Pro-face by Schneider Electric

IDEC_DMS_01

11/2025

DM Link Communication 1:1 Driver

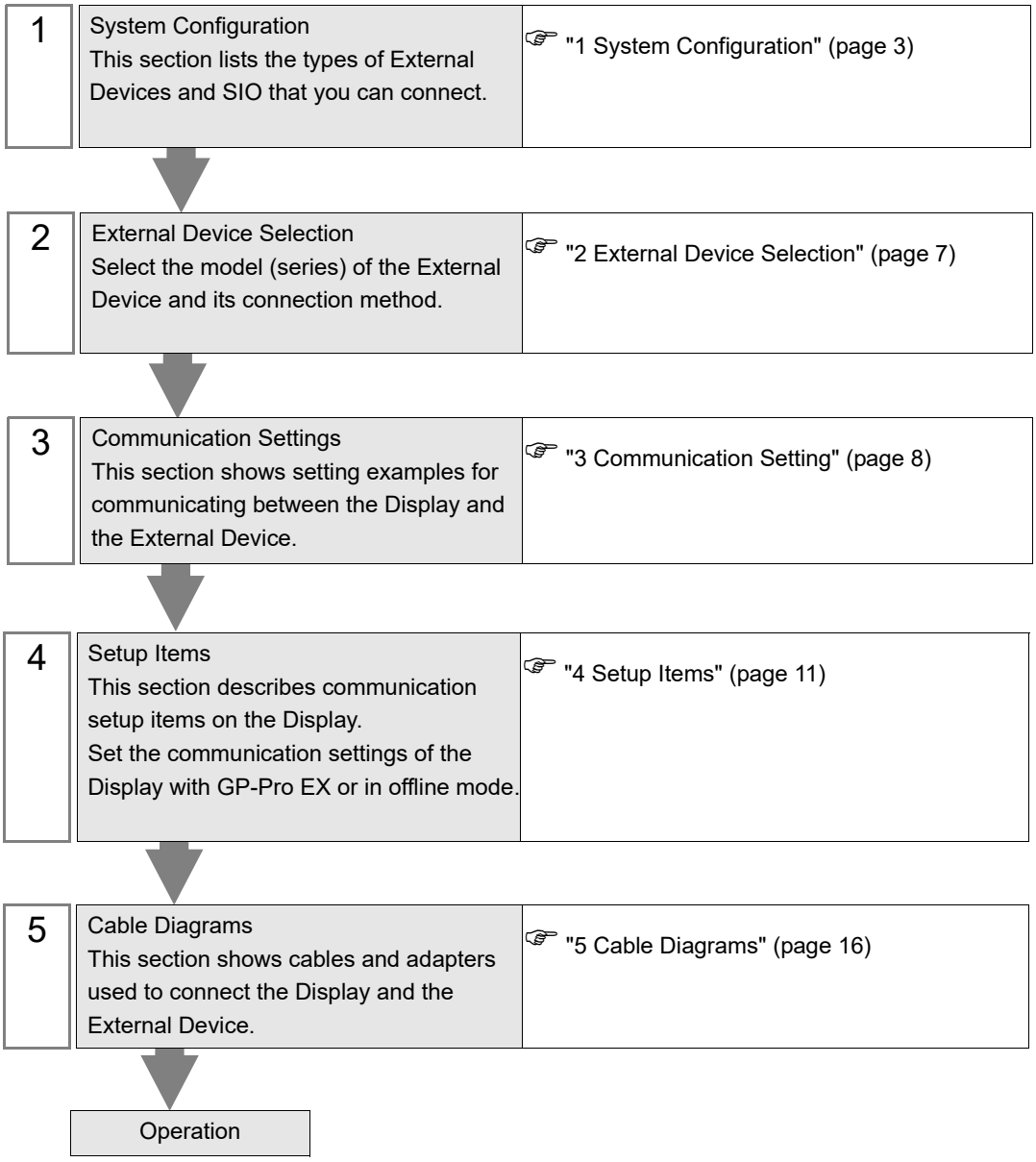
IMPORTANT

- 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, GP-4100 Series (Monochrome model), LT3000 Series, ST3000 Series, PL Series, PE4000 Series, PS2000/3000/4000 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 and the External Device (target PLC).

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



1 System Configuration

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

Series	CPU	Link I/F	SIO Type	Setting Example	Cable Diagram
External Device			RS-232C	"Setting Example 1" (page 8)	"Cable Diagram 1" (page 16)
			RS-422/485 (4 wire)	"Setting Example 2" (page 9)	"Cable Diagram 2" (page 22)
			RS-422/485 (2 wire)	"Setting Example 3" (page 10)	"Cable Diagram 3" (page 27)

■ Connection Configuration

◆ 1:1 Connection

■ IPC COM Port

When connecting IPC with an External Device, the COM port used depends on the series and SIO type. Please refer to the IPC manual for details.

Usable port

Series	Usable Port		
	RS-232C	RS-422/485(4 wire)	RS-422/485(2 wire)
PS-2000B	COM1*1 , COM2, COM3*1, COM4	-	-
PS-3450A, PS-3451A, PS3000-BA, PS3001-BD	COM1, COM2*1*2	COM2*1*2	COM2*1*2
PS-3650A (T41 model), PS-3651A (T41 model)	COM1*1	-	-
PS-3650A (T42 model), PS-3651A (T42 model)	COM1*1*2, COM2	COM1*1*2	COM1*1*2
PS-3700A (Pentium®4-M) PS-3710A	COM1*1, COM2*1, COM3*2 , COM4	COM3*2	COM3*2
PS-3711A	COM1*1, COM2*2	COM2*2	COM2*2
PS4000*3	COM1, COM2	-	-
PL3000	COM1*1*2, COM2*1, COM3, COM4	COM1*1*2	COM1*1*2
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
PSA6000	COM1	COM2*4	COM2*4

*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)

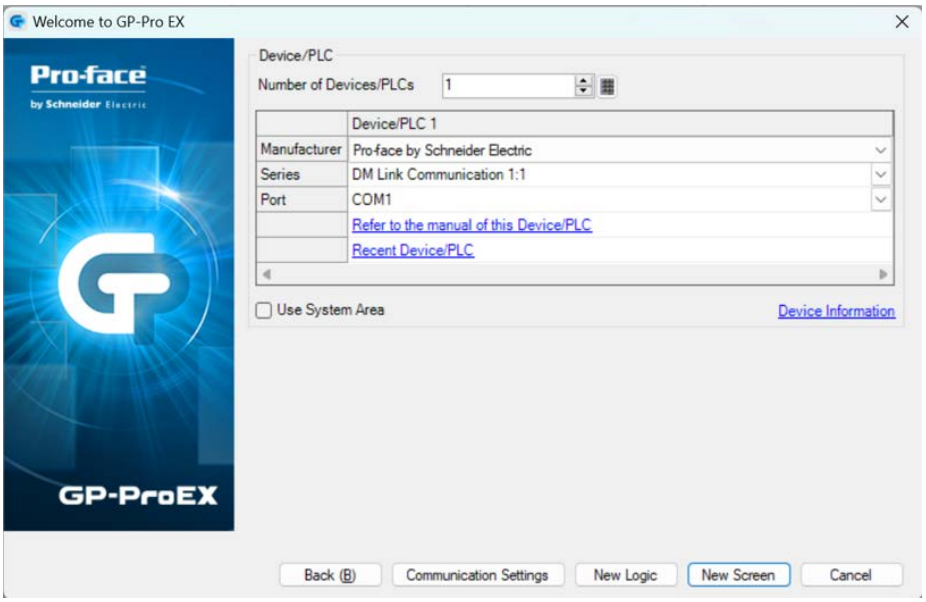
DIP Switch	Setting	Description
1	OFF	Reserved (always OFF)
2	ON	SIO type: RS-422/485
3	ON	
4	OFF	Output mode of SD (TXD) data: Always output
5	OFF	Terminal resistance (220Ω) insertion to SD (TXD): None
6	OFF	Terminal resistance (220Ω) insertion to RD (RXD): None
7	OFF	Short-circuit of SDA (TXA) and RDA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



Setup Items	Setup Description
Number of Devices/ PLCs	Use an integer from 1 to 4 to enter the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to be connected. Select "Pro-face by Schneider Electric".
Series	Select a model (series) of the External Device to be connected and connection method. Select "DM Link Communication 1:1". In System configuration, check to make sure the external device to which you are connecting is supported in "DM Link Communication 1:1". ☞ "1 System Configuration" (page 3)
Port	Select the Display port to be connected to the External Device.

3 Communication Setting

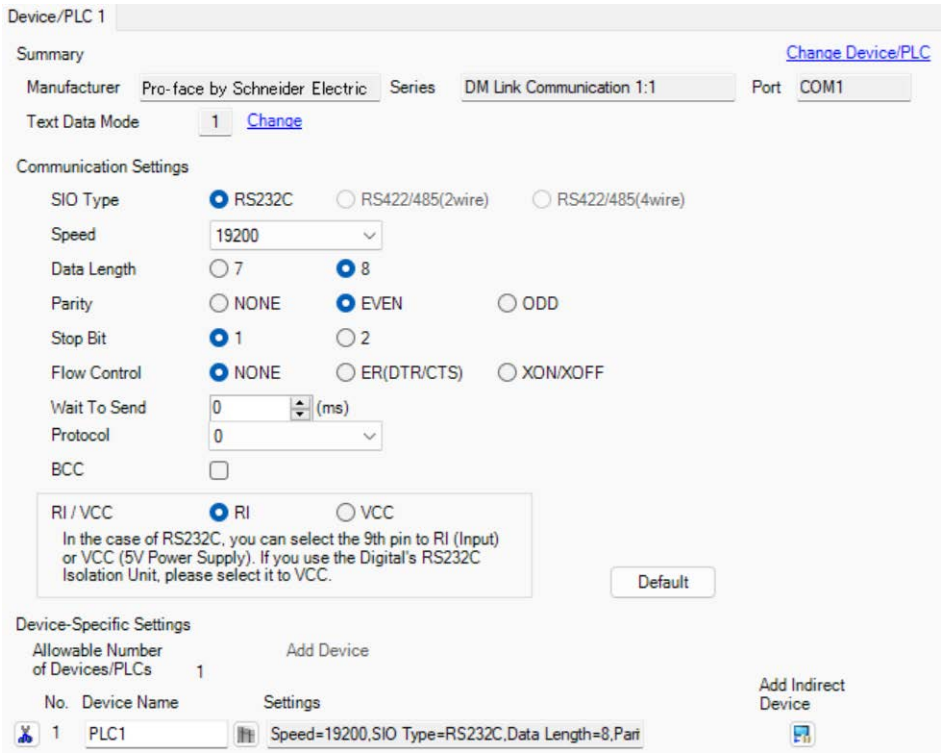
Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

3.1 Setting Example 1

■ GP-Pro EX Settings

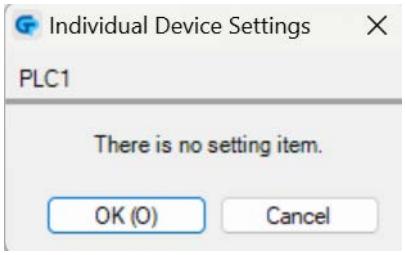
◆ Communication Settings

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



◆ Device Setting

There is no setting item.



■ External Device Settings

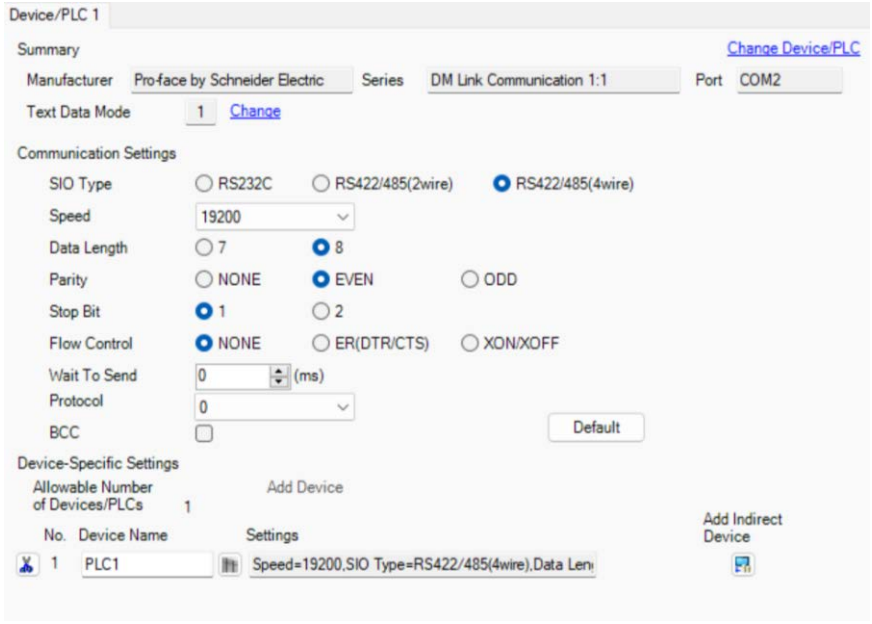
External Device settings vary depending on the device. Refer to your External Device manual for details.

3.2 Setting Example 2

■ GP-Pro EX Settings

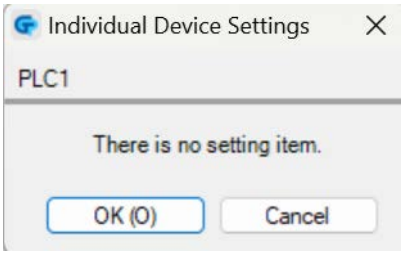
◆ Communication Settings

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



◆ Device Setting

There is no setting item.



■ External Device Settings

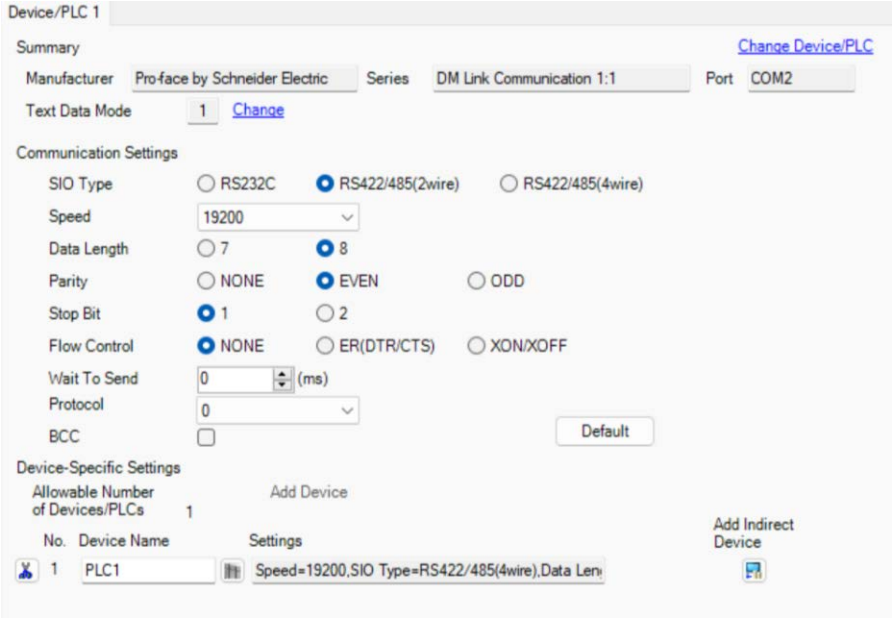
External Device settings vary depending on the device. Refer to your External Device manual for details.

3.3 Setting Example 3

■ GP-Pro EX Settings

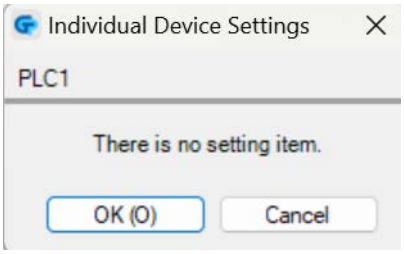
◆ Communication Settings

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



◆ Device Setting

There is no setting item.



■ External Device Settings

External Device settings vary depending on the device. Refer to your External Device manual for details.

4 Setup Items

Set up the Display's communication settings in GP-Pro EX or in the Display's offline mode.

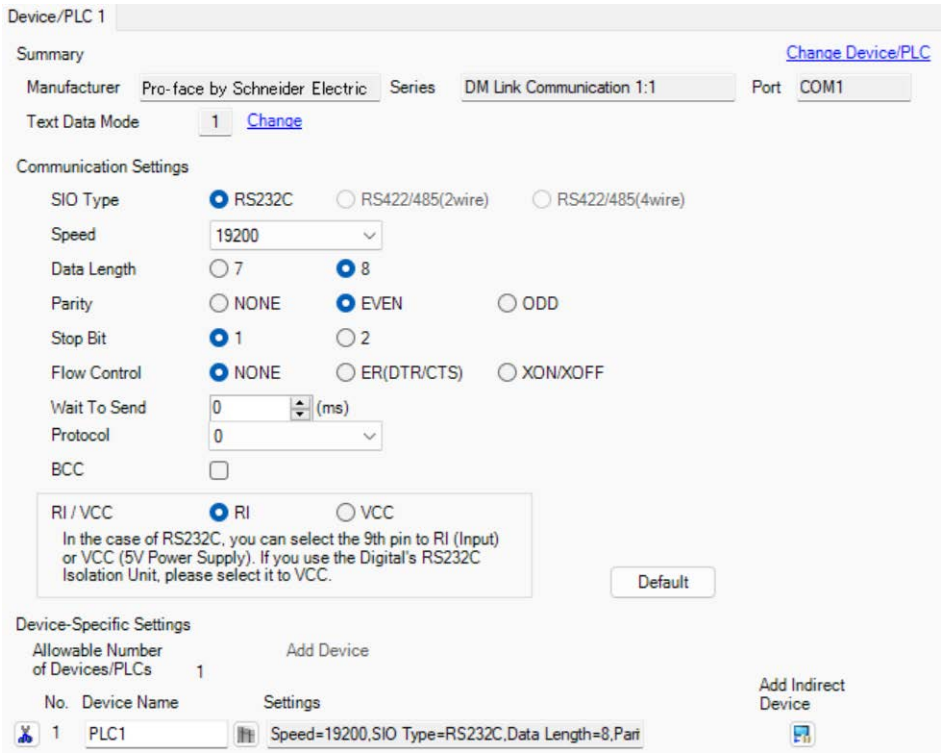
The setting of each parameter must match that of the External Device.

☞"3 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].



Setup Items	Setup Description
SIO Type	Select the SIO type for communicating with the External Device.
Speed	Select the communication speed between the External Device and the Display.
Data Length	Select a data length.
Parity	Select how to check parity.
Stop Bit	Select a stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Wait To Send	Enter the standby time (ms) from when the Display receives packets until it transmits the next command, from "0 to 255".

Setup Items	Setup Description
Protocol	Select the communication format for the Protocol. 0: Basic Format 1: Adds the Error Code and <CR> to messages that could not be handled normally. Adds the command and <CR> to messages that were processed normally. 2: Same as the Basic Format (0), except that ETX is not added when BCC is appended.
BCC	When enabled, adds BCC (checksum) to read commands. Adds ETX and BCC to the response of read commands. (However, ETX is not added when “2” is selected in [Protocol].) Adds BCC to write commands.
RI/VCC	You can switch between RI/VCC on the 9th pin when you select RS-232C for SIO type. To connect to the IPC, you need to switch between RI/5V using the IPC selector switch. Refer to your IPC manual for details.

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

There is no setting item.

4.2 Setup Items in Offline Mode

NOTE

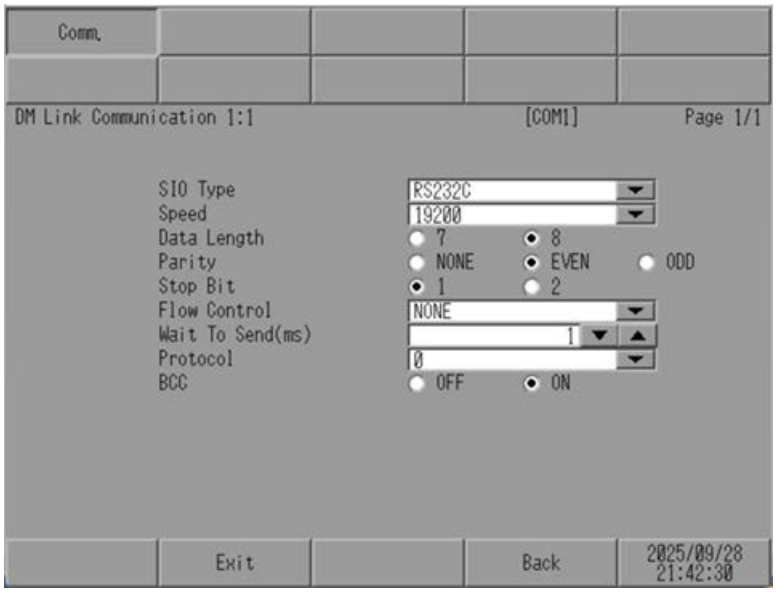
- Refer to the Maintenance/Troubleshooting guide for information on how to enter offline mode or about the operation.

  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

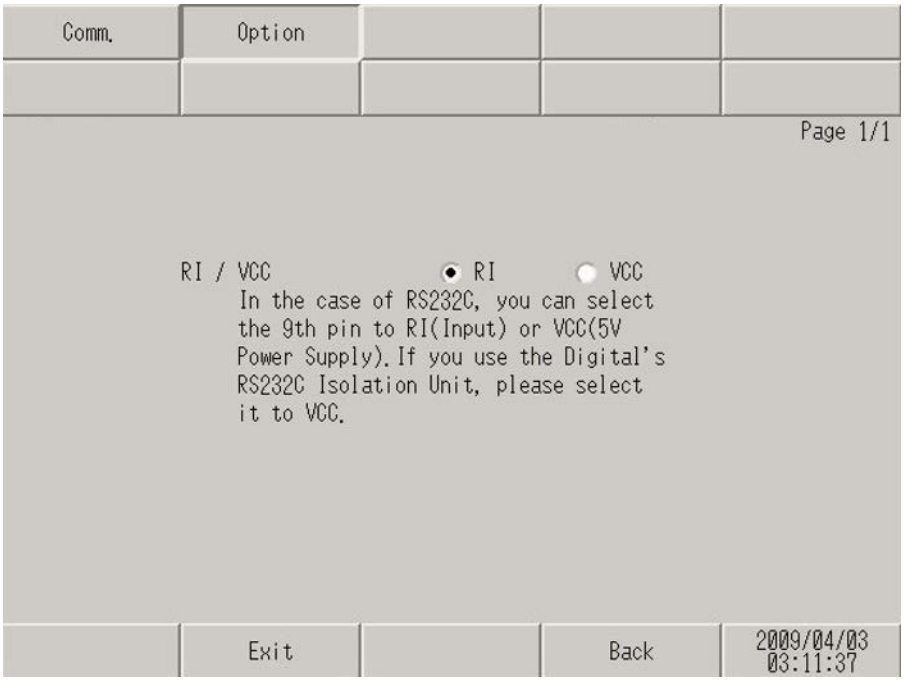
To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings] in offline mode. Touch the External Device you want to set from the displayed list.



Setup Items	Setup Description
SIO Type	Select the SIO type for communicating with the External Device. **IMPORTANT** In the communication settings, set [SIO Type] correctly according to the serial interface specifications of the Display. If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed. Refer to your Display manual for details on the serial interface specifications.
Speed	Select the communication speed between the External Device and the Display.
Data Length	Select a data length.
Parity	Select how to check parity.
Stop Bit	Select a stop bit length.
Flow Control	Select the communication control method to prevent overflow of transmission and reception data.
Wait To Send	Enter the standby time (ms) from when the Display receives packets until it transmits the next command, from "0 to 255".

Setup Items	Setup Description
Protocol	Select the communication format for the Protocol. 0: Basic Format 1: Adds the Error Code and <CR> to messages that could not be handled normally. Adds the command and <CR> to messages that were processed normally. 2: Same as the Basic Format (0), except that ETX is not added when BCC is appended.
BCC	When enabled, adds BCC (checksum) to read commands. Adds ETX and BCC to the response of read commands. (However, ETX is not added when “2” is selected in [Protocol].) Adds BCC to write commands.

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

5 Cable Diagrams

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

Please be assured there is no operational problem in applying the cable diagram shown in this manual.

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

5.1 Cable Diagram 1

Display (Connection Port)	Cable		Remarks
GP4000[*1] (COM1) GP6000 (COM1) SP5000[*2] (COM1/2) SP-5B00 (COM1) ST6000 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000 (COM1) IPC[*3] PC/AT	1A	User-created cable (ER Control)	The cable length must be 15m or less.
	1B	User-created cable (X Control)	
	1C	User-created cable (without control method)	
GP-4115T (COM1) GP-4115T3 (COM1)	1D	User-created cable (ER Control)	The cable length must be 15m or less.
	1E	User-created cable (X Control)	
	1F	User-created cable (without control method)	
LT-4*01TM (COM1) LT-Rear Module (COM1)	1G	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21 (X Control)	The cable length must be 5m or less.
	1H	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21 (without control method)	

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

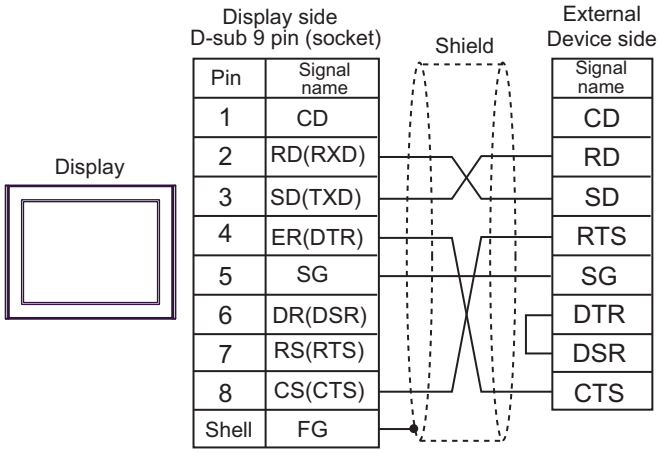
*2 Except SP-5B00

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

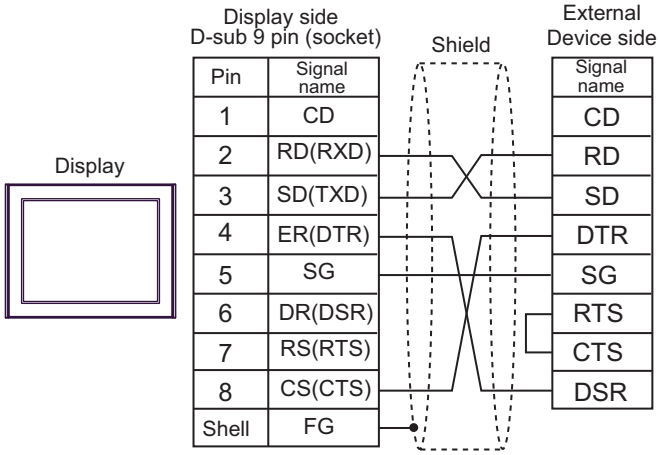
IMPORTANT
- Correspondence of the RS232C connector type or pin number with the signal name varies depending on the host device. Connect properly according to the interface specification of the host device.

1A)

- When the External Device supports RTS/CTS control



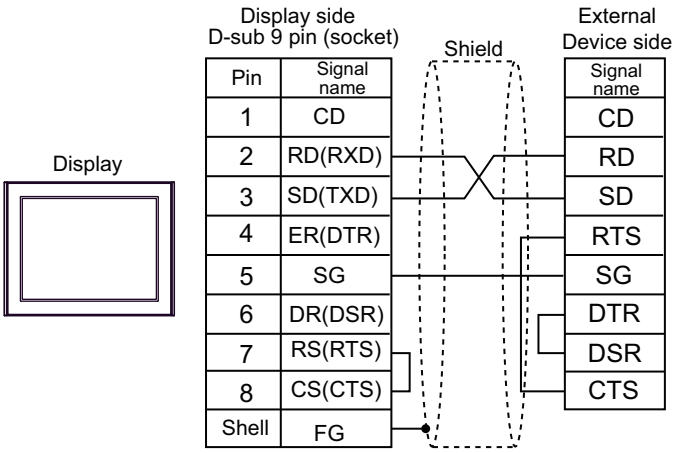
- When the External Device supports DTR/DSR control



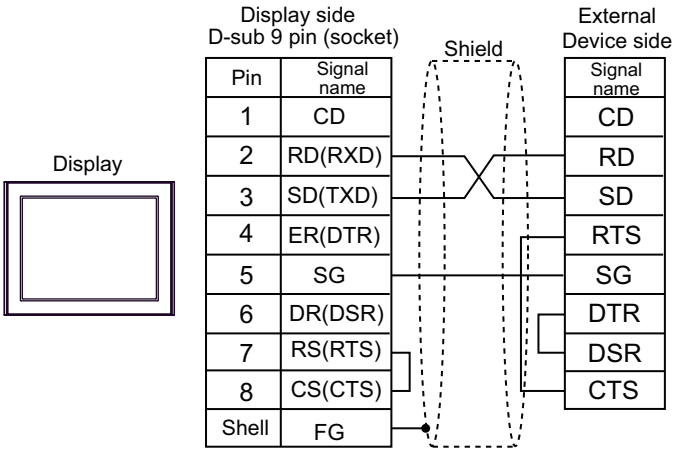
Prohibited:

- When ER in the Display is OFF, do not allow the host device to send.

1B)

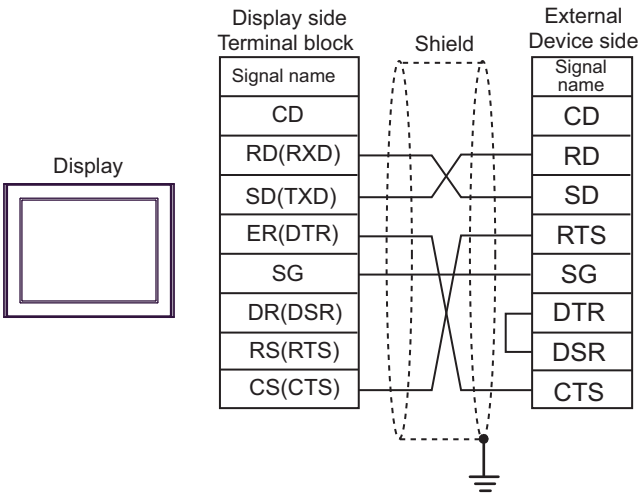

Display side
D-sub 9 pin (socket)
Shield
External
Device side
Pin
Signal name
1 CD
2 RD(RXD)
3 SD(TXD)
4 ER(DTR)
5 SG
6 DR(DSR)
7 RS(RTS)
8 CS(CTS)
Shell FG
Signal name
CD
RD
SD
RTS
SG
DTR
DSR
CTS
Display

1C)

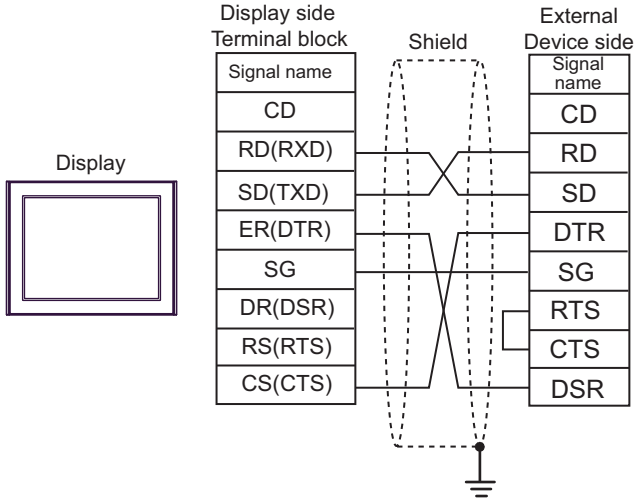

Display side
D-sub 9 pin (socket)
Shield
External
Device side
Pin
Signal name
1 CD
2 RD(RXD)
3 SD(TXD)
4 ER(DTR)
5 SG
6 DR(DSR)
7 RS(RTS)
8 CS(CTS)
Shell FG
Signal name
CD
RD
SD
RTS
SG
DTR
DSR
CTS
Display

1D)

- When the External Device supports RTS/CTS control



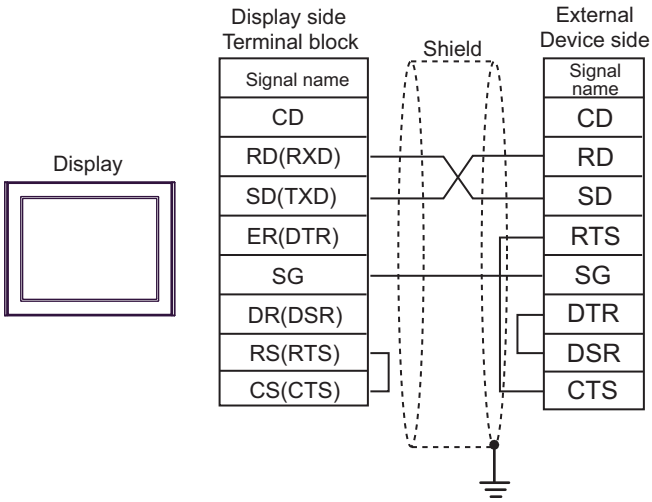
- When the External Device supports DTR/DSR control



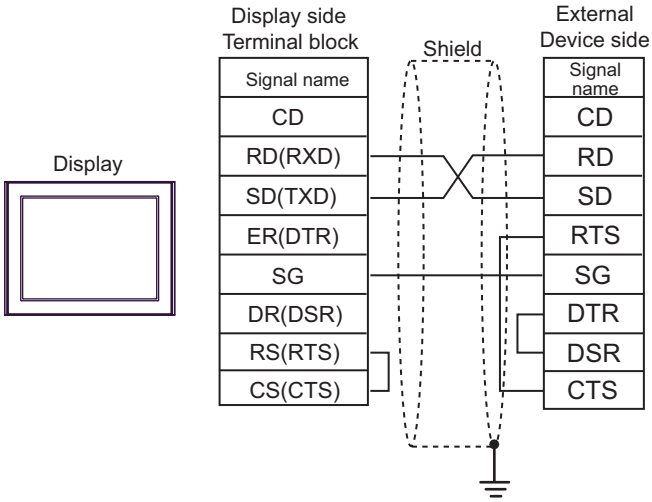
Prohibited:

- When ER in the Display is OFF, do not allow the host device to send.

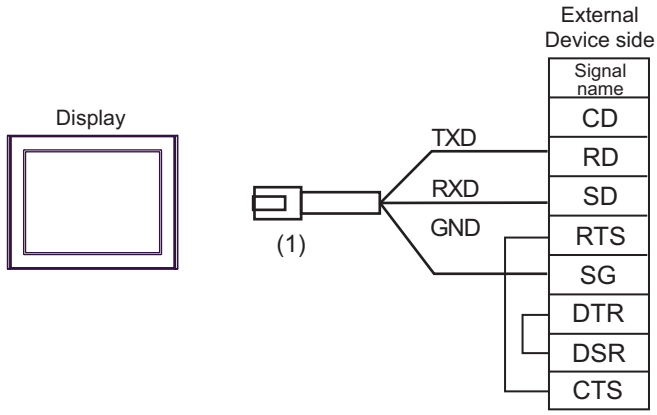
1E)


Display side
Terminal block
Shield
External
Device side
Signal name
CD
RD(RXD)
SD(TXD)
ER(DTR)
SG
DR(DSR)
RS(RTS)
CS(CTS)
Signal name
CD
RD
SD
RTS
SG
DTR
DSR
CTS
Display

1F)

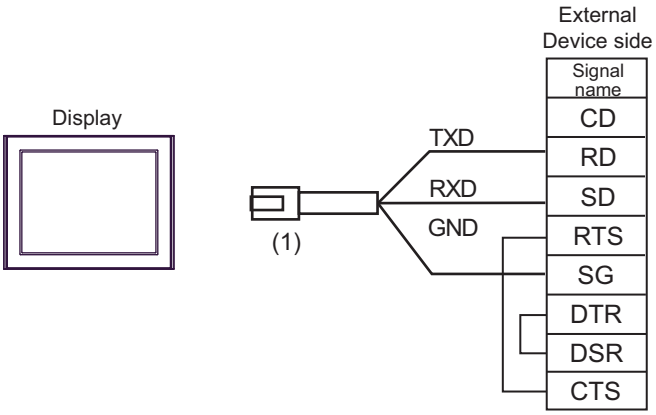

Display side
Terminal block
Shield
External
Device side
Signal name
CD
RD(RXD)
SD(TXD)
ER(DTR)
SG
DR(DSR)
RS(RTS)
CS(CTS)
Signal name
CD
RD
SD
RTS
SG
DTR
DSR
CTS
Display

1G)



Legend	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

1H)



Legend	Name	Notes
(1)	RJ45 RS-232C Cable (5m) by Pro-face PFXZLMCBRJR21	

5.2 Cable Diagram 2

Display (Connection Port)	Cable		Remarks
GP-4*01TM (COM1) GP-Rear Module (COM1) IPC*1	2A	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Connector terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User created cable	The cable length must be 1000m or less.
	2B	RS-422 cable (for COM1) by Pro-face CA3-CBL422/5M-01	
	2C	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + RS-422 cable (for COM2) by Pro-face CA3-CBL422-01	
	2D	User created cable	
GP-4106 (COM1) GP-4116T (COM1)	2E	User created cable	The cable length must be 1000m or less.
GP4000*2 (COM2) GP-4201T (COM1) GP6000 (COM2) SP5000*3 (COM1/2) SP-5B00 (COM2) ST6000*4 (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000*5 (COM2) PS6000 (Basic Box) (COM1/2)	2F	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1*6 + User created cable	The cable length must be 1000m or less.
	2B	RS-422 cable (for COM1) by Pro-face CA3-CBL422/5M-01	
	2C	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + RS-422 cable (for COM2) by Pro-face CA3-CBL422-01	
	2E	User created cable	
PE-4000B*7 PS5000*7 PS6000 (Optional Interface)*7 PSA6000*7	2G	User created cable	The cable length must be 1000m or less.

*1 Only the COM port which can communicate by RS-422/485 (4 wire) can be used. (Except PE-4000B, PS5000, PS6000, and PSA6000)

☞"■ IPC COM Port" (page 4)

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

*3 Except SP-5B00

*4 Except ST-6200

*5 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.

*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.

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

NOTE

- Control method when using the RS422 cable is XON/XOFF only. XON/XOFF control is enabled only for ASCII.

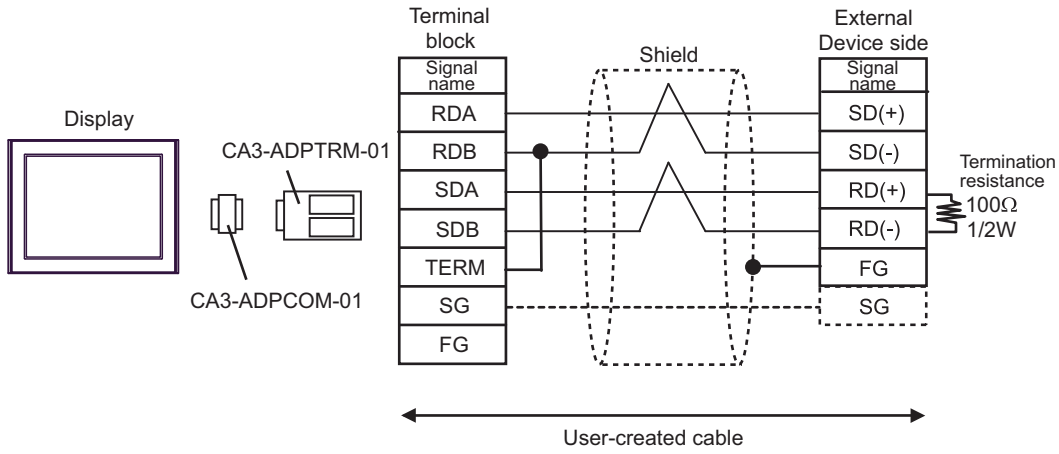
Forced:

- Use the twist pair cable with approx. 50pF/m capacitance, 100Ω characteristic impedance, made of 24AWG rod.

IMPORTANT

- The RS422 cable length is normally 1000m at maximum, but the cable length has the limit depending on the connecting host device. For connection, be sure to refer to the manual of the connecting host device.
- The connecting method or termination resistance varies depending on the connecting host device.
- Not isolated on the Display side.
- Always connect SG between Displays.
- When the External Device is isolated, SG connection between the External Device and the Display may not be required.

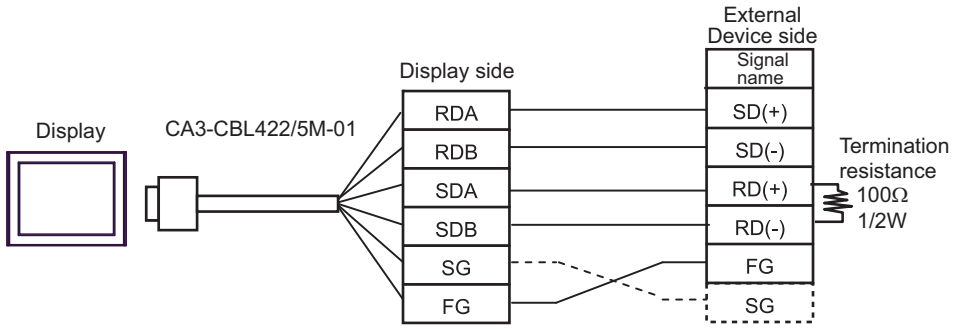
2A)



NOTE

- Connect RDB of CA3-ADPTRM-01 with TERM to insert the 100Ω 1/2W termination resistance between RDA and RDB on the Display side.

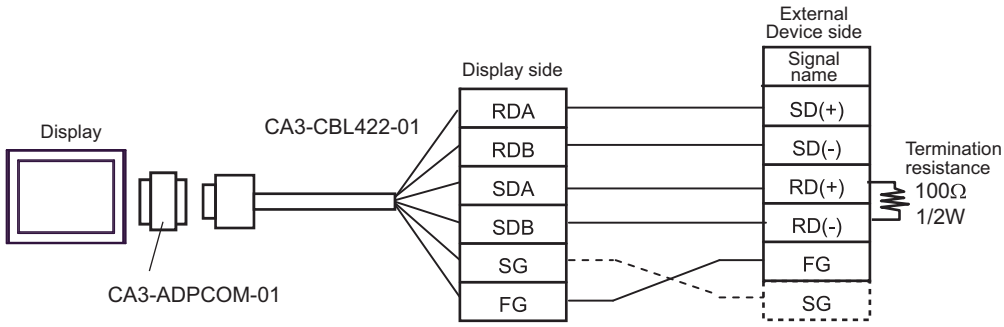
2B)



NOTE

- 100Ω termination resistance is inserted between RDA and RDB in CA3-CBL422/5M-01.

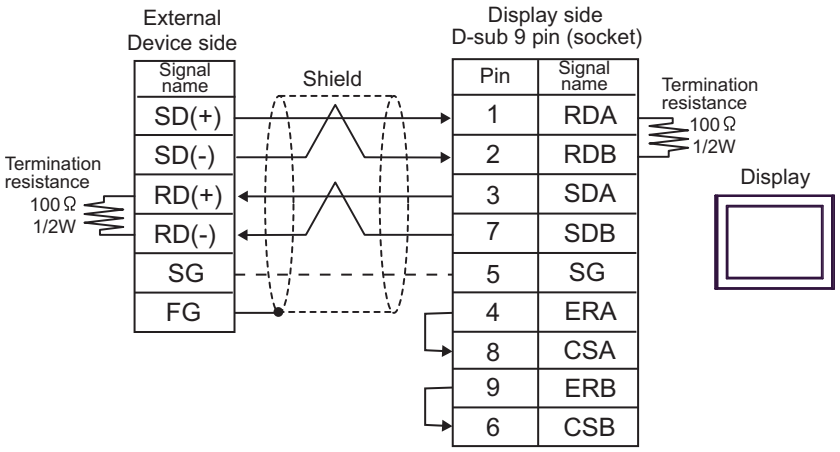
2C)



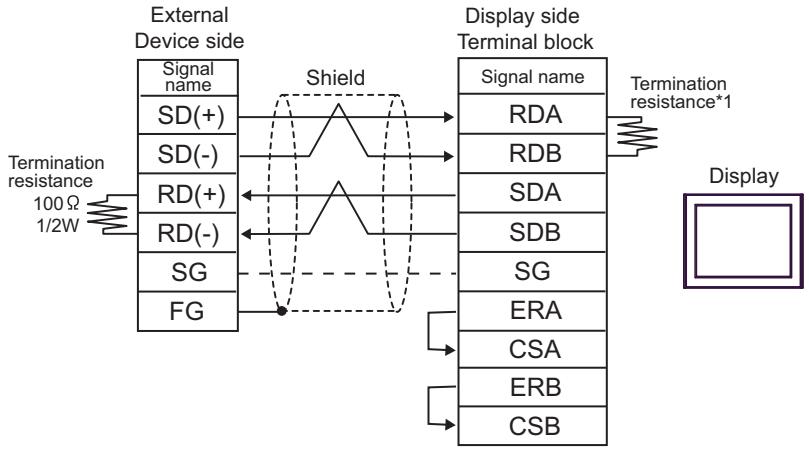
NOTE

- 100Ω termination resistance is inserted between RDA and RDB in CA3-CBL422-01.

2D)



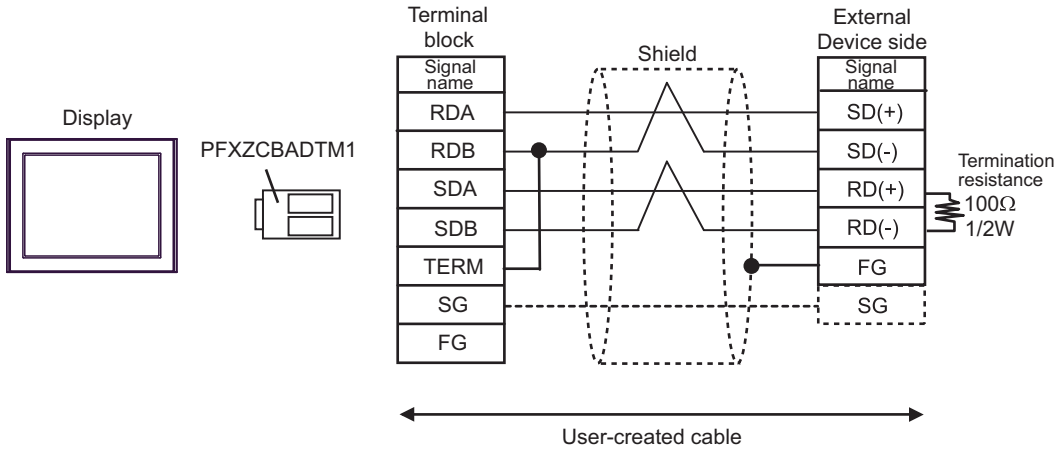
2E)



*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

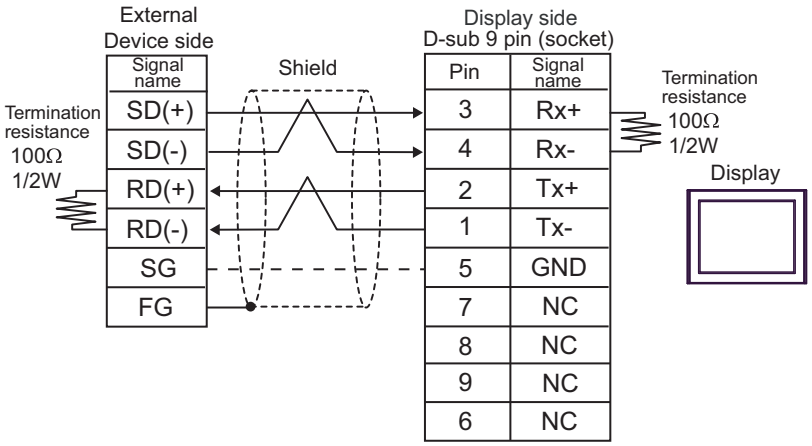
2F)



NOTE

- Connect RDB of PFXZCBADTM1 with TERM to insert the 100Ω 1/2W termination resistance between RDA and RDB on the Display side.

2G)



5.3 Cable Diagram 3

Display (Connection Port)	Cable		Remarks
GP-4*01TM (COM1) GP-Rear Module (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 1000m or less.
	3B	User-created cable	
IPC*1	3C	COM port conversion adapter by Pro-face CA3-ADPCOM-01 + Terminal block conversion adapter by Pro-face CA3-ADPTRM-01 + User-created cable	The cable length must be 1000m or less.
	3D	User-created cable	
GP-4116T (COM1)	3E	User-created cable	The cable length must be 1000m or less.
GP-4*03T*2 (COM2) GP-4203T (COM1)	3F	User-created cable	The cable length must be 1000m or less.
GP4000*3 (COM2) GP-4201T (COM1) GP6000 (COM2) SP5000*4 (COM1/2) SP-5B00 (COM2) ST6000*5 (COM2) ST-6200 (COM1) STM6000 (COM1) STC6000 (COM1) ET6000*6 (COM2) PS6000 (Basic Box) (COM1/2)	3G	RS-422 Terminal Block Conversion Adapter by Pro-face PFXZCBADTM1*7 + User-created cable	The cable length must be 1000m or less.
	3B	User-created cable	
LT-4*01TM (COM1) LT-Rear Module (COM1)	3H	RJ45 RS-485 Cable (5m) by Pro-face PFXZLMCBRJR81	The cable length must be 200m or less.
PE-4000B*8 PS5000*8 PS6000 (Optional Interface)*8 PSA6000*8	3I	User-created cable	The cable length must be 1000m or less.

*1 Only the COM port which can communicate by RS-422/485 (2 wire) can be used. (Except PE-4000B, PS5000, PS6000, and PSA6000)
"■ IPC COM Port" (page 4)

*2 Except GP-4203T

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

*4 Except SP-5B00

*5 Except ST-6200

*6 Due to the COM port specifications, flow control is not possible. Omit wiring the control pins on the Display side of the cable diagram.

*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.

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

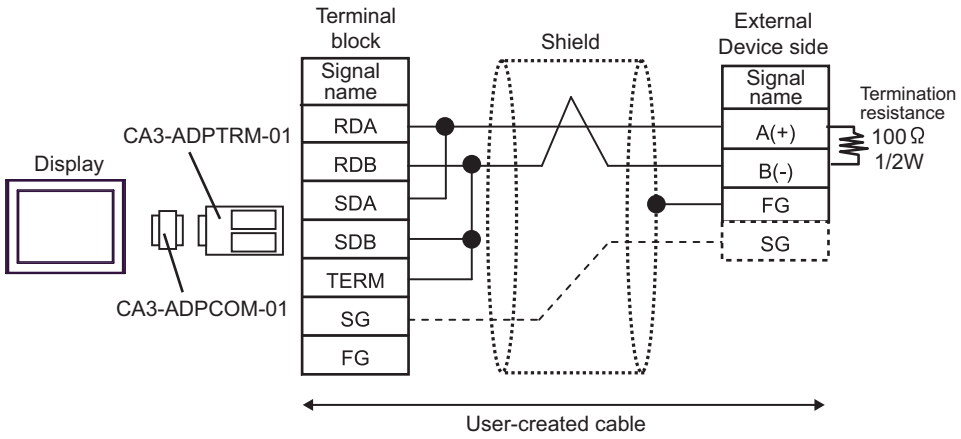
NOTE
- Control method when using the RS422 cable is XON/XOFF only. XON/XOFF control is enabled only for ASCII.

Forced:

- Use the twist pair cable with approx. 50pF/m capacitance, 100Ω characteristic impedance, made of 24AWG rod.

IMPORTANT
- The RS422 cable length is normally 1000m at maximum (for LT-4*01TM and LT-Rear Module, 200m at maximum), but the cable length has the limit depending on the connecting host device. For connection, be sure to refer to the manual of the connecting host device.
- The connecting method or termination resistance varies depending on the connecting host device. Connect SG if provided.

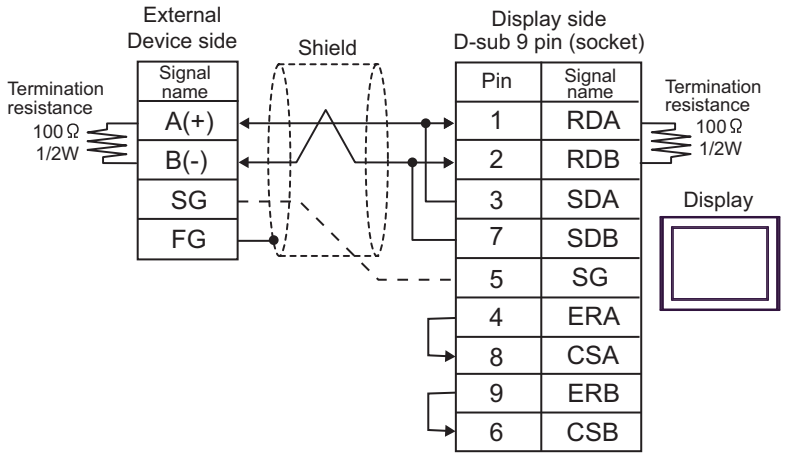
3A)



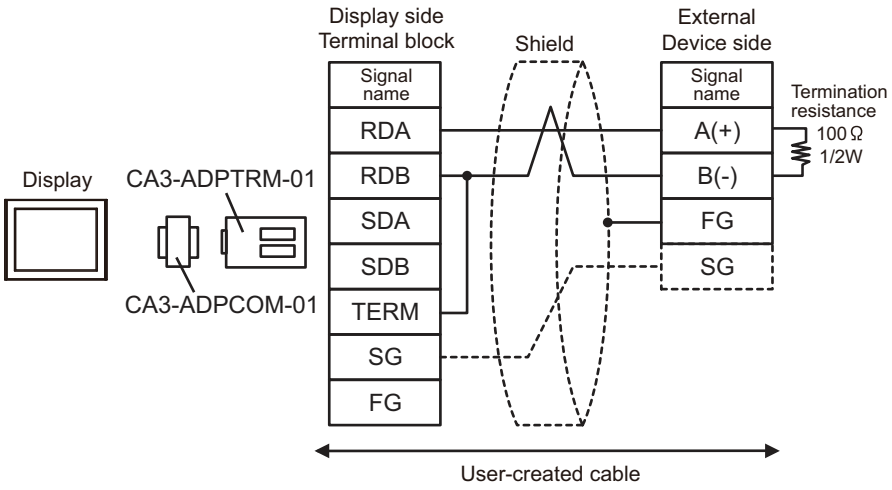
NOTE

- Connect RDB of CA3-ADPTRM-01 with TERM to insert the 100Ω 1/2W termination resistance between RDA and RDB on the Display.

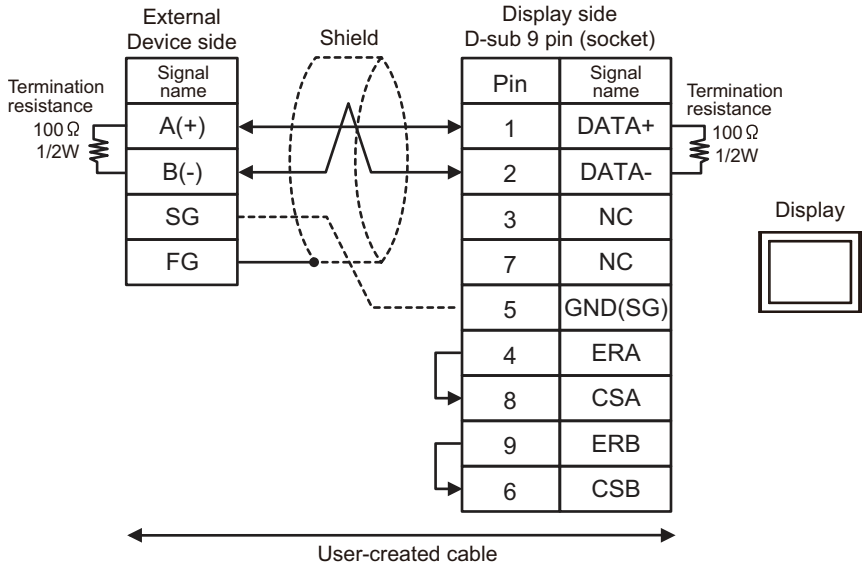
3B)



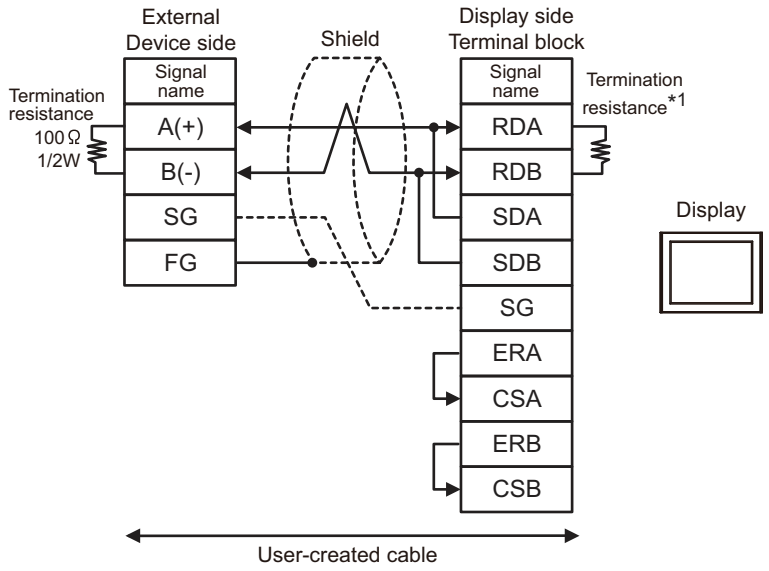
3C)


Display side
Terminal block
Shield
External
Device side
Signal name
RDA
RDB
SDA
SDB
TERM
SG
FG
Signal name
A(+)
B(-)
FG
SG
Termination resistance
100Ω
1/2W
Display
CA3-ADPTRM-01
CA3-ADPCOM-01
User-created cable

3D)


External
Device side
Shield
Display side
D-sub 9 pin (socket)
Termination resistance
100Ω
1/2W
Signal name
A(+)
B(-)
SG
FG
Pin
Signal name
1 DATA+
2 DATA-
3 NC
7 NC
5 GND(SG)
4 ERA
8 CSA
9 ERB
6 CSB
Termination resistance
100Ω
1/2W
Display
User-created cable

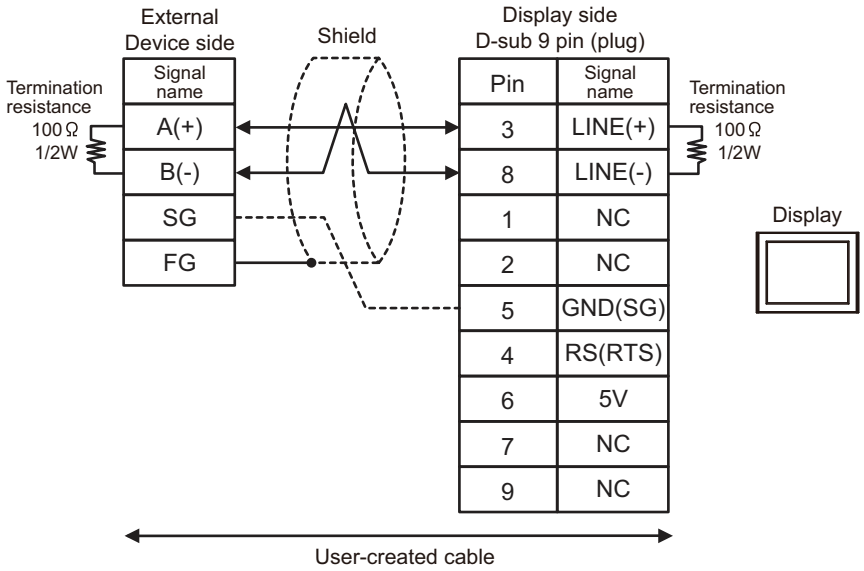
3E)



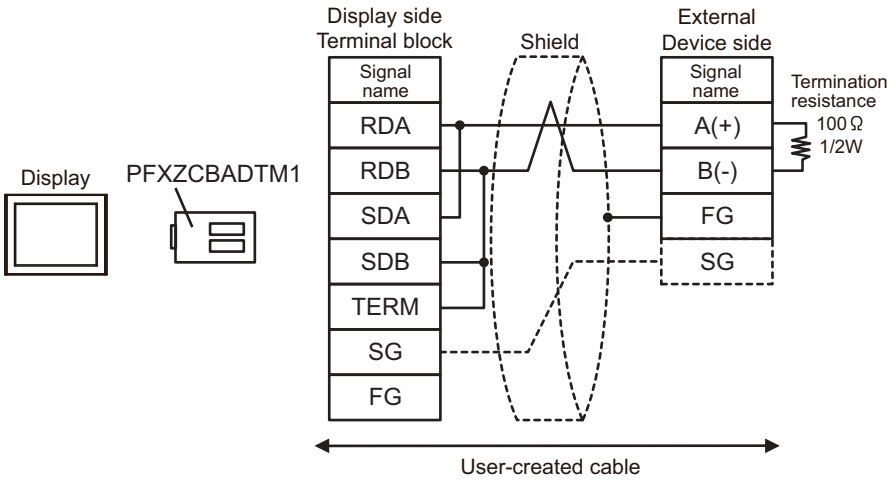
*1 The resistance in the Display is used as the termination resistance. Set the value of the DIP Switch on the rear of the Display as shown in the table below.

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

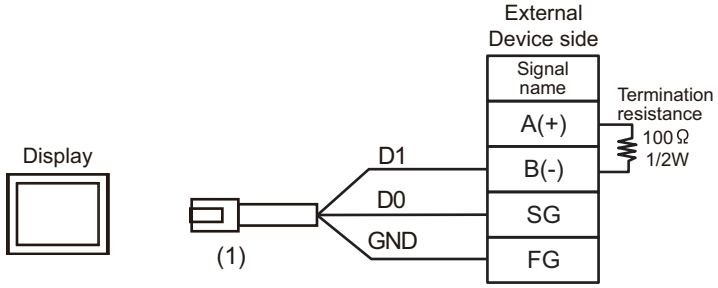
3F)



3G)

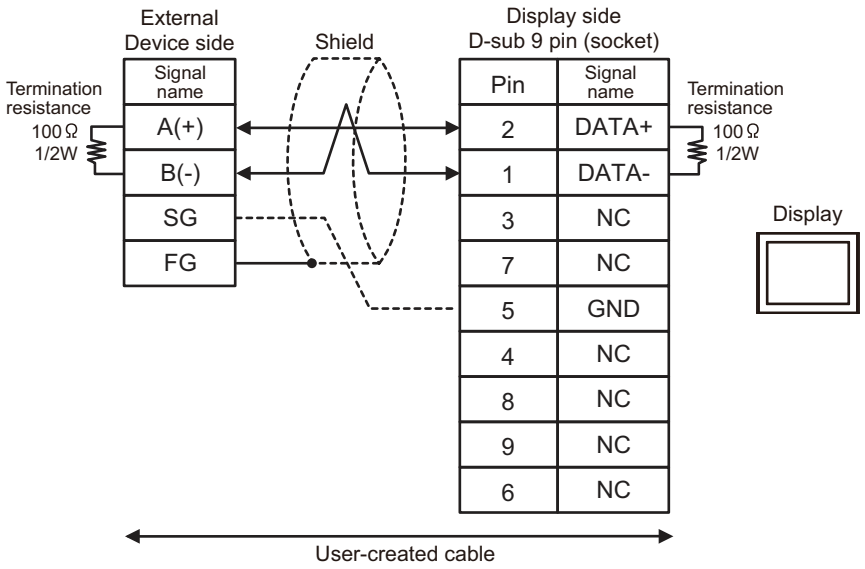


3H)



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

3I)


External
Device side
Shield
Display side
D-sub 9 pin (socket)
Termination
resistance
100Ω
1/2W
Signal
name
A(+)
B(-)
SG
FG
Pin
Signal
name
2
DATA+
1
DATA-
3
NC
7
NC
5
GND
4
NC
8
NC
9
NC
6
NC
Termination
resistance
100Ω
1/2W
Display
User-created cable

6 Supported Device

Range of supported device address is shown in the table below. Please note that the actually supported range of the devices varies depending on the External Device to be used. Please check the actual range in the manual of your External Device.

: This address can be specified as system data area.

Device	Bit Address	Word Address	32 bits	Remarks
Data Memory	DM0000.0 - DM16383.15	DM0000 - DM16383	L / H	

NOTE

- Refer to the GP-Pro EX Reference Manual for system data area.

  Cf. GP-Pro EXReference Manual "LS Area (Direct Access Method Area)"

- 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 set "Device Type & Address" for the address type of the data display or other devices.

Device	Device Name	Device Code (HEX)	Address Code
Data Memory	DM	0000	00000000 - 00003FFF

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 Number.
Device Name	Name of the External Device where an error has occurred. The Device name is the title of the External Device set with GP-Pro EX.(Initial value [PLC1])
Error Message	Displays messages related to an error that has occurred.
Error Occurrence Area	Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device. NOTE • IP address is displayed as "IP address (Decimal): MAC address (Hex)". • Device address is displayed as "Address: Device address". • Received error codes are displayed 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.

■ Error Codes Specific to the External Device

When errors are detected in requests from the External Device, the following error codes will be returned.

Error Code	Content	Description
2	BCC	BCC does not match. (Occurs when “BCC enabled” is active)
3	Command error	Received a command other than “W” (write) or “R” (read). (The Clear command is an exception.)
4	Address error	An invalid DM address was specified. (Occurs due to incorrect address specification in DM Link 1:1 communication)
5	Word count error	The specified number of words is invalid. (Occurs when an out-of-range or invalid value is specified)
6	Received byte count error	The number of bytes received is invalid. (Occurs when the number of data words is insufficient, etc.)

9 DM Link Communication 1:1 Command

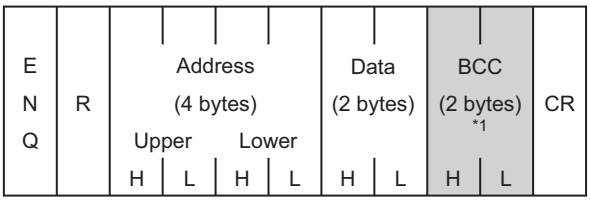
Up to 255 words can be read from and written to the DM (Data Memory) area.

9.1 Read Operation

Up to 255 words of data can be read with a single command.

■ Command

◆ Request



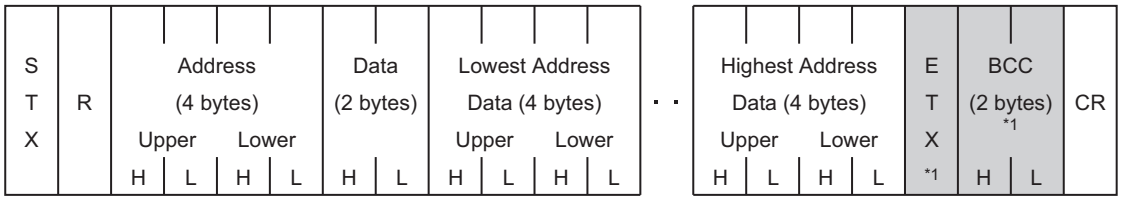
*1: This area may not be added depending on the setting.

Request details

Command data	Code	Description	Bytes
ENQ	05H		1
R	52H	Read Command	1
Address		Read Start DM Address: Set the address number in ASCII code using its hexadecimal value: 0000H to 3FFFH (DM00000 to DM16383)	4
Data		Number of Words to Read: Set the value in ASCII code using its hexadecimal representation: 0001H to 00FFH (0 to 255)	2
BCC		When "BCC" is enabled: Append the result of an exclusive OR (XOR) operation performed sequentially on each code from ENQ up to just before BCC. The result (in hexadecimal) should be set in ASCII code.	2
CR	0DH		1

◆ Response

- Normal response

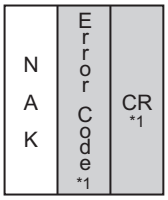


*1: This area may not be added depending on the setting.

Response details (normal response)

Command data	Code	Description	Bytes
STX	02H	Normal Response	1
R	52H	Read Command	1
Address		Read Start DM Address: Set the address number in ASCII code using its hexadecimal value: 0000H to 3FFFH (DM00000 to DM16383)	4
Data		Number of Data to Read: Set the value in ASCII code using its hexadecimal representation: 0001H to 00FFH (1 to 255)	2
Address Data		Data at DM Address: Set the data in ASCII code using its hexadecimal value. Data is set starting from the lowest address, according to the number of words to be read.	4 x Data
ETX	03H	Appended when "BCC" is ON. (However, if the communication format of the protocol is "2", ETX is not appended.)	1
BCC		When "BCC" is enabled: Append the result of an exclusive OR (XOR) operation performed sequentially on each code from ENQ up to just before BCC. The result (in hexadecimal) should be set in ASCII code.	2
CR	0DH		1

- Error response



*1: This area may not be added depending on the setting.

Response details (error response)

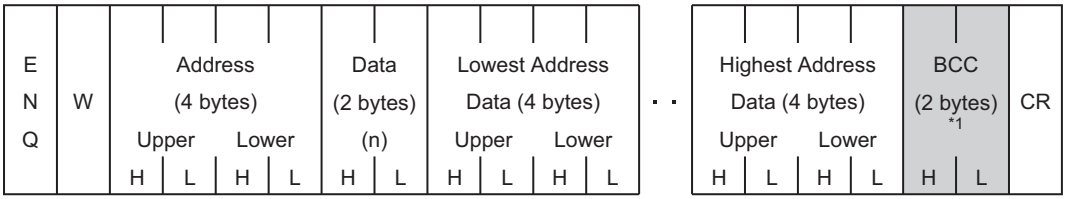
Command data	Code	Description	Bytes
NAK	15H	Error response	1
Error code		Append when the communication format of the protocol is "1". (Refer to "8 Error Messages" (page 36) for Error Codes details)	1
CR	0DH	Appended when the communication format of the protocol is "1".	1

9.2 Write Operation

Up to 255 words of data can be written with a single command.

■ Command

◆ Request



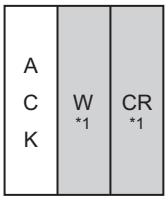
*1: This area may not be added depending on the setting.

Request details

Command data	Code	Description	Bytes
ENQ	05H	Normal Response	1
W	57H	Write Command	1
Address		Write Start DM Address: Set the address number in ASCII code using its hexadecimal value: 0000H to 3FFFH (DM00000 to DM16383)	4
Data		Number of Data to Write: Set the value in ASCII code using its hexadecimal representation: 0001H to 00FFH (1 to 255)	2
Address Data		Data at DM Address: Set the data in ASCII code using its hexadecimal value. Data is set starting from the lowest address, according to the number of words to be written.	4 x Data
BCC		When "BCC" is enabled: Append the result of an exclusive OR (XOR) operation performed sequentially on each code from ENQ up to just before BCC. The result (in hexadecimal) should be set in ASCII code.	2
CR	0DH		1

◆ Response

- Normal response

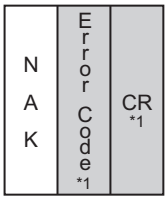


*1: This area may not be added depending on the setting.

Response details (normal response)

Command data	Code	Description	Bytes
ACK	06H	Normal response	1
W	57H	Append when the communication format of the protocol is "1". Write command response	1
CR	0DH	Append when the communication format of the protocol is "1".	1

- Error response



*1: This area may not be added depending on the setting.

Response details (error response)

Command data	Code	Description	Bytes
NAK	15H	Error response	1
Error Code		Append when the communication format of the protocol is "1". (Refer to "8 Error Messages" (page 36) for Error Codes details)	1
CR	0DH	Append when the communication format of the protocol is "1".	1