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Replacement Guidebook

GP-2500T/2500S/2501T/2501S

-> SP-5500TP(Premium Display)

  + SP-5B10(Power Box)

Preface

This guidebook introduces the procedures to replace a unit in GP-2500T/S, GP-2501T/S with a SP-5500TP+SP-5B10.

Model in use	Model No.	Recommended Substitution
GP-2500T	GP2500-TC11 GP2500-TC41-24V	SP-5500TP (Premium Display) + SP-5B10 (Power Box)
GP-2500S	GP2500-SC41-24V	
GP-2501T	GP2501-TC11	
GP-2501S	GP2501-SC11	

'Display' and 'Box' of SP5000 series can be separated, so you can freely select a suitable combination of them according to use. This guidebook introduces specifications for a combination of SP-5500TP (Premium Display) that is a 10-inch display module and SP-5B10(Power Box) that is a box module.

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.

Contents

Chapter 1   Specification Comparison

1.1. Specification of GP-2500T/S and SP-5500TP+SP-5B10

		GP-2500T/S	SP-5500TP+SP-5B10
Display Type	**GP-2500T**	TFT Color LCD	**NEW !** TFT Color LCD
	GP-2500S	STN Color LCD	
Display Colors	**GP-2500T**	256 colors(without blink)/ 64 colors(with blink)	**UP !** 16,777,216 colors (without blink)/ 4,194,304 colors (with blink)
	GP-2500S	64 colors	
Display Resolution		VGA(640x480 pixels)	**UP !** VGA(640x480 pixels)/ SVGA(800x600 pixels) ->See 2.10
Panel Cut Dimensions		W301.5xH227.5mm	**NEW !** W259xH201mm ->See 2.11
External Dimensions		W317xH243xD58	**NEW !** W272.5xH214.5xD67mm *1
Touch Panel Type		Resistive film (Matrix)	**NEW !** Resistive film (Analog, multi-touch)
Memory	**Application**	4MB	**UP !** 64MB
	Backup	SRAM : 256KB	**UP !** NVRAM : 320KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	- ->See 2.7
Input Voltage		DC24V(onlyGP-2500T) or AC100 to 240V	DC12 to 24V ->See 2.2
Serial I/F	**COM1**	D-Sub25 pin (socket) RS-232C/422	**UP !** D-Sub9 pin (plug) RS-232C/422/485 ->See 2.4.1

	COM2	D-Sub9 pin (plug) RS-232C	**UP !** D-Sub9 pin (plug) RS-232C/422/485 ->See 2.4.1
Ethernet I/F		1 port 10BASE-T	**UP !** 2 ports 10BASE-T/100BASE-TX/ 1000BASE-T ->See 2.3
CF Card I/F		✔	- ->See 2.4.3
SD Card I/F		-	**UP !** ✔ ->See 2.4.3
USB I/F	**Type A**	-	**UP !** SP-5500TP (premium display) : 1 port (Front) SP-5B10 (Power box) : 2 ports ->See 2.3
	Type mini B	-	**UP !** SP-5500TP (premium display) : 1 port (Front) SP-5B10 (Power box) : 1 port ->See 2.3
Auxiliary I/F		✔ ->See 2.4.2	
Sound Output I/F		- External speaker connection (terminal block) monaural 1CH Speaker Output 70mW (Rated load: 8Ω, Frequency: 1kHz) LINE Output 2.7Vp-p (Rated: 10kΩ) Fit line : AWG#28 to 16	**UP !** Speaker Output: 300mW or more (Rated load: 8Ω, Frequency: 1kHz) LINE Output: 1.4Vp-p (Rated load: 10kΩ) Connector: 2-piece terminal block (AUX) x 1 ->See 2.4.3
Tool Connector I/F		✔	- ->See 2.5.1
Printer I/F		Centronic-compliant (parallel)	**NEW !** USB Type A ->See 2.5.2
Expansion Unit I/F (Communication Unit)		✔	- ->See 2.5.3

*1 Size for the time when SP-5500TP (Premium display) is combined with SP-5B10 (Power box).

1.2. Specification of GP-2501T/S and SP-5500TP+SP-5B10

		GP-2501T/S	SP-5500TP+SP-5B10
Display Type	**GP-2501T**	TFT Color LCD	**NEW !**
	GP-2501S	STN Color LCD	TFT Color LCD
Display Colors	**GP-2501T**	256 colors(without blink)/ 64 colors(with blink)	**UP !** 16,777,216 colors (without blink)/ 4,194,304 colors (with blink)
	GP-2501S	64 colors	
Display Resolution		VGA(640x480 pixels)	**UP !** VGA(640x480 pixels)/ SVGA(800x600 pixels) ->See 2.10
Panel Cut Dimensions		W301.5xH227.5mm	**NEW !** W259xH201mm ->See 2.11
External Dimensions		W317xH243xD58	**NEW !** W272.5xH214.5xD67mm *1
Touch Panel Type		Resistive film (Matrix)	**NEW !** Resistive film (Analog, multi-touch)
Memory	**Application**	2MB	**UP !** 64MB
	Backup	SRAM : 128KB	**UP !** NVRAM : 320KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	- ->See 2.7
Input Voltage		AC100 to 240V	DC12 to 24V ->See 2.2
Serial I/F	**COM1**	D-Sub25 pin (socket) RS-232C/422	**UP !** D-Sub9 pin (plug) RS-232C/422/485 ->See 2.4.1

|			
	COM2	-	**UP !** D-Sub9 pin (plug) RS-232C/422/485 ->See 2.4.1
Ethernet I/F		-	**UP !** 2 ports 10BASE-T/100BASE-TX/ 1000BASE-T ->See 2.3
CF Card I/F		✔	- ->See 2.4.3
SD Card I/F		-	**UP !** ✔ ->See 2.4.3
USB I/F	**Type A**	-	**UP !** SP-5500TP (premium display) : 1 port (Front) SP-5B10 (Power box) : 2 ports ->See 2.3
	Type mini B	-	**UP !** SP-5500TP (premium display) : 1 port (Front) SP-5B10 (Power box) : 1 port ->See 2.3
Auxiliary I/F		✔ ->See 2.4.2	
Sound Output I/F		–	**UP !** Speaker Output: 300mW or more (Rated load: 8Ω, Frequency: 1kHz) LINE Output: 1.4Vp-p (Rated load: 10kΩ) Connector: 2-piece terminal block (AUX) x 1 ->See 2.4.3
Tool Connector I/F		✔	- ->See 2.5.1
Printer I/F		Centronic-compliant (parallel)	**NEW !** USB Type A ->See 2.5.2
Expansion Unit I/F (Communication Unit)		✔	- ->See 2.5.3

*1 Size for the time when SP-5500TP (Premium display) is combined with SP-5B10 (Power box).
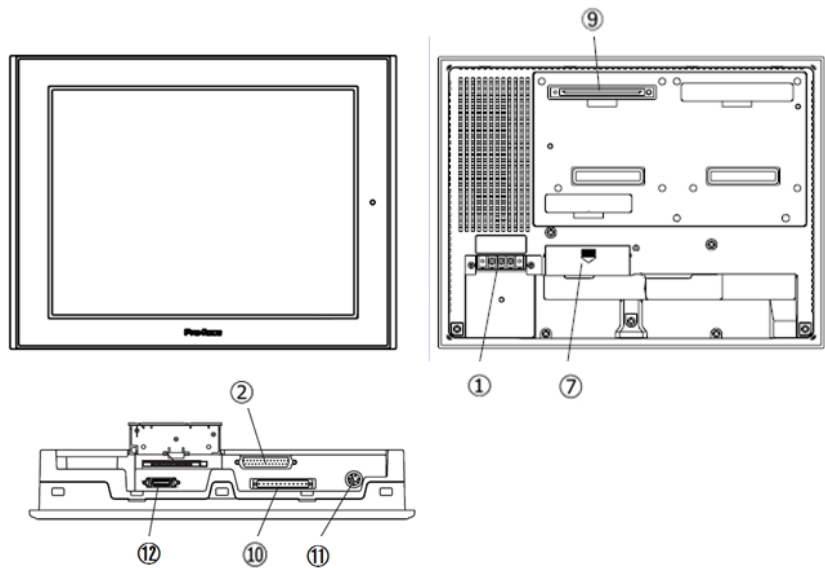
Chapter 2   Compatibility Hardware

2.1. Locations of connector

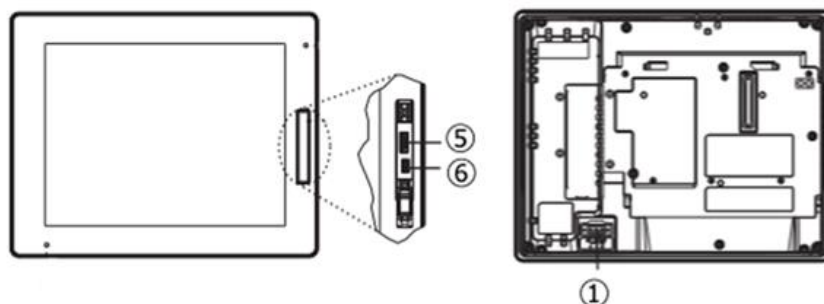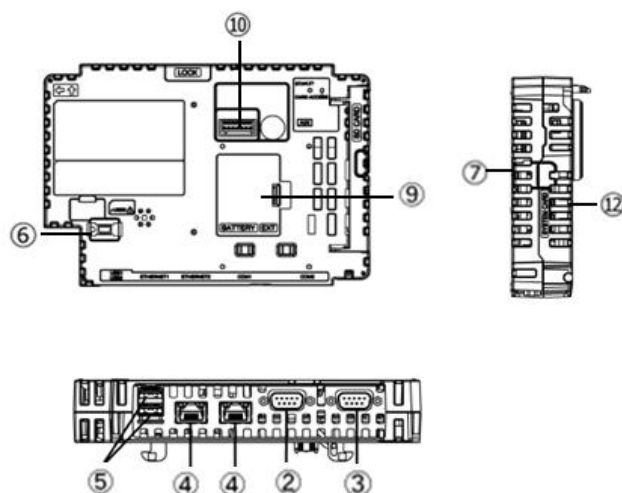Connector locations of GP2000 series and SP5000 series

GP-2500T/S
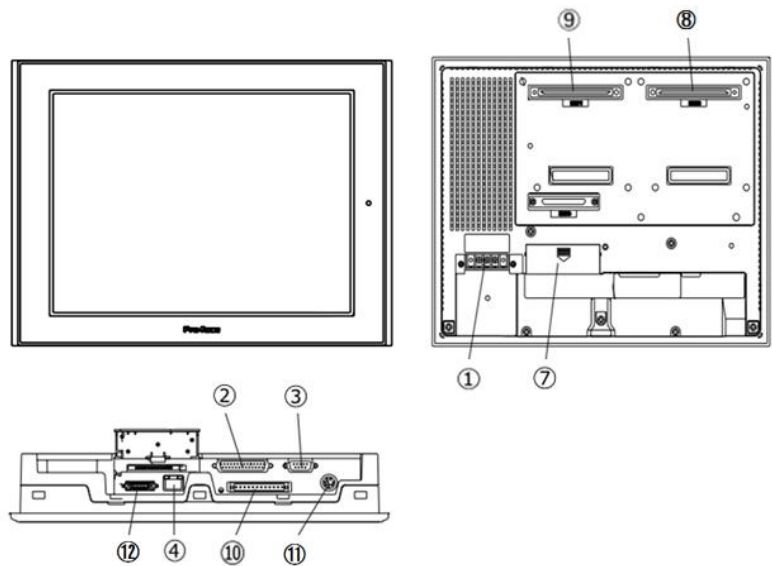
GP-2501T/S

SP-5500TP (Premium Display)

SP-5B10 (Power Box)

		GP-2500T/S	GP-2501T/S	SP-5500TP+SP-5B10
1		Power Input Terminal Block (AC) / Power Connector (DC)(only GP-2500T)	Power Input Terminal Block (AC)	Power Connector (DC)
2		Serial I/F (COM1)		
3		Serial I/F (COM2)		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		CF Card Cover		Storage Card Cover (There's a SD card I/F for storage under the cover.)
8		Expansion Unit I/F (Image Unit)	-	
9		Expansion Unit I/F (Communication Unit)		
10		Auxiliary I/O(AUX)/ Sound Output I/F	Auxiliary I/O(AUX)	Auxiliary I/O(AUX)/ Sound Output I/F
11		Tool Connector I/F		-
12		Printer I/F		-

2.2. Power supply

SP5000 series has a DC power supply type only. When replacing GP2000 series AC type with SP5000 series, changing to DC power supply is required. For the detailed electric specifications, see the hardware manual.

2.3. Transfer cable

To transfer screen data to SP5000 series, use a USB transfer cable or Ethernet.The USB cables that can be used for SP5000 series 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	-		

Please note that the cables (GPW-CB02, GPW-CB03, GP430-CU02-M) for GP2000 series cannot be used for SP5000 series.

2.4. Interface

2.4.1. Serial Interface

The SP5000 series has a COM port on the side of SP-5B10 (Power Box).

The pin array and the shapes of the plug and the socket differ between GP2000 series COM port and SP-5B10 (Power Box) COM port. The PLC connection cable that used to be connected to GP2000 series via its COM port cannot be used as it is. For details, refer to "Chapter 4 Communication with Device/PLC". Cables other than that can be used for SP-5B10(Power Box) as they are.

2.4.2. Auxiliary I/O Interface (AUX)

SP-5B10(Power Box) has 'Auxiliary I/O Interface (AUX), but either Alarm Output or Buzzer Output can be used (Alarm Output and Buzzer Output can be switched to each other on GP-Pro EX.). Note that RUN Output and External Reset Output that used to be used for GP2000 series cannot be used anymore.

2.4.3. Sound Output Interface

If sound output is needed, select SP-5B10(Power Box) and use AUX I/F.

When using Speaker Output, the output value has increased from 70mW to 300mW, so customers using an amplifier should be aware of it.

When using the LINE Output feature on SP-5B10(Power Box), it's necessary to adjust sound volume on the amplifier's side.

2.4.4. CF Card Interface

SP5000 series is not equipped with a CF card slot. But a SD card slot and a USB interface are installed. In order to use the GP2000 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 SP5000 series, please verify it supports the following specifications:

	File format	Maximum capacity
SD	Format initialized on	4GB
SDHC	SP5000 series	32GB

For the GP-PRO/PBIII's "CF Card output folder" setting, if project file is converted on GP-Pro EX, the setting will automatically change to the one that uses a SD card.

2.5. Peripheral units and option units

2.5.1. Barcode reader connection

SP5000 series is not equipped with a tool port. A barcode reader that used to be connected to the tool port on GP2000 series cannot be used. However, SP5000 series allows you to connect a barcode reader on its USB interface (Type A) or its serial interface.

2.5.2. Printer connection

SP5000 series is not equipped with Centronics (parallel) Interface for a printer though GP2000 series is equipped with it. If the printer for GP2000 series is used for SP5000 series, a converter that converts USB I/F on SP5000 series to Centronics I/F is required. And SP5000 series allows you to connect a printer on its USB port.

2.5.3. Expansion Unit

SP5000 series is not equipped with an expansion unit interface. The expansion unit (each kind of unit like CC-LINK Unit, VM unit) for GP2000 series cannot be used.
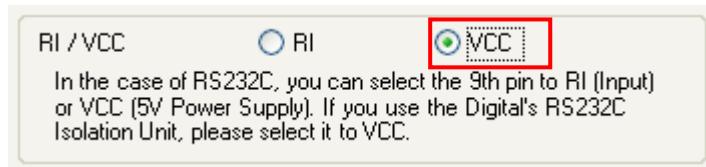
2.5.4. Front Maintenance Unit

The front maintenance unit for GP2000 series (GP077-CFFM10) cannot be used for SP5000 series.

2.5.5. Isolation Unit

RS-485 isolation unit for GP2000 series (CA3-ISO485-01) cannot be used for SP5000 series. You can use the RS-232C isolation unit (CA3-ISO232-01) for SP5000 series instead. (The communication method is switched with this unit's DIP switch.)

> Note for using RS-232C isolation unit (CA3-ISO232-01)
>
> · In the case of RS-232C, 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.
>
> RI / VCC   ○ RI   ⊙ VCC
> In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.
>
> · RS-422/485 (2-wire type) communication and serial multilink are not supported.

2.6. Power Connector

The power connector on SP5000 series is a spring type. If you replace GP2000 series with SP5000 series, please note that the power supply terminals are different.

2.7. External Dimensions

SP-5B10(Power Box) is not needed a backup battery for Clock.

Supercapacitor (electric double-layer capacitor) can be back up clock data.

Please note the following points,

- When the voltage from the Supercapacitor is low, clock data is lost when this product is turned OFF. In order to charge up the super capacitor, power needs to be supplied to the main unit for 5 minutes or longer.

- The average period for backup is as follows:

  Initial: Approximately 100 days
  After 5 years: Approximately 30 days (used at ambient temperature of 25 °C [77 °F])

  By connecting the Battery for Memory Backup (Model Number PFXZCBBT1) accessory, you can set up a backup period of up to 10 years or more.

2.8. Power Consumption

The power consumption of GP2000 series is different from that of SP5000 series.

	AC Type	DC Type
GP2000 series	50VA or less (AC100V) 85VA or less (AC240V)	50W or less
SP5000 series	-	47W or less

For the detailed electric specifications, see the hardware manual.

2.9. About Pro-Server

If the Pro-Server with Pro-Studio is used, please use the Pro-Server EX Ver.1.33 or later. For details of the installation, refer to the

http://www.pro-face.com/otasuke/qa/server_ex/replace/.

2.10. Display Resolution

The display resolution of SP-5500TP(Premium Display) can be selected on the 'Change Display Unit' screen of GP-Pro EX.
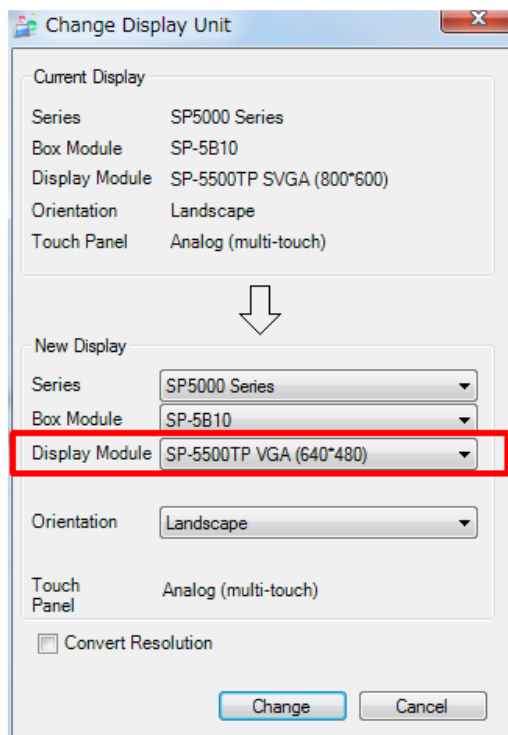
(Note) VGA(640*480) is supported by GP-Pro EX Ver4.02 or later.

2.11. Panel Cutout Dimensions

For replacement from GP2000 series to SP-5500TP+SP-5B10, panel cutout dimensions differ. An attachment for mounting (model: CA4-ATM10-01) is required and it's separately sold.

2.12. Materials/Colors of the body

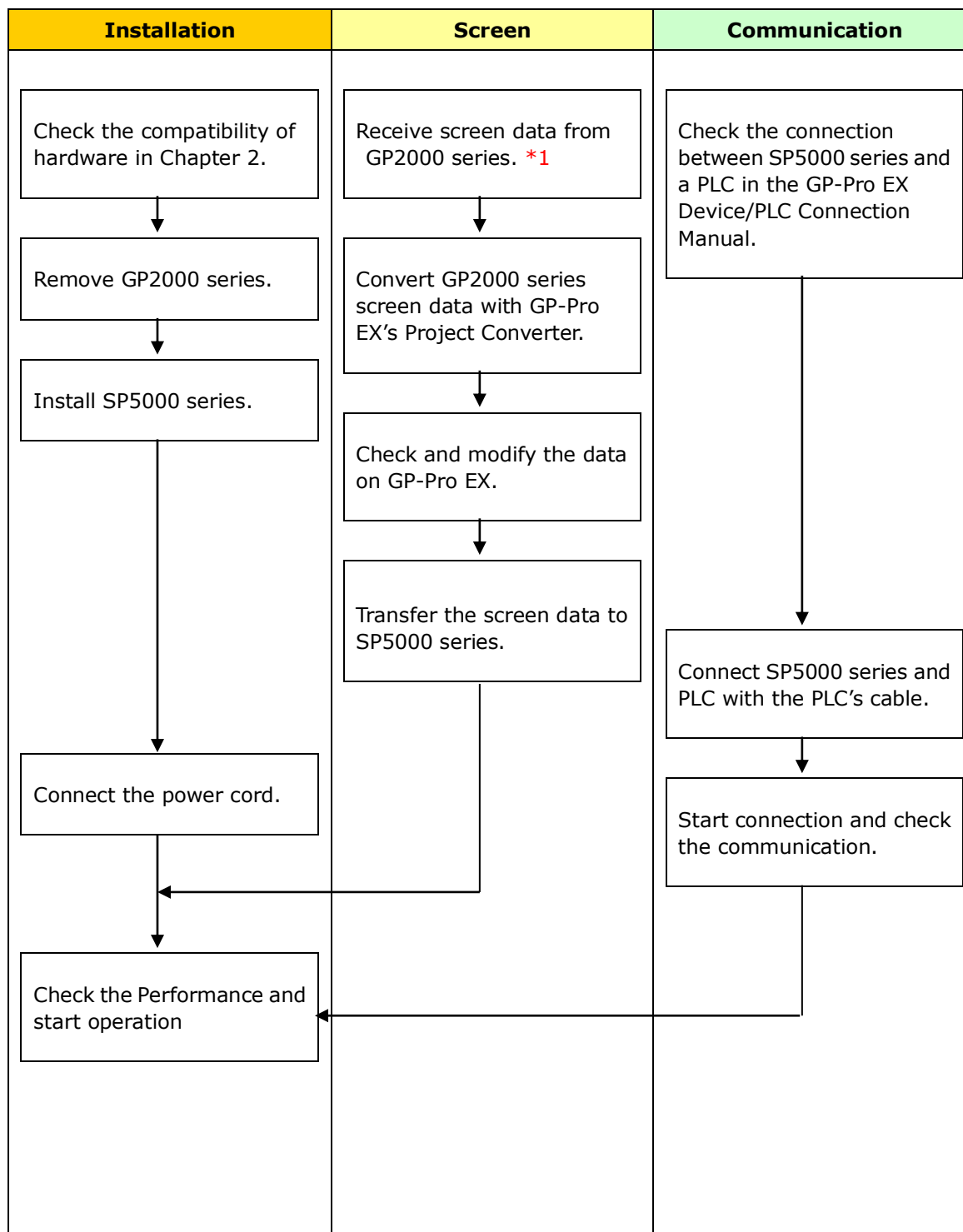The materials and the colors of GP2000 series and SP5000 series are as follows:

	GP2000 series	SP5000 series
Color	Dark Gray	Light Gray
Material	Resin	Aluminum die-cast

2.13. Other Notes

- Do not expose SP5000 series to direct sunlight.

- Do not use SP5000 series outdoors.

- Do not turn on SP5000 series if condensation has occurred inside the device.

- When you are continuously using SP5000 series without oxygen, the brightness might decrease. Please ventilate the control panel periodically.

Chapter 3   Replacement Procedure

3.1. Work Flow

Installation	Screen	Communication
Check the compatibility of hardware in Chapter 2.	Receive screen data from GP2000 series. *1	Check the connection between SP5000 series and a PLC in the GP-Pro EX Device/PLC Connection Manual.
Remove GP2000 series.	Convert GP2000 series screen data with GP-Pro EX's Project Converter.	
Install SP5000 series.	Check and modify the data on GP-Pro EX.	
	Transfer the screen data to SP5000 series.	Connect SP5000 series 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 GP2000 series *1	**GP2500T/2500S :** PC in which GP-PRO/PBIII for Windows V5.0 or later is installed. *2 **GP2501T/2501S :** PC in which GP-PRO/PBIII for Windows V6.0 or later is installed. *2
	Transfer cable (The following three types of cables are available) ・ GPW-CB02 (D-sub 9-pin to the PC) ・ GPW-CB03 (USB to the PC *3) ・ GP430-CU02-M or GPW-SET (D-sub 25-pin to the PC) *For GP-2000 series, it's possible to send/receive a screen via Ethernet (GP-2500T/2500S only) or with a CF card.
Requirements for converting screen data of GP2000 series and transferring the converted data to SP5000 series	PC in which GP-Pro EX Ver.3.60 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 with a SD card, a USB storage device, or via 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 GP2000 series.

If you don't know the version, we recommend you to use the newest version. The newest version is GP-PRO/PBIII for Windows C-Package03 (SP2) V7.29. Those who have GP-PRO/PBIII for Windows C-Package03 V7.0 can download it from our web site called [OtasukePro!]

(http://www.pro-face.com/otasuke/download/update/).

*3: GPW-CB03 is supported by GP-PRO/PBIII for Windows C-Package02 (SP2) V6.23 or later. You need to install a driver from [Download] on our Web site called [OtasukePro!]

3.3. Receive screen data from GP2000 series

This section explains, as an example, how to receive screen data from GP2000 series using a transfer cable, GPW-CB02 or GPW-CB03. If you have backed up screen data, this step is unnecessary; skip to the next section [3.4 Convert screen data with the Project Converter].
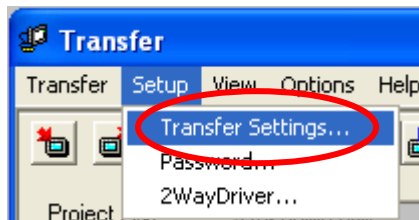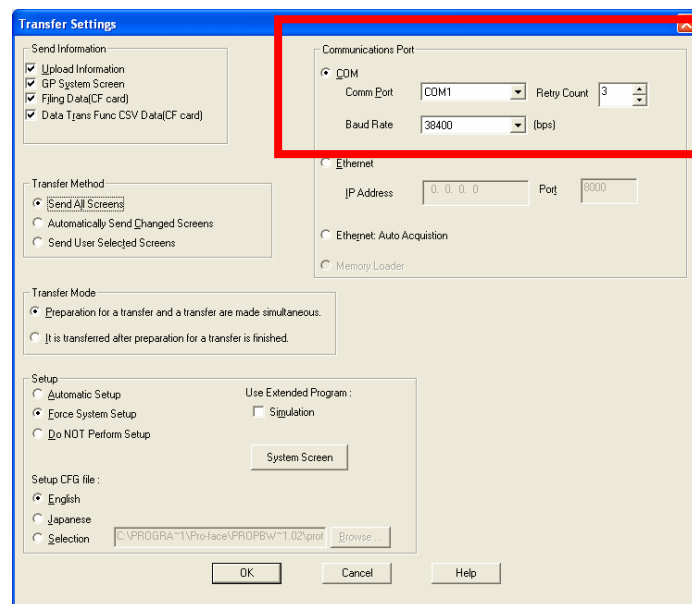
(1) Connect a transfer cable to the GP2000 series unit.
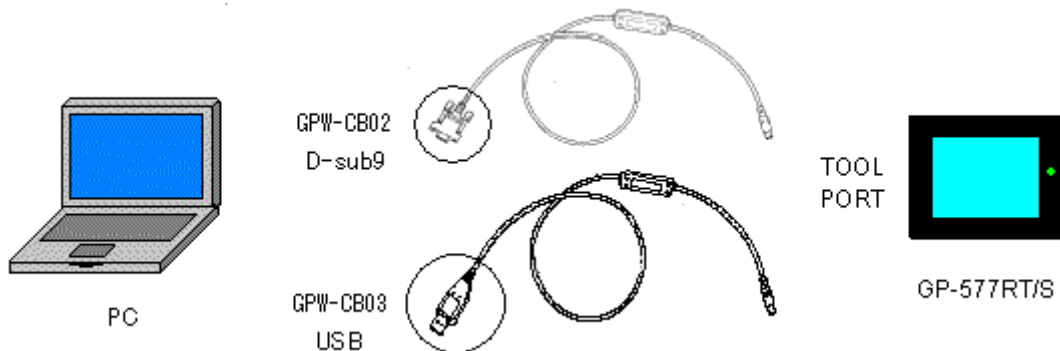
(2) Start up GP-PRO/PBIII for Windows and click the [Transfer] icon on the Project Manager (Specify a desired project file.)

(3) On the [Transfer] window, select the [Setup] menu and click [Transfer Settings…].

(4) In the Communication Port field, select [COM], specify the COM port to which the cable is connected, and click [OK].

If you use a USB transfer cable (GPW-CB03)

You can check the COM port for the USB transfer cable (GPW-CB03), which is assigned to the PC, with the Device Manager of Windows.
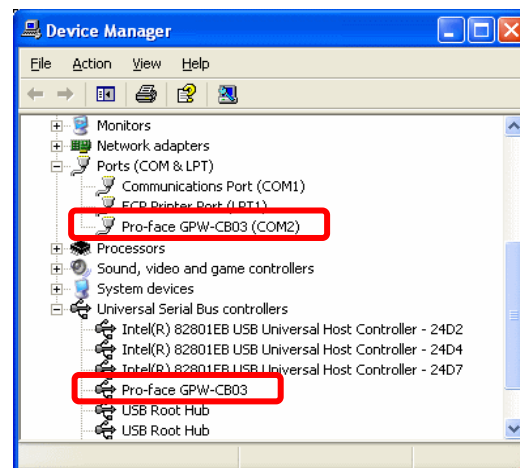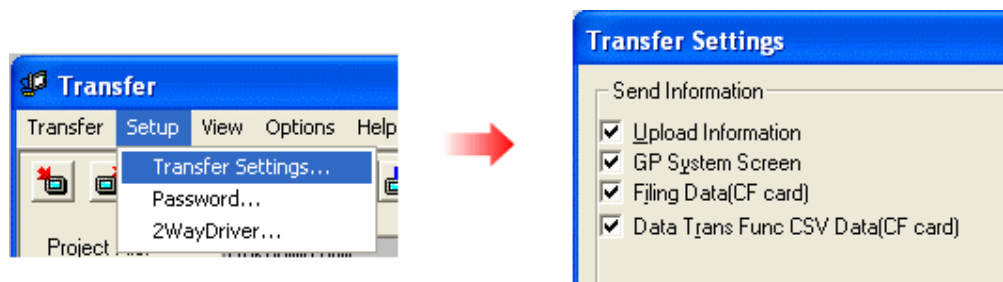

(5) Select the [Transfer] menu and click [Receive...].
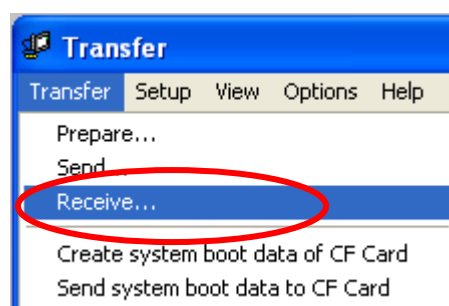
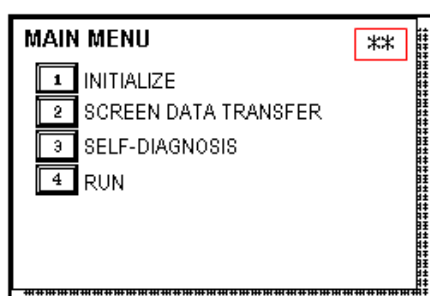(6) Specify the location to save the received screen data at and the project file name and save them.

| In case there is no Upload Information |
| --- |
| "Upload Information" is necessary to receive screen data from GP2000 series. It needs to be included in screen data when transferring screen data to the display unit beforehand. The Upload Information is sent to the display unit by default, however, you may check off the box of Upload Information to prevent screen reception by a third party. You can check in the following way if the Upload Information has been sent or not.

1. Enter into the GP's Offline mode
2. If there are 2 asterisk (*) marks in the Main menu as shown below, the Upload Information has been sent. If not, there is no "Upload Information" sent. In this case, a message, which indicates there is no "Upload Information", appears and you cannot receive the data. |

3.4. Convert screen data with the Project Converter

Convert a project file (*.prw) for GP2000 series with the GP-Pro EX's Project Converter.

(1) Click the [Start] button, select [All Programs] (or [Programs])-> [Pro-face]-> [GP-Pro EX *.**]->[Project Converter].
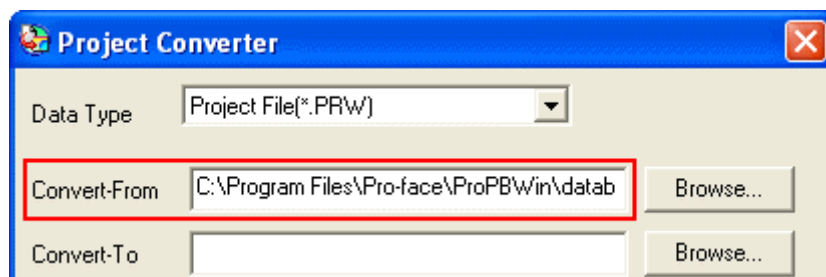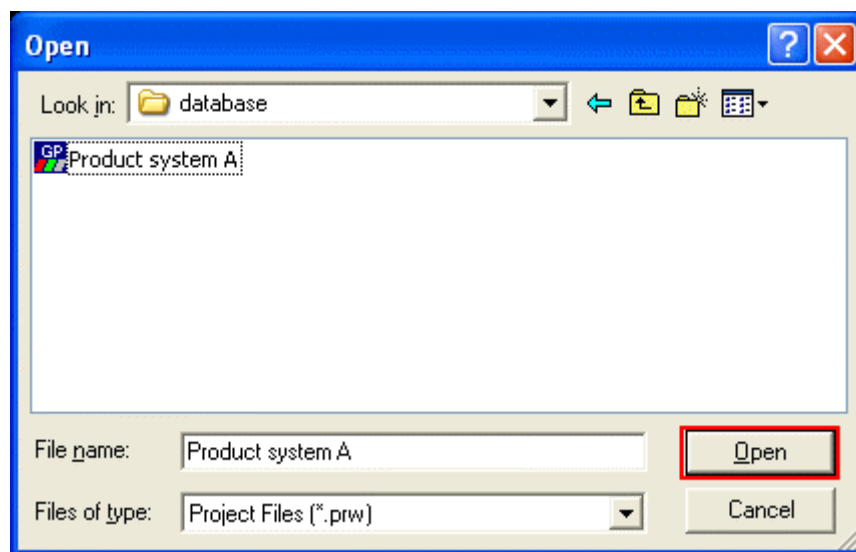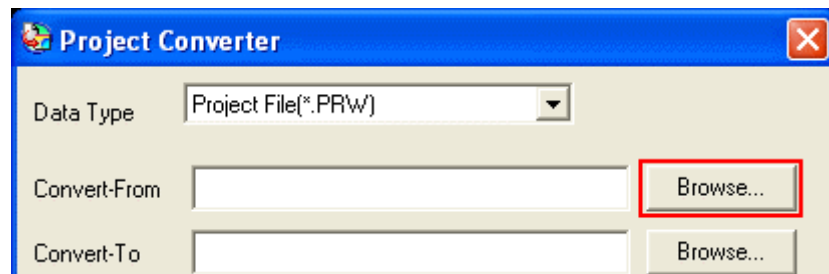
(For this part, [*.**], the version of the software you use is displayed.)
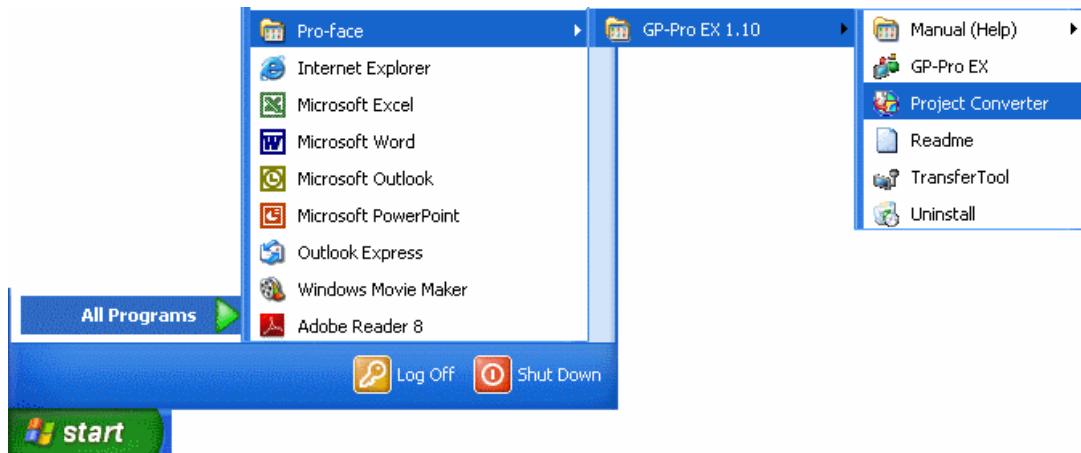

(2) The Project Converter starts up and the [Project Converter] dialog box opens. Select [Project File (*.PRW)] in the [Data Type].
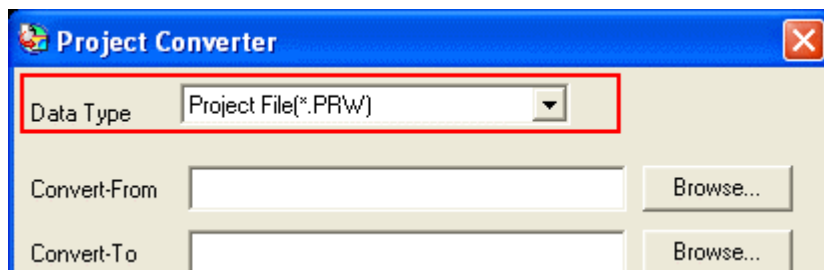
(3) Click the [Browse…] button and select a project file (e.g.: "Project system A.prw").
Click [Open], and the file will be set in [Convert-From].
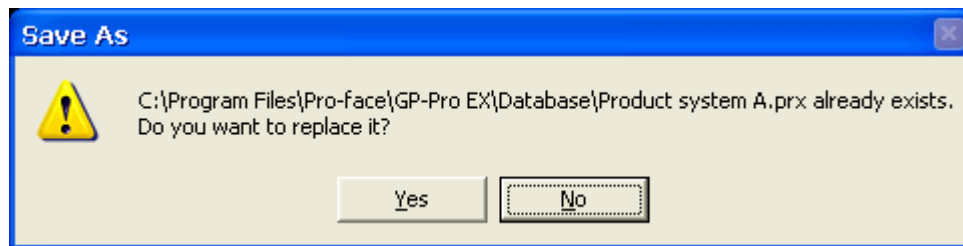
(4) In [Convert-To], designate a GP-Pro EX's project file (*.prx). Click the [Browse…] button and enter a new [File Name] (e.g.: "Product system A.prx"). Click [Save], and a new project file will be set to [Convert-To].
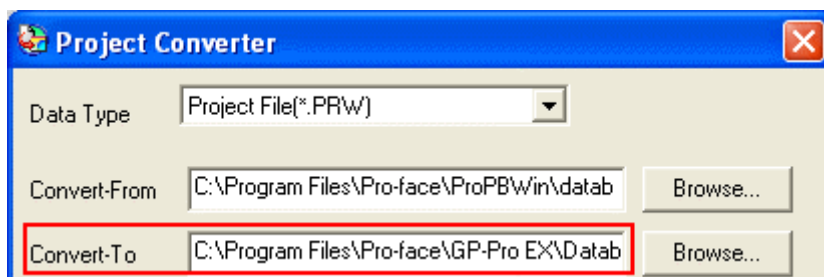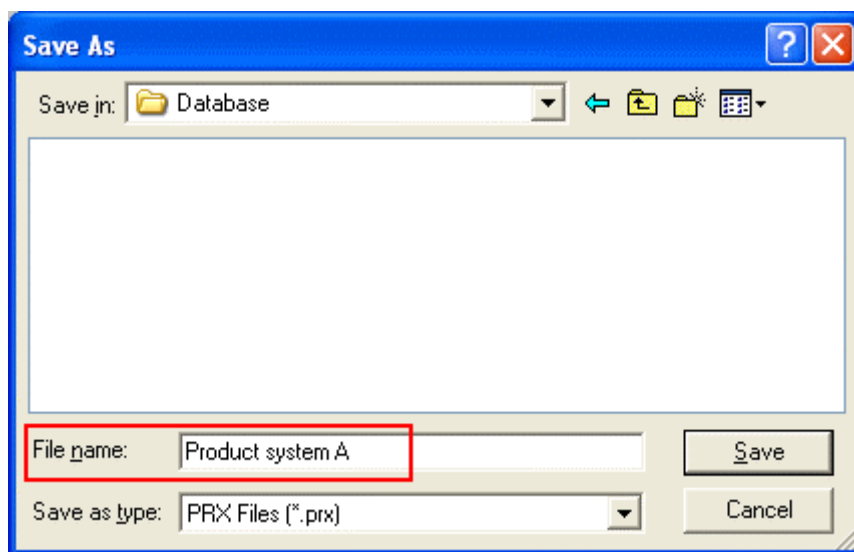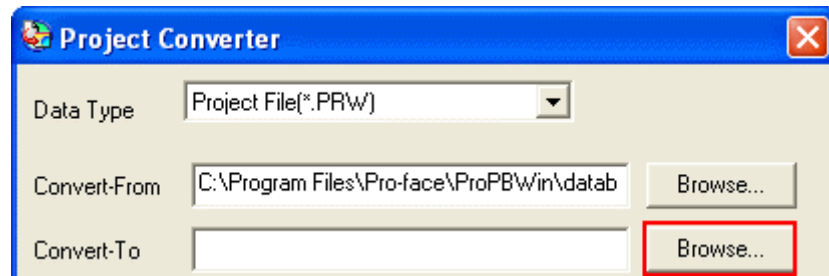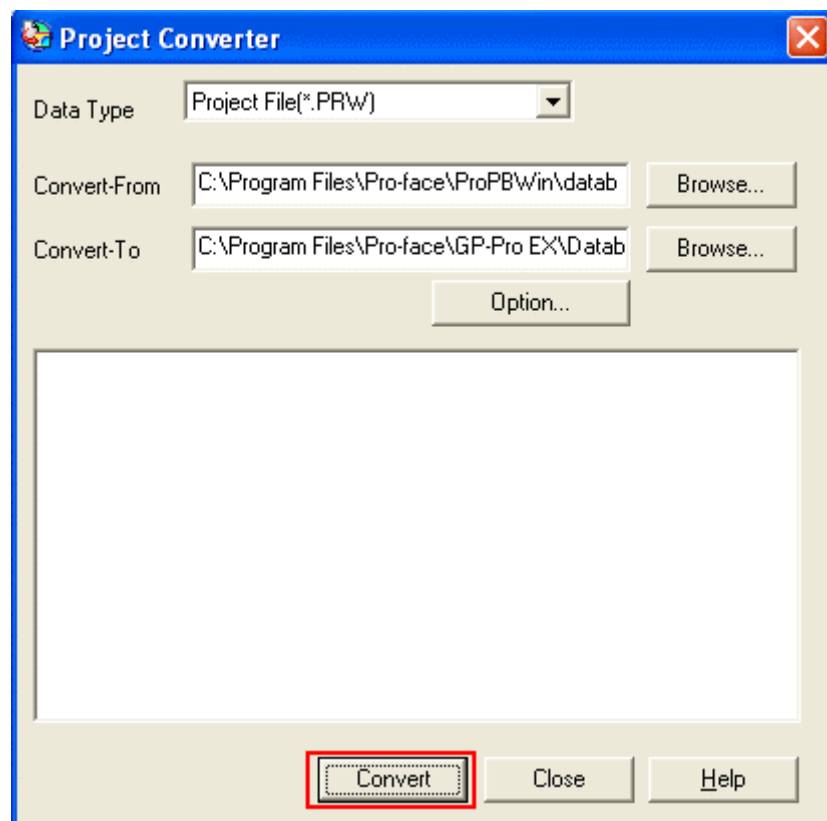
NOTE
When a convert-to file exists, the window that confirms whether or not to overwrite the file is displayed.

Save As

! C:\Program Files\Pro-face\GP-Pro EX\Database\Product system A.prx already exists. Do you want to replace it?

[Yes] [No]

(5) Click [Convert] and start the conversion.

Project Converter

Data Type   Project File(*.PRW)

Convert-From   C:\Program Files\Pro-face\ProPBWin\datab   Browse...

Convert-To   C:\Program Files\Pro-face\GP-Pro EX\Datab   Browse...

                                                    Option...

[Convert]   Close   Help

(6) If you are asked about the [Convert-To] type as shown below, select a replacement model's name on the pull-down menu. Click [OK].

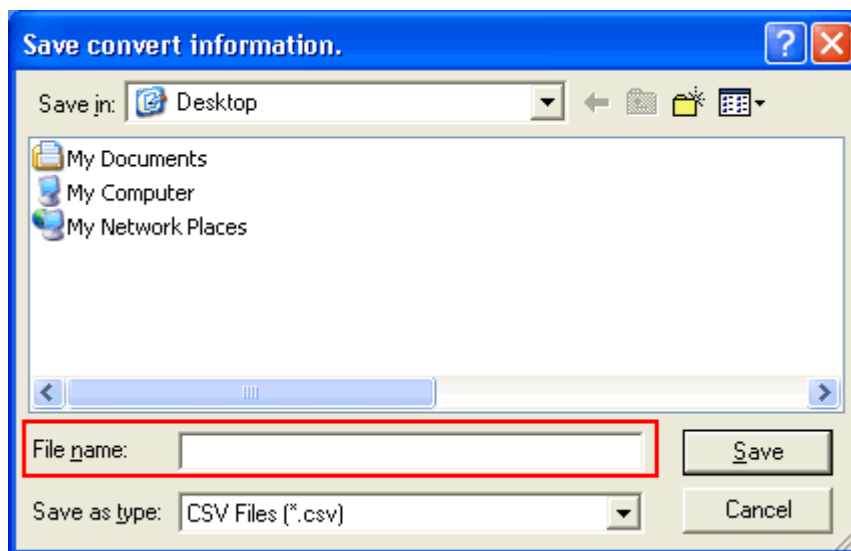| NOTE |
| --- |
| When replacing GP2000 series with SP5000 series, select [GP-4501T] if you don't find SP5000 series on the pull-down menu.
 If you select [GP-4501T] here, follow the instructions on [3.5 Change the Display Unit Type] to set the Display Unit type to SP5000 series. |
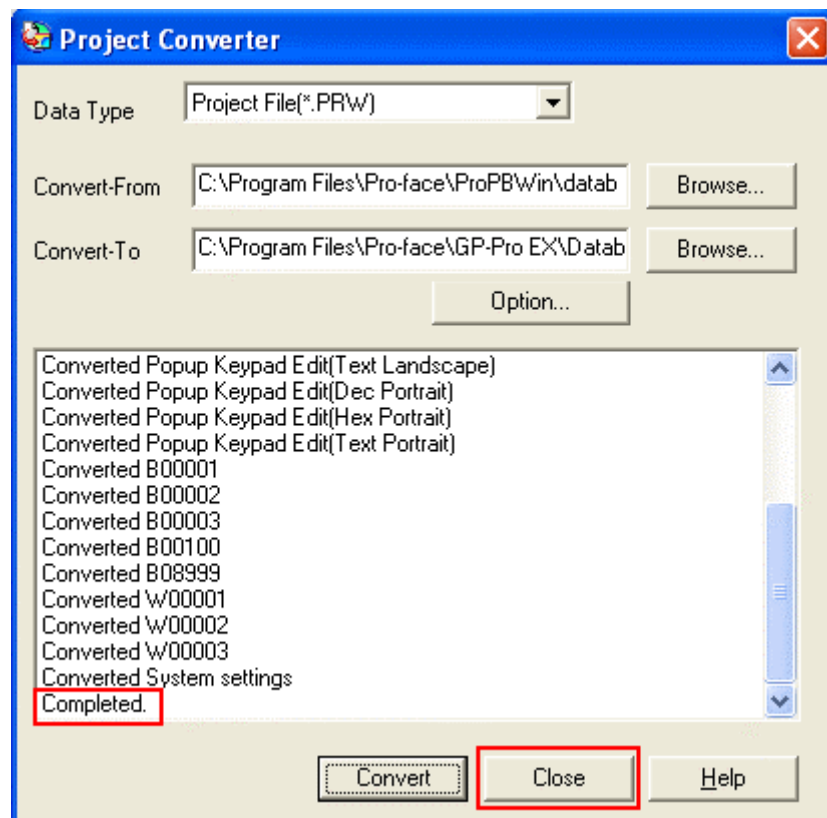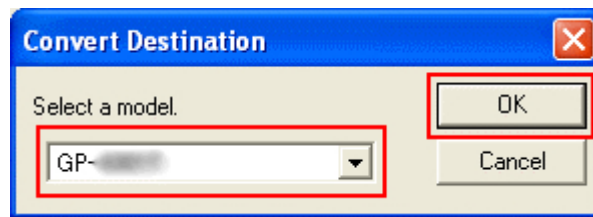
If an error message is displayed during conversion…
If an error message is displayed during conversion, refer to [Project Converter Error Message] (http://www.pro-face.com/otasuke/qa/gp3000/replace/soft/conv/project_converter_error.html) on our Web site called [OtasukePro!] for the cause and the solution.

(7) After conversion, the [Save convert information] dialog box appears. If you click [Save], you can save the conversion information in a CSV file format.

| **NOTE** |
| :--- |
| Because the differences made at the time of conversion from GP-Pro/PBIII for Windows are described in the saved file, the project file (*.prx) after conversion can be checked and modified according to the conversion information. |

(8) Click [Close] to close the [Project Converter] dialog box.

   If you double click the project file (*.prx) after conversion, GP-Pro EX will start and the file will open.

Convert GP-PRO/PBIII for Windows "Destination CF Card Folder"

If you convert a project file (*.prw) with a destination CF card folder designated in the step 6, the Question dialog box asking whether or not to designate the destination CF card folder for the convert destination appears again.
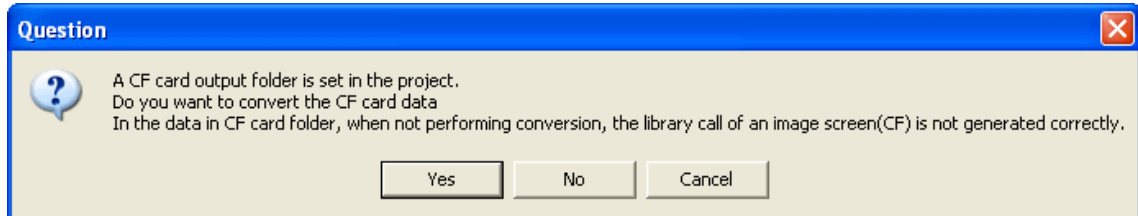
Select a folder (e.g.: "Database") and click [OK].

If you click the [Make New Folder] button, you can create a new folder at any location.


IMPORTANT
· In the [Question] dialog box, be sure to select [Yes] and specify the destination folder. If you select [No], images will not be called correctly.   · SP5000 series is not equipped with a CF card slot. If you create a destination folder in the step above, the CF card setting will automatically change to the SD card setting.].

3.5. Change the Display Unit Type

(* Only when select [GP-4501T] on step 6 of [3.4 Convert screen data with Project Converter])

Open the project file (*.prx) on GP-Pro EX that is converted in the Chapter 3.4 and change the display unit type to SP-5500TP+SP-5B10.

(1) Open the converted project file (*.prx) on GP-Pro EX.

(2) Click GP-Pro EX's [System Settings]->[Display] and there change the Display Unit to SP-5500TP+SP-5B10.
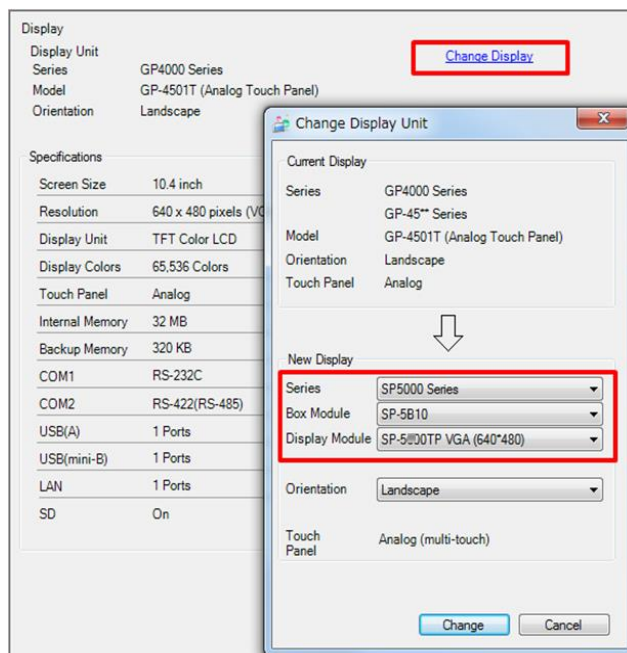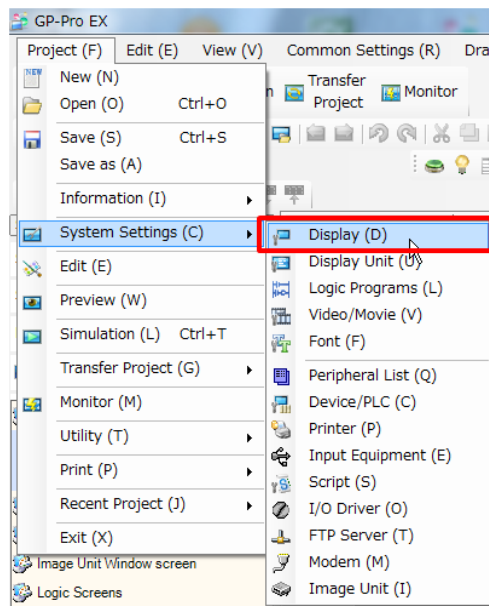
(3) Click [Project]->[Save] or [Save As] to save the change.

3.6. Transfer the screen data to SP5000 series

Transfer the project file after conversion to SP5000 series.

You can transfer data to SP5000 series 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 SP5000 series with a USB transfer cable (model: CA3-USBCB-01).

If the driver of the cable has not been installed on you 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].
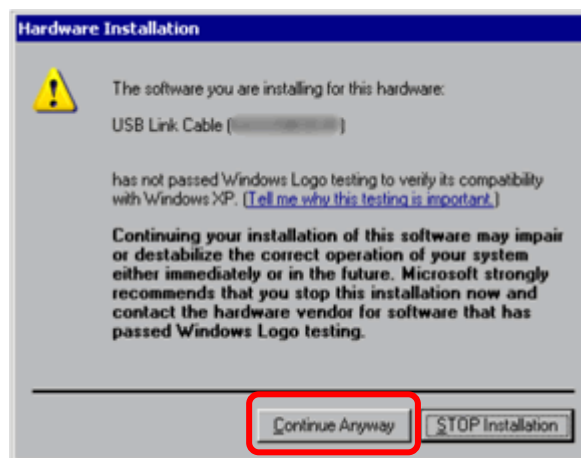
(2) Turn on the power of SP5000 series. The "Initial Start Mode" screen will appear on the display unit. After transferring a project file once, this screen will not appear again.
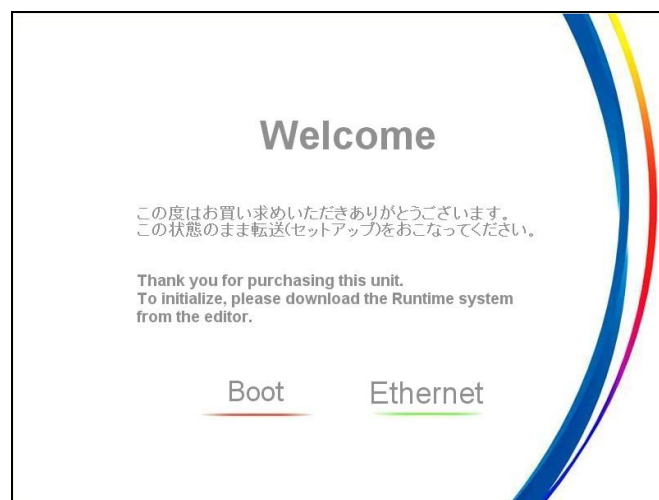
(3) On the GP-Pro EX's State Toolbar, click the [Transfer Project] icon to open the Transfer Tool.
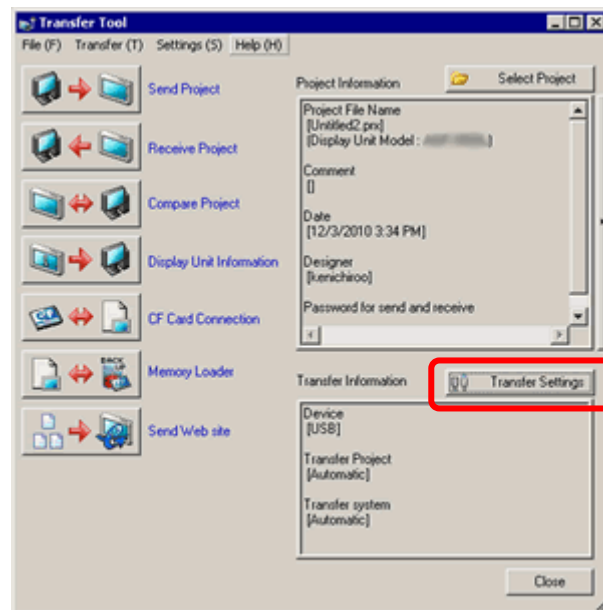
To transfer a different project file, click the [Select Project] button and select a project file.

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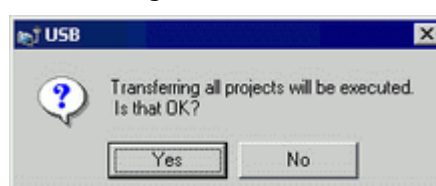
(6) The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)
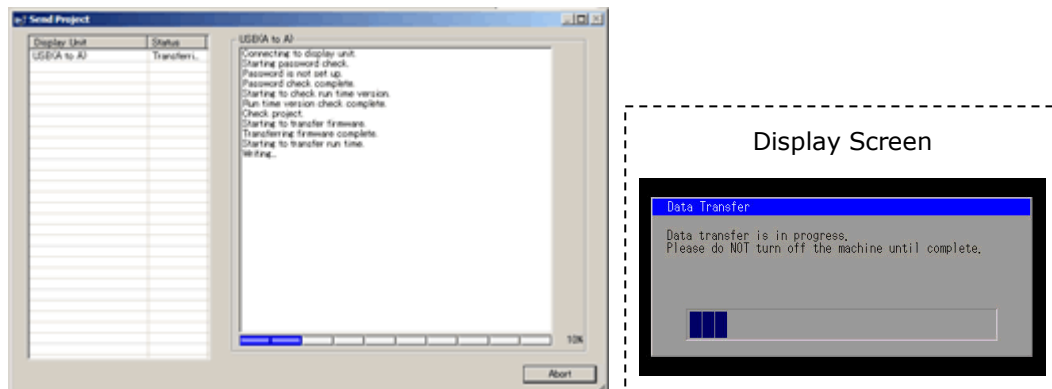
Display Screen

(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.
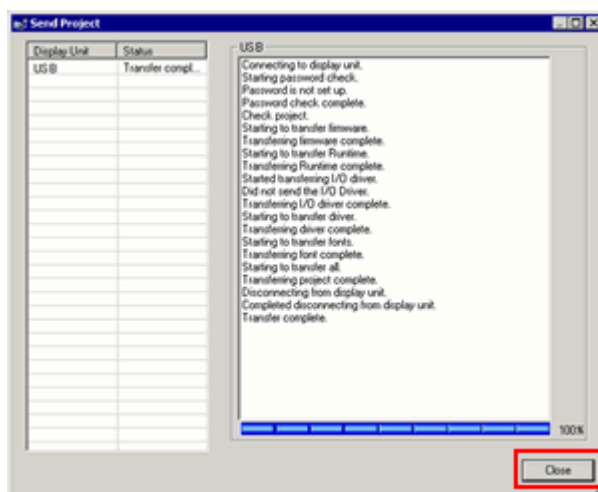
The display unit will be reset and a screen of the transferred project file will be displayed.

(8) Close the Transfer Tool.

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

3.7. Differences of software

3.7.1. Differences after conversion

Check the differences of screen data after conversion from GP-PRO/PBIII to GP-Pro EX. For the details of each item, refer to our website.

http://www.pro-face.com/otasuke/qa/gp3000/replace/soft/conv/care/3/

Differences of Software

1	Touch Panel Type
2	Compatibility of Bit Switch
3	Compatibility of Alarm
4	Compatibility of Trend Graph
5	Compatibility of K tag (Input Order)
6	Compatibility of K tag (difference of Writing)
7	Compatibility of K tag (Indirect Setting)
8	Compatibility of N tag
9	Precautions for using the switch for [History Data Display] of Trend Graph on the window
10	About window display on a momentary switch during momentary operation
11	About the performance when a display area of the system window is overlapping
12	Change of Tag Process
13	About the display when a fixed Draw is placed on a Part
14	Compatibility of Text
15	Compatibility of Fill
16	Compatibility of CF Card Data
17	Precautions for conversion when filing data is saved in a CF card
18	Precautions for setting "Color Settings" to [256 Colors without blinking]
19	Precautions for loading a part with "L Tag (Library Display)"
20	Compatibility of MRK files and CPW files
21	Compatibility of V Tag/v tag and Video Screen
22	Compatibility of Extended SIO Script
23	Compatibility of Sound Data
24	Compatibility of Device Monitor
25	Compatibility of Ladder Monitor
26	Compatibility of J Tag and R Tag
27	Converting Screen Data of DOS
28	Compatibility of Standard Font
29	D Script starts right after screen change or power on. (Compatibility of D Script Trigger Condition)

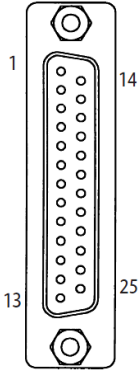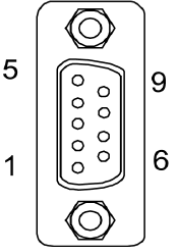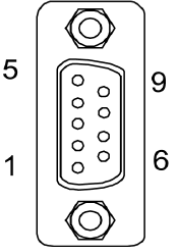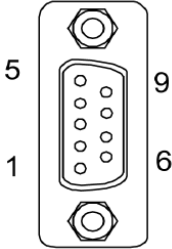| 30	The position shifts when loading a window screen (Compatibility of U Tag)
31	Precautions for using Screen Level Change
32	Compatibility of H tag

Chapter 4   Communication with Device/PLC

4.1. Drivers

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

	GP2000 series		SP5000 series
	GP-2500T/S	GP-2501T/S	
COM1	D-Sub25 pin (socket) RS-232C/422		D-Sub9pin (plug) RS-232C/422/485
COM1			
COM2	D-Sub9pin (plug) RS-232C		
COM2		-	

NOTE
The pin array and the shapes of the plug and the socket differ between GP2000 series COM port and SP5000 series COM port. Pay attention when using the former PLC connection cable. For use of the former connection cable, see [4.6 Cable Diagram at the time of replacement].

4.3. Signals of COM ports

◆ GP2000 series

RS-232C/422(socket)

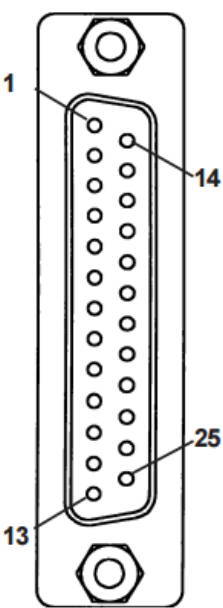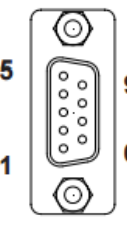| Pin Assignments	Pin #	Signal Name	Condition
(D-Sub 25pin female) SIO	1	FG	Frame ground
	2	SD	Send data (RS-232C)
	3	RD	Receive data (RS-232C)
	4	RS	Request send (RS-232C)
	5	CS	Clear send (RS-232C)
	6	DR	Data Set Ready (RS-232C)
	7	SG	Signal ground
	8	CD	Carrier detect (RS-232C)
	9	TRMX	Termination (RS-422)
	10	RDA	Receive data A (RS-422)
	11	SDA	Send data A (RS-422)
	12	NC	No connection (Reserved)
	13	NC	No connection (Reserved)
	14	VCC	5V±5% output 0.25A
	15	SDB	Send data B (RS-422)
	16	RDB	Receive data B (RS-422)
	17	RI	Ring Indicate (RS-232C)
	18	CSB	Clear send B (RS-422)
	19	ERB	Enable receive B (RS-422)
	20	ER	Enable receive (RS-232C)
	21	CSA	Clear send A (RS-422)
	22	ERA	Enable receive A (RS-422)
	23	NC	No connection (Reserved)
	24	NC	No connection (Reserved)
	25	NC	No connection (Reserved)
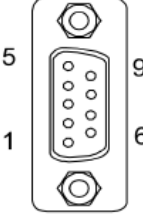
◆ GP2000 series

RS-232C(plug)
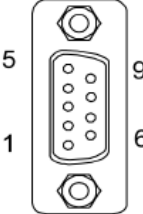
Pin Assignments	Pin No.	Signal Name	Signal Direction	Condition
(D-Sub 9pin male)	1	CD	Input	Carrier detect (RS-232C)
	2	RD	Input	Receive data (RS-232C)
	3	SD	Output	Send data (RS-232C)
	4	ER	Output	Enable receive (RS-232C)
	5	SG	————	Signal Ground
	6	DR	Input	Data Set Ready (RS-232C)
	7	RS	Output	Request Send (RS-232C)
	8	CS	Input	Clear send (RS-232C)
	9	RI/VCC	Input/Output	Ring Indicate (RS-232C) +5V+5% 0.25A

◆ SP5000 series

RS-232C

Product side	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 0.25 A[*1*2]
	Shell	FG	–	Functional Ground (Common with SG)

RS-422/485

Product side	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	–	Functional Ground (Common with SG)

4.4. Multilink Connection

For SP5000 series, some communication drivers do not support multi-link connection (n:1) via RS-422.

When converting the project file with the setting of the communication driver that does not support multi-link connection (n:1) via RS-422, the connection is automatically converted to (1:1).

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. Internal 2-Port feature for Mitsubishi PLC

For SP5000 series, the internal 2-Port feature for Mitsubishi PLC cannot be used.

If [GP Setup]->[Mode Settings]->[Option]->[Internal 2 port] is selected on GP-PRO/PBIII, the following message will appear when converting the project file with the GP-Pro EX Project Converter.

## 4.6. Cable Diagram at the time of replacement

The connection cable for GP2000 series can be used for SP5000 series. But please note that there are precautions and restrictions as described below.

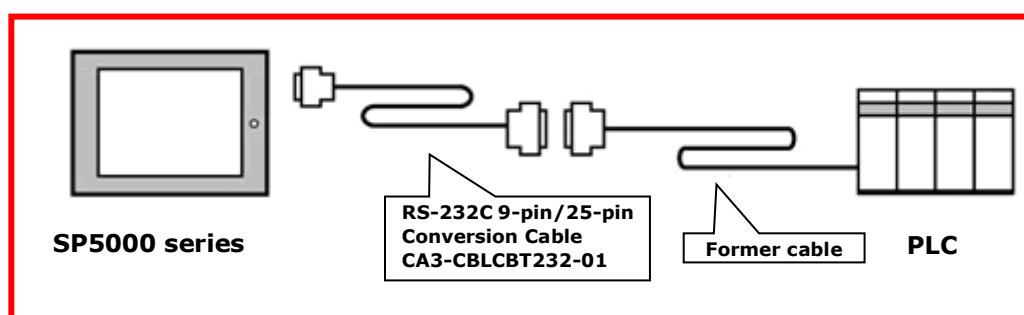| IMPORTANT |
| --- |
| • Please check the connection configurations SP5000 series supports with GP-Pro EX Device/PLC Connection Manual before using a connection cable. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm).

• The Siemens MPI connection cable, , MPI adapter (GP070-MPI-41)　cannot be used. Please refer to the above-mentioned GP-Pro EX Device/PLC Connection Manual and prepare a connection cable for SP5000 series newly.

• When using Mitsubishi PLC A/QnA series (CPU Direct), please refer the following notes,
　　o When using GP430-IP10-O/ GP430-IP11-O, Refer > 4.6.1 When using a RS-232C connection cable > When using CPU I/F Cable for Mitsubishi PLC

　　o When using GP2000-CBLA/5M-01 (* including User-created cable) Refer > 4.6.2 When using a RS-422 connection cable > When using Mitsubishi A/QnA series（CPU Direct）　connection cable (GP2000-CBLA/5M-01)

　　o When using GP2000-CBLFX/5M-01, GP2000-CBLFX/1M-01(* including User-created cable) Refer > 4.6.2 When using a RS-422 connection cable > When using Mitsubishi FX series（CPU Direct）connection cable（GP2000-CBLFX/5M-01, GP2000-CBLFX/1M-01） |

4.6.1. When using a RS-232C connection cable
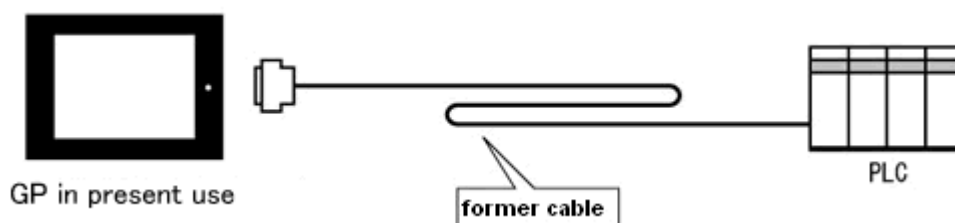
GP2000 series System Configuration (**COM1**)

GP in present use   former cable   PLC

Replace to
SP5000 series

SP5000 series System Configuration (connecting to **COM1/COM2**)

SP5000 series   RS-232C 9-pin/25-pin Conversion Cable CA3-CBLCBT232-01   Former cable   **PLC**

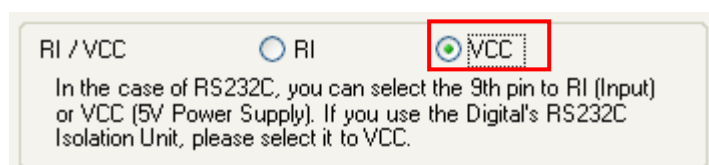| IMPORTANT |
| --- |
| Before connecting to SP5000 series, be sure to check the port setting(COM1/COM2) on Device/PLC Setting of GP-Pro EX. Please check the communication setting with GP-Pro EX Device/PLC Connection Manual just in case. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm) |

To replace GP2000 series with SP5000 series, prepare the following item.

Product Name	Model
RS-232C 9-pin/25-pin Conversion Cable (20cm)	CA3-CBLCBT232-01

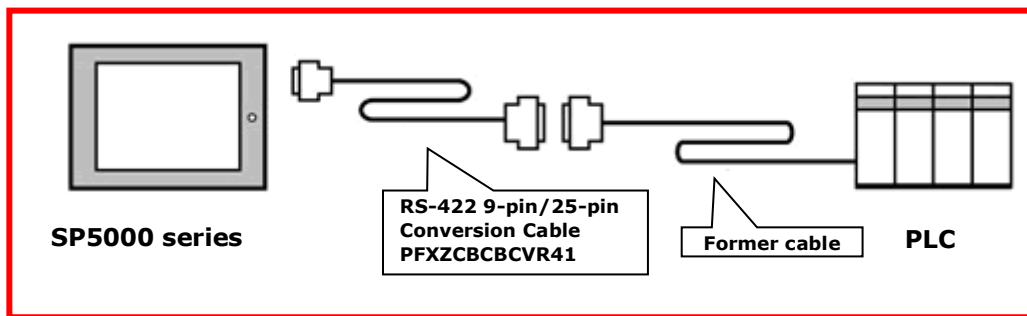| When using CPU I/F Cable for Mitsubishi PLC... |
| --- |
| When using CPU I/F Cables for Mitsubishi PLC (GP430-IP10-O/ GP430-IP11-O) with GP2000 series, be sure to select "VCC" in the Device/PLC Setting on GP-Pro EX after converting a project file, or the communication will not work properly.

 RI / VCC ○ RI ⊙ VCC
 In the case of RS232C, you can select the 9th pin to RI (Input) or VCC (5V Power Supply). If you use the Digital's RS232C Isolation Unit, please select it to VCC.

 To change this setting, select [System Settings] -> [Device/PLC] in the [Project] menu on GP-Pro EX. |

4.6.2. When using a RS-422 connection cable
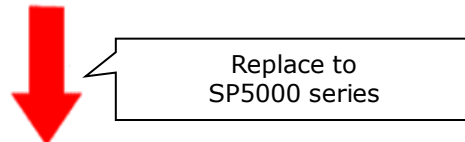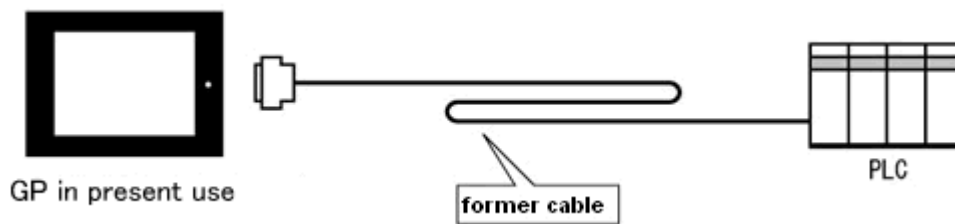
GP2000 series System Configuration (**COM1**)

GP in present use / former cable / PLC

Replace to
SP5000 series

SP5000 series System Configuration (connecting to **COM1/COM2**)

SP5000 series / **RS-422 9-pin/25-pin Conversion Cable PFXZCBCBCVR41** / **Former cable** / **PLC**

| IMPORTANT |
| --- |
| Before connecting to SP5000 series, be sure to check the port setting(COM1/COM2) on Device/PLC Setting of GP-Pro EX. Please check the communication setting with GP-Pro EX Device/PLC Connection Manual just in case. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm) |

To replace GP2000 series with SP5000 series, prepare the following item.

Product Name	Model
RS-422 9-pin/25-pin Conversion Cable (20cm)	PFXZCBCBCVR41

NOTE

When using a terminal block adapter (GP070-CN10-O), we recommend you to replace it with a terminal block conversion adapter (PFXZCBADTM1) for SP5000 series.

Former cable

SP5000 series

Terminal Block Conversion Adapter PFXZCBADTM1

PLC
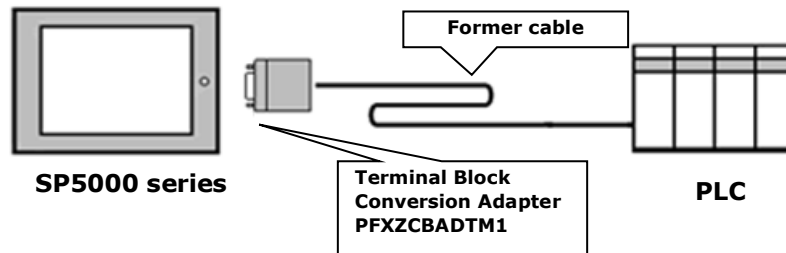
For replacement in this connection method, prepare the following item.

Product Name	Model
Terminal Block Conversion Adapter	PFXZCBADTM1

When using Mitsubishi A/QnA series（CPU Direct） connection cable （GP2000-CBLA/5M-01） * Including User-created cable

9/25-pin Conversion Cable cannot be used.

Please replace to Mitsubishi A connection cable by Pro-face (CA3-CBLA-01).
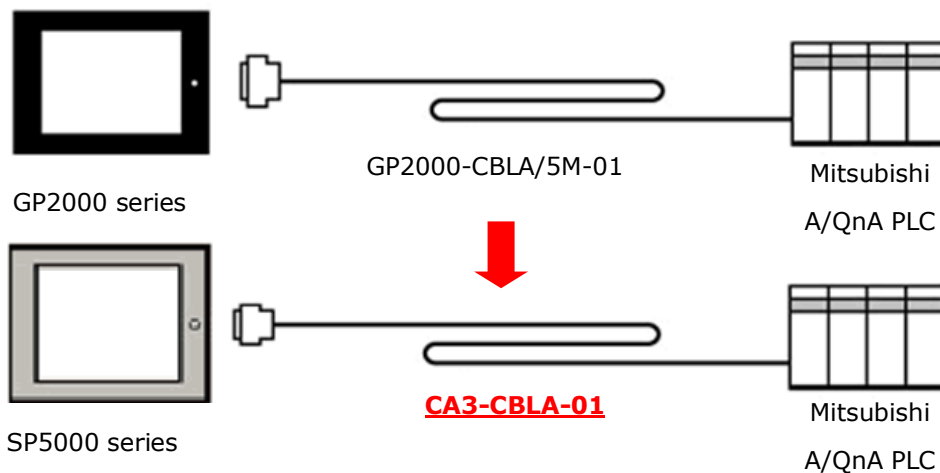
GP2000 series

GP2000-CBLA/5M-01

Mitsubishi
A/QnA PLC

SP5000 series

CA3-CBLA-01

Mitsubishi
A/QnA PLC

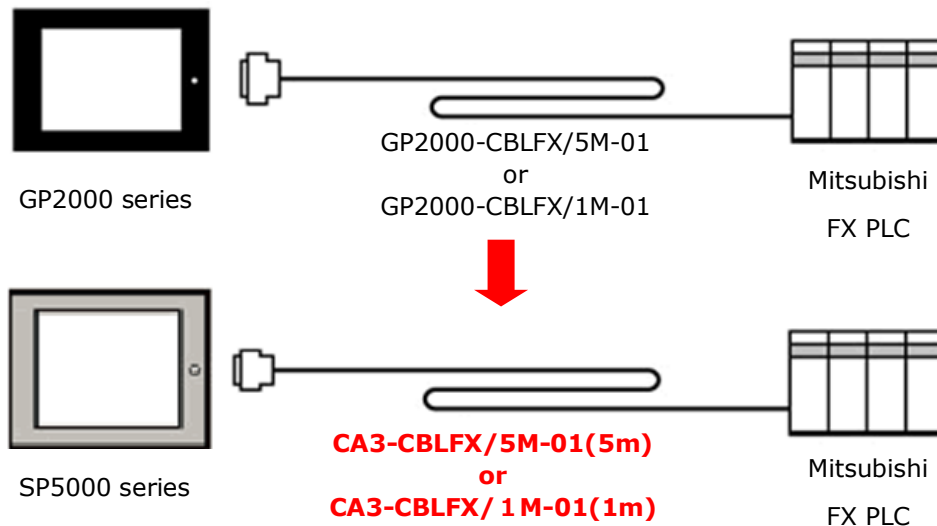| **Not available options** for SP5000 series |
|---|
| RS-422 9/25-pin Conversion Cable（20cm）（PFXZCBCBCVR41） |
| COM Port Conversion Adapter（CA3-ADPCOM-01） |
| ＋ RS-422 9/25-pin Conversion Cable（20cm）(CA3-CBLCBT422-01) |

When using Mitsubishi FX series（CPU Direct） connection cable

（GP2000-CBLFX/5M-01, GP2000-CBLFX/1M-01）

* Including User-created cable

9/25-pin Conversion Cable cannot be used.

Please replace to Mitsubishi FX connection cable by Pro-face

（CA3-CBLFX/5M-01(5m) or CA3-CBLFX/１M-01(1m)）.

GP2000-CBLFX/5M-01
or
GP2000-CBLFX/1M-01

GP2000 series

Mitsubishi

FX PLC

CA3-CBLFX/5M-01(5m)
or
CA3-CBLFX/１M-01(1m)

SP5000 series

Mitsubishi

FX PLC

Not available options for SP5000 series
RS-422 9/25-pin Conversion Cable（20cm）（PFXZCBCBCVR41）
COM Port Conversion Adapter（CA3-ADPCOM-01）   ＋ RS-422 9/25-pin Conversion Cable（20cm）(CA3-CBLCBT422-01)