Easy! Smooth!
Replacement Booklet
for GP-477RE

Preface

This manual introduces the procedures to replace the unit GP477-RE11 with AST-3501C.

The current model	The recommended replacement model
GP-477RE	AST-3501C

Table of Contents

Chapter 1. Specification Comparison

1.1 Specifications of GP-477RE and AST-3501C

	GP-477RE	AST-3501C
Display Type	High Intensity EL Display	TFT color LCD
Display Colors	Amber (monochrome)	**UP!** 16 colors
Display Resolution	VGA (640 × 400 pixels)	VGA (640 × 480 pixels)
Panel Cut Dimensions (mm)	259 (W) × 201 (H)	
External Dimensions (mm)	274.0 (W) × 216 (H) × 56.5 (D)	270.5 (W) × 212.5 (H) × 57 (D)
Touch Panel Type	Matrix	Resistive Film (Analog) **NEW!** → See 2.4
Serial Interface — **COM1**	D-Sub 25 pin (female) RS-232C/422	**NEW!** D-Sub 9 pin (male) RS-232C
Serial Interface — **COM2**	-	**NEW!** D-Sub 9 pin (male) RS-485 (422) Compatible
Memory — **Application**	2MB	**UP!** 6MB
Memory — **SRAM**	96KB	**UP!** 320KB
Ethernet Interface	-	
CF Card Interface	-	**NEW!** ✓
Printer Interface	Compliant with Centronics (parallel)	**NEW!** USB
USB Host Interface	-	**NEW!** ✓

Chapter 2. Compatibility of Hardware

2.1 Locations of connectors

Connector locations on GP-477RE and the AST-3501C series are as follows.

2.1.1 Rear of GP-477RE and AST-3501C
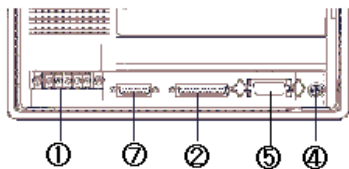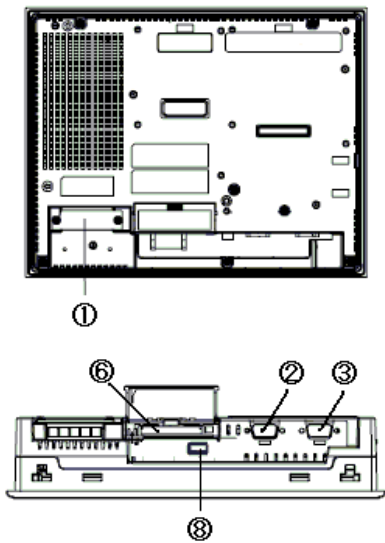
GP-477RE   AST-3501C

Interface names (applicable to all models)

	GP-477RE	AST-3501C
1	Power Input Terminal Block	Power Input Terminal Block (AC type)
		Power Plug Connector (DC type)
2	Serial Interface (COM1)	
3	-	Serial Interface (COM2)
4	Tool Connector	-
5	Printer Interface	-
6	-	CF Card Interface
7	Auxiliary Input/Output Interface (AUX)	-
8	-	USB Host Interface

2.2 About display type and colors

GP-477RE is a high intensity EL display, on the other hand, AST-3501C display is a color LCD. The display changes from monochrome amber display to color display. If you created GP-477R screen data in black and white, it will be displayed in black and white on AST-3501C. And if in colors, it will be converted with the colors. In order to display the same color as on GP-477R, we are developing a function to convert screen colors to black and white or black and amber. For more details, please contact the nearest Pro-face office.

2.3 About display resolution

The display resolution of AST-3501C is different from that of GP-477RE. The resolution of AST-3501C is 80 dots higher vertically. Therefore, there might be a blank space after replacement. Please edit screens with GP-Pro EX if necessary.

2.4 Touch panel specifications

The touch panel type for AST-3501C is "Resistive Film (Analog) type". The Resistive Film (Analog) type doesn't recognize the touch input even if you touch two points at the same time. Please do not touch two points at the same time. If you applied the two-point touch input on GP-477RE, we recommend you to change to the one-point touch input using the switch delay function. For the settings, see "Compatibility of Software".

2.5 About transfer cable

To transfer screen data to AST-3501C, use a USB transfer cable (model: CA3-USBCB-01). Please note that any commercial USB cable cannot be used. The tool port and a transfer cable for GP-477RE (*1) are used for screen data transfer to GP-477RE, but they are not available with AST-3501C.

*1: Models of transfer cable for GP-477R: GPW-CB02, GPW-CB03, GP430-CU02-M, etc.

2.6 About interfaces

2.6.1 Serial interface

The COM1 port (RS-232C) on AST-3501C is D-sub 9 pin male. The COM1 port on GP-477RE is D-sub 25 pin female, and the pin assignment and the shape of male/female connector are different from those of AST-3501C. Check if you can use the cable with AST-3501C on Otasuke Pro! "Connectable Controllers for GP3000 Series."

http://www.pro-face.com/otasuke/qa/gp3000/replace/connect/connect.php?rm=2

2.6.2 AUX output

AST-3501C is not equipped with AUX (external output). External Reset Input and outputs (RUN Output, System Alarm Output, External Buzzer Output) available on GP-477RE cannot be used on AST-3501C.

2.7 Peripheral units and option units

2.7.1 Barcode reader connection

AST-3501C is not equipped with a tool port. A barcode reader connected from the tool port on GP-477RE cannot be used. However, AST-3501C allows you to connect a barcode reader on its USB interface or its serial interface.

2.7.2 Printer connection

AST-3501C is not equipped with the Centronics (parallel) interface for the printer. Please prepare a conversion cable to convert the USB of AST-3501C to the Centronics interface if you connect the printer to AST-3501C, which was connected to the Centronics interface on GP-477RE. AST-3501C allows you to connect a printer on its Ethernet port as well as on its USB port.

2.7.3 Expansion unit

AST-3501C is not equipped with an expansion bus unit. Please note that the expansion unit, such as a CC-LINK unit, used with GP-477RE cannot be used.

2.8 About power connector

The power connector for the DC type on AST-3501C is a screw lock terminal block. If you replace from GP-477RE, change the power cable.

The power connector for the AC type is the same as that on GP-477RE, however, the position of FG has been changed.

2.9 About power consumption

The power consumption of AST-3501C and that of GP-477RE are different. Please check the power supply capacity that is supplied to the main body.
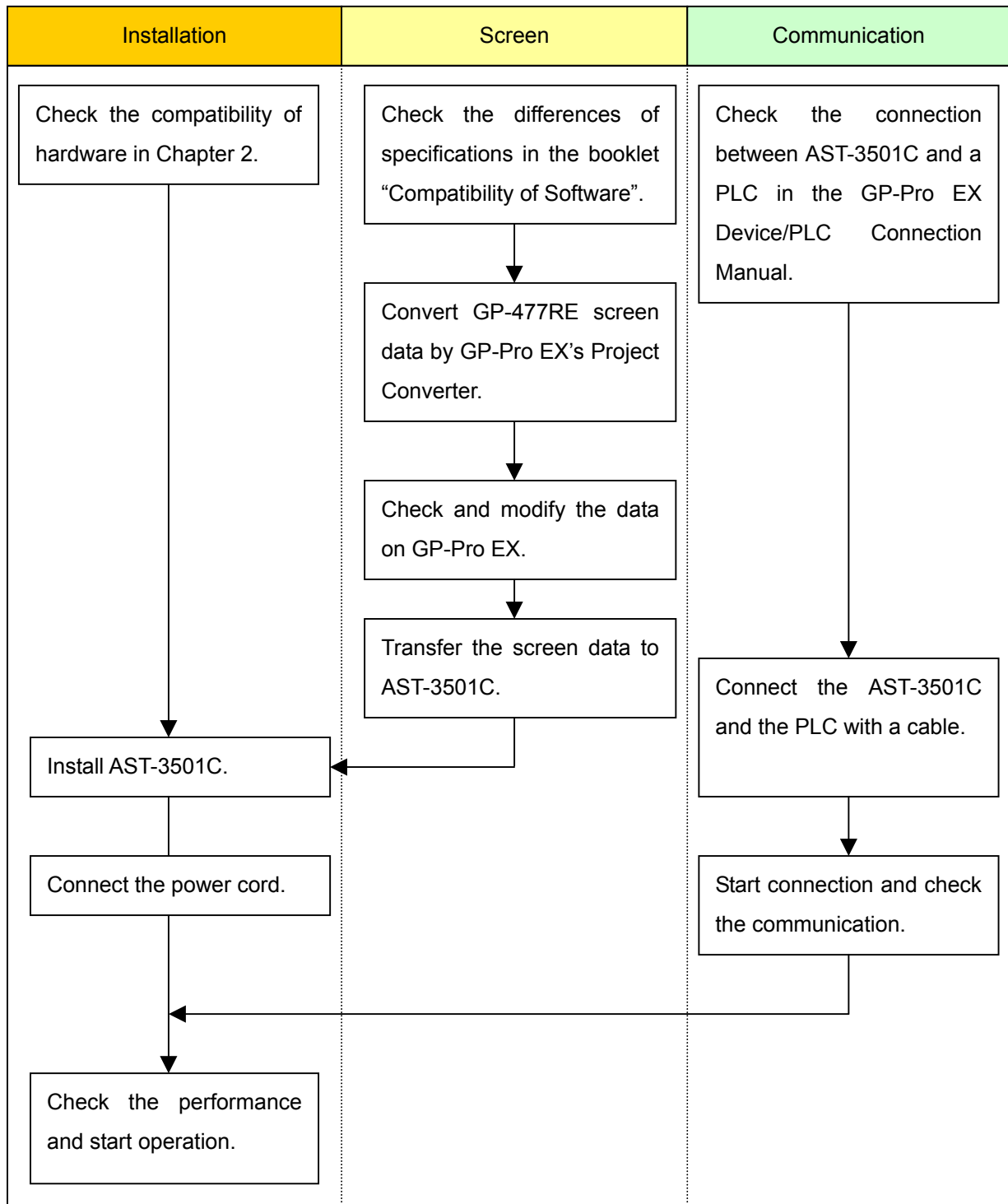
2.10 About body material

The body material of AST-3501C is resin as well as GP-477RE, however, its color and material characteristics are different from those of GP-477RE.
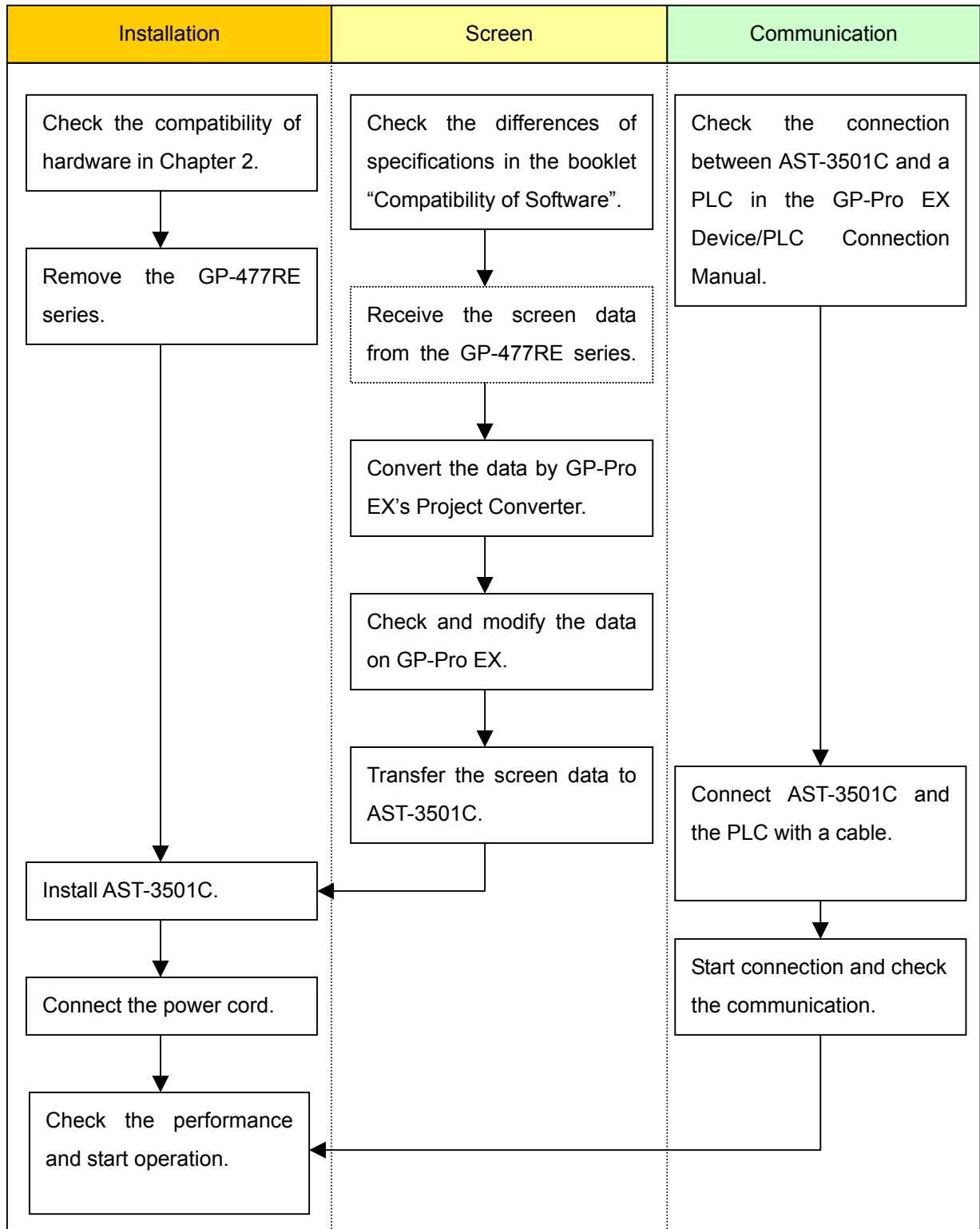
Chapter 3. Replacement Procedure

3.1 Work Flow

► **To change the equipment designed for GP-477RE to AST-3501C**

Installation	Screen	Communication
Check the compatibility of hardware in Chapter 2.	Check the differences of specifications in the booklet "Compatibility of Software".	Check the connection between AST-3501C and a PLC in the GP-Pro EX Device/PLC Connection Manual.
	Convert GP-477RE screen data by GP-Pro EX's Project Converter.	
	Check and modify the data on GP-Pro EX.	
	Transfer the screen data to AST-3501C.	
Install AST-3501C.		Connect the AST-3501C and the PLC with a cable.
Connect the power cord.		Start connection and check the communication.
Check the performance and start operation.		

► To replace GP-477RE mounted to the equipment to AST-3501C

Installation	Screen	Communication
Check the compatibility of hardware in Chapter 2.	Check the differences of specifications in the booklet "Compatibility of Software".	Check the connection between AST-3501C and a PLC in the GP-Pro EX Device/PLC Connection Manual.
↓	↓	
Remove the GP-477RE series.	Receive the screen data from the GP-477RE series.	
	↓	
	Convert the data by GP-Pro EX's Project Converter.	
	↓	
	Check and modify the data on GP-Pro EX.	
	↓	
	Transfer the screen data to AST-3501C.	Connect AST-3501C and the PLC with a cable.
Install AST-3501C. ←		↓
↓		Start connection and check the communication.
Connect the power cord.		
↓		
Check the performance and start operation. ←		

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

3.2 Preparation

Requirements for receiving screen data from GP-477RE *1	PC in which GP-PRO/PB3 for Windows Ver.2.1 or higher is installed (*2)
	Transfer cable (The following three types of cable are available.) • GPW-CB02 (D-sub 9-pin to the PC) • GPW-CB03 (USB to the PC) (*3) • GP430-CU02-M or GPW-SET
Requirements for converting screen data of GP-477R and transferring to the AST-3501C.	PC in which GP-Pro EX is installed
	Transfer cable (model: CA3-USBCB-01) The AST-3501Cseries allows you to transfer screen data via CF card or USB flash drive.

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

*2: The software version must be the same or higher than the version that you used when creating screen data for the GP-477RE.

  We recommend you to upgrade to the latest version, which is C-Package 03 GP-PRO/PB3 for Windows Ver.7.29.

  If the version of the software that you currently use is C-Package 03 GP-PRO/PB3 for Windows Ver.7.0, upgrade it on our website Otasuke Pro!

*3: GPW-CB03 is compliant with GP-PRO/PBIII for Windows Ver. 6.23 (C-Package02 SP2) or later. Also, to use it, you may need to install the driver.

3.3 Receive screen data from GP-477RE

This section explains, as an example, how to receive screen data from the GP unit 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."
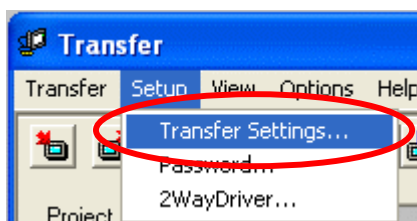
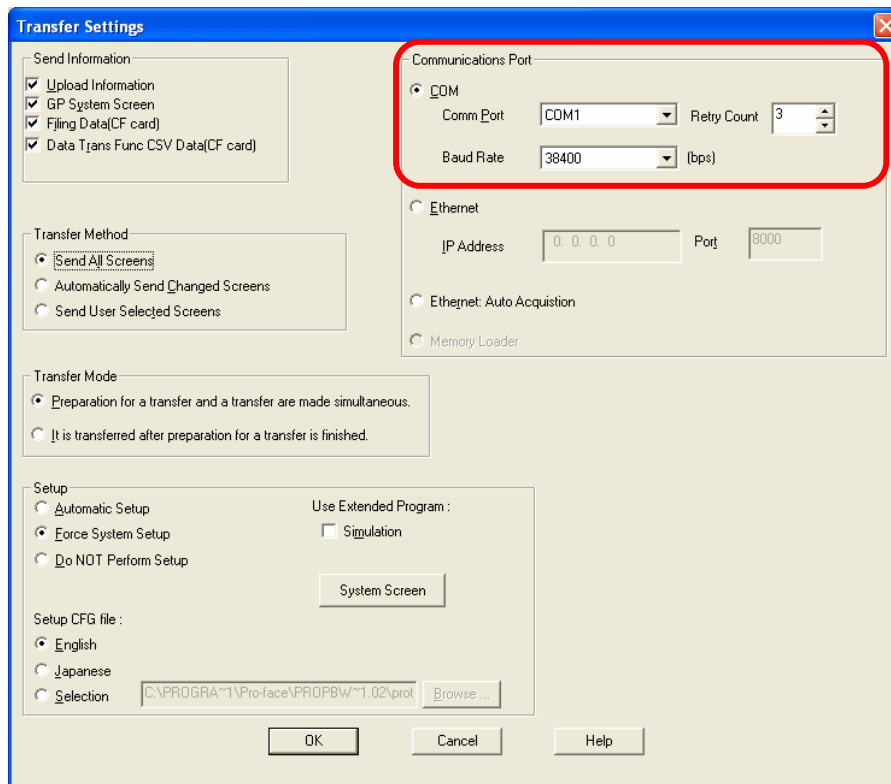1. Connect a transfer cable to GP-477RE.
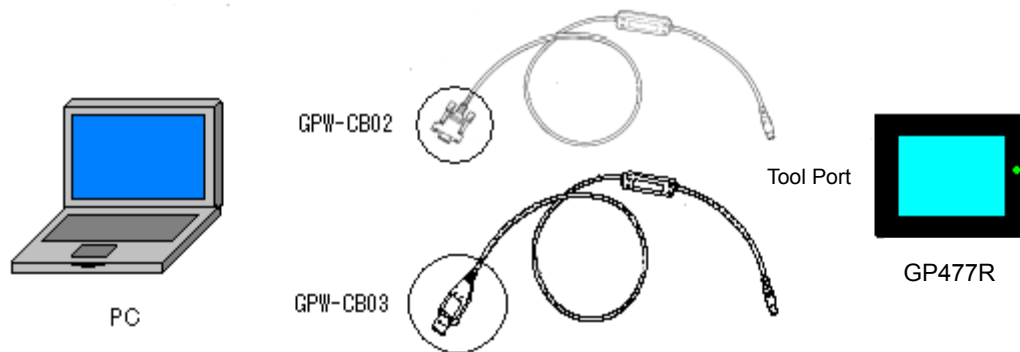
2. Start up GP-Pro/PB3 C-Package and click the [Transfer] icon on the Project Manager. (Specify a desired project file.)

3. On the [Transfer] window, select the [Setup] menu and click [Transfer Settings…].
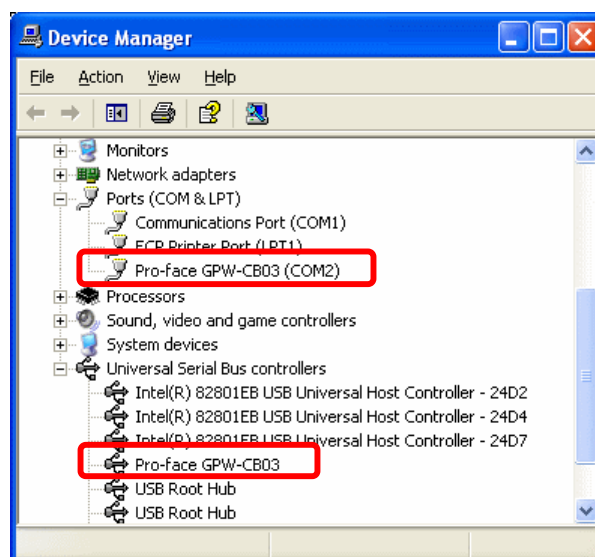
4. In the Communication Port field, select [COM], specify the COM port to which the cable is connected, and click [OK].
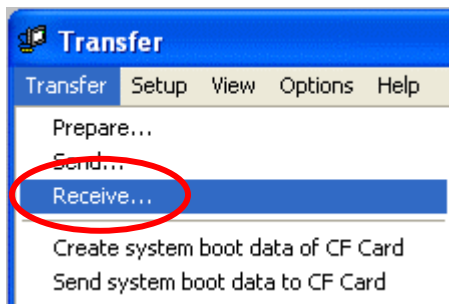

If you use a USB transfer cable (GPW-CB03)…

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 in and the project file name and save.

| In case there is no Upload Information… |
| --- |
| "Upload Information" is the necessary information to receive screen data from the display unit. 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. |
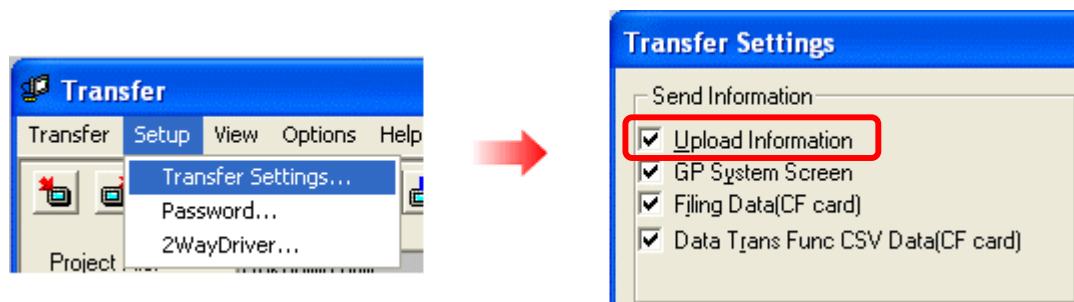
In this case, a message, which indicates there is no Upload Information," appears and you cannot receive the data.

You can check if the Upload Information has been sent or not in the following way.

Enter into the GP's Offline mode. If there are 2 asterisk (*) marks in the Main menu as below, the Upload Information has been sent. If not, there is no Upload Information sent.
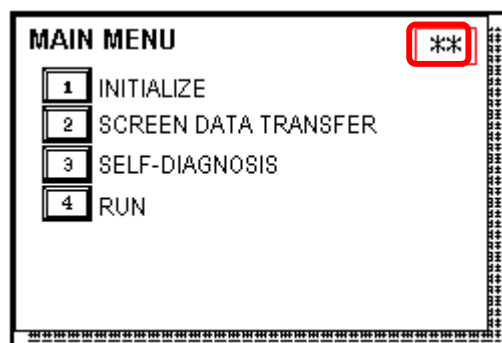
3.4 Convert screen data with the Project Converter

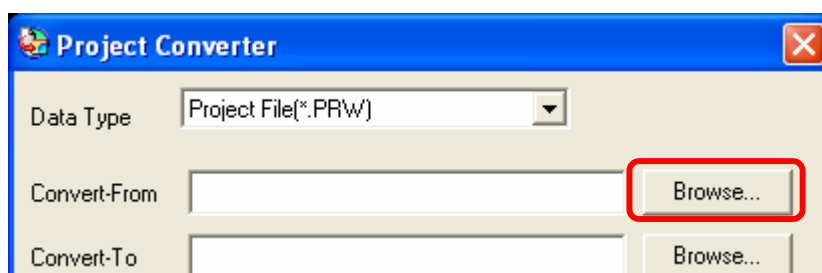Convert a project file (*.prw) for GP-477RE with the GP-Pro EX's Project Converter.

1. Click the [Start] button, select the [All Programs] ([Programs] on Windows® 2000 menu → [Pro-face] → [GP-Pro EX*.**]. (The version of the software you use will be shown in *.**.)
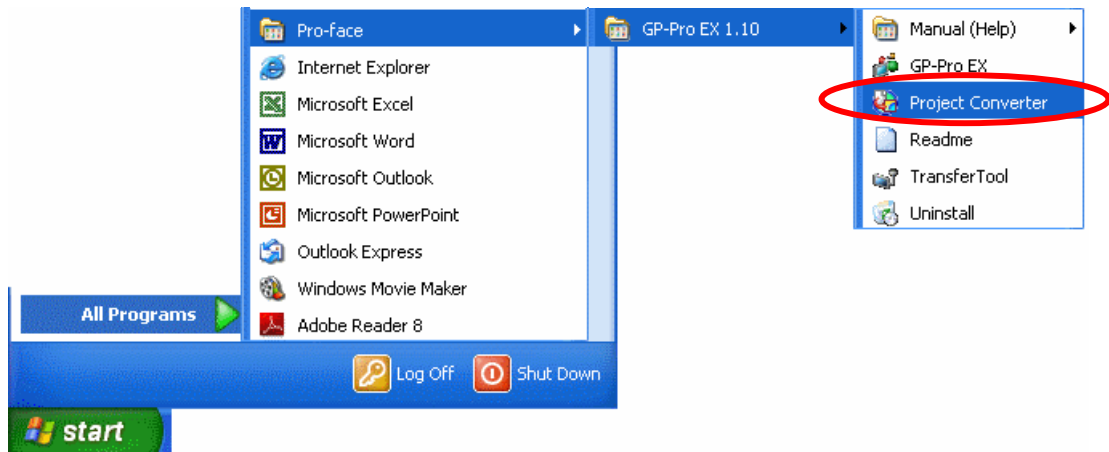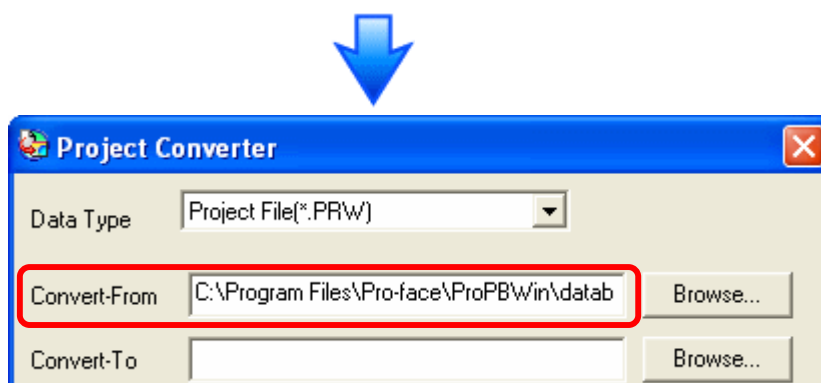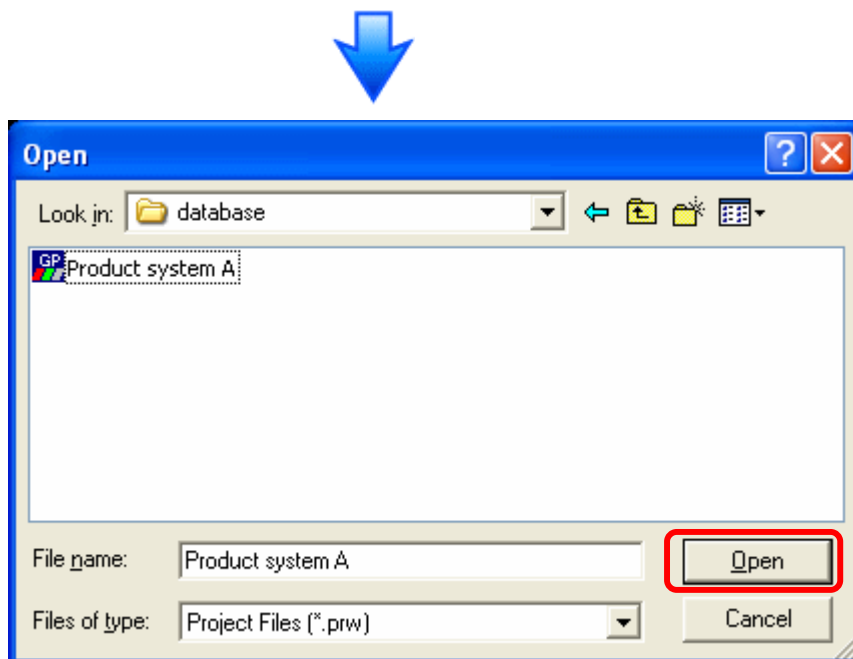

2. The Project Converter starts up and the [Project Converter] dialog box opens. Select [Project File (*.PRW)] in the [Data Type].
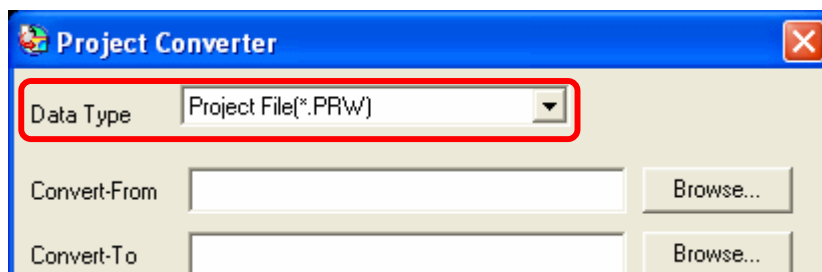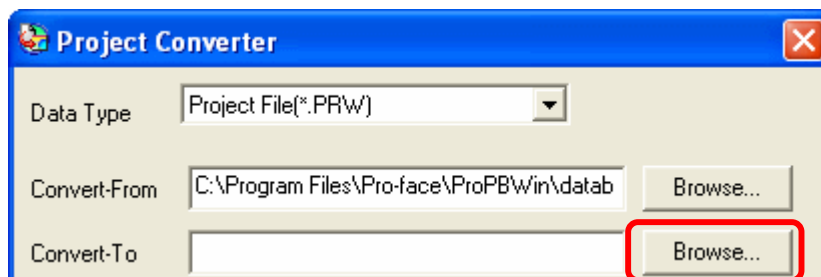

3. Designate a GP-PRO/PB3 for Windows' project file (*.prw) in [Convert-From].
   Click the [Browse…] button and select a project file (e.g.: "Project system A.prw"). Click [Open], and the file will be set in [Convert-From].

Open

Look in: 📁 database

🖼️ Product system A

File name: Product system A   [_Open_]

Files of type: Project Files (*.prw)   [Cancel]

Project Converter

Data Type   Project File(*.PRW)

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

Convert-To   Browse...

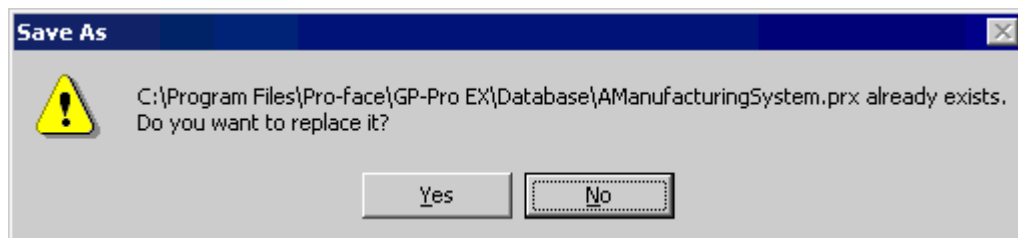4. In [Convert-To], designate a GP-Pro EX's project file (*.prx). Click the [Browse…] button and enter a new [File Name] (e.g.: "Product system A.prx"). Click [Save], and a new project file will be set to [Convert-To].

Project Converter

Data Type   Project File(*.PRW)

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

Convert-To   Browse...

Save As

Save in: Database ▾ ← 🗀 📁 ▦▾

File name: Product system A

Save as type: PRX Files (*.prx) ▾

[Save] [Cancel]

⬇

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...]
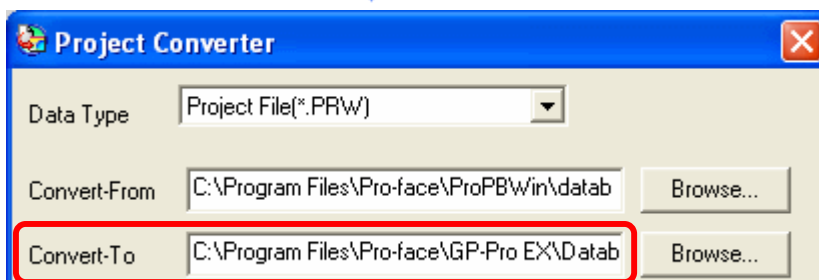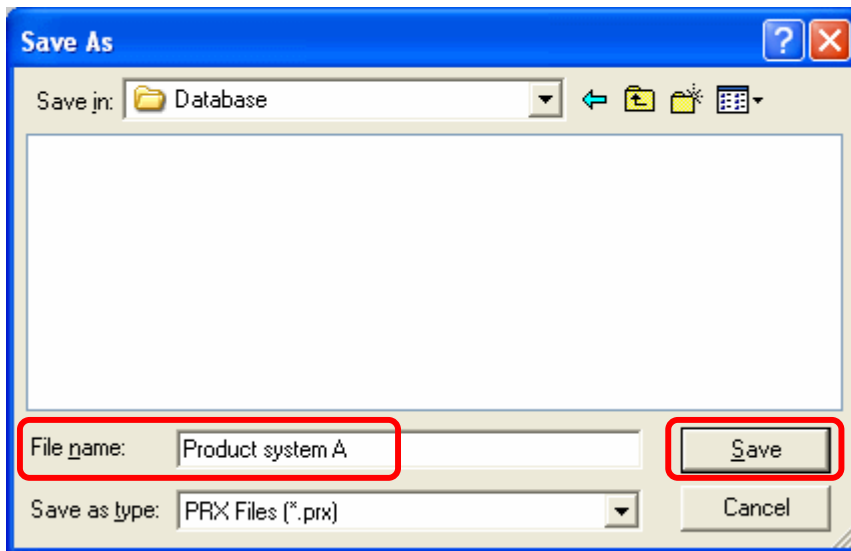
NOTE

- Depending on the model you are converting from, the [Convert-From Type] dialog box may display where you can select the type and the model.
- 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\AManufacturingSystem.prx already exists. Do you want to replace it?

[Yes] [No]

5. Click [convert] and start the conversion.

Question

A CF card output folder is set in the project.
Do you want to convert the CF card data
In the data in CF card folder, when not performing conversion, the library call of an image screen(CF) is not generated correctly.

[Yes]　[No]　[Cancel]

6. After conversion, the [Save convert information] dialog box appears. If you click [Save], you can save the conversion information in a text file.

Save convert information.

Save in: Database

data

File name:

Save as type: Text Files (*.txt)

[Save]　[Cancel]
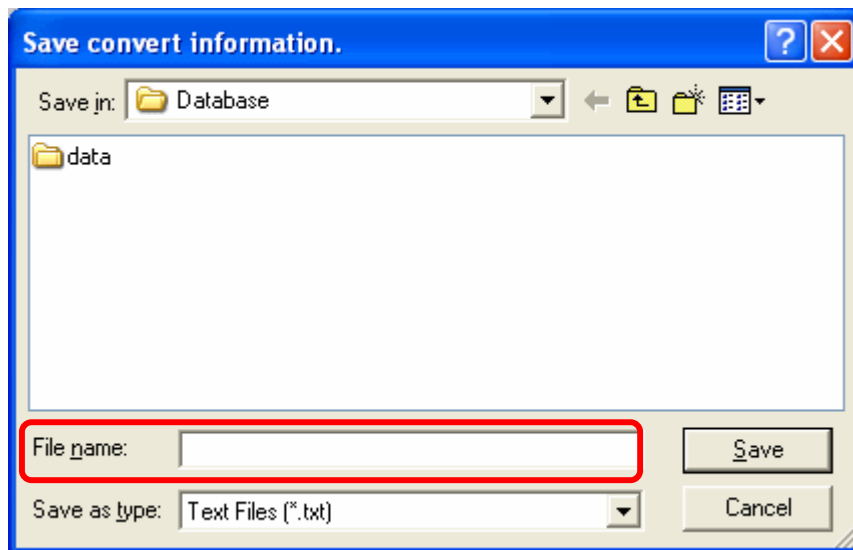
7. Click [Close] to close the [Project Converter] dialog box.

◆ **Convert GP-PRO/PB3 for Windows' "Destination CF Card Folder"**

If you convert a project file (*.prw) with a destination CF card folder designated in the step 5, the Question dialog box whether or not to designate the destination CF card folder for the convert destination appears again.
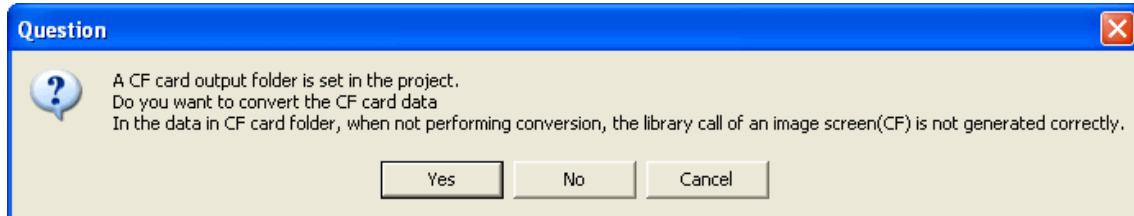
Select a folder (e.g.: "Database") and click [OK].

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.

3.5 Transfer screen data to the AST-3501C

Transfer the converted project file to the ST3000 series. You can transfer data to the AST-3501C via USB transfer cable, CF card or USB flash drive. Here, this section explains, as an example, how to transfer screen data by USB transfer cable (model: CA3-USBCB-01).

PC   CA3-USBCB-01   ST3000

1. Connect your PC and the AST-3501C with a USB transfer cable. If the driver of the cable has not been installed on your PC, a dialog box will appear. Please follow the instructions.

NOTE
The "Hardware Installation" dialog box as follows may appear during installing the driver of a USB depending on the security level of Windows XP. Click [Continue Anyway] to start installing the driver for CA3-USBCB-01. When installation is completed, click [Finish].

2. Turn on the display unit's power. The "Initial Start Mode" screen will appear on the display unit.
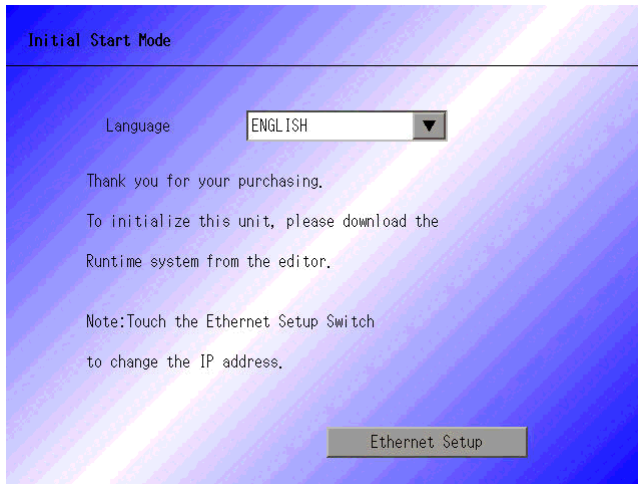
This screen will appear when you first connect the display unit's power code. After transferring a project file once, this screen will not appear again.

3. On the GP-Pro EX's State Toolbar, click the [Transfer Project] icon to open the Transfer Tool.
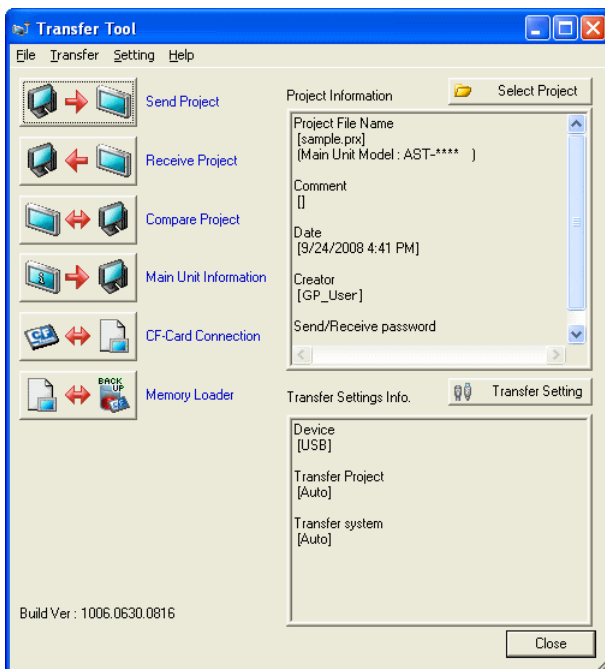
4. Check the project file name and other data to be transferred in the Project Information. To transfer a different project file, click the [Select Project] button and select a project file.

5. Make sure that the [Device] is set to [USB] in the "Transfer Settings Info." If not, click the [Transfer Setting] button to open the "Transfer Settings" dialog box. Select [USB] in the Communication Port Settings field and click [OK].
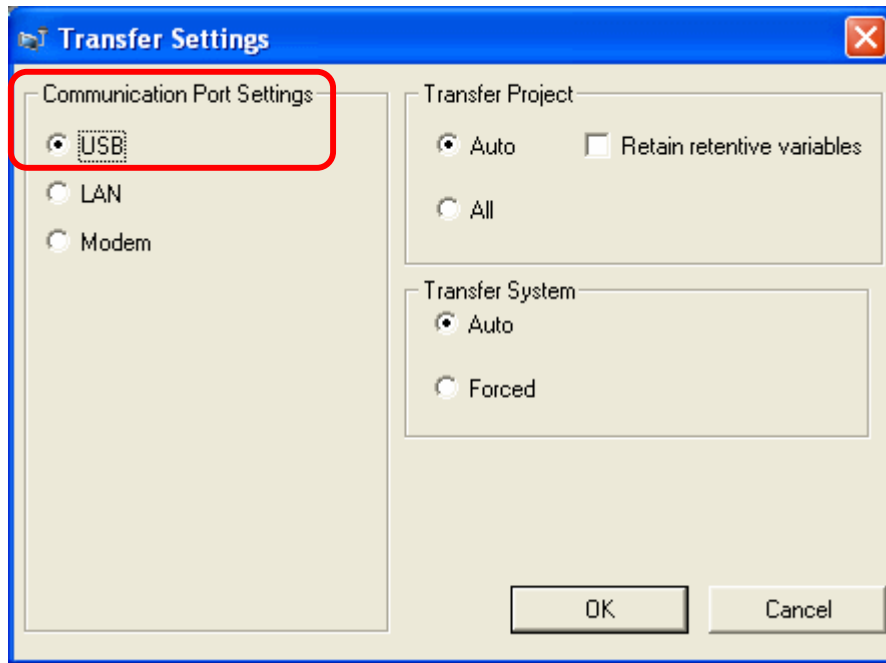
6. Click [Send Project] to start transfer. When the following dialog box appears, click [Yes]. This dialog box doesn't appear when the same project file is sent again.
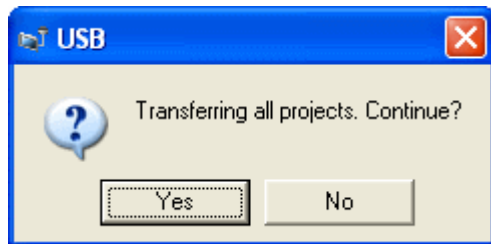
7. The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)
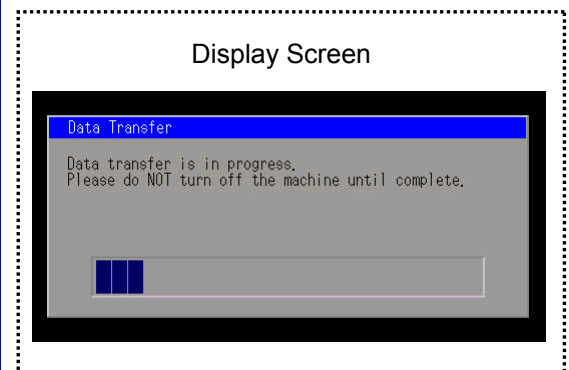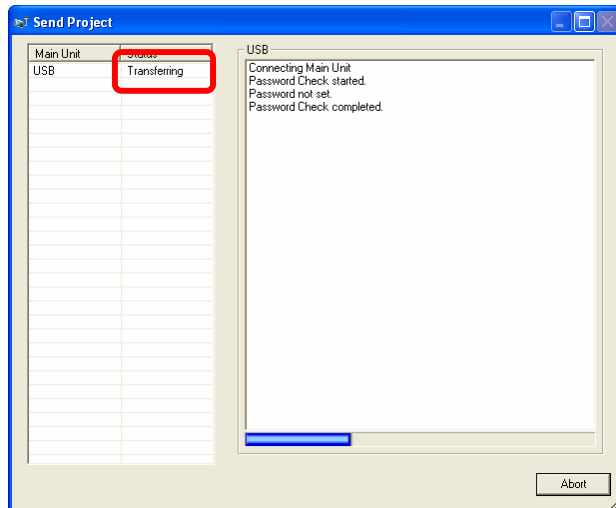
Display Screen

8. 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.)
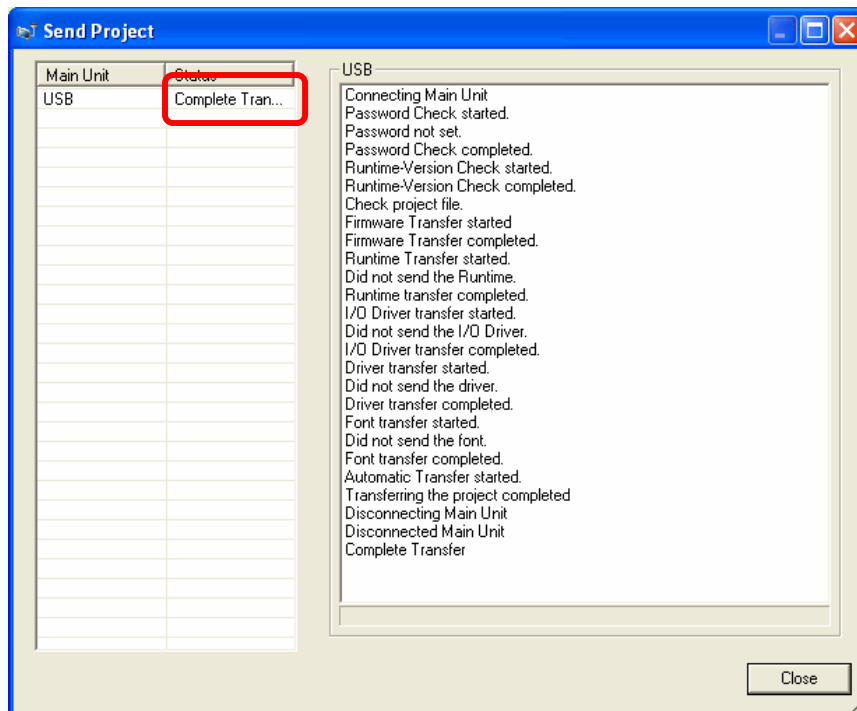
9. Close the Transfer Tool.

3.6 Differences of software after conversion

Check the differences of screen data after conversion.

For the details of each item, refer to the booklet "Compatibility of Software" or visit our website

http://www.pro-face.com/otasuke/qa/gp3000/replace/soft.htm.

1	Touch Panel Type
2	Compatibility of Bit Switch
3	Compatibility of Trend Graph
4	Compatibility of K Tag (Input Order)
5	Compatibility of K Tag (Difference of Writing)
6	Compatibility of K Tag (Indirect Setting)
7	Compatibility of N Tag
8	Precautions for using the switch for [History Data Display] of Trend Graph on the window
9	About the performance when a window is overlapping on a momentary switch
10	About the performance when display area of the system window is overlapping
11	Change of Tag Process
12	Compatibility of Text
13	Compatibility of Fill
14	Compatibility of CF Card
15	Precautions for conversion when filing data is saved in a CF card
16	Precautions for setting "Color Settings" to [256 Colors without blinking]
17	Precautions for loading a part with "L Tag (Library Display)"
18	Compatibility of MRK files and CPW files
19	Compatibility of VM Unit Settings
20	Compatibility of Extended SIO Script
21	Compatibility of Sound Data
22	Compatibility of Device Monitor
23	Compatibility of J Tag and R Tag

Chapter 4. Communication between ST3000 series and Device/PLC

This chapter explains about cables and wiring for communication between the GP3000/ /ST3000 series and a connection device such as PLC.

4.1 Driver list

<table>
<tr><td>NOTE</td></tr>
<tr><td>The followings are information as of October 2008.
More connectable drivers will be added. Please check our website "Otasuke Pro!" for the latest information.</td></tr>
</table>

PLC			
Manufacturer	Series	GP3000	ST3000
Mitsubishi Electric Corporation	A Series CPU Direct	✓	✓
	A Series Ethernet	✓	-
	A Series Computer Link	✓	✓
	FX Series CPU Direct	✓	✓
	FX Series Computer Link	✓	✓
	Q Series CPU Direct	✓	✓
	Q Series QnU CPU Ethernet *1	✓	-
	Q/QnA Serial Communication	✓	✓
	Q/QnA Series Ethernet	✓	-
	QnA Series CPU Direct	✓	✓
	QUTE Series CPU Direct	✓	✓
OMRON Corporation	C/CV Series HOST Link	✓	✓
	CS/CJ Series Ethernet	✓	-
	CS/CJ Series HOST Link	✓	✓
YASKAWA Electric Corporation	MEMOBUS SIO	✓	✓
	MEMOBUS Ethernet	✓	-
	MP Series SIO (Extension)	✓	✓
	MP Series Ethernet (Extension)	✓	-
Hitachi IES Co., Ltd.	H Series Ethernet	✓	-
	H Series SIO	✓	✓
Matsushita Electric Works, Ltd.	FP Series Computer Link SIO	✓	✓
YOKOGAWA Electric Corporation	Personal Computer Link SIO	✓	✓

	Personal Computer Link Ethernet	✓	-
JTEKT Corporation (Former name: Toyoda Machine Works)	TOYOPUC CMP-LINK SIO	✓	✓
	TOYOPUC CMP-LINK Ethernet	✓	-
Fuji Electric Co., Ltd.	MICREX-F Series SIO	✓	✓
	MICREX-SX Series SIO	✓	✓
	MICREX-SX Series Ethernet	✓	-
GE Fanuc Automation	Series 90 Ethernet	✓	-
	Series 90-30/70 SNP	✓	✓
	Series 90-30/70 SNP-X	✓	✓
Siemens AG	SIMATIC S7 3964（R）/RK512	✓	✓
	SIMATIC S7 MPI Direct	✓	✓
	SIMATIC S7 Ethernet	✓	-
	SIMATIC S5 CPU Direct	✓	✓
Rockwell Automation, Inc.	DF1	✓	✓
	EtherNet/IP	✓	-
	DH-485	✓	✓
KEYENCE Corporation	KV-700/1000/3000/5000 CPU Direct	✓	✓
	KV-700/1000/3000/5000 Ethernet	✓	-
	KV Series CPU Direct	✓	✓
	KZ10_80R/Tseries CPU Direct *1	✓	✓
Schneider Electric Industries	MODBUS SIO Master	✓	✓
	MODBUS TCP Master	✓	-
	Uni-Telway	✓	✓
	MODBUS Slave	✓	✓
SHARP MS Corporation	JW Series Computer Link SIO	✓	✓
	JW Series Computer Link Ethernet	✓	-
LS Industrial System	MASTER-K Series Cnet	✓	✓
	XGT Series FEnet	✓	-
	XGT Series Cnet	✓	✓
Mitsubishi Heavy Industries, Ltd.	DIASYS Netmation MODBUS TCP	✓	-
	MHI STEP3 Ethernet	✓	-
Saia-Burgess Controls Ltd.	SAIA S-Bus SIO	✓	✓
MEIDENSHA Corporation	UNISEQUE Series Ethernet	✓	-

FUNUC Ltd	Power Mate Series	✓	✓
Hitachi, Ltd.	S10V Series Ethernet	✓	-
	S10 Series SIO	✓	✓
TOSHIBA Machine Co., Ltd.	PROVISOR TC200	✓	✓
TOSHIBA Corporation	Computer Link SIO	✓	✓
	Computer Link Ethernet	✓	-
Koyo Electronics Co., Ltd.	KOSTAC/DL Series CCM SIO	✓	✓
	KOSTAC/DL Series MODBUS TCP	✓	-
FATEC AUTOMATION Corporation	FB Series SIO	✓	✓
MODBUS IDA	General MODBUS RTU SIO Master	✓	✓

Temperature Controller			
Manufacturer	Series	GP3000	ST3000
Yamatake Corporation	Digital Controller SIO	✓	✓
RKC Instrument Inc.	Temp. Controller MODBUS SIO	✓	✓
	Temperature Controller	✓	✓
OMRON Corporation	Temp. Controller CompoWay/F	✓	✓
Shinko Technos Co., Ltd.	Controller SIO	✓	✓
YOKOGAWA Electric Corporation	Personal Computer Link SIO	✓	✓
CHINO Corporation	Temp. Controller MODBUS SIO	✓	✓
Fuji Electric Systems Co., Ltd.	Temp. Controller MODBUS SIO *1	✓	✓

Inverter/ Servo			
Manufacturer	Series	GP3000	ST3000
Mitsubishi Electric Corporation	FREQROL Inverter *2	✓	✓
Sanmei Electric Co., Ltd.	Si/CutyAxisSeries SIO	✓	✓
YASKAWA Electric Corporation	Inverter SIO *2	✓	✓
Hitachi IES Co., Ltd.	Inverter ASCII SIO ※ 1	✓	✓
	InverterModbus RTU ※ 1	✓	✓

Fieldbus			
Manufacturer	Series	GP3000	ST3000
PROFIBUS International	PROFIBUS DP Slave	✓*3	-
ODVA	DeviceNet Slave	✓*3	-
CC-Link Partner Association	CC-Link Intelligent Device	✓*3	-

Industrial Robot			
Manufacturer	Series	GP3000	ST3000
Hyundai Heavy Industries	Hi4 Robot	✓	✓
IAI Corporation	ROBO CYLINDER MODBUS SIO	✓	✓
	X-SEL Controller	✓	✓

Other Devices			
Manufacturer	Series	GP3000	ST3000
Digital Electronics Corporation	Memory Link *4	✓	✓
	General SIO *1 *5	✓	✓
	General Ethernet *5	✓	-
MODBUS IDA	General MODBUS TCP Master *1	✓	-

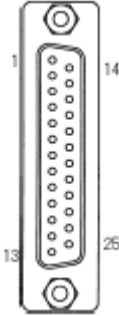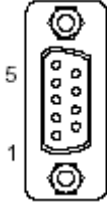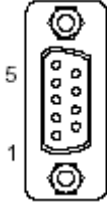*1 These drivers are under development as of October 2008.

*2 GP-Pro EX V2.2 doesn't have these drivers. Please download from our web site "Otasuke Pro!"

*3 GP3000H doesn't support this connection.

*4 The product doesn't need to choose a host controller like PC, Microcomputer board, etc. It communicates via the
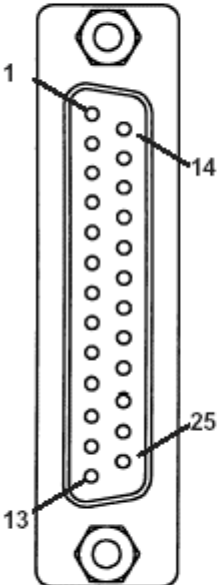
   storage space built into the main unit.

*5 A program driver for the send/receive command process by D-Script.

4.2 Shapes of COM ports

	GP-477RE	AST-3501C Series
COM1	D-Sub 25 pin (female) RS-232C/422	D-Sub 9 pin (male) RS-232C/485 (422) compatible
COM2		D-Sub 9 pin (male) RS-485 (422) compatible

4.2.1 Signals on COM1

► GP-477RE series (RS232C or 422)
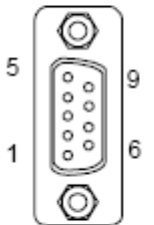
Pin Assignments	Pin #	Signal Name	Condition
(D-Sub 25pin female) SIO	1	FG	Frame ground
	2	SD	Send data (RS-232C)
	3	RD	Receive data (RS-232C)
	4	RS	Request send (RS-232C)
	5	CS	Clear send (RS-232C)
	6	DR	Data Set Ready (RS-232C)
	7	SG	Signal ground
	8	CD	Carrier detect (RS-232C)
	9	TRMX	Termination (RS-422)
	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)

► AST-3501C (RS232C)

Pin Arrangement	Pin No.	RS232C		
		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 *2
	Shell	FG	-	Frame Ground (Common with SG)

4.2.2 Signals on COM2

► AST-3501C (RS485 (422))

Pin Arrangement	Pin No.	RS422/RS485		
		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)

4.3 Multilink Connection

AST-3501C do not support multilink connection via RS-422. If you convert a project file with the "n to 1" setting, it will be converted to the "1 to 1 connection" automatically.

- Settings on GP-PRO/PBIII for Windows
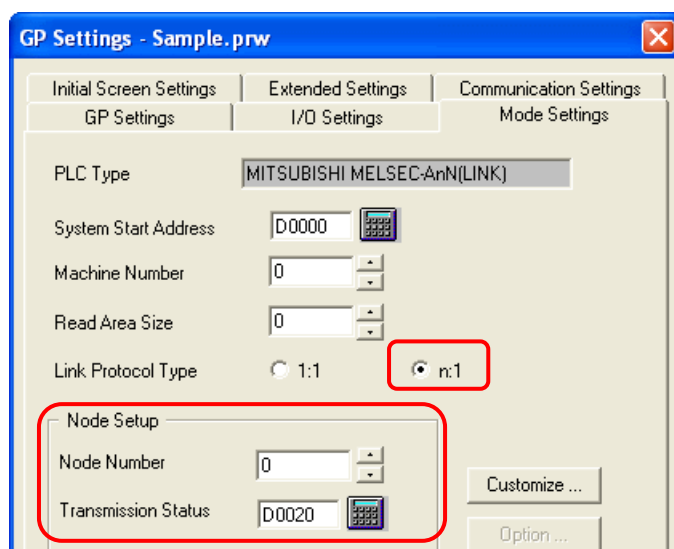
For the information on how to replace units with multilink connection, please contact the nearest Pro-face office.