

# Easy! Smooth!

# GP/ST-3500 Series→GP4000 Series

# Replacement Guidebook

Fourth Edition Apr. 2012 Copyright © 2012.4 Digital Electronics Corporation. All Rights Reserved.

# Preface

This guidebook introduces the procedures to replace a unit in GP/ST-3500 series with a unit in GP-4501T/TW.

Model in use	Recommended Substitution
GP-3500S	GP-4501T*1
GP-35005	GP-4501TW*1
GP-3500L	GP-4501TW
ST-3501T	GP-4501T
ST-3501C	GP-4501TW

\*1: A recommended substitution differs depending on a power supply type of the model you use.

When replacing AC power supply type (AGP3500-S1-AF);		When replacing DC power supply type (AGP3500-S1-D24);	
GP 4501T	The power supply type is AC, but the panel cutout dimensions are different. An attachment is required.	GP 4501TW	We recommend <b>GP-4501TW</b> whose power supply type and panel cutout dimensions are the same as those of
GP 4501TW	The panel cutout dimensions are the same, but <b>the power</b> <b>supply type needs to be</b> <b>changed to a DC type.</b> (*There's no AC power supply type)		AGP3500-S1-D24.

# **GP4000 Series Model Number**

GP4000 series model number partly differs depending on a specification. Before placing an order, please make sure of the model number.

А	2	GP-4200 series (3.5")
	3	GP-4300 series (5.7")
	4	GP-4400 series (7.5"/7.0W")
	5	GP-4500 series (10.4")
	6	GP-4600 series (12.1")
В	01	RS-232C/422/485
	03	RS-485 (isolation)
С	Т	TFT color LCD
	W	TFT color LCD (Wide Type)
D	А	Analog Resistive Film Touch Panel
	М	Matrix Resistive Film Touch Panel
E	А	AC Type Power Supply
	D	DC Type Power Supply
F	W	GP-4201TW/4301TW/4401WW/4501TW
	С	Coated model
	WC	Coated model of
		GP-4201TW/4301TW/4401WW/4501TW

 $\mathsf{PFXGP4} \underset{\scriptscriptstyle A}{\underline{*}} \underbrace{\mathbf{0}}_{\scriptscriptstyle B} \underbrace{*}_{\scriptscriptstyle C} \underbrace{*}_{\scriptscriptstyle D} \underbrace{*}_{\scriptscriptstyle E} \underbrace{*}_{\scriptscriptstyle F}$ 

# Contents

PREFACE	2
GP4000 SERIES MODEL NUMBER	3
CONTENTS	4
CHAPTER 1 SPECIFICATION COMPARISON	6
1.1 Specifications of GP-3500S and GP-4501T	6
1.2 SPECIFICATIONS OF GP-3500S AND GP-4501TW	8
1.3 SPECIFICATIONS OF GP-3500L AND GP-4501TW	10
1.4 Specifications of ST-3501T and GP-4501T	12
1.5 SPECIFICATIONS OF ST-3501C AND GP-4501TW	13
CHAPTER 2 COMPATIBILITY OF HARDWARE	14
2.1 LOCATIONS OF CONNECTOR	14
CONNECTOR LOCATIONS ON GP-3500S, ST-3500T AND GP-4501T	14
CONNECTOR LOCATIONS OF GP-3500S/L, ST-3501C AND GP-4501TW	16
2.2 TOUCH PANEL SPECIFICATIONS (ONLY WHEN REPLACING WITH GP-4501T)	17
2.3 DISPLAY COLORS	17
2.4 PANEL CUTOUT DIMENSIONS	18
2.5 TRANSFER CABLE	18
2.6 INTERFACE	19
2.6.1 Serial Interface	19
2.6.2 AUXILIARY I/O INTERFACE (AUX) (FOR GP-3500S/L ONLY)	19
2.6.3 Sound Output Interface (for GP-3500S/L only)	19
2.6.4 CF CARD INTERFACE	20
2.7 PERIPHERAL UNITS AND OPTION UNITS	20
2.7.1 BARCODE READER CONNECTION	20
2.7.2 PRINTER CONNECTION	20
2.7.3 EXPANSION UNIT (FOR GP-3500S/L ONLY)	21

2.7.4 ISOLATION UNIT (FOR GP-3500S/L ONLY)	21
2.8 Power Connector	21
2.9 BACKUP BATTERY	21
2.9 Power Consumption	22
2.10 MATERIALS/COLORS OF THE BODY	22
CHAPTER 3 REPLACEMENT PROCEDURE	23
3.1 Work Flow	23
3.2 PREPARATION	24
3.3 RECEIVE SCREEN DATA FROM GP/ST-3500 SERIES	25
3.4 CHANGE THE DISPLAY UNIT TYPE	30
3.5 TRANSFER THE SCREEN DATA TO GP-4501T/TW	31
3.6 DIFFERENCES OF SOFTWARE	35
CHAPTER 4 COMMUNICATION WITH DEVICE/PLC	36
4.1 DRIVER LIST	36
4.2 Shapes of COM ports	37
4.3 SIGNALS OF COM PORTS	38
4.3.1 SIGNALS OF COM1	38
4.3.2 SIGNALS OF COM2	41
4.4 MULTILINK CONNECTION	42
4.5 CABLE DIAGRAM AT THE TIME OF REPLACEMENT	43
CHAPTER 5 APPENDIX	47
5.1 Changing the setting of the external media to use	47

# Chapter 1 Specification Comparison

1.1 Specifications of GP-3500S and GP-4501T

		GP-3500S	GP-4501T
Displ	ау Туре	STN color LCD	UP! TFT Color LCD
Displa	ay Colors	4,096 colors	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)
Display	Resolution	VGA (640	0×480 pixels)
	l Cutout ions (mm)	301.5(W)×227.5(H)	259(W)×201(H) → <u>See 2.4</u>
	Dimensions mm)	313(W)×239(H)×56(D)	272.5(W)×214.5(H)×57(D)
Touch F	Panel Type	Analog	Analog/Matrix → <u>See 2.2</u>
Memory	Application	8MB/ 16MB	<b>UP!</b> 32MB
метногу	SRAM	320KB	320KB
Backu	p Battery	Secondary Battery (Rechargeable Lithium battery)	NEW! Primary Battery (Replaceable Lithium battery) → <u>See 2.9</u>
Rated In	put Voltage	AC 100 to	240V/ DC 24V
Serial	COM1	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C → <u>See 2.6.1</u>
I/F	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 → <u>See 2.6.1</u>
Ethe	rnet I/F	10BASE-1	/100BASE-TX
CF Card I/F		V	- → <u>See 2.6.4</u>

SD Card I/F -		NEW! 🗸	
USB I/F	Туре А	~	<b>v</b>
030177	Type mini B	-	→ <u>See 2.5</u>
Printer I/	Ϋ́F	USB (Type A)	
Auxiliary I/O I/F		- → <u>See 2.6.2</u>	
Expansion Unit I/F		<b>v</b>	- → <u>See 2.7.3</u>

# 1.2 Specifications of GP-3500S and GP-4501TW

		GP-3500S	GP-4501TW
Displ	ау Туре	STN color LCD	UP! TFT Color LCD
Displa	y Colors	4,096 colors	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)
Display	Resolution	VGA (640	0×480 pixels)
	l Cutout ions (mm)	301.5(V	V)×227.5(H)
	ternal ions (mm)	313(W)×239(H)×56(D)	315(W)×241(H)×56(D)
Touch F	Panel Type	Analog	
Memory	Application	8MB/ 16MB	16MB
Merrior y	SRAM	320KB	128KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	NEW! Primary Battery (Replaceable Lithium battery) → <u>See 2.9</u>
Rated In	put Voltage	AC 100 to 240V/ DC 24V	DC 24V → <u>See 2.8</u>
Serial	COM1	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C → <u>See 2.6.1</u>
I/F	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 → <u>See 2.6.1</u>
Ethernet I/F		10BASE-1	/100BASE-TX
CF C	ard I/F	~	- → <u>See 2.6.4</u>
SD Card I/F		-	NEW! 🗸

USB	Туре А	<b>v</b>	V
I/F	Type mini B	-	→ <u>See 2.5</u>
Prir	nter I/F	USB (Type A)	
Auxilia	ry I/O I/F	$\checkmark  - \rightarrow \underline{\text{See 2.6.2}}$	
Expansion Unit I/F		✓ - → <u>See 2.7.3</u>	

# 1.3 Specifications of GP-3500L and GP-4501TW

		GP-3500L	GP-4501TW
		All lines are operating safety	
Displ	ау Туре	STN color LCD	UP! TFT Color LCD
Displa	ay Colors	Monochrome LCD	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)
Display	Resolution	VGA (640	)×480 pixels)
	l Cutout ions (mm)	301.5(W	/)×227.5(H)
	ternal ions (mm)	313(W)×239(H)×56(D)	315(W)×241(H)×56(D)
Touch F	Panel Type	Analog	
Memory	Application	8MB	<b>UP!</b> 16MB
wernor y	SRAM	320KB	128KB
Backu	p Battery	Secondary Battery (Rechargeable Lithium battery)	NEW! Primary Battery (Replaceable Lithium battery) → <u>See 2.9</u>
Rated In	put Voltage	DC 24V	
Serial	COM1	D-Sub 9 pin (plug) RS-232C/422/485	D-Sub 9 pin (plug) RS-232C → <u>See 2.6.1</u>
I/F	COM2	D-Sub 9 pin (socket) RS-422/485	D-Sub 9 pin (plug) RS-422/485 → <u>See 2.6.1</u>
Ethe	rnet I/F	10BASE-T/100BASE-TX	
CF C	ard I/F	<i>v</i>	- → <u>See 2.6.4</u>
SD Card I/F		-	NEW! 🖌

USB	Туре А	~	<ul> <li>✓</li> </ul>
I/F	Type mini B	-	→ <u>See 2.5</u>
Prir	nter I/F	USB (Type A)	
Auxilia	ry I/O I/F	✓ - → <u>See 2.6.2</u>	
Expansion Unit I/F		~	- → <u>See 2.7.3</u>

# 1.4 Specifications of ST-3501T and GP-4501T

		ST-3501T	GP-4501T
		Mang flow dagan	
Disp	Іау Туре	TFT Co	olor LCD
Displa	ay Colors	256 colors (without blink)/ 64 colors (with blink)	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)
Display	Resolution	VGA (640)	×480 pixels)
	el Cutout sions (mm)	259(W)×201(H)	
	ternal sions (mm)	270.5(W)×212.5(H)×57(D)	272.5(W)×214.5(H)×57(D)
Touch I	Panel Type	Analog	Analog/Matrix → <u>See 2.2</u>
Memory	Application	6MB	UP! 32MB
wennory	SRAM	320KB	320KB
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	NEW! Primary Battery (Replaceable Lithium battery) → <u>See 2.9</u>
Rated In	put Voltage	AC 100 to 240V/ DC 24V	
Serial	COM1	D-Sub 9 pin (	(plug) RS-232C
I/F	COM2	D-Sub 9 pin (plug) RS-422/485	
Ethernet I/F		-	NEW! 10BASE-T/100BASE-TX
CF Card I/F		<b>v</b>	- → <u>See 2.6.4</u>
	Card I/F	-	NEW! 🗸
USB	Туре А	✓	V
I/F	Type mini B	-	→ <u>See 2.5</u>
Printer I/F		USB (	Туре А)

# 1.5 Specifications of ST-3501C and GP-4501TW

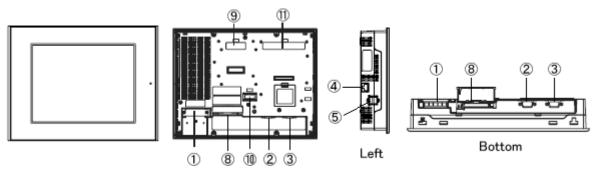
		ST-3501C	GP-4501TW	
		Story flow dayant       Story flow dayant		
Displ	ау Туре	Color LCD	UP! TFT Color LCD	
Displa	ay Colors	16 colors	UP! 65,536 colors (without blink)/ 16,384 colors (with blink)	
Display	Resolution	VGA (640	×480 pixels)	
Panel Cutout Dimensions (mm)		259(W)×201(H)	301.5(W)×227.5(H) → <u>See 2.4</u>	
External Dimensions (mm)		270.5(W)×212.5(H)×57(D)	315(W)×241(H)×56(D)	
Touch Panel Type		Analog		
Memory	Application	6MB	<b>UP!</b> 16MB	
wentery	SRAM	320KB	128KB	
Backup Battery		Secondary Battery (Rechargeable Lithium battery)	NEW! Primary Battery (Replaceable Lithium battery) → <u>See 2.9</u>	
Rated In	put Voltage	AC 100 to 240V/ DC 24V	DC 24V	
Serial	COM1	D-Sub 9 pin	(plug) RS-232C	
I/F	COM2	D-Sub 9 pin (p	lug) RS-422/485	
Ethernet I/F		-	10BASE-T/100BASE-TX	
CF Card I/F		V	- → <u>See 2.6.4</u>	
	ard I/F	-	NEW! 🗸	
USB	Туре А	<i>v</i>	<b>v</b>	
I/F	Type mini B	- → <u>See 2.5</u>		
Printer I/F		USB (Type A)		

# **Chapter 2 Compatibility of Hardware**

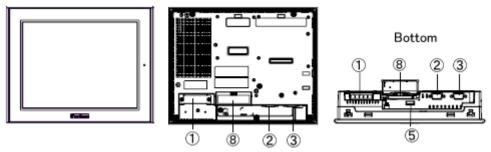
# 2.1 Locations of connector

Connector locations on GP-3500S, ST-3500T and GP-4501T

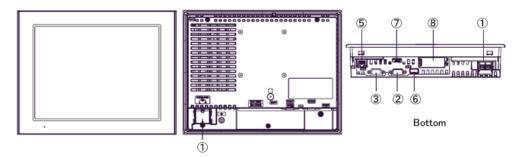
GP-3500S



ST-3501T



GP-4501T

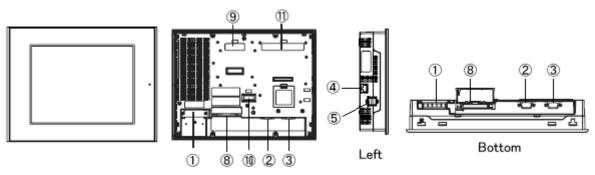


#### Interface names

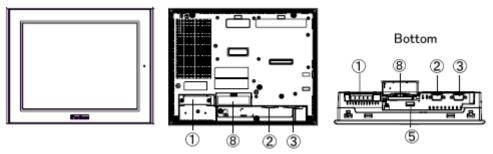
	GP-3500S	ST-3501T	GP-4501T	
1	Power Input Terminal Block (AC type)/ Power Connector (DC type)			
2	Serial I/F (COM1)			
3		Serial I/F (COM2)		
4	Ethernet I/F - Ethernet I/F			
5	USB I/F (Type A)			
6	- USB I/F (Type i		USB I/F (Type mini B)	
7	- SD Car		SD Card I/F	
8	CF Card I/F -		-	
9	Expansion Unit I/F -		-	
	Auxiliary I/O /			
10	Sound Output I/F		-	
	(AUX)			

Connector locations of GP-3500S/L, ST-3501C and GP-4501TW

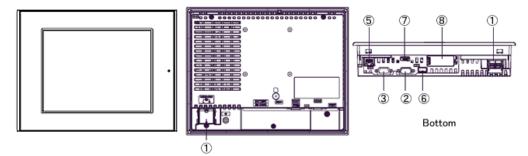
GP-3500S/L



ST-3501C



GP-4501TW



#### Interface names

	GP-3500S/L	ST-3501C	GP-4501TW
1	Power Input Terminal Block (AC) /		Dower Connector (DC)
I	Power Cor	nnector (DC)	Power Connector (DC)
2	Serial I/F (COM1)		
3	Serial I/F (COM2)		
4	Ethernet I/F -		Ethernet I/F
5	USB I/F (Type A)		
6	- USB I/F (Type mini E		USB I/F (Type mini B)
7	-		SD Card I/F
8	CF Card I/F		_

# 2.2 Touch Panel specifications (only when replacing with GP-4501T)

For replacing GP3500/ST3500 series with GP-4501T, you can select the Matrix type (2-point touch input at the same time same as GP2000 Series) or the Analog type (1-point touch input) for Touch Panel Type.

For the Analog type, even if you touch two points at the same time, touch input of the coordinates located between those two points is recognized. Take note of it.

There's a model number difference between the Analog type and the Matrix type. For details, see <u>GP4000 Series Model Number</u>.

#### 2.3 Display Colors

The display type of GP-3500L and ST-3501C (when using a monochrome mode) is a monochrome LCD, but GP-4501T/TW has a TFT color LCD. After replacement, the black and white display changes to the color one.

When the setting of the display unit type is changed from a monochrome model to a color one on GP-Pro EX, the data may be displayed in colors except black and white depending on a setting. After changing the display unit type, please confirm the display colors of the drawing or the parts on the screens just in case.

# 2.4 Panel Cutout Dimensions

The size of GP-4501T gets smaller. The panel cutout dimensions of GP-4501T are different from those of GP-3500S. Attachment (model: CA4-ATM10-01) for installing GP-4501T is available and you can use it when replacing GP-3500S with GP-4501T. For replacing ST-3501C with GP-4501TW, the panel cutout dimensions get larger. It's necessary to process the panel.

In other cases, there's no change in the panel cutout dimensions.

#### 2.5 Transfer cable

To transfer screen data to GP-4501T/TW, use a USB transfer cable or Ethernet. The USB cables that can be used for GP-4501T/TW 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 that for GP/ST-3500 series can be used.

### 2.6 Interface

#### 2.6.1 Serial Interface

The pin assignment and the shape of plug/socket connector of GP3000 series are different from those of GP-4501T/TW.

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

Because of it, the existing PLC connection cables cannot be used as they are. If you use the existing connection cables, see [<u>4.5 Cable Diagram at the time of replacement</u>].

2.6.2 Auxiliary I/O Interface (AUX) (for GP-3500S/L only) GP-4501T/TW 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-3500S/L cannot be used.

#### 2.6.3 Sound Output Interface (for GP-3500S/L only)

GP-4501T/TW is not equipped with the sound output function. The sound output function for GP-3500S/L cannot be used.

# 2.6.4 CF Card Interface

GP-4501T/TW is not equipped with a CF card slot. But a SD card slot and a USB interfaces are installed. In order to use the GP/ST-3500 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-4501T/TW, 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 you change the display unit type, the setting will automatically change 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].

# 2.7 Peripheral units and option units

2.7.1 Barcode reader connection
Like GP/ST-3500 series, GP-4501T/TW allows you to connect a barcode reader to its USB interface (Type A) or its serial interface.
But a barcode reader cannot be connected to its serial interface.
For the models GP-4501T/TW supports, see [OtasukePro!]
(http://www.pro-face.com/otasuke/qa/3000/0056\_connect\_e.html).

# 2.7.2 Printer connection

Like GP/ST-3500 series, GP-4501T/TW allows you to connect a printer on its USB interface (Type A).

For the models GP-4501T/TW supports, see [OtasukePro!]

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

# 2.7.3 Expansion Unit (for GP-3500S/L only)

GP-4501T/TW is not equipped with an expansion unit interface. The expansion unit (each kind of unit like CC-LINK Unit) for GP3000 series cannot be used.

2.7.4 Isolation Unit (for GP-3500S/L only)

RS-485 isolation unit for GP-3500 series (CA3-ISO485-01) cannot be used for GP-4501T/TW. You can use the RS-232C isolation unit (CA3-ISO232-01) for GP-4501T/TW instead.

#### 2.8 Power Connector

The power connector on GP-4501T (AC type) has the same terminal block as GP/ST-3500 series, but the FG location is different.

GP-4501TW has a DC power supply type only. When replacing GP/ST-3500 series (AC type) with GP-4501TW, changing to DC power supply is required.

#### 2.9 Backup Battery

Unlike GP/ST-3500 series, GP-4501T/TW does not use rechargeable secondary batteries but replaceable 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.

Replaceable Battery Model PFXZCBBT1

# 2.9 Power Consumption

The power consumption of GP/ST-3500 series is different from that of GP-4501T/TW.

	АС Туре	DC Туре	
GP-3500S	90VA or lower (AC100V)		
GP-35003	108VA or lower (AC240V)	50W or lower	
GP-3500L	-		
ST-3501T/C	90VA or lower (AC100V)	45W or lower	
51-3501170	108VA or lower (AC240V)	45W OF IOWEI	
00.45047	44VA or lower (AC100V)		
GP-4501T	58VA or lower (AC240V)	17W or lower	
GP-4501TW	-		

For the detailed electric specifications, see the hardware manual.

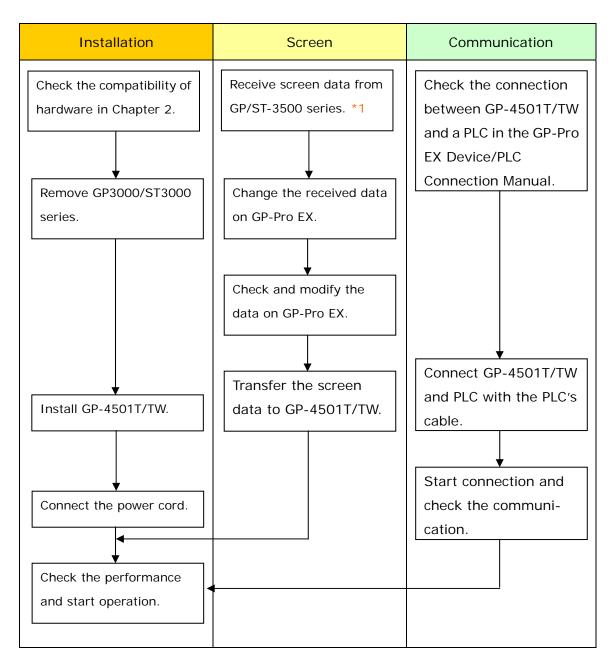
#### 2.10 Materials/Colors of the body

The materials and the colors of GP/ST-3500 series and GP-4501T/TW are as follows:

	Color	Material	
GP-3500 series	Silver	Aluminum alloy	
ST-3500 series	Light Croy	Resin	
GP-4501T/TW	Light Gray	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-3500	* Possible to send/receive a screen via a CF card, a USB
series *1	storage device or Ethernet (for GP-3500S/L only).
Requirements for	PC in which GP-Pro EX Ver.3.01 or later is installed.
converting screen data	Transfer Cable (The following three types of cables are
of GP/ST-3500 series	available)
and transferring the	A USB transfer cable (model: CA3-USBCB-01)
converted data to	A USB data-transfer cable (model: ZC9USCBMB1)
GP-4501T/TW.	<ul> <li>A commercial USB cable (USB Type A/mini B)</li> </ul>
	* Possible to send/receive a screen via a SD card (except
	GP-4501TW), 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-3500 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-3500 series

You can transfer data to GP/ST-3500 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-3500 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 [<u>3.4 Change the Display Unit Type</u>].



PC





USB transfer cable (CA3-USBCB-01)

GP

(1) Connect your PC and GP/ST-3500 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.

NC	DTE	
•	The "Hardware Install	ation" dialog box as shown below may appear during
	installing the USB driv	er depending on the security level of Windows® XP. Click
	[Continue Anyway] to	start installing the driver. When installation is
	completed, click [Finis	sh].
	Hardware	Installation
	<u>.</u>	The software you are installing for this hardware: USB Link Cable ( has not passed Windows Logo testing to verify its compatibility with Windows XP. [Tell me who this testing is important.] Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing. <u>Continue Anyway</u> <u>STOP Installation</u>
	If the following sympt	toms appear on Microsoft Windows ${ m I\!\!R}$ 7, go to updating
	"USB Data Transfer Di	river" on [OtasukePro!] for download.
	(http://www.pro-face.	.com/otasuke/download/freesoft/gpproex_transfer.htm)
	- An error occurs whe	n GP-Pro EX or Transfer Tool is installed
	- An error occurs whe	n data is transferred via a USB transfer cable
	(model: CA3-USBCE	3-01).

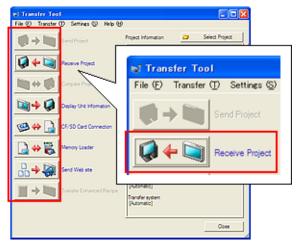
(2) Start the Transfer Tool of GP-Pro EX.

📷 Transfer Tool	
File (F) Transfer (T) Settings (S) Help (H)	
Send Project	Project Information Contract Information
Receive Project	Project File Name A Strategy of Comment Strategy Unit Model :
Display Unit Information	Date [12/2/2010 3:34 PM] Designer [Iterrichinoo] Passwood for send and teceive
CF Card Connection	
📄 \leftrightarrow 👸 Memory Loader	Transfer Information
Send Web site	Device [US8] Transfer Phoject [Automatic]
	Transfer system [Automatic]
	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				? 🛛
Save in: 🗀	tantan	• ¢	• 🗈 💣	
File <u>n</u> ame:				<u>S</u> ave
Save as <u>t</u> ype:	PRX Files (*.prx)		•	Cancel

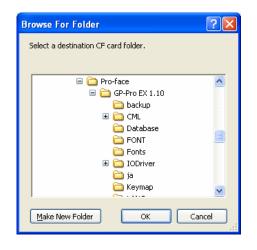
NOTE			
When	a convert-to file exists, the window that confirms whether or not to		
overw	rite the file is displayed.		
	Save As		
C:\Program Files\Pro-face\GP-Pro EX\Database\Product system A.prx already exists. Do you want to replace it?			
	Yes []		

(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.)

 Darting password check. Password is not bit up. Password check run time version. Partine version check complete. Part time version check complete.		
Check project. Daring to bandler finances. Transferring: finances conplete. Daring to bandler run time. Witting.		Display Screen
		Data Transfer
		Data transfer is in progress, Please do NOT turn off the machine until complete,
	And Indiana, Connecting to consider units Connecting to consider units Preseward is not et up. Preseward check complete. Desting to theick runk time version. Check preside Dating to theick runk time. Transferrer formane conplete. Dating to theick runk time. Writing to theick runk time.	Anne UBDIA to Al Partierts. Connecting to dialigue unit: Descend is not jet up. Password direct, complete. Descend direct, complete. Descend direct, complete. Descend direct of the unit for forwards. Thantierting it brancher forwards. Descend direct of the unit

#### 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.



 GP-4501T/TW that is a replacement model is not equipped with a CF card slot. If the display unit type is changed to GP-4501T/TW, the CF card setting will be replaced with the SD card setting automatically. To check or change the destination folder setting, see [5.1 Changing the 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 congit.	Connecting to diaglay unit. Starting partmod check. Personal di heck complete. Deck popet. Starting to brainde finaman. E undering finaman complete. Starting to brainde Runkine. E undering Runkine Complete. Starting to brainde Runkine. E undering Runkine Complete. Starting to brainde Runkine. E undering function complete. Starting to brainde Runkine. E undering diver complete. Starting to brainde Runk. E undering diver complete. Starting to brainde Runk. E undering funct complete. Starting to brainde Runkine. E undering funct complete. Starting to brainde Runk. E undering funct complete. Buotemetro from disky unit. Completed disconnecting from diplay unit. E under complete. Stores

(8) Close the Transfer Tool.

# 3.4 Change the Display Unit Type

Open the received project file (\*.prx) of GP/ST-3500 series on GP-Pro EX and change the display unit type to GP-4501T/TW.

- (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-Pro EX.
- (3) Click [Project]->[Save As] and save the changed project file.

#### 3.5 Transfer the screen data to GP-4501T/TW

Transfer the project file after the display unit type change to GP-4501T/TW. You can transfer data to GP-4501T/TW 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 SD card/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 the GP unit of GP-4501T/TW 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" d	ialog box as shown below may appear during
installing the USB driver depe	nding on the security level of Windows® XP.
Click [Continue Anyway] to st	art installing the driver. When installation is
completed, click [Finish].	
USB Link ( has not pa with Windo Continuin or destab either inin recomme contact (	are you are installing for this hardware:
<ul> <li>If the following symptoms app "USB Data Transfer Driver" or</li> </ul>	pear on Microsoft Windows® 7, go to updating n [OtasukePro!] for download
(http://www.pro-face.com/ota	asuke/download/update/proex/proex/v260/g
pproex_usb_transfer.htm).	
- An error occurs when GP-Pro	o EX or Transfer Tool is installed
- An error occurs when data is	s transferred via a USB transfer cable
(model: CA3-USBCB-01).	

(2) Trun on the power of GP-4501T/TW. 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.

at Transfer Tool			
File (F) Transfer (T) Settings (S) Help (H)			
Send Project	Project Information	0	Select Project
Receive Project	Project File Name [Unitiled2.pn] [Display Unit Model : Comment [] Date [12/3/2010.3:34 PM]	*	•
Display Unit Information	Designer [kenichiroo]		
CF Card Connection	Password for send and re	ceive	× 2
Memory Loader	Transfer Information	QQ	Transfer Settings
Send Web site	Device [US8]		
	Transfer Project [Automatic]		
	Transfer system [Automatic]		
			Close

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].

Transfer Setti	ngs
Tamsfer Settings	Site Settings
Communication	Port Settings
USB	
C LAN	
C Modern	
С СОМ	

(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 projects will be executed. Is that OK?			
	Yes	No	1	

(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			SID X	
Display Unit USE(A to A)	Status Transferri,	UBDA to Al Converting parameter divide. Parameter of an off stop Parameter of an off stop Parameter of an off stop Parameter of the stop of the stop Parameter of the stop of the stop Parameter of the stop of the stop One of the stop of the stop of the stop One of the stop of the stop of the stop One of the stop of the stop of the stop One of the stop of the stop of the stop of the Darting to the stop of the stop of the stop of the stop of the stop of the stop of the stop of the stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the stop of the stop of the stop of the Stop of the stop of the Stop of the stop of the Stop of the stop of the Stop of the stop of the sto		Display Screen Data Transfer Data transfer is in progress, Please do NOT turn off the machine until complete,
			) 10x	Please do NOI turn off the machine until complete,

(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.

Send Project			
Display Unit	Status	USB	
669	Transfer compt.	Convectings to display unit. Starting partmod check. Password in not at up. Password heck complete. Orecli posject. Starting to Brantler Runiten. Transfering Fauntime complete. Starting to Brantler Runiten. Transfering Pauntime complete. Starting to Brantler Runiten. Transfering of Daniere complete. Starting to Brantler Runiten. Starting to Brantler Runiten. Transfering Inter Complete. Starting to Brantler Runiten. Transfering Inter Starting Wirk. Completed disconvecting Ison display unit. Transfer complete.	
		Transfer conglete.	

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-3500 series are not supported by GP-4501T/TW. 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-3500S/L	ST-3501T/C	GP-4501T/TW	
	D-Sub 9 pin (plug)	D-Sub 9 pin (plug)		
	RS-232C/422/485	RS	-232C	
COM1	5 1 5 0 0 0 0 0 0 0 0 0 0 0 0 0	5	0  0	
	D-Sub 9 pin (socket)	D-Sub 9	pin (plug)	
	RS-422/485	RS-4	22/485	
COM2	1 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5	©  ©	

#### NOTE

- If you use the connecting cable that was used for GP/ST-3500 series, see [4.5]
   <u>Cable Diagram at the time of replacement</u>].
- When the both COM1 and COM2 ports on GP-3500S/L have RS-422/485 setting, devices with RS-422/485 cannot be connected to the COM1 port after replacement with GP-4501T/TW. 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-3500S/L

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	<b>9</b>	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 +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.

Pin	Pin Connection		RS-422/RS-48	R\$-422/R\$-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 (+)	
	00	4	ERA	Output	Data Terminal Ready A (+)	
1	6	5	SG	-	Signal Ground	
	$\odot$	6	CSB	Input	Send Possible B (-)	
	Durnit cide )	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-3501T/C

RS-232C (plug)

Pin Connection		Pin	RS-232C		
		No.	Signal Name	Direction	Meaning
	_	1	CD	Input	Carrier Detect
( O		2	RD(RXD)	Input	Receive Data
5	9	3	SD(TXD)	Output	Send Data
000		4	ER(DTR)	Output	Data Terminal Ready
1 60	6	5	SG	-	Signal Ground
		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 <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-4501T/TW

RS-232C (plug)

Pin Connection		Pin	RS-232C		
		No.	Signal Name	Direction	Meaning
		1	CD	Input	Carrier Detect
(	$\odot$	2	RD(RXD)	Input	Receive Data
5	[] 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	vunit side)	8	CS(CTS)	Input	Send possible
		9	CI(RI)/VCC	Input/-	Called Status Display +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.

# 4.3.2 Signals of COM2

For GP-3500S/L

RS-422/485 (socket)

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

#### For ST-3501T/C

RS-422/485 (plug)

Pin Connection		Pin	RS-422/RS-48	RS-422/RS-485		
		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 (+)	
	° °	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	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-4501T/TW

RS-422/485 (plug)

Pir	Pin Connection		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 (+)
	00	4	ERA	Output	Data Terminal Ready A (+)
1	6	5	SG	-	Signal Ground
	$\odot$	6	CSB	Input	Send Possible B (-)
	Durrit cide )	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

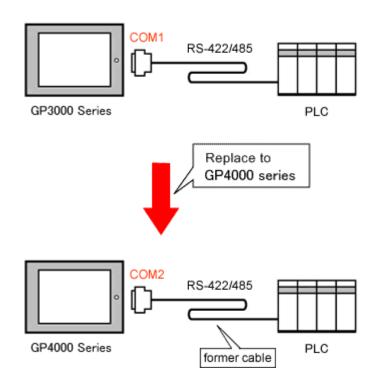
For the communication drivers that support serial multi-link, see [Which drivers support serial multilink communication?]

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

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

The connection cable for GP/ST-3500 series can be used for GP-4501T/TW. But please note that there are precautions and restrictions as described below when replacing GP-3500S/L.

When a RS-422/485 device is connected via the COM1 port, if GP-3500S/L is replaced with GP-4501T/TW, it will be connected via the COM2 port of GP-4501T/TW. (The cable diagram can be still used.)
 Before GP-4501T/TW 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)

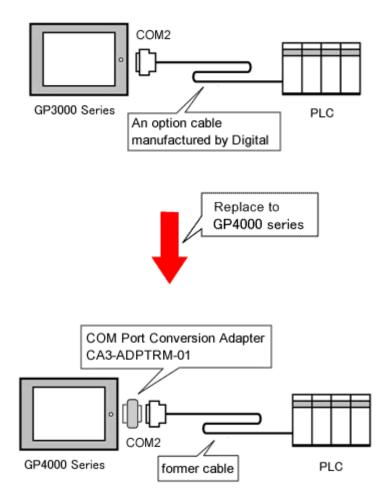


 The cable used for connection to GP-3500S/L via COM2 can be used for GP-4501T/TW only in the following case with a COM Port Conversion Adapter (CA3-ADPCOM-01) added.

# **IMPORTANT** The user-created cable for connection to GP-3500S via COM2 can't be used for

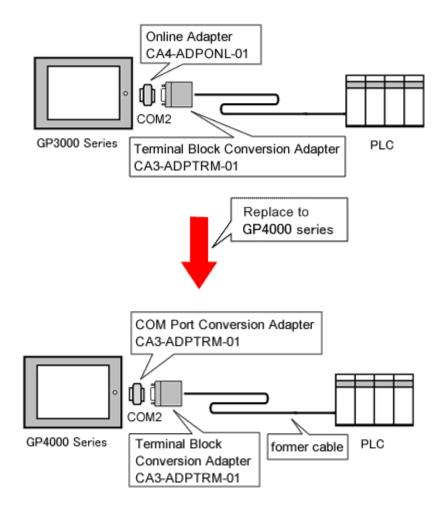
GP-4501T/TW.

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-3500 series can be used for GP-4501T/TW.

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



The connection cable for GP/ST-3500 series can be used for GP-4501T/TW.

 When both the COM1 port and the COM2 port have the RS-422/485 setting, if GP-3500S/L is replaced with GP-4501T/TW, only the COM2 port can be used on GP-4501T/TW for RS-422/485 connection.

Using a **USB/RS-422/485 Conversion Adapter (PFXZCBCBCVUSR41)** allows you to use GP-4501T/TW' 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-3500 series, after the display unit type of the project file is changed to GP-4501T/TW, "a CF card" is automatically replaced with "a SD card" for the external media setting.

 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	heck		
♥ 尊	<b>V</b>		
Level	Error Nur	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 flash drive instead of a SD card ->Solution 1
- (3) To check or change the SD card's data output destination folder setting

<sup>-&</sup>gt;<u>Solution 2</u>

# [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 Browse
USB Storage Destination
✓ Enable USB Storage
USB Storage Folder
C:\Program Files\Pro-face\GP-Pro EX Browse

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	Browse
USB Storage Destination	
✓ Enable USB Storage	
USB Storage Folder	
C:\Program Files\Pro-face\GP-Pro EX	Browse
	Diowse

- 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 D	Destination	
Enab	ble SD Card	
SD Card Folder		
00	:\Program Files\Pro-face\GP-Pro EX Browse	
USB Storag	ige Destination	
	ige Destination ble USB Storage	
🔽 Enab	-	

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