Pro-face

Easy! Smooth!
GP2X01 Series
Replacement Booklet

Preface

This manual introduces the procedures to replace the unit in the GP2*01 series (GP-2501T, GP-2401T, GP-2301T/L) with the ST3000 series (AST-3501T, AST-3401T, AST-3301T/S/B). The recommended replacement models are as follows.

GP-2601T	* See the below
GP-2501T	AST-3501T
GP-2401T	AST-3401T
GP-2301T	AST-3301T
GP-2301S	AST-3301S
GP-2301L	AST-3301B

► For the replacement of GP-2601T, 2501S, please refer to “GP2000 series replacement booklet.

Third Edition: Feb 2010

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Chapter 1. Specification Comparison

1.1 Specifications of GP-2501T and AST-3501T

		GP-2501T	AST-3501T
			
Display Type		TFT Color LCD	
Display Colors		256 colors	
Display Resolution		VGA (640 × 480 pixels)	
Panel Cut Dimensions (mm)		301.5 (W) × 227.5 (H)	259 (W) × 201 (H) → See 2.2
External Dimensions (mm)		317 (W) × 243 (H) × 58 (D)	270.5 (W) × 212.5 (H) × 57 (D)
Touch Panel Type		Matrix	NEW! Resistive Film (Analog) → See 2.3
Serial Interface	**COM1**	D-Sub 25 pin (female) RS-232C/422	NEW! D-Sub 9 pin (male) RS-232C
	COM2	-	NEW! D-Sub 9 pin (male) RS-485 (422) Compatible
Memory	**Application**	2MB	UP! 6MB
	SRAM	128KB	UP! 320KB
Ethernet Interface		-	
CF Card Interface		✓	
Printer Interface		Compliant with Centronics (parallel)	NEW! USB
USB Host Interface		-	NEW! ✓

1.2 Specifications of GP-2401T and AST-3401T

		GP-2401T	AST-3401T
			
Display Type		TFT Color LCD	
Display Colors		256 colors	
Display Resolution		VGA (640 × 480 pixels)	
Panel Cut Dimensions (mm)		204.5 (W) × 159.5 (H)	
External Dimensions (mm)		215 (W) × 170.0 (H) × 60 (D)	
Touch Panel Type		Matrix	NEW! Resistive Film (Analog) → See 2.3
Serial Interface	**COM1**	D-Sub 25 pin (female) RS-232C/422	NEW! D-Sub 9 pin (male) RS-232C
	COM2	-	NEW! D-Sub 9 pin (male) RS-485 (422) Compatible
Memory	**Application**	2MB	UP! 6MB
	SRAM	128KB	UP! 320KB
Ethernet Interface		-	
CF Card Interface		✓	
Printer Interface		Compliant with Centronics (parallel)	NEW! USB
USB Host Interface		-	NEW! ✓

1.3 Specifications of GP-2301T/S and AST-3301T/S

		GP-2301T/S	AST-3301T/S
		 	
Display Type	**2301T**	TFT Color LCD	
	2301S	STN Color LCD	
Display Colors	**2301T**	256 colors	
	2301S	64 colors	256 colors
Display Resolution		QVGA (320 × 240 pixels)	
Panel Cut Dimensions (mm)		156 (W) × 123.5 (H)	
External Dimensions (mm)		171 (W) × 138 (H) × 60 (D)	167.5 (W) × 135 (H) × 59.5 (D)
Touch Panel Type		Matrix	NEW! Resistive Film (Analog) → See 2.3
Serial Interface	**COM1**	D-Sub 25 pin (female) RS-232C/422	NEW! D-Sub 9 pin (male) RS-232C
	COM2	-	NEW! D-Sub 9 pin (male) RS-485 (422) Compatible
Memory	**Application**	1MB	UP! 6MB
	SRAM	128KB	UP! 320KB
Ethernet Interface		-	
CF Card Interface		✓	- → See 2.5.3
Printer Interface		-	NEW! USB
USB Host Interface		-	NEW! ✓

1.4 Specifications of GP-2301L and AST-3301B

		GP-2301L	AST-3301S
			
Display Type		Monochtome LCD	NEW! Monochrome Blue Mode LCD
Display Colors		8 levels	
Display Resolution		QVGA (320 × 240 pixels)	
Panel Cut Dimensions (mm)		156 (W) × 123.5 (H)	
External Dimensions (mm)		171 (W) ×138 (H) × 60 (D)	167.5 (W) ×135 (H) × 59.5 (D)
Touch Panel Type		Matrix	NEW! Resistive Film (Analog) → See 2.3
Serial Interface	**COM1**	D-Sub 25 pin (female) RS-232C/422	NEW! D-Sub 9 pin (male) RS-232C
	COM2	-	NEW! D-Sub 9 pin (male) RS-485 (422) Compatible
Memory	**Application**	1MB	UP! 6MB
	SRAM	128KB	UP! 320KB
Ethernet Interface		-	
CF Card Interface		✓	- → See 2.5.3
Printer Interface		-	NEW! USB
USB Host Interface		-	NEW! ✓

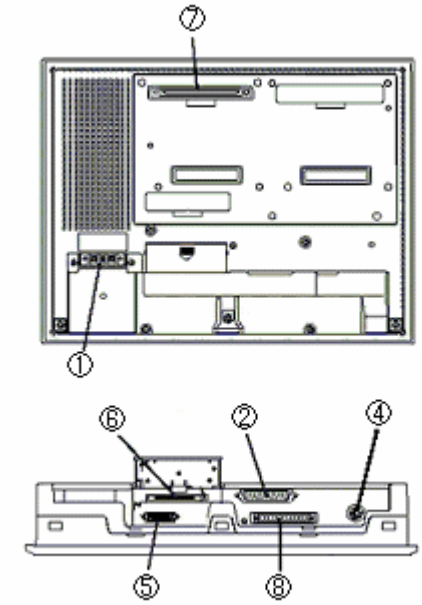
Chapter 2. Compatibility of Hardware

2.1 Locations of connectors

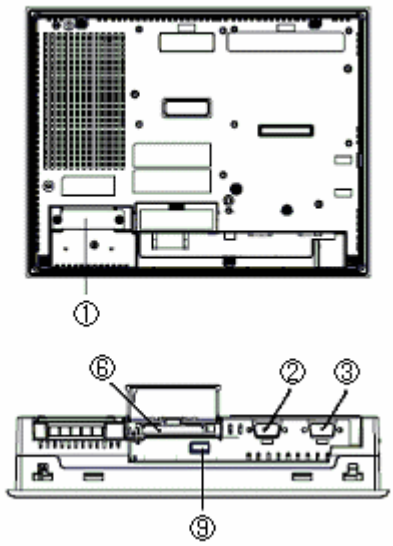
Connector locations on the GP2*01 series and the ST3000 series are as follows.

[Rear of GP-2501T and AST-3501T]

GP-2501T

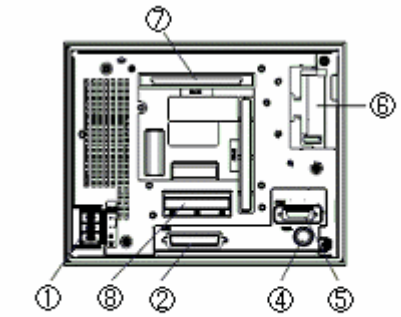


AST-3501T

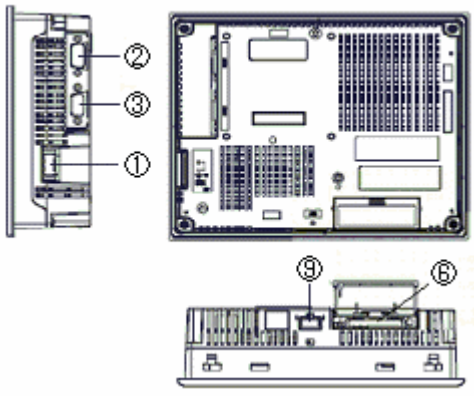


[Rear of GP-2401T and AST-3401T]

GP-2401T

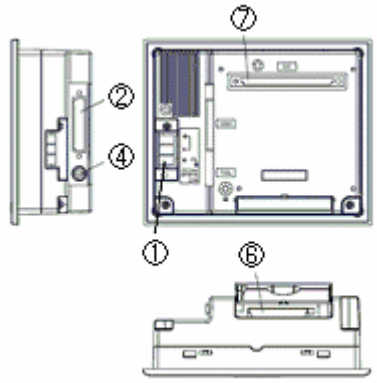


AST-3401T

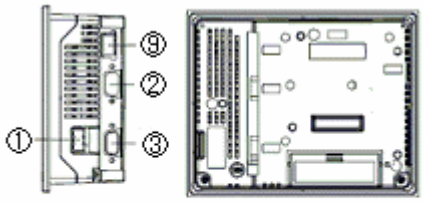


2.1.3 Rear of GP-2301T/S/L and AST-3301T/S/B

GP-2301T/S/L



AST-3301T/S/B



Interface names (applicable to all models)

	GP2*01 Series	ST3000 Series
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 *1	-
6	CF Card Interface *2	
7	Expansion Unit Interface 1	-
8	Auxiliary Input/Output Interface (AUX) *1	-
9	-	USB Host Interface

*1 GP-2301T/S/L don't have a printer interface and an auxiliary Input/Output Interface (AUX).

*2 AST-3301T/S/B don't have CF Card Interface.

2.2 About panel cut dimensions

AST-3501T is designed smaller for space savings. The panel cut dimensions of AST-3501T are different from those of GP-2501T. Please prepare an attachment (model: CA4-ATM10-01) for installation of AST-3501T.

2.3 Touch panel specifications

The touch panel type for the ST3000 series 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 the GP2*01 series, we recommend you to change to the one-point touch input using the switch delay function. For the settings, see “Compatibility of Software”.

2.4 About transfer cable

To transfer screen data to the ST3000 series, 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 the GP2000 series (*1) are used for screen data transfer to the GP2000 series, but they are not available with the ST3000 series.

*1: Models of transfer cable for the GP2000 series: GPW-CB02, GPW-CB03, GP430-CU02-M, etc.

2.5 About interfaces

2.5.1 Serial interface

The COM1 and COM2 ports on the ST3000 series are both D-sub 9-pin male. The COM1 port on the GP2*01 series is D-Sub 25-pin female, and the pin assignment and the shape of male/female connector are different from those of ST3000 series. Check if you can use the cable with the ST3000 series on Otasuke Pro! “Connectable Controllers for GP3000 Series.”
http://www.pro-face.com/otasuke/qa/gp3000/replace/connect/connect.php?rm=2

2.5.2 AUX output

AST-3501T and 3401T are not equipped with AUX (external output). External Reset Input and outputs (RUN Output, System Alarm Output, External Buzzer Output) available on GP-2501T and GP-2401T cannot be used on AST-3501T and 3401T.

2.5.3 CF card interface

AST-3301T/S/B is not equipped with a CF card interface. The data of GP2*01 series saved in a CF card can be used with AST-3301T/S/B by transferring to a USB flash drive.

* Data in a CF card including Sound data, Image data, and/or Filing data needs to be converted by the Project Converter beforehand.

2.6 Peripheral units and option units

2.7.1 Barcode reader connection

The ST3000 series is not equipped with a tool port. A barcode reader connected from the tool port on the GP2*01 series cannot be used. However, the ST3000 series allows you to connect a barcode reader on its USB interface or its serial interface.

2.6.2 Printer connection

The ST3000 series is not equipped with the Centronics (parallel) interface for the printer. Please prepare a conversion cable to convert the USB of the ST3000 series to the Centronics interface if you connect the printer to the ST3000 series, which was connected to the Centronics interface on the GP2*01 series. The ST3000 series allows you to connect a printer on its Ethernet port as well as on its USB port.

2.6.3 Expansion unit

AST-3501T and 3401T are not equipped with an expansion bus unit. Please note that the expansion unit, such as a CC-LINK unit, used with GP-2501T or 2401T cannot be used.

2.7 About power connector

The power connector for the DC type on the ST3000 series is a screw lock terminal block. If you replace from the GP2*01 series, change the power cable.

The power connector for the AC type is the same as that on the GP2*01 series, however, the position of FG has been changed.

2.8 About power consumption

Only as for the AC type, the power consumption of AST-3501T and that of GP-2501T are different. Please check the power supply capacity that is supplied to the main body.

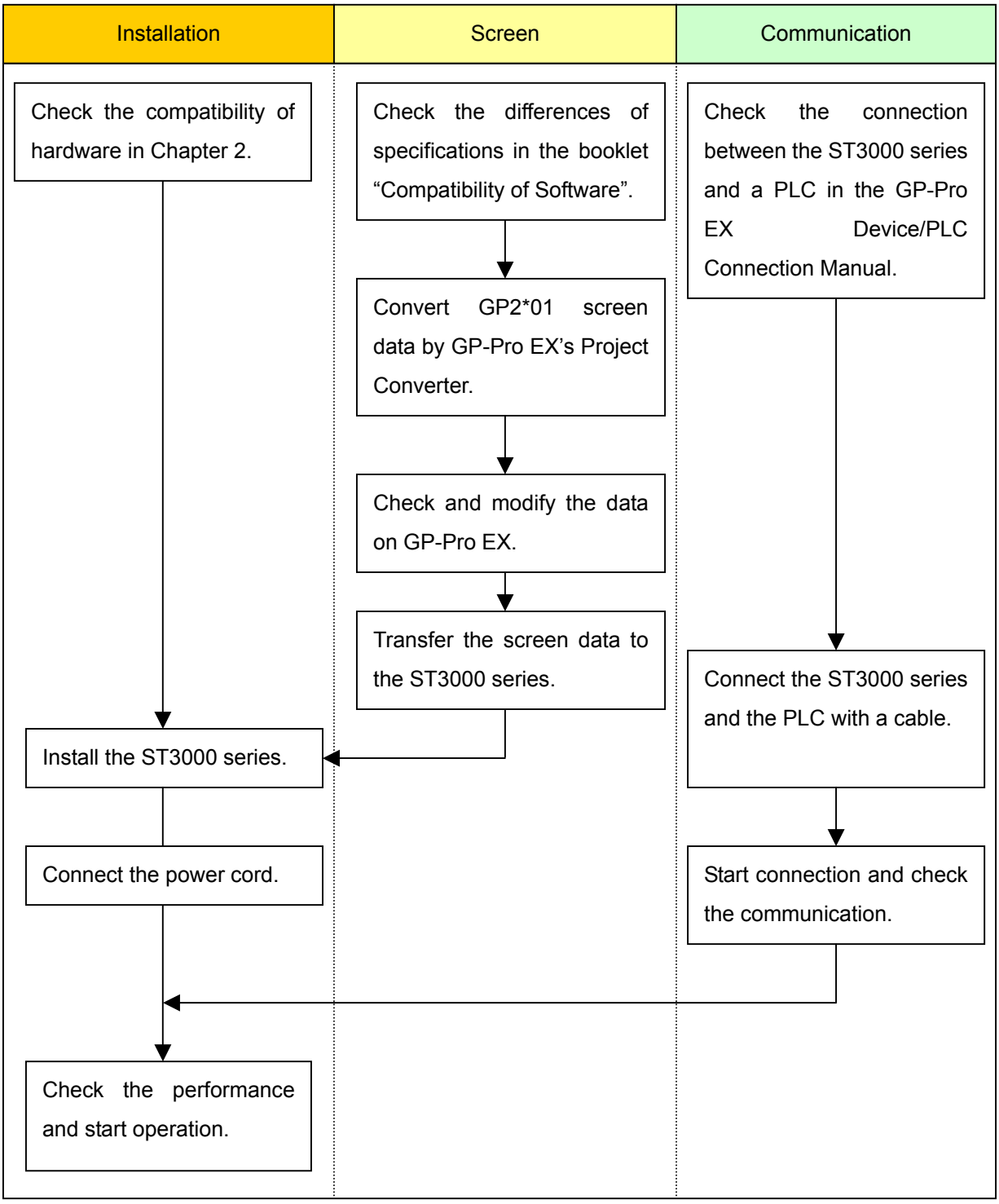
2.9 About body material/color

The body material of AST-3501T and 3401T is resin as well as GP-2501T and 2401T, however, its color and material characteristics are different from that of GP-2501T and 2401T.

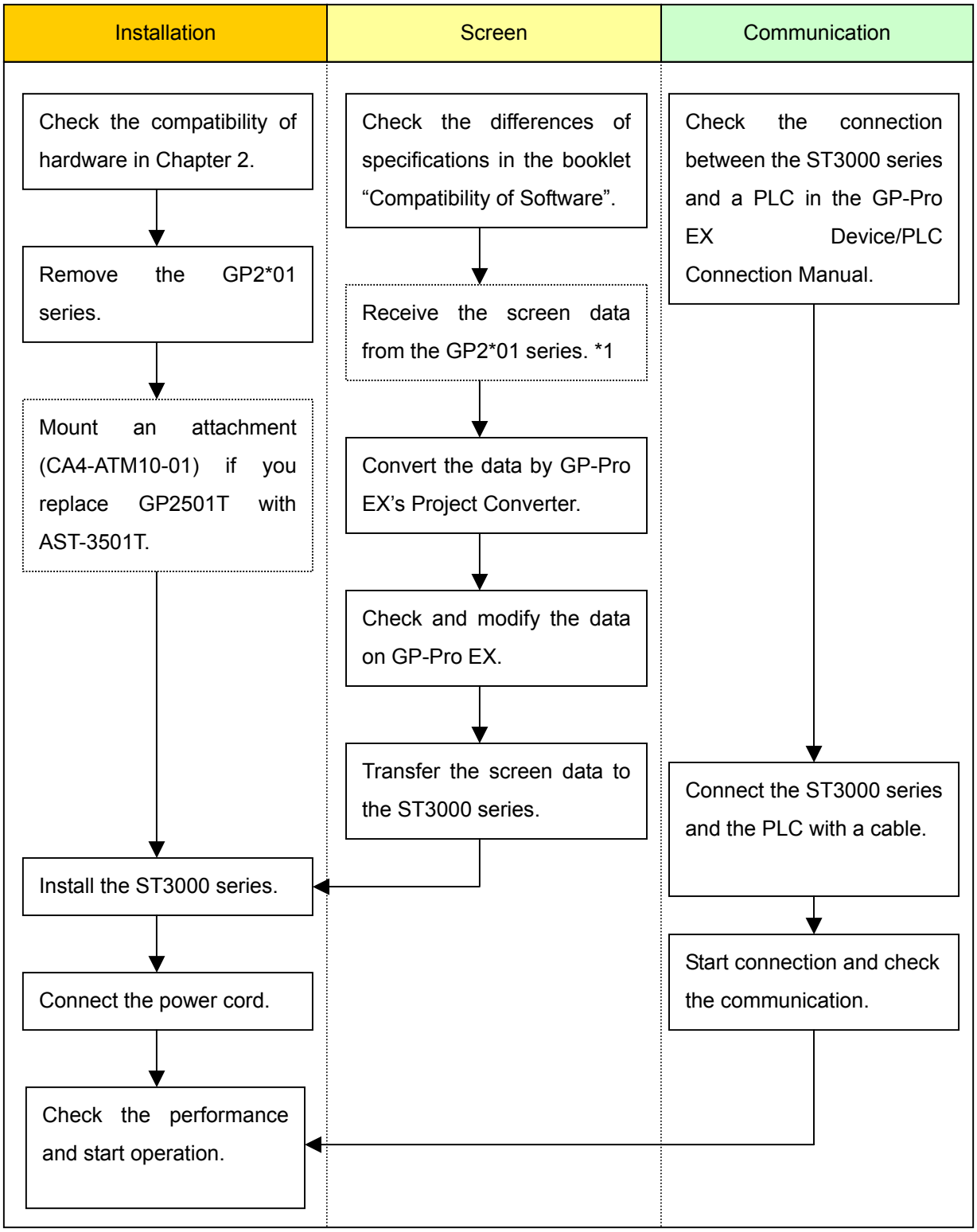
Chapter 3. Replacement Procedure

3.1 Work Flow

► To change the equipment designed for the GP2*01 series to the AST3*01 series



► **To replace the GP2*01 series mounted to the equipment to the ST3000 series**



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

3.2 Preparation

<table>
<tr><td>Requirements for receiving screen data from the GP2*01 series (*1)</td><td>PC in which the following version of GP-PRO/PB3 C-package or higher is installed (*2)
<table><tr><td>GP-2501T, GP-2301S/L</td><td>GP-PRO/PB3 C-Package for Windows V6.0 or higher</td></tr><tr><td>GP-2301T, GP- 2401T</td><td>GP-PRO/PB3 C-Package (SP2) for Windows V6.2 or higher</td></tr></table></td></tr>
<tr><td></td><td>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
The GP2*01 series allows you to transfer screen data via CF card.</td></tr>
<tr><td>Requirements for converting screen data of the GP2*01 series and transferring to the ST3000 series</td><td>PC in which GP-Pro EX is installed</td></tr>
<tr><td></td><td>Transfer cable (model: CA3-USBCB-01)
The ST3000 series allows you to transfer screen data via Ethernet, CF card or USB flash drive.</td></tr>
</table>

*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 GP2*01 series.

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

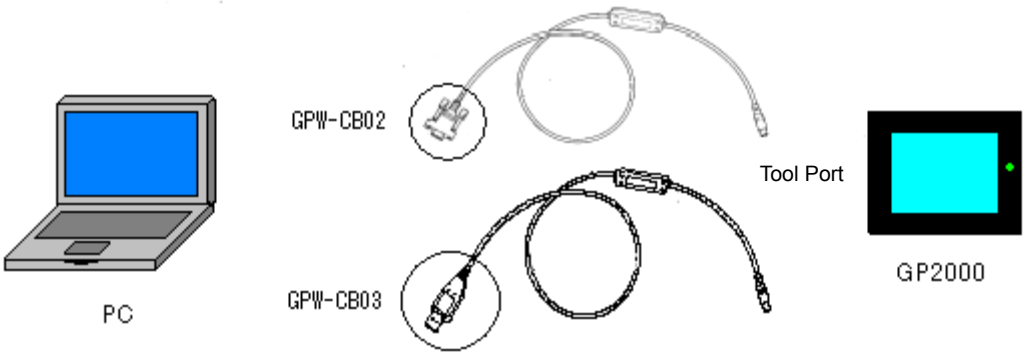
If the version of the software that you currently use is C-Package 03 GP-PRO/PB3 for Windows Ver.7.0, upgrade it on our website Otasuke Pro!

*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.

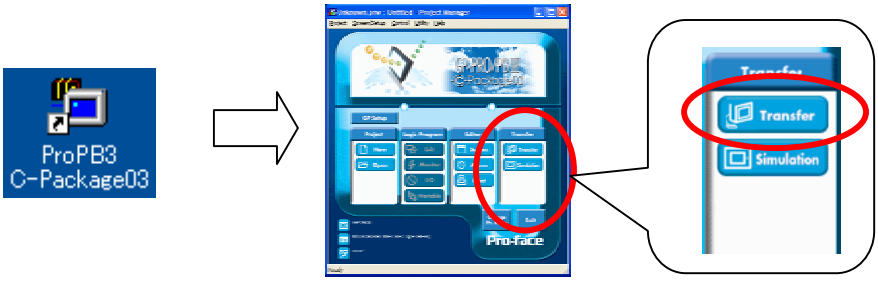
3.3 Receive screen data from the GP2*01 series

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.”

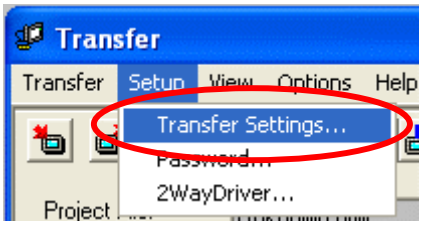
1. Connect a transfer cable to the GP2*01 series.



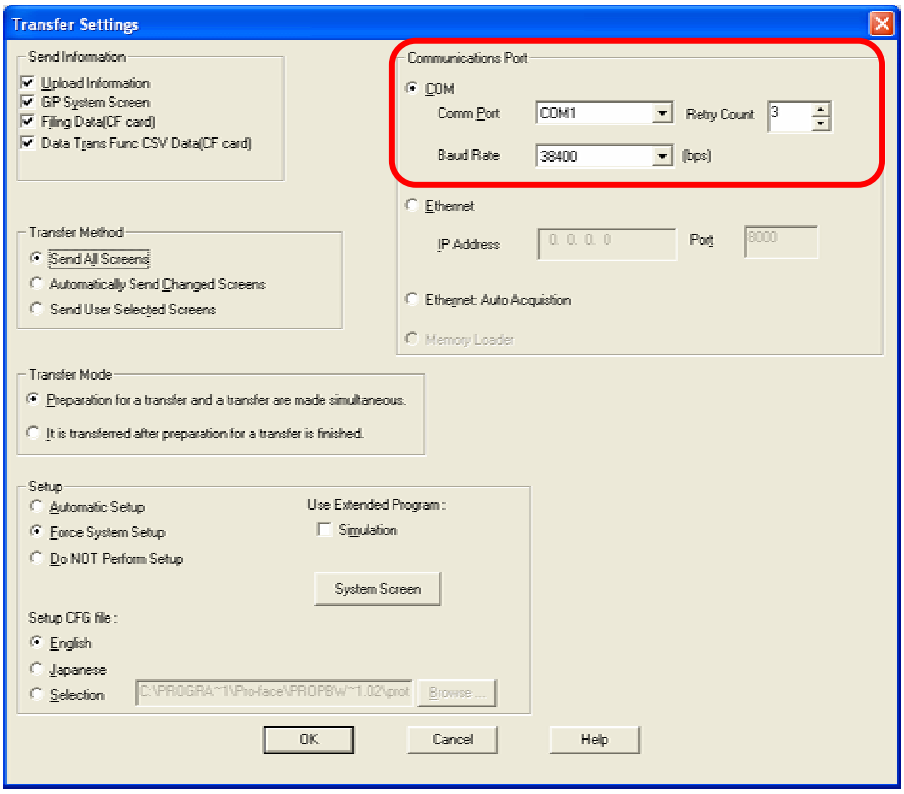
2. Start up GP-Pro/PBIII C-Package and click the [Transfer] icon on the Project Manager. (Specify a desired project file.)



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

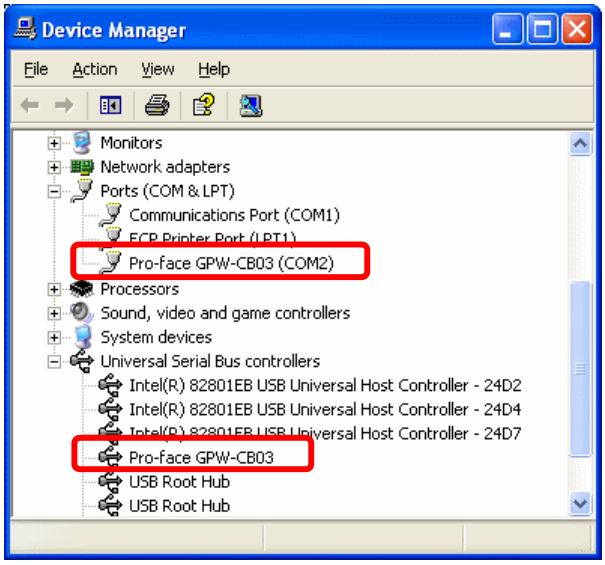


4. In the Communication Port field, select [COM], specify the COM port to which the cable is connected, and click [OK].

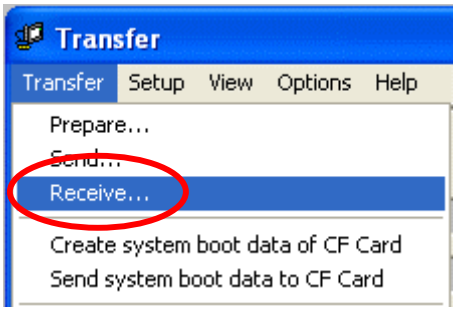


If you use a USB transfer cable (GPW-CB03)…

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.



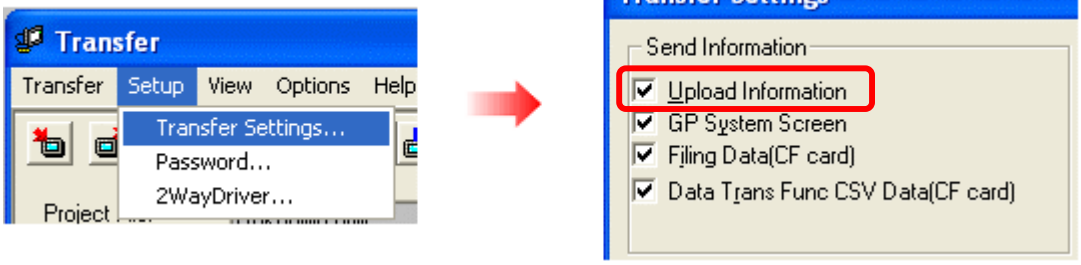
5. Select the [Transfer] menu and click [Receive…].



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…

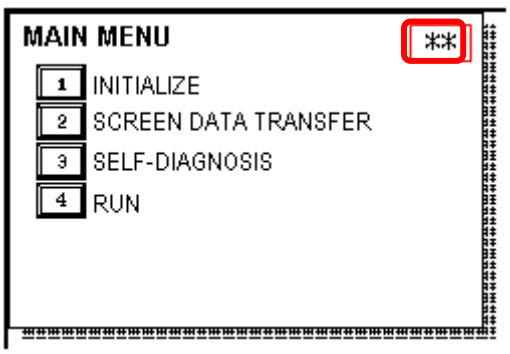
"Upload Information" is the necessary information to receive screen data from the display unit. It needs to be included in screen data when transferring screen data to the display unit beforehand. The Upload Information is sent to the display unit by default, however, you may check off the box of Upload 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.

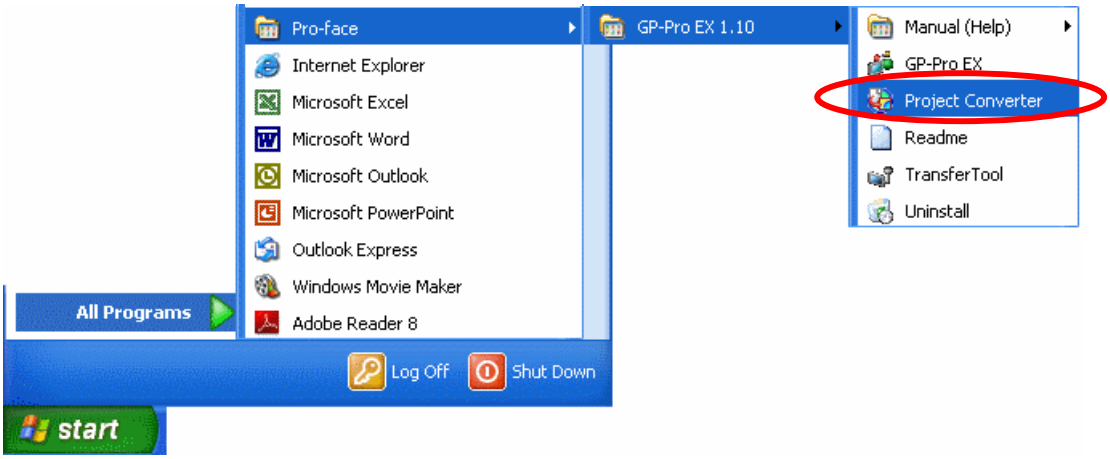
Enter into the GP's Offline mode. If there are 2 asterisk (*) marks in the Main menu as below, the Upload Information has been sent. If not, there is no Upload Information sent.



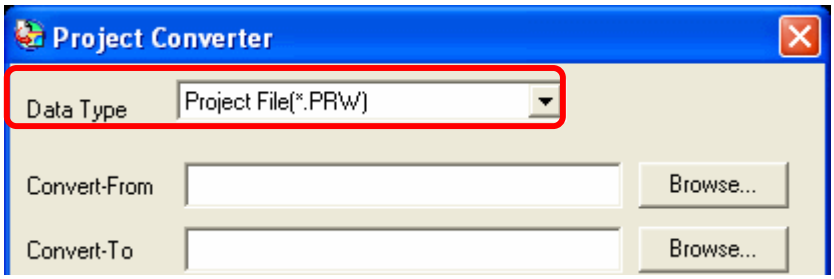
3.4 Convert screen data with the Project Converter

Convert a project file (*.prw) for the GP2*01 series with the GP-Pro EX's Project Converter.

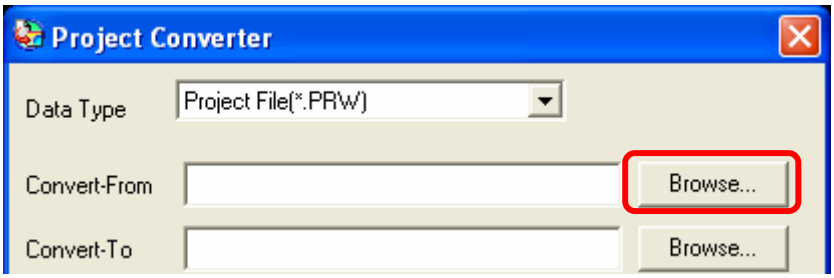
1. Click the [Start] button, select the [All Programs] ([Programs] on Windows® 2000 menu → [Pro-face] → [GP-Pro EX*.**]. (The version of the software you use will be shown in *.**.)

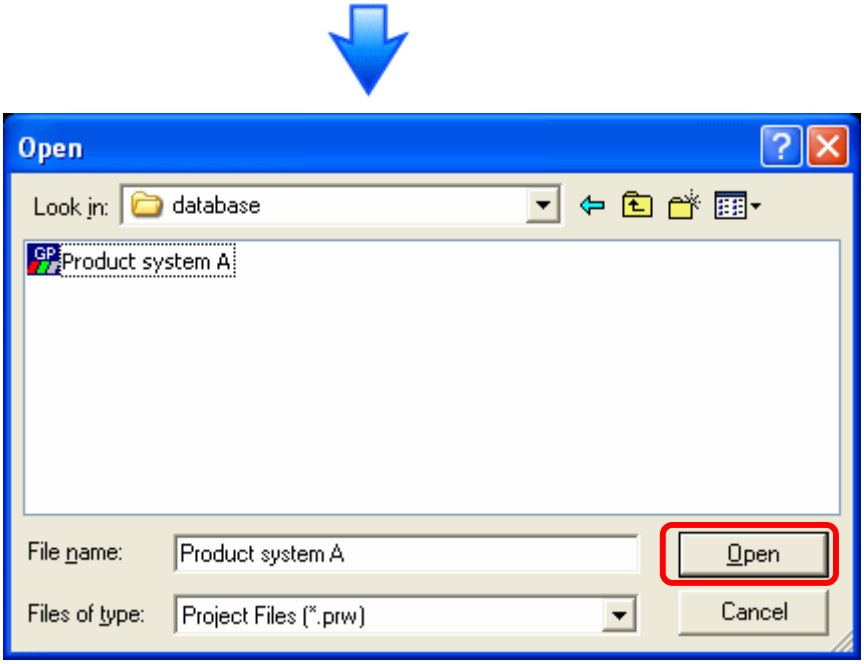


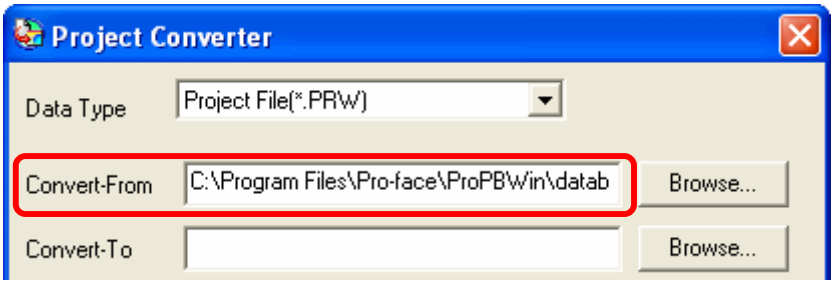
2. The Project Converter starts up and the [Project Converter] dialog box opens. Select [Project File (*.PRW)] in the [Data Type].



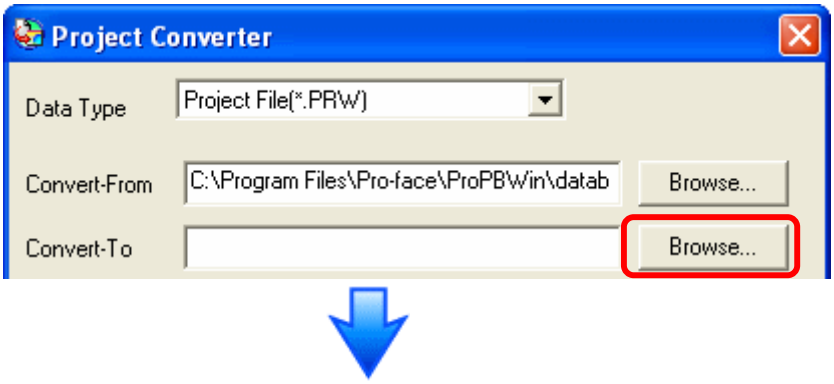
3. Designate a GP-PRO/PBIII for Windows' project file (*.prw) in [Convert-From].
   Click the [Browse…] button and select a project file (e.g.: "Project system A.prw"). Click [Open], and the file will be set in [Convert-From].

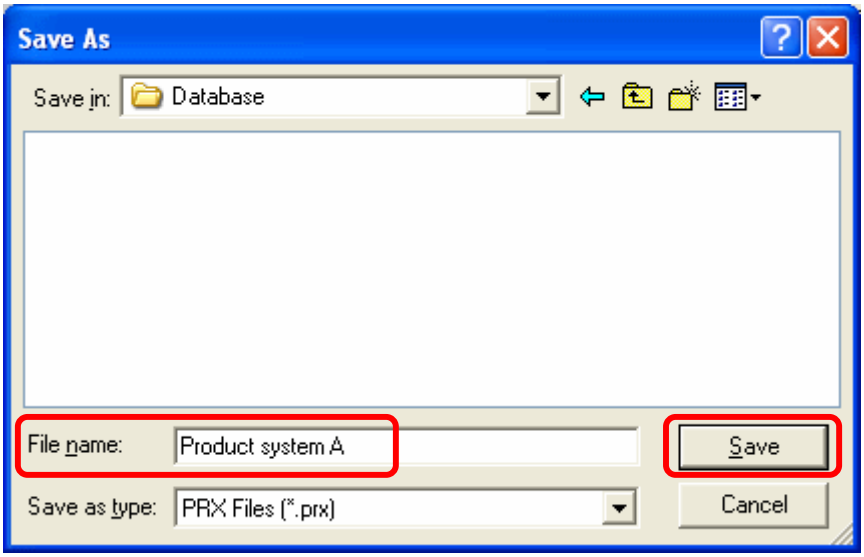


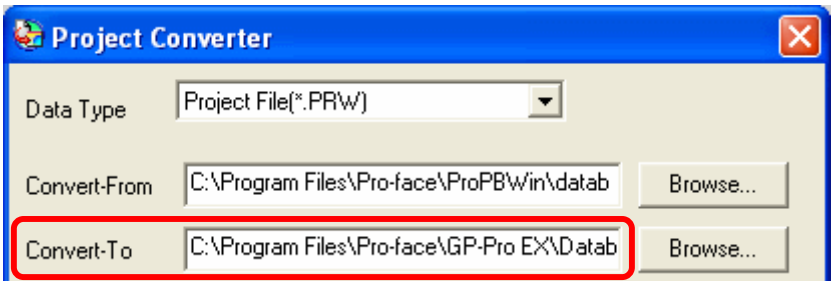




4. In [Convert-To], designate a GP-Pro EX's project file (*.prx). Click the [Browse…] button and enter a new [File Name] (e.g.: "Product system A.prx"). Click [Save], and a new project file will be set to [Convert-To].

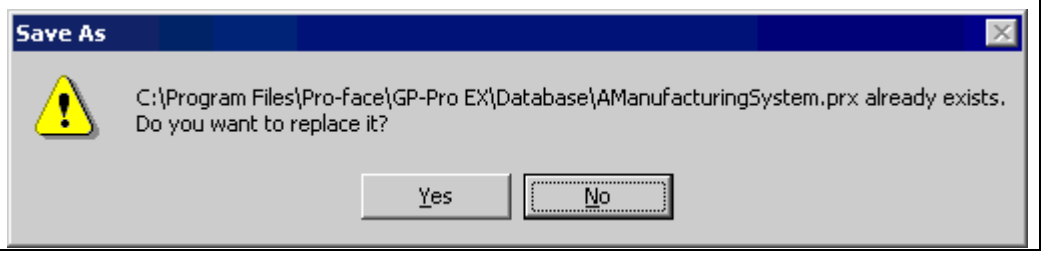




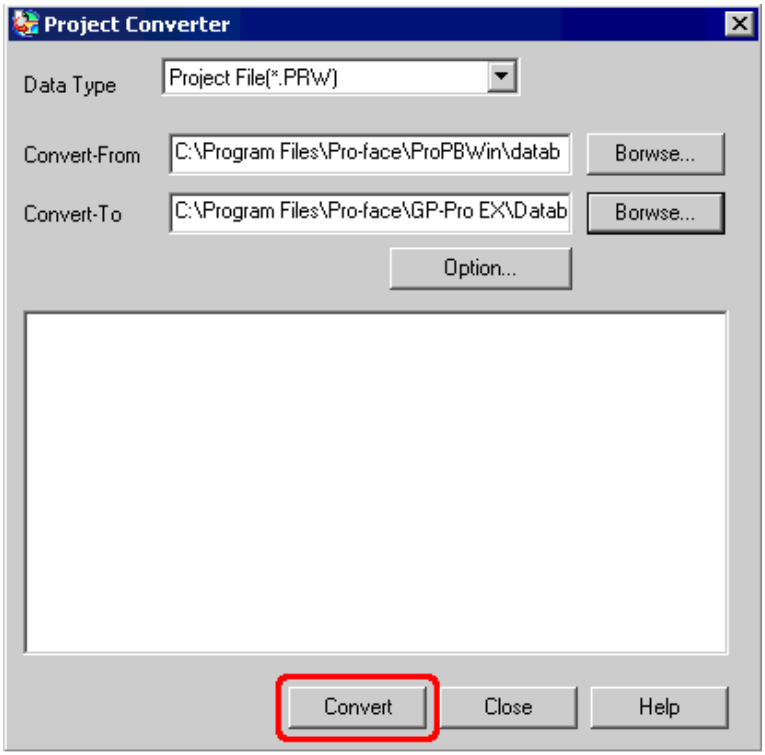


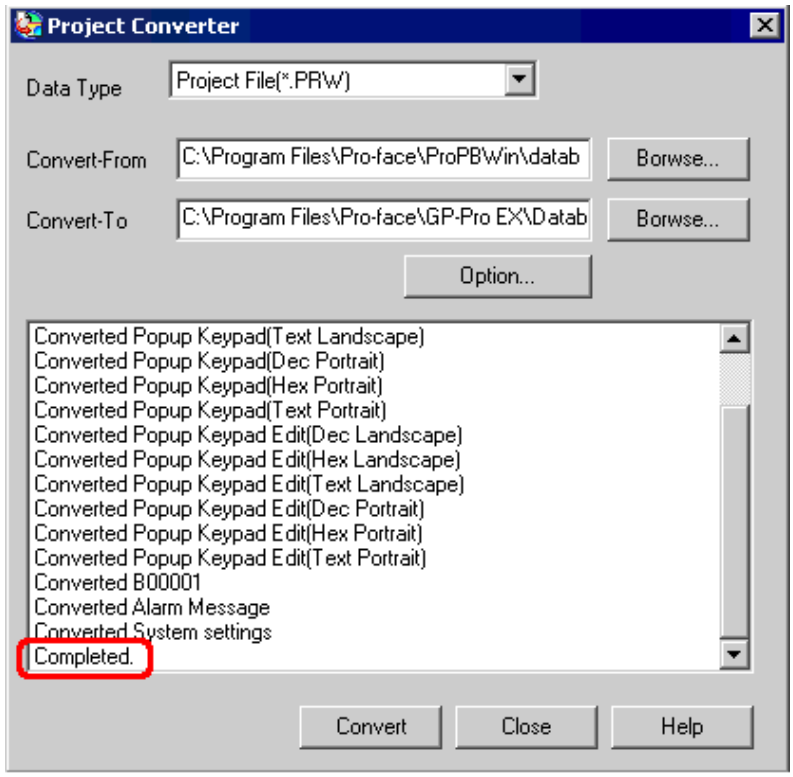
NOTE

- 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.



5. Click [convert] and start the conversion.



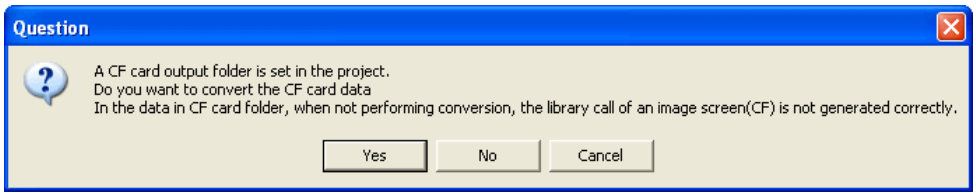


NOTE

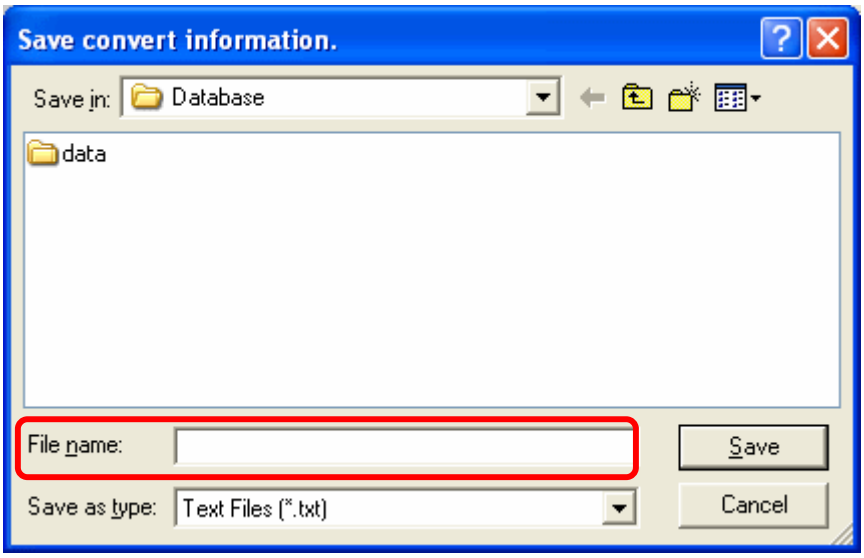
- Depending on the model you are converting from, the [Convert Destination] dialog box may appear and you can select the type and the model.
- If the following dialog box appears, set a CF card output folder.

→ See the next page

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



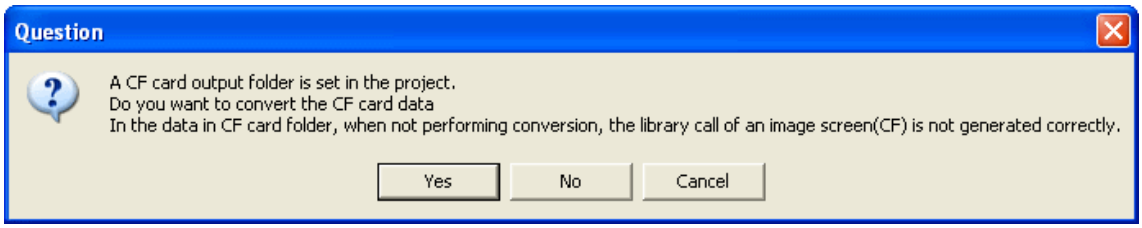
6. After conversion, the [Save convert information] dialog box appears. If you click [Save], you can save the conversion information in a text file.



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

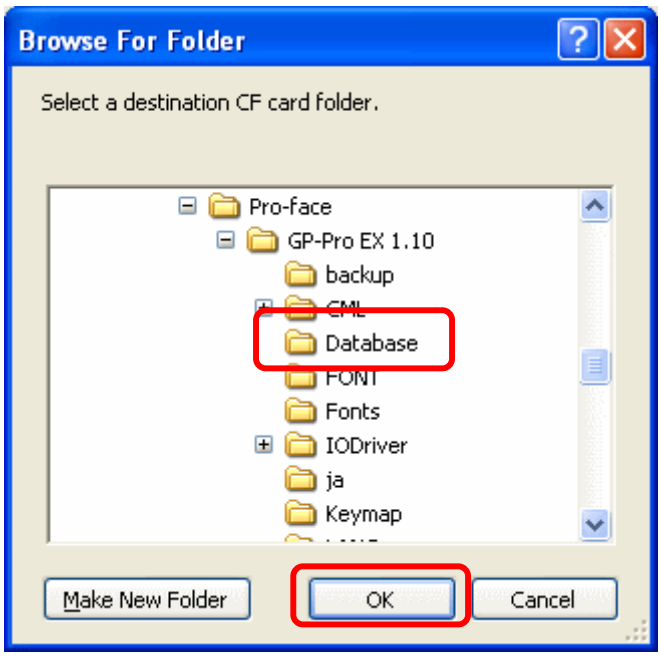
- **Convert GP-PRO/PBIII for Windows' "Destination CF Card Folder"**

  If you convert a project file (*.prw) with a destination CF card folder designated in the step 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 ST3000 series

Transfer the converted project file to the ST3000 series. You can transfer data to the ST3000 series via USB transfer cable, Ethernet 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

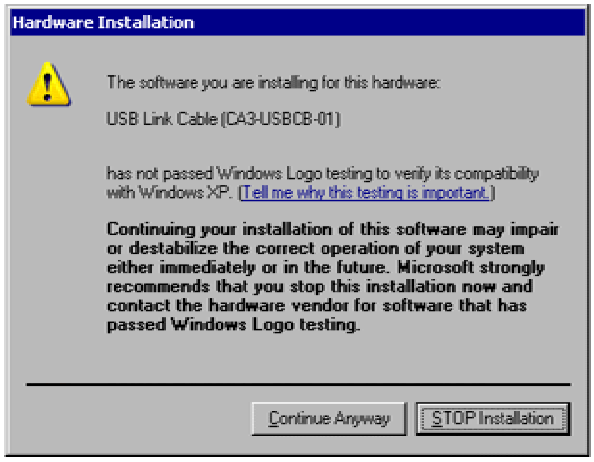
CA3-USBCB-01

ST3000

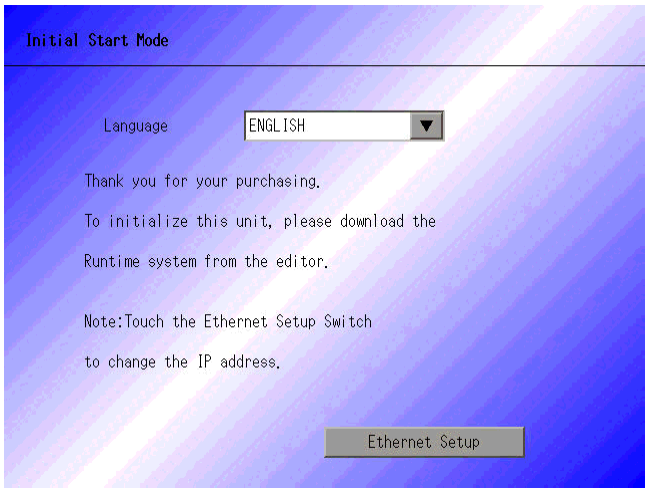
1. Connect your PC and the ST3000 series with a USB transfer cable. If the driver of the cable has not been installed on your PC, a dialog box will appear. Please follow the instructions.

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].

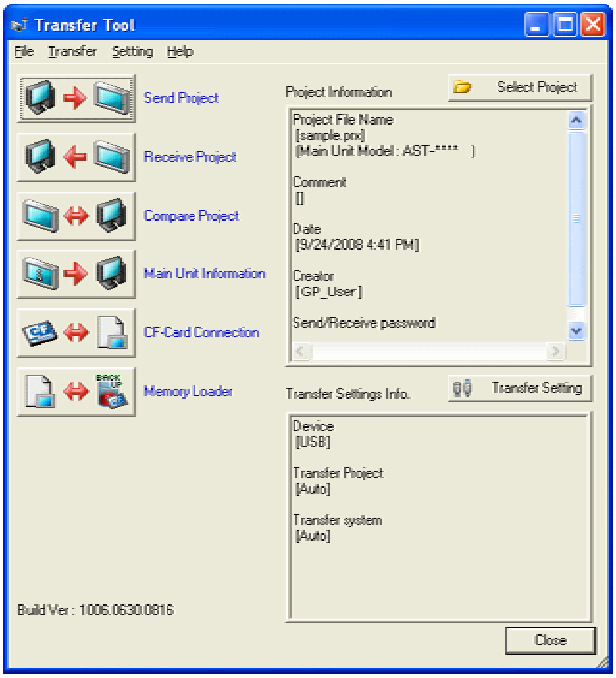


2. Turn on the display unit's power. The "Initial Start Mode" screen will appear on the display unit.



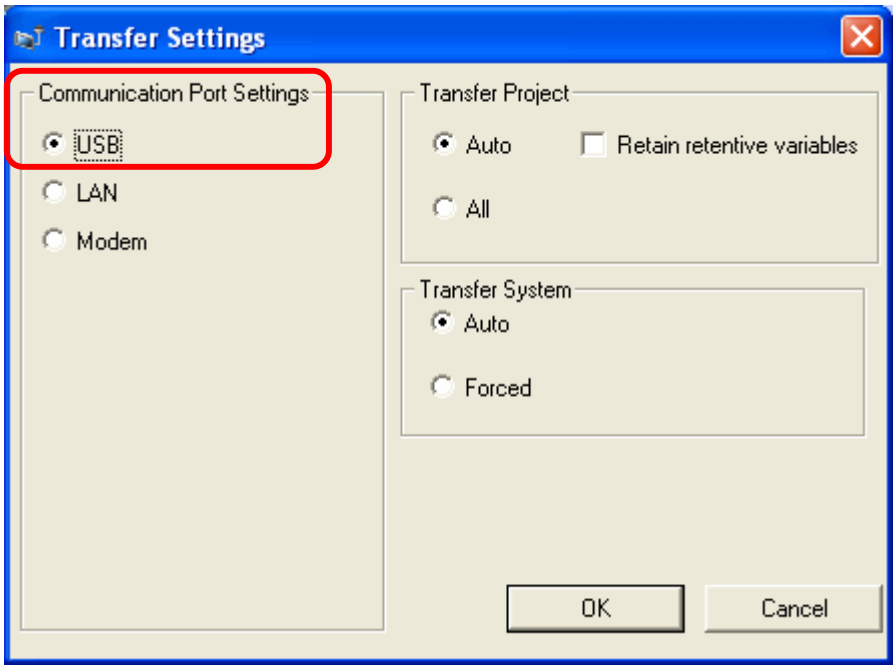
This screen will appear when you first connect the display unit's power code. After transferring a project file once, this screen will not appear again.

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

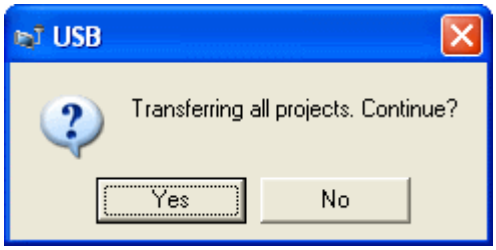


4. Check the project file name and other data to be transferred in the Project Information. To transfer a different project file, click the [Select Project] button and select a project file.

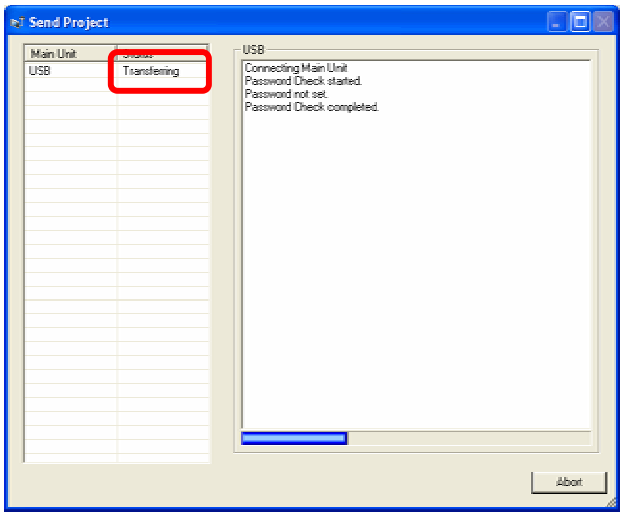
5. Make sure that the [Device] is set to [USB] in the “Transfer Settings Info.” If not, click the [Transfer Setting] button to open the “Transfer Settings” dialog box. Select [USB] in the Communication Port Settings field and click [OK].



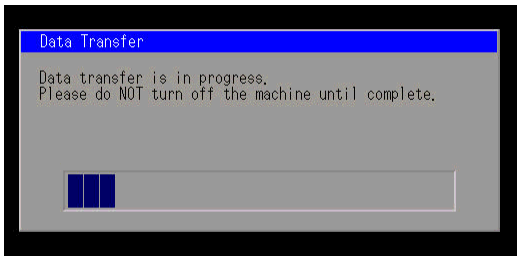
6. Click [Send Project] to start transfer. When the following dialog box appears, click [Yes]. This dialog box doesn’t appear when the same project file is sent again.



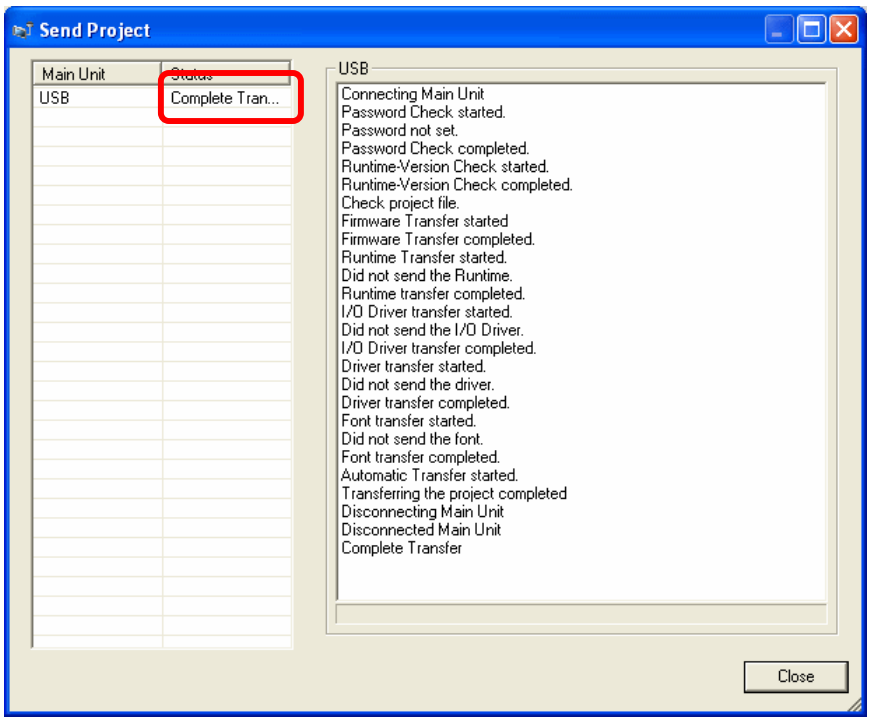
7. The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)



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	About the performance when a window is overlapping on a momentary switch
9	About the performance when display area of the system window is overlapping
10	Change of Tag Process
11	Compatibility of Text
12	Compatibility of Fill
13	Compatibility of CF Card Data
14	Precautions for conversion when filing data is saved in a CF card
15	Precautions for setting “Color Settings” to [256 Colors without blinking]
16	Precautions for loading a part with “L Tag (Library Display)”
17	Compatibility of MRK files and CPW files
18	Compatibility of VM Unit Settings
19	Compatibility of Extended SIO Script
20	Compatibility of Sound Data
21	Compatibility of Device Monitor
22	Compatibility of J Tag and R Tag
23	DOS Screen Data Conversion
24	Compatibility of Standard Fonts
25	Compatibility of D-Script Trigger Conditions (D-Script runs immediately after the screen is changed or the power is turned on)
26	Compatibility of U Tag (Window Screen is positioned in an unexpected area when called)
27	Precausion for Conversion when Screen Level Change is configured
28	Precausion for Use of Project Converter

29	Compatibility of LS Area
30	Compatibility of L Tag

Chapter 4. Communication with Device/PLC

4.1 Driver list

IMPORTANT
The followings are information as of April 2009. More connectable drivers will be added. Please check our website “Otasuke Pro!” for the latest information.

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/QnA Serial Communication	✔	✔
	Q/QnA Series Ethernet	✔	-
	QnA Series CPU Direct	✔	✔
	QUTE Series CPU Direct	✔	✔
	Q Series QnU CPU Ethernet	✔	-
OMRON Corporation	C/CV Series HOST Link	✔	✔
	CS/CJ Series HOST Link	✔	✔
	CS/CJ Series Ethernet	✔	-
YASKAWA Electric Corporation	MEMOBUS SIO	✔	✔
	MEMOBUS Ethernet	✔	-
	MP Series SIO (Extension)	✔	✔
	MP Series Ethernet (Extension)	✔	-
Hitachi IES Co., Ltd.	H Series SIO	✔	✔
	H Series Ethernet	✔	-
Panasonic Electric Works, Ltd. (Formerly Matsushita Electric Works, Ltd.)	FP Series Computer Link SIO	✔	✔
YOKOGAWA Electric Corporation	Personal Computer Link SIO	✔	✔
	Personal Computer Link Ethernet	✔	-

JTEKT Corporation	TOYOPUC CMP-LINK SIO	✔	✔
(Formerly Toyoda Machine Works)	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	✔	✔
FUNUC Ltd	Power Mate Series	✔	✔
Siemens AG	SIMATIC S7 MPI Direct	✔	✔
	SIMATIC S7 3964(R)/RK512	✔	✔
	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	✔	✔
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	✔	-
Hitachi, Ltd.	S10V Series Ethernet	✔	-
	S10 Series SIO	✔	✔

TOSHIBA Machine Co., Ltd.	TCmini/TC200	✔	✔
TOSHIBA Corporation	Computer Link SIO	✔	✔
	Computer Link Ethernet	✔	-
Koyo Electronics Co., Ltd.	KOSTAC/DL Series CCM SIO	✔	✔
	KOSTAC/DL Series MODBUS TCP	✔	-
FATEK AUTOMATION Corporation	FB Series SIO	✔	✔

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	✔	✔

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

Fieldbus			
Manufacturer	**Series**	**GP3000**	**ST3000**
PROFIBUS International	PROFIBUS DP Slave	✔ *1	-
ODVA	DeviceNet Slave	✔ *1	-
CC-Link Partner Association	CC-Link Intelligent Device	✔ *1	-

Industrial Robot			
Manufacturer	**Series**	**GP3000**	**ST3000**
Hyundai Heavy Industries	Hi4 Robot	✔	✔

IAI Corporation	ROBO CYLINDER MODBUS SIO	✔	✔
	X-SEL Controller	✔	✔

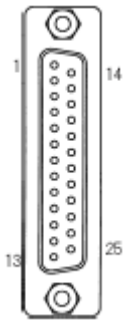
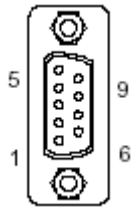
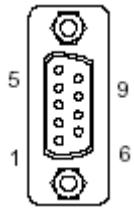
Other Devices			
Manufacturer	**Series**	**GP3000**	**ST3000**
Digital Electronics Corporation	Memory Link *2	✔	✔
	General SIO *3	✔	✔
	General Ethernet *3	✔	-
MODBUS IDA	General Modbus SIO Master	✔	✔
	General Modbus TCP Master	✔	-

*1: The GP3000H doesn't support this driver.

*2: 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

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

4.2 Shapes of COM ports

<table>
<tr><th></th><th>GP2*01 Series</th><th>AST3*01 Series</th></tr>
<tr><td rowspan="2">COM1</td><td>D-Sub 25 pin (female)
RS-232C/422</td><td>D-Sub 9 pin (male)
RS-232C compatible</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td rowspan="2">COM2</td><td rowspan="2"></td><td>D-Sub 9 pin (male)
RS-485 (422) compatible</td></tr>
<tr><td> 
</td></tr>
</table>

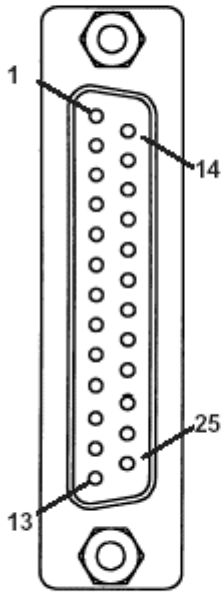
NOTE

The number of pins and signals of Serial Interface differ between GP2X01 series and ST3000 Series. A wiring method at the time of replacement varies depending on a used connection device/PLC. Please check with [Connectable Controllers for GP3000 Series] of our support web site, [Otasuke Pro!];

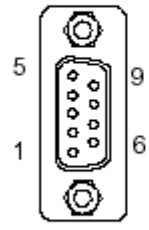
http://www.pro-face.com/otasuke/qa/gp3000/replace/connect/connect.php?rm=2

4.2.1 Signals on COM1

► GP2*01 Series (RS232C or 422)

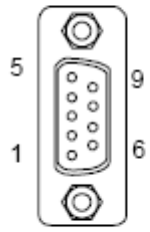
Pin Assignments	Pin #	Signal Name	Condition
(D-Sub 25pin female) SIO  	1	FG	Frame ground
	2	SD	Send data (RS-232C)
	3	RD	Receive data (RS-232C)
	4	RS	Request send (RS-232C)
	5	CS	Clear send (RS-232C)
	6	DR	Data Set Ready (RS-232C)
	7	SG	Signal ground
	8	CD	Carrier detect (RS-232C)
	9	TRMX	Termination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

► ST3000 Series (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

► ST3000 Series (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

There are some communication drivers that do not support multi-link connection (n:1) with RS-422 in GP3000 Series.

When converting the project file with the communication driver that multi-link connection (n:1) with RS-422 is not supported,
it will be automatically converted to (1:1) connection.

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