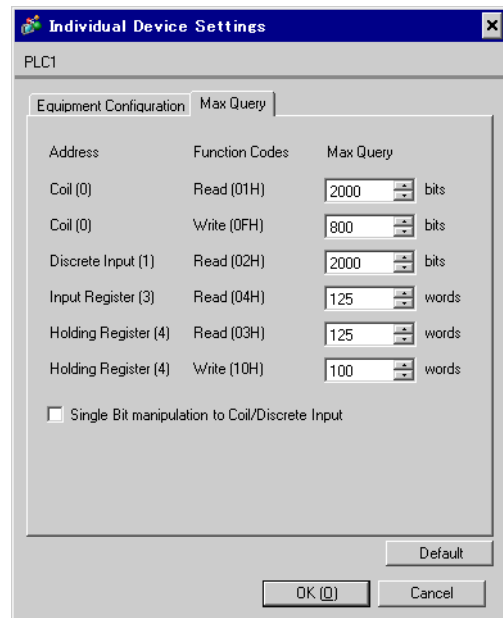
Double Word word order: Low word first(L/H)

☐ Low Security Level

Default

OK (O) Cancel

[Max Query] tab



Individual Device Settings

PLC1

Equipment Configuration | Max Query

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

☐ Single Bit manipulation to Coil/Discrete Input

Default

OK (O) Cancel

■ Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

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

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

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

◆ Notes

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

3.7 Setting Example 7

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☒ NONE ☐ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

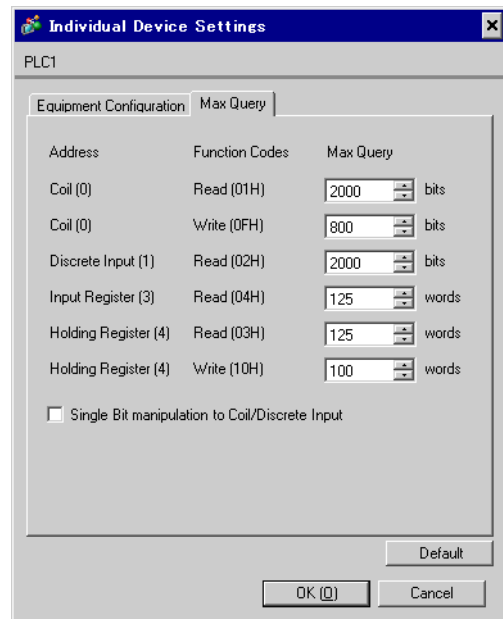
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with radio buttons for 'Clear' and 'Do not clear', a note about data correctness, a checkbox for 'IEC61131 Syntax', a dropdown for 'Address Mode' (set to '0-based (Default)'), a warning to reconfirm settings, a dropdown for 'Double Word word order' (set to 'Low word first(L/H)'), and a checkbox for 'Low Security Level'. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

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

■ Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

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

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

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

◆ Notes

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

3.8 Setting Example 8

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


Default

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

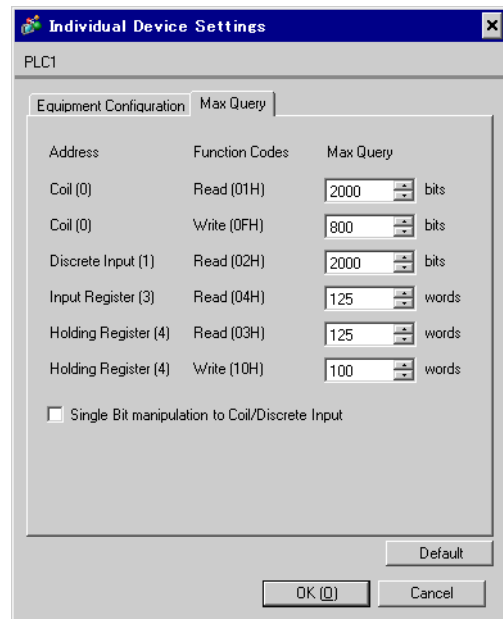
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with radio buttons for 'Clear' and 'Do not clear', a note about ladder program data, a checkbox for 'IEC61131 Syntax', 'Address Mode' (set to '0-based (Default)'), a warning to reconfirm settings, 'Variables' with 'Double Word word order' set to 'Low word first(L/H)', and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, Input Registers, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

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

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

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

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

◆ Notes

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

3.9 Setting Example 9

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


Default

Device-Specific Settings

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


| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

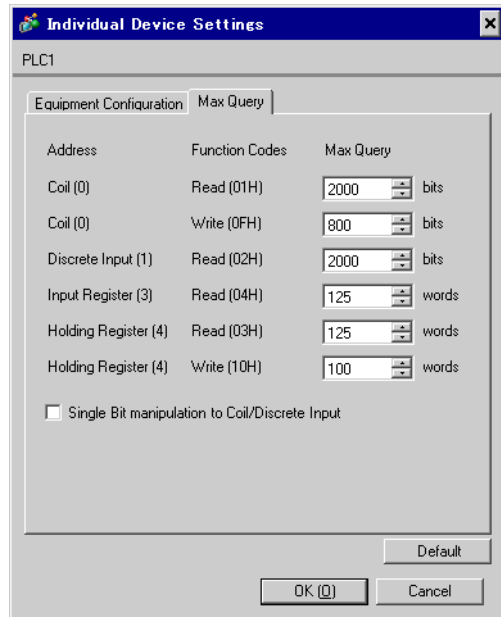
To display the setting screen, click  ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

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

[Equipment Configuration] tab



[Max Query] tab



■ Settings of External Device

Use the ladder software "Concept" for communication settings.

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

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

◆ Notes

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

3.10 Setting Example 10

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

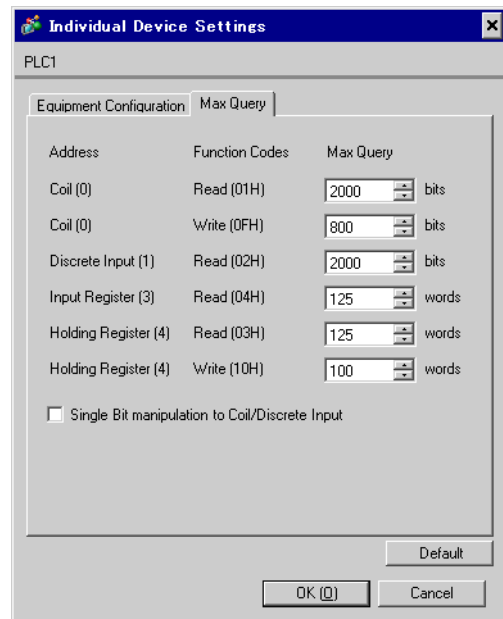
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with radio buttons for 'Clear' and 'Do not clear', a note about ladder program data, a checkbox for 'IEC61131 Syntax', a dropdown for 'Address Mode' (set to '0-based (Default)'), a warning to reconfirm settings, a dropdown for 'Double Word word order' (set to 'Low word first(L/H)'), and a checkbox for 'Low Security Level'. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, Input Registers, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

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

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

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

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

◆ Notes

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

3.11 Setting Example 11

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

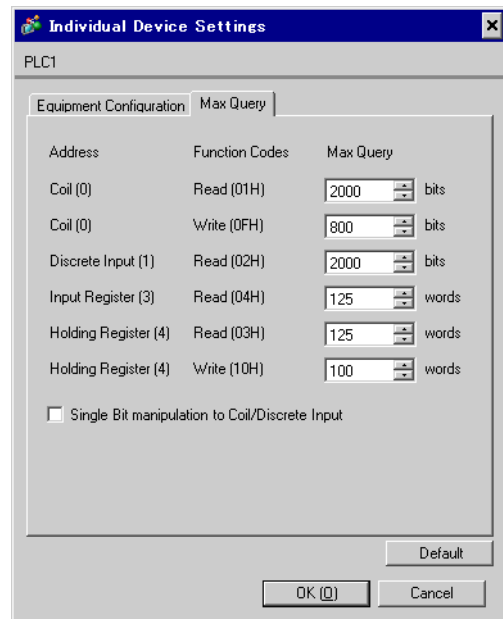
To display the setting screen, click  ([Setting]) of External Device you want to set from [Device-Specific Settings] of [Device/PLC Settings].

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

[Equipment Configuration] tab



[Max Query] tab



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

■ Settings of External Device

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

<Communication Settings for the Serial Port on CPU>

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

NOTE

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


- 2 Connect both the Ethernet ports between a PC and the External Device using the LAN cable. (Connect via HUB.)
- 3 Start up the Web browser.
- 4 Enter "http://192.168.1.1/mnt" in the address input box.
- 5 Enter [User Name] and [Password] in the displayed dialog box to login.
- 6 Click [Maintenance Menu] to display the [FCX Maintenance Menu] screen.
- 7 Click [Reboot] to display the [Reboot FCX] screen.
- 8 Check the [Reboot(Maintenance Mode)] option.
- 9 Click [OK] to display the [Reboot] screen.
- 10 Reboot the External Device. Confirm the reboot is complete.
- 11 Click [Maintenance Homepage] to display the [STARDOM FCX Maintenance Page] screen.
- 12 Click [OK] to display the [FCX Maintenance Menu] screen.
- 13 Click [Edit] to display the [Edit System Setting Files] screen.
- 14 Check the [COM1 Port Setting File] option and click [OK].

- 15 Set each item as follows:

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

- 16 Click [OK] to display the [Edit System Setting Files(RESULT)] screen.
 17 Click [Maintenance Menu] to display the [FCX Maintenance Menu] screen.
 18 Click [Reboot] to display the [Reboot FCX] screen.
 19 Check the [Reboot(Online Mode)] option and click [OK].
 The External Device is rebooted.

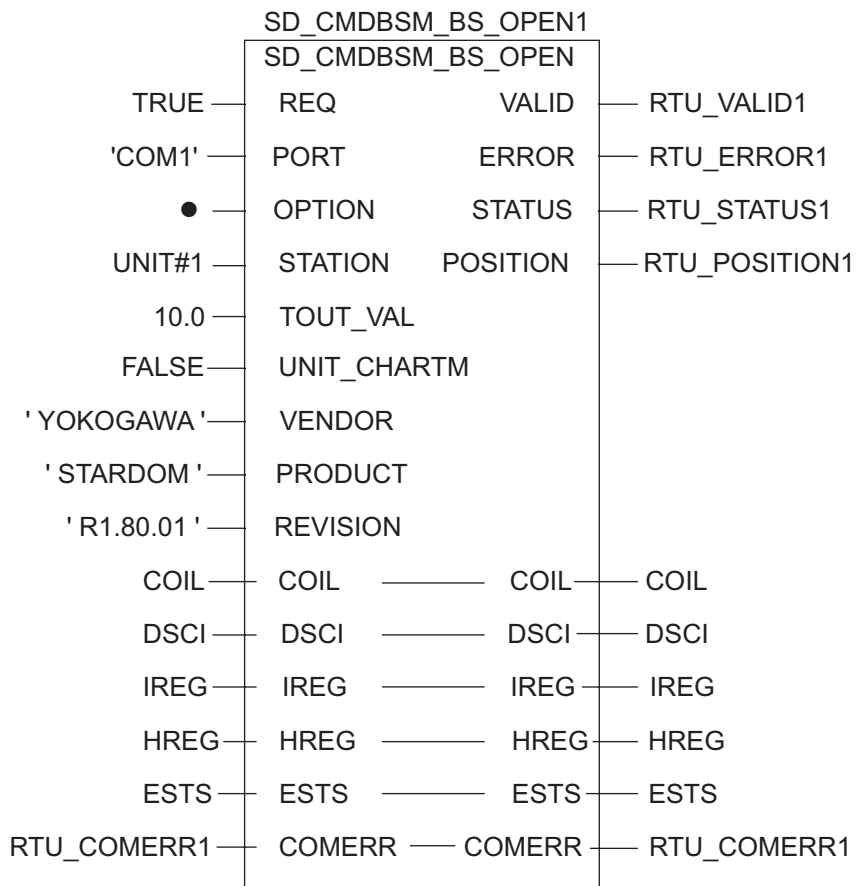
<Control Logic Download Procedures>

- 1 Start up the ladder software.
- 2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".
 "◆ Control Logic Example" (page 33)
- 3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.
- 4 Enter the connecting port name in [Name], and click [OK].
- 5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.
- 6 Enter the connecting station name in [Name], and click [OK].
- 7 Select [Rebuild Project] from the [Build] menu.
- 8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.
- 9 Enter "192.168.1.1" in [Host Name/IP Address].
- 10 Click [OK].
- 11 Download the communication settings to the External Device.
- 12 Reboot the External Device.

◆ Control Logic Example

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

The control logic example is shown below.



3.12 Setting Example 12

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

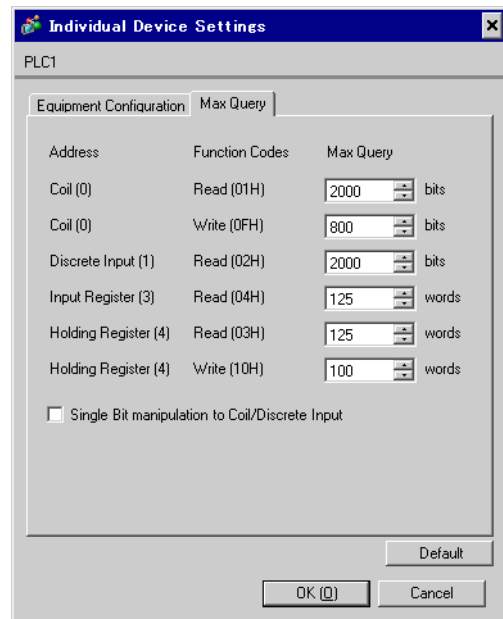
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with radio buttons for 'Clear' and 'Do not clear', a note about data correctness, a checkbox for 'IEC61131 Syntax', a dropdown for 'Address Mode' (set to '0-based (Default)'), a warning to reconfirm settings, a dropdown for 'Double Word word order' (set to 'Low word first(L/H)'), and a checkbox for 'Low Security Level'. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, Input Registers, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

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

■ Settings of External Device

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

<Communication Settings for the Communication Module>

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

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

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

9 Set specifications as follows:

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

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

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

 "◆ Control Logic Example" (page 37)

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

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

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

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

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

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

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

10 Click [OK].

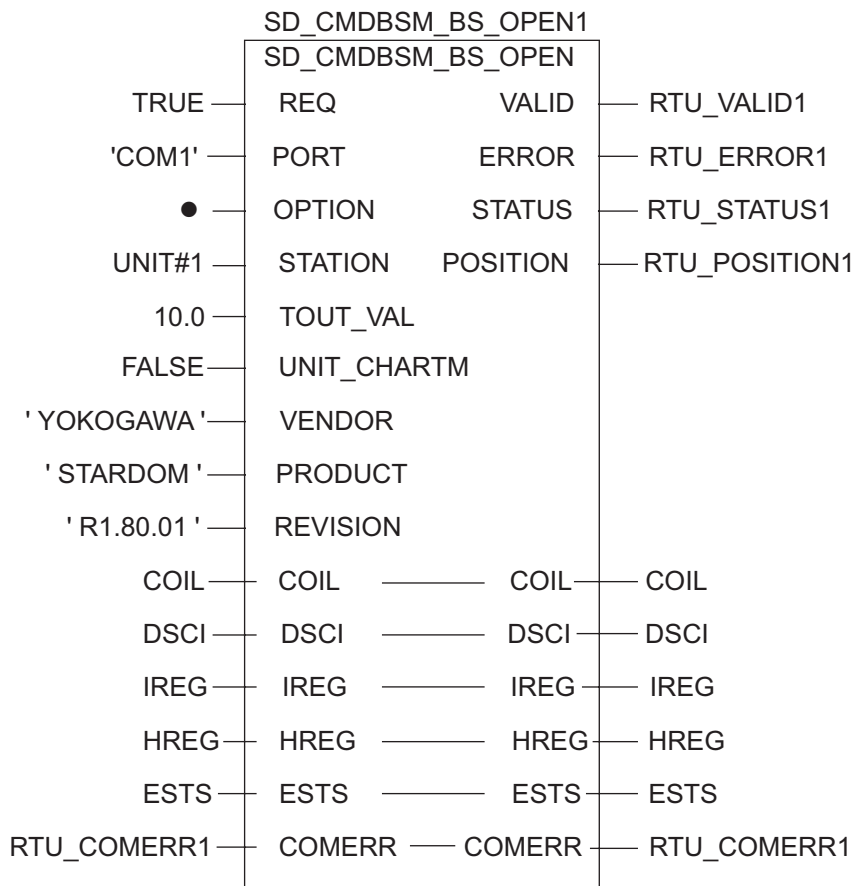
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

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

The control logic example is shown below.



3.13 Setting Example 13

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

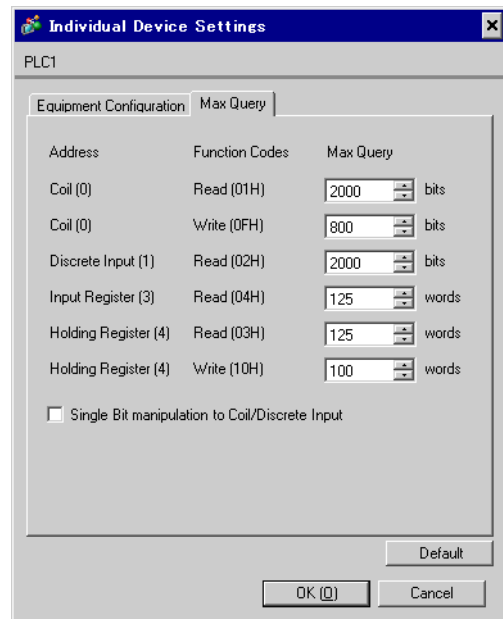
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation' options (Clear/Do not clear), 'IEC61131 Syntax' (Address Mode: 0-based), and 'Variables' (Double Word word order: Low word first). There are 'Default', 'OK', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with query limits for various PLC addresses and function codes.

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

There is also a checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK', and 'Cancel' buttons are at the bottom.

■ Settings of External Device

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

<Communication Settings for the Communication Module>

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

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

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

9 Set specifications as follows:

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


10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

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

 "◆ Control Logic Example" (page 41)

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

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

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

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

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

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

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

10 Click [OK].

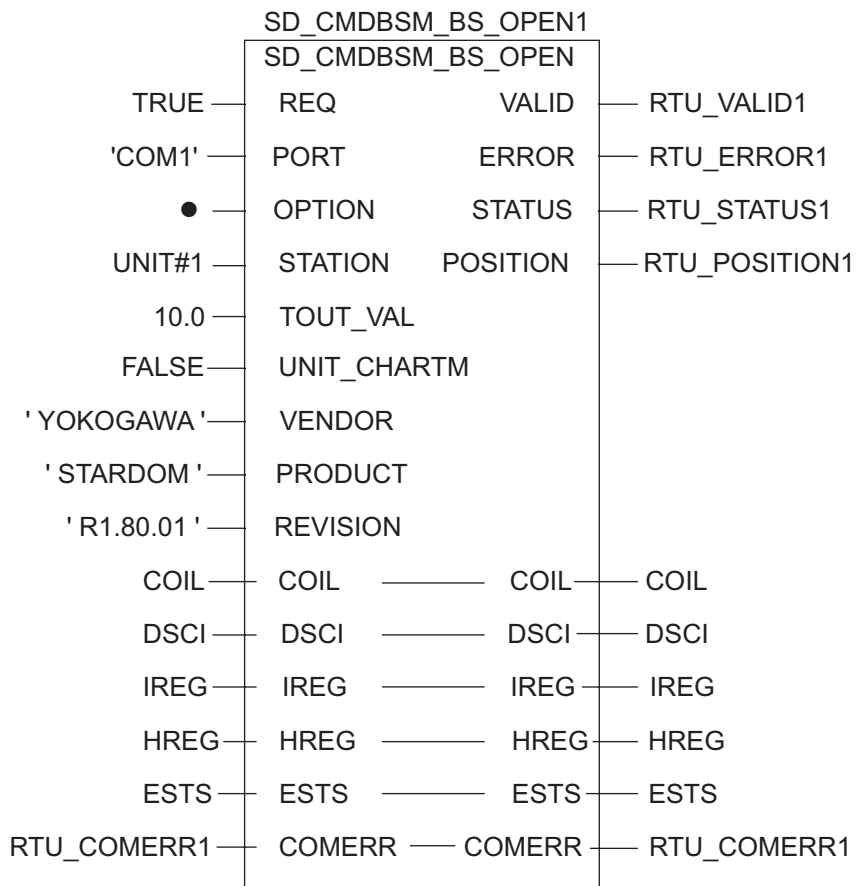
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

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

The control logic example is shown below.



3.14 Setting Example 14

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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


[Default](#)

Device-Specific Settings

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

| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

◆ Device Setting

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

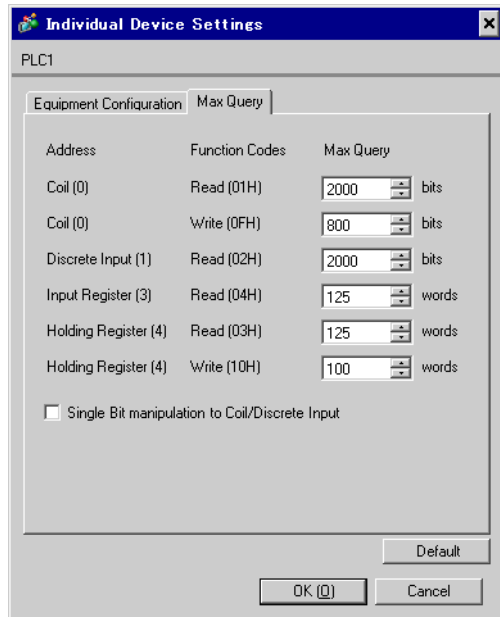
When you connect multiple External Device, click  from [Device-Specific Settings] of [Device/PLC Settings] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation' options (Clear/Do not clear), 'IEC61131 Syntax' (Address Mode: 0-based), and 'Variables' (Double Word word order: Low word first). There are 'Default', 'OK', and 'Cancel' buttons at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with query limits for various PLC addresses and function codes.

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

There is also a checkbox for 'Single Bit manipulation to Coil/Discrete Input'. 'Default', 'OK', and 'Cancel' buttons are at the bottom.

■ Settings of External Device

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

<Communication Settings for the Communication Module>

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

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

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

9 Set specifications as follows:

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

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

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

 "◆ Control Logic Example" (page 45)

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

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

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

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

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

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

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

10 Click [OK].

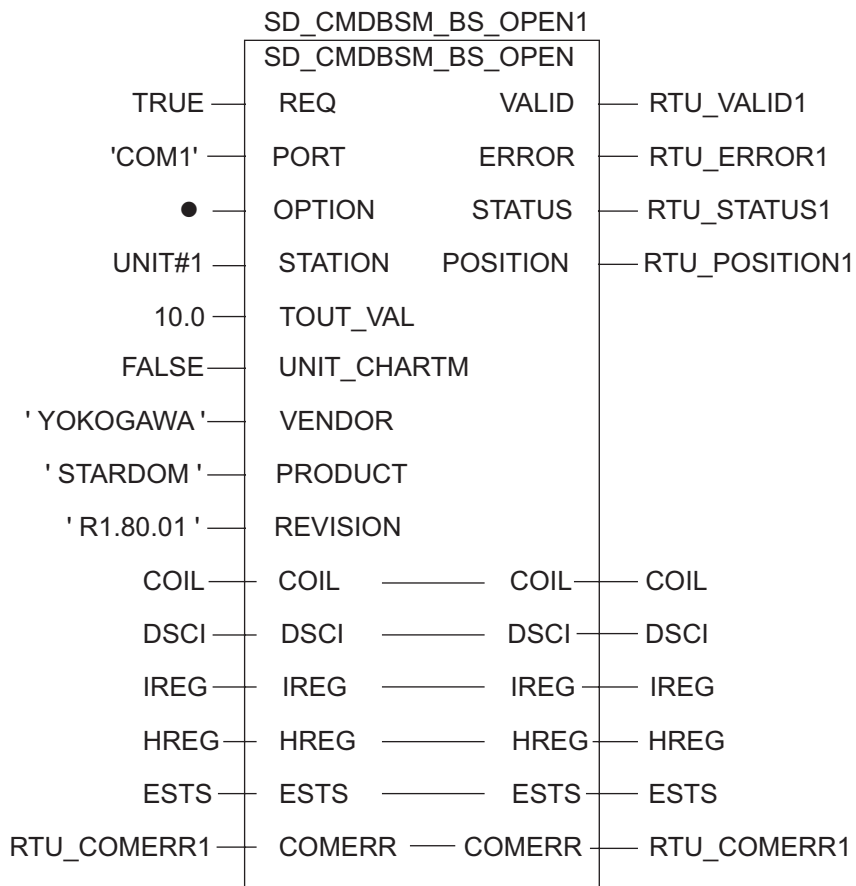
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

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

The control logic example is shown below.



4 Setup Items

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

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

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

4.1 Setup Items in GP-Pro EX

■ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker Driver Port

Text Data Mode [Change](#)

Communication Settings

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

Speed

Data Length ☐ 7 ☒ 8

Parity ☐ NONE ☒ EVEN ☐ ODD

Stop Bit ☒ 1 ☐ 2

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

Timeout (sec)

Retry

Wait To Send (ms) ☒ Default Value

RI / VCC ☒ RI ☐ VCC

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

Default

Device-Specific Settings

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


| No. | Device Name | Settings |
|-----|-------------|---|
| 1 | PLC1 | Slave Equipment Address=1, Rest of the bits in this word=Do not clear, IEC611 |

| Setup Items | Setup Description |
|--------------|--|
| SIO Type | Select the SIO type to communicate with the External Device. |
| Speed | Select speed between the External Device and the Display. |
| Data Length | Select data length. |
| Parity | Select how to check parity. |
| Stop Bit | Select stop bit length. |
| Flow Control | Select the communication control method to prevent overflow of transmission and reception data. |
| Timeout | Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device. |
| Retry | In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command. |

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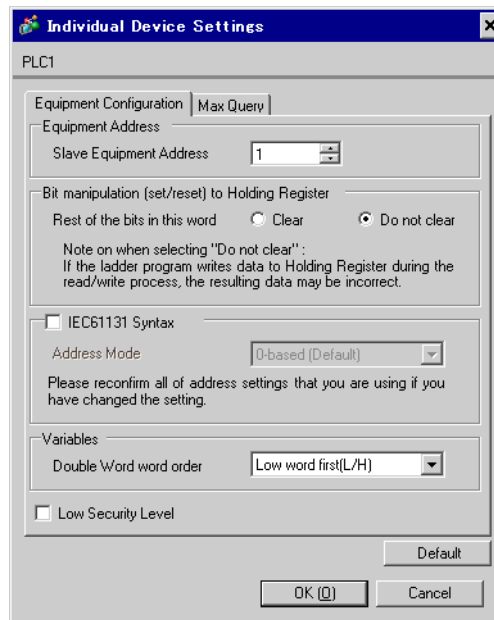
| Setup Items | Setup Description |
|--------------|--|
| Wait To Send | <p>Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.</p> <p>When the check box of the default value is checked, the Wait To Send value automatically changes in the formula below by changing each value for Speed/Data Length/Parity/Stop Bit.</p> $\text{Wait To Send (ms)} = \frac{3500 \times (1 + \text{Data Length} + \text{Stop Bit} + \text{Parity})}{\text{Speed (bps)}}$ <p>Value for the parity setting is shown below.</p> <p>No Parity = 0 Parity Even = 1 Parity Odd = 1</p> <p>NOTE</p> <ul style="list-style-type: none"> After changing the Wait To Send value for the project, of which [Default Value] is checked, in the off-line mode, the Wait To Send value will be recalculated when the project is received and communication settings are displayed. |
| RI/VCC | <p>You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.</p> <p>It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.</p> |

◆ Device Setting

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

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

[Equipment Configuration] tab



Individual Device Settings

PLC1

Equipment Configuration | Max Query

Equipment Address

Slave Equipment Address: 1

Bit manipulation (set/reset) to Holding Register

Rest of the bits in this word: ☐ Clear ☒ Do not clear

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

☐ IEC61131 Syntax

Address Mode: 0-based (Default)

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

Variables

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

☐ Low Security Level

Default

OK (Q) Cancel

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

[Max Query] tab

Individual Device Settings

PLC1

Equipment Configuration | Max Query

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

☐ Single Bit manipulation to Coil/Discrete Input

Default

OK (O) Cancel

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

4.2 Setup Items in Off-Line Mode

NOTE

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

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

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

◆ Communication Settings

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

| Comm. | Device | Option | | |
|-----------------------------------|--|--------|--|------------------------|
| MODBUS SIO Master [COM1] Page 1/1 | | | | |
| SIO Type | RS232C | | | |
| Speed | 19200 | | | |
| 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) | 3 | | | |
| Exit | | Back | | 2005/09/02 13:11:46 |

| Setup Items | Setup Description |
|-------------|--|
| SIO Type | Select the SIO type to communicate with the External Device. IMPORTANT To make the communication settings correctly, confirm the serial interface specifications of Display unit for [SIO Type]. We cannot guarantee the operation if a communication type that the serial interface does not support is specified. For details concerning the serial interface specifications, refer to the manual for Display unit. |
| Speed | Select speed between the External Device and the Display. |
| Data Length | Select data length. |
| Parity | Select how to check parity. |
| Stop Bit | Select stop bit length. |

continued to next page

| Setup Items | Setup Description |
|--------------|--|
| Flow Control | Select the communication control method to prevent overflow of transmission and reception data. |
| Timeout | Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device. |
| Retry | In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command. |
| Wait To Send | Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. |

◆ Device Setting

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

| Comm. | Device | Option | | |
|--|--------|--------|--|------------------------|
| <div> <div>MODBUS SIO Master</div> <div>[COM1]</div> <div>Page 1/1</div> </div> | | | | |
| <div> <div>Device/PLC Name</div> <div>PLC1</div> </div> | | | | |
| <div> <div>Slave Address</div> <div>1</div> </div> | | | | |
| <div> <div>Bit manipulation to HR</div> <div>Rest of bits in word are not cleared</div> </div> | | | | |
| <div> <div>IEC61131 Syntax</div> <div>OFF</div> </div> | | | | |
| <div> <div>Double Word word order</div> <div>Low word first</div> </div> | | | | |
| <div> <div>Low Security Level</div> <div>OFF</div> </div> | | | | |
| <div> <div>Max Query</div> <div></div> </div> | | | | |
| <div> <div>Read Coil</div> <div>2000 bits</div> </div> | | | | |
| <div> <div>Write Coil</div> <div>800 bits</div> </div> | | | | |
| <div> <div>Read Discrete Input</div> <div>2000 bits</div> </div> | | | | |
| <div> <div>Read Input Register</div> <div>125</div> </div> | | | | |
| <div> <div>Read Holding Register</div> <div>125</div> </div> | | | | |
| <div> <div>Write Holding Register</div> <div>100</div> </div> | | | | |
| <div> <div>Single Bit manipulation</div> <div>OFF</div> </div> | | | | |
| Exit | | Back | | 2007/06/28 12:26:16 |

| Setup Items | Setup Description |
|------------------------|---|
| Device/PLC Name | Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1]) |
| Slave Address | Use an integer from 1 to 247 to enter the slave equipment address of the External Device. |
| Bit manipulation to HR | From "Rest of bits in word are cleared" or "Rest of bits in word are not cleared", select treatment of the rest of the bits in the same word when the bit manipulation to Holding Register is performed. (Not available to set in off-line mode.) |
| IEC61131 Syntax | Displays the usage status of the currently set IEC61131 syntax in ON/OFF. (Not available in off-line mode.) |
| Double Word word order | Displays the currently set order of storing double word data from "Low word first" or "High word first". (Not available to set in off-line mode.) |

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

◆ Option

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

| | | | | |
|-------|--------|--------|--|--|
| Comm. | Device | Option | | |
| | | | | |

MODBUS SIO Master [COM1] Page 1/1

RI / VCC ☒ RI ☐ VCC

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

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

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

NOTE

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


5 Cable Diagram

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

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

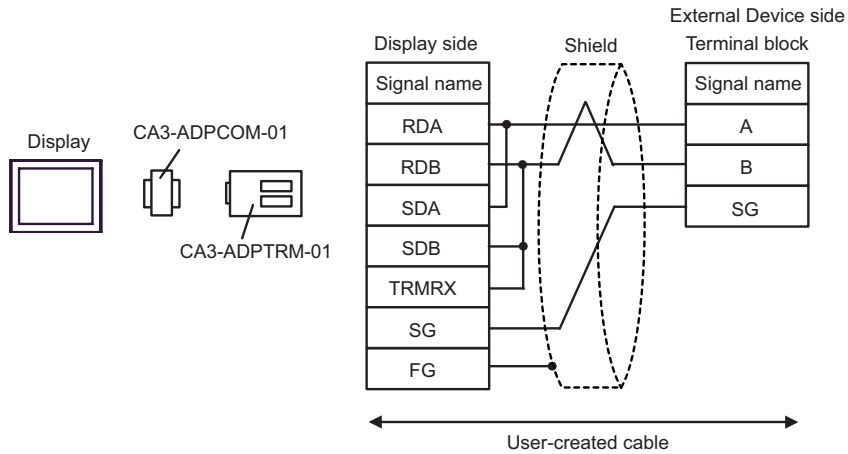
Cable Diagram 1

| Display (Connection Port) | Cable | | Notes |
|--|-------|---|---|
| GP3000 ^{*1} (COM1) AGP-3302B (COM2) ST ^{*2} (COM2) | 1A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | The cable length must be 200m or less. |
| | 1B | User-created cable | |
| GP3000 ^{*3} (COM2) | 1C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | |
| | 1D | Online adapter by Pro-face CA4-ADPONL-01 + User-created cable | |
| IPC ^{*4} | 1E | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | |
| | 1F | User-created cable | |
| GP-4106 (COM1) | 1G | User-created cable | |
| GP-4107 (COM1) | 1H | User-created cable | |

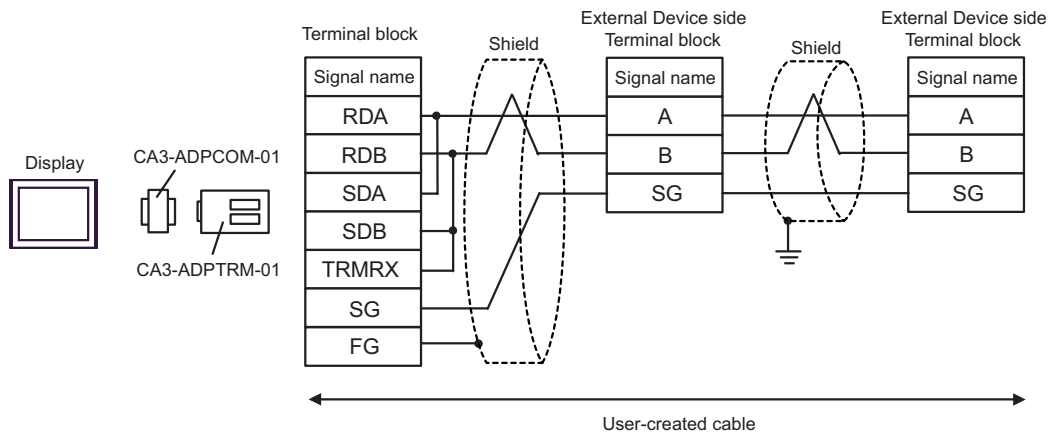
- *1 All GP3000 models except AGP-3302B
- *2 All ST models except AST-3211A and AST-3302B
- *3 All GP3000 models except GP-3200 series and AGP-3302B
- *4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 ■ IPC COM Port (page 7)

1A)

- 1:1 Connection

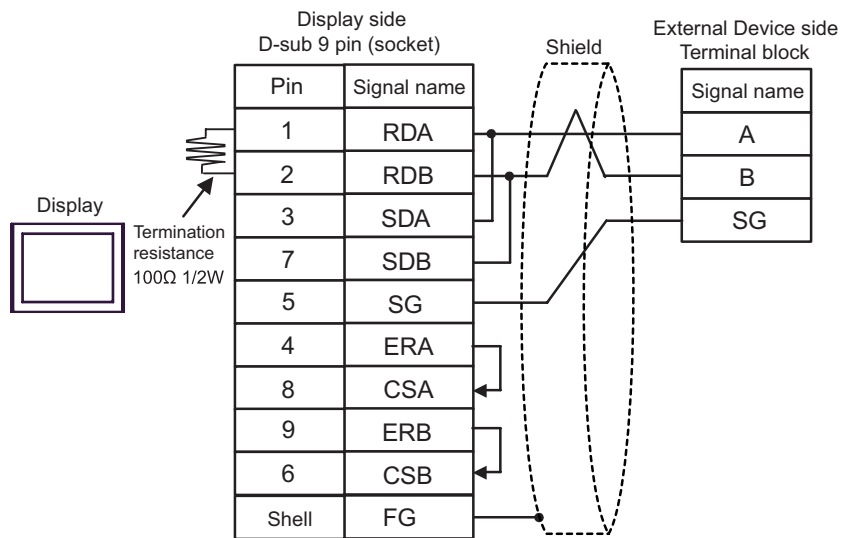


- 1:n Connection

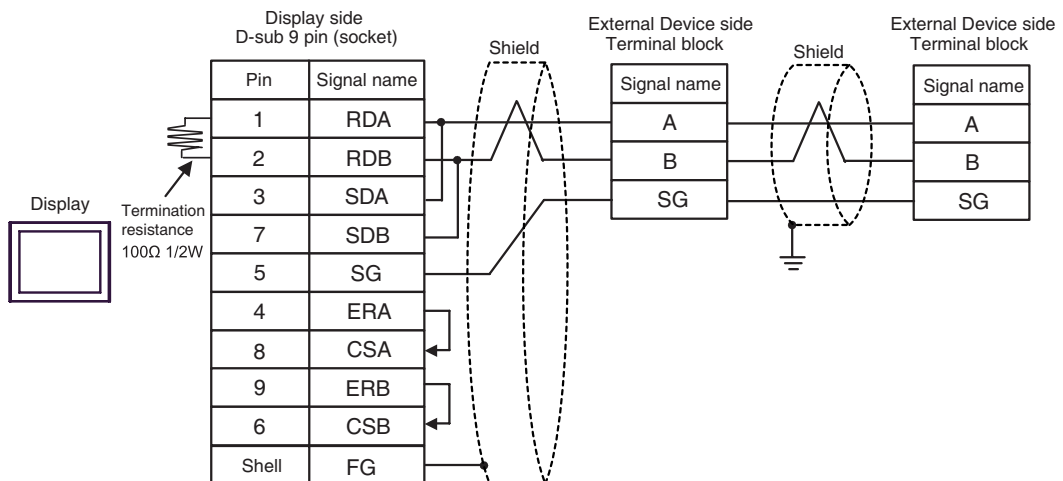


1B)

- 1:1 Connection

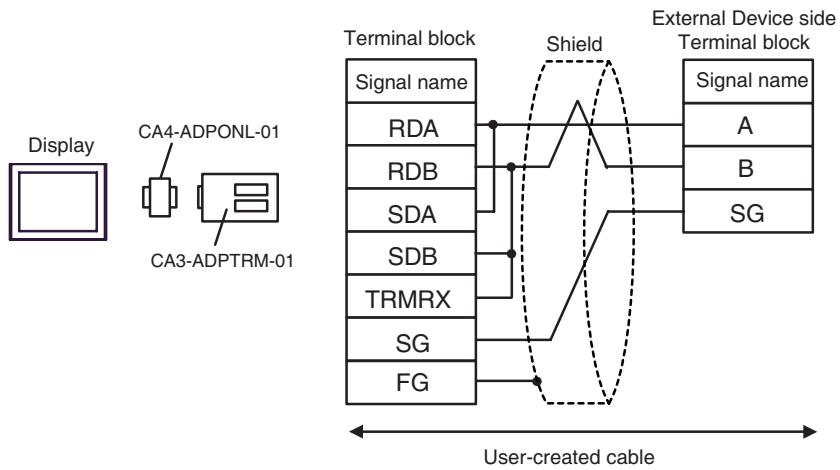


- 1:n Connection

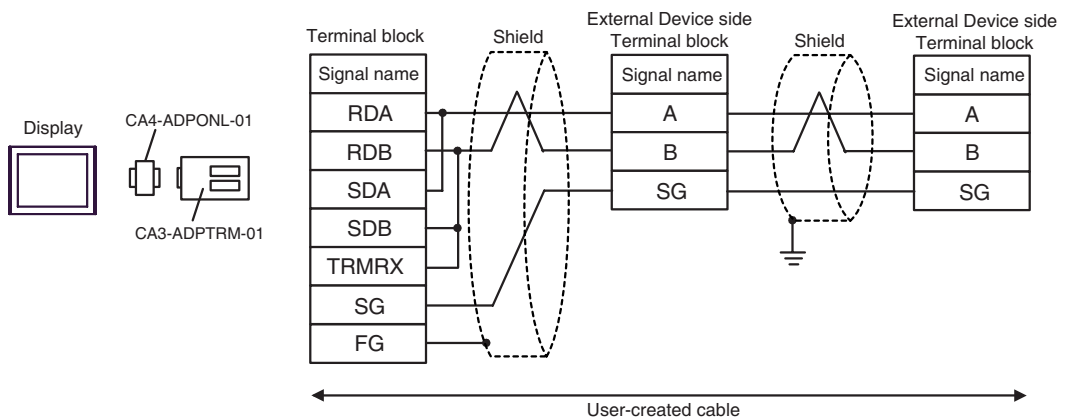


1C)

- 1:1 Connection

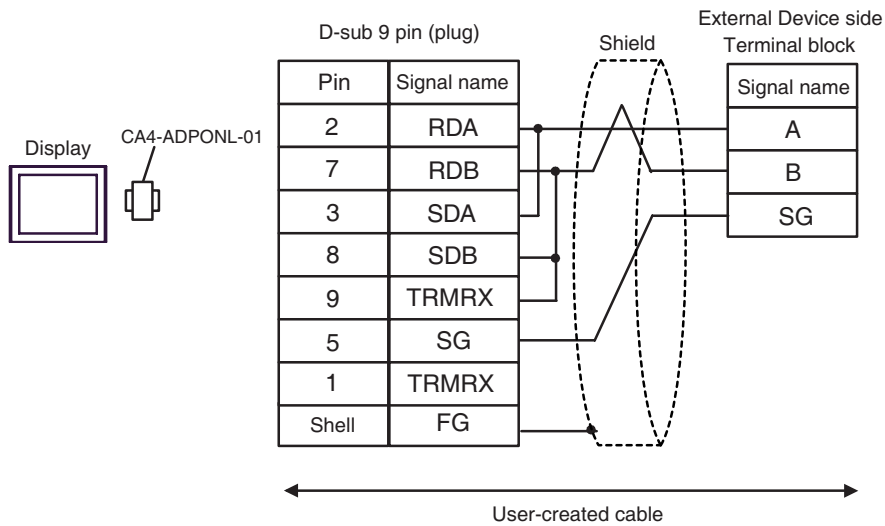


- 1:n Connection

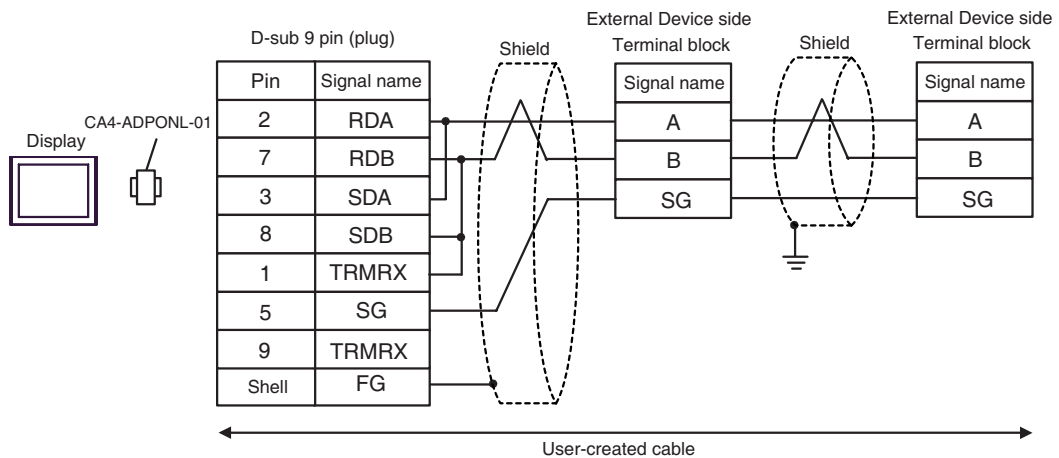


1D)

- 1:1 Connection

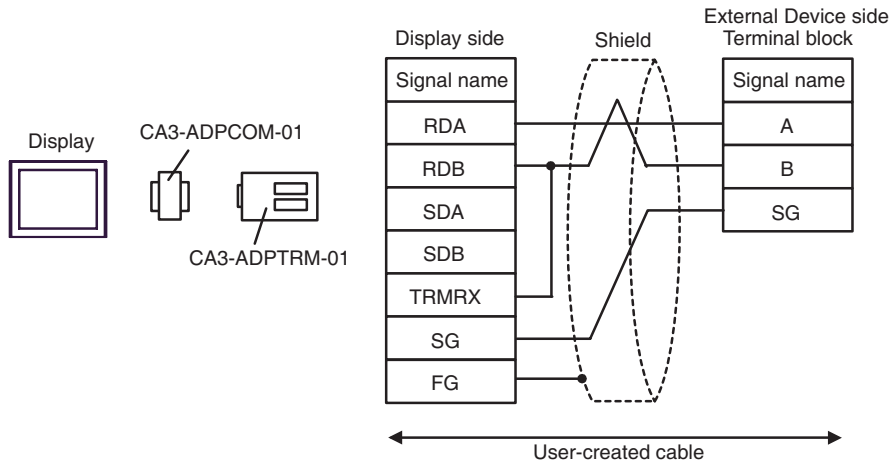


- 1:n Connection

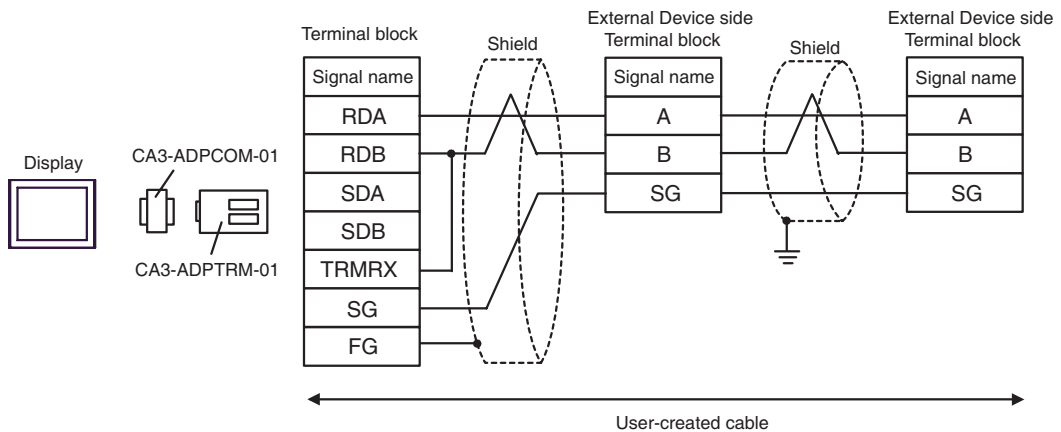


1E)

- 1:1 Connection

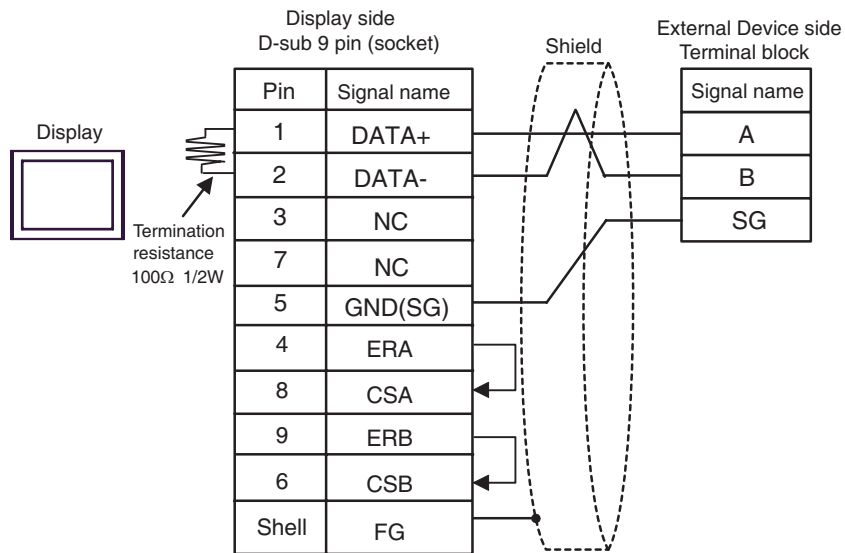


- 1:n Connection

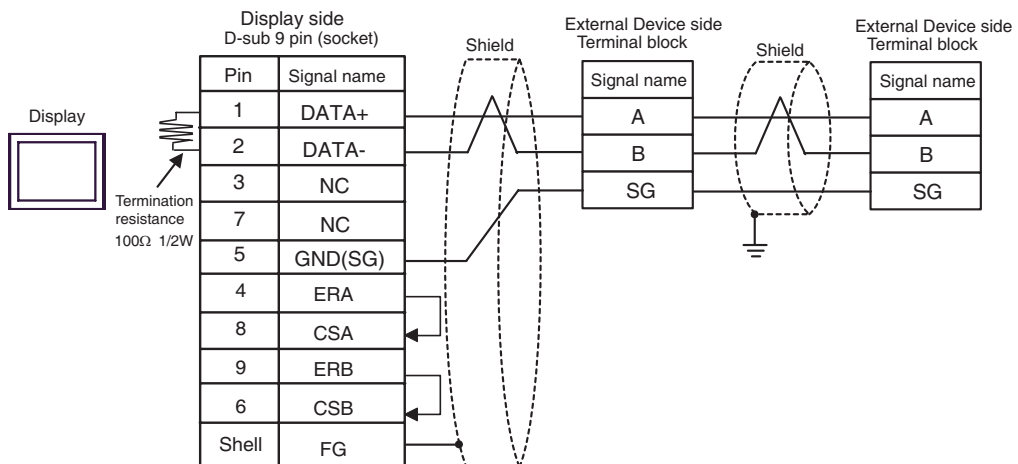


1F)

- 1:1 Connection

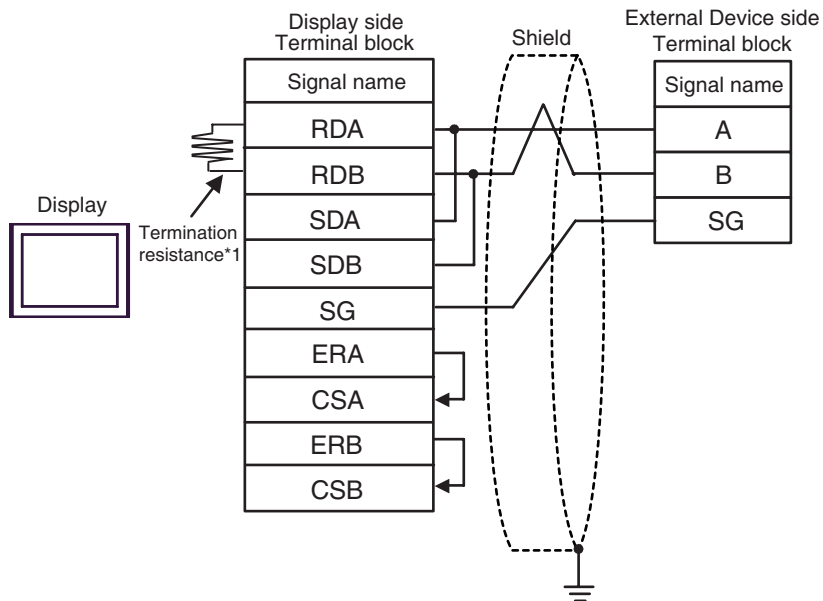


- 1:n Connection

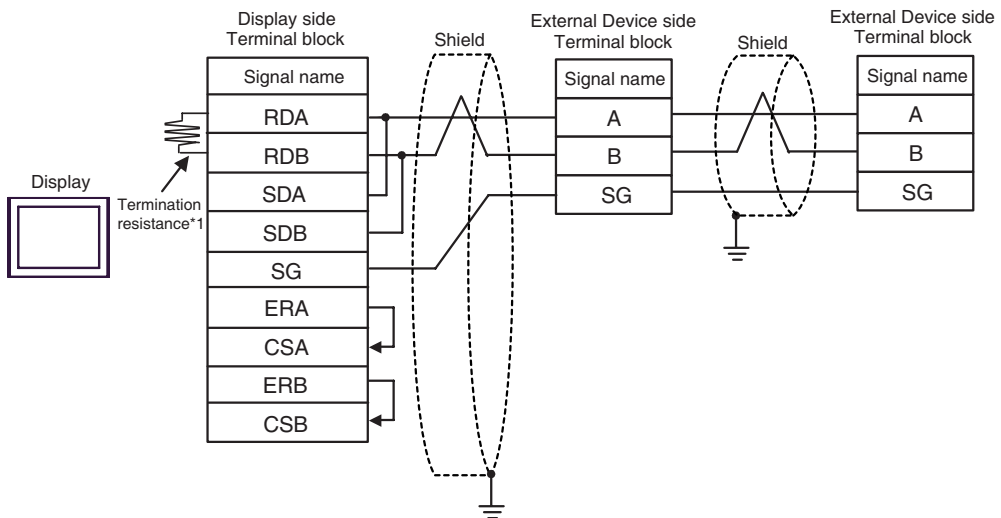


1G)

- 1:1 Connection



- 1:n Connection

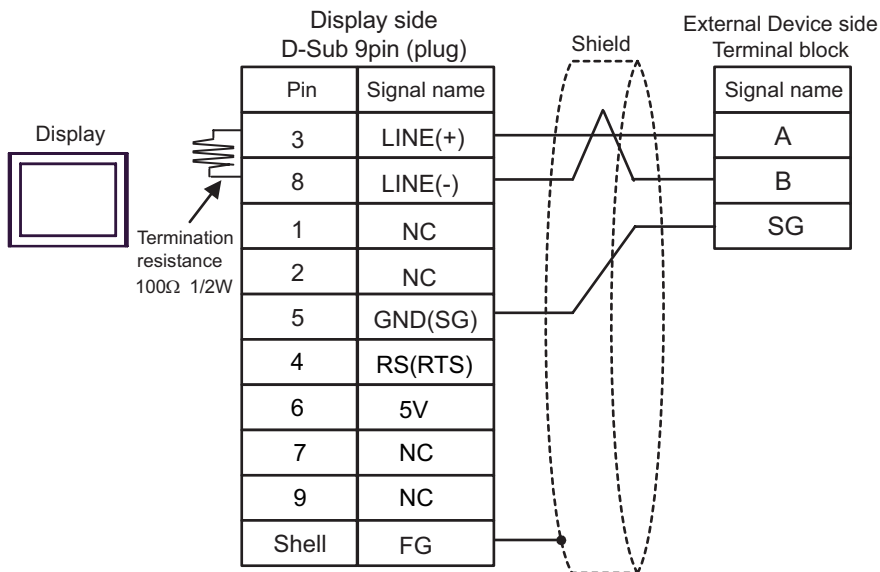


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

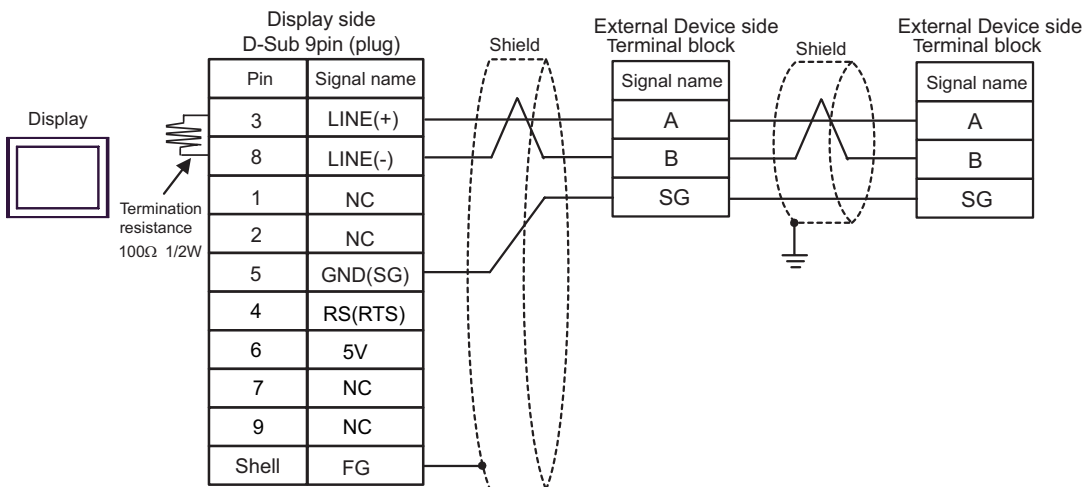
| DIP Switch No. | Set Value |
|----------------|-----------|
| 1 | OFF |
| 2 | OFF |
| 3 | ON |
| 4 | ON |

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

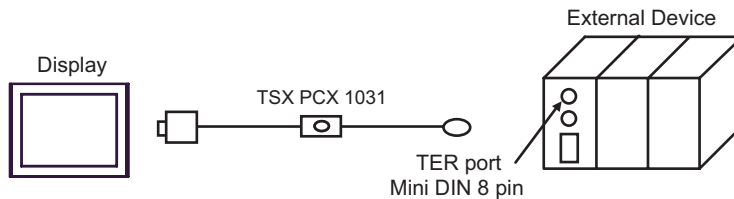
| Display (Connection Port) | Cable | | Notes |
|--|-------|--|-------|
| GP3000 (COM1) ST (COM1) IPC* ¹ PC/AT | 2A | Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)* ² | |
| GP-4105 (COM1) | 2B | User-created cable + Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)* ² | |

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

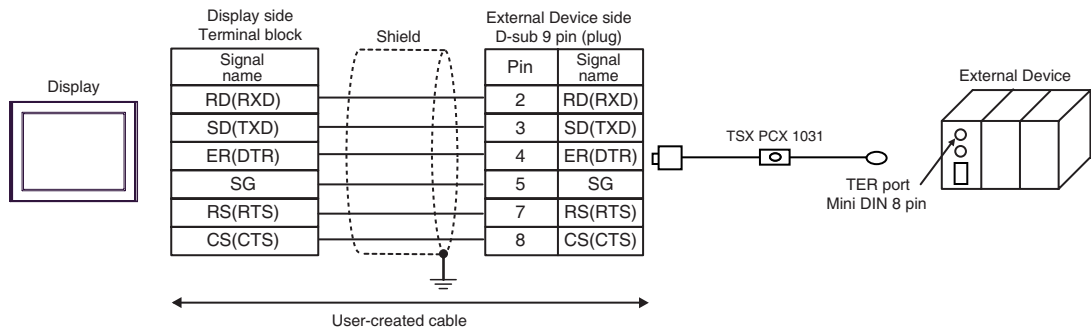
☞ ■ IPC COM Port (page 7)

*2 Set the rotary switch to "3 (OTHER DIRECT)".

2A)



2B)



Cable Diagram 3

| Display (Connection Port) | Cable | | Notes |
|--|-------|--|--|
| GP3000* ¹ (COM1) AGP-3302B (COM2) ST* ² (COM2) | 3A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | |
| | 3B | User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | |
| GP3000* ⁴ (COM2) | 3C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | The cable length must be 10m or less.* ³ |
| | 3D | Online adapter by Pro-face CA4-ADPONL-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | |
| IPC* ⁵ | 3E | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | The cable length must be 10m or less.* ³ |
| | 3F | User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | |

| Display (Connection Port) | Cable | | Notes |
|------------------------------|-------|---|--|
| GP-4106 (COM1) | 3G | User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | The cable length must be 10m or less.* ³ |
| GP-4107 (COM1) | 3H | User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50 | |


*1 All GP3000 models except AGP-3302B

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

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

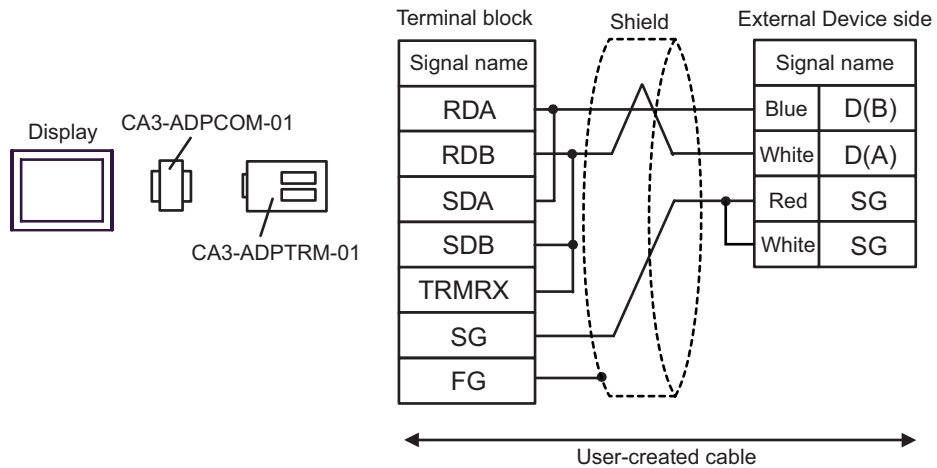
*4 All GP3000 models except GP-3200 series and AGP-3302B

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

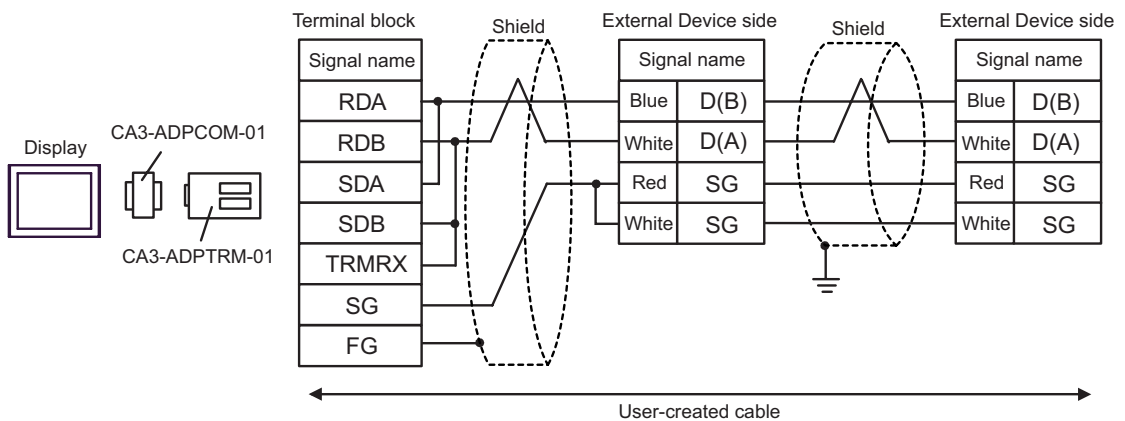
 ■ IPC COM Port (page 7)

3A)

- 1:1 Connection

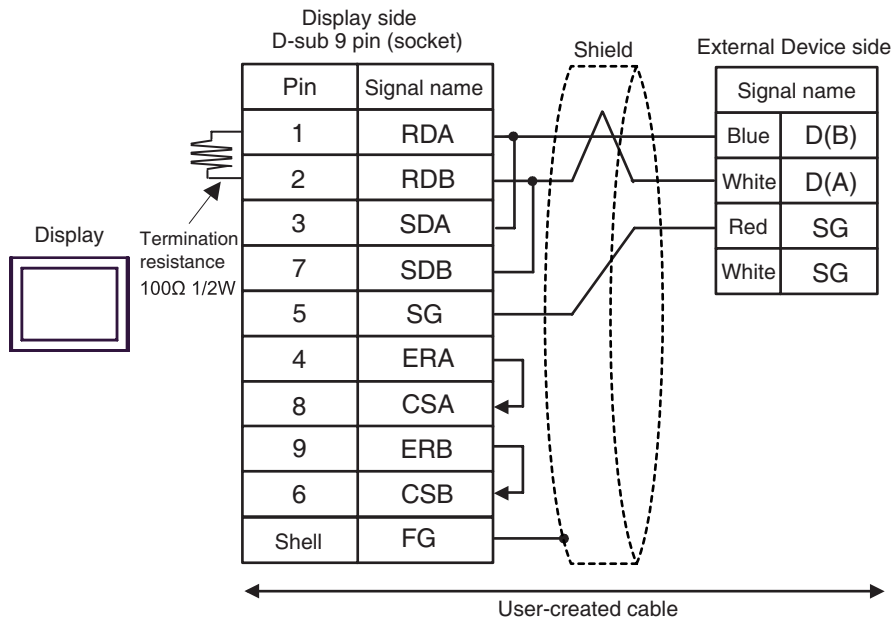


- 1:n Connection

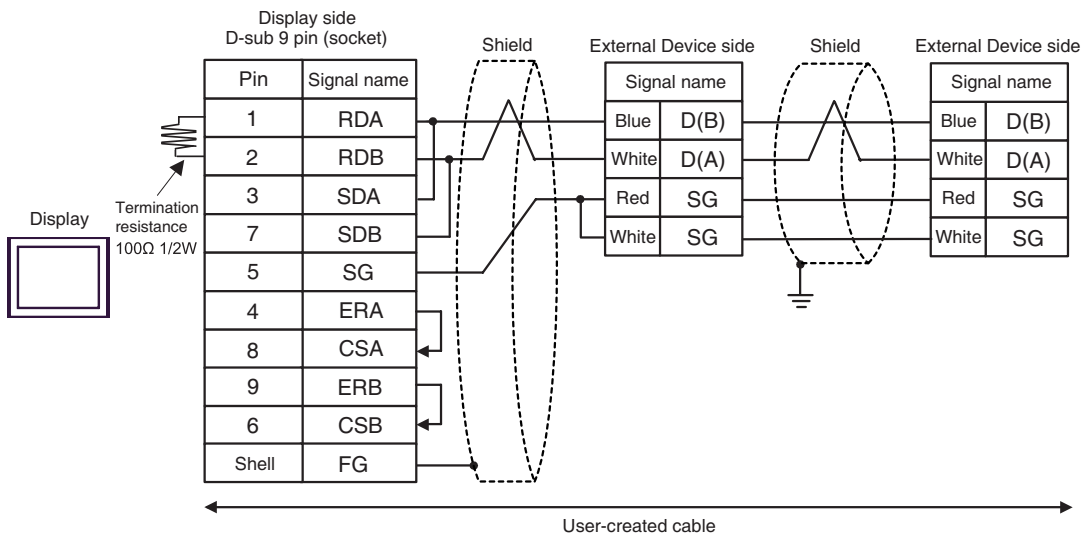


3B)

- 1:1 Connection

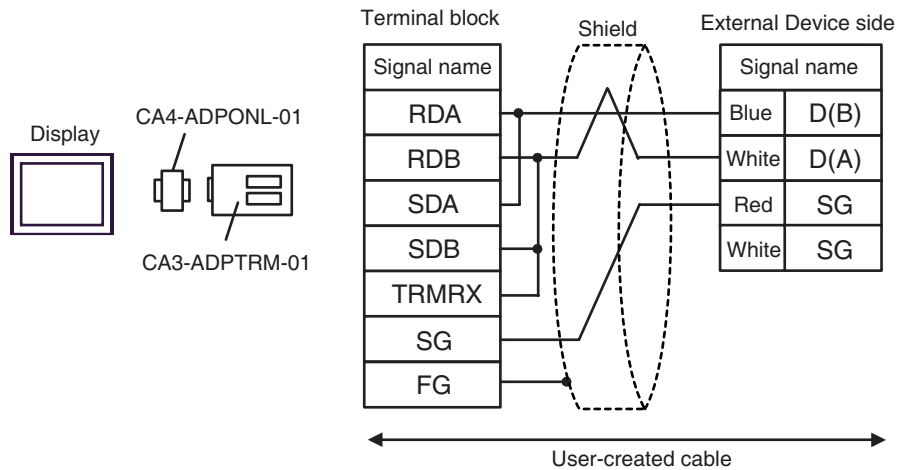


- 1:n Connection

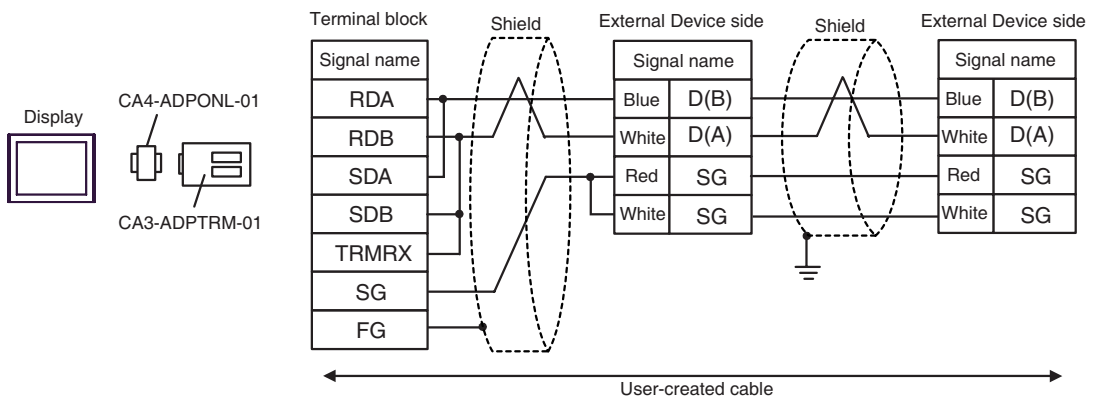


3C)

- 1:1 Connection

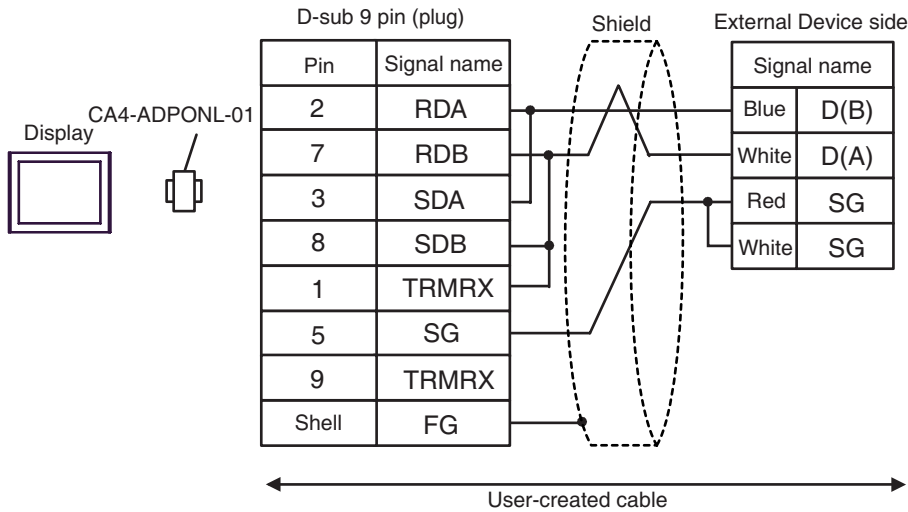


- 1:n Connection

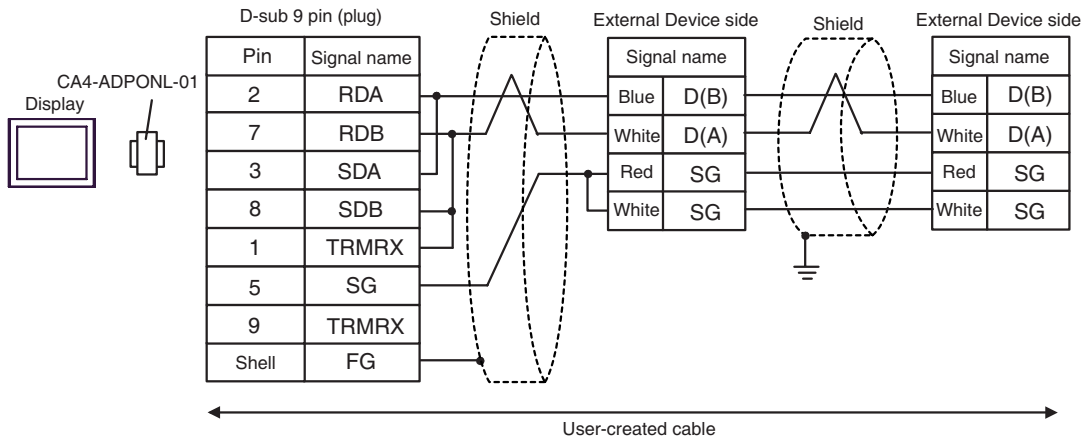


3D)

- 1:1 Connection

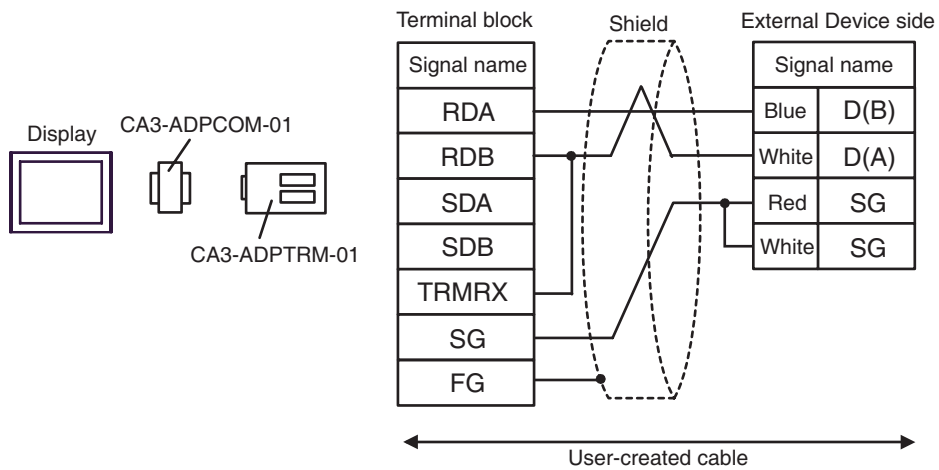


- 1:n Connection

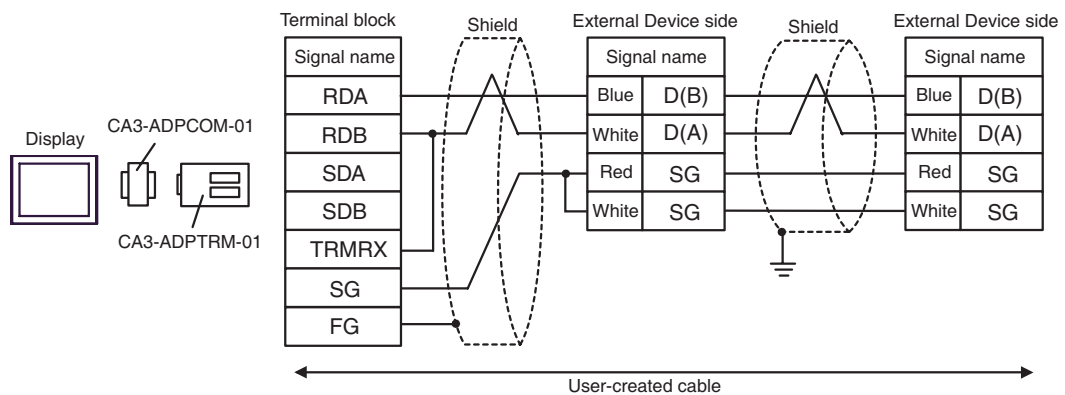


3E)

- 1:1 Connection

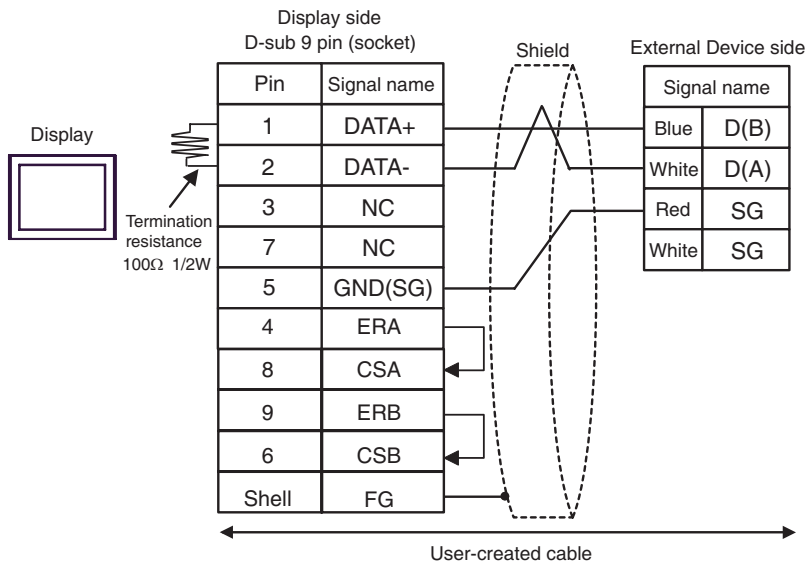


- 1:n Connection

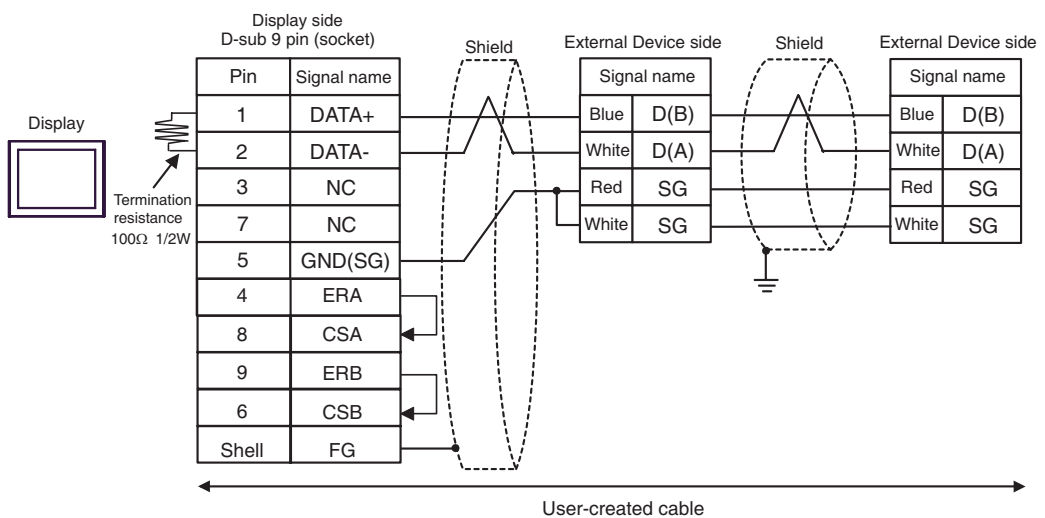


3F)

- 1:1 Connection

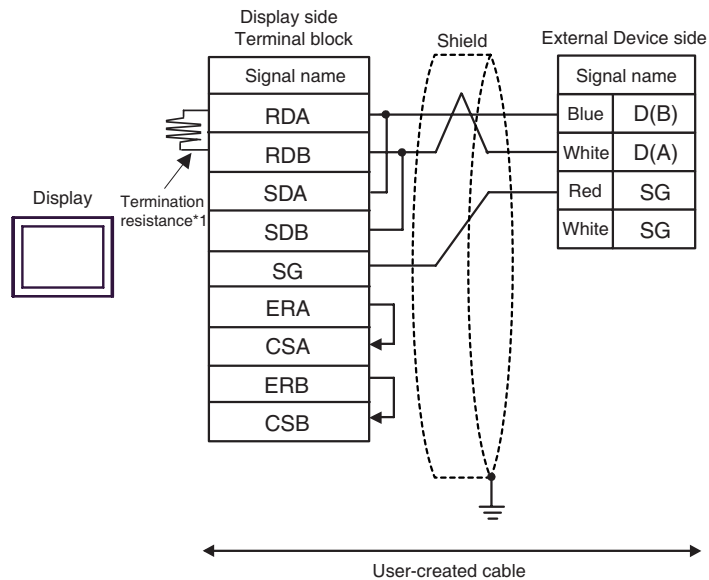


- 1:n Connection

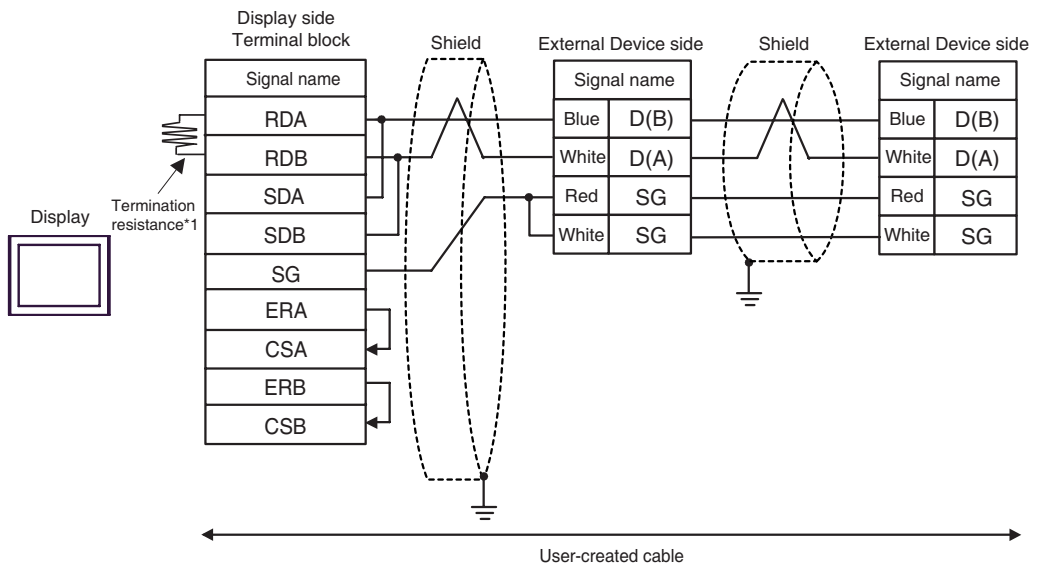


3G)

- 1:1 Connection



- 1:n Connection

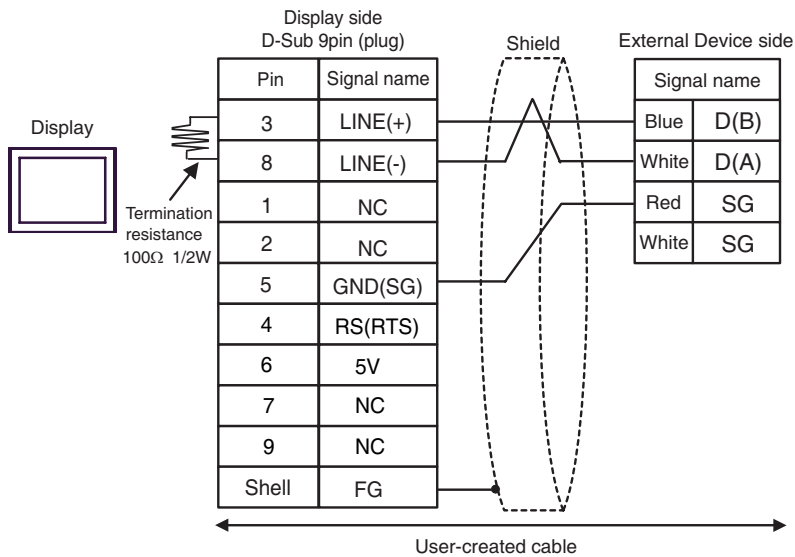


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

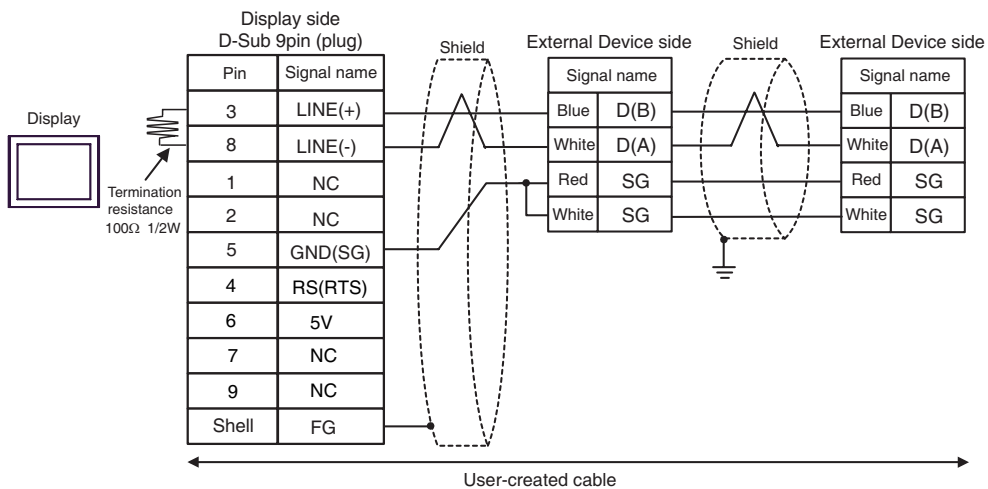
| DIP Switch No. | Set Value |
|----------------|-----------|
| 1 | OFF |
| 2 | OFF |
| 3 | ON |
| 4 | ON |

3H)

- 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 4

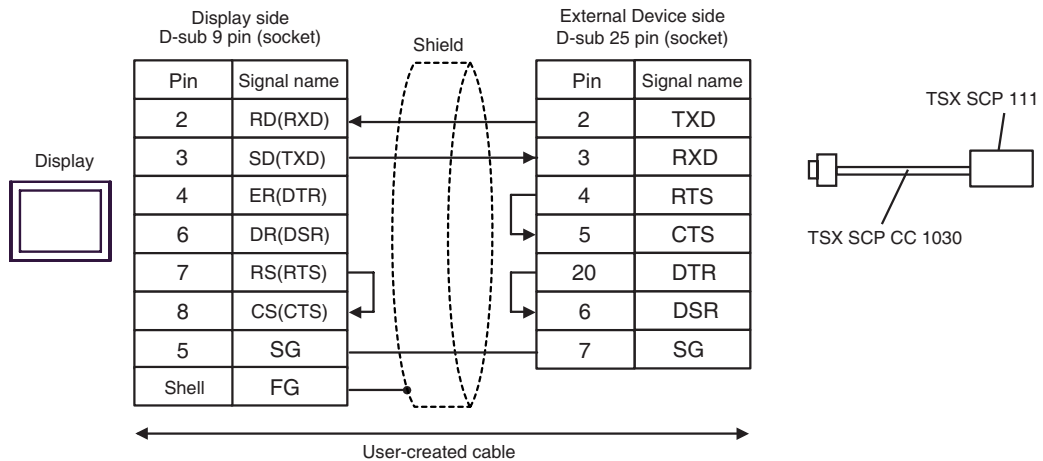
| Display (Connection Port) | Cable | | Notes |
|--|-------|--|---|
| GP3000 (COM1) ST (COM1) IPC* ¹ PC/AT | 4A | User-created cable + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111 | The cable length must be 15m or less. * ² |
| GP-4105 (COM1) | 4B | User-created cable + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111 | |

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

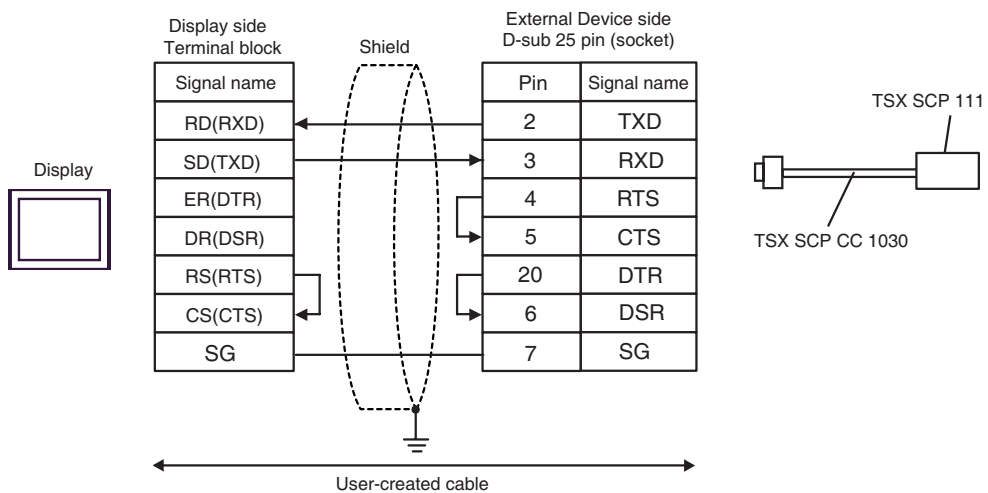
 ■ IPC COM Port (page 7)

*2 Total length for TSX SCP CC 1030 and User-created cable.

4A)



4B)



Cable Diagram 5

| Display (Connection Port) | Cable | | Notes |
|--|-------|---|-------|
| GP3000 ^{*1} (COM1) AGP-3302B (COM2) ST ^{*2} (COM2) | 5A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |
| | 5B | User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |
| GP3000 ^{*3} (COM2) | 5C | Online adapter by Pro-face CA3-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |
| | 5D | Online adapter by Pro-face CA4-ADPONL-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |

| Display (Connection Port) | Cable | | Notes |
|------------------------------|-------|---|-------|
| IPC*4 | 5E | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |
| | 5F | User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |
| GP-4106 (COM1) | 5G | User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |
| GP-4107 (COM1) | 5H | User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114 | |

*1 All GP3000 models except AGP-3302B

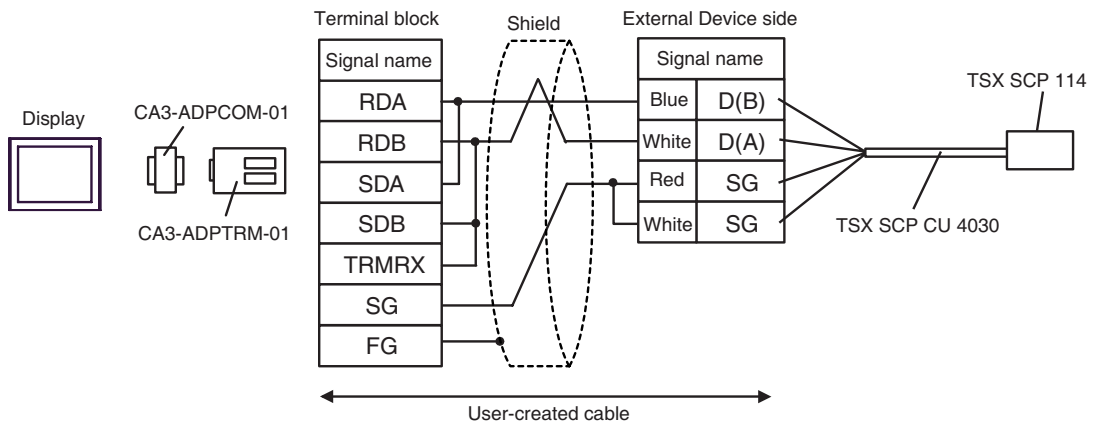
*2 All ST models except AST-3211A and AST-3302B

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

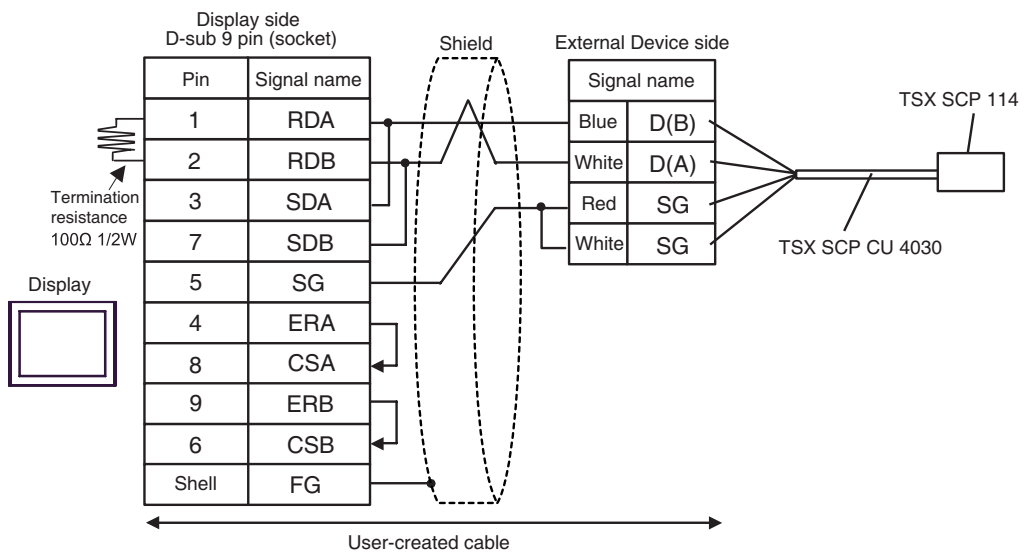
*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.

 ■ IPC COM Port (page 7)

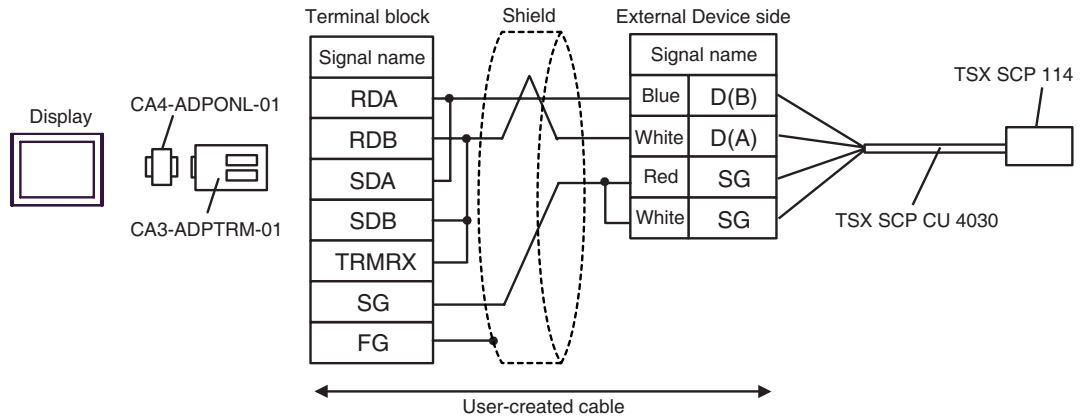
5A)



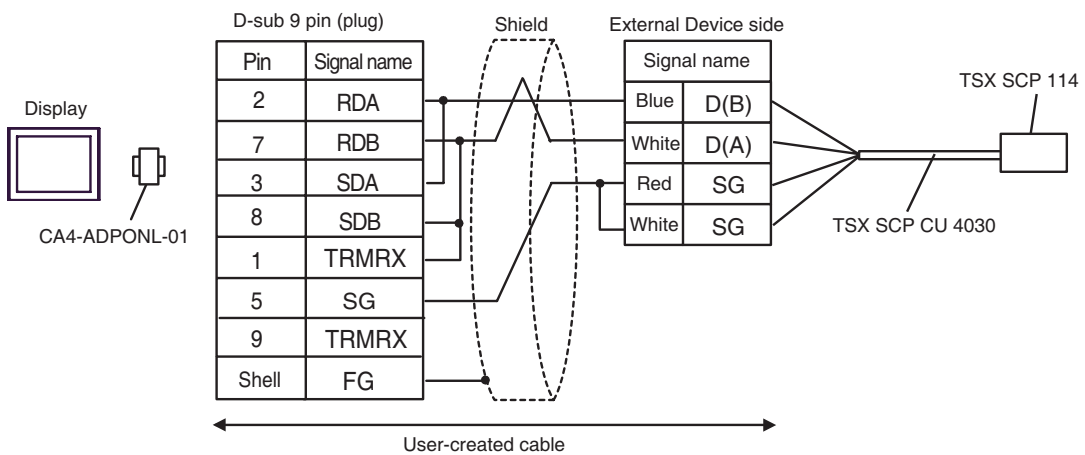
5B)



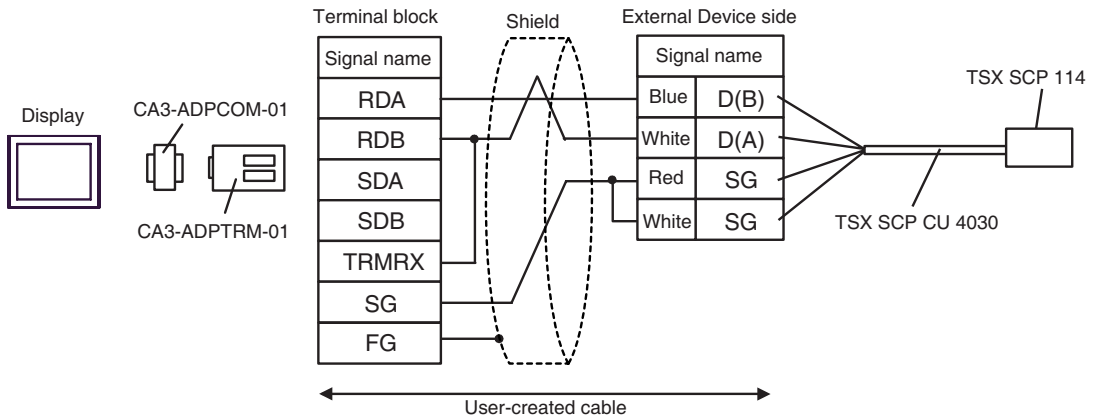
5C)



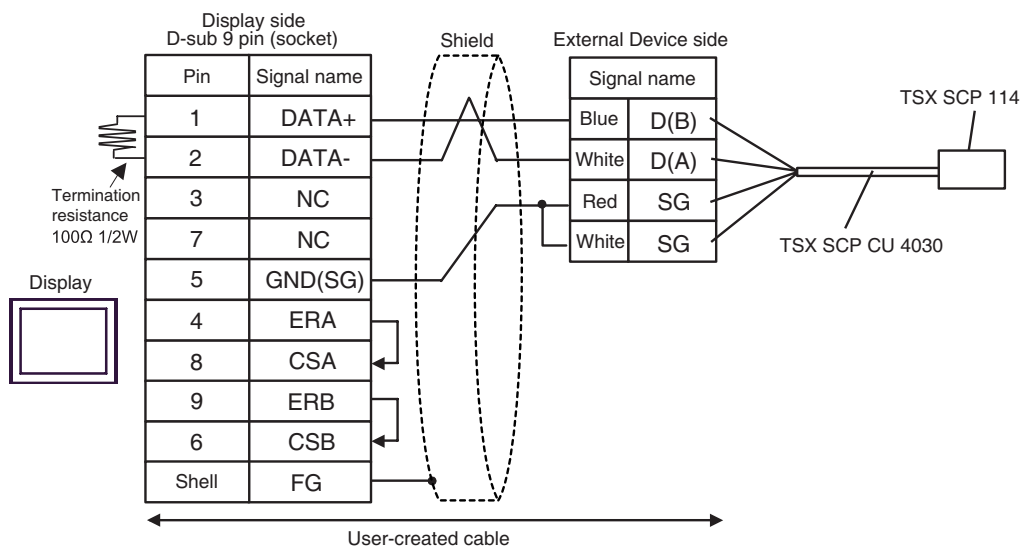
5D)



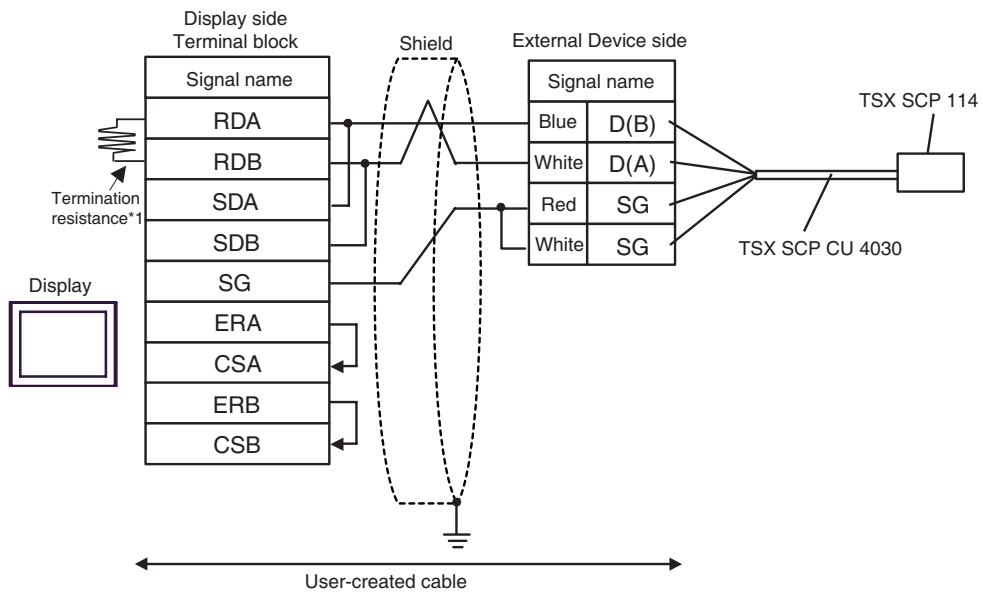
5E)



5F)



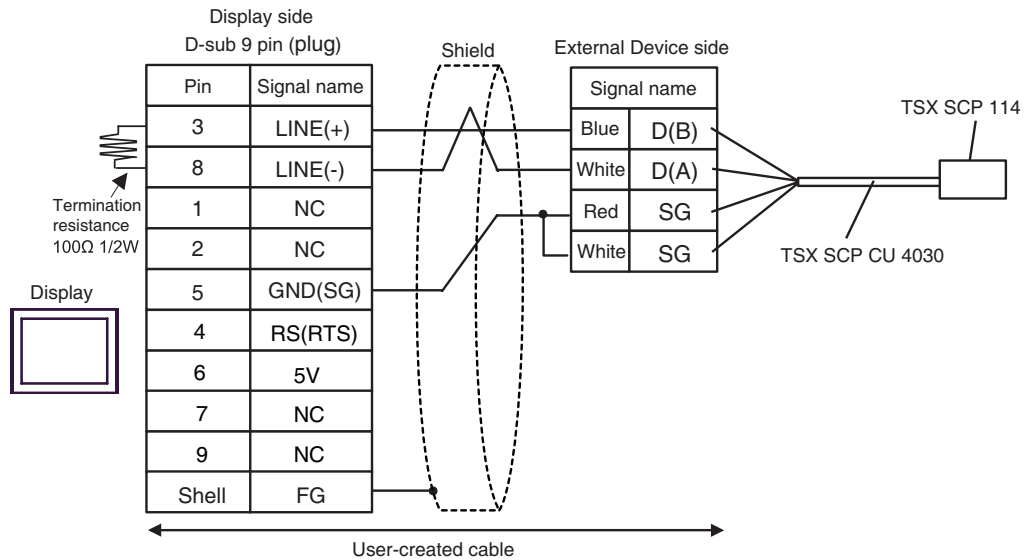
5G)



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

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

5H)

**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.

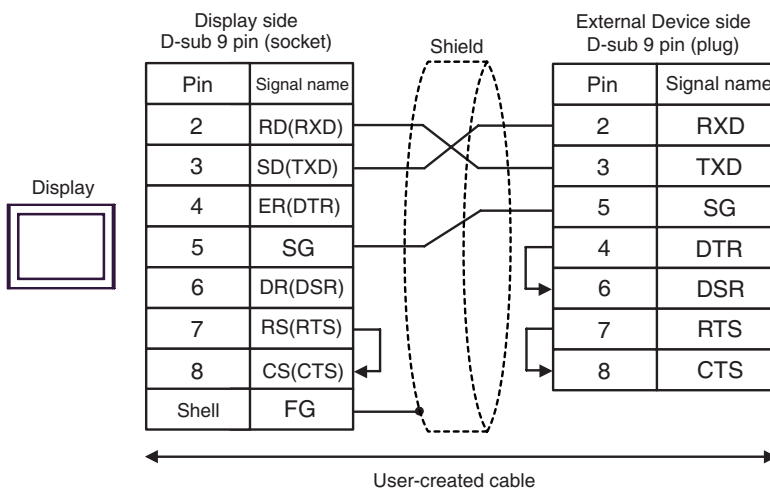
Cable Diagram 6

| Display (Connection Port) | Cable | | Notes |
|--|-------|--------------------|---------------------------------------|
| GP3000 (COM1) ST (COM1) IPC* ¹ PC/AT | 6A | User-created cable | The cable length must be 15m or less. |
| GP-4105 (COM1) | 6B | User-created cable | |

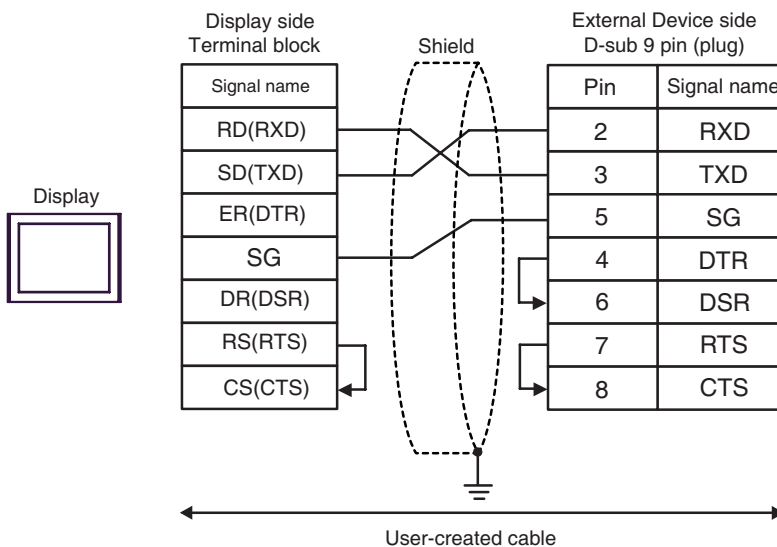
*1 Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 7)

6A)



6B)



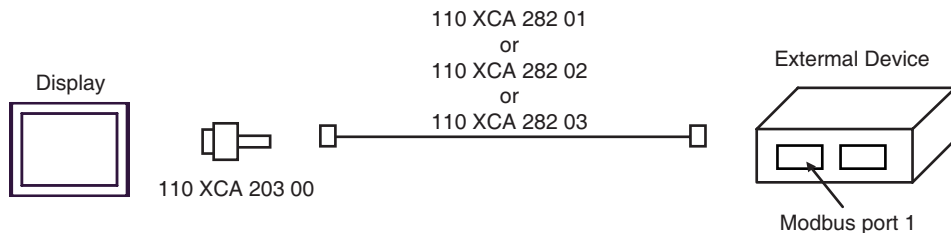
Cable Diagram 7

| Display (Connection Port) | Cable | | Notes |
|--|-------|--|--|
| GP3000 (COM1) ST (COM1) IPC*1 PC/AT | 7A | D-Shell adapter by Schneider Electric 110 XCA 203 00 + RS232 communication cable RJ45 to RJ45 by Schneider Electric 110 XCA 282 01(1m) , 110 XCA 282 02(3m) or 110 XCA 282 03(6m) | The cable length must be 9.5m or less. |
| GP-4105 (COM1) | 7B | User-created cable + D-Shell adapter by Schneider Electric 110 XCA 203 00 + RS232 communication cable RJ45 to RJ45 by Schneider Electric 110 XCA 282 01(1m) , 110 XCA 282 02(3m) or 110 XCA 282 03(6m) | |

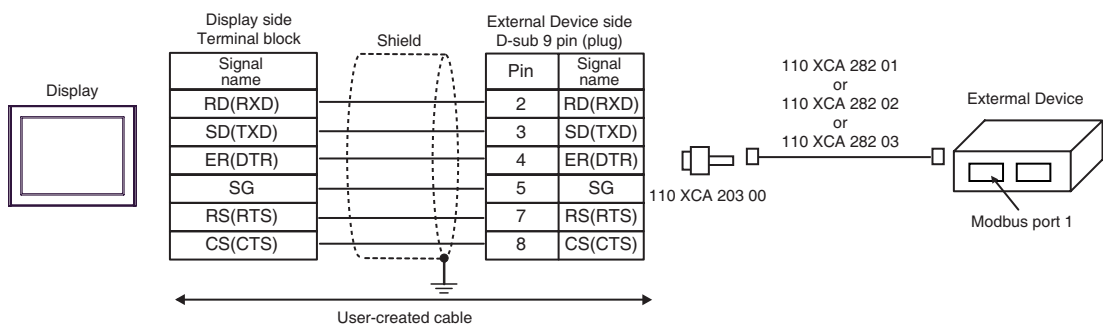
*1 Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 7)

7A)



7B)




Cable Diagram 8

| Display (Connection Port) | Cable | | Notes |
|---|-------|---|---|
| GP3000 ^{*1} (COM1) AGP-3302B (COM2) ST ^{*2} (COM2) IPC ^{*3} | 8A | COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | The cable length must be 500m or less. |
| | 8B | User-created cable | |
| GP3000 ^{*4} (COM2) | 8C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | |
| | 8D | Online adapter by Pro-face CA4-ADPONL-01 + User-created cable | |
| GP-4106 (COM1) | 8E | User-created cable | |

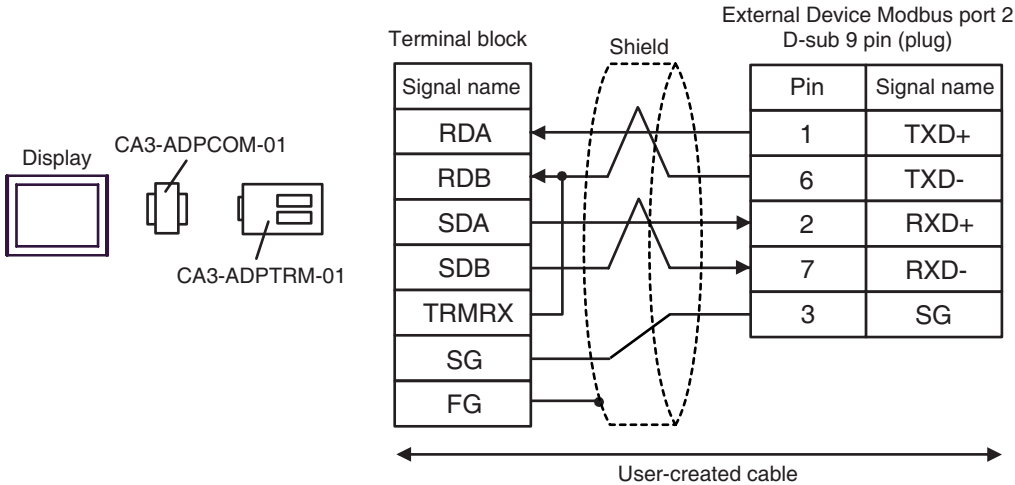
*1 All GP3000 models except AGP-3302B

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

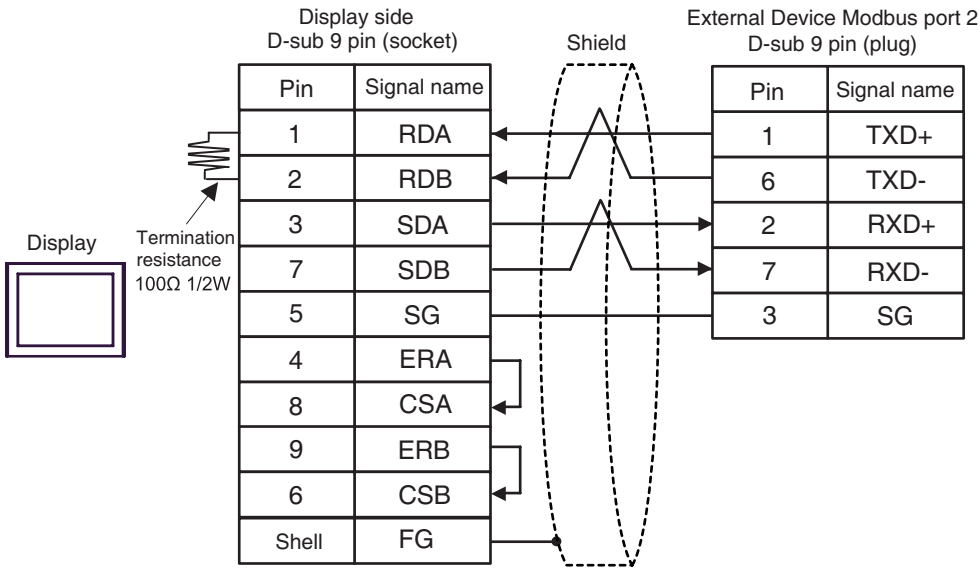
*3 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
 ■ IPC COM Port (page 7)

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

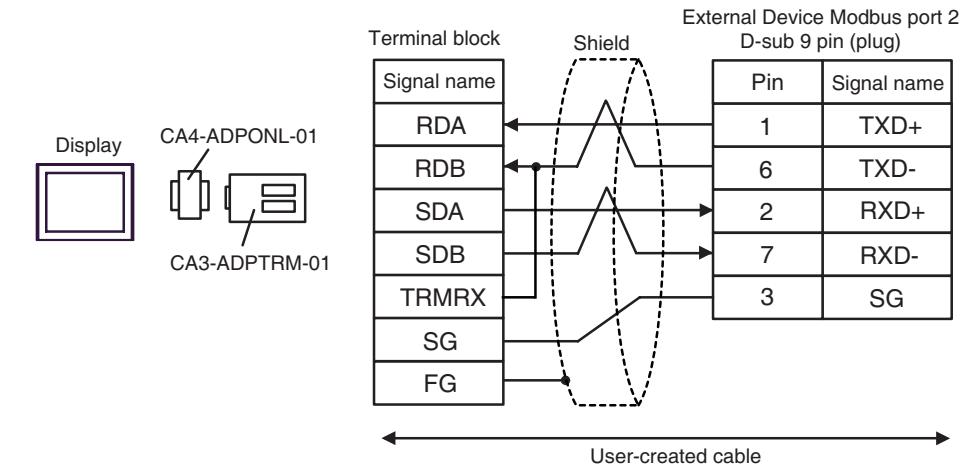
8A)



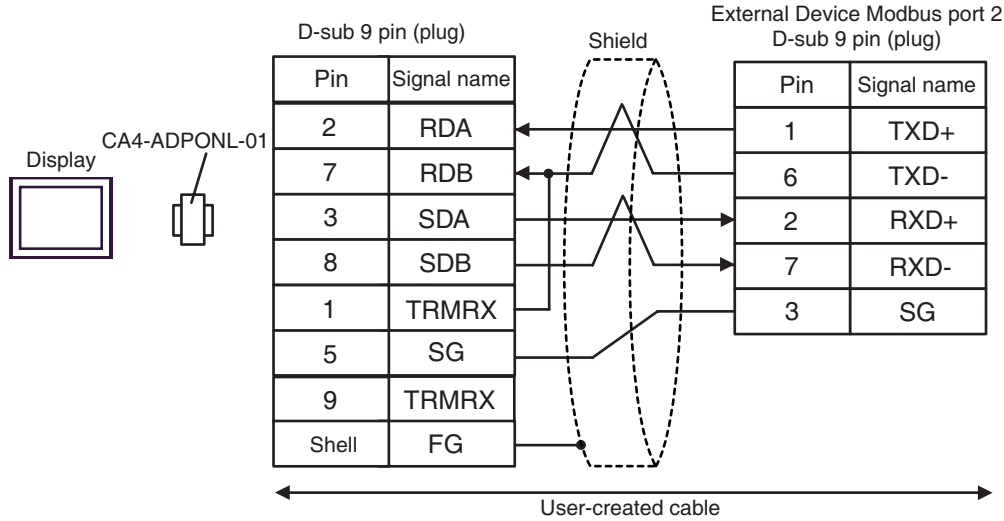
8B)



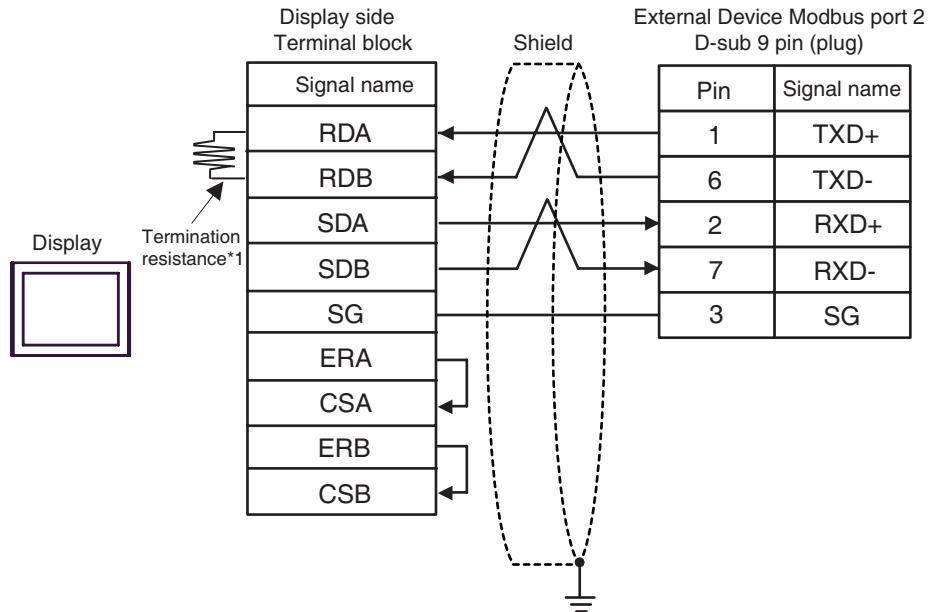
8C)



8D)



8E)



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

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

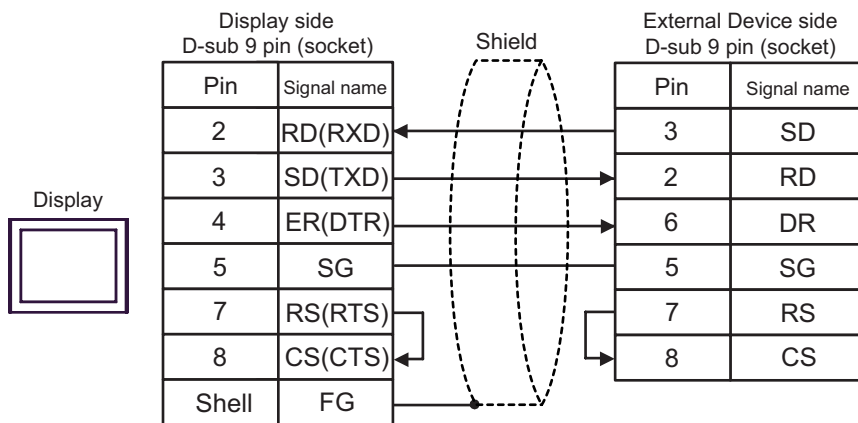
Cable Diagram 9

| Display (Connection Port) | Cable | | Notes |
|--|-------|--------------------|---------------------------------------|
| GP3000 (COM1) ST (COM1) IPC*1 PC/AT | 9A | User-created cable | The cable length must be 15m or less. |
| GP-4105 (COM1) | 9B | User-created cable | |

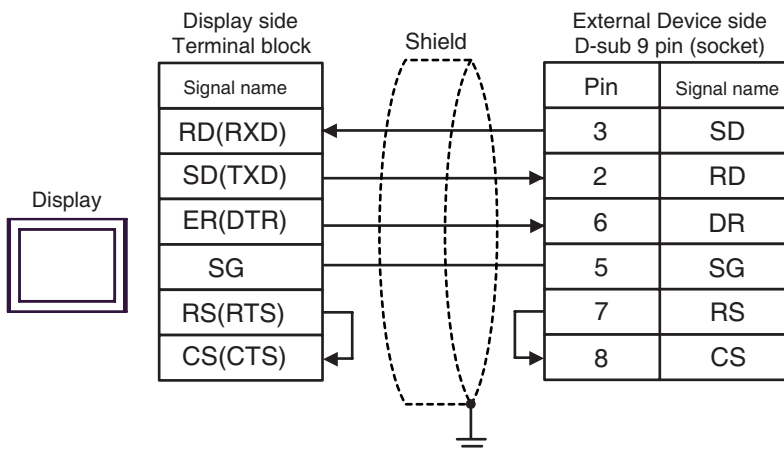
*1 Only the COM port which can communicate by RS-232C can be used.

■ IPC COM Port (page 7)

9A)



9B)



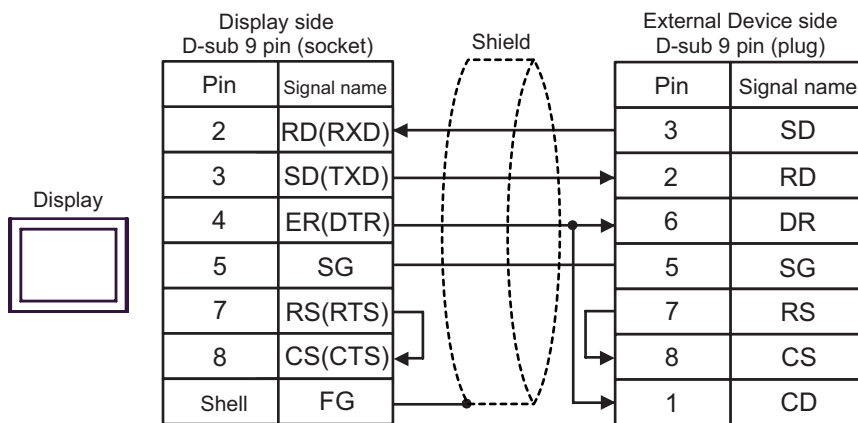
Cable Diagram 10

| Display (Connection Port) | Cable | | Notes |
|--|-------|--------------------|---------------------------------------|
| GP3000 (COM1) ST (COM1) IPC*1 PC/AT | 10A | User-created cable | The cable length must be 15m or less. |
| GP-4105 (COM1) | 10B | User-created cable | |

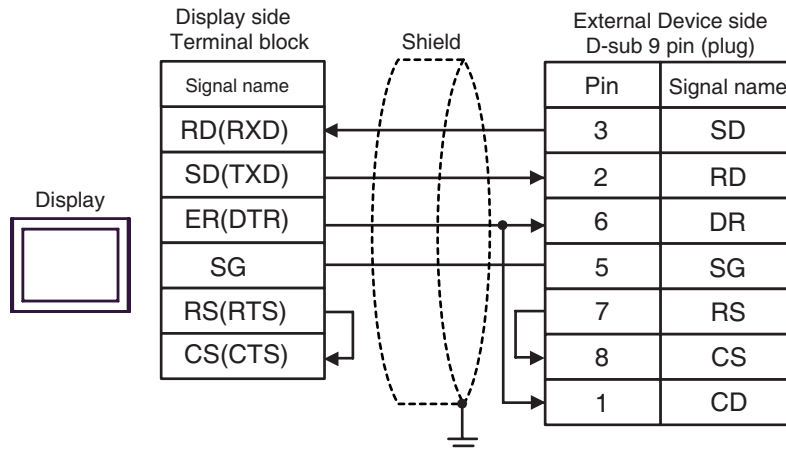
*1 Only the COM port which can communicate by RS-232C can be used.

■ IPC COM Port (page 7)

10A)



10B)




Cable Diagram 11

| Display (Connection Port) | Cable | | Notes |
|---|-------|--|---|
| GP3000* ¹ (COM1) AGP-3302B (COM2) ST* ² (COM2) IPC* ³ | 11A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | The cable length must be 1000m or less. |
| | 11B | User-created cable | |
| GP3000* ⁴ (COM2) | 11C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | |
| | 11D | Online adapter by Pro-face CA4-ADPONL-01 + User-created cable | |
| GP-4106 (COM1) | 11E | User-created cable | |

*1 All GP3000 models except AGP-3302B

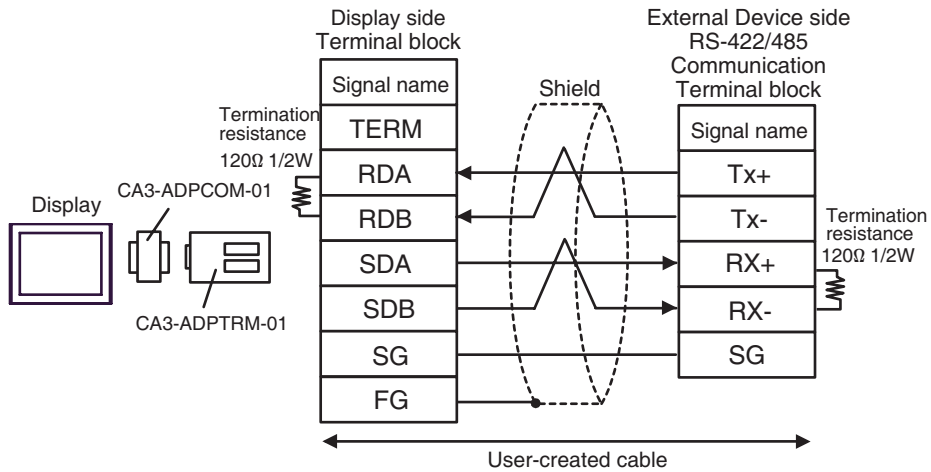
*2 All ST models except AST-3211A and AST-3302B

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

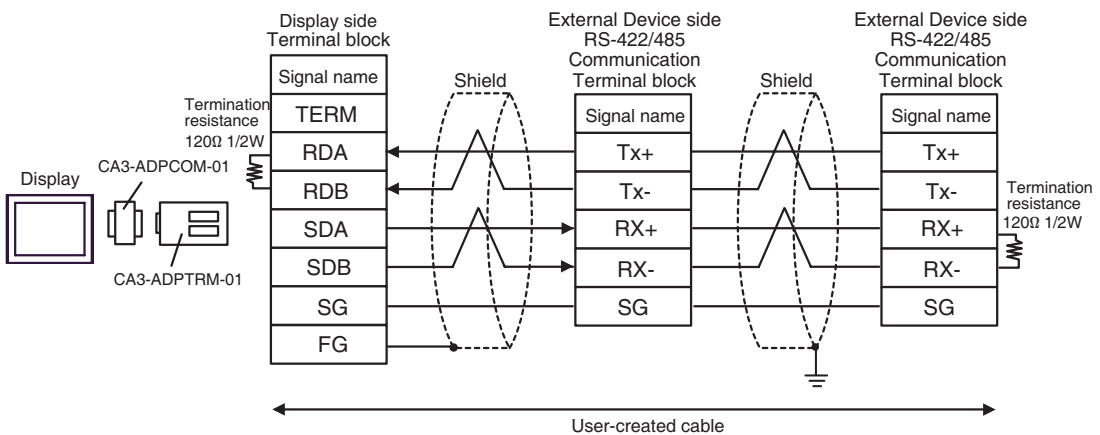
*4 All GP3000 models except GP-3200 series and AGP-3302B

11A)

- 1:1 Connection

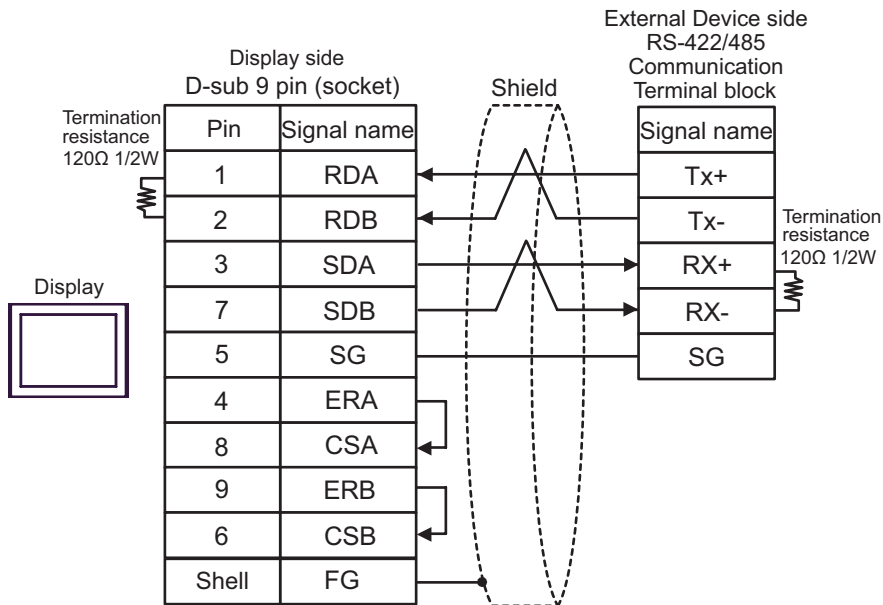


- 1:n Connection

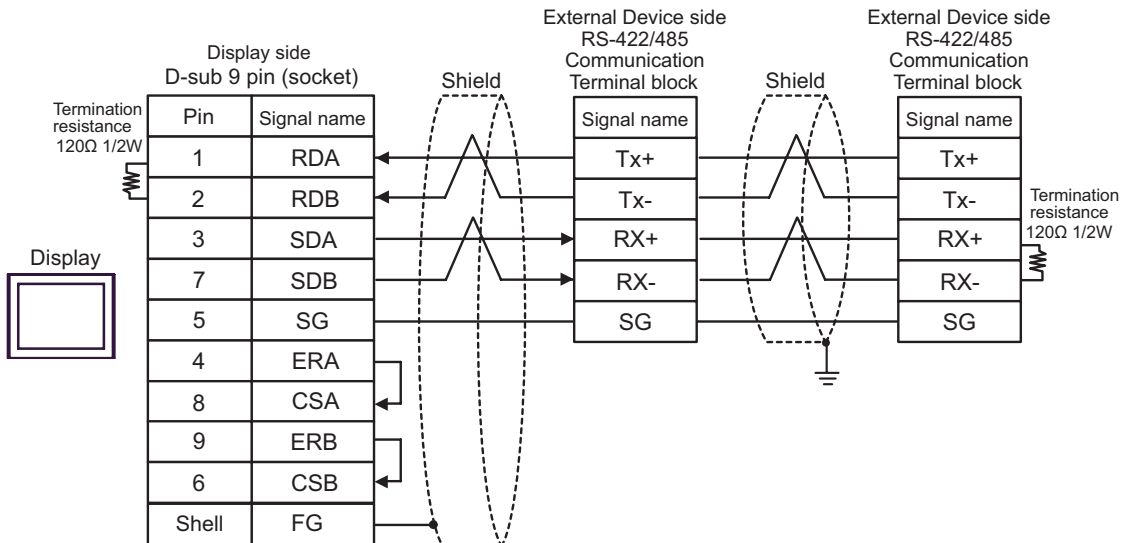


11B)

- 1:1 Connection

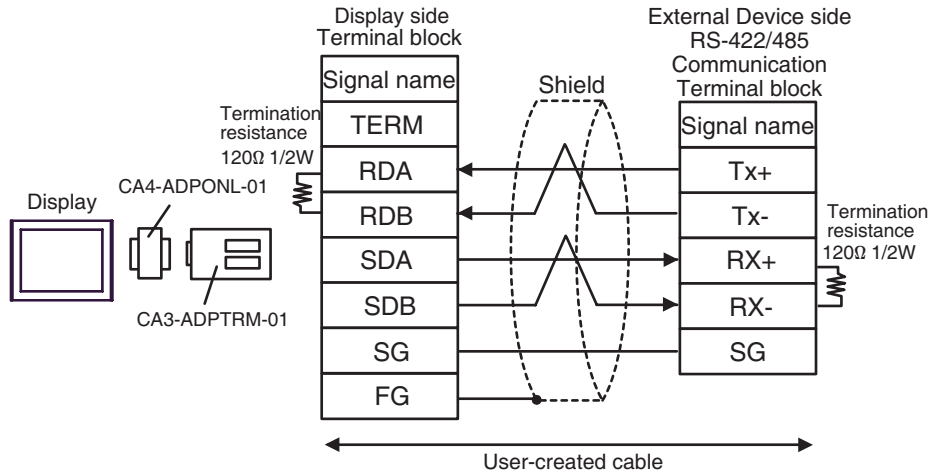


- 1:n Connection

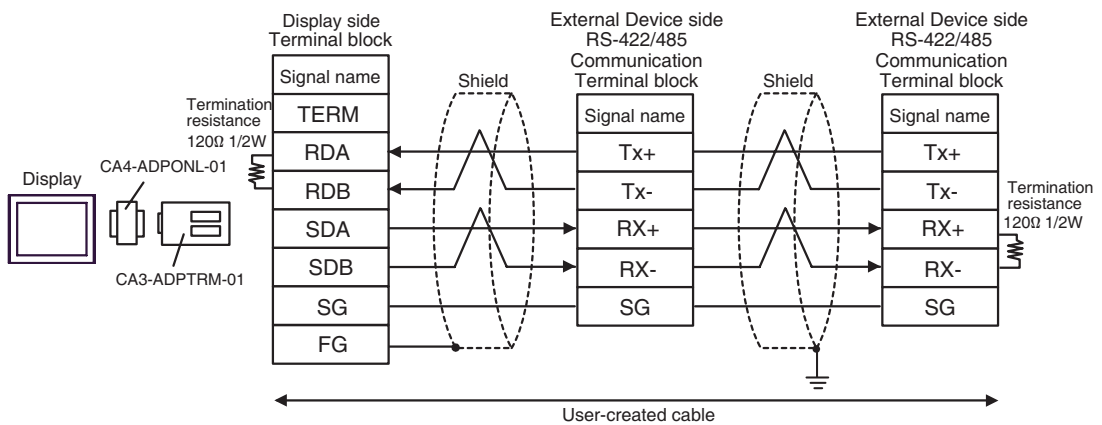


11C)

- 1:1 Connection

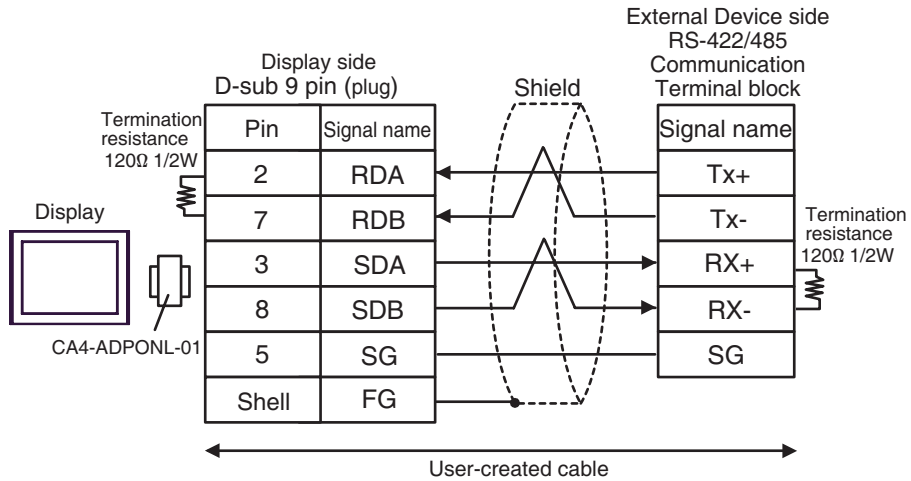


- 1:n Connection

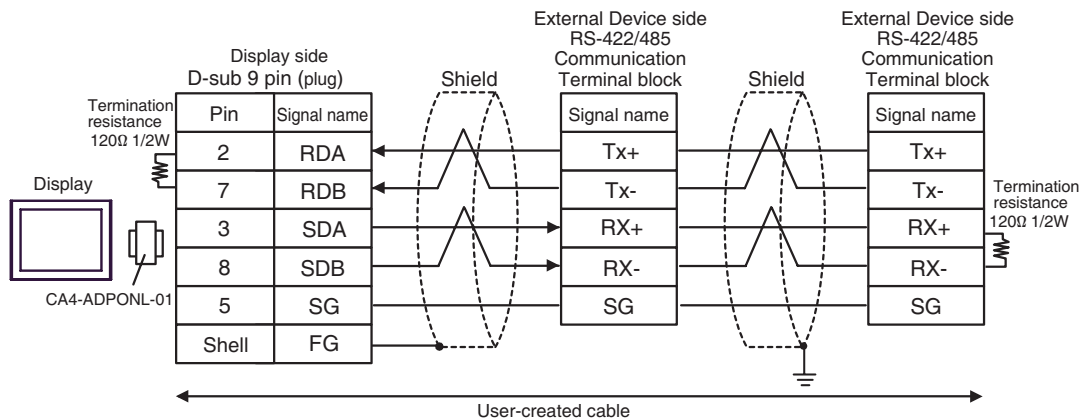


11D)

- 1:1 Connection

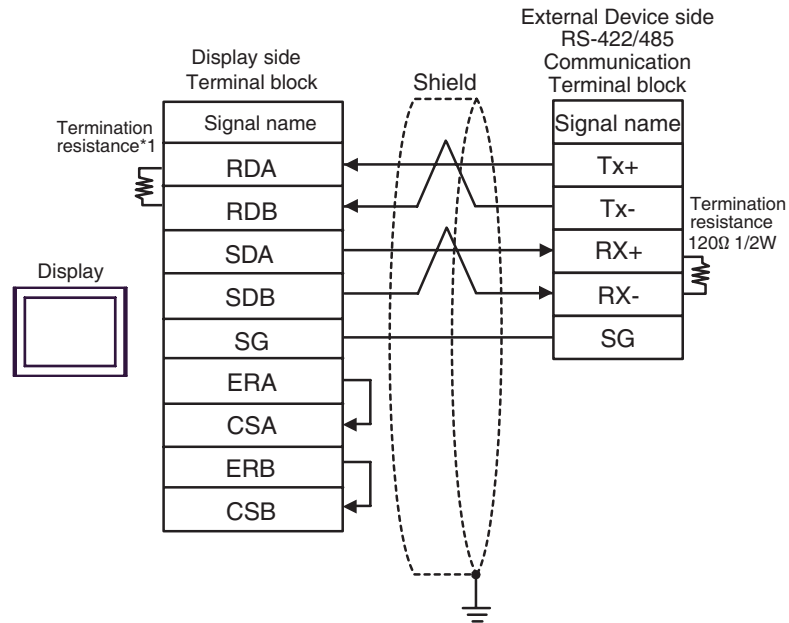


- 1:n Connection

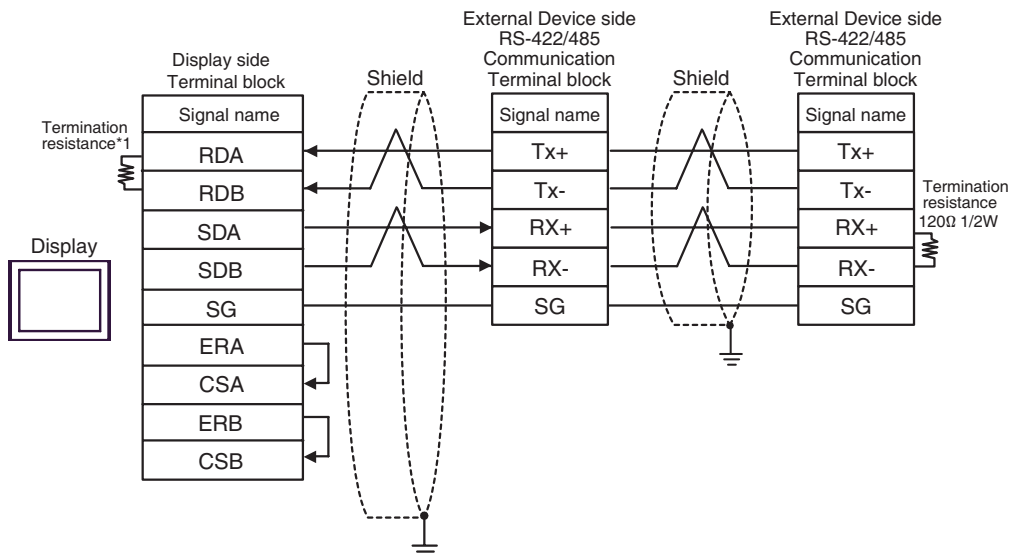


11E)

- 1:1 Connection



- 1:n Connection



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

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

Cable Diagram 12


| Display (Connection Port) | Cable | | Notes |
|--|-------|--|---|
| GP3000* ¹ (COM1) AGP-3302B (COM2) ST* ² (COM2) | 12A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | The cable length must be 1000m or less. |
| | 12B | User-created cable | |
| GP3000* ³ (COM2) | 12C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | |
| | 12D | Online adapter by Pro-face CA4-ADPONL-01 + User-created cable | |
| IPC* ⁴ | 12E | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable | |
| | 12F | User-created cable | |
| GP-4106 (COM1) | 12G | User-created cable | |
| GP-4107 (COM1) | 12H | User-created cable | |

*1 All GP3000 models except AGP-3302B

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

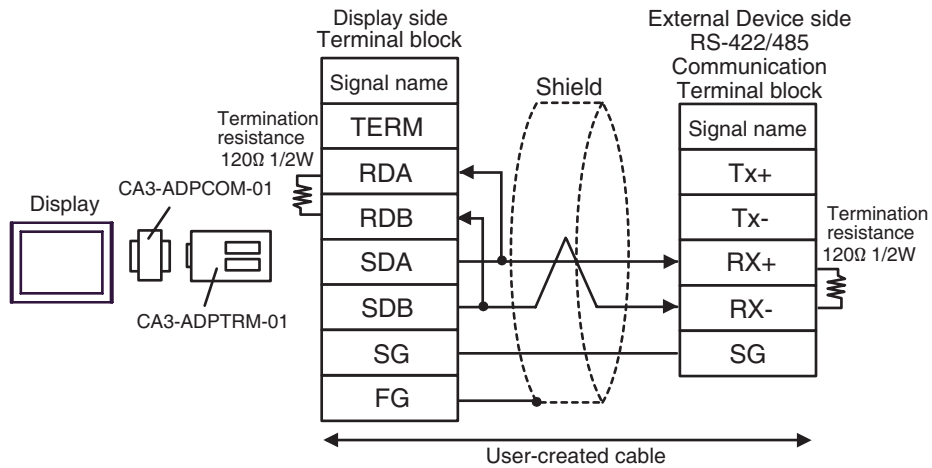
*3 All GP3000 models except GP-3200 series and AGP-3302B

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

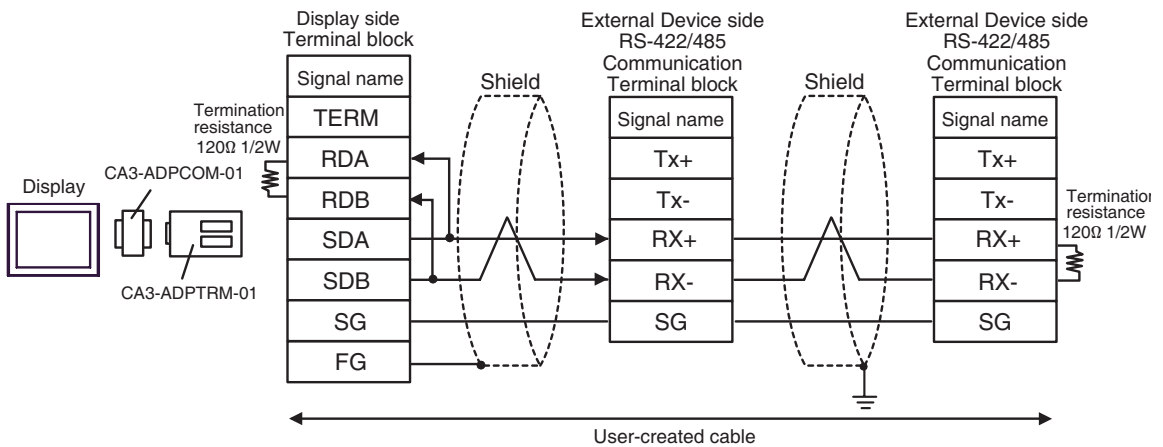
 ■ IPC COM Port (page 7)

12A)

- 1:1 Connection

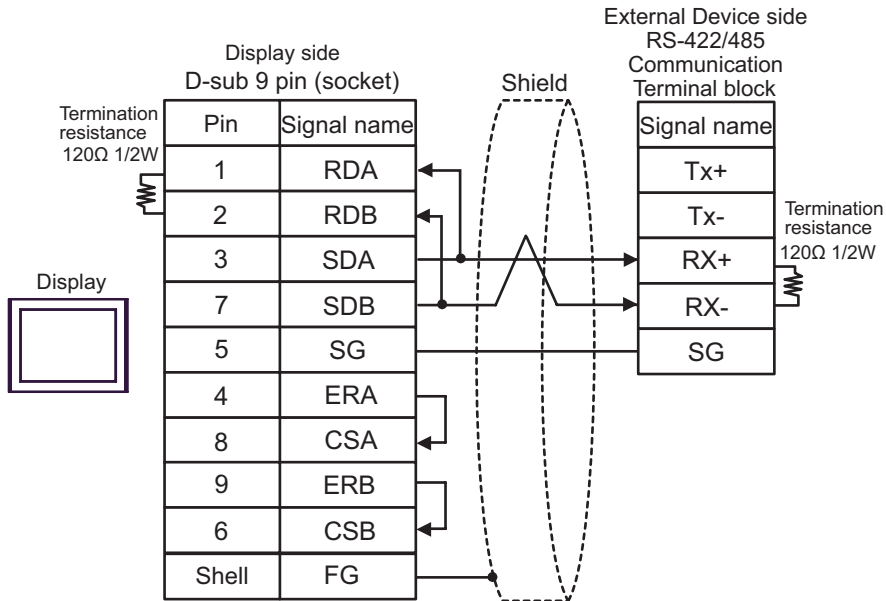


- 1:n Connection

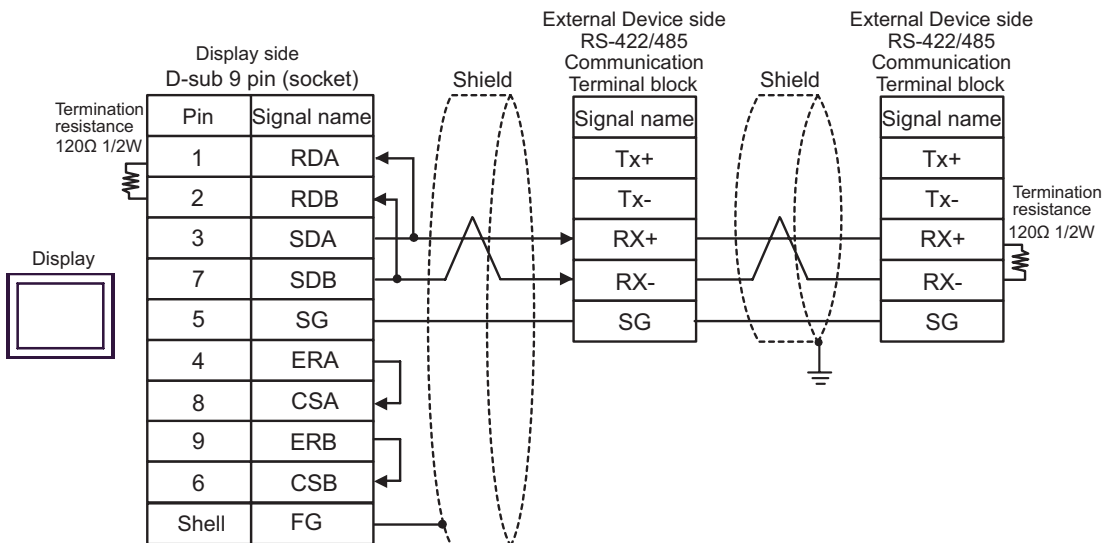


12B)

- 1:1 Connection

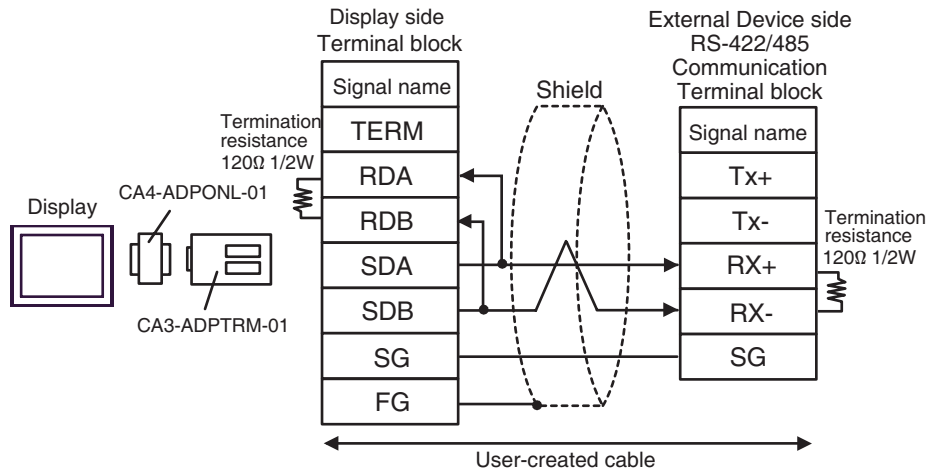


- 1:n Connection

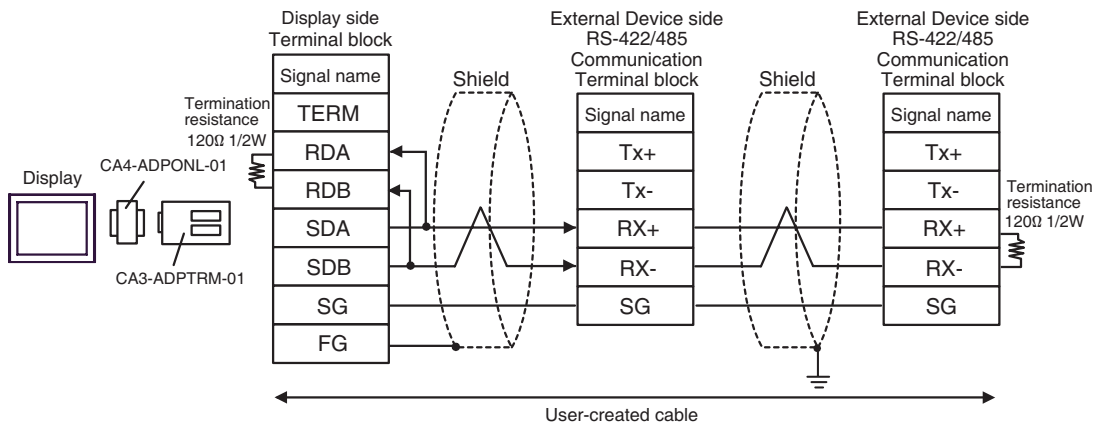


12C)

- 1:1 Connection

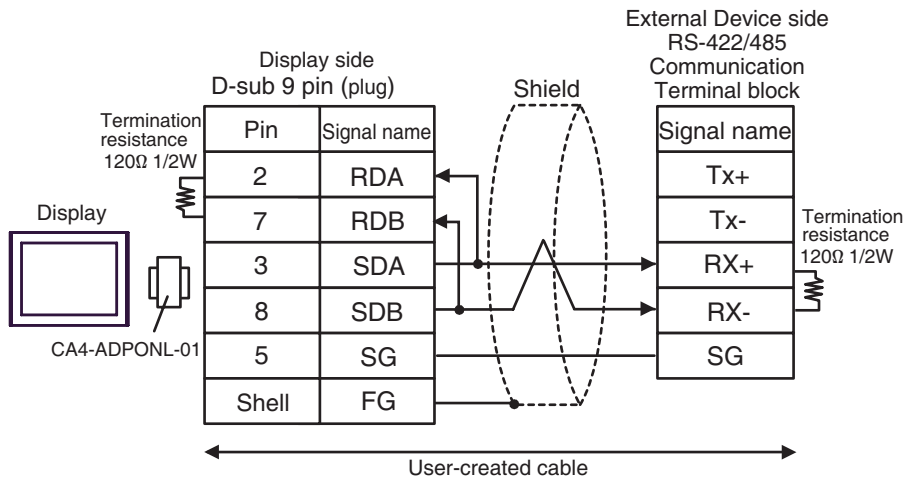


- 1:n Connection

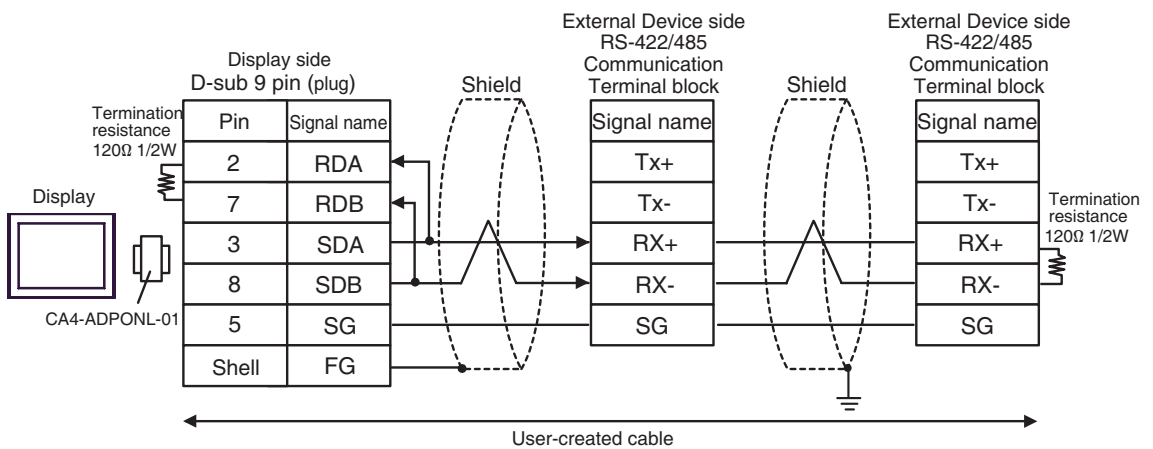


12D)

- 1:1 Connection

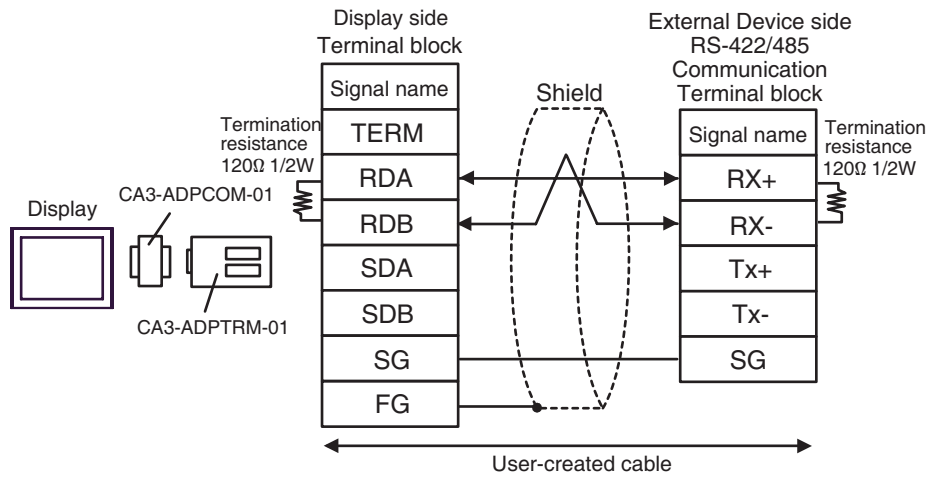


- 1:n Connection

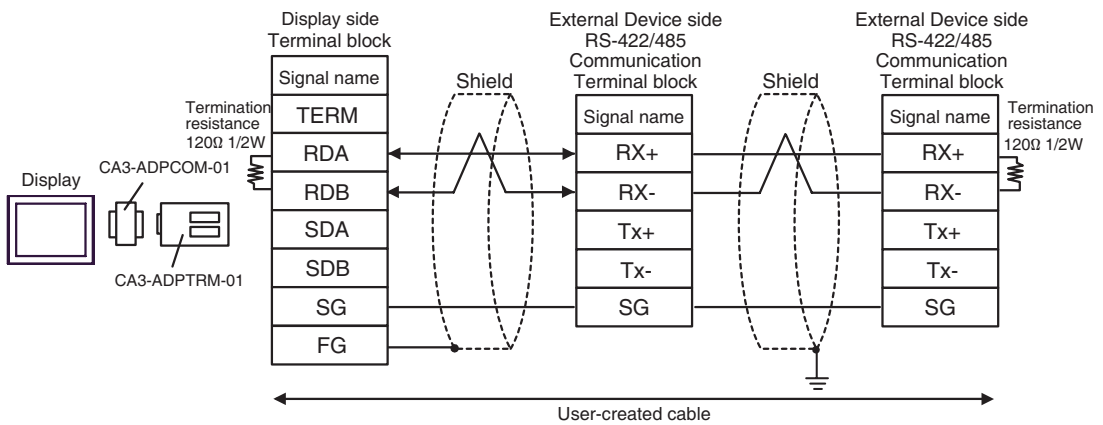


12E)

- 1:1 Connection

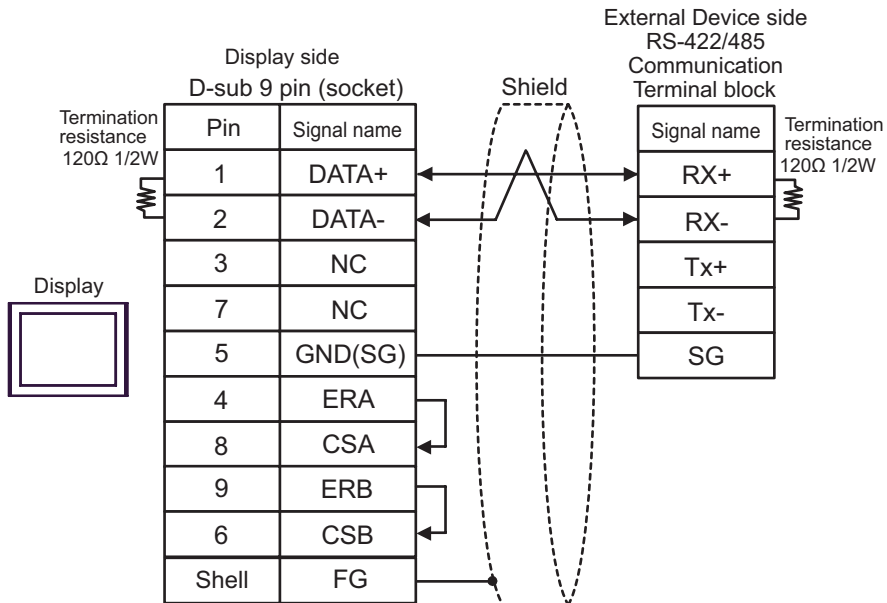


- 1:n Connection

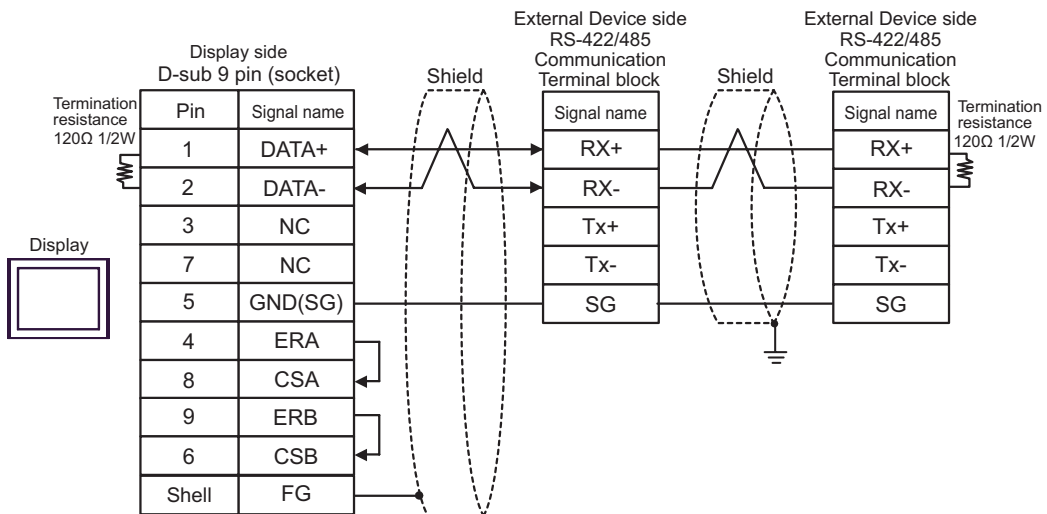


12F)

- 1:1 Connection

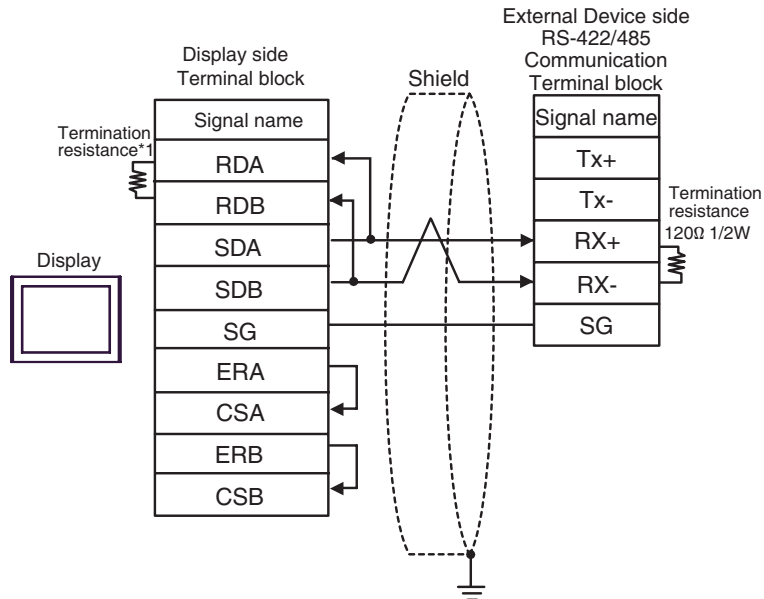


- 1:n Connection

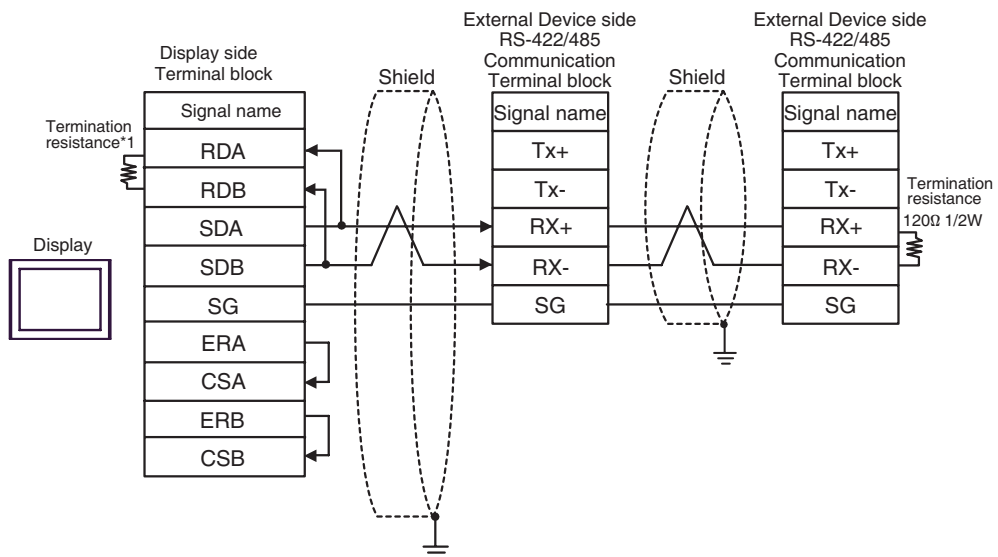


12G)

- 1:1 Connection



- 1:n Connection

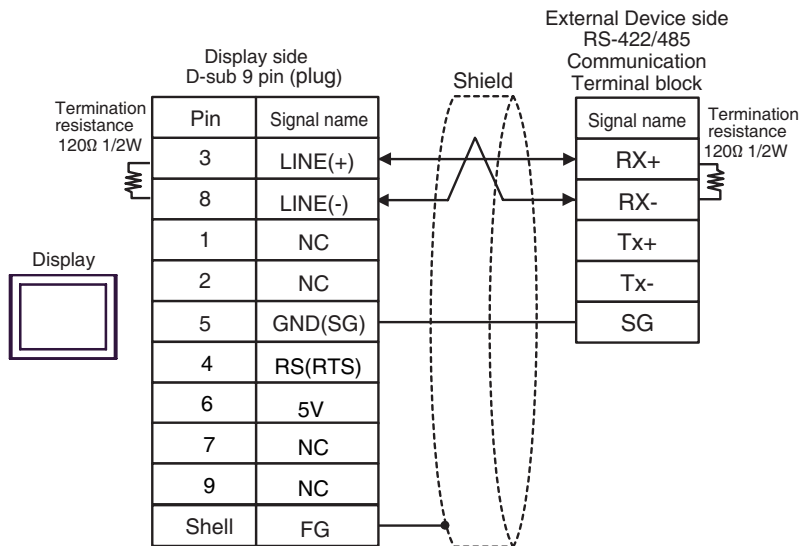


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

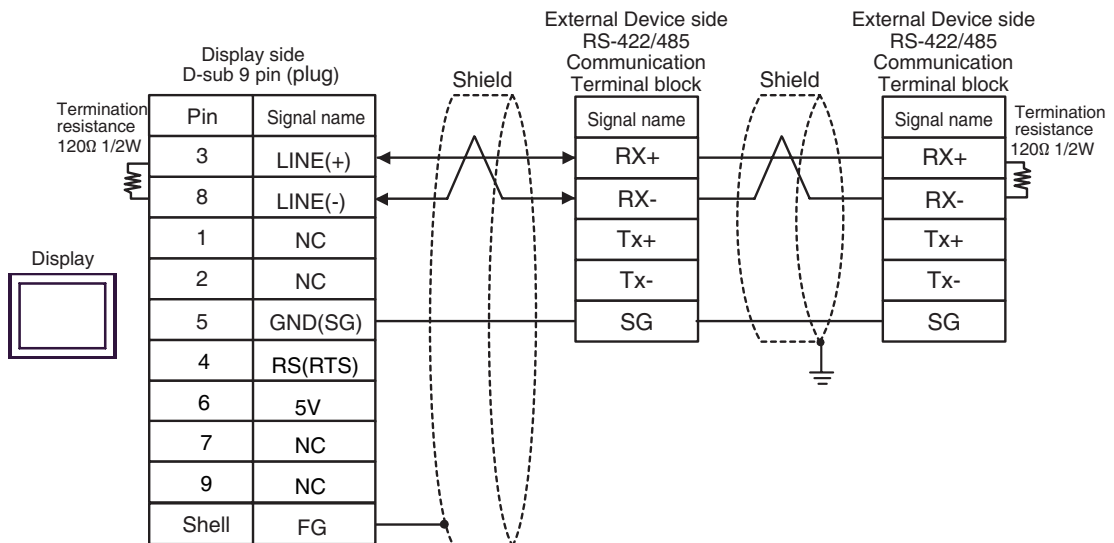
| DIP Switch No. | Set Value |
|----------------|-----------|
| 1 | OFF |
| 2 | OFF |
| 3 | ON |
| 4 | ON |

12H)

- 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.

6 Supported Device


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

■ Micro/Premium/Twido/Quantum/Momentum Series

 This address can be specified as system data area.


| Device | Bit Address | Word Address | 32 bits | Notes |
|------------------|-------------------------|-----------------|--|--|
| Coil | 000001 - 065536 | 000001 - 065521 | <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin: 2px;">L / H</div> <div style="margin: 0 10px;">or</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">H / L</div> </div> <div style="text-align: center; margin-top: 5px;">*1</div> |  |
| Discrete Input | 100001 - 165536 | 100001 - 165521 | |  *2 |
| Input Register | ----- | 300001 - 365536 | |  *2 |
| Holding Register | 400001,00 - 465536,15*3 | 400001 - 465536 | |  |

*1 High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].

 "4.1 Setup Items in GP-Pro EX" (page 46)


*2 Write disable





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

- Clear..... 

- Do not clear 400001,00 - 465536,15

■ FCN/FCJ Series

 This address can be specified as system data area.

| Device | Bit Address | Word Address | 32 bits | Notes |
|------------------|-----------------------|-----------------|--|---|
| Coil | 000001 - 009984 | 000001 - 009969 | <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin: 2px;">L / H</div> <div style="margin: 0 10px;">or</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">H / L</div> </div> <div style="text-align: center; margin-top: 5px;">*1</div> |  *2 |
| Discrete Input | 100001 - 109984 | 100001 - 109969 | |  *2 *3 |
| Input Register | 300001.00 - 309999.15 | 300001 - 309999 | |  *3 |
| Holding Register | 400001.00 - 409999.15 | 400001 - 409999 | |  |

*1 High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].

 "4.1 Setup Items in GP-Pro EX" (page 46)

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

*3 Write disable

■ Supported Function Code

Below is the list of Supported Function Code.

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

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


■ IEC61131 address syntax

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

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

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

NOTE

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

7 Device Code and Address Code

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

■ Micro/Premium/TwoDo/Quantum/Momentum Series

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

■ FCN/FCJ Series

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

8 Error Messages

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

| Item | Description |
|-----------------------|---|
| No. | Error No. |
| Device Name | Name of External Device where error occurs. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1]) |
| Error Message | Displays messages related to the error which occurs. |
| Error Occurrence Area | Displays IP address or device address of External Device where error occurs, or error codes received from External Device. <div style="border: 1px solid black; padding: 2px; margin-top: 5px;"> NOTE <ul style="list-style-type: none"> • IP address is displayed such as "IP address(Decimal): MAC address(Hex)". • Device address is displayed such as "Address: Device address". • Received error codes are displayed such as "Decimal[Hex]". </div> |

Display Examples of Error Messages

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

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