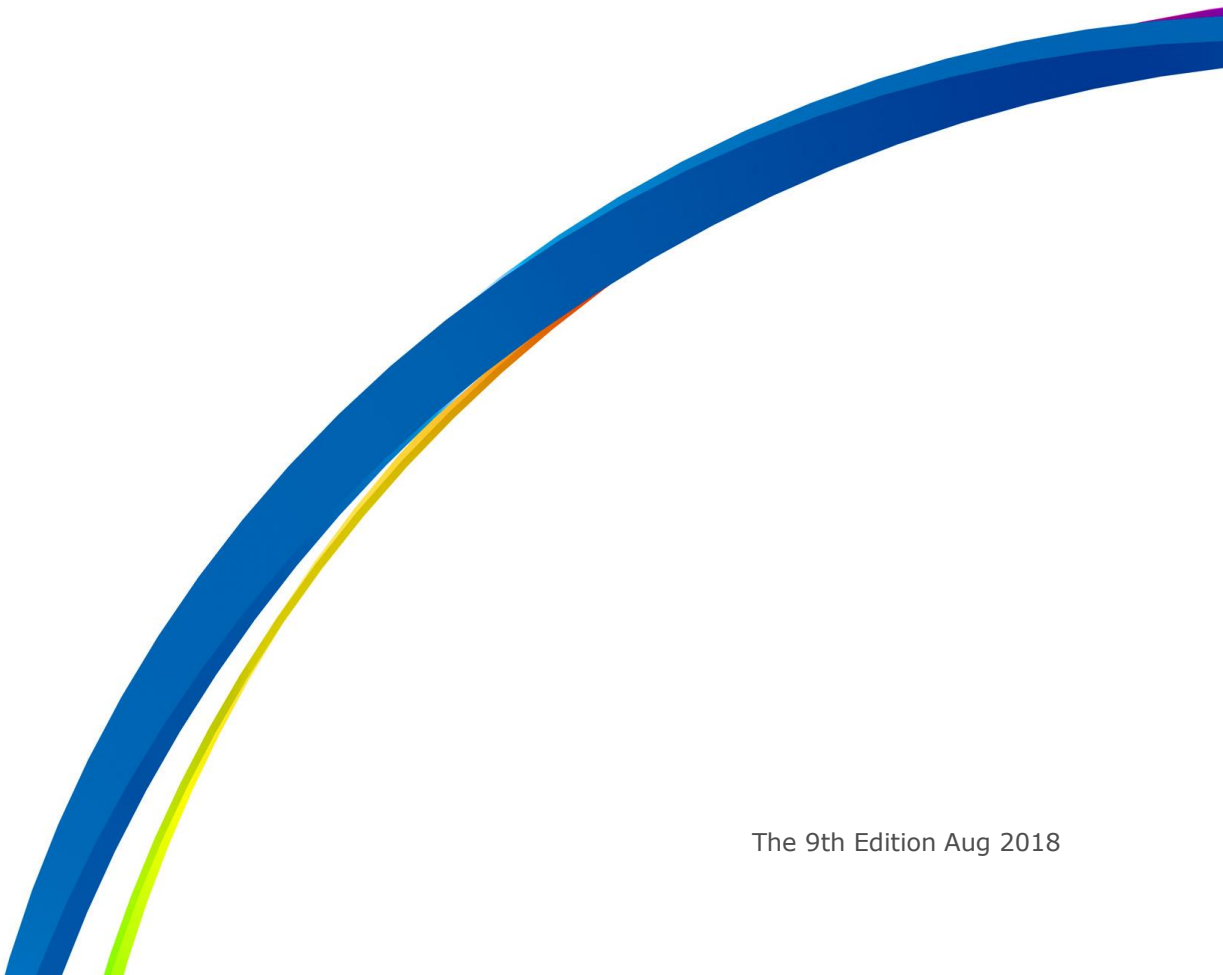
Pro-face
by Schneider Electric

Easy! Smooth!
GP/ST-3500 Series->GP4000 Series
Replacement Guidebook



The 9th Edition Aug 2018

Preface

This guidebook introduces the procedures to replace a unit in GP/ST-3500 series with a GP-4000 series.

Model in use	Model No.	Recommended Substitution
GP-3500T	AGP3500-T1-AF AGP3500-T1-D24	**GP-4501T**
GP-3500T + Video unit*	AGP3500-T1-AF AGP3500-T1-D24	**GP-4521T**
GP-3500S	AGP3500-S1-AF AGP3500-S1-D24	**GP-4501T** **or** **GP-4501TW**
GP-3500L	AGP3500-L1-D24	
ST-3501T	AST3501-T1-AF AST3501-T1-D24	
ST-3501C	AST3501-C1-AF AST3501-C1-D24	

* VM unit (GP3000-VM01) or RGB unit (GP3000-RGB201)

Safety Information

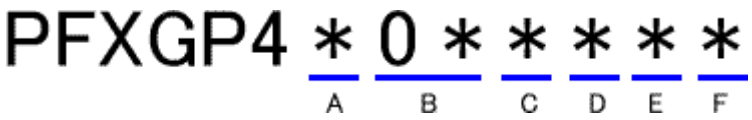
HAZARD OF OPERATOR INJURY, OR UNINTENDED EQUIPMENT DAMAGE

Before operating any of these products, be sure to read all related manuals thoroughly.

Failure to follow these instructions can result in death, serious injury or unintended equipment damage.

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.



A	2	GP-4200 series (3.5”)
	3	GP-4300 series (5.7”)
	4	GP-4400 series (7.5”/7.0”W)
	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-4301TW

Contents

Chapter 1 Specification Comparison

1.1 Specifications of GP-3500T and GP-4501T(Standard model)/GP-4521T(Video unit model)

		GP-3500T	GP-4501T (Standard model)/ GP-4521T(Video unit model)
			
Display Type		TFT Color LCD	
Display Colors		65,536 colors (without blink) / 16,384 colors (with blink)	
Display Resolution		VGA（640×480 pixels）	
Panel Cutout Dimensions		259(W)×201(H) (mm)	
External Dimensions		272.5(W)×214.5(H)×57(D) (mm)	
Touch Panel Type		Resistive film (Analog)	**GP-4501T** Resistive film (Analog/ Matrix) ->See2.2 **GP-4521T** Resistive film (Analog) only
Memory	**Application**	16MB *1	**UP!** 32MB
	SRAM	320KB	
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Relaceable Lithium battery) ->See 2.9
Input Voltage		AC 100 to 240V and DC 24V	**GP-4501T** AC100 to 240V and DC24V **GP-4521T** AC100 to 240V only
Serial I/F	**COM1**	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C ->See 2.6.1 and Chapter 4
	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 ->See 2.6.1 and Chapter 4

Ethernet I/F		10BASE-T/100BASE-TX	
CF Card I/F		✔ (Type-II)	- ->See 2.6.2
SD Card I/F		-	**NEW!** ✔
USBI/F	**Type A**	✔ (2 ports)	✔ (1 port) ->See 2.5 and 2.6.3
	Type mini B	-	✔ ->See 2.5
Auxiliary I/O I/F		✔	- ->See 2.6.4
Expansion Unit I/F (For communication)		✔	- ->See 2.5.5
Expansion Unit I/F (For video unit)		✔	GP-4521T only
Coated model		✔	✔

1.2 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)		W301.5×H227.5mm	W259×H201mm ->See 2.4
External Dimensions (mm)		W313×H239×D56mm	W272.5×H214.5×D57mm
Touch Panel Type		Resistive film (Analog)	Resistive film (Analog/ Matrix) ->See 2.2
Memory	**Application**	8MB/ 16MB	**UP!** 32MB
	SRAM	320KB	
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) ->See 2.9
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 and Chapter 4
	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 ->See 2.6.1 and Chapter 4
Ethernet I/F		10BASE-T/100BASE-TX	
CF Card I/F		✔	- ->See 2.6.2
SD Card I/F		-	**NEW!** 有
USBI/F	**Type A**	✔	✔ ->See 2.5 and 2.6.3
	Type mini B	-	
Auxiliary I/O I/F		✔	- ->See 2.6.4
Sound Output I/F		✔	- ->See 2.6.5
Expansion Unit I/F		✔	- ->See 2.7.3

1.3 Specifications of ST-3500S/L and GP-4501TW

		GP-3500S/L	GP-4501TW
		 	
Display Type	**GP-3500S**	STN color LCD	**UP!** TFT Color LCD
	GP-3500L	Monochrome LCD	
Display Colors	**GP-3500S**	4,096 colors	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink) ->See 2.3
	GP-3500L	Monochrome, 16 levels	
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		Resistive film (Analog)	
Memory	**Application**	16MB *1	16MB
	SRAM	320KB	128KB ->See 2.12
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) ->See 2.9
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 and Chapter 4
	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 ->See 2.6.1 and Chapter 4
Ethernet I/F		10BASE-T/100BASE-TX	
CF Card I/F		✔ (Type-II)	- ->See 2.6.2
SD Card I/F		-	**NEW!** ✔
USB I/F	**Type A**	✔ (2 ports)	✔ (1 port) ->See 2.5 and 2.6.3
	Type mini B	-	✔ ->See 2.5
Auxiliary I/O I/F		✔	- ->See 2.6.4
Sound Output I/F		✔	- ->See 2.6.5
Expansion Unit I/F		✔	- ->See 2.7.3

*1: 8MB available if the revision of the unit is earlier than Rev. 4 or GP-Pro EX Ver. 2.5 or earlier is used.

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

		ST-3501T/C	GP-4501T
			
Display Type	**ST-3501T**	TFT Color LCD	TFT Color LCD
	ST-3501C	Color LCD	
Display Colors	**ST-3501T**	256 colors (without blink)/ 64 colors (with blink)	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink) ->See 2.3
	ST-3501C	16 colors	
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		Resistive film (Analog)	Resistive film (Analog/ Matrix) ->See 2.2
Memory	**Application**	6MB	**UP!** 32MB
	SRAM	320KB	
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) ->See 2.9
Input Voltage		AC 100 to 240V/ DC 24V	
Serial I/F	**COM1**	D-Sub 9 pin (plug) RS-232C	
	COM2	D-Sub 9 pin (plug) RS-422/485	
Ethernet I/F		-	**NEW!** 10BASE-T/100BASE-TX
CF Card I/F		✔ (Type-II)	- ->See 2.6.2
SD Card I/F		-	**NEW!** ✔
USB I/F	**Type A**	✔	✔ ->See 2.5
	Type mini B	-	✔ ->See 2.5

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

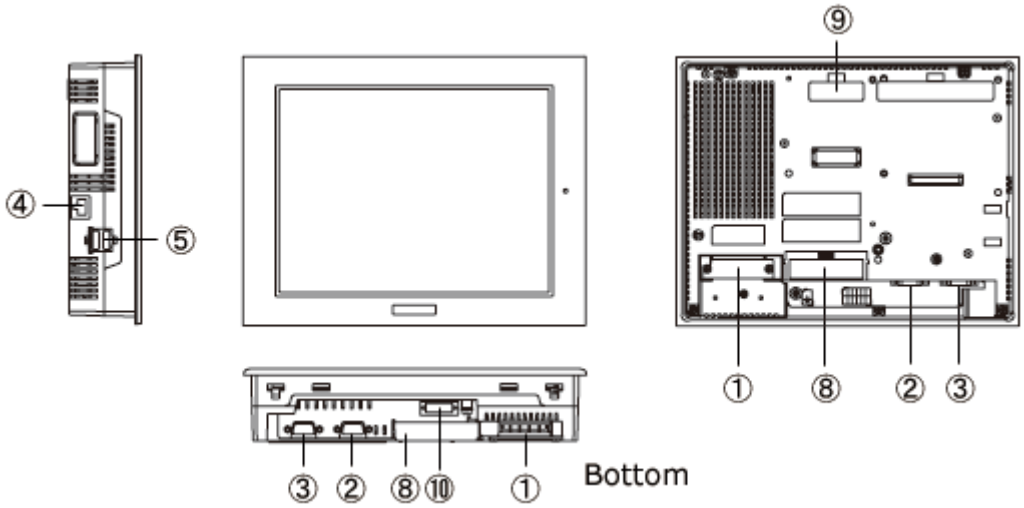
		ST-3501T/C	GP-4501TW
			
Display Type	**ST-3501T**	TFT Color LCD	TFT Color LCD
	ST-3501C	Color LCD	
Display Colors	**ST-3501T**	256 colors (without blink)/ 64 colors (with blink)	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink) ->See 2.3
	ST-3501C	16 colors	
Display Resolution		VGA (640×480 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		Resistive film (Analog)	
Memory	**Application**	6MB	**UP!** 16MB
	SRAM	320KB	128KB ->See 2.12
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	**NEW!** Primary Battery (Replaceable Lithium battery) ->See 2.9
Input Voltage		AC 100 to 240V/ DC 24V	DC 24V ->See 2.8
Serial I/F	**COM1**	D-Sub 9 pin (plug) RS-232C	
	COM2	D-Sub 9 pin (plug) RS-422/485	
Ethernet I/F		-	**NEW!** 10BASE-T/100BASE-TX
CF Card I/F		✔ (Type-II)	- ->See 2.6.2
SD Card I/F		-	**NEW!** ✔
USB I/F	**Type A**	✔	✔ ->See 2.5
	Type mini B	-	✔ ->See 2.5

Chapter 2 Compatibility of Hardware

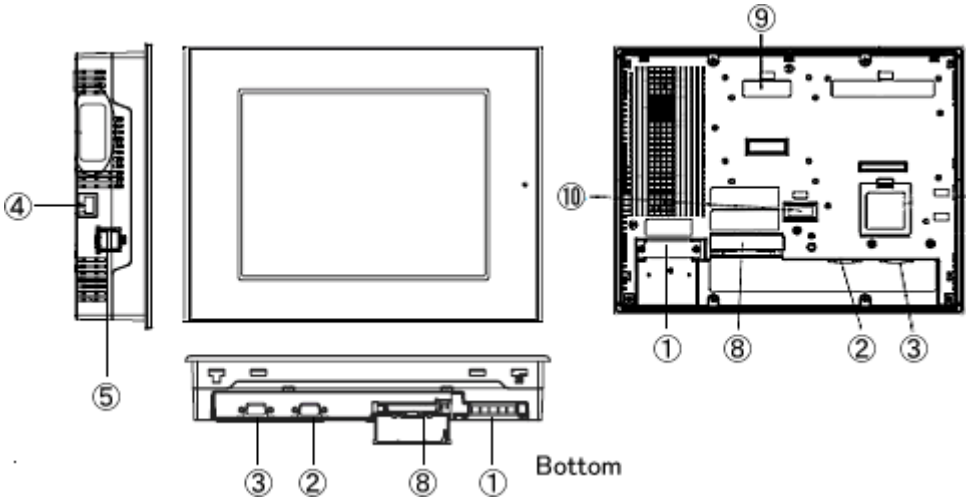
2.1 Locations of connector

Connector locations of GP/ST-3500 series and GP-4500 series;

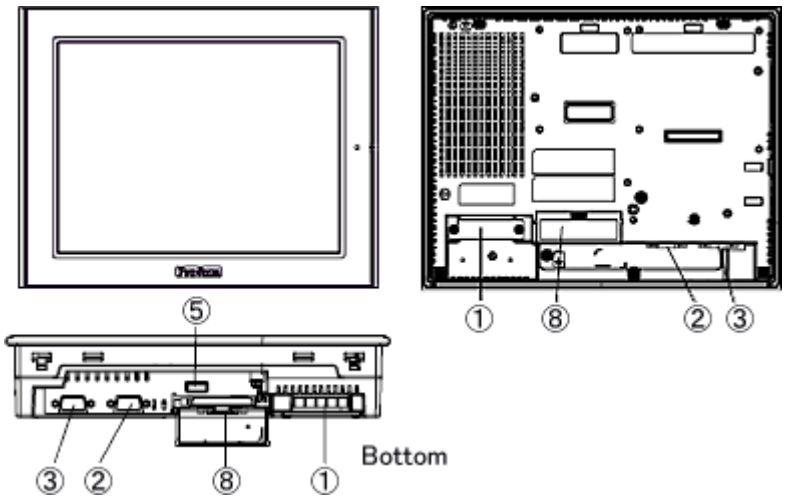
GP-3500T



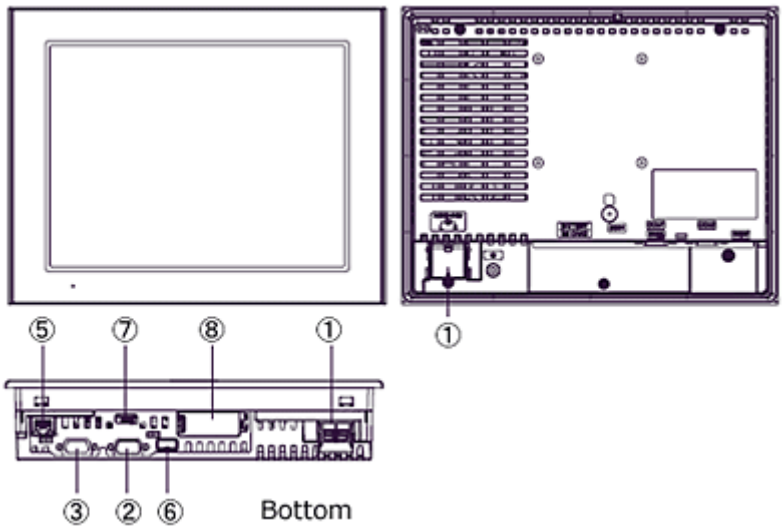
GP-3500S/L



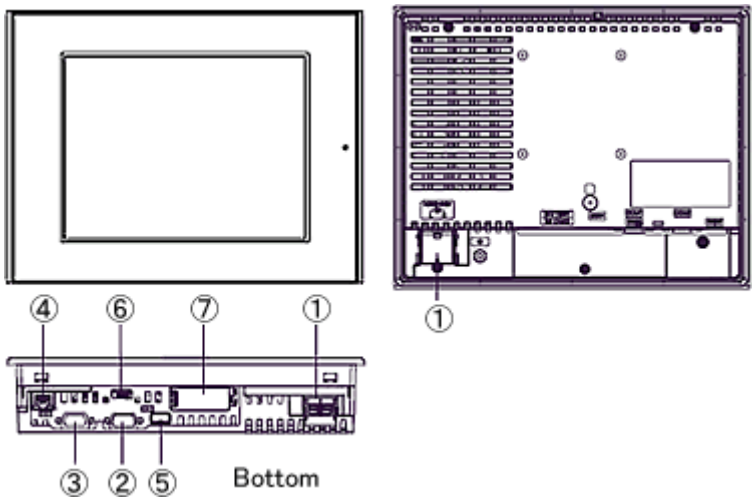
ST-3501T/C



GP-45x1T



GP-4501TW



Interface names

	GP-3500T	GP-3500S/L	ST-3501T/C	GP-45x1T	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			-	
9	Expansion Unit I/F		-	GP-4521T only (for Video unit)	-
10	Auxiliary I/O / Sound Output I/F (AUX)		-		

2.2 Touch Panel Specifications

For replacement with GP-4501T, the Matrix resistive film type which enables simultaneous 2-point touch input or the Analog resistive film type with 1-point touch input only can be selected.
When you use 2-point touch input (touching 2 points on the screen at the same time), please select the Matrix resistive film type.

GP-4501T model number

	AC power supply type	DC power supply type
Analog type *	PFXGP4501TAA	PFXGP4501TAD
Matrix type	PFXGP4501TMA	PFXGP4501TMD

*When you replace GP-4501TW (only the Analog resistive film type), unlike GP-3500 series you use, even if two different points are touched at the same time, that's recognized as touch input on the middle coordinates between those two points.

GP-4501T	Analog type	Not supported 2-point touch input. if you touch two points at the same time, only the first touched point is recognized, but the second touched one is not.
	Matrix type	supported 2-point touch input.
GP-4501TW	Analog type only	Even if two different points are touched at the same time, that's recognized as touch input on the middle coordinates between those two points.

2.3 Display Colors (only when replacing GP-3500L or ST-3501C)

The display color of GP-3500L and ST-3501C (when using a monochrome mode) is monochrome, but GP-4501TW has a TFT color LCD. After replacement, the display color changes from monochrome to color.
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 depending on the GP-Pro EX version or settings of the drawing/the parts on the screens.
After changing the display unit type, please confirm the display colors of the drawing or the parts on the screens just in case.

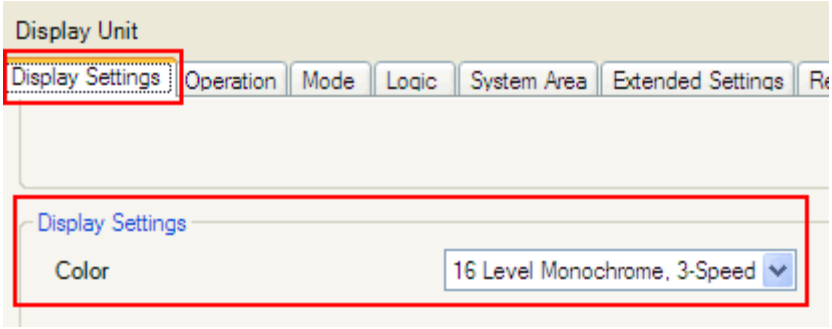
If the display is in colors after changing the display unit type...

GP-Pro EX Ver. 3.01.200 (Service Pack1) or later supports the function which changes drawing in colors to monochrome. To change the color to monochrome, follow the steps below.

(1) Click [Project]->[System Settings]->[Display Unit].

(2) Open the [Display Settings] tab.

(3) Change [Color] setting to "16 Levels Monochrome, 3-Speed Blink".



* [Reverse Display] setting is for displaying the screen with black/white reversed. Check on this setting if needed.

* Please confirm the display colors of the drawing or the parts on the screens after changing the [Color] setting.

2.4 Panel Cutout Dimensions

For replacing GP-3500S with GP-4501T, the panel cutout dimensions are different. An attachment (Model: CA4-ATM10-01) for installation is available as an option item. You can use it.

For replacing ST-3501T/C 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-4500 series, use a USB transfer cable or Ethernet.
The USB cables that can be used for GP-4500 series are as follows;

<table>
<tr><th></th><th>Model</th><th>Connector Type</th><th>Connector on GP</th></tr>
<tr><td rowspan="2">Options</td><td>CA3-USBCB-01</td><td> 
</td><td>USB (Type A)</td></tr>
<tr><td>ZC9USCBMB1</td><td rowspan="2"> 
</td><td rowspan="2">USB (Type mini B)</td></tr>
<tr><td>Commercial Item</td><td>-</td></tr>
</table>

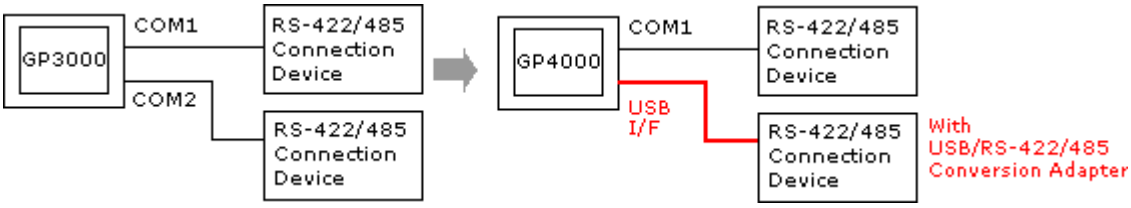
The same USB transfer cable (CA3-USBCB-01) as that for GP/ST-3500 series can be used.

2.6 Interface

2.6.1 Serial Interface

The pin assignment and the shape of plug/socket connector of ST-3501T/C are the same as those of GP-4500 series, but GP-3500 series are different.
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 for GP-3500S/L. If you use the existing connection cables, see [4.5 Cable Diagram at the time of replacement].

When both the COM1 port and the COM2 port have the RS-422/485 setting, only the COM2 port can be used for RS-422/485 connection after replacement.
Using a USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41) may allow you to use GP4000 series' 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 device/PLCs you can connect to its serial interface (RS-422/485) are limited. To check the connection configuration, please refer to refer to USB/RS-422/485 Conversion Adapter Connection Guide (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/data/com_usc.pdf)

2.6.2 CF Card Interface

GP-4500 series 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-4500 series, 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].

2.6.3 USB Interface (for GP-3500 series only)
GP-3500T/S/L has two USB ports (USB Type A) but GP-4500 series has only one. If devices are connected to both USB ports on GP-3500 series, use an USB hub for GP-4500 series. Because of bus power limit on GP-4500 series USB port, it's recommended to use an USB hub supporting self-power supply and be sure to check the operation before use.
Also, several USB devices of the same category in the following table cannot be simultaneously used. Even if multiple USB devices of the same category are connected to the display unit, only the first USB device recognized by the display unit can be used.

USB Devices of the same category

Category	USB Device
1	Printer, USB-PIO converter
2	Keyboard, Numeric keys, Barcode reader
3	Mouse
4	USB storage (USB memory, CF/SD card reader, and so on)
5	USB transfer cable
6	USB-Serial (RS-232C) conversion cable, SUB/RS-422/485 Conversion Adapter

2.6.4 Auxiliary I/O Interface (AUX) (for GP-3500 series only)
GP-4500 series 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-3500 series cannot be used.

2.6.5 Sound Output Interface (for GP-3500 series only)
GP-4500 series is not equipped with the sound output function. The sound output function for GP-3500 series cannot be used.

2.7 Peripheral units and option units

2.7.1 Barcode reader connection

Like GP/ST-3500 series, GP-4500 series allows you to connect a barcode reader to its USB interface (Type A) or its serial interface.

For the models GP-4500 series 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-4500 series allows you to connect a printer on its USB interface (Type A).

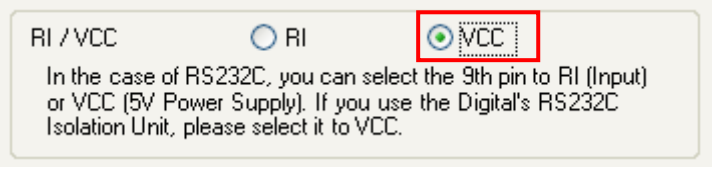
For the models GP-4500 series supports, see [OtasukePro!] (http://www.pro-face.com/otasuke/qa/3000/0056_connect_e.html).

2.7.3 Expansion Unit (for GP-3500 series only)

GP-4500 series is not equipped with an expansion unit interface. The expansion unit (each kind of unit like CC-LINK Unit) for GP-3500 series cannot be used.

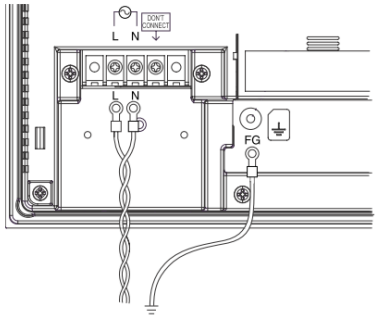
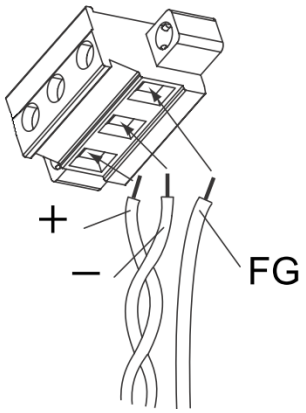
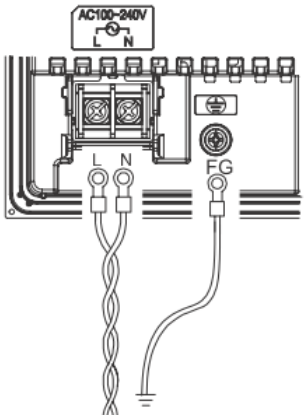
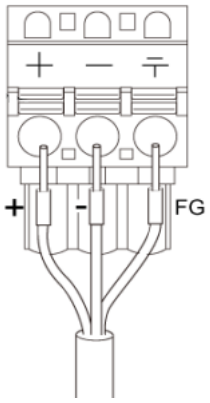
2.7.4 Isolation Unit

RS-485 isolation unit for GP/ST-3500 series (CA3-ISO485-01) cannot be used for GP-4500 series. You can use the RS-232C isolation unit (CA3-ISO232-01) for GP-4500 series instead.

Note for using RS-232C isolation unit (CA3-ISO232-01)
・ Connect it to GP-4500 series via COM1 (232C). COM2 cannot be used. ・ It's necessary to set the 9th pin of the COM port to VCC. [Settings on GP-ProEX] Select "VCC" from [System Settings] -> [Device/PLC] in the [Project] menu on GP-Pro EX.  ・ RS-422/485 (2-wire type) communication and serial multilink are not supported.

2.8 Power Supply

- 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.
- When replacing GP/ST-3500 series DC type with GP-4501TW, its connector is not compatible with that of GP-4501TW. See the table below.If a unit with AC power supply is required, replace GP/ST-3500 series with GP-4501T instead. GP-4501T has 2 types, AC and DC. See the table below.

	AC Type	DC Type	
GP3000 series			CA5-DCCNL-01 made by Pro-face or GMVSTBW2,5/3-STF-7,62 made by PHOENIX CONTACT
GP4000 series			PFXZCBCNDC2 made by Pro-face
Compatibility	Compatible because of a terminal block. FG has been relocated.	Not compatible because of different pitch though the connectors have the same shape. Use the specified type of connector.	

But please note that the attachment (model no.: CA4-ATM10-01) should be added because the panel cutout demensions are different from GP-3500T/S/L.

- GP-4521T is only AC power supply. When replacing DC power supply with GP3500 series and Video unit, please change to AC power supply from DC power supply.

2.9 Backup Battery

Unlike GP/ST-3500 series, GP4000 series 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

2.10 Power Consumption

The power consumption of GP/ST-3500 series is different from that of GP-4500 series.

	AC Type	DC Type
GP-3500T/S	90VA or less (AC100V) 108VA or less (AC240V)	50W or less
GP-3500L	-	
ST-3501T/C	90VA or less (AC100V) 108VA or less (AC240V)	45W or less
GP-4501T	44VA or less (AC100V) 58VA or less (AC240V)	17W or less
GP-4501TW	-	
GP-4521T	56VA or less (AC100V) 77VA or less (AC240V)	

For the detailed electric specifications, see the hardware manual.

2.11 Materials/Colors of the body

The materials and the colors of GP/ST-3500 series and GP-4500 series are as follows:

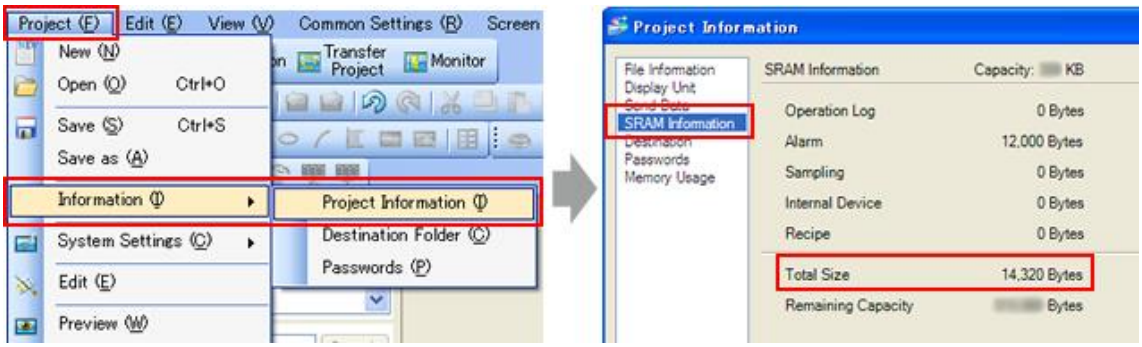
	Color	Material
GP-3500 series	Silver	Aluminum alloy
ST-3500 series	Light Gray	Resin
GP-4500 series		Resin with glass

2.12 Backup Memory (SRAM)

When replacing GP-3500S/L or ST-3501T/C with GP-4501TW, SRAM size becomes smaller (320KB -> 128KB). In case that SRAM size of your project file is more than 128KB after changing the Display Unit type to GP-4501TW, replace GP-3500S/L or ST-3501T/C with GP-4501T instead of GP-4501TW.

To check SRAM size, follow the steps below;

(1) Double click and open the project file (*.prx) on GP-Pro EX.
(2) Change the Display Unit type of your project file to "GP-4501TW". To know how to do it, see [3.4 Change the Display Unit Type].
(3) Click [Project]->[Information]->[Project Information]. The Project Information window appears.
(4) Click [SRAM Information] to see SRAM size.



2.13 About Ladder monitor

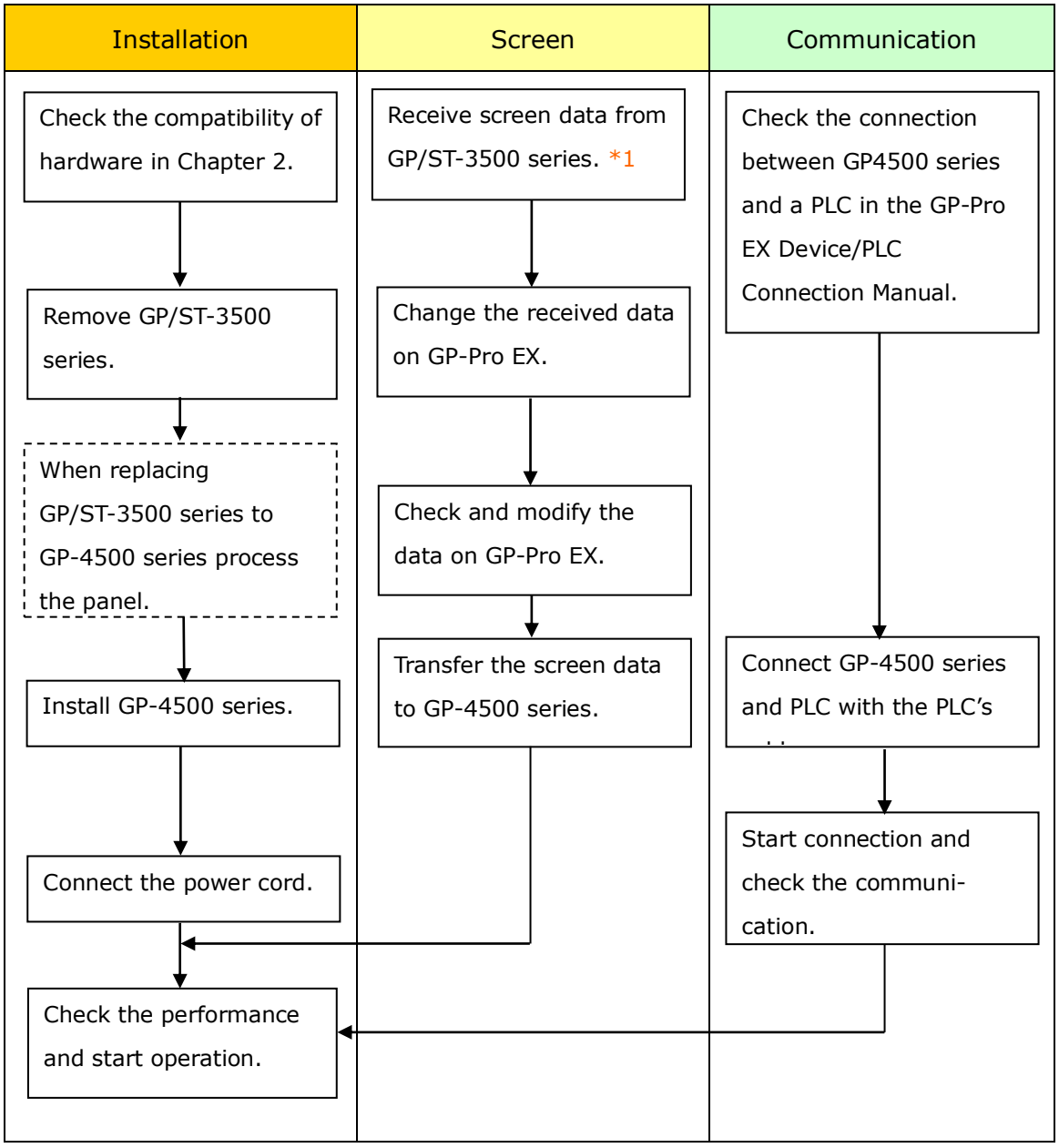
PLC Ladder monitor tool cannot be used for GP4000 series.

2.14 Other Notes

- Do not expose GP4000 series to direct sunlight.
- Do not use GP4000 series outdoors.
- Do not turn on GP4000 series if condensation has occurred inside the device.
- When you are continuously using GP4000 series without oxygen, the brightness might decrease. Please ventilate the control panel periodically.

Chapter 3 Replacement Procedure

3.1 Work Flow



*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-3500 series only).
Requirements for converting screen data of GP/ST-3500 series and transferring the converted data to GP-4500 series.	PC in which GP-Pro EX Ver.3.01 or later is installed. GP-4521T is supported Ver.4.07.300 or later
	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 , 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 (for GP-3500 series only)

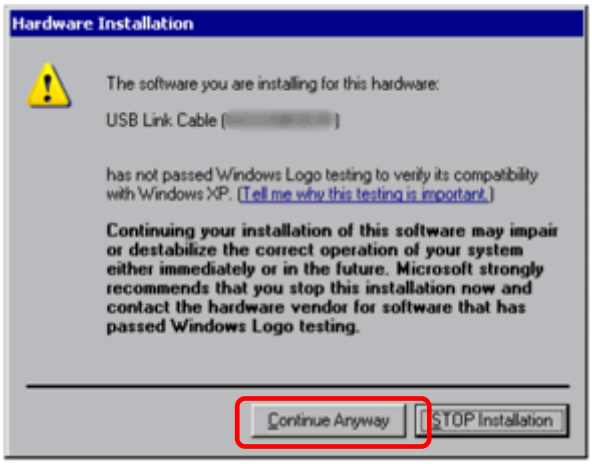
But this section explains, as an example, how to receive screen data from GP/ST-3500 series using a USB transfer cable (model: CA3-USBCB-01).

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

(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.

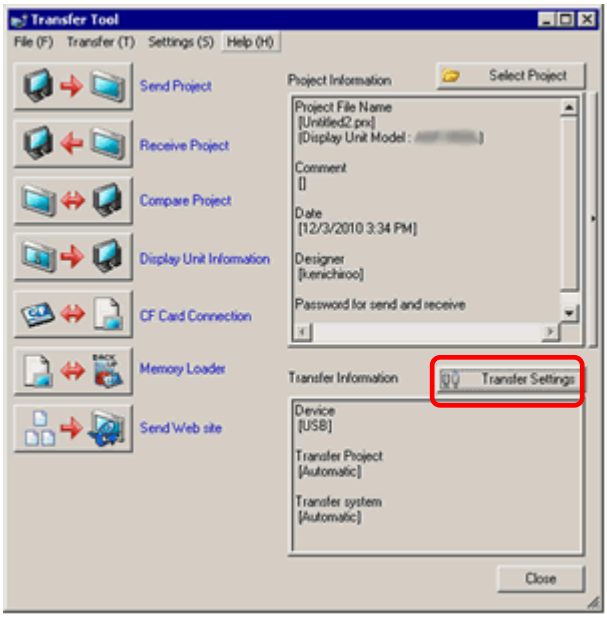
NOTE

- 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].



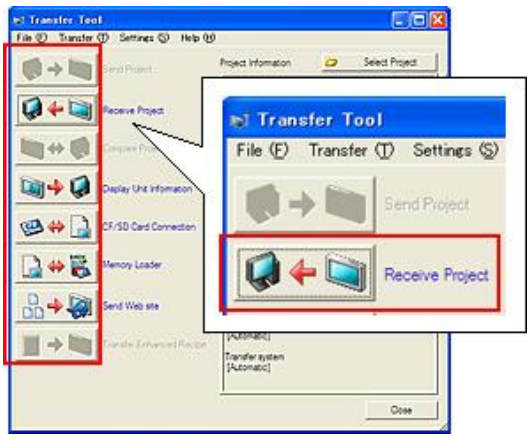
- If the following symptoms appear on Microsoft Windows® 7, go to updating "USB Data Transfer Driver" on [OtasukePro!] for download. (http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm)
  - An error occurs when GP-Pro EX or Transfer Tool is installed
  - An error occurs when data is transferred via a USB transfer cable (model: CA3-USBCB-01).

(2) Start the Transfer Tool of GP-Pro EX.

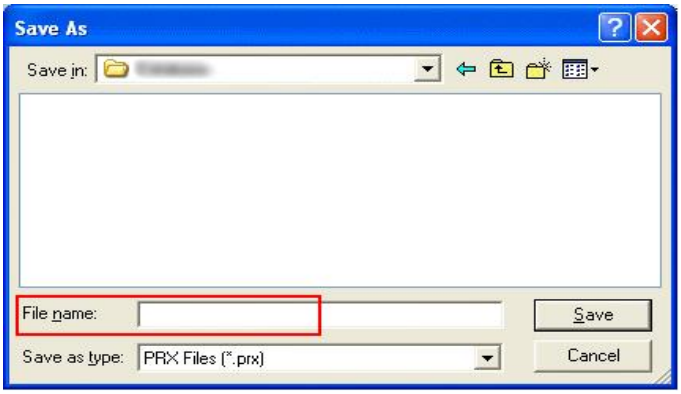


(3) Make sure that the [Device] in the "Transfer Settings Information" is set to [USB]. If not, click the [Transfer Setting] button to open the "Transfer Setting" dialog box. Select [USB] in the Communication Port Settings field and click [OK].

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

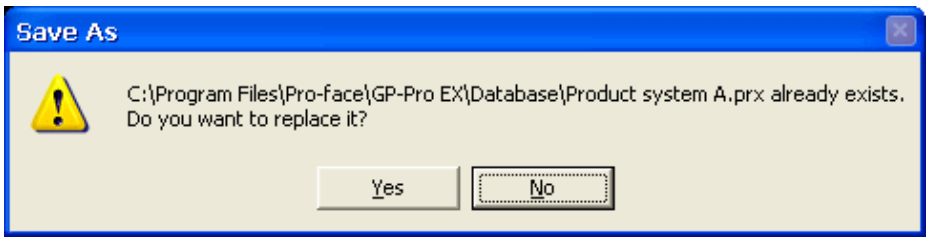


(5) Click [Receive Project], and the following dialog box will appear. Specify a place to save the received data in and a project file name, and then click [Save] to start transfer.

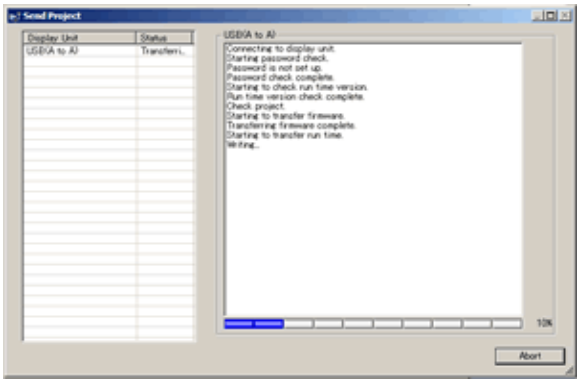


NOTE

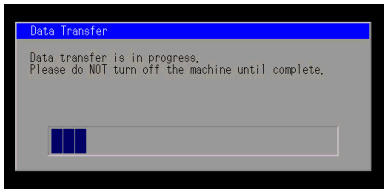
When a file exists, the window that confirms whether or not to overwrite the file is displayed.



(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

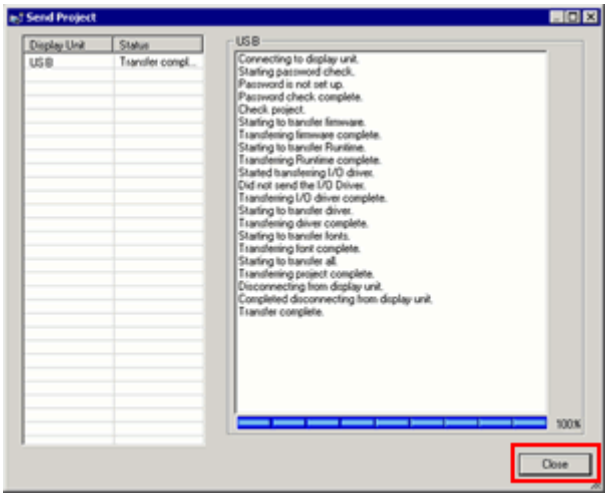


NOTE

- 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-4500 series that is a replacement model is not equipped with a CF card slot. If the display unit type is changed to GP-4500 series, 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-4500 series.

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

3.5 Transfer the screen data to GP-4500 series

Transfer the project file after the display unit type change to GP-4500 series.

You can transfer data to GP-4500 series via;

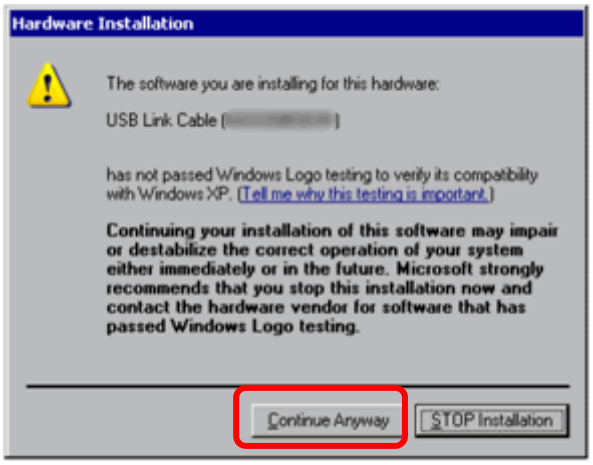
- An USB transfer cable (model: CA3-USBCB-01)
- An USB data transfer cable (model: ZC9USCBMB1)
- A commercial USB cable (USB Type A/mini B)
- A SD card/USB storage device
- Ethernet

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

(1) Connect your PC and the GP unit of GP-4500 series 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].

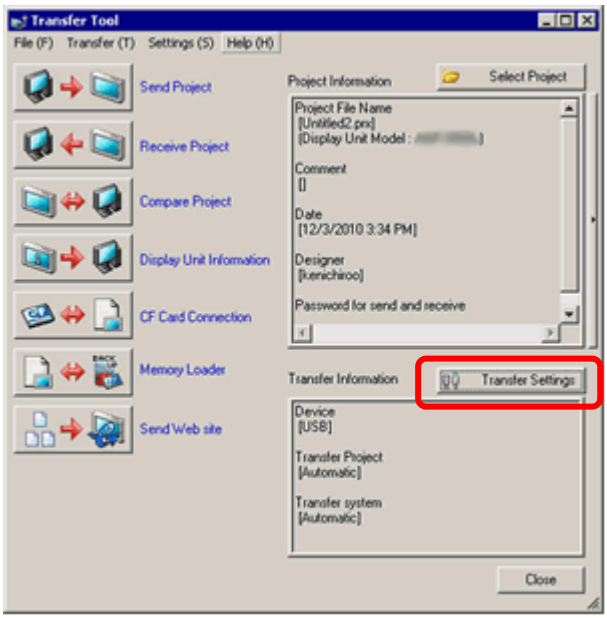


・ If the following symptoms appear on Microsoft Windows® 7, go to updating "USB Data Transfer Driver" on [OtasukePro!] for download (http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm).

- 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) Trun on the power of GP-4500 series. The “Initial Start Mode” screen will appear on the display unit. After transferring a project file once, this screen will not appear again.

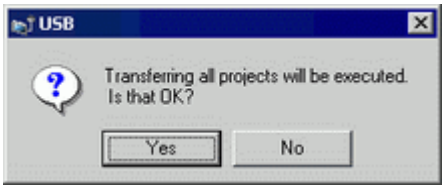
(3) On the GP-Pro EX’s State Toolbar, click the [Transfer Project] icon to open the Transfer Tool.



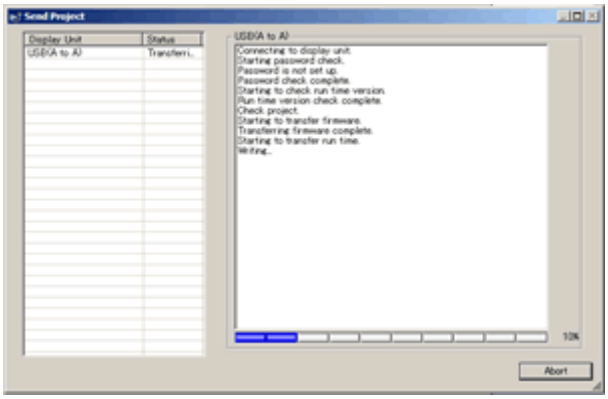
To transfer a different project file, click the [Select Project] button and select a project file.

(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].

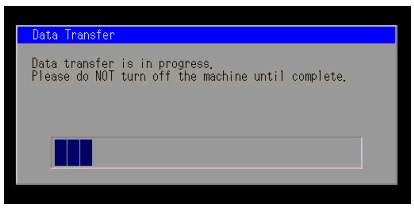
(5) Click [Send Project] to start transfer.
When the following dialog box appears, click [Yes]. This dialog box doesn't appear when the same project file is sent again.



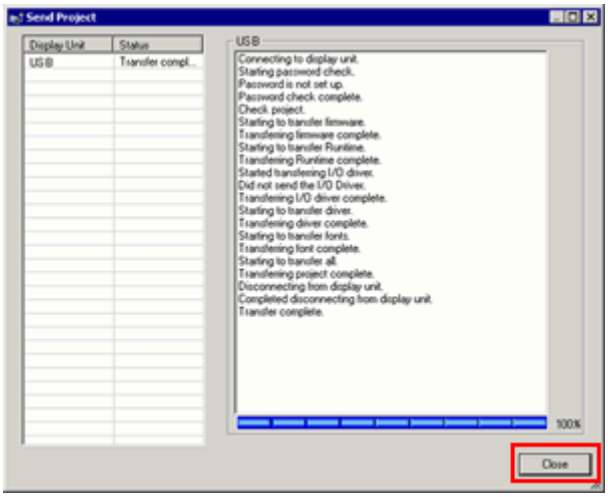
(6) The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)



Display Screen



(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-4500 series. 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 Drivers

4.1.1 Connectable Devices

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).

4.1.2 Connecting to Multiple Device/PLCs (only when replacing GP-4501TW)

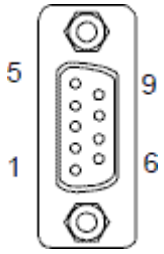
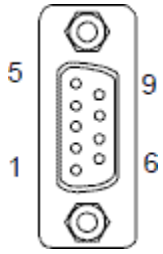
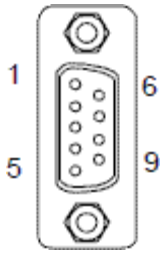
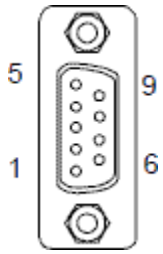
GP-3500S/L can communicate with multiple device/PLCs simultaneously with four drivers (COM1, COM2 and Ethernet), but GP-4501TW with two drivers only. Check out the table below to see which model is appropriate for replacement depending on the state of the connection with your Device/PLC.

Number of Device/PLC Drivers *1	GP-3500S/L Connection	Replacement Model
1	Any connection	GP-4501TW
2	COM1: RS-422/485 COM2: RS-422/485 Ethernet connection	GP-4501TW with USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41) *2
	All other connections	GP-4501TW
3 or more	COM1: RS-422/485 COM2: RS-422/485 Ethernet connection	GP-4501T with USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41) *2
	All other connections	GP-45x1T

*1: To see the number of device/PLC drivers, click [System Settings] -> [Device/PLC] from the [Project] menu on GP-Pro EX.

*2: About "USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41)", be sure to read [2.5.1 Serial Interface] for details before use.

4.2 Shapes of COM ports

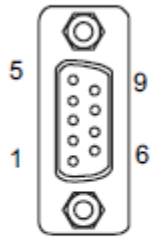
<table>
<tr><th></th><th>GP-3500T/S/L</th><th>ST-3501T/C</th><th>GP4500 series</th></tr>
<tr><td rowspan="2">COM1</td><td>D-Sub 9 pin (plug)
RS-232C/422/485</td><td colspan="2">D-Sub 9 pin (plug)
RS-232C</td></tr>
<tr><td> 
</td><td colspan="2"> 
</td></tr>
<tr><td rowspan="2">COM2</td><td>D-Sub 9 pin (socket)
RS-422/485</td><td colspan="2">D-Sub 9 pin (plug)
RS-422/485</td></tr>
<tr><td> 
</td><td colspan="2"> 
</td></tr>
</table>

4.3 Signals of COM ports

4.3.1 Signals of COM1

For GP-3500T/S/L

RS-232C (plug)

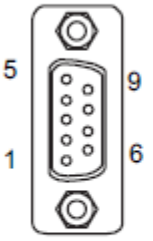
Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
 (GP unit side)	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	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.

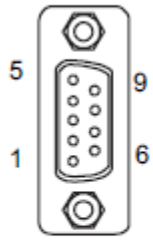
Please follow the current rating to avoid false operation or breakdown.

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
 (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)

For ST-3501T/C

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
 (GP unit side)	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)

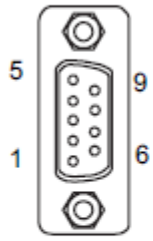
*1: RI and VICC of Pin 9 are switched on the software.

VCC Output is not protected from overcurrent.

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

For GP4500 series

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
 (GP unit side)	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.

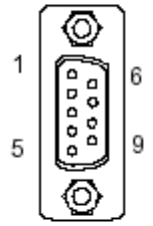
VCC Output is not protected from overcurrent.

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

4.3.2 Signals of COM2

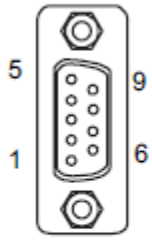
For GP-3500T/S/L

RS-422/485 (socket)

Pin Arrangement	Pin No.	RS422/RS485		
		Signal Name	Direction	Meaning
 (GP unit side)	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)
	Shell	FG	-	Frame Ground (Common with SG)

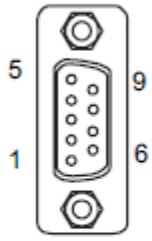
For ST-3501T/C

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
 (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)

For GP4500 series

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)

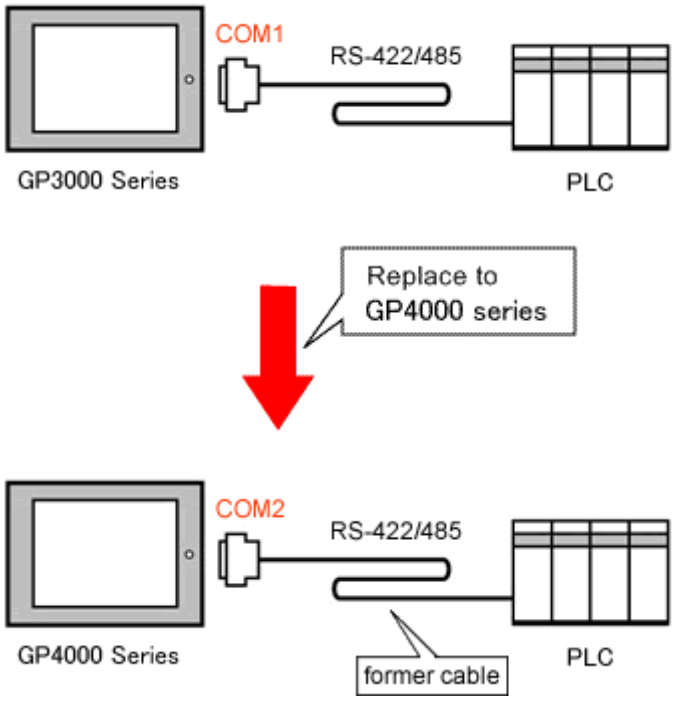
4.4 Multilink Connection

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).

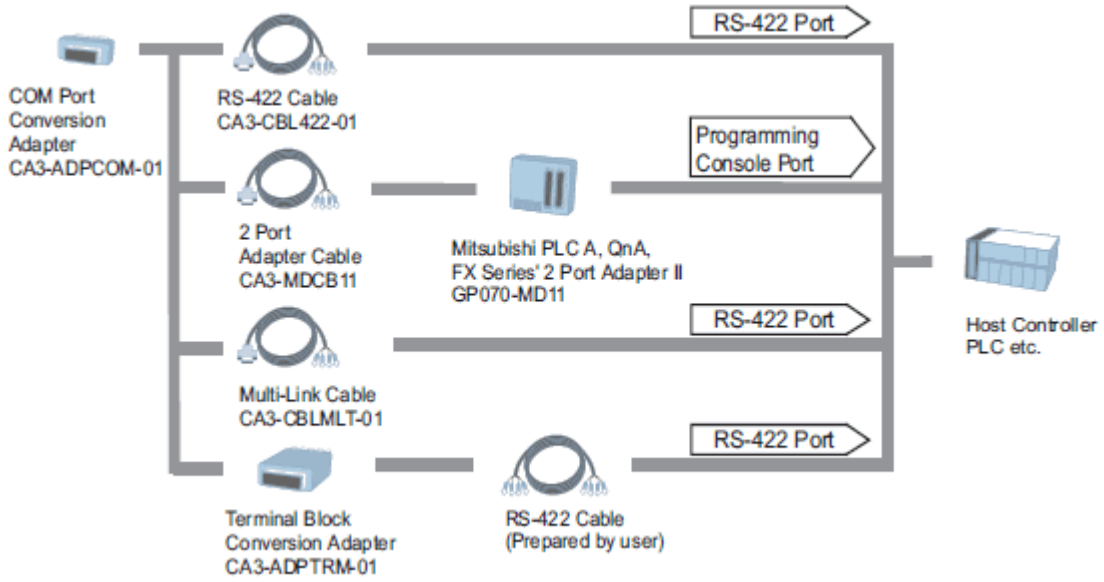
4.5 Cable Diagram at the time of replacement

The pin assignment and the shape of plug/socket connector of ST-3501T/C are the same as those of GP4500 series, but GP-3500 series are different.
Please note that there are precautions and restrictions as described below **when replacing GP-3500 series**.

- When a RS-422/485 device is connected via the COM1 port, **if GP-3500 series is replaced with GP4500 series, it will be connected via the COM2 port of GP4500 series.** (The cable diagram can be still used.)
  Before GP-4500 series 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-3500 series via COM2** can be used for GP4500 series with a COM Port Conversion Adapter (CA3-ADPCOM-01) added in the following cases;



In all other cases, the operation is not guaranteed and it's recommended to prepare a new connection cable. To check the cable diagram, please refer to GP-Pro EX Device/PLC Connection Manual.

Important
If the homemade COM 2 cable diagram for GP-3500 series is used for GP4500 series with a COM port conversion adapter (CA3-ADPCOM-01), no operation is guaranteed. It's recommended to get a new cable diagram prepared for GP4500 series. For cable diagrams, see GP-Pro EX Device/PLC Connection Manual. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm)

- When both the COM1 port and the COM2 port have the RS-422/485 setting, only the COM2 port can be used for RS-422/485 connection after replacement with GP4000 series.
  Using a USB/RS-422/485 Conversion Adapter may allow you to use GP4000 series' 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)

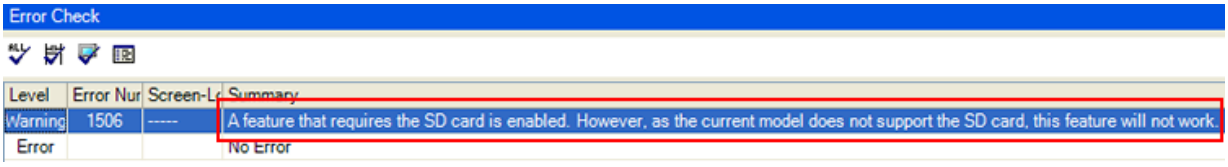
Important
The connected devices/PLC which can connect to the serial interface side of USB/RS-422/485 Conversion Adapter are limited. For details, see USB/RS-422/485 Conversion Adapter Connection Guide (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/data/com_usc.pdf)

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 GP4500 series, "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

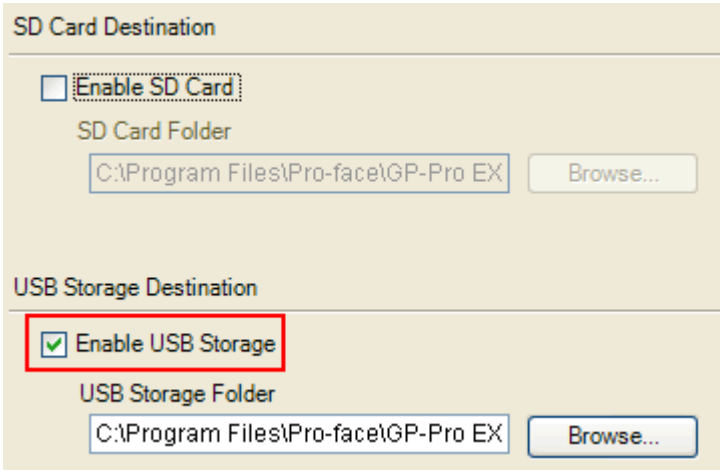
[Solution]

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

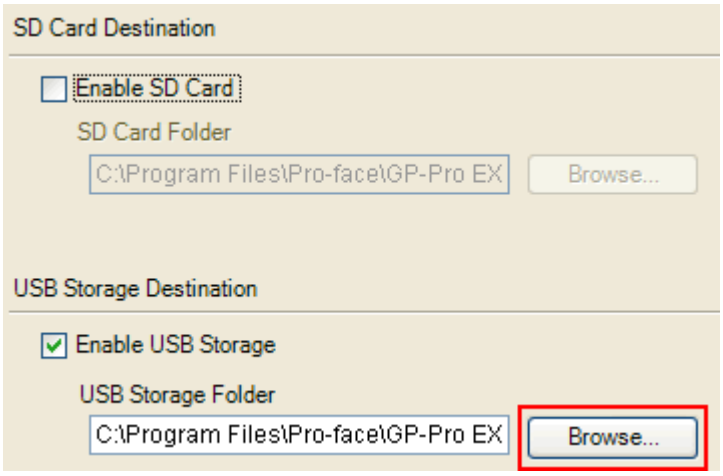
<Procedure>

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.



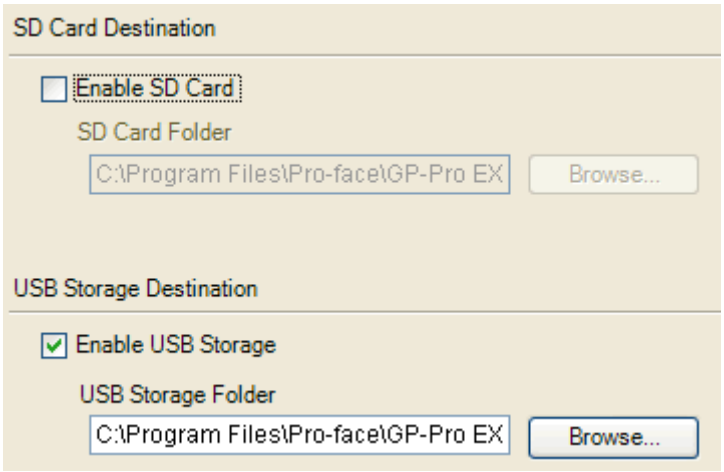
iv. Click [OK] to confirm the setting.

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].

NOTE
To check each function setting of GP-Pro EX, refer to GP-Pro EX Reference Manual.

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.