YOKOGAWA Electric Corporation

# Personal Computer Link SIO 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<br>This section shows the types of External Devices which can be connected and SIO type. | ☞"1 System Configuration" (page 3) |
| 2 | Selection of External Device<br>Select a model (series) of the External Device to be connected and connection method. | ☞"2 Selection of External Device" (page 7) |
| 3 | Example of Communication Settings<br>This section shows setting examples for communicating between the Display and the External Device. | ☞"3 Example of Communication Setting" (page 8) |
| 4 | Communication Settings<br>This section describes communication setup items on the Display.<br>Set communication settings of the Display with GP-Pro EX or in off-line mode. | ☞"4 Setup Items" (page 20) |
| 5 | Cable Diagram<br>This section shows cables and adapters for connecting the Display and the External Device. | ☞"5 Cable Diagram" (page 25) |

Operation

# 1 System Configuration

The system configuration in the case when the External Device of YOKOGAWA Electric Corp. and the Display are connected is shown.

IMPORTANT
- You cannot connect more than 2 Display units simultaneously by using CPU Direct and Personal Computer Link Module.

## 1.1 CPU Direct

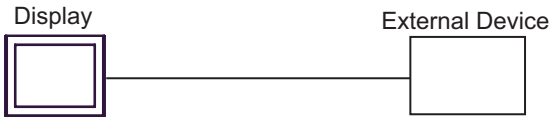
| Series | CPU | Link I/F | SIO Type | Setting Example | Cable Diagram |
|---|---|---|---|---|---|
| FA-M3 | F3SP21-0N<br>F3SP25-2N<br>F3SP28-3N<br>F3SP35-5N<br>F3SP38-6N<br>F3SP53-4H<br>F3SP58-6H<br>F3SP28-3S<br>F3SP38-6S<br>F3SP53-4S<br>F3SP58-6S<br>F3SP59-7S | PROGRAMMER port on CPU | RS232C | Setting Example 1 (page 8) | Cable Diagram1 (page 25) |

## 1.2 Personal Computer Link Module

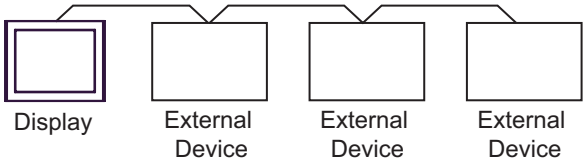
| Series | CPU | Link I/F | SIO Type | Setting Example | Cable Diagram |
|---|---|---|---|---|---|
| FA-M3 | F3SP20-0N<br>F3SP21-0N<br>F3SP25-2N<br>F3SP28-3N<br>F3SP30-0N<br>F3SP35-5N<br>F3SP36-3N<br>F3SP38-6N<br>F3SP53-4H<br>F3SP58-6H<br>F3SP28-3S<br>F3SP38-6S<br>F3SP53-4S<br>F3SP58-6S<br>F3SP59-7S<br>F3SP66-4S<br>F3SP67-6S | F3LC11-1N, F3LC11-1F, RS232C port on F3LC12-1F | RS232C | Setting Example 4 (page 17) | Cable Diagram 3 (page 31) |
| | | RS422/485 (4Wire) port on F3LC11-2N | RS422/485 | Setting Example 3 (page 14) | Cable Diagram 2 (page 26) |
| | | RS422/485 (2Wire) port on F3LC11-2N | RS422/485 | Setting Example 2 (page 11) | Cable Diagram 4 (page 32) |

## ■ Connection Configuration

- 1:1 Connection




- 1:n Connection



## ■ COM Port of IPC

When connecting IPC with External Device, the COM port which can be used changes with series and SIO type. Please refer to the manual of IPC 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-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] |

*1 The RI/5V can be switched. Please switch with the change switch of IPC.

*2 It is necessary to 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 | Reserve (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): Does not Exist |
| 8 | OFF | Short-circuit of SDB (TXB) and RDB (RXB): Does not Exist |
| 9 | OFF | RS (RTS) Auto control mode: Disable |
| 10 | OFF | |

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

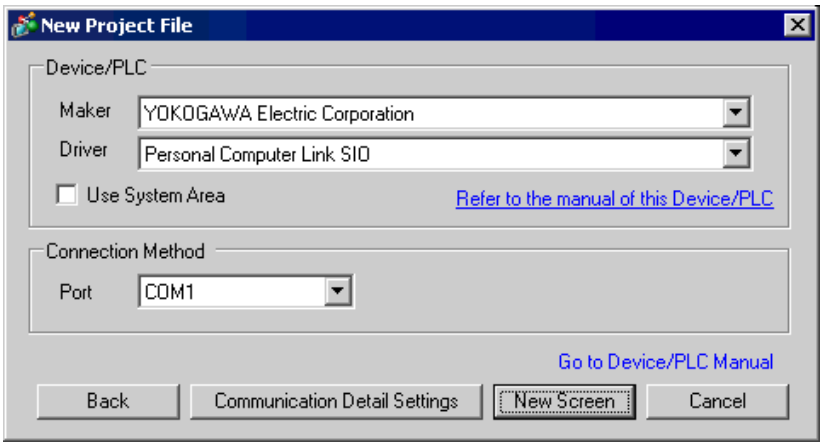
| Dip switch | Setting | Description |
|---|---|---|
| 1 | OFF | Reserve (always OFF) |
| 2 | ON | SIO type: RS-422/485 |
| 3 | ON | |
| 4 | OFF | Output mode of SD (TXD) data: Always output |
| 5 | OFF | Terminal resistance (220Ω) insertion to SD (TXD): None |
| 6 | OFF | Terminal resistance (220Ω)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

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

| Dip switch | Setting | Description |
|---|---|---|
| 1 | OFF | Reserve (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): Exist |
| 8 | ON | Short-circuit of SDB (TXB) and RDB (RXB): Exist |
| 9 | ON | RS (RTS) Auto control mode: Enable |
| 10 | ON | |

# 2 Selection of External Device

Select the External Device to be connected to the Display.




| Setup Items | Setup Description |
|---|---|
| Maker | Select the maker of the External Device to be connected. Select "YOKOGAWA Electric Corporation". |
| Driver | Select a model (series) of the External Device to be connected and connection method. Select "Personal Computer Link SIO". Check the External Device which can be connected in "Personal Computer Link SIO" in system configuration.<br>☞ "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.<br>Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)"<br>This can be also set with GP-Pro EX or in off-line mode of Display.<br>Cf. GP-Pro EX Reference Manual " 5.14.6 Setting Guide of [System Setting Window]■[Main Unit Settings] Settings Guide◆System Area Setting"<br>Cf. Maintenance/Troubleshooting "2.14.1 Settings common to all Display models◆System Area Settings" |
| Port | Select the Display port to be connected to the External Device. |

# 3 Example of Communication Setting

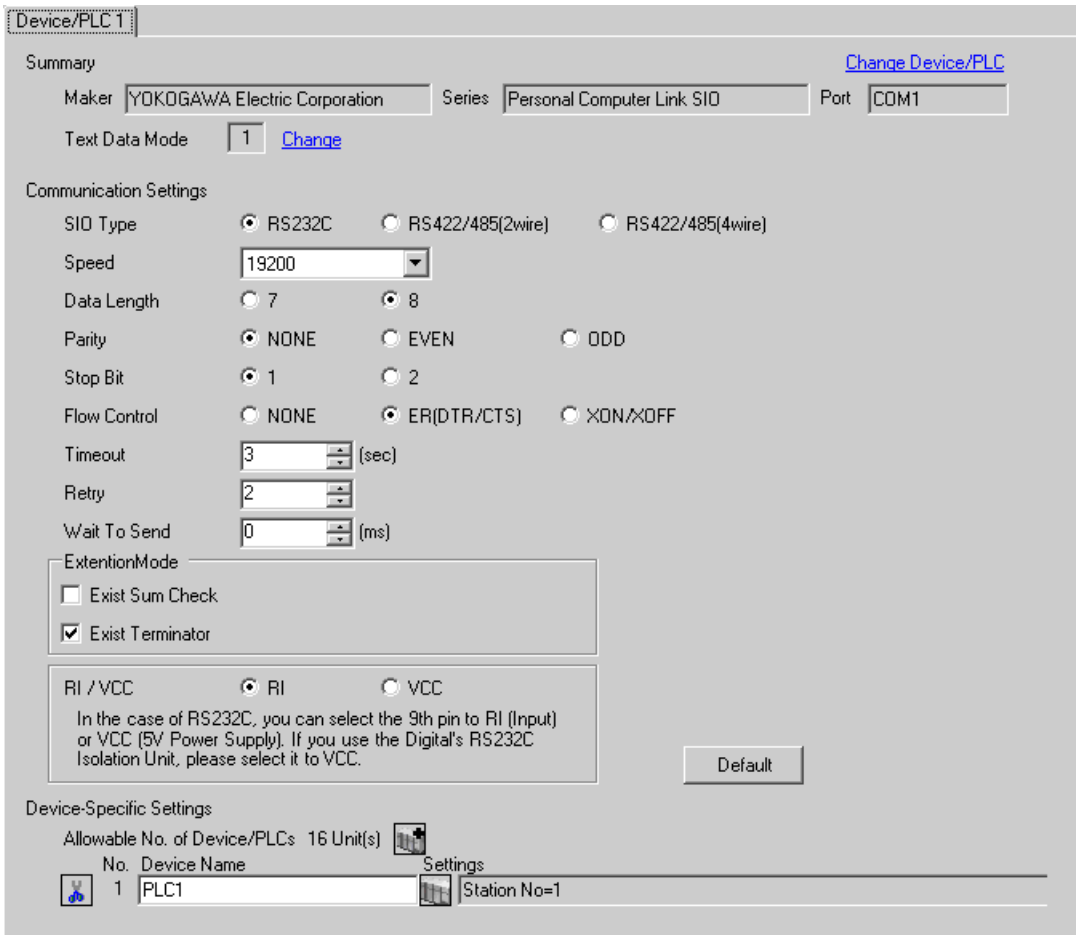
Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

## 3.1 Setting Example 1

### ■ Setting of GP-Pro EX

#### ◆ Communication Settings

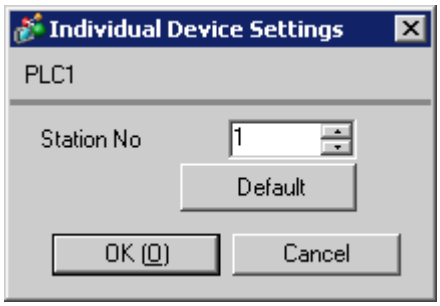
To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



◆ Device Setting

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

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



## ■ Setting of External Device

Execute [Configuration] from the [Project] menu in the ladder tool and set as below. Please refer to each maker's manual of the External Device for more detail on ladder tool.

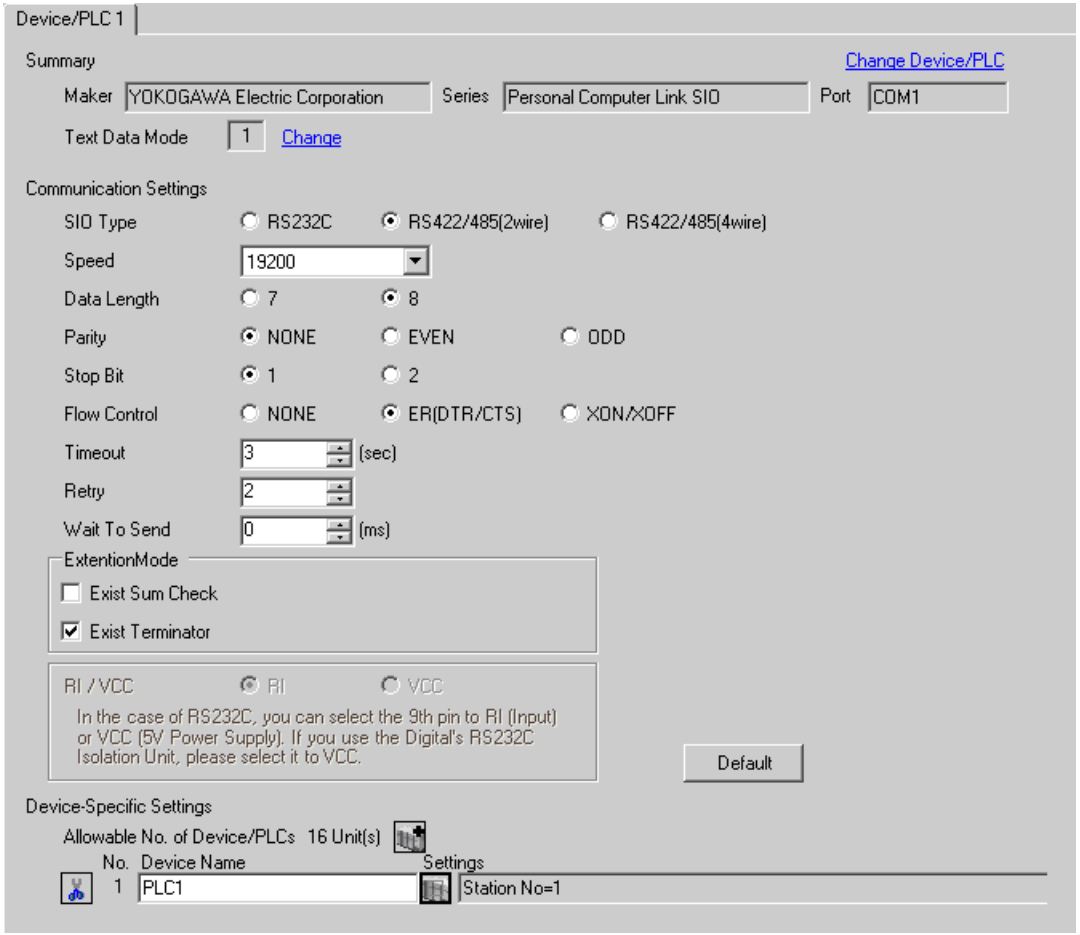
| Setup Items | Settings |
|---|---|
| Speed | 19200 |
| Data Length | 8 |
| Parity | None |
| Stop Bit | 1 |
| Exist Sum Check | None |
| Exist Terminator | Exists |
| Protect | None |

## 3.2 Setting Example 2

### ■ Setting of GP-Pro EX

#### ◆ Communication Settings

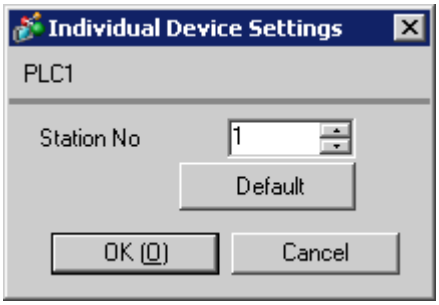
To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



◆ Device Setting

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

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



## ■ Setting of External Device

Set the computer link module as below. Please refer to each maker's manual of the External Device for more detail.

◆ Transmission Speed Setting Switch

| Setup Items | Settings |
|---|---|
| Speed | 19200 |

◆ Data Code Setting Switch

| DIP Switch | Settings | Setup Description |
|---|---|---|
| SW1 | ON | Data Length |
| SW2 | OFF | Parity Bit |
| SW3 | OFF | - |
| SW4 | OFF | Stop Bit |
| SW5 | OFF | Exist Sum Check |
| SW6 | ON | Exist Terminator |
| SW7 | OFF | Protect |
| SW8 | OFF | Always OFF |

◆ Station No. Setting Switch

| Setup Items | Settings |
|---|---|
| Station No. | No.1 station |

**NOTE**

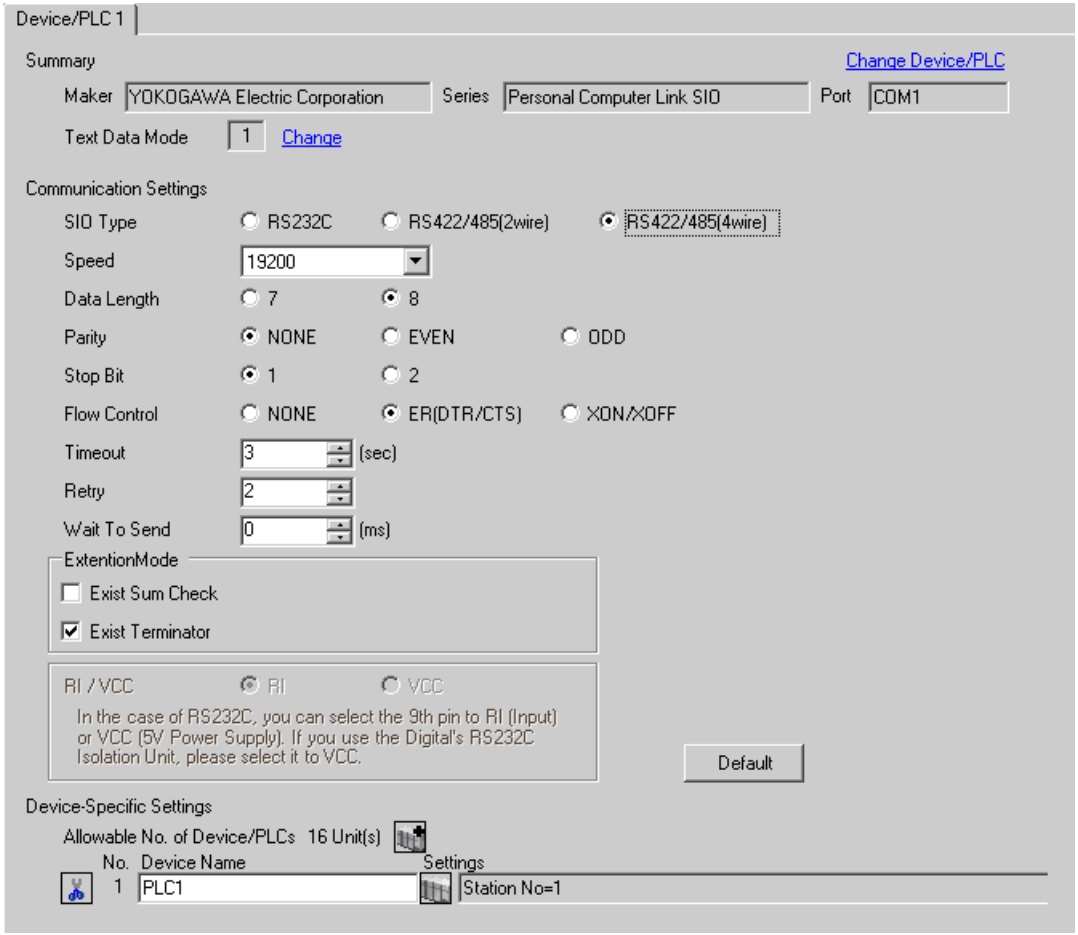
- Set the termination resistance switch of only the module which terminates the connection to 2-WIRE. Set other switches to OFF.

## 3.3 Setting Example 3

### ■ Setting of GP-Pro EX

#### ◆ Communication Settings

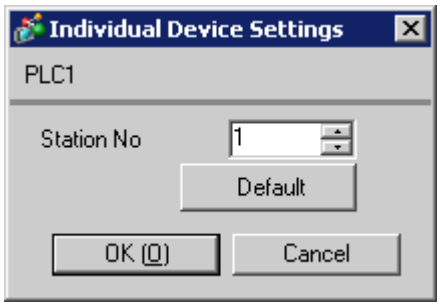
To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



◆ Device Setting

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

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



## ■ Setting of External Device

Set the computer link module as below. Please refer to each maker's manual of the External Device for more detail.

◆ Transmission Speed Setting Switch

| Setup Items | Settings |
|---|---|
| Speed | 19200 |

◆ Data Code Setting Switch

| DIP Switch | Settings | Setup Description |
|---|---|---|
| SW1 | ON | Data Length |
| SW2 | OFF | Parity Bit |
| SW3 | OFF | - |
| SW4 | OFF | Stop Bit |
| SW5 | OFF | Exist Sum Check |
| SW6 | ON | Exist Terminator |
| SW7 | OFF | Protect |
| SW8 | OFF | Always OFF |

◆ Station No. Setting Switch

| Setup Items | Settings |
|---|---|
| Station No. | No.1 station |

**NOTE**

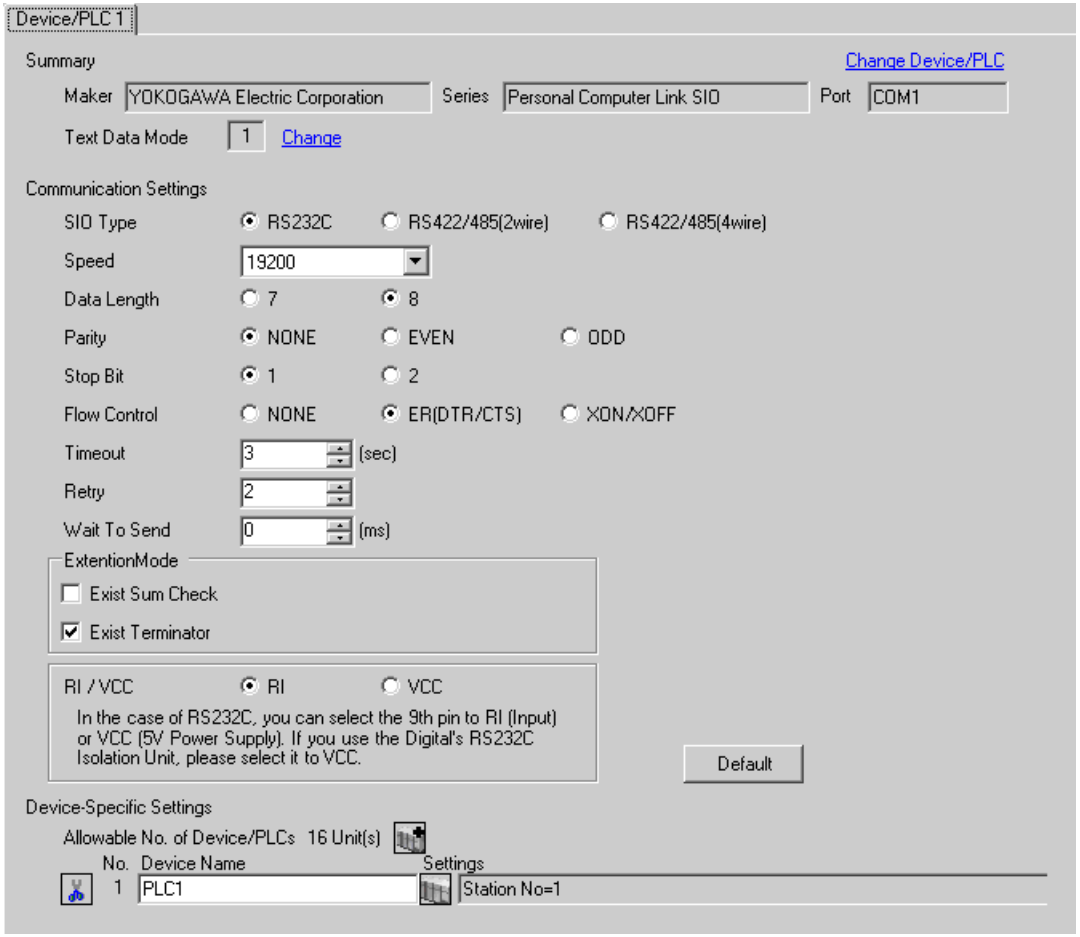
- Set the termination resistance switch of only the module which terminates the connection to 4-WIRE. Set other switches to OFF.

## 3.4 Setting Example 4

### ■ Setting of GP-Pro EX

#### ◆ Communication Settings

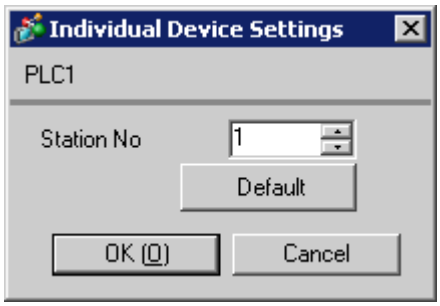
To display the setting screen, select [Device/PLC Settings] from [System setting window] in workspace.



◆ Device Setting

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

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



## ■ Setting of External Device

Set the computer link module as below. Please refer to each maker's manual of the External Device for more detail.

◆ Transmission Speed Setting Switch

| Setup Items | Settings |
|---|---|
| Speed | 19200 |

◆ Data Code Setting Switch

| DIP Switch | Settings | Setup Description |
|---|---|---|
| SW1 | ON | Data Length |
| SW2 | OFF | Parity Bit |
| SW3 | OFF | - |
| SW4 | OFF | Stop Bit |
| SW5 | OFF | Exist Sum Check |
| SW6 | ON | Exist Terminator |
| SW7 | OFF | Protect |
| SW8 | OFF | Always OFF |

# 4 Setup Items

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

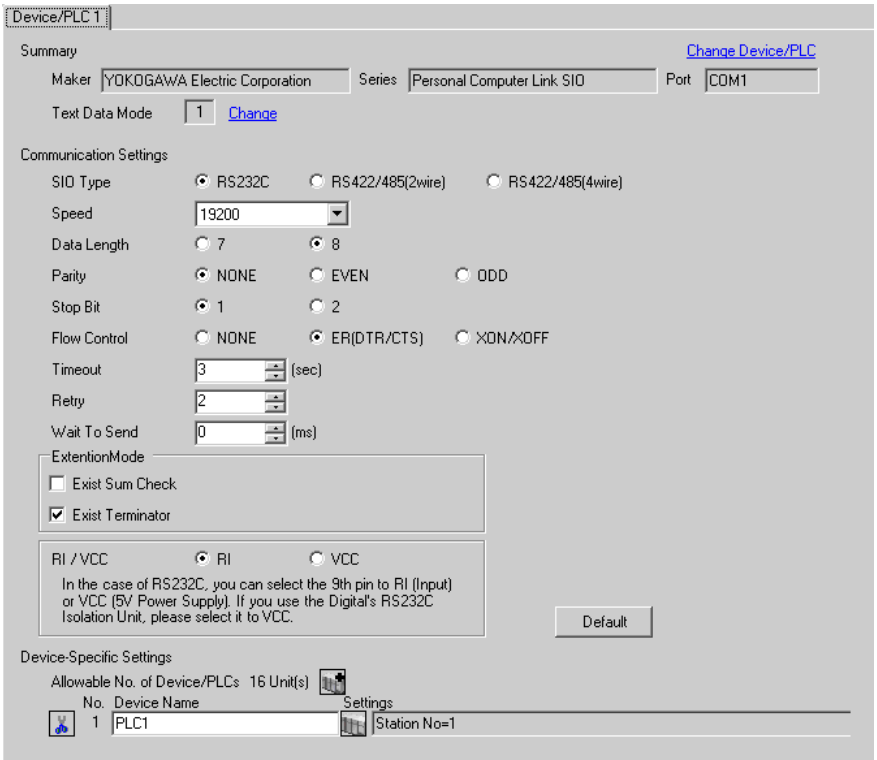
The setting of each parameter must be identical to that of External Device.

☞"3 Example of Communication Setting" (page 8)

## 4.1 Communication Setting with GP-Pro EX

### ■ Communication Settings

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




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

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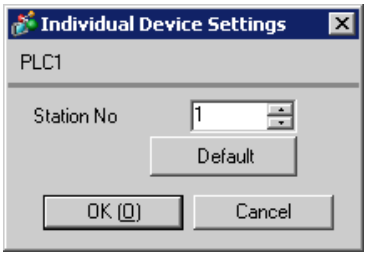
| Setup Items | Setup Description |
|---|---|
| Wait To Send | Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. |
| Exist Sum Check (Extension Mode) | Set whether you perform the sum check. |
| Exist Terminator (Extension Mode) | Set whether you specify the data terminator. |
| RI/VCC | You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.<br>It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail. |

## ■ 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 [Allowable No. of Device/PLCs] is multiple, click  from [Device-Specific Settings] of [ Device/PLC Settings] to add another External Device.




| Setup Items | Setup Description |
|---|---|
| Station No. | Use an integer 0 to 32 to enter the station number of the External Device to communicate. |

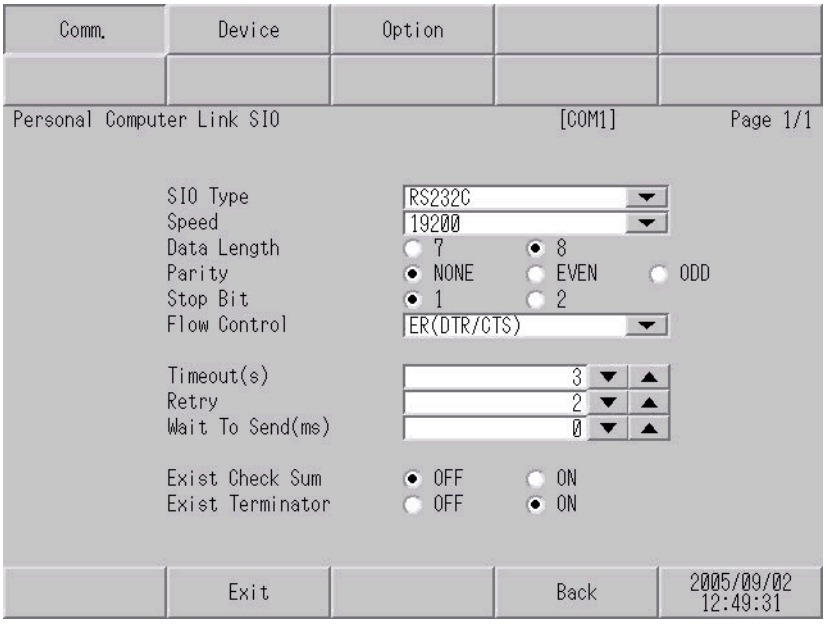
## 4.2 Communication Settings in Off-line Mode

**NOTE**

- Please refer to Maintenance/Troubleshooting for more information on how to enter off-line mode or about operation.
  Cf. Maintenance/Troubleshooting "2.2 Offline Mode"

### ■ Communication Settings

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




| Setup Items | Setup Description |
|---|---|
| SIO Type | Select the SIO type to communicate with the External Device.<br>**IMPORTANT**<br>To make the communication settings correctly, confirm the serial interface specifications of Display unit for [SIO Type].<br>We cannot guarantee the operation if a communication type that the serial interface does not support is specified.<br>For details concerning the serial interface specifications, refer to the manual for Display unit. |
| Speed | Select speed between the External Device and the Display. |
| Data Length | Select data length. |
| Parity | Select how to check parity. |
| Stop Bit | Select stop bit length. |
| Flow Control | Select the communication control method to prevent overflow of transmission and reception data. |
| Timeout | Use an integer from 1 to 127 to enter the time (sec) for which the Display waits for the response from the External Device. |

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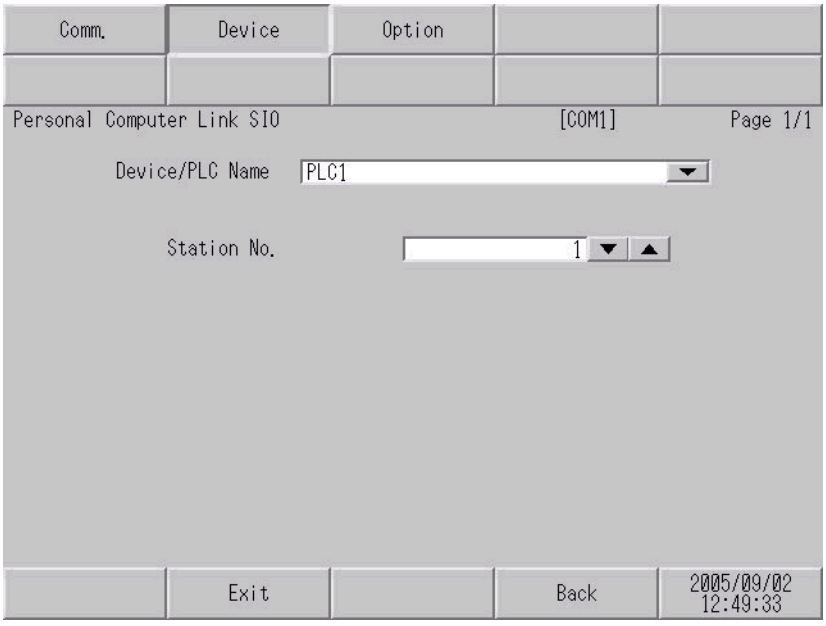
| Setup Items | Setup Description |
|---|---|
| Retry | In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command. |
| Wait To Send | Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands. |
| Exist Check Sum | Set whether you perform the check sum. |
| Exist Terminator | Set whether you specify the data terminator. |

## ■ Device Setting

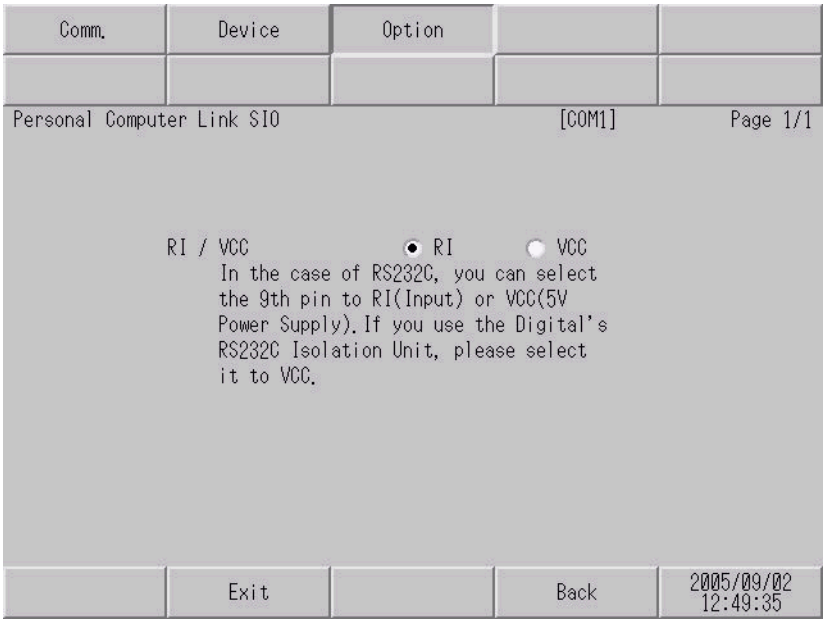
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].




| Setup Items | Setup Description |
|---|---|
| Device/PLC Name | Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1]) |
| Station No. | Use an integer 0 to 32 to enter the station number of the External Device to communicate. |

## ■ Option

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




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

# 5 Cable Diagram

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

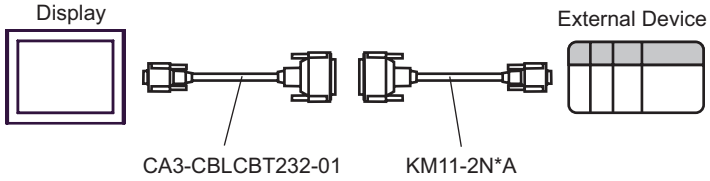
- The FG pin of the External Device body must be D-class grounded. Please refer to the manual of the External Device for more details.
- SG and FG are connected inside the Display. When connecting SG to the External Device, design the system not to form short-circuit loop.
- Connect the isolation unit,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

Cable Diagram1

| Display (Connection Port) | Cable | Notes |
|---|---|---|
| GP (COM1)<br>ST (COM1)<br>IPC*1 | 9-pin-to-25-pin RS-232C Conversion Cable by Pro-face<br>CA3-CBLCBT232-01<br>+<br>Programming tool cable by YOKOGAWA Electric Corporation<br>KM11-2N*A | The cable length must be 15m or less. |

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

☞ ■ COM Port of IPC (page 5)



Cable Diagram 2

| Display (Connection Port) | Cable | | Notes |
|---|---|---|---|
| GP[*1] (COM1)<br>AGP-3302B (COM2)<br>ST[*2] (COM2)<br>IPC[*3] | A | COM port conversion adapter<br>by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | — |
| | B | Your own cable | |
| GP[*4] (COM2) | C | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | |
| | D | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Your own cable | |

*1 All GP models except AGP-3302B

*2 All ST models except AST-3211A

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

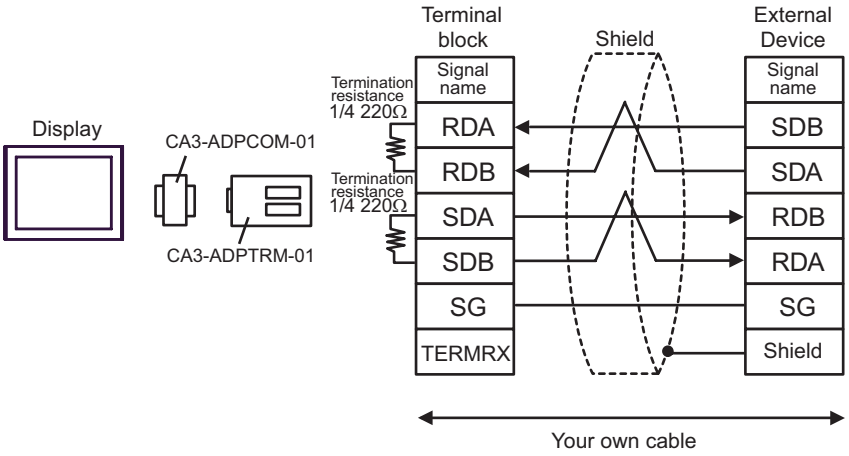
*4 All GP models except GP-3200 series and AGP-3302B

**NOTE**

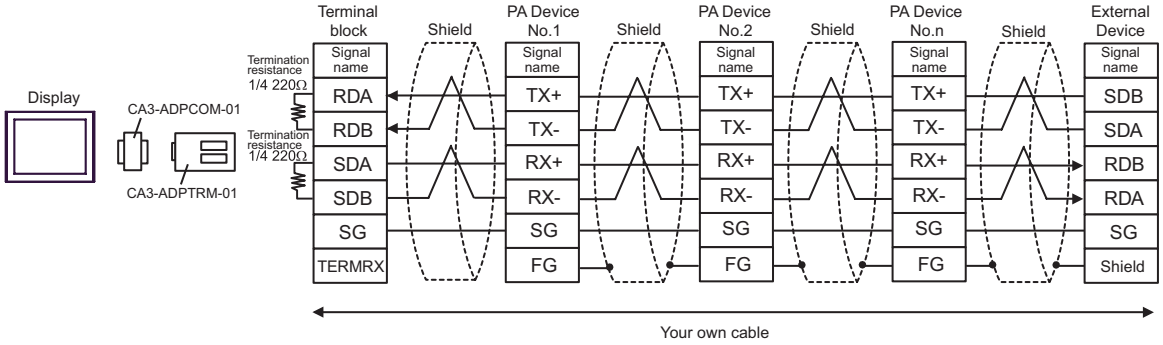
- Attach the termination resistance to the devices on both ends.
- Note that pole A and pole B are reversely named for the Display and the External Device.
- When the PA device has SG, connect it.
- Set the last resistance switch of the personal computer link module for the External Device which terminates the connection to 4-WIRE.
- We recommend CO-SPEU-SB(A)3P x 0.5SQ by Hitachi Cable, Ltd. for the connection cable.
- Total cable length is 1000m.
- Set the station No. for the personal computer link module to 2 to 32.
- You must set the different station No. of all PA devices connected to the Display. If there are more than 2 PA devices with the same station No., error occurs.
- Perform the identical communication settings for both the Display (m units) and the PA device (n units).

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

[1:1 Connection]




[1:n Connection]

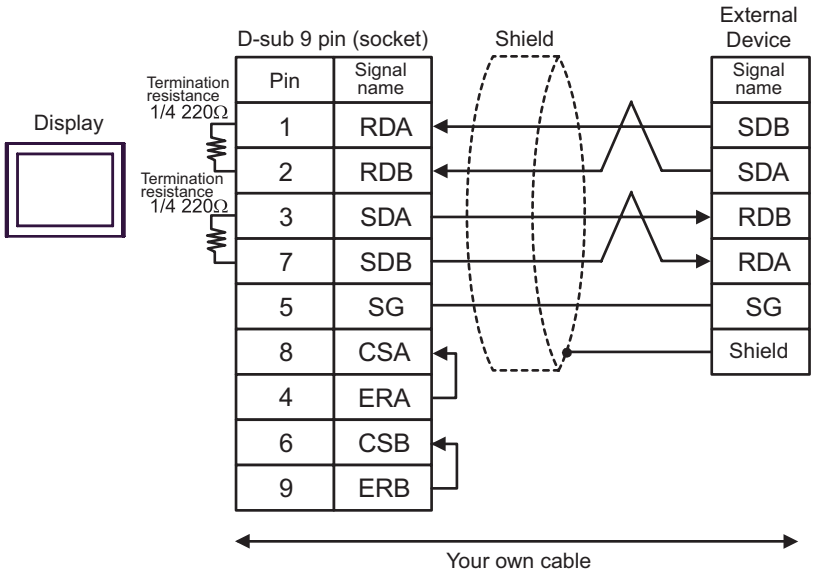



**NOTE**

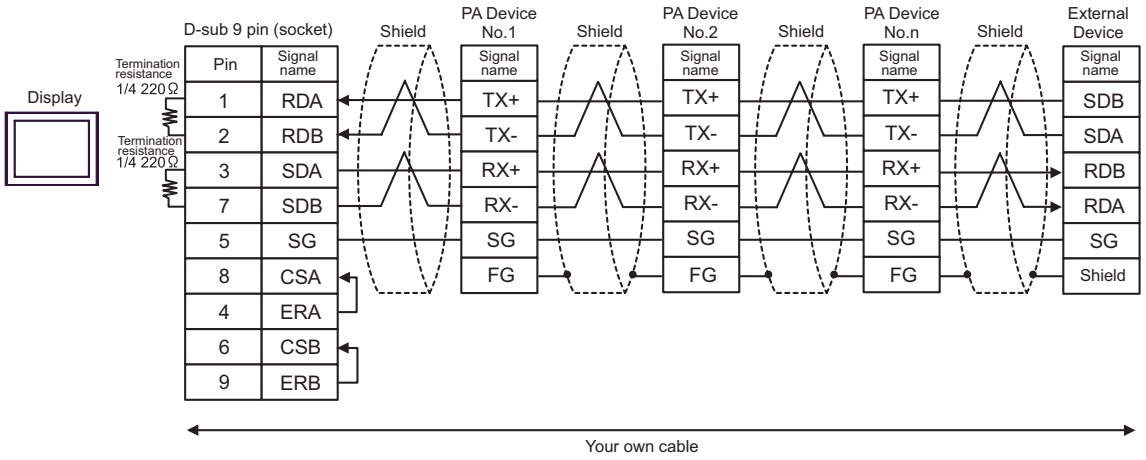
- When the PA device has SG, connect it.
- Even if the PA device has no SG, SG connection between the Display and the External Device is necessary.
- When the display unit you use is an IPC, turn ON the DIP switches 5 and 6 to insert the termination resistance.

B) When using your own cable

[1:1 Connection]




[1:n Connection]

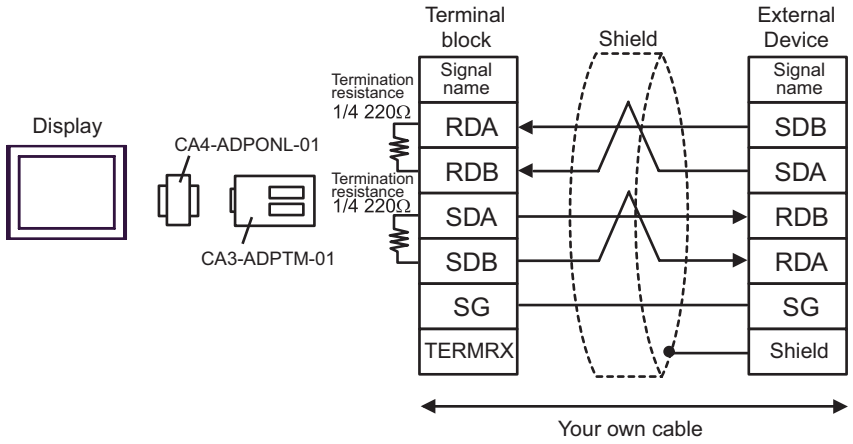



**NOTE**

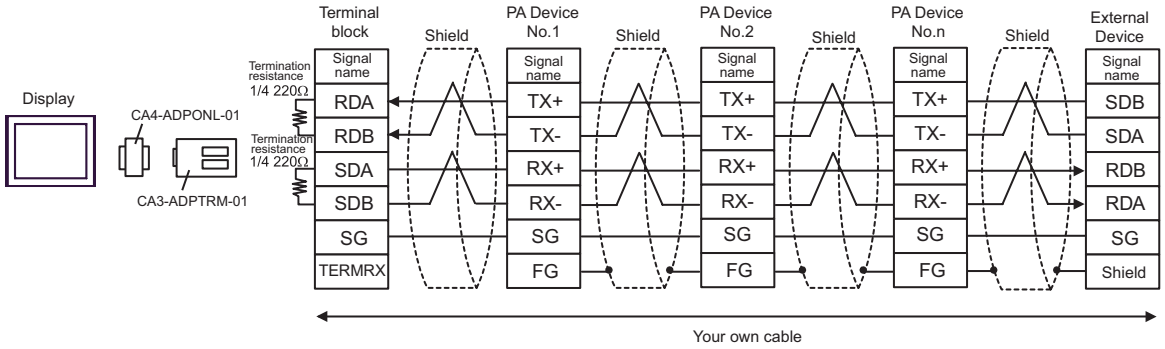
- When the PA device has SG, connect it.
- Even if the PA device has no SG, SG connection between the Display and the External Device is necessary.
- When the display unit you use is an IPC, turn ON the DIP switches 5 and 6 to insert the termination resistance.

C) When using the online adapter (CA4-ADPONL-01) by Pro-face, the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

[1:1 Connection]




[1:n Connection]

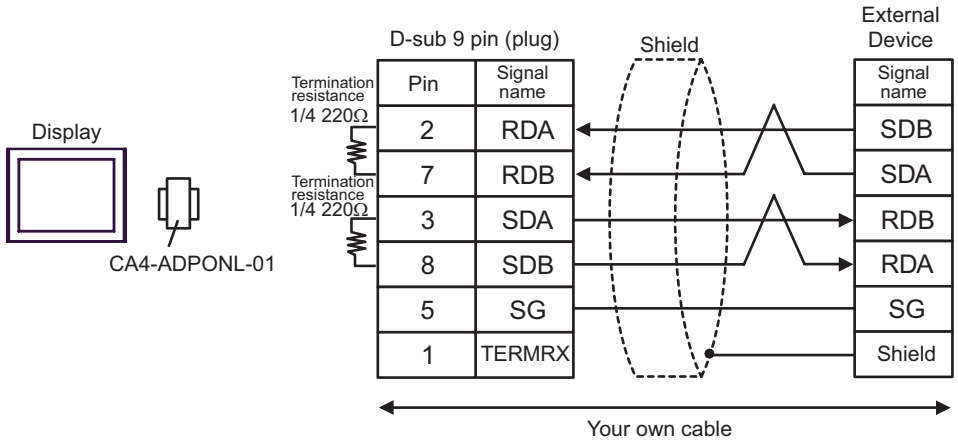



**NOTE**

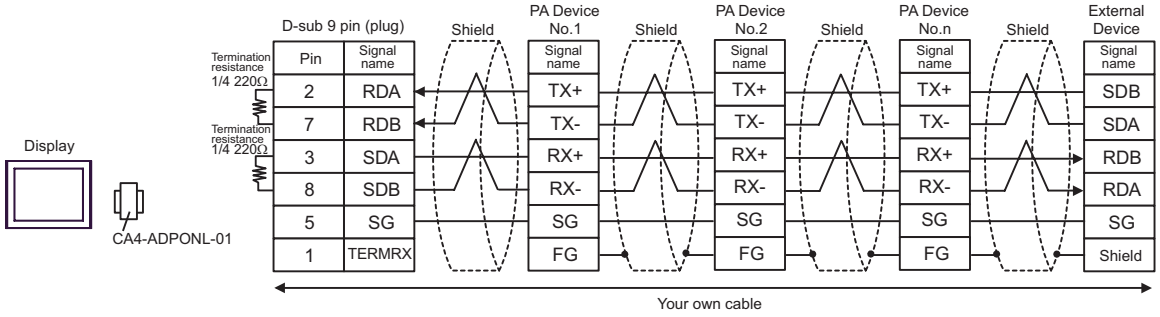
- When the PA device has SG, connect it.
- Even if the PA device has no SG, SG connection between the Display and the External Device is necessary.

D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

[1:1 Connection]




[1:n Connection]




**NOTE**

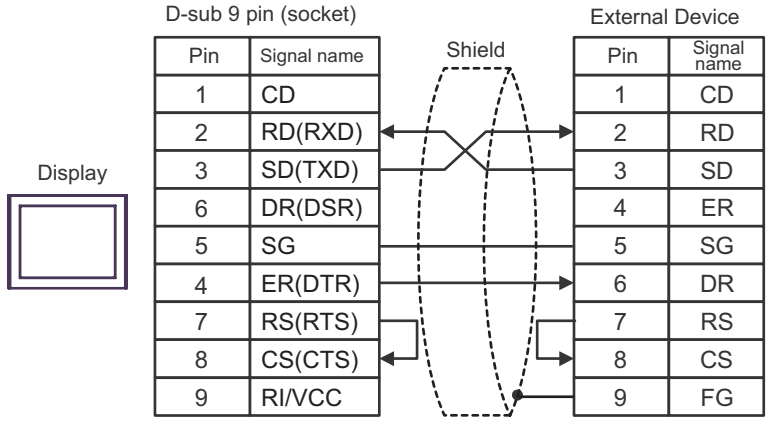
- When the PA device has SG, connect it.
- Even if the PA device has no SG, SG connection between the Display and the External Device is necessary.

Cable Diagram 3

| Display (Connection Port) | Cable | Notes |
|---|---|---|
| GP (COM1)<br>ST (COM1)<br>IPC*1 | Your own cable | The cable length must be 15m or less. |

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

☞■ COM Port of IPC (page 5)



Cable Diagram 4

| Display (Connection Port) | Cable | | Notes |
|---|---|---|---|
| GP[*1] (COM1)<br>AGP-3302B (COM2)<br>ST[*2] (COM2) | A | COM port conversion adapter<br>by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | — |
| | B | Your own cable | |
| GP[*3] (COM2) | C | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | |
| | D | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Your own cable | |
| IPC[*4] | E | COM port conversion adapter<br>by Pro-face<br>CA3-ADPCOM-01<br>+<br>Terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | |
| | F | Your own cable | |

*1 All GP models except AGP-3302B

*2 All ST models except AST-3211A

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

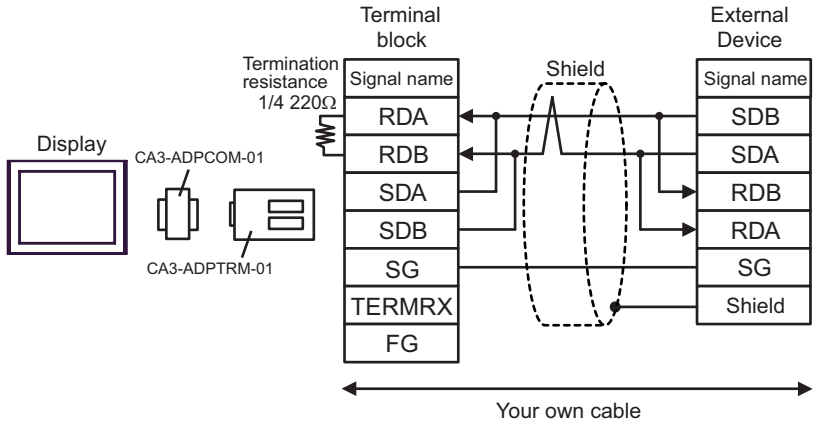
*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
☞■ COM Port of IPC (page 5)

**NOTE**

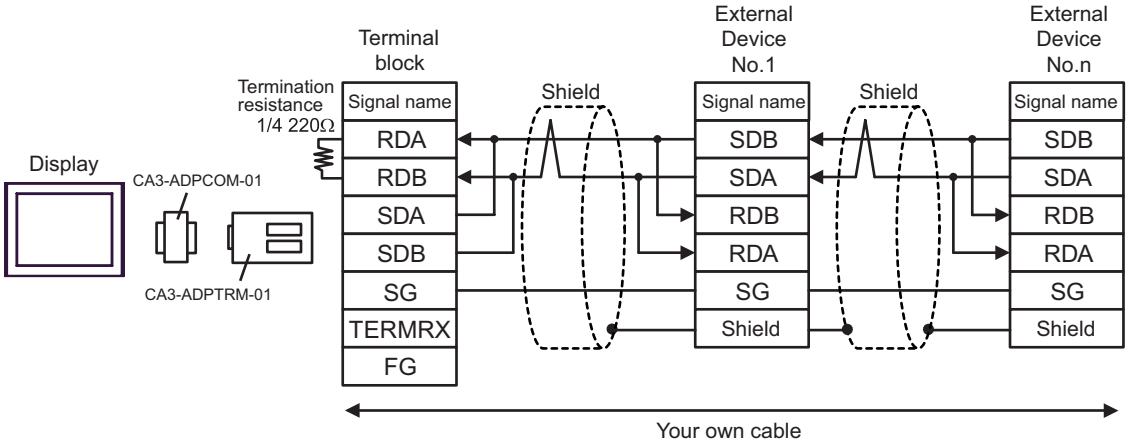
- Note that pole A and pole B are reversely named for the Display and the External Device.
- When the PA device has SG, connect it.
- Set the last resistance switch of the personal computer link module for the External Device which terminates the connection to 2-WIRE.
- We recommend CO-SPEU-SB(A)3P x 0.5SQ by Hitachi Cable, Ltd. for the connection cable.
- Total cable length is 1000m.

A) When using the COM port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

[1:1 Connection]

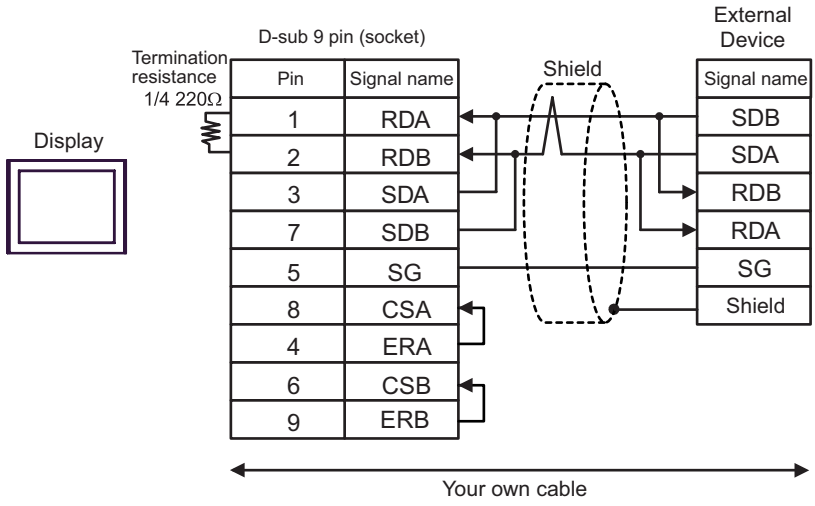



[1:n Connection]

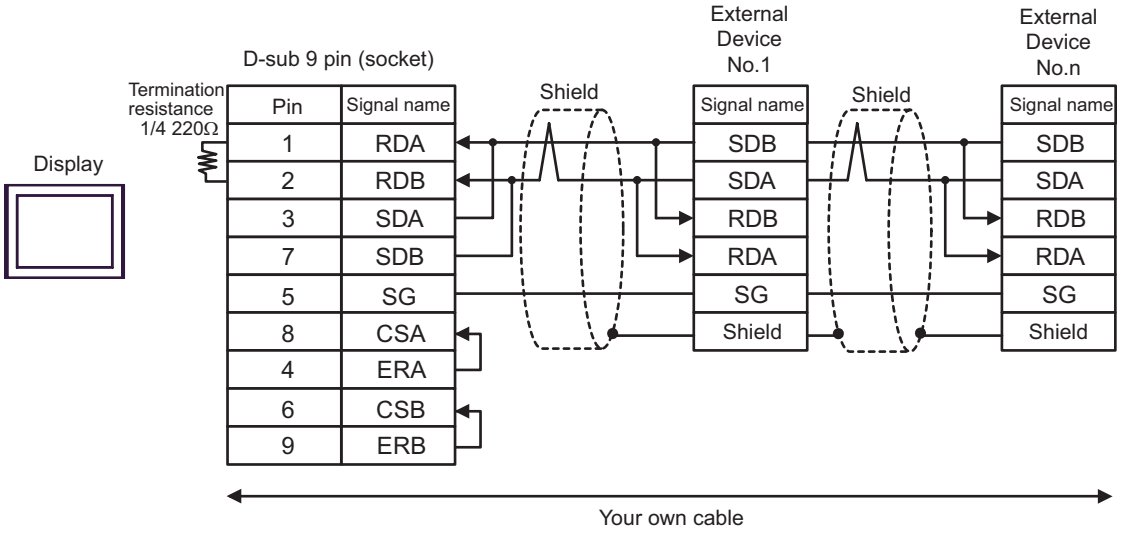


B) When using your own cable

[1:1 Connection]

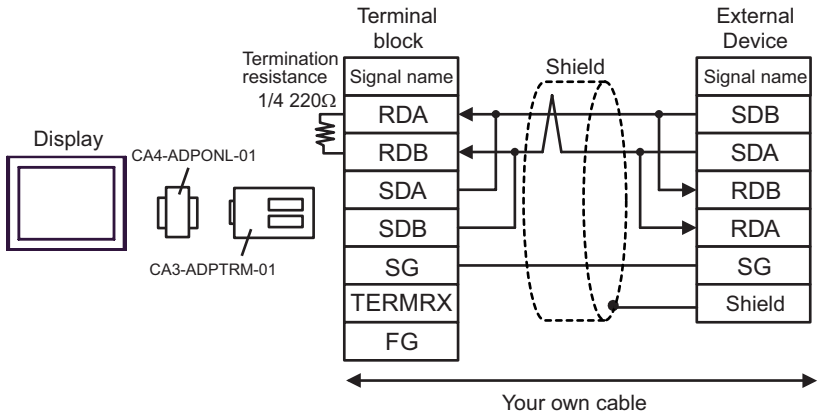



[1:n Connection]

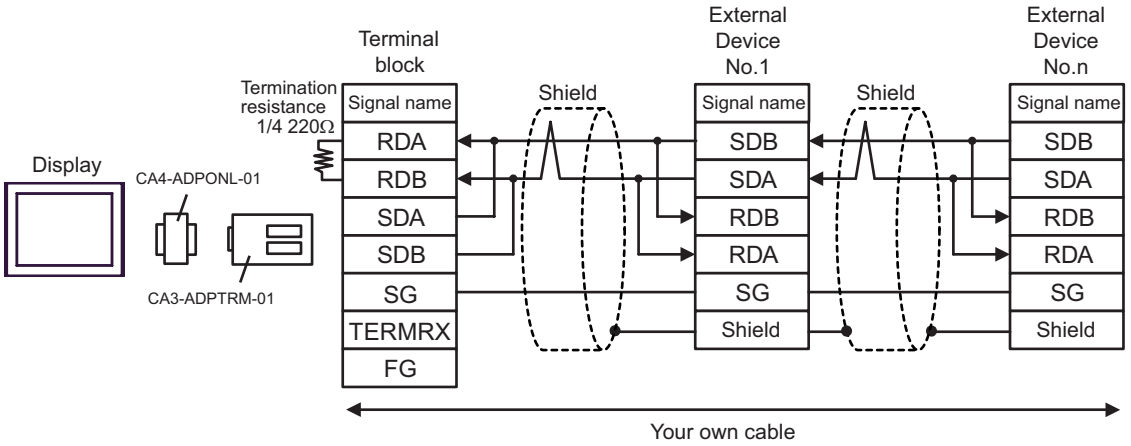


C) When using the online adapter (CA4-ADPONL-01) by Pro-face, the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

[1:1 Connection]

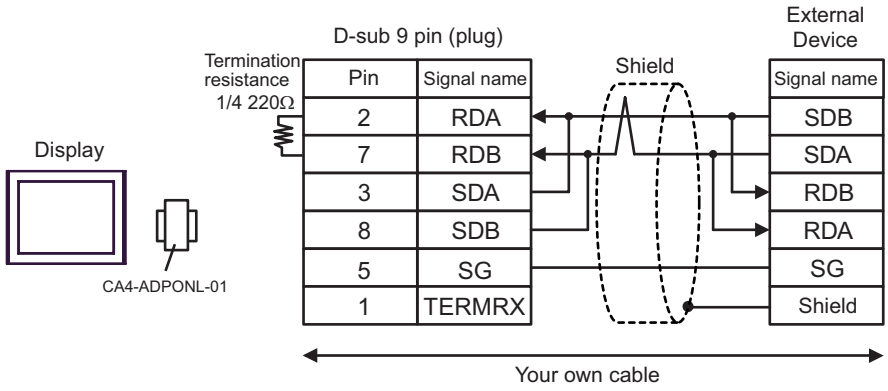



[1:n Connection]

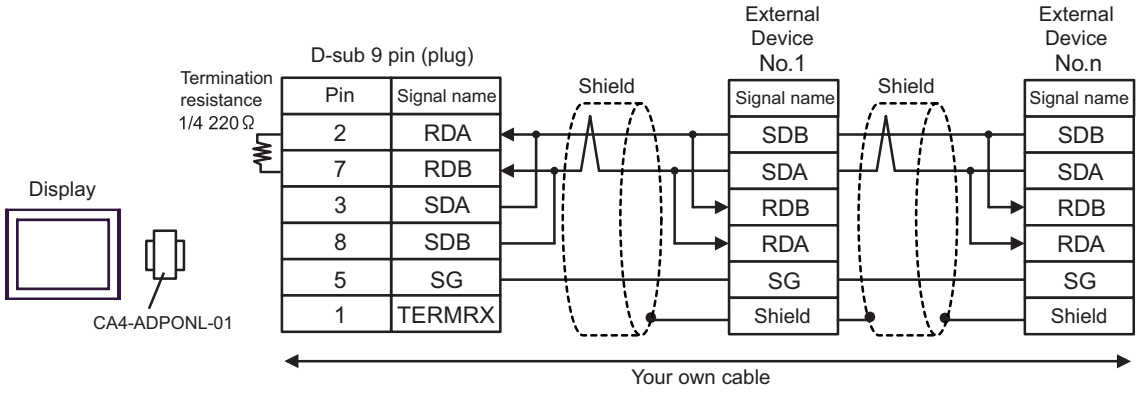


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

[1:1 Connection]

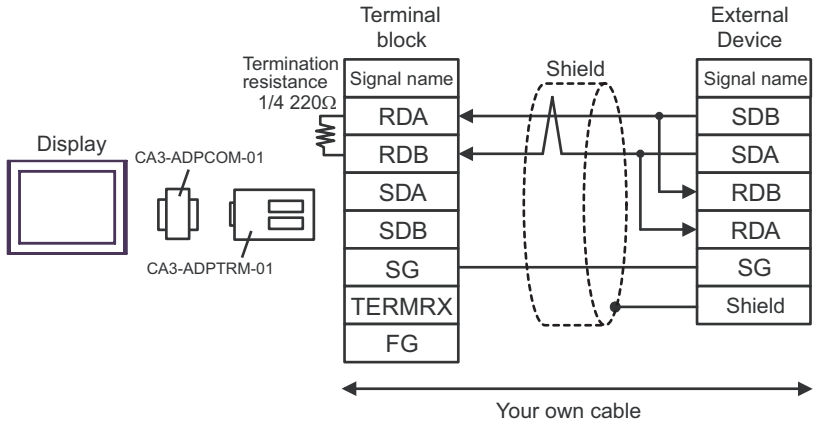



[1:n Connection]

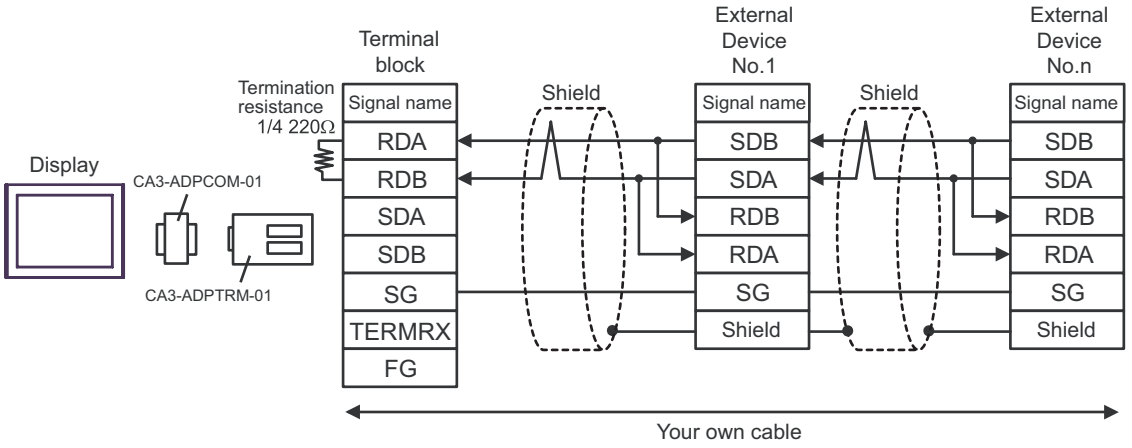


E) When using the COM port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

[1:1 Connection]




[1:n Connection]

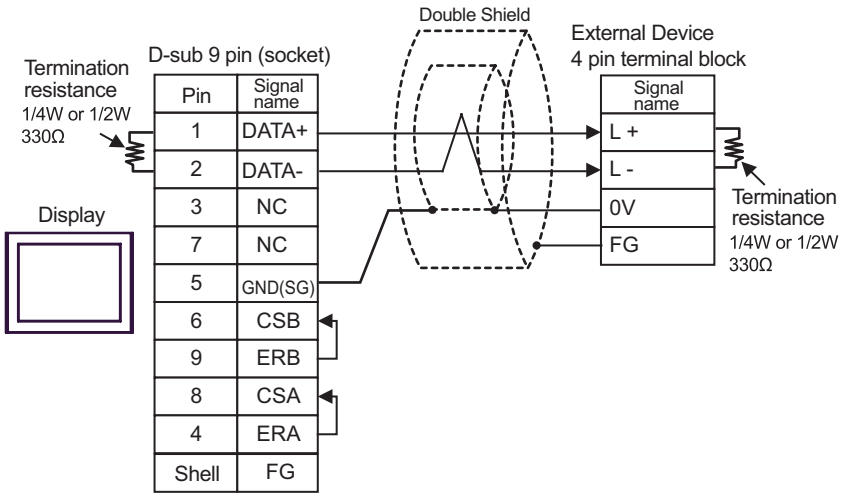



**NOTE**

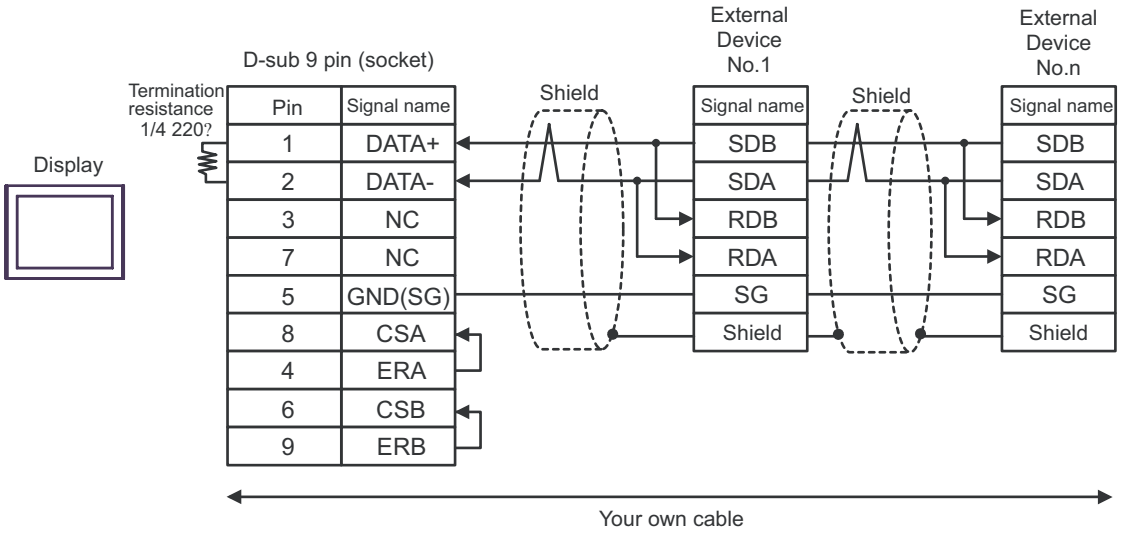
- When the display unit you use is an IPC, turn ON the DIP switch 6 to insert the termination resistance.

F) When using your own cable

[1:1 Connection]




[1:n Connection]




**NOTE**

- When the display unit you use is an IPC, turn ON the DIP switch 6 to insert the termination resistance.

# 6 Supported Device

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

This address can be specified as system data area.

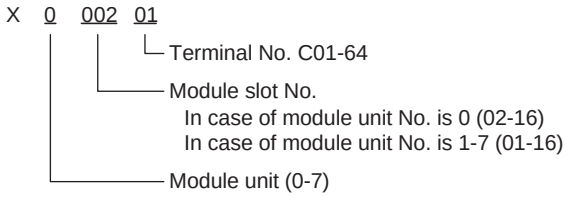
| Device | Bit Address | Word Address | 32bits | Notes |
|---|---|---|---|---|
| Input Relay | X00201 - X71664 | X00201 - X71649 | L/H | 16 1 *1*2 |
| Output Relay | Y00201 - Y71664 | Y00201 - Y71649 | | 16 1 *1 |
| Internal Relay | I00001 - I65535 | I00001 - I65521 | | 16 1 |
| Common Relay | E0001 - E4096 | E0001 - E4081 | | 16 1 |
| Special Relay | M0001 - M9984 | M0001 - M9969 | | 16 1 |
| Link Relay | L00001 - L78192 | L00001 - L78177 | | 16 1 *4 |
| Timer (Contact) | TU0001 - TU3072 | ------ | | |
| Counter (Contact) | CU0001 - CU3072 | ------ | | |
| Timer (Current Value) | ------ | TP0001 - TP3072 | | |
| Timer (Setting Value) | ------ | TS0001 - TS3072 | | *2 |
| Counter (Current Value) | ------ | CP0001 - CP3072 | | |
| Counter (Setting Value) | ------ | CS0001 - CS3072 | | *2 |
| Data Register | ------ | D00001 - D65535 | | Bit 15 |
| File Register | ------ | B000001 - B262144 | | Bit 15 *3 |
| General Register | ------ | R0001 - R4096 | | Bit 15 |
| Special Register | ------ | Z0001 - Z1024 | | Bit 15 |
| Link Register | ------ | W00001 - W78192 | | Bit 15 *4 |
| Special Module | ------ | SW0010000 - SW7169999 | | *2 *5 |
| Information | ------ | INF100 - INF101 | | *2 *6 |
| | ------ | INF200 - INF214 | | *2 *6 |
| | ------ | INF30010 - INF37163 | | *2 *6 |
| | ------ | INF4100 - INF4215 | | Bit 15 *2 *6 |
| | ------ | INF500 | | *2*6 |
| Program Information | ------ | PRI00000 - PRI99913 | | *2*7 |
| User Log Read | ------ | ULR000000 - ULR064128 | | *2*8 |

| Device | Bit Address | Word Address | 32bits | Notes |
|---|---|---|---|---|
| Error History Read | ------ | ERH000000 - ERH128000 | | *2*9 |

*1 Address input area for input relay (X) and output relay (Y) is shown below.

When you specify the word address, specify the terminal number with the value of (a multiple of 16) + 1.

Example: X002001

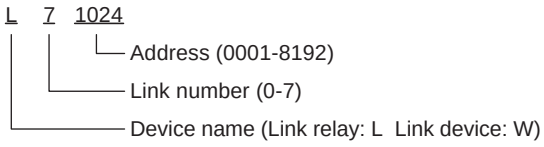



*2 Write disable

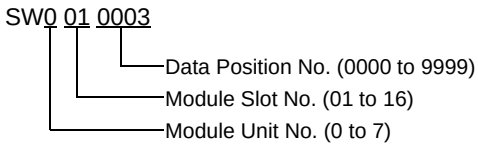
*3 When using the personal computer link module for connection, you can use up to B99999.

*4 In link relay (L) and link register (W), the upper 1st digit on address input area shows the link number, and lower 4th digit shows the address. Specify the word address for link relay (L) and link register (W) with the value of (a multiple of 16) + 1.

Example: When specifying L71024 of link relay

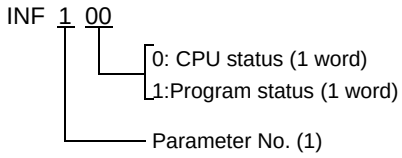



*5 Information of Special Module Read/Write

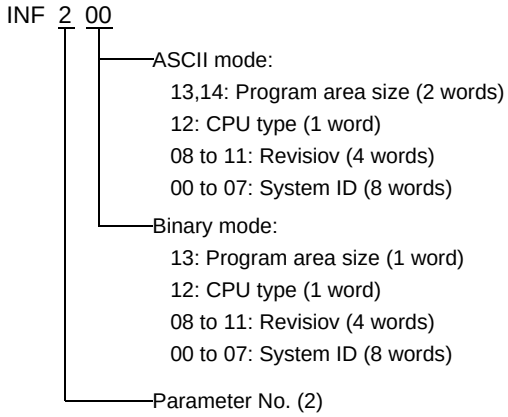


*6 Information Read

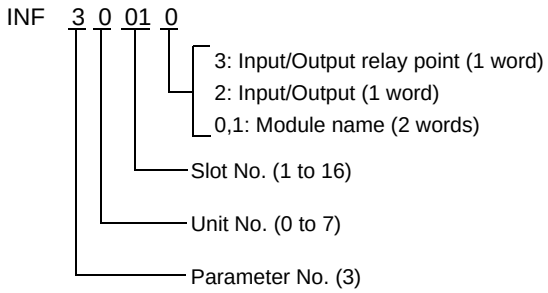
1. Read the status of CPU module and program



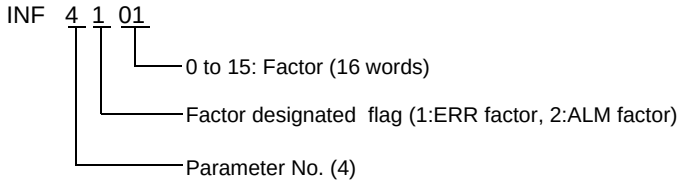

2. Read the information of system ID, CPU type and area size



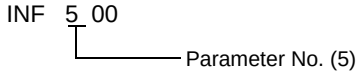

3. Read the mounting module name




4. Read the ERR LED of CPU module or the ALM LED lighting factor




5. Delete the current alarm information of CPU module (write only)



*7 Program Information Read

When 000 is written in Read information

PRI 000 00

- ASCII mode:
  - Creation date: 7 to 13 (7 words)
  - Size step No.: 4 to 6 (3 words)
  - Program name: 0 to 3 (4 words)
- Binary mode:
  - Creation date: 6 to 10 (5 words)
  - Size step No.: 4 to 5 (2 words)
  - Program name: 0 to 3 (4 words)
- Read information (000: Program name, Creation date)

When one of the numbers from 001 to 999 is written in Read information

PRI 000 00

- ASCII mode:
  - Size step No.: 4 to 6 (3 words)
  - Program name: 0 to 3 (4 words)
- Binary mode:
  - Size step No.: 4 to 5 (2 words)
  - Program name: 0 to 3 (4 words)
- Read information (001 to 999: Reading such as the block names of No.n)

*8 User Log Read

ULR 000 000

- User log: 0 to 128 (word)
- User log reading point
  - 000: Latest user log
  - 001 to 064: No.n user log from new data

*9 Error History Read

ERH 000 000

- ASCII mode:
  - 0: Error information
    (00: System error, 01: BASIC error, 02: Sequence error, 03: I/O error)
  - 1, 2: Error code (Charactor string)
  - 3 to 6: Date (YY/MM/DD) charactor string
  - 7 to 10: Time (HH:MM:SS) charactor string
  - 11 to 22: Added information (Charactor string)
- Binary mode:
  - 0: Error information
    (0000: System error, 0001: BASIC error, 0002: Sequence error, 0003: I/O error)
  - 1: Error code
  - 2 to 4: Date (YYYY/MMMM/DDDD)
  - 5 to 7: Time (HHHH:MMMM:SSSS)
  - 8 to 18: Added information
- Error history reading point
  - 000: Latest user log
  - 001 to 128: No.n user log from new data

**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 (only for 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 & Address" for the address type in data displays.

| Device | Device Name | Device Code (HEX) | Address Code |
|---|---|---|---|
| Input Relay | 1X | 0080 | (Module unit No. x 0x40) + ((Module slot No. - 1) x 0x4) + ((Terminal No. - 1) divided by 16)*1 |
| | 2X | 0180 | |
| | 3X | 0280 | |
| | 4X | 0380 | |
| Output Relay | 1Y | 0081 | (Module unit No. x 0x40) + ((Module slot No. - 1) x 0x4) + ((Terminal No. - 1) divided by 16)*1 |
| | 2Y | 0181 | |
| | 3Y | 0281 | |
| | 4Y | 0381 | |
| Internal Relay | 1I | 0082 | Value of (word address - 1) divided by 16 |
| | 2I | 0182 | |
| | 3I | 0282 | |
| | 4I | 0382 | |
| Common Relay | 1E | 0084 | Value of (word address - 1) divided by 16 |
| | 2E | 0184 | |
| | 3E | 0284 | |
| | 4E | 0384 | |
| Special Relay | 1M | 0083 | Value of (word address - 1) divided by 16 |
| | 2M | 0183 | |
| | 3M | 0283 | |
| | 4M | 0383 | |
| Link Relay | 1L | 0088 | (Link No. x 0x10000) + ((Word Address - 1) divided by 16) *2 |
| | 2L | 0188 | |
| | 3L | 0288 | |
| | 4L | 0388 | |
| Timer (Current Value) | 1TP | 0060 | Word Address - 1 |
| | 2TP | 0160 | |
| | 3TP | 0260 | |
| | 4TP | 0360 | |

| Device | Device Name | Device Code (HEX) | Address Code |
|---|---|---|---|
| Timer (Setting Value) | 1TS | 0063 | Word Address - 1 |
| | 2TS | 0163 | |
| | 3TS | 0263 | |
| | 4TS | 0363 | |
| Counter (Current Value) | 1CP | 0061 | Word Address - 1 |
| | 2CP | 0161 | |
| | 3CP | 0261 | |
| | 4CP | 0361 | |
| Counter (Setting Value) | 1CS | 0064 | Word Address - 1 |
| | 2CS | 0164 | |
| | 3CS | 0264 | |
| | 4CS | 0364 | |
| Data Register | 1D | 0000 | Word Address - 1 |
| | 2D | 0100 | |
| | 3D | 0200 | |
| | 4D | 0300 | |
| Common Register | 1B | 0004 | Word Address - 1 |
| | 2B | 0104 | |
| | 3B | 0204 | |
| | 4B | 0304 | |
| General Register | 1R | 0003 | Word Address - 1 |
| | 2R | 0103 | |
| | 3R | 0203 | |
| | 4R | 0303 | |
| Special Register | 1Z | 0001 | Word Address - 1 |
| | 2Z | 0101 | |
| | 3Z | 0201 | |
| | 4Z | 0301 | |
| Link Register | 1W | 0002 | (Link No. x 0x10000) + ((Word Address - 1) divided by 16)[*2] |
| | 2W | 0102 | |
| | 3W | 0202 | |
| | 4W | 0302 | |

| Device | Device Name | Device Code (HEX) | Address Code |
|---|---|---|---|
| Special Module | 1SW | 0065 | Word address |
| | 2SW | 0165 | |
| | 3SW | 0265 | |
| | 4SW | 0365 | |
| Information | 1INF1 | 0066 | Word address (Read only) |
| | 2INF1 | 0166 | |
| | 3INF1 | 0266 | |
| | 4INF1 | 0366 | |
| | 1INF2 | 006a | Word address (Read only) |
| | 2INF2 | 016a | |
| | 3INF2 | 026a | |
| | 4INF2 | 036a | |
| | 1INF3 | 006b | Word address (Read only) |
| | 2INF3 | 016b | |
| | 3INF3 | 026b | |
| | 4INF3 | 036b | |
| | 1INF4 | 0005 | Word address (Read only) |
| | 2INF4 | 0105 | |
| | 3INF4 | 0205 | |
| | 4INF4 | 0305 | |
| | 1INF5 | 006c | Word address (Write only) |
| | 2INF5 | 016c | |
| | 3INF5 | 026c | |
| | 4INF5 | 036c | |
| Program Information | 1PRI | 0067 | Word address (Read only) |
| | 2PRI | 0167 | |
| | 3PRI | 0267 | |
| | 4PRI | 0367 | |
| User Log Read | 1ULR | 0068 | Word address (Read only) |
| | 2ULR | 0168 | |
| | 3ULR | 0268 | |
| | 4ULR | 0368 | |

| Device | Device Name | Device Code (HEX) | Address Code |
|---|---|---|---|
| Error History Read | 1ERH | 0069 | Word address (Read only) |
| | 2ERH | 0169 | |
| | 3ERH | 0269 | |
| | 4ERH | 0369 | |

*1 Please refer to "6 Supported Device *1" for each name.

*2 Please refer to "6 Supported Device *4" for each name.

# 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.<br>**NOTE**<br>• IP address is displayed such as "IP address (Decimal): MAC address (Hex)".<br>• Device address is displayed such as "Address: Device address".<br>• Received error codes are displayed such as "Decimal [Hex]". |

Display Examples of Error Messages

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

**NOTE**

- Please refer to the manual of External Device for more detail of received error codes.
- Please refer to "When an error message is displayed (Error code list)" of "Maintenance/ Troubleshooting" for a common error message to the driver.