

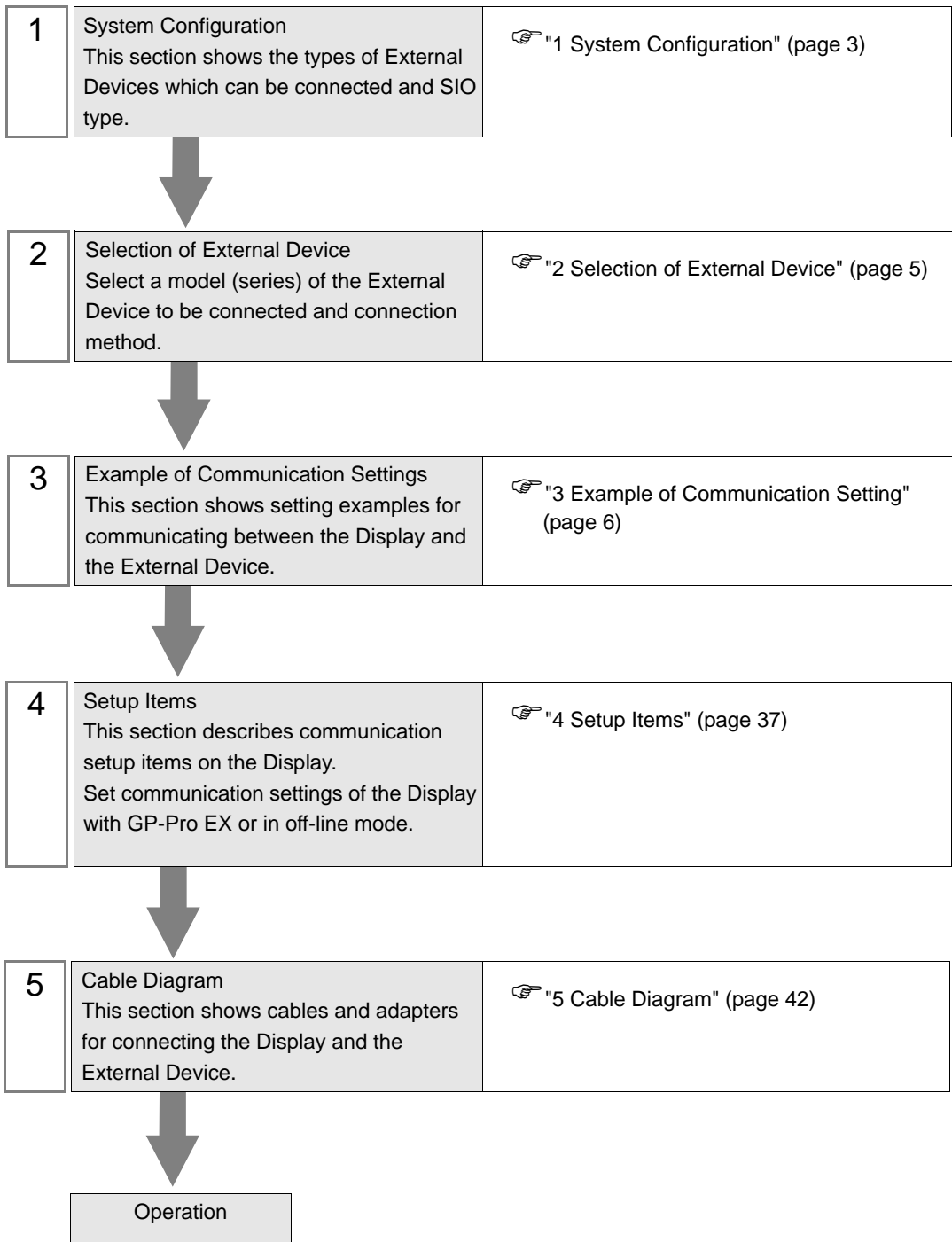
# MEMOBUS SIO Driver

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## 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:



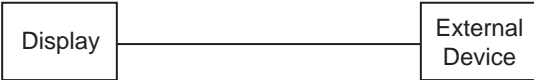
# 1 System Configuration

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



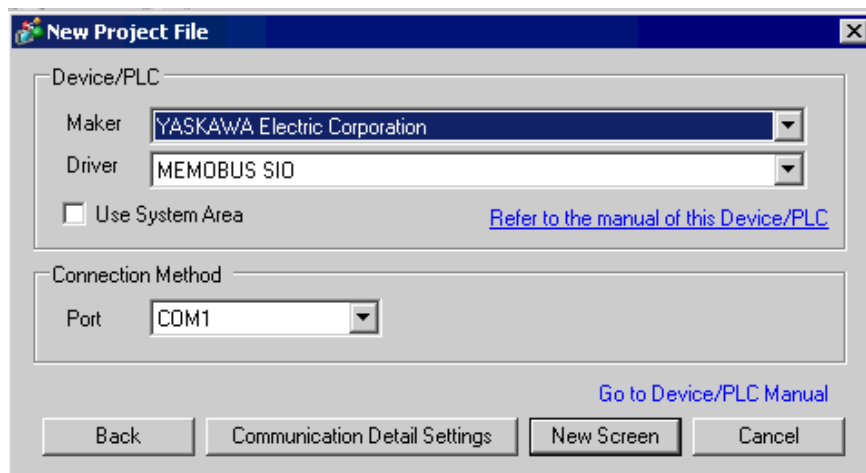
- 1:n Connection

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)

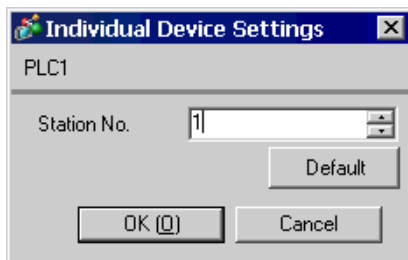
RI / VCC  RI  VCC

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

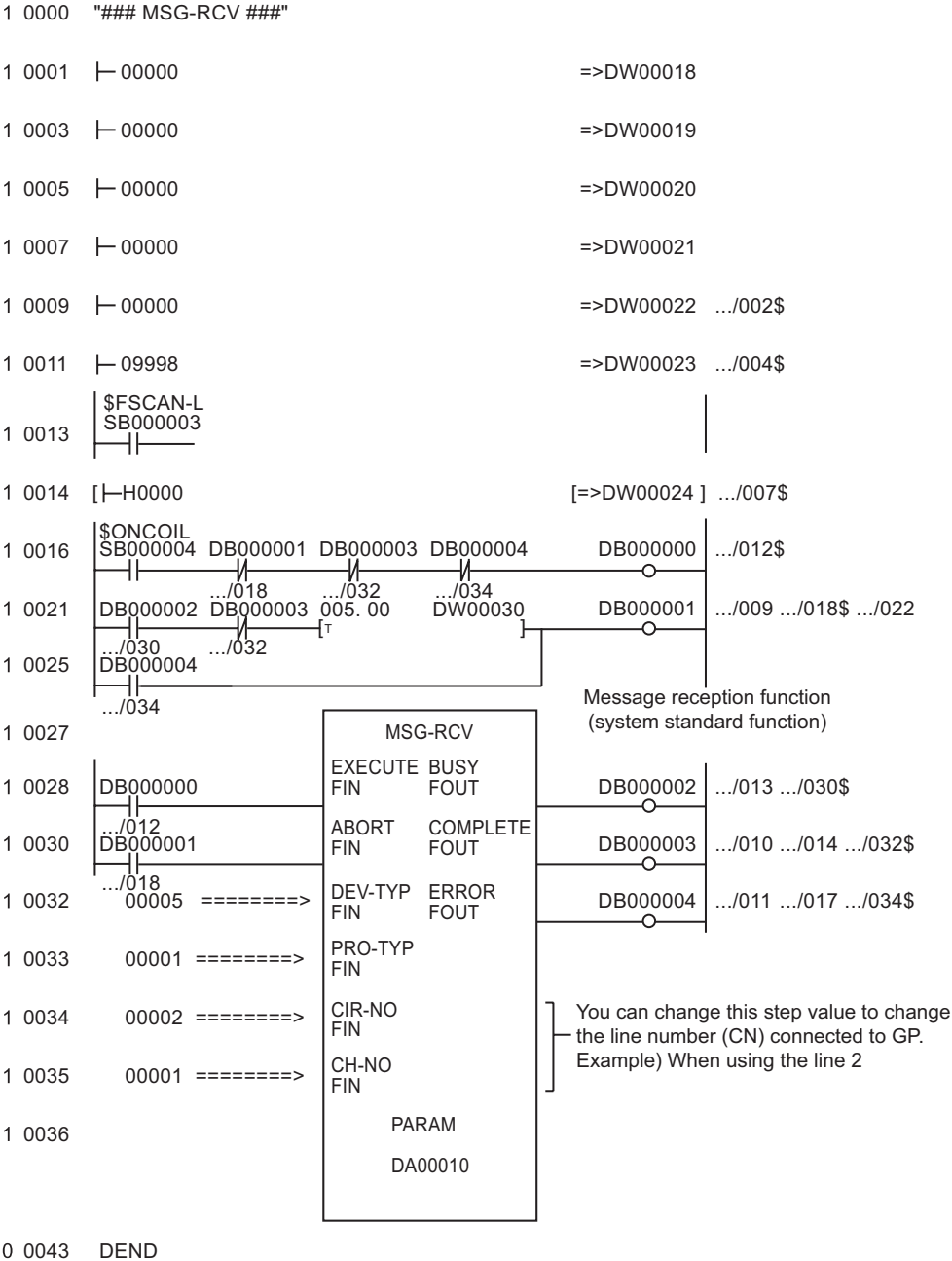


◆ Example of Ladder Program

You need the ladder program to connect the Display to the Link I/F CP217IF by YASUKAWA Electric Corporation.

The ladder program example is shown below.

- NOTE**
- This ladder program example enables to communicate one CN port with the Display. Note that each CN port requires the ladder program when you use multiple ports, CN1 to CN3, 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.

## 3.2 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

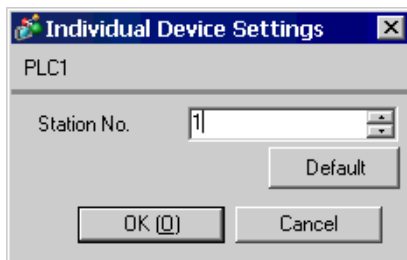
Allowable No. of Device/PLCs: 16 Unit(s)

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].

<b>NOTE</b>
-------------

- 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].




## 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 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.

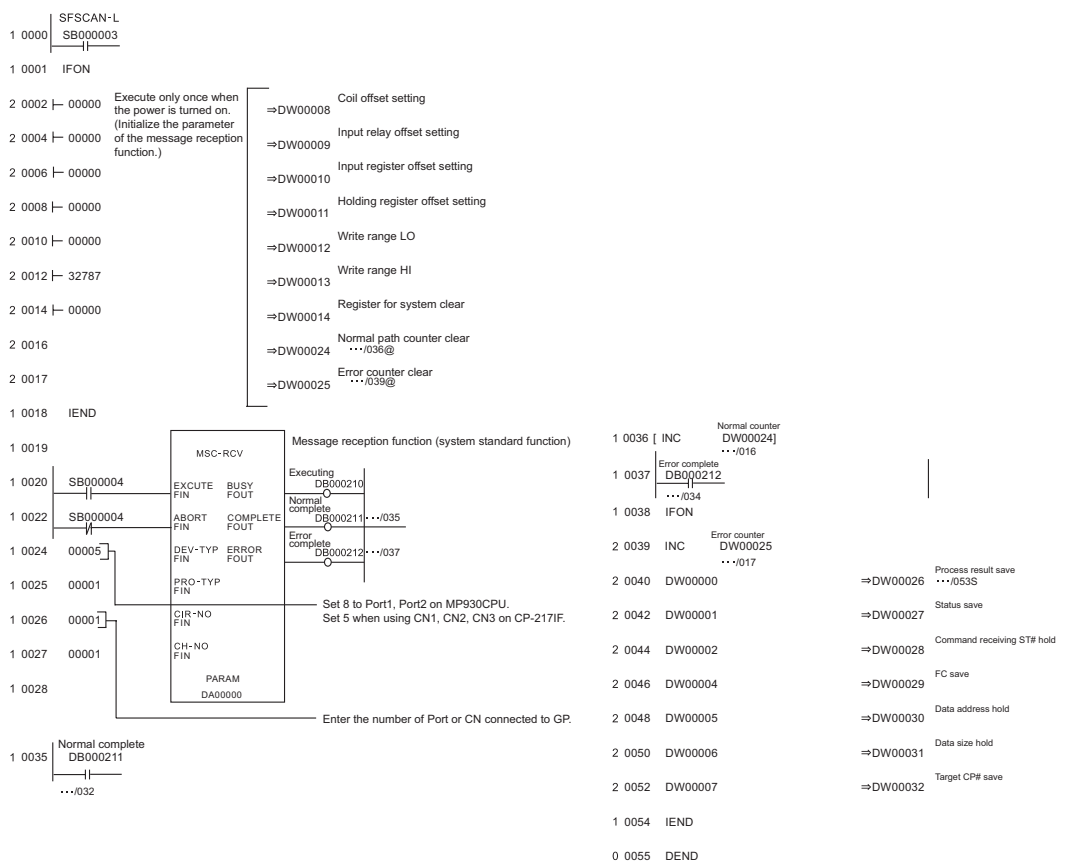
Setup Items	Setup Description
Transmission Protocol	MEMOBUS
Master/Slave	Slave
Device Address	Device address of the External Device
Serial I/F	RS-485
Transmission Mode	RTU
Data Length	8Bit
Parity Bit	even
Stop Bit	1Stop
Baud Rate	19.2K
Sending	Disable
Automatically Reception*1	Disable

\*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.

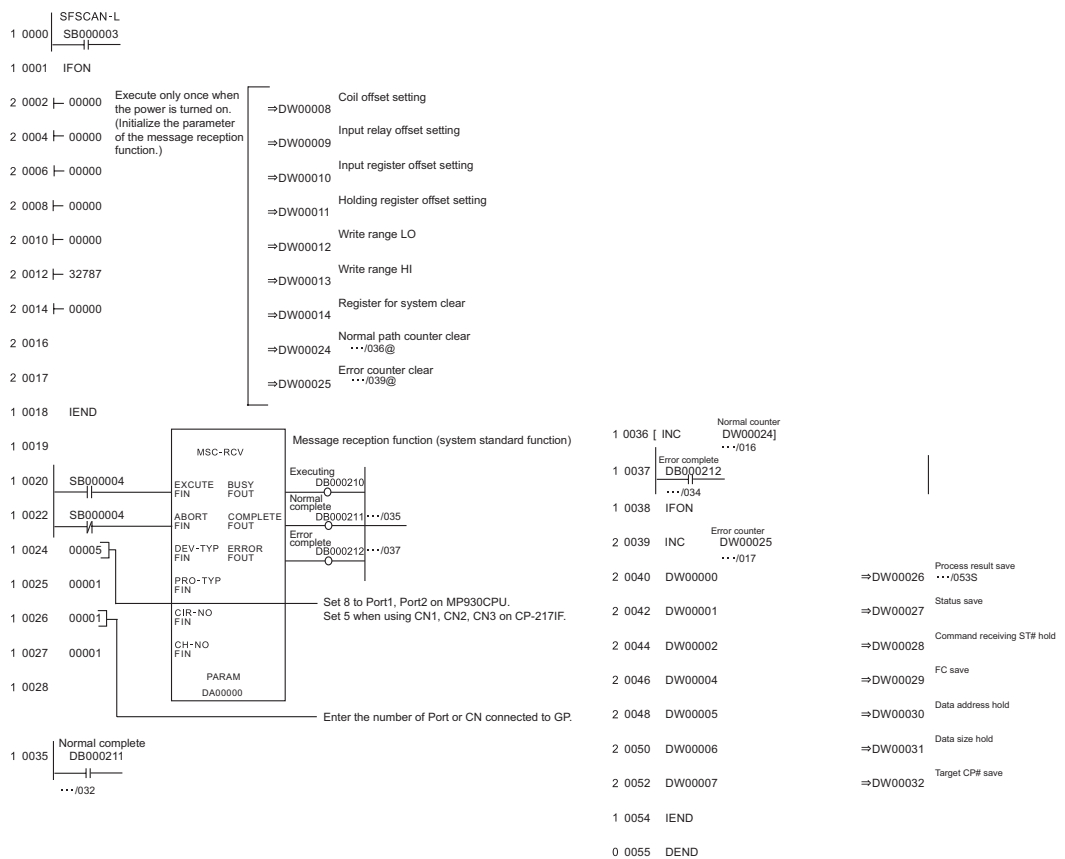
Setup Items	Setup Description
Transmission Protocol	MEMOBUS
Master/Slave	Slave
Device Address	Device address of the External Device
Serial I/F	RS-485
Transmission Mode	RTU
Data Length	8Bit
Parity Bit	even
Stop Bit	1Stop
Baud Rate	19.2K
Sending	Disable
Automatically Reception*1	Disable

\*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/PLC 1

Summary [Change Device/PLC](#)

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

Text Data Mode: 1 [Change](#)

Communication Settings

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

Speed: 9600

Data Length:  7  8

Parity:  NONE  EVEN  ODD

Stop Bit:  1  2

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

Timeout: 3 (sec)

Retry: 2

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 (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.

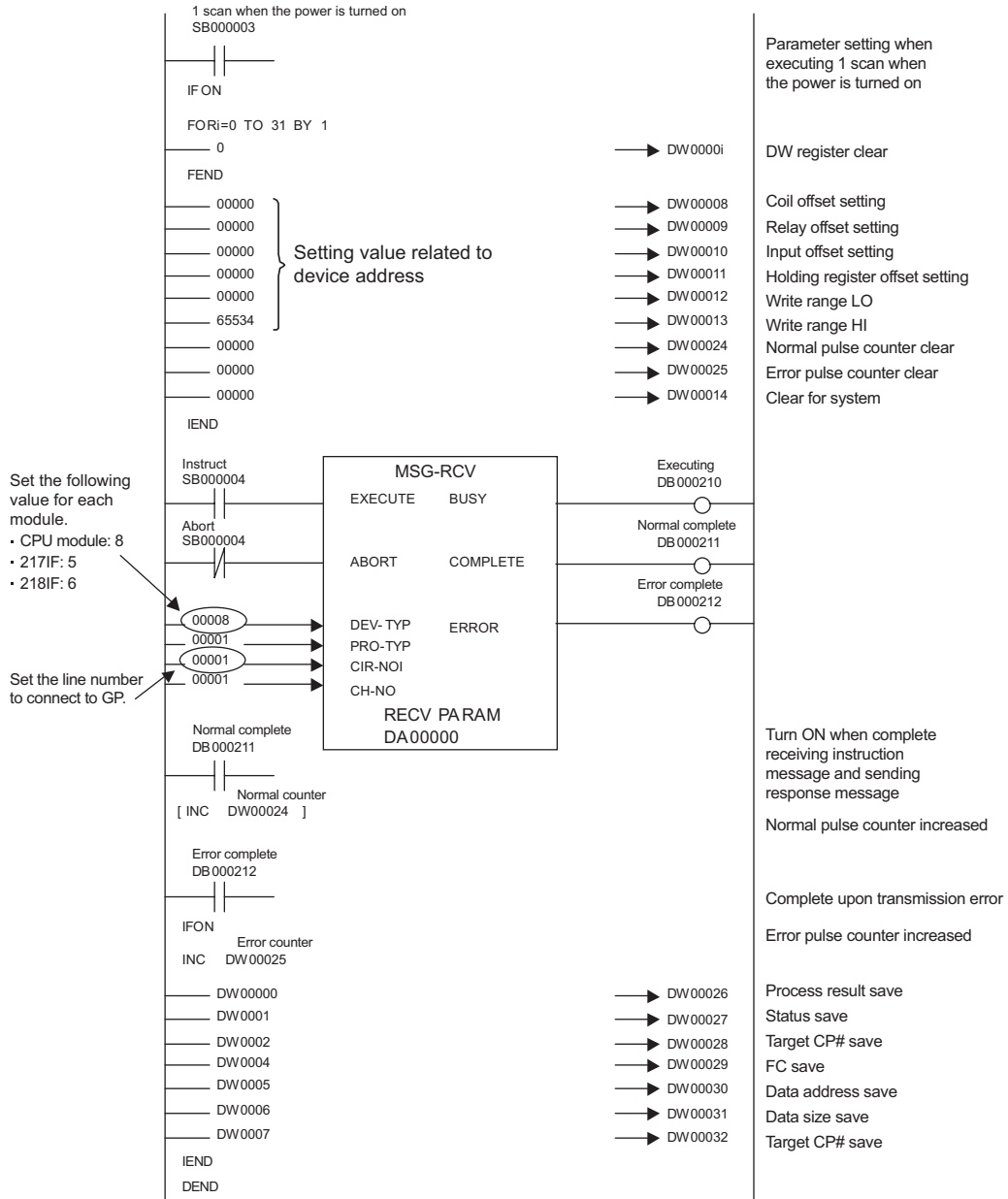
Setup Items	Setup Description
Transmission Protocol	MEMOBUS
Master/Slave	Slave
Device Address	Device address of the External Device
Serial I/F	RS-232C
Transmission Mode	RTU
Data Length	8Bit
Parity Bit	even
Stop Bit	1Stop
Baud Rate	19.2K
Sending	Disable
Automatically Reception*1	Disable

\*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.

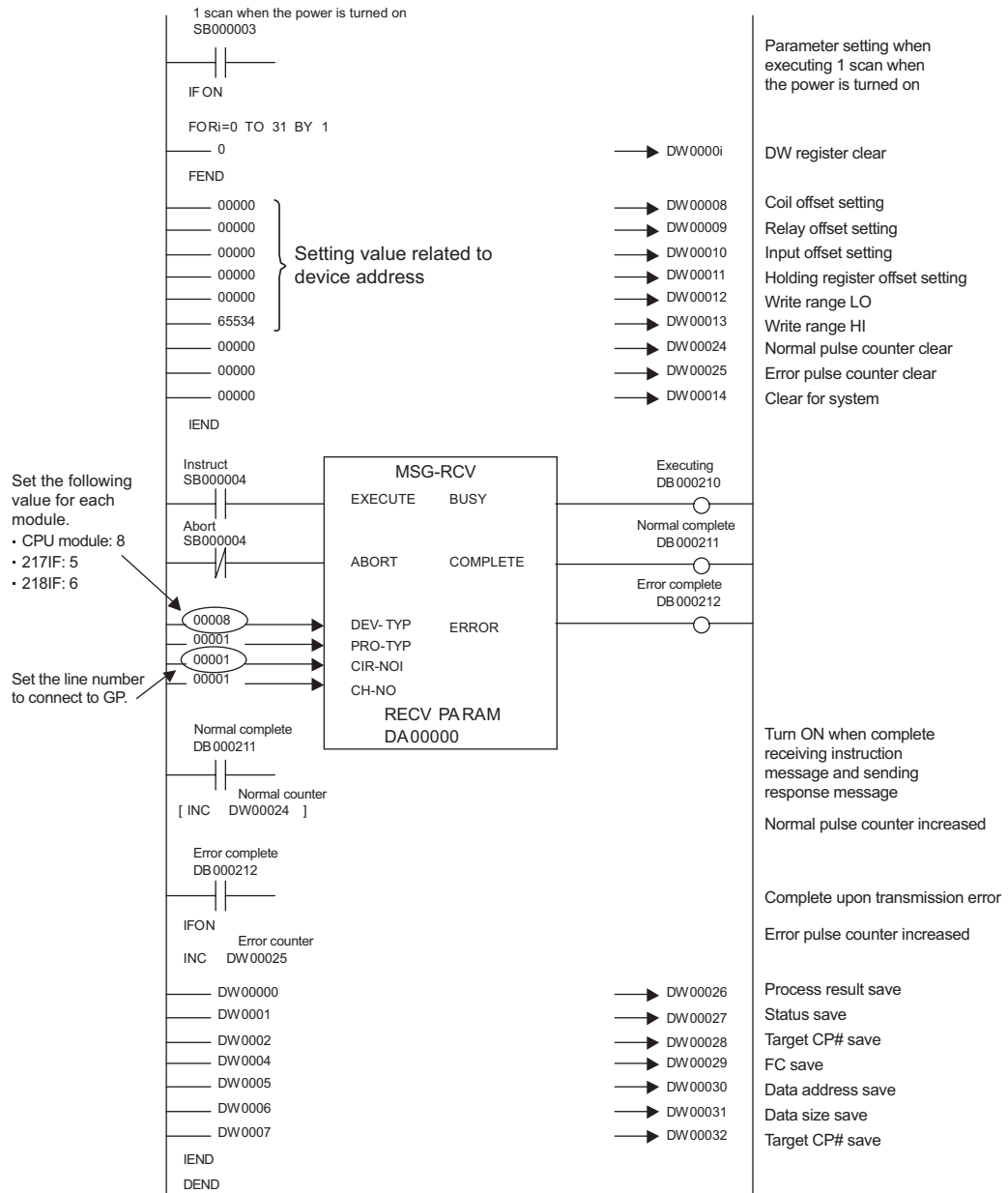
Setup Items	Setup Description
Transmission Protocol	MEMOBUS
Master/Slave	Slave
Device Address	Device address of the External Device
Serial I/F	RS-485
Transmission Mode	RTU
Data Length	8Bit
Parity Bit	even
Stop Bit	1Stop
Baud Rate	19.2K
Sending	Disable
Automatically Reception*1	Disable

\*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 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.

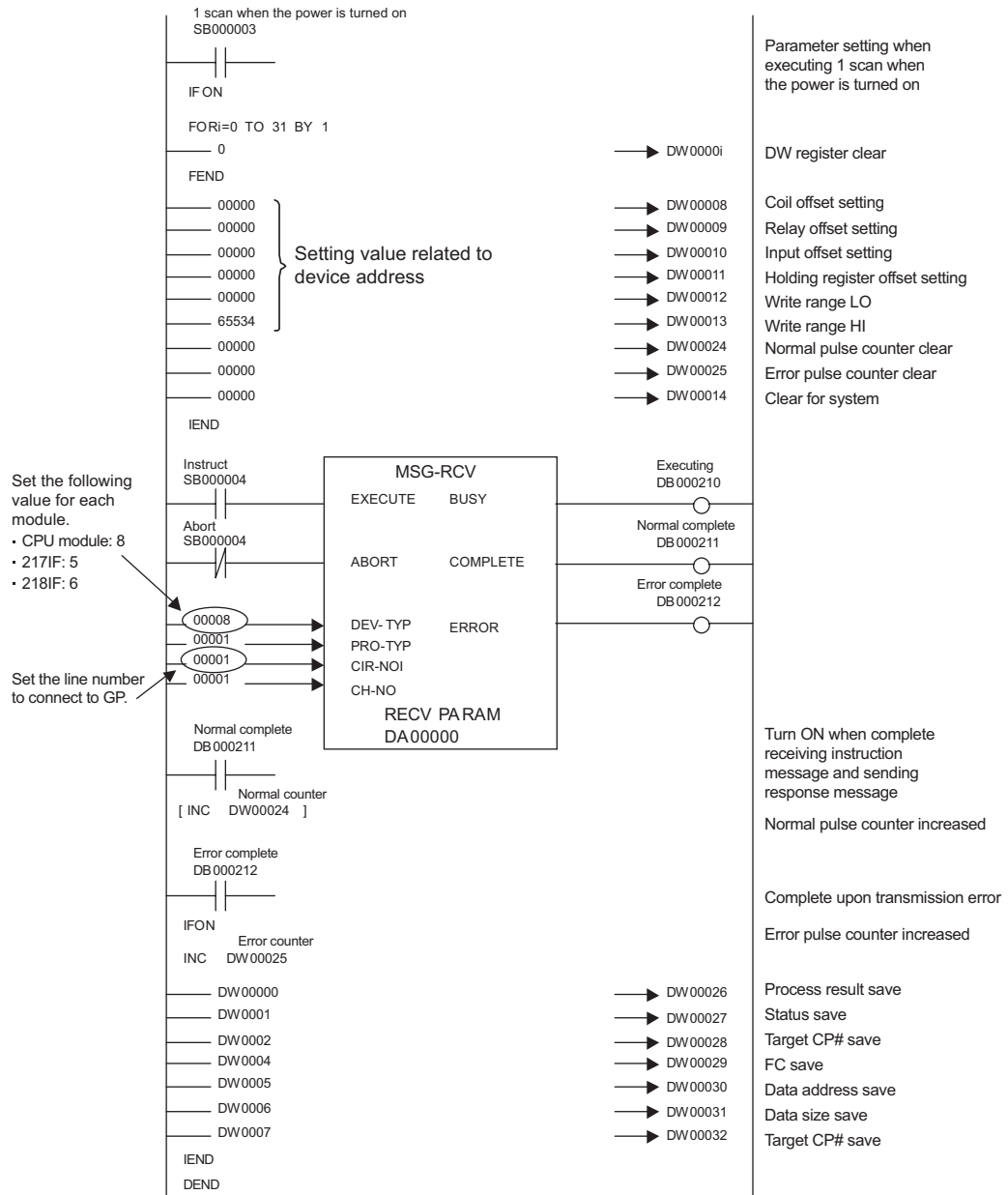
Setup Items	Setup Description
Transmission Protocol	MEMOBUS
Master/Slave	Slave
Device Address	Device address of the External Device
Serial I/F	RS485
Transmission Mode	RTU
Data Length	8Bit
Parity Bit	even
Stop Bit	1Stop
Baud Rate	19.2K
Sending	Disable
Automatically Reception <sup>*1</sup>	Disable

\*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  ODD

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

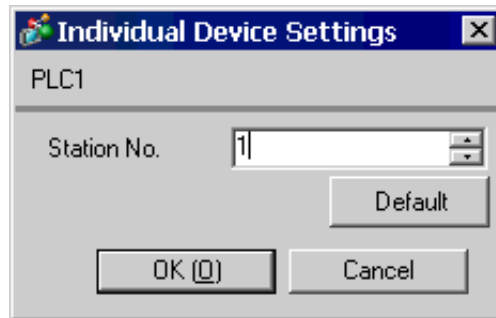
Allowable No. of Device/PLCs 16 Unit(s)

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.

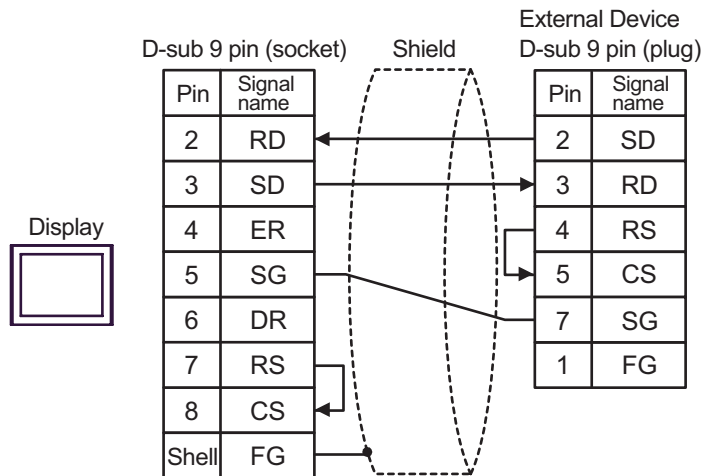
## 5 Cable Diagram

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.

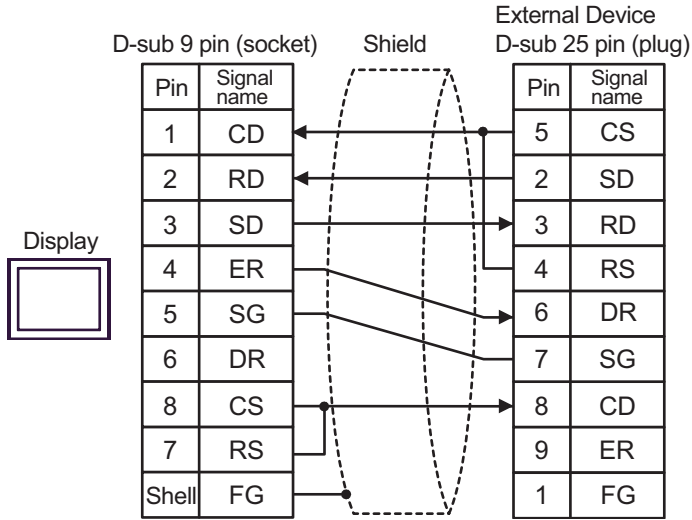
Cable Diagram 1

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.

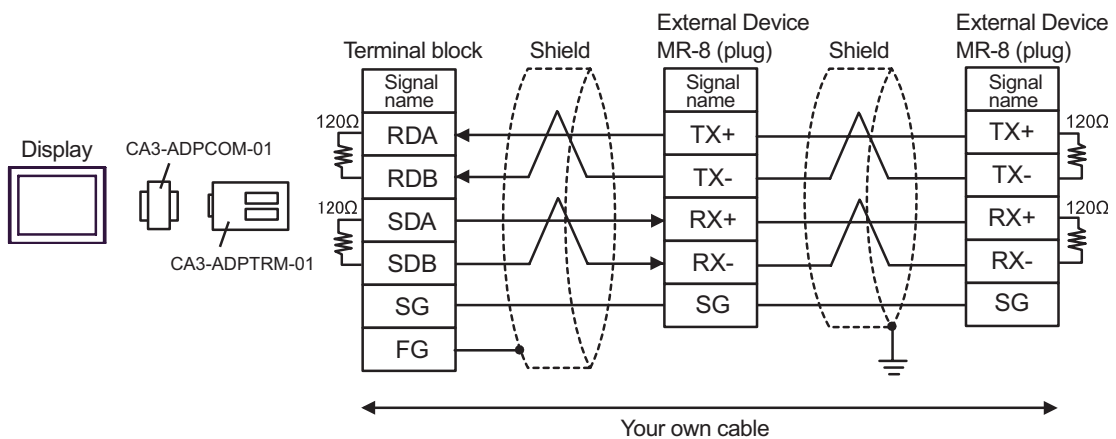


Cable Diagram 3

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	

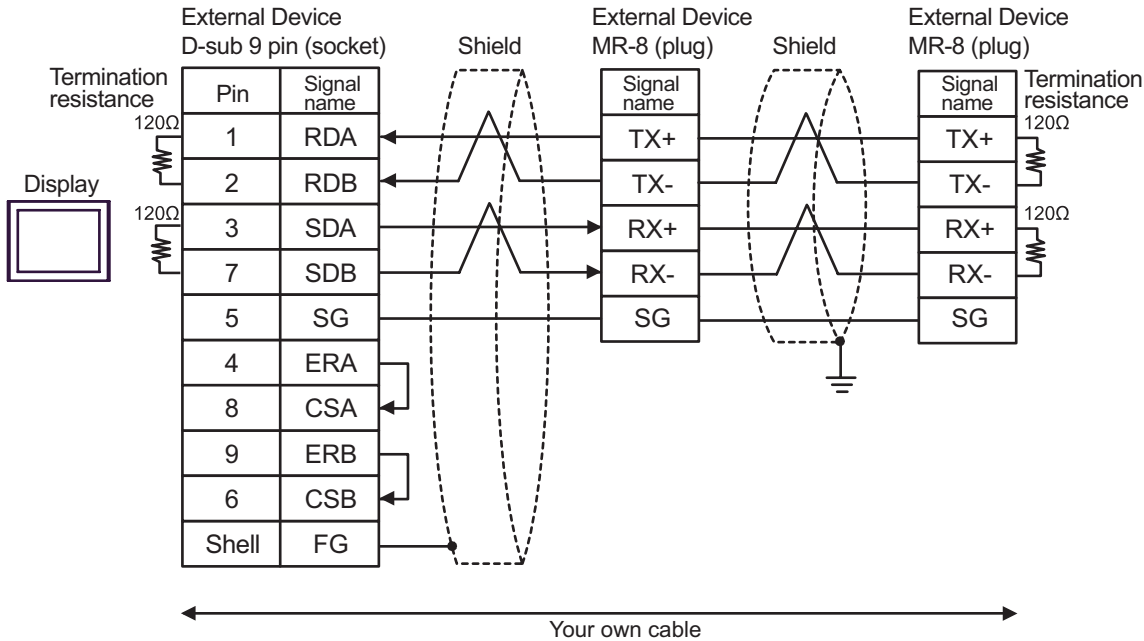
\*1 All GP models except AGP-3302

- 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



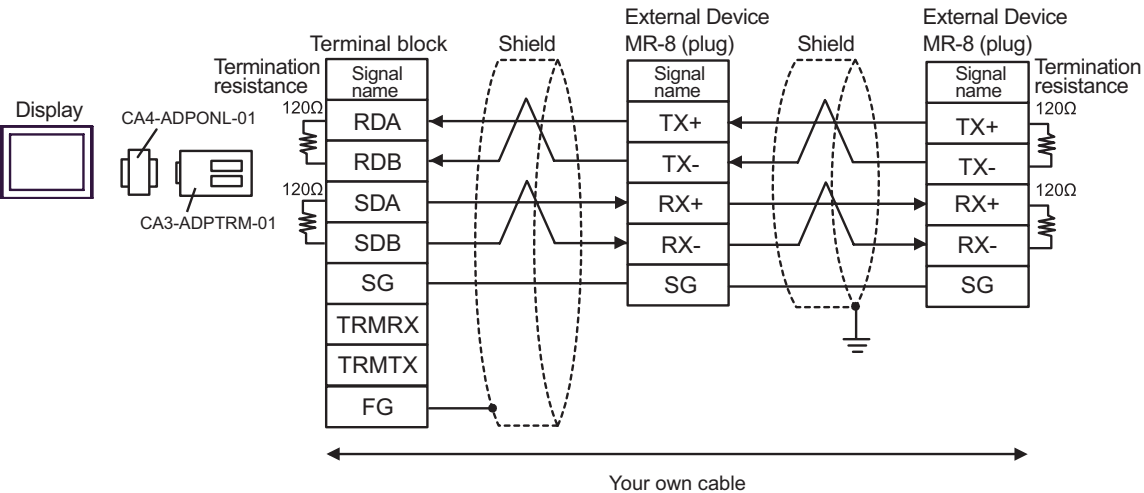
**NOTE** • When the External device has the SG terminal, connect it to the SG terminal of the Display.

B) When using your own cable



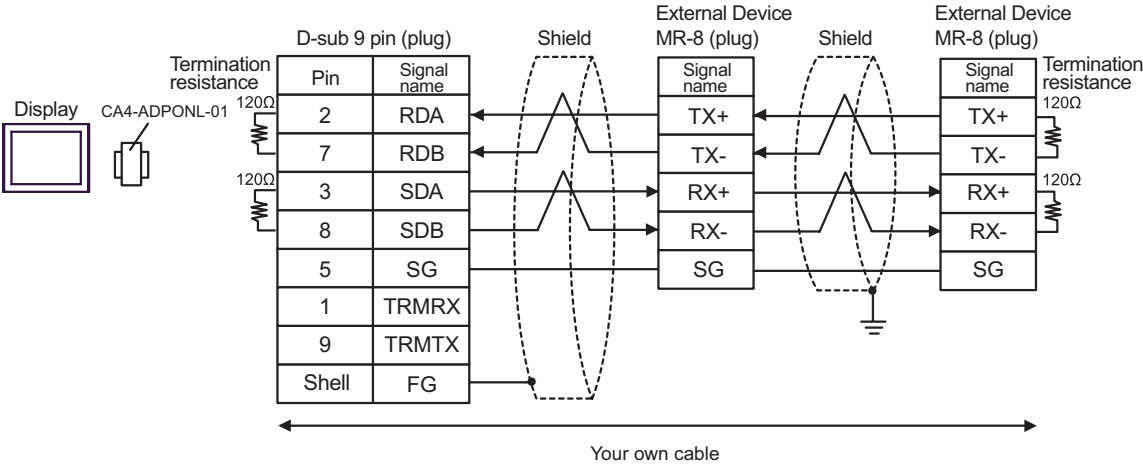
**NOTE** • When the External device has a SG terminal, connect it to the SG terminal of the Display.

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

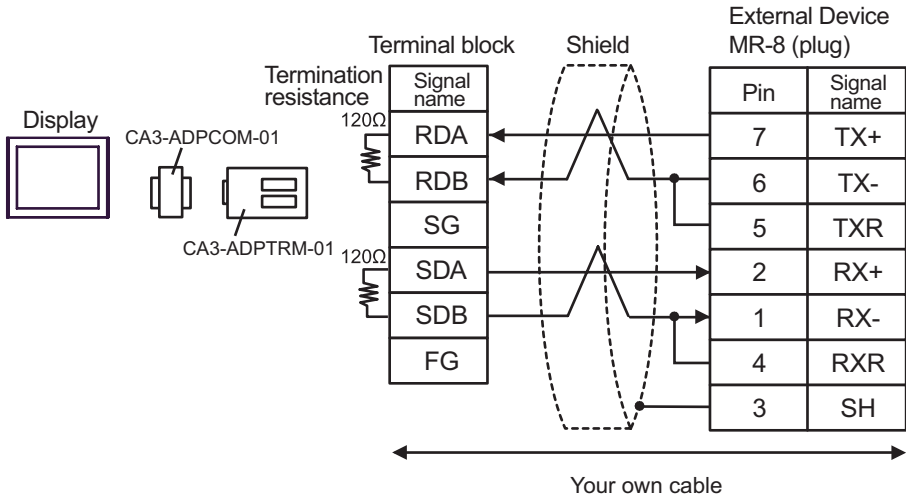


Cable Diagram 4

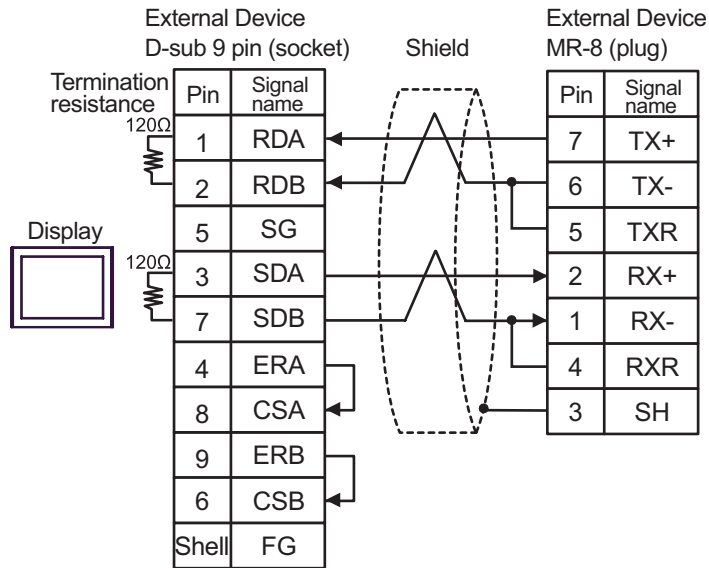
Display (Connection Port)	Cable		Remarks
GP*1 (COM1) AGP-3302 (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 300m or less.
	B	Your own cable	
GP*1 (COM2)	C	Online adapter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

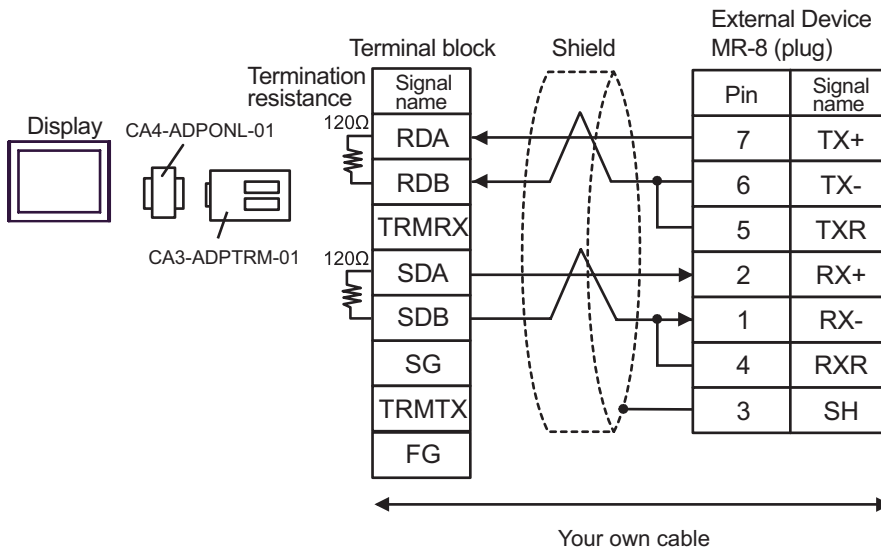
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



## B) When using your own cable

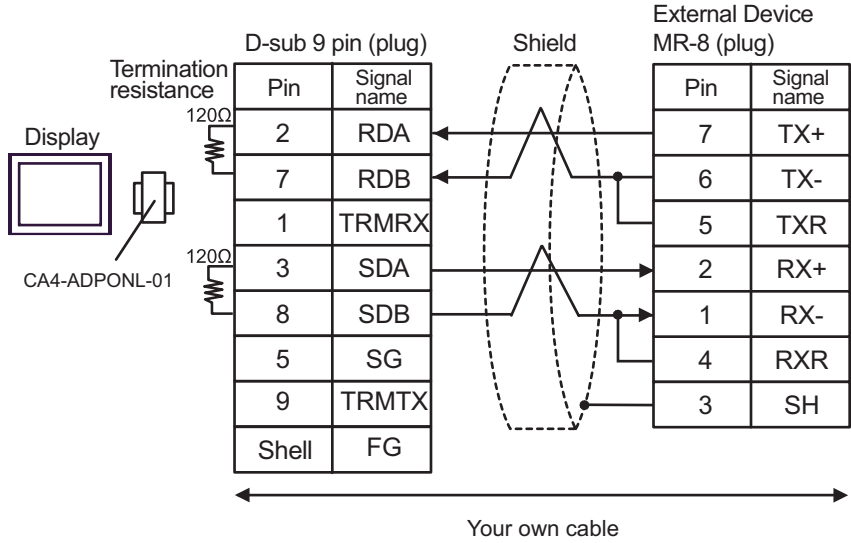


## C) When using the online adapter (CA4-ADPONL-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable





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

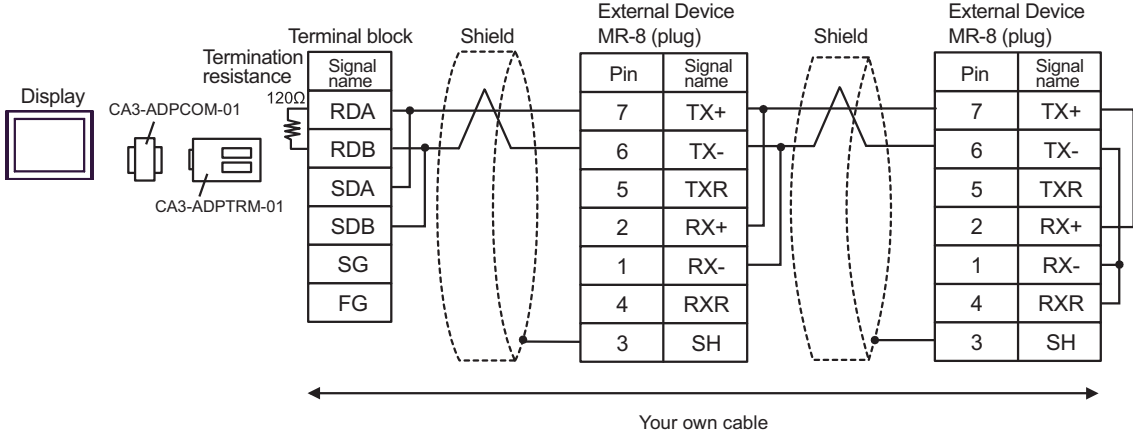


Cable Diagram 5

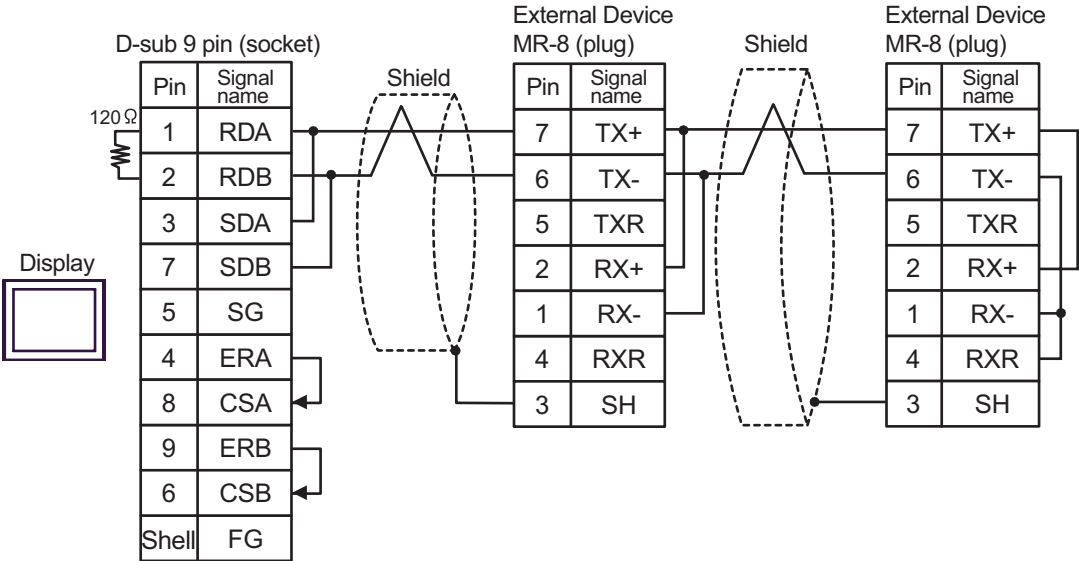
Display (Connection Port)	Cable		Remarks
GP*1 (COM1) AGP-3302 (COM2)	A	Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Your own cable	The cable length must be 300m or less.
	B	Your own cable	
GP*1 (COM2)	C	Online adapter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

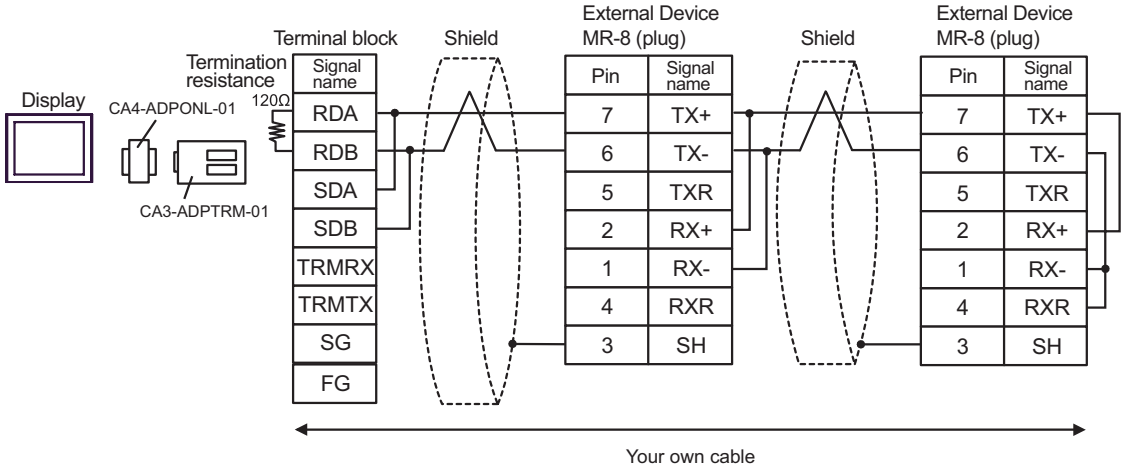
A) When using the connector terminal block conversion adapter (CA3-ADPTRM-01), the COM port conversion adapter (CA3-ADPCOM-01) by Pro-face and your own cable



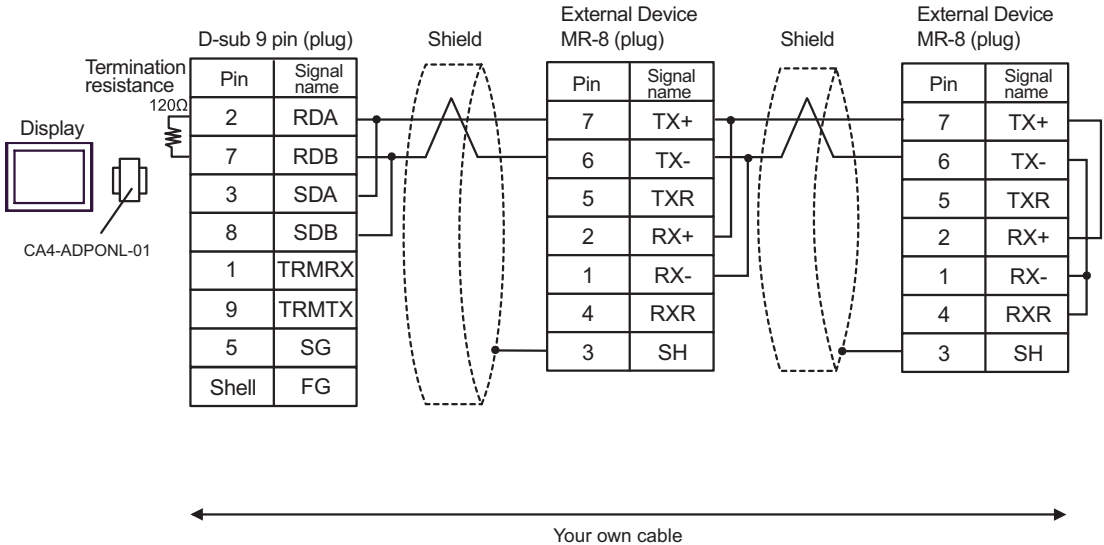
B) When using your own cable



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

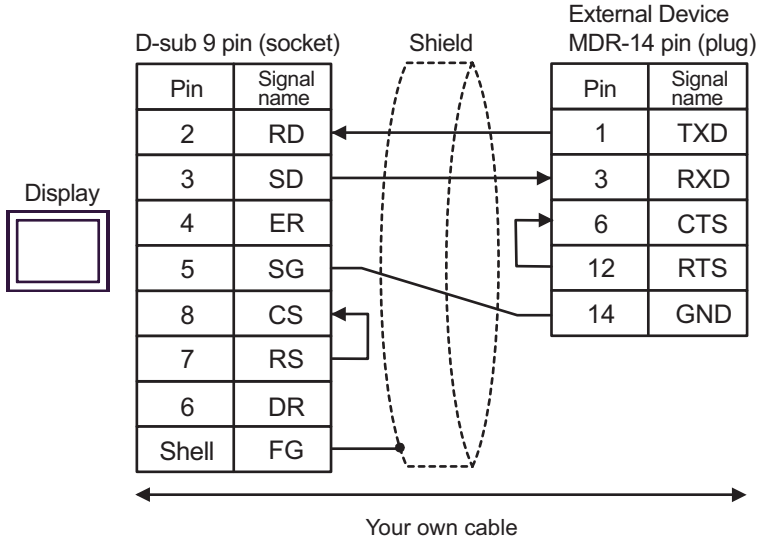


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable



Cable Diagram 6

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

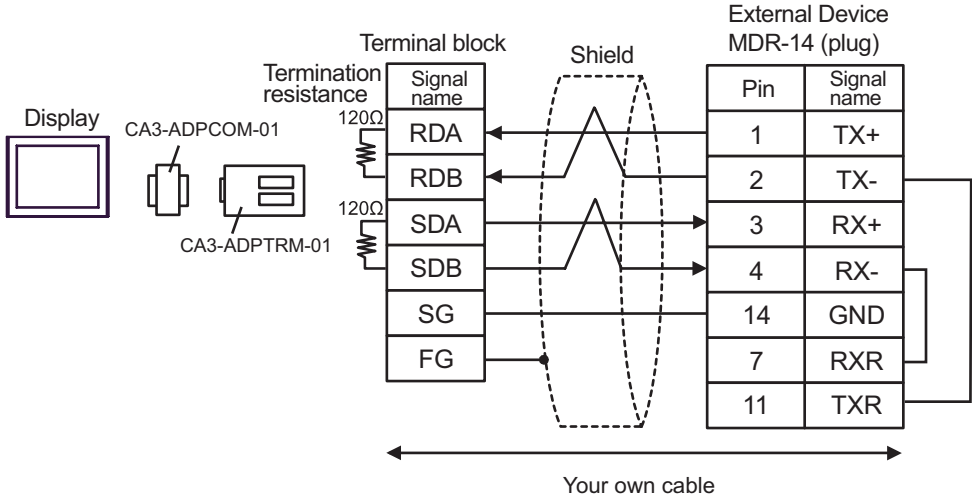


Cable Diagram 7

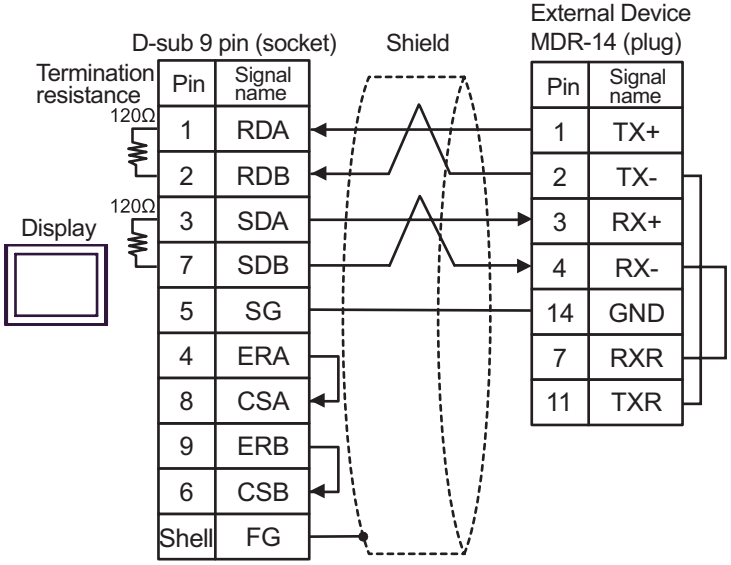
Display (Connection Port)	Cable		Remarks
GP*1 (COM1) AGP-3302 (COM2)	A	COM port conversion adapter (for COM1) by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 300m or less.
	B	Your own cable	
GP*1 (COM2)	C	Online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

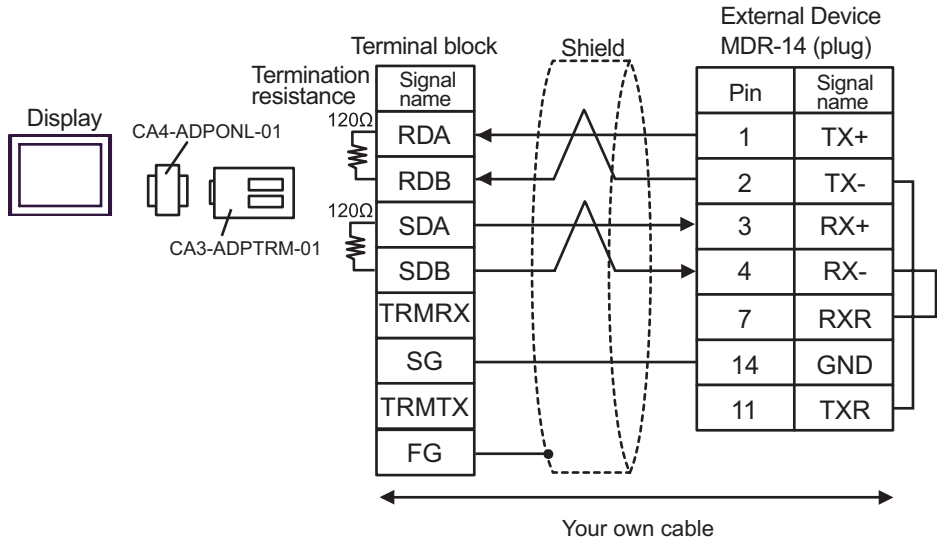
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



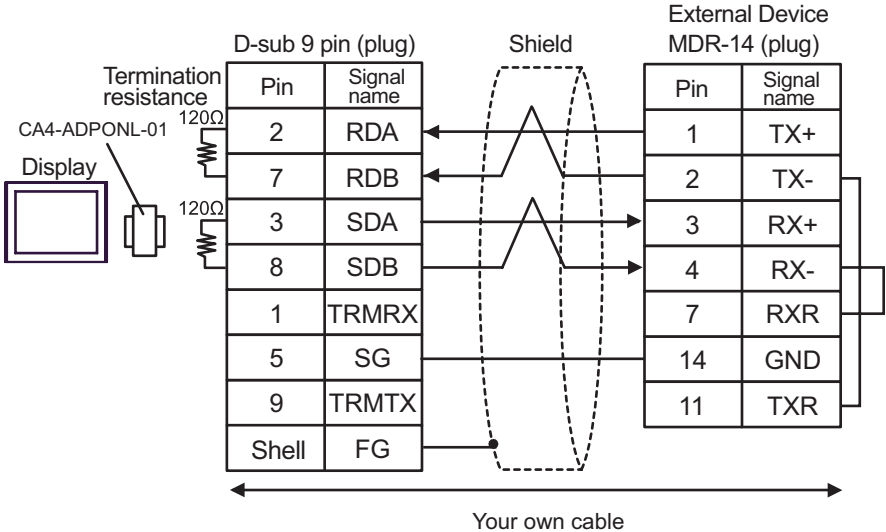
B) When using your own cable



- 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



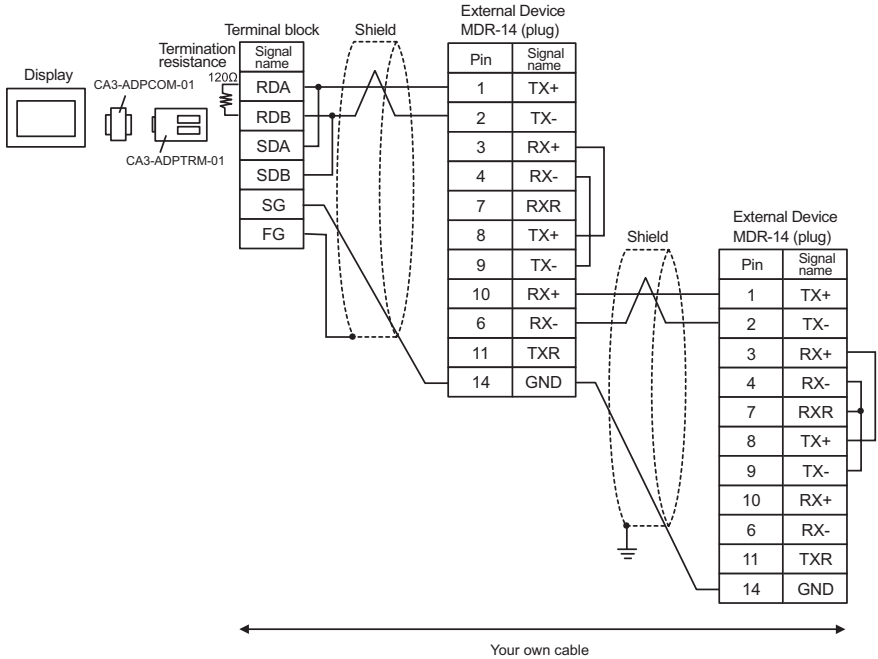


Cable Diagram 8

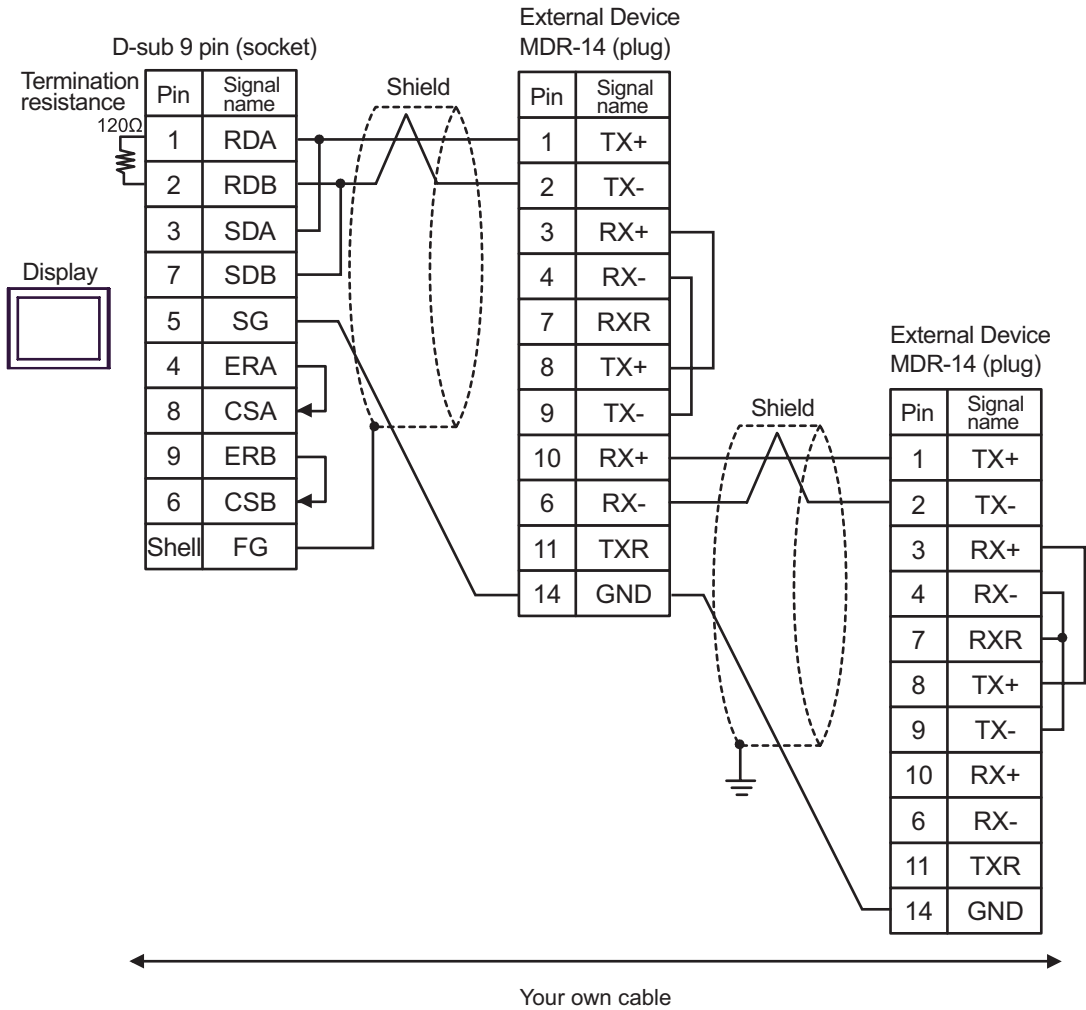
Display (Connection Port)	Cable		Remarks
GP*1 (COM1) AGP-3302 (COM2)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	The cable length must be 300m or less.
	B	Your own cable	
GP*1 (COM2)	C	Online adapter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

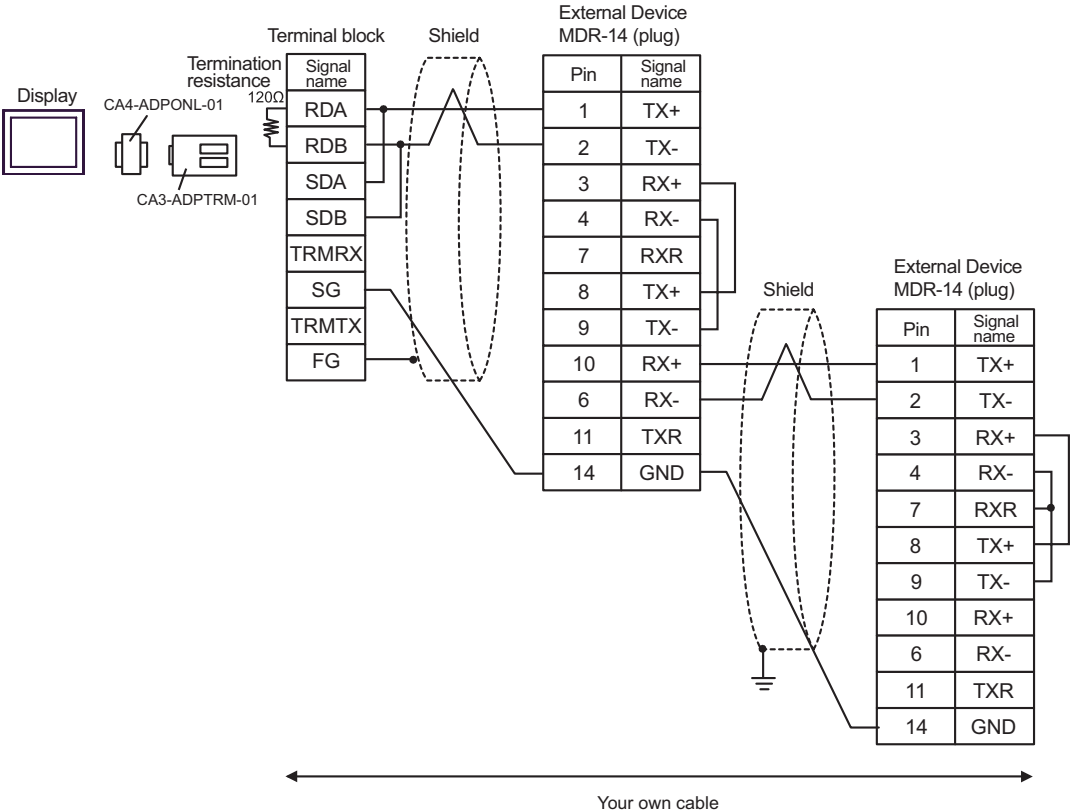
A) When using the COM port conversion adapter (CA3-ADPCOM-01), the connector terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable



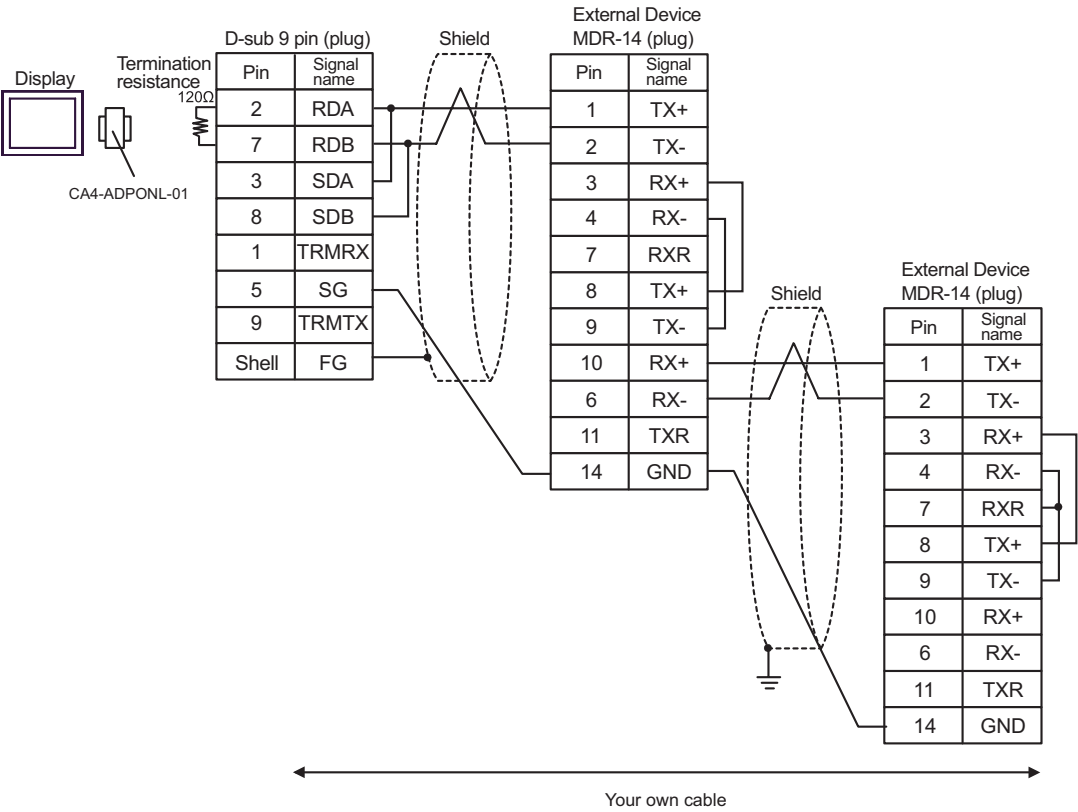
B) When using your own cable



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

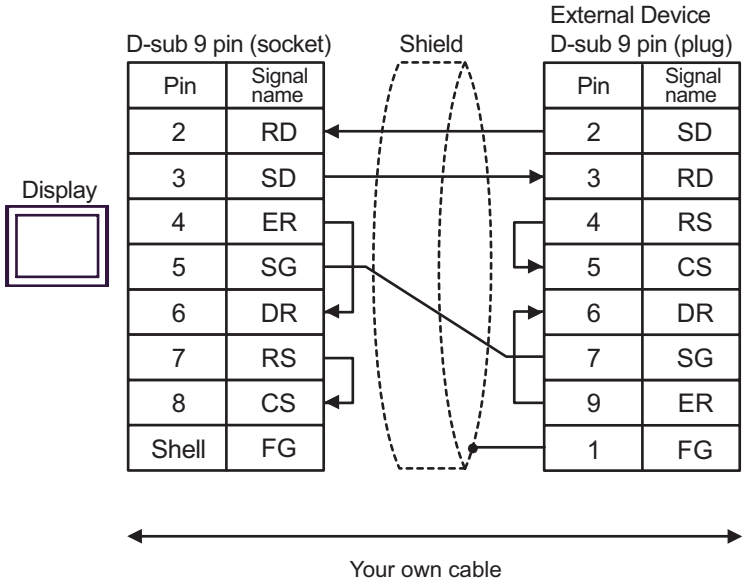


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable




Cable Diagram 9

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



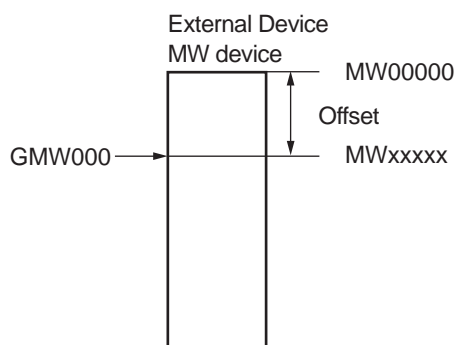
## 6 Supported Device

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	<b>L/H</b>	
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	<p>Displays IP address or device address of External Device where error occurs, or error codes received from External Device.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Received error codes are displayed such as "Decimal [Hex]".</li> <li>IP address is displayed such as "IP address (Decimal): MAC address (Hex)".</li> </ul>

Display Examples of Error Messages

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

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**NOTE** • Please refer to the manual of External Device for more detail of received error codes.

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