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GP/ST-3200 Series→GP4000 Series

Replacement Guidebook

Preface

This guidebook introduces the procedures to replace a unit in GP/ST-3200 series with a unit in GP4000 series.

Model in use	Recommended Substitution
GP-3200T	**GP-4201T**
GP-3200A	
ST-3211A	**GP-4203T**
ST-3201A	**GP-4201TW**

Contents

Chapter 1 Specification Comparison

1.1 Specifications of GP-3200T/A and GP-4201T

		GP-3200T/A	GP-4201T
Display Type	GP-3200T	TFT color LCD	TFT color LCD
	GP-3200A	Monochrome Amber/Red LCD	
Display Colors, Levels	GP-3200T	256 colors (without blink)/ 64 colors (with blink)	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
	GP-3200A	Monochrome, 8 levels	
Display Resolution		QVGA (320x240 pixels)	
Panel Cutout Dimensions (mm)		118.5(W)x92.5(H)	
External Dimensions (mm)		130(W)x104(H)x40(D)	132(W)x106(H)x42(D)
Touch Panel Type		Analog	
Memory	Application	6MB	**UP!** 16MB
	SRAM	320KB	320KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	
Rated Input Voltage		DC 24V	
Serial I/F	COM1	D-Sub 9 pin (plug) RS-232C/422	D-Sub 9 pin (plug) RS-232C/422/485
Ethernet Interface		10BASE-T/100BASE-TX	
USB I/F	Type A	✔	✔
	Type mini B	-	→See 2.3
Printer I/F		USB (Type A)	

1.2 Specifications of ST-3211A and GP-4203T

	ST-3211A	GP-4203T
Display Type	Monochrome Amber/Red LCD	**UP!** TFT color LCD
Display Colors, Levels	Monochrome, 8 levels	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution	QVGA(320×240 pixels)	
Panel Cutout Dimensions (mm)	118.5(W)×92.5(H)	
External Dimensions (mm)	130(W)x104(H)x40(D)	132(W)x106(H)x42(D)
Touch Panel Type	Analog	
Memory **Application**	6MB	6MB
SRAM	320KB	320KB
Backup Battery	Secondary Battery (Rechargeable Lithium battery)	
Rated Input Voltage	DC 24V	
Serial I/F **COM1**	D-Sub 9 pin (plug) RS-232C	D-Sub 9 pin (socket) RS-485 (for MPI only) →See 2.4
COM2	D-Sub 9 pin (socket) RS-485 (for MPI only)	- →See 2.4
Ethernet I/F	-	**NEW!** 10BASE-T/100BASE-TX
USB I/F **Type A**	✔	✔
Type mini B	-	→See 2.3
Printer I/F	USB (Type A)	

1.3 Specifications of ST-3201A and GP-4201TW

	ST-3201A	GP-4201TW
Display Type	Monochrome Amber/Red LCD	**UP!** TFT color LCD
Display Colors, Levels	Monochrome, 8 levels	**UP!** 65,536 colors (without blink)/ 16,384 colors (with blink)
Display Resolution	QVGA (320x240 pixels)	
Panel Cutout Dimensions (mm)	118.5(W)x92.5(H)	
External Dimensions (mm)	130(W)x104(H)x40(D)	132(W)x106(H)x42(D)
Touch Panel Type	Analog	
Memory / **Application**	6MB	**UP!** 8MB
Memory / **SRAM**	320KB	128KB
Backup Battery	Secondary Battery (Rechargeable Lithium battery)	
Rated Input Voltage	DC 24V	
Serial I/F / **COM1**	D-Sub 9 pin (plug) RS-232C	
Serial I/F / **COM2**	D-Sub 9 pin (plug) RS-422/485	
USB I/F / **Type A**	✔	✔
USB I/F / **Type mini B**	-	→See 2.3
Printer I/F	USB (Type A)	

Chapter 2 Compatibility of Hardware
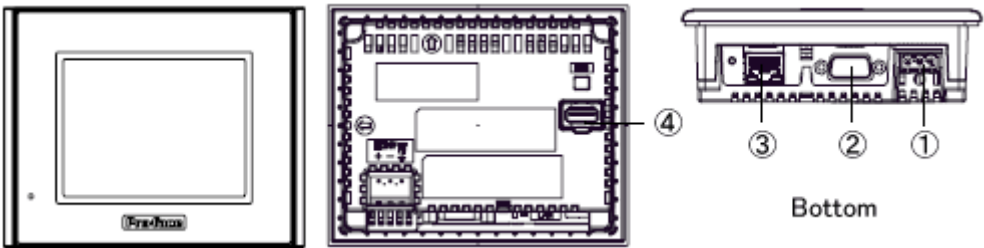
2.1 Locations of connector

Connector locations on GP/ST-3200 series and GP4000 series are as follows:

Connector locations on GP-3200T/A and GP-4201T
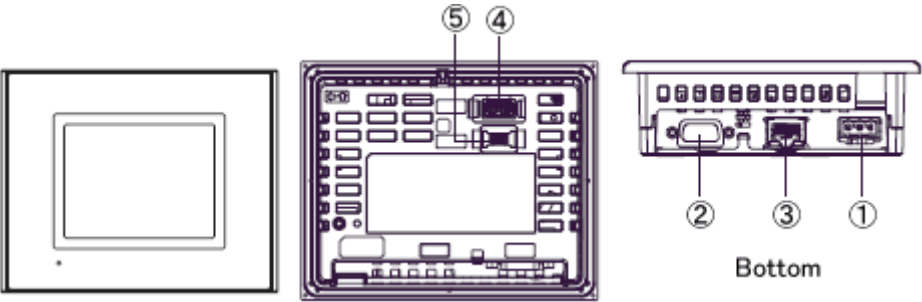
GP-3200T/A

GP-4201T

Interface names

	GP-3200T/A	GP-4201T
1	Power Supply Connector	
2	Serial I/F (COM1)	
3	Ethernet I/F	
4	USB I/F (Type A)	
5	-	USB I/F (Type mini B)

Connector locations on ST-3211A and GP-4203T
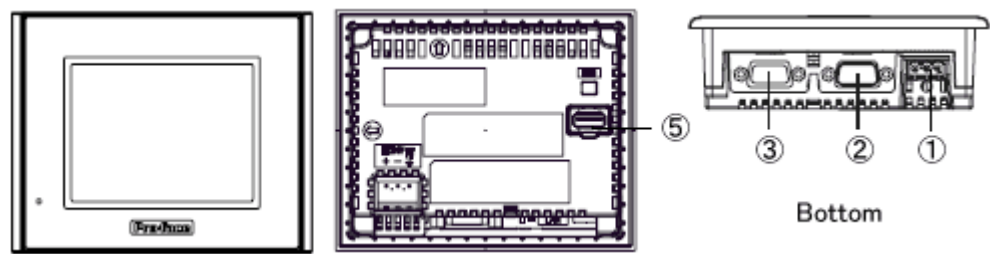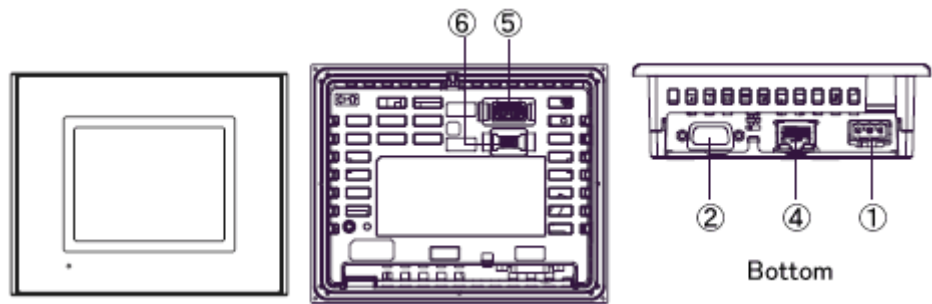
ST-3211A

GP-4203T

Interface names

	ST-3211A	GP-4203T
1	Power Supply Connector	
2	Serial I/F (COM1)	
3	Serial I/F (COM2)	-
4	-	Ethernet I/F
5	USB I/F (Type A)	
6	-	USB I/F (Type mini B)

Connector locations on ST-3201A and GP-4201TW
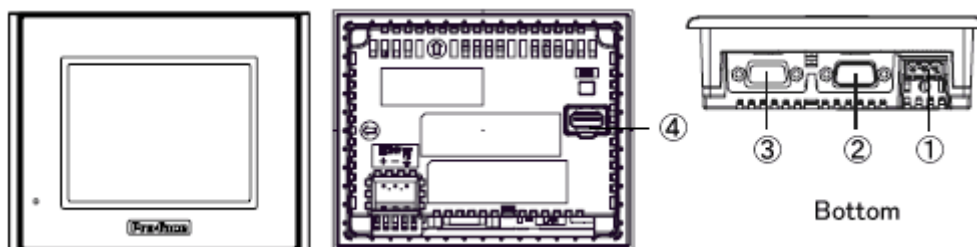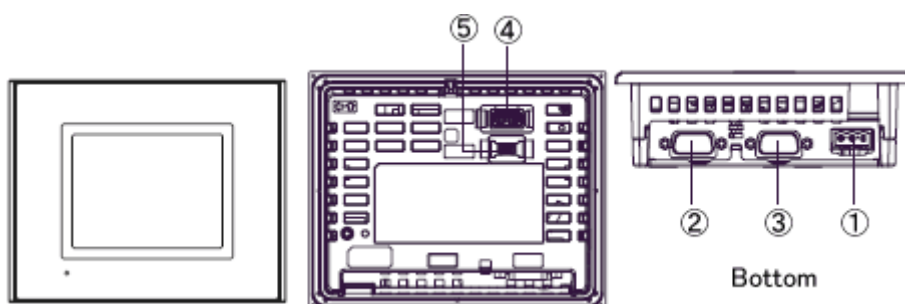
ST-3201A

GP-4201TW

Interface names

	ST-3201A	GP-4201TW
1	Power Supply Connector	
2	Serial I/F (COM1)	
3	Serial I/F (COM2)	
4	USB I/F (Type A)	
5	-	USB I/F (Type mini B)

2.2 Display Colors (except GP-3200T)

GP-3200A, ST-3211A, and ST-3201A have a monochrome LCD, but GP4000 series has a TFT color LCD. After replacement, the black and white display changes to the color one.

When the display unit setting is changed from the monochrome type to the color one on GP-Pro EX, the 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.

2.3 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	-		

The same USB transfer cable (CA3-USBCB-01) as the one for GP/ST-3200 series can be used.

2.4 Interface

2.4.1 Serial Interface

There are differences between GP/ST-3200 series serial interface and GP4000 series'.

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

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

2.5 Peripheral units and options

2.5.1 Barcode reader connection

Like GP/ST-3200 series, GP4000 series allows you to connect a barcode reader on its USB interface (TypeA) or its serial interface. However, a barcode reader cannot be connected to the serial interface on GP4000 series.

For the models GP4000 series supports, see [OtasukePro!]

(http://www.pro-face.com/otasuke/qa/3000/0056_connect_e.html).

2.5.2 Printer Connection

Like GP/ST-3200 series, GP4000 series allows you to connect a printer on its USB interface (Type A).

For the models GP4000 series supports, see [OtasukePro!]

(http://www.pro-face.com/otasuke/qa/3000/0056_connect_e.html).

2.5.3 Isolation Unit (for GP-3200T/A only)

RS-485 isolation unit for GP-3200T/A (CA3-ISO485-01) cannot be used for GP4000 series. You can use RS-232C isolation unit (CA3-ISO232-01) for GP4000 series instead.

2.6 Power Consumption

The power consumption of GP/ST-3200 series is different from that of GP4000 series.

GP-3200T/A	ST-3201A/3211A	GP-4201T/TW	GP-4203T
13W or less		9.6W or less	

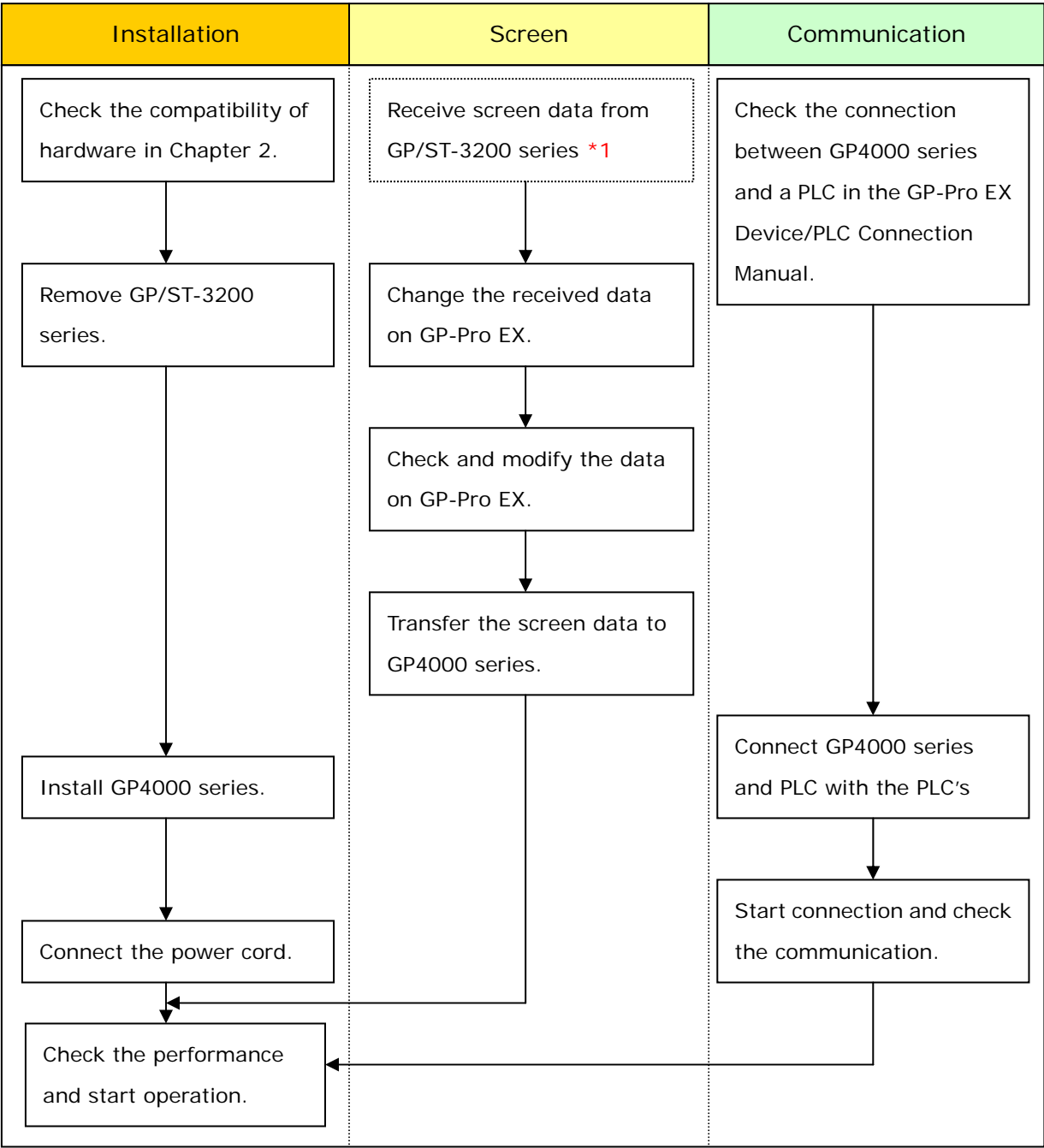For the detailed electric specifications, see the hardware manual.

2.7 Materials/Colors of the body

The materials and the colors of GP/ST-3200 series and GP4000 series are as follows:

	GP/ST-3200 series	GP4000 series
Color	Light Gray	
Material	Resin	Resin with glass

Chapter 3 Replacement Procedure

3.1 Work Flow

Installation	Screen	Communication
Check the compatibility of hardware in Chapter 2.	Receive screen data from GP/ST-3200 series *1	Check the connection between GP4000 series and a PLC in the GP-Pro EX Device/PLC Connection Manual.
Remove GP/ST-3200 series.	Change the received data on GP-Pro EX.	
	Check and modify the data on GP-Pro EX.	
	Transfer the screen data to GP4000 series.	
Install GP4000 series.		Connect GP4000 series and PLC with the PLC's
Connect the power cord.		Start connection and check the communication.
Check the performance and start operation.		

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

3.2 Preparation

Requirements for receiving screen data from GP/ST-3200 series *1	PC in which GP-Pro EX Transfer Tool is installed. *2
	USB Transfer Cable (model: CA3-USBCB-01) * Possible to send/receive a screen via a USB storage or Ethernet (for GP-3200T/A only).
Requirements for converting screen data of GP/ST-3200 series and transferring the converted data to GP4000 series	PC in which GP-Pro EX Ver.3.01 or later is installed.
	Transfer Cable (The following three types of cables are available) ・A USB transfer cable (model: CA3-USBCB-01) ・A USB data-transfer cable (model: ZC9USCBMB1) ・A commercial USB cable (USB Type A/mini B) * Possible to send/receive a screen data via a USB storage or Ethernet (except GP-4201TW).

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

*2: Please use the same version or later as or than that of the software used during creating screens on GP/ST-3200 series. If you don't know the version, we recommend you to use the newest version. For the newest version, you can download the transfer tool from our web site called [OtasukePro!] (http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm)

3.3 Receive screen data from GP/ST-3200 series

You can transfer data to GP/ST-3200 series via

- ・A USB transfer cable (model: CA3-USBCB-01)
- ・A USB storage device
- ・Ethernet

But this section explains, as an example, how to receive screen data from GP/ST-3200 series using a USB transfer cable (model: CA3-USBCB-01).
If you have backed up screen data, this step is unnecessary, skip to the next section [3.4 Change the Display Unit Type].

PC USB transfer cable (CA3-USBCB-01) GP

(1) Connect your PC and GP/ST-3200 series with a USB transfer cable.

If the driver of the cable has not been installed on your 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].

 |

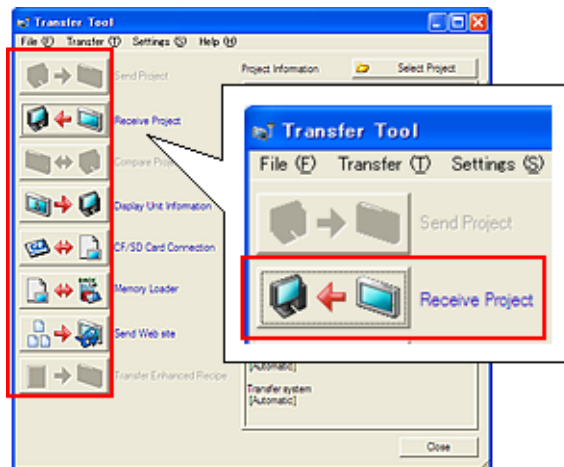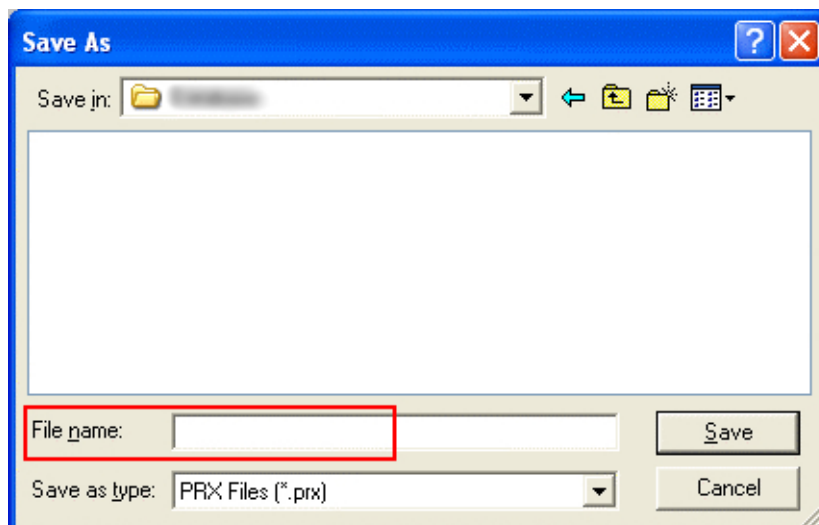| NOTE |
| --- |
| If the following symptoms appear on Microsoft Windows® 7, go to updating "USB Data Transfer Driver" on [OtasukePro!] for download.
(http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm)
・An error occurs when GP-Pro EX or Transfer Tool is installed
・An error occurs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

(2) Start the Transfer Tool of GP-Pro EX.
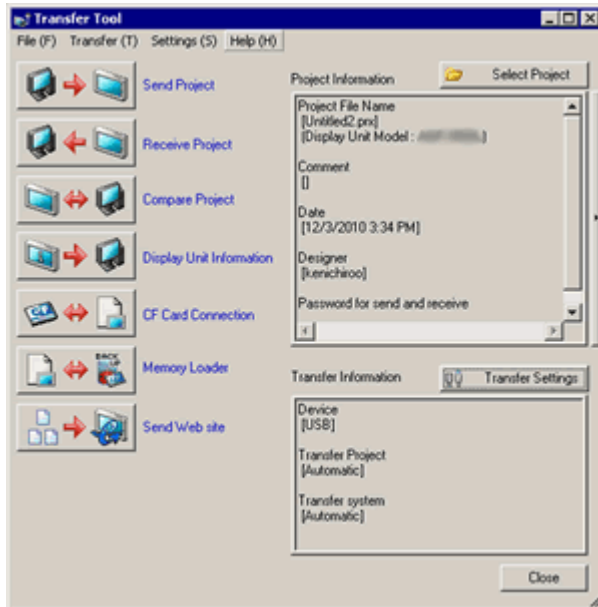
(3) Make sure that the [Device] in the "Transfer Settings Information" is set to [USB].
If not, click the [Transfer Setting] button to open the "Transfer Setting" dialog box.
Select [USB] in the Communication Port Settings field and click [OK].

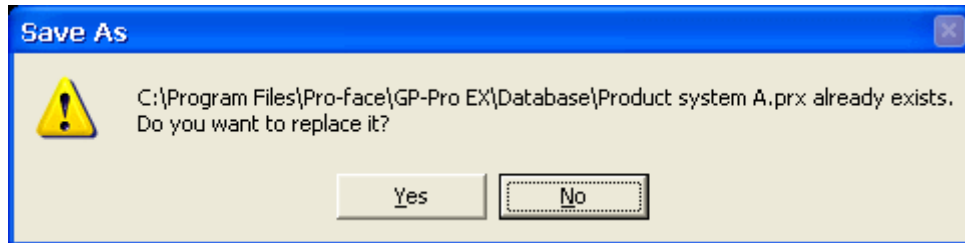(4) Start GP-Pro EX Transfer Tool and click the [Receive Project] button.

(5) Click [Receive Project], and the following dialog box will appear. Specify a place to save the received data in and a project file name, and then click [Save] to start transfer.
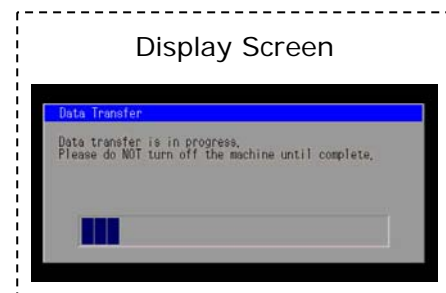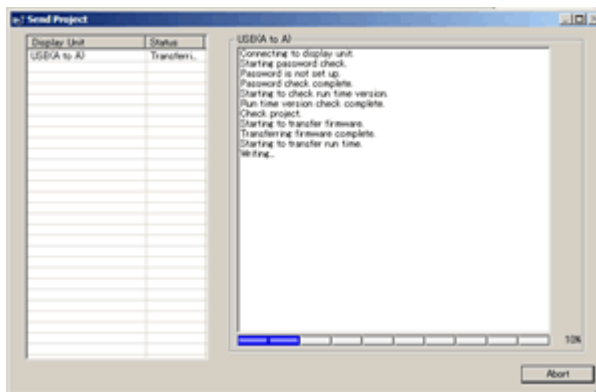
NOTE

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

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

Display Screen

(7) When transfer is completed, the status displayed in the dialog box will change
from [Transferring] to [Complete Transfer]. Click [Close] to close the dialog box.
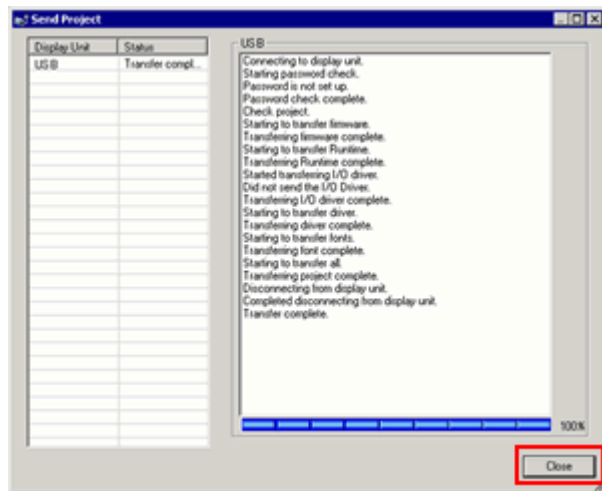
(8) Close the Transfer Tool.

3.4 Change the Display Unit Type

Open the received project file (*.prx) of GP/ST-3200 series on GP-Pro EX and change
the display unit type to GP4000 series.

(1) Open the received project file (*.prx) on GP-Pro EX.
(2) Change the Display Unit type to the replacement model on [Display] in [System
Settings] of GP-ProEX.
(3) Click [Project]->[Save As] and save the changed project file.

3.5 Transfer screen data to GP4000 series

Transfer the project file after display unit type change 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 via a USB transfer cable (model: CA3-USBCB-01).

PC   USB transfer cable (CA3-USBCB-01)   GP

(1) Connect your PC and the GP unit of GP4000 series with a USB transfer cable. If the driver of the cable has not been installed on you 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. When installation is completed, click [Finish].
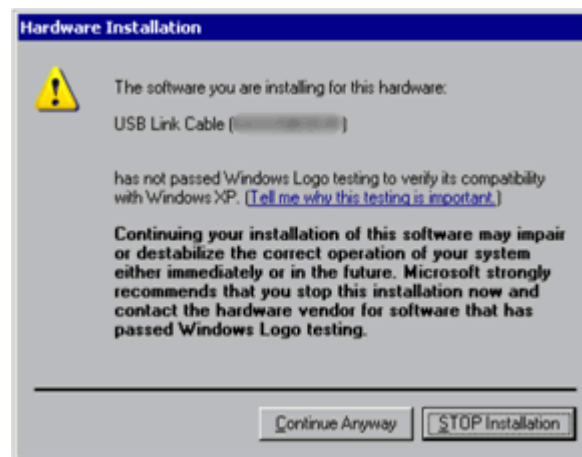
| NOTE |
| --- |
| If the following symptoms appear on Microsoft Windows® 7, go to updating "USB Data Transfer Driver" on [OtasukePro!] for download.
 (http://www.pro-face.com/otasuke/download/freesoft/gpproex_transfer.htm)
 ・An error occurs when GP-Pro EX or Transfer Tool is installed
 ・An error occurs when data is transferred via a USB transfer cable (model: CA3-USBCB-01). |

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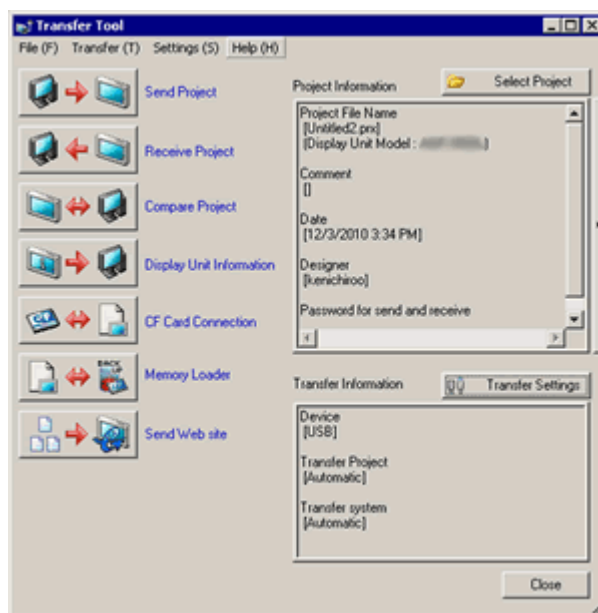
To transfer a different project file, click the [Select Project] button and select a project file.

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


(5) Click [Send Project] to start transfer. When the following dialog box appears, click [Yes]. This dialog box doesn't appear when the same project file is sent again.
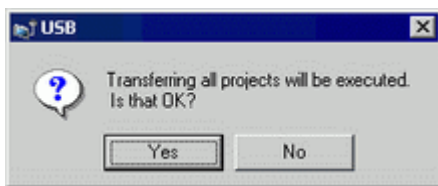
(6) The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)
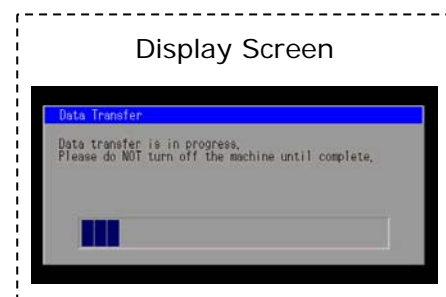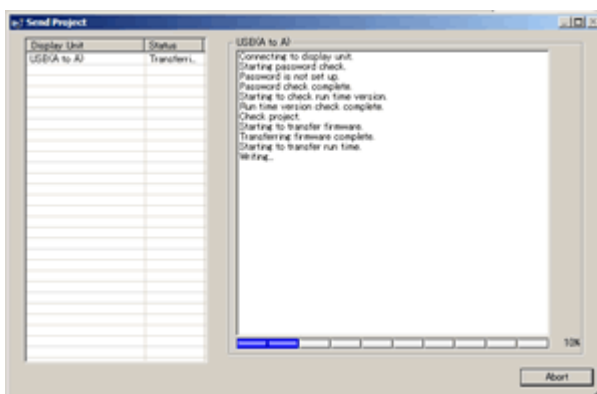
(7) When transfer is completed, the status displayed in the dialog box will change from [Transferring] to [Complete Transfer]. Click [Close] to close the dialog box.
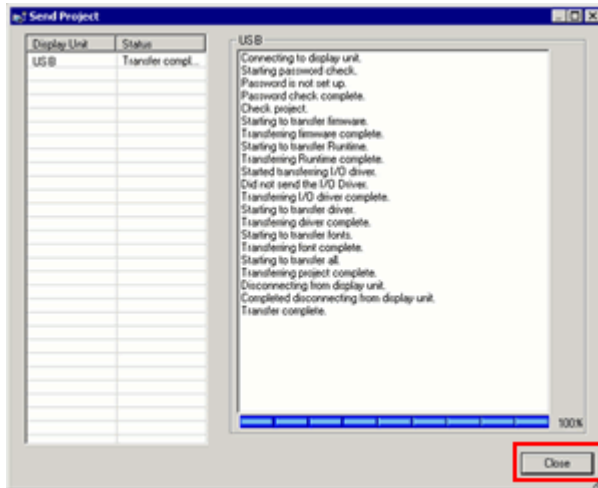
The display unit will be reset and a screen of the transferred project file will be displayed.

(8) Close the Transfer Tool.

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

3.6 Differences of software

Some functions supported by GP/ST-3200 series are not supported by GP4000 series. For details of the supported parts and functions, refer to [Supported Featuers] of GP-Pro EX Reference Manual (http://www.pro-face.com/otasuke/files/manual/gpproex/new/refer/gpproex.htm).
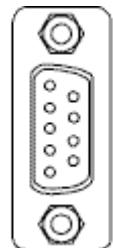
Chapter 4 Communication with Device/PLC
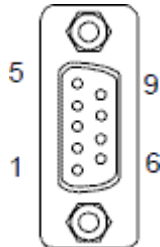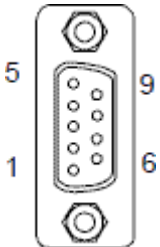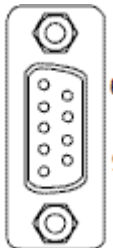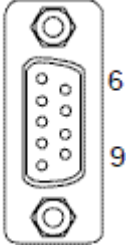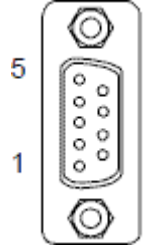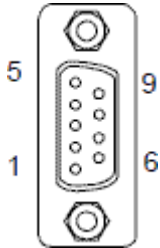
4.1 Driver list

More connectable drivers will be added.

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

4.2 Shapes of COM ports

	GP-3200T/A	ST-3211A/ST-3201A	GP4000 series
COM1	D-Sub 9 pin (plug) RS-232C/422	D-Sub 9 pin (plug) RS-232C	D-Sub 9 pin Plug Socket <table><tr><td>GP-4201T</td><td>RS-232C/ 422/485</td><td rowspan="2">Plug</td></tr><tr><td>GP-4201TW</td><td>RS-232C</td></tr><tr><td>GP-4203T</td><td>RS-485 for MPI</td><td>Socket</td></tr></table>
COM2	-	D-Sub 9 pin Plug Socket <table><tr><td>ST-3211A</td><td>RS-485 For MPI</td><td>Socket</td></tr><tr><td>ST-3201A</td><td>RS-422/ 485</td><td>Plug</td></tr></table>	D-Sub 9 pin (plug) RS-422/485 *For GP-4201TW only

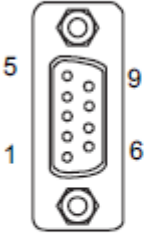| NOTE |
|------|
| ・ If you use the connecting cable that was used for GP/ST-3200 series, refer to [4.5 Cable Diagram at the time of replacement].

 ・ The COM1 port on ST-3211A is RS-232C and the COM2 port is RS-485 (MPI), but GP-4203T has only the COM1 port that is RS-485 (MPI). The devices that were connected to ST-3211A via RS-232C cannot be connected to GP-4203T after replacement. |

4.3 Signals of COM ports

4.3.1 Signals of COM1

For GP-3200T/A

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
(GP unit side)	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send possible
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[*1]
	Shell	FG	–	Frame Ground (Common with SG)

*1: RI and VICC of Pin 9 are switched on the software.

　　VCC Output is not protected from overcurrent.

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

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
(GP unit side)	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible A (+)
	9	ERB	Output	Data Terminal Ready B (-)
	Shell	FG	–	Frame Ground (Common with SG)

For ST-3211A/3201A

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning

(GP unit side) | 1 | CD | Input | Carrier Detect |
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send possible
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[1]
	Shell	FG	–	Frame Ground (Common with SG)

*1: RI and VICC of Pin 9 are switched on the software.

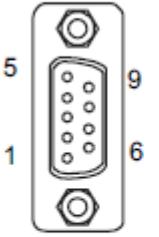VCC Output is not protected from overcurrent.

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

For GP-4201T

RS-232C (plug)

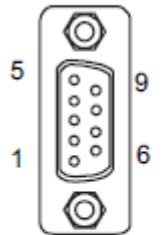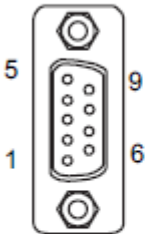| Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
(GP unit side)	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send possible
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[*1]
	Shell	FG	–	Frame Ground (Common with SG)

*1: RI and VICC of Pin 9 are switched on the software.

VCC Output is not protected from overcurrent.

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

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
(GP unit side)	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible A (+)
	9	ERB	Output	Data Terminal Ready B (-)
	Shell	FG	–	Frame Ground (Common with SG)

GP-4201TW

RS-232C (plug)

Pin Connection	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
(GP unit side)	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send possible
	9	CI(RI)/VCC	Input/–	Called Status Display +5V±5% Output 0.25A[*1]
	Shell	FG	–	Frame Ground (Common with SG)

*1: RI and VICC of Pin 9 are switched on the software.

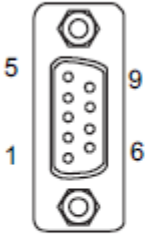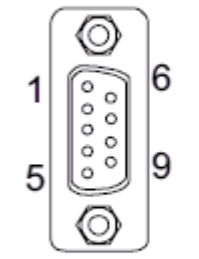VCC Output is not protected from overcurrent.

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

For GP-4203T

RS-485 MPI (socket)

Pin Connection	Pin No.	RS-485 (isolation)		
		Signal Name	Direction	Meaning
GP unit side	1	NC	–	no connection
	2	NC	–	no connection
	3	Line A	Input/Output	Data A (+)
	4	RS(RTS)	Output	Request to Send
	5	SG	–	Signal Ground
	6	VCC	–	+5V±5% External Output[1]
	7	NC	–	no connection
	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.

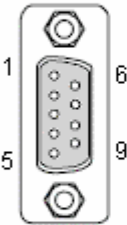*2: The SG and FG terminals are isolated.

4.3.2 Signals of COM2

For GP-3200T/A

None

For ST-3211A

RS-485 MPI (socket)
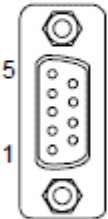
Pin Arrangement	Pin No.	RS485 (MPI only)		
		Signal Name	Direction	Meaning
	1	NC	-	-
	2	NC	-	-
	3	LINE(+)	Input/Output	LINE(+)
	4	RS(RTS)	Output	Request to Send
	5	SG	-	Signal Ground[1]
	6	5V	-	5V external output[2][3]
	7	NC	-	-
	8	LINE(-)	Input/Output	LINE(-)
	9	NC	-	-
	Shell	FG	-	Frame Ground[1] (Common with SG)

*1: The SG and FG terminals are isolated.

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

For ST-3201A
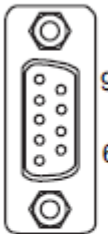
RS-422/485 (plug)

Pin Arrangement	Pin No.	RS422/RS485 *		
		Signal Name	Direction	Meaning
	1	RDA	Input	Receive Data A(+)
	2	RDB	Input	Receive Data B(-)
	3	SDA	Output	Send Data A(+)
	4	ERA	Output	Data Terminal Ready A(+)
(male)	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)

For GP-4201T/4203T

None

For GP-4201TW

RS-422/485 (plug)

Pin Connection	Pin No.	RS-422/RS-485		
		Signal Name	Direction	Meaning
	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
(GP unit side)	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible A (+)
	9	ERB	Output	Data Terminal Ready B (-)
	Shell	FG	–	Frame Ground (Common with SG)

4.4 Multilink Connection

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

4.5 Cable Diagram at the time of replacement

The connection cable for GP/ST-3200 series can be used for GP4000 series.

But please note that there are precautions and restrictions as described below.

When ST-3211A is used,
・When RS-232C devices are connected, **if ST-3211A is replaced with GP-4203T, they cannot be connected.** ・When RS-485 (MPI) devices are connected to COM2, **if ST-3211A is replaced with GP-4203T, they are connected to COM1. (The cable diagram can be used).** ・Before GP4000 series is connected, please check the communication settings with GP-Pro EX Device/PLC Connection Manual just in case. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm)