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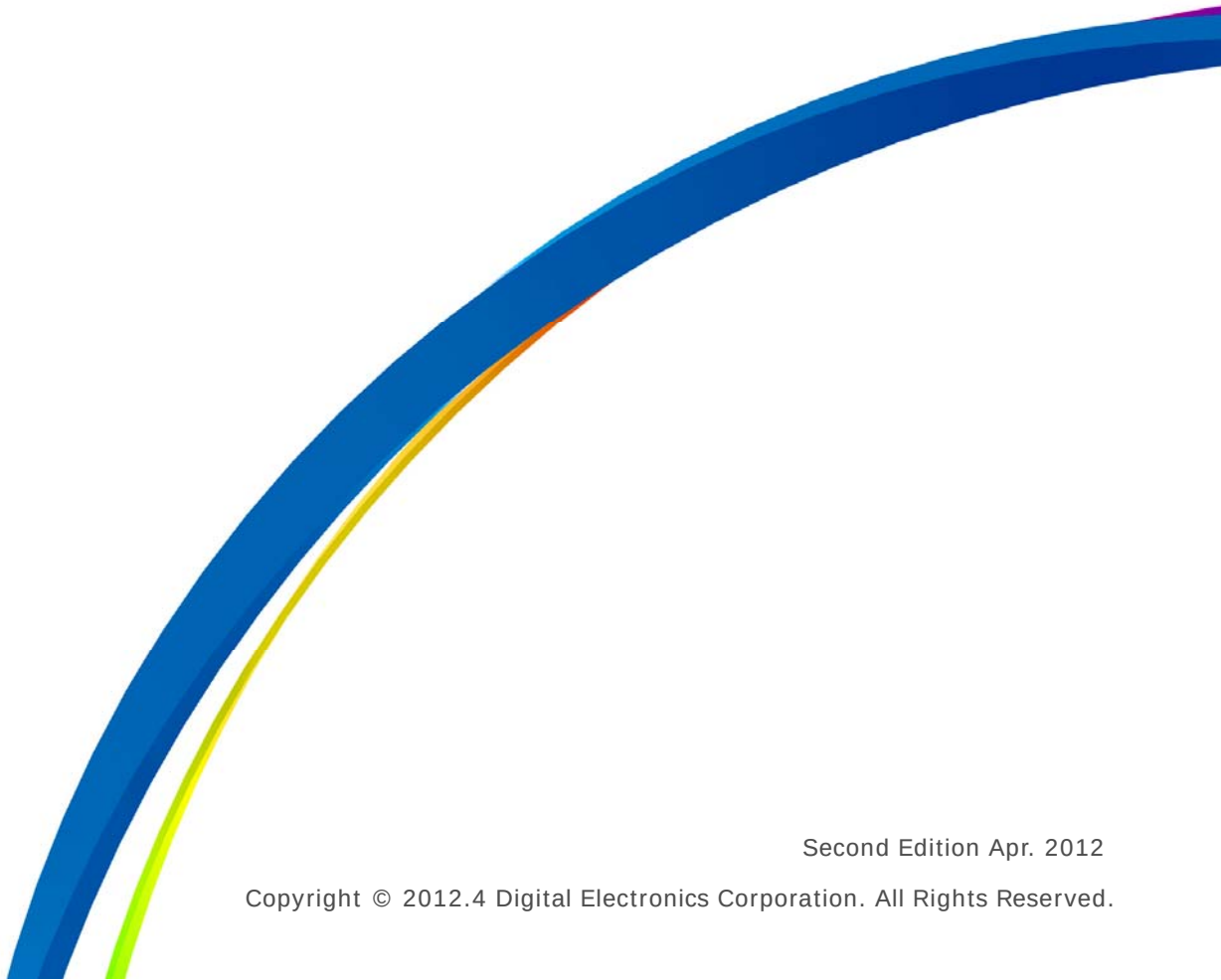
GP-37W2→GP4000 Series

Replacement Guidebook



Second Edition Apr. 2012

Preface

This manual introduces the procedures to replace a GP-37W2 unit with a unit in GP-4301TW.

Model in use	Recommended Substitution
GP-37W2	**GP-4301TW**

Contents

Chapter 1 Specification Comparison

1.1 Specifications of GP-37W2 and GP-4301TW

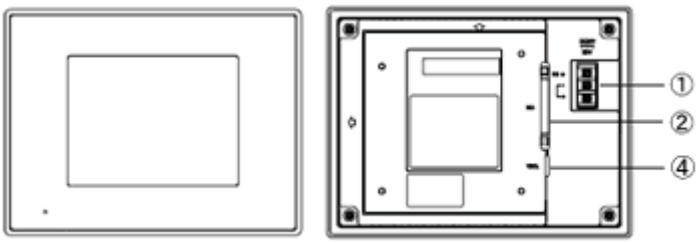
		GP-37W2	GP-4301TW
			
Display Type		Monochrome blue mode LCD	**UP!** TFT Color LCD
Display Colors, Levels		Blue mode, no levels	**UP!** 65,536 colors(without blink)/ 16,384 colors (with blink)
Display Resolution		QVGA (320 x 240 pixels)	
Panel Cutout Dimensions (mm)		191.5(W)x141.5(H)	**NEW!** 156(W)x123.5(H) →See 2.4
External Dimensions (mm)		207(W)x157(H)x58(D)	169.5(W)x137(H)x59.5(D)
Touch Panel Type		Matrix	**NEW!** Analog →See 2.2
Memory	**Application**	1MB	**UP!** 8MB
	SRAM	96KB	**UP!** 128KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	
Rated Input Voltage		DC 24V	
Serial I/F	**COM1**	D-Sub 25 pin (socket) RS-232C/422	D-Sub 9 pin (plug) RS-232C →See 2.6.1
	COM2	-	D-Sub 9 pin (plug) RS-422/485 →See 2.6.1
Ethernet I/F		-	**NEW!** 10BASE-T/100BASE-TX
USB I/F	**Type A**	-	**NEW!** ✔ →See 2.5
	Type mini B		
Tool Connector I/F		✔	-
Printer I/F		-	**NEW!** USB (Type A)

Chapter 2 Compatibility of Hardware

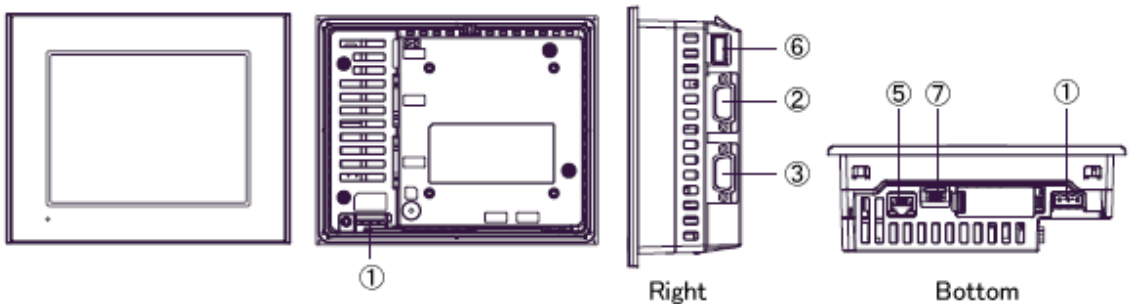
2.1 Locations of connector

Connector locations on GP-37W2 and GP-4301TW are as follows:

GP-37W2



GP-4301TW



Interface names

	GP-37W2	GP-4301TW
1	Power Input Terminal Block	Power Connector
2	Serial I/F (COM1)	
3	-	Serial I/F (COM2)
4	Tool Connector	-
5	-	Ethernet I/F
6	-	USB I/F (Type A)
7	-	USB I/F (Type mini B)

2.2 Touch Panel specifications

GP-4301TW adopts the Analog type.

For the Analog type, even if you touch two points at the same time, it's recognized that the coordinates located between these two points are touched.

If you have used the 2-point touch input on GP-37W2, change to the 1-point touch input setting using the switch delay function of GP-Pro EX.

2.3 Display Colors

GP-37W2 has monochrome LCD, but GP-4301TW has TFT Color LCD. After replacement, the black and white display changes to the color display.

When data of a monochrome model are converted to data of a color model with GP-Pro EX, the converted data may be displayed in colors except black and white depending on a setting of GP-PRO/PBIII. After conversion, please confirm the display colors of the drawing or the parts on the screens just in case.

2.4 Panel cutout dimensions

The size of GP-4301TW is smaller. The panel cutout dimensions of GP-4301TW are different from those of GP-37W2. Attachment (model: CA4-ATM5-01) for installing GP-4301TW is available and you can use it when replacing GP-37W2 with GP-4301TW.

2.5 Transfer cable

To transfer screen data to GP-4301TW, use a USB transfer cable or Ethernet.

The USB cables that can be used for GP-4301TW 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>

Please note that the cables (GPW-CB02, GPW-CB03, GP430-CU02-M) for GP-37W2 cannot be used for GP-4301TW.

2.6 Interface

2.61 Serial Interface

The pin assignment and the shape of plug/socket connector of GP-37W2 are different from those of GP-4301TW.

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

Because of it, the existing PLC connection cables cannot be used as they are. If you use the existing connection cables, see [4.5 Cable Diagram at the time of replacement].

2.7 Peripheral units and option units

2.7.1 Barcode reader connection

GP-4301TW is not equipped with a tool port. A barcode reader that used to be connected to the tool port on GP-37W2 cannot be used. However, GP-4301TW allows you to connect a barcode reader on its USB interface (Type A) or its serial interface.

For the models GP-4301TW supports, see [OtasukePro!] (http://www.pro-face.com/otasuke/qa/3000/0056_connect_e.html).

2.7.2 Isolation Unit

The isolation unit for GP-37W2 (CA2-ISOALL232-01 or CA2-ISOALL422-01) cannot be used for GP-4301TW. Instead of it, please use the RS-232C isolation unit for GP-4301TW (CA3-ISO232-01).

2.8 Power Connector

The power connector on GP-4301TW is a spring lock type. If you replace GP-37W2 with GP-4301TW, change the power cable.

2.9 Power Consumption

The power consumption of GP-37W2 is different from that of GP-4301TW.

GP-37W2	GP-4301TW
20W or less	10.5W or less

For the detailed electric specifications, see the hardware manual.

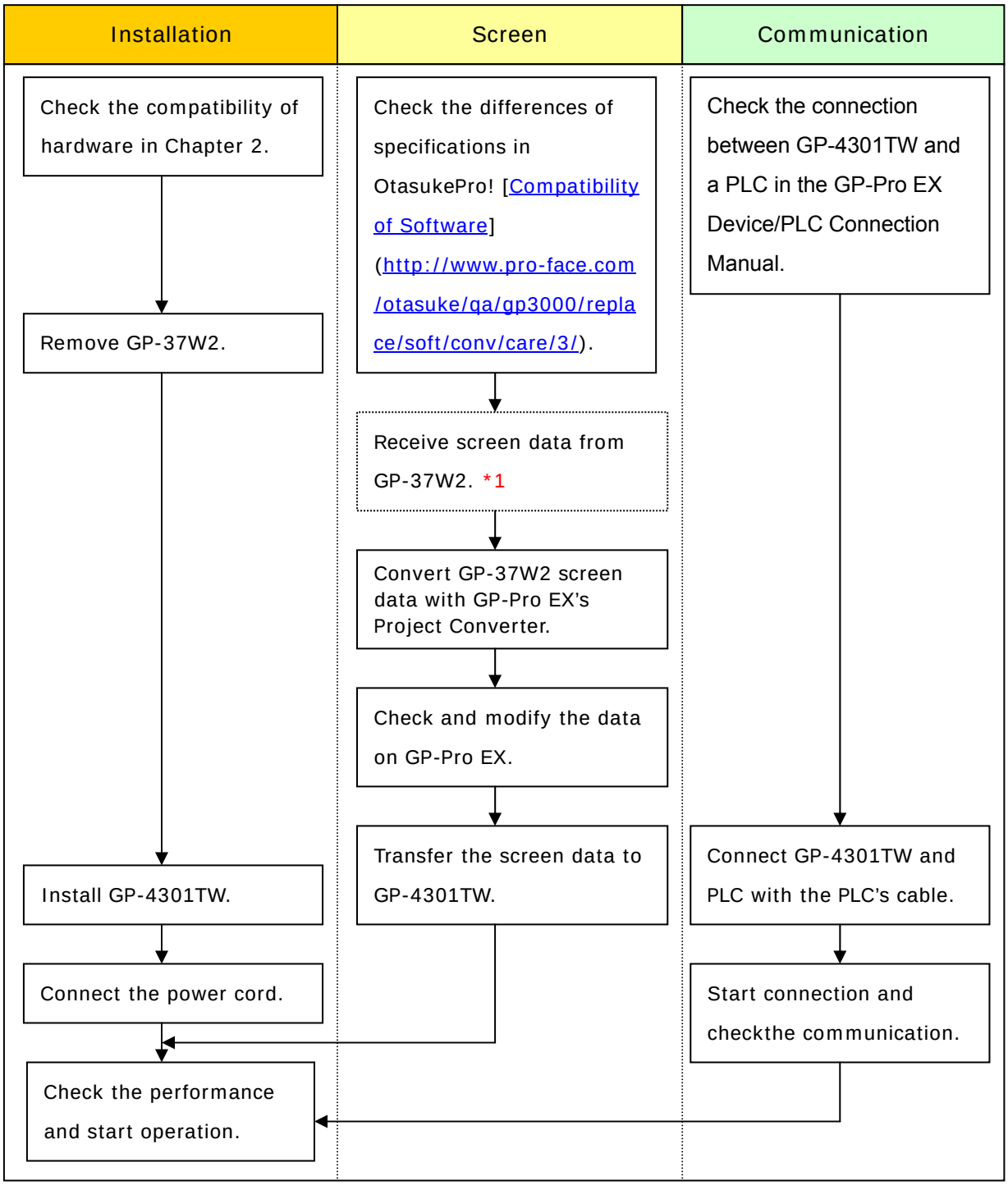
2.10 Materials/Colors of the body

The body materials and colors of GP-37W2 and GP-4301TW are as follows;

	GP-37W2	GP-4301TW
Color	Dark Gray	Light Gray
Material	Resin	Resin with glass

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-37W2 *1	PC in which GP-PRO/PBIII for Windows V4.0 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 PC)
Requirements for converting screen data of GP-37W2 and transferring the converted data to GP-4301TW	PC in which GP-Pro EX Ver.3.0 or later is installed.
	A USB data-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 USB flash drive 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 GP-37W2.

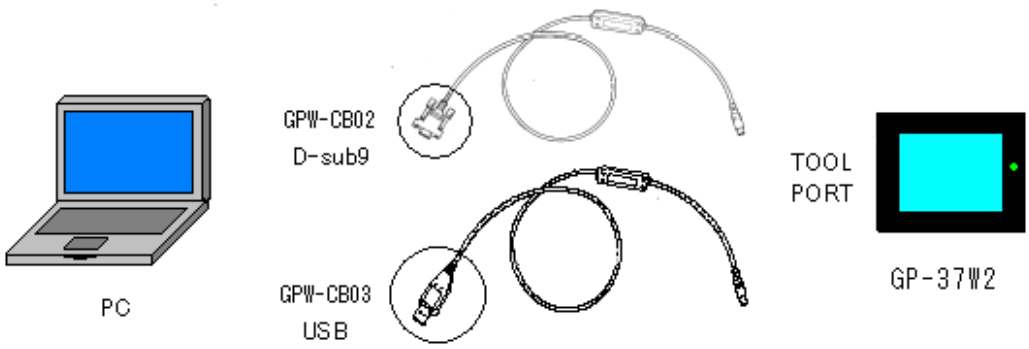
If you don't know the version, we recommend you to use the latest version. The latest version is GP-PRO/PBIII for Windows C-Package03 (SP2) V7.29. Those who have GP-PRO/PBIII for Windows C-Package03 V7.0 can download it from our Web site called [OtasukePro!] (http://www.pro-face.com/otasuke/download/update/).

*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!] (http://www.pro-face.com/otasuke/download/driver/)

3.3 Receive screen data from GP-37W2

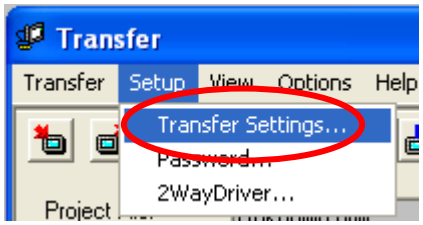
This section explains, as an example, how to receive screen data from GP-37W2 using a transfer cable, GPW-CB02 or GPW-CB03. If you have backed up screen data, this step is unnecessary; skip to the next section [3.4 Convert screen data with the Project Converter].

(1) Connect a transfer cable to the GP-37W2 unit.

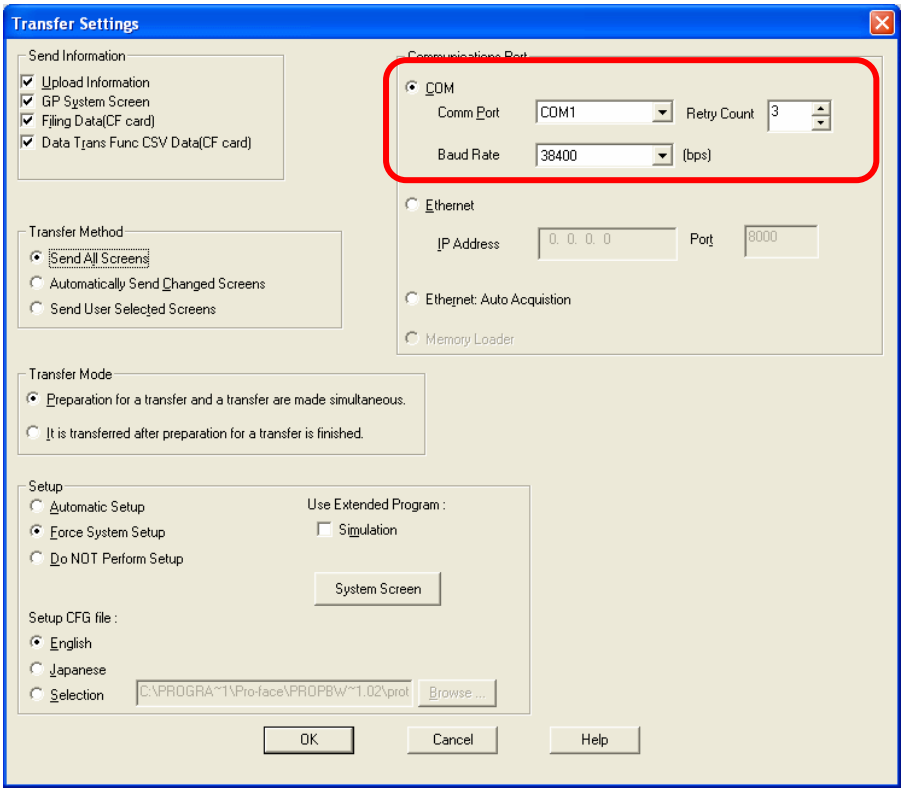


(2) Start up GP-PRO/PBIII for Windows and click the [Transfer] icon on the Project Manager (Specify a desired project file.)

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

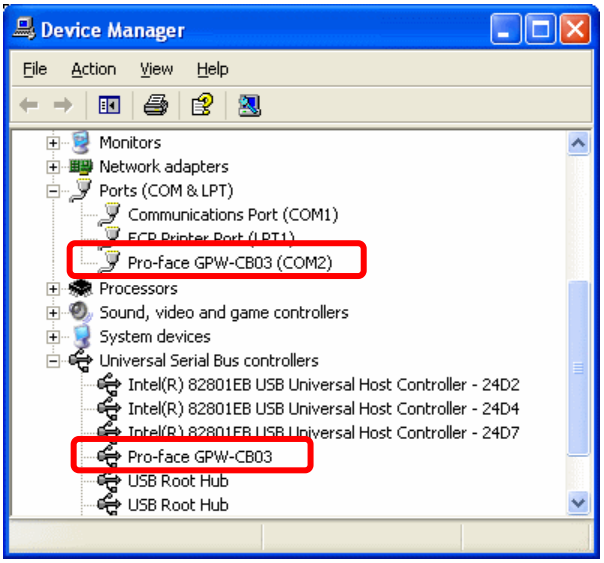


(4) In the Communication Port field, select [COM], specify the COM port to which the cable is connected, and click [OK].

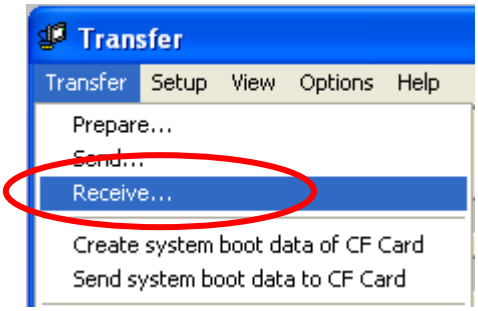


If you use a USB transfer cable (GPW-CB03)

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...].



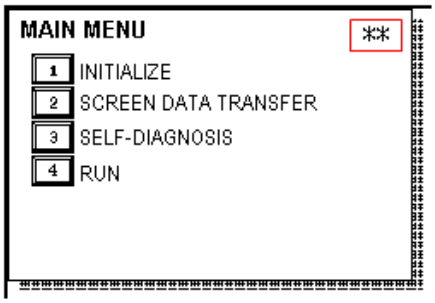
(6) Specify the location to save the received screen data at and the project file name and save them.

In case there is no Upload Information

"Upload Information" is necessary to receive screen data from GP-37W2. 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.

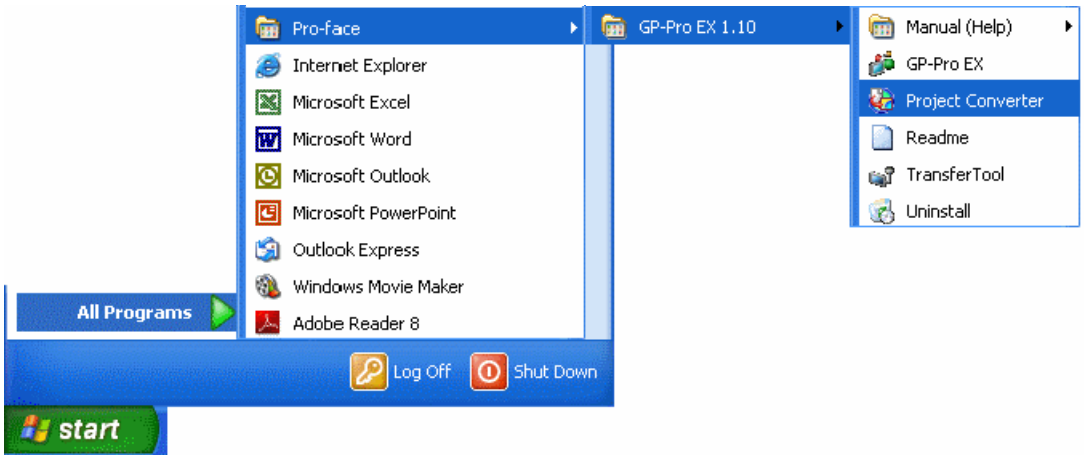


If not, there is no "Upload Information" sent. In this case, a message, which indicates there is no "Upload Information", appears and you cannot receive the data.

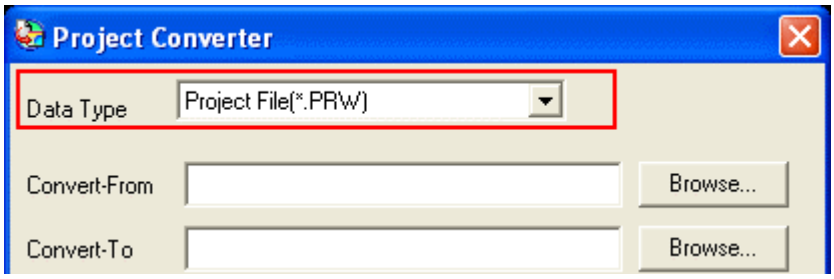
3.4 Convert screen data with the Project Converter

Convert a project file (*.prw) for GP-37W2 with the GP-Pro EX's Project Converter.

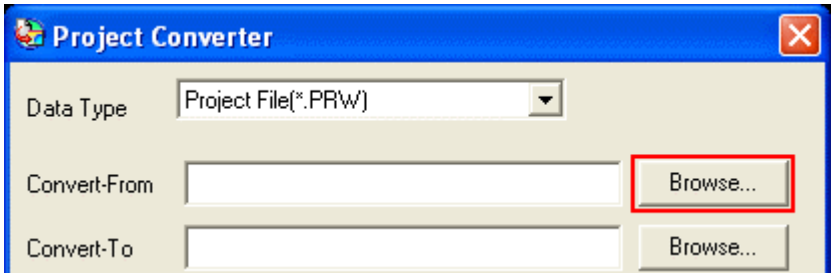
(1) Click the [Start] button, select [All Programs] (or [Programs])-> [Pro-face]-> [GP-Pro EX *.**]->[Project Converter].
(For this part, [*.**], the version of the software you use is displayed.)

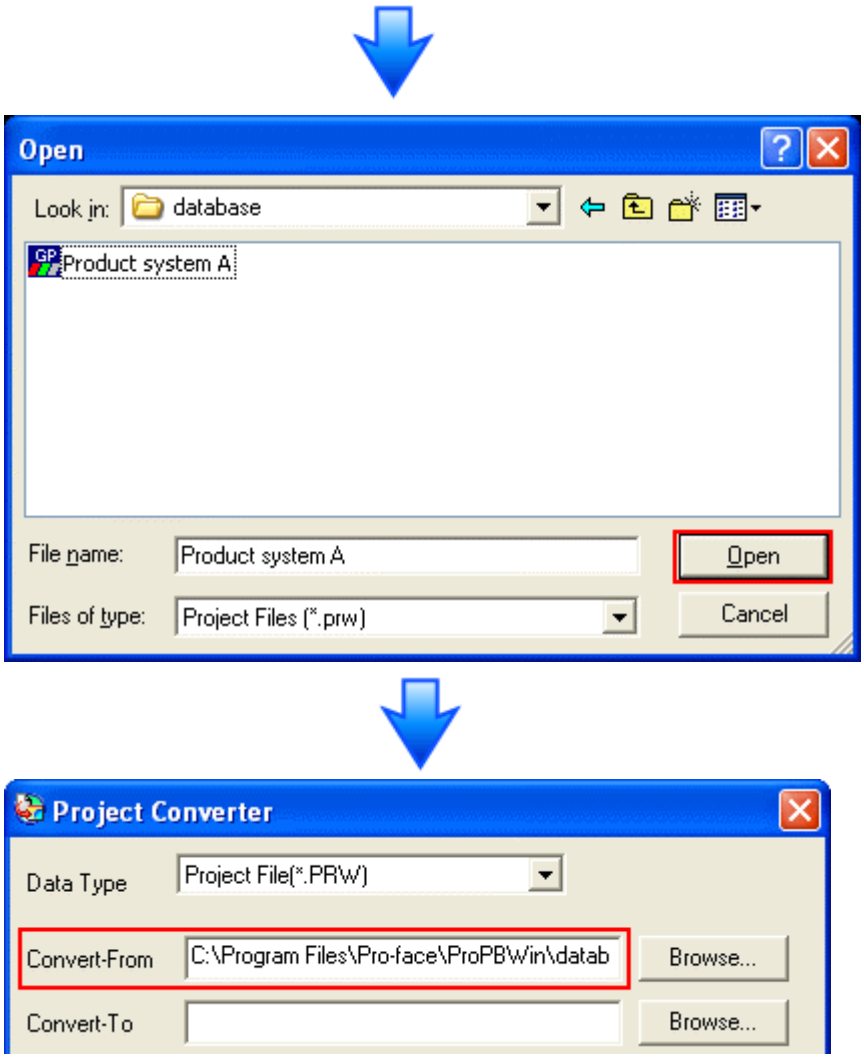


(2) The Project Converter starts up and the [Project Converter] dialog box opens. Select [Project File (*.PRW)] in the [Data Type].

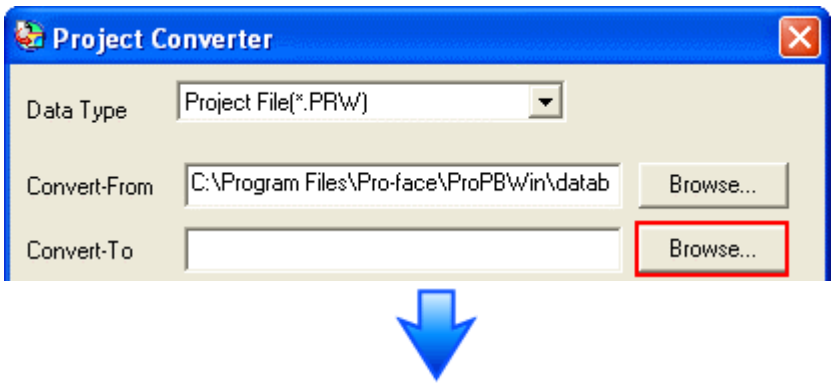


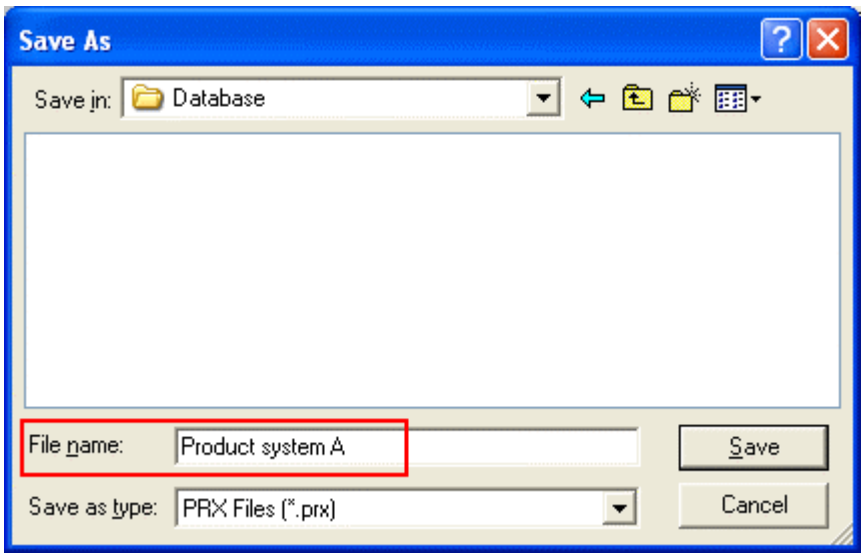
(3) Click the [Browse...] button and select a project file (e.g.: "Project system A.prw"). Click [Open], and the file will be set in [Convert-From].

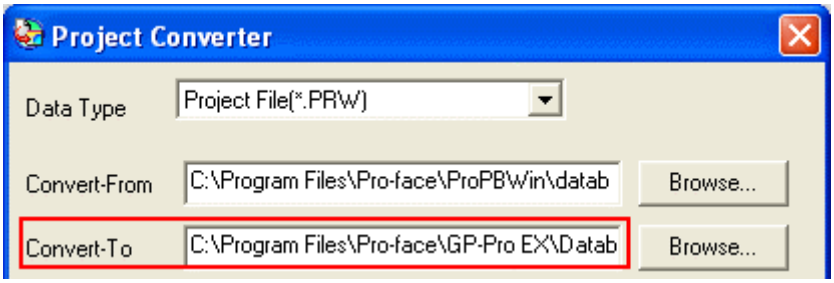




(4) In [Convert-To], designate a GP-Pro EX's project file (*.prx). Click the [Browse...] button and enter a new [File Name] (e.g.: "Product system A.prx"). Click [Save], and a new project file will be set to [Convert-To].

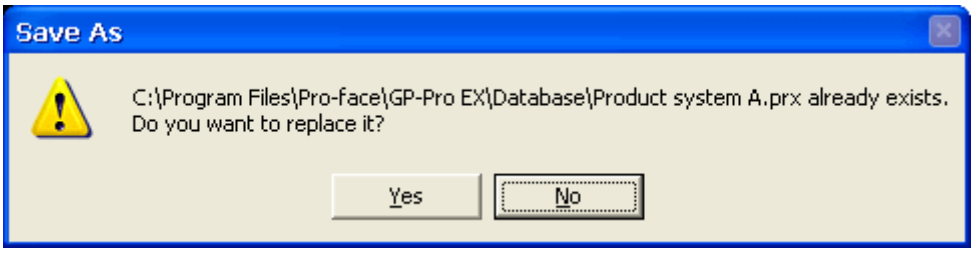




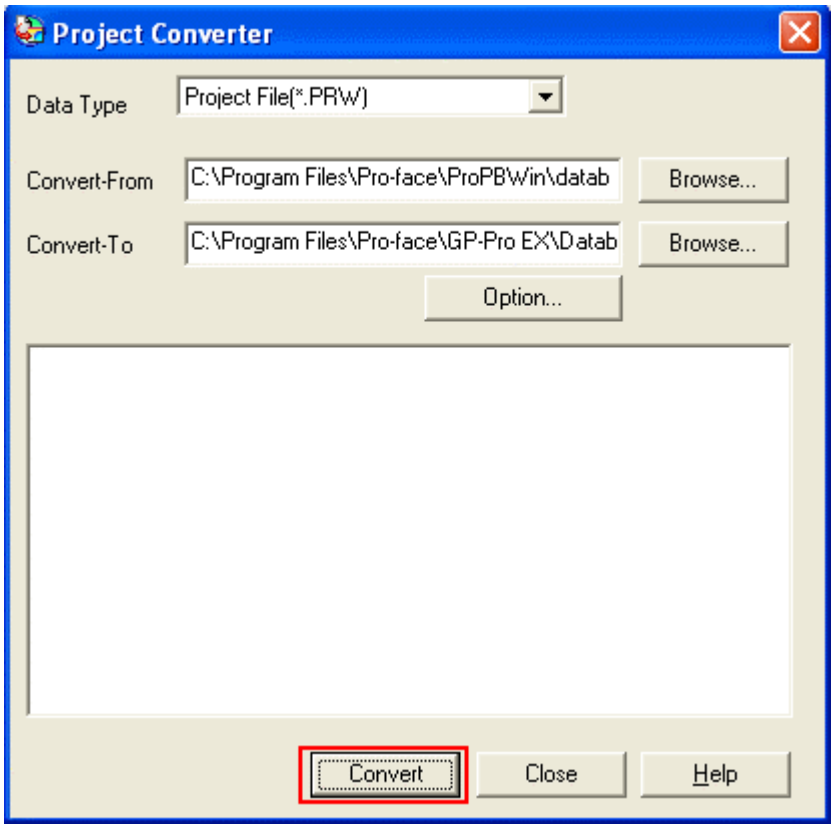


NOTE

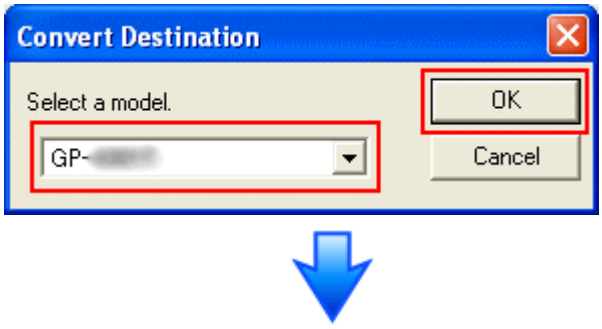
When a convert-to file exists, the window that confirms whether or not to overwrite the file is displayed.

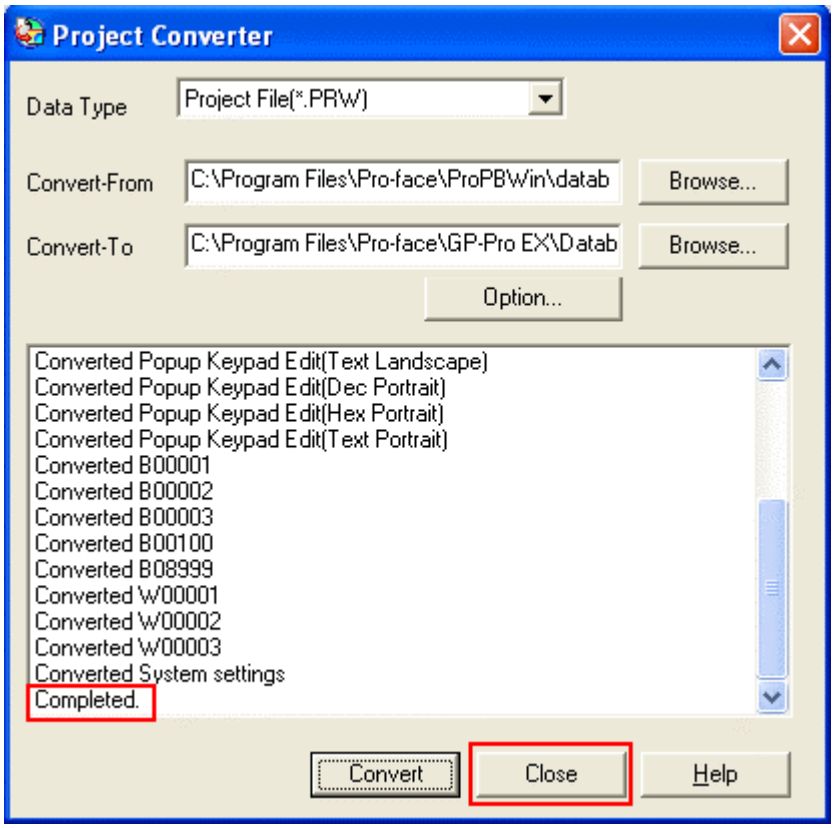


(5) Click [Convert] and start the conversion.



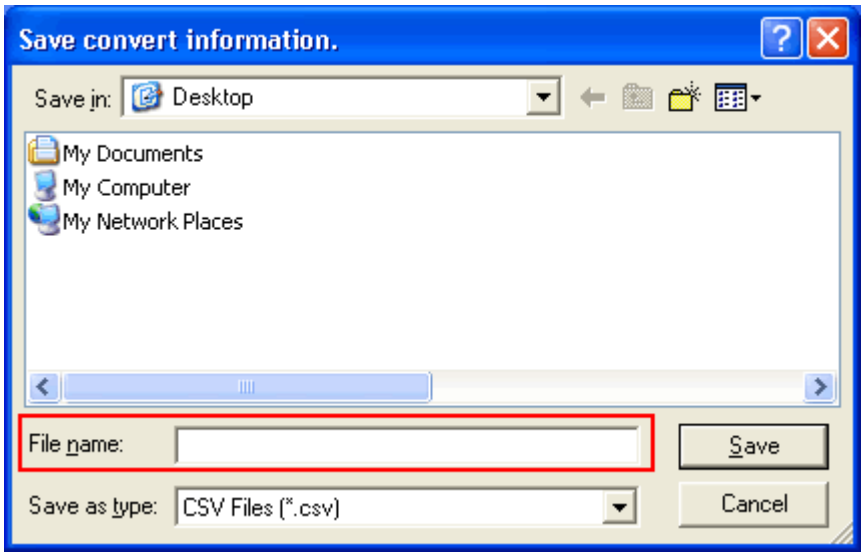
(6) If you are asked about the [Convert-To] type as shown below, select [GP-4301TW] on the pull-down menu. Click [OK].





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.

3.5 Transfer the screen data to GP-4301TW

Transfer the project file after conversion to GP-4301TW.

You can transfer data to GP-4301TW via;

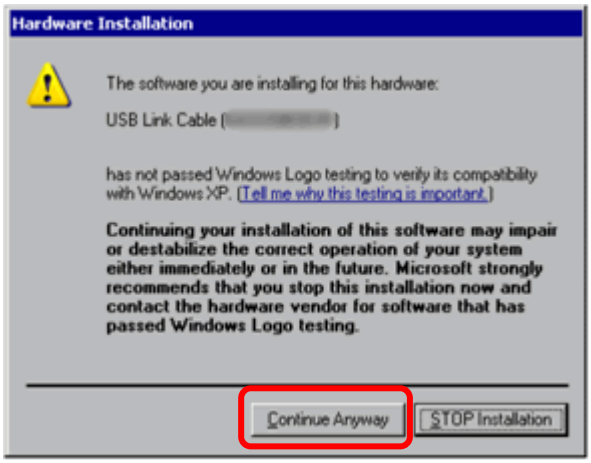
- A USB transfer cable (model: CA3-USBCB-01)
- A USB data transfer cable (model: ZC9USCBMB1)
- A commercial USB cable (USB Type A/mini B)
- A USB storage device
- Ethernet

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

(1) Connect your PC and GP-4301TW 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

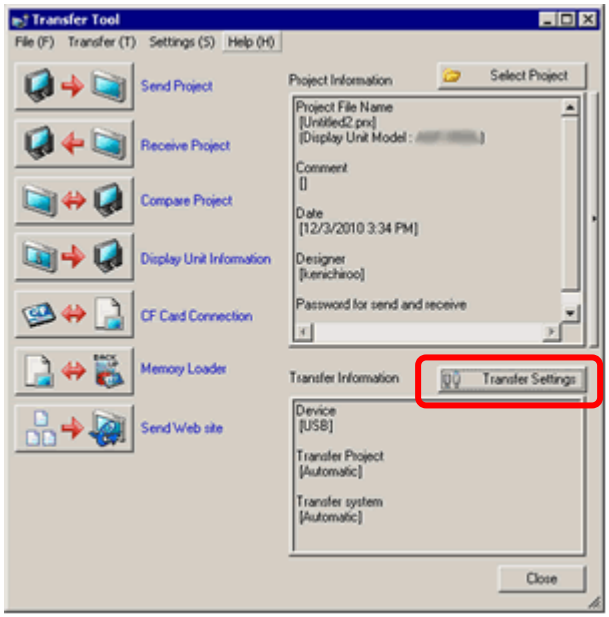
- The “Hardware Installation” dialog box as shown below may appear during installing the USB driver depending on the security level of Windows® XP. Click [Continue Anyway] to start installing the driver. When installation is completed, click [Finish].



- If the following symptoms appear on Microsoft Windows® 7, go to updating “USB Data Transfer Driver” on [OtasukePro!] for download (http://www.pro-face.com/otasuke/download/update/proex/proex/v260/gpproex_usb_transfer.htm).
  - An error occurs when GP-Pro EX or Transfer Tool is installed
  - An error occurs when data is transferred via a USB transfer cable (model: CA3-USBCB-01).

(2) Trun on the power of GP-4301TW. The “Initial Start Mode” screen will appear on the display unit. After transferring a project file once, this screen will not appear again.

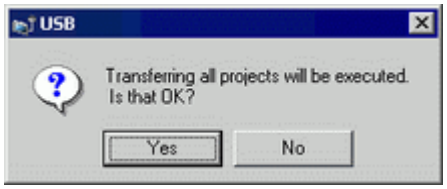
(3) On the GP-Pro EX’s State Toolbar, click the [Transfer Project] icon to open the Transfer Tool.



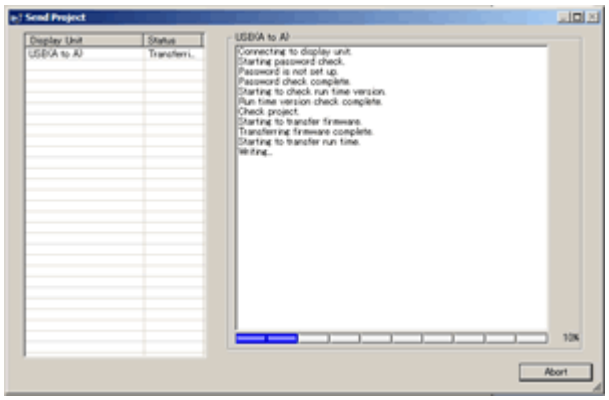
To transfer a different project file, click the [Select Project] button and select a project file.

(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].

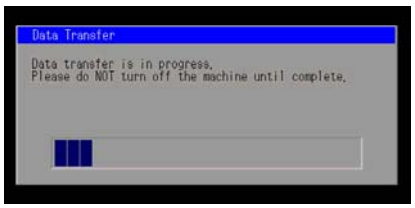
(5) Click [Send Project] to start transfer.
When the following dialog box appears, click [Yes]. This dialog box doesn’t appear when the same project file is sent again.



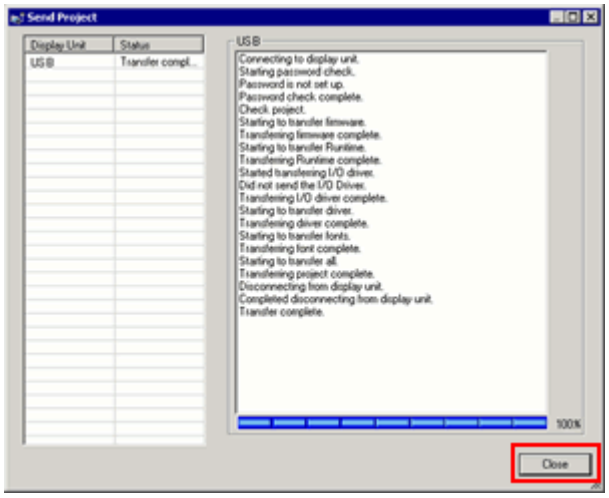
(6) The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)



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

3.6.1 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

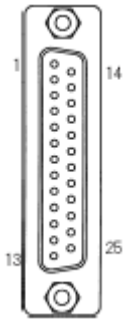
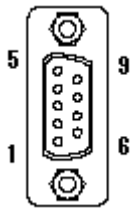
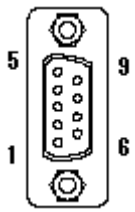
Chapter 4 Communication with Device / PLC

4.1 Driver list

More connectable drivers will be added.

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

4.2 Shapes of COM ports

	GP-37W2	GP-4301TW
COM1	D-Sub 25 pin (socket) RS-232C/422	D-Sub 9 pin (plug) RS-232C
		
COM2	-	D-Sub 9 pin (plug) RS-422/485
		

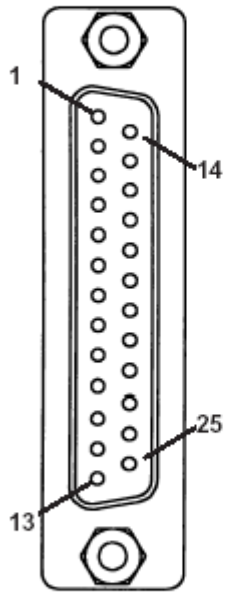
NOTE
For the COM ports of GP-37W2 and GP-4301TW, the pin assignment and the shape of plug/socket connector are different. Because of it, the existing PLC connection cables cannot be used as they are. If you use the existing connection cables, see [4.5 Cable Diagram at the time of replacemet].

4.3 Signals of COM ports

4.3.1 Signals of COM1

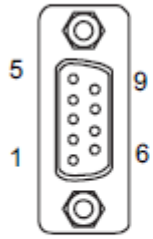
For GP-37W2

RS-232C or RS-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)

For GP-4301TW

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.

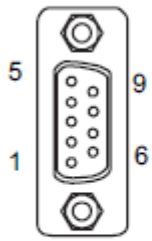
4.3.2 Signals of COM2

For GP-37W2

None

For GP-4301TW

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 GP-4301TW, 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).

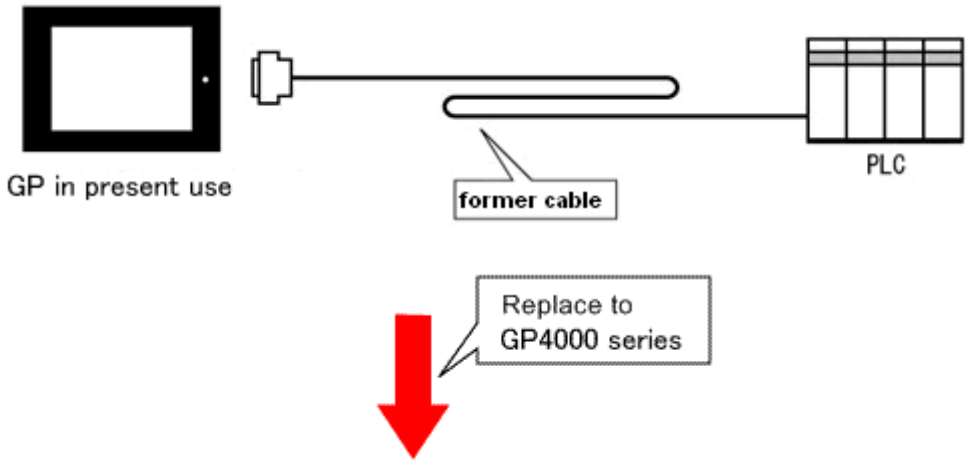
4.5 Cable Diagram at the time of replacement

The connection cable for GP-37W2 can be used for GP-4301TW. But please note that there are precautions and restrictions as described below.

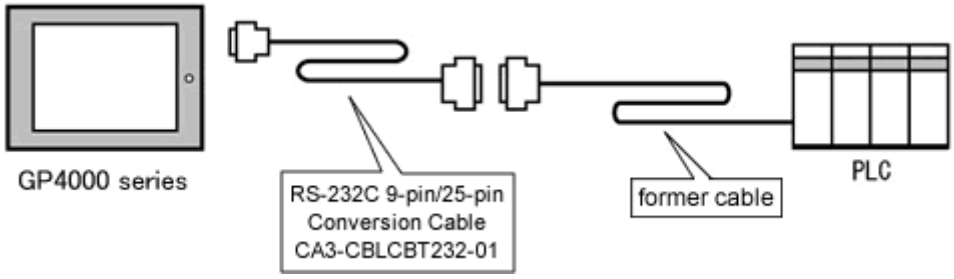
IMPORTANT
・Please check the connection configurations GP-4301TW supports with GP-Pro EX Device/PLC Connection Manual before using a connection cable. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm). ・**The Siemens MPI connection cable** cannot be used. Please refer to the above-mentioned GP-Pro EX Device/PLC Connection Manual and prepare a connection cable for GP-4301TW newly.

4.5.1 When using a RS-232C connection cable

GP-37W2 System Configuration (connecting to **COM1**)



GP-4301TW System Configuration (connecting to **COM1**)

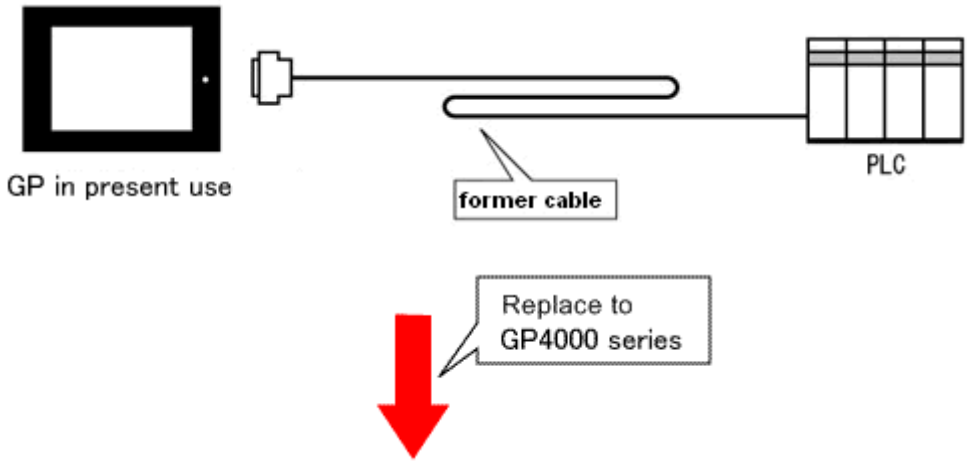


To replace GP-37W2 with GP-4301TW, prepare the following item.

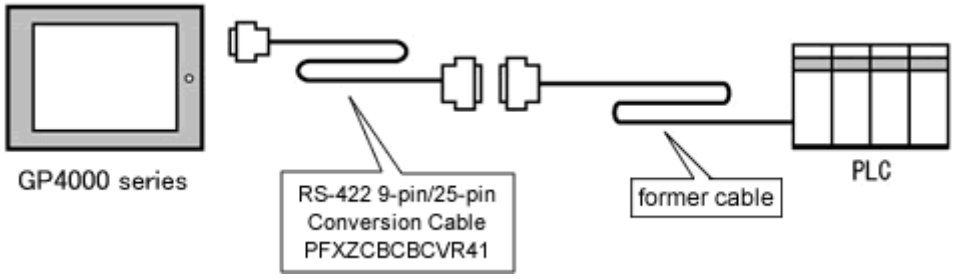
Product Name	Model
RS-232C 9-pin/25-pin Conversion Cable (20cm)	CA3-CBLCBT232-01

4.5.2 When using a RS-422 connection cable

GP-37W2 System Configuration (connecting to **COM1**)



GP-4301TW System Configuration (connecting to **COM2**)



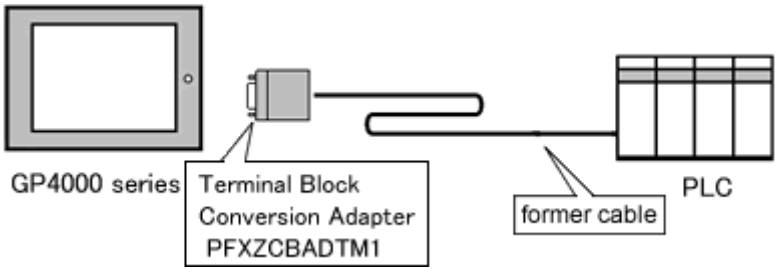
IMPORTANT
Before connecting to GP-4301TW, be sure to change the port setting to [**COM2**] on Device/PLC Setting of GP-Pro EX. Please check the communication setting with GP-Pro EX Device/PLC Connection Manual just in case. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm)

To replace GP-37W2 with GP-4301TW, 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 GP-4301TW.



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

Product Name	Model
Terminal Block Conversion Adapter	PFXZCBADTM1