



ROC Plus SIO Driver

1	System Configuration.....	3
2	External Device Selection	7
3	Communication Settings	8
4	Setup Items	10
5	Cable Diagrams	15
6	Supported Devices	28
7	Error Messages	32

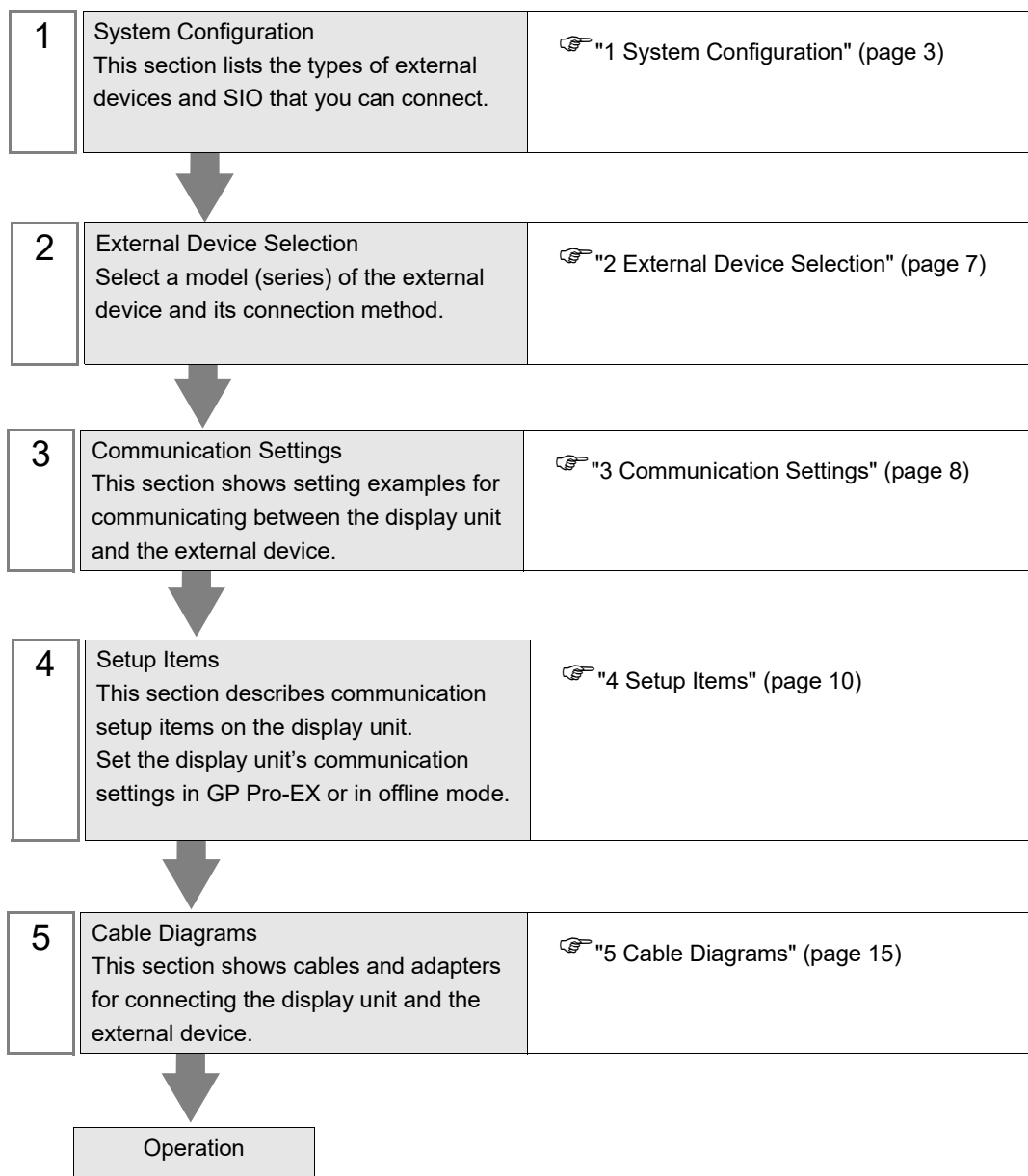
IMPORTANT

- The below Displays are no longer sold nor maintained by Pro-face. To reduce unplanned downtime due to aged hardware and to maximize your cyber security environment we recommend replacing your devices with a new, successor model. For details, please visit our homepage for "Recommended Substitution".
Discontinued from GP-Pro EX 5.00 onwards: GP3000 Series, LT3000 Series, ST3000 Series, GP-4100 Series (Monochrome model), PL Series, PS3000/4000 Series, PE4000 Series.
- For details on the Displays supported by the driver, please check the "Connectable Devices" on our website.
<http://www.pro-face.com/trans/en/manual/1064.html>

Introduction

This manual describes how to connect the display unit and the external device (target controller).

In this manual, the connection procedure is described in the sections identified below.



1 System Configuration

The following table lists system configurations for connecting Emerson Process Management external devices to display units.

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
ROC	ROC300	LOI Port, EIA-232 (optional expansion module)	RS-232C	"Setting Example 1" (page 8)	"Cable Diagram 1" (page 15)
		EIA-485 / RS485 (optional expansion module)	RS-422/485 (2-wire)	"Setting Example 1" (page 8)	"Cable Diagram 4" (page 21)
	ROC800 (809, 827)	LOI RS-232D Port	RS-232C	"Setting Example 1" (page 8)	"Cable Diagram 2" (page 17)
		EIA-485 / RS485 (optional expansion module)	RS-422/485 (2-wire)	"Setting Example 1" (page 8)	"Cable Diagram 4" (page 21)
ROCPAC	ROCPAC 306 ROCPAC 312 ROCPAC 364	LOI Port, EIA-232 (optional expansion module)	RS-232C	"Setting Example 1" (page 8)	"Cable Diagram 1" (page 15)
		EIA-485 / RS485 (optional expansion module)	RS-422/485 (2-wire)	"Setting Example 1" (page 8)	"Cable Diagram 4" (page 21)
FloBoss	FB103 FB107	LOI Port, EIA-232	RS-232C	"Setting Example 1" (page 8)	"Cable Diagram 1" (page 15)
		EIA-485 / RS485	RS-422/485 (2-wire)	"Setting Example 1" (page 8)	"Cable Diagram 4" (page 21)
	FB407 FB503 FB504	LOI Operator Interface Cable	RS-232C	"Setting Example 1" (page 8)	"Cable Diagram 3" (page 19)
		EIA-485 / RS485 (optional expansion module)	RS-422/485 (2-wire)	"Setting Example 1" (page 8)	"Cable Diagram 4" (page 21)

■ 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}
PE-4000B Atom N270	COM1, COM2	-	-
PE-4000B Atom N2600	COM1, COM2	COM3 ^{*4} , COM4 ^{*4} , COM5 ^{*4} , COM6 ^{*4}	COM3 ^{*4} , COM4 ^{*4} , COM5 ^{*4} , COM6 ^{*4}
PS5000 (Slim Panel Type Core i3 Model) ^{*5 *6}	COM1, COM2 ^{*4}	COM2 ^{*4}	COM2 ^{*4}
PS5000 (Slim Panel Type Atom Model) ^{*5 *6}	COM1, COM2 ^{*7}	COM2 ^{*7}	COM2 ^{*7}
PS5000 (Enclosed Panel Type) ^{*8}	COM1	-	-
PS5000 (Modular Type PFXPU/PFXPP) ^{*5 *6} PS5000 (Modular Type PFXPL2B5-6)	COM1 ^{*7}	COM1 ^{*7}	COM1 ^{*7}
PS5000 (Modular Type PFXPL2B1-4)	COM1, COM2 ^{*7}	COM2 ^{*7}	COM2 ^{*7}
PS6000 (Advanced Box) PS6000 (Standard Box)	COM1 ^{*9}	*10	*10
PS6000 (Basic Box)	COM1 ^{*9}	COM1 ^{*9}	COM1 ^{*9}

*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.
- *4 Set up the SIO type with the BIOS. Please refer to the IPC manual for details of BIOS.
- *5 When setting up communication between an External Device and the RS-232C/422/485 interface module, use the IPC (RS-232C) or PS5000 (RS-422/485) cable diagrams. However, when using PFXZPBMPR42P2 in a RS-422/485 (4-wire) configuration with no flow control, connect 7.RTS+ and 8.CTS+, and connect 6.RTS- and 9.CTS-.
When using RS-422/485 communication with External Devices, you may need to reduce the transmission speed and increase the TX Wait time.
- *6 To use RS-422/485 communication on the RS-232C/422/485 interface module, the DIP Switch setting is required. Please refer to "Knowledge Base" (FAQs) on the support site. (<http://www.pro-face.com/trans/en/manual/1001.html>)

Settings	FAQ ID
PFXZPBMPR42P2, RS422/485 change method	FA263858
PFXZPBMPR42P2 termination resistor setting	FA263974
PFXZPBMPR44P2, RS422/485 change method	FA264087
PFXZPBMPR44P2 termination resistor setting	FA264088

- *7 Set up the SIO type with the DIP Switch. Please refer to the IPC manual for details of DIP Switch. The BOX Atom has not a switch to set the RS-232C, RS-422/485 mode. Use the BIOS for the setting.
- *8 For the connection with the External Device, on the user-created cable read as if the connector on the Display-side is a M12 A-coding 8 pin socket. The pin assignment is the same as described in the cable diagram. For the M12 A-coding connector, use PFXZPSCNM122.
- *9 In addition to COM1, you can also use the COM port on the optional interface.
- *10 Install the optional interface in the expansion slot.

DIP Switch settings (PL3000 / PS3000 Series)

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.

RS-422/485 (4 wire)

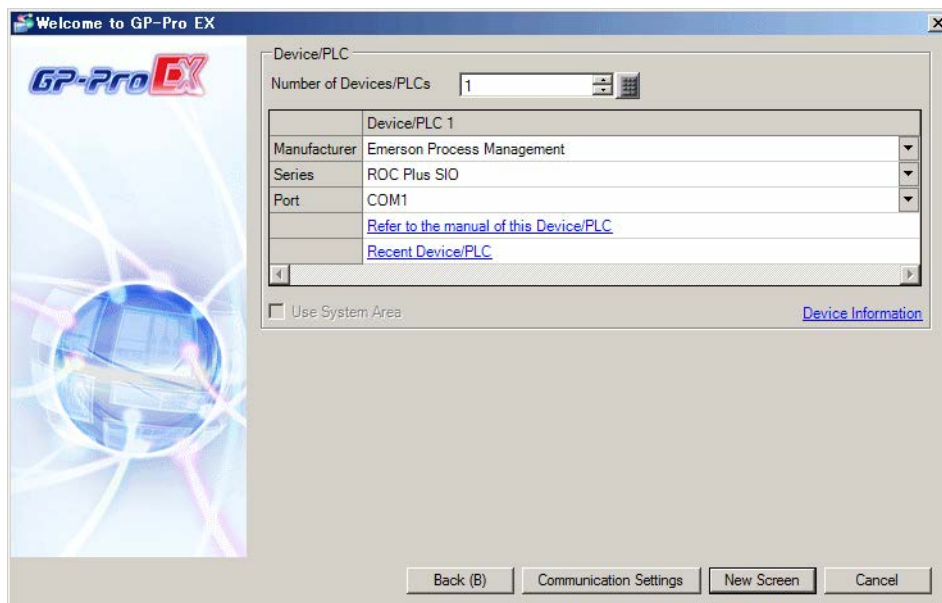
DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA (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	

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 External Device Selection

Select the External Device to be connected to the display unit.



Setup Items	Setup Description
Number of Devices/PLCs	Select the number of external devices to be connected.
Manufacturer	Select "Emerson Process Management", the manufacturer of the external device to be connected.
Series	Select the series of the external device to be connected and connection method. Select "ROC Plus SIO". Check to make sure the external device to which you are connecting is supported by the driver. ☞ "1 System Configuration" (page 3)
Port	Select the display unit port to be connected to the external device.
Use System Area	Not available in this driver.

3 Communication Settings

This section provides examples of communication settings recommended by Pro-face for the display unit and the external device.

3.1 Setting Example 1

■ GP Pro-EX Settings

◆ 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

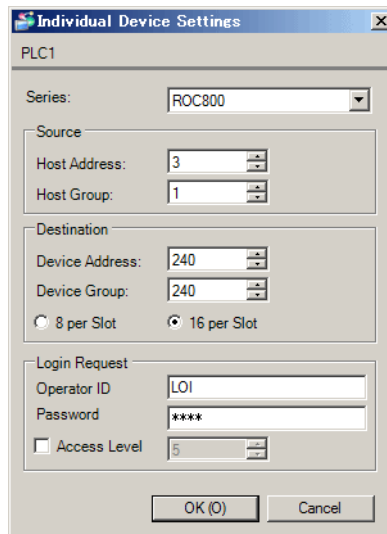
Allowable Number of Devices/PLCs [Add Device](#)

No.	Device Name	Settings	Add Indirect Device
1	PLC1	Series:=ROC800,Host Address:=3,Host Group:=1,Bit P	

◆ Device Settings

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 dialog box is titled "Individual Device Settings" and contains the following fields and controls:

- Series:** A dropdown menu showing "ROC800".
- Source:**
 - Host Address:** A numeric input field with the value "3".
 - Host Group:** A numeric input field with the value "1".
- Destination:**
 - Device Address:** A numeric input field with the value "240".
 - Device Group:** A numeric input field with the value "240".
 - Slot Selection:** Two radio buttons labeled "8 per Slot" and "16 per Slot". The "16 per Slot" option is selected.
- Login Request:**
 - Operator ID:** A text input field containing "LOI".
 - Password:** A text input field containing "****".
 - Access Level:** A checkbox labeled "Access Level" is unchecked, followed by a numeric input field containing "5".
- Buttons:** "OK (O)" and "Cancel" buttons at the bottom right.

4 Setup Items

Set up the display unit's communication settings in GP Pro-EX or in the display unit's offline mode.
The setting of each parameter must match that of the external device.

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.

[Default](#)

Device-Specific Settings

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


No.	Device Name	Settings
1	PLC1	Series:=ROC800, Host Address:=3, Host Group:=1, Bit P

[Add Indirect Device](#)

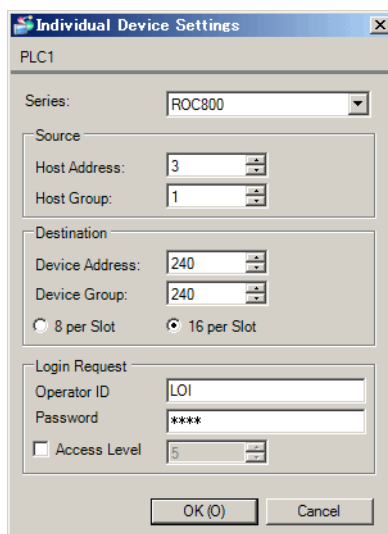
Setup Items	Setup Description
SIO Type	<p>Select the SIO type to communicate with the external device.</p> <p>IMPORTANT</p> <p>In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the display unit.</p> <p>If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed.</p> <p>Refer to your display unit manual for details on the serial interface specifications.</p>
Speed	Select communication speed (Bits per second) between the external device and the display unit.
Data Length	Select character data length.
Parity	Select how to check parity.
Stop Bit	Select number of stop bits.
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 how many seconds the display unit waits for a response from the external device.

Setup Items	Setup Description
Retry	If there is no response from the external device, use an integer from 0 to 255 to enter how many times the display unit retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter the amount of time in milliseconds the display unit waits after receiving a transmission before it sends again.
RI/VCC	For RS-232C, select RI or VCC for pin 9.

■ Device Settings

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
Series		Select the series of the external device.
Source	Host Address	Use an integer from 1 to 255 to enter the address of the host (display unit).
	Host Group	Use an integer from 0 to 255 to enter the address of the host (display unit).
Destination	Device Address	Use an integer from 1 to 255 to enter the address of the destination device.
	Device Group	Use an integer from 0 to 255 to enter the group of the destination device.
	Bits per Slot	Select to set 8 bits per slot on the device.
		Select to set 16 bits per slot on the device.
Login Request*1	Operator ID	Use 3 alphanumeric characters to identify the current operator. The ID is case-sensitive, and can use ASCII characters only.
	Password	Use an integer from 0000 to 9999 for the operator password.
	Access Level	Select the check box to define the security access level for the operator with an integer from 0 to 5.

*1 Login Request settings (Operator ID, Password, and Access Level) must match the settings on the device/PLC. If the settings do not match, the PLC will return error 128. For a list of errors, see 7 Error Messages.

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 Manual "Offline Mode"

■ 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		
ROC Plus SIO			[COM1]	Page 1/1
SIO Type	RS232C			
Speed	19200			
Data Length	<input type="radio"/> 7 <input checked="" type="radio"/> 8			
Parity	<input type="radio"/> NONE <input checked="" type="radio"/> EVEN <input type="radio"/> ODD			
Stop Bit	<input checked="" type="radio"/> 1 <input type="radio"/> 2			
Flow Control	NONE			
Timeout(s)	3			
Retry	2			
Wait To Send(ms)	0			
Exit			Back	2016/04/25 10:39:46

Setup Items	Setup Description
SIO Type	Select the SIO type to communicate with the external device. IMPORTANT In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the display unit. If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed. Refer to your display unit manual for details on the serial interface specifications.
Speed	Select communication speed (Bits per second) between the external device and the display unit.
Data Length	Select character data length.
Parity	Select how to check parity.
Stop Bit	Select number of stop bits.
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 how many seconds the display unit waits for a response from the external device.

Setup Items	Setup Description
Retry	If there is no response from the external device, use an integer from 0 to 255 to enter how many times the display unit retransmits the command.
Wait To Send	Use an integer from 0 to 255 to enter the amount of time in milliseconds the display unit waits after receiving a transmission before it sends again.

■ Device Settings

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		
ROC Plus SIO			[COM1]	Page 1/1
Device/PLC Name [PLC1] ▼				
Host Address	3 ▼ ▲			
Host Group	1 ▼ ▲			
Device Address	240 ▼ ▲			
Device Group	240 ▼ ▲			
Operator ID	L01			
Use Access Level	<input checked="" type="radio"/> No <input type="radio"/> Yes			
Access Level	5 ▼ ▲			
Exit		Back		2016/04/25 10:39:50

Setup Items	Setup Description
Device/PLC Name	Select the external device/PLC.
Host Address	Use an integer from 1 to 255 to enter the address of the host (display unit).
Host Group	Use an integer from 0 to 255 to enter the address of the host (display unit).
Device Address	Use an integer from 1 to 255 to enter the address of the destination device.
Device Group	Use an integer from 0 to 255 to enter the group of the destination device.
Operator ID	Use 3 alphanumeric characters to identify the current operator. The ID is case-sensitive, and can use ASCII characters only.
Use Access Level	Set Use Access Level to Yes to define the security access level for the operator with an integer from 0 to 5.

■ Option Settings

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

Comm.	Device	Option		
ROC Plus SIO			[COM1]	Page 1/1
<p>RI / VCC <input checked="" type="radio"/> RI <input type="radio"/> VCC</p> <p>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.</p>				
Exit		Back		2016/04/25 10:39:53

Setup Items	Setup Description
RI/VCC	Select RI or VCC setting for pin 9.

5 Cable Diagrams

The following cable diagrams may be different from cable diagrams recommended by Emerson Process Management. Please be assured there is no operational problem in applying the cable diagrams shown in this manual.

- The SG and FG are connected inside the display unit. When connecting the external device to the SG, design your system to avoid short-circuit loops.
- Connect an isolation unit if the communication is not stable due to noise or other factors.


Cable Diagram 1

Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) SP5000 ^{*2} (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC ^{*3} PC/AT	1A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	1B	User-created cable	The cable length must be 15m or less.

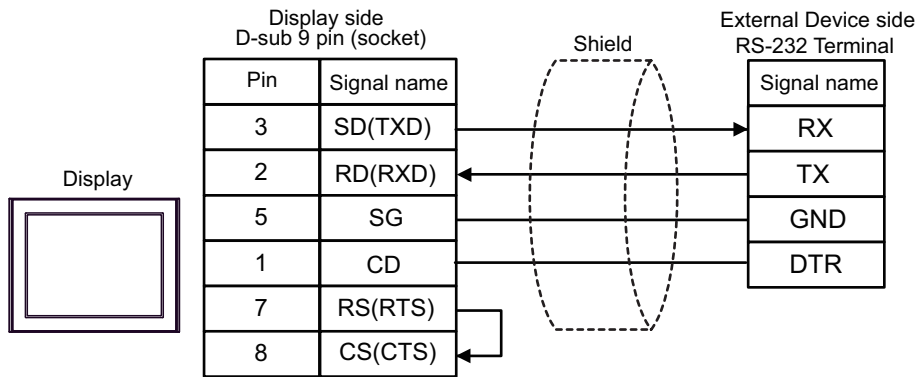
*1 All GP4000 models except GP-4100 Series and GP-4203T

*2 Except SP-5B00

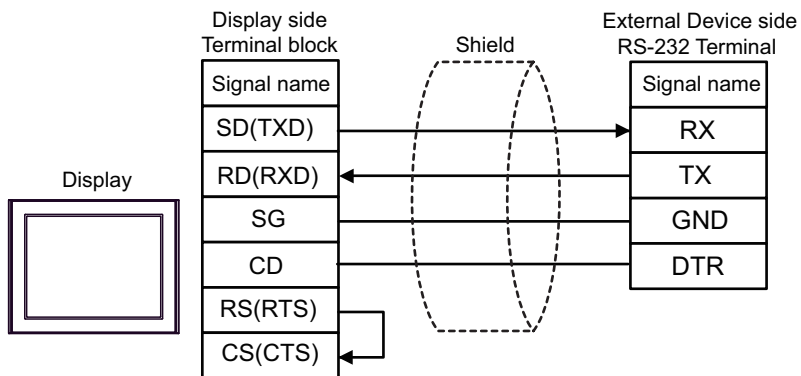
*3 Only the COM port which can communicate by RS-232C can be used.

 "■ IPC COM Port" (page 4)

1A)



1B)




Cable Diagram 2

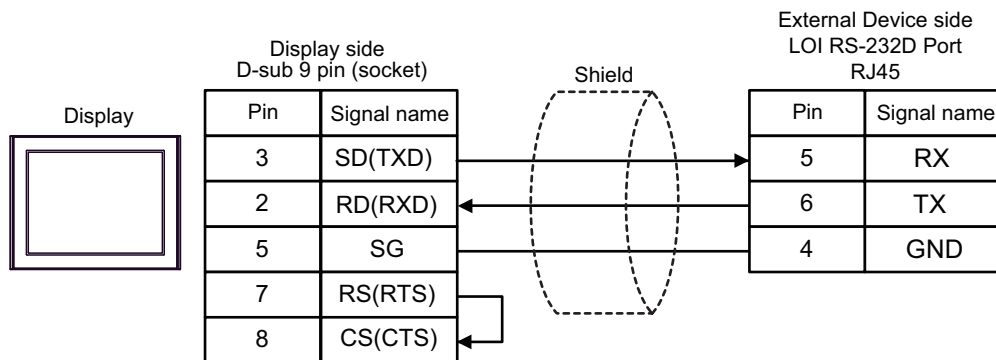
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000 ^{*1} (COM1) SP5000 ^{*2} (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC ^{*3} PC/AT	2A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	2B	User-created cable	The cable length must be 15m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	2C	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

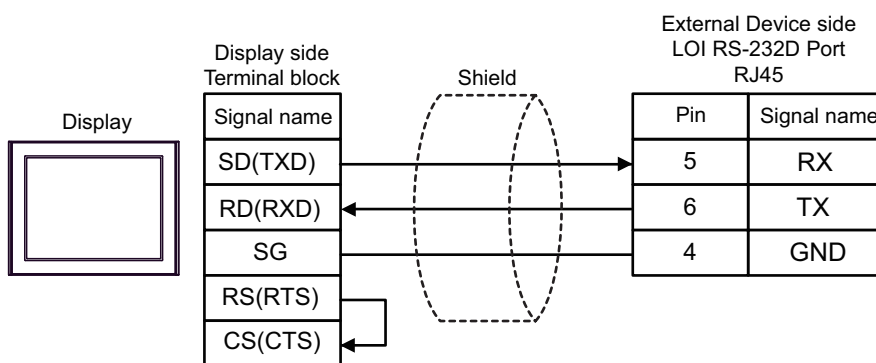
*2 Except SP-5B00

*3 Only the COM port which can communicate by RS-232C can be used.
 "■ IPC COM Port" (page 4)

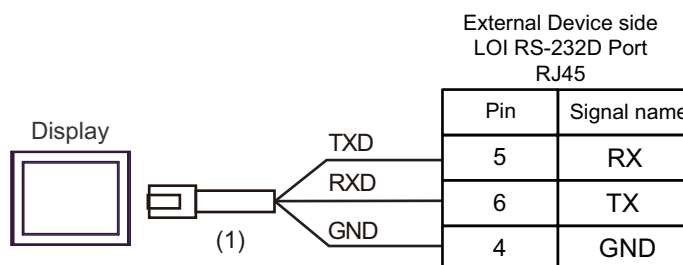
2A)



2B)



2C)




Number	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCB RJ21	

Cable Diagram 3

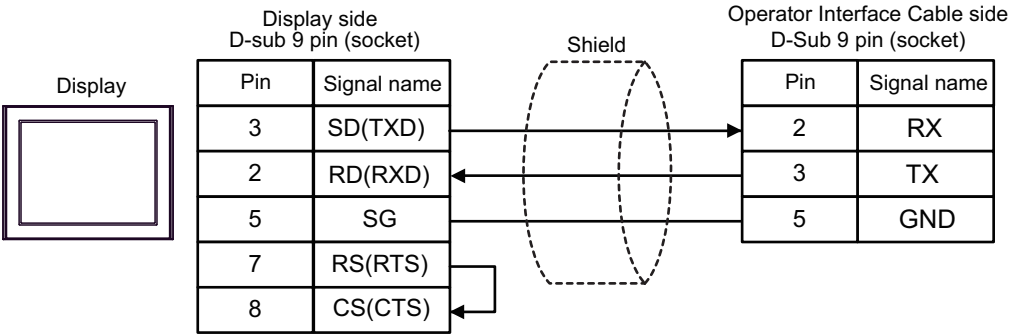
Display (Connection Port)	Cable		Notes
GP3000 (COM1) GP4000* ¹ (COM1) SP5000* ² (COM1/2) SP-5B00 (COM1) ST3000 (COM1) ST6000 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 (COM1) LT3000 (COM1) IPC* ³ PC/AT	3A	User-created cable	The cable length must be 15m or less.
GP-4105 (COM1) GP-4115T (COM1) GP-4115T3 (COM1)	3B	User-created cable	The cable length must be 15m or less.
LT-4*01TM (COM1) LT-Rear Module (COM1)	3C	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

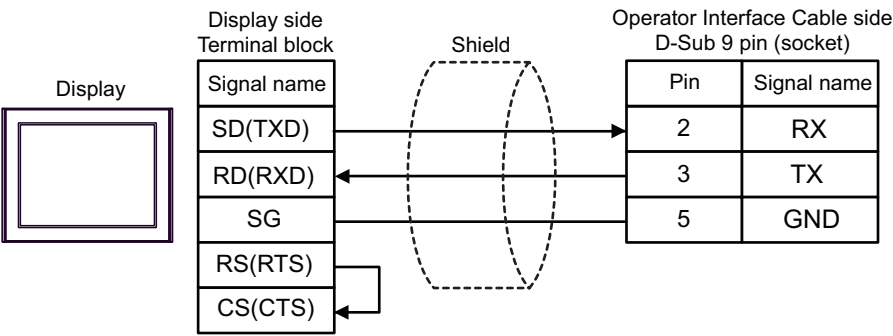
*2 Except SP-5B00

*3 Only the COM port which can communicate by RS-232C can be used.
 "■ IPC COM Port" (page 4)

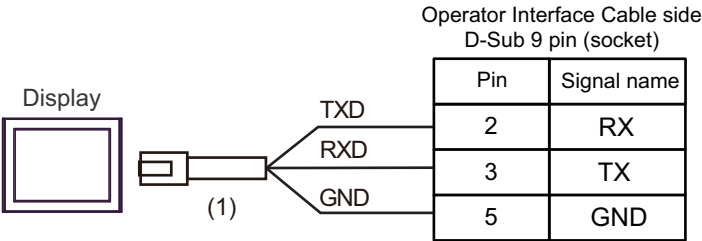
3A)



3B)



3C)



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

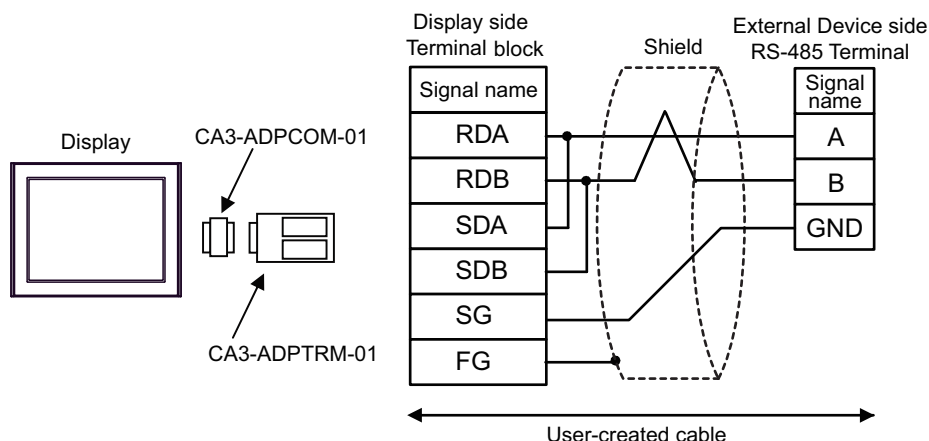
Cable Diagram 4

Display (Connection Port)	Cable		Notes
GP3000 ^{*1} (COM1) AGP-3302B (COM2) GP-4*01TM (COM1) GP-Rear Module (COM1) ST3000 ^{*2} (COM2) LT3000 (COM1)	4A	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 1200m or less.
	4B	User-created cable	
GP3000 ^{*3} (COM2)	4C	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 1200m or less.
	4D	Online adapter by Pro-face CA4-ADPONL-01 + User-created cable	
IPC ^{*4}	4E	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 1200m or less.
	4F	User-created cable	
GP-4106 (COM1) GP-4116T (COM1)	4G	User-created cable	The cable length must be 1200m or less.
GP-4107 (COM1) GP-4*03T ^{*5} (COM2) GP-4203T (COM1)	4H	User-created cable	The cable length must be 1200m or less.
GP4000 ^{*6} (COM2) GP-4201T (COM1) SP5000 ^{*7} (COM1/2) SP-5B00 (COM2) ST6000 ^{*8} (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 ^{*9} (COM2) PS6000 (Basic Box) (COM1/2)	4I	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 ^{*10} + User-created cable	The cable length must be 1200m or less.
	4B	User-created cable	
LT-4*01TM (COM1) LT-Rear Module (COM1)	4J	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBJR81	The cable length must be 200m or less.
PE-4000B ^{*11} PS5000 ^{*11} PS6000 (Optional Interface) ^{*11}	4K	User-created cable	The cable length must be 1200m or less.

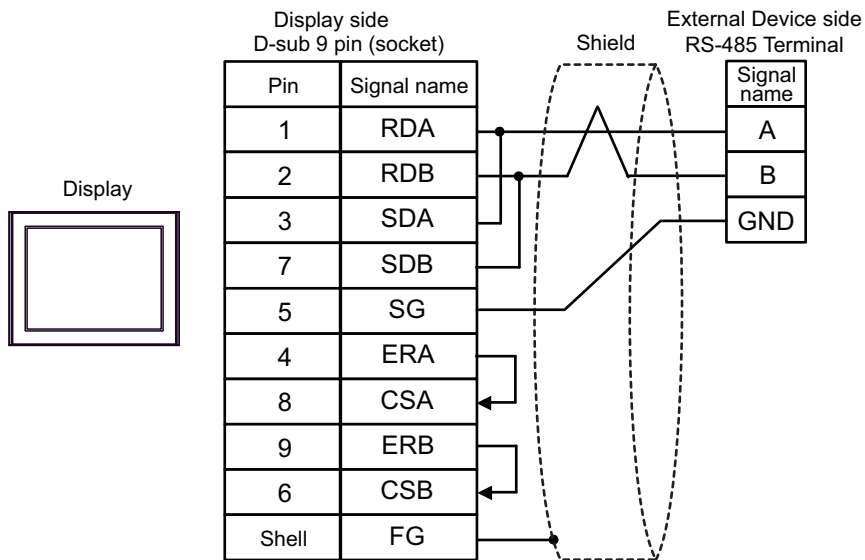
*1 All GP3000 models except AGP-3302B

- *2 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. (Except PE-4000B, PS5000, and PS6000)
 ☞ "■ IPC COM Port" (page 4)
- *5 Except GP-4203T
- *6 All GP4000 models except GP-4100 series, GP-4*01TM, GP-Rear Module, GP-4201T and GP-4*03T
- *7 Except SP-5B00
- *8 Except ST-6200
- *9 Due to the specification of the COM port, flow control is not possible, so omit the wiring of the control pins on the Display side of the cable diagram.
- *10 When using a Terminal Block Conversion Adapter (CA3-ADPTRM-01) instead of the RS-422 Terminal Block Conversion Adapter, refer to Cable Diagram 4A.
- *11 Only the COM port which can communicate by RS-422/485 (2 wire) can be used.
 ☞ "■ IPC COM Port" (page 4)

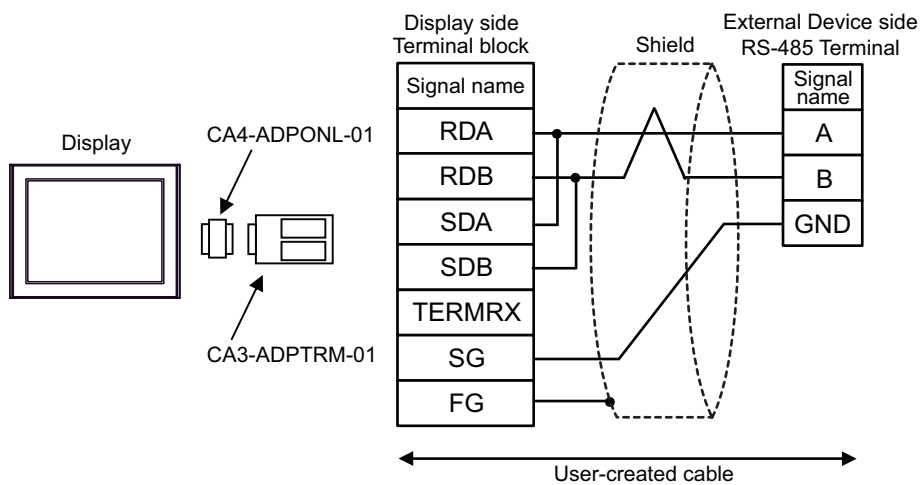
4A)



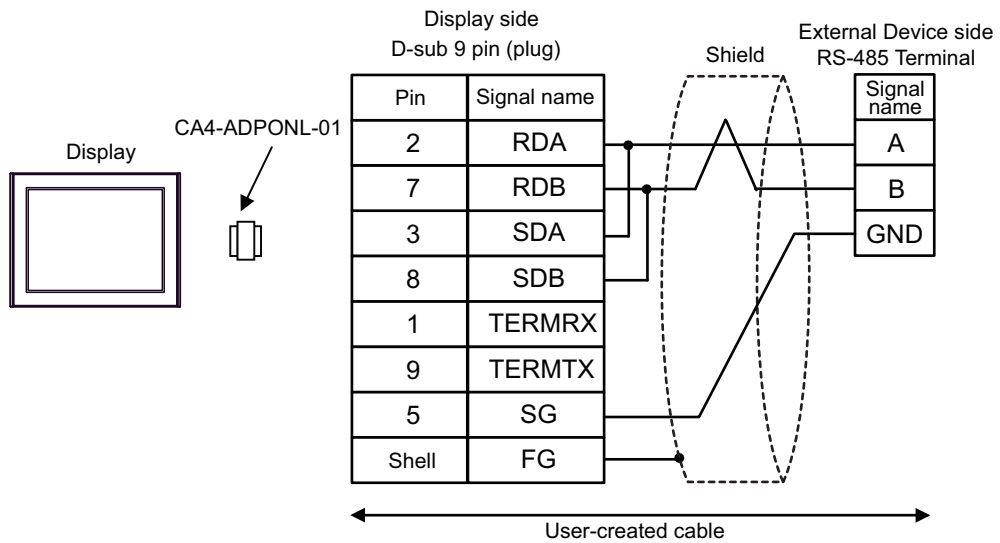
4B)



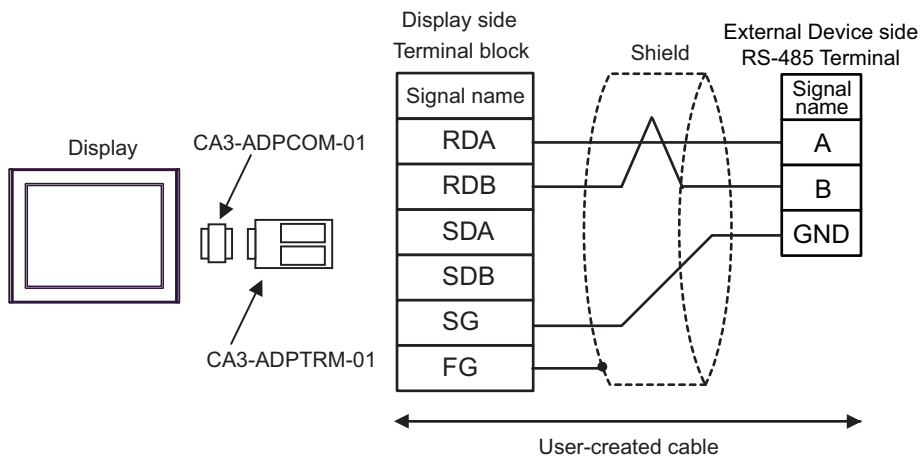
4C)



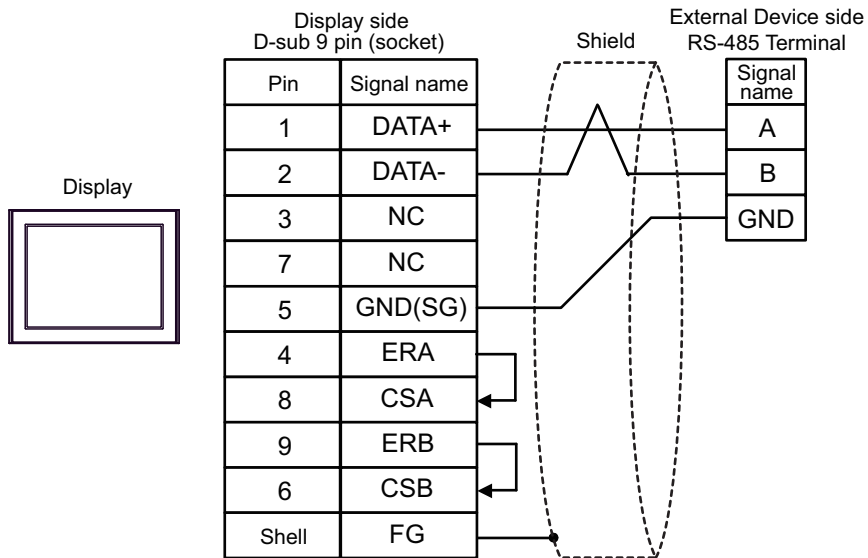
4D)



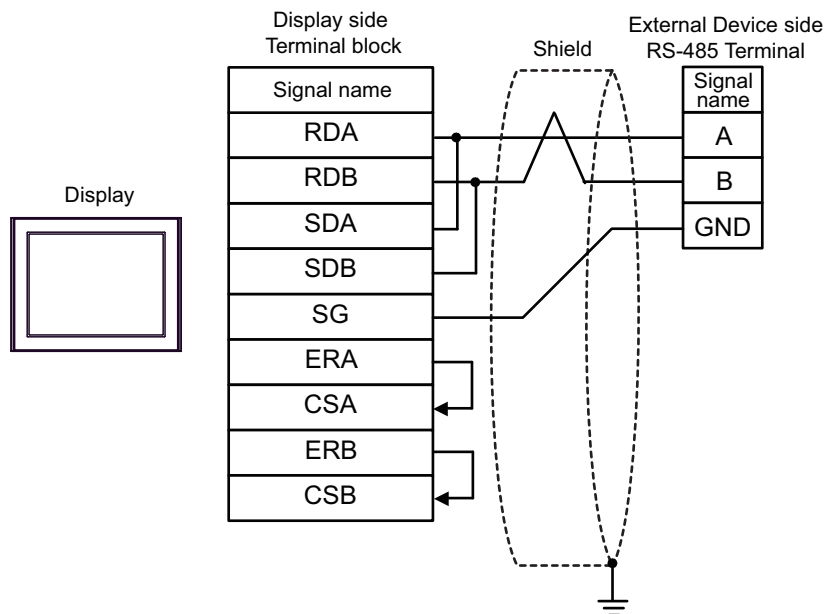
4E)



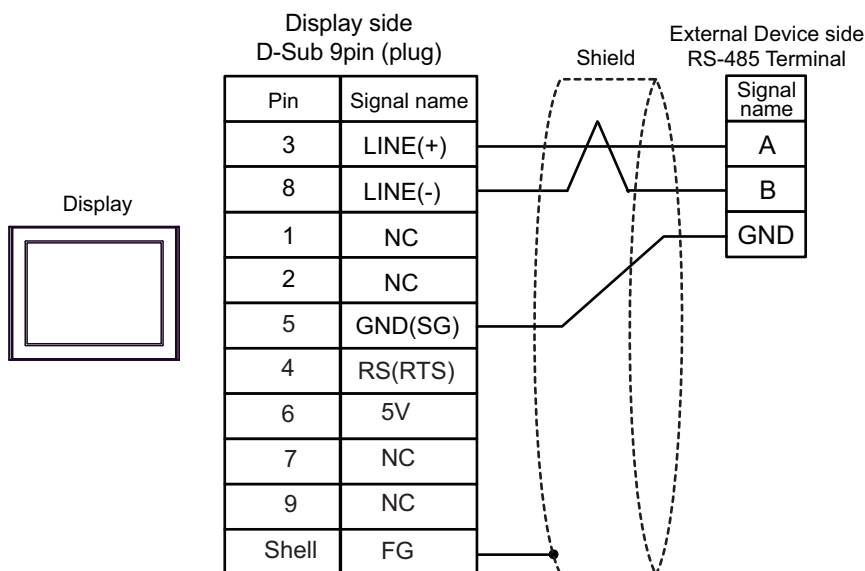
4F)



4G)



4H)



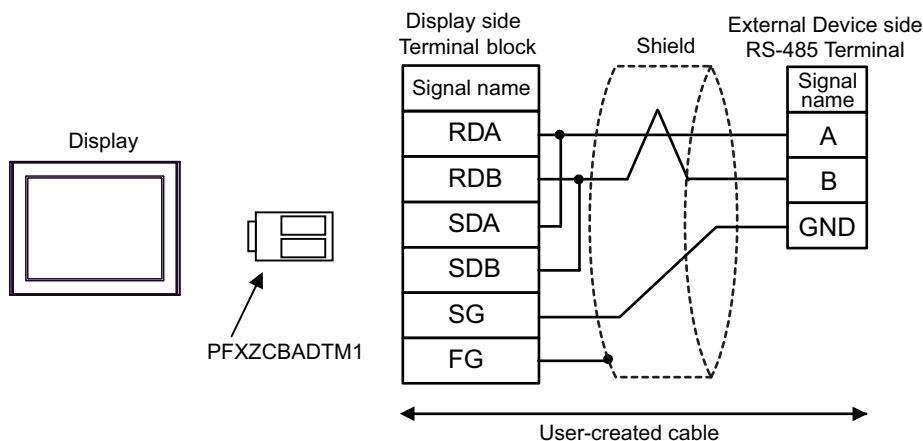
IMPORTANT

- 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.

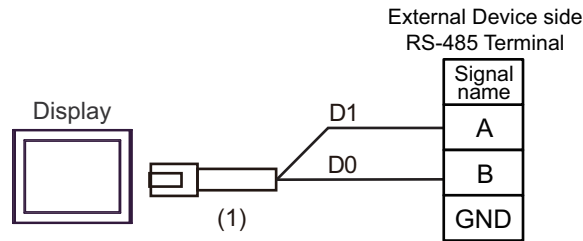
NOTE

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

4I)

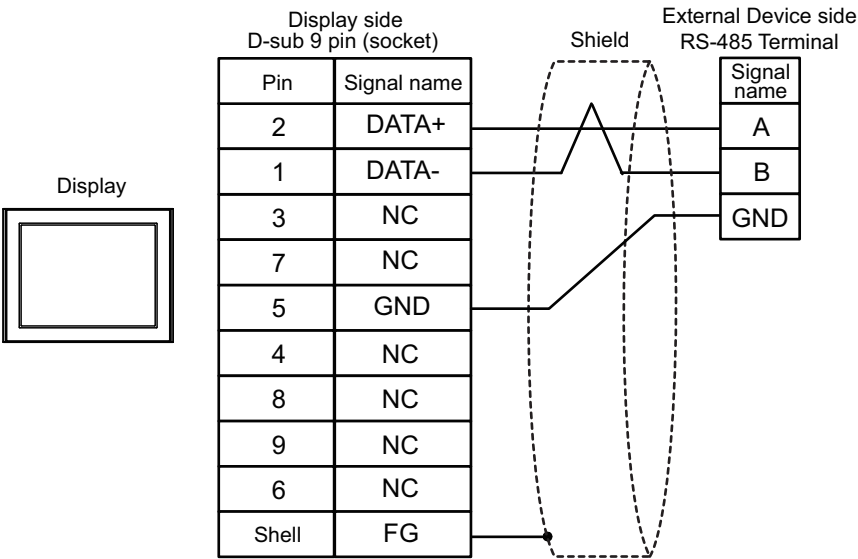


4J)



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

4K)



6 Supported Devices

The entire range of Type, Logical, Parameter (TLP) settings are supported for all Emerson Process Management models/series listed in this manual.

In the following example TLP address, [PLC1]92,0,3:UINT8 the address components are described in the table below.

TLP Component		Description
[PLC1]	=	External device
92	=	Point Type value for 92 Logon Parameters (LOGON)
0	=	Logical (location) value for 1
3	=	Parameter value for keypad Security Level - Write Enabled
UINT8	=	Data type

Details on each TLP can be found in the in the ROC/FloBoss user manuals and the ROC Plus Protocol Reference from Emerson Process Management.

Custom TLPs are also supported for point types and parameters outside the standard set.


NOTE

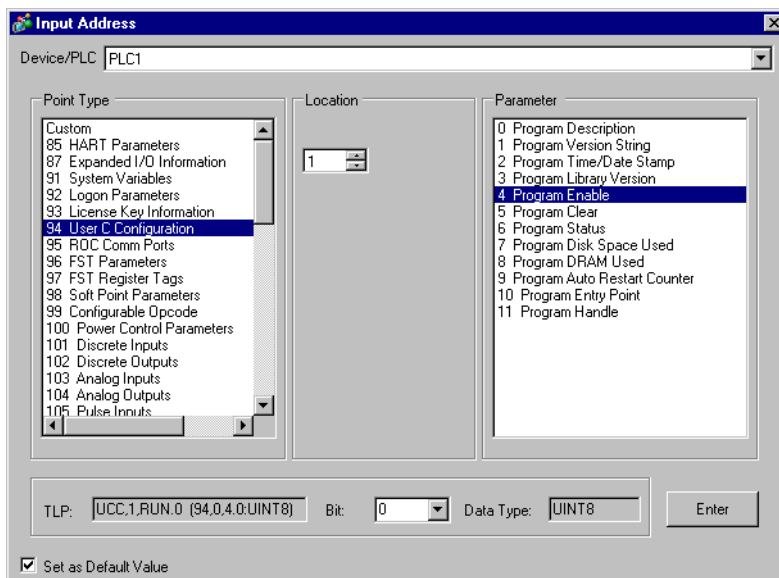
- If specify the address within the address range in the Text Display of the Data Display, it may display an error. However, when the address is within the address range, send the address to the Display and can be used.
- The Summary of alarm does not operate normally.

6.1 Input Address Settings

NOTE

- The ROC Plus driver does not support the GP-Pro EX indirect addressing feature.

For easier entry of the device address, click the  icon beside the Address field. The following dialog appears.



The **Input Address** dialog box is shown. It has a title bar with a close button. Below the title bar is a dropdown menu for **Device/PLC** with **PLC1** selected. The main area is divided into three sections: **Point Type**, **Location**, and **Parameter**.

- Point Type**: A list box containing the following items: Custom, 85 HART Parameters, 87 Expanded I/O Information, 91 System Variables, 92 Logon Parameters, 93 License Key Information, **94 User Configuration** (highlighted), 95 ROC Comm Ports, 96 FST Parameters, 97 FST Register Tags, 98 Soft Point Parameters, 99 Configurable Opcode, 100 Power Control Parameters, 101 Discrete Inputs, 102 Discrete Outputs, 103 Analog Inputs, 104 Analog Outputs, 105 Pulse Inputs.
- Location**: A numeric input field with the value **1**.
- Parameter**: A list box containing the following items: 0 Program Description, 1 Program Version String, 2 Program Time/Date Stamp, 3 Program Library Version, **4 Program Enable** (highlighted), 5 Program Clear, 6 Program Status, 7 Program Disk Space Used, 8 Program DRAM Used, 9 Program Auto Restart Counter, 10 Program Entry Point, 11 Program Handle.

At the bottom, there are three fields: **TLP:** `UCC.1.RUN.0 (94.0.4.0:UINT8)`, **Bit:** **0**, and **Data Type:** `UINT8`. There is an **Enter** button to the right of these fields. At the very bottom, there is a checkbox labeled **Set as Default Value** which is checked.

Setup Items		Setup Description
Device/PLC		Select the external device with the desired TLP.
Point Type		Select a point type.
Location	Slot	Use an integer from 0 to 255 to enter a value for a point type location. For physical point types, enter an integer from 0 to 255 as the slot number for this point type.
	Channel	For physical point types, enter an integer from 0 to 255 as the channel number for this slot.
Parameter		Select a parameter for the point type. Parameters vary depending on point type selected.
TLP		A read-only field that indicates the TLP address string corresponding to selections above. If the Custom point type is selected, enter TLP here in numeric format.
Bit		Bit range, 0-7, 0-15, or 0-31. Available only for the following data types: BIN, INT8, INT16, INT32, UINT8, UINT16, UINT32.
Data Type		A read-only field that indicates the data type of the parameter selected above. If Custom point type is selected, select the data type here.
Set as Default Value		Sets the currently selected address as the default for next time an address is entered in Pro EX.

6.2 Custom Input Address Settings

You can also access your own custom TLP addresses by entering the numeric TLP data in an Address field or, in the Input Address dialog box, by selecting the Custom point type in the Point Type window. The TLP, Bit, and Data Type fields are enabled for data input.

The screenshot shows a dialog box with three input fields: 'TLP:' containing '0,0,0,0:BIN', 'Bit:' with a dropdown menu showing '0', and 'Data Type:' with a dropdown menu showing 'BIN'. To the right of these fields is an 'Enter' button.

In the TLP field, enter the TLP. The following valid input formats are available:

- [PLC1]TT,LL,PP:DATATYPE
- [PLC1]TT,LL,PP.BIT:DATATYPE

The addresses represent the following components:

TLP Component		Description
[PLC1]	=	External device
TT	=	Point Type (range 0 to 255)
LL	=	Logical (range 0 to 255)
PP	=	Parameter
BIT		Bit range, 0-7, 0-15, or 0-31. Available only for the following data types: BIN, INT8, INT16, INT32, UINT8, UINT16, UINT32.
DATATYPE	=	Data type

NOTE

- If a custom TLP entered matches a TLP in the Emerson Database, it will revert to that address and data type.

Valid Data type strings which can be entered in the Address Field are:

Name	Description
AC1	ASCII 1 character
AC3	ASCII 3 characters
AC7	ASCII 7 characters
AC10	ASCII 10 characters
AC12	ASCII 12 characters
AC20	ASCII 20 characters
AC30	ASCII 30 characters
AC40	ASCII 40 characters
BIN	Binary 8 bit, or bit address 0-7*.
FL	Floating Point
INT8	8 bit signed integer, or bit address 0-7*.
INT16	16 bit signed integer, or bit address 0-15*.
INT32	32 bit signed integer, or bit address 0-31*.
TIME	32 bit signed integer.
TLP	24 bit integer in 32 bits
UINT8	8 bit unsigned integer, or bit address 0-7*.

Name	Description
UINT16	16 bit unsigned integer, or bit address 0-15*.
UINT32	32 bit unsigned integer, or bit address 0-31*.

* Read-modify-write. When you write to one of these bit addresses, the Display unit reads the entire word address, sets the defined bit, then returns the new value to the PLC. If the ladder program writes data to this word address during the bit read/write process, the resulting data may be incorrect.

7 Error Messages

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

Item	Description
No.	Error No.
Device Name	Name of the external device where an error has occurred. The device name is a title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Error Message	Displays messages related to the error.
Error Occurrence Area	<p>Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device.</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;">NOTE</div> <ul style="list-style-type: none"> • Device address is displayed as "Address: Device address". • Received error codes are displayed as "Decimal [Hex]". • IP address is displayed as "IP address (Decimal): MAC address (Hex)".

Error message example: RAA150:92,1,7:UINT16 Invalid type number

Error message list

Item	Description
083	Socket Error
128	General error code
129	Too many data bytes
130	Too few data bytes
136	Invalid parameter range
145	Invalid min/max request
146	Invalid time
147	Unknown error
148	Invalid parameter number
149	Invalid logical/point number
150	Invalid type number