



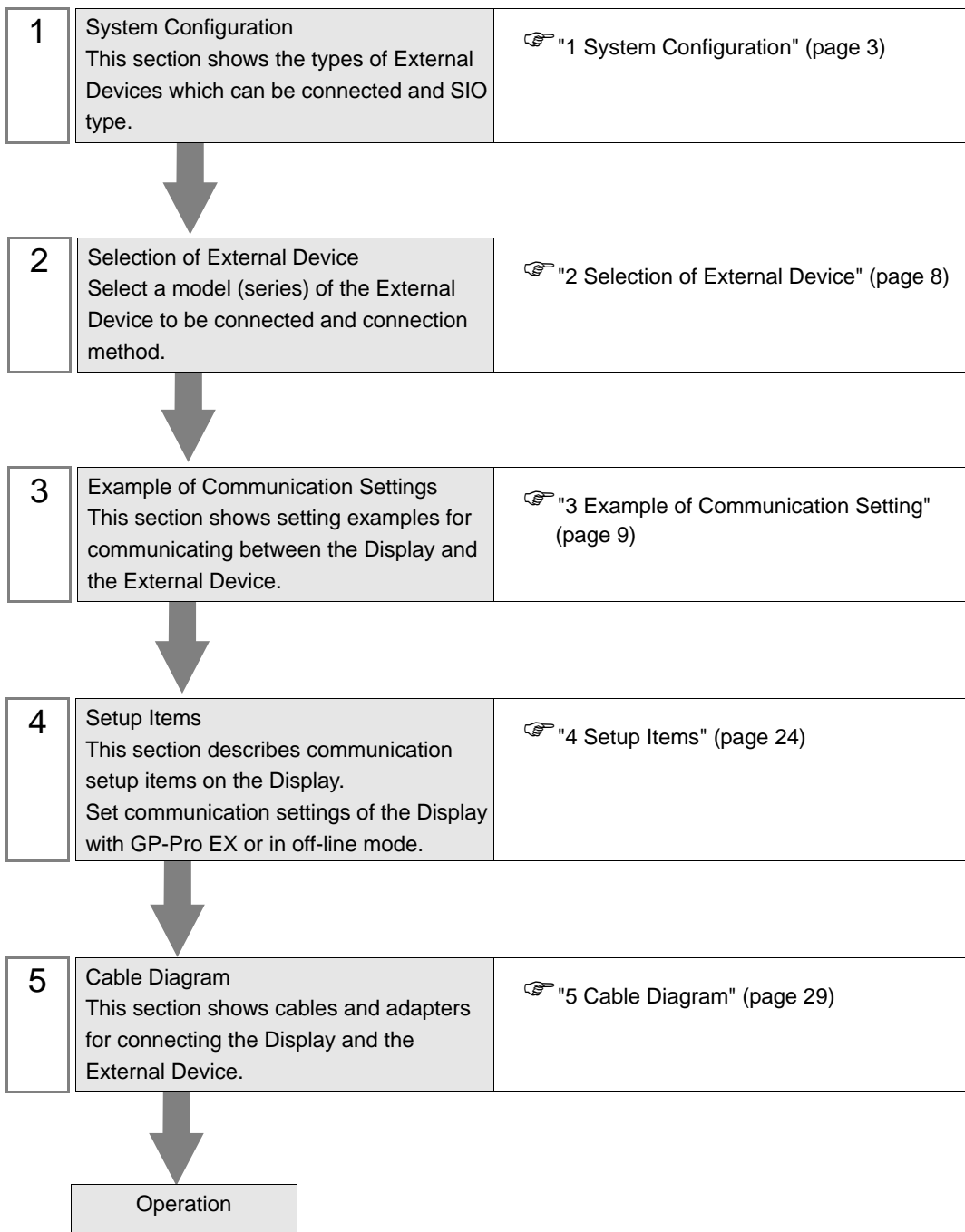
# Q/QnA Serial Communication Driver

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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:



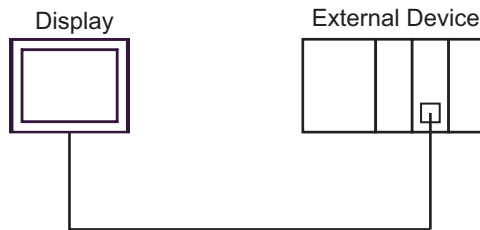
# 1 System Configuration

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

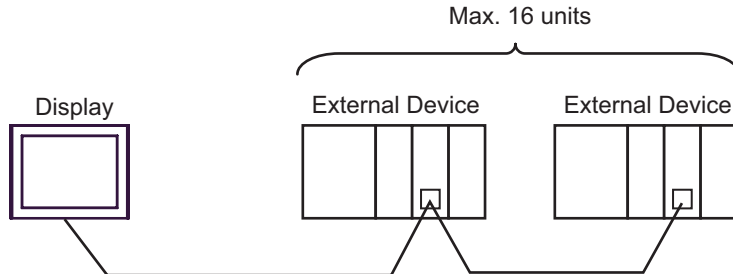
| Series     | CPU  | Link I/F   | SIO Type                                    | Example of Communication Settings | Cable Diagram                |
|------------|--|--|---|-----------------------------------|------------------------------|
| MELSEC Q   | Q02CPU<br>Q02HCPU<br>Q06HCPU<br>Q12HCPU<br>Q25HCPU<br>Q00JCPU<br>Q00CPU<br>Q01CPU<br>Q02UCPU<br>Q03UDCPU<br>Q04UDHCPU<br>Q06UDHCPU | QJ71C24<br>QJ71C24-R2<br>QJ71C24N<br>QJ71C24N-R2             | RS232C                                      | Setting Example 3<br>(page 15)    | Cable Diagram 1<br>(page 29) |
|            |  | QJ71C24<br>QJ71C24N<br>QJ71C24N-R4                           | RS422/485<br>(4wire)                        | Setting Example 4<br>(page 18)    | Cable Diagram 2<br>(page 30) |
|            | Q00CPU<br>Q01CPU   | RS232C connector<br>on CPU                                   | RS232C                                      | Setting Example 5<br>(page 21)    | Cable Diagram 3<br>(page 35) |
| MELSEC QnA | Q2ASCPU<br>Q2ASCPU-S1<br>Q2ASHCPU<br>Q2ASHCPU-S1   | A1SJ71QC24<br>A1SJ71QC24N<br>A1SJ71QC24-R2<br>A1SJ71QC24N-R2 | RS232C                                      | Setting Example 1<br>(page 9)     | Cable Diagram 1<br>(page 29) |
|            |  | A1SJ71QC24<br>A1SJ71QC24N                                    | RS422/485<br>(4wire)                        | Setting Example 2<br>(page 12)    | Cable Diagram 2<br>(page 30) |
|            | Q2ACPU<br>Q2ACPU-S1<br>Q3ACPU<br>Q4ACPU<br>Q4ARCPU   | AJ71QC24<br>AJ71QC24N<br>AJ71QC24-R2<br>AJ71QC24N-R2         | RS232C                                      | Setting Example 1<br>(page 9)     | Cable Diagram 4<br>(page 36) |
|            |  | AJ71QC24<br>AJ71QC24N  | RS422/485<br>(4wire)                        | Setting Example 2<br>(page 12)    | Cable Diagram 2<br>(page 30) |
|            |  | AJ71QC24-R4<br>AJ71QC24N-R4                                  | RS422/485<br>(4wire)<br>(when using<br>CH1) | Setting Example 2<br>(page 12)    | Cable Diagram 5<br>(page 37) |
|            |  |  | RS422/485<br>(4wire)<br>(when using<br>CH2) | Setting Example 2<br>(page 12)    | Cable Diagram 2<br>(page 30) |

## ■ Connection Configuration

- 1:1 Connection

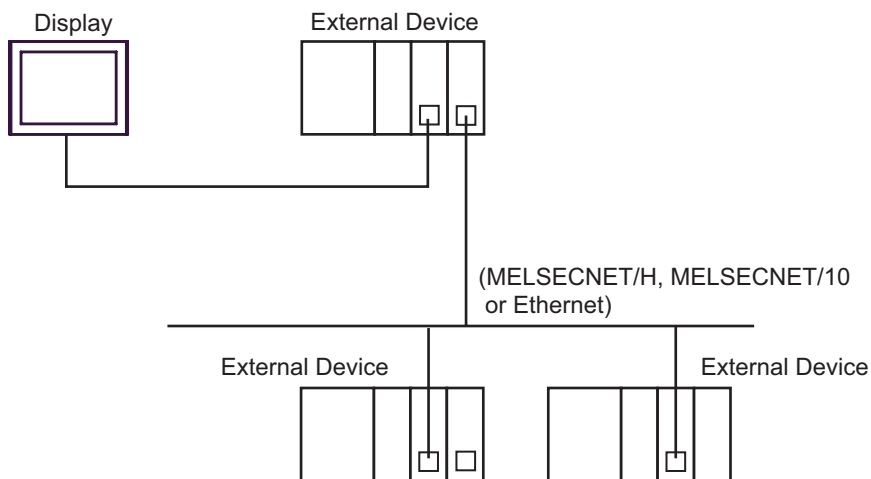


- 1:n Connection 1



- 1:n Connection (when communicating via network)

You can access other stations via MELSECNET/H, MELSECNET/10, Ethernet or Q Series C24 unit. Note that you can access only the source station when using Q00CPU or the RS232C connector on Q00CPU.

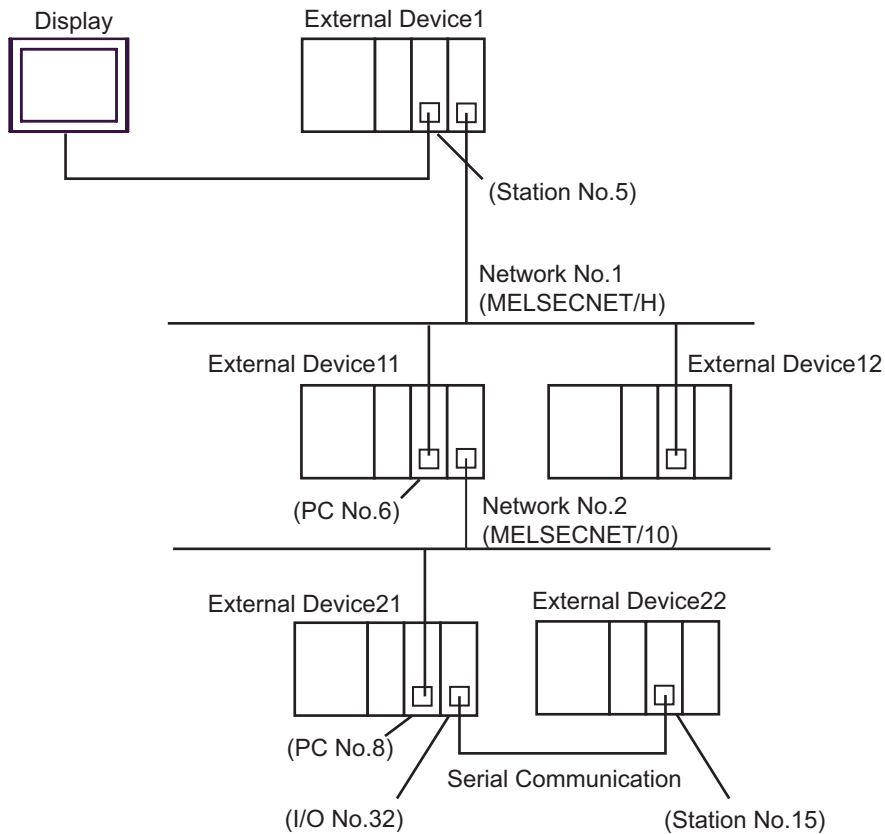


### NOTE

- In case of communication via network, please set larger value than the response monitoring time of the relay station for timeout settings.

Setting examples for access beyond the network are shown below. Check the details of the setup items in "Setup Item."

☞ "4 Setup Items" (page 24)



| External Device to be Accessed | Port No. | Station No. | Network No. | PC No. | Request destination module I/O No. | Request destination module Station No. |
|--------------------------------|----------|-------------|-------------|--------|------------------------------------|--|
| External Device 1              | 1025     | 5           | 0           | 255    | 1023                               | 0                                      |
| External Device 11             | 1026     | 5           | 1           | 6      | 1023                               | 0                                      |
| External Device 22             | 1027     | 5           | 2           | 8      | 32                                 | 15                                     |

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

\*1 The RI/5V can be switched. 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 <sup>*1</sup> | 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               |  |

\*1 It is necessary to turn ON the set value, only when using PS-3450A and PS-3451A.

## 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 "Mitsubishi Electric Corporation".  |
| Driver          | Select a model (series) of the External Device to be connected and connection method. Select "Q/QnA Serial Communication".<br>Check the External Device which can be connected in "Q/QnA Serial Communication" 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/PLC 1

Summary [Change Device/PLC](#)

Maker  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SIQ Type  RS232C  RS422/485(2wire)  RS422/485(4wire)

Speed

Data Length  7  8

Parity  NONE  EVEN  ODD

Stop Bit  1  2

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

Timeout  (sec)

Retry

Wait To Send  (ms)

RI / VCC  RI  VCC

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

Device-Specific Settings


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

| No. | Device Name | Settings  |
|-----|-------------|---|
| 1   | PLC1        | Station No.=0,Network No.=0,PC No.=255,Request destination module I/O N |

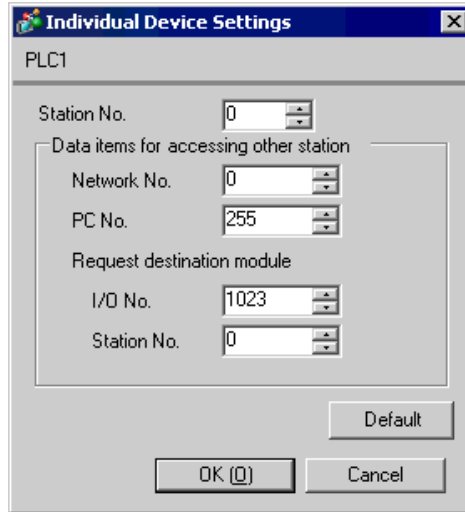
#### NOTE

- When using A1SJ71QC24N, A1SJ71QC24N-R2, AJ71QC24N or AJ71QC24N-R2, you can set the "Speed" up to 115200.

### ◆ 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.



### ◆ Important Item

When you use 2 types of interface in A1SJ71QC24N, A1SJ71QC24N-R2, AJ71QC24N or AJ71QC24N-R2, please set the total speed of CH1 and CH2 to 115200 or less.

## ■ Setting of External Device

Use the front switch of the computer link unit to set the communication settings as below.

| DIP Switch | Settings | Setup Description                         |
|------------|----------|---|
| SW1        | OFF      | Operation Setting = Independent Operation |
| SW2        | ON       | Data Length = 8 bits                      |
| SW3        | ON       | With/Without Parity = With                |
| SW4        | OFF      | Parity = Odd parity                       |
| SW5        | OFF      | Stop Bit = 1 bit                          |
| SW6        | ON       | Sum Check = Enable                        |
| SW7        | ON       | Write during RUN = Enable                 |
| SW8        | ON       | Setting change Enable/Disable = Enable    |
| SW9        | OFF      | Transmission Speed = 19200                |
| SW10       | ON       |   |
| SW11       | ON       |   |
| SW12       | OFF      |   |

**NOTE** • When using A1SJ71QC24N, A1SJ71QC24N-R2, AJ71QC24N or AJ71QC24N-R2, you can set the "Speed" up to 115200.

- Station Setting Switch

| Setting Switch | Settings |
|----------------|----------|
| x 10           | 0        |
| x 1            | 0        |

- Mode Setting Switch

| Setting Switch | Settings |
|----------------|----------|
| MODE (CH1)     | 5        |
| MODE (CH2)     | 5        |

### ◆ Important Item

When you use 2 types of interface in A1SJ71QC24N, A1SJ71QC24N-R2, AJ71QC24N or AJ71QC24N-R2, please set the total speed of CH1 and CH2 to 115200 or less.

## 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/PLC 1

Summary [Change Device/PLC](#)

Maker  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)  
 Speed   
 Data Length  7  8  
 Parity  NONE  EVEN  ODD  
 Stop Bit  1  2  
 Flow Control  NONE  ER(DTR/CTS)  XON/XOFF  
 Timeout  (sec)  
 Retry   
 Wait To Send  (ms)

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


Device-Specific Settings

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

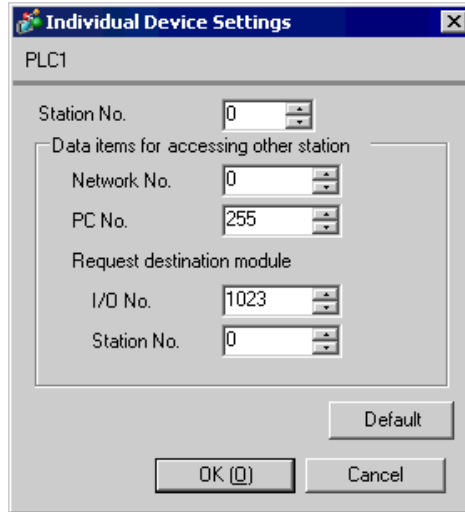
| No. | Device Name | Settings  |
|-----|-------------|---|
| 1   | PLC1        | Station No.=0,Network No.=0,PC No.=255,Request destination module I/O N |

- NOTE** • When using A1SJ71QC24N, AJ71QC24N or AJ71QC24N-R4, you can set the "Speed" up to 115200.

### ◆ 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.



### ◆ Important Item

When you use 2 types of interface in A1SJ71QC24N, AJ71QC24N or AJ71QC24N-R4, please set the total speed of CH1 and CH2 to 115200 or less.

## ■ Setting of External Device

Use the front switch of the computer link unit to set the communication settings as below.

| DIP Switch | Settings | Setup Description                         |
|------------|----------|---|
| SW1        | OFF      | Operation Setting = Independent Operation |
| SW2        | ON       | Data Length = 8 bits                      |
| SW3        | ON       | With/Without Parity = With                |
| SW4        | OFF      | Parity = Odd parity                       |
| SW5        | OFF      | Stop Bit = 1 bit                          |
| SW6        | ON       | Sum Check = Enable                        |
| SW7        | ON       | Write during RUN = Enable                 |
| SW8        | ON       | Setting change Enable/Disable = Enable    |
| SW9        | OFF      | Transmission Speed = 19200                |
| SW10       | ON       |   |
| SW11       | ON       |   |
| SW12       | OFF      |   |

**NOTE** • When using A1SJ71QC24N, AJ71QC24N or AJ71QC24N-R4, you can set the "Speed" up to 115200.

- Station Setting Switch

| Setting Switch | Settings |
|----------------|----------|
| x 10           | 0        |
| x 1            | 0        |

- Mode Setting Switch

| Setting Switch | Settings |
|----------------|----------|
| MODE (CH1)     | 5        |
| MODE (CH2)     | 5        |

### ◆ Important Item

When you use 2 types of interface in A1SJ71QC24N, AJ71QC24N or AJ71QC24N-R4, please set the total speed of CH1 and CH2 to 115200 or less.

### 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/PLC 1

Summary [Change Device/PLC](#)

Maker  Series  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)


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

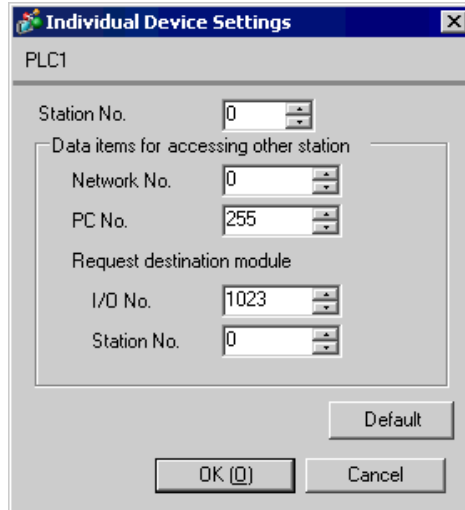
Allowable No. of Device/PLCs 16 Unit(s)

| No. | Device Name | Settings  |
|-----|-------------|---|
| 1   | PLC1        | Station No.=0,Network No.=0,PC No.=255,Request destination module I/O N |

**◆ 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.

**◆ Important Item**

When you use 2 types of interface in QJ71C24 or QJ71C24-R2, please set the total speed of CH1 and CH2 to 115200 or less.



## ■ Setting of External Device

Use the GPP function software by Mitsubishi Electric Corporation to perform the communication settings as below.

- (1) Double-click [PC Parameter] from [Parameter] to select the [I/O Assign Setting] tab.
- (2) Click [Type] to select [Intelligent].
- (3) Click [Switch Settings] and set as below.

| Setting Switch | Setting Value | Setup Description  |
|----------------|---------------|--------------------|
| Switch 1       | 07E6          | 19200/8/With/Odd/1 |
| Switch 2       | 0005          | Mode = Form 5      |
| Switch 5       | 0000          | Station No. = 0    |

**NOTE** • Please refer to the manual of the External Device for more detail on setting description.

### ◆ Important Item

When you use 2 types of interface in QJ71C24 or QJ71C24-R2, please set the total speed of CH1 and CH2 to 115200 or less.

## 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/PLC 1

Summary [Change Device/PLC](#)

Maker  Series  Port

Text Data Mode  [Change](#)

Communication Settings

SID Type  RS232C  RS422/485(2wire)  RS422/485(4wire)  
 Speed   
 Data Length  7  8  
 Parity  NONE  EVEN  ODD  
 Stop Bit  1  2  
 Flow Control  NONE  ER(DTR/CTS)  XON/XOFF  
 Timeout  (sec)  
 Retry   
 Wait To Send  (ms)


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

Device-Specific Settings

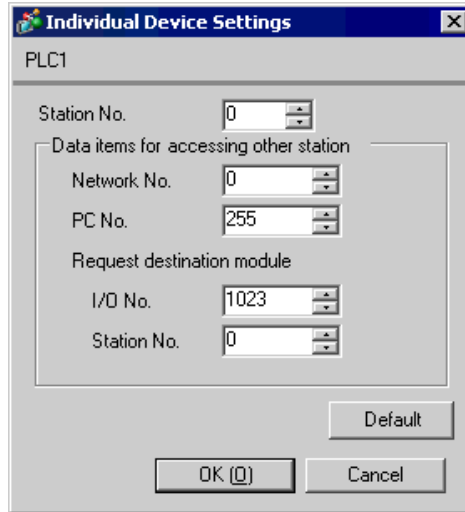
Allowable No. of Device/PLCs 16 Unit(s)

| No. | Device Name | Settings  |
|-----|-------------|---|
| 1   | PLC1        | Station No.=0,Network No.=0,PC No.=255,Request destination module I/O N |

**◆ 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.

**◆ Important Item**

When you use 2 types of interface in QJ71C24, please set the total speed of CH1 and CH2 to 115200 or less.

## ■ Setting of External Device

Use the GPP function software by Mitsubishi Electric Corporation to perform the communication settings as below.

- (1) Double-click [PC Parameter] from [Parameter] to select the [I/O Assign Setting] tab.
- (2) Click [Type] to select [Intelligent].
- (3) Click [Switch Settings] and set as below.

| Setting Switch | Setting Value | Setup Description  |
|----------------|---------------|--------------------|
| Switch 3       | 07E6          | 19200/8/With/Odd/1 |
| Switch 4       | 0005          | Mode = Form 5      |
| Switch 5       | 0000          | Station No. = 0    |

---

**NOTE** • Please refer to the manual of the External Device for more detail on setting description.

---

### ◆ Important Item

When you use 2 types of interface in QJ71C24, please set the total speed of CH1 and CH2 to 115200 or less.

## 3.5 Setting Example 5

### ■ Setting 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  Series  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)


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

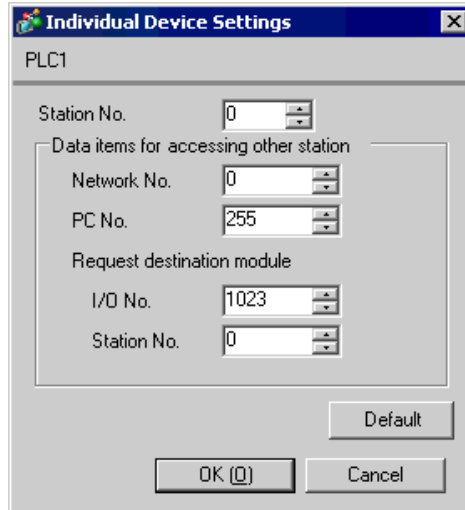
Allowable No. of Device/PLCs 16 Unit(s)

| No. | Device Name | Settings  |
|-----|-------------|---|
| 1   | PLC1        | Station No.=0,Network No.=0,PC No.=255,Request destination module I/O N |

**◆ 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

Use the GPP function software by Mitsubishi Electric Corporation to perform the communication settings as below.

(1) Double-click [PC Parameter] from [Parameter] to select [Serial Communication Settings].

(2) Set as below.

| Setup Items                                     | Settings |
|---|----------|
| Use Serial Communication Function <sup>*1</sup> | Use      |
| Baud Rate                                       | 19.2Kbps |
| Sum Check                                       | Enable   |
| Transmission Wait Time                          | No Wait  |
| Write Setting during RUN                        | Enable   |

\*1 Check the checkbox to make other setting items become available to set.

## 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 9)

### 4.1 When 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.<br><b>NOTE</b><br>In case of communicating via network, please set larger value than the response monitoring time of the relay station for timeout settings. |
| 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.  |

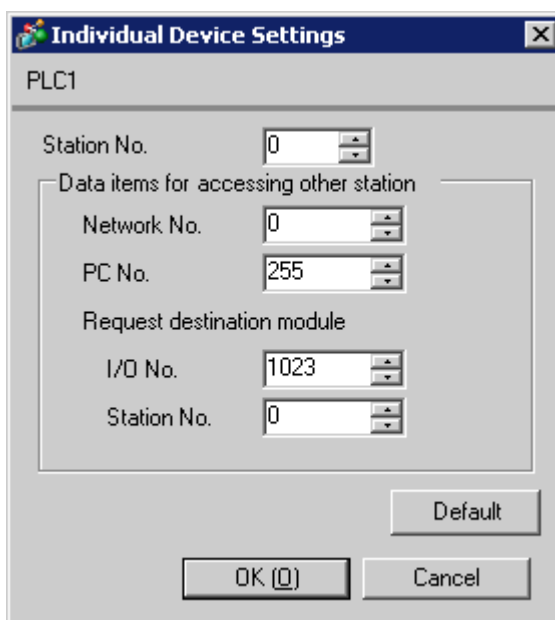


| Setup Items | Setup Description   |
|-------------|---|
| RI/VCC      | You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.<br>It is necessary to change RI/5V by changeover switch of IPC when connect with IPC.<br>Please refer to the manual of the IPC for more detail. |

## ■ 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 from 0 to 31 to enter the station number of the External Device directly connected to the Display.  |
| Network No.                            | Set when you communicate via network. Use an integer from 0 to 239 to enter network No. of the External Device to communicate. If you do not communicate via network, enter 0.           |
| PC No.                                 | Set when you communicate via network. Use an integer from 0 to 64 or 125 to 126 to enter PC No. of the External Device to communicate. If you do not communicate via network, enter 255. |
| Request destination module I/O No.     | Set when you communicate via network. Use an integer from 0 to 511 to enter I/O No. of the External Device to communicate. If you do not communicate via network, enter 1023.            |
| Request destination module Station No. | Set when you communicate via network. Use an integer from 0 to 31 to enter station No. of the External Device to communicate. If you do not communicate via network, enter 0.            |

## 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.

| Comm.                      | Device   | Option |          |                        |
|----------------------------|--|--------|----------|------------------------|
| Q/QnA Serial Communication |  | [COM1] | Page 1/1 |                        |
| SIO Type                   | RS232C   |        |          |                        |
| Speed                      | 19200  |        |          |                        |
| Data Length                | 8  |        |          |                        |
| Parity                     | <input type="radio"/> NONE <input type="radio"/> EVEN <input checked="" type="radio"/> ODD |        |          |                        |
| Stop Bit                   | <input checked="" type="radio"/> 1 <input type="radio"/> 2                                 |        |          |                        |
| Flow Control               | ER(DTR/CTS)  |        |          |                        |
| Timeout(s)                 | 3  |        |          |                        |
| Retry                      | 2  |        |          |                        |
| Wait To Send(ms)           | 0  |        |          |                        |
| Exit                       |  | Back   |          | 2005/09/02<br>12:38:18 |

| Setup Items  | Setup Description  |
|--------------|--|
| SIO Type     | Select the SIO type to communicate with the External Device.<br><b>IMPORTANT</b><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.<br><b>NOTE</b><br>In case of communicating via network, please set larger value than the response monitoring time of the relay station for timeout settings.   |

| 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.              |

## ■ 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 |          |                        |
|----------------------------|--------|--------|----------|------------------------|
| Q/QnA Serial Communication |        | [COM1] | Page 1/1 |                        |
| Device/PLC Name [PLC1] ▼   |        |        |          |                        |
| Station No.                |        | 0      | ▼        | ▲                      |
| Network No.                |        | 0      | ▼        | ▲                      |
| PC No.                     |        | 255    | ▼        | ▲                      |
| Request destination module |        |        |          |                        |
| I/O No.                    |        | 1023   | ▼        | ▲                      |
| Station No.                |        | 0      | ▼        | ▲                      |
| Exit                       |        | Back   |          | 2005/09/02<br>12:38:20 |

| 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 from 0 to 31 to enter the station number of the External Device directly connected to the Display.  |
| Network No.                            | Set when you communicate via network. Use an integer from 0 to 239 to enter network No. of the External Device to communicate. If you do not communicate via network, enter 0.           |
| PC No.                                 | Set when you communicate via network. Use an integer from 0 to 64 or 125 to 126 to enter PC No. of the External Device to communicate. If you do not communicate via network, enter 255. |
| Request destination module I/O No.     | Set when you communicate via network. Use an integer from 0 to 511 to enter I/O No. of the External Device to communicate. If you do not communicate via network, enter 1023.            |
| Request destination module Station No. | Set when you communicate via network. Use an integer from 0 to 31 to enter station No. of the External Device to communicate. If you do not communicate via network, enter 0.            |

### IMPORTANT

- Do not set the duplicate device settings in multiple devices. Illegal address may be read.

## ■ 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 |          |                        |
|--|--------|--------|----------|------------------------|
|  |        |        |          |                        |
| Q/QnA Serial Communication   |        | [COM1] | Page 1/1 |                        |
| RI / VCC <input checked="" type="radio"/> RI <input type="radio"/> VCC<br>In the case of RS232C, you can select<br>the 9th pin to RI(Input) or VCC(5V<br>Power Supply). If you use the Digital's<br>RS232C Isolation Unit, please select<br>it to VCC. |        |        |          |                        |
|  |        | Exit   | Back     | 2005/09/02<br>12:38:22 |

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

## 5 Cable Diagram

The cable diagram shown below may be different from the cable diagram recommended by Mitsubishi Electric Corp. 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..

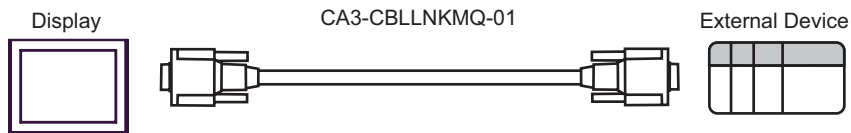
Cable Diagram 1

| Display<br>(Connection Port)            | Cable |  | Notes                                    |
|---|-------|--|--|
| GP (COM1)<br>IPC <sup>*1</sup><br>PC/AT | A     | Mitsubishi Q link cable by Pro-face<br>CA3-CBLLNKMQ-01 |  |
|   | B     | Your own cable   | The cable length must be 15m<br>or less. |

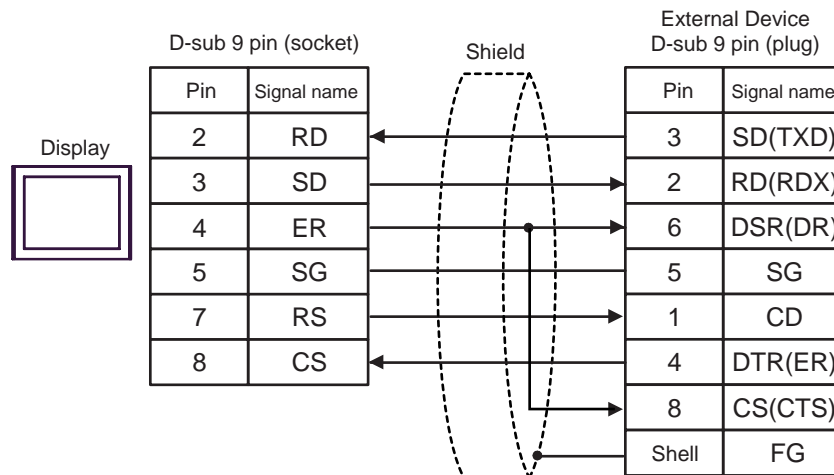
\*1 Only the COM port which can communicate by RS-232C can be used.

☞ ■ COM Port of IPC (page 6)

A) When using Mitsubishi Q link cable (CA3-CBLLNKMQ-01) by Pro-face



B) When using your own cable




Cable Diagram 2

| Display<br>(Connection Port)                                     | Cable |  | Notes                                     |
|--|-------|--|---|
| GP* <sup>1</sup> (COM1)<br>AGP-3302B (COM2)<br>IPC* <sup>2</sup> | A     | COM port conversion adapter<br>by Pro-face<br>CA3-ADPCOM-01<br>+<br>Connector terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | The cable length must be<br>500m or less. |
|  | B     | Your own cable   |   |
| GP* <sup>3</sup> (COM2)  | C     | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Connector 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

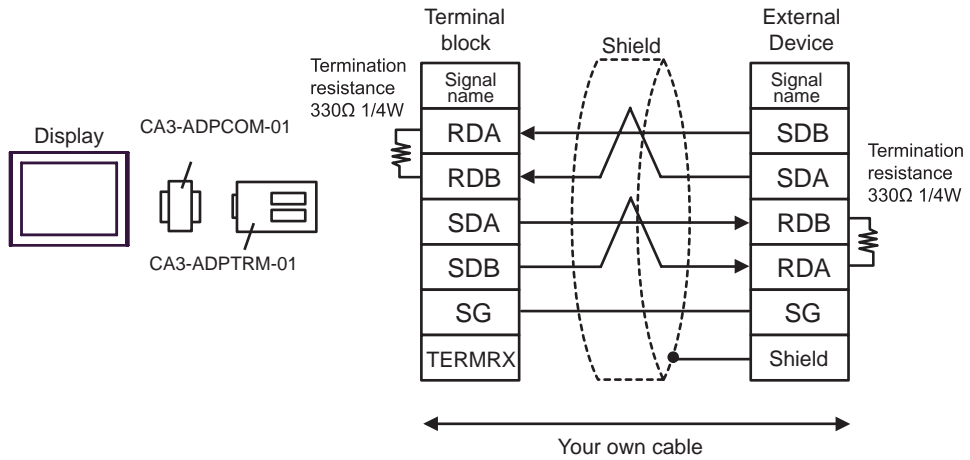
\*2 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.

 ■ COM Port of IPC (page 6)

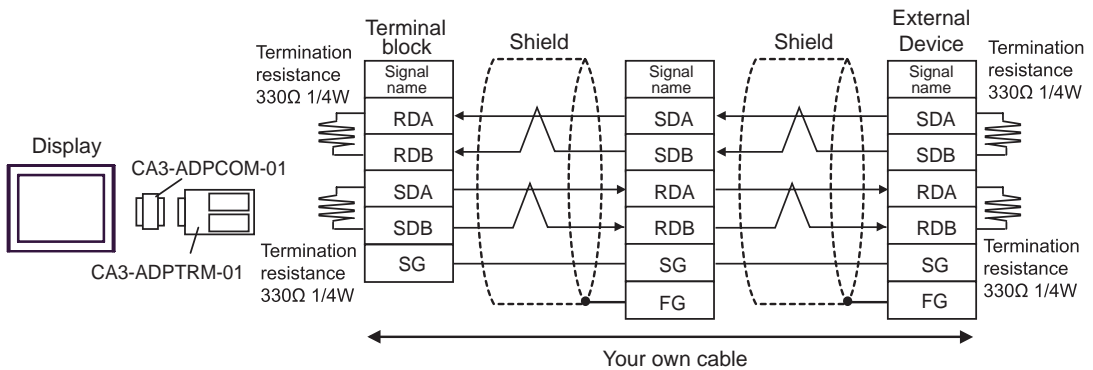
\*3 All GP models except GP-3200 series and AGP-3302B

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

- 1:1 Connection

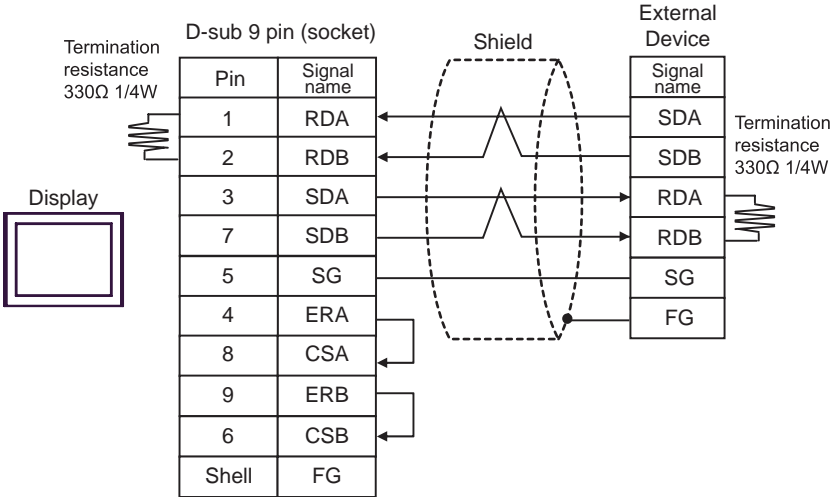


- 1:n Connection

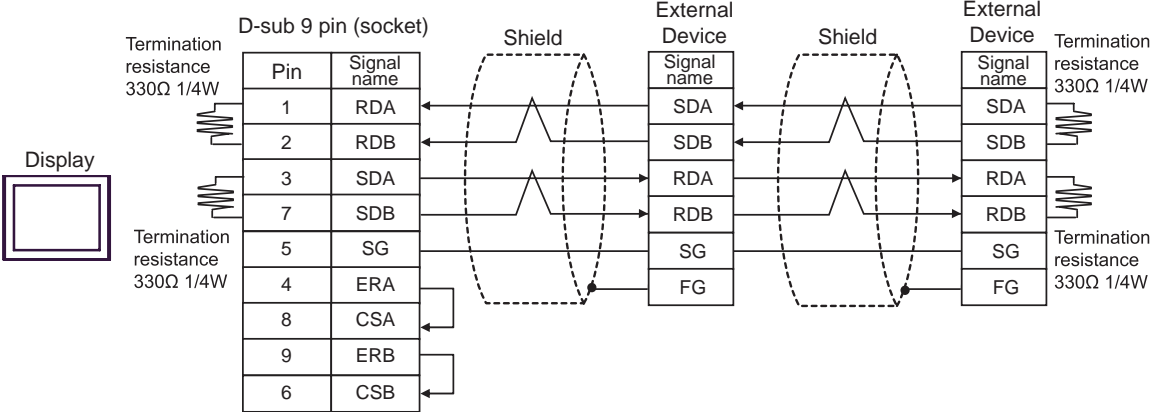


B) When using your own cable

- 1:1 Connection



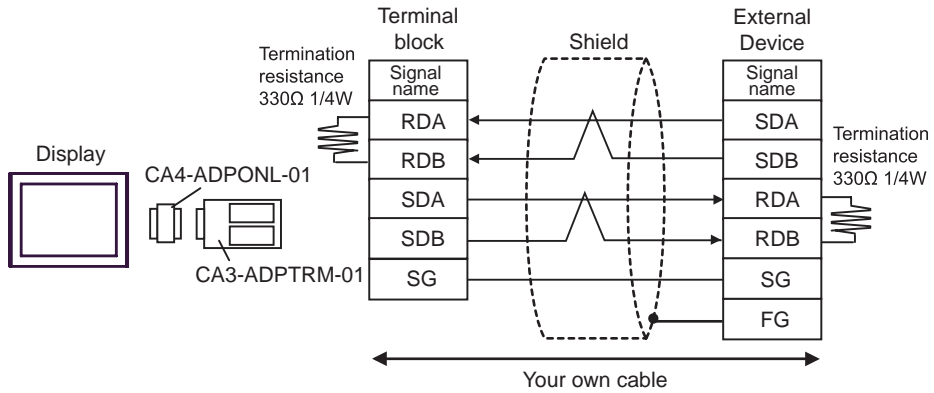
- 1:n Connection



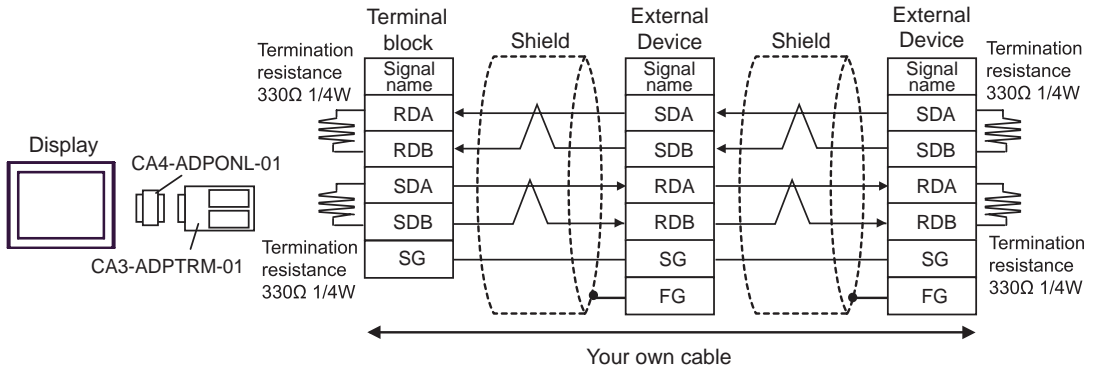


C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

- 1:1 Connection

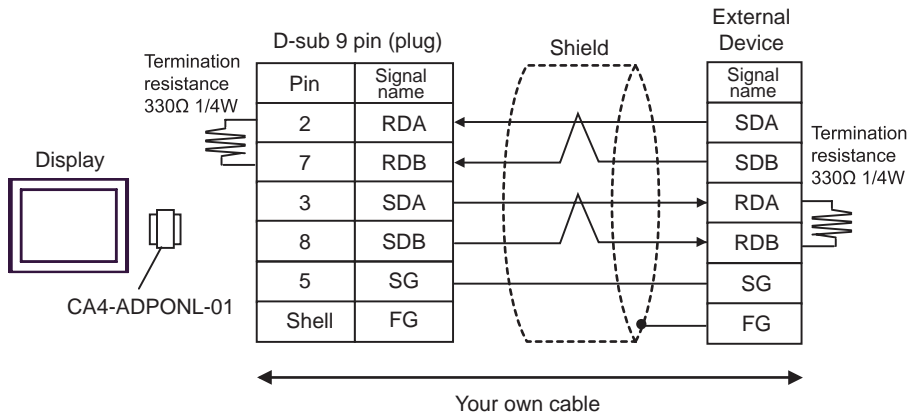


- 1:n Connection

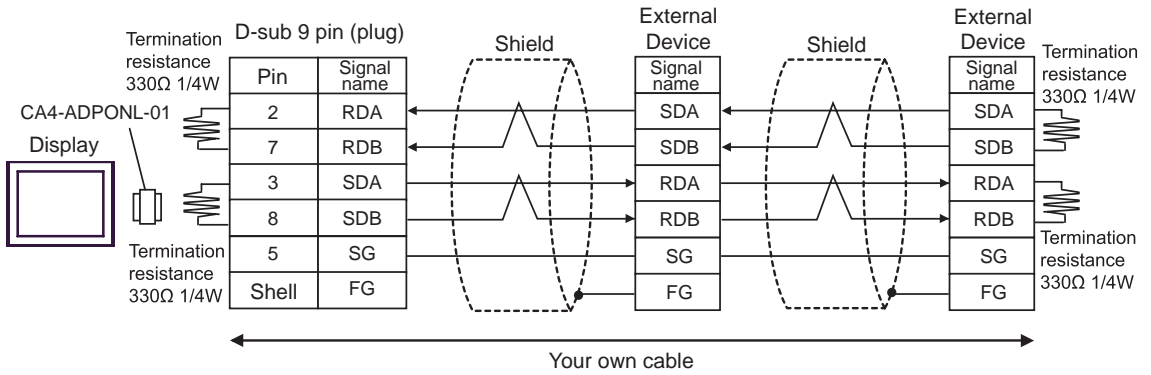


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

- 1:1 Connection




- 1:n Connection

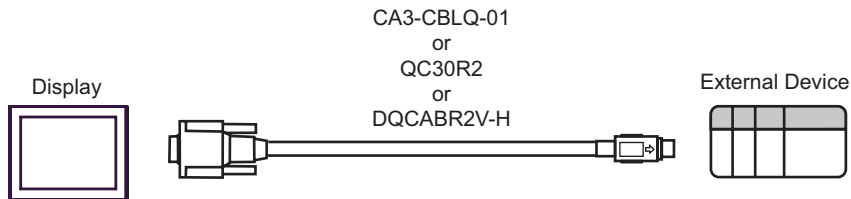


Cable Diagram 3

| Display<br>(Connection Port) | Cable   | Notes   |
|------------------------------|---|---|
| GP (COM1)<br>IPC*1<br>PC/AT  | Mitsubishi Q connection cable by Pro-face<br>CA3-CBLQ-01 (5m)<br>or<br>RS-232C cable by Mitsubishi Electric Corp.<br>QC30R2 (3m)<br>or<br>RS-232C cable for QCPU connection by Diatrend Corp.<br>DQCABR2V-H | Available to order the<br>length of<br>DQXCABR2V-H by<br>Diatrend Corp. up to<br>15m. |

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

 ■ COM Port of IPC (page 6)



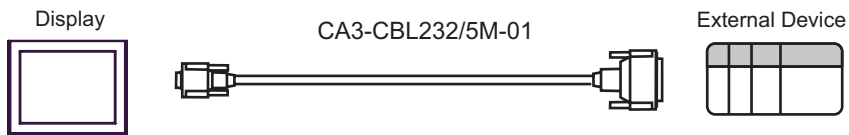
Cable Diagram 4

| Display<br>(Connection Port) | Cable |  | Notes                                 |
|------------------------------|-------|--|---------------------------------------|
| GP (COM1)<br>IPC*1<br>PC/AT  | A     | RS-232C cable by Pro-face<br>CA3-CBL232/5M-01 (5m) |                                       |
|                              | B     | Your own cable                                     | The cable length must be 15m or less. |

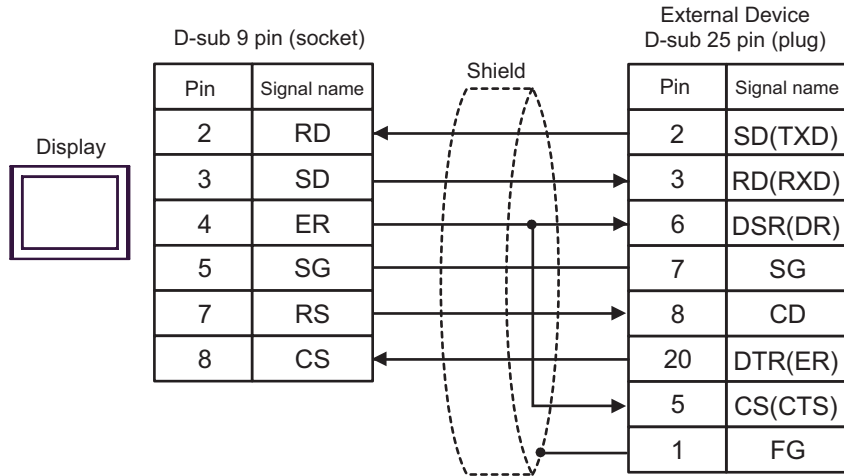
\*1 Only the COM port which can communicate by RS-232C can be used.

☞ ■ COM Port of IPC (page 6)

A) When using the RS232C cable (CA3-CBL232/5M-01) by Pro-face



B) When using your own cable




Cable Diagram 5

| Display<br>(Connection Port)                                     |   | Cable  | Notes                                     |
|--|---|--|---|
| GP* <sup>1</sup> (COM1)<br>AGP-3302B (COM2)<br>IPC* <sup>2</sup> | A | COM port conversion adapter<br>by Pro-face<br>CA3-ADPCOM-01<br>+<br>Connector terminal block conversion adapter<br>by Pro-face<br>CA3-ADPTRM-01<br>+<br>Your own cable | The cable length must be<br>500m or less. |
|  | B | Your own cable   |   |
| GP* <sup>3</sup> (COM2)  | C | Online adapter by Pro-face<br>CA4-ADPONL-01<br>+<br>Connector 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   |   |

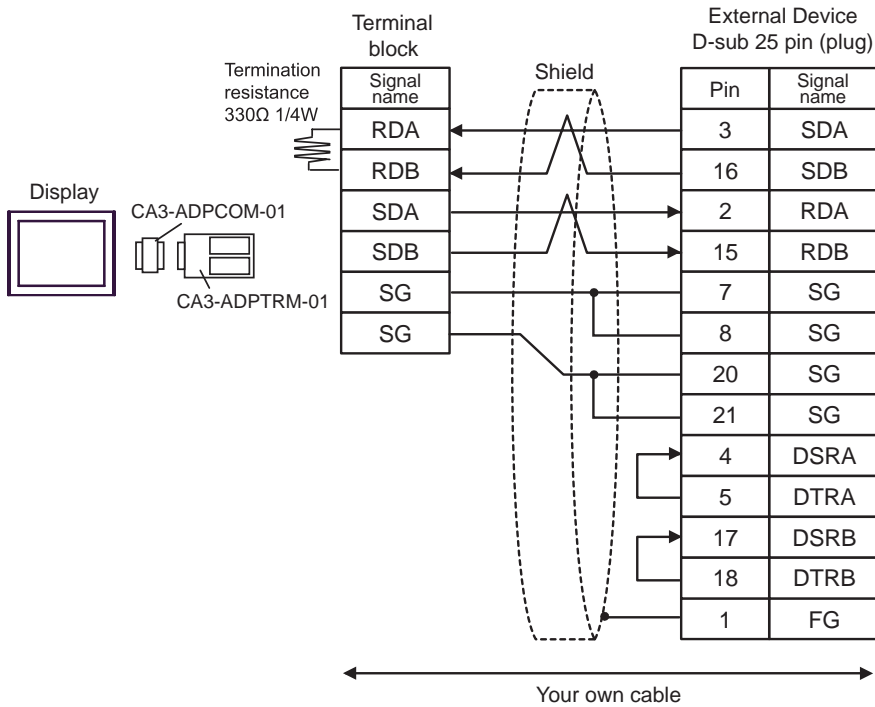
\*1 All GP models except AGP-3302B

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

 ■ COM Port of IPC (page 6)

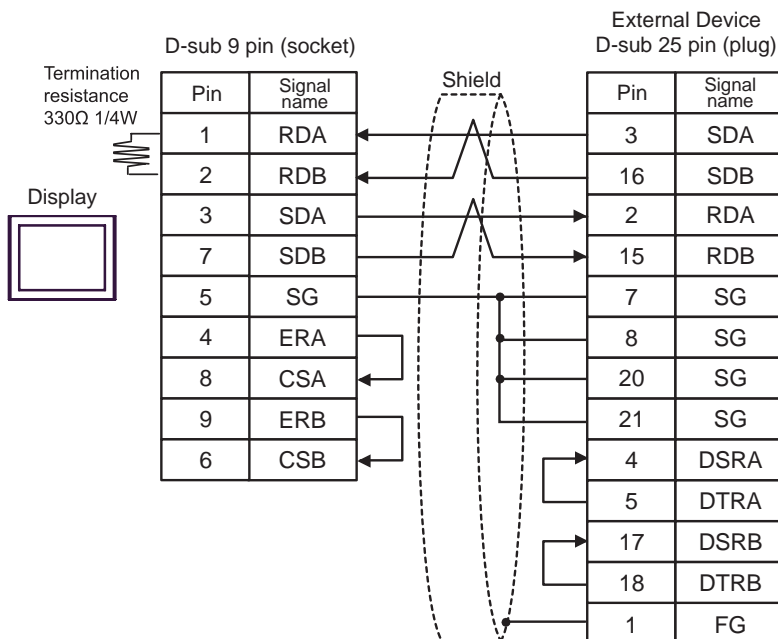
\*3 All GP models except GP-3200 series and AGP-3302B

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



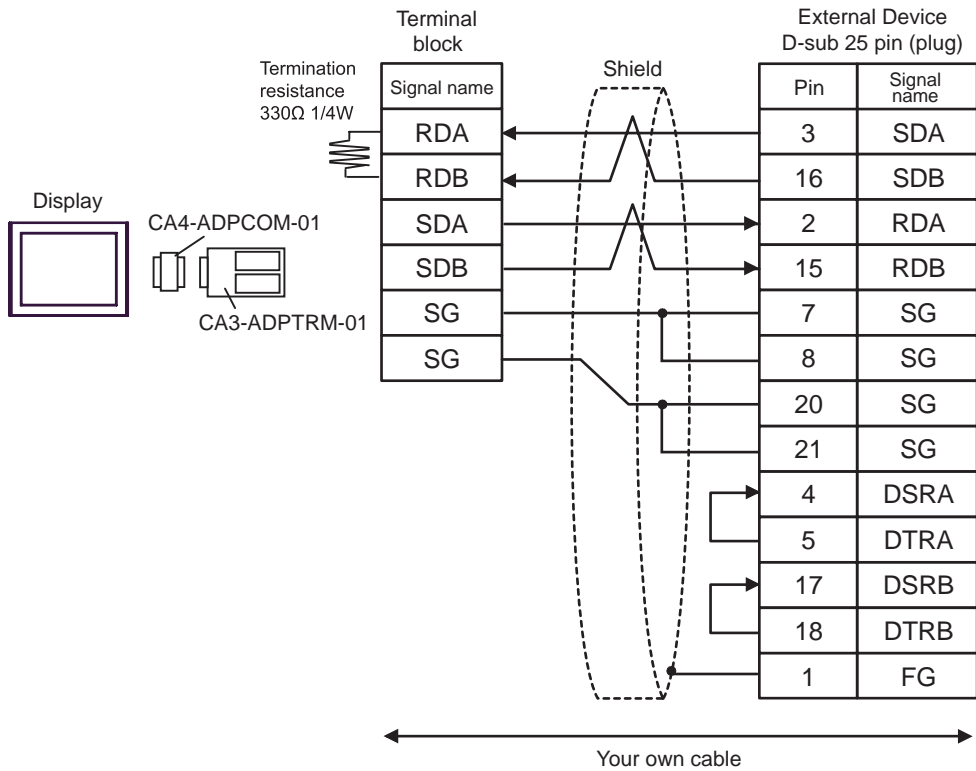
**NOTE** • As the External Device has the termination resistance built-in, you do not need to connect the termination resistance.

B) When using your own cable



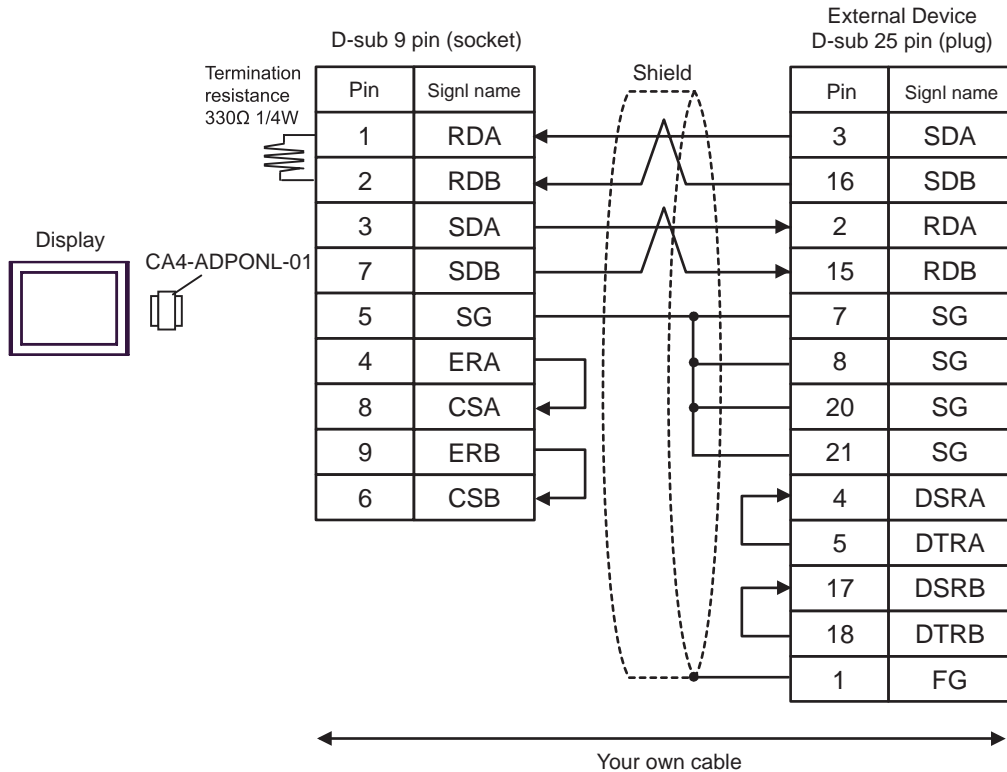
**NOTE** • As the External Device has the termination resistance built-in, you do not need to connect the termination resistance.

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

**NOTE**

- As the External Device has the termination resistance built-in, you do not need to connect the termination resistance.

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

**NOTE**

- As the External Device has the termination resistance built-in, you do not need to connect the termination resistance.




## 6 Range of Supported Device Address

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                                      | X0000-X1FFF     | X0000-X1FF0         | L/H    | <span style="border: 1px solid black; padding: 2px;">***0</span>     |
| Output Relay                                     | Y0000-Y1FFF     | Y0000-Y1FF0         |        | <span style="border: 1px solid black; padding: 2px;">***0</span>     |
| Internal Relay                                   | M00000-M32767   | M00000-M32752       |        | <span style="border: 1px solid black; padding: 2px;">+16</span>      |
| Special Relay                                    | SM0000-SM2047   | SM0000-SM2032       |        | <span style="border: 1px solid black; padding: 2px;">+16</span>      |
| Latch Relay                                      | L00000-L32767   | L00000-L32752       |        | <span style="border: 1px solid black; padding: 2px;">+16</span>      |
| Annunciator                                      | F00000-F32767   | F00000-F32752       |        | <span style="border: 1px solid black; padding: 2px;">+16</span>      |
| Edge Relay                                       | V00000-V32767   | V00000-V32752       |        | <span style="border: 1px solid black; padding: 2px;">+16</span>      |
| Step Relay                                       | S0000-S8191     | S0000-S8176         |        | <span style="border: 1px solid black; padding: 2px;">+16</span>      |
| Link Relay                                       | B0000-B7FFF     | B0000-B7FF0         |        | <span style="border: 1px solid black; padding: 2px;">***0</span>     |
| Special Link Relay                               | SB0000 - SB7FFF | SB0000 - SB7FF0     |        | <span style="border: 1px solid black; padding: 2px;">***0</span>     |
| Timer (Contact)                                  | TS00000-TS25023 | -                   |        |  |
| Timer (Coil)                                     | TC00000-TC25023 | -                   |        |  |
| Retentive Timer (Contact)                        | SS00000-SS25023 | -                   |        |  |
| Retentive Timer (Coil)                           | SC00000-SC25023 | -                   |        |  |
| Counter (Contact)                                | CS00000-CS25023 | -                   |        |  |
| Counter (Coil)                                   | CC00000-CC25023 | -                   |        |  |
| Timer (Current Value)                            | -               | TN00000-TN25023     |        |  |
| Retentive Timer (Current Value)                  | -               | SN00000-SN25023     |        |  |
| Counter (Current Value)                          | -               | CN00000-CN25023     |        |  |
| Data Register                                    | -               | D00000-D28159       |        | <span style="border: 1px solid black; padding: 2px;">Bit F</span>    |
| Special Register                                 | -               | SD0000-SD2047       |        | <span style="border: 1px solid black; padding: 2px;">Bit F</span>    |
| Link Register                                    | -               | W0000-W6DFF         |        | <span style="border: 1px solid black; padding: 2px;">Bit F</span>    |
| Special Link Register                            | -               | SW0000-SW6DFF       |        | <span style="border: 1px solid black; padding: 2px;">Bit F</span>    |
| File Register (Normal)                           | -               | R00000-R32767       |        | <span style="border: 1px solid black; padding: 2px;">Bit F</span> *1 |
| File Register (Block switching is not necessary) | -               | ZR0000000-ZR2087935 |        | <span style="border: 1px solid black; padding: 2px;">Bit F</span> *1 |

| Device                         | Bit Address | Word Address     | 32bits | Notes  |
|--------------------------------|-------------|------------------|--------|--|
| File Register<br>(0R - 31R) *2 | -           | 0R0000-0R32767   |        |  *1 |
|                                | -           | 1R0000-1R32767   |        |  |
|                                | -           | 2R0000-2R32767   |        |  |
|                                | :           | :                |        |  |
|                                | -           | 30R0000-30R32767 |        |  |
|                                | -           | 31R0000-31R26623 |        |  |

\*1 It is different by the memory card which uses the range of file register.

\*2 Set the block No. on the head of device name. This is the device name for conversion with GP-Pro/PB III for Windows. When you newly specify the device, we recommend that you should use the file register (Block switching is not necessary).

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

| Device   | Device Name | Device Code (HEX) | Address Code                          |
|--|-------------|-------------------|---------------------------------------|
| Input Relay                                      | X           | 0080              | Value of word address divided by 0x10 |
| Output Relay                                     | Y           | 0081              | Value of word address divided by 0x10 |
| Internal Relay                                   | M           | 0082              | Value of word address divided by 16   |
| Special Relay                                    | SM          | 0083              | Value of word address divided by 16   |
| Latch Relay                                      | L           | 0084              | Value of word address divided by 16   |
| Annunciator                                      | F           | 0085              | Value of word address divided by 16   |
| Edge Relay                                       | V           | 0086              | Value of word address divided by 16   |
| Step Relay                                       | S           | 0087              | Value of word address divided by 16   |
| Link Relay                                       | B           | 0088              | Value of word address divided by 0x10 |
| Special Link Relay                               | SB          | 0089              | Value of word address divided by 0x10 |
| Timer (Current Value)                            | TN          | 0060              | Word Address                          |
| Retentive Timer (Current Value)                  | SN          | 0062              | Word Address                          |
| Counter (Current Value)                          | CN          | 0061              | Word Address                          |
| Data Register                                    | D           | 0000              | Word Address                          |
| Special Register                                 | SD          | 0001              | Word Address                          |
| Link Register                                    | W           | 0002              | Word Address                          |
| Special Link Register                            | SW          | 0003              | Word Address                          |
| File Register (Normal)                           | R           | 000F              | Word Address                          |
| File Register (Block switching is not necessary) | ZR          | 000E              | Word Address                          |
| File Register (0R - 31R)                         | 0R          | 0010              | Word Address                          |
|  | 1R          | 0011              | Word Address                          |
|  | 2R          | 0012              | Word Address                          |
|  | :           | :                 | :                                     |
|  | 30R         | 002E              | Word Address                          |
|  | 31R         | 002F              | Word Address                          |

## 8 Error Messages

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

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

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 the 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.
-