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GP/ST-3500 Series→GP4000 Series

Replacement Guidebook

Preface

This guidebook introduces the procedures to replace a unit in GP/ST-3500 series with a unit in GP-4501T/TW.

Model in use	Recommended Substitution
GP-3500S	**GP-4501T***1
	GP-4501TW*1
GP-3500L	**GP-4501TW**
ST-3501T	**GP-4501T**
ST-3501C	**GP-4501TW**

*1: A recommended substitution differs depending on a power supply type of the model you use.

When replacing AC power supply type (AGP3500-S1-AF);	When replacing DC power supply type (AGP3500-S1-D24);
The power supply type is AC, but **the panel cutout dimensions are different.** An attachment is required.	We recommend **GP-4501TW** whose power supply type and panel cutout dimensions are the same as those of AGP3500-S1-D24.
The panel cutout dimensions are the same, but **the power supply type needs to be changed to a DC type.** (*There's no AC power supply type)	

GP4000 Series Model Number

GP4000 series model number partly differs depending on a specification. Before placing an order, please make sure of the model number.

$$PFXGP4 * 0 * * * * *$$

A B C D E F

A	2	GP-4200 series (3.5")
	3	GP-4300 series (5.7")
	4	GP-4400 series (7.5"/7.0W")
	5	GP-4500 series (10.4")
	6	GP-4600 series (12.1")
B	01	RS-232C/422/485
	03	RS-485 (isolation)
C	T	TFT color LCD
	W	TFT color LCD (Wide Type)
D	A	Analog Resistive Film Touch Panel
	M	Matrix Resistive Film Touch Panel
E	A	AC Type Power Supply
	D	DC Type Power Supply
F	W	GP-4201TW/4301TW/4401WW/4501TW
	C	Coated model
	WC	Coated model of GP-4201TW/4301TW/4401WW/4501TW

Contents

Chapter 1 Specification Comparison

1.1 Specifications of GP-3500S and GP-4501T

	GP-3500S	GP-4501T
Display Type	STN color LCD	**UP!** TFT Color LCD
Display Colors	4,096 colors	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution	VGA (640×480 pixels)	
Panel Cutout Dimensions (mm)	301.5(W)×227.5(H)	259(W)×201(H) →See 2.4
External Dimensions (mm)	313(W)×239(H)×56(D)	272.5(W)×214.5(H)×57(D)
Touch Panel Type	Analog	Analog/Matrix →See 2.2
Memory — Application	8MB/ 16MB	**UP!** 32MB
Memory — SRAM	320KB	320KB
Backup Battery	Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) →See 2.9
Rated Input Voltage	AC 100 to 240V/ DC 24V	
Serial I/F — COM1	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C →See 2.6.1
Serial I/F — COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 →See 2.6.1
Ethernet I/F	10BASE-T/100BASE-TX	
CF Card I/F	✔	- →See 2.6.4

SD Card I/F		-	**NEW!** ✔
USB I/F	**Type A**	✔	✔
	Type mini B	-	→See 2.5
Printer I/F		USB (Type A)	
Auxiliary I/O I/F		✔	- →See 2.6.2
Expansion Unit I/F		✔	- →See 2.7.3

1.2 Specifications of GP-3500S and GP-4501TW

	GP-3500S	GP-4501TW
Display Type	STN color LCD	**UP!** TFT Color LCD
Display Colors	4,096 colors	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution	VGA (640×480 pixels)	
Panel Cutout Dimensions (mm)	301.5(W)×227.5(H)	
External Dimensions (mm)	313(W)×239(H)×56(D)	315(W)×241(H)×56(D)
Touch Panel Type	Analog	
Memory — **Application**	8MB/ 16MB	16MB
Memory — **SRAM**	320KB	128KB
Backup Battery	Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) →See 2.9
Rated Input Voltage	AC 100 to 240V/ DC 24V	DC 24V →See 2.8
Serial I/F — **COM1**	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C →See 2.6.1
Serial I/F — **COM2**	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 →See 2.6.1
Ethernet I/F	10BASE-T/100BASE-TX	
CF Card I/F	✔	- →See 2.6.4
SD Card I/F	-	**NEW!** ✔

USB I/F	Type A	✔	✔
	Type mini B	-	→See 2.5
Printer I/F		USB (Type A)	
Auxiliary I/O I/F		✔	- →See 2.6.2
Expansion Unit I/F		✔	- →See 2.7.3

1.3 Specifications of GP-3500L and GP-4501TW

		GP-3500L	GP-4501TW
Display Type		STN color LCD	**UP!** TFT Color LCD
Display Colors		Monochrome LCD	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution		VGA (640×480 pixels)	
Panel Cutout Dimensions (mm)		301.5(W)×227.5(H)	
External Dimensions (mm)		313(W)×239(H)×56(D)	315(W)×241(H)×56(D)
Touch Panel Type		Analog	
Memory	**Application**	8MB	**UP!** 16MB
	SRAM	320KB	128KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) →See 2.9
Rated Input Voltage		DC 24V	
Serial I/F	**COM1**	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C →See 2.6.1
	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 →See 2.6.1
Ethernet I/F		10BASE-T/100BASE-TX	
CF Card I/F		✔	- →See 2.6.4
SD Card I/F		-	**NEW!** ✔

USB I/F	Type A	✔	✔
	Type mini B	-	→See 2.5
Printer I/F		USB (Type A)	
Auxiliary I/O I/F		✔	- →See 2.6.2
Expansion Unit I/F		✔	- →See 2.7.3

1.4 Specifications of ST-3501T and GP-4501T

	ST-3501T	GP-4501T
Display Type	TFT Color LCD	
Display Colors	256 colors (without blink)/ 64 colors (with blink)	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution	VGA (640×480 pixels)	
Panel Cutout Dimensions (mm)	259(W)×201(H)	
External Dimensions (mm)	270.5(W)×212.5(H)×57(D)	272.5(W)×214.5(H)×57(D)
Touch Panel Type	Analog	Analog/Matrix →See 2.2
Memory — Application	6MB	**UP!** 32MB
Memory — SRAM	320KB	320KB
Backup Battery	Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) →See 2.9
Rated Input Voltage	AC 100 to 240V/ DC 24V	
Serial I/F — COM1	D-Sub 9 pin (plug) RS-232C	
Serial I/F — COM2	D-Sub 9 pin (plug) RS-422/485	
Ethernet I/F	-	**NEW!** 10BASE-T/100BASE-TX
CF Card I/F	✔	- →See 2.6.4
SD Card I/F	-	**NEW!** ✔
USB I/F — Type A	✔	✔
USB I/F — Type mini B	-	→See 2.5
Printer I/F	USB (Type A)	

1.5 Specifications of ST-3501C and GP-4501TW

	ST-3501C	GP-4501TW
Display Type	Color LCD	**UP!** TFT Color LCD
Display Colors	16 colors	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution	VGA (640×480 pixels)	
Panel Cutout Dimensions (mm)	259(W)×201(H)	301.5(W)×227.5(H) →See 2.4
External Dimensions (mm)	270.5(W)×212.5(H)×57(D)	315(W)×241(H)×56(D)
Touch Panel Type	Analog	
Memory — **Application**	6MB	**UP!** 16MB
Memory — **SRAM**	320KB	128KB
Backup Battery	Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) →See 2.9
Rated Input Voltage	AC 100 to 240V/ DC 24V	DC 24V
Serial I/F — **COM1**	D-Sub 9 pin (plug) RS-232C	
Serial I/F — **COM2**	D-Sub 9 pin (plug) RS-422/485	
Ethernet I/F	-	10BASE-T/100BASE-TX
CF Card I/F	✔	- →See 2.6.4
SD Card I/F	-	**NEW!** ✔
USB I/F — **Type A**	✔	✔
USB I/F — **Type mini B**	-	→See 2.5
Printer I/F	USB (Type A)	

Chapter 2 Compatibility of Hardware

2.1 Locations of connector

Connector locations on GP-3500S, ST-3500T and GP-4501T

GP-3500S
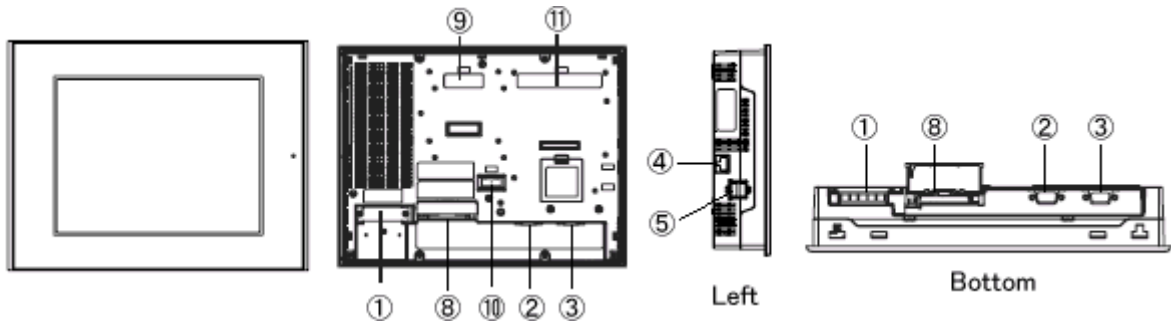
ST-3501T
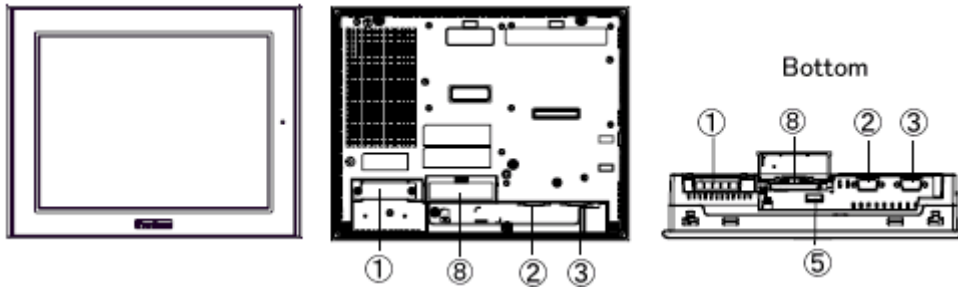
GP-4501T
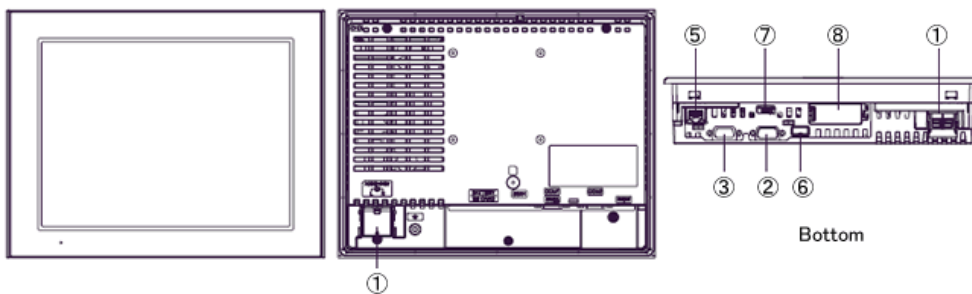
Interface names

	GP-3500S	ST-3501T	GP-4501T
1	Power Input Terminal Block (AC type)/ Power Connector (DC type)		
2	Serial I/F (COM1)		
3	Serial I/F (COM2)		
4	Ethernet I/F	-	Ethernet I/F
5	USB I/F (Type A)		
6	-		USB I/F (Type mini B)
7	-		SD Card I/F
8	CF Card I/F		-
9	Expansion Unit I/F	-	
10	Auxiliary I/O / Sound Output I/F (AUX)	-	

Connector locations of GP-3500S/L, ST-3501C and GP-4501TW

GP-3500S/L

Left

Bottom

ST-3501C

Bottom

GP-4501TW

Bottom
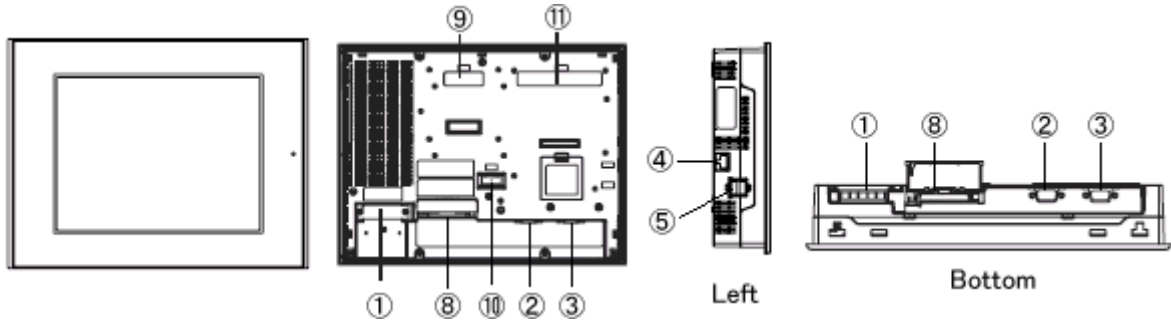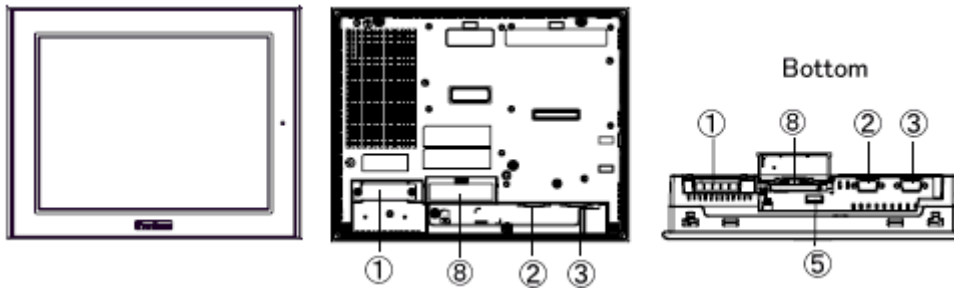
Interface names

	GP-3500S/L	ST-3501C	GP-4501TW
1	Power Input Terminal Block (AC) / Power Connector (DC)		Power Connector (DC)
2	Serial I/F (COM1)		
3	Serial I/F (COM2)		
4	Ethernet I/F	-	Ethernet I/F
5	USB I/F (Type A)		
6	-		USB I/F (Type mini B)
7	-		SD Card I/F
8	CF Card I/F		-

2.2 Touch Panel specifications (only when replacing with GP-4501T)

For replacing GP3500/ST3500 series with GP-4501T, you can select the Matrix type (2-point touch input at the same time same as GP2000 Series) or the Analog type (1-point touch input) for Touch Panel Type.

For the Analog type, even if you touch two points at the same time, touch input of the coordinates located between those two points is recognized. Take note of it.

There's a model number difference between the Analog type and the Matrix type. For details, see GP4000 Series Model Number.

2.3 Display Colors

The display type of GP-3500L and ST-3501C (when using a monochrome mode) is a monochrome LCD, but GP-4501T/TW has a TFT color LCD. After replacement, the black and white display changes to the color one.

When the setting of the display unit type is changed from a monochrome model to a color one on GP-Pro EX, the data may be displayed in colors except black and white depending on a setting. After changing the display unit type, please confirm the display colors of the drawing or the parts on the screens just in case.

2.4 Panel Cutout Dimensions

The size of GP-4501T gets smaller. The panel cutout dimensions of GP-4501T are different from those of GP-3500S. Attachment (model: CA4-ATM10-01) for installing GP-4501T is available and you can use it when replacing GP-3500S with GP-4501T. For replacing ST-3501C with GP-4501TW, the panel cutout dimensions get larger. It's necessary to process the panel.

In other cases, there's no change in the panel cutout dimensions.

2.5 Transfer cable

To transfer screen data to GP-4501T/TW, use a USB transfer cable or Ethernet.
The USB cables that can be used for GP-4501T/TW are as follows;

	Model	Connector Type	Connector on GP
Options	CA3-USBCB-01	Type A Type A	USB (Type A)
	ZC9USCBMB1	Type A Type mini B	USB (Type mini B)
Commercial Item	-		

The same USB transfer cable (CA3-USBCB-01) as that for GP/ST-3500 series can be used.

2.6 Interface

2.6.1 Serial Interface

The pin assignment and the shape of plug/socket connector of GP3000 series are different from those of GP-4501T/TW.

To know the details about them, see [4.2 Shapes of COM ports] and [4.3 Signals of COM ports].

Because of it, the existing PLC connection cables cannot be used as they are.

If you use the existing connection cables, see [4.5 Cable Diagram at the time of replacement].

2.6.2 Auxiliary I/O Interface (AUX) (for GP-3500S/L only)

GP-4501T/TW is not equipped with Auxiliary I/O Feature. External Reset Input and 3 Outputs (RUN Output, System Alarm Output, and External Buzzer Output) that can be used for GP-3500S/L cannot be used.

2.6.3 Sound Output Interface (for GP-3500S/L only)

GP-4501T/TW is not equipped with the sound output function. The sound output function for GP-3500S/L cannot be used.

2.6.4 CF Card Interface

GP-4501T/TW is not equipped with a CF card slot. But a SD card slot and a USB interfaces are installed. In order to use the GP/ST-3500 series data saved in the CF card and the functions using the CF card, use a SD card or a USB flash drive instead.

* When using a SD card with GP-4501T/TW, please verify it supports the following specifications:

	File format	Maximum capacity
SD	FAT16	2GB
SDHC	FAT32	32GB

When the setting of the output destination folder is set to "CF Card" on GP-Pro EX, if you change the display unit type, the setting will automatically change to the one that uses a SD card.

To change the setting of the output destination folder, see [5.1 Changing the setting of the external media to use].

2.7 Peripheral units and option units

2.7.1 Barcode reader connection

Like GP/ST-3500 series, GP-4501T/TW allows you to connect a barcode reader to its USB interface (Type A) or its serial interface.

But a barcode reader cannot be connected to its serial interface.

For the models GP-4501T/TW supports, see [OtasukePro!]

(http://www.pro-face.com/otasuke/qa/3000/0056_connect_e.html).

2.7.2 Printer connection

Like GP/ST-3500 series, GP-4501T/TW allows you to connect a printer on its USB interface (Type A).

For the models GP-4501T/TW supports, see [OtasukePro!]

(http://www.pro-face.com/otasuke/qa/3000/0056_connect_e.html).

2.7.3 Expansion Unit (for GP-3500S/L only)

GP-4501T/TW is not equipped with an expansion unit interface. The expansion unit (each kind of unit like CC-LINK Unit) for GP3000 series cannot be used.

2.7.4 Isolation Unit (for GP-3500S/L only)

RS-485 isolation unit for GP-3500 series (CA3-ISO485-01) cannot be used for GP-4501T/TW. You can use the RS-232C isolation unit (CA3-ISO232-01) for GP-4501T/TW instead.

2.8 Power Connector

The power connector on GP-4501T (AC type) has the same terminal block as GP/ST-3500 series, but the FG location is different.

GP-4501TW has a DC power supply type only. When replacing GP/ST-3500 series (AC type) with GP-4501TW, changing to DC power supply is required.

2.9 Backup Battery

Unlike GP/ST-3500 series, GP-4501T/TW does not use rechargeable secondary batteries but replaceable primary ones. (For both a rechargeable type and a replaceable one, contents to be backed up are the same.)

When the time for replacement of backup batteries approaches, the message to urge you to replace the battery, "RAAA053: Running out of power in the backup battery. Please change the battery." appears. When the message appears, replace the battery referring to the GP4000 series hardware manual.

Replaceable Battery Model
PFXZCBBT1

2.9 Power Consumption

The power consumption of GP/ST-3500 series is different from that of GP-4501T/TW.

	AC Type	DC Type
GP-3500S	90VA or lower (AC100V) 108VA or lower (AC240V)	50W or lower
GP-3500L	-	
ST-3501T/C	90VA or lower (AC100V) 108VA or lower (AC240V)	45W or lower
GP-4501T	44VA or lower (AC100V) 58VA or lower (AC240V)	17W or lower
GP-4501TW	-	

For the detailed electric specifications, see the hardware manual.
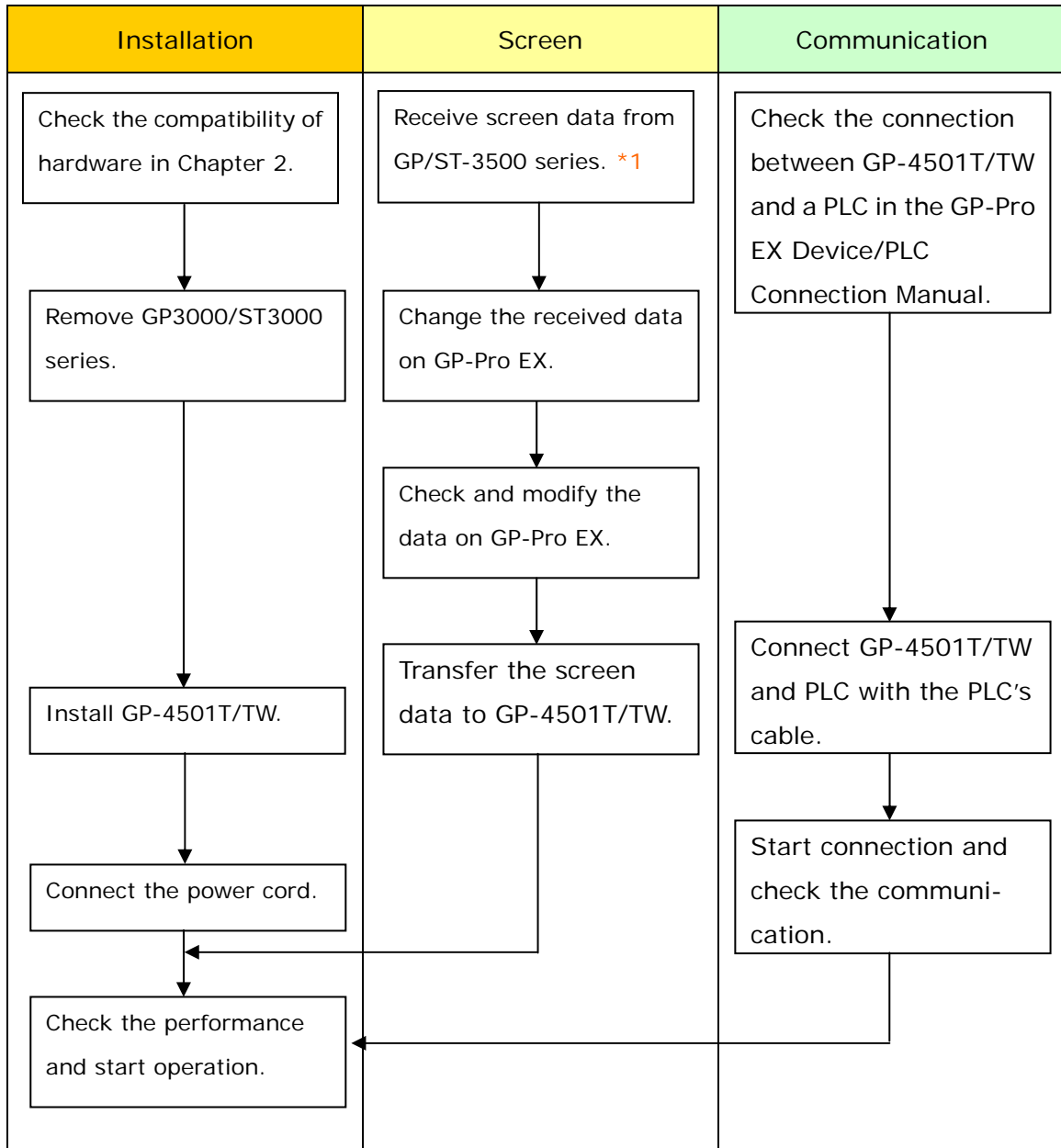
2.10 Materials/Colors of the body

The materials and the colors of GP/ST-3500 series and GP-4501T/TW are as follows:

	Color	Material
GP-3500 series	Silver	Aluminum alloy
ST-3500 series	Light Gray	Resin
GP-4501T/TW		Resin with glass

Chapter 3 Replacement Procedure

3.1 Work Flow

Installation	Screen	Communication
Check the compatibility of hardware in Chapter 2.	Receive screen data from GP/ST-3500 series. *1	Check the connection between GP-4501T/TW and a PLC in the GP-Pro EX Device/PLC Connection Manual.
↓	↓	
Remove GP3000/ST3000 series.	Change the received data on GP-Pro EX.	
	↓	
	Check and modify the data on GP-Pro EX.	↓
	↓	
Install GP-4501T/TW.	Transfer the screen data to GP-4501T/TW.	Connect GP-4501T/TW and PLC with the PLC's cable.
↓		↓
Connect the power cord.		Start connection and check the communication.
↓		
Check the performance and start operation.		

*1: This step is required if screen data is saved only in the GP unit, not in any other device.

3.2 Preparation

Requirements for receiving screen data from GP/ST-3500 series *1	PC in which GP-Pro EX Transfer Tool is installed. *2
	USB Transfer Cable (model: CA3-USBCB-01) * Possible to send/receive a screen via a CF card, a USB storage device or Ethernet (for GP-3500S/L only).
Requirements for converting screen data of GP/ST-3500 series and transferring the converted data to GP-4501T/TW.	PC in which GP-Pro EX Ver.3.01 or later is installed.
	Transfer Cable (The following three types of cables are available) ・ A USB transfer cable (model: CA3-USBCB-01) ・ A USB data-transfer cable (model: ZC9USCBMB1) ・ A commercial USB cable (USB Type A/mini B) * Possible to send/receive a screen via a SD card (except GP-4501TW), a USB storage device or Ethernet.

*1: This step is required if screen data is saved only in the GP unit, not in any other device.

*2: Please use the same version or later as or than that of the software used during creating screens on GP/ST-3500 series. If you don't know the version, we recommend you to use the newest version. For the newest version, you can download the transfer tool from our web site called [OtasukePro!] (http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm).

3.3 Receive screen data from GP/ST-3500 series

You can transfer data to GP/ST-3500 series via;

・ A USB transfer cable (model: CA3-USBCB-01)
・ A CF card/USB storage device
・ Ethernet

But this section explains, as an example, how to receive screen data from GP/ST-3500 series using a USB transfer cable (model: CA3-USBCB-01).

If you have backed up screen data, this step is unnecessary, skip to the next section [3.4 Change the Display Unit Type].

PC   USB transfer cable   GP
            (CA3-USBCB-01)

(1) Connect your PC and GP/ST-3500 series with a USB transfer cable.

If the driver of the cable has not been installed on your PC yet, a dialog box will appear. Please follow the instructions.

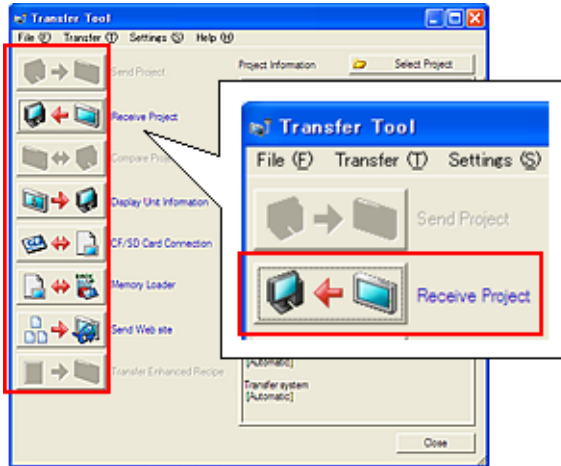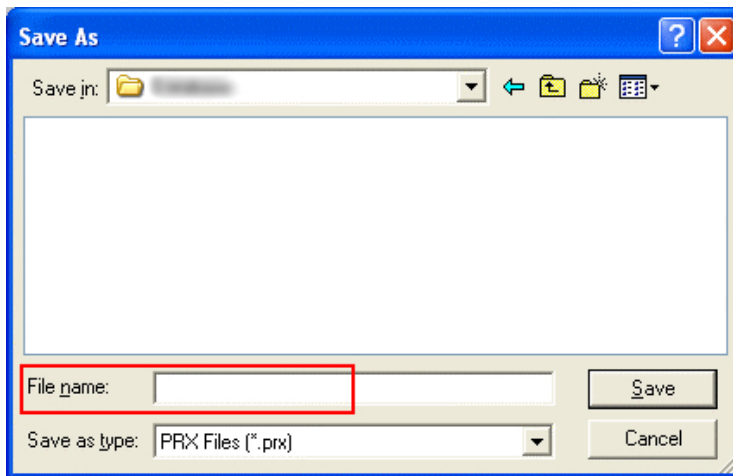| NOTE |
| --- |
| ・ The "Hardware Installation" dialog box as shown below may appear during installing the USB driver depending on the security level of Windows® XP. Click [Continue Anyway] to start installing the driver. When installation is completed, click [Finish].
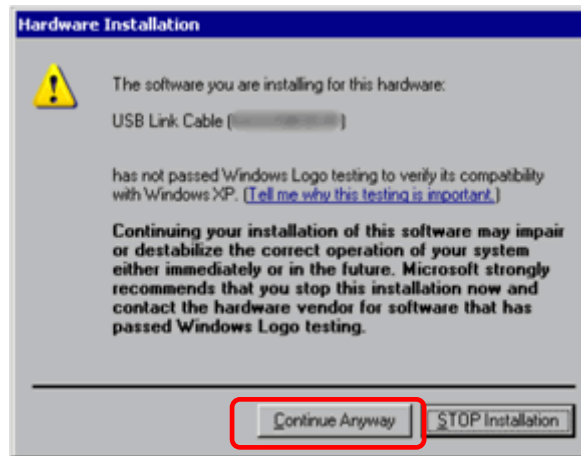
 ・ If the following symptoms appear on Microsoft Windows® 7, go to updating "USB Data Transfer Driver" on [OtasukePro!] for download.
 (http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm)
 - An error occurs when GP-Pro EX or Transfer Tool is installed
 - An error occurs when data is transferred via a USB transfer cable
 (model: CA3-USBCB-01). |

(2) Start the Transfer Tool of GP-Pro EX.
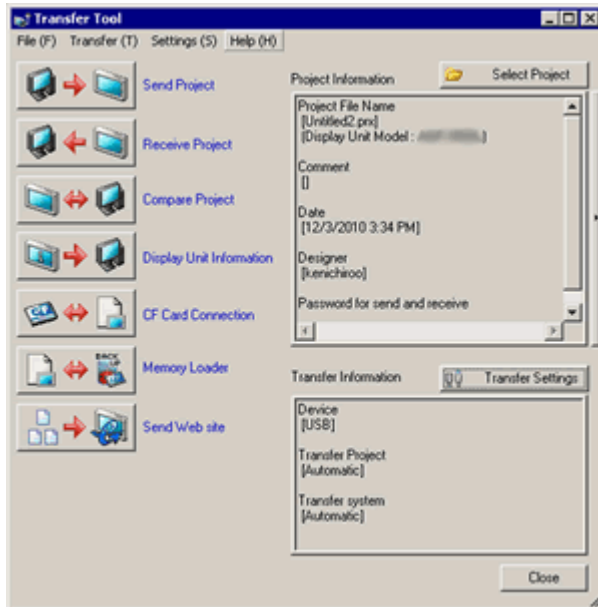
(3) Make sure that the [Device] in the "Transfer Settings Information" is set to [USB].
If not, click the [Transfer Setting] button to open the "Transfer Setting" dialog box.
Select [USB] in the Communication Port Settings field and click [OK].

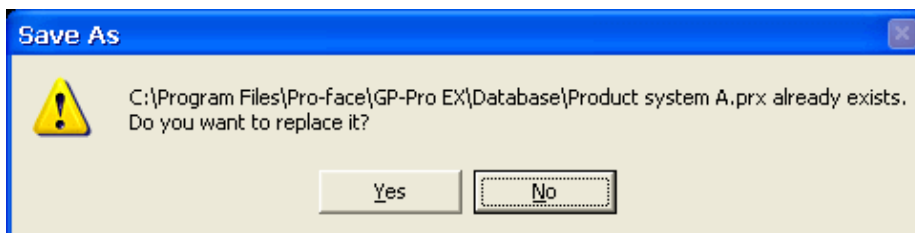(4) Start GP-Pro EX Transfer Tool and click the [Receive Project] button.

(5) Click [Receive Project], and the following dialog box will appear. Specify a place to save the received data in and a project file name, and then click [Save] to start transfer.
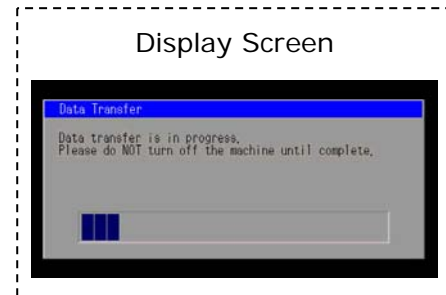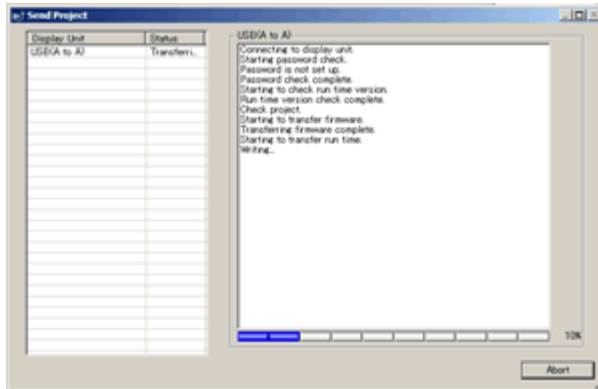

NOTE
When a convert-to file exists, the window that confirms whether or not to overwrite the file is displayed.

(6) The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)


Display Screen

NOTE

・ If you receive the project files that use CF card data such as Recipe Function (CSV data), the following dialog box will appear during transfer. Specify a place to save the CF card data in. Click [OK], and the [Receive Project] dialog box will return and transfer will be completed.

・ GP-4501T/TW that is a replacement model is not equipped with a CF card slot. If the display unit type is changed to GP-4501T/TW, the CF card setting will be replaced with the SD card setting automatically. To check or change the destination folder setting, see [5.1 Changing the setting of the external media to use].

(7) When transfer is completed, the status displayed in the dialog box will change from [Transferring] to [Complete Transfer]. Click [Close] to close the dialog box.
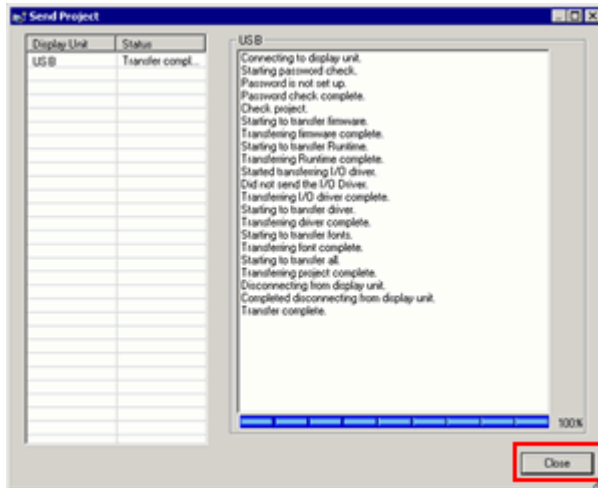
(8) Close the Transfer Tool.

3.4 Change the Display Unit Type

Open the received project file (*.prx) of GP/ST-3500 series on GP-Pro EX and change the display unit type to GP-4501T/TW.

(1) Open the received project file (*.prx) on GP-Pro EX.
(2) Change the Display Unit type to the replacement model on [Display] in [System Settings] of GP-Pro EX.
(3) Click [Project]->[Save As] and save the changed project file.

3.5 Transfer the screen data to GP-4501T/TW

Transfer the project file after the display unit type change to GP-4501T/TW.

You can transfer data to GP-4501T/TW via;

・ A USB transfer cable (model: CA3-USBCB-01)

・ A USB data transfer cable (model: ZC9USCBMB1)

・ A commercial USB cable (USB Type A/mini B)

・ A SD card/A USB storage device

・ Ethernet

But, this section explains, as an example, how to transfer screen data with a USB transfer cable (model: CA3-USBCB-01).

PC USB transfer cable
(CA3-USBCB-01) GP

(1) Connect your PC and the GP unit of GP-4501T/TW with a USB transfer cable. If the driver of the cable has not been installed on you PC, a dialog box will appear. Please follow the instructions.

| NOTE |
|---|
| ・The "Hardware Installation" dialog box as shown below may appear during installing the USB driver depending on the security level of Windows® XP. Click [Continue Anyway] to start installing the driver. When installation is completed, click [Finish].
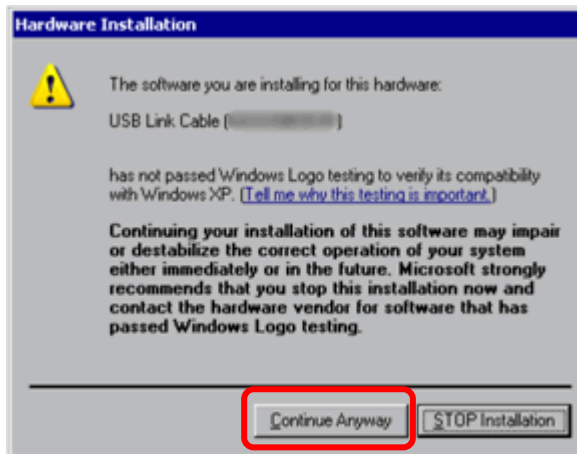
 ・ If the following symptoms appear on Microsoft Windows® 7, go to updating "USB Data Transfer Driver" on [OtasukePro!] for download (http://www.pro-face.com/otasuke/download/update/proex/proex/v260/gpproex_usb_transfer.htm).
 - An error occurs when GP-Pro EX or Transfer Tool is installed
 - An error occurs when data is transferred via a USB transfer cable (model: CA3-USBCB-01). |

(2) Trun on the power of GP-4501T/TW. The "Initial Start Mode" screen will appear on the display unit. After transferring a project file once, this screen will not appear again.

(3) On the GP-Pro EX's State Toolbar, click the [Transfer Project] icon to open the Transfer Tool.
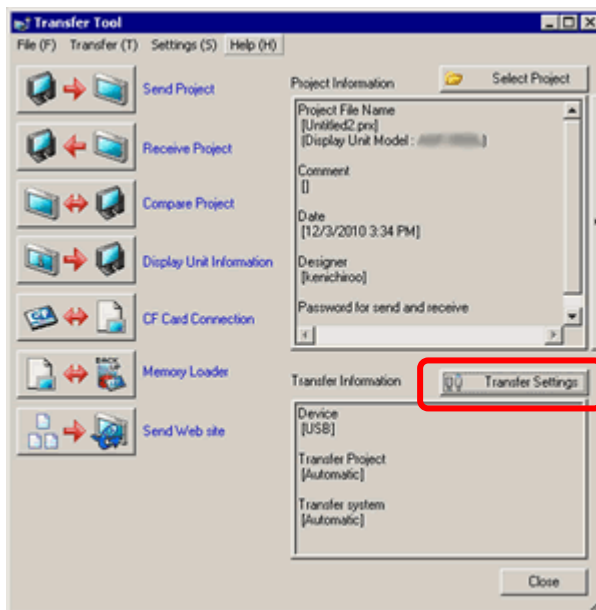
To transfer a different project file, click the [Select Project] button and select a project file.

(4) Make sure that the [Device] in the "Transfer Settings Information" is set to [USB].
   If not, click the [Transfer Setting] button to open the "Transfer Setting" dialog box.
   Select [USB] in the Communication Port Settings field and click [OK].

(5) Click [Send Project] to start transfer.
   When the following dialog box appears, click [Yes]. This dialog box doesn't appear
   when the same project file is sent again.
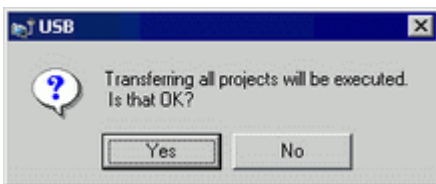
(6) The following dialog box appears during transfer and you can check the
   communication status. (The display unit enters the Transferring mode and
   communication with the device such as a PLC is terminated.)
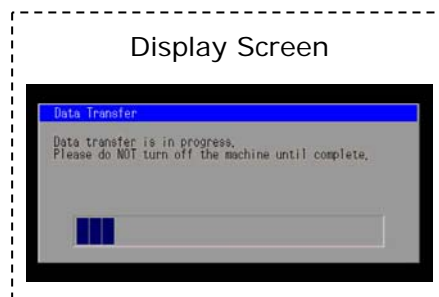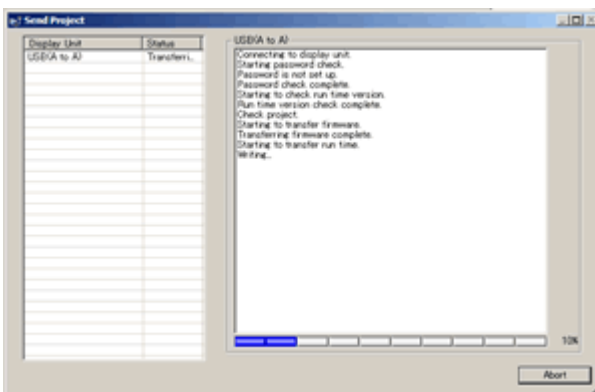
(7) When transfer is completed, the status displayed in the dialog box will change from [Transferring] to [Complete Transfer]. Click [Close] to close the dialog box.
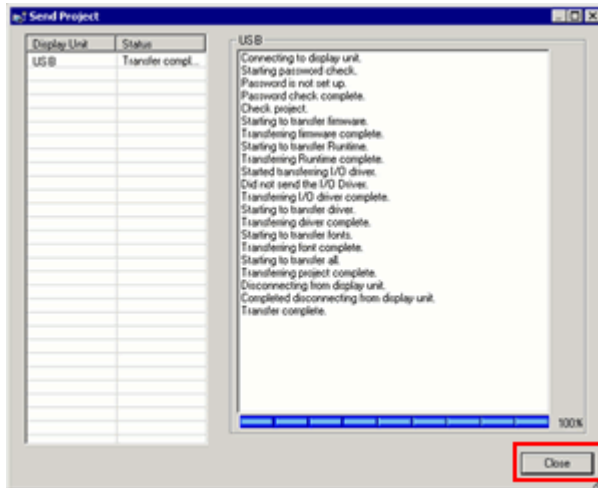
The display unit will be reset and a screen of the transferred project file will be displayed.

(8) Close the Transfer Tool.
(9) Click the [X] mark on top right of the screen or [Project]->[Exit] to close GP-Pro EX.

3.6 Differences of software

Some functions supported by GP/ST-3500 series are not supported by GP-4501T/TW. For details of the supported parts and functions, refer to [Supported Featuers] of GP-Pro EX Reference Manual
(http://www.pro-face.com/otasuke/files/manual/gpproex/new/refer/gpproex.htm).
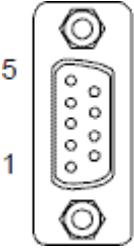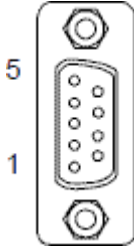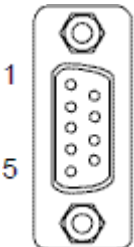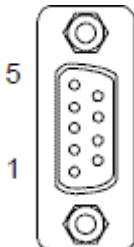
Chapter 4 Communication with Device/PLC

4.1 Driver list

More connectable drivers will be added.

For the devices/PLC each driver supports, see [Connectable Devices]
(http://www.pro-face.com/product/soft/gpproex/driver/driver.html).

4.2 Shapes of COM ports

	GP-3500S/L	ST-3501T/C	GP-4501T/TW
COM1	D-Sub 9 pin (plug) RS-232C/422/485 	D-Sub 9 pin (plug) RS-232C 	
COM2	D-Sub 9 pin (socket) RS-422/485 	D-Sub 9 pin (plug) RS-422/485 	

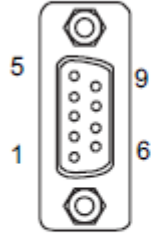| NOTE |
|---|
| ・ If you use the connecting cable that was used for GP/ST-3500 series, see [4.5 Cable Diagram at the time of replacement]. |
| ・ When the both COM1 and COM2 ports on GP-3500S/L have RS-422/485 setting, devices with RS-422/485 cannot be connected to the COM1 port after replacement with GP-4501T/TW. See [4.5 Cable Diagram at the time of replacement] as a countermeasure for this. |

4.3 Signals of COM ports
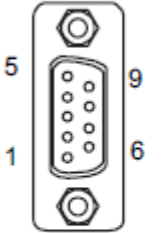
4.3.1 Signals of COM1

For GP-3500S/L

RS-232C (plug)

Pin Connection	Pin No.	RS-232C			
		Signal Name	Direction	Meaning	
	1	CD	Input	Carrier Detect	
	2	RD(RXD)	Input	Receive Data	
	3	SD(TXD)	Output	Send Data	
	4	ER(DTR)	Output	Data Terminal Ready	
	5	SG	-	Signal Ground	
	6	DR(DSR)	Input	Data Set Ready	
	7	RS(RTS)	Output	Request to Send	
	8	CS(CTS)	Input	Send possible	
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[*1]	
	Shell	FG	–	Frame Ground (Common with SG)	

*1: RI and VICC of Pin 9 are switched on the software.
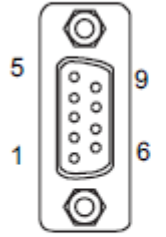
VCC Output is not protected from overcurrent.

Please follow the current rating to avoid false operation or breakdown.

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485			
		Signal Name	Direction	Meaning	
	1	RDA	Input	Receive Data A (+)	
	2	RDB	Input	Receive Data B (-)	
	3	SDA	Output	Send Data A (+)	
	4	ERA	Output	Data Terminal Ready A (+)	
	5	SG	-	Signal Ground	
	6	CSB	Input	Send Possible B (-)	
	7	SDB	Output	Send Data B (-)	
	8	CSA	Input	Send Possible A (+)	
	9	ERB	Output	Data Terminal Ready B (-)	
	Shell	FG	–	Frame Ground (Common with SG)	

For ST-3501T/C

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
(GP unit side)	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send possible
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[1]
	Shell	FG	–	Frame Ground (Common with SG)

*1: RI and VICC of Pin 9 are switched on the software.

VCC Output is not protected from overcurrent.

Please follow the current rating to avoid false operation or breakdown.

For GP-4501T/TW

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
(GP unit side)	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send possible
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[*1]
	Shell	FG	–	Frame Ground (Common with SG)

*1: RI and VICC of Pin 9 are switched on the software.

VCC Output is not protected from overcurrent.

Please follow the current rating to avoid false operation or breakdown.
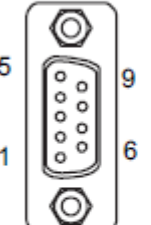
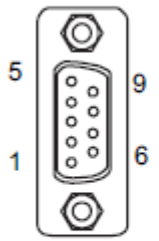### 4.3.2 Signals of COM2

For GP-3500S/L

RS-422/485 (socket)

Pin Arrangement	Pin No.	RS422/RS485		
		Signal Name	Direction	Meaning
	1	TRMRX	-	Termination (Receiver side: 100Ω)
	2	RDA	Input	Receive Data A(+)
	3	SDA	Output	Send Data A(+)
	4	RS(RTS)	Output	Request for Send
	5	SG	-	Signal Ground
	6	VCC	-	+5V±5% Output 0.25A *1
	7	RDB	Input	Receive DataB(-)
	8	SDB	Output	Send Data B(-)
	9	TRMTX	-	Termination (Receiver side: 100Ω)
(GP unit side)	Shell	FG	-	Frame Ground (Common with SG)

For ST-3501T/C

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible A (+)
	9	ERB	Output	Data Terminal Ready B (-)
(GP unit side)	Shell	FG	–	Frame Ground (Common with SG)

For GP-4501T/TW

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
(GP unit side)	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible A (+)
	9	ERB	Output	Data Terminal Ready B (-)
	Shell	FG	–	Frame Ground (Common with SG)

4.4 Multilink Connection

For the communication drivers that support serial multi-link, see [Which drivers support serial multilink communication?]
(http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/com_mlnk.htm).

4.5 Cable Diagram at the time of replacement

The connection cable for GP/ST-3500 series can be used for GP-4501T/TW.

But please note that there are precautions and restrictions as described below when replacing GP-3500S/L.

・When a RS-422/485 device is connected via the COM1 port, **if GP-3500S/L is replaced with GP-4501T/TW, it will be connected via the COM2 port of GP-4501T/TW.** (The cable diagram can be still used.)

Before GP-4501T/TW is connected, be sure to change the port setting to COM2 on the Device/PLC setting. Also, please check the communication settings with GP-Pro EX Device/PLC Connection Manual just in case.

(http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm)
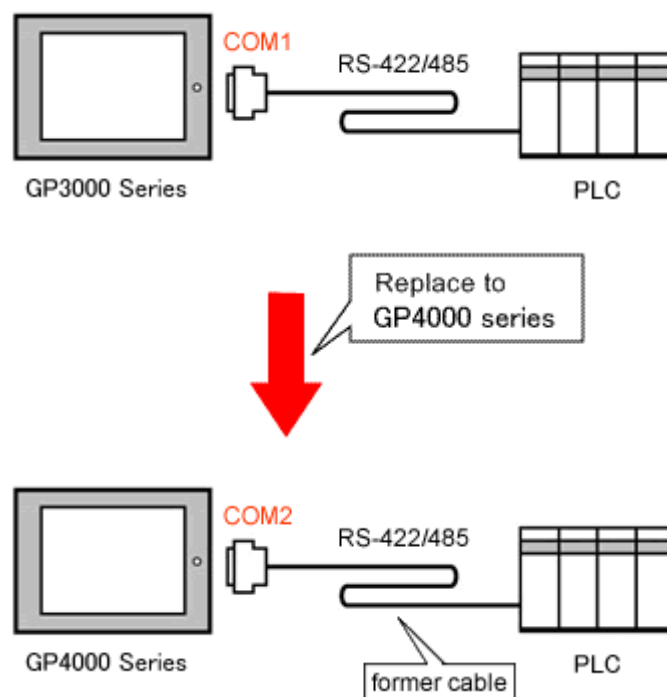
・The cable used for connection to GP-3500S/L via COM2 can be used for GP-4501T/TW only in the following case with a COM Port Conversion Adapter **(CA3-ADPCOM-01)** added.
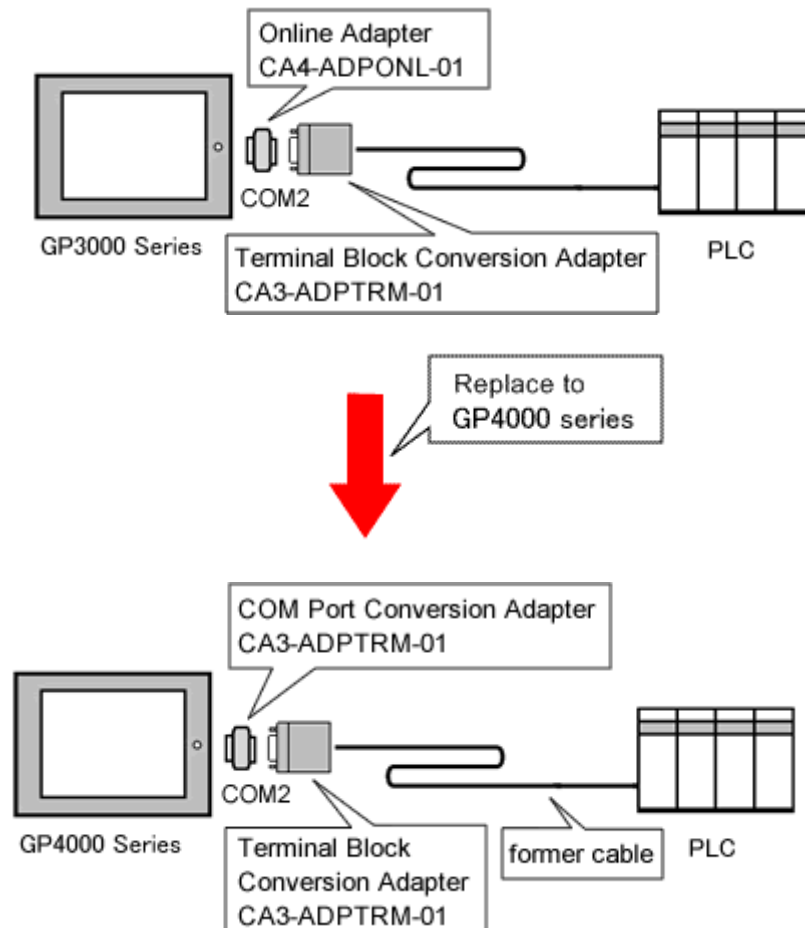
IMPORTANT
The user-created cable for connection to GP-3500S via COM2 can't be used for GP-4501T/TW.

When an option cable manufactured by Digital is used:
(A cable for a 2-port adapter, CA3-MDCB-11 and so on)
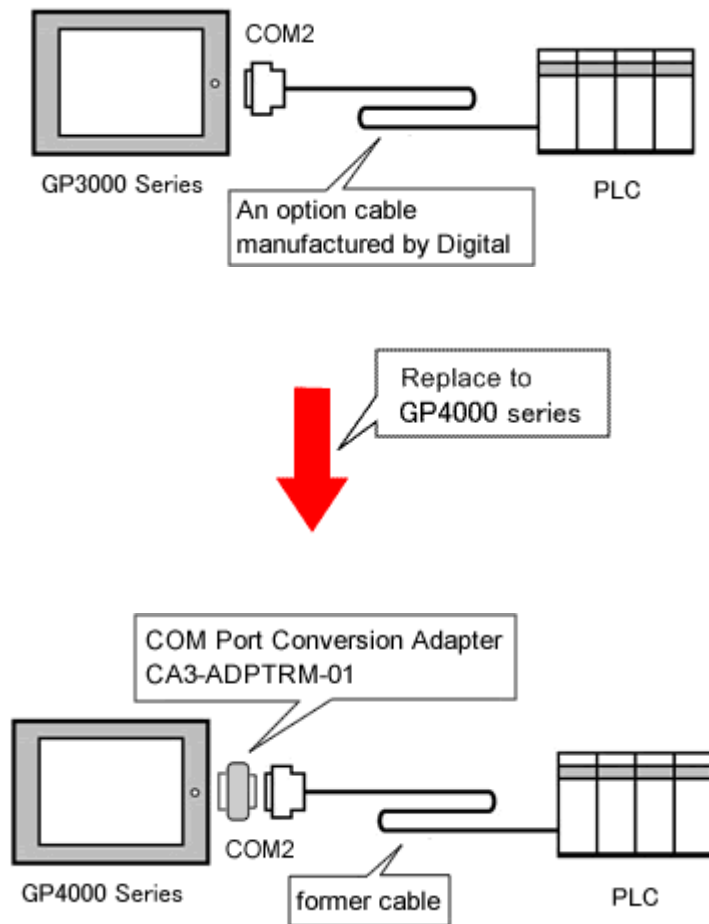
The connection cable for GP/ST-3500 series can be used for GP-4501T/TW.

When a terminal block conversion adapter (CA3-ADPTRM-01) is used:

The connection cable for GP/ST-3500 series can be used for GP-4501T/TW.

・When both the COM1 port and the COM2 port have the RS-422/485 setting, **if GP-3500S/L is replaced with GP-4501T/TW, only the COM2 port can be used on GP-4501T/TW for RS-422/485 connection.**
Using a **USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41)** allows you to use GP-4501T/TW' USB interface as RS-422/485 serial interface for connection.
For more information, please refer to USB/RS-422/485 Conversion Adapter Installation Guide.
(http://www.pro-face.com/otasuke/download/manual/cgi/manual.cgi?mode=33&cat=3)

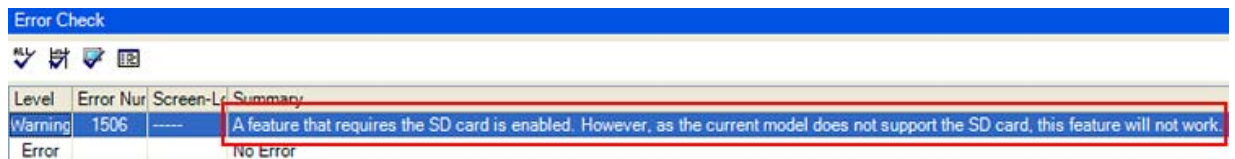| IMPORTANT |
| --- |
| When using USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41) with a Display unit, the external devices you can connect to its serial interface (RS-422/485) are limited. For more information, please refer to GP-Pro EX Device/PLC Connection Manual.
(http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm) |

Chapter 5 Appendix

5.1 Changing the setting of the external media to use

If a CF card is used for GP/ST-3500 series, after the display unit type of the project file is changed to GP-4501T/TW, "a CF card" is automatically replaced with "a SD card" for the external media setting.

(1) After conversion of the project file data, at GP-Pro EX Error Check, if the message, "The project contains features that require a SD card. However, the selected display does not support SD cards so these features will not run." appears,

<Cause>

The model without a SD card slot has the setting that uses a SD card.

->Solution 1

(2) To use a USB flash drive instead of a SD card ->Solution 1

(3) To check or change the SD card's data output destination folder setting
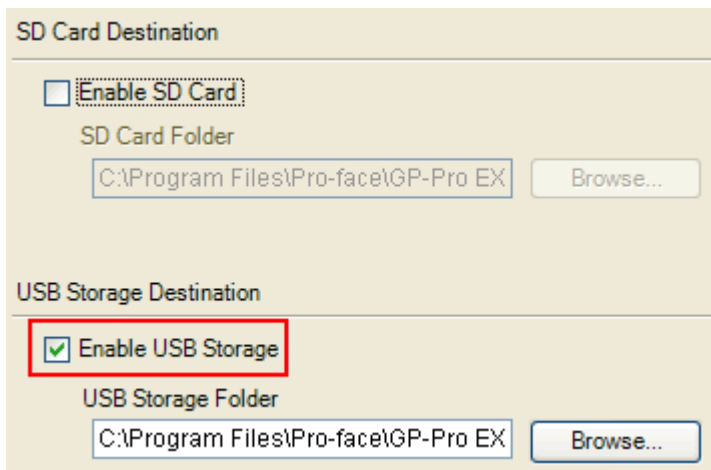
->Solution 2

[Solution]

1. Change the SD Card setting to the USB storage setting following the steps below.
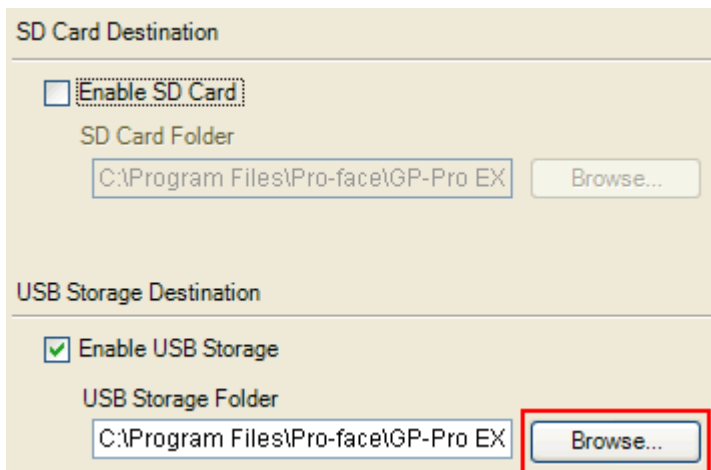
<Procedure>

i. Click [Project]->[Information]->[Destination Folder].

ii. Uncheck "Enable SD Card" and check "Enable USB Storage.

iii. Click the [Browse] button and specify a destination folder.

iv. Click [OK] to confirm the setting.

v. Click [Project]->[Save] to save changes.

vi. Check each function that uses the CF card and replace the setting of [SD Card] with the one of [USB Storage].

2. Check and change the destination folder setting following the steps below.

   i. Click [Project]->[Information]->[Destination Folder].

   ii. The current setting is displayed.

   iii. After changing it, click [OK] to confirm the setting.

   iv. Click [Project]->[Save] to save changes.