XGT Series Cnet Driver

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
This section shows the types of External Devices which can be connected and SIO type. | ☞ "1 System Configuration" (page 3) |

| 2 | Selection of External Device
Select a model (series) of the External Device to be connected and connection method. | ☞ "2 Selection of External Device" (page 6) |

| 3 | Example of Communication Settings
This section shows setting examples for communicating between the Display and the External Device. | ☞ "3 Example of Communication Setting" (page 7) |

| 4 | Setup Items
This section describes communication setup items on the Display.
Set communication settings of the Display with GP-Pro Ex or in offline mode. | ☞ "4 Setup Items" (page 15) |

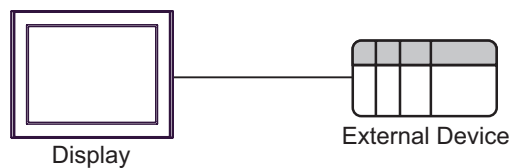| 5 | Cable Diagram
This section shows cables and adapters for connecting the Display and the External Device. | ☞ "5 Cable Diagram" (page 20) |

Operation

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.
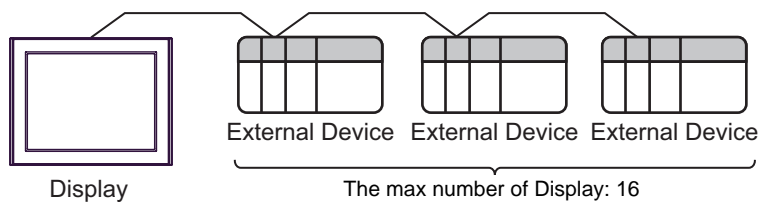
Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
XGK	XGK-CPUE XGK-CPUS XGK-CPUA XGK-CPUH	CH1 port on XGL-C22A	RS232C	"Setting Example 1" (page 7)	"Cable Diagram 1" (page 20)
		CH2 port on XGL-C22A	RS232C	"Setting Example 2" (page 9)	"Cable Diagram 1" (page 20)
		CH1 port on XGL-C42A	RS422/485 (4 wire)	"Setting Example 3" (page 11)	"Cable Diagram 2" (page 22)
		CH2 port on XGL-C42A	RS422/485 (4 wire)	"Setting Example 4" (page 13)	"Cable Diagram 2" (page 22)
		CH1 port on XGL-CH2A	RS232C	"Setting Example 1" (page 7)	"Cable Diagram 1" (page 20)
		CH2 port on XGL-CH2A	RS422/485 (4 wire)	"Setting Example 4" (page 13)	"Cable Diagram 2" (page 22)

■ Connection Configuration

• 1:1 Connection

Display   External Device

• 1:n Connection

External Device External Device External Device

Display   The max number of Display: 16

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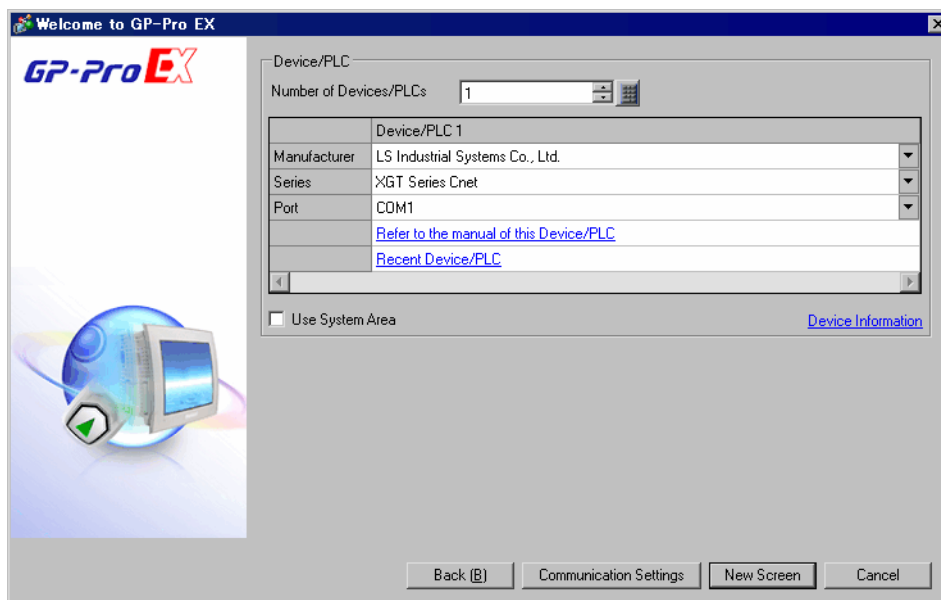
DIP Switch setting: RS-422/485 (4 wire)

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 "XGT Series Cnet". In System configuration, make sure the External Device you are connecting is supported by "XGT 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

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

3.1 Setting Example 1

■ Settings of GP-Pro EX

◆ Communication Settings

To display the 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	XGT 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   Add Device
of Devices/PLCs   16
                                                                Add Indirect
No.   Device Name   Settings   Device
1   PLC1   Station No.=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 No.	0
	Default

OK (O)   Cancel

■ Settings of External Device

Use the LS Industrial Systems setting tool (XG-PD Editor) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1　Start up the setting tool.

2　Select base and slot which using module is connected from [Standard settings] tab in offline, and [Communication Module Settings] dialog box is displayed.

3　Select "Cnet" from [Type], and click [OK].

4　Select [Connect] from [Online] menu.

5　Select [Read IO Information] from the [Online] menu.

6　Double click [Cnet] from the [Standard settings] tab, and [Standard Settings-Cnet] dialog box is displayed.

7　Set [Channel 1] setup items as follows, and click [OK].

Setup Item	Setting Value
Type	RS232C
Speed	38400
Data Bit	8
Stop Bit	1
Parity Bit	NONE
Modem Type	Null Modem
Station	0
Active mode	XGT server

8　Select [Write Parameter] from the [Online] menu, and [Write Parameter] dialog box is displayed.

9　Select using module, and click [OK].

10　Select [Reset] from the [Online] menu.

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 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

Use the LS Industrial Systems setting tool (XG-PD Editor) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1 Start up the setting tool.

2 Select base and slot which using module is connected from [Standard settings] tab in offline, and [Communication Module Settings] dialog box is displayed.

3 Select "Cnet" from [Type], and click [OK].

4 Select [Connect] from [Online] menu.

5 Select [Read IO Information] from the [Online] menu.

6 Double click [Cnet] from the [Standard settings] tab, and [Standard Settings-Cnet] dialog box is displayed.

7 Set [Channel 2] setup items as follows, and click [OK].

Setup Item	Setting Value
Type	RS232C
Speed	38400
Data Bit	8
Stop Bit	1
Parity Bit	NONE
Modem Type	Null Modem
Station	0
Active mode	XGT server

8 Select [Write Parameter] from the [Online] menu, and [Write Parameter] dialog box is displayed.

9 Select using module, and click [OK].

10 Select [Reset] from the [Online] menu.

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 | LS Industrial Systems Co., Ltd. | Series | XGT 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　　　　　　　　　　　Add Indirect Device

1 | PLC1 | Station No.=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 No.　0

Default

OK(O)　　Cancel

■ Settings of External Device

Use the LS Industrial Systems setting tool (XG-PD Editor) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1 Start up the setting tool.

2 Select base and slot which using module is connected from [Standard settings] tab in offline, and [Communication Module Settings] dialog box is displayed.

3 Select "Cnet" from [Type], and click [OK].

4 Select [Connect] from [Online] menu.

5 Select [Read IO Information] from the [Online] menu.

6 Double click [Cnet] from the [Standard settings] tab, and [Standard Settings-Cnet] dialog box is displayed.

7 Set [Channel 1] setup items as follows, and click [OK].

Setup Item	Setting Value
Type	RS485
Speed	38400
Data Bit	8
Stop Bit	1
Parity Bit	NONE
Modem Type	Null Modem
Station	0
Active mode	XGT server

8 Select [Write Parameter] from the [Online] menu, and [Write Parameter] dialog box is displayed.

9 Select using module, and click [OK].

10 Select [Reset] from the [Online] menu.

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 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

Use the LS Industrial Systems setting tool (XG-PD Editor) to configure communication settings for the External Device.

Refer to your External Device manual for details.

1 Start up the setting tool.

2 Select base and slot which using module is connected from [Standard settings] tab in offline, and [Communication Module Settings] dialog box is displayed.

3 Select "Cnet" from [Type], and click [OK].

4 Select [Connect] from [Online] menu.

5 Select [Read IO Information] from the [Online] menu.

6 Double click [Cnet] from the [Standard settings] tab, and [Standard Settings-Cnet] dialog box is displayed.

7 Set [Channel 2] setup items as follows, and click [OK].

Setup Item	Setting Value
Type	RS485
Speed	38400
Data Bit	8
Stop Bit	1
Parity Bit	NONE
Modem Type	Null Modem
Station	0
Active mode	XGT server

8 Select [Write Parameter] from the [Online] menu, and [Write Parameter] dialog box is displayed.

9 Select using module, and click [OK].

10 Select [Reset] from the [Online] menu.

4 Setup Items

Set communication settings of the Display with GP-Pro EX or in offline mode of the Display.
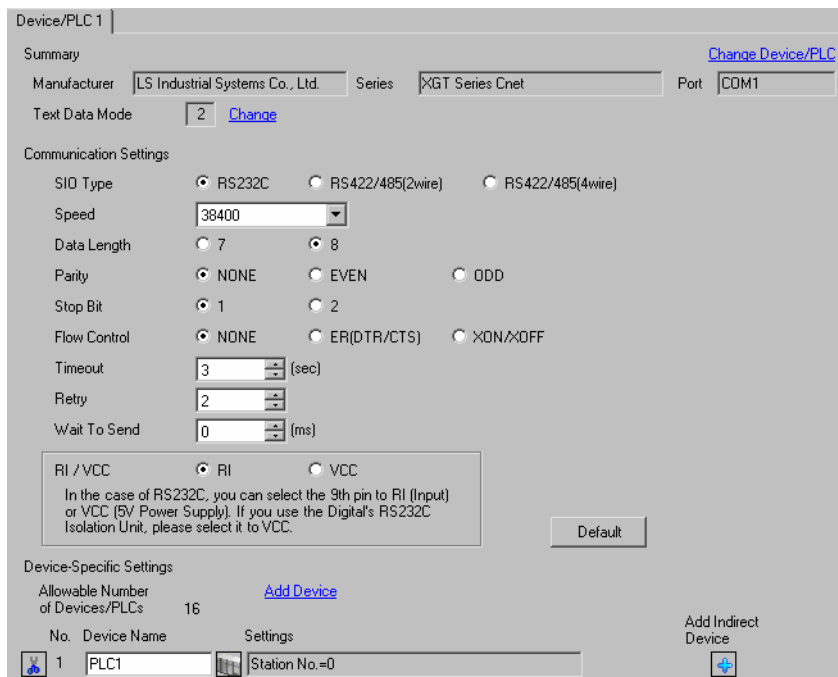
The setting of each parameter must be identical to that of External Device.

)"3 Example of Communication Setting" (page 7)

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]..

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.
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.

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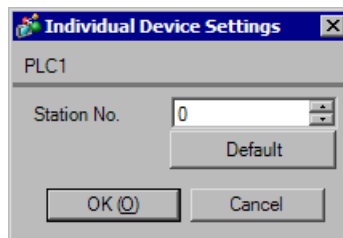| Setup Items	Setup Description
RI/VCC	You can switch RI/VCC of the 9th pin when you select RS232C for SIO type. It is necessary to change RI/5V by changeover switch of IPC when connect with IPC. Please refer to the manual of the IPC for more detail.

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 No.	Use an integer from 0 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 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.

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.

Continues to the next page.

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

■ Device Setting

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

Comm.	Device	Option		

XGT Series Cnet   [COM1]   Page 1/1

Device/PLC Name |PLC1   ▼|

Station No. | 0 | ▼ | ▲ |

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Setup Items	Setup Description
Device/PLC name	Select the External Device to set. Device name is a title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Station No.	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 Equipment Settings]. Touch the
External Device you want to set from the displayed list, and touch [Option].

Comm.	Device	Option		

XGT Series Cnet   [COM1]   Page 1/1

                    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.

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Setup Items	Setup Description
RI/VCC	Switches RI/VCC of the 9th pin. 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 and GP-4*01TM 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

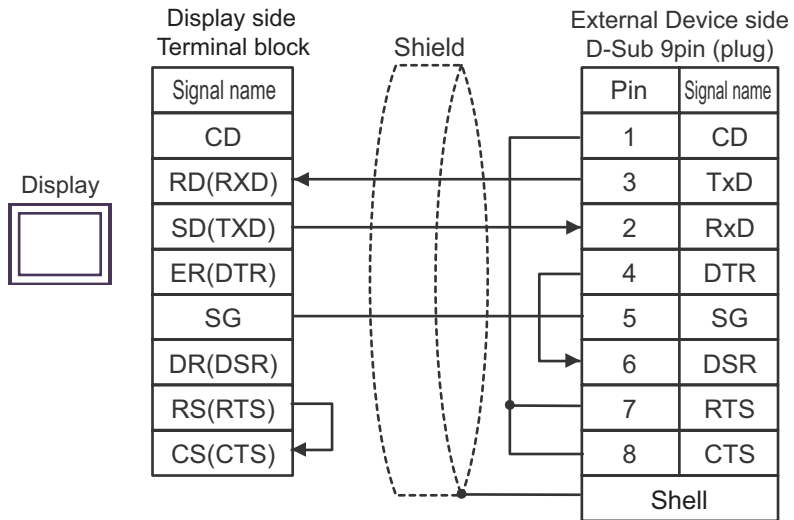| Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000[*1] (COM1) ST (COM1) IPC[*2] PC/AT	1A	User-created cable	Cable length: 15m or less
GP-4105 (COM1)	1B	User-created cable	

*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 4)

1A)

1B)

Display side Terminal block		Shield		External Device side D-Sub 9pin (plug)	
Signal name				Pin	Signal name
CD				1	CD
RD(RXD)				3	TxD
SD(TXD)				2	RxD
ER(DTR)				4	DTR
SG				5	SG
DR(DSR)				6	DSR
RS(RTS)				7	RTS
CS(CTS)				8	CTS
				Shell	
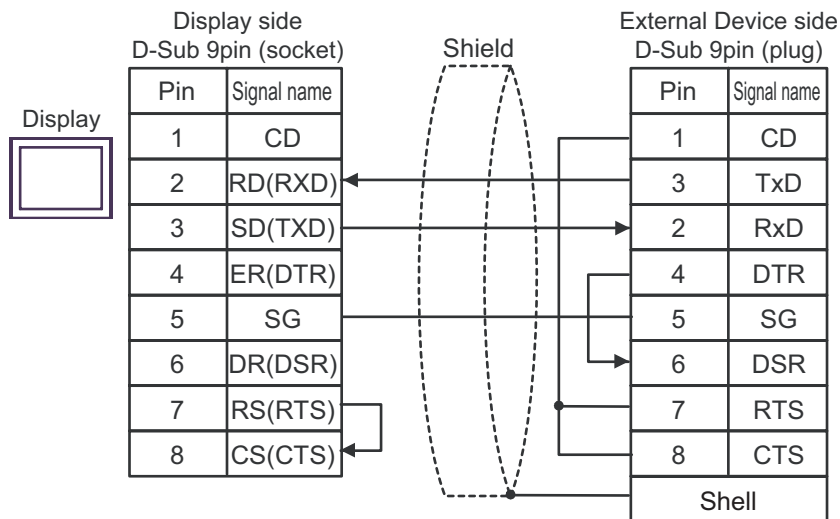
Display

Cable Diagram 2

Display (Connection Port)		Cable	Notes
GP3000[*1] (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) ST[*2] (COM2) 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	Cable length: 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	
	2D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
GP-4106 (COM1)	2E	User-created cable	
GP4000[*5] (COM2) GP-4201T (COM1)	2F	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1[*6] + User-created cable	
	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 4)

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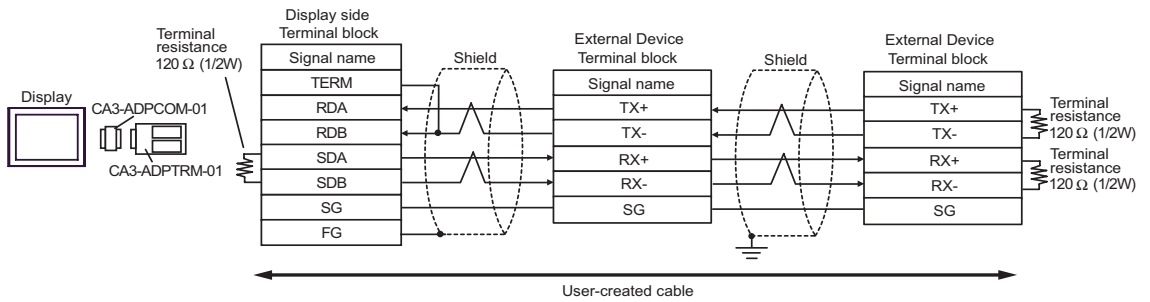
*6   When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 2A.
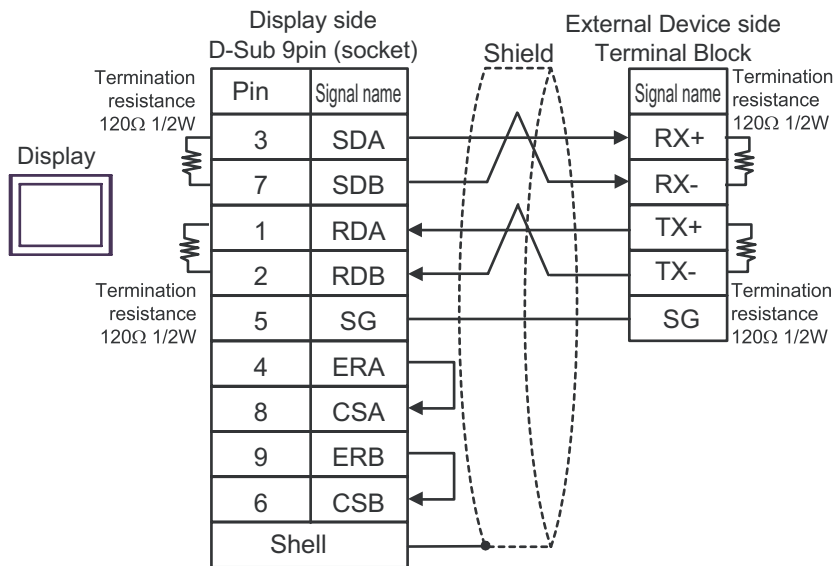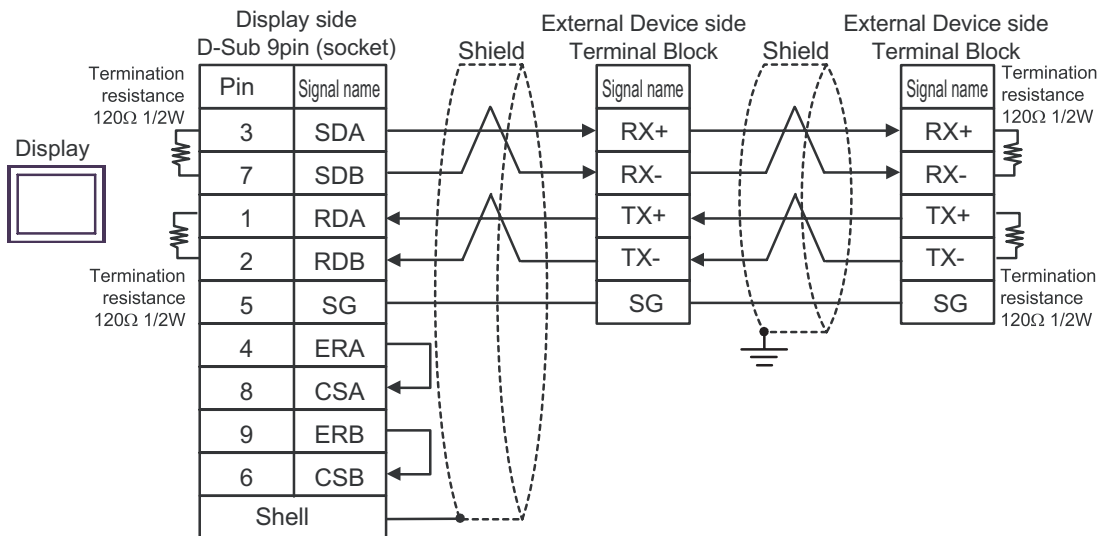
2A)

• 1:1 Connection
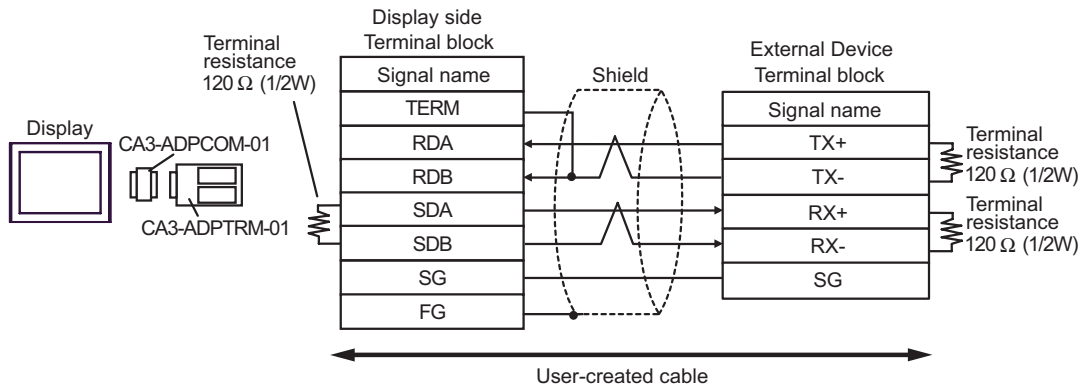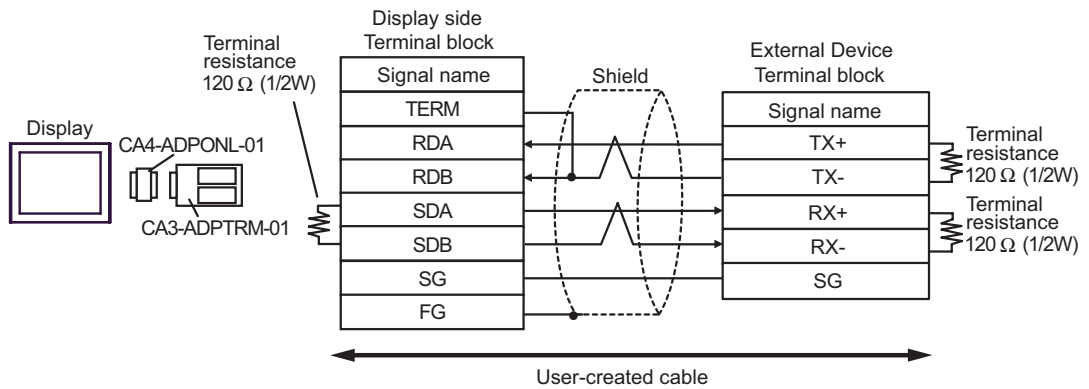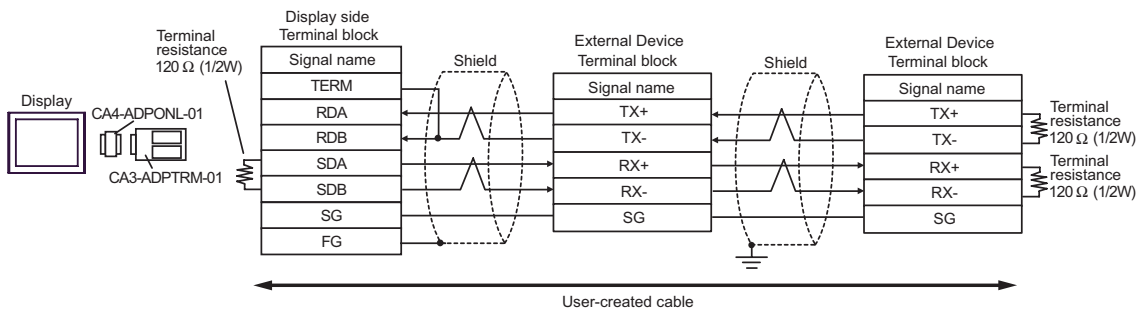

• 1:n Connection

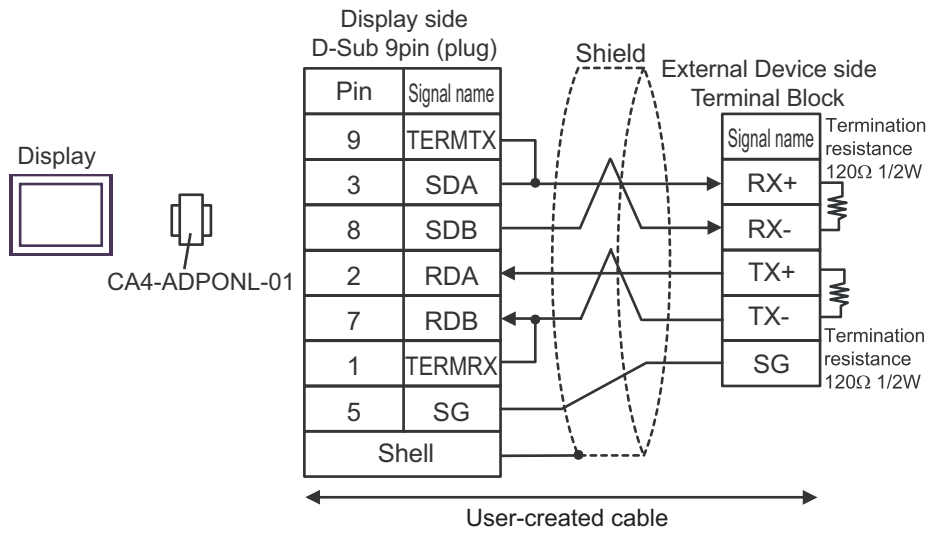2B)

• 1:1 Connection
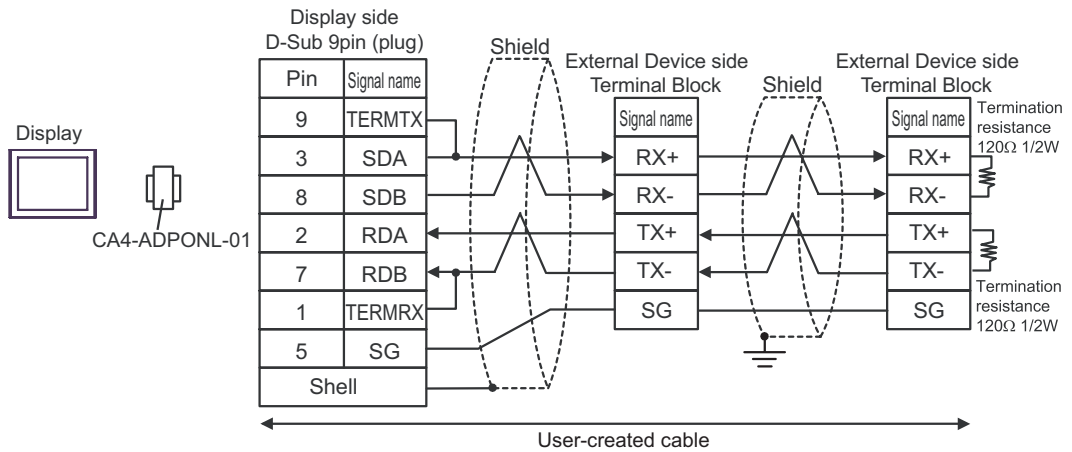

• 1:n Connection
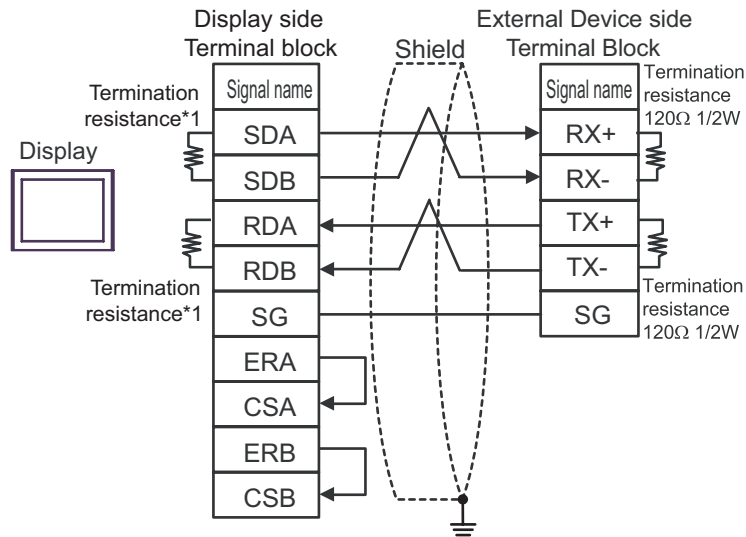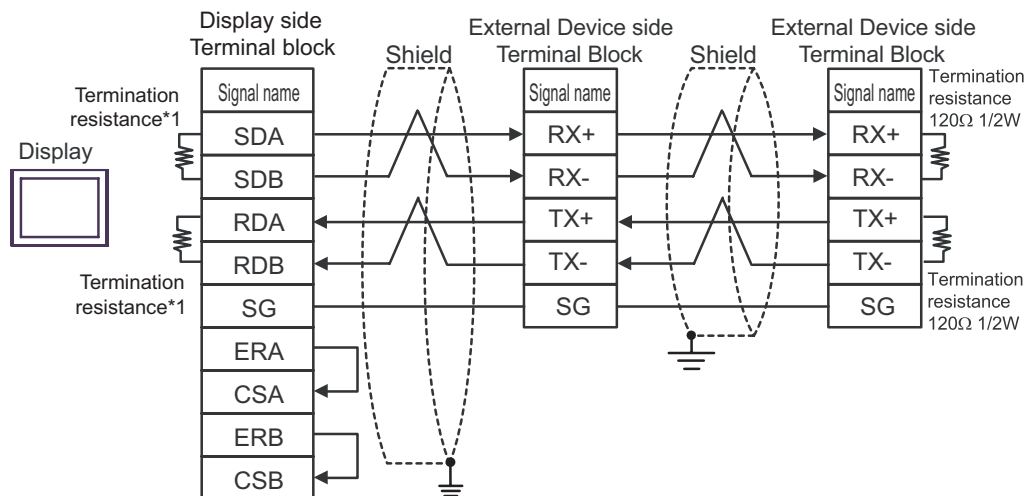
2C)

- 1:1 Connection

• 1:n Connection

2D)

• 1:1 Connection

User-created cable

• 1:n Connection

User-created cable

2E)

• 1:1 Connection

Display side Terminal block / External Device side Terminal Block

Signal name		Signal name
SDA	→	RX+
SDB	→	RX-
RDA	←	TX+
RDB	←	TX-
SG		SG
ERA		
CSA		
ERB		
CSB		

Termination resistance*1

Termination resistance 120Ω 1/2W

Shield

• 1:n Connection

Display side Terminal block — External Device side Terminal Block — External Device side Terminal Block

Signal name		Signal name		Signal name
SDA	→	RX+	→	RX+
SDB	→	RX-	→	RX-
RDA	←	TX+	←	TX+
RDB	←	TX-	←	TX-
SG		SG		SG
ERA				
CSA				
ERB				
CSB				

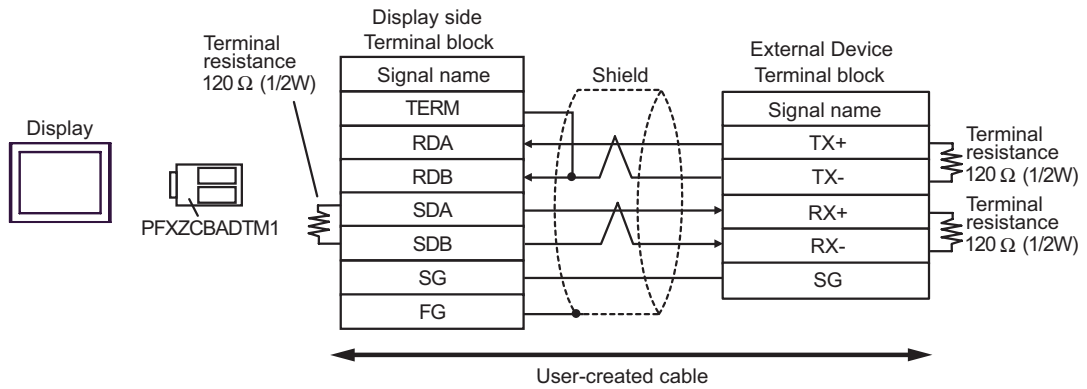Termination resistance*1

Termination resistance 120Ω 1/2W

Shield

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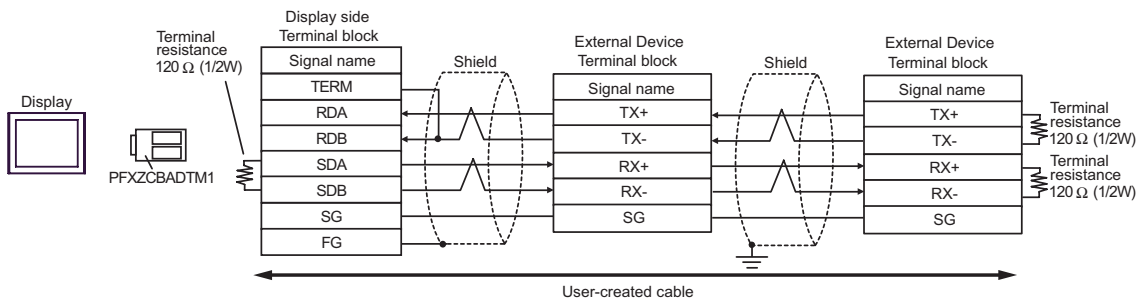
DIP Switch No.	Set Value
1	ON
2	ON
3	ON
4	ON

2F)

• 1:1 Connection

User-created cable

• 1:n Connection

User-created cable
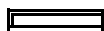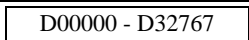
6   Supported Device

Range of supported device address is shown in the table below.

This address can be specified as system data area.

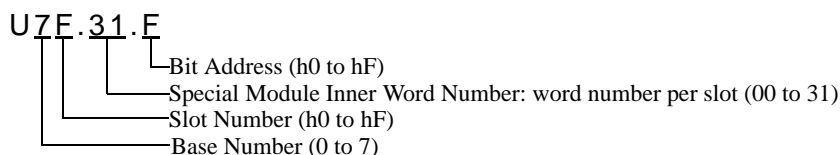| Device	Bit Address	Word Address	32bits	Notes
Input / Output Relay	P00000 - P2047F	P0000 - P2047	⌈L / H⌉	
Auxiliary Relay	M00000 - M2047F	M0000 - M2047		
Keep Relay	K00000 - K2047F	K0000 - K2047		
Link Relay	L000000 - L11263F	L00000 - L11263		
Special Relay	F00000 - F2047F	F0000 - F2047		*1
Timer (Contact)	T0000 - T2047	-		
Counter (Contact)	C0000 - C2047	-		
Timer (Current Value)	-	T0000 - T2047		
Counter (Current Value)	-	C0000 - C2047		
Data Register	-	D00000 - D32767		$\boxed{_{Bit}}\mathbf{F}$
Special Module Register	-	U00.00 - U7F.31		$\boxed{_{Bit}}\mathbf{F}$ *2
Communication Data Register	-	N00000 - N21503		
File Register	-	R00000 - R32767		$\boxed{_{Bit}}\mathbf{F}$
File Register	-	ZR00000 - ZR65535		$\boxed{_{Bit}}\mathbf{F}$

*1   Write disable

*2   The feature of U device is as follows.

U 7 F . 3 1 . F

Bit Address (h0 to hF)
Special Module Inner Word Number: word number per slot (00 to 31)
Slot Number (h0 to hF)
Base Number (0 to 7)

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 (Current Value)	T	0060	Word Address
Counter (Current Value)	C	0061	Word Address
Data Register	D	0000	Word Address
Special Module Register	U	0002	Word Address[*1]
Communication Data Register	N	0064	Word Address
File Register	R	0001	Word Address
File Register	ZR	0003	Word Address

*1　Internally "Address Indirect specification" is supported in case of U device.
　　When it is Uxx.dd, the converted formula is like this:
　　Hex type: ["xx" part] $\times$ h20 + [the hexadecimal value of "dd" part]
　　Dec type: [the decimal value of "xx" part] $\times$ 32 + ["dd" part]
　　(Here, "xx" is also a hexadecimal type, "dd" is also a decimal type.)

　　For example, "01.00" is converted into "0x20 (=32)", "10.00" is converted into "0x200 (=512)",
　　"7F.00" is converted into "0xFE0 (=4064)" and so on.

8   Error Messages

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

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