

Easy! Smooth!

ST-400 Series→GP4000 Series

Replacement Guidebook

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Preface

This manual introduces the procedures to replace a unit in ST-400 series (ST-400/401/402/403) with a unit in GP4000 series.

Model in use	Recommended Substitution	
ST-400	GP-4201TW	
ST-401	GP-42011VV	
ST-402	GP-4203T	
ST-403	GP-4201T	

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Chapter 1 Specification Comparison

1.1 Specifications of ST-400/401 and GP-4201TW

			ST-400/401	GP-4201TW	
Di	isplay Ty	vpe	Monochrome LCD	UP! TFT color LCD	
Displa	Display Colors, Levels		Monochrome, 2 levels/ Monochrome, 8 levels	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)	
Disp	lay Reso	lution	QVGA (32	20x240 pixels)	
Panel C	utout Din (mm)	nensions	118.5(W)x92.5(H)		
Exteri	External Dimensions (mm)		130(W)x104(H)x41(D)	132(W)x106(H)x42(D)	
Touc	Touch Panel Type		Matrix	NEW! Ananlog → <u>See 2.2</u>	
Memor	Application		640KB	UP! 8MB	
Merrior		RAM	96KB	UP! 128KB	
Bac	Backup Battery		Secondary Battery (Rechargeable Lithium battery)		
Rated	l Input V	oltage	DC 24V		
Fun	nction Sv	/itch	\checkmark	-	
	COM1	D-Sub 9 pin (plug) RS-422	D-Sub 9 pin (plug) RS-232C		
Serial		ST-401	D-Sub 9 pin (plug) RS-232C	→ <u>See 2.6.1</u>	
COM2)M2	-	D-Sub 9 pin (plug) RS-422/485 → <u>See 2.6.1</u>	
USB	USB Type A			NEW! 🗸	
I/F	I/F Type mini B		-	→ <u>See 2.4</u>	
Tool	Tool Connector I/F		 	-	
F	Printer I/F		-	NEW! USB (Type A)	

1.2 Specifications of ST-402 and GP-4203T

		ST-402	GP-4203T	
Displa	ау Туре	Monochrome LCD	UP! TFT color LCD	
Displa	y Colors	Monochrome, 2 levels/ Monochrome, 8 levels	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)	
Display	Resolution	QVGA (32	20x240 pixels)	
	Panel Cutout Dimensions (mm) 118.5(W)×92.5(H)		W)×92.5(H)	
External Dimensions (mm) 130(W)x104(H)x41(D		130(W)x104(H)x41(D)	132(W)x106(H)x42(D)	
Touch Panel Type		Matrix	NEW! Analog → <u>See 2.2</u>	
Momony	Application	640KB	UP! 16MB	
Memory	SRAM	96KB	UP! 320KB	
Backup Battery		Secondary Battery (Rechargeable Lithium battery)		
Rated In	put Voltage	DC 24V		
Functio	on Switch	~	-	
Serial	COM1	D-Sub 9 pin (socket) RS-485 (for MPI only)	D-Sub 9 pin (socket) RS-485 (for MPI only) → <u>See 2.6.1</u>	
	COM2 D-Sub 9 pin (plug) RS-422		_	
Ethernet I/F		-	NEW! 10BASE-T/100BASE-TX	
USB I/F	Туре А	-	NEW! 🗸	
	Type mini B	-	→ <u>See 2.4</u>	
Tool Con	nector I/F	v	-	
Printer I/F		-	NEW! USB (Type A)	

1.3 Specifications of ST-403 and GP-4201T

		ST-403	GP-4201T	
Disp	olay Type	Monochrome LCD	UP! TFT color LCD	
Display Colors		Monochrome, 2 levels/ Monochrome, 8 levels	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)	
Display	Resolution	QVGA (32	0x240 pixels)	
	el Cutout sions (mm)	118.5(W)x92.5(H)		
	l Dimensions (mm)	130(W)x104(H)x41(D)	132(W)x106(H)x42(D)	
Touch	Panel Type	Matrix	NEW! Analog → <u>See 2.2</u>	
Memory	Application	640KB	UP! 16MB	
Merrior y	SRAM	96KB	UP! 320KB	
Back	up Battery	Secondary Battery (Rechargeable Lithium battery)		
Rated I	nput Voltage	D	C 24V	
Funct	ion Switch	~	-	
Serial I/F	СОМ1	D-Sub 9 pin (plug) RS-232C/422	D-Sub 9 pin (plug) RS-232C/422/485 → <u>See 2.6.1</u>	
Ethernet I/F		10BASE-T	NEW! 10BASE-T/100BASE-TX	
USB	Туре А		NEW! 🗸	
I/F	Type mini B	_	→ <u>See 2.4</u>	
Tool Co	nnector I/F		-	
Printer I/F		-	NEW! USB (Type A)	

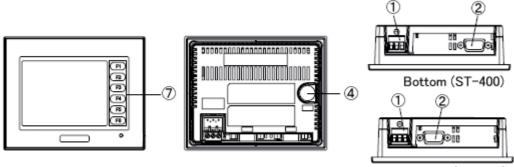
Chapter 2 Compatibility of Hardware

2.1 Locations of connector

Connector locations on ST-400 series and GP4000 series are as follows:

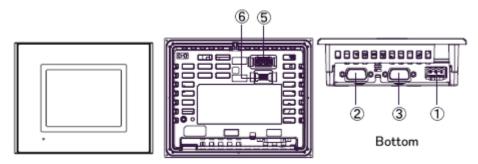
Connector locations on ST-400/401 and GP-4201TW

ST-400/401



Bottom (ST-401)

GP-4201TW

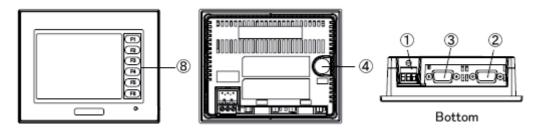


Interface names

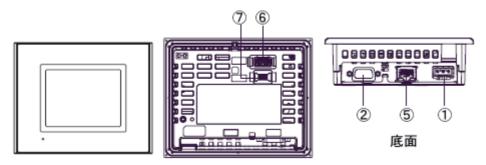
	ST-400/401	GP-4201TW
1	Power Connector	
2	Serial Interface (COM1)	
3	-	Serial Interface (COM2)
4	Tool Connector	-
5	-	USB Interface (Type A)
6	-	USB Interface (Type mini B)
7	Function Switch	-

Connector locations on ST402 and GP-4203T

ST-402



GP-4203T

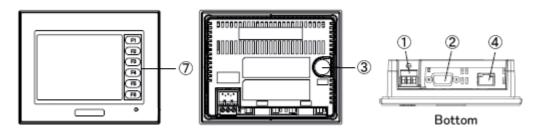


Interface names

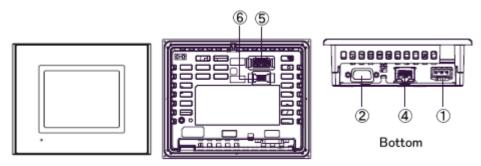
	ST-402	GP-4203T
1	Power Connector	
2	Serial Int	erface (COM1)
3	Serial Interface (COM2)	-
4	Tool Connector	-
5	-	Ethernet Interface
6	-	USB Interface (Type A)
7	-	USB Interface (Type mini B)
8	Function Switch	-

Connector locations on ST403 and GP-4201T

ST403



GP-4201T



Interface names

	ST403	GP-4201T	
1	Power Connector		
2	Serial Interface (COM1)		
3	Tool Connector	-	
4	-	Ethernet Interface	
5	-	USB Interface (Type A)	
6	-	USB Interface (Type mini B)	
7	Function Switch	-	

2.2 Touch Panel specifications

GP4000 series adopts the Analog type.

For the Analog type, if you touch two points at the same time, operation goes like the following:

GP-4201T	Only the 1 st touched point is recognized, but the 2 nd point is not.
	It's recognized that the coordinates located between those two
GP-420xTW	points are touched.

If you have applied the two-point touch input on ST-400 series, we recommend you to change to the one-point touch input using the switch delay function of GP-Pro EX.

2.3 Display Colors

The display type of ST-400 series is Monochrome LCD, but GP4000 series has TFT color LCD. After replacement, the black and white display changes to the color one. 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 Transfer cable

To transfer screen data to GP4000 series, use a USB transfer cable or Ethernet. The USB cables that can be used for GP4000 series are as follows:

	Model	Connector Type	Connector on GP
Options	CA3-USBCB-01	Type A Type A	USB (Type A)
	ZC9USCBMB1	Type A Type mini B	USB (Type mini B)
Commercial Item	-		

Please note that the cables (GPW-CB02, GPW-CB03, GP430-CU02-M) for ST-400 series cannot be used for GP4000 series.

2.5 Function Switch

GP4000 series does not have function switches. If you use the functions of the function switches specified on ST-400 series, please make settings of the switches to replace the function keys on GP-ProEX.

2.6 Interface

2.6.1 Serial Interface

There are differences between ST-400 series serial interface and GP4000 series'. To know the details about them, see [<u>4.2 Shapes of COM ports</u>] and [<u>4.3 Signals of COM ports</u>].

If you use the existing connection cables for GP4000 series, see [4.5 Cable Diagram at the time of replacement].

2.7 Peripheral units and option units

2.7.1 Barcode reader connection

GP4000 series is not equipped with a tool port. A barcode reader that used to be connected to the tool port on ST-400 series cannot be used. However, GP4000 series allows you to connect a barcode reader on its USB interface (Type A) or its serial interface.

For the models GP4000 series supports, see [OtasukePro!] (http://www.pro-face.com/otasuke/ga/3000/0056_connect_e.html)...

2.8 Power Consumption

The power consumption of ST-400 series is different from that of GP4000 series.

ST-400 series	GP4000 Series
7W or less	9.6W or less

For the detailed electric specifications, see the hardware manual.

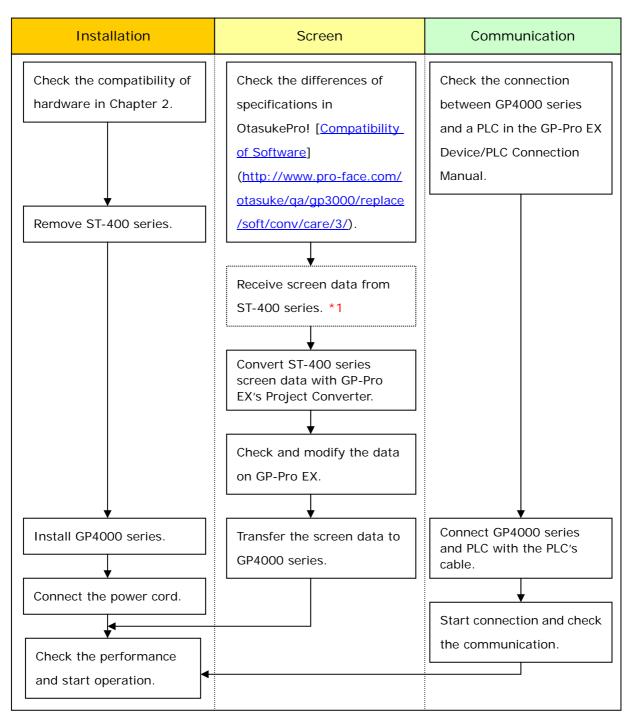
2.9 Materials/Colors of the body

The material and the colors of ST-400 series and GP4000 series are as follows:

	ST-400 series GP4000 Series	
Color	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	ST-400/401/402:	
receiving screen data	PC in which GP-PRO/PBIII for Windows C-Package02 V6.3 or	
from ST-400 series	later is installed. *2	
*1	ST-403:	
	PC in which GP-PRO/PBIII for Windows C-Package03 V7.2 o	
	later is installed *2	
	Transfer cable	
	(The following three types of cables are available)	
	GPW-CB02 (D-sub 9-pin to the PC)	
	GPW-CB03 (USB to the PC) *3	
	GP430-CU02-M or GPW-SET (D-sub 25-pin to the PC)	
	* Also, it's possible for ST-403 to send/receive data via	
	Ethernet.	
Requirements for	PC in which GP-Pro EX Ver.3.01 or later is installed	
converting screen	Transfer cable	
data of ST-400 series	(The following three types of cables are available)	
and transferring the	 A USB transfer cable (model: CA3-USBCB-01) 	
converted data to	 A USB data transfer cable (model: ZC9USCBMB1) 	
GP4000 series	 A commercial USB cable (USB Type A/mini B) 	
	* Possible to send/receive a screen with a USB storage	
	device or on Ethernet.	

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

*2: Please use the same version or later as or than that of the software used during creating screens on GP2000 series.

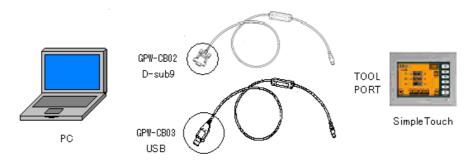
If you don't know the version, we recommend you to use the newest version. The newest version is GP-PRO/PBIII for Windows C-Package03 (SP2) V7.29. Those who have GP-PRO/PBIII for Windows C-Package03 V7.0 can download it from our web site called [OtasukePro!] (http://www.pro-face.com/otasuke/download/update/).

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

3.3 Receive screen data from ST-400 series

This section explains, as an example, how to receive screen data from ST-400 series using a transfer cable, GPW-CB02 or GPW-CB03. If you have backed up screen data, this step is unnecessary; skip to the next section [3.4 Convert screen data with the Project Converter].

(1) Connect a transfer cable to a unit in ST-400 series.



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

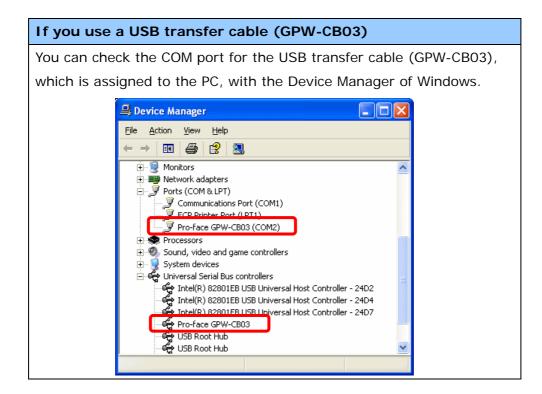


(3) On the [Transfer] window, select the [Setup] menu and click [Transfer Settings...].

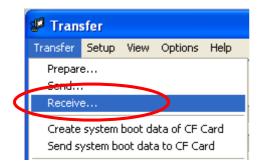


(4) In the Communication Port field, select [COM], specify the COM port to which the cable is connected, and click [OK].

Transfer Settings	
-Send Information ✓ Upload Information ✓ GP System Screen ✓ Fjiing Data(CF card) ✓ Data Trans Func CSV Data(CF card)	Computingations Bat © <u>C</u> OM Comm Port COM1 ▼ Retry Count 3 ★ Baud Rate 38400 ▼ (bps)
Transfer Method ⓒ [Send All Screens ⓒ Automatically Send Dhanged Screens ⓒ Send User Selected Screens	Ethernet IP Address 0. 0. 0. 0 Port 8000 Ethernet: Auto Acquistion
Transfer Mode Transfer Mode Transfer are made simultaneou T is transferred after preparation for a transfer is finished. Setup	C Memory Loader
Automatic Setup Use Extended f Eorce System Setup Do NOT Perform Setup System Sc	
Setup CFG file : © English © Japanese © Selection C:\PROGRA~1\Pro-face\PROPBW~1.02\p OK	



(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.

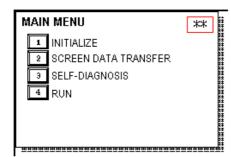
In case there is no Upload Information

"Upload Information" is necessary to receive screen data from ST-400 series. It needs to be included in screen data when transferring screen data to the display unit beforehand. The Upload Information is sent to the display unit by default, however, you may check off the box of Upload Information to prevent screen reception by a third party.



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

- 1. Enter into the GP's Offline mode
- 2. If there are 2 asterisk (*) marks in the Main menu as shown below, the Upload Information has been sent.



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

3.4 Convert screen data with the Project Converter

Convert a project file (*.prw) for ST-400 series with the GP-Pro EX's Project Converter.

(1) Click the [Start] button, select [All Programs] (or [Programs])-> [Pro-face]-> [GP-Pro EX *.**]->[Project Converter].

(For this part, [*.**], the version of the software you use is displayed.)

	💼 Pro-face 🔹 🕨	🛅 GP-Pro EX 1.10 🔹 🕨	🛅 Manual (Help) 🔹 🕨
	🥭 Internet Explorer		🝰 GP-Pro EX
	Microsoft Excel		🍪 Project Converter
	W Microsoft Word		📄 Readme
	🙆 Microsoft Outlook		😭 TransferTool
	🖪 Microsoft PowerPoint		👩 Uninstall
	🗐 Outlook Express		
	🎕 Windows Movie Maker		
All Programs 👂	📙 Adobe Reader 8		
	Log Off 🚺 Shut Dov	n	
省 start 🌖			

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

🗟 Project C	onverter	×
Data Type	Project File(*.PRW)	
Convert-From		Browse
Convert-To		Browse

(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].

🏟 Project Converter		
Data Type	Project File(*.PRW)	
Convert-From		Browse
Convert-To		Browse

Open		? 🗙
Look in: 🗀	database 🗾 🗢 🔁) 💣 🎟 -
Product sys	item A	
File <u>n</u> ame:	Product system A	<u>O</u> pen
Files of <u>t</u> ype:	Project Files (*.prw)	Cancel
	<u> </u>	
😵 Project C	onverter	
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 C	onverter	X
Data Type	Project File(*.PRW)	
Convert-From	C:\Program Files\Pro-face\ProPBWin\datab	Browse
Convert-To		Browse

Save As				[? 🗙
Save in: 隘	Database	-	🗢 🗈 (* 🎟 🕶	
File <u>n</u> ame:	Product system A			<u>S</u> ave	
Save as <u>typ</u> e:	PRX Files (*.prx)		-	Cance	
😼 Project Co	onverter				×
Data Type	Project File(*.PRW)	•			
o	CAReason Files/Dec. (c)	- Dra DD) ((inc) - t-t-	a b		
Convert-From	C:\Program Files\Pro-fac			rowse	
Convert-To	C:\Program Files\Pro-fac	e\GP-Pro EX\Dat	ab Bi	rowse	

ΝΟΤΕ

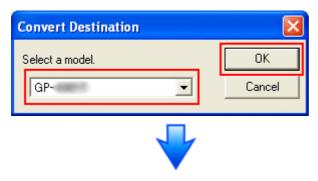
When a convert-to file exists, the window that confirms whether or not to overwrite the file is displayed.

Save As	
1	C:\Program Files\Pro-face\GP-Pro EX\Database\Product system A.prx already exists. Do you want to replace it?
	Yes No

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

😂 Project C	onverter 🔁	<
Data Type	Project File(*.PRW)	
Convert-From	C:\Program Files\Pro-face\ProPBWin\datab Browse	
Convert-To	C:\Program Files\Pro-face\GP-Pro EX\Datab Browse	
	Option	
	Convert Close Help	

(6) If you are asked about the [Convert-To] type as shown below, select [GP-4501TW] on the pull-down menu. Click [OK].



🔀 Project Co	onverter	
Data Type	Project File(*.PRW)	
Convert-From	C:\Program Files\Pro-face\ProPBWin\datab	Browse
Convert-To	C:\Program Files\Pro-face\GP-Pro EX\Datab	Browse
	Option	
Converted Pop Converted Pop	0002 0003 0100 0999 0001 0002 0003	■ ■ ■

If an error message is displayed during conversion...

If an error message is displayed during conversion, refer to [Project Converter Error Message]

(<u>http://www.pro-face.com/otasuke/qa/gp3000/replace/soft/conv/project_con</u> <u>verter_error.html</u>) 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.

Save convert information.	
Save in: 🞯 Desktop 💽 🖛 🛍 📸 📰 -	
My Documents]
S My Computer	
File <u>n</u> ame: Save	
Save as type: CSV Files (*.csv)	

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.
- (9) 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 GP4000 series

Transfer the project file after conversion to GP4000 series. You can transfer data to GP4000 series via

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

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



PC

USB transfer cable (CA3-USBCB-01)

GP

(1) Connect your PC and GP4000 series with a USB transfer cable (model:

CA3-USBCB-01).

If the driver of the cable has not been installed on you PC yet, a dialog box will appear. Please follow the instructions.

NOTE

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



NOTE

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/gppr

oex_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 GP4000 series. The "Initial Start Mode" screen will appear on the display unit. After transferring a project file once, this screen will not appear again.



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

transfer Tool	
File (F) Transfer (T) Settings (S) Help (H)	
Send Project	Project Information 😕 Select Project
Receive Project	Project File Name [Unitiled2 prv] [Display Unit Model :] Comment
Compare Project	0 Date (12/3/2010 3:34 PM)
Display Unit Information	Designer (kenichiroo)
CF Card Connection	Password for send and receive
📄 🔶 👸 Memory Loader	Transfer Information
Send Web ste	Device [US8]
	Transfer Project [Automatic]
	Transfer system [Automatic]
	Close

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

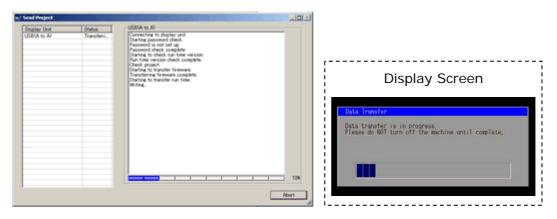
(4) Make sure that the [Device] in the "Transfer Settings Information" is set to [USB]. If not, click the [Transfer Setting] button to open the "Transfer Setting" dialog box. Select [USB] in the Communication Port Settings field and click [OK].

amsfer Settings	Site Settings
Communication	Port Settings
C LAN	
C Modem	
C COM	

(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.

🔊 USB			×
?	Transferring all p Is that OK?	rojects will be exec	uted.
	Yes	No	

(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.)



(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.

Display Unit	Status	USB
159	Tisnife conpt.	Connecting to display unit. Starfog saturmed check. Personal is not set up. Personal check complete. Oreck posient. Starfog to barriefe Raviene Transfering Raviene complete. Starfog to barriefe Raviene Cid not send the UD Dives. Starfog to barriefe Raviene Cid not send the UD Dives. Starfog to barriefe Raviene. Starfog to

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

 9 on the window 10 About window display on a momentary switch during momenoperation 11 About the performance when a display area of the system windox 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 Sound Data 						
 3 Compatibility of Alarm 4 Compatibility of Trend Graph 5 Compatibility of K tag (Input Order) 6 Compatibility of K tag (Indirect Setting) 7 Compatibility of K tag (Indirect Setting) 8 Compatibility of N tag 9 Precautions for using the switch for [History Data Display] of Trend G on the window 10 About window display on a momentary switch during momer operation 11 About the performance when a display area of the system windo overlapping 12 Change of Tag Process 13 About the display when a fixed Draw is placed on a Part 14 Compatibility of Fill 16 Compatibility of FC and Data 17 Precautions for conversion when filling data is saved in a CF card 18 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 Sound Data 	1	Touch Panel Type				
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23 Compatibility of Sound Data	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	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			
D Script starts right after screen change or power on.				
29	(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			

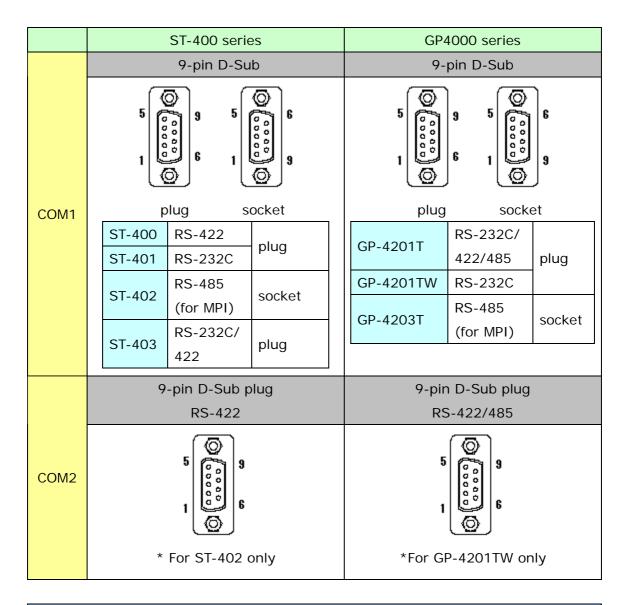
Chapter 4 Communication with Device/PLC

4.1 Driver list

More connectable drivers will be added.

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

4.2 Shapes of COM ports



NOTE

If you use the existing connection cables for GP4000 series, see [4.5 Cable Diagram at the time of replacemet].

4.3 Signals of COM ports

4.3.1 Signals of COM1

For ST-400

RS-422 (plug)

Pin Connection	Pin No.	Signal	Signal Name	Direction
	1	RDA	Receive data A	Input
	2	RDB	Receive data B	Input
5	3	SDA	Send data A	Output
000	4	ERA	Enable receive A	Output
1 0 0 6	5	SG	Ground	-
	6	CSB	Clear send B	Input
	7	SDB	Send data B	Output
(male)	8	CSA	Clear send A	Input
	9	ERB	Enable receive B	Output

For ST-401

RS-232C (plug)

Pin Connection	Pin No.	Signal	Signal Name	Direction
	1	CD	Carrier detect	Input
	2	RD	Receive data	Input
5 0	3	SD	Send data	Output
000	4	ER	Enable receive	Output
1 0 0 6	5	SG	Ground	-
19°	6	DR	Data set ready	Input
	7	RS	Request send	Output
(male)	8	CS	Clear send	Input
	9	RI	Ring indicate	Input

For ST-402

RS-485 (for MPI) (socket)

Pin Connection	Pin No.	Signal	Signal Name	Direction
	1	NC	No connection	-
6	2	NC	No connection	-
1 6	3	LINE(+)	Line (+)	In/Output
5 9	4	RTS	Request Send	Output
	5	SG	Ground	-
	6	5V	5V External Output *	Output
	7	NC	No connection	-
(female)	8	LINE(-)	Line (-)	In/Output
	9	NC	No connection	-

* You can supply power to the Siemens PROFIBUS connector only. You cannot supply power to the device/PLC.

For ST-403

RS-232C/422 (plug)

Pin Connection	Pin No.	Signal	Signal Name	Direction
	1	CD/RDA	Carrier detect /Receive data A	Input /Input
	2	RD/RDB	Receive data /Receive data B	Input /Input
5 O	3	SD/SDA	Send data/Send data A	Output /Output
0000	4	ER/ERA	Enable receive /Enable receive A	Output /Output
1 0 6	5	SG/SG	Ground/Ground	-
(male)	6	DR/CSB	Data set ready/Clear send B	Input /Input
	7	RS/SDB	Request send /Send data B	Output /Output
	8	CS/CSA	Clear send/Clear send A	Input /Input
	9	RI/ERB	Ring indicate /Enable receive B	Input /Output

For GP4000 series (except GP-4203T)

RS-232C (plug)

Pin Connection	Pin	R\$-232C			
	No.	Signal Name	Direction	Meaning	
	1	CD	Input	Carrier Detect	
	2	RD(RXD)	Input	Receive Data	
5 0 9	3	SD(TXD)	Output	Send Data	
000	4	ER(DTR)	Output	Data Terminal Ready	
1 6	5	SG	-	Signal Ground	
\odot	6	DR(DSR)	Input	Data Set Ready	
	7	RS(RTS)	Output	Request to Send	
(GP unit side)	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 VCC of Pin 9 are switched on the software.

VCC Output is not protected from overcurrent.

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

For GP-4203T

RS-485 (for MPI) (socket)

Pin Connection	Pin	RS-485 (isolation)		
	No.	Signal Name	Direction	Meaning
	1	NC	-	no connection
	2	NC	-	no connection
	3	Line A	Input/Output	Data A (+)
1 00 6	4	RS(RTS)	Output	Request to Send
000	5	SG	-	Signal Ground
5 39	6	VCC	-	+5V±5% External Output ⁽¹⁾
	7	NC	-	no connection
GP unit side	8	Line B	Input/Output	Data B (-)
	9	NC	-	no connection
	Shell	FG	-	Frame Ground ⁽²⁾ (Not connected with SG)

*1: You can supply power to the Siemens PROFIBUS connector only. You cannot supply power to the device/PLC.

*2: The SG and FG terminals are isolated.

4.3.2 Signals of COM2 For ST-400/401/403

None

For ST-402

RS-422 (plug)

Pin Connection	Pin No.	Signal	Signal Name	Direction
	1	RDA	Receive data A	Input
\bigcirc	2	RDB	Receive data B	Input
	3	SDA	Send data A	Output
o o o o	4	ERA	Enable receive A	Output
1 000 6	5	SG	Ground	-
	6	CSB	Clear send B	Input
	7	SDB	Send data B	Output
(male)	8	CSA	Clear send A	Input
	9	ERB	Enable receive B	Output

For GP-4201T/ 4203T

None

For GP-4201TW

RS-422/485(plug)

Pir	Pin Connection		RS-422/RS-485			
			Signal Name	Direction	Meaning	
		1	RDA	Input	Receive Data A (+)	
	\odot	2	RDB	Input	Receive Data B (-)	
5	89	3	SDA	Output	Send Data A (+)	
	00	4	ERA	Output	Data Terminal Ready A (+)	
1	6	5	SG	-	Signal Ground	
	l 🛛 J	6	CSB	Input	Send Possible B (-)	
	Durait aida)	7	SDB	Output	Send Data B (-)	
(G	(GP unit side)		CSA	Input	Send Possible A (+)	
		9	ERB	Output	Data Terminal Ready B (-)	
		Shell	FG	-	Frame Ground (Common with SG)	

4.4 Multilink Connection

For GP4000 series, some communication drivers do not support multi-link connection (n:1) via RS-422.

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

For the communication drivers that support serial multi-link, see [Which drivers_support serial multilink communication?]

(http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/com_mlnk.ht m).

4.5 Cable Diagram at the time of replacement

The connection cable for ST-400 series can be used for GP4000 series. But please note that there are precautions and restrictions as described below.

IMPORTANT
Please check the connection configurations GP4000 series supports with GP-Pro
EX Device/PLC Connection Manual before using a connection cable.
(http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.ht
<u>m</u>).
The Siemens MPI connection cable cannot be used.
Please refer to the above-mentioned GP-Pro EX Device/PLC Connection Manua
and prepare a connection cable for GP4000 series newly.
For ST-400 users:
If ST-400 is connected to a RS-422 device, after ST-400 is replaced with GP4000
series, the device can be connected on the COM2 port. (The same cable diagram
can be used.)
Before GP4000 series is connected, be sure to change the port setting to
[COM2] on the Device/PLC setting. Please check the communication
settings in the GP-Pro EX Device/PLC Connection Manual just in case.
For ST-402 users:
If ST-402 is connected to a RS-422 device via its COM2 port, after ST-402 is
replaced with GP-4203, the device cannot be connected.
Using a USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41)
allows you to use GP-4203 USB interface as RS-422/485 serial interface for
connection.
For more information, please refer to USB/RS-422/485 Conversion Adapter
Installation Guide.
(http://www.pro-face.com/otasuke/download/manual/cgi/manual.cgi?mode=3
<u>3&cat=3</u>)
* Note

(RS-422/485) are limited. For more information, please refer to GP-Pro EX Device/PLC Connection Manual.

(http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.ht m)