

# Easy! Smooth!

# GP/ST-3400 Series→GP4000 Series

# Replacement Guidebook

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# Preface

This guidebook introduces the procedures to replace a unit in GP/ST-3400 series with a unit in GP-4401T.

| Model in use | Recommended Substitution |  |
|--------------|--------------------------|--|
| GP-3400S     |                          |  |
| ST-3401T     | GP-4401T                 |  |

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# Chapter 1 Specification Comparison

# 1.1 Specifications of GP-3400S and GP-4401T

|                |                       | GP-3400S   | GP-4401T   |  |
|----------------|-----------------------|--|--|--|
|                |                       |  |  |  |
| Disp           | lay Туре              | STN color LCD  | UP! TFT color LCD  |  |
| Displa         | ay Colors             | 4,096 colors   | UP!<br>65,536 colors (without blink)/<br>16,384 colors (with blink)          |  |
| Display        | Resolution            | VGA (640)  | ×480 pixels)   |  |
|                | l Cutout<br>ions (mm) | 204.5 (W)  | x 159.5(H)   |  |
|                | Dimensions<br>mm)     | 215(W) x 170(H) x 60(D)                                | 218(W)x173(H)x60(D)  |  |
| Touch F        | Panel Type            | An   | alog   |  |
| Memory         | Application           | 8MB  | UP! 32MB   |  |
| Merrior y      | SRAM                  | 320KB  | UP! 320KB  |  |
| Backup Battery |                       | Secondary Battery<br>(Rechargeable Lithium<br>battery) | NEW!<br>Primary Battery<br>(Replaceable Lithium battery)<br>→ <u>See 2.5</u> |  |
| Rated In       | put Voltage           | DC 24V   |  |  |
| Serial         | COM1                  | D-Sub 9 pin (plug)<br>RS-232C/422/485                  | D-Sub 9 pin (plug)<br>RS-232C<br>→ <u>See 2.3.1</u>                          |  |
| I/F            | COM2                  | D-Sub 9 pin (socket)<br>RS-422/485                     | D-Sub 9 pin (plug)<br>RS-422/485<br>→ <u>See 2.3.1</u>                       |  |
| Ethernet I/F   |                       | 10BASE-T/100BASE-TX                                    |  |  |
| CF C           | ard I/F               | ✓ - → <u>See 2.3.4</u>                                 |  |  |
| SD Card I/F    |                       | -  | NEW! 🗸   |  |
| USB            | Туре А                | ~  | V  |  |
| I/F            | Type mini B           | -  | → <u>See 2.2</u>   |  |

| Printer I/F        | USB (Type A)                              |                      |
|--------------------|---|----------------------|
| Auxiliary I/O I/F  | <ul> <li>✓ - →<u>See 2.3.2</u></li> </ul> |                      |
| Expansion Unit I/F | <i>v</i>                                  | - → <u>See 2.4.3</u> |

# 1.2 Specifications of ST-3401T and GP-4401T

|                      |                       | ST-3401T   | GP-4401T   |
|----------------------|-----------------------|--|--|
|                      |                       |  |  |
| Disp                 | ау Туре               | TFT co   | olor LCD   |
| Displa               | ay Colors             | 256 colors   | UP!<br>65,536 colors (without blink)/<br>16,384 colors (with blink)          |
| Display              | Resolution            | VGA (640)  | ×480 pixels)   |
|                      | l Cutout<br>ions (mm) | 204.5 (W) x 159.5(H)                                   |  |
|                      | Dimensions<br>mm)     | 215(W) x 170(H) x 60(D) 218(W) x 173(H) x 60(E         |  |
| Touch F              | Panel Type            | Analog   |  |
| Memory               | Application           | 6MB  | <b>UP!</b> 32MB  |
| Merrior y            | SRAM                  | 320KB  | <b>UP!</b> 320KB   |
| Backup Battery       |                       | Secondary Battery<br>(Rechargeable Lithium<br>battery) | NEW!<br>Primary Battery<br>(Replaceable Lithium battery)<br>→ <u>See 2.5</u> |
| Rated In             | put Voltage           | DC 24V   |  |
| Serial               | COM1                  | D-Sub 9 pin  | (plug) RS-232C   |
| I/F                  | COM2                  | D-Sub 9 pin (plug) RS-422/485                          |  |
|                      | rnet I/F              | - UP! 10BASE-T/100BASE-                                |  |
|                      |                       |  | - → <u>See 2.3.4</u>   |
|                      | ard I/F               | -  | NEW! 🗸   |
| USB                  | Туре А                | <i>v</i>   | ✓ → <u>See 2.2</u>   |
| I/F                  | Type mini B           | -  |  |
| Printer I/F USB (Typ |                       | Туре А)  |  |

# Chapter 2 Compatibility of Hardware

# 2.1 Locations of connector

Connector locations on GP-3400S/ST-3401T and GP4401T are as follows:

Connector locations on GP-3400S/ST-3401T and GP-4401T GP-3400S



ST-3401T



Bottom

#### GP-4401T



#### Interface names

|    | GP-3400S                 | ST-3401T          | GP-4401T              |
|----|--------------------------|-------------------|-----------------------|
| 1  |                          | Power Connector   |                       |
| 2  |                          | Serial I/F (COM1) |                       |
| 3  |                          | Serial I/F (COM2) |                       |
| 4  | Ethernet I/F -           |                   | Ethernet I/F          |
| 5  | USB I/F e (Type A)       |                   |                       |
| 6  | _                        |                   | USB I/F (Type mini B) |
| 7  | -                        |                   | SD Card I/F           |
| 8  | CF Card I/F              |                   | -                     |
| 9  | Expansion Unit I/F       |                   | -                     |
| 10 | Auxiliary Input/Output / |                   |                       |
| 10 | Sound Output I/F (AUX)   |                   | -                     |

# 2.2 Transfer cable

To transfer screen data to GP-4401T, use a USB transfer cable or Ethernet. The USB cables that can be used for GP-4401T 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-3400 series can be used.

#### 2.3 Interface

2.3.1 Serial Interface

The pin assignment and the shape of plug/socket connector of GP/ST-3400 series are different from those of GP-4401T.

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

If you use the existing connection cables, see [<u>4.5 Cable Diagram at the time of</u> <u>replacement</u>].

#### 2.3.2 Auxiliary I/O Interface (AUX)

GP-4401T is not equipped with Auxiliary I/O Feature. External Reset Input and 3 Outputs (RUN Output, System Alarm Output, and External Buzzer Output) that can be used for GP-3400S cannot be used.

2.3.3 Sound Output Interface (for GP-3400S only)GP-4401T is not equipped with the sound output function. The sound output

function for GP-3400S cannot be used.

# 2.3.4 CF Card Interface

GP-4401T is not equipped with a CF card slot. But a SD card slot and a USB interface are installed in it. In order to use the GP/ST-3400 series data saved in the CF card and the functions using the CF card, use a SD card or a USB flash drive instead.

\* When using a SD card with GP-4401T, please verify it supports the following specifications:

| File format |       | Maximum capacity |
|-------------|-------|------------------|
| SD          | FAT16 | 2GB              |
| SDHC        | FAT32 | 32GB             |

When the setting of the output destination folder is set to "CF Card" on GP-Pro EX, if the display unit type is changed, the setting will be automatically changed to the one that uses a SD card.

To change the setting of the output destination folder, see [5.1 Changing the setting of the external media to use].

# 2.4 Peripheral units and options

2.4.1 Barcode reader connection

Like GP/ST-3400 series, GP-4401T allows you to connect a barcode reader on its USB interface (Type A) or its serial interface. For GP-4401T, however, a barcode reader cannot be connected to its serial interface.

For the models GP-4401T supports, see [OtasukePro!]

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

# 2.4.2 Printer connection

Like GP/ST-3400 series, GP-4401T allows you to connect a printer on its USB interface (Type A).

For the models GP-4401T supports, see [OtasukePro!]

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

### 2.4.3 Expansion Unit

GP-4401T is not equipped with an expansion unit interface. The expansion units (each kind of unit like CC-LINK Unit) for GP-3400S cannot be used.

2.4.4 Isolation Unit (for GP-3400S only)

RS-485 isolation unit for GP-3400S series (CA3-ISO485-01) cannot be used for GP-4401T. You can use RS-232C isolation unit (CA3-ISO232-01) for GP-4401T instead.

#### 2.5 Backup Battery

Unlike GP/ST-3400 series, GP-4401T does not use rechargeable secondary batteries but replacable primary ones. (For both a rechargeable type and a replaceable one, contents to be backed up are the same.)

When the time for replacement of backup batteries approaches, the message to urge you to replace the battery, "RAAA053: Running out of power in the backup battery. Please change the battery." appears. When the message appears, replace the battery referring to the GP4000 series hardware manual.



# 2.6 Power Consumption

The power consumption of GP/ST-3400 series is different from that of GP-4401T.

| GP-3400S                | ST-3401T | GP-4401T    |
|-------------------------|----------|-------------|
| 28W or less 22W or less |          | 12W 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-3400 series and GP-4401T are as follows:

|          | GP-3400S       | ST-3401T   | GP-4401T         |
|----------|----------------|------------|------------------|
| Color    | Silver         | Light Gray |                  |
| Material | Aluminum alloy | 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      | PC in which GP-Pro EX Transfer Tool is installed. *2           |
|-----------------------|--|
| receiving screen data | USB Transfer Cable (model: CA3-USBCB-01)                       |
| from GP/ST-3400       | *Possible to send/receive a screen via a CF card, a USB        |
| series *1             | storage device, or Ethernet (for GP-3400S only).               |
| Requirements for      | PC in which GP-Pro EX Ver.3.01 or later is installed.          |
| converting screen     | Transfer Cable (The following three types of cables are        |
| data of GP/ST-3400    | available)   |
| series and            | A USB transfer cable (model: CA3-USBCB-01)                     |
| transferring the      | A USB data-transfer cable (model: ZC9USCBMB1)                  |
| converted data to     | <ul> <li>A commercial USB cable (USB Type A/mini B)</li> </ul> |
| GP-4401T              | *Possible to send/receive a screen via a SD card, a USB        |
|                       | storage device, or Ethernet.                                   |

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

\*2: Please use the same version or later as or than that of the software used during creating screens on GP/ST-3400 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!] (<u>http://www.pro-face.com/otasuke/download/freesoft/gpproex\_transfer.htm</u>)

#### 3.3 Receive screen data from GP/ST-3400 series

You can transfer data to GP/ST-3400 series via

- A USB transfer cable (model: CA3-USBCB-01)
- A CF card/USB storage device
- Ethernet

But this section explains, as an example, how to receive screen data from GP/ST-3400 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].



(1) Connect your PC and GP/ST-3400 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!

(<u>http://www.pro-face.com/otasuke/download/freesoft/gpproex\_transfer.htm</u>) for download.

- 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.

| et Transfer Tool                            |  |
|---|--|
| File (F) Transfer (T) Settings (S) Help (H) |  |
| 📢 🔶 🥁 Send Project                          | Project Information Construct  |
| Receive Project                             | Project File Name  [Unitide2 pro] [Unitide2 pro] [Display Unit Model : ] Comment |
| Compare Project                             | 0<br>Date<br>(12/3/2010 3:34 PM)   |
| Display Unit Information                    | Designer<br>[kenichiroo]   |
| CF Card Connection                          | Password for send and receive  |
| Amory Loader                                | Transfer Information   |
| Send Web site                               | Device<br>[US8]  |
|   | Transfer Project<br>[Automatic]  |
|   | Transfer system<br>[Astomatic]   |
|   | Close  |

(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.

| Save As                         | ? 🗙        |
|---------------------------------|------------|
| Savejn: 🗀 📥 👬 🏢 -               |            |
|                                 |            |
|                                 |            |
|                                 |            |
|                                 |            |
|                                 |            |
| File <u>n</u> ame: <u>S</u> ave |            |
| Save as type: PRX Files (*.prx) | <u>ا</u> ا |



(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.)

| e/ Send Project            |                     |   | 코미 저 |  |
|----------------------------|---------------------|---|------|--|
| Depley Unit<br>(CEPA to A) | Statue<br>Transform | UDDIA to AP     Connecting to dealogue units     Connecting to dealogue units     Passeword of onesk, comparise     Passeword of onesk, comparise     Passeword of onesk, comparise     Passeword of onesk, comparise     Connecting to the onesk     Taurding to the onesk |      | Display Screen<br>Internation<br>Data transfer<br>Please do NOT turn off the machine until complete. |
|                            |                     |   | 10K  |  |

#### NOTE

 If you receive the project files that use CF card data such as Recipe Function (CSV data), the following dialog box will appear during transfer. Specify a place to save the CF card data in. Click [OK], and the [Receive Project] dialog box will return and transfer will be completed.

| Br | owse For Folder                      | ? 🗙    |
|----|--------------------------------------|--------|
| 1  | Select a destination CF card folder. |        |
|    |                                      |        |
|    | 🖃 🚞 Pro-face                         | ~      |
|    | 🖃 🧰 GP-Pro EX 1.10                   |        |
|    | 🛅 backup                             |        |
|    | 🗉 🧰 CML                              |        |
|    | 🚞 Database                           |        |
|    | E FONT                               |        |
|    | 🗀 Fonts                              |        |
|    | 🗉 🚞 IODriver                         |        |
|    | ia 🔁 ja                              |        |
|    | 🚞 Keymap                             | ~      |
|    |                                      |        |
|    | Make New Folder OK                   | Cancel |

 GP-4401T that is a replacement model is not equipped with a CF card slot. If the display unit type is changed to GP-4401T, the CF card setting will be replaced with the SD card setting automatically.
 To check or change the destination folder setting, see <u>[5.1 Changing the</u>]

setting of the external media to use].

(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  |
|--------------|-----------------|--|
| 059          | Transfer congl. | Connecting to display unit.<br>Starting partmod check.<br>Paravoard in not at up.<br>Paravoard in not at up.<br>Deck popiest.<br>Starting to brain die finnware.<br>Eurorheim gimmane complete.<br>Starting to brainde Rumine.<br>Band die sonder Rumine.<br>Band die sonder Rumine.<br>Eurorheim gin the U/D bleve.<br>Transfering dieve complete.<br>Starting to brainde dieve.<br>Eurorheim gin kunde |

(8) Close the Transfer Tool.

# 3.4 Change the Display Unit type

Open the received project file (\*.prx) of GP/ST-3400 series on GP-Pro EX and change the display unit type to GP-4401T.

- (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 GP-4401T

Transfer the project file after display unit type change to GP-4401T. You can transfer data to GP-4401T 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/SD card
- 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 GP-4401T 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!

(<u>http://www.pro-face.com/otasuke/download/freesoft/gpproex\_transfer.htm</u>) for download.

- 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 GP-4401T. 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].

| amsfer Settings | Site Settings      |
|-----------------|--------------------|
|                 | I over e courige I |
| 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 pro<br>Is that OK? | ojects 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          | Transfer conpt. | Connecting to disclay unit.<br>Starling partmood check.<br>Personad in not at up.<br>Personad theck complete.<br>Orecit posject.<br>Starling to Brandler Rimane.<br>Turndening Randme complete.<br>Starling to Brandler Rimane.<br>Turndening Randme complete.<br>Starling to Brandler Rimane.<br>Did not send the I/O Diver.<br>Did not send the I/O Diver.<br>Differ. |
|              |                 |  |

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-3400 series are not supported by GP-4401T. 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] (<u>http://www.pro-face.com/product/soft/gpproex/driver/driver.html</u>).

# 4.2 Shapes of COM ports

|      | GP-3400S   | ST-3401T   | GP-4401T |  |
|------|--|--|----------|--|
|      | D-Sub 9 pin (plug)<br>RS-232C/422/485  | ا D-Sub 9<br>RS-2  | -        |  |
| COM1 | 5<br>1<br>5<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0                     | 5<br>1<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 |          |  |
|      | D-Sub 9 pin (socket)<br>RS-422/485   | D-Sub 9 pin (plug)<br>RS-422/485   |          |  |
| COM2 | 1<br>5<br>5<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 5  | 9<br>6   |  |

### NOTE

- If you use the connecting cable that was used for GP/ST-3400 series, refer to [4.5 Cable Diagram at the time of replacement].
- When the both COM1 and COM2 ports on GP-3400S have RS-422/485 setting, devices with RS-422/485 cannot be connected to the COM1 port after replacement with GP-4401T. See [4.5 Cable Diagram at the time of replacement] as a countermeasure for this.

#### 4.3 Signals of COM ports

4.3.1 Signals of COM1 For GP-3400S

RS-232C (plug)

| Pin Connection | Pin   | RS-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<br>+5V±5% Output 0.25A <sup>*1</sup> |
|                | 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 |              | Pin   | R\$-422/R\$-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 (+)               |
|                    | 80           | 4     | ERA             | Output    | Data Terminal Ready A (+)     |
| 1                  | 6            | 5     | SG              | -         | Signal Ground                 |
|                    | l 🛛 🖉        | 6     | CSB             | Input     | Send Possible B (-)           |
| 100                |              | 7     | SDB             | Output    | Send Data B (-)               |
| (G                 | P unit side) | 8     | CSA             | Input     | Send Possible A (+)           |
|                    |              | 9     | ERB             | Output    | Data Terminal Ready B (-)     |
|                    |              | Shell | FG              | -         | Frame Ground (Common with SG) |

For ST-3401T

RS-232C (plug)

| Pin | Connection   | Pin   | R\$-232C    |           |  |
|-----|--------------|-------|-------------|-----------|--|
|     |              | No.   | Signal Name | Direction | Meaning  |
|     |              | 1     | CD          | Input     | Carrier Detect   |
|     | $\bigcirc$   | 2     | RD(RXD)     | Input     | Receive Data   |
| 5   | []<br>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  |
| (GF | P unit side) | 8     | CS(CTS)     | Input     | Send possible  |
|     |              | 9     | CI(RI)/VCC  | Input/-   | Called Status Display<br>+5V±5% Output 0.25A <sup>*1</sup> |
|     |              | 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-4401T

RS-232C (plug)

| Pin Connection | Pin   | RS-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 0 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<br>+5V±5% Output 0.25A <sup>*1</sup> |
|                | Shell | FG          | -         | Frame Ground (Common<br>with SG)                           |

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

VCC Output is not protected from overcurrent.

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

4.3.2 Signals of COM2

For GP-3400S

RS-422/485 (socket)

| Pin            | Pin No. | RS422/RS485 |           |                                      |  |  |
|----------------|---------|-------------|-----------|--------------------------------------|--|--|
| Arrangement    | THING.  | Signal Name | Direction | Meaning                              |  |  |
|                | 1       | TRMRX       | -         | Termination<br>(Receiver side: 100Ω) |  |  |
|                | 2       | RDA         | Input     | Receive Data A(+)                    |  |  |
|                | 3       | SDA         | Output    | Send Data A(+)                       |  |  |
| 1 6            | 4       | RS(RTS)     | Output    | Request for Send                     |  |  |
|                | 5       | SG          | -         | Signal Ground                        |  |  |
| 5              | 6       | VCC         | -         | +5V±5% Output 0.25A *1               |  |  |
|                | 7       | RDB         | Input     | Receive DataB(-)                     |  |  |
|                | 8       | SDB         | Output    | Send Data B(-)                       |  |  |
| (GP unit side) | 9       | TRMTX       | -         | Termination<br>(Receiver side: 100Ω) |  |  |
|                | Shell   | FG          | -         | Frame Ground<br>(Common with SG)     |  |  |

For ST-3401T

RS-422/485 (plug)

| Pin Connection |               | Pin   | RS-422/RS-48 |           |                               |
|----------------|---------------|-------|--------------|-----------|-------------------------------|
|                |               | No.   | 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 (+)               |
|                | 80            | 4     | ERA          | Output    | Data Terminal Ready A (+)     |
| 1              | 6             | 5     | SG           | -         | Signal Ground                 |
|                | l 💿 J         | 6     | CSB          | Input     | Send Possible B (-)           |
|                | Durait side ) | 7     | SDB          | Output    | Send Data B (-)               |
| (G             | P unit side)  | 8     | CSA          | Input     | Send Possible A (+)           |
|                |               | 9     | ERB          | Output    | Data Terminal Ready B (-)     |
|                |               | Shell | FG           | -         | Frame Ground (Common with SG) |

For GP-4401T

RS-422/485 (plug)

| Pin Connection |              | Pin   | RS-422/RS-485 | RS-422/RS-485 |                               |  |
|----------------|--------------|-------|---------------|---------------|-------------------------------|--|
|                |              | No.   | Signal Name   | Direction     | Meaning                       |  |
|                |              | 1     | RDA           | Input         | Receive Data A (+)            |  |
|                | $\odot$      | 2     | RDB           | Input         | Receive Data B (-)            |  |
| 5              | <b>8</b> 9   | 3     | SDA           | Output        | Send Data A (+)               |  |
|                |              | 4     | ERA           | Output        | Data Terminal Ready A (+)     |  |
| 1              | 6            | 5     | SG            | -             | Signal Ground                 |  |
|                | $\odot$      | 6     | CSB           | Input         | Send Possible B (-)           |  |
|                |              | 7     | SDB           | Output        | Send Data B (-)               |  |
| (G             | P unit side) | 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.ht m).

#### 4.5 Cable Diagram at the time of replacement

The connection cable for GP/ST-3400 series can be used for GP-4401T. But please note that there are precautions and restrictions as described below when replacing GP-3400S.

 When a RS-422/485 device is connected via the COM1 port, if GP-3400S is replaced with GP-4401T, it will be connected via the COM2 port of GP-4401T. (The cable diagram can be still used.)

Before GP-4401T is connected, be sure to change the port setting to COM2 on the Device/PLC setting. Also, 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
)



 The cable used for connection to GP-3400S via COM2 can be used for GP-4401T only in the following case with a COM Port Conversion Adapter (CA3-ADPCOM-01) added.



When an option cable manufactured by Digital is used: (A cable for a 2-port adapter, CA3-MDCB-11 and so on)



The connection cable for GP/ST-3400 series can be used for GP-4401T.

When a terminal block conversion adapter (CA3-ADPTRM-01) is used:



The connection cable for GP/ST-3400 series can be used for GP-4401T.

• When both the COM1 port and the COM2 port have the RS-422/485 setting, if GP-3400S is replaced with GP-4401T, only the COM2 port can be used on GP-4401T for RS-422/485 connection.

Using a **USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41)** allows you to use GP-4401T USB interface as RS-422/485 serial interface for connection. For more information, please refer to USB/RS-422/485 Conversion Adapter Installation Guide.

(<u>http://www.pro-face.com/otasuke/download/manual/cgi/manual.cgi?mode=33</u> &cat=3)

#### IMPORTANT

When using USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41) with a Display unit, the external devices you can connect to its serial interface (RS-422/485) are limited. For more information, please refer to GP-Pro EX Device/PLC Connection Manual.

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

# **Chapter 5 Appendix**

# 5.1 Changing the setting of the external media to use

If a CF card is used for GP/ST-3400 series, after the display unit type of the project file is changed to GP-4401T, "a CF card" is automatically replaced with "a SD card" for the external media setting.

(1) After conversion of the project file data, at GP-Pro EX Error Check,

if the message, "The project contains features that require a SD card. However, the selected display does not support SD cards so these features will not run." appears,

| Error Cl | neck     |            |  |
|----------|----------|------------|--|
| **> ₽    | V 🖪      |            |  |
| Level    | Error Nu | r Screen-L | Summany  |
| Warning  | 1506     |            | A feature that requires the SD card is enabled. However, as the current model does not support the SD card, this feature will not work |
| Error    |          |            | No Error   |

<Cause>

The model without a SD card slot has the setting that uses a SD card. ->Solution 1

- (2) To use a USB storage device instead of a SD card ->Solution 1
- (3) To check or change the SD card's data output destination folder setting
   ->Solution 2

# [Solution]

1. Change the SD card setting to the USB storage setting following the steps below.

<Procedure>

- i. Click [Project]->[Information]->[Destination Folder].
- ii. Uncheck "Enable SD Card" and check "Enable USB Storage.

| SD Card Destination   |
|---|
| Enable SD Card  |
| SD Card Folder  |
| C:¥Program Files¥Pro-face¥GP-Pro EX 3.0¥ Browse                                   |
|   |
|   |
| USB Storage Destination   |
| USB Storage Destination           Image: Destination           Image: Destination |
|   |

iii. Click the [Browse] button and specify a destination folder.

| SD Card Destination                         |        |
|---|--------|
| Enable SD Card                              |        |
| SD Card Folder                              |        |
| C:¥Program Files¥Pro-face¥GP-Pro EX 3.0¥    | Browse |
|   |        |
| LICD Starson Destination                    |        |
| USB Storage Destination                     |        |
| USB Storage Destination  Enable USB Storage |        |
|   |        |

- iv. Click [OK] to confirm the setting.
- v. Click [Project]->[Save] to save changes.
- vi. Check each function that uses the CF card and replace the setting of [SD Card] with the one of [USB Storage].

#### NOTE

To check each function setting of GP-Pro EX, refer to GP-Pro EX Reference Manual.

- 2. Check and change the destination folder setting following the steps below.
  - i. Click [Project]->[Information]->[Destination Folder].
  - ii. The current setting is displayed.

| SD Card Destination                             |  |
|---|--|
| Enable SD Card                                  |  |
| SD Card Folder                                  |  |
| C:¥Program Files¥Pro-face¥GP-Pro EX 3.0¥ Browse |  |
|   |  |
|   |  |
| USB Storage Destination                         |  |
| USB Storage Destination   Enable USB Storage    |  |
|   |  |

- iii. After changing it, click [OK] to confirm the setting.
- iv. Click [Project]->[Save] to save changes.