



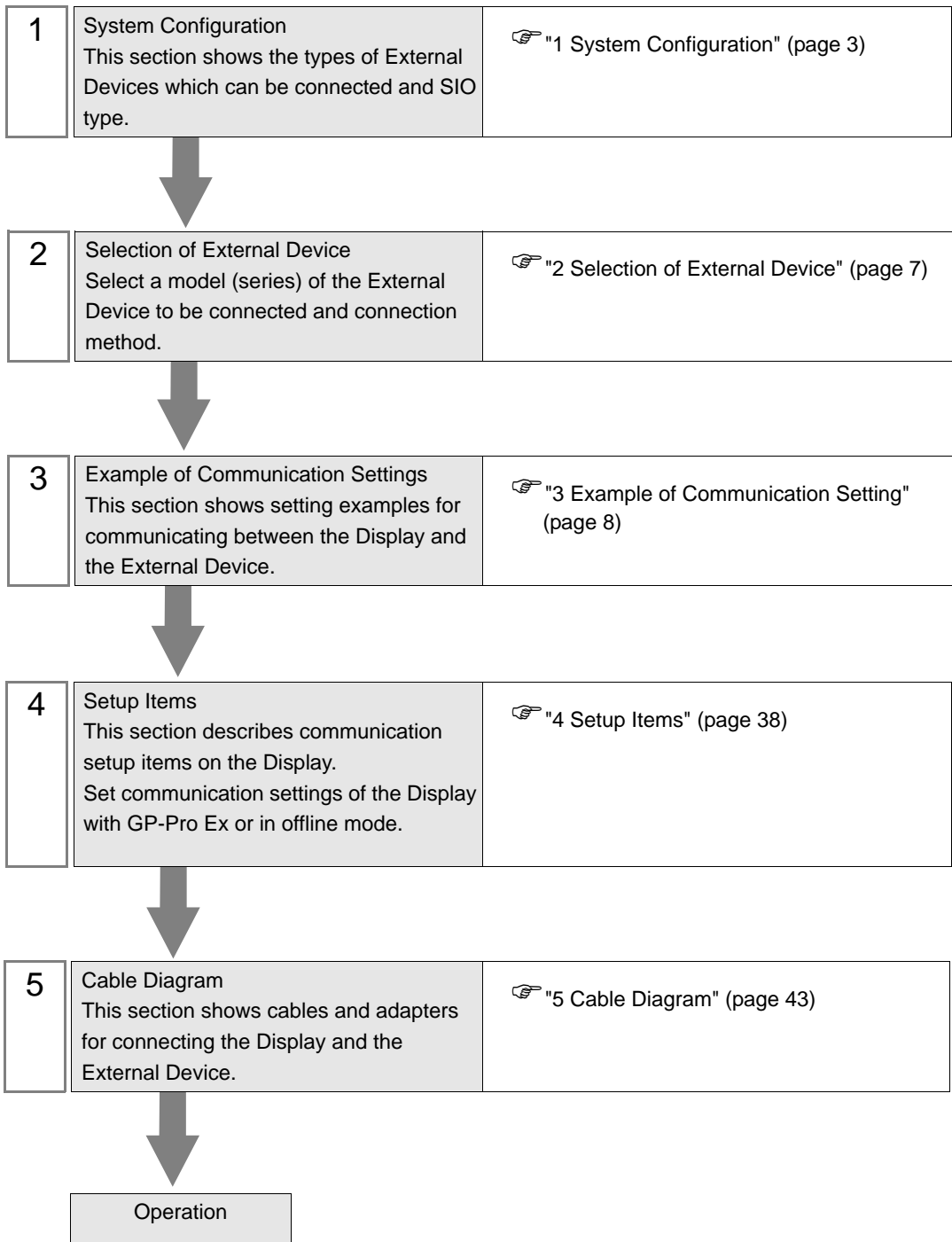
Master-K Series Cnet Driver

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Introduction

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

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



1 System Configuration

The system configuration in the case when the External Device of LS Industrial Systems Co., Ltd. and the Display are connected is shown.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
K1000S	K7P-30AS	G3L-CUEA (K7F-CUEA)* ¹	RS232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 43)
			RS422/485 (4 wire)	Setting Example 2 (page 10)	Cable Diagram 2 (page 45)
			RS422/485 (2 wire)	Setting Example 3 (page 12)	Cable Diagram 3 (page 52)
K300S	K4P-15AS	G4L-CUEA (K4F-CUEA)* ¹	RS232C	Setting Example 1 (page 8)	Cable Diagram 1 (page 43)
			RS422/485 (4 wire)	Setting Example 2 (page 10)	Cable Diagram 2 (page 45)
			RS422/485 (2 wire)	Setting Example 3 (page 12)	Cable Diagram 3 (page 52)
K200S	K3P-07AS K3P-07BS K3P-07CS	G6L-CUEB (K3F-CU2A)* ¹	RS232C	Setting Example 4 (page 14)	Cable Diagram 1 (page 43)
		G6L-CUEC (K3F-CU4A)* ¹	RS422/485 (4 wire)	Setting Example 5 (page 16)	Cable Diagram 2 (page 45)
			RS422/485 (2 wire)	Setting Example 6 (page 18)	Cable Diagram 3 (page 52)
K120S	K7M-DR(T)20U K7M-DR(T)30U K7M-DR(T)40U K7M-DR(T)60U K7M-DT20U K7M-DT30U K7M-DT40U K7M-DT60U	Port1 on CPU unit	RS232C	Setting Example 7 (page 20)	Cable Diagram 4 (page 58)
		Port2 on CPU unit	RS422/485 (2 wire)	Setting Example 8 (page 22)	Cable Diagram 5 (page 60)
		G7L-CUEB	RS232C	Setting Example 9 (page 24)	Cable Diagram 1 (page 43)
		G7L-CUEC	RS422/485 (4 wire)	Setting Example 10 (page 26)	Cable Diagram 2 (page 45)
			RS422/485 (2 wire)	Setting Example 11 (page 28)	Cable Diagram 3 (page 52)
K80S	K7M-DR10S(/DC) K7M-DR20S(/DC) K7M-DR30S(/DC) K7M-DR40S(/DC) K7M-DR60S(/DC) K7M-DT10S K7M-DT20S K7M-DT30S K7M-DT40S K7M-DT60S	Port on CPU unit	RS232C	Setting Example 12 (page 30)	Cable Diagram 4 (page 58)
		G7L-CUEB	RS232C	Setting Example 13 (page 32)	Cable Diagram 1 (page 43)
		G7L-CUEC	RS422/485 (4 wire)	Setting Example 14 (page 34)	Cable Diagram 2 (page 45)
			RS422/485 (2 wire)	Setting Example 15 (page 36)	Cable Diagram 3 (page 52)

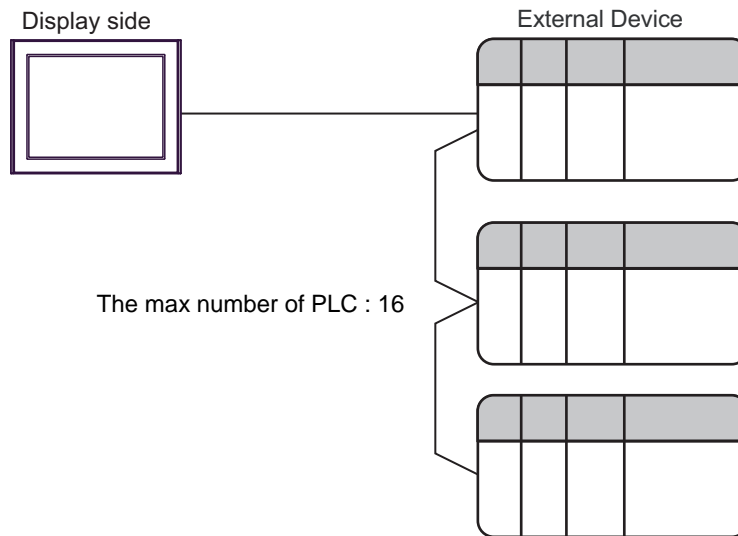
*1 The module of parenthesis is a old name.

■ Connection Configuration

- 1:1 Connection



- 1:n Connection (RS422/485 (4 wire))



■ 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)

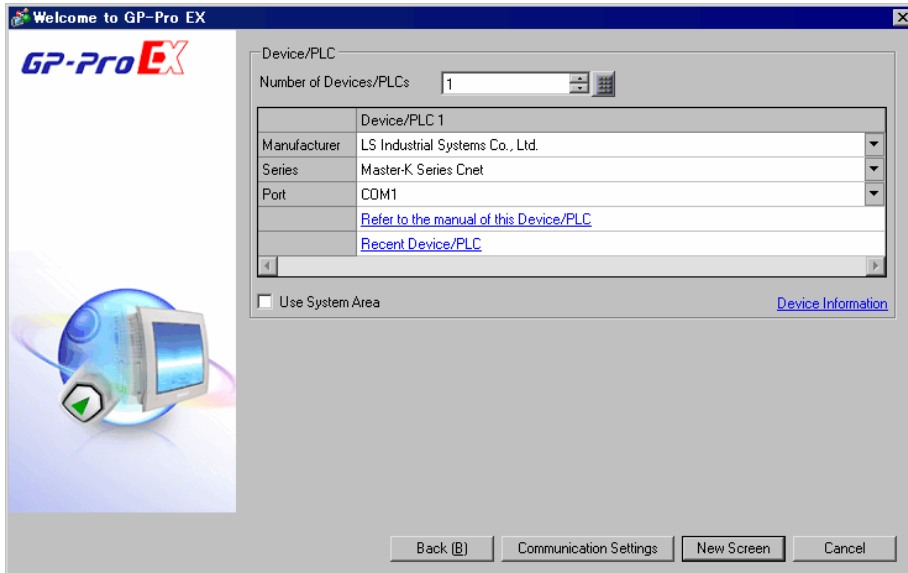
DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (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 "LS Industrial Systems Co., Ltd.".
Series	Select the External Device model (series) and the connection method. Select "Master-K series Cnet". In System configuration, make sure the External Device you are connecting is supported by "Master-K series Cnet". ☞ "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 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.

■ Settings of External Device

Communication setting of external device by setup tool (Cnet Frame Editor).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.

Refer to the manual of external device for the cable used.

- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.

- 3 Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

- 4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

- 5 Set the communication setup of external device with setup tool.

Setup Items		Setup Description
Channel		RS232 side
Base Parameters	Station	00
	Type	Null Modem
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1

- 6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

- 7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-232C	Dedicated Mode	

- 8 Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Type	RS_232C	

- 9 Set Mode rotary SW in the Cnet module to "3" (Dedicated Mode), and turn on the power supply of external device again.

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].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Manufacturer: LS Industrial Systems Co., Ltd.; Series: Master-K Series Cnet; Port: COM1. There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to 2, with a 'Change' link.
- Communication Settings:**
 - SIQ Type:** Radio buttons for RS232C, RS422/485(2wire), and RS422/485(4wire). RS422/485(4wire) is selected.
 - Speed:** Dropdown menu set to 38400.
 - Data Length:** Radio buttons for 7 and 8. 8 is selected.
 - Parity:** Radio buttons for NONE, EVEN, and ODD. NONE is selected.
 - Stop Bit:** Radio buttons for 1 and 2. 1 is selected.
 - Flow Control:** Radio buttons for NONE, ER(DTR/CTS), and XON/XOFF. NONE is selected.
 - Timeout:** Spin box set to 3 (sec).
 - Retry:** Spin box set to 2.
 - Wait To Send:** Spin box set to 0 (ms).
- RI / VCC:** Radio buttons for RI and VCC. A note states: '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.' There is a 'Default' button.
- Device-Specific Settings:** Allowable Number of Devices/PLCs: 16. There is an 'Add Device' link.
- Device List:** A table with columns 'No.', 'Device Name', and 'Settings'. It contains one entry: No. 1, Device Name 'PLC1', Settings 'Station=0'. There is an 'Add Indirect Device' button with a plus sign.

◆ 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.

The screenshot shows the 'Individual Device Settings' dialog box. It has a title bar with a close button. The content area shows 'PLC1' and a 'Station' spin box set to 0. Below the spin box is a 'Default' button. At the bottom are 'OK (O)' and 'Cancel' buttons.

■ Settings of External Device

Communication setting of external device by setup tool (Cnet Frame Editor).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.

Refer to the manual of external device for the cable used.

- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.

- 3 Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

- 4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

- 5 Set the communication setup of external device with setup tool.

Setup Items		Setup Description
Channel		RS422 side
Base Parameters	Station	00
	Type	Null Modem
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1

- 6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

- 7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

- 8 Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Type	RS_422	

- 9 Set Mode rotary SW in the Cnet module to "3" (Dedicated Mode), and turn on the power supply of external device again.

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 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.

■ Settings of External Device

Communication setting of external device by setup tool (Cnet Frame Editor).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.

Refer to the manual of external device for the cable used.

- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.

- 3 Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

- 4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

- 5 Set the communication setup of external device with setup tool.

Setup Items		Setup Description
Channel		RS422 side
Base Parameters	Station	00
	Type	Null Modem
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1

- 6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

- 7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

- 8 Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Type	RS_422	

- 9 Set Mode rotary SW in the Cnet module to "3" (Dedicated Mode), and turn on the power supply of external device again.

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].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Manufacturer: LS Industrial Systems Co., Ltd.; Series: Master-K Series Cnet; Port: COM1; Text Data Mode: 2.
- Communication Settings:**
 - SI0 Type: RS232C, RS422/485(2wire), RS422/485(4wire)
 - Speed: 38400
 - Data Length: 7, 8
 - Parity: NONE, EVEN, ODD
 - Stop Bit: 1, 2
 - Flow Control: NONE, ER(DTR/CTS), XON/XOFF
 - Timeout: 3 (sec)
 - Retry: 2
 - Wait To Send: 0 (ms)
 - RI / VCC: RI, VCC
- Device-Specific Settings:** Allowable Number of Devices/PLCs: 16. A table below shows one device:

No.	Device Name	Settings
1	PLC1	Station=0

◆ 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.

The 'Individual Device Settings' dialog box is shown for device PLC1. It contains a 'Station' field with the value 0 and a 'Default' button. At the bottom are 'OK (O)' and 'Cancel' buttons.

■ Settings of External Device

Communication setting of external device by setup tool (Cnet Frame Editor).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.

Refer to the manual of external device for the cable used.

- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.

- 3 Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

- 4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

- 5 Set the communication setup of external device with setup tool.

Setup Items		Setup Description
Channel		RS232 side
Base Parameters	Station	00
	Type	Null Modem
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1

- 6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

- 7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-232C	Dedicated Mode	

- 8 Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Type	RS_232C	

- 9 Set Mode rotary SW in the Cnet module to "1" (Dedicated Mode), and turn on the power supply of external device again.

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)

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
<input type="button" value="↓"/> 1	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by setup tool (Cnet Frame Editor).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.

Refer to the manual of external device for the cable used.

- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.

- 3 Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

- 4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

- 5 Set the communication setup of external device with setup tool.

Setup Items		Setup Description
Channel		RS422 side
Base Parameters	Station	00
	Type	Null Modem
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1

- 6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

- 7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

- 8 Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Type	RS_422	

- 9 Set Mode rotary SW in the Cnet module to "1" (Dedicated Mode), and turn on the power supply of external device again.

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

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

Speed

Data Length 7 8

Parity NONE EVEN ODD

Stop Bit 1 2

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

Timeout (sec)

Retry

Wait To Send (ms)

RI / VCC RI VCC


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

Device-Specific Settings

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

No.	Device Name	Settings
<input type="button" value="↓"/> 1	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by setup tool (Cnet Frame Editor).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.

Refer to the manual of external device for the cable used.

- 2 Set Mode rotary SW in the Cnet module to "9" (On Line Mode), and turn on the power supply of external device again.

- 3 Start setup tool, and set the communication port.

Select [Port] of the [Option] menu, and set the port of external device connected with step 1 and the port of the personal computer.

- 4 Select [Connect] of the [Online] menu, and put it into the state that external device and personal computer can be communicated.

- 5 Set the communication setup of external device with setup tool.

Setup Items		Setup Description
Channel		RS422 side
Base Parameters	Station	00
	Type	Null Modem
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1

- 6 Select [Write] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Option	Basic Parameters	Select the written content. Select "Basic Parameters" here.

- 7 Select [Online Change Mode] of the [Online] menu.

Set in the displayed dialog box, and click [Write].

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Channel	Stand Alone	
RS-422	Dedicated Mode	

- 8 Select [Change RUN/STOP] of the [Online] menu, and put external device into the state of RUN.

Setup Items	Setup Description	Description
Slot No.	SLOT 0	Select the slot in which the Cnet module is installed.
Type	RS_422	

- 9 Set Mode rotary SW in the Cnet module to "1" (Dedicated Mode), and turn on the power supply of external device again.

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 LS Industrial Systems Co., Ltd. Series Master-K Series Cnet Port COM1

Text Data Mode 2 [Change](#)

Communication Settings

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

Speed 38400

Data Length 7 8

Parity NONE EVEN ODD

Stop Bit 1 2

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

Timeout 3 (sec)

Retry 2

Wait To Send 0 (ms)

RI / VCC RI VCC

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

Default

Device-Specific Settings

Allowable Number of Devices/PLCs 16 [Add Device](#)

No.	Device Name	Settings
1	PLC1	Station=0

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.

Individual Device Settings

PLC1

Station 0

Default

OK (O) Cancel

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.
Turn ON the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "120S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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

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

Speed

Data Length 7 8

Parity NONE EVEN ODD

Stop Bit 1 2

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

Timeout (sec)

Retry

Wait To Send (ms)

RI / VCC RI VCC


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

Device-Specific Settings

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

No.	Device Name	Settings
<input type="button" value="↓"/> 1	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-485 port on CPU unit of external device with the personal computer.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "120S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh1] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE

- When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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)

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
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect the link I/F and the personal computer.
Turn OFF the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "120S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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)

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
<input type="text" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

[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.

Individual Device Settings

PLC1

Station

[Default](#)

[OK \(O\)](#) [Cancel](#)

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect the link I/F and the personal computer.
Turn OFF the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "120S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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

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

Speed

Data Length 7 8

Parity NONE EVEN ODD

Stop Bit 1 2

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

Timeout (sec)

Retry

Wait To Send (ms)

RI / VCC RI VCC


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

Device-Specific Settings

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

No.	Device Name	Settings
<input type="button" value="↓"/> 1	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect the link I/F and the personal computer.
Turn OFF the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "120S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [CommCh0] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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].

The screenshot shows the 'Device/PLC 1' configuration window. It is divided into several sections:

- Summary:** Manufacturer: LS Industrial Systems Co., Ltd.; Series: Master-K Series Cnet; Port: COM1. There is a 'Change Device/PLC' link.
- Text Data Mode:** Set to 2, with a 'Change' link.
- Communication Settings:**
 - SIQ Type:** Radio buttons for RS232C (selected), RS422/485(2wire), and RS422/485(4wire).
 - Speed:** Dropdown menu set to 38400.
 - Data Length:** Radio buttons for 7 and 8 (selected).
 - Parity:** Radio buttons for NONE (selected), EVEN, and ODD.
 - Stop Bit:** Radio buttons for 1 (selected) and 2.
 - Flow Control:** Radio buttons for NONE (selected), ER(DTR/CTS), and XON/XOFF.
 - Timeout:** Spin box set to 3 (sec).
 - Retry:** Spin box set to 2.
 - Wait To Send:** Spin box set to 0 (ms).
 - RI / VCC:** Radio buttons for RI (selected) and VCC. A note below states: "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." A 'Default' button is present.
- Device-Specific Settings:** Allowable Number of Devices/PLCs: 16. There is an 'Add Device' link.
- Device List:** A table with columns 'No.', 'Device Name', and 'Settings'. It contains one entry: No. 1, Device Name 'PLC1', Settings 'Station=0'. There is an 'Add Indirect Device' button with a plus sign.

◆ 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.

The screenshot shows the 'Individual Device Settings' dialog box. It has a title bar with a close button. The main area is titled 'PLC1' and contains a 'Station' spin box set to 0. Below the spin box is a 'Default' button. At the bottom of the dialog are 'OK (O)' and 'Cancel' buttons.

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect RS-232C port on CPU unit of external device with the personal computer.
Turn ON the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "80S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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)

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
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect the link I/F and the personal computer.
Turn OFF the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "80S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

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)

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
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect the link I/F and the personal computer.
Turn OFF the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "80S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave

- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

3.15 Setting Example 15

■ 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

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

Speed

Data Length 7 8

Parity NONE EVEN ODD

Stop Bit 1 2

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

Timeout (sec)

Retry

Wait To Send (ms)

RI / VCC RI VCC


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

Device-Specific Settings

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

No.	Device Name	Settings
<input type="button" value="↓"/> 1	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>

◆ 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.

Individual Device Settings

PLC1

Station

■ Settings of External Device

Communication setting of external device by ladder software (KGL_WIN).

Please refer to the manual of external device for more detail.

◆ Procedure

- 1 Connect the link I/F and the personal computer.
Turn OFF the [BUILT_IN CNET] switch.
Refer to the manual of external device for the cable used.
- 2 Start the ladder software, and make the project newly.
Select "80S" from [MK_S] of [PLC Type].
- 3 Double-click [Parameter] of the tree view and display the [Parameter] dialog box.
- 4 Click the [Comm] tab, and set the communication setup of external device.

Setup Items		Setup Description
Communication		Enable
Communication Method	Station Number	0
	Baud Rate	38400
	Data Bit	8
	Parity	None
	Stop Bit	1
	Communication Channel	RS232C Null Modem or RS422/485
Protocol and Mode	Dedicated	Slave


- 5 Select [Connect] of the [Online] menu.
- 6 Select [Write[KGL_WIN=>PLC]] of the [Online] menu, and download the communication setup of external device.

NOTE • When [Write[KGL_WIN=>PLC]] cannot be selected, it is necessary to stop driving external device.
Select [Change Mode] - [Stop] of the [Online] menu.

4 Setup Items

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

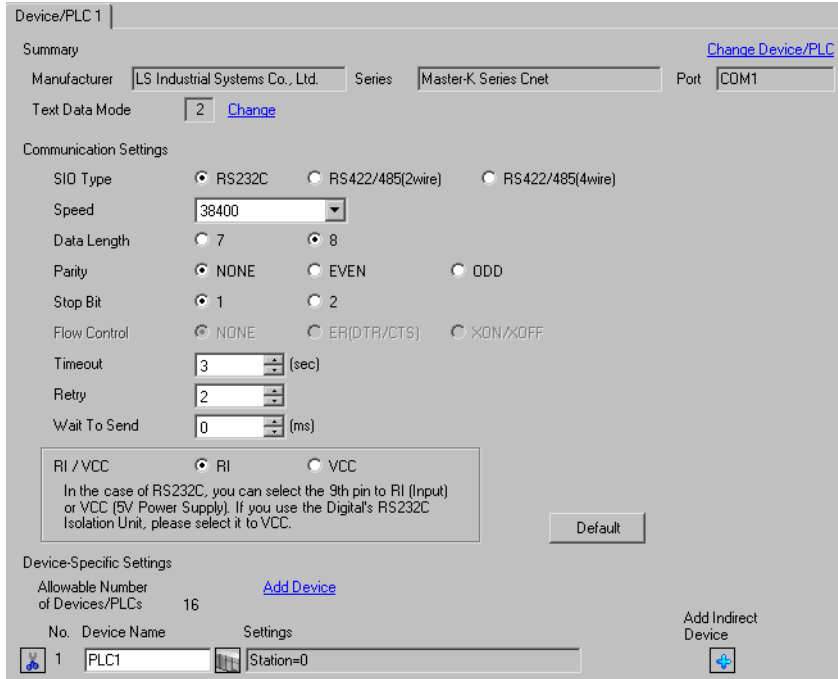
The setting of each parameter must be identical to that of External Device.

 "3 Example of Communication Setting" (page 8)

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 [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)

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	Add Indirect Device
<input type="button" value="1"/>	<input type="text" value="PLC1"/>	<input type="text" value="Station=0"/>	<input type="button" value="+"/>

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	Display the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.

Continues to the next page.


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

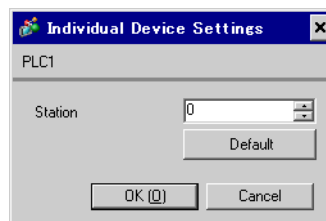
- Refer to the GP-Pro EX Reference Manual for Indirect Device.

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.



Setup Items	Setup Description
Station	Use an integer from 1 to 31 to enter the Station No. of the External Device. (Initial value [0])

4.2 Setup Items in Offline Mode

NOTE

- Refer to the Maintenance/Troubleshooting manual 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		
Master-K Series Cnet			[COM1]	Page 1/1
SIO Type	RS232C			
Speed	38400			
Data Length	<input type="radio"/> 7	<input checked="" type="radio"/> 8		
Parity	<input checked="" type="radio"/> NONE	<input type="radio"/> EVEN	<input type="radio"/> ODD	
Stop Bit	<input checked="" type="radio"/> 1	<input type="radio"/> 2		
Flow Control	NONE			
Timeout(s)	3	▼ ▲		
Retry	2	▼ ▲		
Wait To Send(ms)	0	▼ ▲		
	Exit		Back	2006/05/15 11:28:50

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.

Continues to the next page.

Setup Items	Setup Description
Flow Control	Display the communication control method to prevent overflow of transmission and reception data.
Timeout	Use an integer from 1 to 127 to enter the time (s) for which the Display waits for the response from the External Device.
Retry	In case of no response from the External Device, use an integer from 0 to 255 to enter how many times the Display retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter standby time (ms) for the Display from receiving packets to transmitting next commands.

■ Device Setting

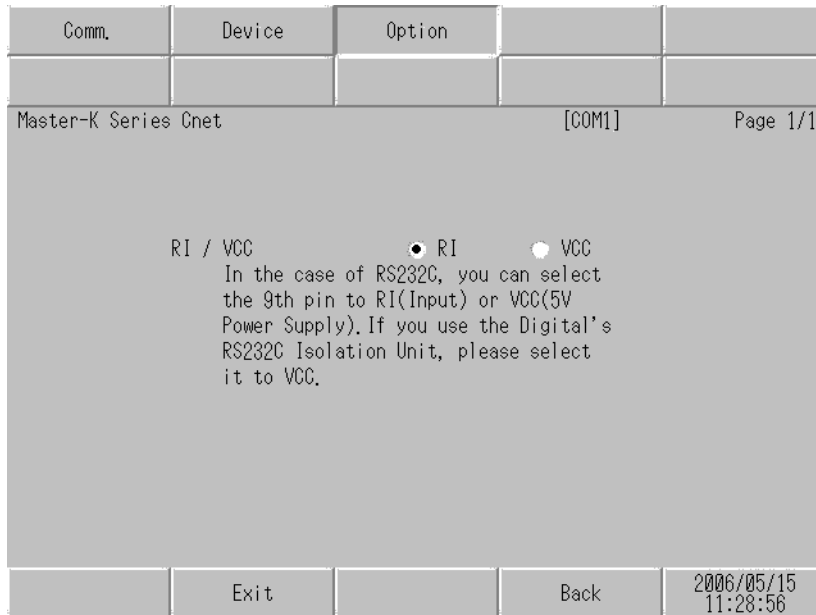
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].

Comm.	Device	Option		
Master-K Series Cnet		[COM1]	Page 1/1	
Device/PLC Name		PLC1		
Station		0		
Exit		Back		2006/05/15 11:28:53

Setup Items	Setup Description
Device/PLC Name	Select the External Device for device setting. Device name is a title of External Device set with GP-Pro EX.(Initial value [PLC1])
Station	Use an integer from 0 to 31 to enter the Station No. of the External Device. (Initial value [0])

◆ Option

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



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

NOTE

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

5 Cable Diagram

The cable diagram shown below may be different from the cable diagram recommended by LS Industrial Systems Co., Ltd. Please be assured there is no operational problem in applying the cable diagram shown in this manual.

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

Cable Diagram 1

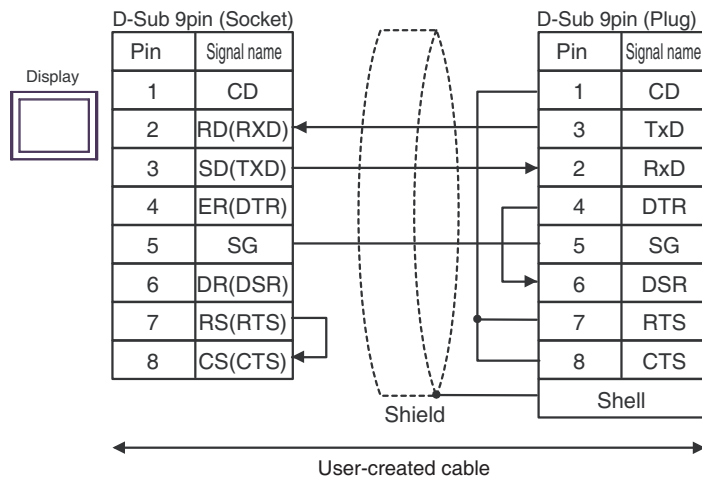
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000* ¹ (COM1) SP5000 (COM1/2) ST (COM1) LT3000 (COM1) IPC* ² PC/AT	1A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	1B	User-created cable	The cable length must be 15m or less.
LT-4*0ITM (COM1) LT-Rear Module (COM1)	1C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJ21	The cable length must be 5m or less.

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

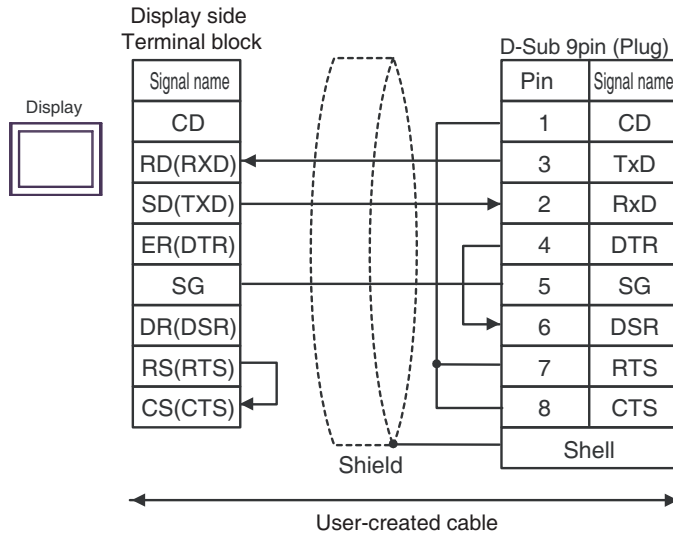
*2 Only the COM port which can communicate by RS-232C can be used.

☞ ■ IPC COM Port (page 5)

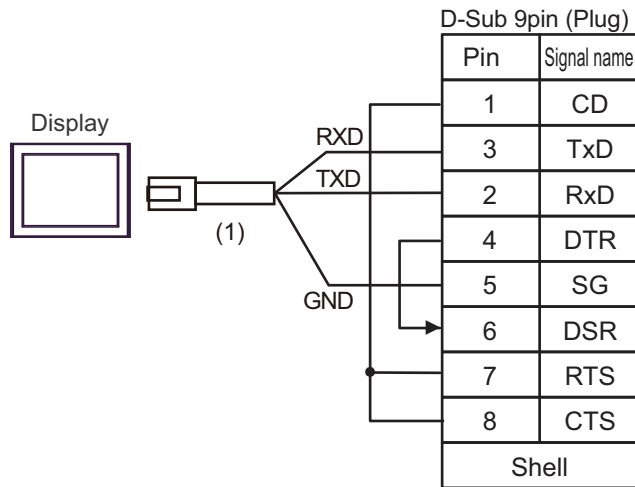
1A)



1B)



1C)



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

Cable Diagram 2

Display (Connection Port)	Cable		Notes
GP3000* ¹ (COM1) AGP-3302B (COM2) GP-4*0ITM (COM1) ST* ² (COM2) LT3000 (COM1) IPC* ³	2A	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.
	2B	User-created cable	
GP3000* ⁴ (COM2)	2C	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.
	2D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	2E	User-created cable	The cable length must be 500m or less.
GP4000* ⁵ (COM2) GP-420IT (COM1) SP5000 (COM1/2)	2F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1* ⁶ + User-created cable	The cable length must be 500m or less.
	2B	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 5)

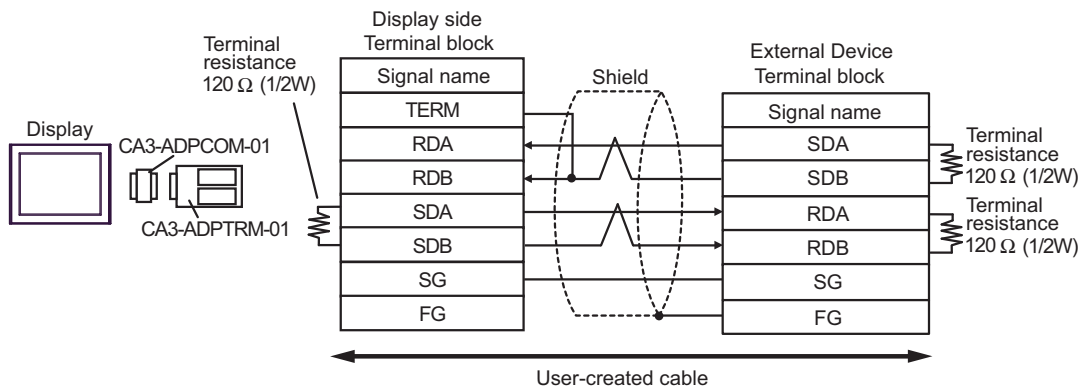
*4 All GP3000 models except GP-3200 series and AGP-3302B

*5 All GP4000 models except GP-4100 Series, GP-4*0ITM, GP-420IT and GP-4*03T

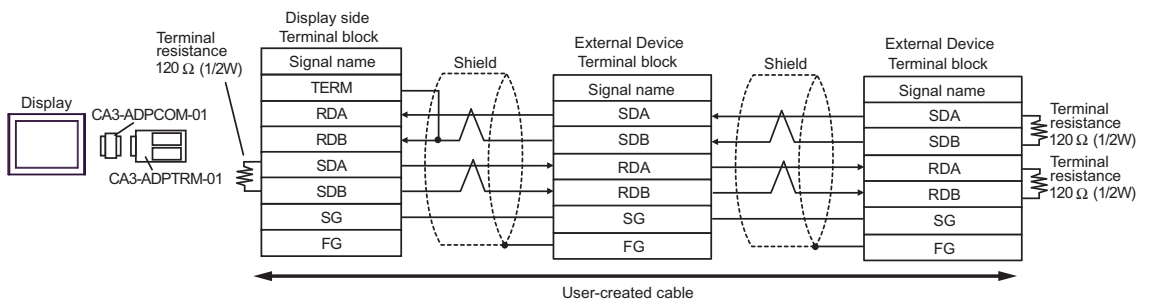
*6 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 2A.

2A)

- 1:1 Connection

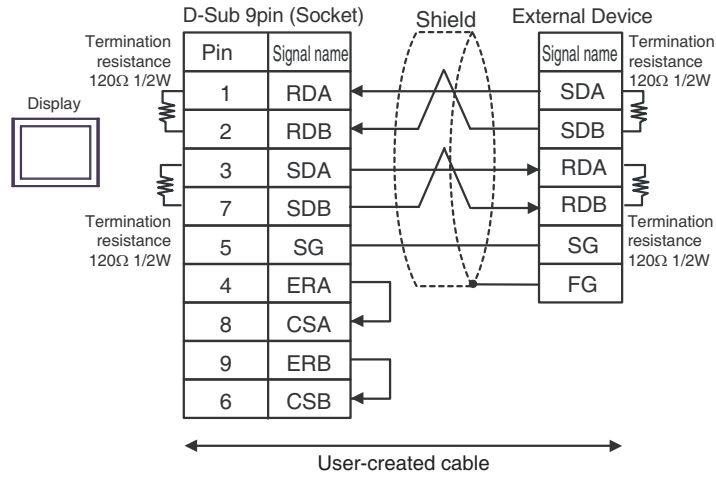


- 1:n Connection

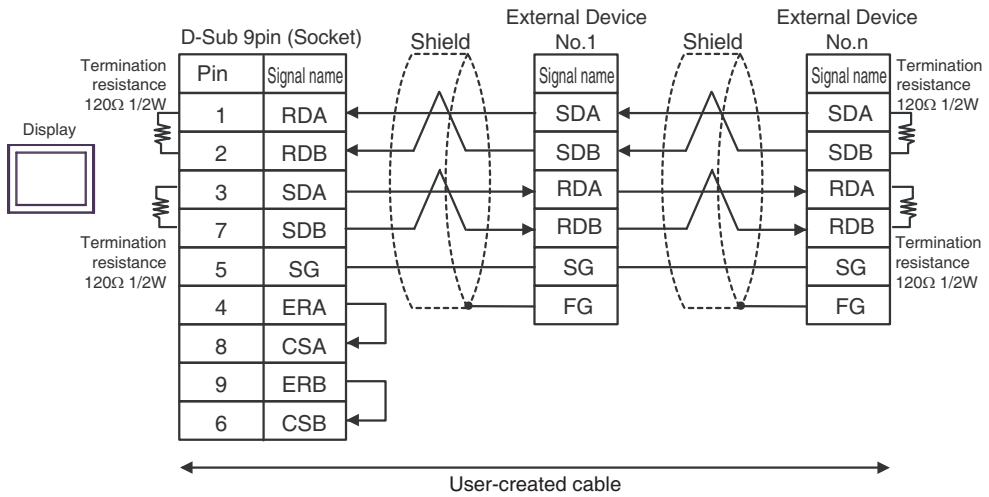


2B)

- 1:1 Connection

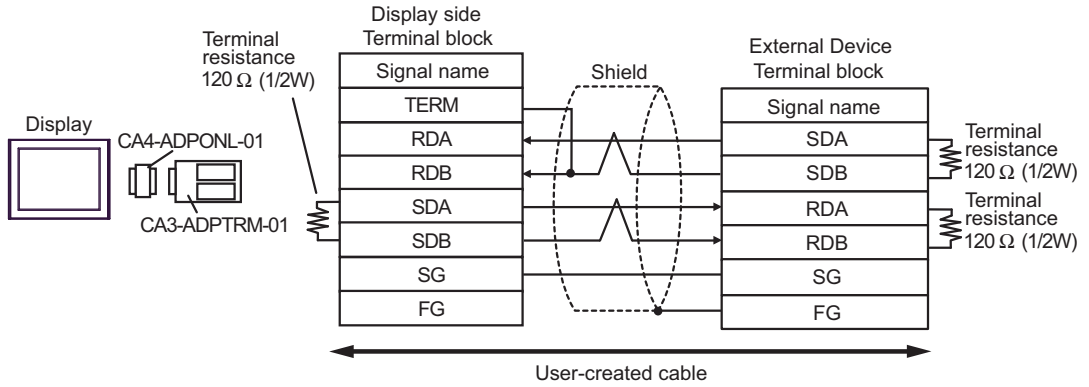


- 1:n Connection

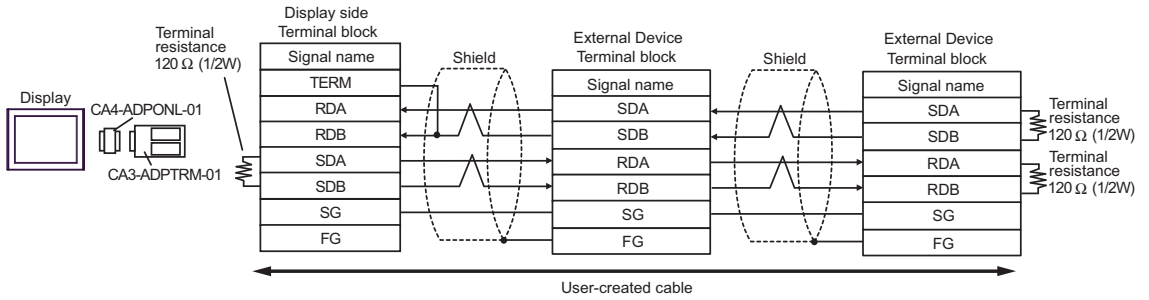


2C)

- 1:1 Connection

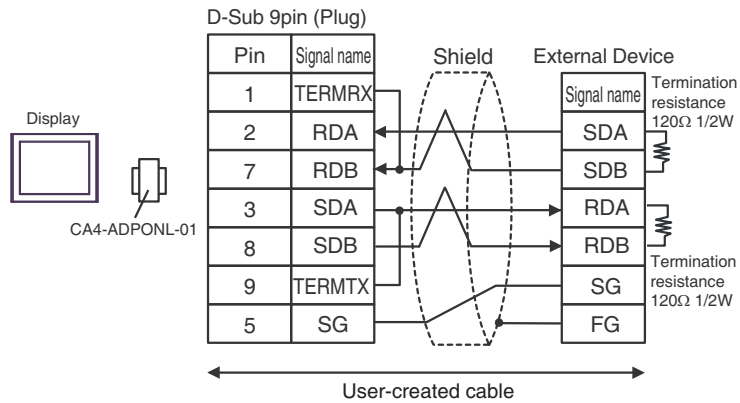


- 1:n Connection

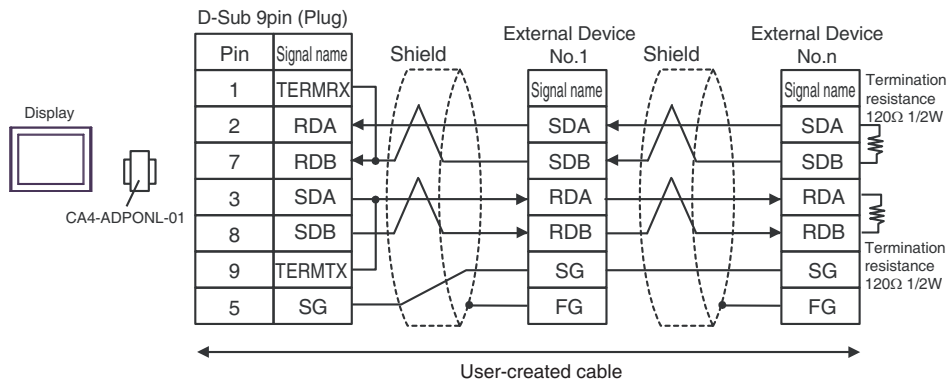


2D)

- 1:1 Connection

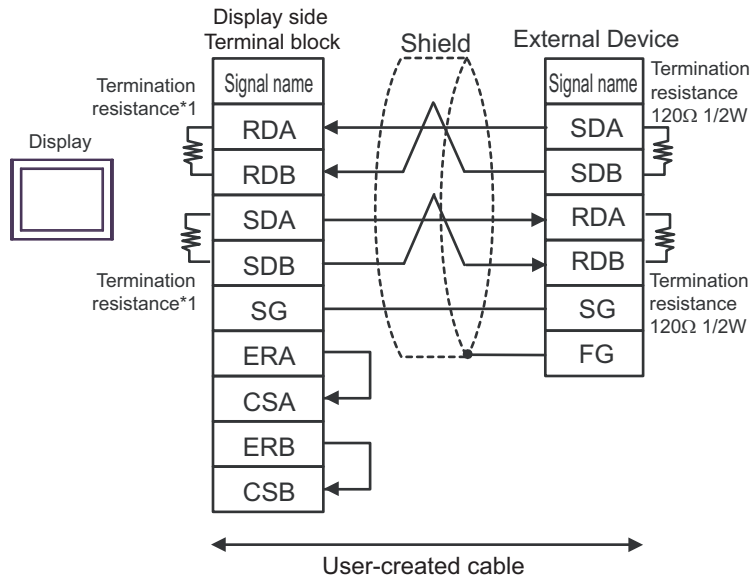


- 1:n Connection

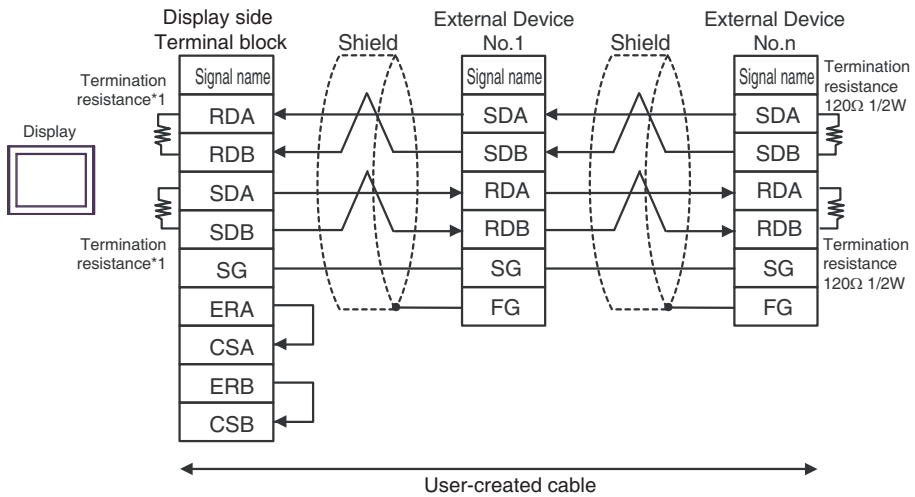


2E)

- 1:1 Connection



- 1:n Connection

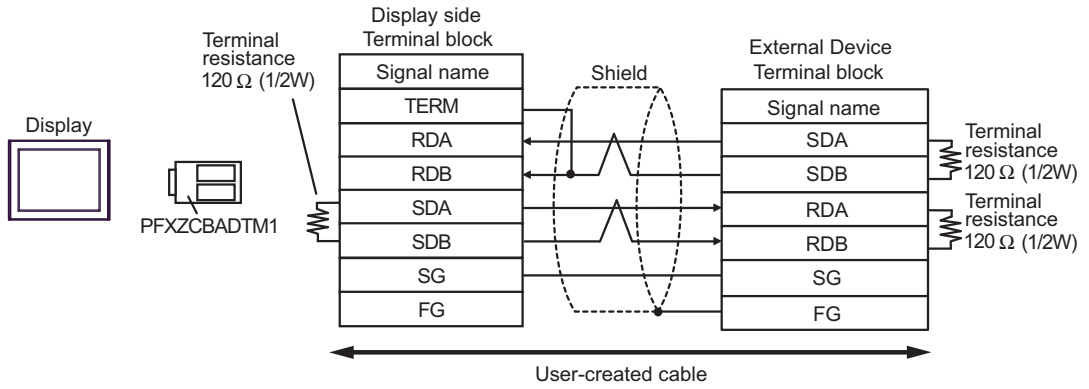


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

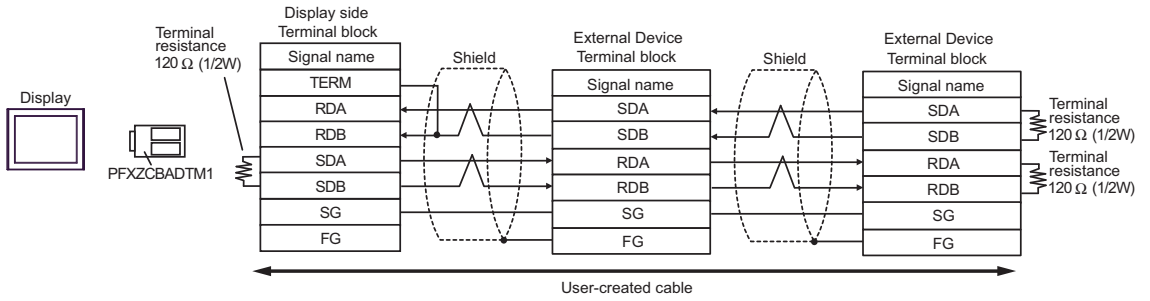
DIP Switch No.	Set Value
1	ON
2	ON
3	ON
4	ON

2F)

- 1:1 Connection



- 1:n Connection



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	The cable length must be 500m or less.
	3B	User-created cable	
GP3000* ³ (COM2)	3C	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.
	3D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC* ⁴	3E	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.
	3F	User-created cable	
GP-4106 (COM1)	3G	User-created cable	The cable length must be 500m or less.
GP-4107 (COM1) GP-4*03T* ⁵ (COM2) GP-4203T (COM1)	3H	User-created cable	The cable length must be 500m or less.
GP4000* ⁶ (COM2) GP-4201T (COM1) SP5000 (COM1/2)	3I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1* ⁷ + User-created cable	The cable length must be 500m or less.
	3B	User-created cable	
LT-4*01TM (COM1) LT-Rear Module (COM1)	3J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	The cable length must be 5m or less.

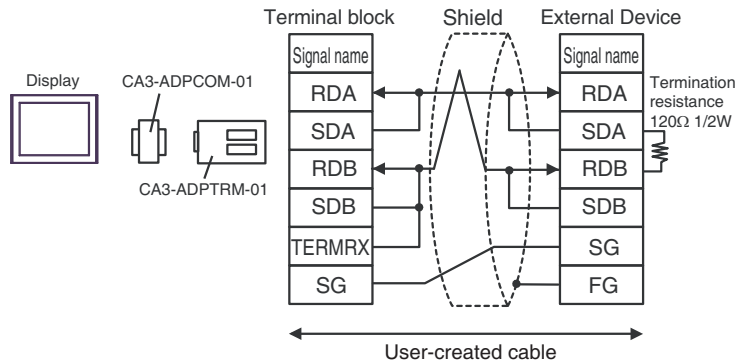
*1 All GP3000 models except AGP-3302B

*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 5)
- *5 Except GP-4203T
- *6 All GP4000 models except GP-4100 Series, GP-4*0ITM, GP-420IT 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 3A.

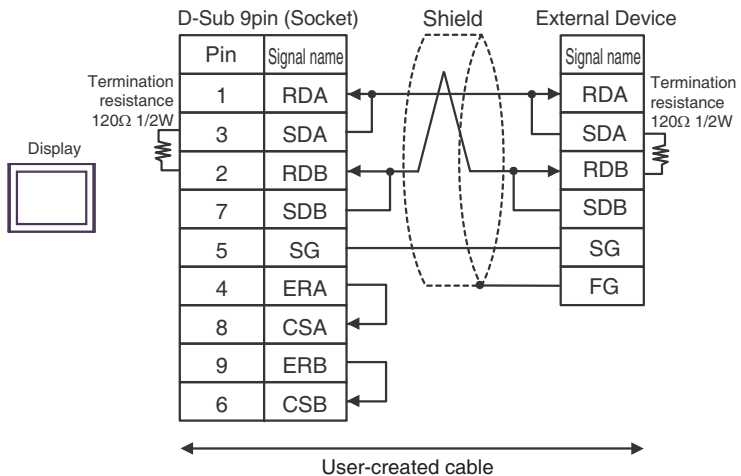
3A)

- 1:1 Connection



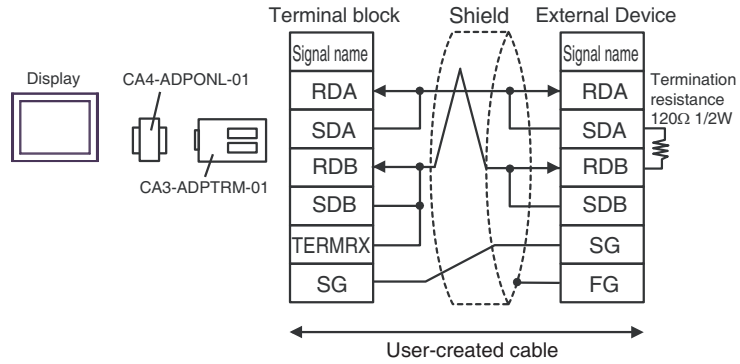
3B)

- 1:1 Connection



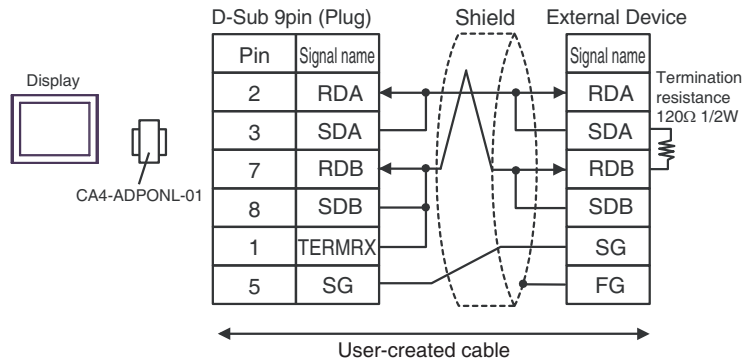
3C)

- 1:1 Connection



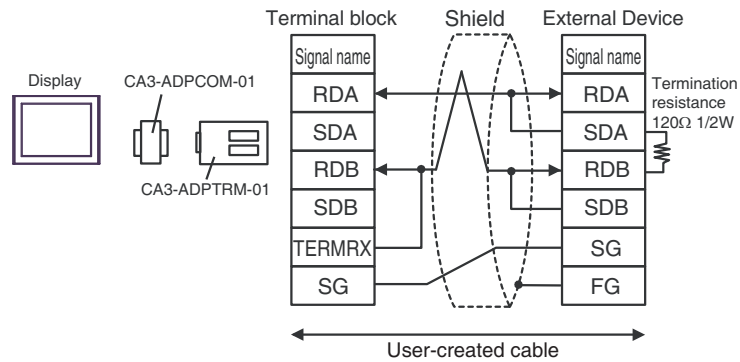
3D)

- 1:1 Connection



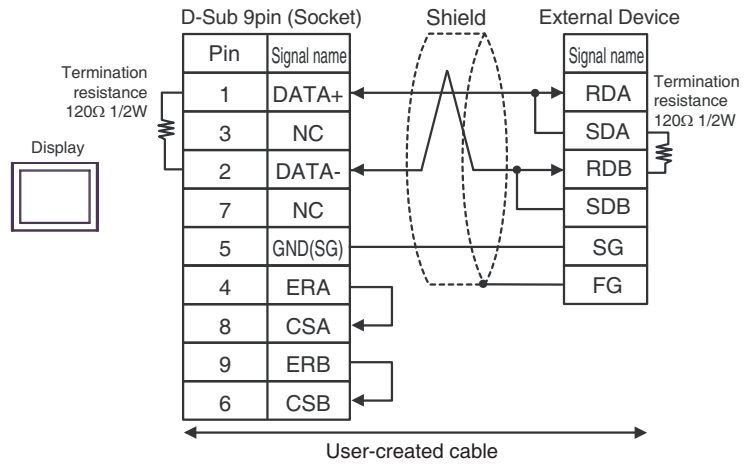
3E)

- 1:1 Connection



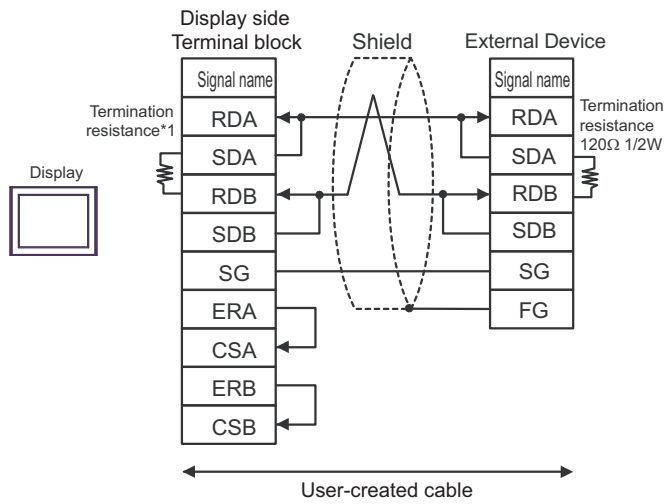
3F)

- 1:1 Connection



3G)

- 1:1 Connection

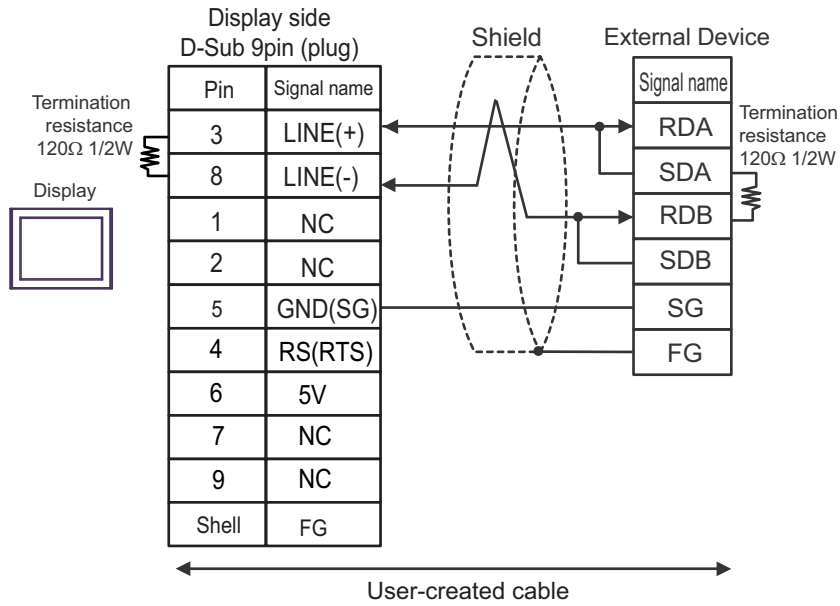


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

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

3H)

- 1:1 Connection



IMPORTANT

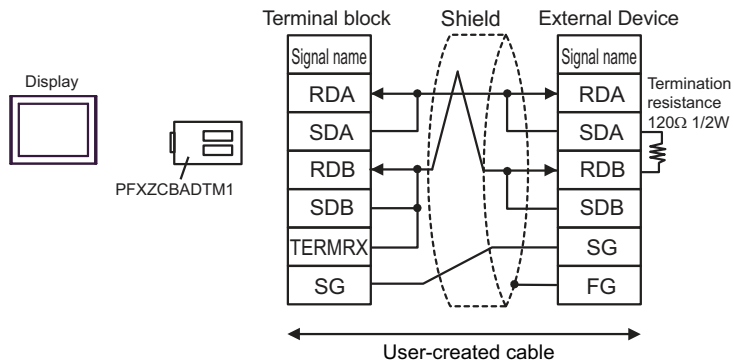
- The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

NOTE

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

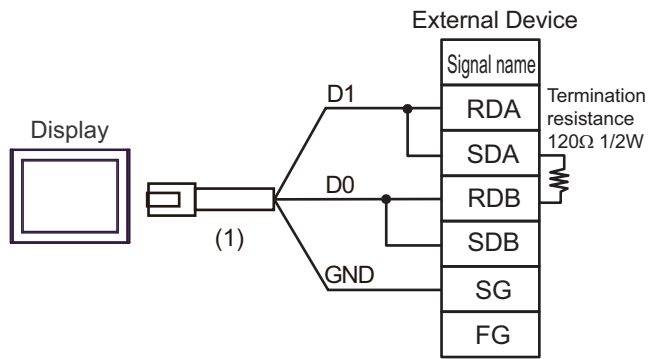
3I)

- 1:1 Connection



3J)

- 1:1 Connection




Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	

Cable Diagram 4

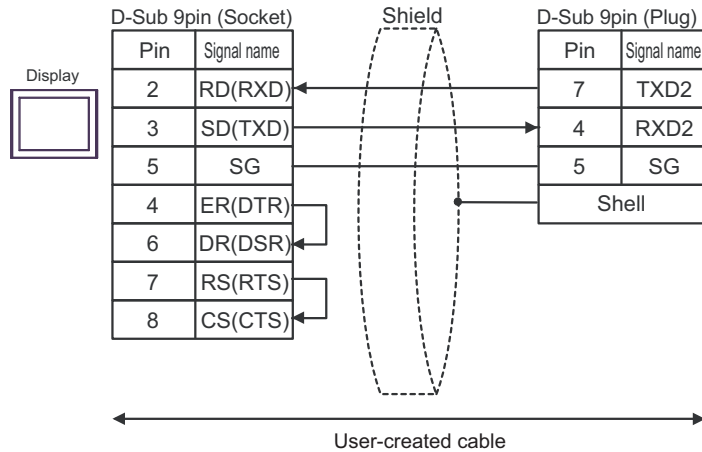
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000* ¹ (COM1) SP5000 (COM1/2) ST (COM1) LT3000 (COM1) IPC* ² PC/AT	4A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1)	4B	User-created cable	The cable length must be 15m or less.
LT-4*0ITM (COM1) LT-Rear Module (COM1)	4C	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBJR21	The cable length must be 5m or less.

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

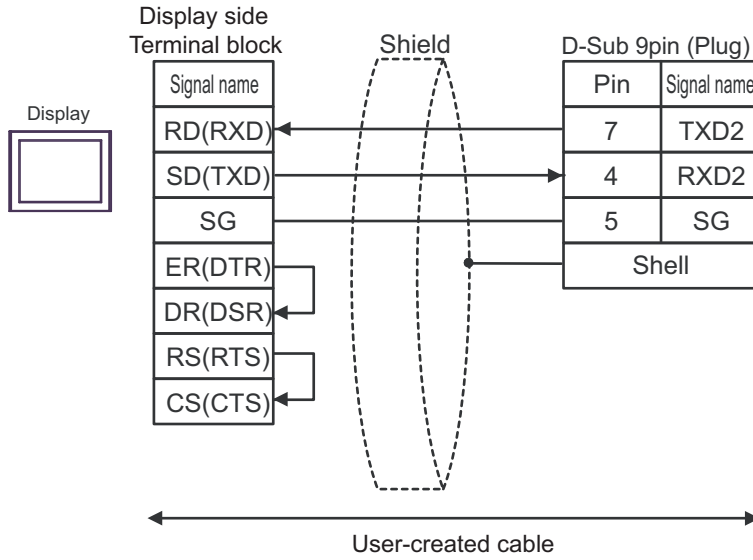
*2 Only the COM port which can communicate by RS-232C can be used.

 ■ IPC COM Port (page 5)

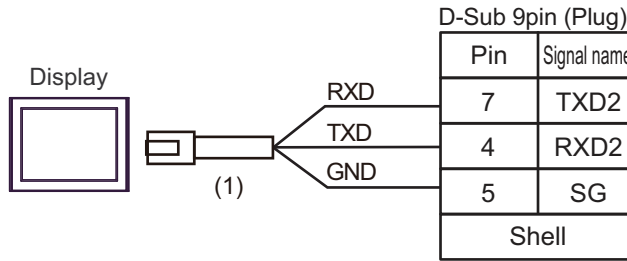
4A)



4B)



4C)



Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJ21	

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	The cable length must be 500m or less.
	5B	User-created cable	
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	The cable length must be 500m or less.
	5D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
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	The cable length must be 500m or less.
	5F	User-created cable	
GP-4106 (COM1)	5G	User-created cable	The cable length must be 500m or less.
GP-4107 (COM1) GP-4*03T* ⁵ (COM2) GP-4203T (COM1)	5H	User-created cable	The cable length must be 500m or less.
GP4000* ⁶ (COM2) GP-4201T (COM1) SP5000 (COM1/2)	5I	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1* ⁷ + User-created cable	The cable length must be 500m or less.
	5B	User-created cable	
LT-4*01TM (COM1) LT-Rear Module (COM1)	5J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	The cable length must be 5m or less.

*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

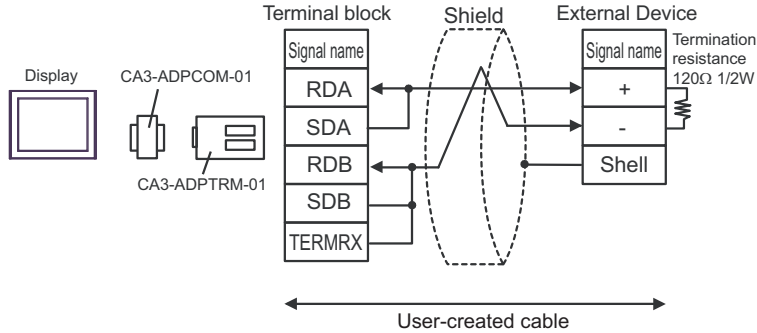
*4 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.

 ■ IPC COM Port (page 5)

- *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 5A.

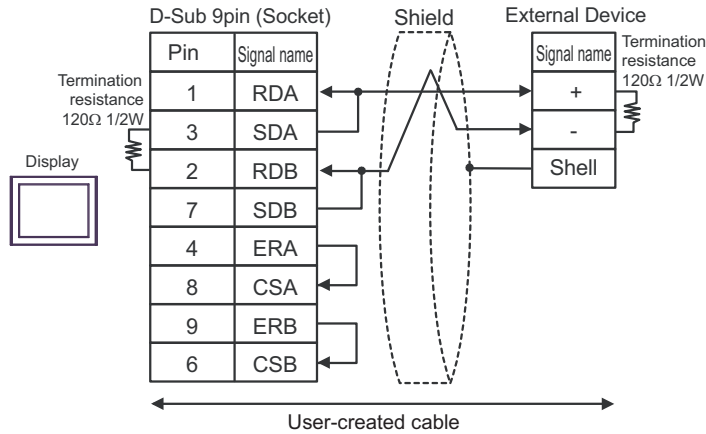
5A)

- 1:1 Connection



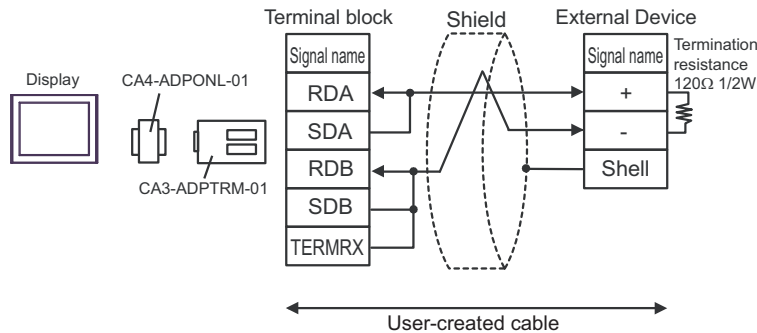
5B)

- 1:1 Connection



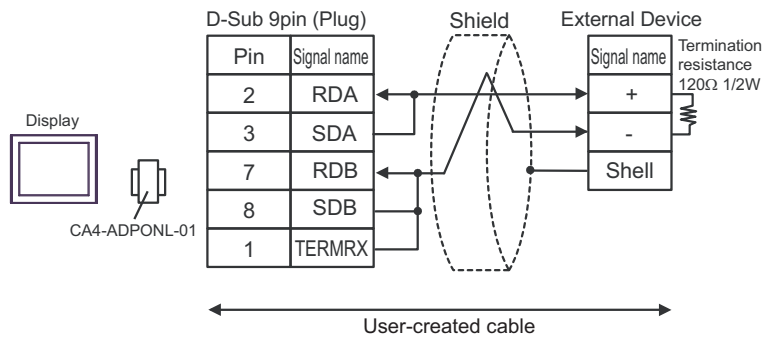
5C)

- 1:1 Connection



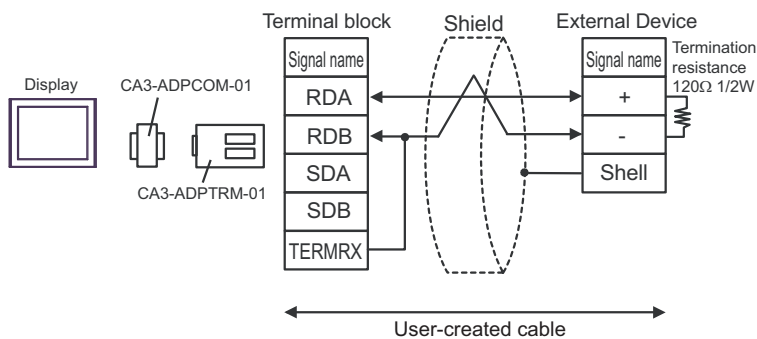
5D)

- 1:1 Connection



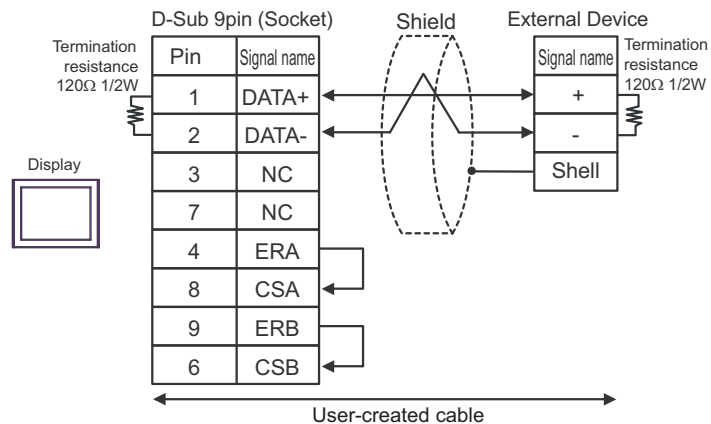
5E)

- 1:1 Connection



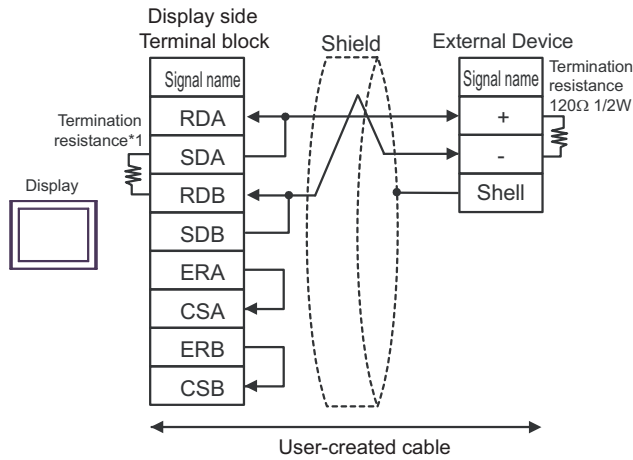
5F)

- 1:1 Connection



5G)

- 1:1 Connection

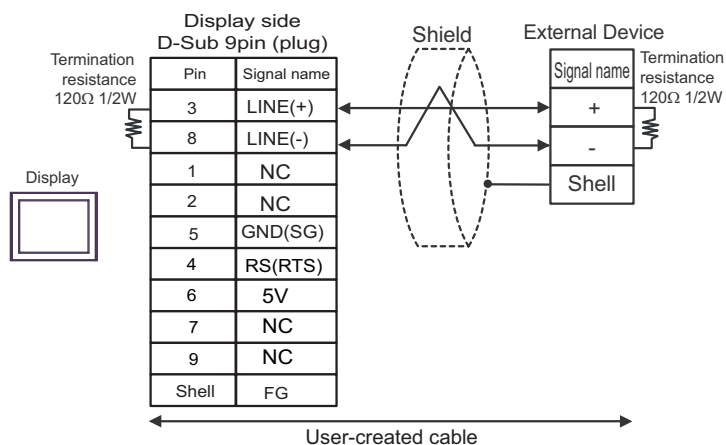


*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

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

5H)

- 1:1 Connection

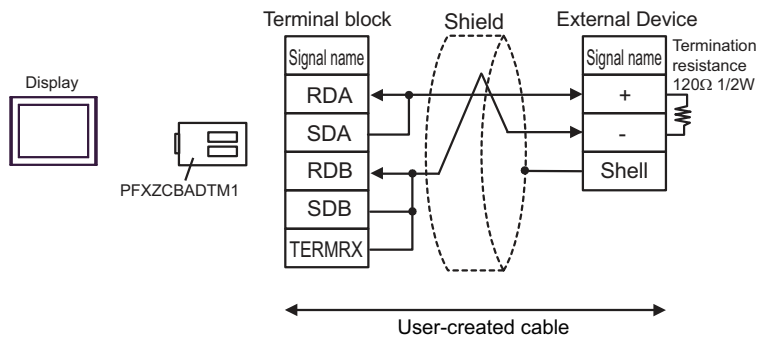


IMPORTANT • The 5V output (Pin #6) on the Display is the power for the Siemens AG's PROFIBUS connector. Do not use it for other devices.

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

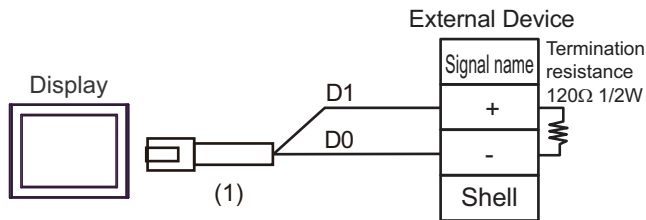
5I)

- 1:1 Connection



5J)


- 1:1 Connection


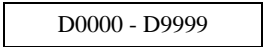



Number	Name	Notes
(1)	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	

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 connecting equipment.

 This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Notes
Input / Output Relay	P000 - P63F	P00 - P63		
Auxiliary Relay	M0000 - M191F	M000 - M191		
Keep Relay	K000 - K31F	K00 - K31		
Link Relay	L000 - L63F	L00 - L63		
Special Relay	F000 - F63F	F00 - F63		*1
Timer (Contact)	T000 - T255	-----		
Counter (Contact)	C000 - C255	-----		
Timer (Elapsed Value)	-----	T000 - T255		
Counter (Elapsed Value)	-----	C000 - C255		
Step Controller	-----	S00 - S99		
Data Register	-----	 D0000 - D9999		

*1 Write disable.

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"

7 Device Code and Address Code

Use device code and address code when you select "Device Type & Address" for the address type in data displays.

Device	Device Name	Device Code (HEX)	Address Code
Input / Output Relay	P	0080	Word address
Auxiliary Relay	M	0082	Word address
Keep Relay	K	0083	Word address
Link Relay	L	0084	Word address
Special Relay	F	0085	Word address
Timer (Elapsed Value)	T	0060	Word address
Counter (Elapsed Value)	C	0061	Word address
Step Controller	S	0062	Word address
Data Register	D	0000	Word address

8 Error Messages

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

Item	Description
No.	Error No.
Device Name	Name of External Device where error occurs. Device name is a title of External Device set with GP-Pro EX. (Initial value [PLC1])
Error Message	Displays messages related to the error which occurs.
Error Occurrence Area	<p>Displays IP address or device address of External Device where error occurs, or error codes received from External Device.</p> <p>NOTE</p> <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.

