



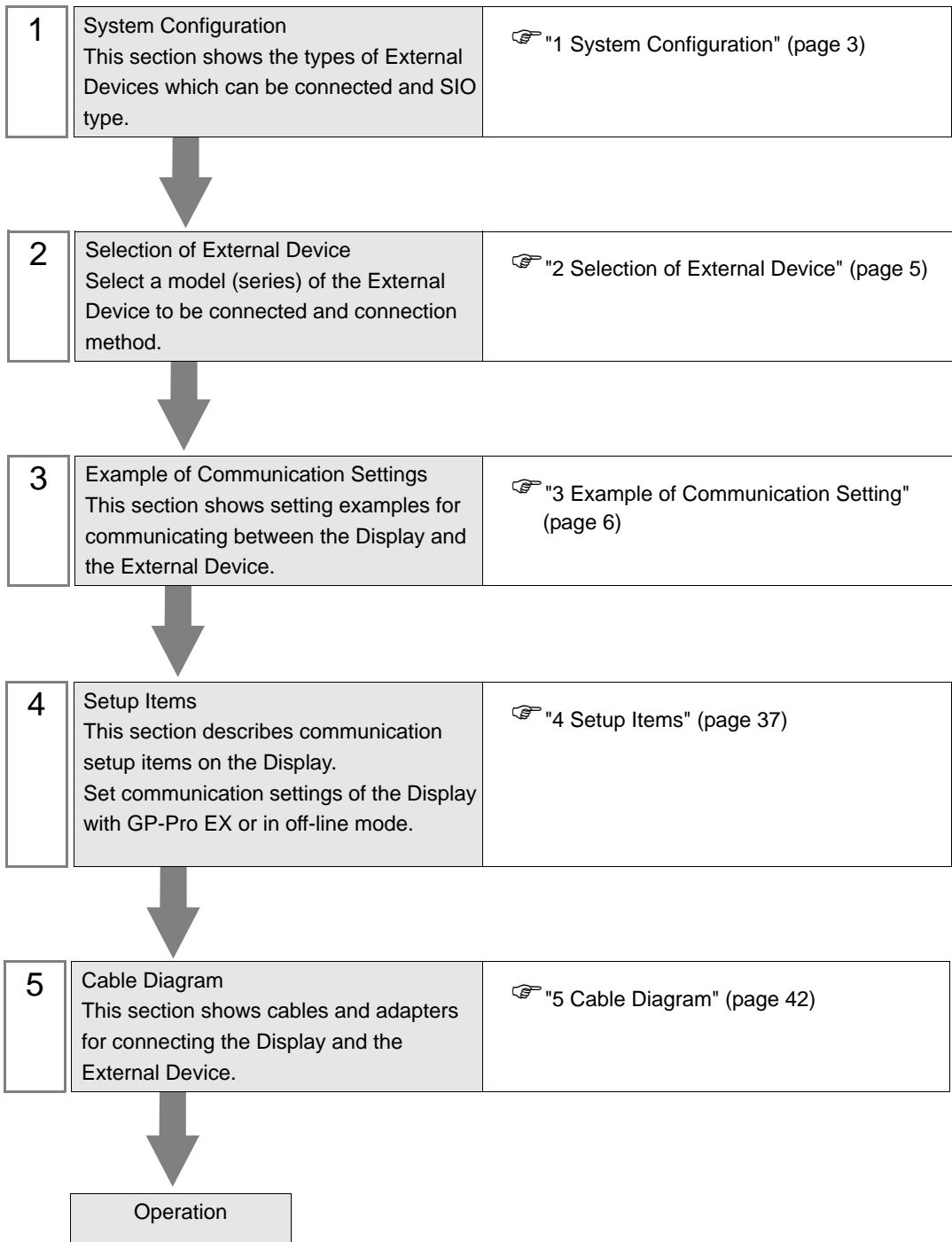
MEMOBUS SIO Driver

| | | |
|---|---------------------------------------|----|
| 1 | System Configuration..... | 3 |
| 2 | Selection of External Device | 5 |
| 3 | Example of Communication Setting..... | 6 |
| 4 | Setup Items..... | 37 |
| 5 | Cable Diagram | 42 |
| 6 | Supported Device..... | 62 |
| 7 | Device Code and Address Code..... | 63 |
| 8 | Error Messages..... | 64 |

Introduction

This manual describes how to connect the Display (GP3000 series) and the External Device (target PLC).

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



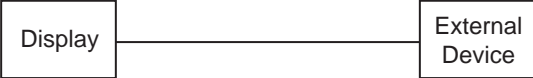
1 System Configuration

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

| Series | CPU | Link I/F | SIO Type | Setting Example | Cable Diagram |
|----------------------------|-----------|---------------------------------|------------------------------|--------------------------------------|--------------------------------------|
| Control Pack | CP-9200SH | CN1 on 217IF | RS232C | "3.1 Setting Example 1" (page 6) | " Cable Diagram 1" (page 42) |
| | | CN2 on 217IF | RS232C | "3.1 Setting Example 1" (page 6) | " Cable Diagram 2" (page 43) |
| | | CN3 on 217IF | RS422/485 (4wire) | "3.2 Setting Example 2" (page 11) | " Cable Diagram 3" (page 44) |
| MP900 | MP920 | PORT1, PORT2 on the CPU unit | RS232C | "3.3 Setting Example 3" (page 16) | " Cable Diagram 1" (page 42) |
| | | CN1, CN2 on 217IF | RS232C | "3.3 Setting Example 3" (page 16) | " Cable Diagram 9" (page 61) |
| | | CN3 on 217IF | RS422 (4wire) | "3.4 Setting Example 4" (page 19) | " Cable Diagram 4" (page 47) |
| | | | RS485 (2wire) | "3.5 Setting Example 5" (page 22) | " Cable Diagram 5" (page 50) |
| | MP930 | PORT1, PORT2 on the CPU unit | RS232C | "3.3 Setting Example 3" (page 16) | " Cable Diagram 1" (page 42) |
| | MP940 | PORT1 on the CPU unit | RS232C | "3.3 Setting Example 3" (page 16) | " Cable Diagram 6" (page 53) |
| | | PORT2 on the CPU unit | RS422 (4wire) | "3.4 Setting Example 4" (page 19) | " Cable Diagram 7" (page 54) |
| | | | RS485 (2wire) | "3.5 Setting Example 5" (page 22) | " Cable Diagram 8" (page 57) |
| | MP2000 | MP2300 MP2200 | Serial port on CP218IF-01 | RS232C | "3.6 Setting Example 6" (page 25) |
| Serial port on 260IF-01 | | | RS232C | "3.6 Setting Example 6" (page 25) | " Cable Diagram 1" (page 42) |
| Serial port on 261IF-01 | | | RS232C | "3.6 Setting Example 6" (page 25) | " Cable Diagram 1" (page 42) |
| Serial port on 217IF-01 | | | RS232C | "3.6 Setting Example 6" (page 25) | " Cable Diagram 1" (page 42) |
| | | | RS422 (4wire) | "3.7 Setting Example 7" (page 29) | " Cable Diagram 7" (page 54) |
| | | | RS485 (2wire) | "3.8 Setting Example 8" (page 33) | " Cable Diagram 8" (page 57) |

■ Connection Configuration

- 1:1 Connection



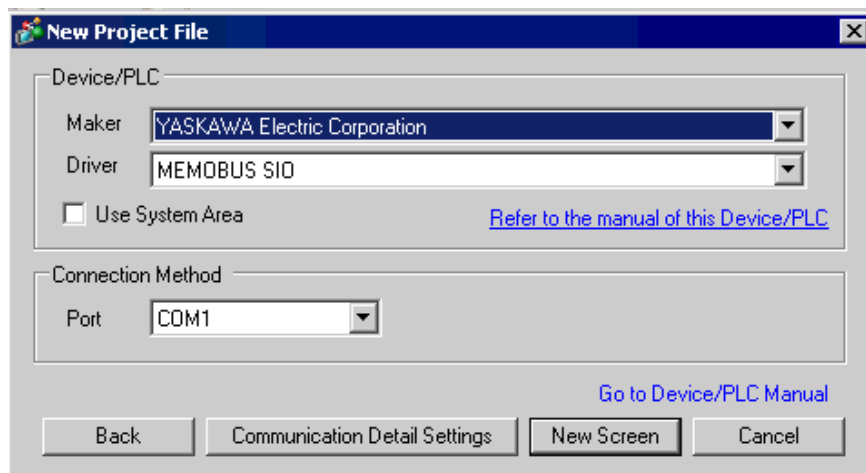
- 1:n Connection

You can connect maximum 16 units of External Device to 1 unit of GP.



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 "YASUKAWA Electric Corporation". |
| Driver | Select a model (series) of the External Device to be connected and connection method. Select "MEMOBUS SIO". Check the External Device which can be connected in "MEMOBUS SIO" in system configuration. ☞ "1 System Configuration" (page 3) |
| Use System Area | Check this option when you synchronize the system data area of Display and the device (memory) of External Device. When synchronized, you can use the ladder program of External Device to switch the display or display the window on the display. Cf. GP-Pro EX Reference Manual "Appendix 1.4 LS Area (only for direct access method)" This can be also set with GP-Pro EX or in off-line mode of Display. Cf. GP-Pro EX Reference Manual " 6.13.6 Setting Guide of [System Setting Window]■[Main Unit Settings] Settings Guide◆System Area Setting" Cf. GP3000 Series User Manual "4.3.6 System Area Setting" |
| 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

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker 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)

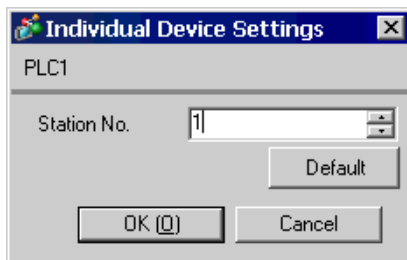
RI / VCC RI VCC

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 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.

**◆ Notes**

- Conform the head address of the system area to GMW00000.
- When you connect 217IF of which version is "*****_21700_*****" or lower to the Display, set [Wait To Send] to [20ms].

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "CP717" and select [Group Folder] from [New].

NOTE • Please refer to the manual of the ladder software for the version which supports the Control Pack Series.

- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "CP717". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "CP717". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name and CPU name and select [CP-9200SH] for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "CP717". The CPU folder (ex. "CPU1") is created under the PLC folder. Double-click [CPU1] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC]-[CPU1] in the browser of "CP717". Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select [CP-9200SH] in [Module Type] of the [00] field in the [Rack 1] tab.
- 11 Select [CP-217] in [Module Type] of the same [No.] field as your slot number to define the link unit.
- 12 Double-click the same [No.] as your slot number to display the setting window.

| Setup Items | Setup Description |
|-----------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-232C |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |

◆ Notes

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

3.2 Setting Example 2

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker 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

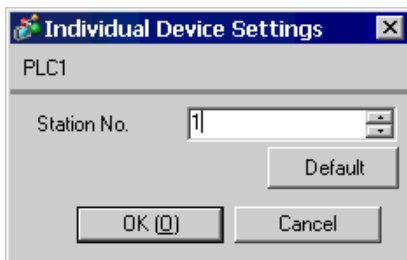
Allowable No. of Device/PLCs: 16 Unit(s)

| No. | Device Name | Settings |
|-----|-------------|---------------|
| 1 | PLC1 | Station No.=1 |

◆ 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.

**◆ Notes**

- Conform the head address of the system area to GMW00000.
- When you connect 217IF of which version is "*****_21700_*****" or lower to the Display, set [Wait To Send] to [20ms].

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "CP717" and select [Group Folder] from [New].

| |
|-------------|
| NOTE |
|-------------|

- Please refer to the manual of the ladder software for the version which supports the Control Pack Series.

- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "CP717". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "CP717". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name and CPU name and select [CP-9200SH] for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "CP717". The CPU folder (ex. "CPU1") is created under the PLC folder. Double-click [CPU1] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC]-[CPU1] in the browser of "CP717". Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select [CP-9200SH] in [Module Type] of the [00] field in the [Rack 1] tab.
- 11 Select [CP-217] in [Module Type] of the same [No.] field as your slot number to define the link unit.
- 12 Double-click the same [No.] as your slot number to display the setting window.

| Setup Items | Setup Description |
|-----------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-485 |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |

◆ Notes

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


3.3 Setting Example 3

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device 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.

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "MPE720" and select [Group Folder] from [New].
- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "MPE720". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "MPE720". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name and CPU name and select your External Device for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "MPE720". The CPU folder (ex. "CPU1") is created under the PLC folder. Double-click [CPU1] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC]-[CPU1] in the browser of "MPE720".
Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select your link unit in [Module Type] of the [00] field in the [Rack 1] tab.
- 11 Double-click the same [No.] field as your slot number to display the setting window.

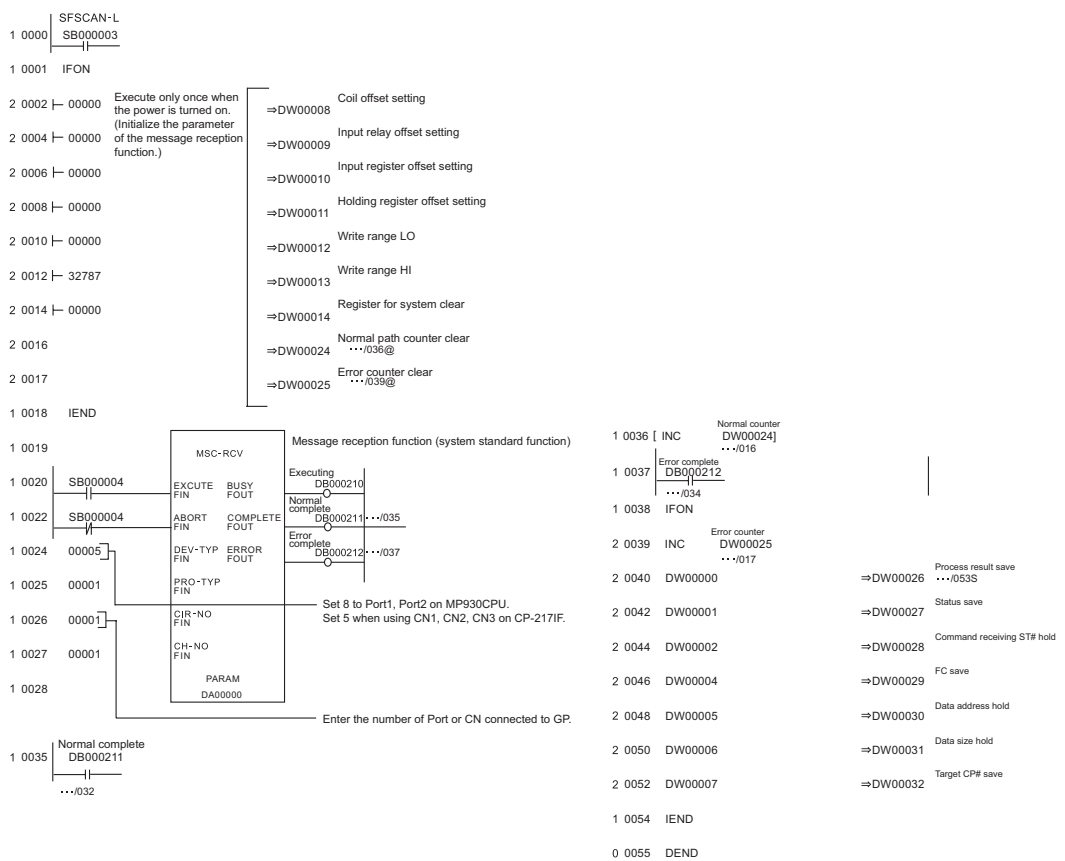
| Setup Items | Setup Description |
|---------------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-232C |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |
| Automatically Reception*1 | Disable |

*1 When [Automatically Reception] is set to [Disable], the ladder program is required to communicate the Display with the External Device. It is not required in case of [Enable].

◆ Example of Ladder Program

NOTE

- The ladder program is required when connecting the Display to CN1, CN2, CN3 on the transmission module CP-217IF by YASUKAWA Electric Corporation, or to the memobus port (port1, port2) on the CPU.
- This ladder program example enables to communicate one connecting port with the Display. Note that each connecting port requires the ladder program when you use multiple connecting ports to communicate simultaneously.
- Use the ladder software to perform the communication settings on the External Device. Those settings are not performed in this ladder program.



◆ Notes

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

3.4 Setting Example 4

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker: YASKAWA Electric Corporation Series: MEMOBUS SIO Port: COM1

Text Data Mode: 1 [Change](#)

Communication Settings

SID Type: RS232C RS422/485(2wire) RS422/485(4wire)

Speed: 19200

Data Length: 7 8

Parity: NONE EVEN ODD

Stop Bit: 1 2

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

Timeout: 3 (sec)

Retry: 2

Wait To Send: 0 (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.

Default

Device-Specific Settings

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

No. Device Name Settings

1 PLC1 Station No.=1

◆ 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.

Individual Device Settings

PLC1

Station No. 1

Default

OK (O) Cancel

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "MPE720" and select [Group Folder] from [New].
- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "MPE720". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "MPE720". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name and CPU name and select your External Device for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "MPE720". The CPU folder (ex. "CPU1") is created under the PLC folder. Double-click [CPU1] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC]-[CPU1] in the browser of "MPE720".
Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select your link unit in [Module Type] of the [00] field in the [Rack 1] tab.
- 11 Double-click the same [No.] field as your slot number to display the setting window.

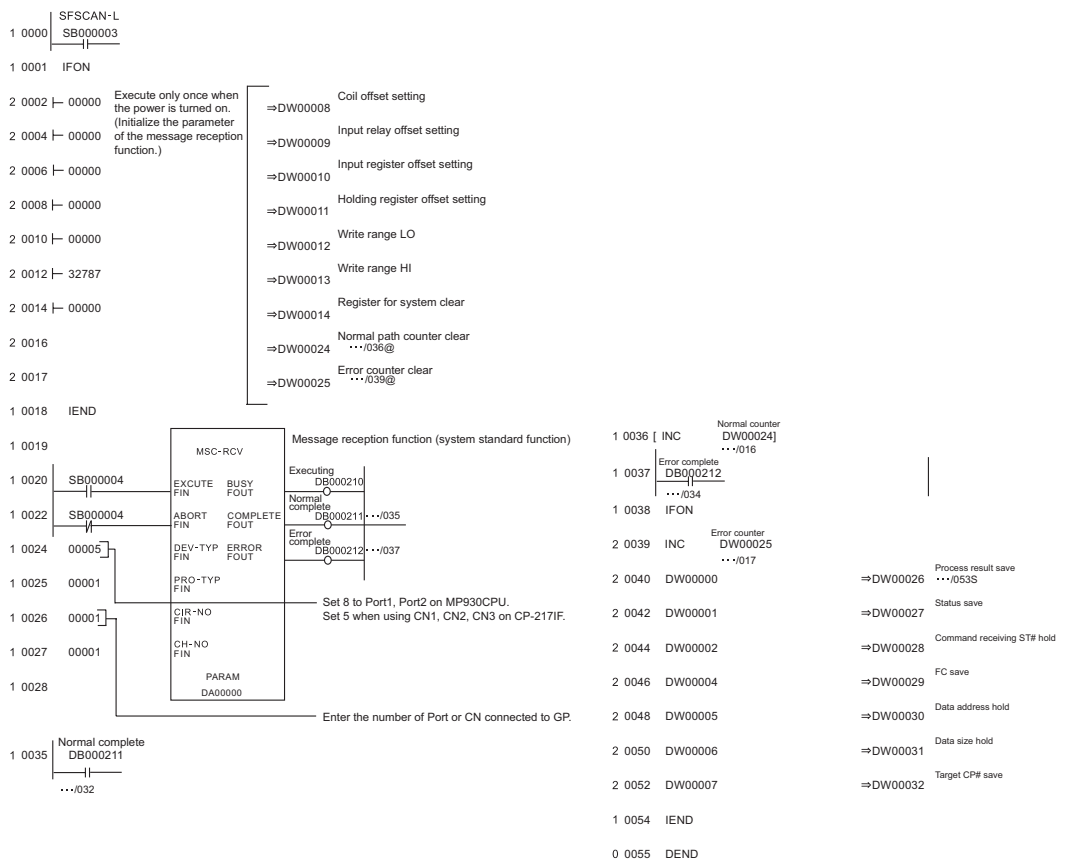
| Setup Items | Setup Description |
|---------------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-485 |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |
| Automatically Reception*1 | Disable |

*1 When [Automatically Reception] is set to [Disable], the ladder program is required to communicate the Display with the External Device. It is not required in case of [Enable].

◆ Example of Ladder Program

NOTE

- The ladder program is required when connecting the Display to CN1, CN2, CN3 on the transmission module CP-217IF by YASUKAWA Electric Corporation, or to the memobus port (port1, port2) on the CPU.
- This ladder program example enables to communicate one connecting port with the Display. Note that each connecting port requires the ladder program when you use multiple connecting ports to communicate simultaneously.
- Use the ladder software to perform the communication settings on the External Device. Those settings are not performed in this ladder program.



◆ Notes

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

3.5 Setting Example 5

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker 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.=1 |

◆ 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.

Individual Device Settings

PLC1

Station No.

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "MPE720" and select [Group Folder] from [New].
- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "MPE720". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "MPE720". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name and CPU name and select your External Device for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "MPE720". The CPU folder (ex. "CPU1") is created under the PLC folder. Double-click [CPU1] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC]-[CPU1] in the browser of "MPE720".
Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select your link unit in [Module Type] of the [00] field in the [Rack 1] tab.
- 11 Double-click the same [No.] field as your slot number to display the setting window.

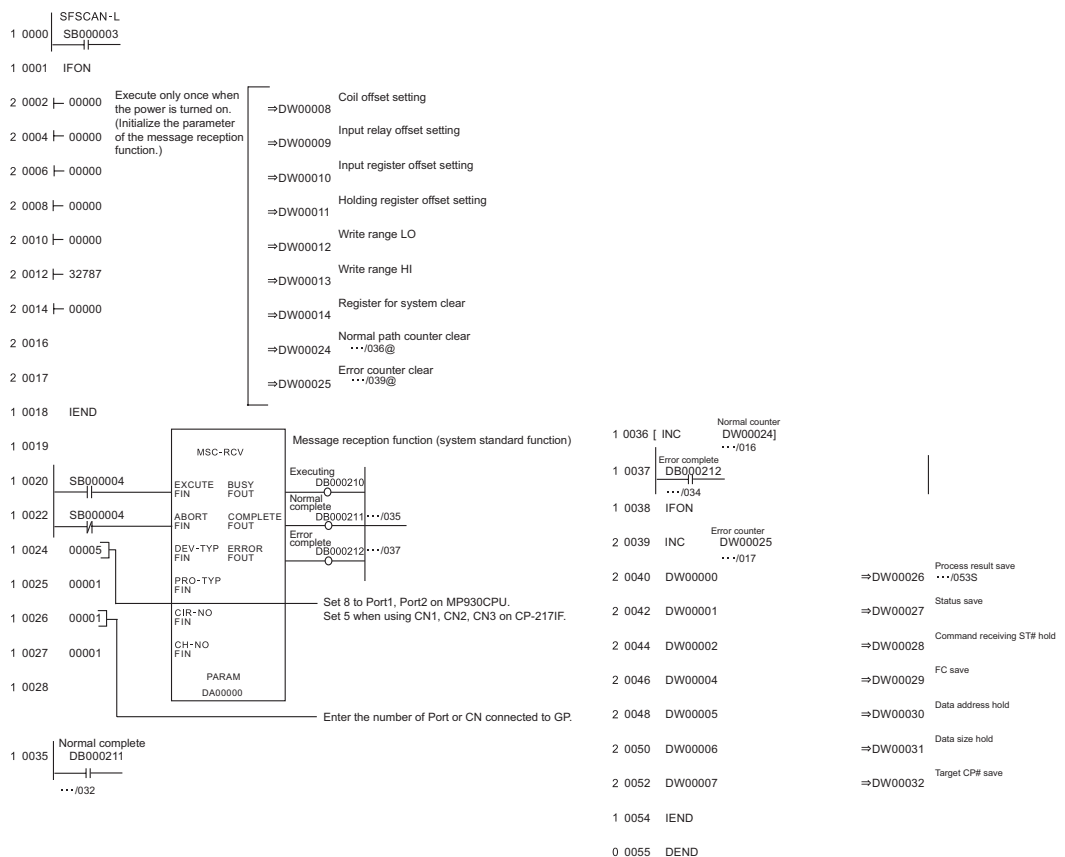
| Setup Items | Setup Description |
|---------------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-485 |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |
| Automatically Reception*1 | Disable |

*1 When [Automatically Reception] is set to [Disable], the ladder program is required to communicate the Display with the External Device. It is not required in case of [Enable].

◆ Example of Ladder Program

NOTE

- The ladder program is required when connecting the Display to CN1, CN2, CN3 on the transmission module CP-217IF by YASUKAWA Electric Corporation, or to the memobus port (port1, port2) on the CPU.
- This ladder program example enables to communicate one connecting port with the Display. Note that each connecting port requires the ladder program when you use multiple connecting ports to communicate simultaneously.
- Use the ladder software to perform the communication settings on the External Device. Those settings are not performed in this ladder program.



◆ Notes

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


3.6 Setting Example 6

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device 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.

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "MPE720" and select [Group Folder] from [New].
- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "MPE720". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "MPE720". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name (ex. "PLC") and select your External Device for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "MPE720". Double-click [PLC] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC] in the browser of "MPE720". Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select your link unit in [Module Type] of the same [No.] field as your slot number in [Controller].
- 11 Double-click the same [No.] field as your slot number to display the setting window.

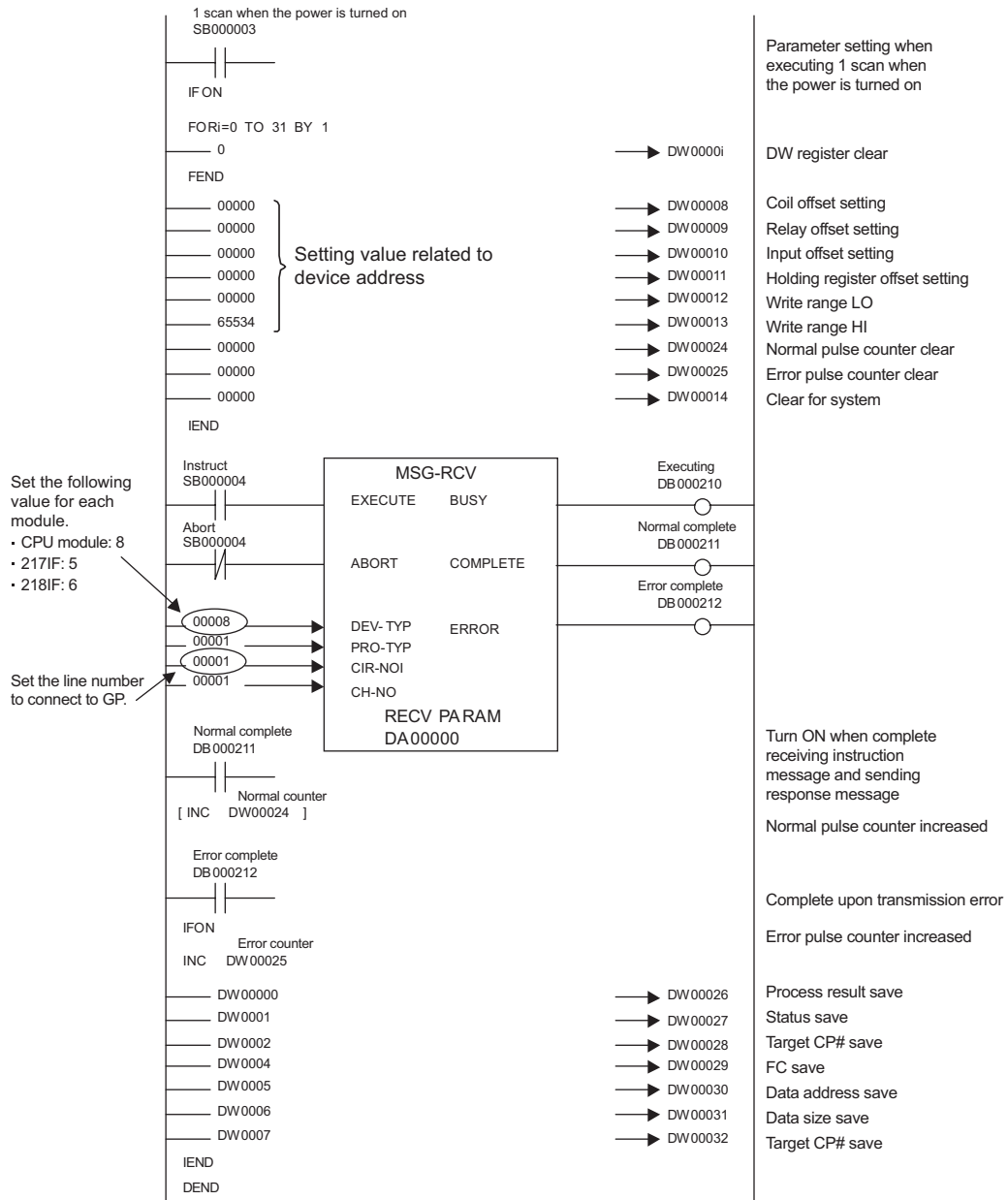
| Setup Items | Setup Description |
|---------------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-232C |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |
| Automatically Reception*1 | Disable |

*1 When [Automatically Reception] is set to [Disable], the ladder program is required to communicate the Display with the External Device. It is not required in case of [Enable].

◆ Example of Ladder Program

NOTE

- This ladder program example enables to communicate one connecting port with the Display. Note that each connecting port requires the ladder program when you use multiple connecting ports to communicate simultaneously.
- Note that each connector requires the ladder program when you connect the RS232C connector and the RS422 connector on 217IF-01, and the RS232C connector on 218IF-01 simultaneously.
- Use the ladder software to perform the communication settings on the External Device. Those settings are not performed in this ladder program.



◆ Notes

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


3.7 Setting Example 7

■ Settings of GP-Pro EX

◆ Communication Settings

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

◆ Device 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.

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "MPE720" and select [Group Folder] from [New].
- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "MPE720". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "MPE720". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name (ex. "PLC") and select your External Device for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "MPE720". Double-click [PLC] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC] in the browser of "MPE720". Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select your link unit in [Module Type] of the same [No.] field as your slot number in [Controller].
- 11 Double-click the same [No.] field as your slot number to display the setting window.

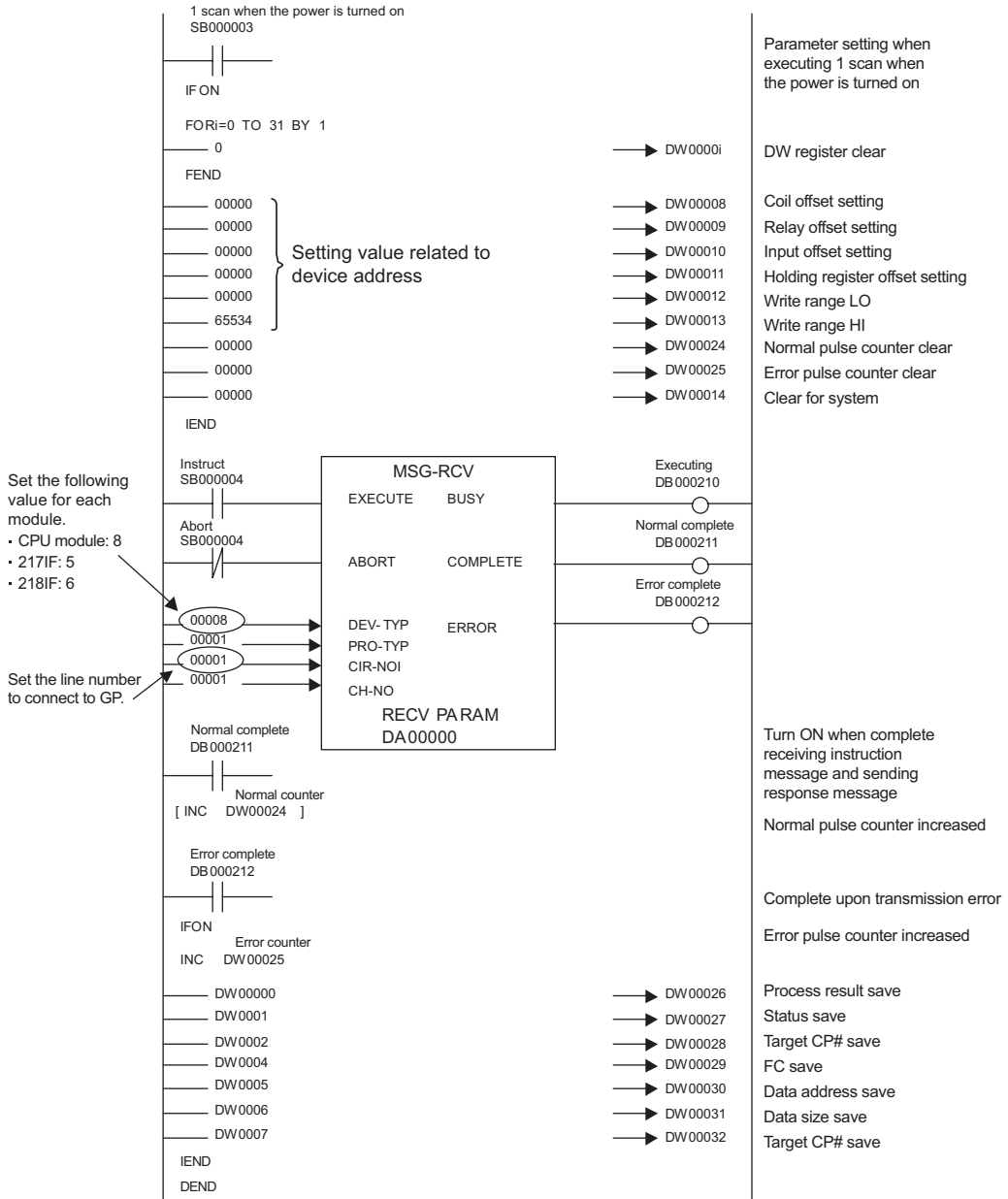
| Setup Items | Setup Description |
|---------------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS-485 |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |
| Automatically Reception*1 | Disable |

*1 When [Automatically Reception] is set to [Disable], the ladder program is required to communicate the Display with the External Device. It is not required in case of [Enable].

◆ Example of Ladder Program

NOTE

- This ladder program example enables to communicate one connecting port with the Display. Note that each connecting port requires the ladder program when you use multiple connecting ports to communicate simultaneously.
- Note that each connector requires the ladder program when you connect the RS232C connector and the RS422 connector on 217IF-01, and the RS232C connector on 218IF-01 simultaneously.
- Use the ladder software to perform the communication settings on the External Device. Those settings are not performed in this ladder program.



◆ Notes

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

3.8 Setting Example 8

■ Settings of GP-Pro EX

◆ Communication Settings

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

Device/PLC 1

Summary [Change Device/PLC](#)

Maker 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.=1 |

◆ 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.

Individual Device Settings

PLC1

Station No.

■ Settings of External Device

◆ Ladder Software Setting

- 1 Right-click [root] in the browser of the ladder software "MPE720" and select [Group Folder] from [New].
- 2 The [Make New Folder] dialog box is displayed. Enter the optional group name (ex. "GROUP") and click [OK].
- 3 The group folder (ex. "GROUP") is created under the [root] in the browser of "MPE720". Right-click the folder and select [Order Folder] from [New].
- 4 The [Make New Folder] dialog box is displayed. Enter the optional order name (ex. "ORDER") and click [OK].
- 5 [ORDER] is created under the [root]-[GROUP] in the browser of "MPE720". Right-click it and select [Controller Folder] from [Create New Folder].
- 6 The [Controller Configuration] dialog box is displayed. Enter the optional controller name (ex. "PLC") and select your External Device for [Controller Type], then click [OK].
- 7 The PLC folder (ex. "PLC") is created under the [root]-[GROUP] in the browser of "MPE720". Double-click [PLC] to display the [CPU Log On] dialog box.
- 8 Enter "User Name" and "Password" optionally in the [CPU Log On] dialog box and click [OK].
- 9 Multiple folders are created under the [root]-[GROUP]-[PLC] in the browser of "MPE720". Double-click [Definition Folder]-[Module Configuration] to open the [Engineering Manager] window.
- 10 Select your link unit in [Module Type] of the same [No.] field as your slot number in [Controller].
- 11 Double-click the same [No.] field as your slot number to display the setting window.

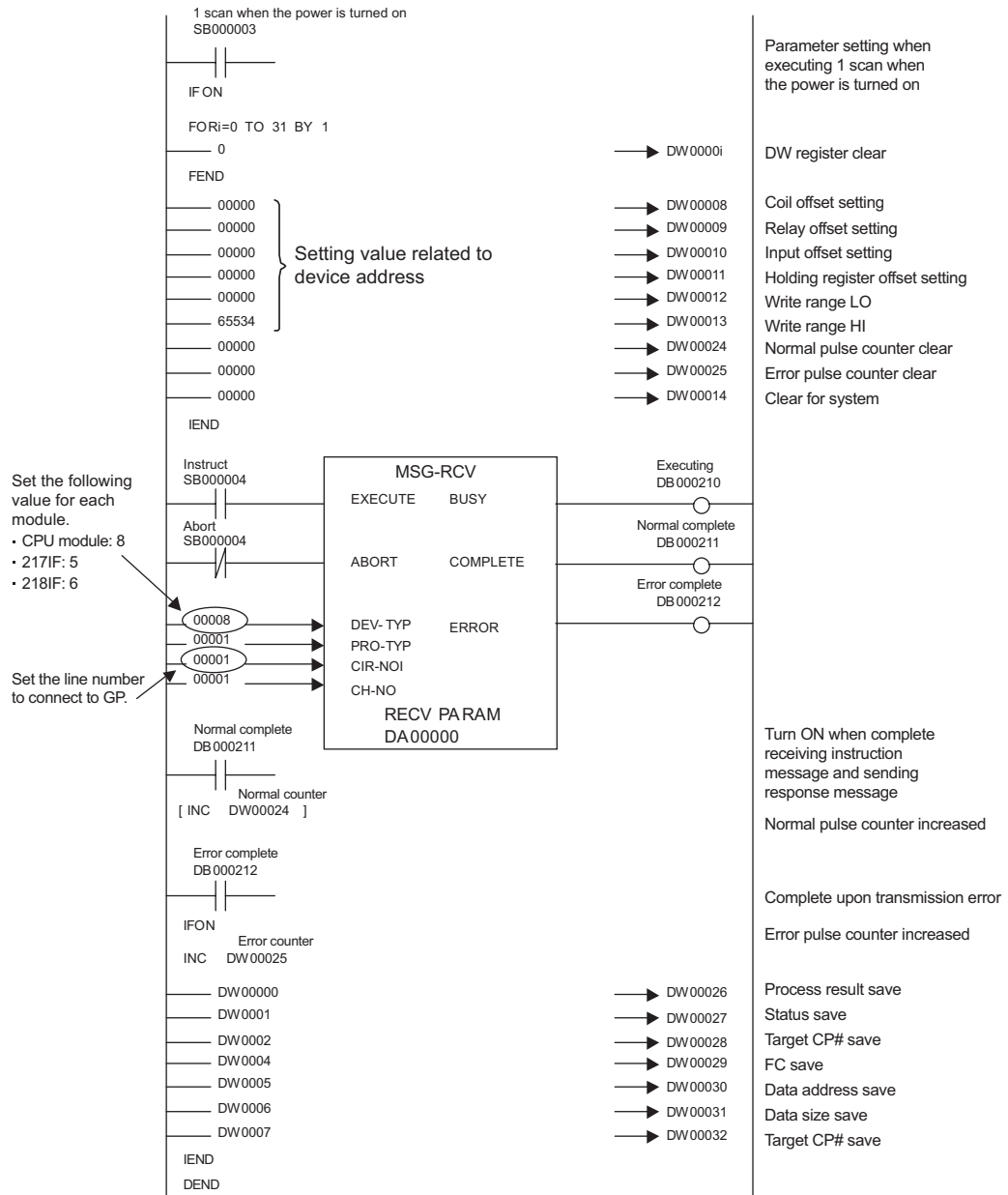
| Setup Items | Setup Description |
|---------------------------|---------------------------------------|
| Transmission Protocol | MEMOBUS |
| Master/Slave | Slave |
| Device Address | Device address of the External Device |
| Serial I/F | RS485 |
| Transmission Mode | RTU |
| Data Length | 8Bit |
| Parity Bit | even |
| Stop Bit | 1Stop |
| Baud Rate | 19.2K |
| Sending | Disable |
| Automatically Reception*1 | Disable |

*1 When [Automatically Reception] is set to [Disable], the ladder program is required to communicate the Display with the External Device. It is not required in case of [Enable].

◆ Example of Ladder Program

NOTE

- This ladder program example enables to communicate one connecting port with the Display. Note that each connecting port requires the ladder program when you use multiple connecting ports to communicate simultaneously.
- Note that each connector requires the ladder program when you connect the RS232C connector and the RS422 connector on 217IF-01, and the RS232C connector on 218IF-01 simultaneously.
- Use the ladder software to perform the communication settings on the External Device. Those settings are not performed in this ladder program.



◆ Notes

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

4 Setup Items

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

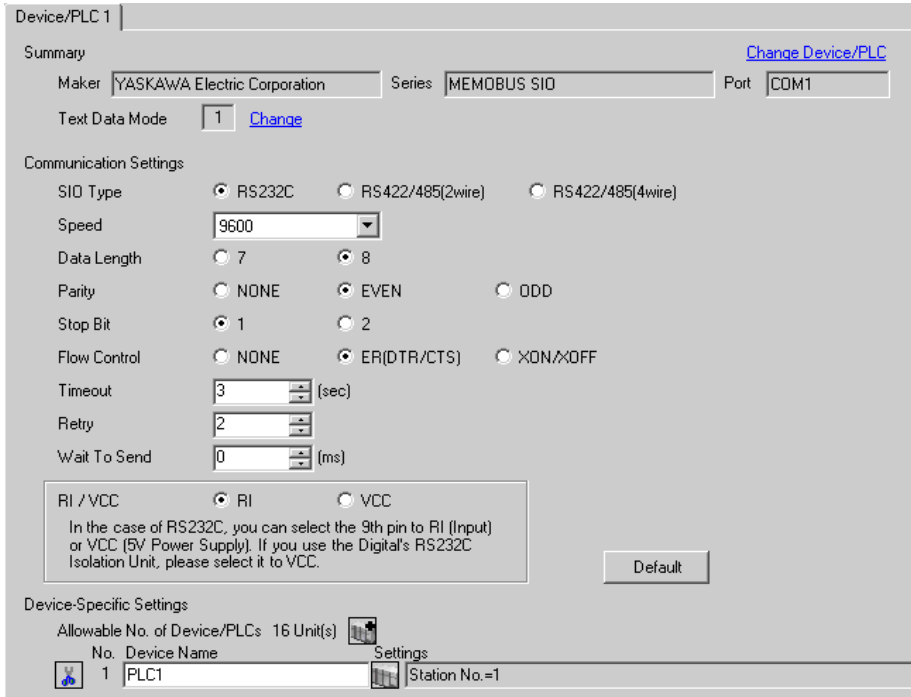
The setting of each parameter must be identical to that of External Device.

 "3 Example of Communication Setting" (page 6)

4.1 Setup Items in GP-Pro EX

■ Communication Settings

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



Device/PLC 1

Summary [Change Device/PLC](#)

Maker 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.

[Default](#)

Device-Specific Settings

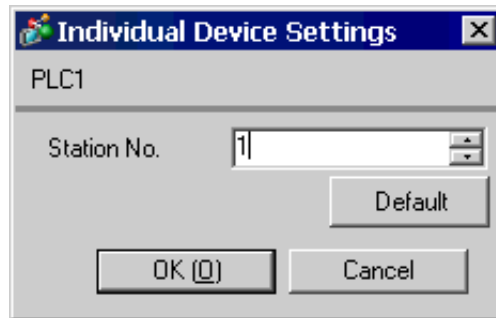
Allowable No. of Device/PLCs 16 Unit(s)

| No. | Device Name | Settings |
|-----|-------------|---------------|
| 1 | PLC1 | Station No.=1 |

| Setup Items | Setup Description |
|--------------|--|
| SIO Type | Select the SIO type to communicate with the External Device. |
| Speed | Select speed between External Device and 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 Display waits for the response from 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. |

| 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. |
| RI/VCC | You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. |

◆ Device Setting



| Setup Items | Setup Description |
|----------------|---|
| Station No. *1 | Enter a station number of the External Device, using 1 to 32. |

*1 Do not set the duplicate station No. in case of RS422/485 (2wire) or RS422/485 (4wire).

4.2 Setup Items in Off-Line Mode

- NOTE** • Please refer to GP3000 Series User Manual for more information on how to enter off-line mode or about operation.
Cf. GP3000 Series User Manual "Chapter 4 Settings"

◆ 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 | | |
|------------------|--------|--|--------|------------------------|
| MEMOBUS SIO | | | [COM1] | Page 1/1 |
| SIO Type | | RS232C | | |
| Speed | | 19200 | | |
| Data Length | | <input type="radio"/> 7 <input checked="" type="radio"/> 8 | | |
| Parity | | <input type="radio"/> NONE <input checked="" type="radio"/> EVEN <input type="radio"/> ODD | | |
| Stop Bit | | <input checked="" type="radio"/> 1 <input type="radio"/> 2 | | |
| Flow Control | | ER(DTR/CTS) | | |
| Timeout(s) | | 3 | ▼ ▲ | |
| Retry | | 2 | ▼ ▲ | |
| Wait To Send(ms) | | 0 | ▼ ▲ | |
| | Exit | | Back | 2005/09/02 13:17:41 |

| Setup Items | Setup Description |
|-------------------|--|
| SIO Type | Select the SIO type to communicate with the External Device. |
| Speed | Select speed between External Device and 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 (s) | Use an integer from 1 to 127 to enter the time (s) for which Display waits for the response from External Device. |
| Retry | In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command. |
| Wait To Send (ms) | 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 | | |
|-----------------|--------|--------|----------|------------------------|
| | | | | |
| MEMOBUS SIO | | [COM1] | Page 1/1 | |
| Device/PLC Name | | [PLC1] | | |
| Station No. | | [1] | | |
| Exit | | Back | | 2005/09/02 13:17:43 |

| 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. *1 | Enter a station number of the External Device, using 1 to 32. |

*1 Do not set the duplicate station No. in case of RS422/485 (2wire) or RS422/485 (4wire).

◆ 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 | | |
|--|--------|--------|----------|------------------------|
| | | | | |
| MEMOBUS SIO | | [COM1] | Page 1/1 | |
| RI / VCC <input checked="" type="radio"/> RI <input type="radio"/> VCC In the case of RS232C, you can select the 9th pin to RI(Input) or VCC(5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC. | | | | |
| | | Exit | Back | 2005/09/02 13:17:44 |

| Setup Items | Setup Description |
|-------------|---|
| RI/VCC | You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. |

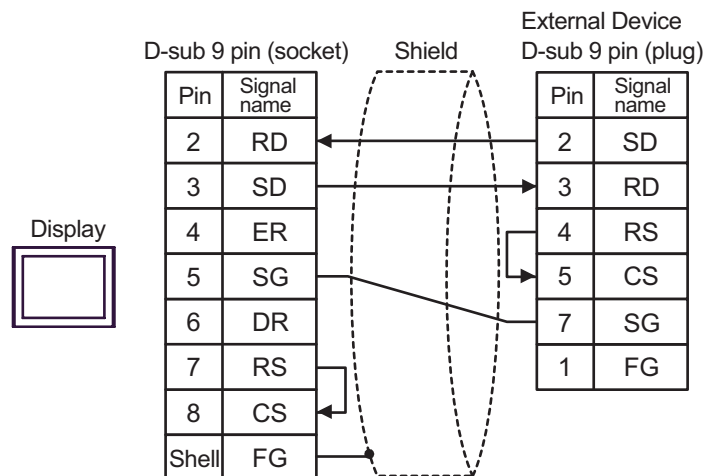
5 Cable Diagram

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

- The FG pin of the main body of the External Device 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.

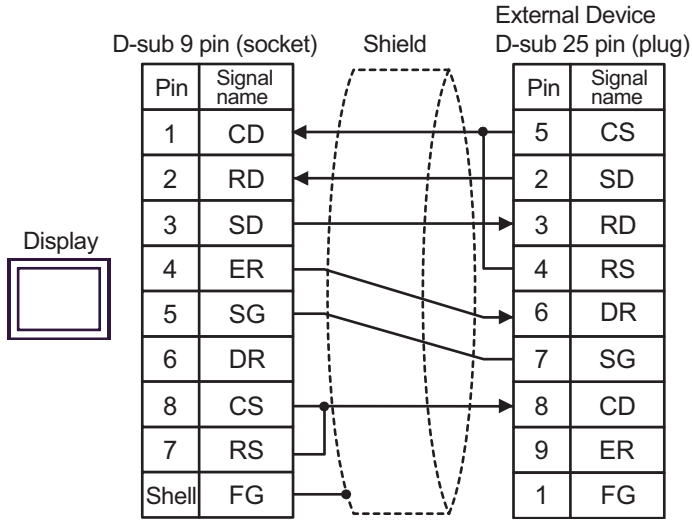
Cable Diagram 1

| Display (Connection Port) | Cable | Remarks |
|------------------------------|----------------|---------------------------------------|
| GP (COM1) | Your own cable | The cable length must be 15m or less. |



Cable Diagram 2

| Display (Connection Port) | Cable | Remarks |
|------------------------------|----------------|---------------------------------------|
| GP (COM1) | Your own cable | The cable length must be 15m or less. |

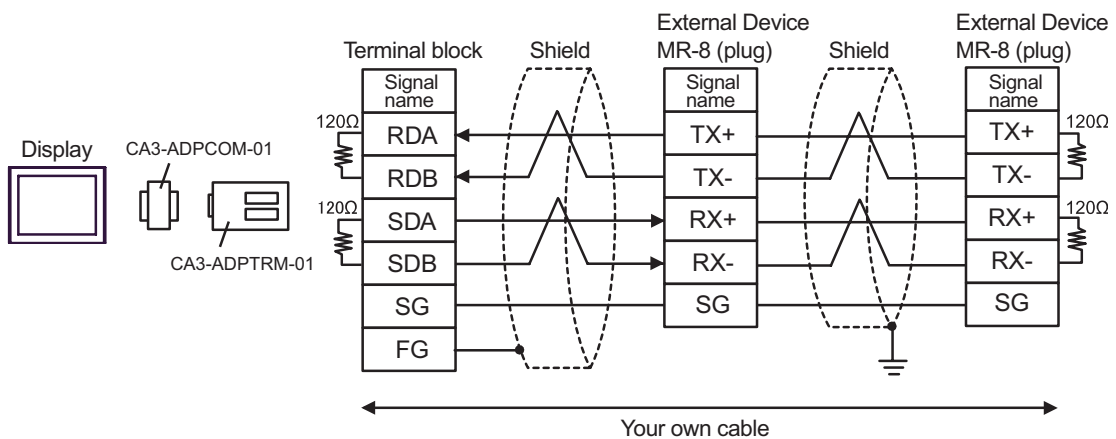


Cable Diagram 3

| Display (Connection Port) | Cable | | Remarks |
|--|-------|--|--|
| GP* ¹ (COM1) AGP-3302 (COM2) | A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | The cable length must be 300m or less. |
| | B | Your own cable | |
| GP* ¹ (COM2) | C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | |
| | D | Online adapter by Pro-face CA4-ADPONL-01 + Your own cable | |

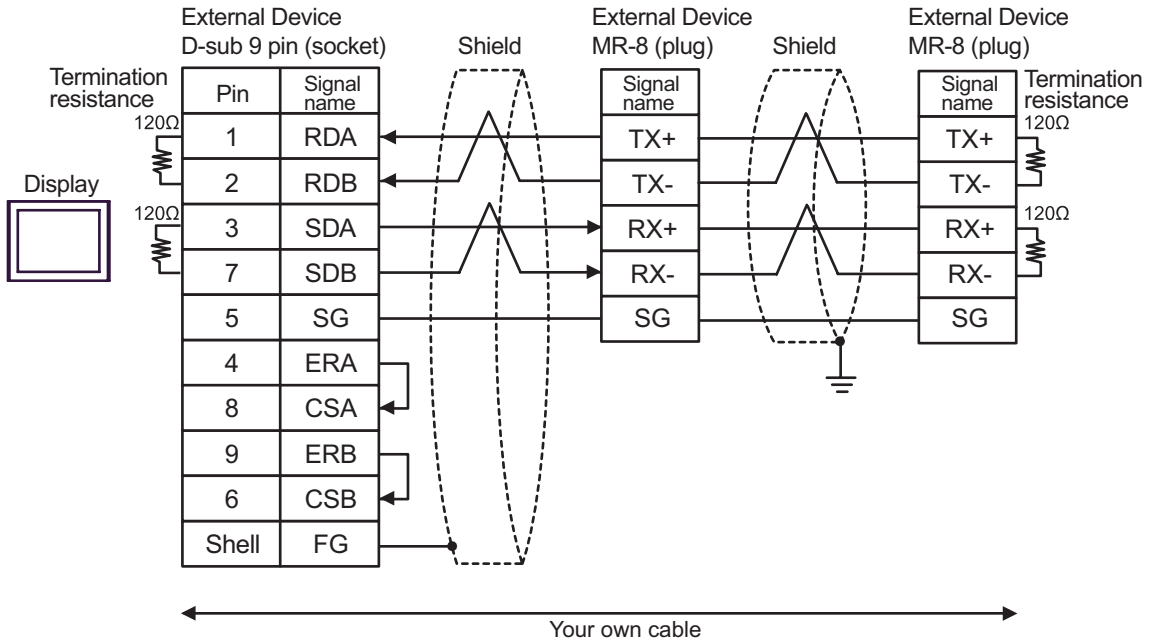
*1 All GP models except AGP-3302

- 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



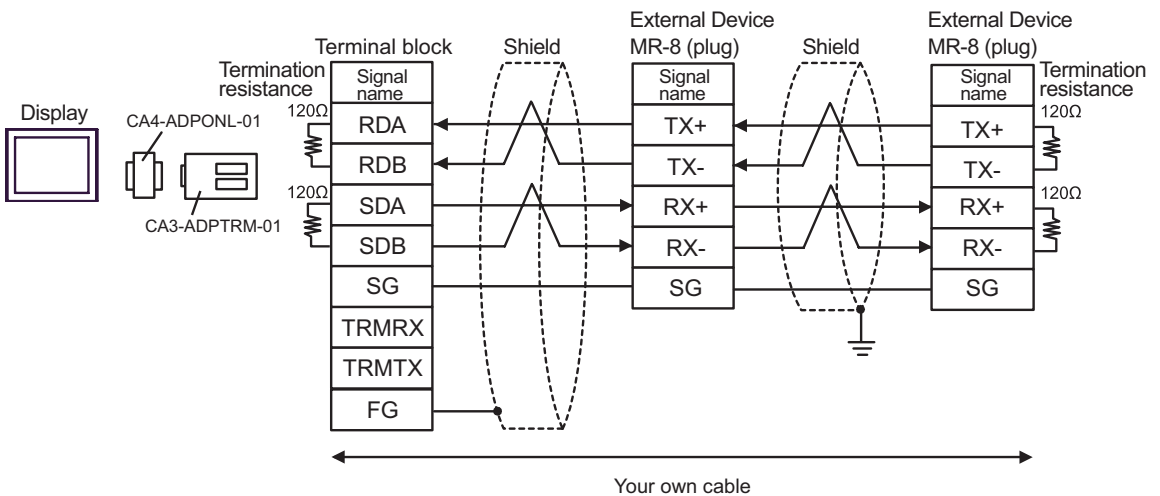
NOTE • When the External device has the SG terminal, connect it to the SG terminal of the Display.

B) When using your own cable



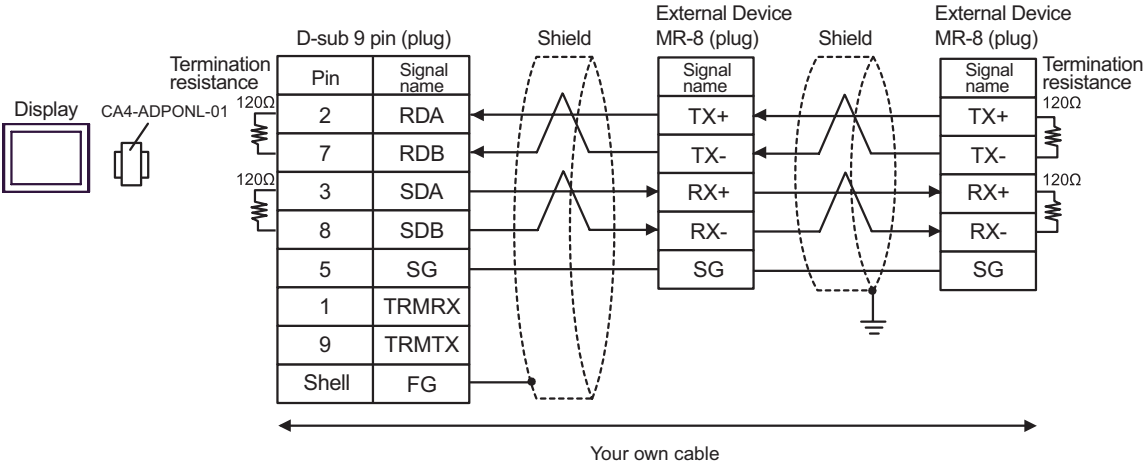
NOTE • When the External device has a SG terminal, connect it to the SG terminal of the Display.

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 • When the External device has a SG terminal, connect it to the SG terminal of the Display.

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

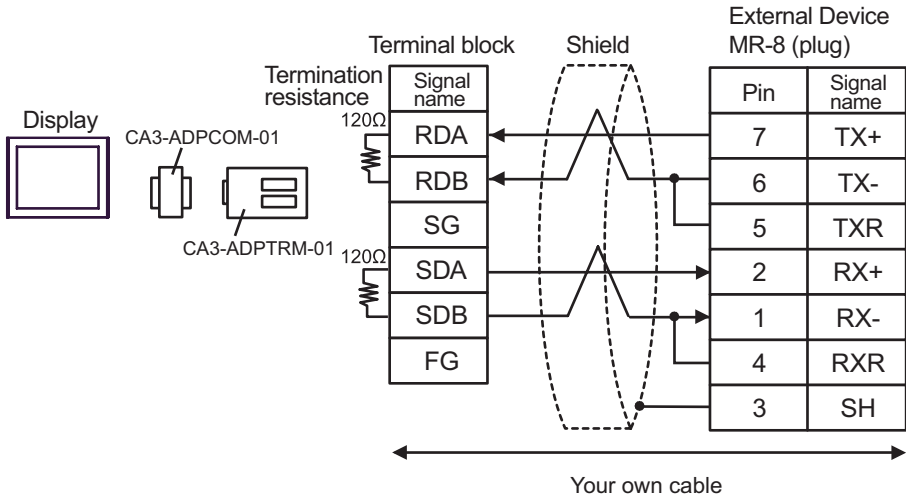


Cable Diagram 4

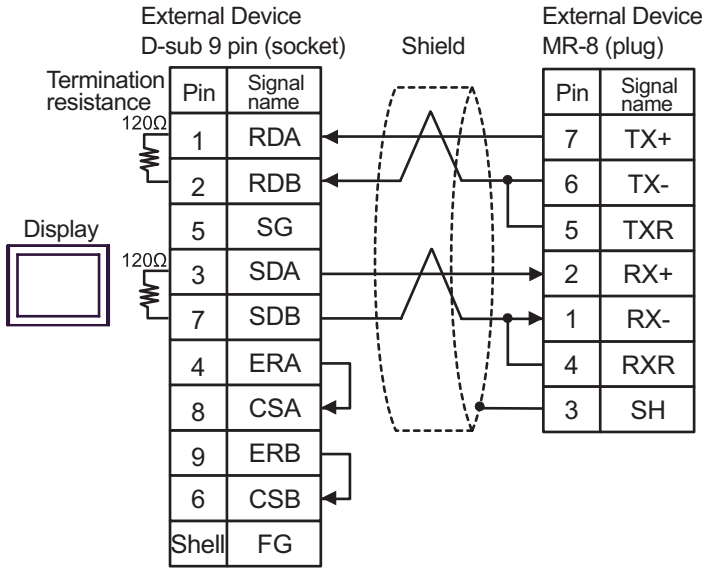
| Display (Connection Port) | Cable | | Remarks |
|--------------------------------|-------|--|---|
| GP*1 (COM1) AGP-3302 (COM2) | A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | The cable length must be 300m or less. |
| | B | Your own cable | |
| GP*1 (COM2) | C | Online adapter by Pro-face CA4-ADPONL-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | |
| | D | Online adapter by Pro-face CA4-ADPONL-01 + Your own cable | |

*1 All GP models except AGP-3302

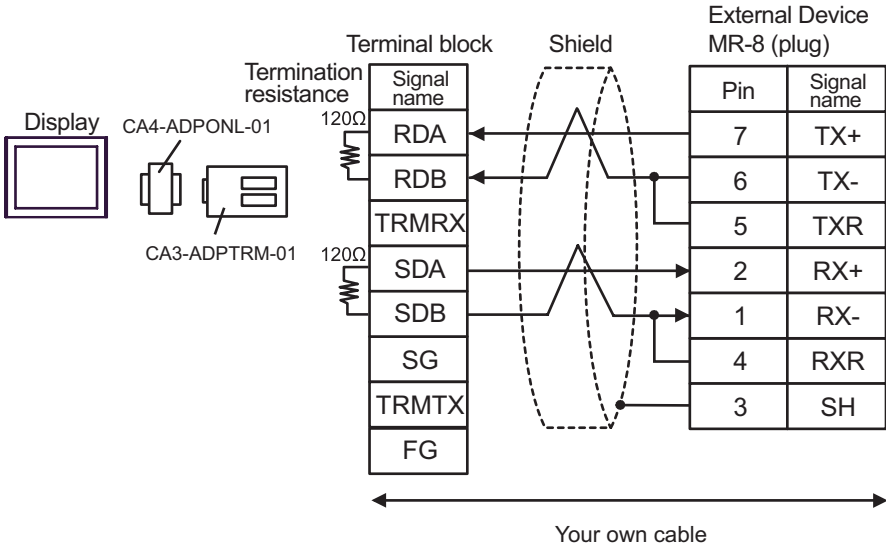
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



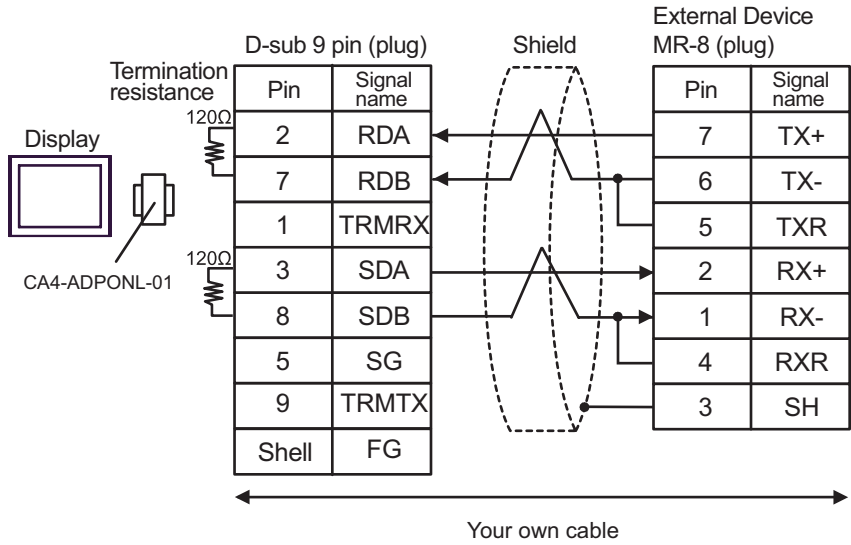
B) When using your own cable



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



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

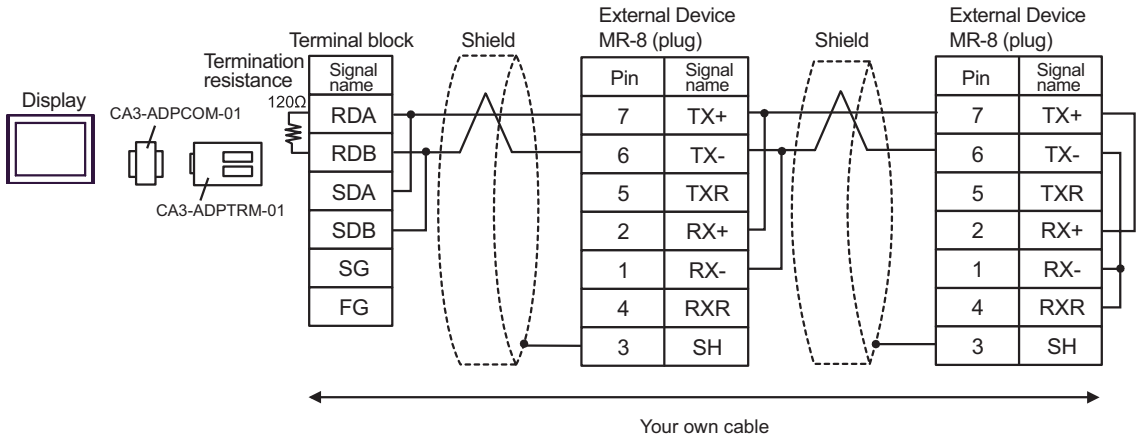


Cable Diagram 5

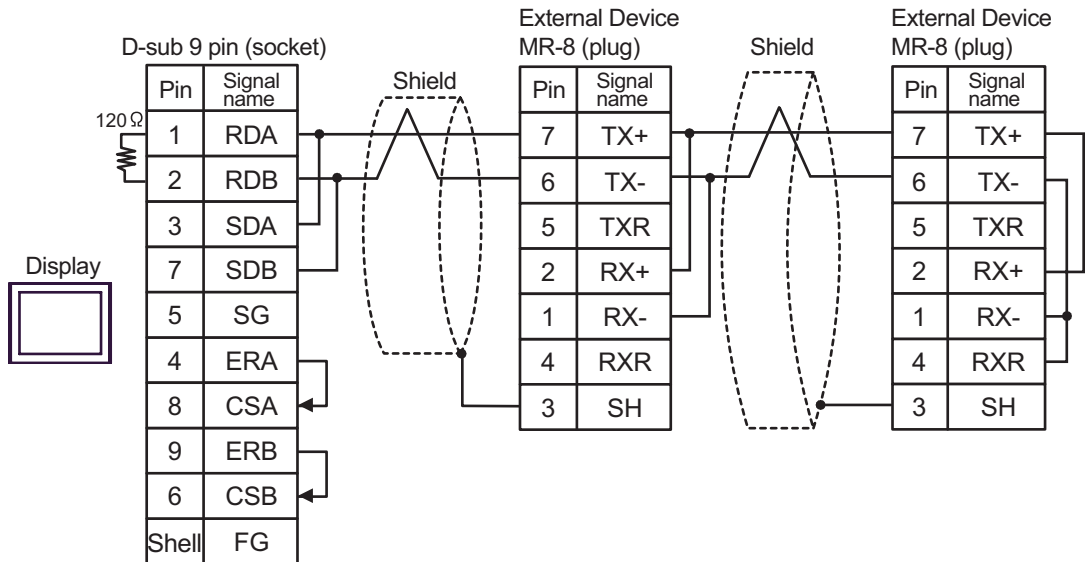
| Display (Connection Port) | Cable | | Remarks |
|--------------------------------|-------|--|---|
| GP*1 (COM1) AGP-3302 (COM2) | A | Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Your own cable | The cable length must be 300m or less. |
| | B | Your own cable | |
| GP*1 (COM2) | C | Online adapter by Pro-face (CA4-ADPONL-01) + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | |
| | D | Online adapter by Pro-face (CA4-ADPONL-01) + Your own cable | |

*1 All GP models except AGP-3302

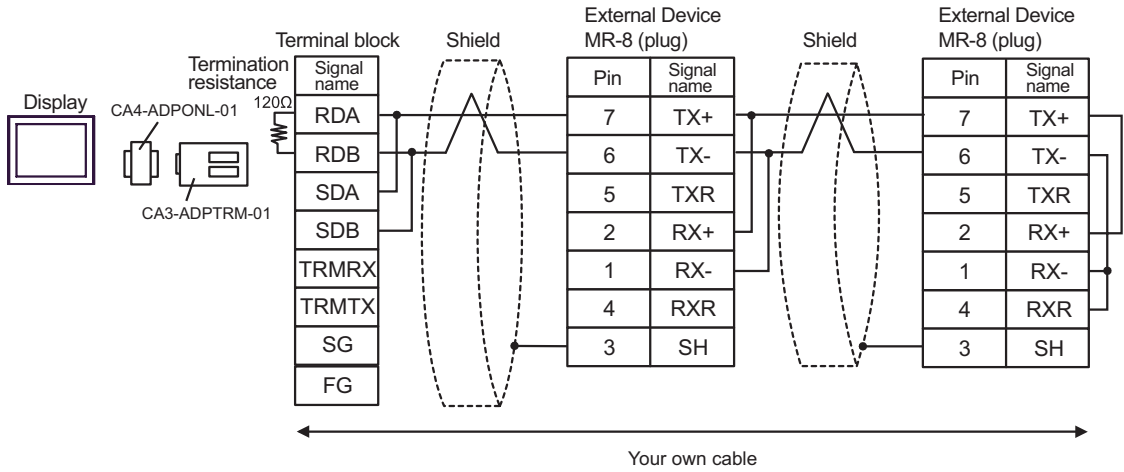
- A) When using the connector terminal block conversion adapter (CA3-ADPTRM-01), the COM port conversion adapter (CA3-ADPCOM-01) by Pro-face and your own cable



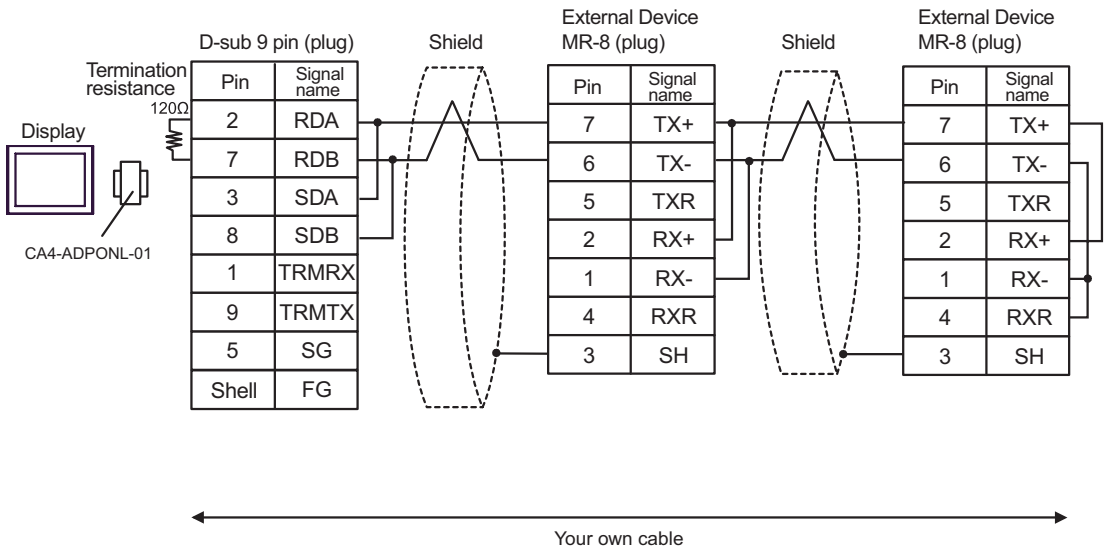
- B) When using your own cable



- 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

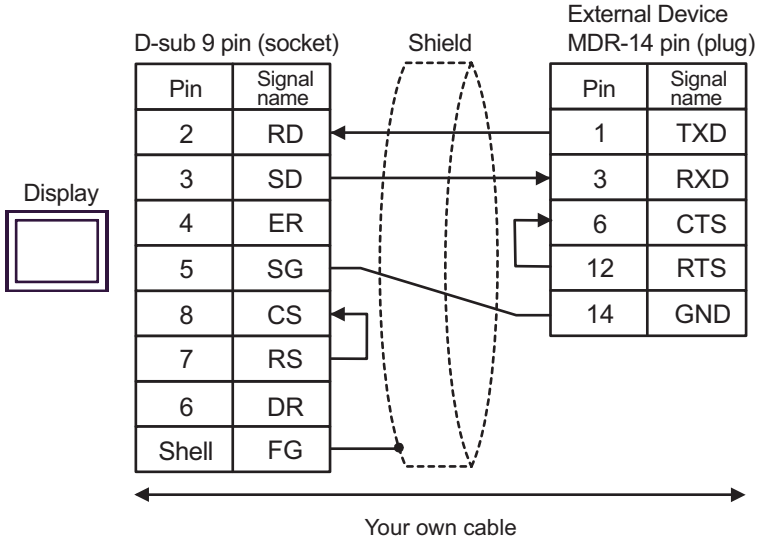


- D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable



Cable Diagram 6

| Display (Connection Port) | Cable | Remarks |
|------------------------------|----------------|---------------------------------------|
| GP (COM1) | Your own cable | The cable length must be 15m or less. |

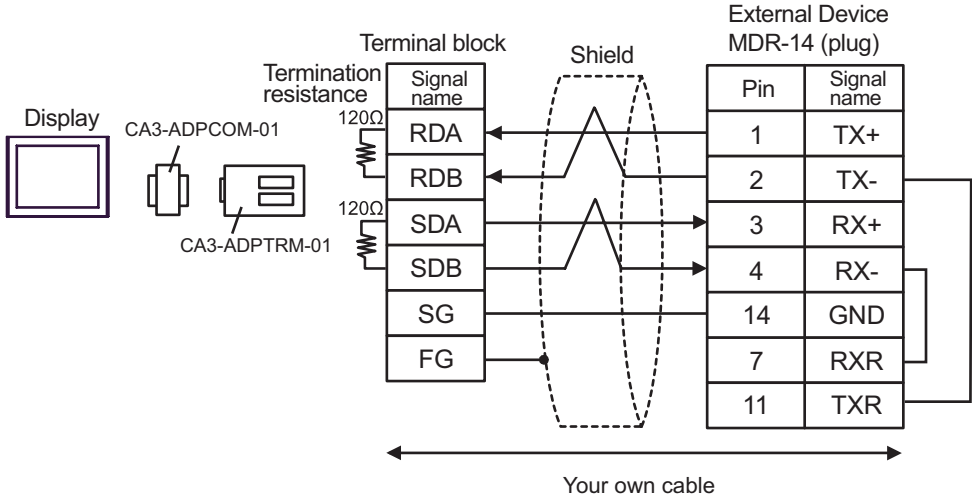


Cable Diagram 7

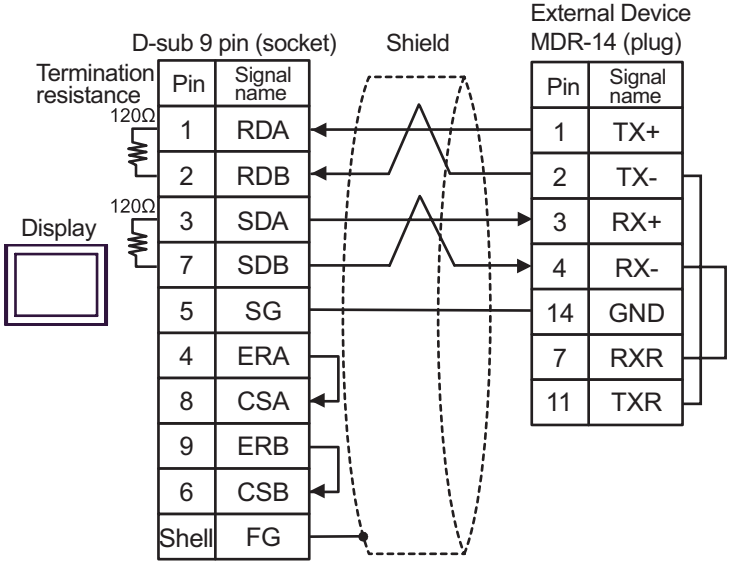
| Display (Connection Port) | Cable | | Remarks |
|--------------------------------|-------|---|---|
| GP*1 (COM1) AGP-3302 (COM2) | A | COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | The cable length must be 300m or less. |
| | B | Your own cable | |
| GP*1 (COM2) | C | Online adapter by Pro-face (CA4-ADPONL-01) + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | |
| | D | Online adapter by Pro-face (CA4-ADPONL-01) + Your own cable | |

*1 All GP models except AGP-3302

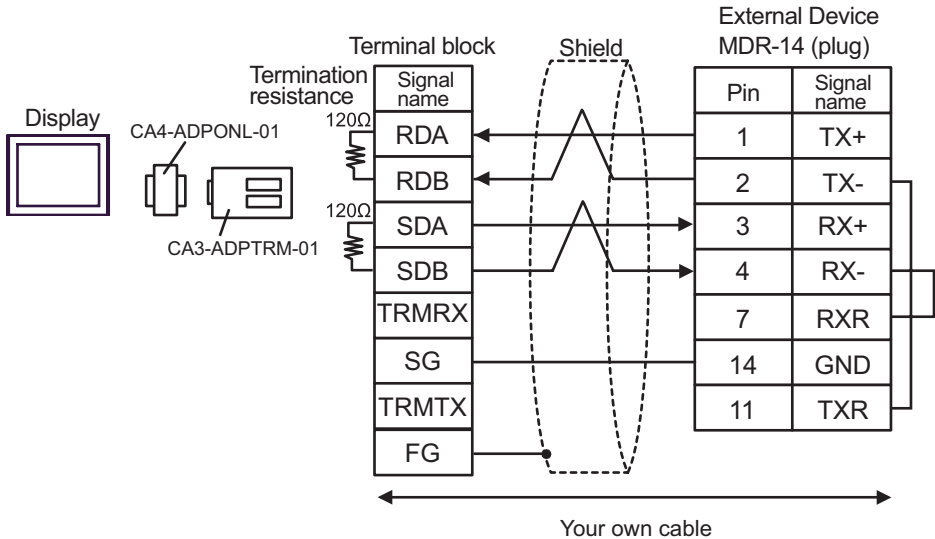
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



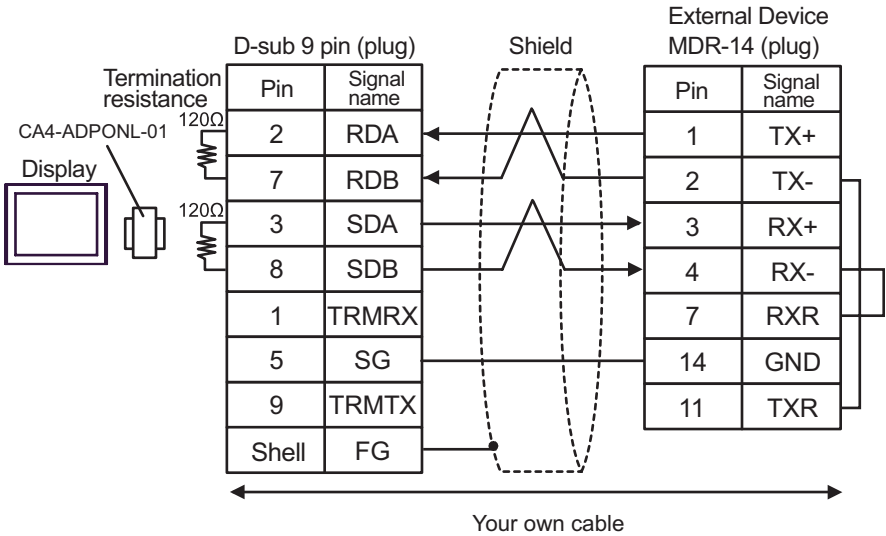
B) When using your own cable



- 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



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

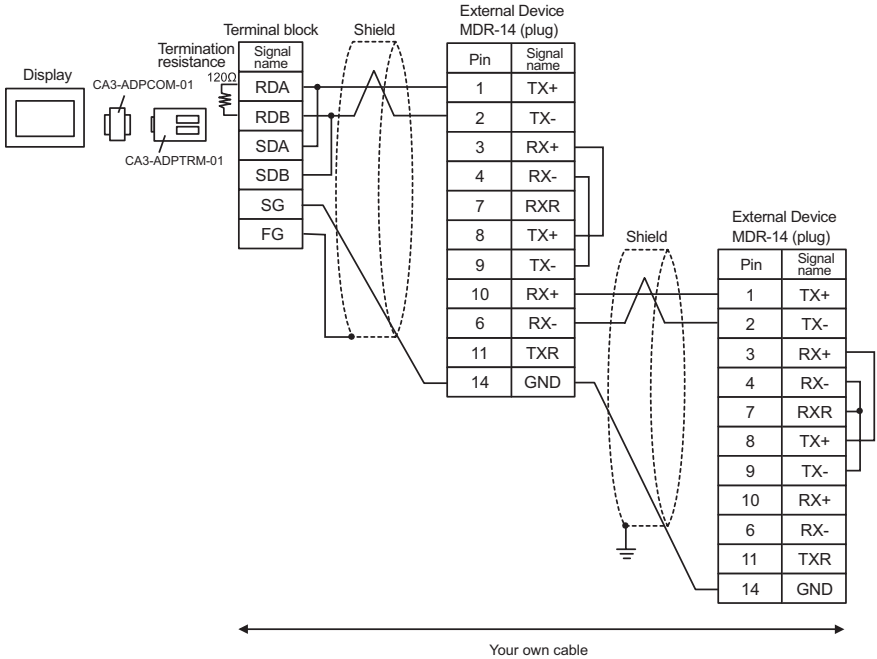


Cable Diagram 8

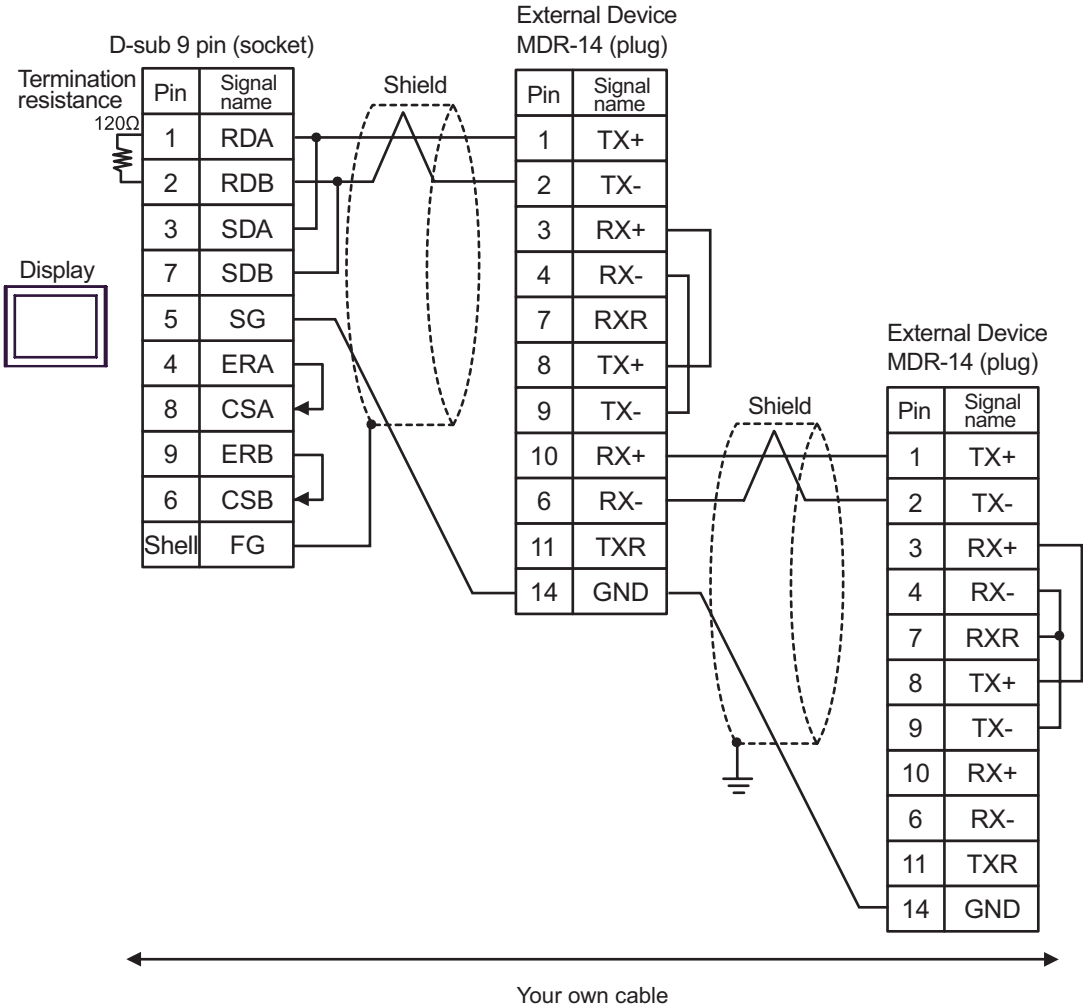
| Display (Connection Port) | Cable | | Remarks |
|--------------------------------|-------|--|---|
| GP*1 (COM1) AGP-3302 (COM2) | A | COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | The cable length must be 300m or less. |
| | B | Your own cable | |
| GP*1 (COM2) | C | Online adapter by Pro-face (CA4-ADPONL-01) + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable | |
| | D | Online adapter by Pro-face (CA4-ADPONL-01) + Your own cable | |

*1 All GP models except AGP-3302

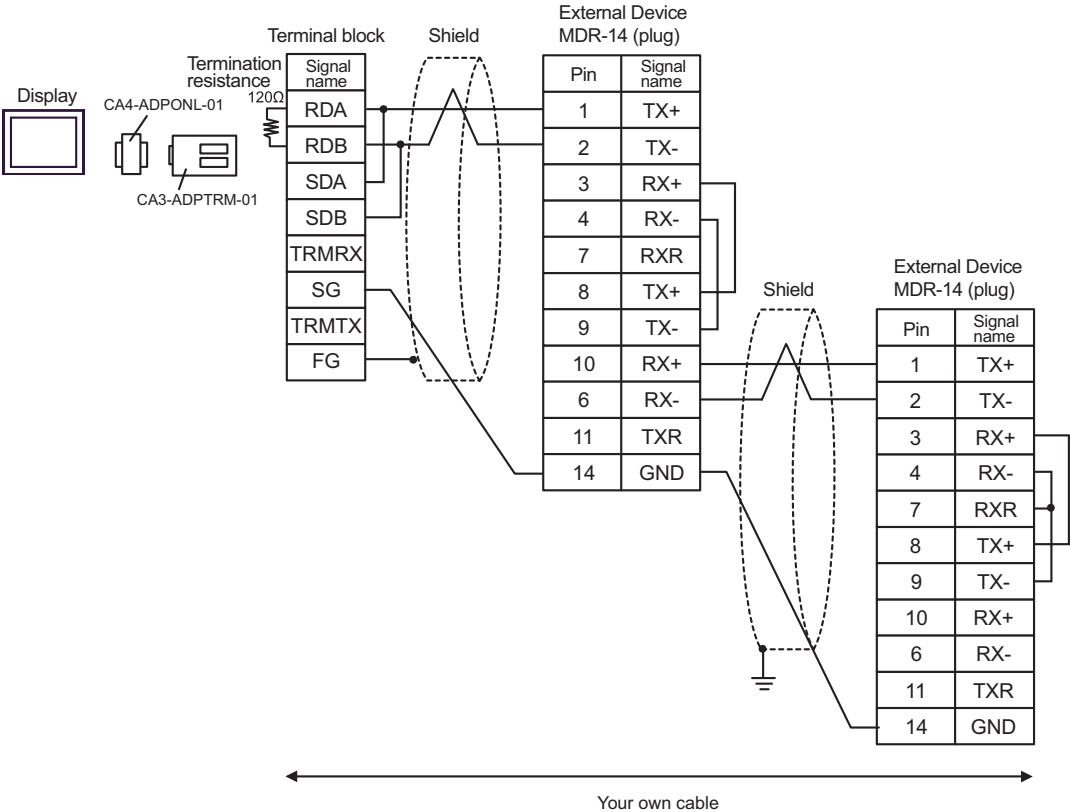
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



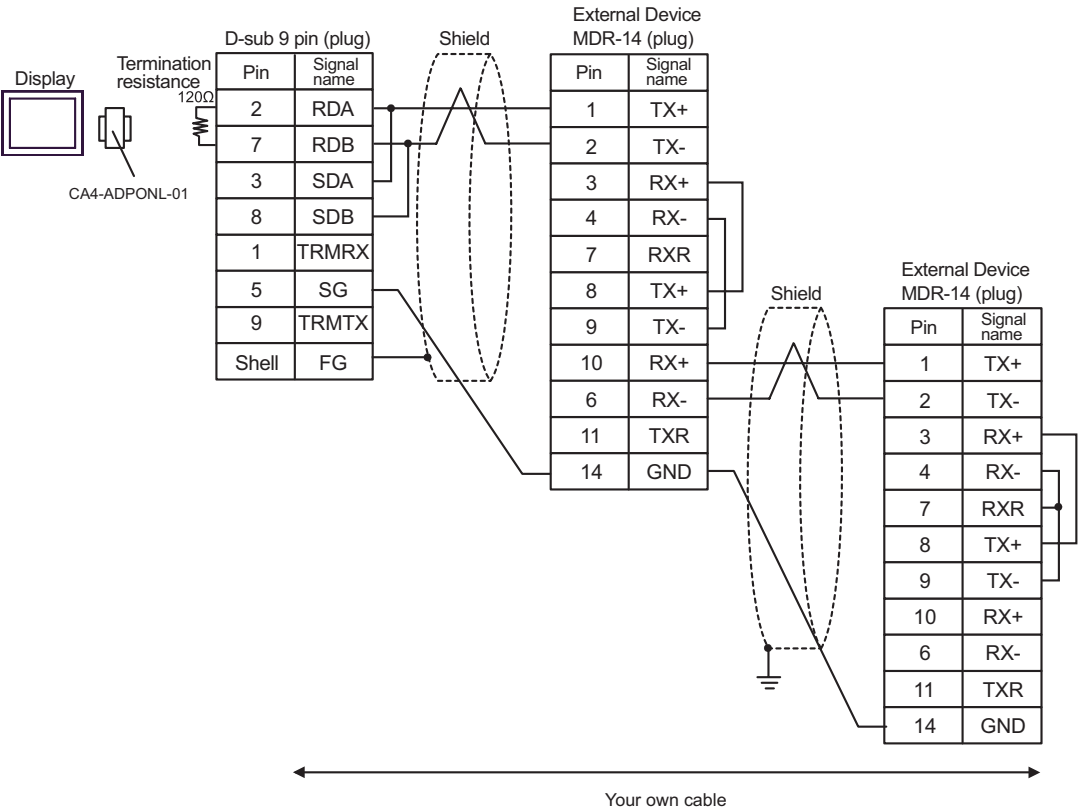
B) When using your own cable



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

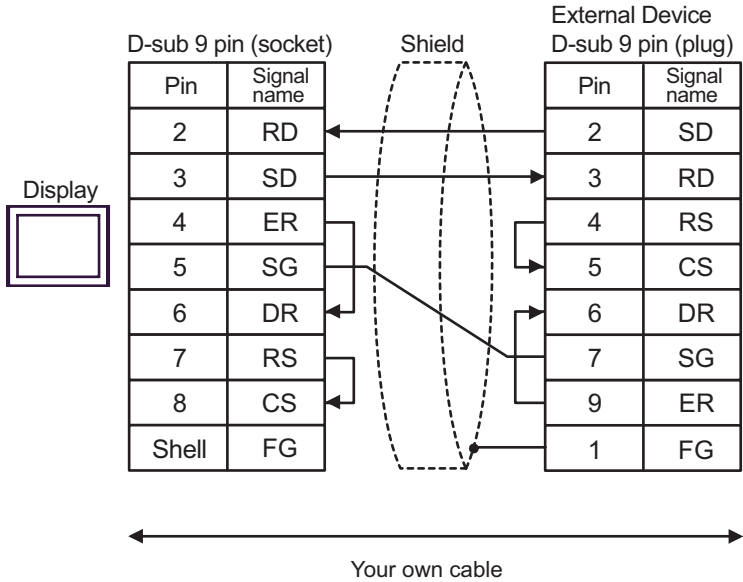


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable




Cable Diagram 9

| Display (Connection Port) | Cable | Remarks |
|---------------------------|----------------|---------------------------------------|
| GP (COM1) | Your own cable | The cable length must be 15m or less. |



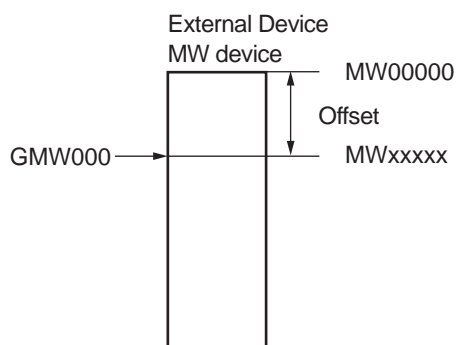
6 Supported Device

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 | Display on GP-Pro EX | Supported Address *1 | 32 bits | Remarks |
|------------------------------|----------------------|--|------------|----------|
| Coil (Bit device) | GMB00000-GMB4095F | MW00000 + Offset - MW4095F + Offset | L/H | |
| Coil (Word device) | GMB00000-GMB4095 | MW0000 + Offset - MW4095 + Offset | | |
| Input Relay (Bit device) | GIB00000-GIB0FFFF | IW00000 + Offset - IW0FFFF + Offset | | *2 |
| Input Relay (Word device) | GIB00000-GIB0FFFF | IW0000 + Offset - IW0FFFF + Offset | | *2 |
| Input Register | GIW00000-GIW7FFF | IW0000 + Offset - IW7FFF + Offset | | Bit F *2 |
| Holding Register | GMW00000-GMW65534 | MW00000 + Offset - MW65534 + Offset | | Bit F |

*1 When you specify "GMW00000" in GP-Pro EX, the address of "MW00000" to which offset value is added, is specified as the actual address in the External Device. Offset value is described as "Head REG" in the ladder software.



*2 Write disable

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 |
|------------------|-------------|-------------------|--------------|
| Coil | GMB | 0080 | Word Address |
| Input Relay | GIB | 0081 | Word Address |
| Input Register | GIW | 0001 | Word Address |
| Holding Register | GMW | 0000 | Word Address |

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. NOTE <ul style="list-style-type: none"> Received error codes are displayed such as "Decimal [Hex]". IP address is displayed such as "IP address (Decimal): MAC address (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.
