



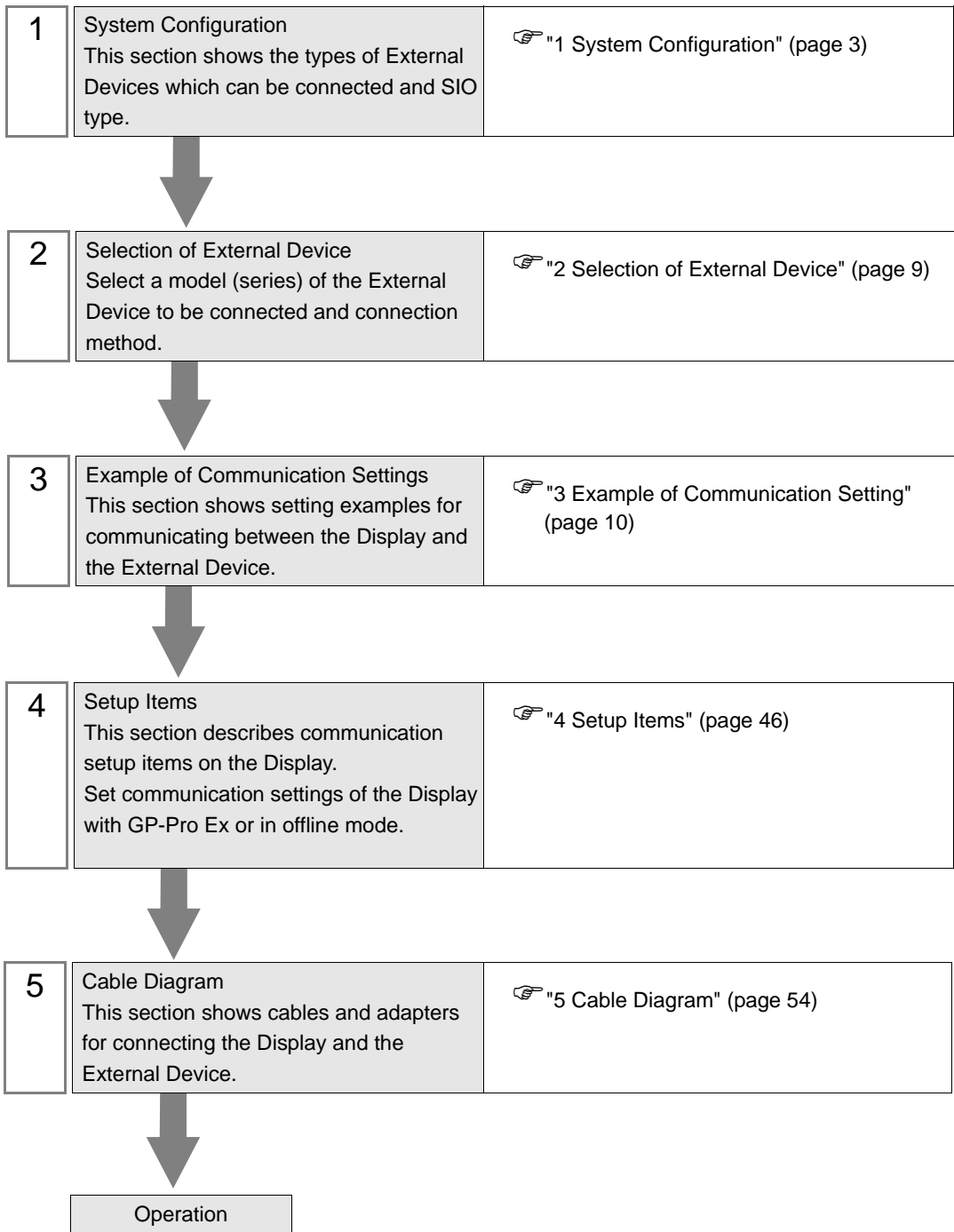
MODBUS SIO Master Driver

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Introduction

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

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



1 System Configuration

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

1.1 Schneider Electric SA External Device.

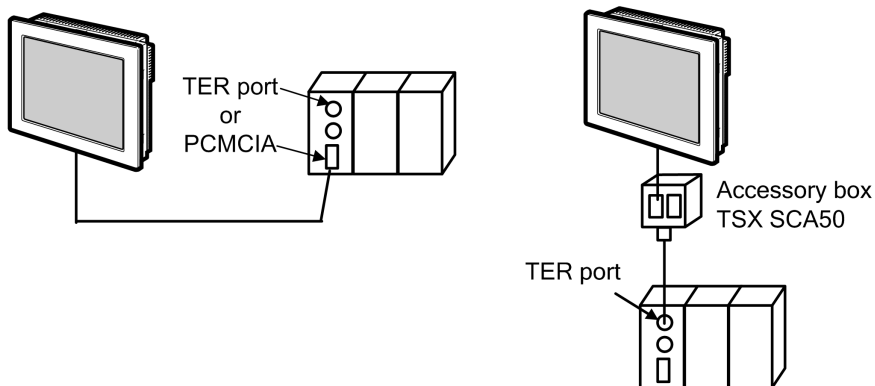
Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
Micro	TSX 37 05 028DR1	TER port on CPU	RS232C	Setting Example 1 (page 10)	Cable Diagram 2 (page 66)
	TSX 37 08 056DR1				
	TSX 37 10 128DT1				
	TSX 37 10 128DR1	Accessory box TSX SCA 50	RS485 (2wire)	Setting Example 3 (page 14)	Cable Diagram 3 (page 67)
	TSX 37 10 128DTK1				
	TSX 37 10 164DTK1				
	TSX 37 10 028AR1				
	TSX 37 10 028DR1				
	TSX 37 21 101 TSX 37 22 101 TSX 37 21 001 TSX 37 22 001	TER port on CPU	RS232C	Setting Example 1 (page 10)	Cable Diagram 2 (page 66)
		Accessory box TSX SCA 50	RS485 (2wire)	Setting Example 3 (page 14)	Cable Diagram 3 (page 67)
		PCMCIA card for RS232C TSX SCP 111	RS232C	Setting Example 2 (page 12)	Cable Diagram 4 (page 80)
		PCMCIA card for RS485 TSX SCP 114	RS485 (2wire)	Setting Example 3 (page 14)	Cable Diagram 5 (page 84)
Premium	TSX P57 103M TSX P57 153M TSX P57 203M TSX P57 253M TSX P57 303M TSX P57 353M TSX P57 453M	PCMCIA card for RS232C TSX SCP 111	RS232C	Setting Example 4 (page 16)	Cable Diagram 4 (page 80)
		PCMCIA card for RS485 TSX SCP 114	RS485 (2wire)	Setting Example 5 (page 18)	Cable Diagram 5 (page 84)
Twido	TWD LCAA 10DRF TWD LCAA 16DRF TWD LCAA 24DRF TWD LMDA 20DTK TWD LMDA 20DUK TWD LMDA 20DRT TWD LMDA 40DTK TWD LMDA 40DUK	Programming port on CPU	RS232C	Setting Example 6 (page 20)	Cable Diagram 2 (page 66)
		TWD NAC 485T	RS485 (2wire)	Setting Example 7 (page 22)	Cable Diagram 1 (page 54)
Quantum	140 CPU 113 02 140 CPU 113 03 140 CPU 434 12A 140 CPU 534 14A	Modbus port on CPU	RS232C	Setting Example 8 (page 24)	Cable Diagram 6 (page 96)

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
Momentum	171 CCS 700 00 171 CCS 700 10 171 CCS 760 00 171 CCC 760 10	Modbus port 1 on CPU	RS232C	Setting Example 9 (page 26)	Cable Diagram 7 (page 98)
	171 CCS 780 00 171 CCC 780 10	Modbus port 1 on CPU	RS232C	Setting Example 9 (page 26)	Cable Diagram 7 (page 98)
		Modbus port 2 on CPU	RS485 (4wire)	Setting Example 10 (page 28)	Cable Diagram 8 (page 100)
	171 CCC 980 20 171 CCC 980 30	Modbus port 2 on CPU	RS485 (4wire)	Setting Example 10 (page 28)	Cable Diagram 8 (page 100)

■ Connection Configuration

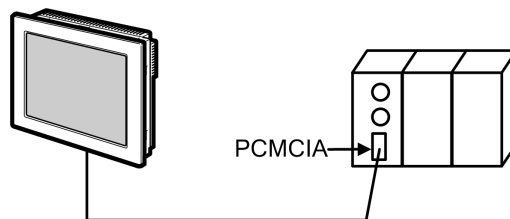
◆ Micro Series

- 1:1 Connection



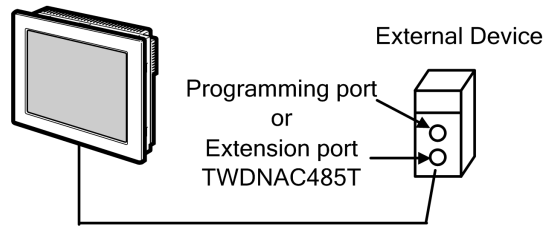
◆ Premium Series

- 1:1 Connection

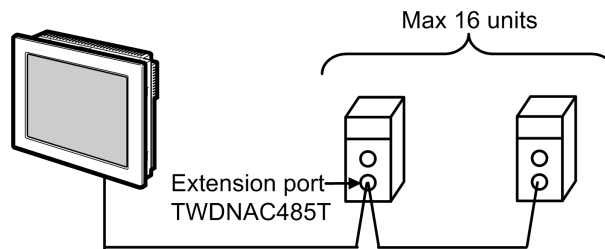


◆ Twido Series

- 1:1 Connection

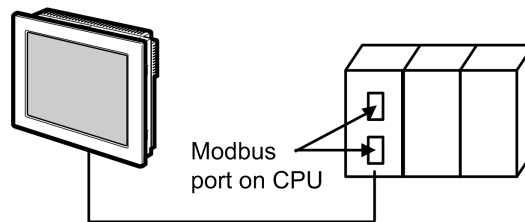


- 1:n Connection



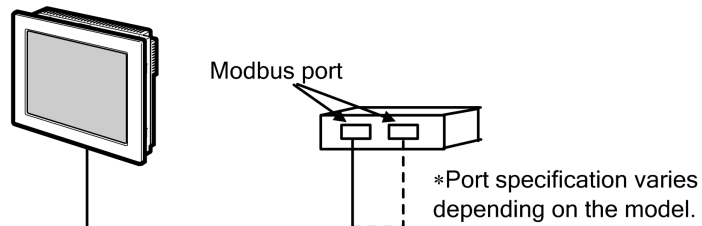
◆ Quantum Series

- 1:1 Connection



◆ Momentum Series

- 1:1 Connection



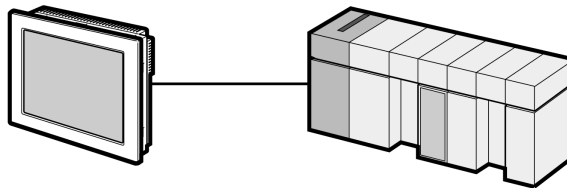
1.2 Yokogawa Electric Corporation External Devices.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
FCN	NFCP100-S00	Serial port on CPU	RS232C	Setting Example 11 (page 30)	Cable Diagram 9 (page 106)
		NFLR111-S00	RS232C	Setting Example 12 (page 34)	Cable Diagram 10 (page 108)
		NFLR121-S00	RS485 (4 wire)	Setting Example 13 (page 38)	Cable Diagram 11 (page 109)
			RS485 (2 wire)	Setting Example 14 (page 42)	Cable Diagram 12 (page 116)
FCJ	NFJT100-S100	Serial port on CONTROL UNIT	RS232C	Setting Example 11 (page 30)	Cable Diagram 9 (page 106)

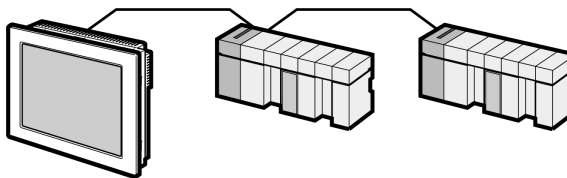
■ Connection Configuration

◆ FCN/FCJ Series

- 1:1 Connection



- 1:n Connection



■ IPC COM Port

When connecting IPC with an External Device, the COM port used depends on the series and SIO type. Please refer to the IPC manual 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, PS3000-BA, PS3001-BD	COM1, COM2 ^{*1*2}	COM2 ^{*1*2}	COM2 ^{*1*2}
PS-3650A (T41 model), PS-3651A (T41 model)	COM1 ^{*1}	-	-
PS-3650A (T42 model), PS-3651A (T42 model)	COM1 ^{*1*2} , COM2	COM1 ^{*1*2}	COM1 ^{*1*2}
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}
PS4000 ^{*3}	COM1, COM2	-	-
PL3000	COM1 ^{*1*2} , COM2 ^{*1} , COM3, COM4	COM1 ^{*1*2}	COM1 ^{*1*2}

*1 The RI/5V can be switched. Use the IPC's switch to change if necessary.

*2 Set up the SIO type with the DIP Switch. Please set up as follows according to SIO type to be used.

*3 When making communication between an External Device and COM port on the Expansion slot, only RS-232C is supported. However, ER (DTR/CTS) control cannot be executed because of the specification of COM port.

For connection with External Device, use user-created cables and disable Pin Nos. 1, 4, 6 and 9.

Please refer to the IPC manual for details of pin layout.

DIP Switch setting: RS-232C

DIP Switch	Setting	Description
1	OFF ^{*1}	Reserved (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): Not available
8	OFF	Short-circuit of SDB (TXB) and RDB (RXB): Not available
9	OFF	RS (RTS) Auto control mode: Disabled
10	OFF	

*1 When using PS-3450A, PS-3451A, PS3000-BA and PS3001-BD, turn ON the set value.

DIP Switch setting: RS-422/485 (4 wire)

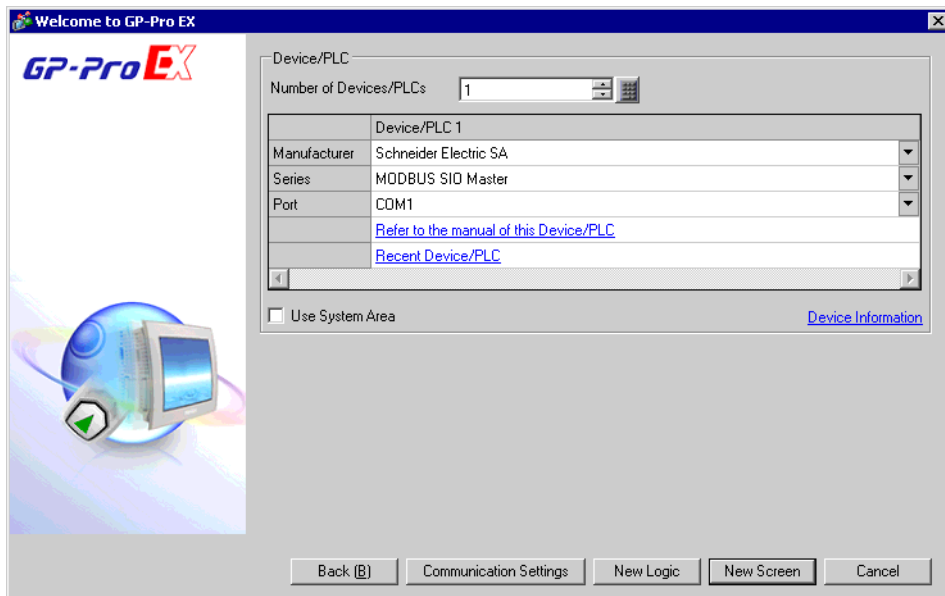
DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA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

DIP Switch setting: RS-422/485 (2 wire)

DIP Switch	Setting	Description
1	OFF	Reserved (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): Available
8	ON	Short-circuit of SDB (TXB) and RDB (RXB): Available
9	ON	RS (RTS) Auto control mode: Enabled
10	ON	

2 Selection of External Device

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Number of Devices/PLCs	Enter an integer from 1 to 4 to define the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to connect. Select "Schneider Electric SA".
Series	Select the External Device model (series) and the connection method. Select "MODBUS SIO Master". In System configuration, make sure the External Device you are connecting is supported by "MODBUS SIO Master". ☞ "1 System Configuration" (page 3)
Port	Select the Display port to connect to the External Device.
Use System Area	Check this option to synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the External Device's ladder program to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)" This feature can also be set in GP-Pro EX or in the Display's offline mode. Cf. GP-Pro EX Reference Manual "System Settings [Display Unit] - [System Area] Settings Guide" Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer: Schneider Electric SA Series: MODBUS SIO Master 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: 5 (ms) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

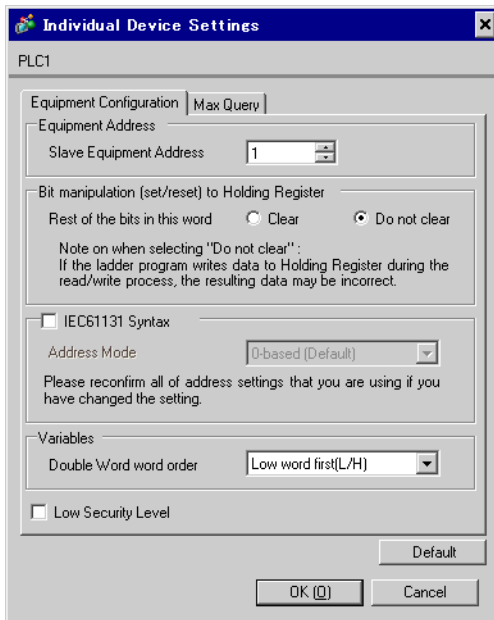
Add Indirect Device

◆ Device Setting

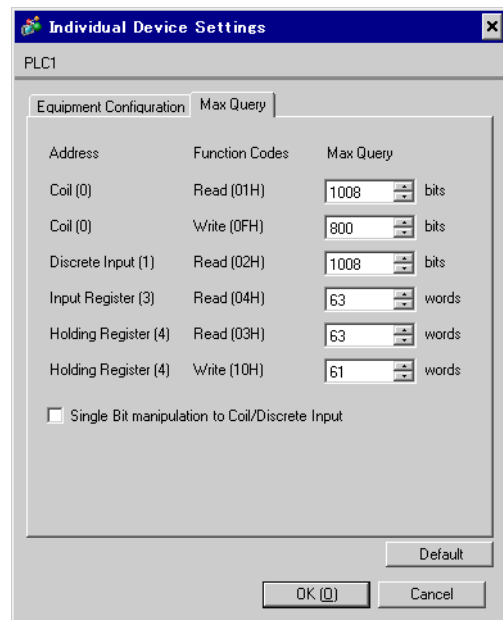
To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



[Max Query] tab



■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 0	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Transmission speed	9600bps	
Delay between characters	5msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ 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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

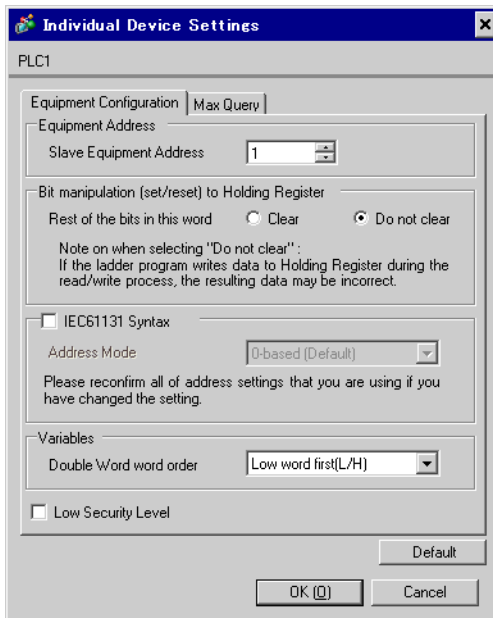
No.	Device Name	Settings	Add Indirect Device
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word	+

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

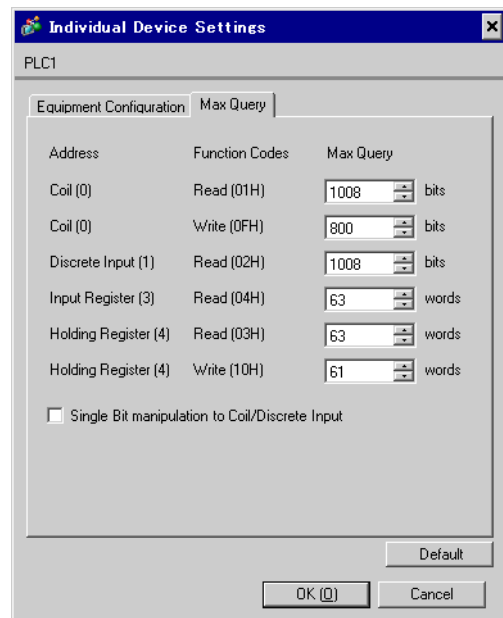
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' (with 'Do not clear' selected), 'IEC61131 Syntax' (with '0-based (Default)' selected), 'Address Mode' (set to 0-based), 'Double Word word order' (set to Low word first(L/H)), and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It lists various addresses and their corresponding function codes and maximum query values. The values are: Coil (0) Read (01H) 1008 bits, Coil (0) Write (0FH) 800 bits, Discrete Input (1) Read (02H) 1008 bits, Input Register (3) Read (04H) 63 words, Holding Register (4) Read (03H) 63 words, and Holding Register (4) Write (10H) 61 words. There is also a 'Single Bit manipulation to Coil/Discrete Input' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 111 RS232 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Type	Slave	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ 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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

[Add Indirect Device](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

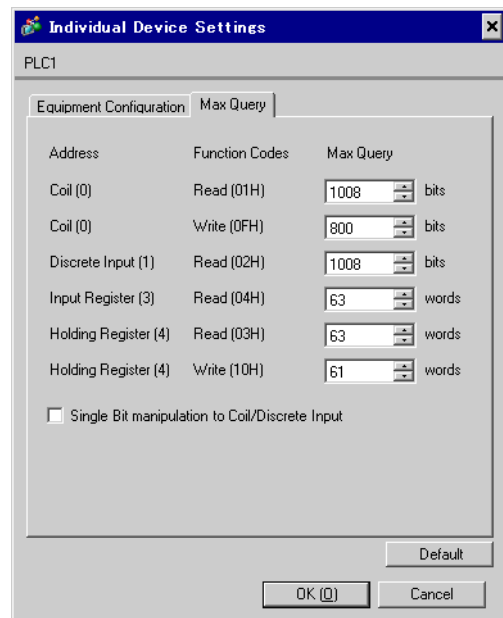
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' (with 'Do not clear' selected), 'IEC61131 Syntax' (with '0-based (Default)' selected), 'Address Mode' (set to 0-based), 'Double Word word order' (set to Low word first(L/H)), and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of query limits for various PLC addresses and function codes. The 'Max Query' column shows values in bits or words. A 'Single Bit manipulation to Coil/Discrete Input' checkbox is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	1008 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	1008 bits
Input Register (3)	Read (04H)	63 words
Holding Register (4)	Read (03H)	63 words
Holding Register (4)	Write (10H)	61 words

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 114 RS485 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Slave number	1	
Type	Slave	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ Notes

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

3.4 Setting Example 4

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

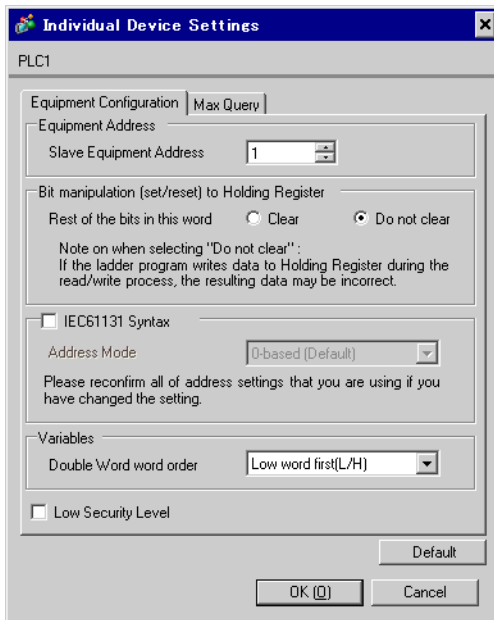
No.	Device Name	Settings	Add Indirect Device
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word	+

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

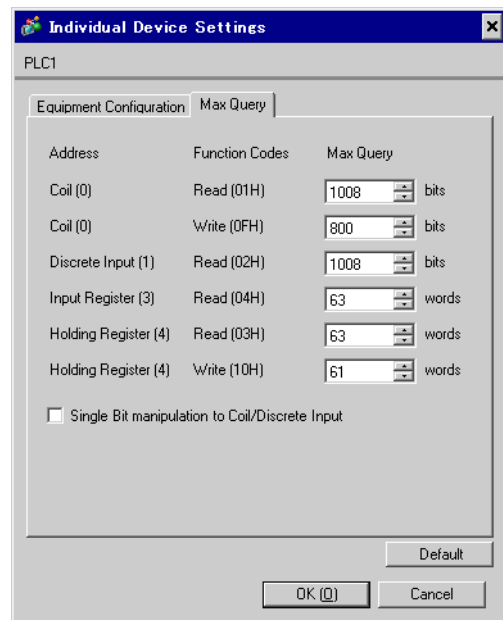
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' (with 'Do not clear' selected), 'IEC61131 Syntax' (with '0-based (Default)' selected), 'Address Mode' (set to 0-based), 'Double Word word order' (set to Low word first(L/H)), and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It lists various data points and their maximum query values: Coil (0) Read (01H) at 1008 bits, Coil (0) Write (0FH) at 800 bits, Discrete Input (1) Read (02H) at 1008 bits, Input Register (3) Read (04H) at 63 words, Holding Register (4) Read (03H) at 63 words, and Holding Register (4) Write (10H) at 61 words. A 'Single Bit manipulation to Coil/Discrete Input' checkbox is also present. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 111 RS232 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Type	Slave	
Slave number	1	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ 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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 Number of Devices/PLCs [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

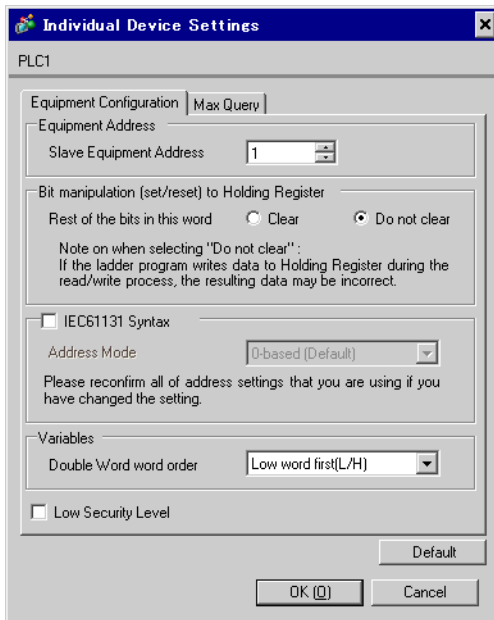
Add Indirect Device

◆ Device Setting

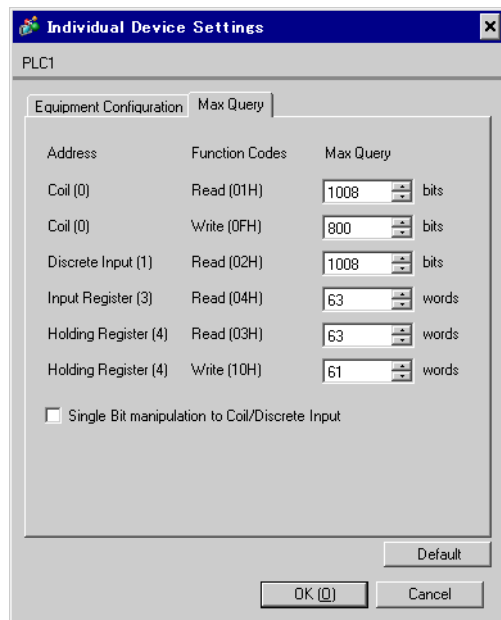
To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



[Max Query] tab



■ Settings of External Device

Use the ladder software "PL7 PRO" for communication settings.

Double-click "Hardware Configuration" from "Configuration" in "Application Browser" of "PL7 PRO". Next, double-click "Comm" in the "Configuration" dialog box. Perform the settings in the displayed dialog box.

Setup Items	Setup Description	
CHANNEL	CHANNEL 1	
	TSX SCP 114 RS485 MP PCMCIA CARD	
	MODBUS/JBUS LINK	MAST
Type	Slave	
Slave number	1	
Transmission speed	9600bps	
Delay between characters	4msec	
Data	RTU (8 bit)	
Stop	1 bit	
Parity	Even	

◆ 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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

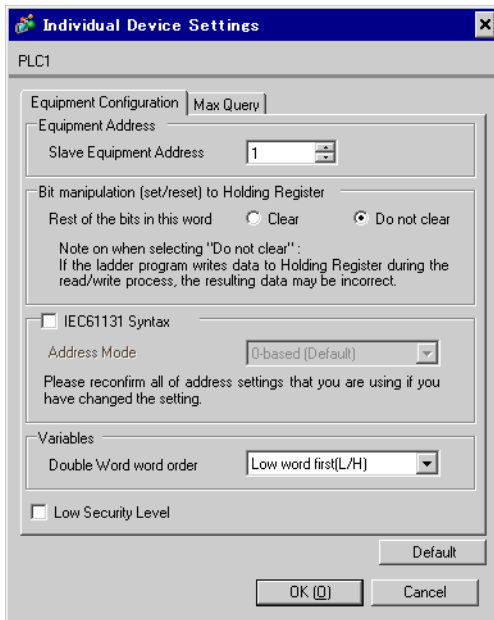
No.	Device Name	Settings	Add Indirect Device
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word	+

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

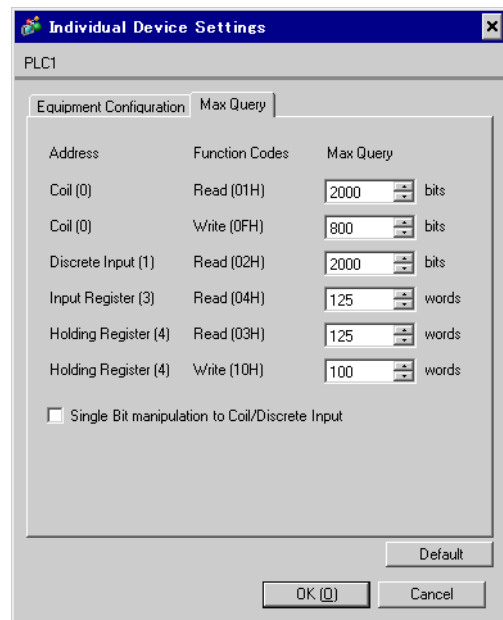
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' (with 'Do not clear' selected), 'IEC61131 Syntax' (unchecked), 'Address Mode' (set to '0-based (Default)'), 'Double Word word order' (set to 'Low word first(L/H)'), and 'Low Security Level' (unchecked). Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table of query limits:

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

There is also a checkbox for 'Single Bit manipulation to Coil/Discrete Input' (unchecked). Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

■ Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

Select "Hardware" from "TWDLMDA40DUK" in "Application Browser" of "TwidoSoft", and right-click on "Port 1 : Remote Link, 1" to select "Edit Controller Comm Setup..."

Perform the settings in the "Controller Communication Setup" dialog box displayed next.

Setup Items		Setup Description
Protocol	Type	Modbus
	Address	1
Parameters	Baud Rate	19200
	Data Bits	8
	Parity	None
	Stop Bits	1
End of Frame		10
Response Timeout		10 x 100msec
Frame Timeout		4msec

◆ 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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

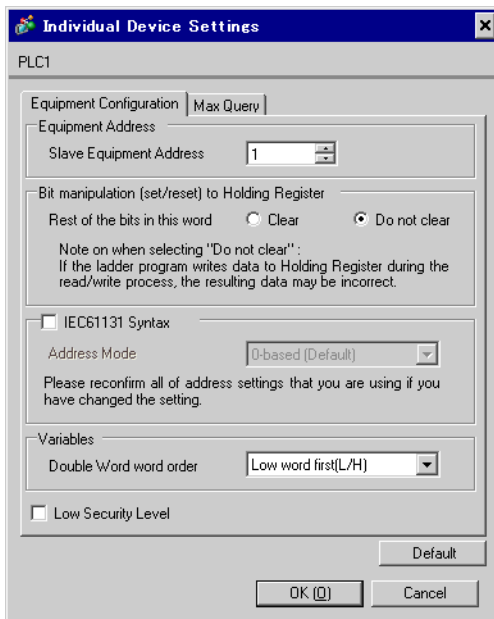
[Add Indirect Device](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

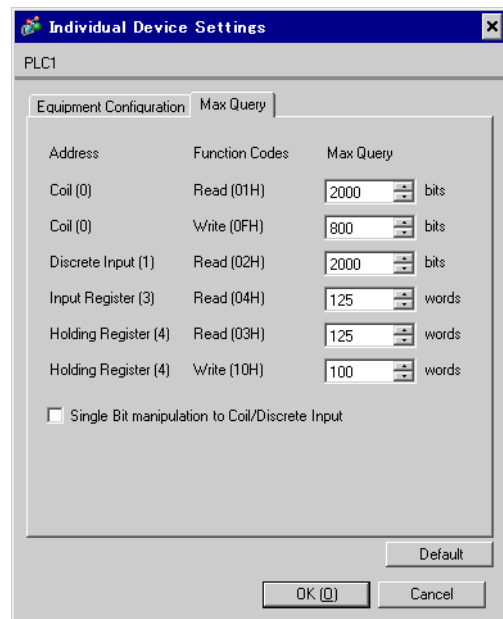
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Equipment Address' (Slave Equipment Address: 1) and 'Bit manipulation (set/reset) to Holding Register' (Rest of the bits in this word: Clear, Do not clear). There is a note about selecting 'Do not clear'. Below is a section for 'IEC61131 Syntax' with 'Address Mode' set to '0-based (Default)' and a warning to reconfirm settings. The 'Variables' section shows 'Double Word word order' set to 'Low word first(L/H)'. There is a 'Low Security Level' checkbox and 'Default', 'OK', and 'Cancel' buttons.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It displays a table of query limits:

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

There is a checkbox for 'Single Bit manipulation to Coil/Discrete Input' and 'Default', 'OK', and 'Cancel' buttons.

■ Settings of External Device

Use the ladder software "TwidoSoft" for communication settings.

Right-click on "Hardware" from "TWDLMDA40DUK" in "Application Browser" of "TwidoSoft" to select "Add Option...". Right-click on "Port 2 : Modbus, 1" added to "Hardware" in "TWDLMDA40DUK" to select "Edit Controller Comm Setup...".

Perform the settings in the "Controller Communication Setup" dialog box displayed next.

Setup Items		Setup Description
Protocol	Type	Modbus
	Address	1
Parameters	Baud Rate	19200
	Data Bits	8
	Parity	None
	Stop Bits	1
End of Frame		10
Response Timeout		10 x 100msec
Frame Timeout		10msec

◆ 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 setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

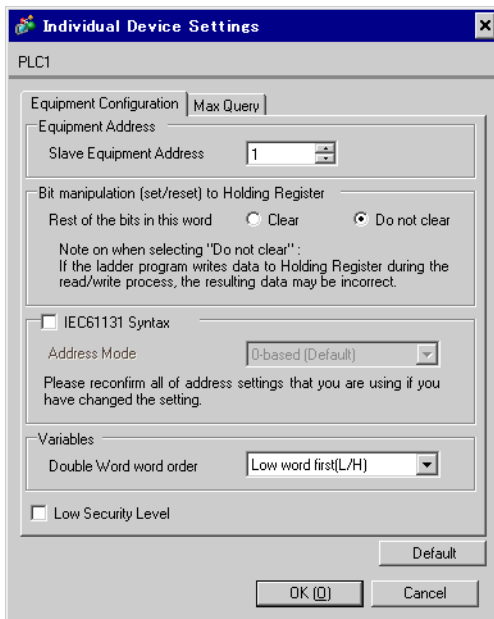
[Add Indirect Device](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

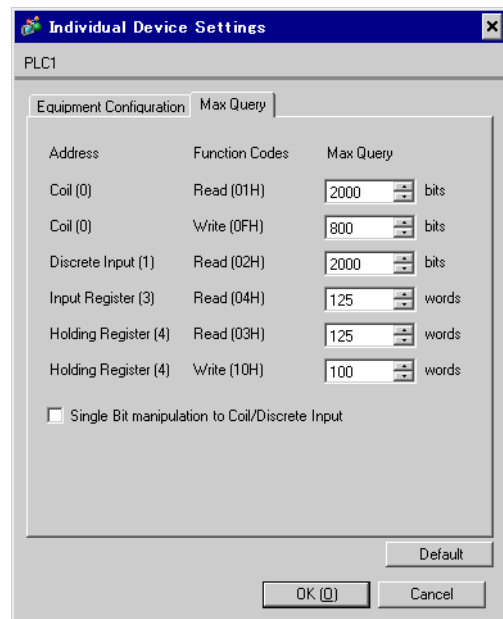
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with radio buttons for 'Clear' and 'Do not clear', a note about ladder program data, a checkbox for 'IEC61131 Syntax', a dropdown for 'Address Mode' (set to '0-based (Default)'), a note to reconfirm settings, a dropdown for 'Double Word word order' (set to 'Low word first(L/H)'), and a checkbox for 'Low Security Level'. Buttons for 'Default', 'OK (Q)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, Input Registers, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. Buttons for 'Default', 'OK (Q)', and 'Cancel' are at the bottom.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Quantum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS232

◆ Notes

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

3.9 Setting Example 9

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings	Add Indirect Device
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word	+

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

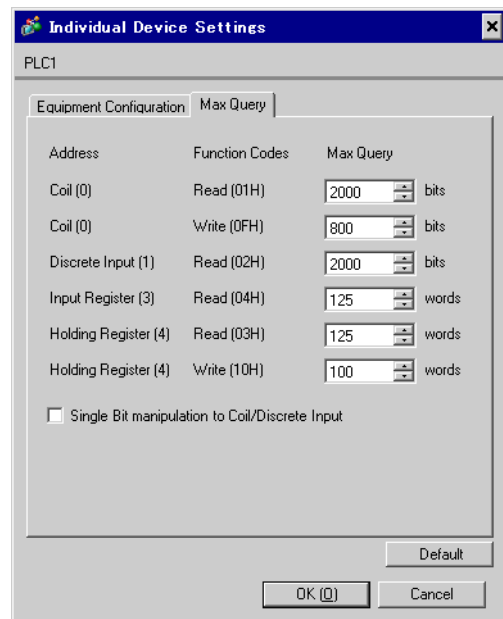
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), a section for 'Bit manipulation (set/reset) to Holding Register' with 'Clear' and 'Do not clear' radio buttons, a checkbox for 'IEC61131 Syntax' with an 'Address Mode' dropdown (set to '0-based (Default)'), a 'Variables' section with a 'Double Word word order' dropdown (set to 'Low word first(L/H)'), and a 'Low Security Level' checkbox. At the bottom are 'Default', 'OK (O)', and 'Cancel' buttons.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, Input Registers, and Holding Registers. At the bottom are 'Default', 'OK (O)', and 'Cancel' buttons.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Momentum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS232

◆ Notes

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

3.10 Setting Example 10

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

Add Indirect Device [+](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

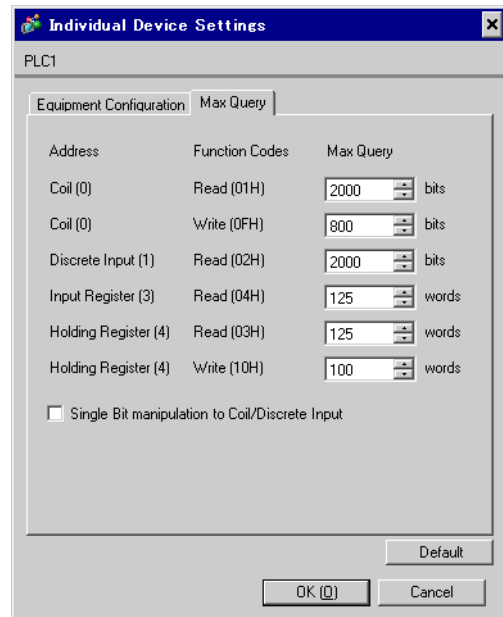
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), a section for 'Bit manipulation (set/reset) to Holding Register' with 'Do not clear' selected, a note about ladder programs, 'IEC61131 Syntax' with '0-based (Default)' address mode, 'Variables' with 'Low word first(L/H)' double word order, and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (Q)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table of query limits:

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

There is also a 'Single Bit manipulation to Coil/Discrete Input' checkbox. Buttons for 'Default', 'OK (Q)', and 'Cancel' are at the bottom.

■ Settings of External Device

Use the ladder software "Concept" for communication settings.

After selecting the External Device in Momentum Series in "PLC Selection" of "Concept", select "Modbus Port Settings" and perform the settings in the "Modbus Port Settings" dialog box.

Setup Items	Setup Description
Baud	19200
Data Bits	8
Stop Bits	1
Parity	Even
Delay(ms)	10
Address	1
Head slot	0
Mode	RTU
Protocol	RS485

◆ Notes

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

3.11 Setting Example 11

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

Add Indirect Device [+](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

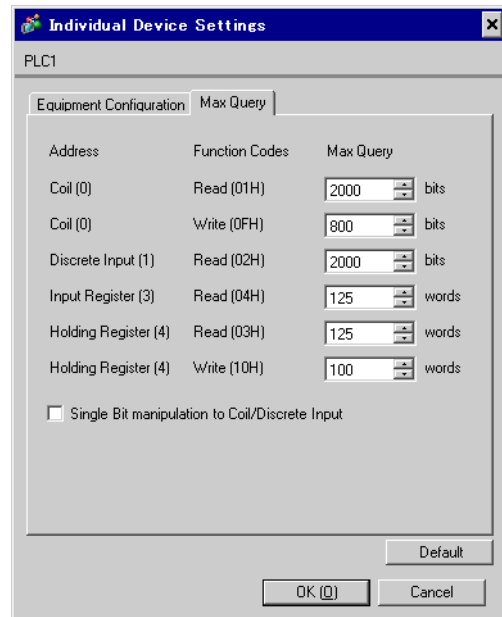
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Equipment Address' and 'Slave Equipment Address' (set to 1). There are radio buttons for 'Clear' and 'Do not clear' under 'Bit manipulation (set/reset) to Holding Register'. A note explains that selecting 'Do not clear' may lead to incorrect data if the ladder program writes during read/write processes. There is a checkbox for 'IEC61131 Syntax' and a dropdown for 'Address Mode' (set to '0-based (Default)'). A warning asks to reconfirm settings. Under 'Variables', there is a dropdown for 'Double Word word order' (set to 'Low word first(L/H)'). A 'Low Security Level' checkbox is at the bottom. 'Default', 'OK', and 'Cancel' buttons are at the bottom right.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, Input Registers, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. 'Default', 'OK', and 'Cancel' buttons are at the bottom right.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

■ Settings of External Device

Use the Web browser and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Serial Port on CPU>

- 1 Set IP address of the External Device to "192.168.1.1".

NOTE

- For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings (Resource Configurator).

- 2 Connect both the Ethernet ports between a PC and the External Device using the LAN cable. (Connect via HUB.)
- 3 Start up the Web browser.
- 4 Enter "http://192.168.1.1/mnt" in the address input box.
- 5 Enter [User Name] and [Password] in the displayed dialog box to login.
- 6 Click [Maintenance Menu] to display the [FCX Maintenance Menu] screen.
- 7 Click [Reboot] to display the [Reboot FCX] screen.
- 8 Check the [Reboot(Maintenance Mode)] option.
- 9 Click [OK] to display the [Reboot] screen.
- 10 Reboot the External Device. Confirm the reboot is complete.
- 11 Click [Maintenance Homepage] to display the [STARDOM FCX Maintenance Page] screen.
- 12 Click [OK] to display the [FCX Maintenance Menu] screen.
- 13 Click [Edit] to display the [Edit System Setting Files] screen.
- 14 Check the [COM1 Port Setting File] option and click [OK].

15 Set each item as follows:

Setup Items	Setup Description
Baudrate	19200
DataBitLength	8
StopBitLength	1
Parity	EVEN

16 Click [OK] to display the [Edit System Setting Files(RESET)] screen.

17 Click [Maintenance Menu] to display the [FCX Maintenance Menu] screen.

18 Click [Reboot] to display the [Reboot FCX] screen.

19 Check the [Reboot(Online Mode)] option and click [OK].

The External Device is rebooted.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".



"◆Control Logic Example" (page 33)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

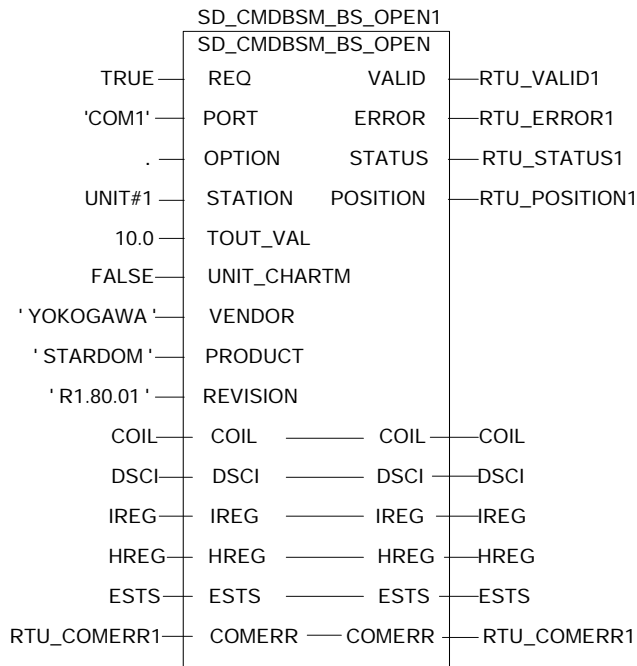
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is required.

The control logic example is shown below.



3.12 Setting Example 12

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word

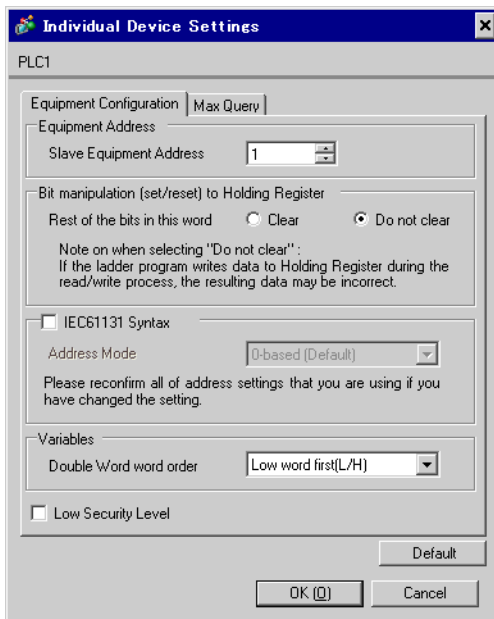
Add Indirect Device [+](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

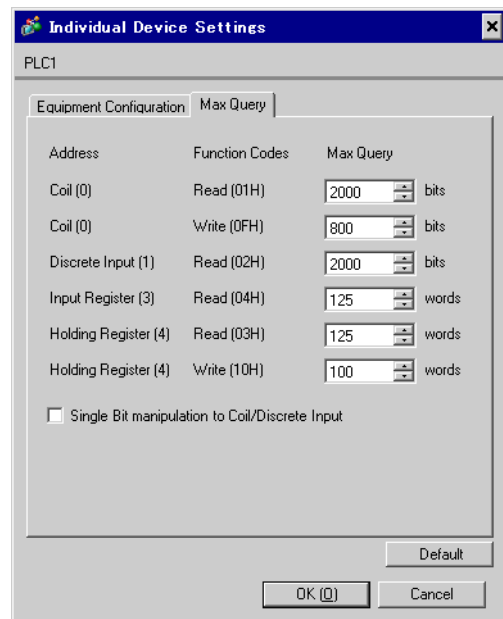
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with 'Do not clear' selected, 'IEC61131 Syntax' with '0-based (Default)' selected, 'Double Word word order' set to 'Low word first(L/H)', and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, and Holding Registers. A 'Single Bit manipulation to Coil/Discrete Input' checkbox is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

■ Settings of External Device

Use the dedicated tool for basic settings (Resource Configurator) and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Communication Module>

- 1 Set IP address of the External Device to "192.168.1.1".

NOTE

- For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings.

- 2 Start up the dedicated tool for the basic settings.
- 3 From the [File] menu, select [Connection] to display the [Connect] dialog box.
- 4 Enter "192.168.1.1" in [Host].
- 5 Enter [User Name] and [Password] to login.
- 6 Select the link I/F to use from the [Controller Configuration] tree view.
- 7 Enter the port name in [Port Name].
- 8 Select [Port1] from the link I/F to use the [Controller Configuration] tree view.

9 Set specifications as follows:

Specifications	Setting
Wiring Method	-
Duplex Operation	Full-duplex
Baud Rate	19200
Data Bits	8
Parity Setting	EVEN
Stop Bits	1
Send Signal Check	NONE
Receive Flow Control	NONE
API Error Detection	YES

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

 "◆ Control Logic Example" (page 37)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

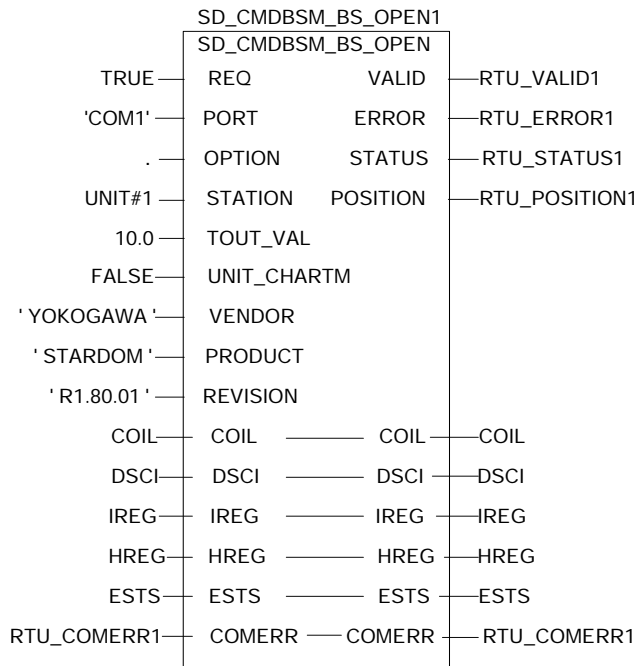
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is required.

The control logic example is shown below.



3.13 Setting Example 13

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word


Add Indirect Device [+](#)

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

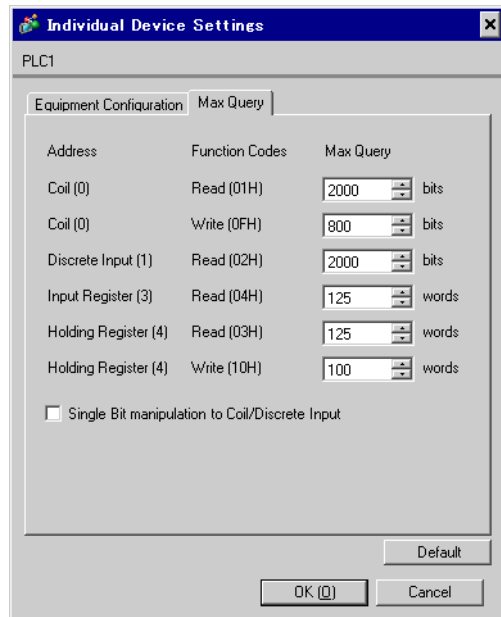
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), 'Bit manipulation (set/reset) to Holding Register' with 'Do not clear' selected, 'IEC61131 Syntax' with '0-based (Default)' selected, 'Address Mode' set to '0-based (Default)', 'Double Word word order' set to 'Low word first(L/H)', and a 'Low Security Level' checkbox. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, and Holding Registers. A 'Single Bit manipulation to Coil/Discrete Input' checkbox is at the bottom. Buttons for 'Default', 'OK (O)', and 'Cancel' are at the bottom.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

■ Settings of External Device

Use the dedicated tool for basic settings (Resource Configurator) and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Communication Module>

- 1 Set IP address of the External Device to "192.168.1.1".

NOTE

- For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings.

- 2 Start up the dedicated tool for the basic settings.
- 3 From the [File] menu, select [Connection] to display the [Connect] dialog box.
- 4 Enter "192.168.1.1" in [Host].
- 5 Enter [User Name] and [Password] to login.
- 6 Select the link I/F to use from the [Controller Configuration] tree view.
- 7 Enter the port name in [Port Name].
- 8 Select [Port1] from the link I/F to use the [Controller Configuration] tree view.

9 Set specifications as follows:

Specifications	Setting
Wiring Method	-
Duplex Operation	Full-duplex
Baud Rate	19200
Data Bits	8
Parity Setting	EVEN
Stop Bits	1
Send Signal Check	NONE
Receive Flow Control	NONE
API Error Detection	YES

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

 "◆ Control Logic Example" (page 41)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

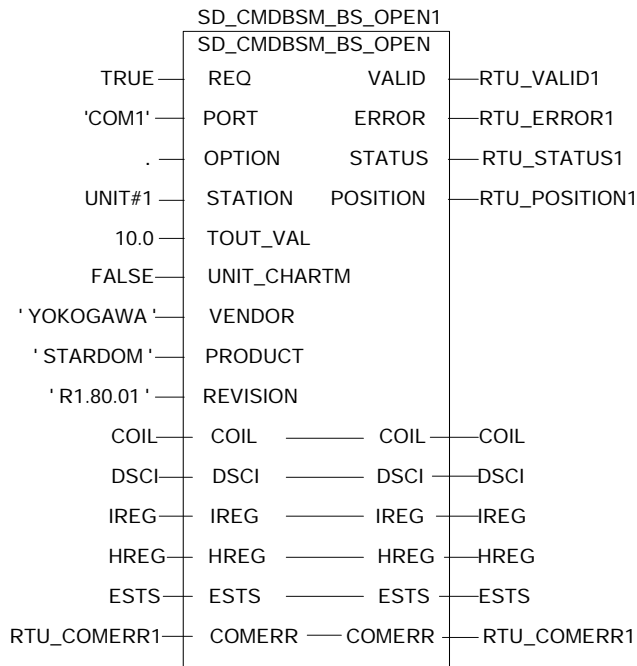
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is required.

The control logic example is shown below.



3.14 Setting Example 14

■ Settings of GP-Pro EX

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary [Change Device/PLC](#)

Manufacturer 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) ☒ Default Value

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 [Add Device](#)

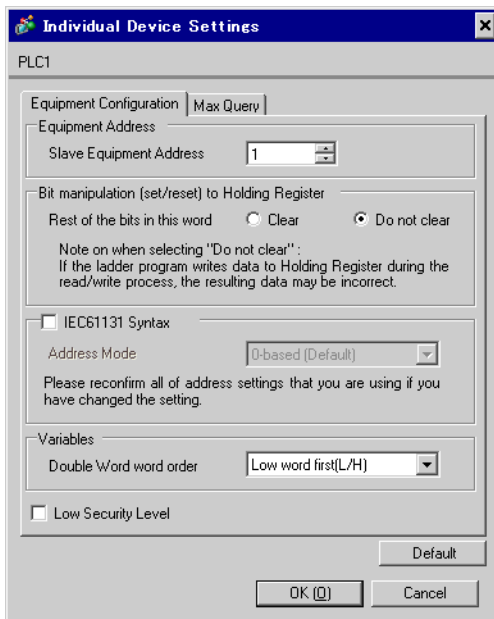
No.	Device Name	Settings	Add Indirect Device
1	PLC1	Slave Equipment Address=1, Rest of the bits in this word	+

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

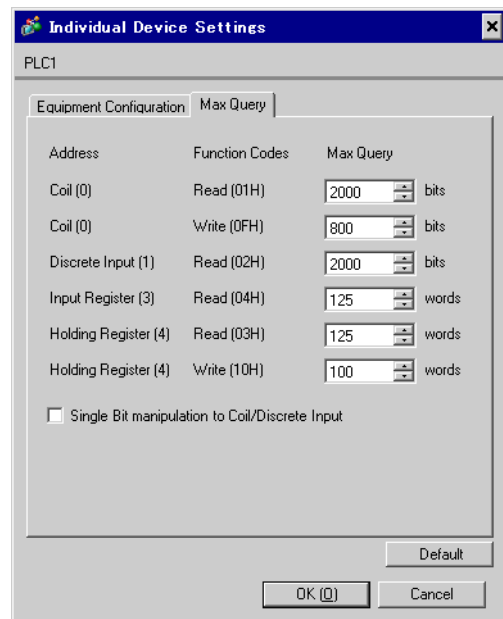
To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box shows the 'Equipment Configuration' tab for PLC1. It includes fields for 'Slave Equipment Address' (set to 1), a section for 'Bit manipulation (set/reset) to Holding Register' with 'Clear' and 'Do not clear' radio buttons, a checkbox for 'IEC61131 Syntax' with an 'Address Mode' dropdown (set to '0-based (Default)'), a 'Variables' section with a 'Double Word word order' dropdown (set to 'Low word first(L/H)'), and a 'Low Security Level' checkbox. 'Default', 'OK', and 'Cancel' buttons are at the bottom.

[Max Query] tab



The dialog box shows the 'Max Query' tab for PLC1. It contains a table with columns 'Address', 'Function Codes', and 'Max Query'. The table lists settings for Coils, Discrete Inputs, and Holding Registers. A checkbox for 'Single Bit manipulation to Coil/Discrete Input' is at the bottom. 'Default', 'OK', and 'Cancel' buttons are at the bottom.

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

■ Settings of External Device

Use the dedicated tool for basic settings (Resource Configurator) and ladder software (Logic Designer) for communication settings.

<Communication Settings for the Communication Module>

- 1 Set IP address of the External Device to "192.168.1.1".

NOTE • For more details on how to set IP address of the External Device, refer to the online help of the dedicated tool for the FCN/FCJ basic settings.

- 2 Start up the dedicated tool for the basic settings.
- 3 From the [File] menu, select [Connection] to display the [Connect] dialog box.
- 4 Enter "192.168.1.1" in [Host].
- 5 Enter [User Name] and [Password] to login.
- 6 Select the link I/F to use from the [Controller Configuration] tree view.
- 7 Enter the port name in [Port Name].
- 8 Select [Port1] from the link I/F to use the [Controller Configuration] tree view.

9 Set specifications as follows:

Specifications	Setting
Wiring Method	-
Duplex Operation	Full-duplex
Baud Rate	19200
Data Bits	8
Parity Setting	EVEN
Stop Bits	1
Send Signal Check	NONE
Receive Flow Control	NONE
API Error Detection	YES

10 Download the communication settings to the External Device.

11 Reboot the External Device.

<Control Logic Download Procedures>

1 Start up the ladder software.

2 Create the control logic in order to start the MODBUS communication (RTU mode) slave function. For the example of control logic, refer to "◆Control Logic Example".

 "◆ Control Logic Example" (page 45)

3 Double-click ['COM1'] next to [PORT] to display the [Variable Properties] dialog box.

4 Enter the connecting port name in [Name], and click [OK].

5 Double-click [UNIT#1] next to [STATION] to display the [Variable Properties] dialog box.

6 Enter the connecting station name in [Name], and click [OK].

7 Select [Rebuild Project] from the [Build] menu.

8 Double-click [Target Setting] in the project tree window to display the [Target] dialog box.

9 Enter "192.168.1.1" in [Host Name/IP Address].

10 Click [OK].

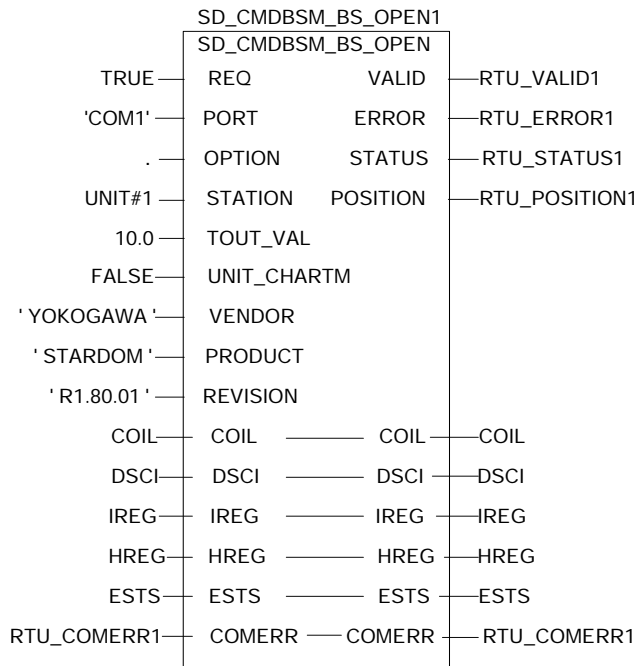
11 Download the communication settings to the External Device.

12 Reboot the External Device.

◆ Control Logic Example

To connect the Display to the External Device, the control logic is required.

The control logic example is shown below.



4 Setup Items

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

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

☞ "3 Example of Communication Setting" (page 10)

4.1 Setup Items in GP-Pro EX

■ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

Device/PLC 1

Summary

Manufacturer: Schneider Electric SA Series: MODBUS SIO Master Port: COM1

Text Data Mode: 1

Communication Settings

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

Speed: 19200

Data Length: ☐ 7 ☒ 8

Parity: ☐ NONE ☒ EVEN ☐ ODD

Stop Bit: ☒ 1 ☐ 2

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

Timeout: 3 (sec)

Retry: 2

Wait To Send: 3 (ms) ☒ Default Value

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

No. Device Name Settings

1 PLC1 Slave Equipment Address=1, Rest of the bits in this word

Add Indirect Device


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

Setup Items	Setup Description
Wait To Send	<p>Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.</p> <p>When the check box of the default value is checked, the Wait To Send value automatically changes in the formula below by changing each value for Speed/Data Length/Parity/Stop Bit.</p> $\text{Wait To Send (ms)} = \frac{3500 \times (1 + \text{Data Length} + \text{Stop Bit} + \text{Parity})}{\text{Speed (bps)}}$ <p>Value for the parity setting is shown below. No Parity = 0 Parity Even = 1 Parity Odd = 1</p> <p>NOTE</p> <ul style="list-style-type: none"> After changing the Wait To Send value for the project, of which [Default Value] is checked, in the offline mode, the Wait To Send value will be recalculated when the project is received and communication settings are displayed.
RI/VCC	<p>You can switch RI/VCC of the 9th pin when you select RS232C for SIO type.</p> <p>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.</p>

NOTE • Refer to the GP-Pro EX Reference Manual for Indirect Device.

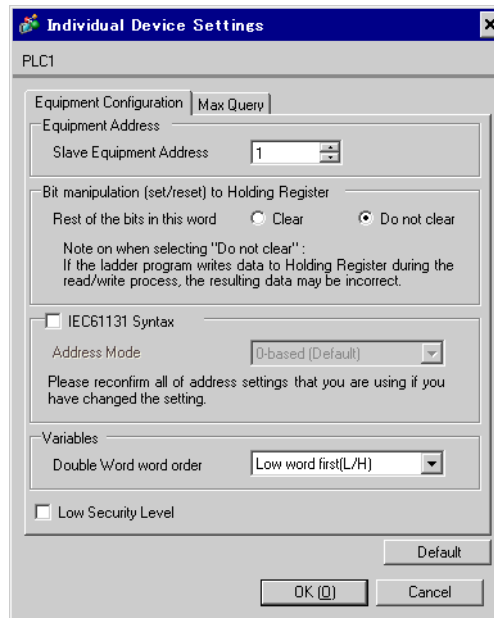
Cf. GP-Pro EX Reference Manual "Changing the Device/PLC at Runtime (Indirect Device)"

◆ Device Setting

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.

[Equipment Configuration] tab



The dialog box is titled "Individual Device Settings" and has a tab labeled "Equipment Configuration". It contains the following fields and options:

- Equipment Address:** A section with a "Slave Equipment Address" field set to "1".
- Bit manipulation (set/reset) to Holding Register:** Two radio buttons: "Rest of the bits in this word" (selected) with sub-options "Clear" and "Do not clear" (selected). A note below states: "Note on when selecting 'Do not clear': If the ladder program writes data to Holding Register during the read/write process, the resulting data may be incorrect."
- IEC61131 Syntax:** A checkbox that is unchecked. Below it is an "Address Mode" dropdown menu set to "0-based (Default)". A note says: "Please reconfirm all of address settings that you are using if you have changed the setting."
- Variables:** A "Double Word word order" dropdown menu set to "Low word first(L/H)".
- Low Security Level:** An unchecked checkbox.
- Buttons at the bottom: "Default", "OK (O)", and "Cancel".

Setup Items		Setup Description
Slave Equipment Address		Use an integer from 1 to 247 to enter the slave equipment address of the External Device.
Bit manipulation (set / reset) to Holding Register		From "Clear" or "Do not clear", select treatment of the rest of the bits in the same word when the bit manipulation to Holding Register is performed.
	Rest of the bits in this word	
IEC61131 Syntax		Check this item when you use the IEC61131 syntax for variables. In case that you check on, select Address Mode, [0-based] or [1-based].
Double Word word order		Select the order of storing double word data from "Low word first" or "High word first".
Low Security Level		Put a check when lowering the format check level.

[Max Query] tab

Address	Function Codes	Max Query
Coil (0)	Read (01H)	2000 bits
Coil (0)	Write (0FH)	800 bits
Discrete Input (1)	Read (02H)	2000 bits
Input Register (3)	Read (04H)	125 words
Holding Register (4)	Read (03H)	125 words
Holding Register (4)	Write (10H)	100 words

☐ Single Bit manipulation to Coil/Discrete Input

Default OK (O) Cancel

Setup Items		Setup Description
Coil	Read	Set the number of max data for device [coil] which can be read for one communication, using 16 to 2000 bits. NOTE • When [Single Bit manipulation to Coil/Discrete Input] is checked, set the data maximum number from 1 to 2000.
	Write	Set the number of max data for device [coil] which can be written for one communication, using 1 to 800 bits.
Discrete Input	Read	Set the number of max data for device [discrete input] which can be read for one communication, using 16 to 2000 bits. NOTE • When [Single Bit manipulation to Coil/Discrete Input] is checked, set the data maximum number from 1 to 2000.
	Write	
Input Register	Read	Set the number of max data for device [input register] which can be read for one communication, using 1 to 125 words.
	Write	
Holding Register	Read	Set the number of max data for device [holding register] which can be read for one communication, using 1 to 125 words.
	Write	Set the number of max data for device [holding register] which can be written for one communication, using 1 to 100 words.
Single Bit manipulation to Coil/Discrete Input		Put a check when writing in or reading out coil or discrete input in bits.

4.2 Setup Items in Offline Mode

NOTE

- Refer to the Maintenance/Troubleshooting guide for information on how to enter offline mode or about the operation.

Cf. Maintenance/Troubleshooting Guide "Offline Mode"

- The number of the setup items to be displayed for 1 page in the offline mode depends on the Display in use. Please refer to the Reference manual for details.

◆ Communication Settings

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

Comm.	Device	Option		
MODBUS SIO Master [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	NONE			
Timeout(s)	3			
Retry	2			
Wait To Send(ms)	3			
Exit		Back		2005/09/02 13:11:46

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	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.

Setup Items	Setup Description
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.

◆ 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		
MODBUS SIO Master [COM1] Page 1/1				
Device/PLC Name <input type="text" value="PLC1"/>				
Slave Address		<input type="text" value="1"/>		
Bit manipulation to HR		Rest of bits in word are not cleared		
IEC61131 Syntax		OFF		
Double Word word order		Low word first		
Low Security Level		OFF		
Max Query				
Read Coil		2000 bits		
Write Coil		800 bits		
Read Discrete Input		2000 bits		
Read Input Register		<input type="text" value="125"/>		
Read Holding Register		<input type="text" value="125"/>		
Write Holding Register		<input type="text" value="100"/>		
Single Bit manipulation		OFF		
Exit		Back		2007/06/28 12:26:16

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])
Slave Address	Use an integer from 1 to 247 to enter the slave equipment address of the External Device.
Bit manipulation to HR	From "Rest of bits in word are cleared" or "Rest of bits in word are not cleared", select treatment of the rest of the bits in the same word when the bit manipulation to Holding Register is performed. (Not available to set in offline mode.)
IEC61131 Syntax	Displays the usage status of the currently set IEC61131 syntax in ON/OFF. (Not available in offline mode.)
Double Word word order	Displays the currently set order of storing double word data from "Low word first" or "High word first". (Not available to set in offline mode.)
Low Security Level	When an format check level is lowered, ON/OFF is displayed. When the level is lowered, ON is displayed. (Not available to set in offline mode.)

Setup Items		Setup Description
Coil	Read	Displays the number of max data for device [coil] which can be read for one communication. (Not available to set in offline mode.)
	Write	
Discrete Input	Read	Displays the number of max data for device [discrete input] which can be read for one communication. (Not available to set in offline mode.)
	Write	
Input Register	Read	Set the number of max data for device [input register] which can be read for one communication, using 1 to 125 words.
	Write	
Holding Register	Read	Set the number of max data for device [holding register] which can be read for one communication, using 1 to 125 words.
	Write	
Holding Register	Read	Set the number of max data for device [holding register] which can be written for one communication, using 1 to 100 words.
	Write	
Single Bit manipulation		ON/OFF display shows whether the coil or discrete input is written or read out in bits. If ON is displayed, writing or reading can be executed in bits. (Not available to set in offline mode.)

◆ 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		
MODBUS SIO Master [COM1] Page 1/1				
<div style="text-align: center;"> 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. </div>				
Exit		Back		2005/09/02 13:11:50

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.

NOTE

- GP-4100 series, GP-4*01TM and LT-4*01TM do not have the [Option] setting in the offline mode.

5 Cable Diagram

The following cable diagrams may be different from cable diagrams recommended by External Device Manufacturer.

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 grounded according to your country's applicable standard. Refer to your External Device manual for details.
- SG and FG are connected inside the Display. When connecting the External Device to SG, design your system to avoid short-circuit loops.
- Connect an isolation unit if the communication is not stable due to noise or other factors.

5.1 Cable Diagram 1

Display (Connection Port)	Cable		Notes
GP3000* ¹ (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST* ² (COM2) LT3000 (COM1)	1A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 200m or less.
	1B	User-created cable	
GP3000* ³ (COM2)	1C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 200m or less.
	1D	Online Adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC* ⁴	1E	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 200m or less.
	1F	User-created cable	
GP-4106 (COM1)	1G	User-created cable	The cable length must be 200m or less.
GP-4107 (COM1) GP-4*03T* ⁵ (COM2) GP-4203T (COM1)	1H	User-created cable	The cable length must be 200m or less.

Display (Connection Port)	Cable		Notes
GP4000* ⁶ (COM2) GP-4201T (COM1)	1I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 * ⁷ + User-created cable	The cable length must be 200m or less.
	1B	User-created cable	
LT-4*01TM (COM1)	1J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJ81	

*1 All GP3000 models except AGP-3302B

*2 All ST models except AST-3211A and AST-3302B

*3 All GP3000 models except GP-3200 series and AGP-3302B

*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
■ IPC COM Port (page 7)

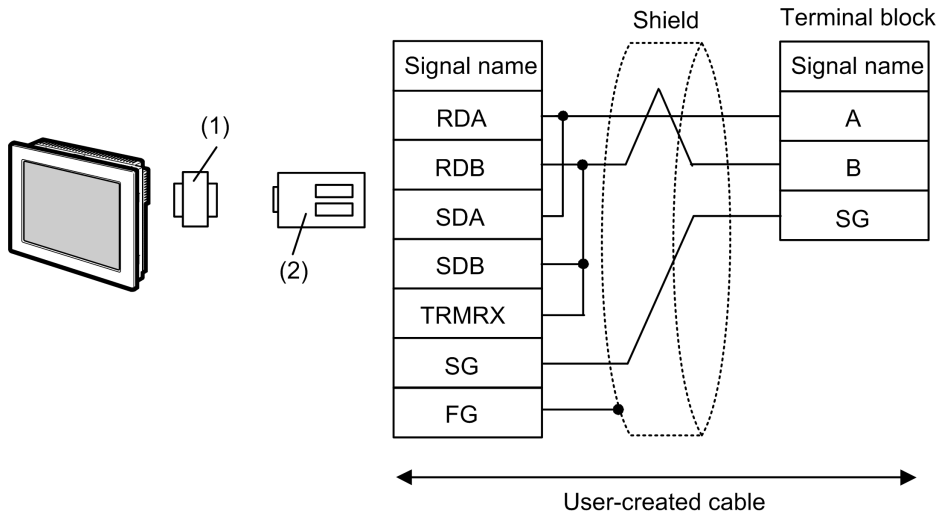
*5 Except GP-4203T

*6 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T

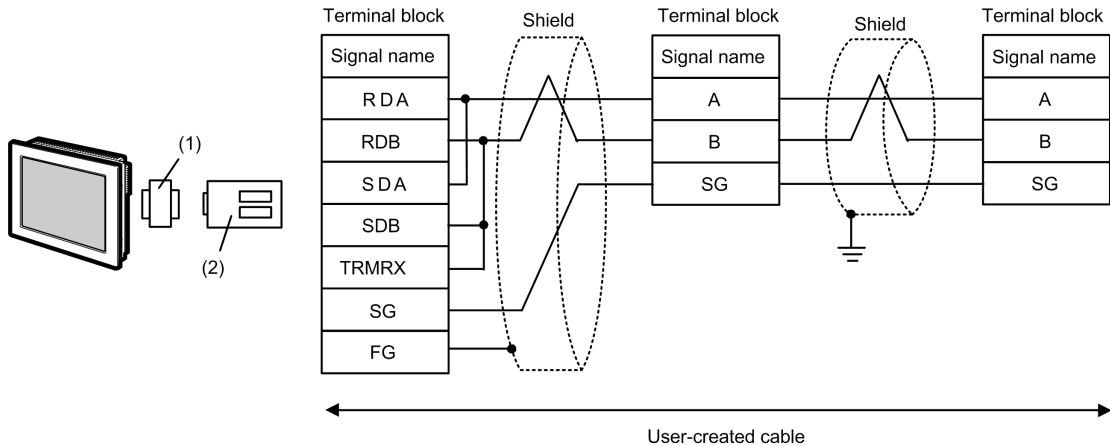
*7 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 1A.

1A)

- 1:1 Connection



- 1:n Connection

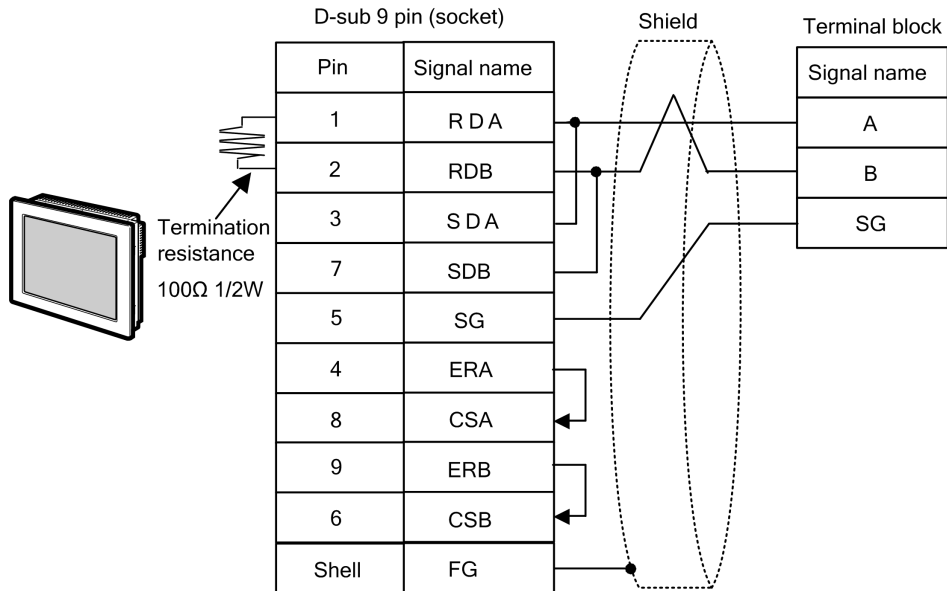


Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

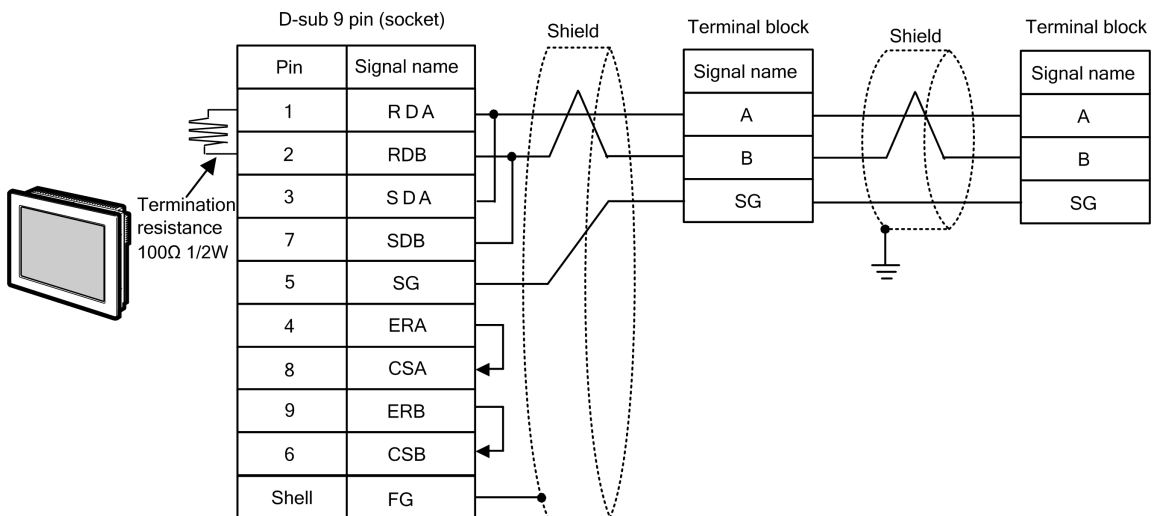
NOTE • The cable length must be 200m or less.

1B)

- 1:1 Connection



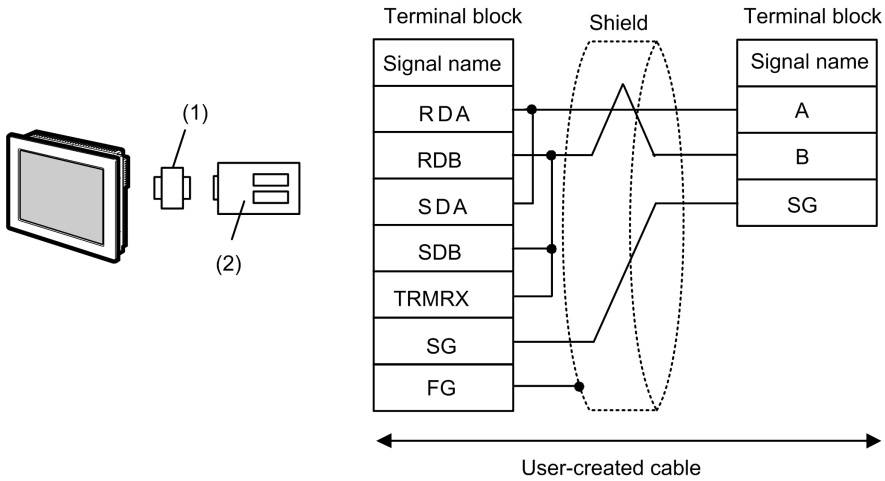
- 1:n Connection

**NOTE**

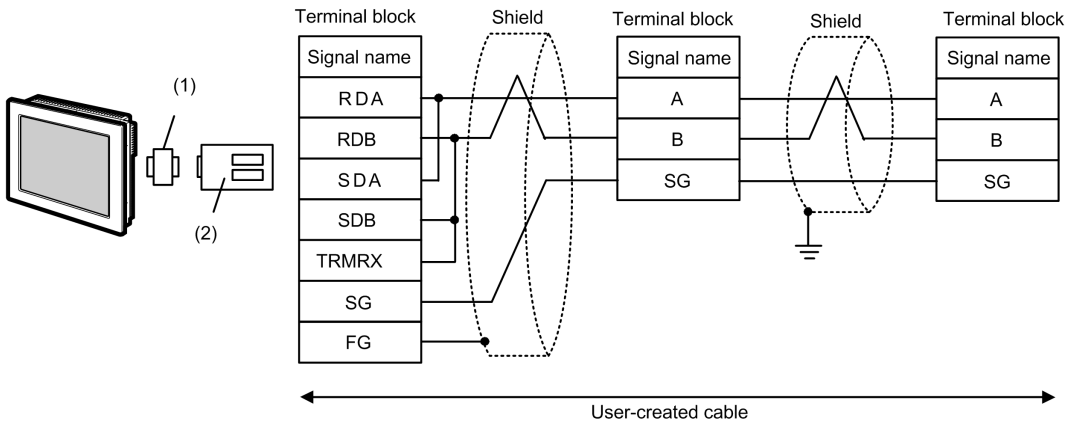
- The cable length must be 200m or less.

1C)

- 1:1 Connection



- 1:n Connection

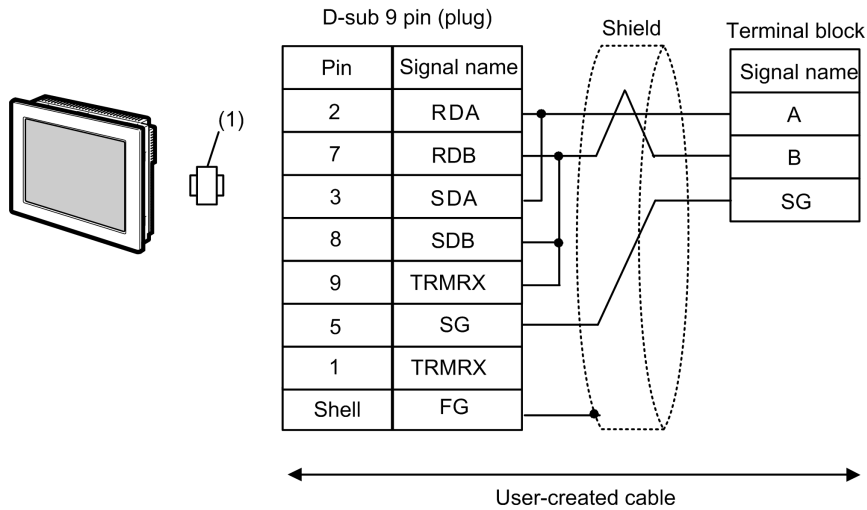


Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

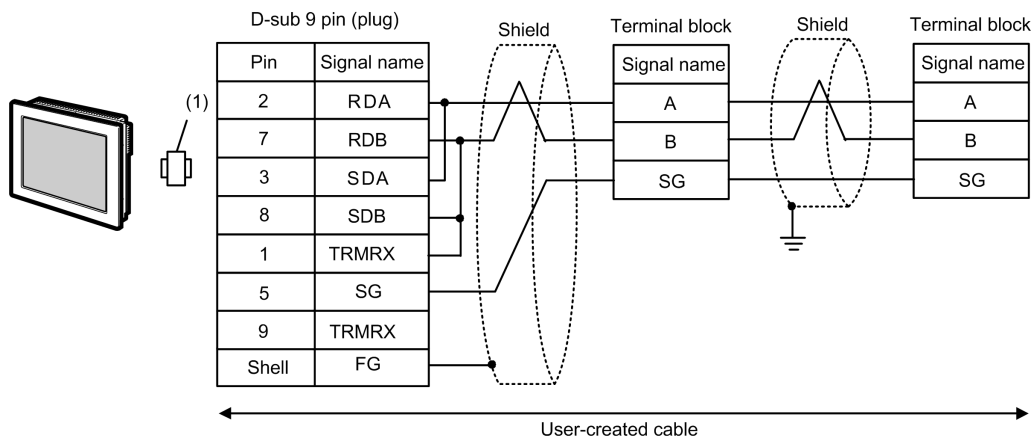
NOTE • The cable length must be 200m or less.

1D)

- 1:1 Connection



- 1:n Connection

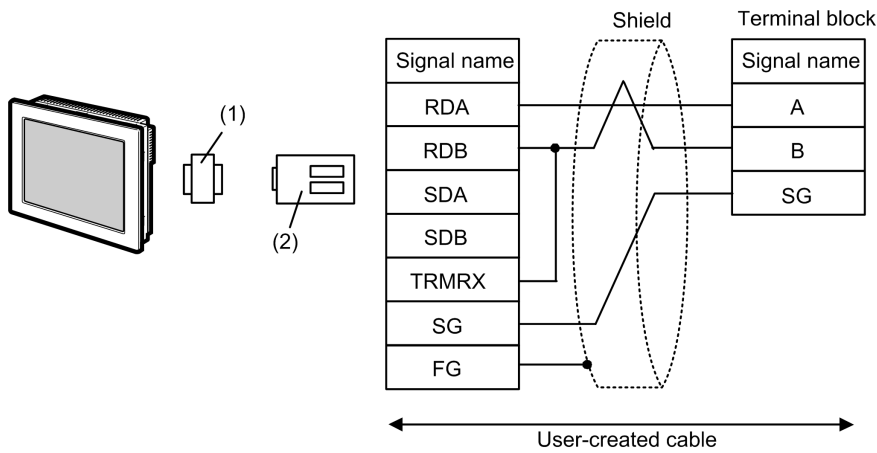


Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	

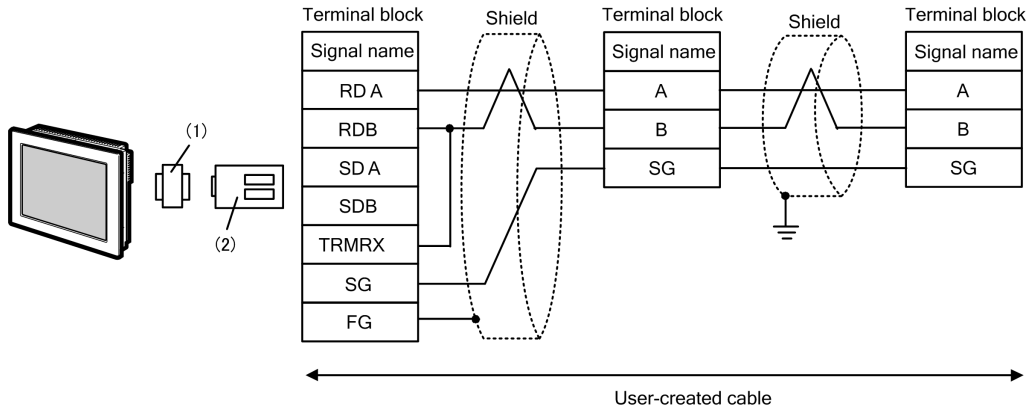
NOTE • The cable length must be 200m or less.

1E)

- 1:1 Connection



- 1:n Connection

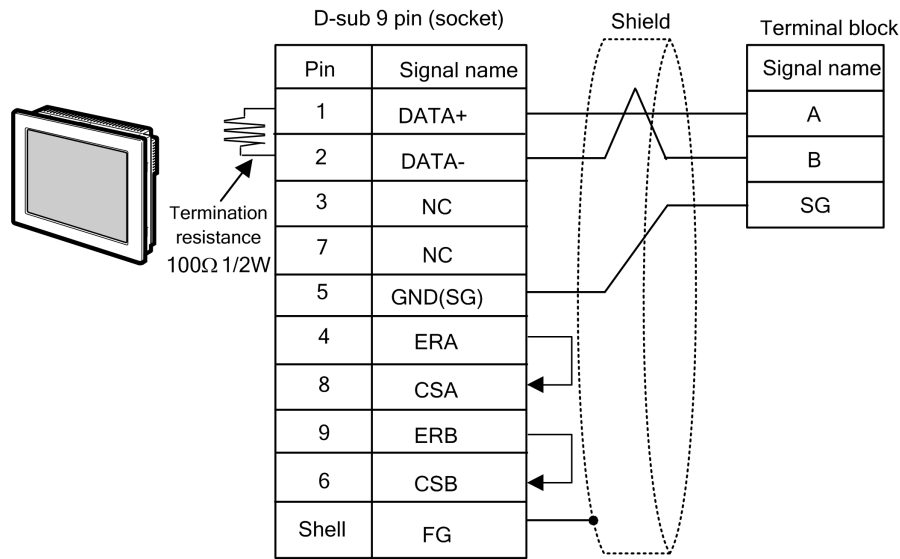


Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

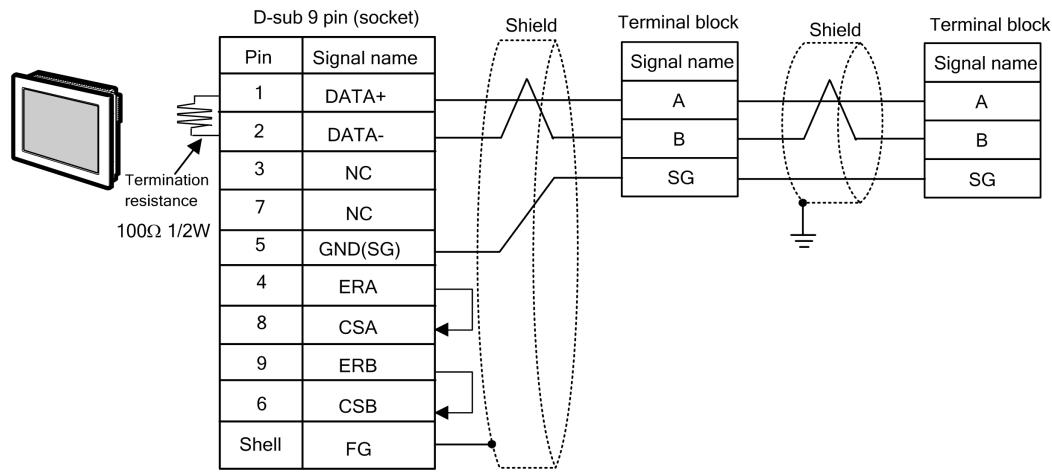
NOTE • The cable length must be 200m or less.

1F)

- 1:1 Connection



- 1:n Connection

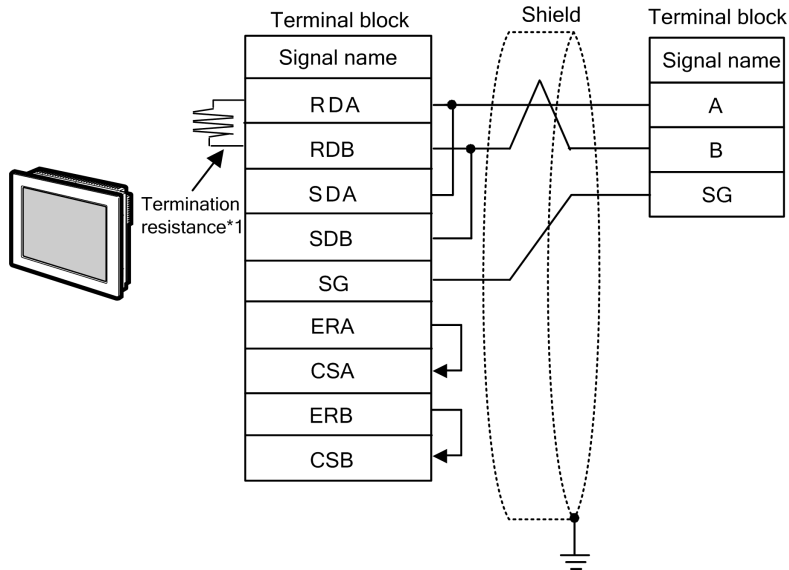


NOTE

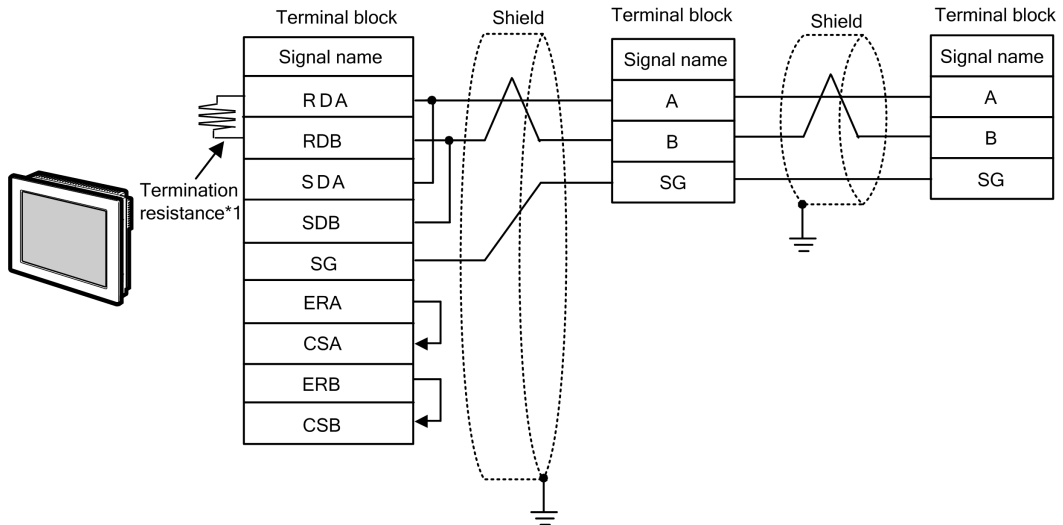
- The cable length must be 200m or less.

1G)

- 1:1 Connection



- 1:n Connection



*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

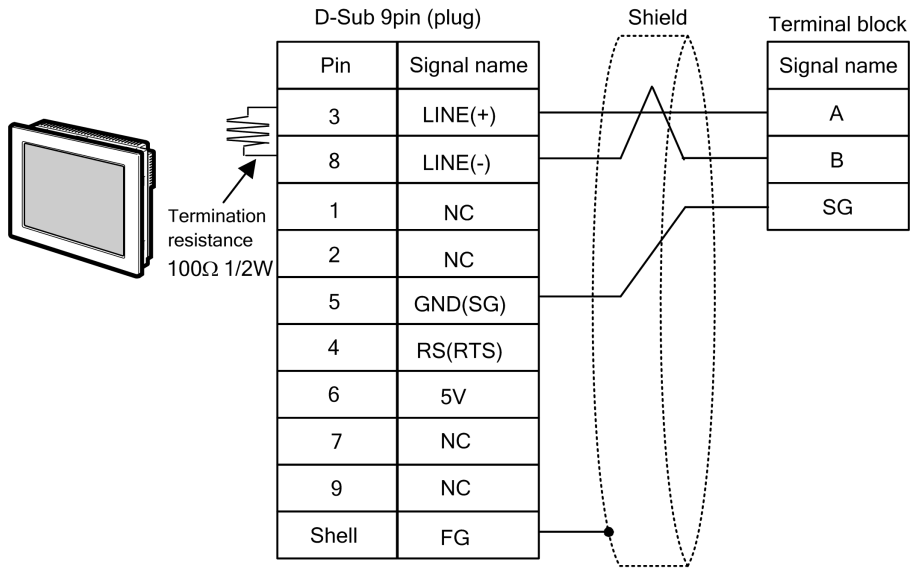
DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

NOTE

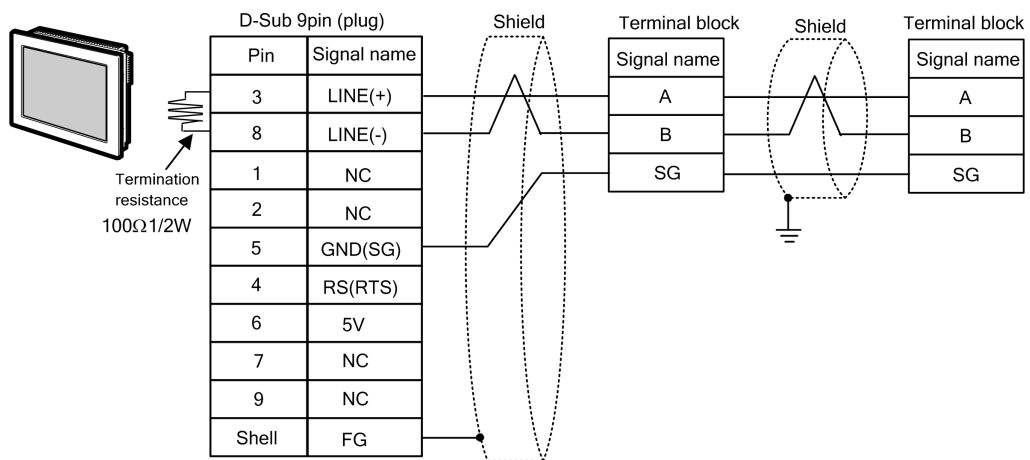
- The cable length must be 200m or less.

1H)

- 1:1 Connection



- 1:n Connection

**IMPORTANT**

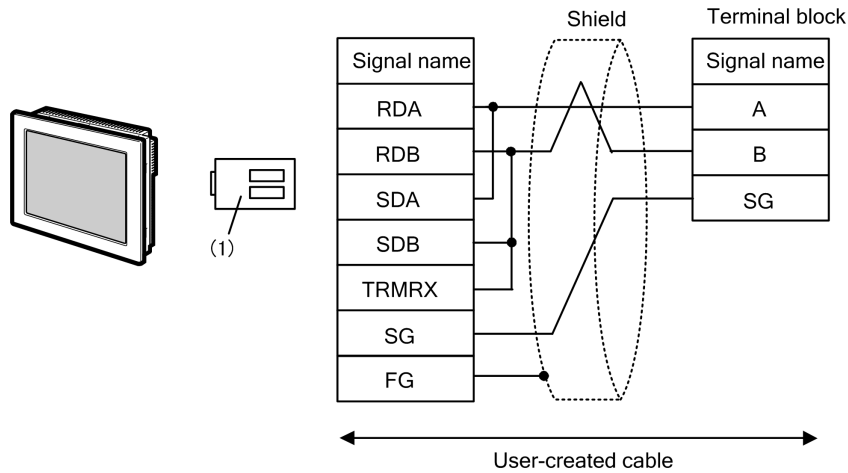
- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE

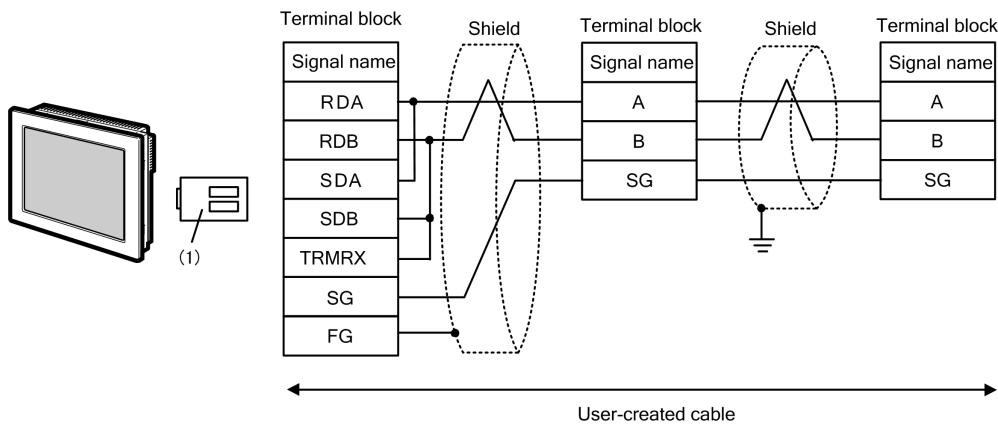
- In COM on the GP-4107, the SG and FG terminals are isolated.
- The cable length must be 200m or less.

1l)

- 1:1 Connection



- 1:n Connection



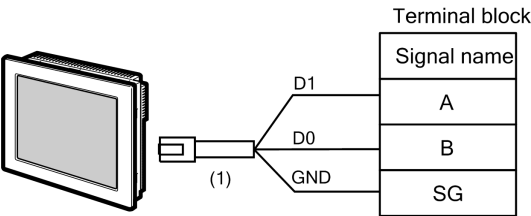
Legend	Name	Notes
(1)	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1	

NOTE

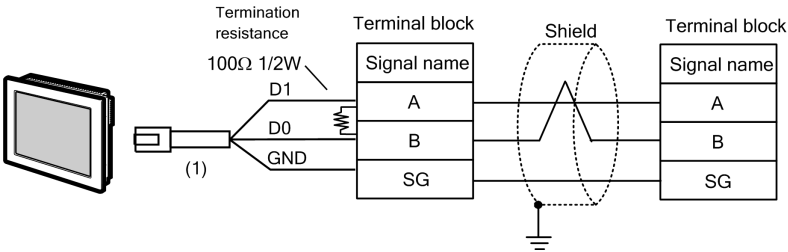
- The cable length must be 200m or less.

1J)

- 1:1 Connection



- 1:n Connection



Legend	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJ81	

NOTE

- The cable length must be 200m or less.

5.2 Cable Diagram 2

Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000* ¹ (COM1) ST (COM1) LT3000 (COM1) IPC* ² PC/AT	2A	Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)* ³	
GP-4105 (COM1)	2B	User-created cable + Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)* ²	

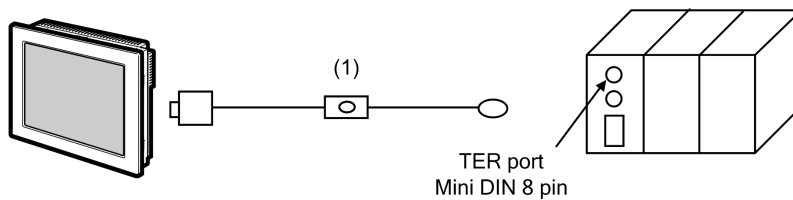
*1 All GP4000 models except GP-4100 series and GP-4203T

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

■ IPC COM Port (page 7)

*3 Set the rotary switch to "3 (OTHER DIRECT)".

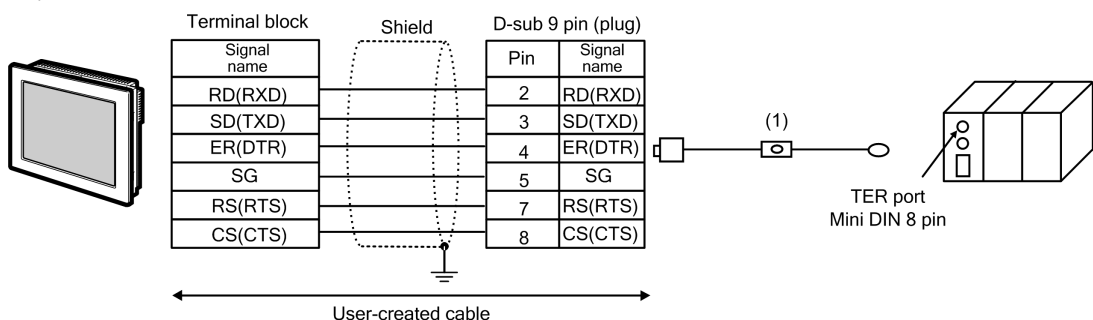
2A)



Legend	Name	Notes
(1)	Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)* ¹	

*1 Set the rotary switch to "3 (OTHER DIRECT)".

2B)



Legend	Name	Notes
(1)	Cable by Schneider Electric Industries TSX PCX 1031 (2.5m)* ¹	

*1 Set the rotary switch to "3 (OTHER DIRECT)".

5.3 Cable Diagram 3

Display (Connection Port)	Cable		Notes
GP3000* ¹ (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST* ² (COM2) LT3000 (COM1)	3A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.* ³
	3B	User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	
GP3000* ⁴ (COM2)	3C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.* ³
	3D	Online Adapter by Pro-face CA4-ADPONL-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	
IPC* ⁵	3E	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.* ³
	3F	User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	

Display (Connection Port)	Cable		Notes
GP-4106 (COM1)	3G	User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.* ³
GP-4107 (COM1) GP-4*03T* ⁶ (COM2) GP-4203T (COM1)	3H	User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.* ³
GP4000* ⁷ (COM2) GP-4201T (COM1)	3I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 * ⁸ + User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	The cable length must be 10m or less.* ³
	3B	User-created cable + Accessory box by Schneider Electric Industries TSX SCA 50	
LT-4*01TM (COM1)	3J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81 + Accessory box by Schneider Electric Industries TSX SCA 50	

*1 All GP3000 models except AGP-3302B

*2 All ST models except AST-3211A and AST-3302B

*3 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

*4 All GP3000 models except GP-3200 series and AGP-3302B

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

■ IPC COM Port (page 7)

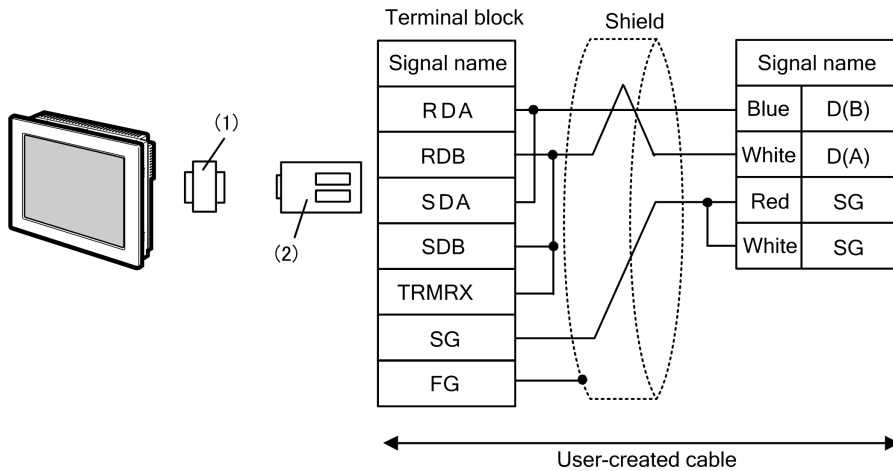
*6 Except GP-4203T

*7 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T

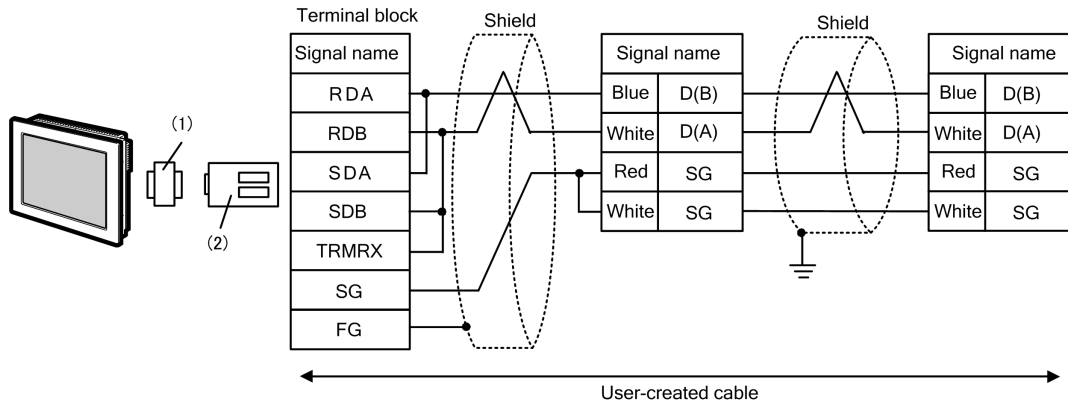
*8 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 3A.

3A)

- 1:1 Connection



- 1:n Connection



Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

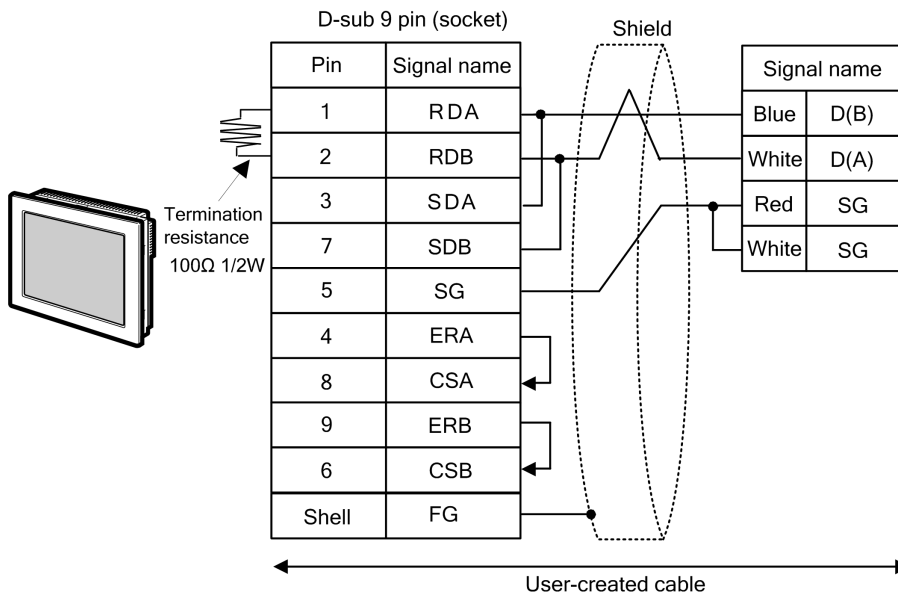
NOTE

- The cable length must be 10m or less.*1

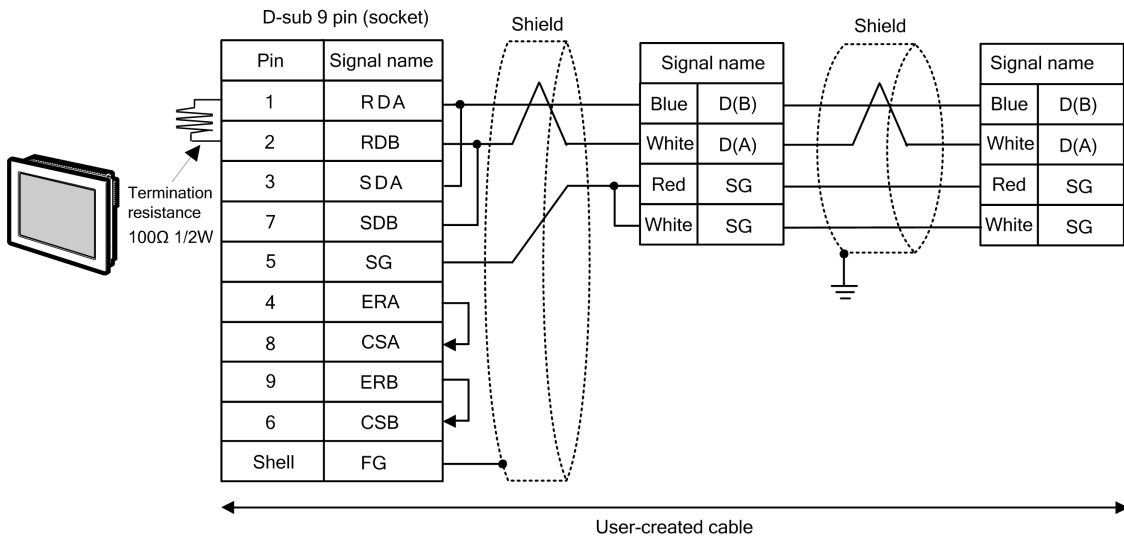
*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3B)

- 1:1 Connection



- 1:n Connection

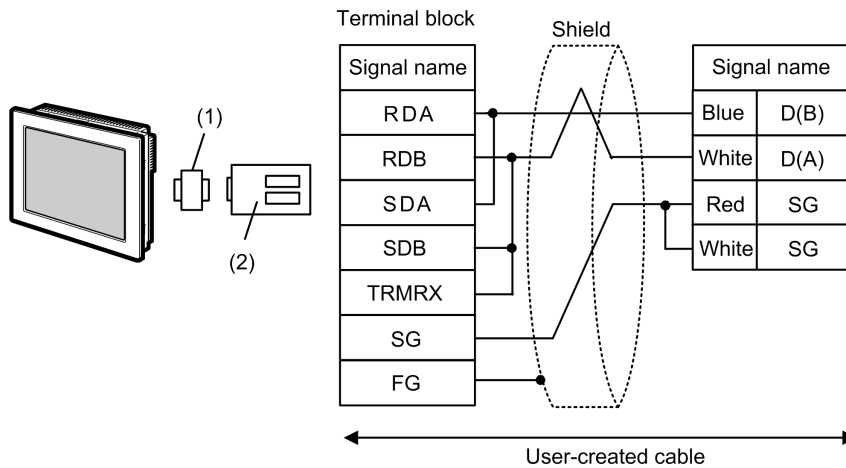
**NOTE**

- The cable length must be 10m or less.*1

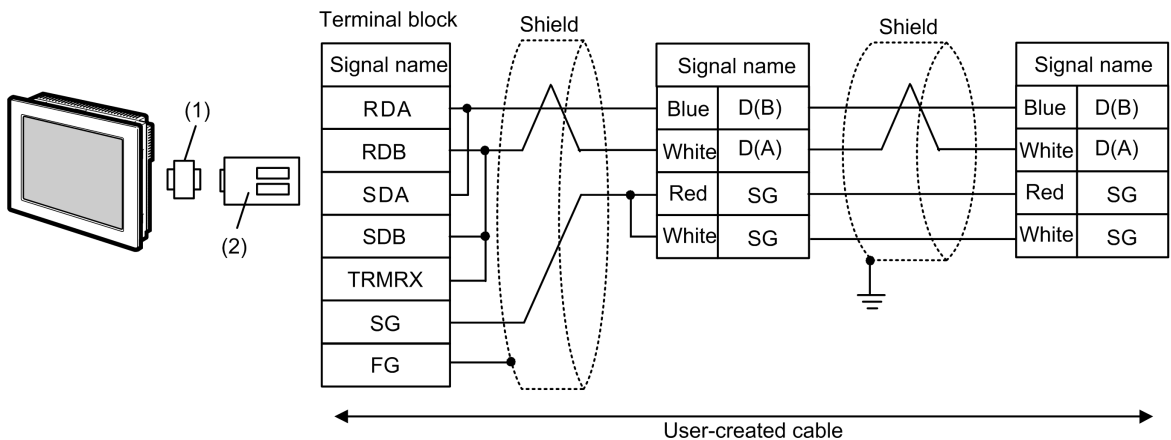
*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3C)

- 1:1 Connection



- 1:n Connection



Legend	Name	Notes
(1)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 Online Adapter by Pro-face CA4-ADPONL-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

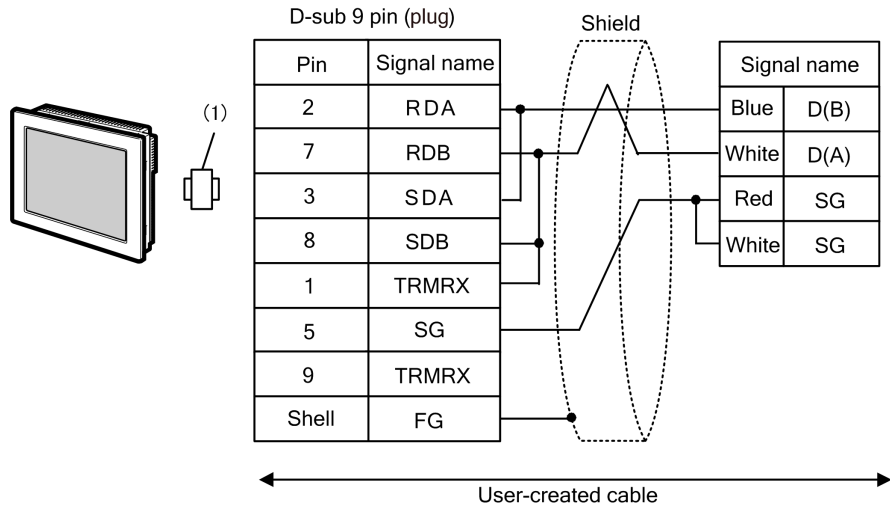
NOTE

- The cable length must be 10m or less.*1

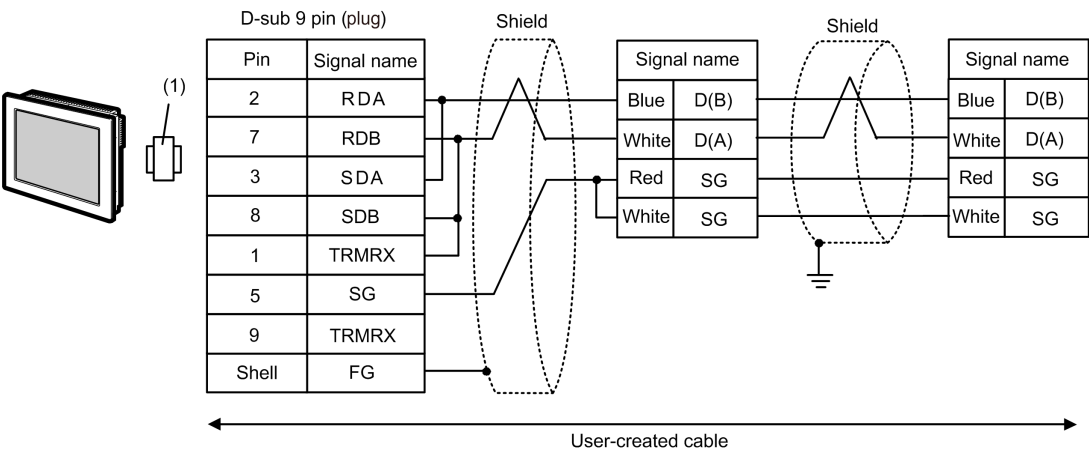
*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3D)

- 1:1 Connection



- 1:n Connection



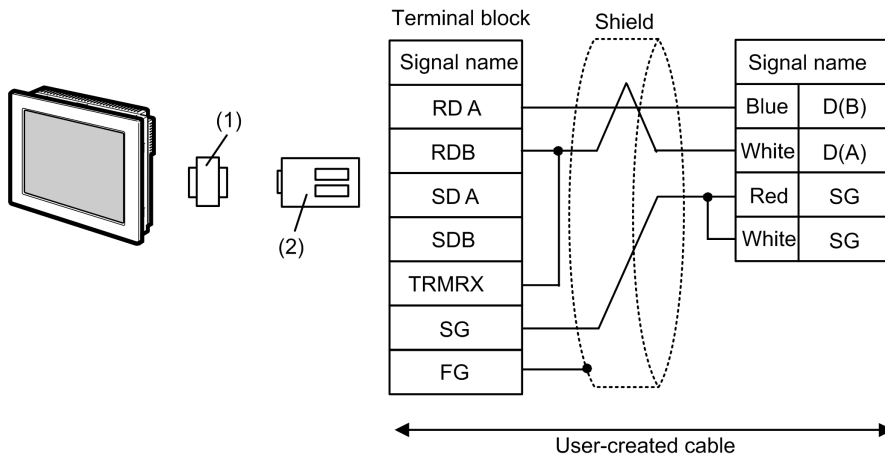
Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	

NOTE • The cable length must be 10m or less.*1

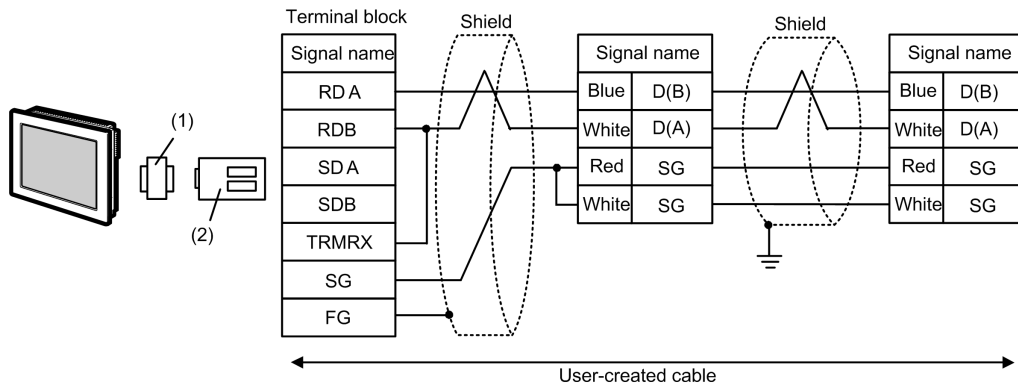
*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3E)

- 1:1 Connection



- 1:n Connection



Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

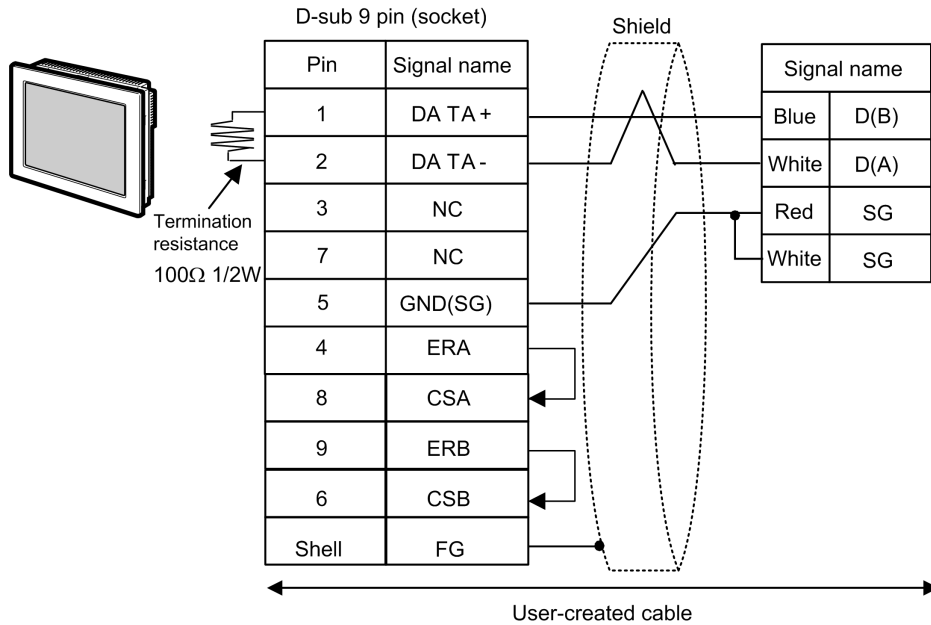
NOTE

- The cable length must be 10m or less.*1

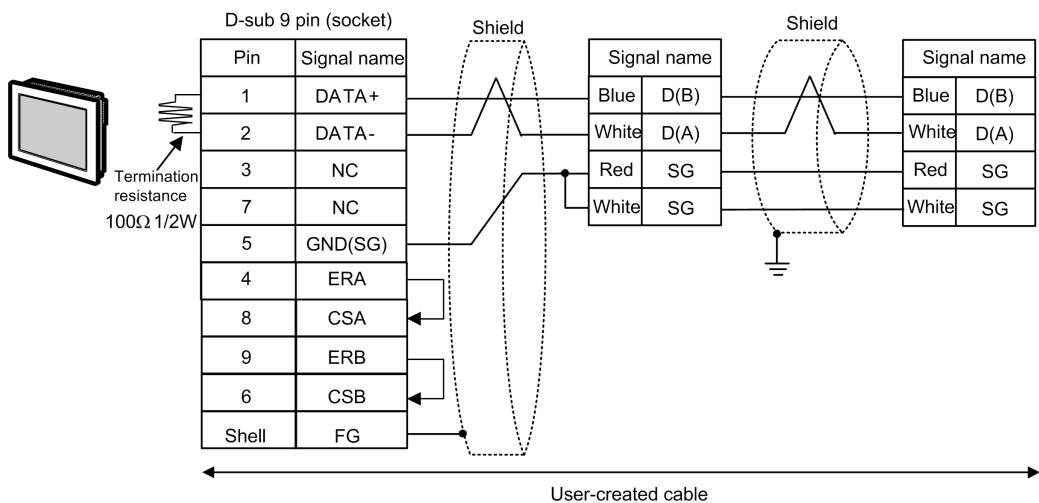
*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3F)

- 1:1 Connection



- 1:n Connection

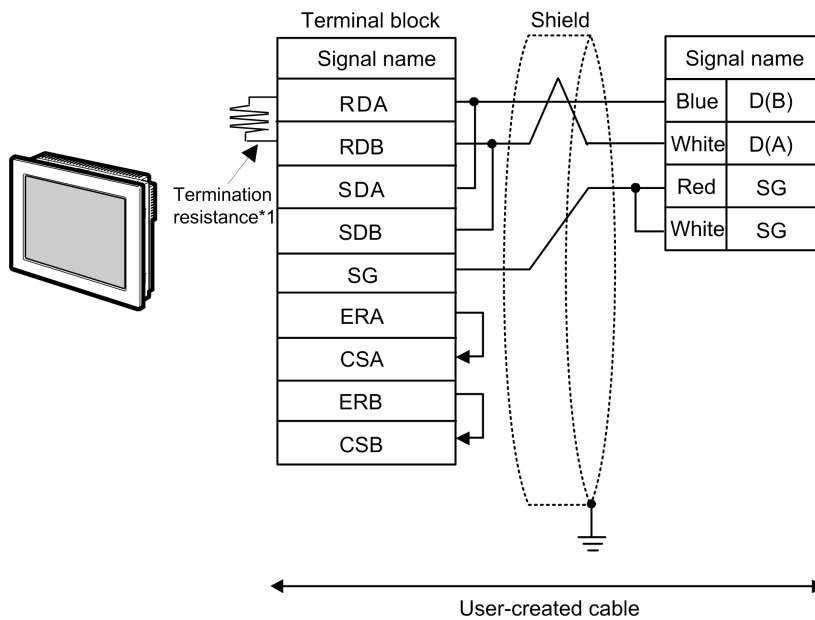
**NOTE**

- The cable length must be 10m or less. ^{*1}

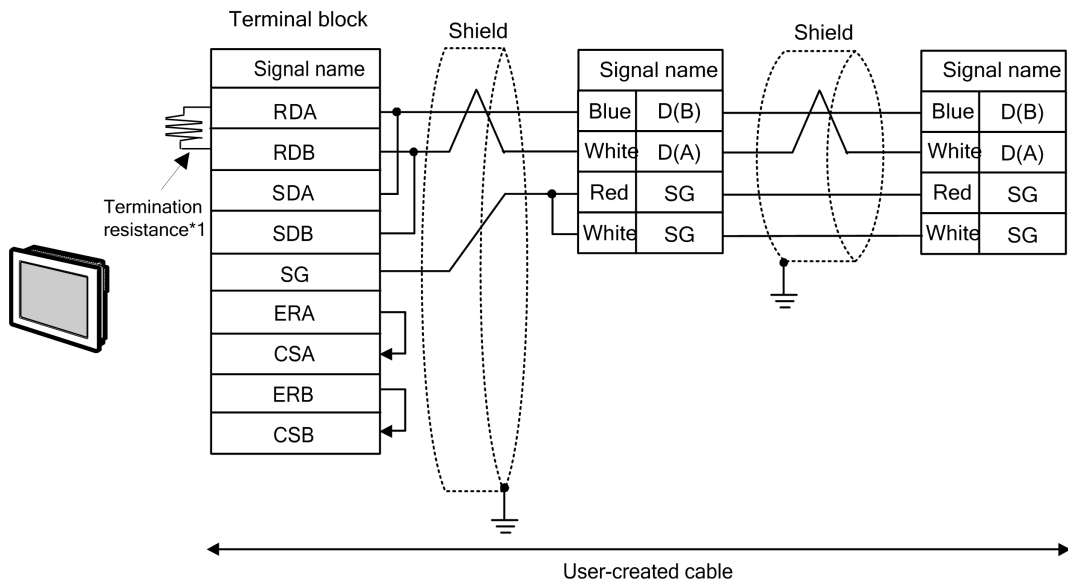
^{*1} Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3G)

- 1:1 Connection



- 1:n Connection



*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

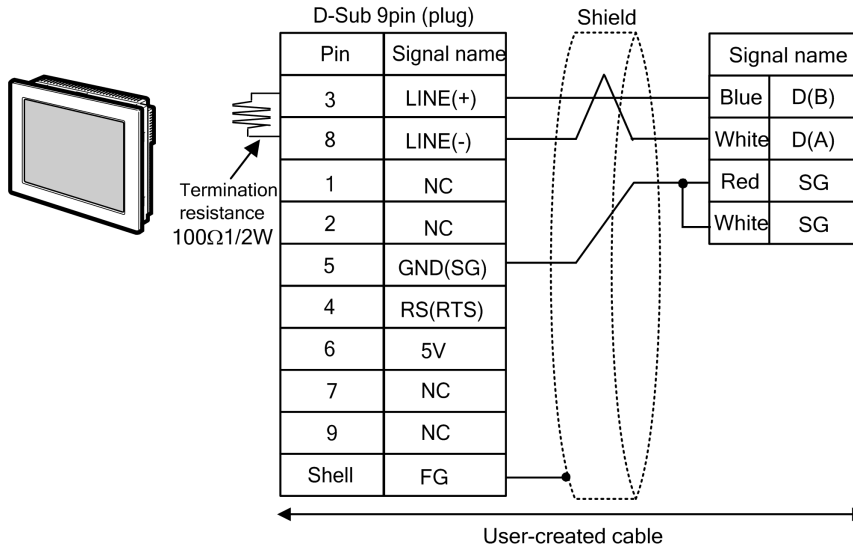
NOTE

- The cable length must be 10m or less.^{*1}

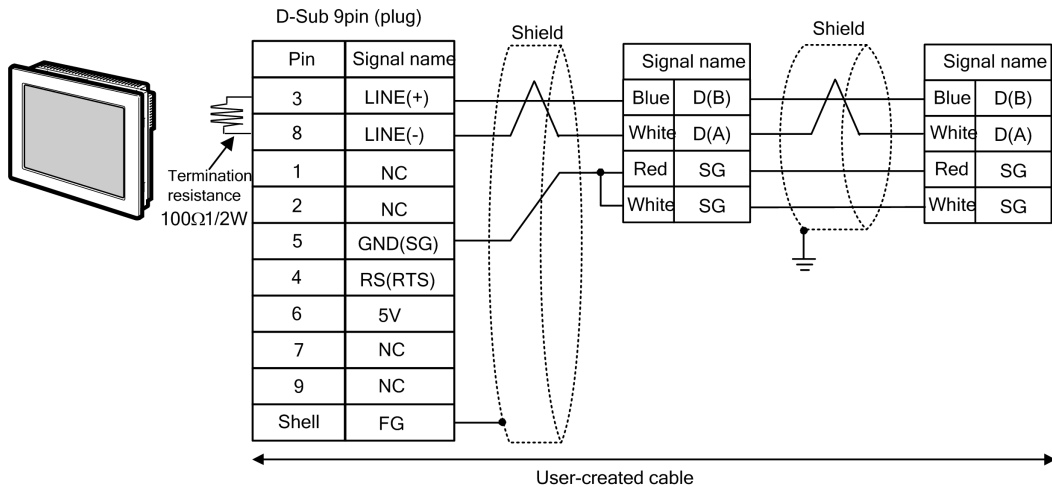
^{*1} Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3H)

- 1:1 Connection



- 1:n Connection

**IMPORTANT**

- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

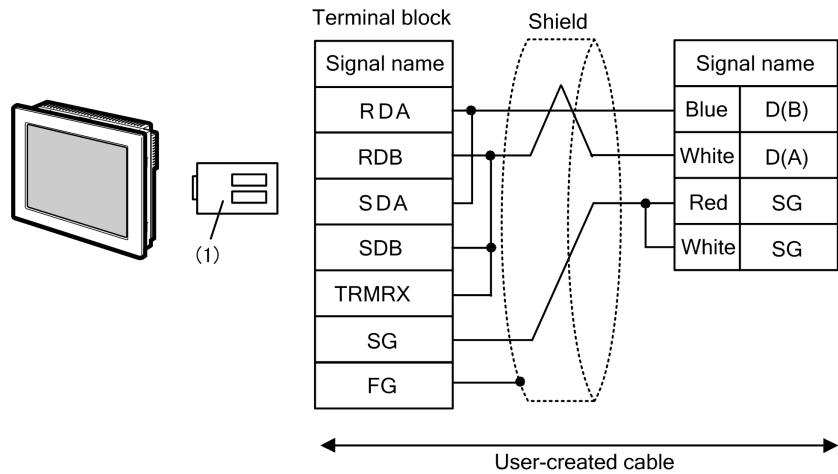
NOTE

- In COM on the GP-4107, the SG and FG terminals are isolated.
- The cable length must be 10m or less.^{*1}

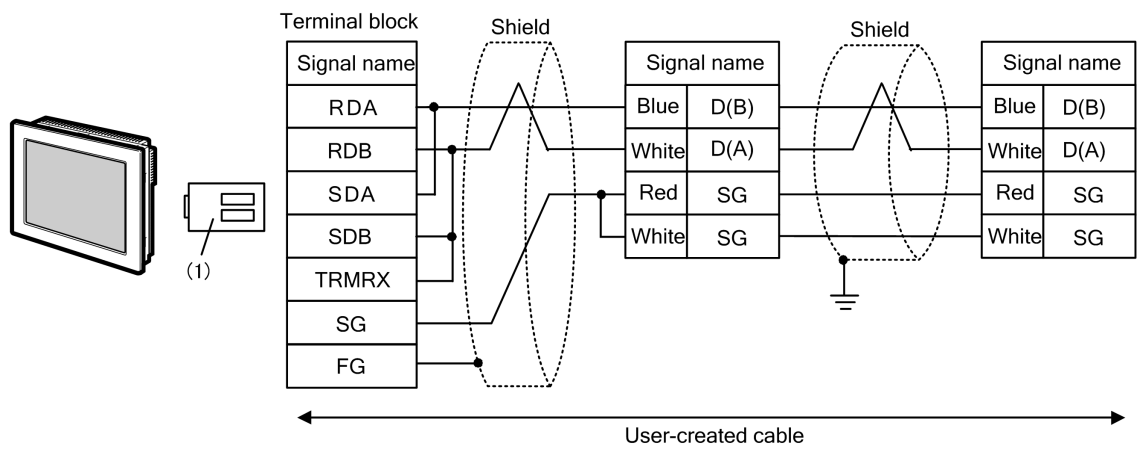
^{*1} Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3l)

- 1:1 Connection



- 1:n Connection



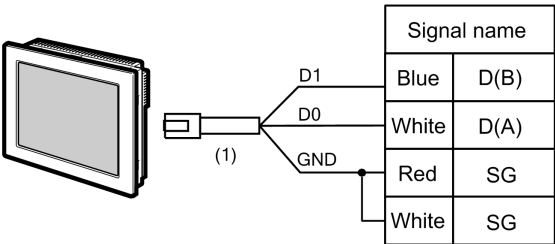
Legend	Name	Notes
(1)	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1	

NOTE • The cable length must be 10m or less.*1

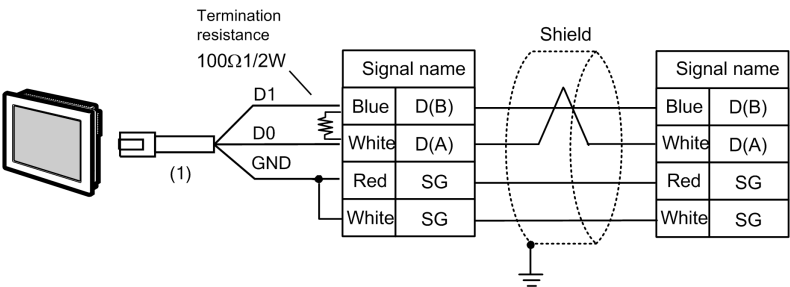
*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

3J)

- 1:1 Connection



- 1:n Connection



Legend	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJ81	

NOTE • The cable length must be 10m or less.*1

*1 Max length between the Display and the "Accessory Box connected to Display". Total cable length between accessory boxes must be 1000m or less.

5.4 Cable Diagram 4

Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) ST (COM1) LT3000 (COM1) IPC ^{*2} PC/AT	4A	User-created cable + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111	The cable length must be 15m or less. ^{*3}
GP-4105 (COM1)	4B	User-created cable + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111	The cable length must be 15m or less. ^{*3}
LT-4*01TM (COM1)	4C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBJR21 + RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m) + PCMCIA card for RS232C by Schneider Electric TSX SCP 111	

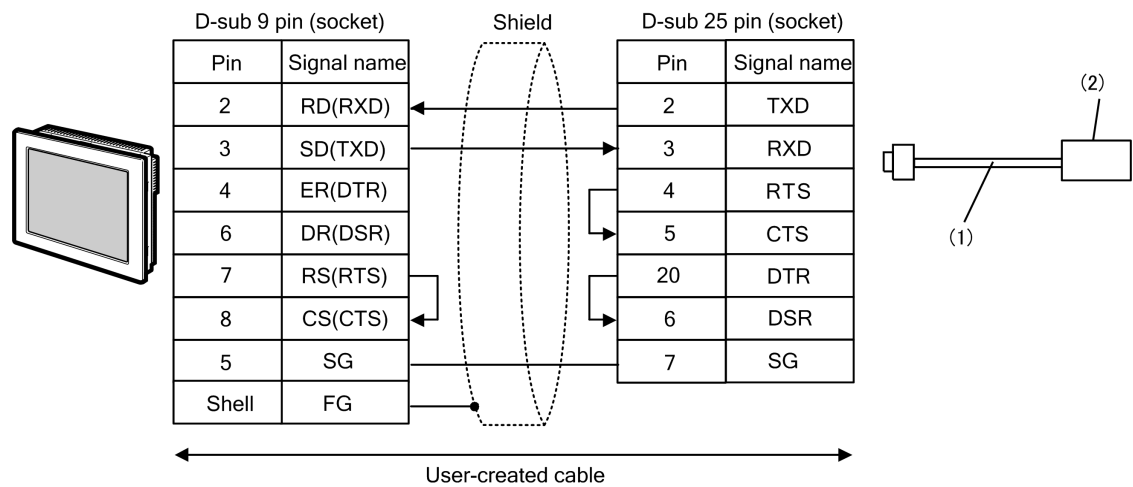
*1 All GP4000 models except GP-4100 series and GP-4203T

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

■ IPC COM Port (page 7)

*3 Total length for TSX SCP CC 1030 and User-created cable.

4A)

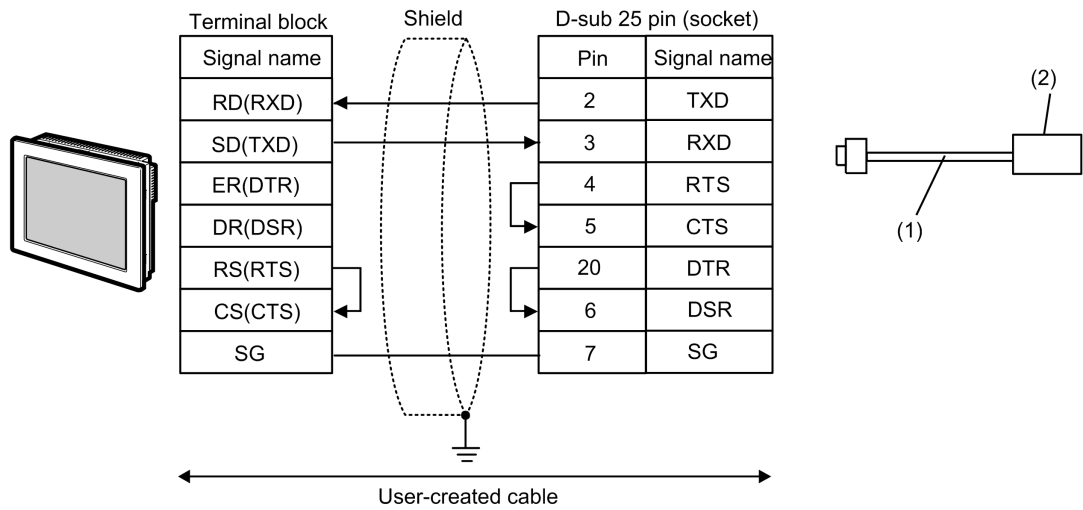


NOTE

- The cable length must be 15m or less. ^{*1}

^{*1} Total length for TSX SCP CC 1030 and User-created cable.

4B)



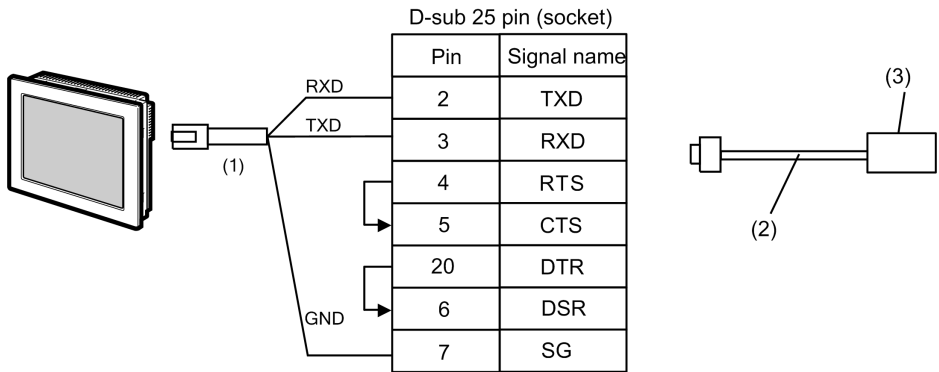
Legend	Name	Notes
(1)	RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m)	
(2)	PCMCIA card for RS232C by Schneider Electric TSX SCP 111	

NOTE

- The cable length must be 15m or less. ^{*1}

*1 Total length for TSX SCP CC 1030 and User-created cable.

4C)



Legend	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJ21	
(2)	RS 232 D tap link cable by Schneider Electric TSX SCP CC 1030 (3m)	
(3)	PCMCIA card for RS232C by Schneider Electric TSX SCP 111	

NOTE

- The cable length must be 15m or less. ^{*1}

^{*1} Total length for TSX SCP CC 1030 and User-created cable.

5.5 Cable Diagram 5

Display (Connection Port)	Cable		Notes
GP3000* ¹ (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST* ² (COM2) LT3000 (COM1)	5A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	5B	User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
GP3000* ³ (COM2)	5C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	5D	Online Adapter by Pro-face CA4-ADPONL-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

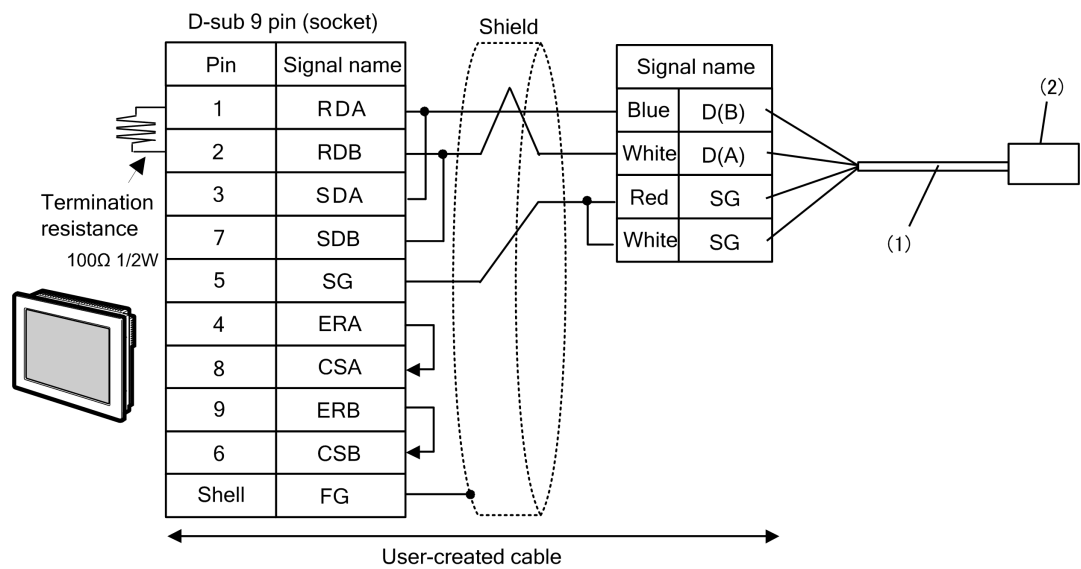
Display (Connection Port)	Cable		Notes
IPC ^{*4}	5E	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	5F	User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
GP-4106 (COM1)	5G	User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
GP-4107 (COM1) GP-4*03T ^{*5} (COM2) GP-4203T (COM1)	5H	User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
GP4000 ^{*6} (COM2) GP-4201T (COM1)	5I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 ^{*7} + User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	
	5B	User-created cable + Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m) + PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

*1 All GP3000 models except AGR 3302B

- 5A)

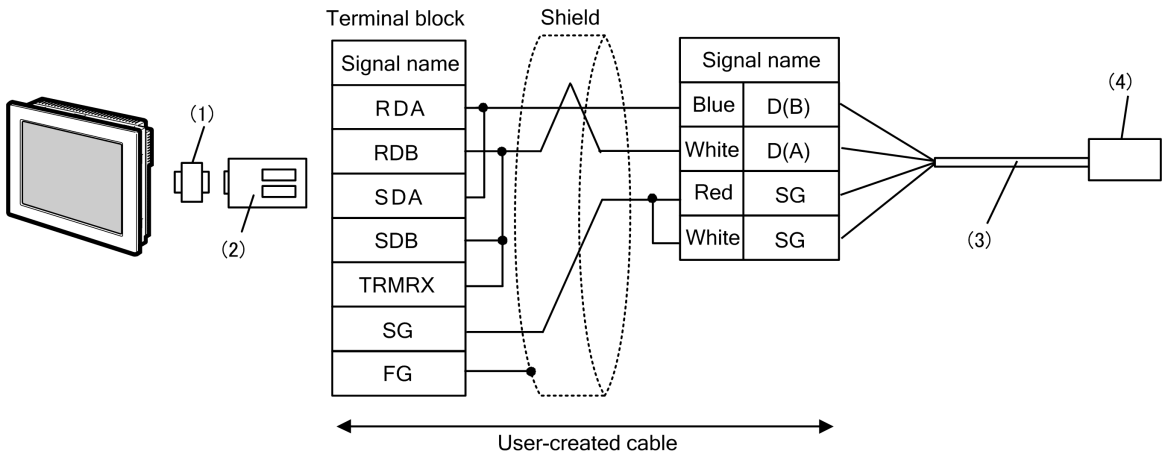
The diagram illustrates the assembly of a user-created cable. It shows a terminal block with the following signal names: RDA, RDB, SDA, SDB, TRMRX, SG, and FG. A shield is connected to the RDA, RDB, SDA, and SDB signals. The shield is then connected to a cable (3) which is terminated at the other end by a connector (4). The cable (3) is also connected to a cable (1) which is terminated at the other end by a connector (2). The entire assembly is labeled as a 'User-created cable'.

5B)



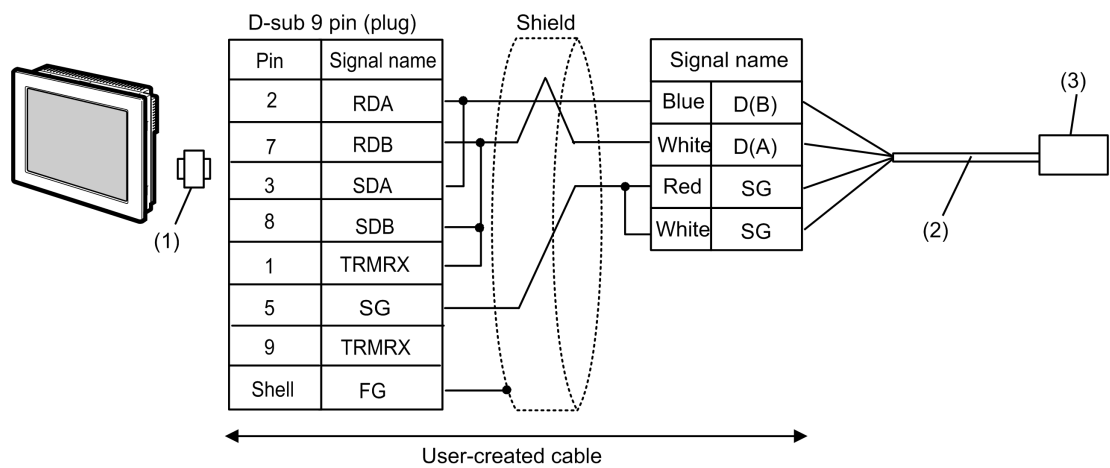
Legend	Name	Notes
(1)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(2)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

5C)



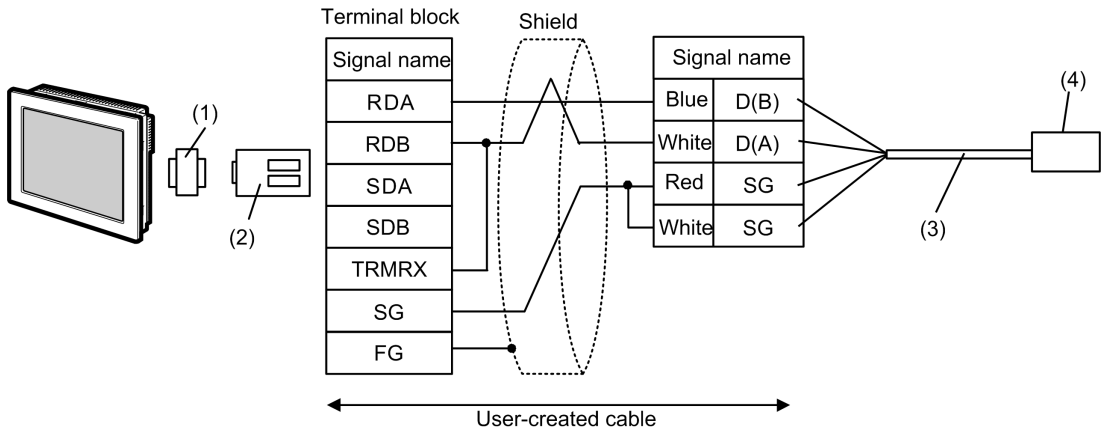
Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	
(3)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(4)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

5D)



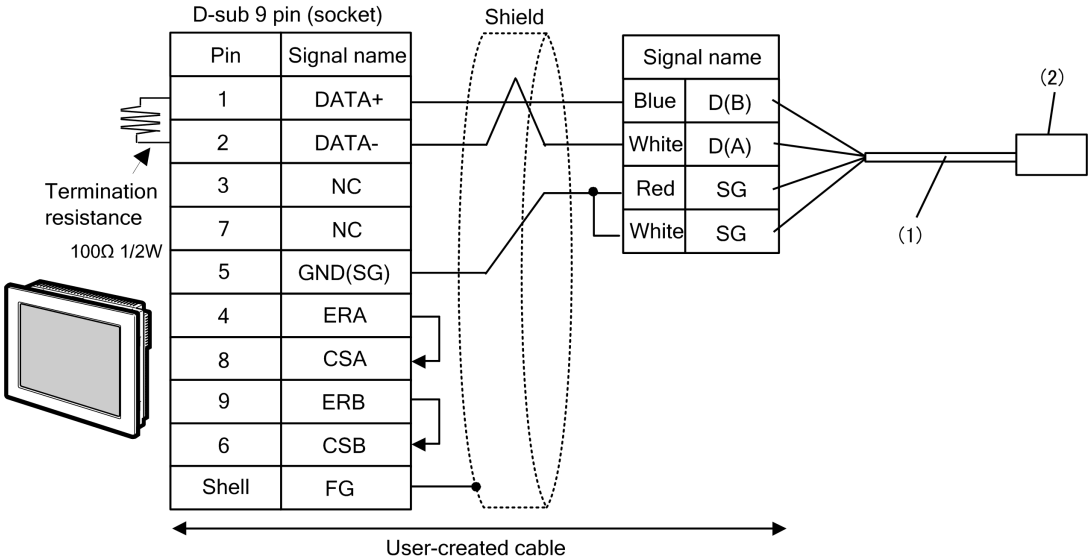
Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	
(2)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(3)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

5E)



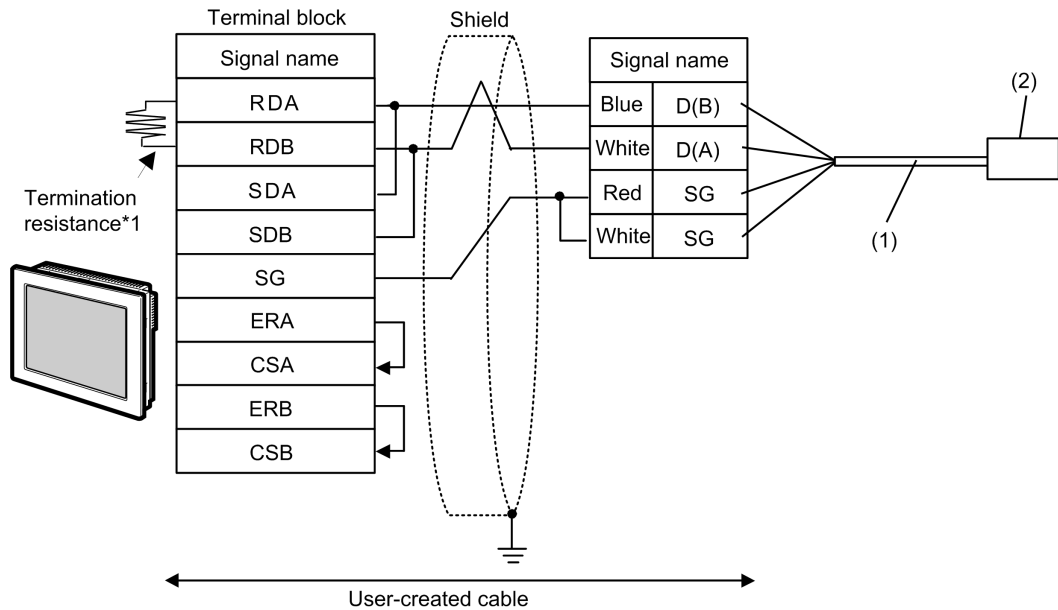
Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	
(3)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(4)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

5F)



Legend	Name	Notes
(1)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(2)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

5G)

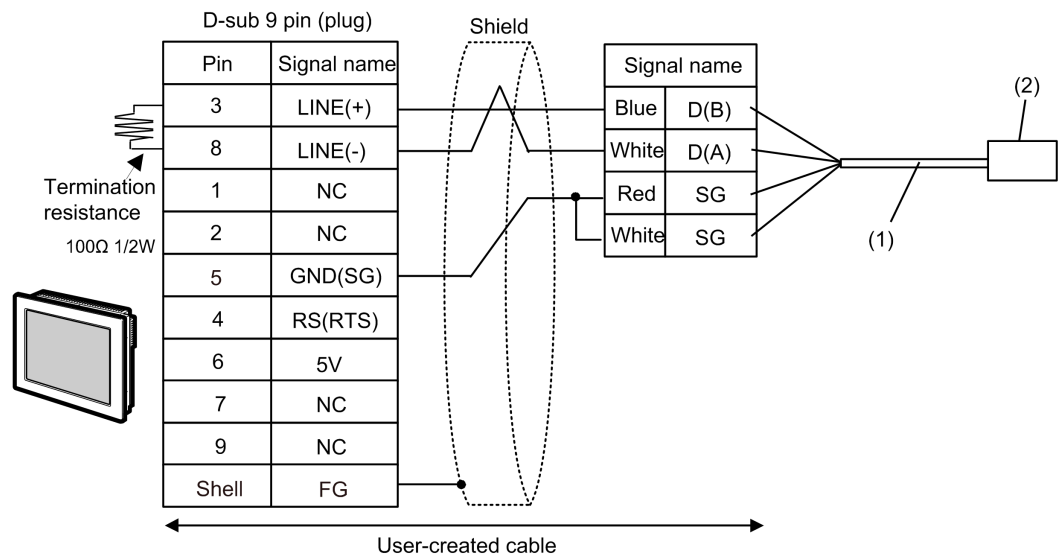


Legend	Name	Notes
(1)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(2)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

5H)

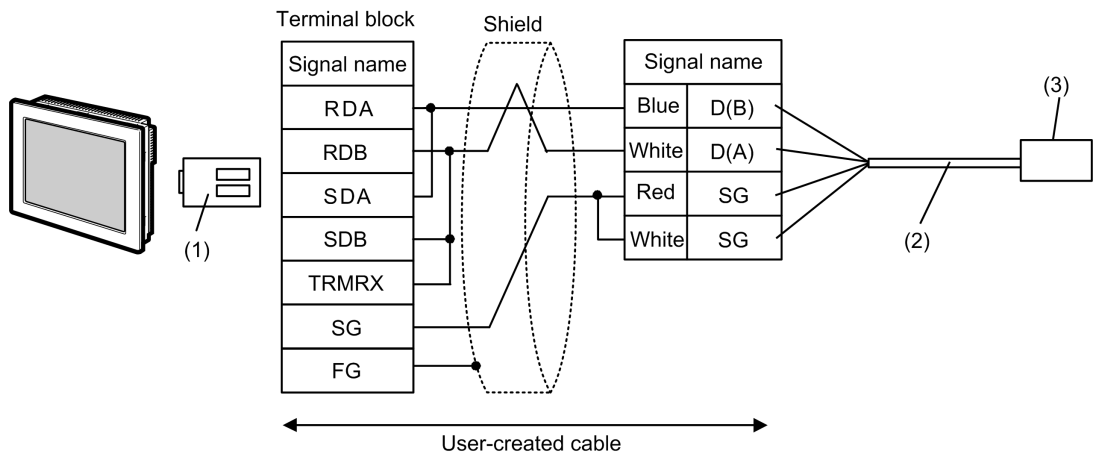


Legend	Name	Notes
(1)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(2)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

IMPORTANT • The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE • In COM on the GP-4107, the SG and FG terminals are isolated.

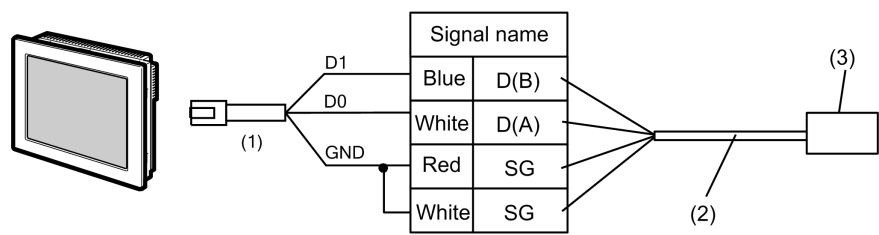
5l)



Legend	Name	Notes
(1)	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 *1	
(2)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(3)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

*1 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 5A.

5J)



Legend	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	
(2)	Uni-Telway cable by Schneider Electric Industries TSX SCP CU 4030 (3m)	
(3)	PCMCIA card for RS485 by Schneider Electric Industries TSX SCP 114	

5.6 Cable Diagram 6

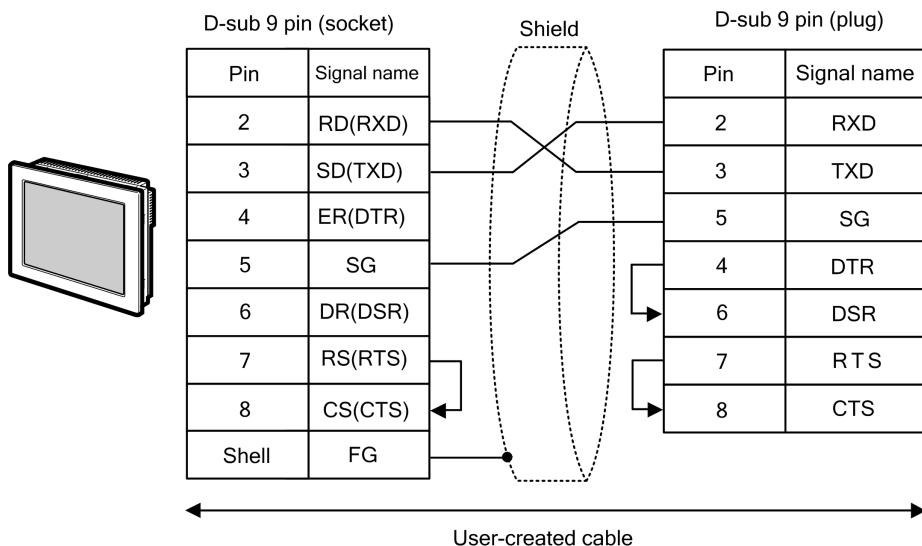
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) ST (COM1) LT3000 (COM1) IPC ^{*2} PC/AT	6A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	6B	User-created cable	The cable length must be 15m or less.
LT-4*01TM (COM1)	6C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBJR21	

*1 All GP4000 models except GP-4100 series and GP-4203T

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

■ IPC COM Port (page 7)

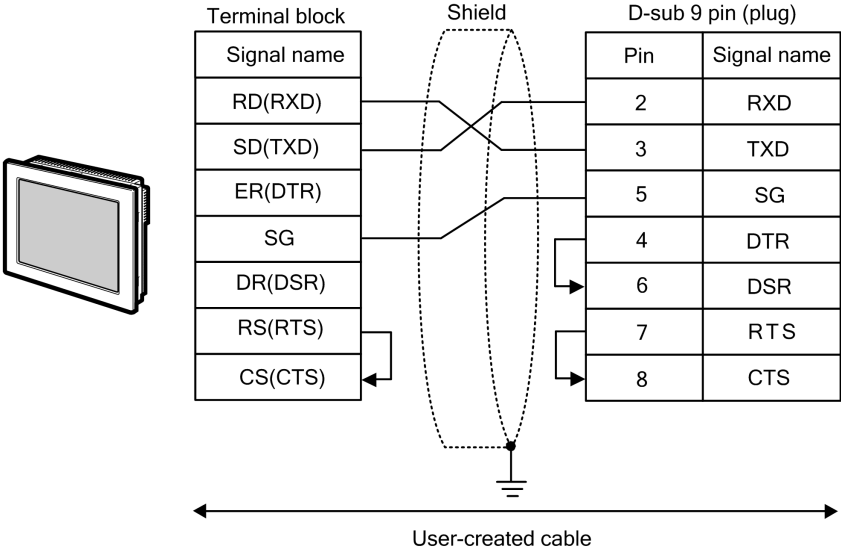
6A)



NOTE

- The cable length must be 15m or less.

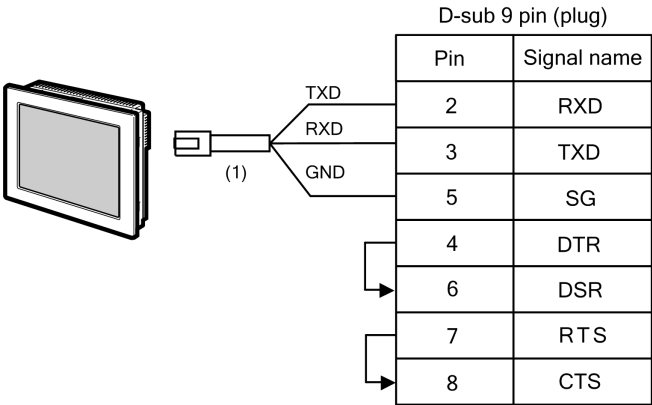
6B)



NOTE

- The cable length must be 15m or less.

6C)



Legend	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBJR21	

NOTE

- The cable length must be 15m or less.

5.7 Cable Diagram 7

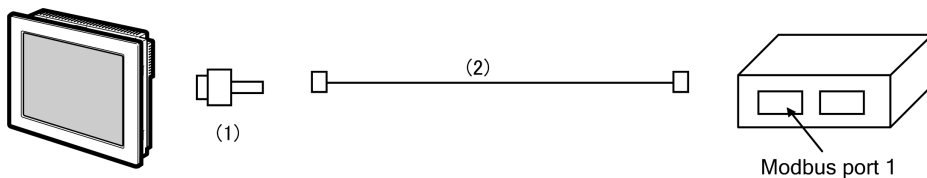
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) ST (COM1) LT3000 (COM1) IPC ^{*2} PC/AT	7A	D-Shell adapter by Schneider Electric 110 XCA 203 00 + RS232 communication cable RJ45 to RJ45 by Schneider Electric 110 XCA 282 01(1m), 110 XCA 282 02(3m) or 110 XCA 282 03(6m)	The cable length must be 9.5m or less.
GP-4105 (COM1)	7B	User-created cable + D-Shell adapter by Schneider Electric 110 XCA 203 00 + RS232 communication cable RJ45 to RJ45 by Schneider Electric 110 XCA 282 01(1m), 110 XCA 282 02(3m) or 110 XCA 282 03(6m)	The cable length must be 9.5m or less.

*1 All GP4000 models except GP-4100 series and GP-4203T

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

■ IPC COM Port (page 7)

7A)

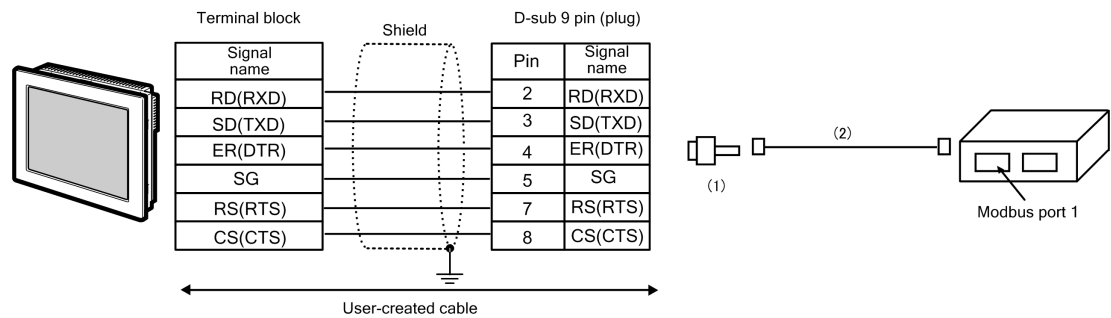


Legend	Name	Notes
(1)	D-Shell adapter by Schneider Electric 110 XCA 203 00	
(2)	RS232 communication cable RJ45 to RJ45 by Schneider Electric 110 XCA 282 01(1m), 110 XCA 282 02(3m) or 110 XCA 282 03(6m)	

NOTE

- The cable length must be 9.5m or less.

7B)



Legend	Name	Notes
(1)	D-Shell adapter by Schneider Electric 110 XCA 203 00	
(2)	RS232 communication cable RJ45 to RJ45 by Schneider Electric 110 XCA 282 01(1m), 110 XCA 282 02(3m) or 110 XCA 282 03(6m)	

NOTE

- The cable length must be 9.5m or less.

5.8 Cable Diagram 8

Display (Connection Port)	Cable		Notes
GP3000 ^{*1} (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST ^{*2} (COM2) LT3000 (COM1) IPC ^{*3}	8A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.
	8B	User-created cable	
GP3000 ^{*4} (COM2)	8C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 500m or less.
	8D	Online Adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	8E	User-created cable	The cable length must be 500m or less.
GP4000 ^{*5} (COM2) GP-4201T (COM1)	8F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 ^{*6} + User-created cable	The cable length must be 500m or less.
	8B	User-created cable	

*1 All GP3000 models except AGP-3302B

*2 All ST models except AST-3211A and AST-3302B

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

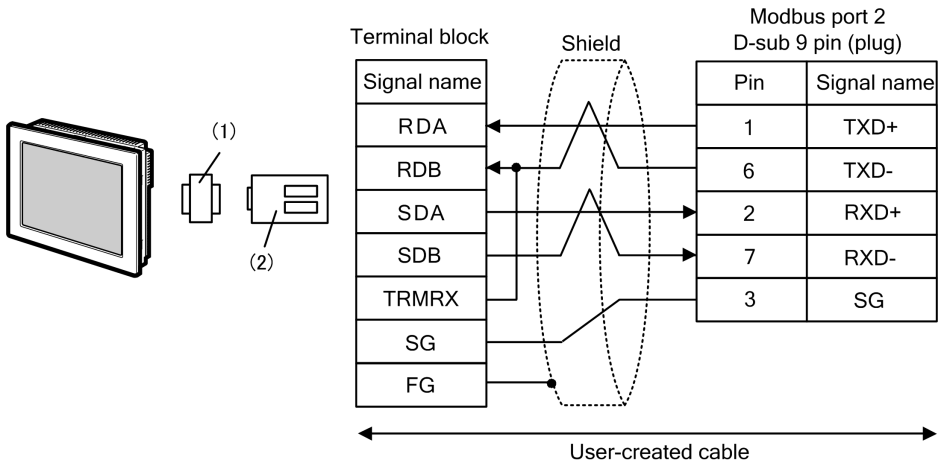
■ IPC COM Port (page 7)

*4 All GP3000 models except GP-3200 series and AGP-3302B

*5 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T

*6 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 8A.

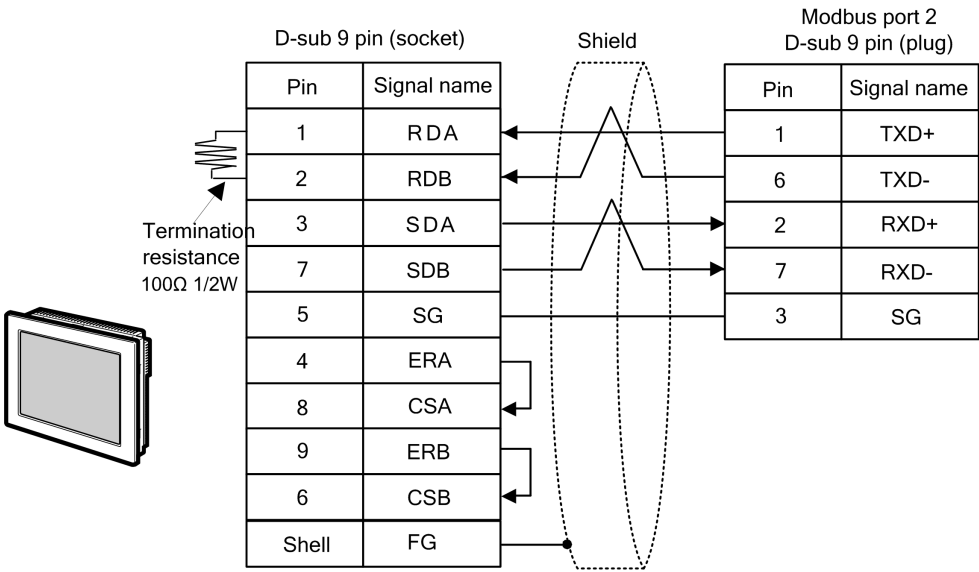
8A)



Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

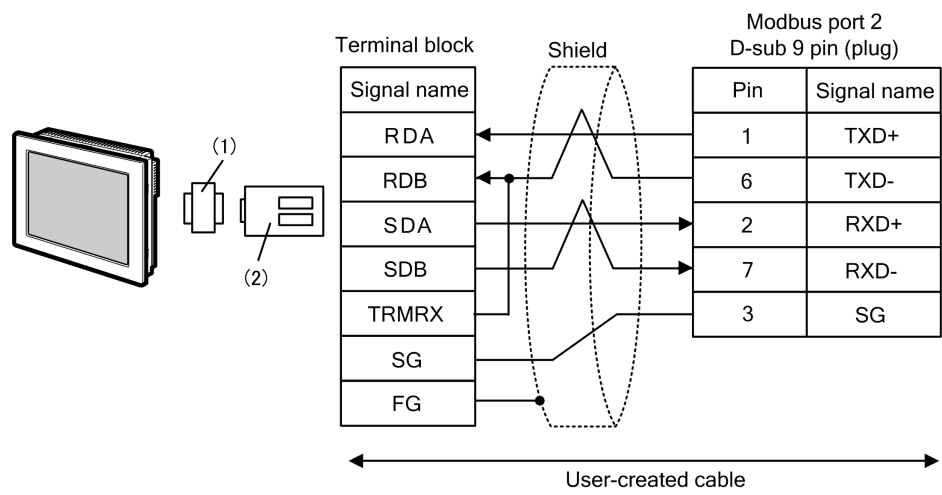
NOTE • The cable length must be 500m or less.

8B)



NOTE • The cable length must be 500m or less.

8C)

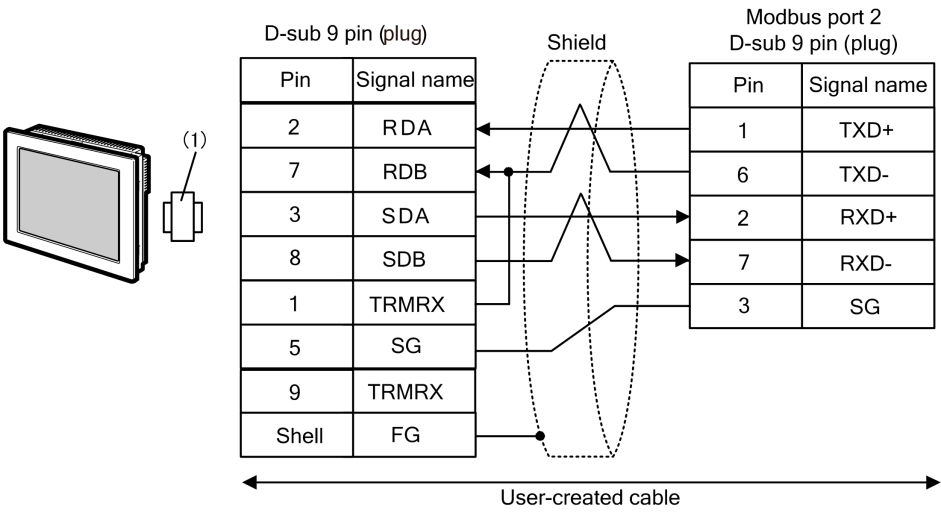


Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

NOTE

- The cable length must be 500m or less.

8D)

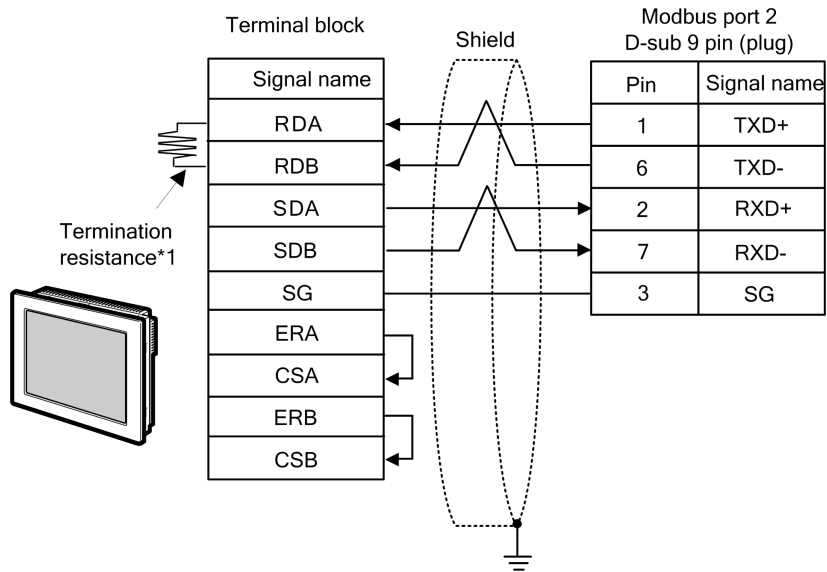


Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	

NOTE

- The cable length must be 500m or less.

8E)

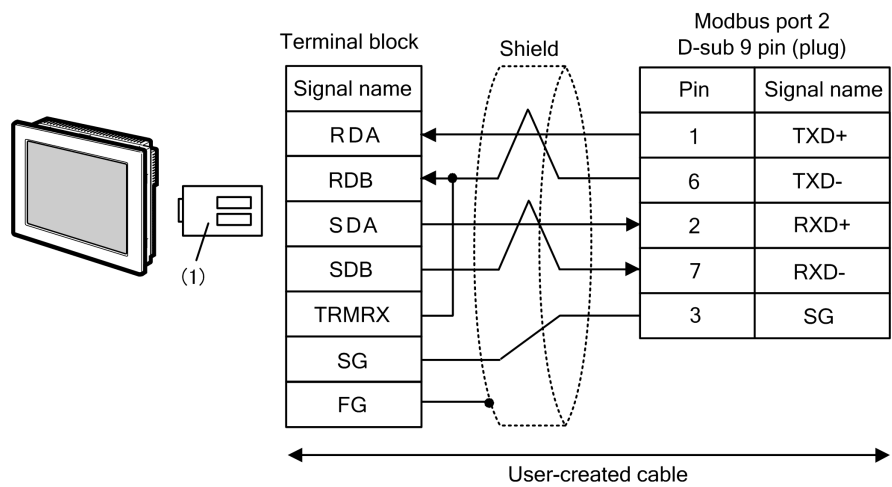
**NOTE**

- The cable length must be 500m or less.

*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

8F)



Legend	Name	Notes
(1)	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 <small>*1</small>	

*1 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 8A.

NOTE	• The cable length must be 500m or less.
-------------	------------------------------------------

5.9 Cable Diagram 9

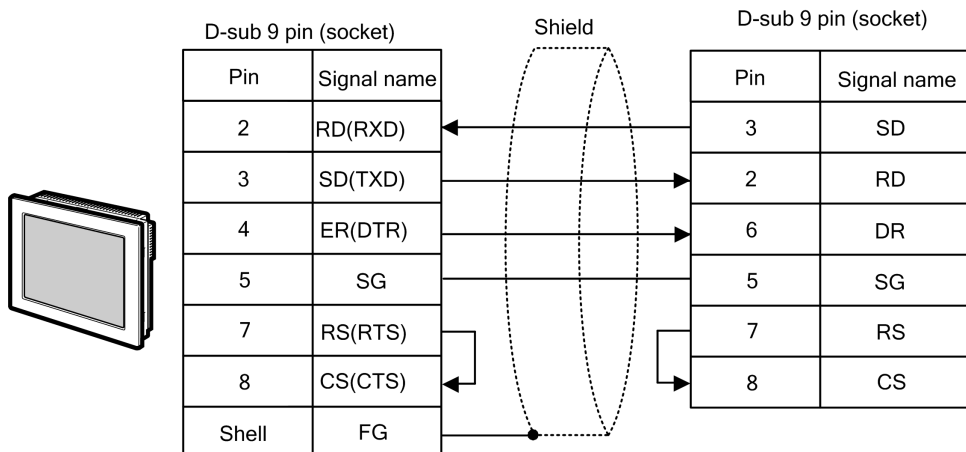
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) ST (COM1) LT3000 (COM1) IPC ^{*2} PC/AT	9A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	9B	User-created cable	

*1 All GP4000 models except GP-4100 series and GP-4203T

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

■ IPC COM Port (page 7)

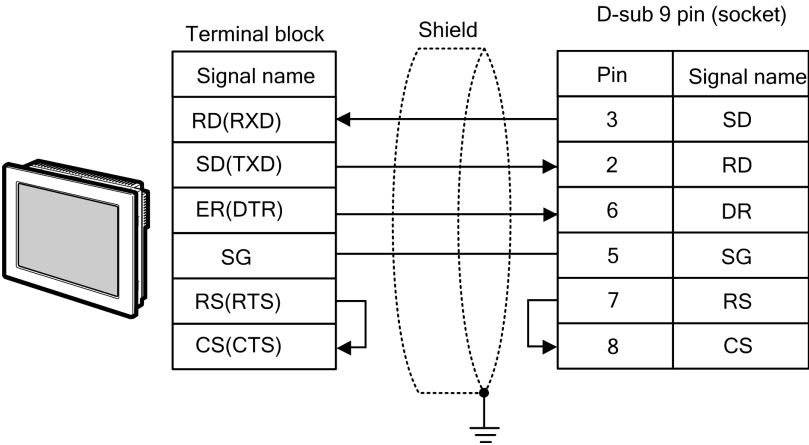
9A)



NOTE

- The cable length must be 15m or less.

9B)



NOTE	<ul style="list-style-type: none">• The cable length must be 15m or less.
-------------	-----------------------------------------------------------------------------------------

5.10 Cable Diagram 10

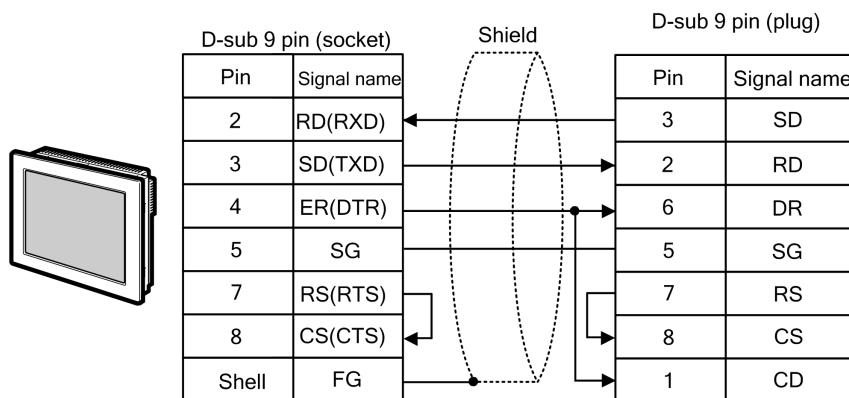
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000* ¹ (COM1) ST (COM1) LT3000 (COM1) IPC* ² PC/AT	10A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	10B	User-created cable	

*1 All GP4000 models except GP-4100 series and GP-4203T

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

■ IPC COM Port (page 7)

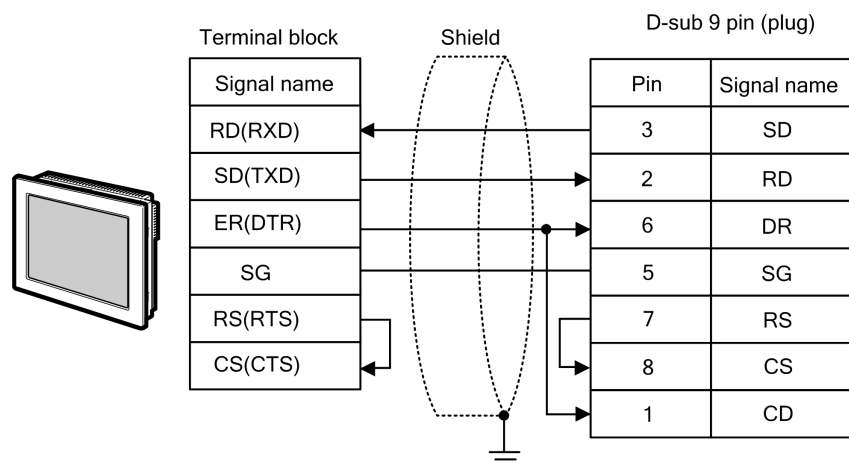
10A)



NOTE

- The cable length must be 15m or less.

10B)



NOTE

- The cable length must be 15m or less.

5.11 Cable Diagram 11

Display (Connection Port)	Cable		Notes
GP3000 ^{*1} (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST ^{*2} (COM2) LT3000 (COM1) IPC ^{*3}	11A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	11B	User-created cable	
GP3000 ^{*4} (COM2)	11C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	
	11D	Online Adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	11E	User-created cable	
GP4000 ^{*5} (COM2) GP-4201T (COM1)	11F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 ^{*6} + User-created cable	
	11B	User-created cable	

*1 All GP3000 models except AGP-3302B

*2 All ST models except AST-3211A and AST-3302B

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

■ IPC COM Port (page 7)

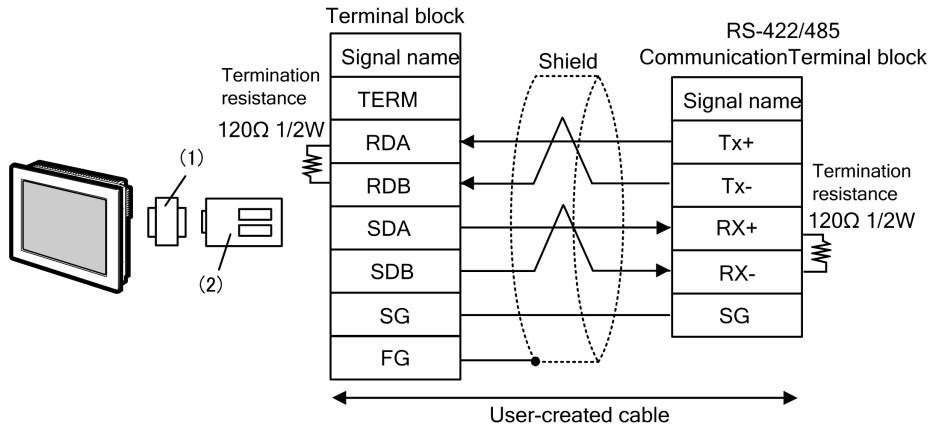
*4 All GP3000 models except GP-3200 series and AGP-3302B

*5 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T

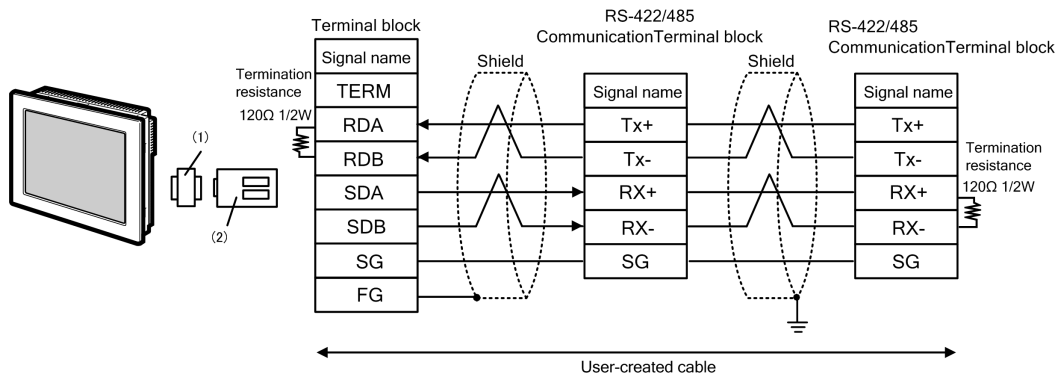
*6 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 11A.

11A)

- 1:1 Connection



- 1:n Connection



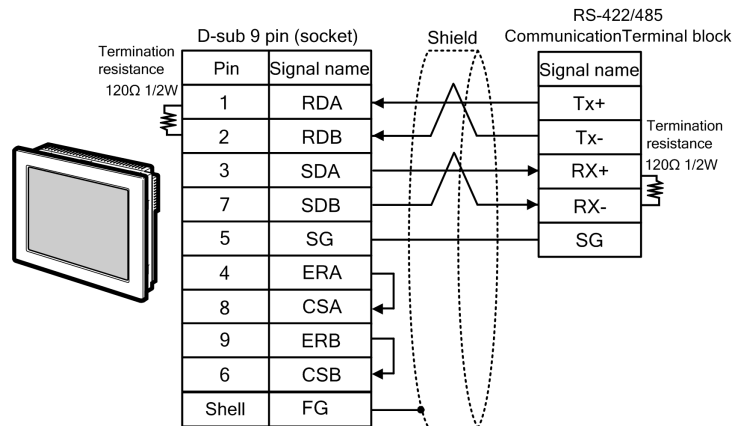
Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

NOTE

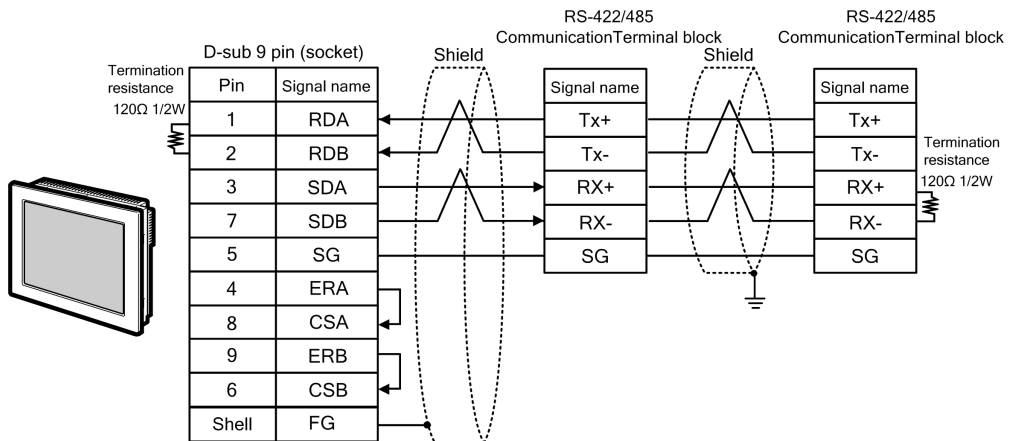
- The cable length must be 1000m or less.

11B)

- 1:1 Connection



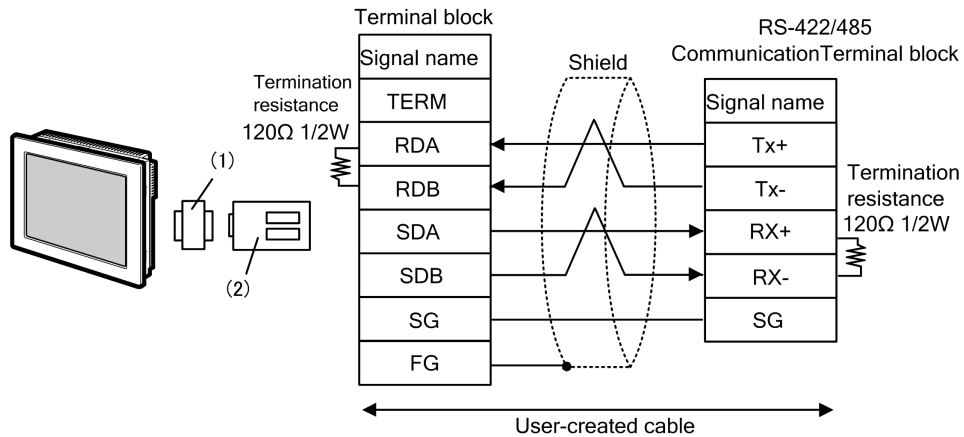
- 1:n Connection

**NOTE**

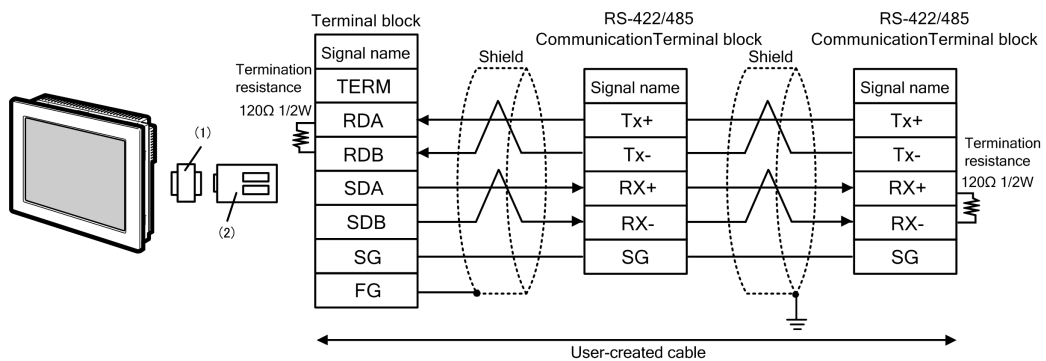
- The cable length must be 1000m or less.

11C)

- 1:1 Connection



- 1:n Connection



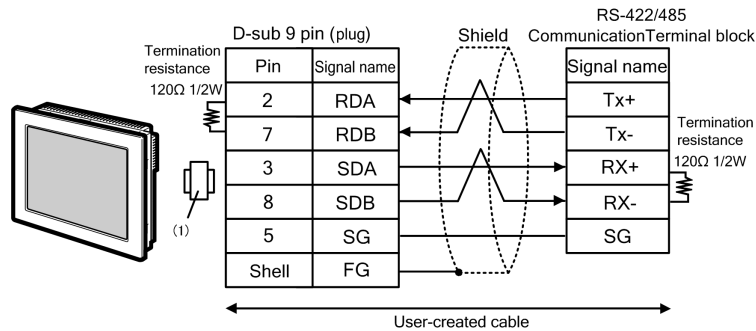
Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

NOTE

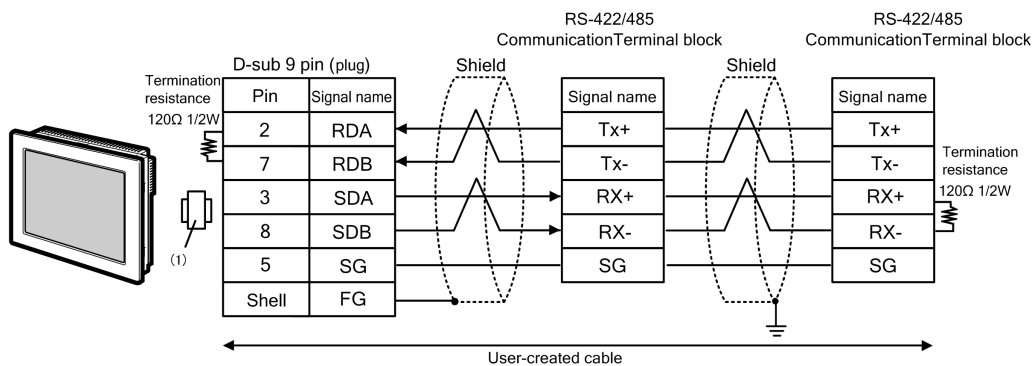
- The cable length must be 1000m or less.

11D)

- 1:1 Connection



- 1:n Connection

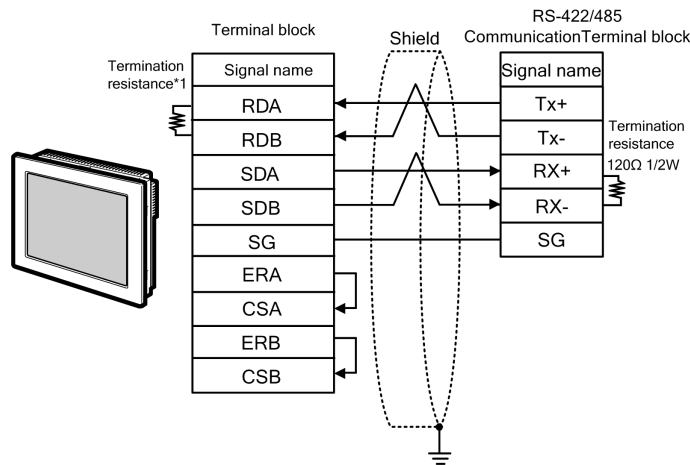


Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADP0NL-01	

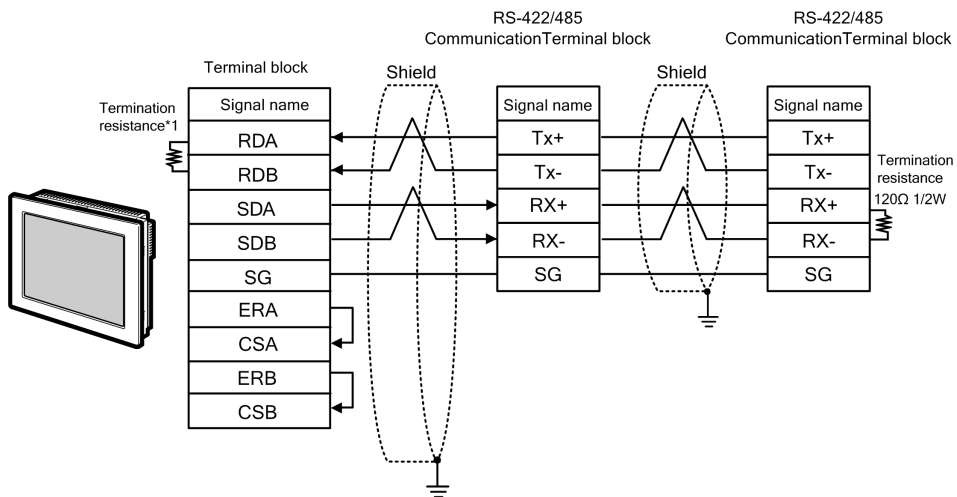
NOTE • The cable length must be 1000m or less.

11E)

- 1:1 Connection



- 1:n Connection



*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

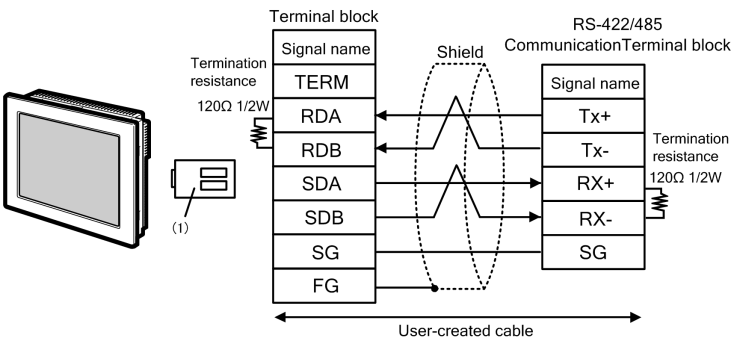
DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

NOTE

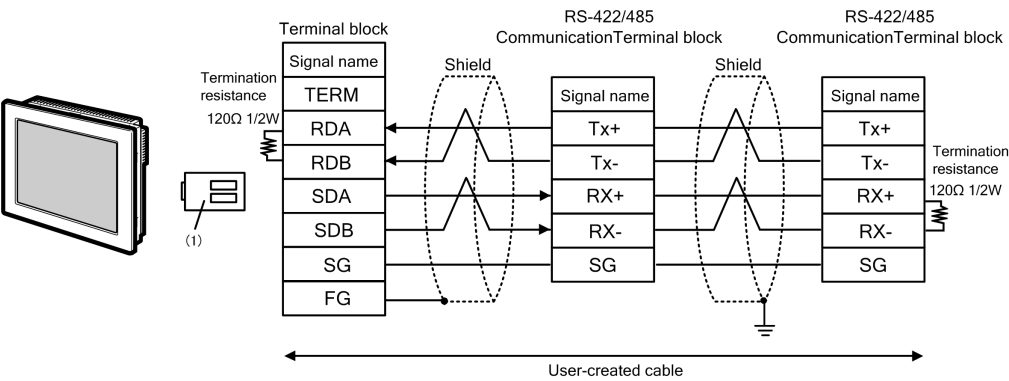
- The cable length must be 1000m or less.

11F)

- 1:1 Connection



- 1:n Connection



Legend	Name	Notes
(1)	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 *1	

*1 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 11A.

NOTE	• The cable length must be 1000m or less.
-------------	-------------------------------------------

5.12 Cable Diagram 12

Display (Connection Port)	Cable		Notes
GP3000 ^{*1} (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST ^{*2} (COM2) LT3000 (COM1)	12A	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	12B	User-created cable	
GP3000 ^{*3} (COM2)	12C	Online Adapter by Pro-face CA4-ADPONL-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	12D	Online Adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC ^{*4}	12E	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01 + Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	12F	User-created cable	
GP-4106 (COM1)	12G	User-created cable	The cable length must be 1000m or less.
GP-4107 (COM1) GP-4*03T ^{*5} (COM2) GP-4203T (COM1)	12H	User-created cable	The cable length must be 1000m or less.
GP4000 ^{*6} (COM2) GP-4201T (COM1)	12I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 ^{*7} + User-created cable	The cable length must be 1000m or less.
	12B	User-created cable	
LT-4*01TM (COM1)	12J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	

*1 All GP3000 models except AGP-3302B

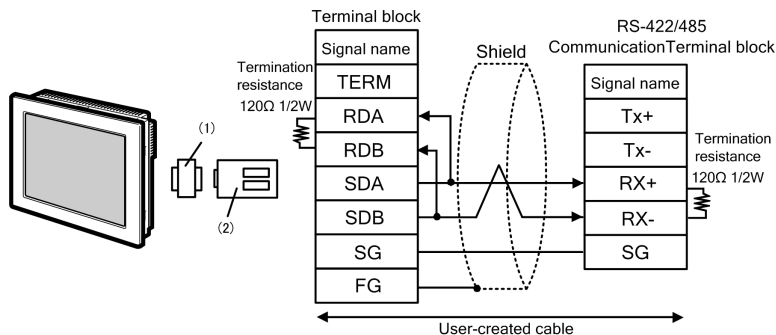
*2 All ST models except AST-3211A and AST-3302B

*3 All GP3000 models except GP-3200 series and AGP-3302B

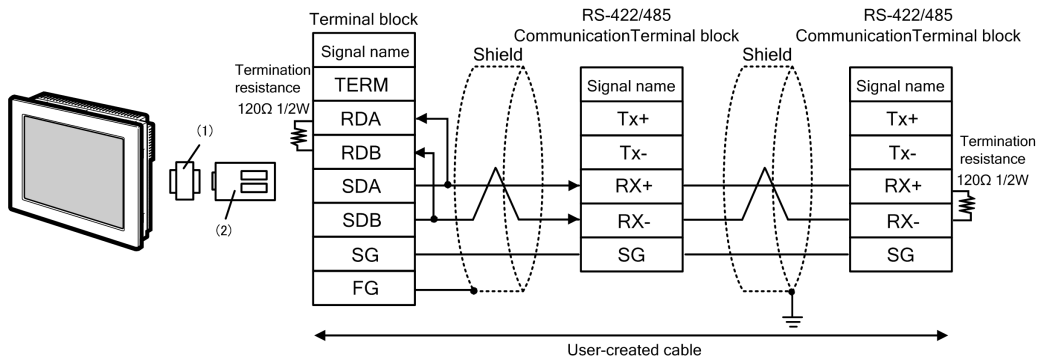
- *4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 - IPC COM Port (page 7)
- *5 Except GP-4203T
- *6 All GP4000 models except GP-4100 series, GP-4*01TM, GP-4201T and GP-4*03T
- *7 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 12A.

12A)

- 1:1 Connection



- 1:n Connection



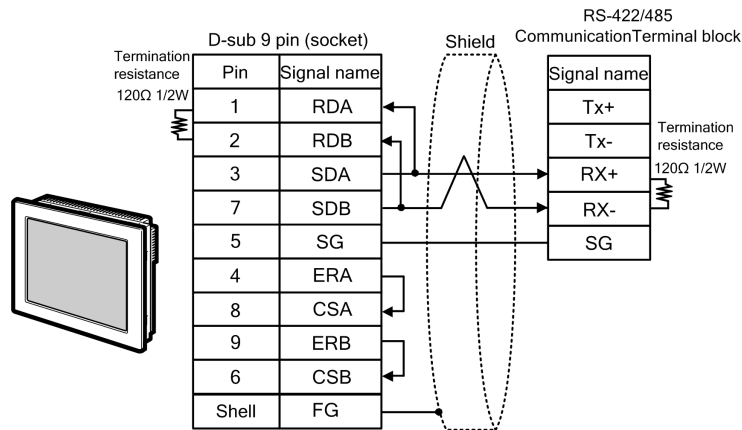
Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

NOTE

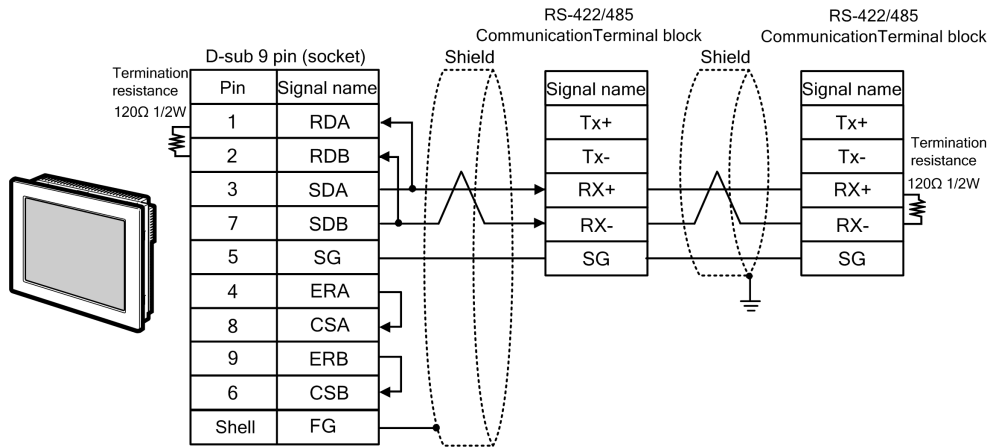
- The cable length must be 1000m or less.

12B)

- 1:1 Connection



- 1:n Connection

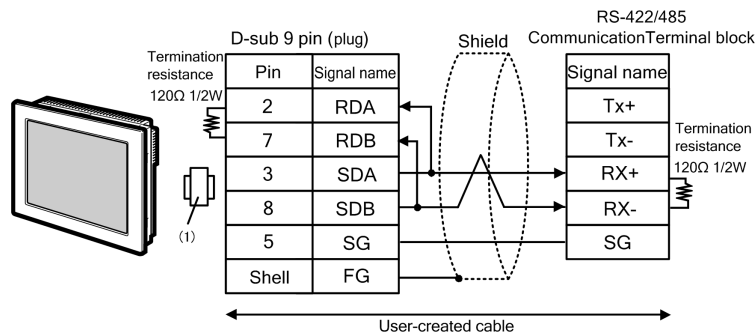


NOTE

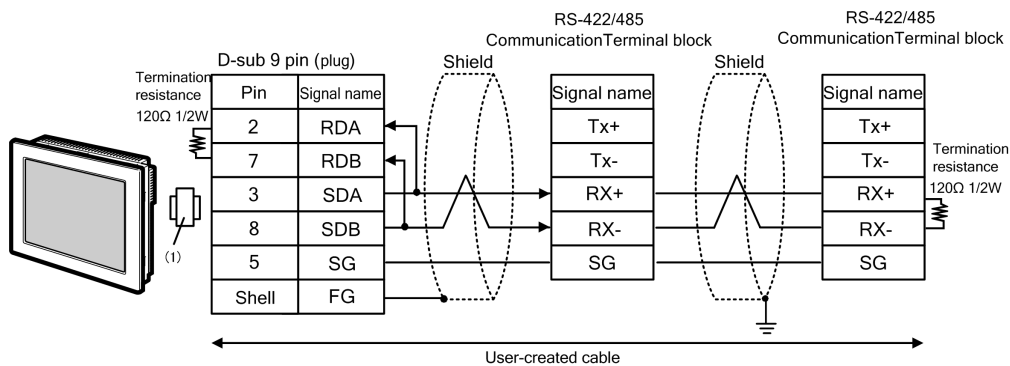
- The cable length must be 1000m or less.

12D)

- 1:1 Connection



- 1:n Connection



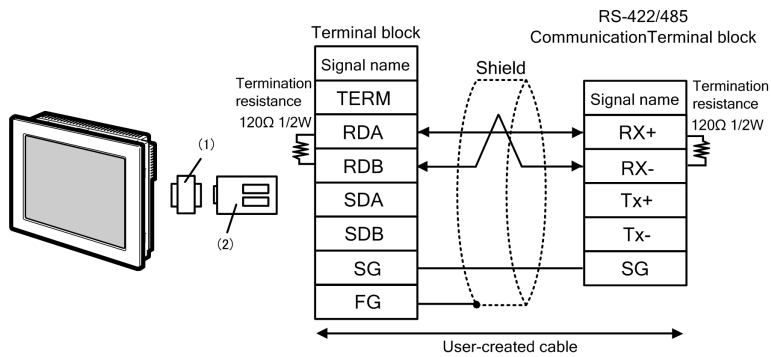
Legend	Name	Notes
(1)	Online Adapter by Pro-face CA4-ADPONL-01	

NOTE

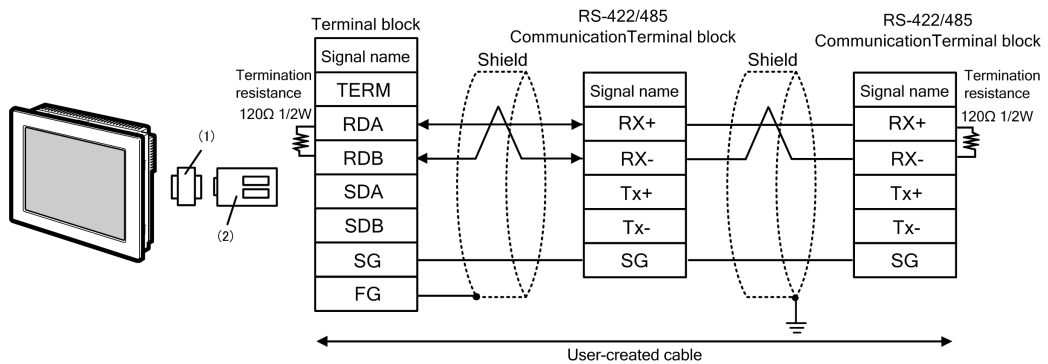
- The cable length must be 1000m or less.

12E)

- 1:1 Connection



- 1:n Connection



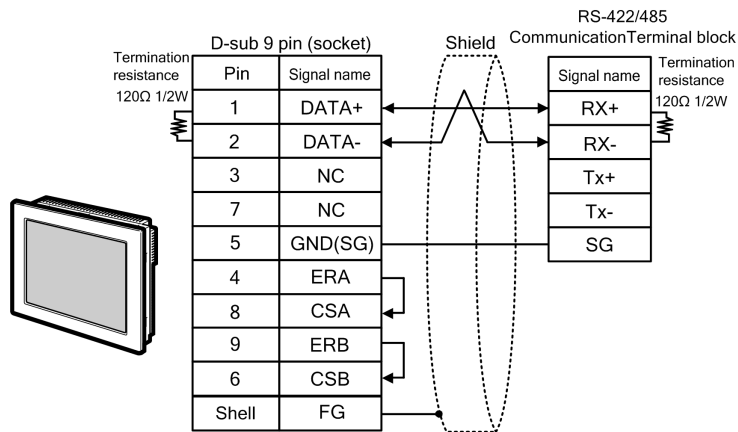
Legend	Name	Notes
(1)	COM Port Conversion Adapter by Pro-face CA3-ADPCOM-01	
(2)	Terminal Block Conversion Adapter by Pro-face CA3-ADPTRM-01	

NOTE

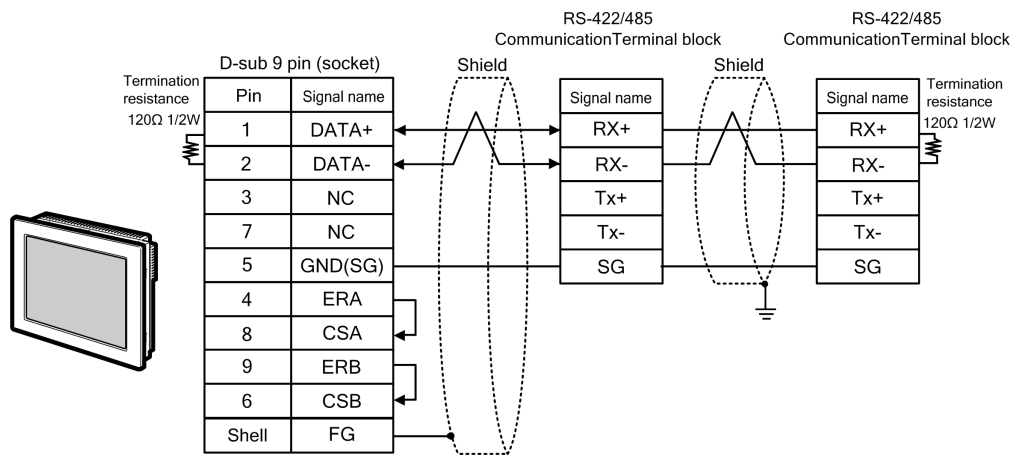
- The cable length must be 1000m or less.

12F)

- 1:1 Connection



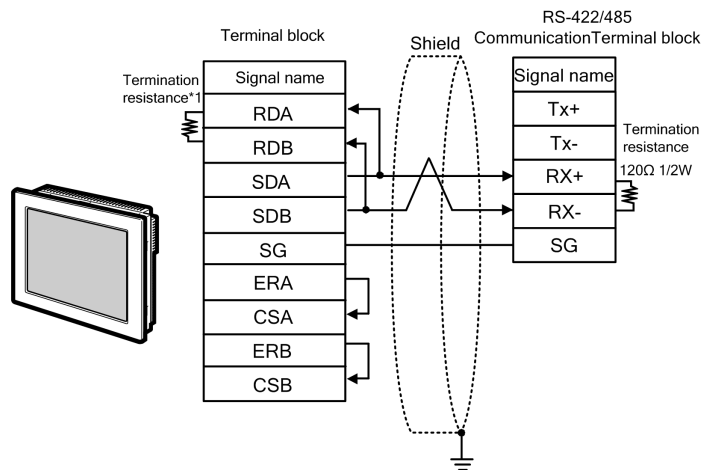
- 1:n Connection



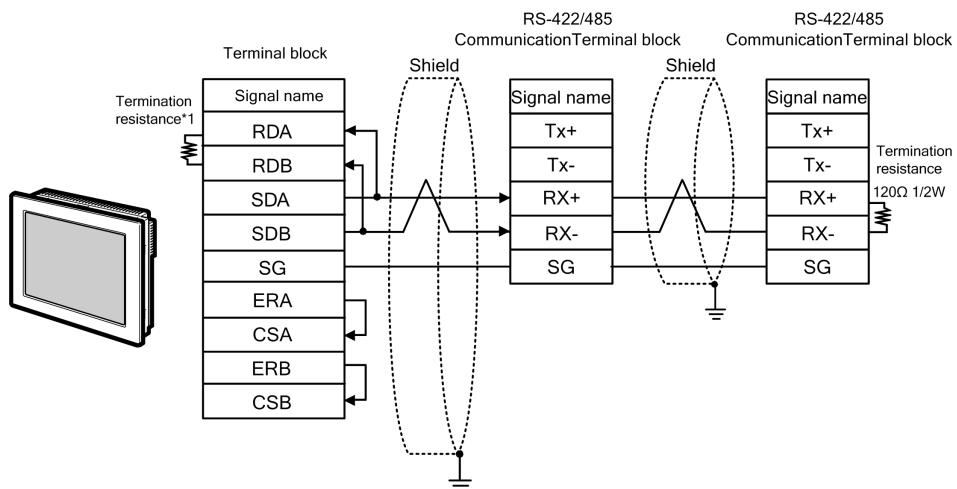
NOTE	• The cable length must be 1000m or less.
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12G)

- 1:1 Connection



- 1:n Connection



*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

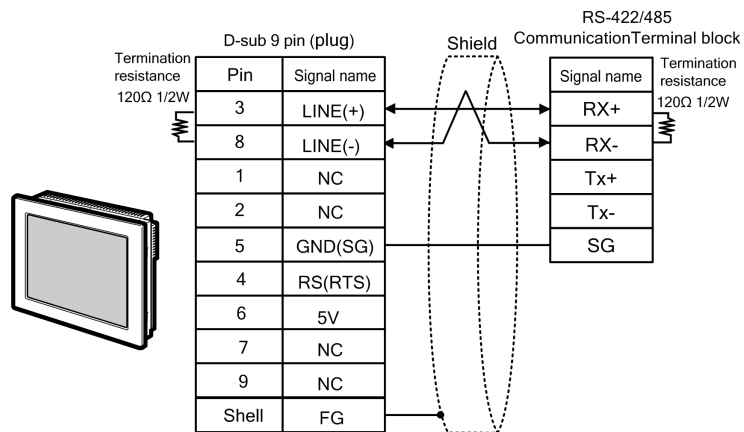
DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON

NOTE

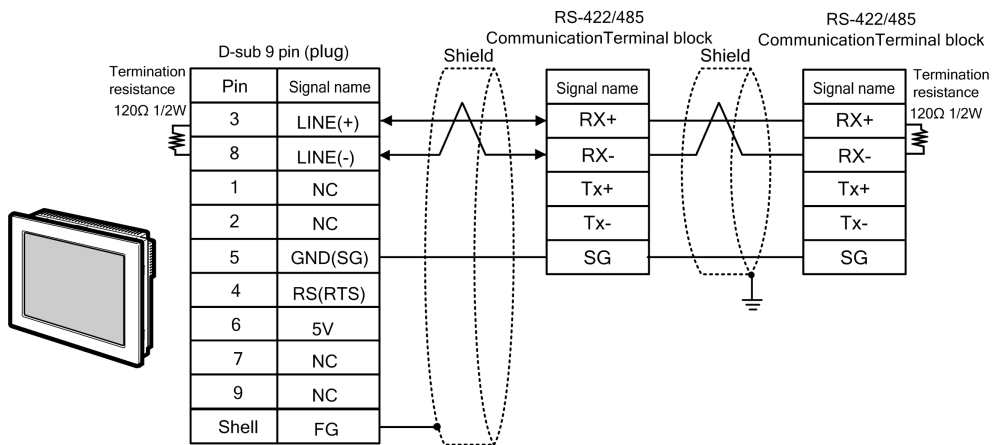
- The cable length must be 1000m or less.

12H)

- 1:1 Connection



- 1:n Connection

**IMPORTANT**

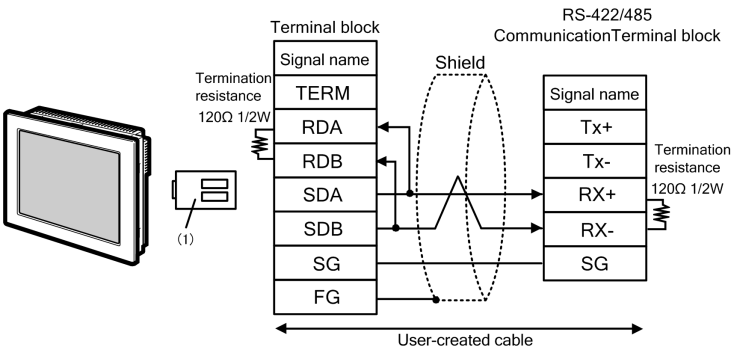
- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE

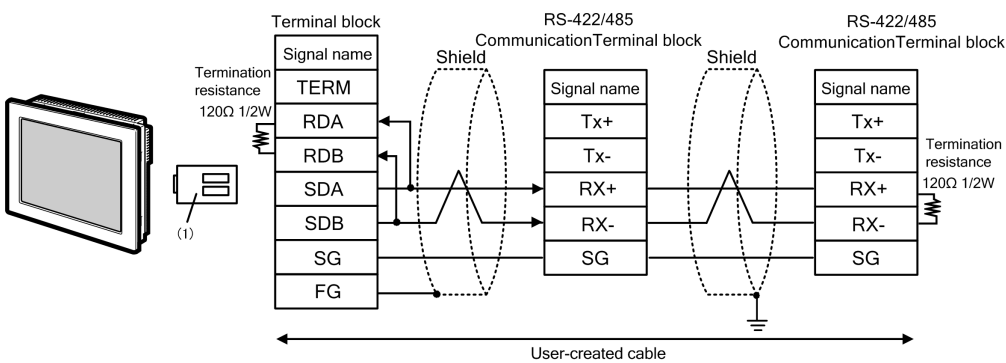
- In COM on the GP-4107, the SG and FG terminals are isolated.
- The cable length must be 1000m or less.

12l)

- 1:1 Connection



- 1:n Connection



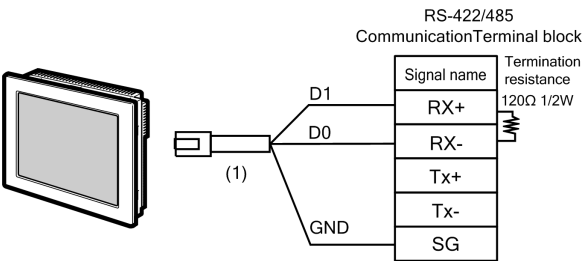
Legend	Name	Notes
(1)	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1 *1	

*1 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 12A.

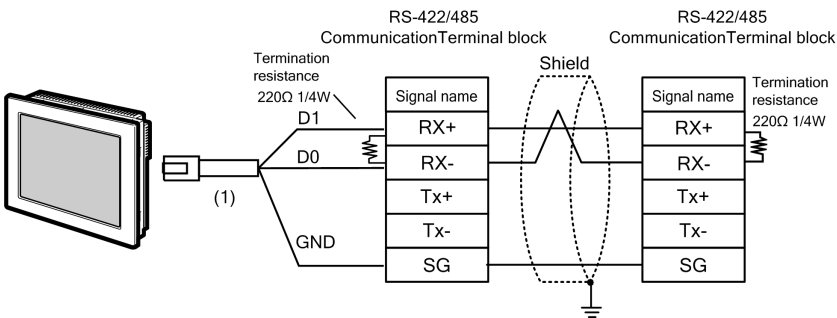
NOTE	• The cable length must be 1000m or less.
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12J)

- 1:1 Connection



- 1:n Connection




Legend	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJ81	







NOTE	• The cable length must be 1000m or less.
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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.

6.1 Micro/Premium/Twido/Quantum/Momentum Series

 This address can be specified as system data area.


Device	Bit Address	Word Address	32 bits	Notes
Coil	000001 - 065536	000001 - 065521	 or  *1	 *2
Discrete Input	100001 - 165536	100001 - 165521		 *2
Input Register	-----	300001 - 365536		 *2
Holding Register	400001,00 - 465536,15*3	400001 - 465536		

*1 High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].

 "4.1 Setup Items in GP-Pro EX" (page 46)


*2 Write disable







*3 An access method at the time of Bit Set varies depending on the [Rest of the bits in this word] setting of [Device Setting].

- Clear..... 

- Do not clear 400001,00 - 465536,15

6.2 FCN/FCJ Series

 This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Coil	000001 - 009984	000001 - 009969	 or  *1	 *2
Discrete Input	100001 - 109984	100001 - 109969		 *2 *3
Input Register	300001.00 - 309999.15	300001 - 309999		 *3
Holding Register	400001.00 - 409999.15	400001 - 409999		

*1 High and low relationship of the stored data is specified by the [Double Word word order] setting of [Device Setting].

 "4.1 Setup Items in GP-Pro EX" (page 46)

*2 The device access range of the External Device is specified as 1 to 9999, that of the Display, however, as up to 9984, since the Display device is accessible in 16-bit units.

*3 Write disable

6.3 Supported Function Code

Below is the list of Supported Function Code.

Function Code (Hex)	Description
FC01 (0x01)	Reads the ON/OFF status of coils (0X references) in the slave.
FC02 (0x02)	Reads the ON/OFF status of discrete inputs (1X references) in the slave.
FC03 (0x03)	Reads the binary content of holding registers (4X references) in the slave.
FC04 (0x04)	Reads the binary content of input registers (3X references) in the slave.
FC05 (0x05)	Forces a single coil (0X references) to either ON or OFF
FC06 (0x06)	Presets a value into a single holding register (4X references).
FC15 (0x0F)	Forces each coil (0X references) in a sequence of coils to either ON or OFF.
FC16 (0x10)	Presets values into a sequence of holding registers (4X references).


NOTE • FC15 / FC16 will be used for writing. In case if the connected controller do not support these function codes, then FC05 / FC06 will be used.

6.4 IEC61131 address syntax

The following table gives the equivalences between the Modbus syntax and the IEC61131 syntax.

Device	Modbus address syntax			IEC61131syntax				
	Format	Range	First element	Format	0-based		1-based	
					Range	First element	Range	First element
Coil	000001+i	i=0 to 65535	000001	%Mi	i=0 to 65535	%M00000	i=1 to 65536	%M00001
Discrete Input	100001+i	i=0 to 65535	100001	-	-	-	-	-
Input register (word)	300001+i	i=0 to 65535	300001	-	-	-	-	-
Input register (word bit)	300001+i.j	i=0 to 65535 j=0 to15	300001,00	-	-	-	-	-
Holding register (word)	400001+i	i=0 to 65535	400001	%MWi	i=0 to 65535	%MW00000	i=1 to 65536	%MW00001
Holding register (word bit)	400001+i.j	i=0 to 65535 j=0 to15	400001,00	%MWi: Xj	i=0 to 65535 j=0 to 15	%MW00000: X00	i=1 to 65535 j=0 to15	%MW00001: X00

NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.
Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
 - Please refer to the precautions on manual notation for icons in the table.
 "Manual Symbols and Terminology"
 - The two areas 100000 and 300000 are not accessible with the IEC syntax.
 - Once you change the project which you have setup Discrete Input Register to IEC 61131 Syntax, the address will be undefined.
-

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.

7.1 Micro/Premium/Twido/Quantum/Momentum Series

Device	Device Name	Device Code (HEX)	Address Code
Coil	0	0080	Value of (word address - 1) divided by 16
Discrete Input	1	0081	Value of (word address - 1) divided by 16
Input Register	3	0001	Value of word address from which 1 is deducted
Holding Register	4	0000	Value of word address from which 1 is deducted

7.2 FCN/FCJ Series

Device	Device Name	Device Code (HEX)	Address Code
Coil	0	0080	Value of (word address - 1) divided by 16
Discrete Input	1	0081	Value of (word address - 1) divided by 16
Input Register	3	0001	Value of word address from which 1 is deducted
Holding Register	4	0000	Value of word address from which 1 is deducted

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> <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 [02H])"

NOTE

- Refer to your External Device manual for details on received error codes.
- Refer to "Display-related errors" in "Maintenance/Troubleshooting Guide" for details on the error messages common to the driver.

