

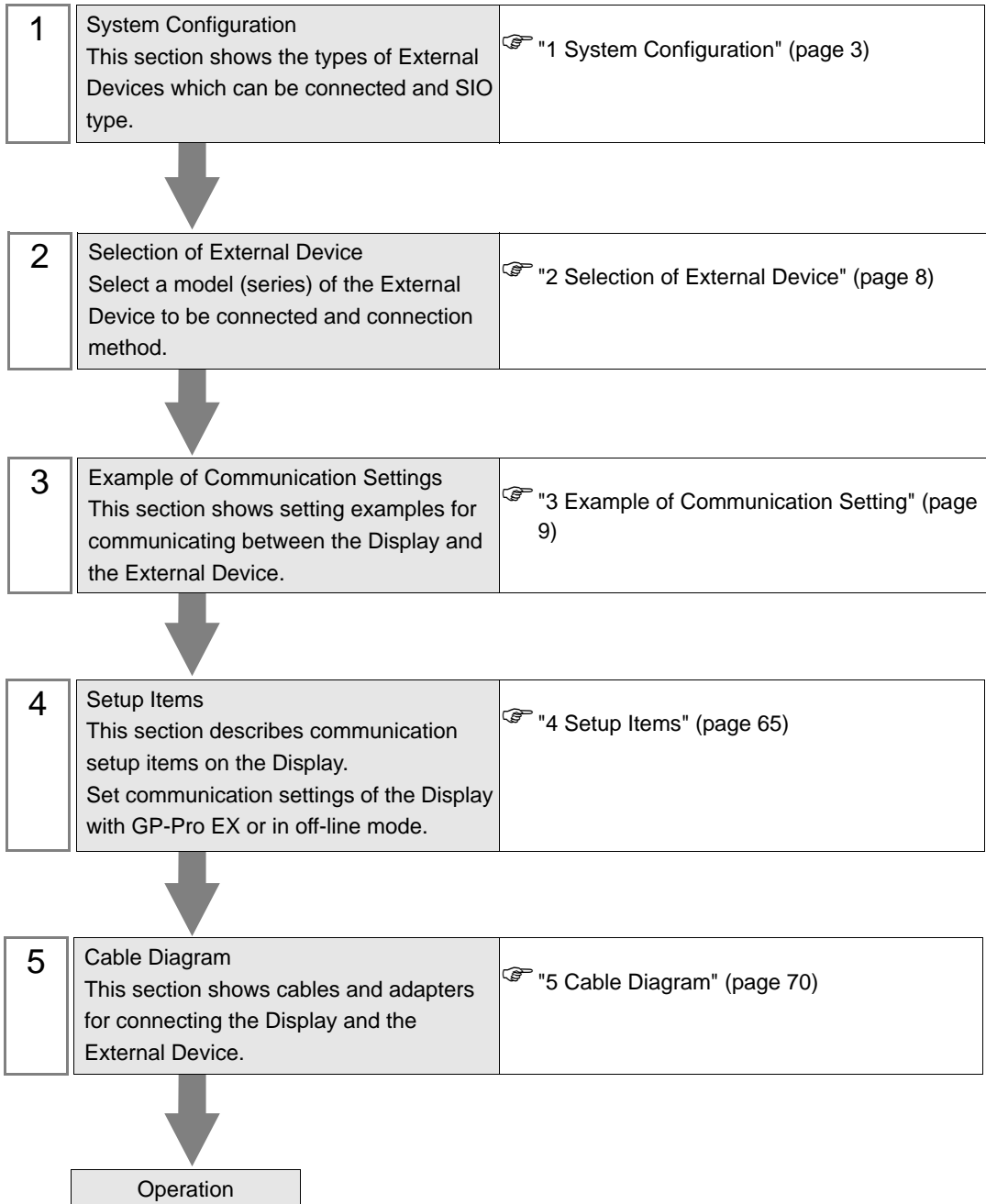
Temperature Controllers MODBUS SIO Driver

1	System Configuration.....	3
2	Selection of External Device	8
3	Example of Communication Setting.....	9
4	Setup Items.....	65
5	Cable Diagram	70
6	Supported Device.....	103
7	Device Code and Address Code.....	111
8	Error Messages.....	112

Introduction

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

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



1 System Configuration

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

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
DB	DB1□□□B■□□-□□□ *1	Port on CPU unit	RS-232C	"Setting Example 1" (page 9)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 2" (page 11)	"Cable Diagram 3" (page 81)
			RS-422/485 (4 wire)	"Setting Example 3" (page 13)	"Cable Diagram 2" (page 72)
	DB2□□□□□□■-□□□ *2	Port on CPU unit	RS-232C	"Setting Example 4" (page 15)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 5" (page 17)	"Cable Diagram 3" (page 81)
			RS-422/485 (4 wire)	"Setting Example 6" (page 19)	"Cable Diagram 2" (page 72)
KP	KP1□□□C■□□-□□□ *1	Port on CPU unit	RS-232C	"Setting Example 7" (page 21)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 8" (page 23)	"Cable Diagram 3" (page 81)
			RS-422/485 (4 wire)	"Setting Example 9" (page 25)	"Cable Diagram 2" (page 72)
	KP2□□□□□□■-□□□ *2	Port on CPU unit	RS-232C	"Setting Example 10" (page 27)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 11" (page 29)	"Cable Diagram 3" (page 81)
			RS-422/485 (4 wire)	"Setting Example 12" (page 31)	"Cable Diagram 2" (page 72)
	KP3□0C□□■-□□□ *2	Port on CPU unit	RS-232C	"Setting Example 13" (page 33)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 14" (page 35)	"Cable Diagram 3" (page 81)
			RS-422/485 (4 wire)	"Setting Example 15" (page 37)	"Cable Diagram 2" (page 72)

Continues to the next page.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
LT	LT23□□□■00-□□□ *3	Port on CPU unit	RS-422/485 (2 wire)	"Setting Example 16" (page 39)	"Cable Diagram 3" (page 81)
	LT3□□□□■00-□□□ *1	Port on CPU unit	RS-232C	"Setting Example 17" (page 41)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 18" (page 43)	"Cable Diagram 3" (page 81)
			RS-422/485 (4 wire)	"Setting Example 19" (page 45)	"Cable Diagram 2" (page 72)
	LT4□□□□■□□-□□□ *1 *4	Port on CPU unit	RS-232C	"Setting Example 20" (page 47)	"Cable Diagram 1" (page 70)
			RS-422/485 (2 wire)	"Setting Example 21" (page 49)	"Cable Diagram 3" (page 81)
LT830□□□000-■□□ *5	Port on CPU unit	RS-422/485 (2 wire)	"Setting Example 23" (page 53)	"Cable Diagram 3" (page 81)	
JU	JU□□□□□□□□513 *6 JU□□□□□□□□613 *7	Port on CPU unit	RS-422/485 (2 wire)	"Setting Example 24" (page 55)	"Cable Diagram 5" (page 96)
	JU□□□□□□□□■□□ *8 *9	Setting communications unit	RS-422/485 (2 wire)	"Setting Example 25" (page 57)	"Cable Diagram 4" (page 89)
			RS-422/485 (4 wire)	"Setting Example 26" (page 59)	"Cable Diagram 2" (page 72)
JW	JW□□□□□□□□■□□ *8	Setting communications unit	RS-422/485 (2 wire)	"Setting Example 27" (page 61)	"Cable Diagram 4" (page 89)
			RS-422/485 (4 wire)	"Setting Example 28" (page 63)	"Cable Diagram 2" (page 72)

*1 Only the External Device with the ■ part of the CPU type has codes blow can be used.
R (RS-232C), A (RS-422A), S (RS-485)

*2 Only the External Device with the ■ part of the CPU type has codes blow can be used.
R (RS-232C), A (RS-422A), S (RS-485), B (RS-232C + RS-232C), C (RS-232C + RS-422A),
D (RS-232C + RS-485), E (RS-485 + RS-232C), F (RS-485 + RS-422A), G (RS-485 + RS-485)

*3 Only the External Device with the ■ part of the CPU type has codes blow can be used.
S or 2 (RS-485)

*4 To communicate with the Display, use LT400 series with Serial Number of LT4037**** or later. If one with
Serial Number of LT4036**** or earlier is used, an error will be displayed.

*5 Only the External Device with the ■ part of the CPU type has codes blow can be used.
2 (RS-485)

*6 JU series with temperature controller feature <Unit space Master>.

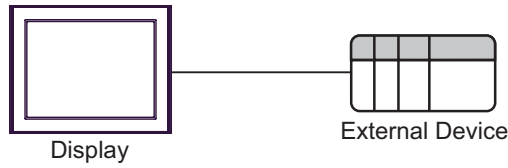
*7 JU series without temperature controller feature <Unit space Slave>.
To communicate with the Display, connect JU series with temperature controller feature <Unit space Master>
(JU□□□□□□□□513) to make master and slave unit communication. Please refer to the External Device
manual on how to make unit communication.

*8 Only the External Device with the ■ part of the CPU type has codes blow can be used.
3 or 4 (RS-422A, RS-485)

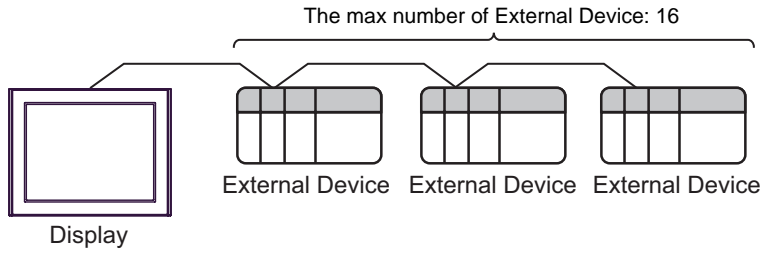
*9 JU series Single-phase.

■ Connection Configuration

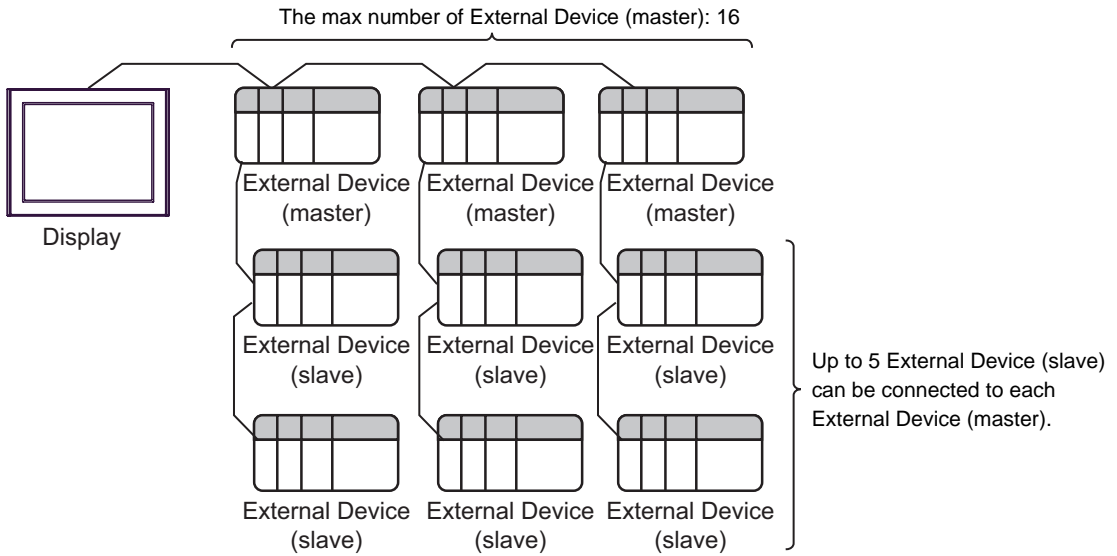
- 1:1 connection



- 1:n connection



- 1:n connection (For JU series with temperature controller feature)



■ COM Port of IPC

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

Usable port

Series	Usable port		
	RS-232C	RS-422/485(4 wire)	RS-422/485(2 wire)
PS-2000B	COM1 ^{*1} , COM2, COM3 ^{*1} , COM4	-	-
PS-3450A, PS-3451A	COM1, COM2 ^{*1*2}	COM2 ^{*1*2}	COM2 ^{*1*2}
PS-3650A, PS-3651A	COM1 ^{*1}	-	-
PS-3700A (Pentium®4-M) PS-3710A	COM1 ^{*1} , COM2 ^{*1} , COM3 ^{*2} , COM4	COM3 ^{*2}	COM3 ^{*2}
PS-3711A	COM1 ^{*1} , COM2 ^{*2}	COM2 ^{*2}	COM2 ^{*2}
PL-3000B	COM1 ^{*1*2} , COM2 ^{*1} , COM3, COM4	COM1 ^{*1*2}	COM1 ^{*1*2}

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

*2 It is necessary to set up the SIO type with the Dip switch. Please set up as follows according to SIO type to be used.

Dip switch setting: RS-232C

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

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

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

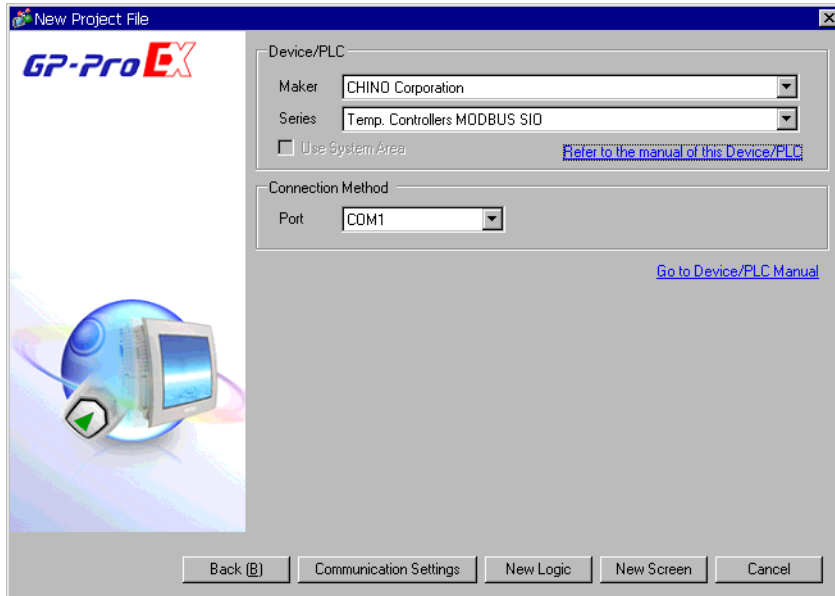
Dip switch	Setting	Description
1	OFF	Reserve (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA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

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

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

2 Selection of External Device

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Maker	Select the maker of the External Device to be connected. Select "CHINO Corporation."
Series	Select a model (series) of the External Device to be connected and connection method. Select "Temp. Controllers MODBUS SIO." Check the External Device which can be connected in "Temp. Controllers MODBUS SIO" in system configuration. ☞ "1 System Configuration" (page 3)
Use System Area	This driver cannot be used.
Port	Select the Display port to be connected to the External Device.

3 Example of Communication Setting

The following shows examples of communication settings of the Display and the External Device, which is recommended by Pro-face.

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 CHINO Corporation Series Temp. Controllers MODBUS 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 10 (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 Number of Devices/PLCs 16

Number	Device Name	Settings
1	PLC1	Series=DB1000 Series, Station No.=1

IMPORTANT • Set Wait To Send to 5ms or more.

◆ 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

Use the MODE key, SEL key, ENT key, shift key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE7."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or shift key, select setting value, and press ENT key.

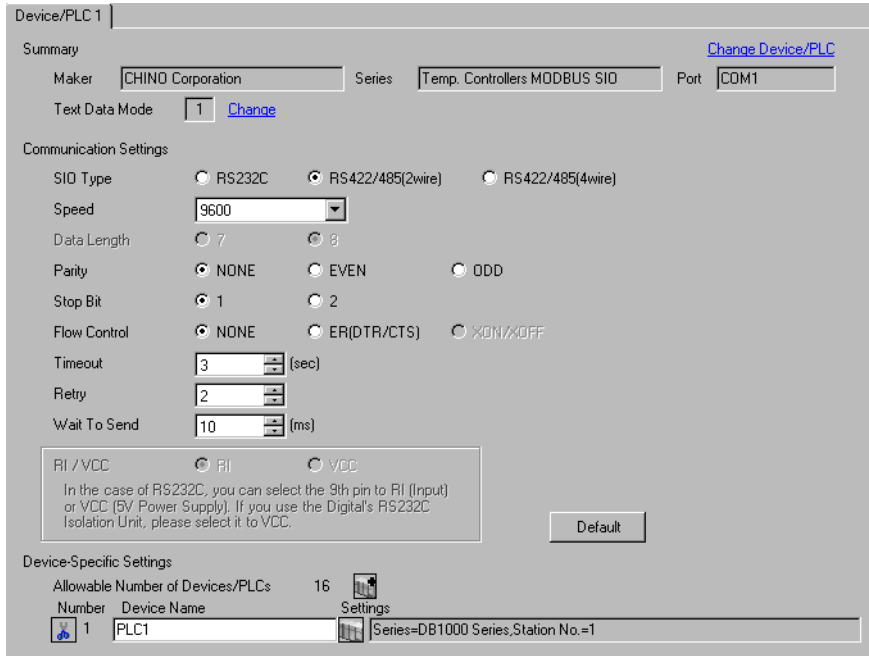
Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.



IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, shift key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE7."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or shift key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, shift key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE7."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or shift key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.

IMPORTANT • Set Wait To Send to 5ms or more.

◆ 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

Use the MODE key, SEL key, ENT key, shift key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE7."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or shift key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, shift key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE7."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or shift key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, shift key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE7."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or shift key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.

IMPORTANT • Set Wait To Send to 5ms or more.

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

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.

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.9 Setting Example 9

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.10 Setting Example 10


■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT • Set Wait To Send to 5ms or more.

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.11 Setting Example 11

■ Settings of GP-Pro EX

◆ Communication Settings


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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.12 Setting Example 12

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.13 Setting Example 13


■ Settings of GP-Pro EX


◆ Communication Settings

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

IMPORTANT • Set Wait To Send to 5ms or more.

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.14 Setting Example 14

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

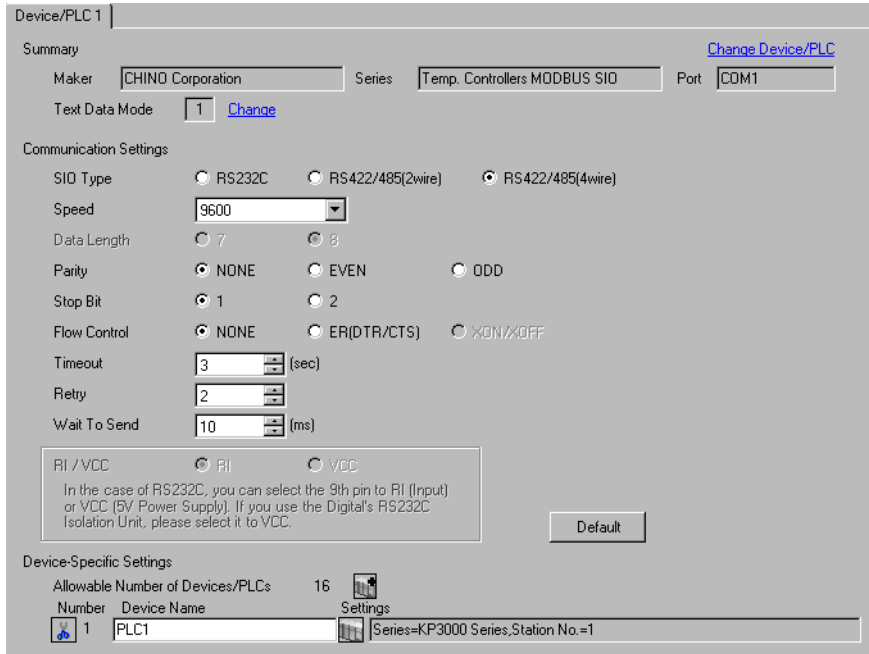
Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.15 Setting Example 15

■ Settings of GP-Pro EX

◆ Communication Settings

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



IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL key, ENT key, right key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press down/up key to move to "MODE8."
- 3 Press SEL key to display items to be set.
- 4 Press down/up key or right key, select setting value, and press ENT key.

Setup Items	Setting Value
COM BIT RATE	9600bps
COM NUMBER	01
COM KIND	COM
COM PROTOCOL	MODBUS(RTU)
COM CHARACTER	8BIT/NON/STOP1

3.16 Setting Example 16

■ Settings of GP-Pro EX

◆ Communication Settings


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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	20ms or more
1 : n	65ms or more

◆ 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

Use the SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press SEL/ENT key for 2 seconds.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

Setup Items	Setting Value
PtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHAr	5

3.17 Setting Example 17

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT • Set Wait To Send to 20ms or more.

◆ 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

Use the MODE key, SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

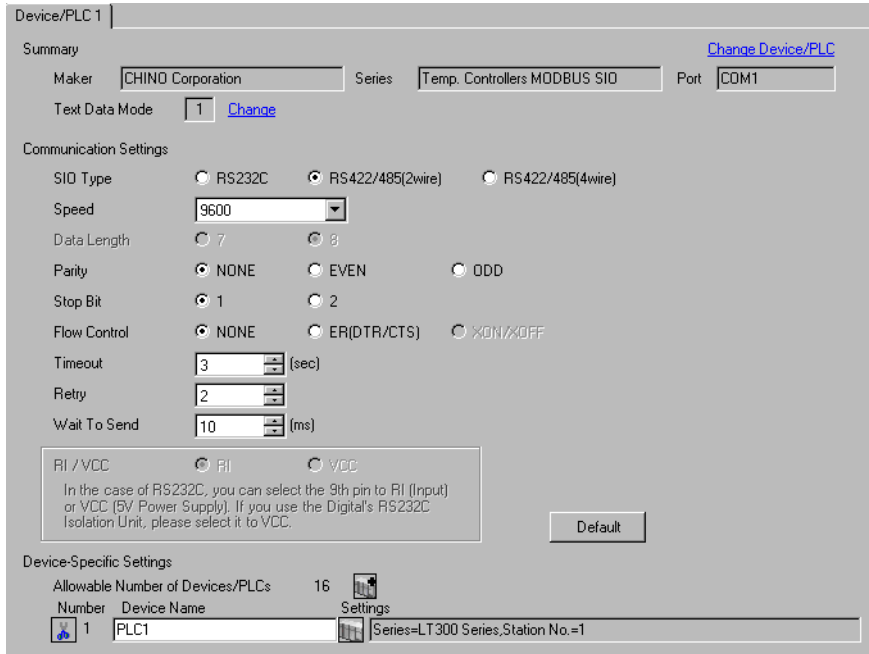
Setup Items	Setting Value
PtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHAr	5

3.18 Setting Example 18

■ Settings of GP-Pro EX

◆ Communication Settings

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



IMPORTANT

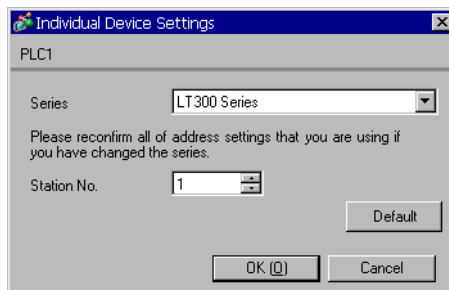
- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	20ms or more
1 : n	65ms or more

◆ 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

Use the MODE key, SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

Setup Items	Setting Value
PtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHAr	5

3.19 Setting Example 19

■ Settings of GP-Pro EX

◆ Communication Settings


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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	20ms or more
1 : n	65ms or more

◆ 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

Use the MODE key, SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

Setup Items	Setting Value
PtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHAr	5

3.20 Setting Example 20


■ Settings of GP-Pro EX


◆ Communication Settings

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

IMPORTANT • Set Wait To Send to 5ms or more.

◆ 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

Use the MODE key, SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

Setup Items	Setting Value
PrtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHArA	8n1

3.21 Setting Example 21

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

Setup Items	Setting Value
PrtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHArA	8n1

3.22 Setting Example 22

■ Settings of GP-Pro EX

◆ Communication Settings


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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press UP key to move to "MODE7."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

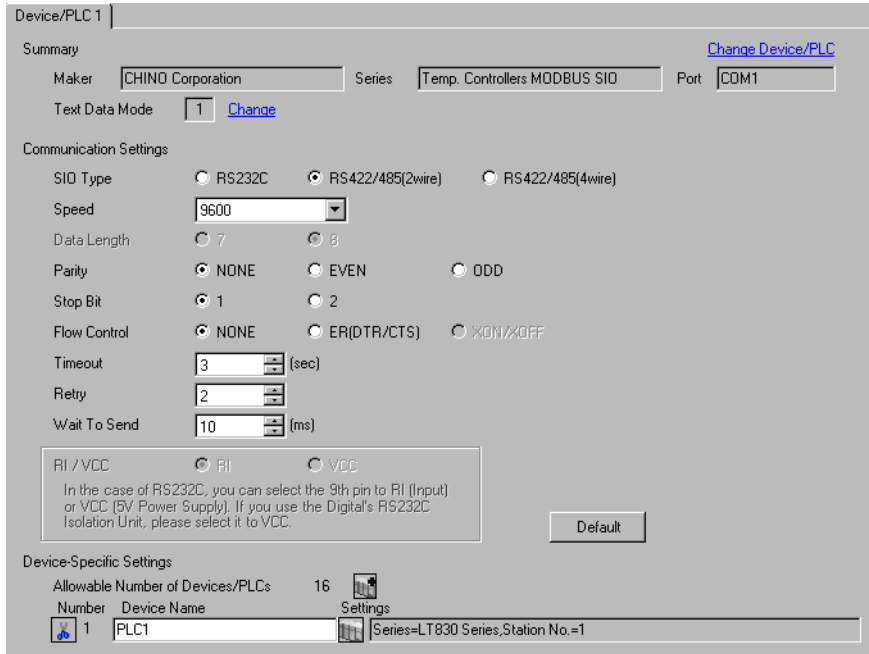
Setup Items	Setting Value
PrtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHArA	8n1

3.23 Setting Example 23

■ Settings of GP-Pro EX

◆ Communication Settings

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



IMPORTANT

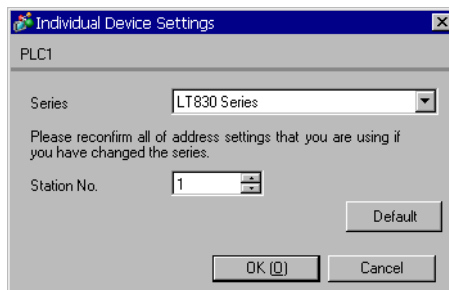
- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	20ms or more
1 : n	65ms or more

◆ 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

Use the SEL/ENT key, DOWN key and UP key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press SEL/ENT key for 2 seconds.
- 2 Press UP key to move to "MODE6."
- 3 Press SEL/ENT key to display items to be set.
- 4 Press DOWN/UP key, select setting value, and press SEL/ENT key.

Setup Items	Setting Value
PtCL	rtU
FUnC	Com
AdrS	1
rAtE	9600
CHAr	8n1

3.24 Setting Example 24

■ Settings of GP-Pro EX

◆ Communication Settings


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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the rotary switch and DIP switches of the External Device for communication settings of the External Device. Please refer to the manual of the External Device for more details.

- Rotary switch (SW1)

Rotary switch	Setting Value
SW1	1

- DIP switch (SW2)

DIP switches	Setting Value
SW1	OFF
SW2	OFF
SW3	OFF
SW4	OFF
SW5	OFF
SW6	OFF
SW7	OFF
SW8	OFF

3.25 Setting Example 25

■ Settings of GP-Pro EX

◆ Communication Settings


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


IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, ENT key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press up key to move to "MODE3."
- 3 Press ENT key to display items to be set.
- 4 Press down/up key, select setting value, and press ENT key.

Setup Items	Setting Value
PtCL	rtU
AdrS	1
rAtE	9600
CHAr	8n1

3.26 Setting Example 26

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, ENT key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press up key to move to "MODE3."
- 3 Press ENT key to display items to be set.
- 4 Press down/up key, select setting value, and press ENT key.

Setup Items	Setting Value
PtCL	rtU
AdrS	1
rAtE	9600
CHAr	8n1

3.27 Setting Example 27

■ Settings of GP-Pro EX

◆ Communication Settings


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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, ENT key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press up key to move to "MODE3."
- 3 Press ENT key to display items to be set.
- 4 Press down/up key, select setting value, and press ENT key.

Setup Items	Setting Value
PtCL	rtU
AdrS	1
rAtE	9600
CHAr	8n1

3.28 Setting Example 28

■ Settings of GP-Pro EX

◆ Communication Settings

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

IMPORTANT

- Setting value for Wait To Send differs depending on the connection configuration. Set as shown below.

Connection Configuration	Setting Value
1 : 1	5ms or more
1 : n	10ms or more

◆ 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

Use the MODE key, ENT key, down key and up key in front of the controller for communication settings of the External Device.

Please refer to the manual of the External Device for more details.

- 1 Press MODE key.
- 2 Press up key to move to "MODE3."
- 3 Press ENT key to display items to be set.
- 4 Press down/up key, select setting value, and press ENT key.

Setup Items	Setting Value
PtCL	rtU
AdrS	1
rAtE	9600
CHAr	8n1

4 Setup Items

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

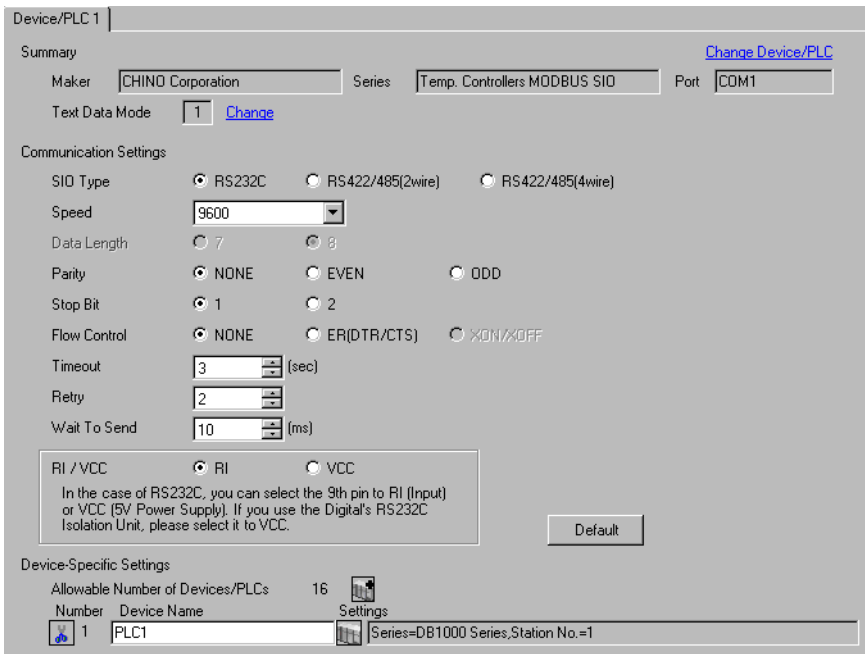
The setting of each parameter must be identical to that of External Device.

 "3 Example of Communication Setting" (page 9)

4.1 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: CHINO Corporation Series: Temp. Controllers MODBUS 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: 10 (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 Number of Devices/PLCs: 16 

Number: 1 Device Name: PLC1 Settings: Series=DB1000 Series, Station No.=1

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device.
Speed	Select speed between the External Device and the Display.
Data Length	Display data length.
Parity	Select how to check parity.
Stop Bit	Select stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
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. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

■ Device Setting

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

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



Setup Items	Setup Description
Series	Select the External Device series.
Station No.	Use an integer 1 to 99 to enter the station number of the External Device to communicate.

4.2 Communication Settings in Off-line Mode

NOTE

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

Cf. Maintenance/Troubleshooting "2.2 Offline Mode"

■ Communication Settings

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

Comm.	Device	Option		
Temp. Controllers MODBUS SIO		[COM1]	Page 1/1	
SIO Type	RS422/485(2wire)			
Speed	9600			
Data Length	8			
Parity	<input checked="" type="radio"/> NONE <input type="radio"/> EVEN <input type="radio"/> ODD			
Stop Bit	<input checked="" type="radio"/> 1 <input type="radio"/> 2			
Flow Control	NONE			
Timeout(s)	3			
Retry	2			
Wait To Send(ms)	10			
Exit		Back		2007/10/30 14:53:59

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the External Device. IMPORTANT To make the communication settings correctly, confirm the serial interface specifications of Display unit for [SIO Type]. We cannot guarantee the operation if a communication type that the serial interface does not support is specified. For details concerning the serial interface specifications, refer to the manual for Display unit.
Speed	Select speed between the External Device and the Display.
Data Length	Display 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 the Display waits for the response from the External Device.

Continues to the next page.

Setup Items	Setup Description
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send (ms)	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.

■ Device Settings

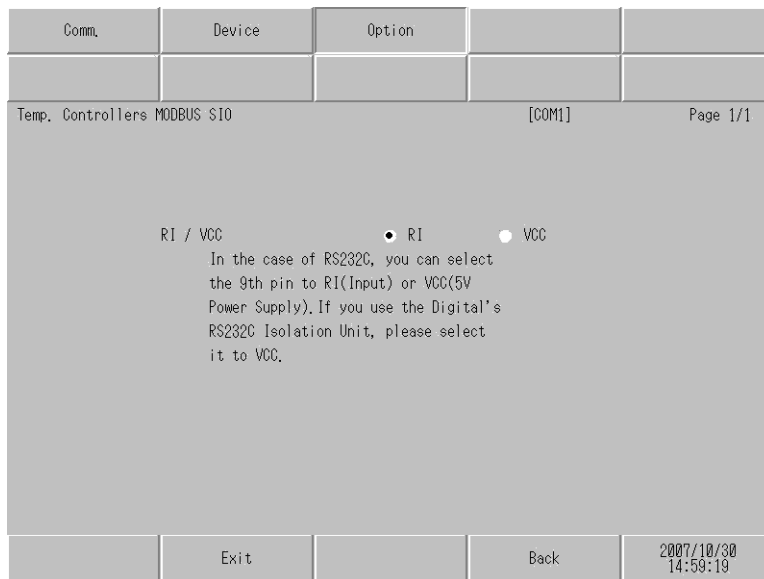
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings]. Touch the External Device you want to set from the displayed list, and touch [Device Settings].

Comm.	Device	Option		
Temp. Controllers MODBUS SIO		[COM1]	Page 1/1	
Device/PLC Name	PLC1			
Series	DB1000 Series			
Station No.	1			
	Exit		Back	2007/10/30 14:54:03

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])
Series	Display the External Device series.
Station No.	Use an integer 1 to 99 to enter the station number of the External Device to communicate.

■ Option

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



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


5 Cable Diagram

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

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

Cable Diagram 1

Display (Connection Port)	Cable		Notes
GP (COM1) LT (COM1) IPC*1 PC/AT	A	RS-232C communication cable by CHINO Corporation RZ-CRS6□□*2	Cable length: 15m or less
	B	Your own cable	

*1 Only the COM port which can communicate by RS-232C can be used.
 "■ COM Port of IPC" (page 6)

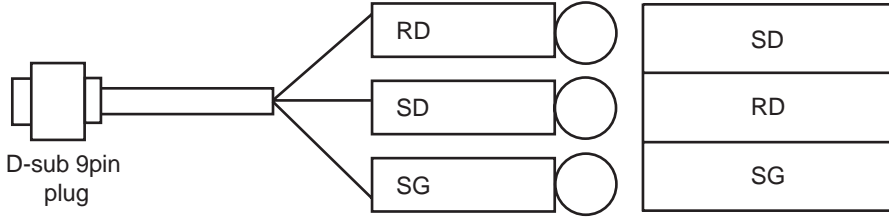
*2 □□ shows cable length.

IMPORTANT

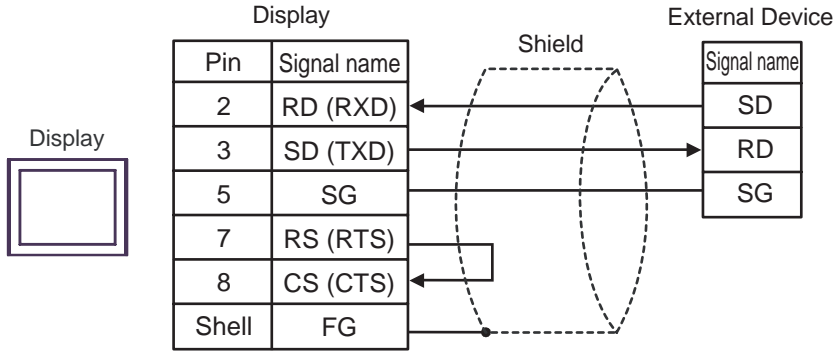
- Terminal number to be used for communication varies depending on the External Device. Terminal numbers corresponding to each series are shown below.

Series	SD	RD	SG
DB1000	13	12	14
DB2000 (COM1)	27	26	28
DB2000 (COM2)	30	29	31
KP1000	13	12	14
KP2000 (COM1)	27	26	28
KP2000 (COM2)	30	29	31
KP3000 (COM1)	27	26	28
KP3000 (COM2)	30	29	31
LT300/400	11	13	15

A) When using the RS-232C Communication Cable by CHINO Corporation




B) When using your own cable



Cable Diagram 2

Display (Connection Port)	Cable		Notes
GP* ¹ (COM1) AGP-3302B (COM2) LT (COM1) IPC* ²	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	Cable length: 600m or less
	B	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + RS-422 cable by Pro-face CA3-CBL422-01 + Your own cable	
	C	RS-422 cable by Pro-face CA3-CBL422/5M-01 + Your own cable	
	D	Your own cable	
GP* ³ (COM2)	E	Online adapter by Pro-face CA4-ADPONL-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Online adapter by Pro-face CA4-ADPONL-01 + Your own cable	
	G	Online adapter by Pro-face CA4-ADPONL-01 + RS-422 cable by Pro-face CA3-CBL422-01 + Your own cable	

*1 All GP models except AGP-3302B

*2 Only the COM port which can communicate by RS-422/485 (4 wire) can be used.
 "■ COM Port of IPC" (page 6)

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

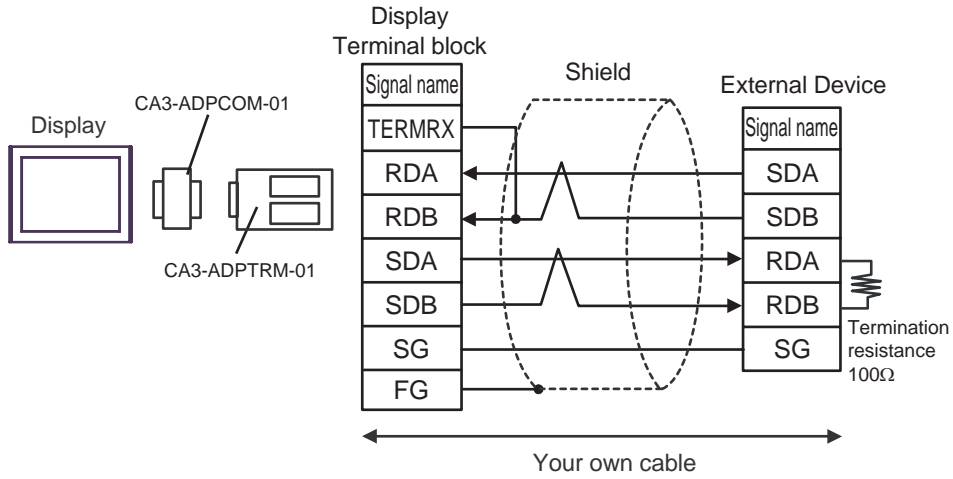
IMPORTANT

- Terminal number to be used for communication varies depending on the External Device. Terminal numbers corresponding to each series are shown below.

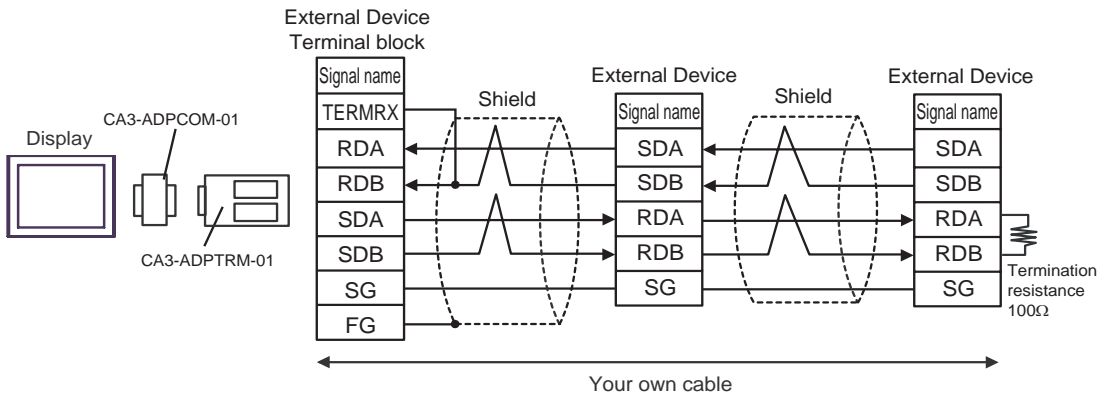
Series	SDA	SDB	RDA	RDB	SG
DB1000	14	15	12	13	16
DB2000 (COM1)	28	29	26	27	30
DB2000 (COM2)	31	32	29	30	28
KP1000	14	15	12	13	16
KP2000 (COM1)	28	29	26	27	30
KP2000 (COM2)	31	32	29	30	28
KP3000 (COM1)	28	29	26	27	30
KP3000 (COM2)	31	32	29	30	28
LT300/400	11	12	13	14	15
JU Single-phase	1	2	3	4	5
JW	1	2	3	4	5

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

- 1:1 connection

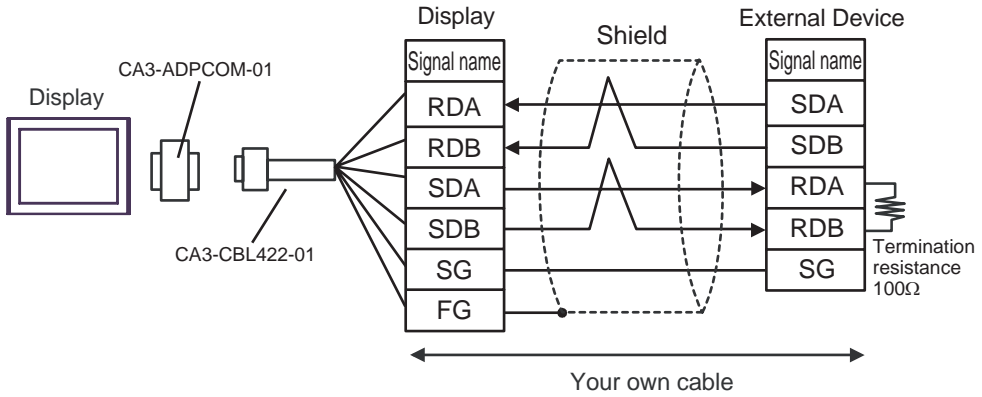


- 1:n connection

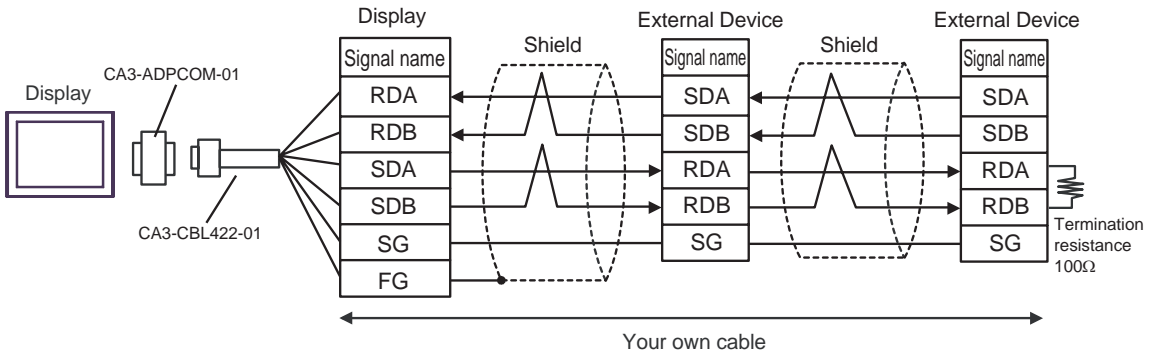


B) When using the COM port conversion adapter (CA3-ADPCOM-01), the RS-422 cable (CA3-CBL422-01) by Pro-face and your own cable

- 1:1 connection

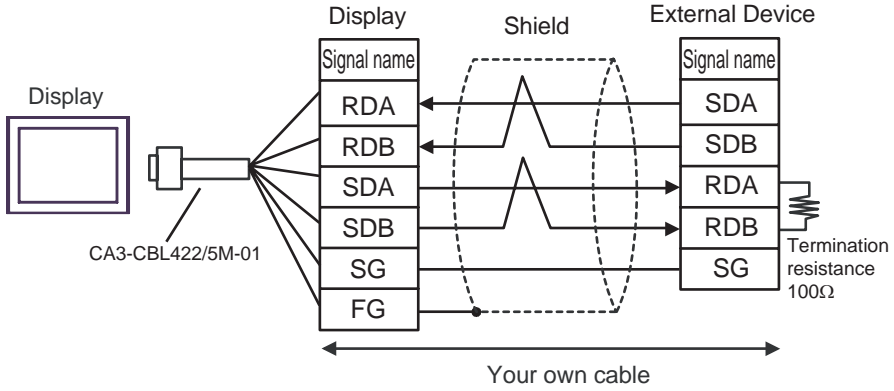


- 1:n connection

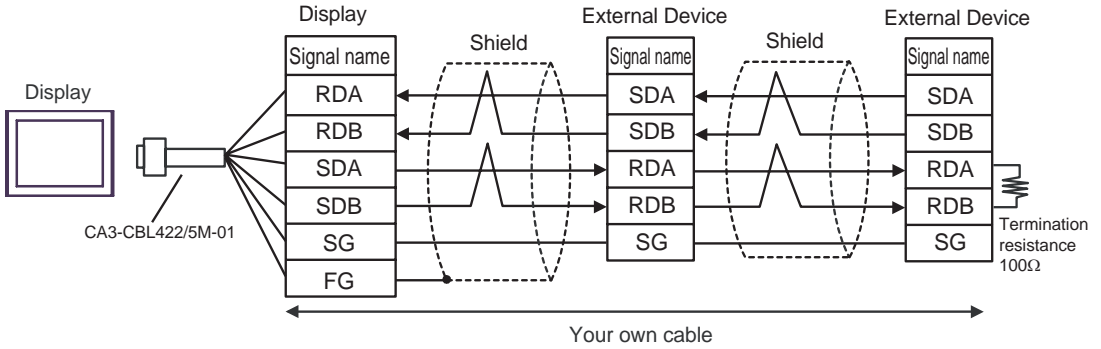


C) When using the RS-422 cable (CA3-CBL422/5M-01) by Pro-face and your own cable

- 1:1 connection

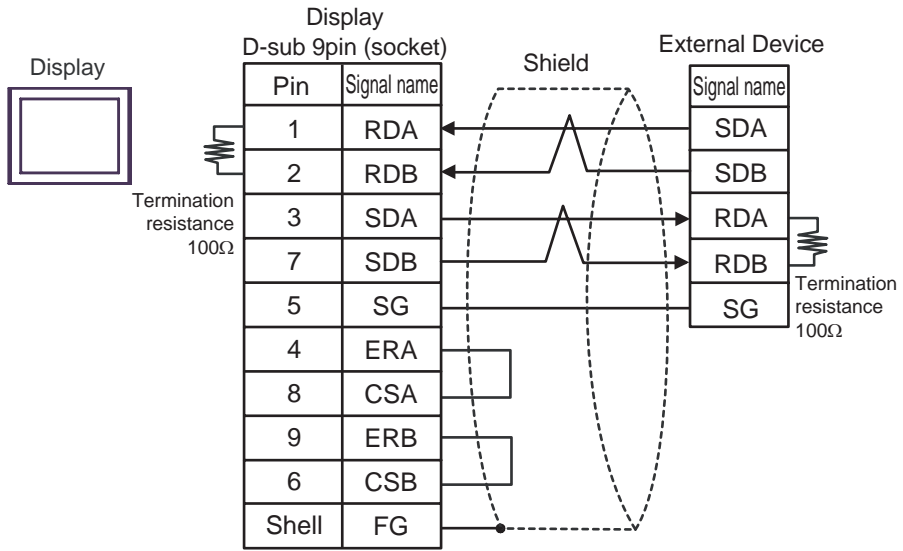


- 1:n connection

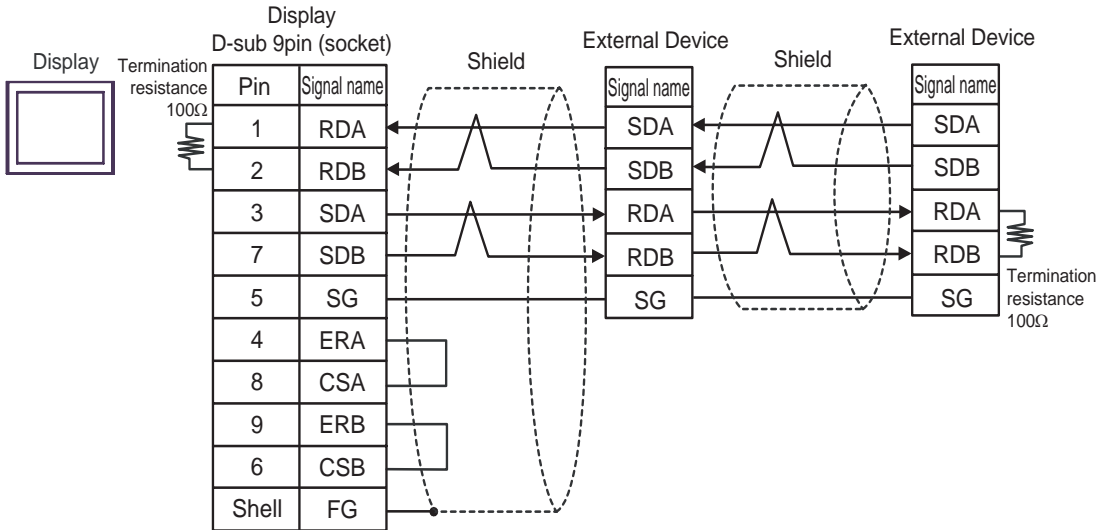


D) When using your own cable

- 1:1 connection

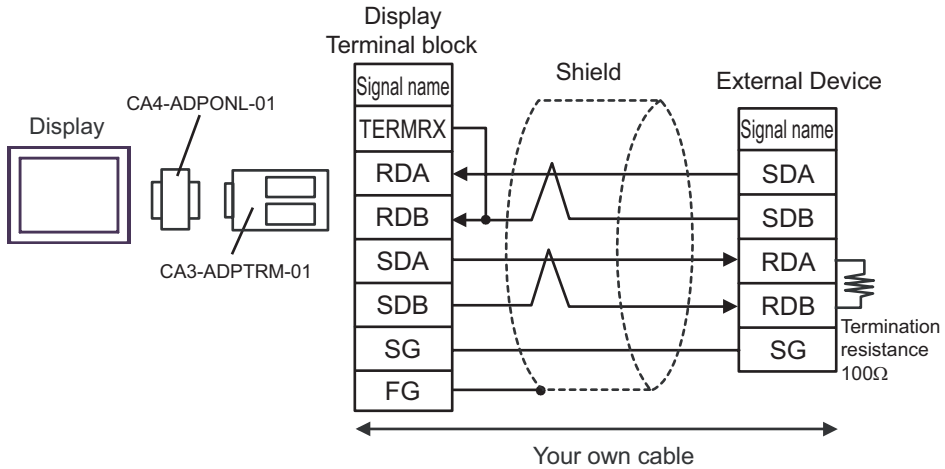


- 1:n connection

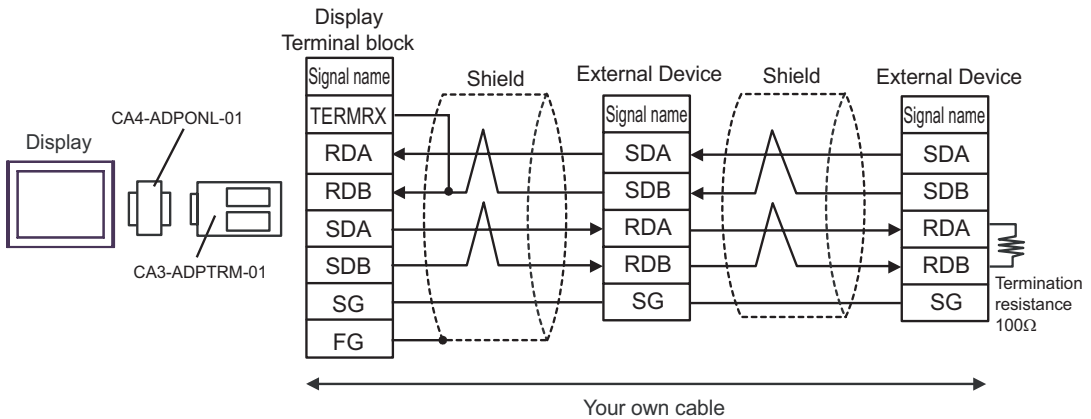


E) When using the online adapter (CA4-ADPONL-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

- 1:1 connection

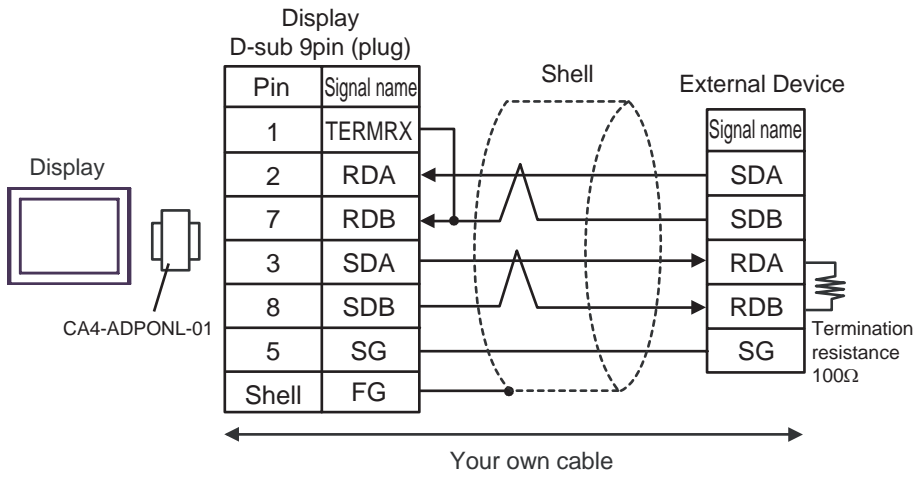


- 1:n connection

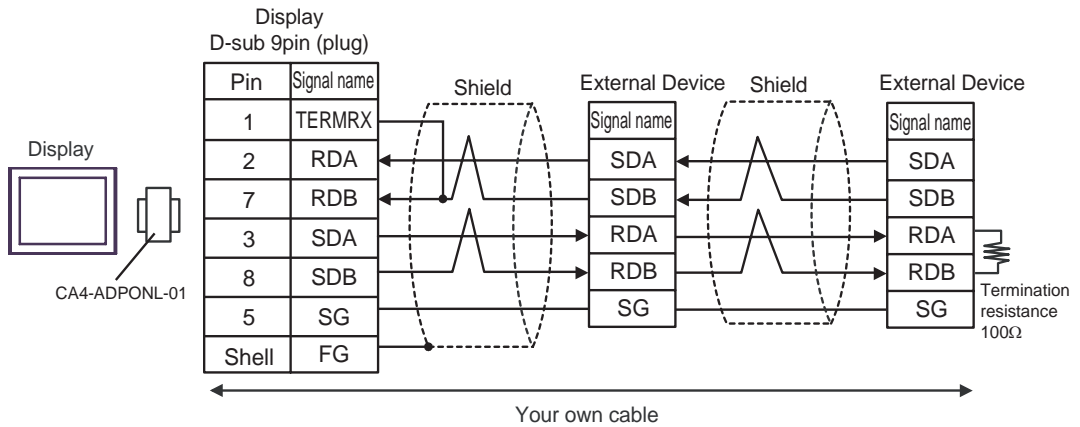


F) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

- 1:1 connection

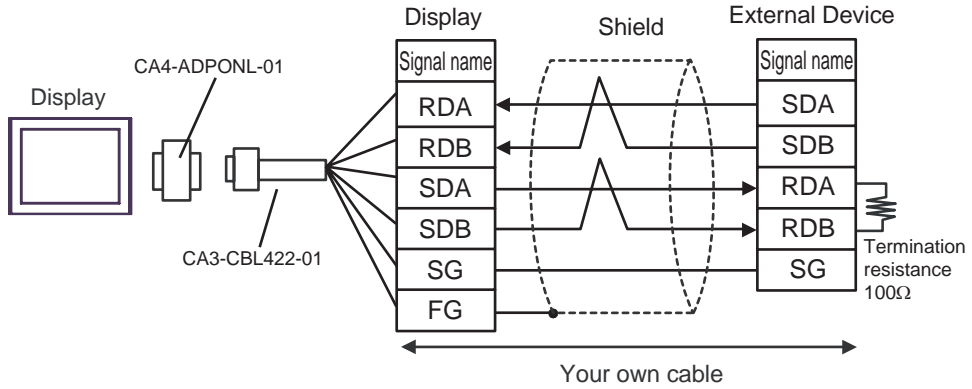


- 1:n connection

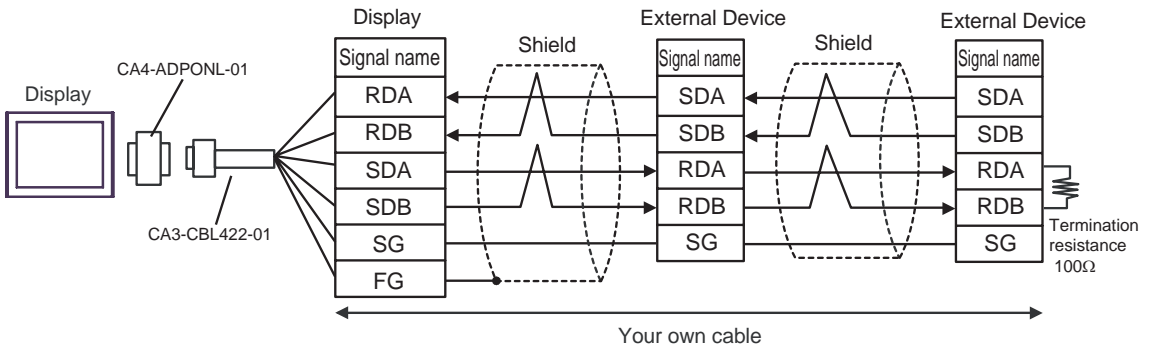


G) When using the online adapter (CA4-ADPONL-01), the RS-422 cable (CA3-CBL422-01) by Pro-face and your own cable

- 1:1 connection



- 1:n connection




Cable Diagram 3

Display (Connection Port)	Cable		Notes
GP*1 (COM1) AGP-3302B (COM2) LT (COM1)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	Cable length: 600m or less
	B	Your own cable	
GP*2 (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + 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	
IPC*3	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Your own cable	

*1 All GP models except AGP-3302B

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

*3 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 "■ COM Port of IPC" (page 6)

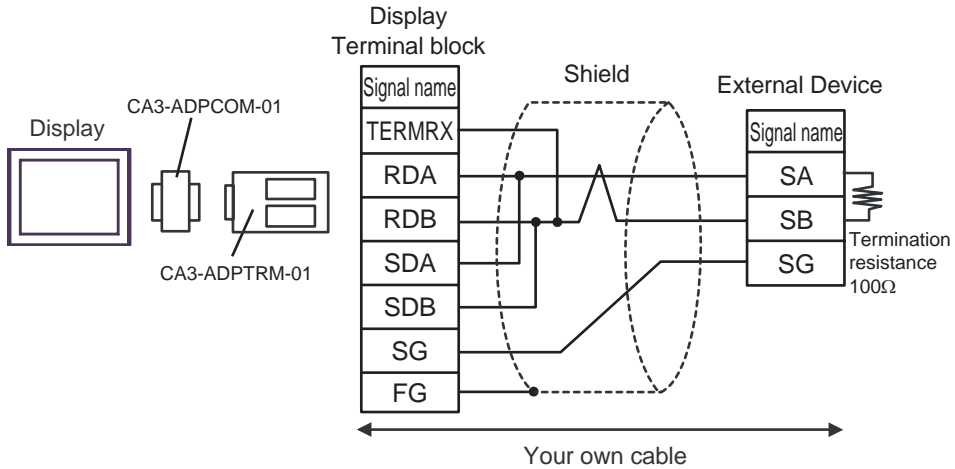
IMPORTANT

- Terminal number to be used for communication varies depending on the External Device. Terminal numbers corresponding to each series are shown below.

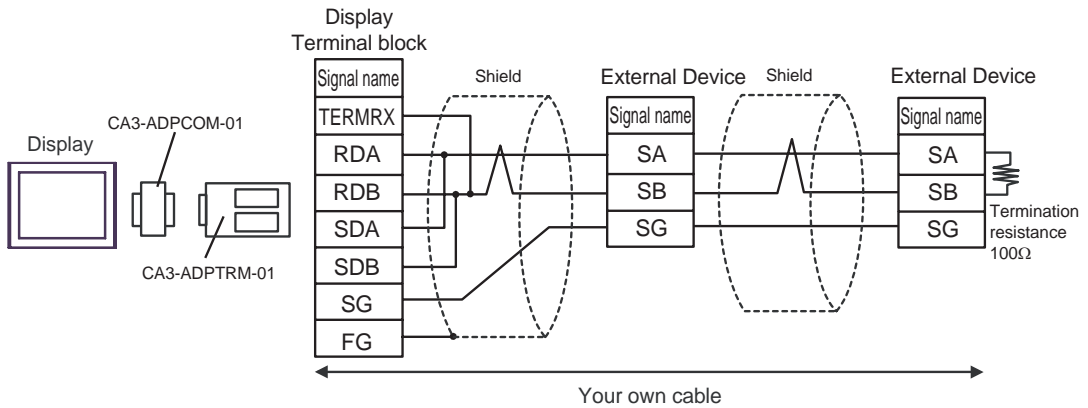
Series	SA	SB	SG
DB1000	12	13	14
DB2000 (COM1)	26	27	28
DB2000 (COM2)	29	30	31
KP1000	12	13	14
KP2000 (COM1)	26	27	28
KP2000 (COM2)	29	30	31
KP3000 (COM1)	26	27	28
KP3000 (COM2)	29	30	31
LT230	6	7	8
LT300/400	11	12	15
LT830	6	7	8

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

- 1:1 connection

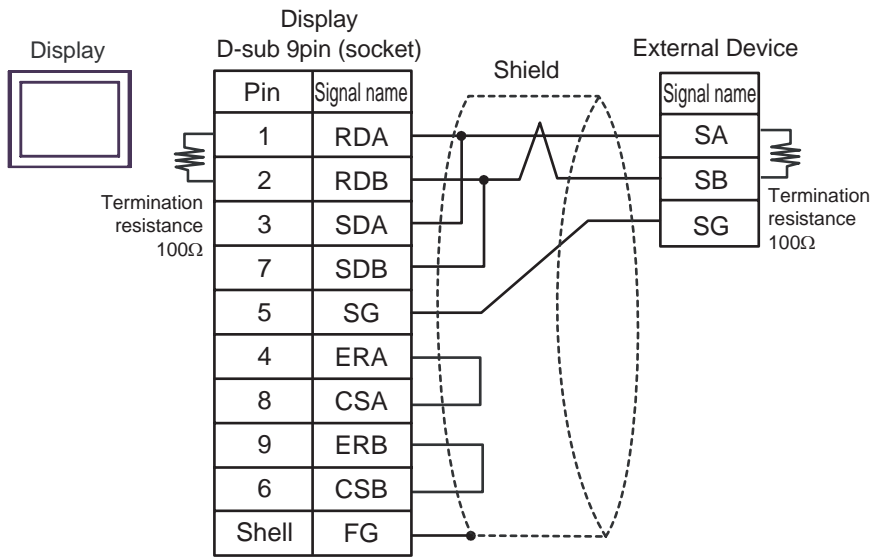


- 1:n connection

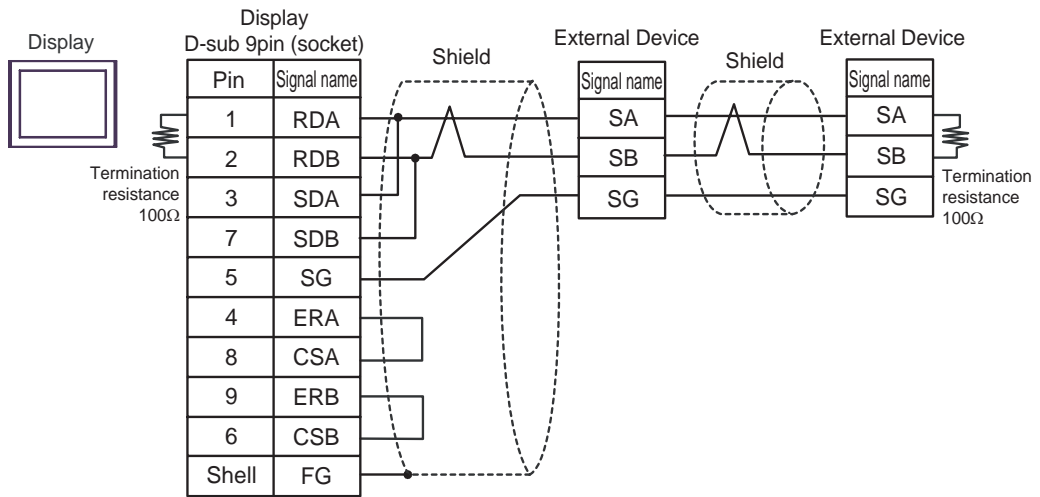


B) When using your own cable

- 1:1 connection

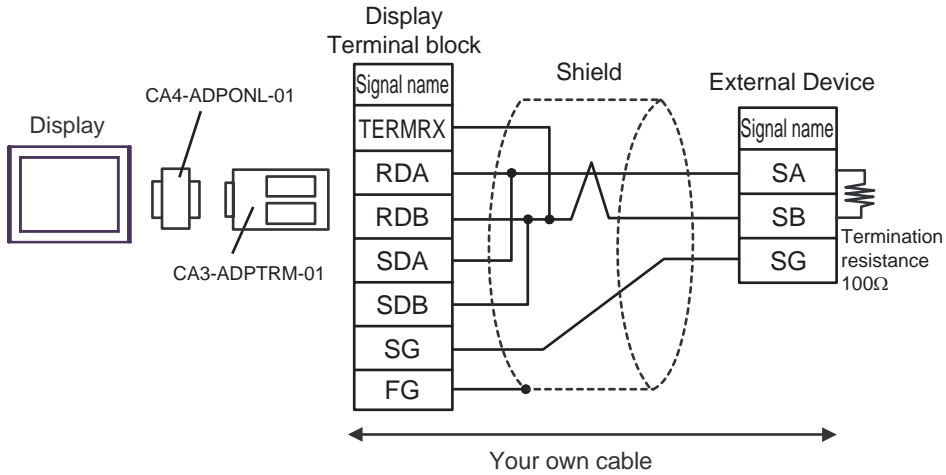


- 1:n connection

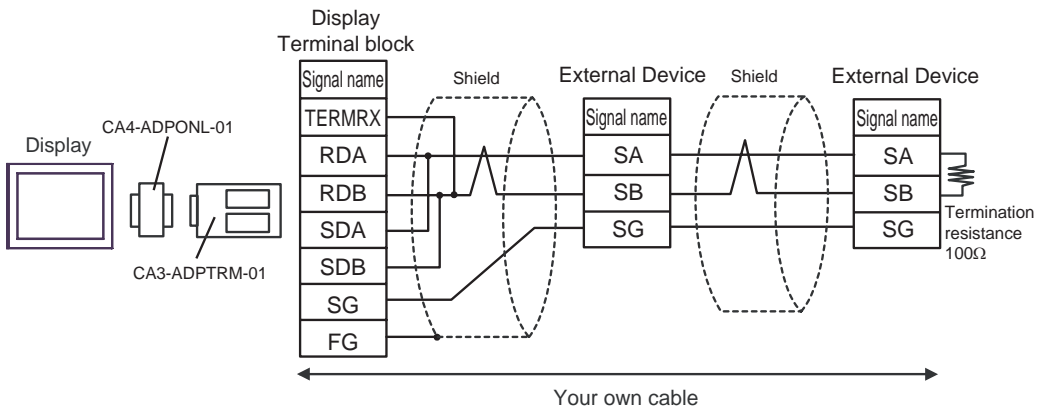


C) When using the online adapter (CA4-ADPONL-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

- 1:1 connection

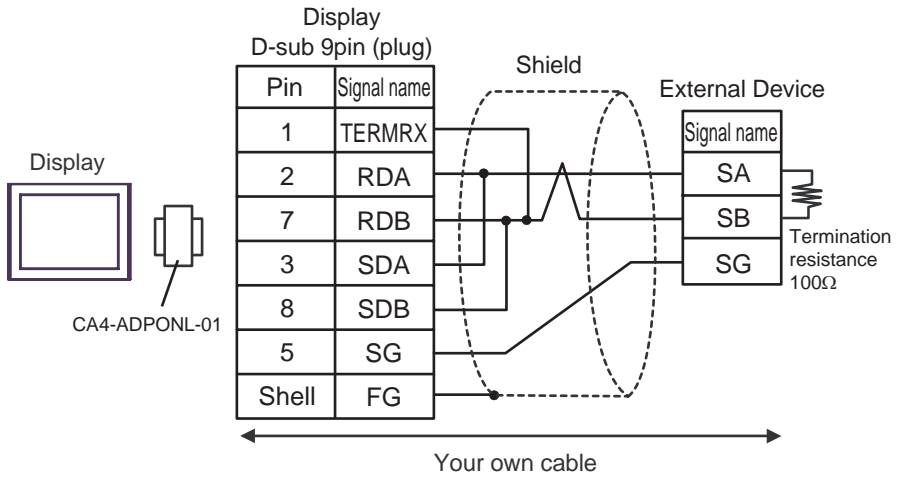


- 1:n connection

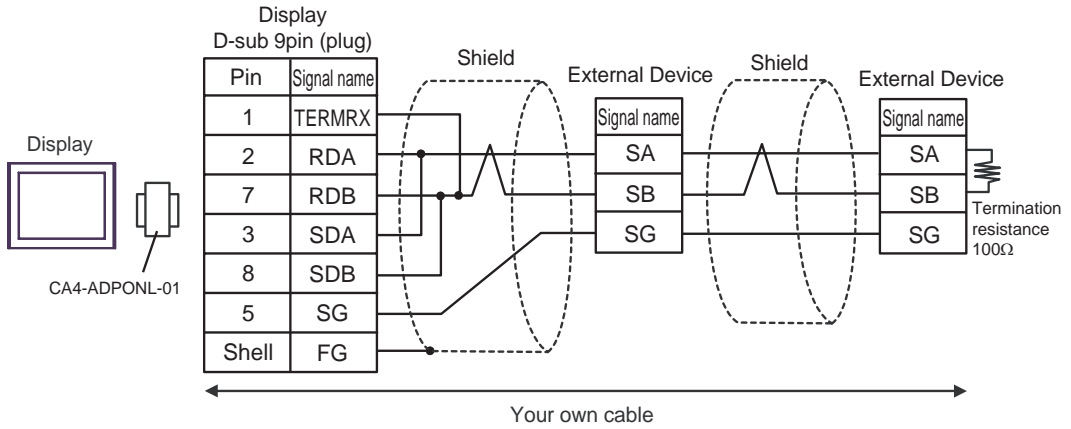


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

- 1:1 connection

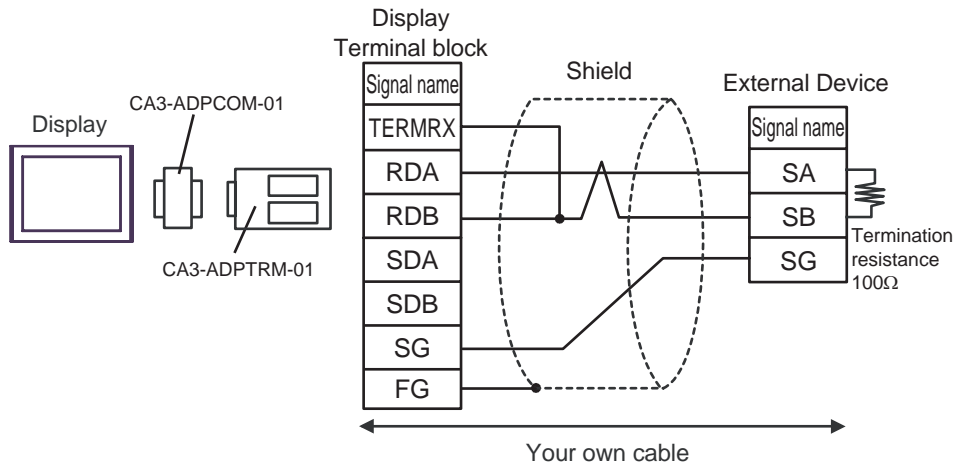


- 1:n connection

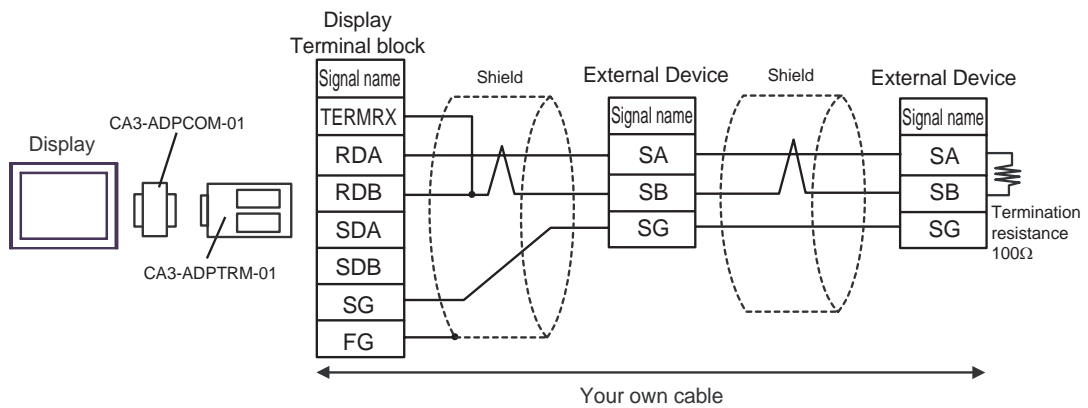


E) When using the com port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

- 1:1 connection

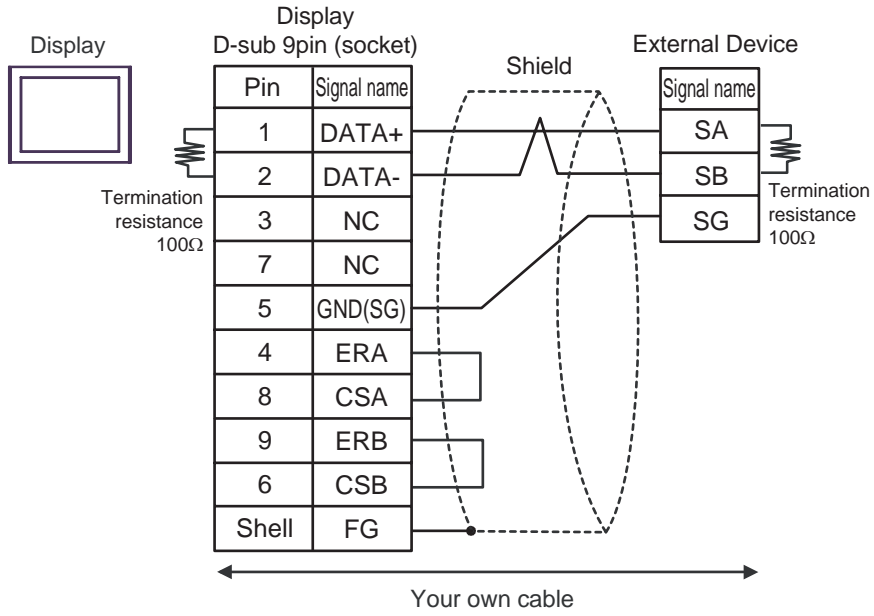


- 1:n connection

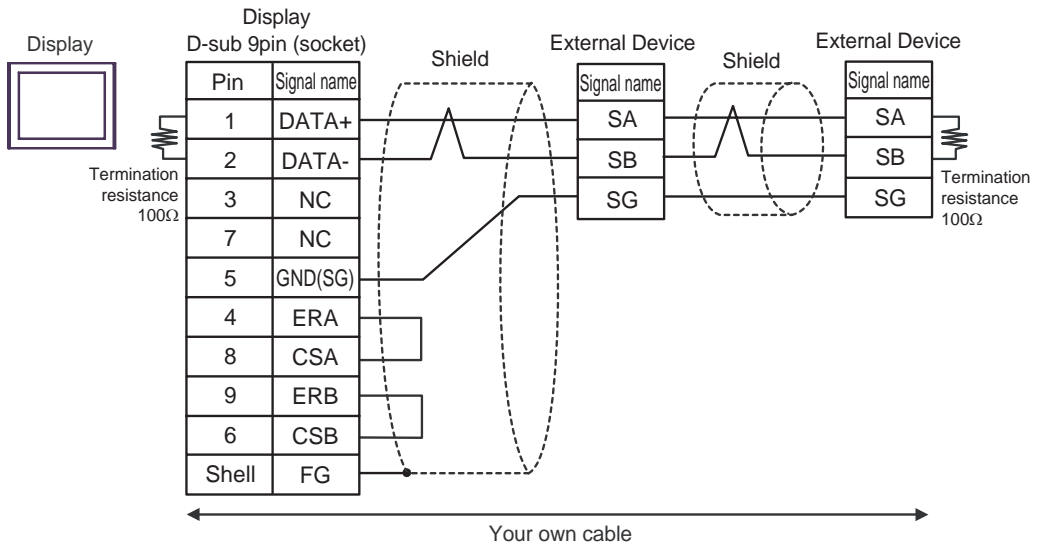


F) When using your own cable

- 1:1 connection



- 1:n connection




Cable Diagram 4

Display (Connection Port)	Cable		Notes
GP*1 (COM1) AGP-3302B (COM2) LT (COM1)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	Cable length: 600m or less
	B	Your own cable	
GP*2 (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + 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	
IPC*3	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Your own cable	

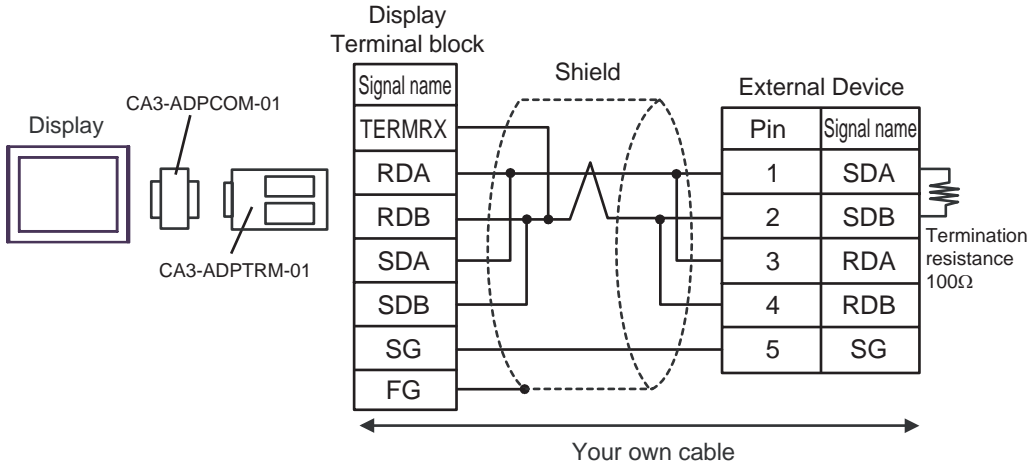
*1 All GP models except AGP-3302B

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

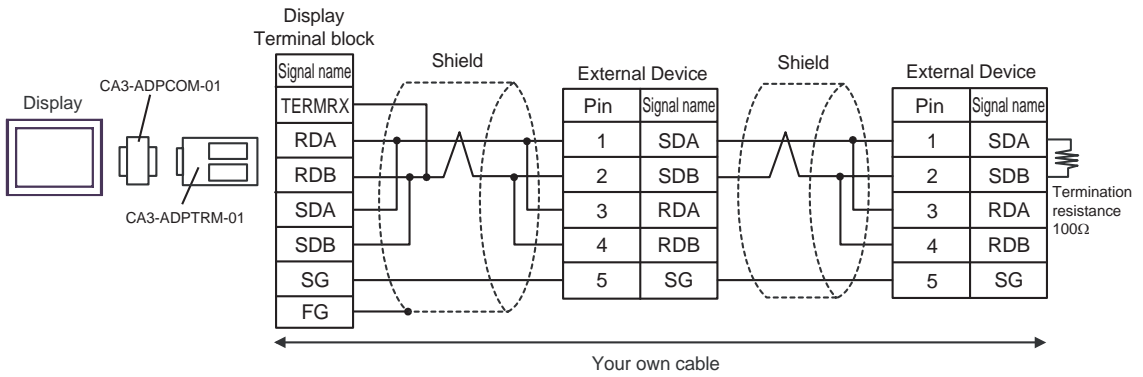
*3 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 "■ COM Port of IPC" (page 6)

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

- 1:1 connection

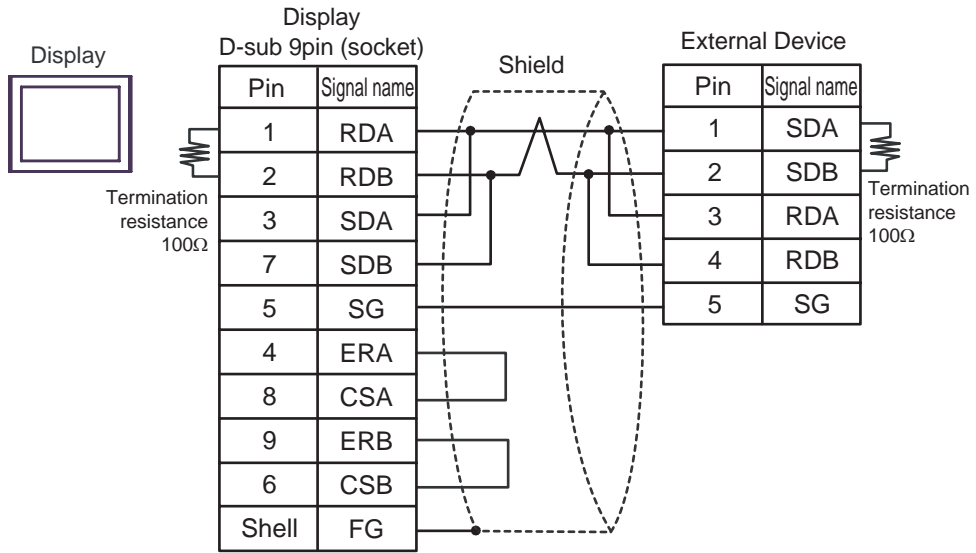


- 1:n connection

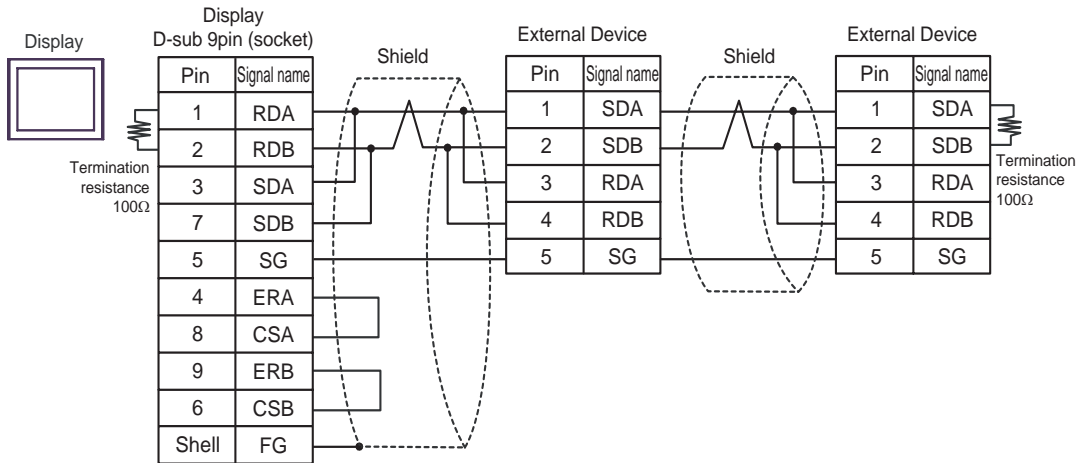


B) When using your own cable

- 1:1 connection

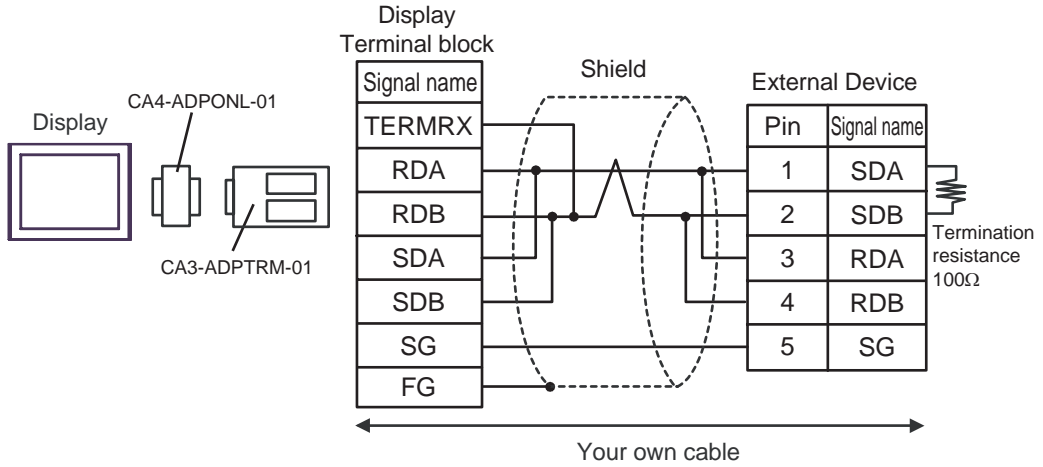


- 1:n connection

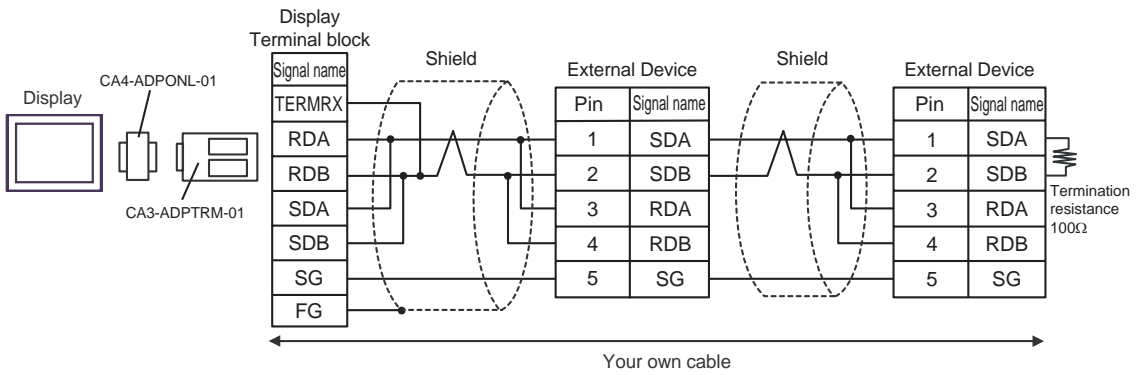


C) When using the online adapter (CA4-ADPONL-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

- 1:1 connection

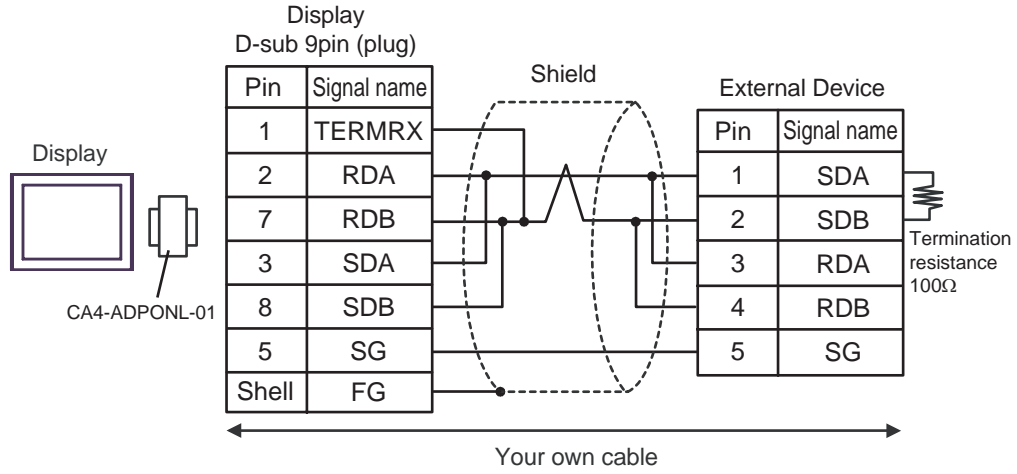


- 1:n connection

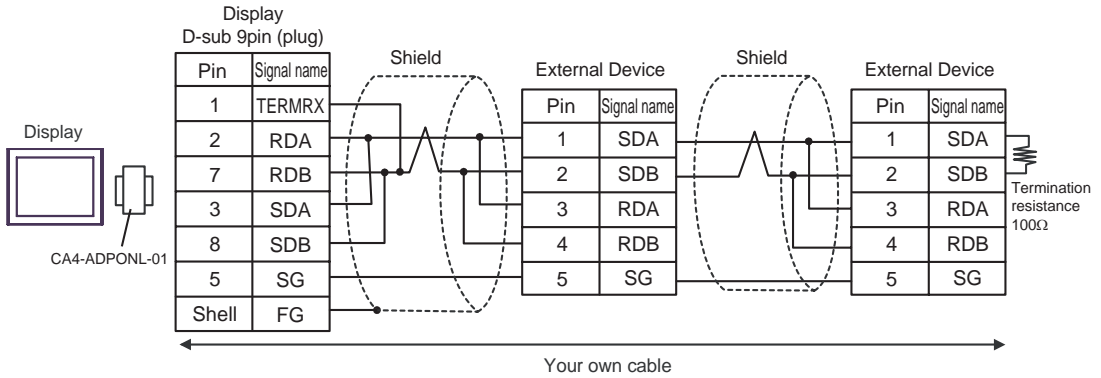


D) When using the online adapter (CA4-ADPONL-01) by Pro-face and your own cable

- 1:1 connection

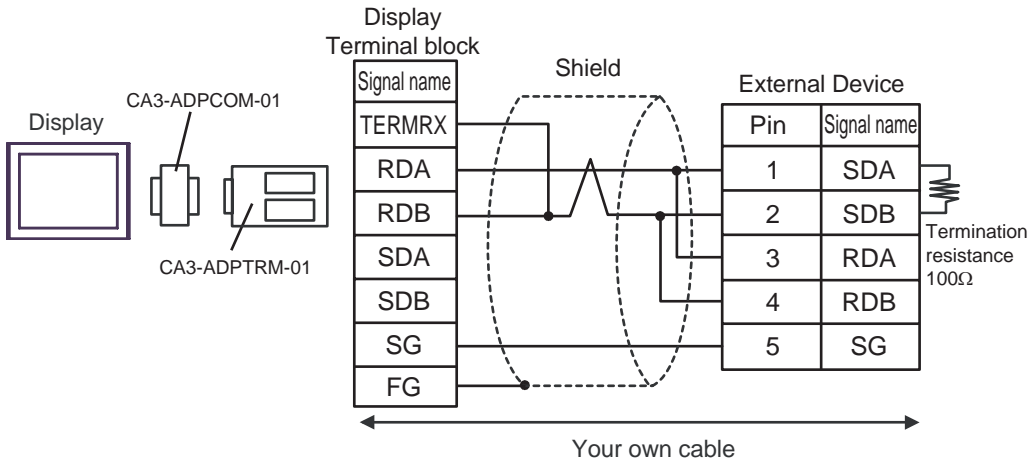


- 1:n connection

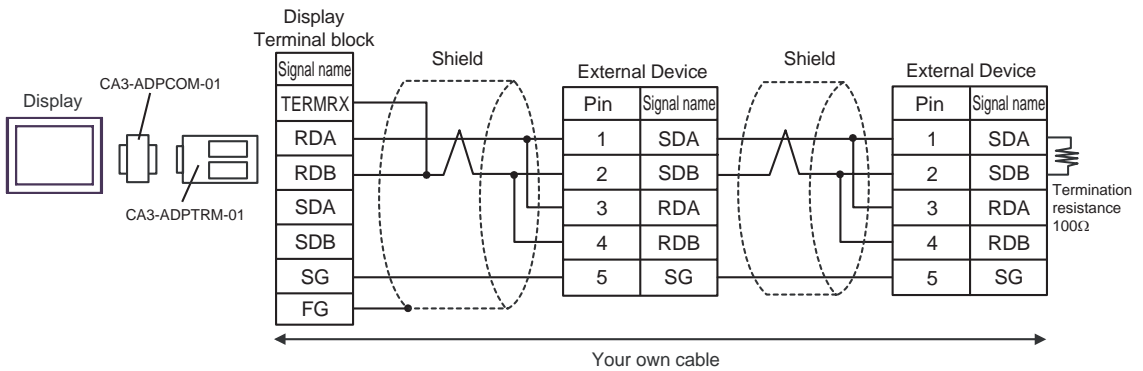


E) When using the com port conversion adapter (CA3-ADPCOM-01), the terminal block conversion adapter (CA3-ADPTRM-01) by Pro-face and your own cable

- 1:1 connection

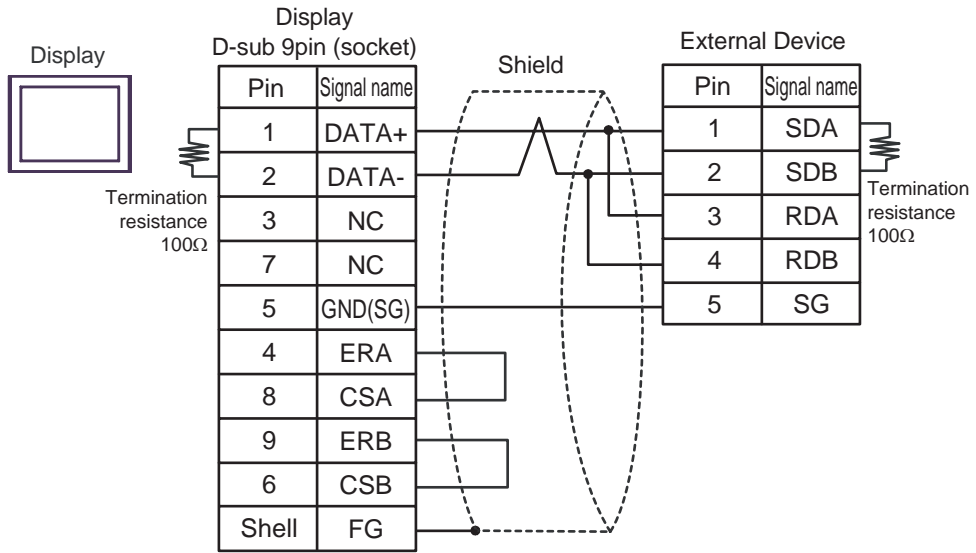


- 1:n connection

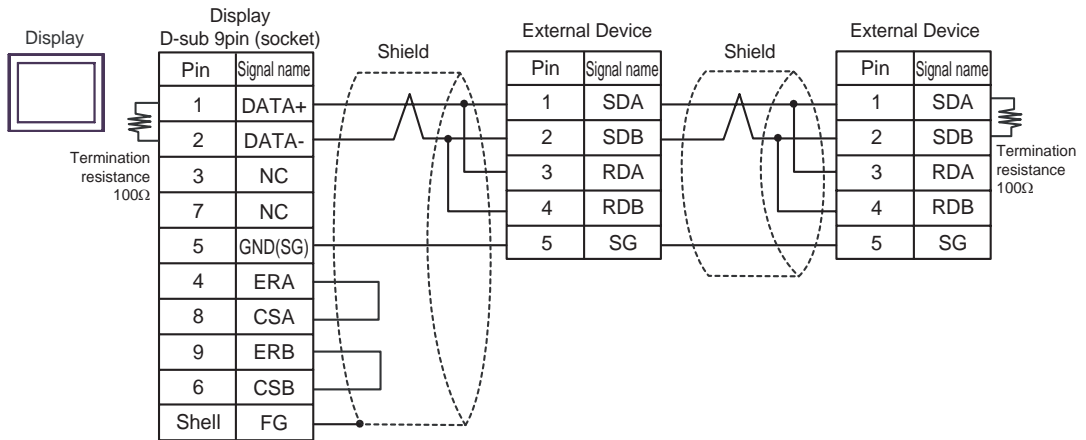


F) When using your own cable

- 1:1 connection



- 1:n connection




Cable Diagram 5

Display (Connection Port)	Cable		Notes
GP* ¹ (COM1) AGP-3302B (COM2) LT (COM1)	A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	Cable length: 600m or less However, between the master and the slave cable length: 10m or less
	B	Your own cable	
GP* ² (COM2)	C	Online adapter by Pro-face CA4-ADPONL-01 + 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	
IPC* ³	E	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + Your own cable	
	F	Your own cable	

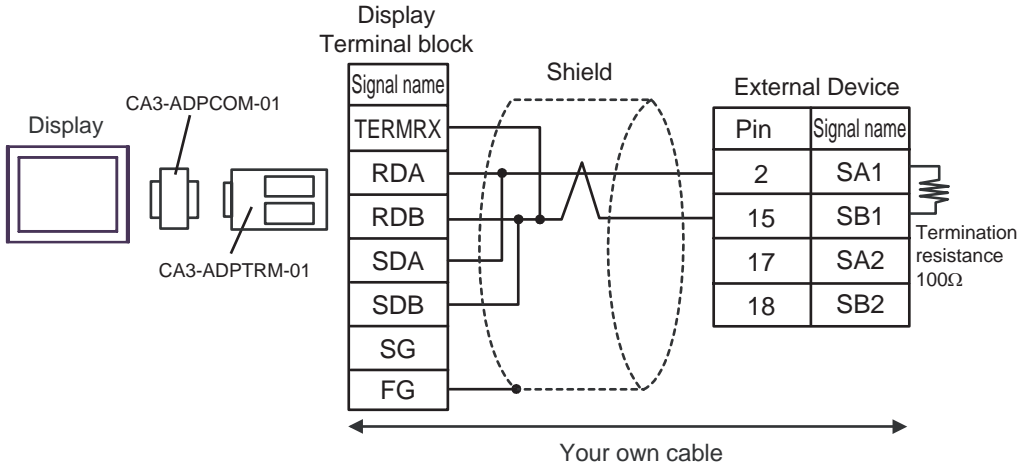
*1 All GP models except AGP-3302B

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

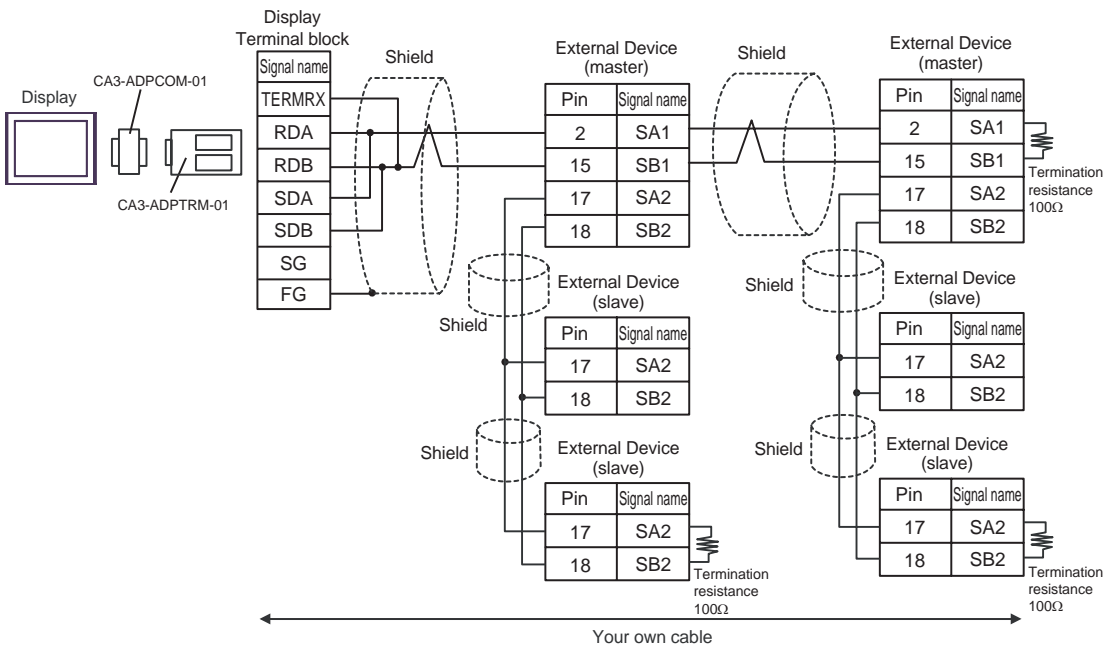
*3 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 "■ COM Port of IPC" (page 6)

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

- 1:1 connection



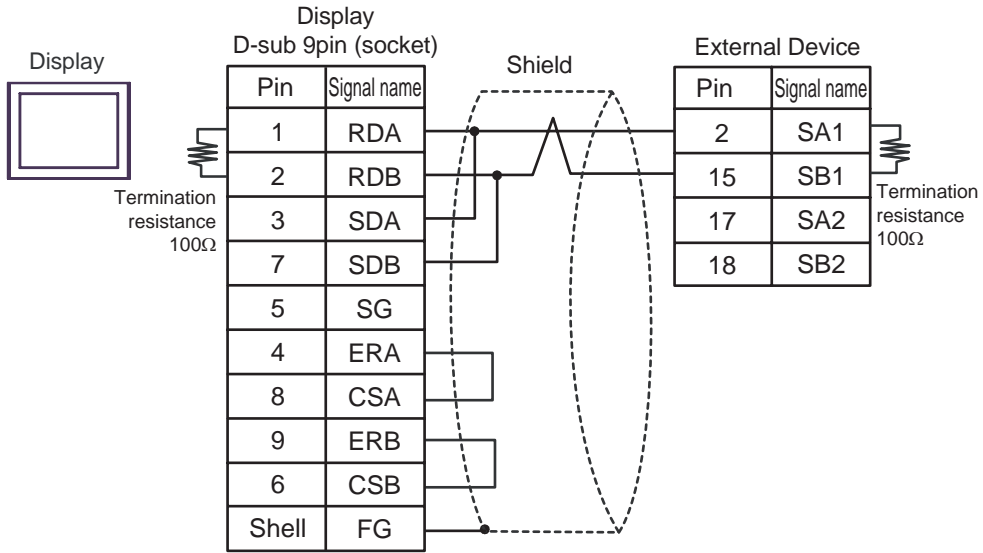
- 1:n connection



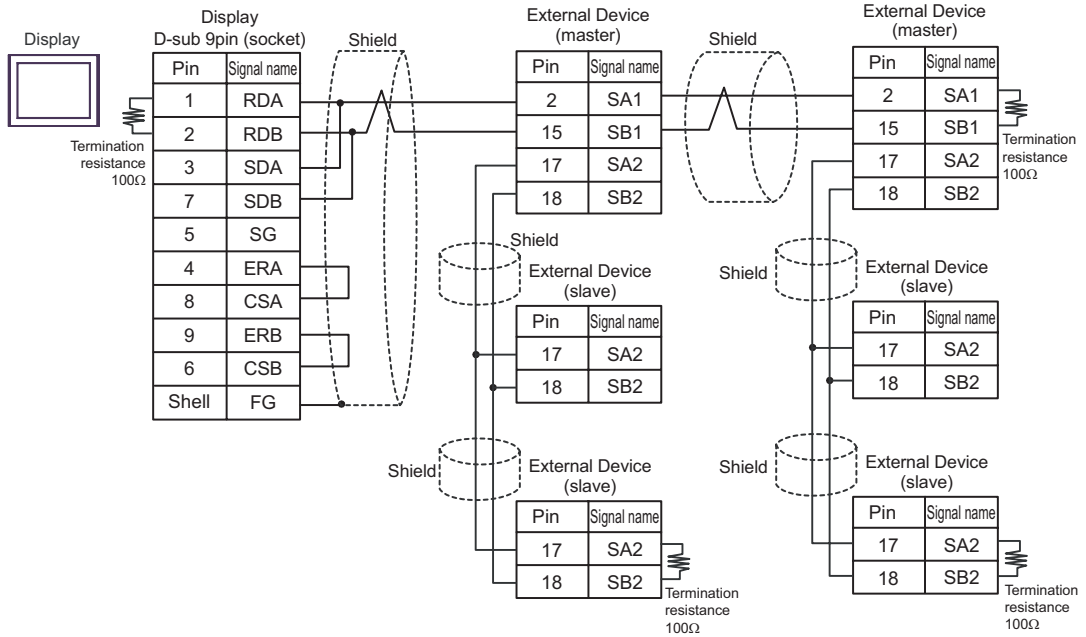
IMPORTANT • Connect No. 17 and No. 18 between slaves as shown in the figure above.

B) When using your own cable

- 1:1 connection



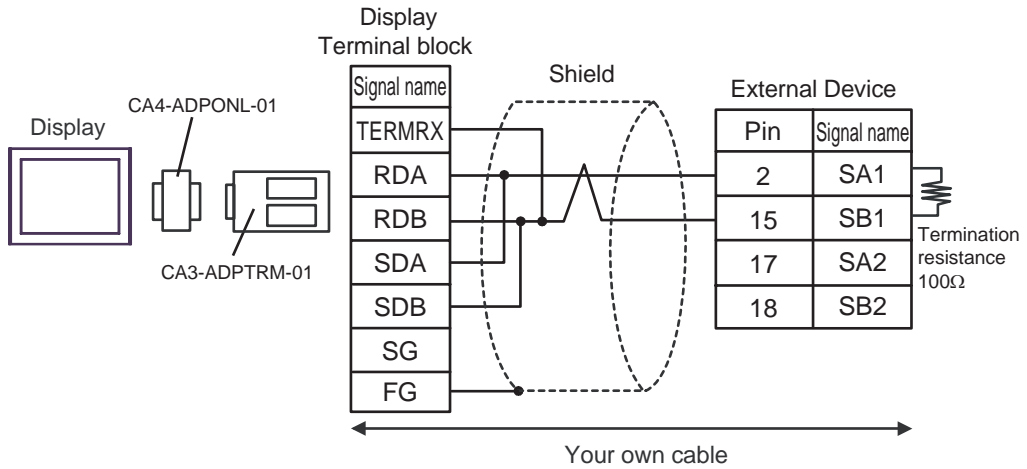
- 1:n connection



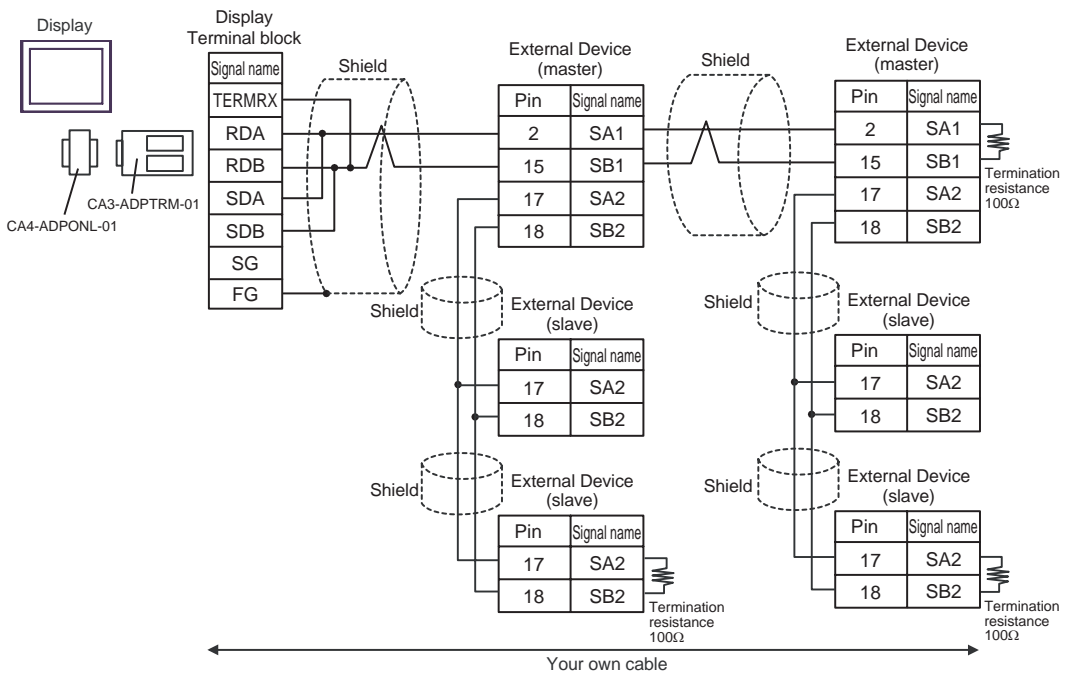
IMPORTANT • Connect No. 17 and No. 18 between slaves as shown in the figure above.

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

- 1:1 connection



- 1:n connection

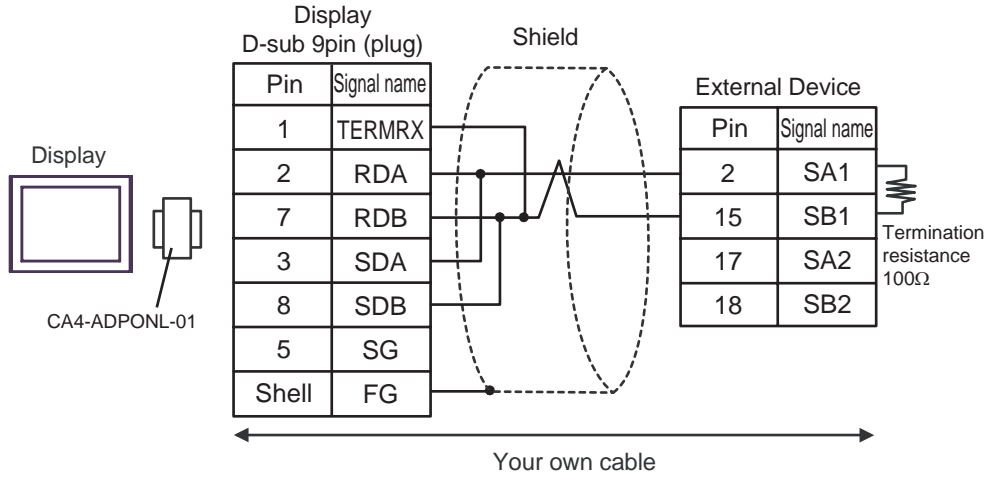


IMPORTANT

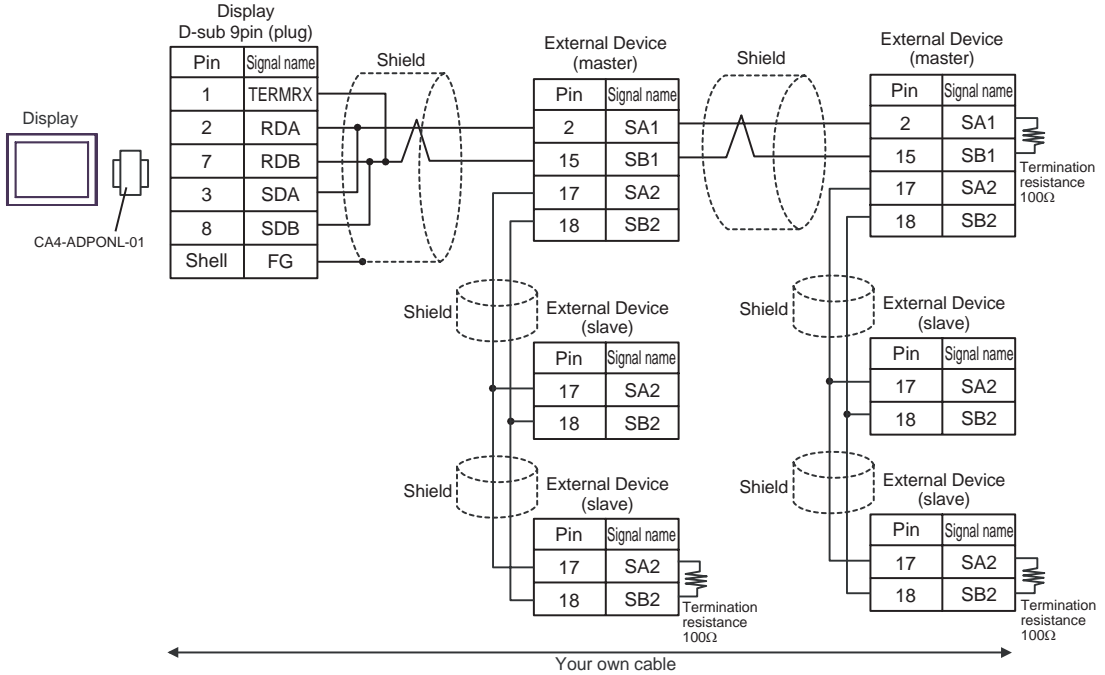
- Connect No. 17 and No. 18 between slaves as shown in the figure above.

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

- 1:1 connection



- 1:n connection

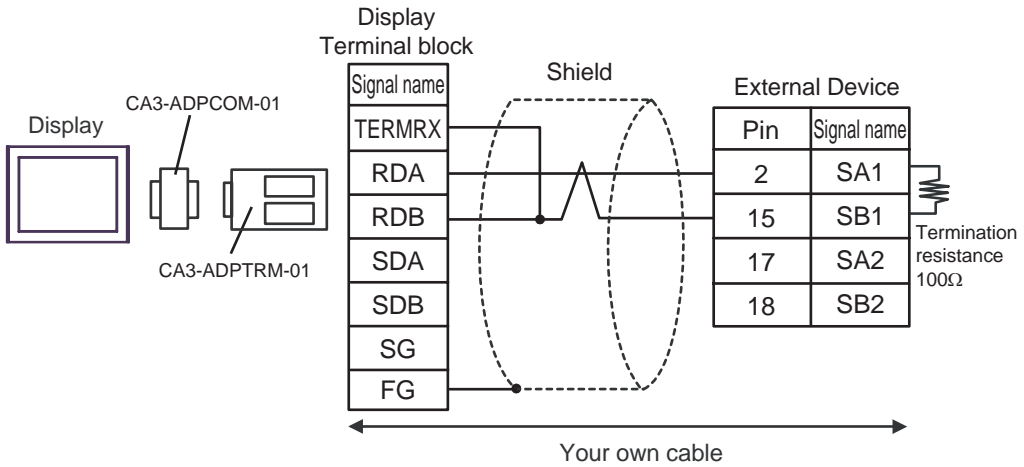


IMPORTANT

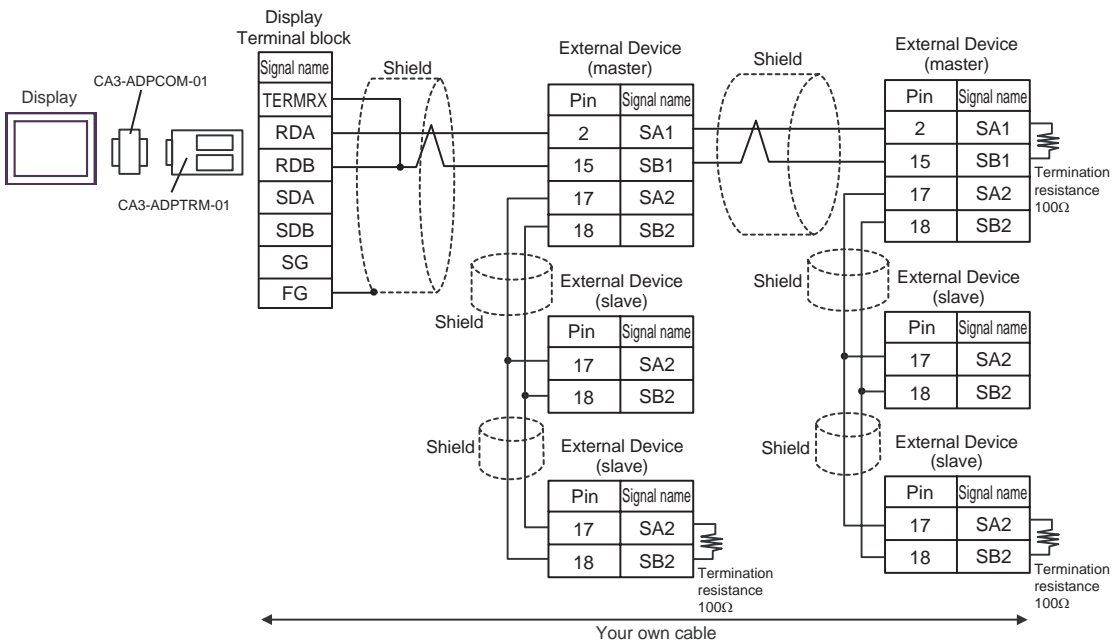
- Connect No. 17 and No. 18 between slaves as shown in the figure above.

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

- 1:1 connection



- 1:n connection

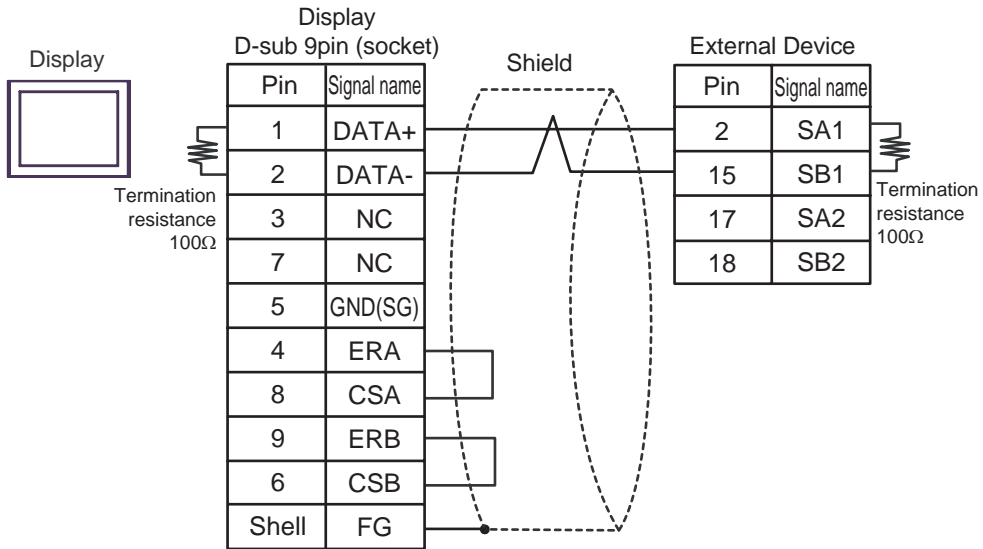


IMPORTANT

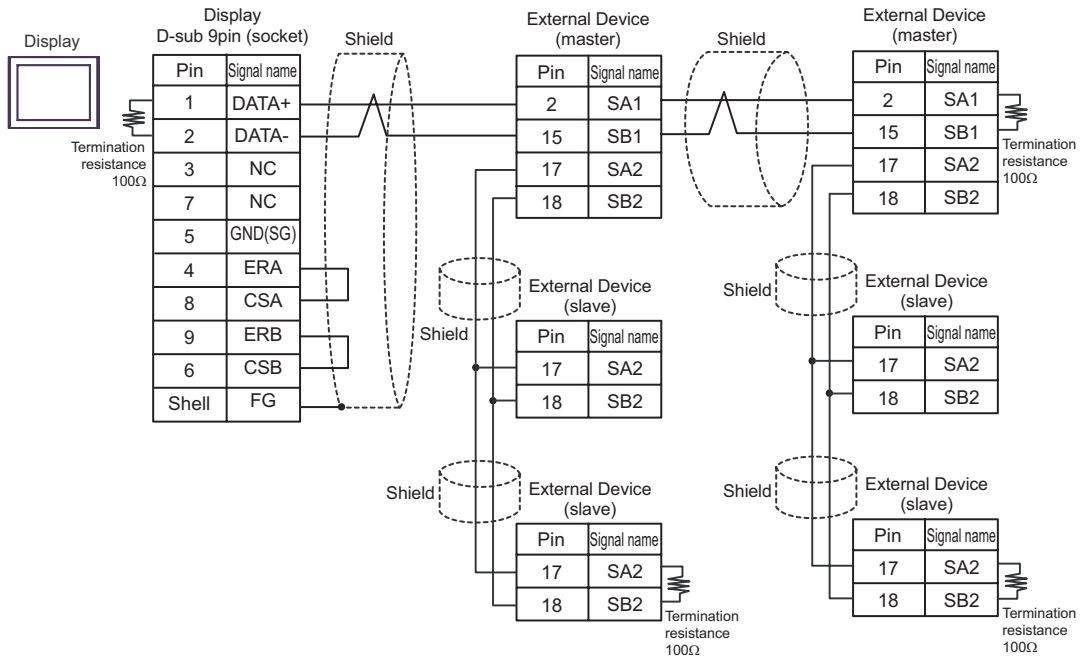
• Connect No. 17 and No. 18 between slaves as shown in the figure above.

F) When using your own cable

- 1:1 connection



- 1:n connection



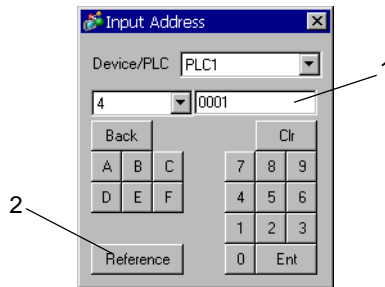
IMPORTANT

- Connect No. 17 and No. 18 between slaves as shown in the figure above.

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.

Enter the External Device address in the dialog below.



- | | |
|--------------|---|
| 1. Address | Enter the address. |
| 2. Reference | Available parameter list is displayed.
Click the parameter to use and press “Select”, then the address is entered. |

There are some temperature controller data with decimal points.

On the Display, data with decimal points are treated as follow.

<When reading>

Read data from the temperature controller is integral number without decimal points.

e.g. When a value of temperature controller is 100.0:

Value of temperature controller: 100.0

Displayed value on the Display (setting is without decimal points): 1000

To display decimal points on the Data Display, set “Decimal Places” of “Display” tab.

For example, if the specification of temperature controller data is in the first decimal position, set 1 to “Decimal Places.”

e.g. When a value of temperature controller is 100.0:

Value of temperature controller: 100.0

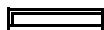
Displayed value on the Display (setting is without decimal points): 1000





Displayed value on the Display (setting is the first position of decimal points): 100.0

<When writing>

When writing to the temperature controller, set integral number without decimal points.

6.1 DB1000 series


 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-		
	00111			
Digital Input Data	10002 - 10124	-		*1
Analog Input Data	-	30101 - 30143		 *1
Analog Setting Value	-	40001 - 40596 ^{*2}		
Operational Status Setting		49056 - 49512		


*1 Write disable





*2 Write disable in 40151.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.2 DB2000 series


 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-		
	00111			
Digital Input Data	10002 - 10124	-		*1
Analog Input Data	-	30101 - 30143		 *1
Analog Setting Value	-	40001 - 40650 ^{*2}		
Operational Status Setting		49056 - 49536		


*1 Write disable





*2 Write disable in 40151.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"


6.3 KP1000 series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-		
	00111			
Digital Input Data	10002 - 10124	-		*1
Analog Input Data	-	30101 - 30144		 *1
Analog Setting Value	-	40001 - 40650 ^{*2}		
Pattern Setting		49003 - 49534 ^{*3}		





- *1 Write disable
- *2 Write disable in 40151.
- *3 Write disable in 49040.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"


6.4 KP2000 series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-		
	00111			
Digital Input Data	10002 - 10124	-		*1
Analog Input Data	-	30101 - 30144		 *1
Analog Setting Value	-	40001 - 40650 ^{*2}		
Pattern Setting		49003 - 49536 ^{*3}		




- *1 Write disable
- *2 Write disable in 40151.
- *3 Write disable in 49040.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"


6.5 KP3000 series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32bits	Notes
Digital Input Data	10005	-	H/L	*1
Analog Input Data	-	30109 - 30144		 *1
Analog Setting Value	-	40008 - 40574 ^{*2}		
Pattern Setting		49003 - 49534 ^{*3}		



- *1 Write disable
- *2 Write disable in 40151.
- *3 Write disable in 49040.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"


6.6 LT230 series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-	H/L	*1
Digital Input Data	10004 - 10120	-		*2
Analog Input Data	-	30101 - 30142		 *2
Analog Setting Value	-	40008 ^{*3}		 *1
		40114 - 40119		
		40201 - 40251		
		49501 - 49512		


- *1 When writing, key lock of External Device needs to be set to lock 4. When writing to other than lock 4, a communication error will be displayed.
- *2 Write disable
- *3 Write disable in 40008.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.7 LT300 series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-	H/L	*1
Digital Input Data	10004 - 10122	-		*2
Analog Input Data	-	30101 - 30142		 *2
Analog Setting Value	-	40008 ^{*3}		H/L
		40114 - 40119		
		40201 - 40251		
		49501 - 49512		

*1 When writing, key lock of External Device needs to be set to lock 4. When writing to other than lock 4, a communication error will be displayed.


*2 Write disable


*3 Write disable in 40008.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.8 LT400 series


 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101 - 00109	-	H/L	*1
Digital Input Data	10002 - 10124	-		*2
Analog Input Data	-	30101 - 30142		 *2
Analog Setting Value	-	40001 - 40093		H/L
		40112 - 40166		
		40201 - 40388		
		49501 - 49512		


*1 When writing, key lock of External Device needs to be set to lock 4. When writing to other than lock 4, a communication error will be displayed.



*2 Write disable

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.9 LT830 series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	00101	-	H/L	*1
Digital Input Data	10004 - 10120	-		*2
Analog Input Data	-	30101 - 30142		 *2
Analog Setting Value	-	40008 ^{*3}		 *1
		40114 - 40119		
		40201 - 40211		
		49501 - 49512		

*1 When writing, key lock of External Device needs to be set to lock 3. When writing to other than lock 3, a communication error will be displayed.


*2 Write disable



*3 Write disable in 40008.

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.10 JU series with temperature controller feature

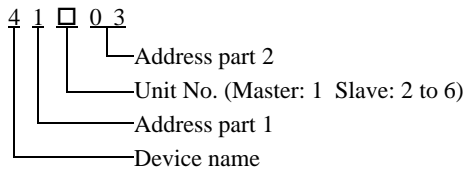
 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes			
Digital Setting Value	00101 - 00106	-	H/L	*1			
	01102 - 01612 ^{*2}						
Digital Input Data	10002 - 10122	-		H/L	*3		
	11109 - 11614 ^{*2}						
Analog Input Data	-	30101 - 30142			H/L	 *3	
		31101 - 31612 ^{*2}					
		39001 - 39080					
Analog Setting Value	-	40001 - 40384				H/L	 *1
		41102 - 41672 ^{*2}					
		48111 - 48618 ^{*2}					
		49501 - 49525					

*1 When writing, key lock of External Device needs to be set to lock 4. When writing to other than lock 4, a communication error will be displayed.


*2 Specify the address in the style below for Operation terminal function (01102 - 01612), Operation terminal operation part (11109 - 11614), Operation terminal measurement data (31101 - 31612), and Operation terminal parameter (41102 - 41672/48111 - 48618).

EX. Elevation (41□03)







*3 Write disable

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.11 JU series Single-phase


 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	01001 - 01013	-		*1
Digital Input Data	11001 - 11015	-		*2
Analog Input Data	-	31101 - 31112		
Analog Setting Value	-	41001 - 41013 49501		 *1


*1 When writing, key lock of External Device needs to be set to locked. When writing in unlocked status, a communication error will be displayed.




*2 Write disable

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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"

6.12 JW series


 This address can be specified as system data area.

Device	Bit Address	Word Address	32bits	Notes
Digital Setting Value	01001 - 01014	-		*1
Digital Input Data	11001 - 11019	-		*2
Analog Input Data	-	31101 - 31182		
Analog Setting Value	-	41001 - 41018 49501		 *1

*1 When writing, key lock of External Device needs to be set to locked. When writing in unlocked status, a communication error will be displayed.

*2 Write disable

NOTE

- System area setting that can be used with controller is read area size for reading only. Please refer to the GP-Pro EX Reference Manual for read area size.
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
Analog Input Data	3	0001	Word Address
Analog Setting Value	4	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. <div style="border: 1px solid black; padding: 2px; display: inline-block;">NOTE</div> <ul style="list-style-type: none"> • IP address is displayed such as "IP address (Decimal): MAC address (Hex)." • Device address is displayed such as "Address: Device address." • Received error codes are displayed such as "Decimal [Hex]."

Display Examples of Error Messages

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

NOTE

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

■ Error Codes Unique to External Device

Error codes unique to External Device are shown below.

Error Code	Description
18 (12H)	Cannot be set ^{*1} <ul style="list-style-type: none"> • When key setting is not locked. • When trying to set an item that cannot be selected in the type.

*1 Causes for setting error depend on the External Device.
Please refer to the manual of the External Device for more details.