# Hand-held GP Connection Guide

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 accessories required to connect the Hand-held GP display unit (hereinafter referred to as "Display") and the External Device (target PLC). Refer to the Hardware Manual for details on the Display. Depending on the External Device, different types of connection cables are used for connecting the accessories. Refer to the External Device connection manual for corresponding External Device details.

- Connection Configuration of Display

Display

External Device

GP3000H Series accessory

Connection cable
(Refer to the Device/PLC connection manual for details on the corresponding External Device.)
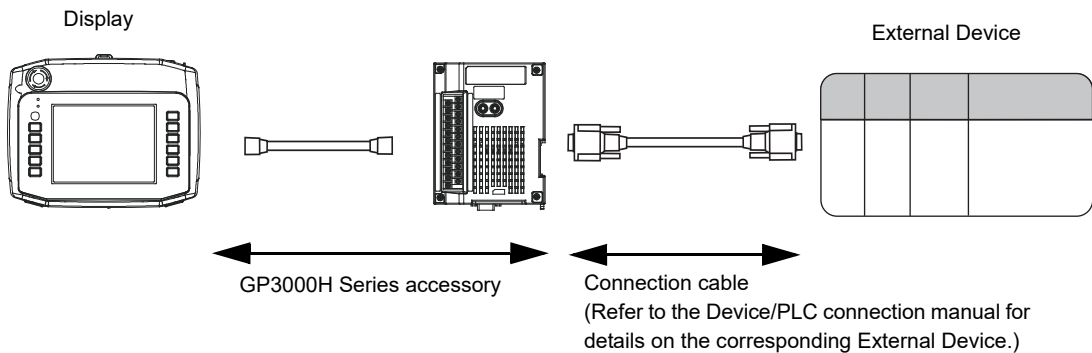
1 System Configuration

The following section lists system configurations for connecting the External Device and the Display.

Display	Optional Items	SIO Type	System Configuration
GP3000H	GP3000H Direct-connect cable (with connector) GP3000H-CBL■D-□M and GP3000H Conversion Adapter AGP3000H-ADPCOM-01	RS-232C	"Configuration 1" (page 8)
		RS-422/485 (4 wire)	"Configuration 1" (page 8)
		RS-422/485 (4 wire) Serial multilink	"Configuration 3" (page 14)
		RS-422/485 (2 wire)	"Configuration 1" (page 8)
		Ethernet (UDP or TCP)	"Configuration 1" (page 8)
	GP3000H Direct-connect cable (without connector) GP3000H-CBL■-□M[*1]	RS-232C	"Configuration 2" (page 10)
		RS-422/485 (4 wire)	"Configuration 2" (page 10)
		RS-422/485 (4 wire) Serial multilink	"Configuration 4" (page 16)
		RS-422/485 (2 wire)	"Configuration 2" (page 10)
		Ethernet (UDP or TCP)	"Configuration 2" (page 10)
	GP3000H Soft-type Cable for GP2000H Conversion Adapter <RS-232C> (with connector)[*2] GP3000H-CBLSD232-□M and GP2000H Series RS-232C Conversion Adapter GP2000H-AP232	RS-232C	"Configuration 5" (page 19)
	GP3000H Soft-type Cable for GP2000H Conversion Adapter <RS-232C> (with connector)[*2] GP3000H-CBLSD232-□M and GP2000H Series RS-232C Conversion Adapter GP2000H-AP232 and RS-232C Cable GP410-IS00-O(5m)	RS-232C	"Configuration 6" (page 21)
	GP3000H Soft-type Cable for GP2000H Conversion Adapter <RS-422> (with connector)[*2] GP3000H-CBLSD422-□M and GP2000H series RS-422 Conversion Adapter GP2000H-AP422	RS-422/485 (4 wire or 2 wire)	"Configuration 7" (page 23)

Display	Optional Items	SIO Type	System Configuration
GP4000H	GP3000H Direct-connect cable (with connector) GP3000H-CBL■D-□M and GP3000H Conversion Adapter AGP3000H-ADPCOM-01	RS-232C	"Configuration 1" (page 8)
		RS-422/485 (4 wire)	"Configuration 1" (page 8)
		RS-422/485 (4 wire) Serial multilink	"Configuration 3" (page 14)
		RS-422/485 (2 wire)	"Configuration 1" (page 8)
		Ethernet (UDP or TCP)	"Configuration 1" (page 8)
	GP3000H Direct-connect cable (without connector) GP3000H-CBL■-□M[*1]	RS-232C	"Configuration 2" (page 10)
		RS-422/485 (4 wire)	"Configuration 2" (page 10)
		RS-422/485 (4 wire) Serial multilink	"Configuration 4" (page 16)
		RS-422/485 (2 wire)	"Configuration 2" (page 10)
		Ethernet (UDP or TCP)	"Configuration 2" (page 10)
GPH6000	Wired adapter connection cable PFXZHCBLCOM□M and Wired adapter PFXZHADPCOM	RS-232C	"Configuration 8" (page 25)
		RS-422/485 (4 wire)	"Configuration 9" (page 27)
		RS-422/485 (4 wire) Serial multilink	"Configuration 12" (page 33)
		RS-422/485 (2 wire)	"Configuration 9" (page 27)
		Ethernet (UDP or TCP)	"Configuration 8" (page 25)
	Direct connection cable PFXZHCBLOUT□M	RS-232C	"Configuration 10" (page 29)
		RS-422/485 (4 wire)	"Configuration 11" (page 31)
		RS-422/485 (4 wire) Serial multilink	"Configuration 13" (page 35)
		RS-422/485 (2 wire)	"Configuration 11" (page 31)
		Ethernet (UDP or TCP)	"Configuration 10" (page 29)

*1   In RS-422/485 communication, when connecting the GP3000H-CBL■-□M cable directly to the PLC, do not apply termination resistance to the display unit. Apply termination resistance to the PLC only.

*2   Be sure to read the installation guide included with the cable for details on usage of the GP2000H series Conversion Adapter.

NOTE

• In the cable model names, the ■ symbol represents H or S (for Hard-type or Soft-type). The □ symbol represents 3, 5, or 10 (for meters of cable length).

☞ "2 Optional Items" (page 6)

2 Optional Items

■ When connecting the External Device directly to the GP3000H/GP4000H

Name	Type	Description
GP3000H Hard-type 10m Direct-connect cable (without connector)	GP3000H-CBLH-10M	Heavy-duty[1] type interface cable for communication between the Display and External Device (e.g. host controller), equipped with common mode filter.
GP3000H Soft-type 3m Direct-connect cable (without connector)	GP3000H-CBLS-3M	Standard type interface cable for communication between the Display and External Device (e.g. host controller), equipped with common mode filter.
GP3000H Soft-type 5m Direct-connect cable (without connector)	GP3000H-CBLS-5M	
GP3000H Soft-type 10m Direct-connect cable (without connector)	GP3000H-CBLS-10M	

*1 Heavy-duty type cables are built stronger than Standard type cables, so they can be used in situations where durability is required.

NOTE
• In RS-422/485 communication, when connecting the GP3000H-CBL■-□M cable directly to the PLC, do not apply termination resistance to the display unit. Apply termination resistance to the PLC only.

■ When connecting the GP3000H Conversion Adapter to the GP3000H/GP4000H

Name	Type	Description
GP3000H Hard-type 10m Direct-connect cable (with connector)	GP3000H-CBLHD-10M	Heavy-duty[1] type cable between the GP3000H Conversion Adapter and the Display.
GP3000H Soft-type 3m Direct-connect cable (with connector)	GP3000H-CBLSD-3M	Standard type cable between the GP3000H Conversion Adapter and the Display.
GP3000H Soft-type 5m Direct-connect cable (with connector)	GP3000H-CBLSD-5M	
GP3000H Soft-type 10m Direct-connect cable (with connector)	GP3000H-CBLSD-10M	
GP3000H Conversion Adapter	AGP3000H-ADPCOM-01	This is the conversion adapter which converts the output to RS-232C/422/485 serial interface output (D-Sub) or to Ethernet output (RJ-45).

*1 Heavy-duty type cables are built stronger than Standard type cables, so they can be used in situations where durability is required.

■ When connecting the GP2000H Series Conversion Adapter for RS-232C or the GP2000H Series Conversion Adapter for RS-422 to the GP3000H

Name	Type	Description
GP3000H Soft-type 3 m Cable for GP2000H Conversion Adapter <RS-232C> (with connector)	GP3000H-CBLSD232-3M	The cable between the GP2000H Series RS-232C Conversion Adapter and the GP3000H, equipped with D-Sub connector.
GP3000H Soft-type 10 m Cable for GP2000H Conversion Adapter <RS-232C> (with connector)	GP3000H-CBLSD232-10M	
GP2000H Series RS-232C Conversion Adapter	GP2000H-AP232	Conversion adapter to convert serial data to RS-232C D-Sub format.
GP3000H Soft-type 3 m Cable for GP2000H Conversion Adapter <RS-422> (with connector)	GP3000H-CBLSD422-3M	The cable between the GP2000H Series RS-422 Conversion Adapter and the GP3000H, equipped with D-Sub connector.
GP3000H Soft-type 10 m Cable for GP2000H Conversion Adapter <RS-422> (with connector)	GP3000H-CBLSD422-10M	
GP2000H Series RS-422 Conversion Adapter	GP2000H-AP422	Conversion adapter to convert serial data to RS-422 terminal block format.

IMPORTANT	• Be sure to read the installation guide included with the GP3000H Soft-type Cable for GP2000H Conversion Adapter for details on usage of the GP2000H Series Conversion Adapter.

■ When connecting the External Device directly to the GPH6000

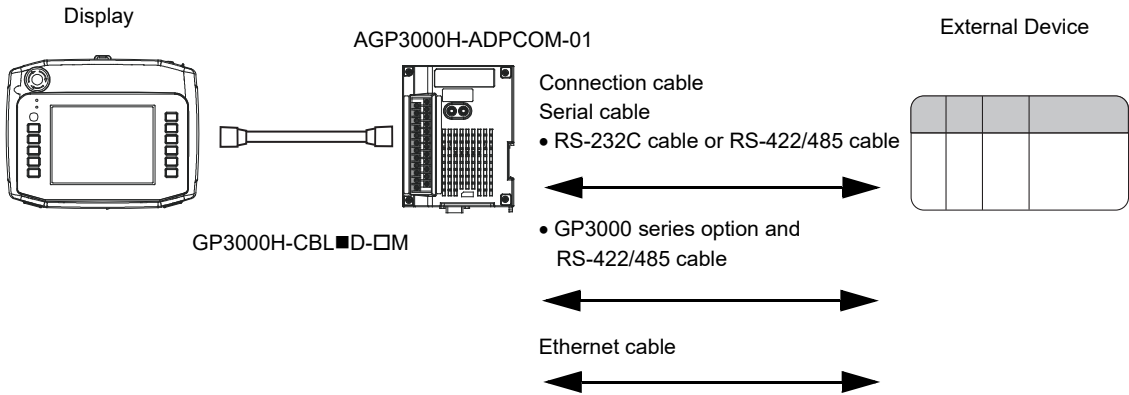| Name	Type	Description
Direct connection cable 5m	PFXZHCBLOUT5M	Cable for directly connecting GPH6000 Series (wired type) to host controller, 5 m (16.4 ft).
Direct connection cable 10m	PFXZHCBLOUT10M	Cable for directly connecting GPH6000 Series (wired type) to host controller, 10 m (32.8 ft).

■ When connecting the wired adapter to the GPH6000

Name	Type	Description
Wired adapter connection cable 5m	PFXZHCBLCOM5M	Cable for connecting GPH6000 Series (wired type) and wired adapter, 5 m (16.4 ft).
Wired adapter connection cable 10m	PFXZHCBLCOM10M	Cable for connecting GPH6000 Series (wired type) and wired adapter, 10 m (32.8 ft).
Wired adapter	PFXZHADPCOM	Conversion adapter for GPH6000 Series (wired type).

3 Connection Configuration

3.1 Configuration 1

When using the GP3000H Direct-connect cable (with connector) (GP3000H-CBL■D-□M) and GP3000H Conversion Adapter (AGP3000H-ADPCOM-01)
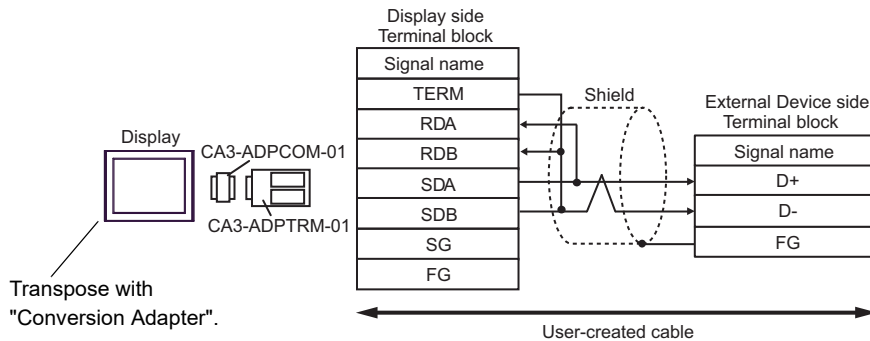

| IMPORTANT | • Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.
• Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable. |

- Transposing from Device/PLC connection manual

  Connection cable diagrams are the same for "GP3000 (COM1)" in each Device/PLC connection manual.

  When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "Conversion Adapter".

  - The following is an example of a cable diagram in an Device/PLC connection manual:
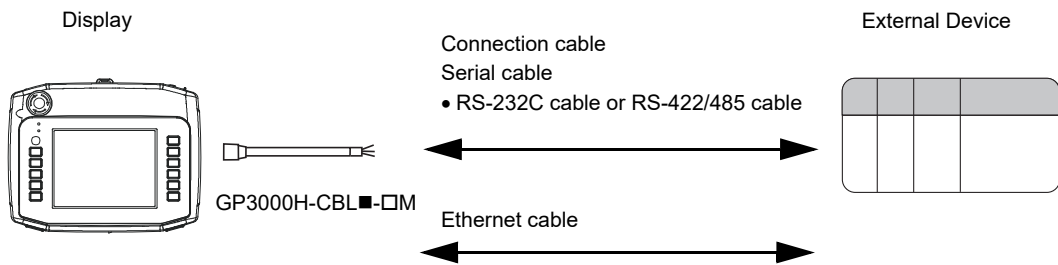

  - Transposed cable diagram:

NOTE	• When using an Ethernet, the cable diagram is not indicated in the Device/PLC connection manual. Connect a HUB to the conversion adapter's Ethernet connector (RJ-45).

3.2 Configuration 2

When using the GP3000H Direct-connect cable (GP3000H-CBL■-□M)

| Display | | External Device |

IMPORTANT
- Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.
- Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.
- In RS-422/485 communication, when connecting the GP3000H-CBL■-□M cable directly to the PLC, do not apply termination resistance to the display unit. Apply termination resistance to the PLC only.

- Cable Color and Identification Marks for GP3000H Direct-connect Cable

The connection device side of the GP3000H Direct-connect cable requires trimming. When you trim the cable, check the cable color and an identification to identify the signal type.
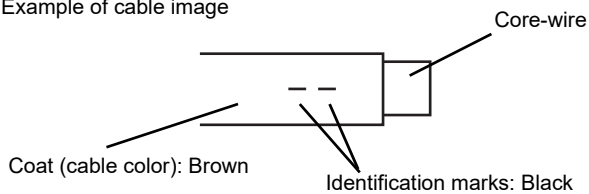
NOTE
- Keep unused cables from contacting other cables or connector cases.

<RS-232C communication>
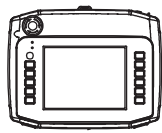
Cable color	Identification marks	Signal name
Brown	White 1	CD
Brown	Black 1	RD(RXD)
Brown	White 2	SD(TXD)
Brown	White 4	ER(DTR)
Brown	-	SG
Brown	Black 3	DR(DSR)
Brown	Black 2	RS(RTS)
Brown	White 3	CS(CTS)
Brown	Black 4	CI(RI)
Green	-	FG

Example of cable image

Core-wire

Coat (cable color): Brown

Identification marks: Black

In the example above, the cable color is brown, and the identification mark shows two black lines, which means RS (RTS).

<RS-422/485 communication>

Cable color	Identification marks	Signal name
Brown	White 1	RDA
Brown	Black 1	RDB
Brown	White 2	SDA
Brown	Black 2	SDB
Brown	-	SG
Brown	White 4	ERA
Brown	White 3	CSA
Brown	Black 4	ERB
Brown	Black 3	CSB
Green	-	FG

Example of cable image

Core-wire

Coat (cable color): Brown

Identification marks: Black

In the example above, the cable color is brown, and the identification mark shows two black lines, which means SDB.

<Ethernet communication>

Cable color	Identification marks	Signal name
Blue	-	TX+
White	-	TX-
Brown	-	RX+
Gray	-	RX-

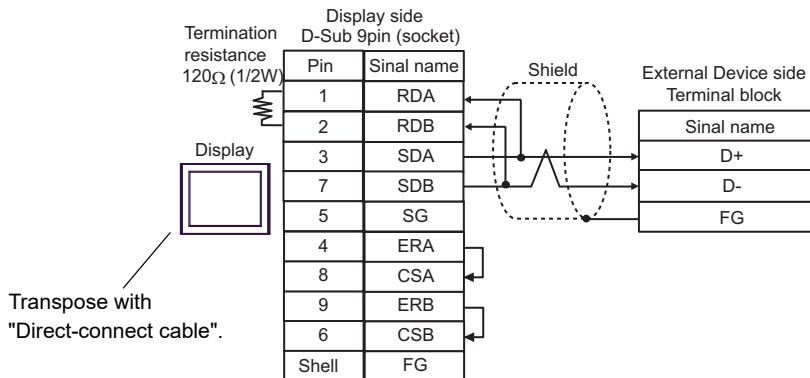Use an Ethernet connector (RJ-45) for Ethernet communication.

• Transposing from Device/PLC connection manual

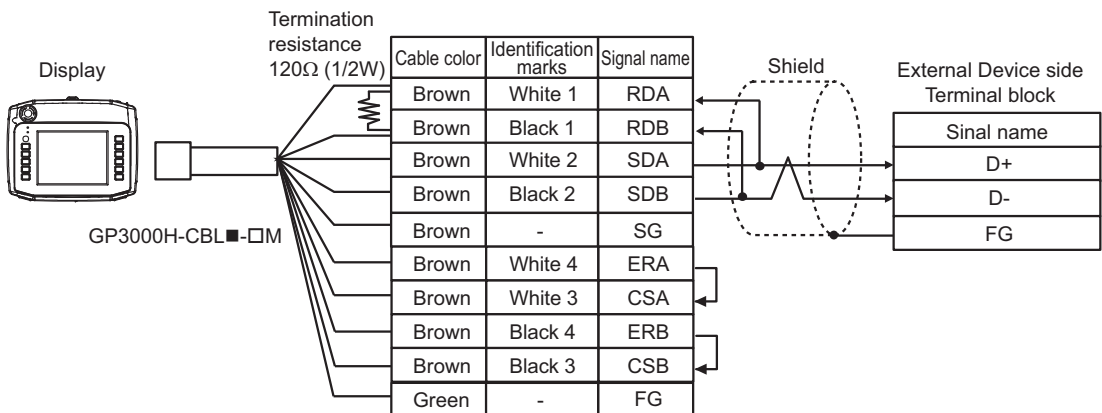Connection cable diagrams are the same for "GP3000 (COM1)" in each Device/PLC connection manual. Alternatively GP3000H Direct-connect cable (without connector) can be transposed with the cable diagram that uses only the user-created cable.

When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "GP3000H Direct-connect cable".

• The following is an example of a cable diagram in an Device/PLC connection manual:
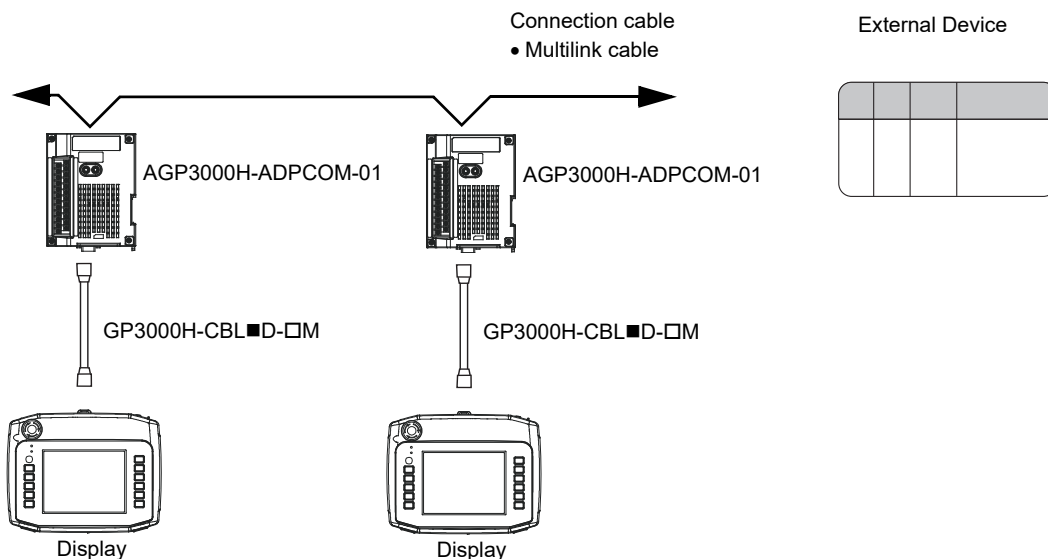

• Transposed cable diagram:

NOTE	• When using an Ethernet, the cable diagram is not indicated in the Device/PLC connection manual. Connect a HUB to the GP3000H Direct-connect cable's Ethernet connector (RJ-45).

3.3 Configuration 3

When using the GP3000H Direct-connect cables (with connectors) (GP3000H-CBL■D-□M) and GP3000H Conversion Adapters (AGP3000H-ADPCOM-01) for the multilink connect

Connection cable
• Multilink cable
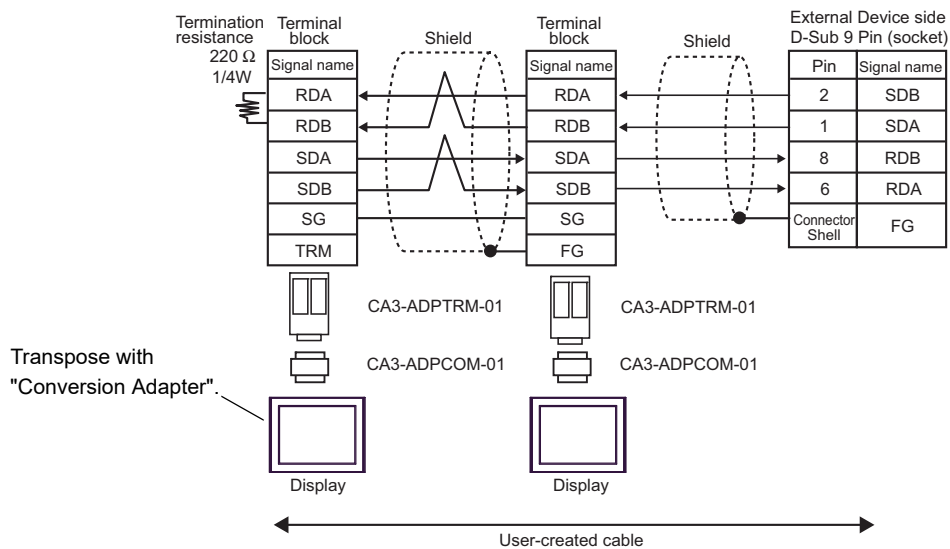
External Device

AGP3000H-ADPCOM-01   AGP3000H-ADPCOM-01

GP3000H-CBL■D-□M   GP3000H-CBL■D-□M

Display   Display

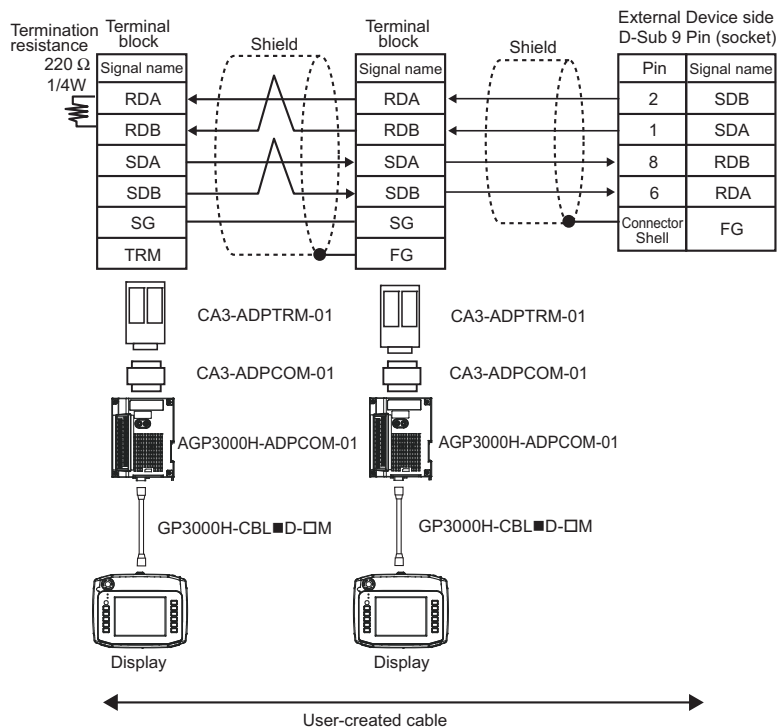| IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.
	• Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.
	• Refer to "Serial Multilink" at the front of the GP-Pro EX Device/PLC connection manual, and confirm the driver compliant with the multilink connection.
	• For the multilink connection settings, refer to the "Serial Multilink Guide" from "Serial Multilink".

- Transposing from Device/PLC connection manual

  Connection cable diagrams are the same for "GP3000 (COM1)" in each Device/PLC connection manual.

  When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose

  the "Display" section with "Conversion Adapter".

  - The following is an example of a cable diagram in an Device/PLC connection manual:
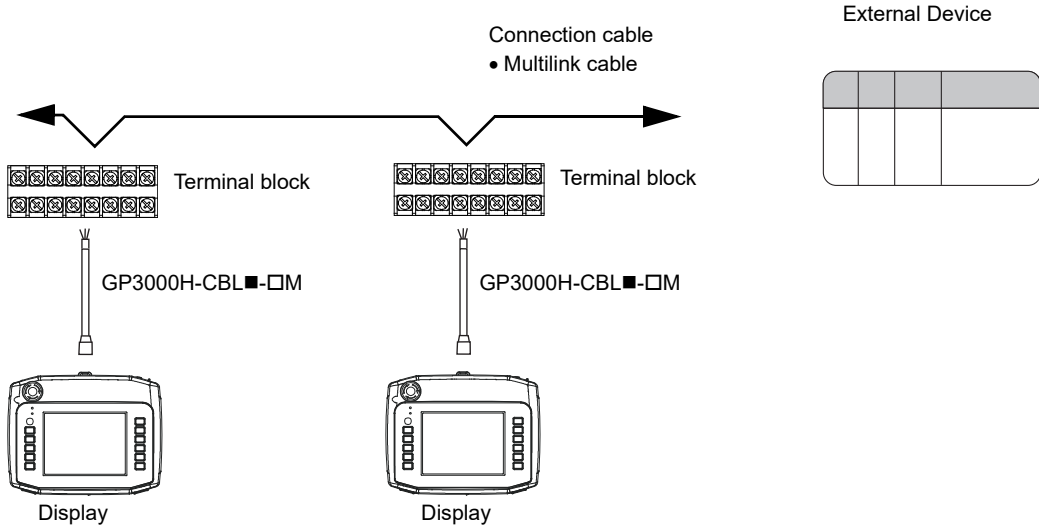

- Transposed cable diagram:

3.4　　　　Configuration 4

When using the GP3000H Direct-connect cables (without connectors) (GP3000H-CBL■D-□M) for the multilink connection

	IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.

- Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.
- Refer to "Serial Multilink" at the front of the GP-Pro EX Device/PLC connection manual, and confirm the driver compliant with the multilink connection.
- For the multilink connection settings, refer to the "Serial Multilink Guide" from "Serial Multilink".
- In RS-422/485 communication, when connecting the GP3000H-CBL■-□M cable directly to the PLC, do not apply termination resistance to the display unit. Apply termination resistance to the PLC only.
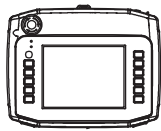
- Cable Color and Identification Marks for GP3000H Direct-connect Cable

The External Device side of the GP3000H Direct-connect cable requires trimming. When you trim the cable, check the cable color and an identification to identify the signal type.
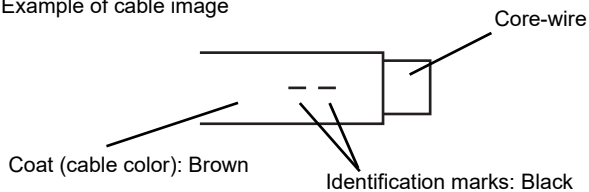
NOTE	• Keep unused cables from contacting other cables or connector cases.

<RS-422/485 communication>

Cable color	Identification marks	Signal name
Brown	White 1	RDA
Brown	Black 1	RDB
Brown	White 2	SDA
Brown	Black 2	SDB
Brown	-	SG
Brown	White 4	ERA
Brown	White 3	CSA
Brown	Black 4	ERB
Brown	Black 3	CSB
Green	-	FG

Example of cable image

Core-wire

Coat (cable color): Brown

Identification marks: Black

In the example above, the cable color is brown, and the identification mark shows two black lines, which means SDB.

- Transposing from Device/PLC connection manual

  Connection cable diagrams are the same for "GP3000 (COM1)" in each Device/PLC connection manual. GP3000H Direct-connect cable (without connector) is connected with External Device by using terminal block. Alternatively GP3000H Direct-connect cable (without connector) can be transposed with the cable diagram that uses only the user-created cable.

  When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "GP3000H Direct-connect cable".

- The following is a multilink connection example of a cable diagram in an Device/PLC connection manual:
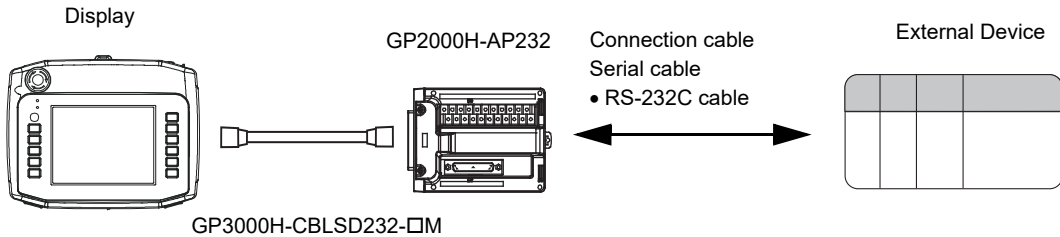

Transpose with "Direct-connect cable".
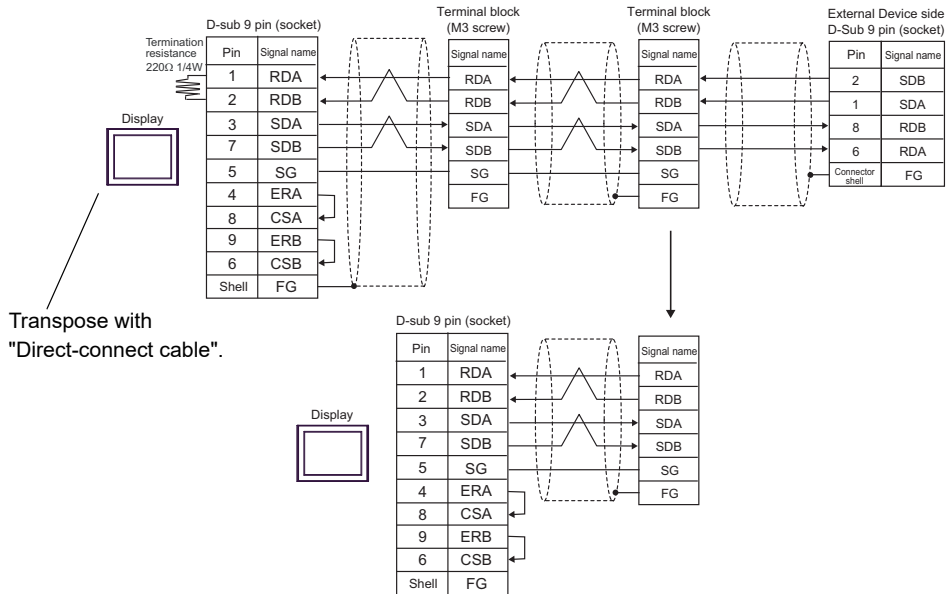
- Transposed cable diagram:
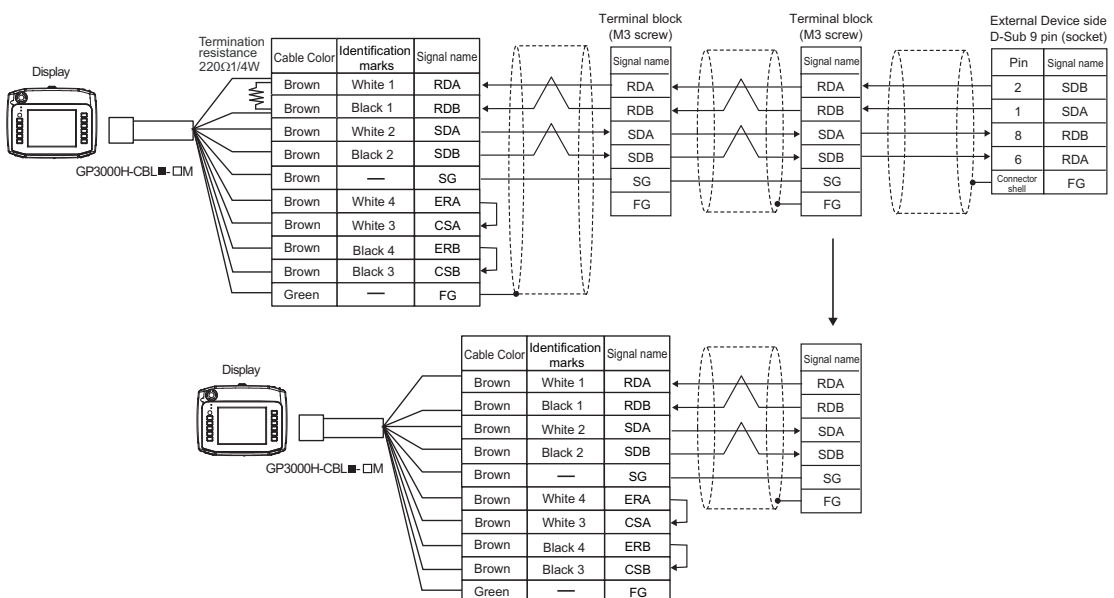
3.5   Configuration 5

When using the GP3000H Soft-type Cable for GP2000H Conversion Adapter <RS-232C> (with connector) (GP3000H-CBLSD232-□M) and GP2000H Series RS-232C Conversion Adapter (GP2000H-AP232)

Display
GP2000H-AP232   Connection cable   External Device
Serial cable
• RS-232C cable

GP3000H-CBLSD232-□M

IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The GP3000H series port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.
	• Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.

• Pin number of the GP2000H Series RS-232C Conversion Adapter
Connection port of the GP2000H Series RS-232C Conversion Adapter is D-Sub25 pin (socket). "GP3000 (COM1)" indicated in the Device/PLC connection manual is D-Sub9 pin, so the pin number needs to be transposed.

Pin-out indicated in the Device/PLC connection manual

Pin-out of GP2000H Series RS-232C Conversion Adapter

GP3000 (COM1) side
D-Sub 9 pin (socket)

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)
9	CI/VCC
Shell	FG

GP2000-AP232 side
D-Sub 25 pin (plug)

Pin	Signal name
8	CD
3	RD (RXD)
2	SD (TXD)
20	ER (DTR)
7	SG
-	-
4	RS (RTS)
5	CS (CTS)
14	CI/VCC
1	FG

Transpose the Display pin number (D-Sub9 pin) with the GP2000H-AP232 pin number (D-Sub25 pin).
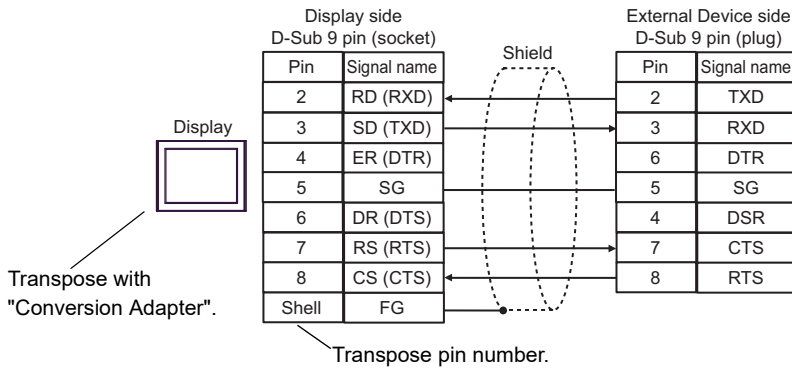
NOTE	• There is no "DR(DSR)" for the GP2000H Series RS-232C Conversion Adapter.
	• When the system has been already constructed using the GP2000H Series RS-232C Conversion Adapter, the existing cable can be used as the connection cable.
	• When using a system constructed by GP-PRO/PBIII for Windows, the External Device name is changed. Refer to the GP-Pro EX Reference Manual for details.

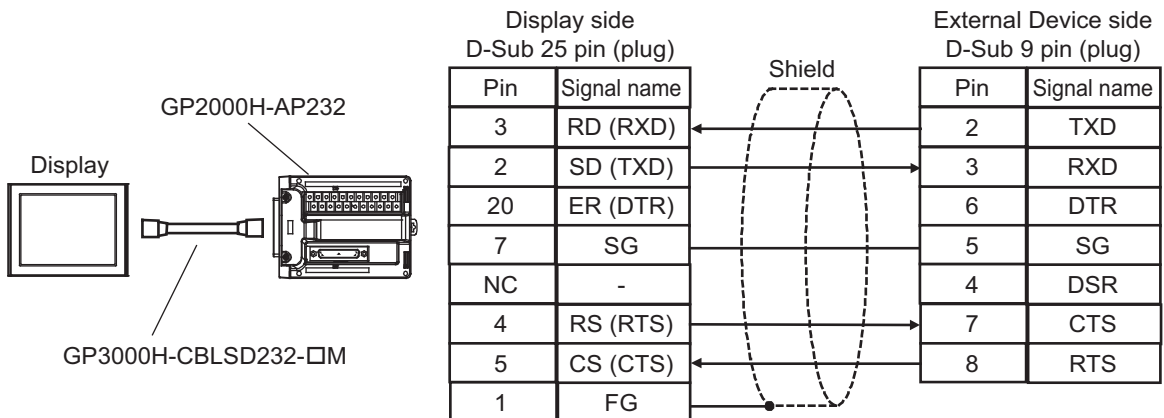- Transposing from Device/PLC connection manual

  The connection cable diagram is the same for connect the user-created cable to "GP3000 (COM1)" in each Device/PLC connection manual.

  When using the cable diagrams from the Device/PLC connection manual for the GP3000H series, transpose the "Display" section with "Conversion Adapter".

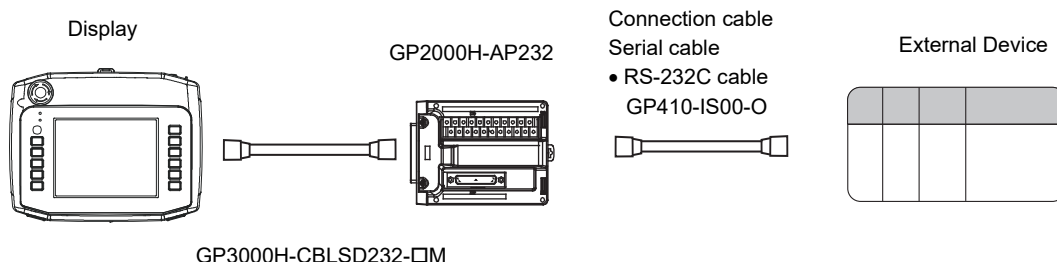 - The following is an example of a cable diagram in an Device/PLC connection manual:

  - Transposed cable diagram:

3.6　　　　Configuration 6

When using the GP3000H Soft-type Cable for GP2000H Conversion Adapter <RS-232C> (with connector) (GP3000H-CBLSD232-□M), GP2000H Series RS-232C Conversion Adapter (GP2000H-AP232) and RS-232C Cable (GP410-IS00-O)

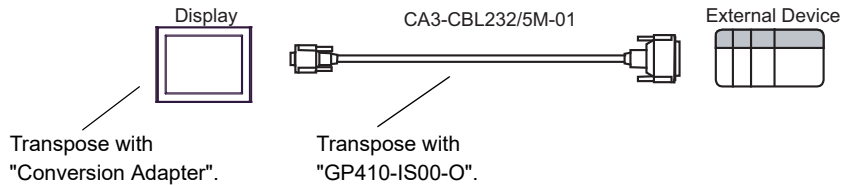| | | |
| Display | GP2000H-AP232 | Connection cable
Serial cable
• RS-232C cable
GP410-IS00-O | External Device |

GP3000H-CBLSD232-□M

IMPORTANT

• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The GP3000H series port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.

• Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.


• Transposing from Device/PLC connection manual

The connection cable diagram is the same for connect the RS-232C Cable (CA3-CBL232/5M-01) by Pro-face to "GP3000 (COM1)" in each Device/PLC connection manual.

When using the cable diagrams from the Device/PLC connection manual for the GP3000H series, transpose the "Display" section with "Conversion Adapter".

    • The following is an example of a cable diagram in an Device/PLC connection manual:
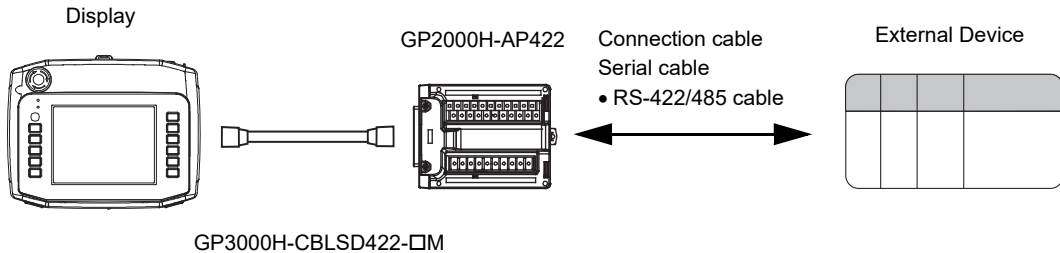

Transpose with "Conversion Adapter".

Transpose with "GP410-IS00-O".

    • Transposed cable diagram:

GP2000H-AP232

Display

GP410-IS00-O

External Device
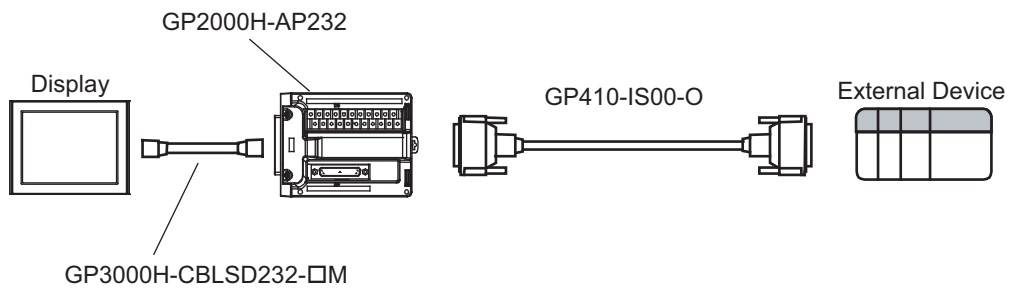
GP3000H-CBLSD232-□M

3.7 Configuration 7

When using the GP3000H Soft-type Cable for GP2000H Conversion Adapter <RS-422> (with connector) (GP3000H-CBLSD422-□M) and GP2000H Series RS-422 Conversion Adapter (GP2000H-AP422)

Display   GP2000H-AP422 Connection cable   External Device
                    Serial cable
                    • RS-422/485 cable

GP3000H-CBLSD422-□M

IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The GP3000H series port that is used for serial communication is indicated as "GP3000 (COM1)" in the Device/PLC connection manual.
	• Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.

• Pin number of the GP2000H Series RS-422 Conversion Adapter

Connection port of the GP2000H Series RS-422 Conversion Adapter is 10 poles terminal block. "GP3000 (COM1)" indicated in the Device/PLC connection manual is D-Sub9 pin, so the pin number needs to be transposed.

Pin-out indicated in the Device/PLC connection manual

Pin-out of GP2000H Series RS-422 Conversion Adapter

GP3000 (COM1) side
D-Sub 9 pin (socket)

Pin	Signal name
1	RDA
2	RDB
3	SDA
7	SDB
5	SG
4	ERA
8	CSA
9	ERB
6	CSB
Shell	FG

GP2000-AP422 side
10 poles terminal block

Pin	Signal name
6	RDA
5	RDB
4	SDA
3	SDB
2	SG
8	ERA
7	CSA
10	ERB
9	CSB
1	FG

Transpose the Display pin number (D-Sub9 pin) with the GP200H-AP422 pin number (10 poles terminal block).
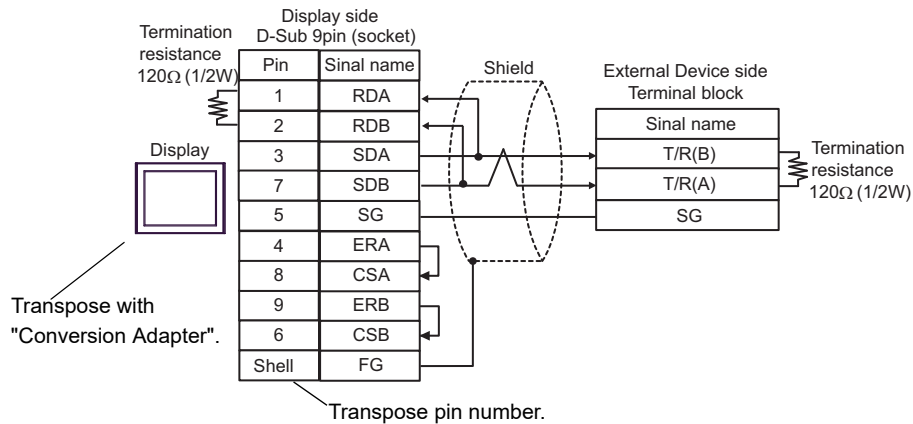
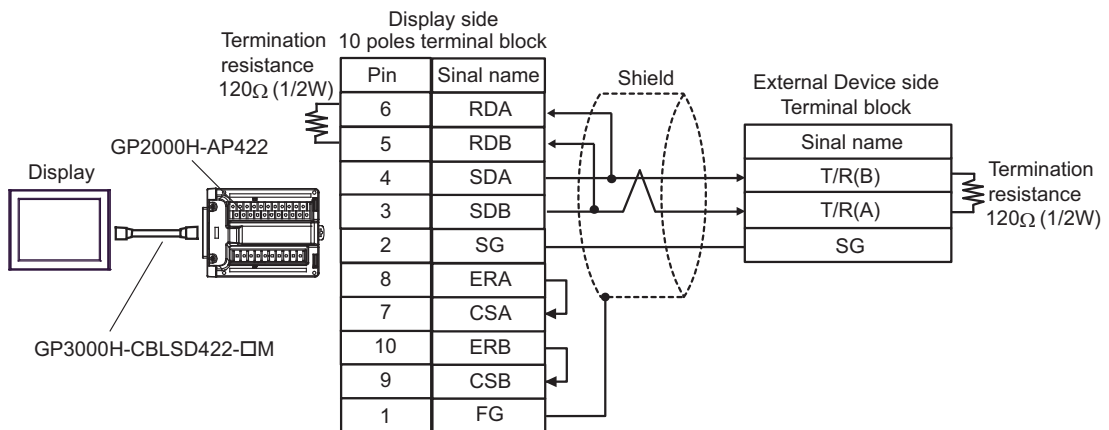| NOTE	• When the system has been already constructed using the GP2000H Series RS-422 Conversion Adapter, the existing cable can be used as the connection cable.
	• When using a system constructed by GP-PRO/PBIII for Windows, the External Device name is changed. Refer to the GP-Pro EX Reference Manual for details.

• Transposing from Device/PLC connection manual

The connection cable diagram is the same for connect the user-created cable to "GP3000 (COM1)" in each Device/PLC connection manual.

When using the cable diagrams from the Device/PLC connection manual for the GP3000H series, transpose the "Display" section with "Conversion Adapter".

    • The following is an example of a cable diagram in an Device/PLC connection manual:
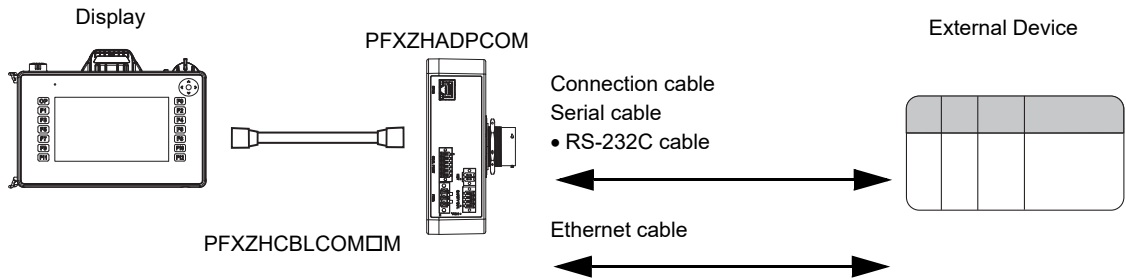

    • Transposed cable diagram:

3.8　　　　Configuration 8

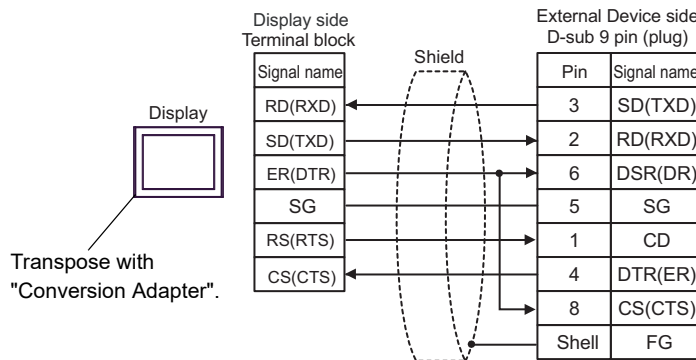When using the Wired adapter connection cable (PFXZHCBLCOM☐M) and Wired adapter (PFXZHADPCOM).

Display   PFXZHADPCOM   External Device

Connection cable
Serial cable
• RS-232C cable

PFXZHCBLCOM☐M

Ethernet cable

```
┌───────────┐  • Connection cable differs depending on the External Device in use. Check with the
│ IMPORTANT │    Device/PLC connection manual that corresponds to the External Device in use for the
└───────────┘    content and usage. The Hand-held GP port that is used for serial communication is
                 indicated as "GP-4115T (COM1)" in the Device/PLC connection manual.
               • Cable length differs depending on the External Device. Communicable cable length
                 includes the length of the wired adapter connection cable.
```
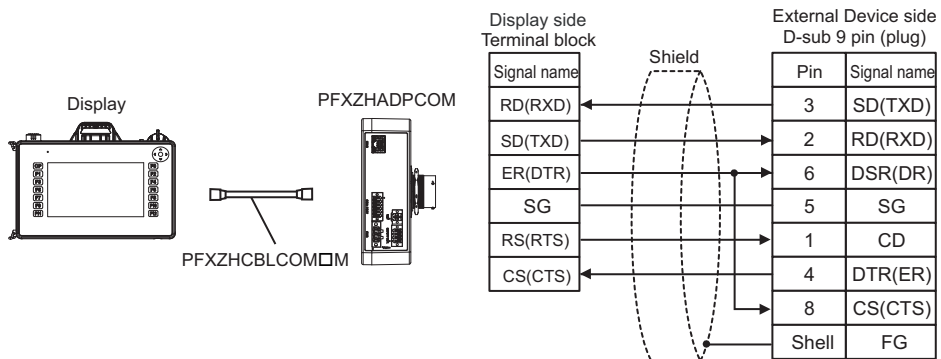
• Transposing from Device/PLC connection manual

Connection cable diagrams are the same for "GP-4115T (COM1)" in each Device/PLC connection manual. When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "Conversion Adapter".

   • The following is an example of a cable diagram in an Device/PLC connection manual:
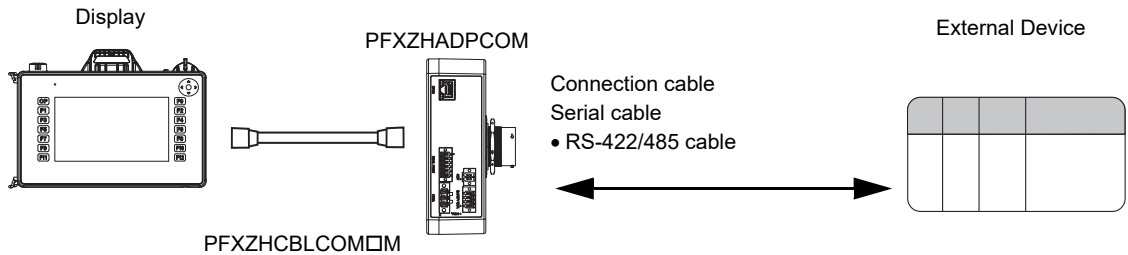

• Transposed cable diagram:

NOTE	• When using an Ethernet, the cable diagram is not indicated in the Device/PLC connection manual. Connect a HUB to the conversion adapter's Ethernet connector (RJ-45).

3.9　　　　Configuration 9

When using the Wired adapter connection cable (PFXZHCBLCOM□M) and Wired adapter (PFXZHADPCOM).

Display　　　　　　　　　　　　　PFXZHADPCOM　　　　　　　　　　　External Device

Connection cable
Serial cable
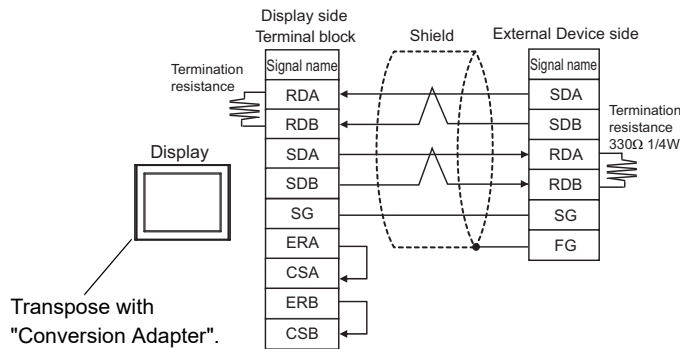• RS-422/485 cable

PFXZHCBLCOM□M

| IMPORTANT | • Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP-4116T (COM1)" in the Device/PLC connection manual.
• Cable length differs depending on the External Device. Communicable cable length includes the length of the wired adapter connection cable. |
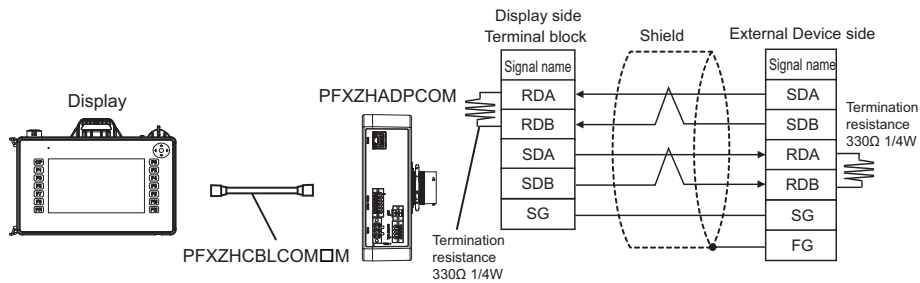
- Transposing from Device/PLC connection manual

  Connection cable diagrams are the same for "GP-4116T (COM1) " in each Device/PLC connection manual. When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "Conversion Adapter".

  - The following is an example of a cable diagram in an Device/PLC connection manual:
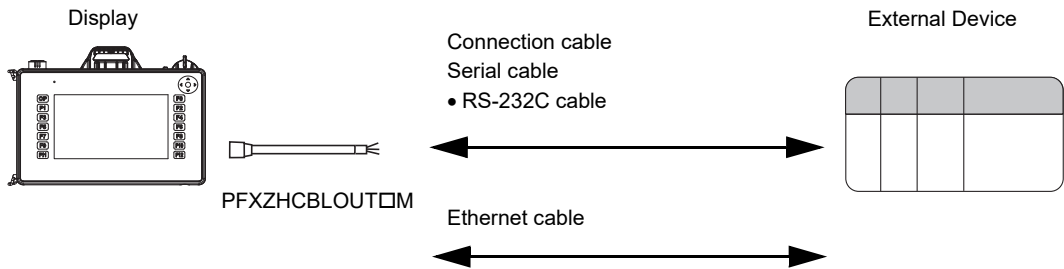

  - Transposed cable diagram:

IMPORTANT	• For the GPH6000 series, set the termination resistance with the physical wiring. The termination resistance value should be aligned with that of the External Device side. If there is no description of the termination resistance value on the External Device side in the wiring diagram from which you are reading, refer to the termination resistance value described in the wiring diagram of the other Display.

NOTE	• There are no ERA, CSA, ERB, or CSB terminals on GPH6000 series terminal block.

3.10   Configuration 10

When using the Direct connection cable (PFXZHCBLOUT□M).

Display

Connection cable
Serial cable
• RS-232C cable

External Device

PFXZHCBLOUT□M

Ethernet cable

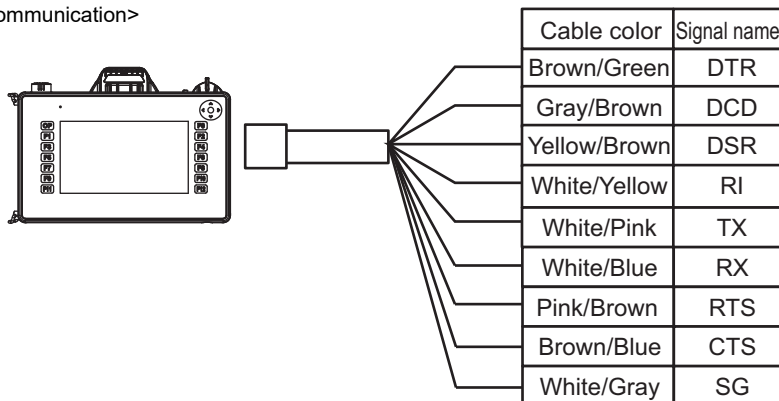| IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP-4115T (COM1)" in the Device/PLC connection manual.
	• Cable length differs depending on the External Device. Communicable cable length includes the length of the GP3000H Direct-connect cable.

• Cable Color and Identification Marks for Direct-connect Cable

The connection device side of the Direct-connect cable requires trimming. When you trim the cable, check the cable color to identify the signal type.
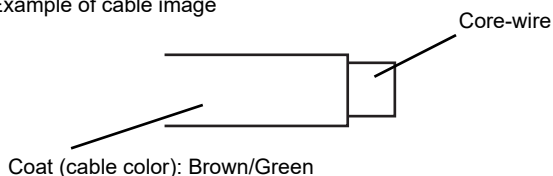
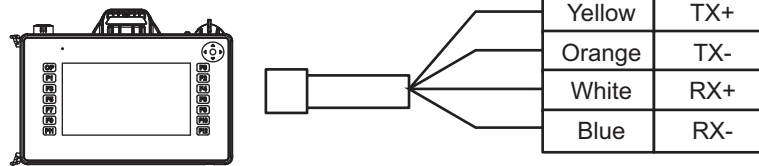| NOTE	• Keep unused cables from contacting other cables or connector cases.

<RS-232C communication>

Cable color	Signal name
Brown/Green	DTR
Gray/Brown	DCD
Yellow/Brown	DSR
White/Yellow	RI
White/Pink	TX
White/Blue	RX
Pink/Brown	RTS
Brown/Blue	CTS
White/Gray	SG

Example of cable image

Core-wire

Coat (cable color): Brown/Green

In the example above, the cable color is brown/green, which means DTR.

<Ethernet communication>

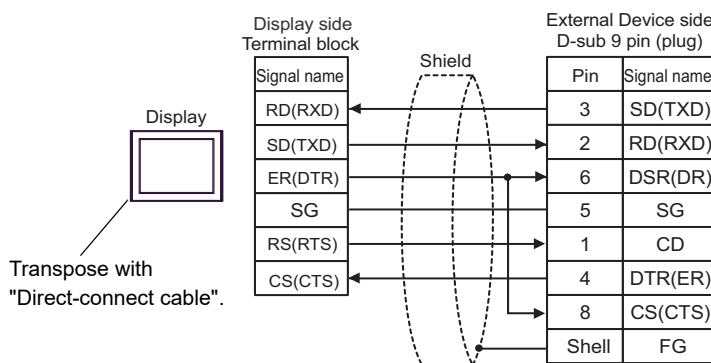| Cable color	Signal name
Yellow	TX+
Orange	TX-
White	RX+
Blue	RX-

Use an Ethernet connector (RJ-45) for Ethernet communication.

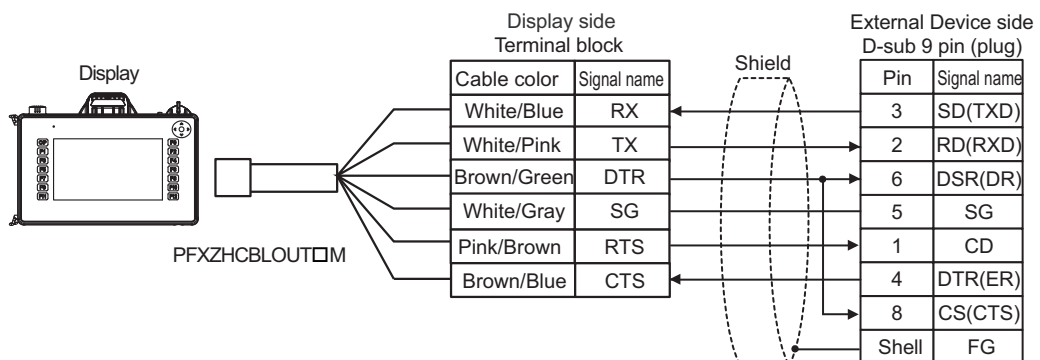• Transposing from Device/PLC connection manual

Connection cable diagrams are the same for "GP-4115T (COM1)" in each Device/PLC connection manual. Alternatively Direct-connect cable can be transposed with the cable diagram that uses only the user-created cable.

When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "Direct-connect cable".

• The following is an example of a cable diagram in an Device/PLC connection manual:
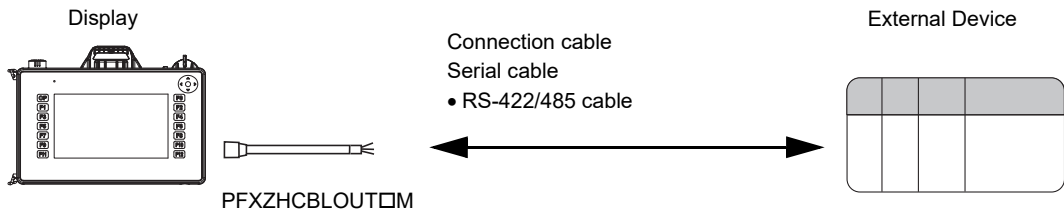

• Transposed cable diagram:

NOTE

• When using an Ethernet, the cable diagram is not indicated in the Device/PLC connection manual. Connect a HUB to the Direct-connect cable's Ethernet connector (RJ-45).

3.11 Configuration 11

When using the Direct connection cable (PFXZHCBLOUT☐M)

Display

Connection cable
Serial cable
• RS-422/485 cable
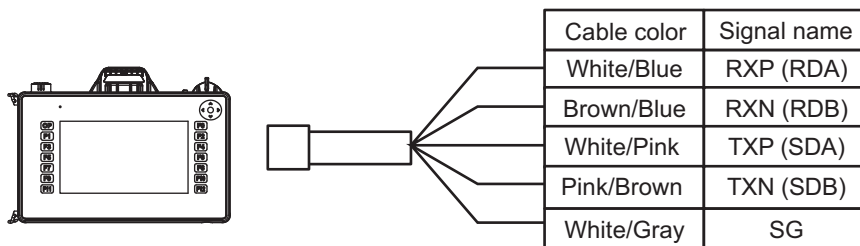
External Device

PFXZHCBLOUT☐M

IMPORTANT

• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP-4116T (COM1)" in the Device/PLC connection manual.

• Cable length differs depending on the External Device. Communicable cable length includes the length of the Direct-connect cable.

• Cable Color and Identification Marks for Direct-connect Cable
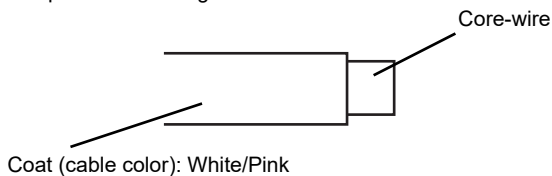
The connection device side of the Direct-connect cable requires trimming. When you trim the cable, check the cable color to identify the signal type.

NOTE

• Keep unused cables from contacting other cables or connector cases.

Cable color	Signal name
White/Blue	RXP (RDA)
Brown/Blue	RXN (RDB)
White/Pink	TXP (SDA)
Pink/Brown	TXN (SDB)
White/Gray	SG

Example of cable image
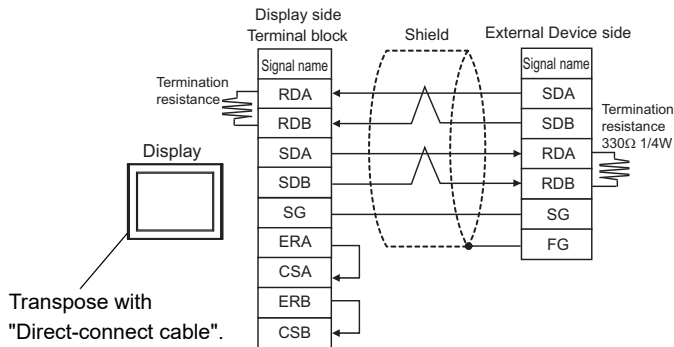
Core-wire

Coat (cable color): White/Pink

In the example above, the cable color is white/pink, which means TXP (SDA).
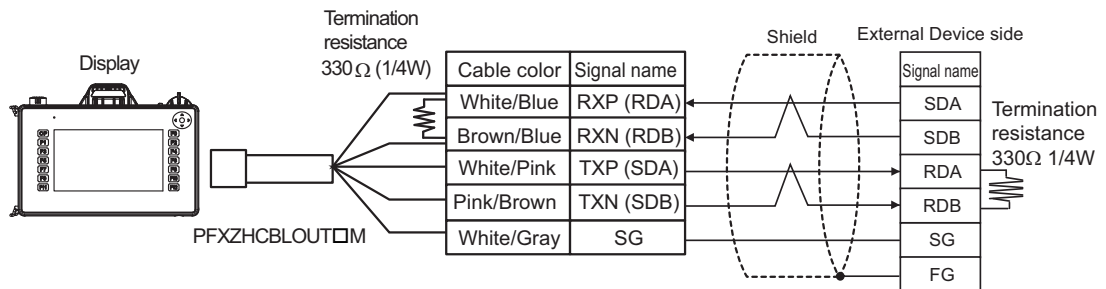
• Transposing from Device/PLC connection manual

Connection cable diagrams are the same for "GP-4116T (COM1)" in each Device/PLC connection manual. Alternatively Direct-connect cable can be transposed with the cable diagram that uses only the user-created cable.

When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose the "Display" section with "Direct-connect cable".

• The following is an example of a cable diagram in an Device/PLC connection manual:
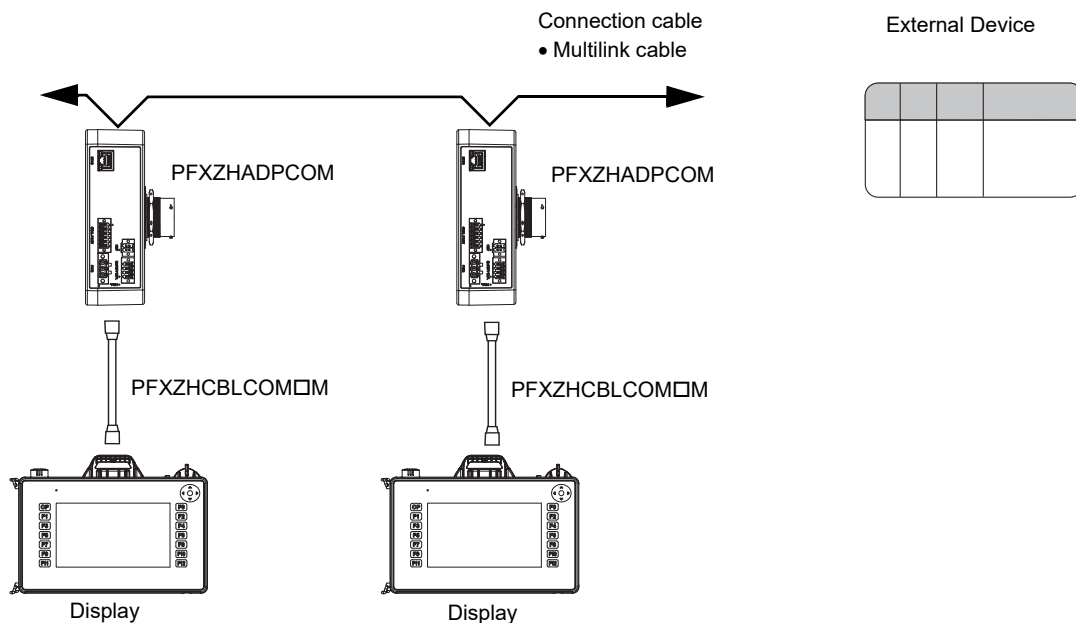

• Transposed cable diagram:

IMPORTANT

• For the GPH6000 series, set the termination resistance with the physical wiring. The termination resistance value should be aligned with that of the External Device side. If there is no description of the termination resistance value on the External Device side in the wiring diagram from which you are reading, refer to the termination resistance value described in the wiring diagram of the other Display.

NOTE

• There are no ERA, CSA, ERB, or CSB terminals on GPH6000 series terminal block.

3.12   Configuration 12

When using the Wired adapter connection cable (PFXZHCBLCOM□M) and Wired adapter (PFXZHADPCOM) for the multilink connect
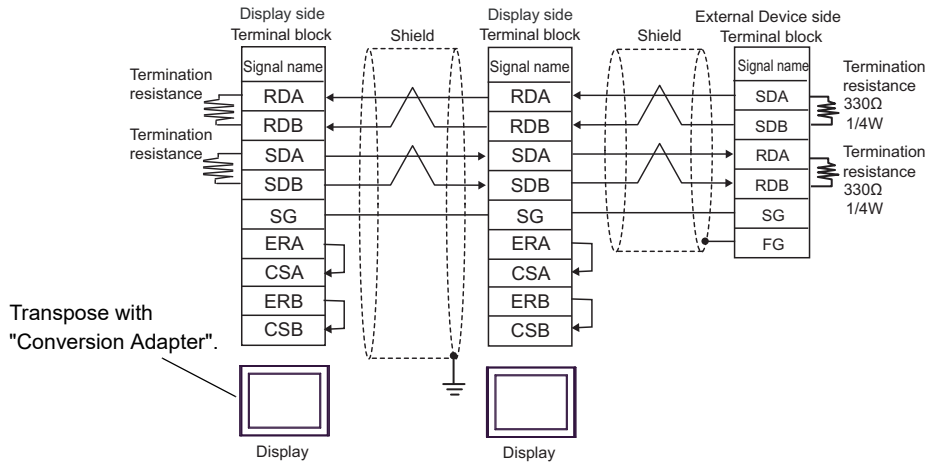

IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP-4116T (COM1)" in the Device/PLC connection manual.

- Cable length differs depending on the External Device. Communicable cable length includes the length of the Direct-connect cable.
- Refer to "Serial Multilink" at the front of the GP-Pro EX Device/PLC connection manual, and confirm the driver compliant with the multilink connection.
- For the multilink connection settings, refer to the "Serial Multilink Guide" from "Serial Multilink".
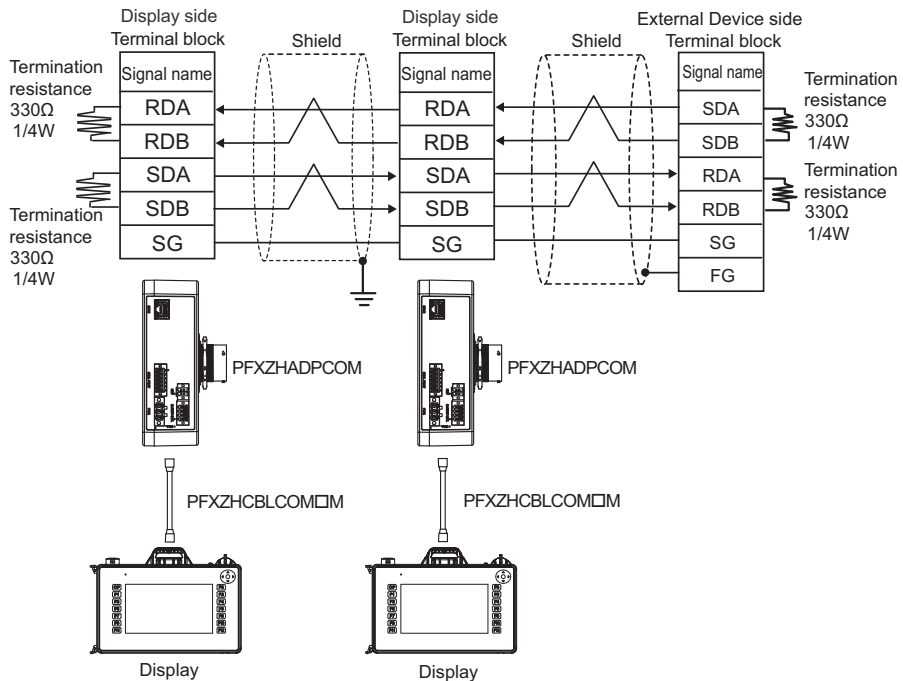
- Transposing from Device/PLC connection manual

  Connection cable diagrams are the same for "GP-4116T (COM1)" in each Device/PLC connection manual.
  When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose
  the "Display" section with "Conversion Adapter".
  - The following is an example of a cable diagram in an Device/PLC connection manual:
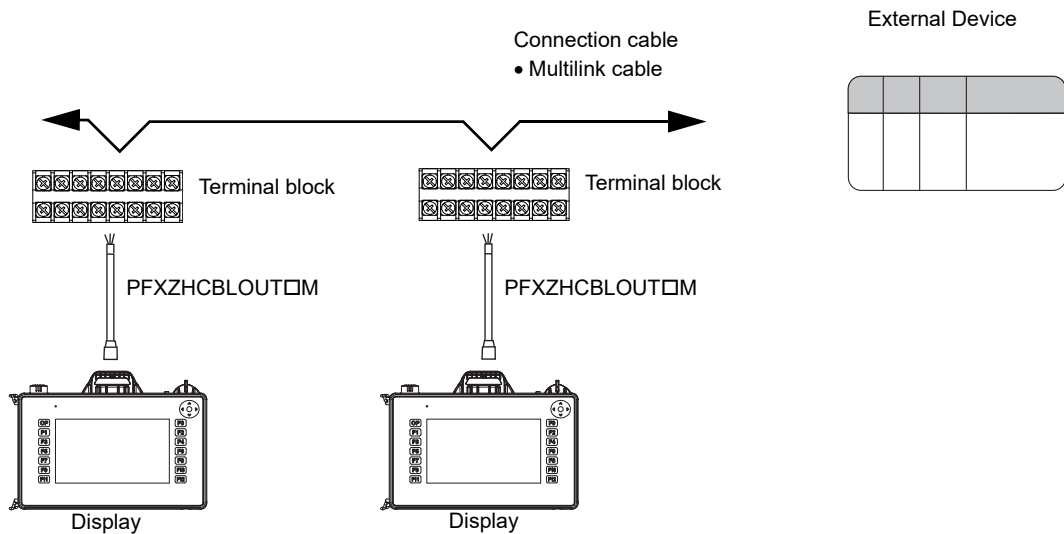

  - Transposed cable diagram:

IMPORTANT	• For the GPH6000 series, set the termination resistance with the physical wiring. The termination resistance value should be aligned with that of the External Device side. If there is no description of the termination resistance value on the External Device side in the wiring diagram from which you are reading, refer to the termination resistance value described in the wiring diagram of the other Display.

NOTE	• There are no ERA, CSA, ERB, or CSB terminals on GPH6000 series terminal block.

3.13　　　Configuration 13

When using the Direct connection cable (PFXZHCBLOUT☐M) for the multilink connection

Connection cable
• Multilink cable

External Device

Terminal block

Terminal block

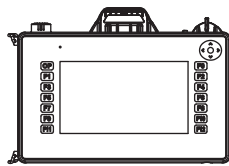PFXZHCBLOUT☐M

PFXZHCBLOUT☐M

Display

Display

IMPORTANT	• Connection cable differs depending on the External Device in use. Check with the Device/PLC connection manual that corresponds to the External Device in use for the content and usage. The Hand-held GP port that is used for serial communication is indicated as "GP-4116T (COM1)" in the Device/PLC connection manual.
	• Cable length differs depending on the External Device. Communicable cable length includes the length of the Direct-connect cable.
	• Refer to "Serial Multilink" at the front of the GP-Pro EX Device/PLC connection manual, and confirm the driver compliant with the multilink connection.
	• For the multilink connection settings, refer to the "Serial Multilink Guide" from "Serial Multilink".

• Cable Color and Identification Marks for Direct-connect Cable

The External Device side of the Direct-connect cable requires trimming. When you trim the cable, check the cable color to identify the signal type.
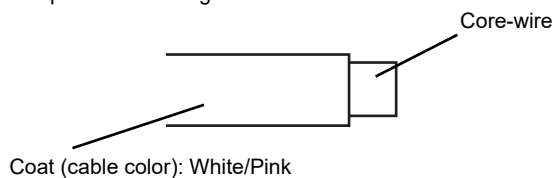
| NOTE | • Keep unused cables from contacting other cables or connector cases. |

Cable color	Signal name
White/Blue	RXP (RDA)
Brown/Blue	RXN (RDB)
White/Pink	TXP (SDA)
Pink/Brown	TXN (SDB)
White/Gray	SG

Example of cable image

Core-wire

Coat (cable color): White/Pink

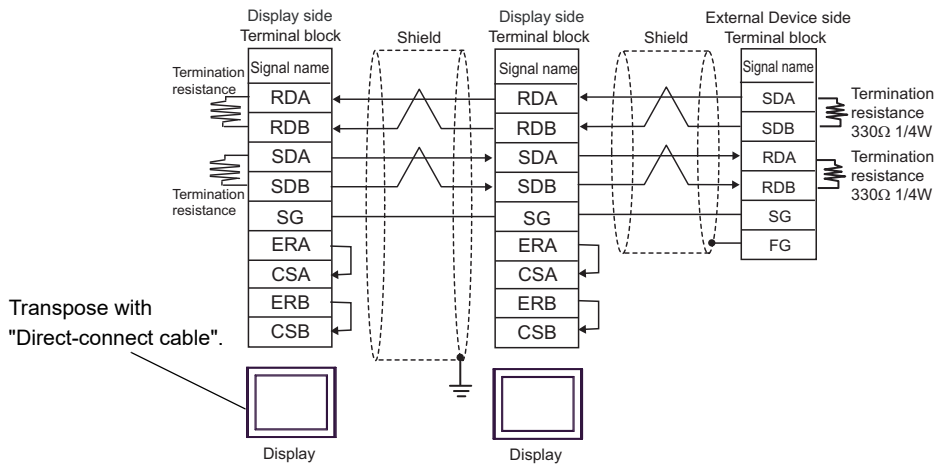In the example above, the cable color is white/pink, which means TXP (SDA).

• Transposing from Device/PLC connection manual

Connection cable diagrams are the same for "GP-4116T (COM1)" in each Device/PLC connection manual.
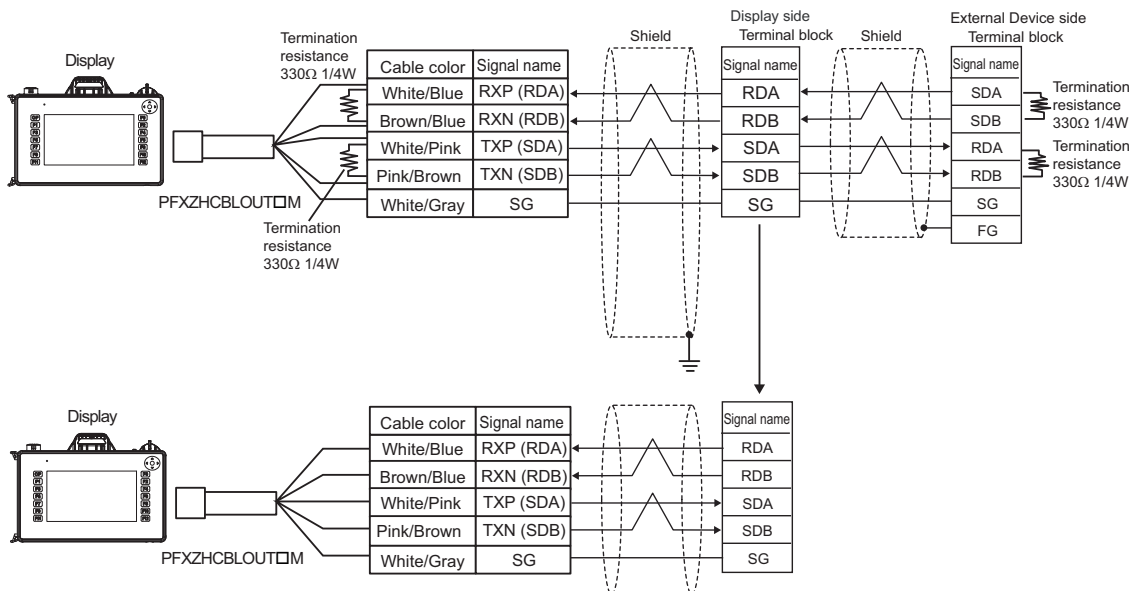
Direct-connect cable is connected with External Device by using terminal block. Alternatively Direct-connect

cable can be transposed with the cable diagram that uses only the user-created cable.

When using the cable diagrams from the Device/PLC connection manual for the Hand-held GP, transpose

the "Display" section with "GP3000H Direct-connect cable".

• The following is a multilink connection example of a cable diagram in an Device/PLC connection

manual:

• Transposed cable diagram:

> **IMPORTANT**
> • For the GPH6000 series, set the termination resistance with the physical wiring. The termination resistance value should be aligned with that of the External Device side. If there is no description of the termination resistance value on the External Device side in the wiring diagram from which you are reading, refer to the termination resistance value described in the wiring diagram of the other Display.

> **NOTE**
> • There are no ERA, CSA, ERB, or CSB terminals on GPH6000 series terminal block.

4   GPH6000 series supported drivers

The following drivers are supported by the GPH6000 series.

NOTE

• The following is the current support status as of September 2024. For the latest support status, please refer to the "Hand-held GP Connection Guide" available on our support website.

Maker	Driver
Azbil Corporation	MODBUS SIO Master
Beckhoff Automation GmbH	TwinCAT ADS/AMS
CoDeSys Automation Alliance	CoDeSys V3 Ethernet
Digital Electronics Corporation	Memory Link
Fuji Electric Co., Ltd.	MICREX-SX Series Ethernet
Hitachi Industrial Equipment Systems Co., Ltd.	H Series SIO
KEYENCE Corporation	KV-700 - 8000 SIO
	KV-700 - 8000 Ethernet
KOYO ELECTRONICS INDUSTRIES CO., LTD.	KOSTAC/DL Series CCM SIO
LS ELECTRIC Co., Ltd.	GLOFA Series Cnet
	MASTER-K Series Cnet
	XGK Series CPU Direct
	XGT/XGB Series Fenet
	XGT/XGB Series Cnet
Mitsubishi Electric Corporation	FREQROL Inverter
	FX Series Computer Link
	FX Series CPU Direct
	FX Series Ethernet
	Q Series CPU Direct
	Q Series QnU CPU Ethernet
	Q/QnA Serial Communication
	Q/QnA Series Ethernet
	iQ-R/F Ethernet(SLMP Client)
Modbus-IDA	General MODBUS SIO Master
	General MODBUS TCP Master
ODVA(Open DeviceNet Vendor Association, Inc.)	EtherNet/IP Explicit Messaging
	EtherNet/IP Target
OMRON Corporation	CS/CJ Series Ethernet
	CS/CJ Series HOST Link
	CS/CJ/NJ Series EtherNet/IP
Panasonic Industrial Devices SUNX Co., Ltd.	FP Series Computer Link SIO

Maker	Driver
Rockwell Automation, Inc.	EtherNet/IP
Schneider Electric SA	MODBUS SIO Master
	MODBUS Slave
	MODBUS TCP Master
Shenzhen Inovance technology Co., Ltd.	Modbus RTU Mode
	Modbus TCP
	HMI Monitor Protocol
Shinko Technos Co., Ltd.	Indicating Controller SIO
Siemens AG	Ethernet Gateway for SIMATIC MPI/PROFIBUS
	SIMATIC S7 Ethernet
	TIA Portal Ethernet
SHIBAURA MACHINE CO., LTD.	TC Series(TCmini/TC200)
	TC/TS Series Ethernet
YASKAWA Electric Corporation	MP Ethernet/MECHATROLINK
	MP Series SIO(Extension)
Yokogawa Electric Corporation	Personal Computer Link Ethernet