Pro-face®

Easy! Smooth!

GP3000/ST3000 -> GP4X01TM

Replacement Guidebook

Preface

This guidebook introduces the procedures to replace a unit in GP3000/ST3000 series with a GP4X01TM unit.

Model in use	Replacement model
GP-3301L	**GP-4301TM**
GP-3302B	
ST-3301B	
ST-3302B	
ST-3201A	**GP-4201TM**
ST-3211A	

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CHAPTER 4. COMMUNICATION WITH DEVICE/PLC

Chapter 1. Specification Comparison

1.1 Specifications of GP-3301L and GP-4301TM

	GP-3301L	GP-4301TM
Display Type	Monochrome LCD	**NEW!** TFT Color LCD
Display Colors, Levels	Monochrome, 16 levels	**UP!** 65,536 colors
Display Resolution	QVGA (320 x 240 pixels)	
Panle Cutout Dimensions (mm)	156(W) x 123.5(H)	**NEW!** φ22mm -> See 2.3
External Dimensions (mm)	167.5(W) x 135(H) x 59.5(D)	**NEW!** 163(W) x 129.4(H) x 56.5(D) *The main module is included. -> See 2.4
Touch Panel Type	Resistive film (Analog)	
Memory — **Application**	6MB	**UP!** 8MB
Memory — **Backup**	320KB	128KB -> See 2.8
Serial Interface — **COM1**	9 pin D-Sub (male) RS-232C/422/485	9 pin D-Sub (male) RS-232C/422/485
Serial Interface — **COM2**	9 pin D-Sub (female) RS-422/485 -> See 2.6	-
Ethernet Interface	10BASE-T/100BASE-TX	
CF Card Interface	✔	- -> See 2.7
Printer Interface	USB	- -> See 2.9.2
USB Host Interface	✔ -> See 2.5	

1.2 Specifications of GP-3302B and GP-4301TM

	GP-3302B	GP-4301TM
Display Type	Monochrome blue mode LCD	**NEW!** TFT Color LCD
Display Colors, Levels	Monochrome, 16 levels	**UP!** 65,536 colors
Display Resolution	QVGA (320 x 240 pixels)	
Panle Cutout Dimensions (mm)	156(W) x 123.5(H)	**NEW!** φ22mm -> See 2.3
External Dimensions (mm)	167.5(W) x 135(H) x 59.5 (D)	**NEW!** 163(W) x 129.4(H) x 56.5(D) * The main module is included. -> See 2.4
Touch Panel Type	Resistive film (Analog)	
Memory — **Application**	6MB	**UP!** 8MB
Memory — **Backup**	128KB -> See 2.8	
Serial Interface — **COM1**	9 pin D-Sub (male) RS-232C	**NEW!** 9 pin D-Sub (male) RS-232C/422/485 -> See 2.6
Serial Interface — **COM2**	9 pin D-Sub (male) RS-422	-
Ethernet Interface	-	**UP!** 10BASE-T/100BASE-TX
Printer Interface	USB	- -> See 2.9.2
USB Host Interface	✔ -> See 2.5	

1.3 Specifications of ST-3301B/ST-3302B and GP-4301TM

			ST-3301B/ST-3302B	GP-4301TM	
Display Type			Monochrome blue mode LCD	**NEW!** TFT color LCD	
Display Colors, Levels			Monochrome, 8 levels	**UP!** 65,536 colors	
Display Resolution			QVGA (320 x 240 pixels)		
Panle Cutout Dimensions (mm)			156(W) x 123.5(H)	**NEW!** φ22mm -> See 2.3	
External Dimensions (mm)			167.5(W) x 135(H) x 59.5(D)	**NEW!** 163(W) x 129.4(H) x 56.5(D) *The main module is included. -> See 2.4	
Touch Panel Type			Resistive film (Analog)		
Memory	**Application**		6MB	**UP!** 8MB	
	Backup		320KB	128KB -> See 2.8	
Serial Interface	**COM1**		9 pin D-Sub (male) RS-232C	**NEW!** 9 pin D-Sub (male) RS-232C/422/485 -> See 2.6	
	COM2	**ST-3301B**	9 pin D-Sub (male) RS-422/485 *1	-	
		ST-3302B	9 pin D-Sub (female) RS-485 (for MPI only)		
Ethernet Interface			-	**UP!** 10BASE-T/100BASE-TX	
Printer Interface			USB	- -> See 2.9.2	
USB Host Interface			✔ -> See 2.5		

*1: AST-3301B Rev.B or later supports RS-485.

1.5 Specifications of ST-3201A/ST-3211A and GP-4201TM

|			ST-3201A/ST-3211A	GP-4201TM
Display Type			Monochrome amber/red LCD	**NEW!** TFT Color LCD
Display Colors, Levels			Monochrome, 8 levels	**UP!** 65,536 colors
Display Resolutions			QVGA (320 x 240 pixels)	
Panel Cutout Dimensions (mm)			118.5(W) x 92.5(H)	**NEW!** ϕ22mm -> See 2.3
External Dimensions (mm)			130(W) x 104(H) x 40(D)	**NEW!** 118(W) x 98.15(H) x 56.3(D) *The main module is included. -> See 2.4
Touch Panel Type			Resistive film (Analog)	
Memory	**Application**		6MB	**UP!** 8MB
	Backup		320KB	128KB -> See 2.8
Serial Interface	**COM1**		9 pin D-Sub (male) RS-232C	**NEW!** 9 pin D-Sub (male) RS-232C/422/485 -> See 2.6
	COM2	**ST-3201A**	9 pin D-Sub (male) RS-422/485 *1	-
		ST-3211A	9 pin D-Sub (male) RS-485 (For MPI only)	
Ethernet Interface			-	**UP!** 10BASE-T/100BASE-TX
Printer Interface			USB	- -> See 2.9.2
USB Host Interface			✔ -> See 2.5	

*1: AST-3201A Rev.C or later supports RS-485.

Chapter 2. Compatibility of Hardware

2.1 Locations of connectors

Connector locations on GP3000/ST3000 series andGP4X01TM series are as follows:

GP-3301L/GP-3302B
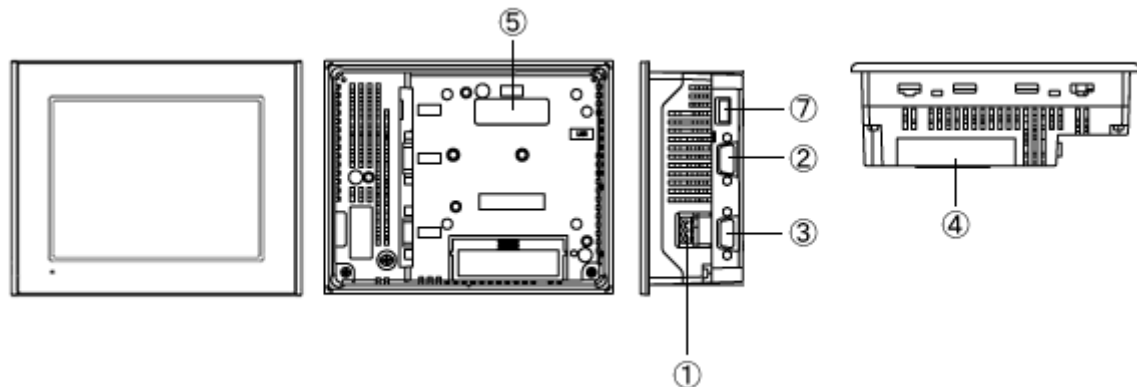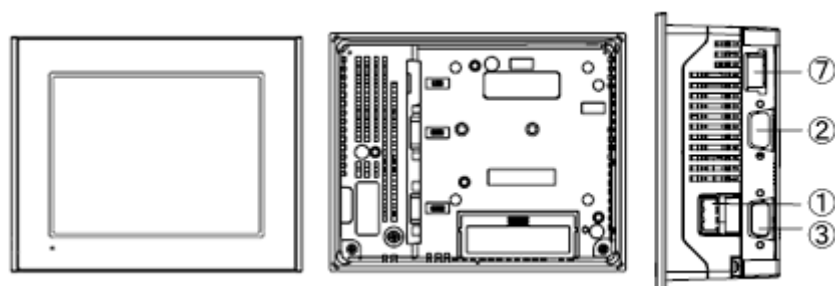
ST-3301B/ST-3302B
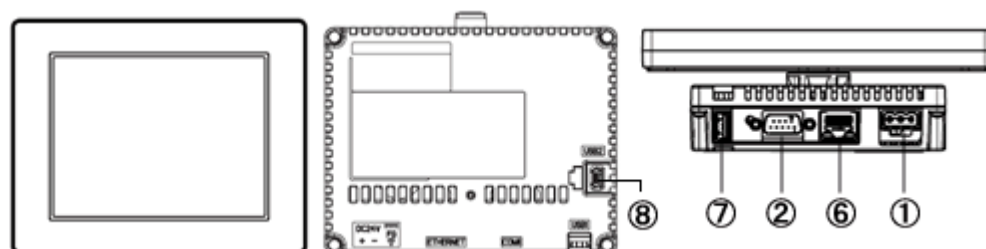
GP-4301TM

Interface names

	GP-3301L/GP-3302B ST-3301B/ST-3302B	GP-4301TM
1	Power Connector	
2	Serial Interface (COM1)	
3	Serial Interface (COM2)	-
4	CF Card Interface *1	-
5	Expansion Unit Interface	-
6	-	Ethernet Interface
7	USB Interface (Type A)	
8	-	USB Interface (miniB)

*1: For GP-3301L only

ST-3201A/ST-3211A
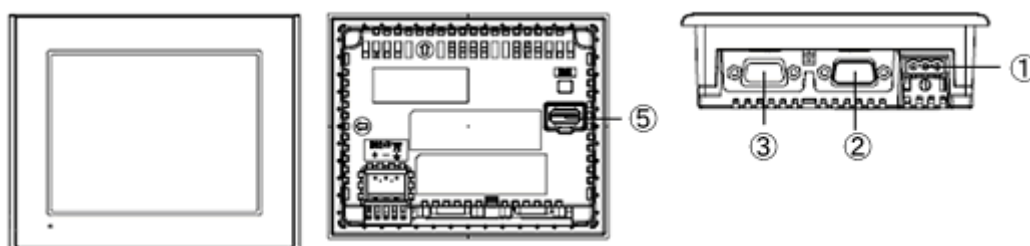
GP-4201TM
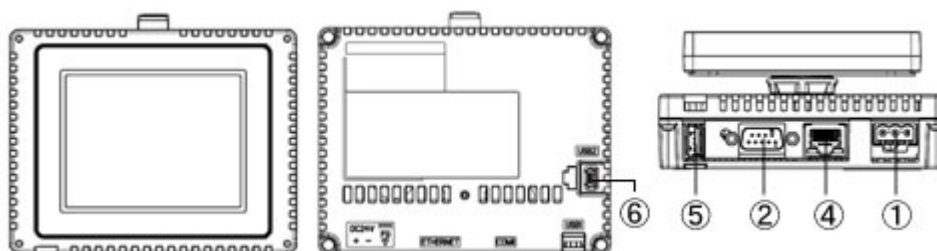
Interface names

	ST3201A/ST3211A	GP-4201TM
1	Power Connector	
2	Serial Interface (COM1)	
3	Serial Interface (COM2)	-
4	-	Ethernet Interface
5	USB Interface (Type A)	
6	-	USB Interface (miniB)

2.2 Display Colors

GP3000/ST3000 series has monochrome LCD, but GP4X01TM series has TFT color LCD. After replacement, the black and white display changes to the color display.

When data of a monochrome model are converted to a color model with 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 drawing or parts on screens just in case.

2.3 Panel cutout dimensions

The panel cutout ofGP4X01TM series is a ϕ22-mm circular hole. The panel cutout shape and dimensions ofGP4X01TM series are different from those of GP3000/ST3000 series.
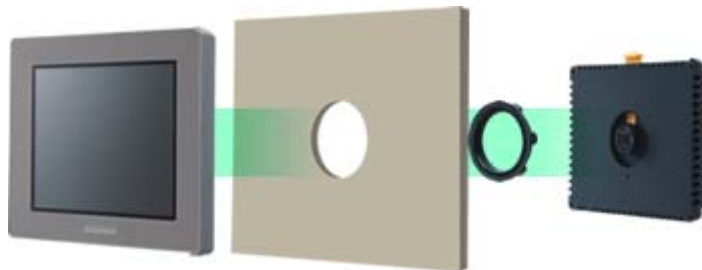
2.4 External Dimensions

For GP4X01TM series, the front face display module (display part) and the back face main module are separated. Compared with GP3000/ST3000 series, the tickness of the part appearing on the installation panel differs.

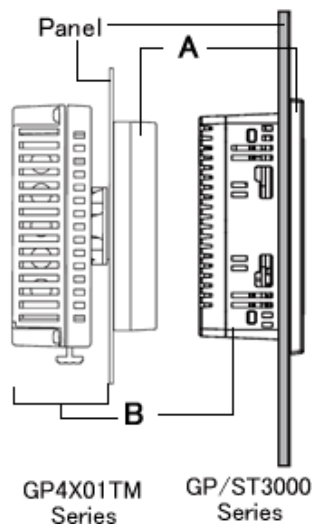|	GP-3301L/GP-3302B ST-3301B/ST-3302B	ST-3201A ST-3211A	GP-4201TM	GP-4301TM
A (the thickness of the front bezel)	5mm	5mm	16.2mm	17.5mm
B (the depth of the back face)	54.5mm	35mm	40.1mm	39mm

2.5 Transfer cable

To transfer screen data toGP4X01TM series, use a USB transfer cable or Ethernet. Use a USB data-transfer cable (model: ZC9USCBMB1) or a commercial USB cable (USB A/mini-B). Please note that the cables (CA3-USBCB-01) for GP3000/ST3000 series cannot be used forGP4X01TM series.

2.6 Serial interface

The COM1 port on GP4X01TM series is D-sub 9 pin male. The COM2 port on GP-3301L is D-sub 9 pin female, and the pin assignment and the shape of male/female connector are different from those ofGP4X01TM series. Because of it, the existing PLC connection cables cannot be used. If you use the existing connection cables, see [4.5 Cable Diagram at the time of replacement].

2.7 CF Card Interface

GP4X01TM series is not equipped with a CF card slot. GP4X01TM series has a USB interface, but does not support the function of saving data in a USB storage and reading out data. GP3000/ST3000 series data saved in a CF card or a USB storage and the functions using a CF card or a USB storage cannot be used.

2.8 Memory

GP4X01TM series does not have SRAM, but uses a part of application memory as a backup area. Data in the backup area is retained even after power off or reset of GP4X01TM series in the same way as SRAM. The functions possible for backup on GP4X01TM series are as follows:

- Alarm History (Up to 768)
- Recipe (Filing data)
- Brightness/Contrast values

*For the functions above, data is saved in the backup area at the time of 'Save'.
*Sampling and clock data is not backed up.

2.9 Peripheral units and option units

 2.9.1 Barcode reader connectoin

    GP4X01TM series allows you to connect a barcode reader on its USB interface (Type A) in the same as GP3000/ST3000 series.
    For the models GP4X01TM series supports, see
    [OtasukePro!](http://www.pro-face.com/otasuke/).
    And if you connect a barcode reader to GP4X01TM series, be sure to supply power to the barcode reader from an external power source (such as a USB hub supporting self-power supply). When no power is supplied from an external power source, if the barcode reader consumes more electricity than expected, operation of GP4X01TM series will become unstable and reset may be activated.

 2.9.2 Printer connection

    GP4X01TM series does not support printer connection. A printer for GP3000/ST3000 series cannot be used.

2.9.3 Expansion Unit

GP4X01TM series is not equipped with an expansion bus unit. The expansion units (such as CC-LINK) used for GP3000/ST3000 series cannot be used.
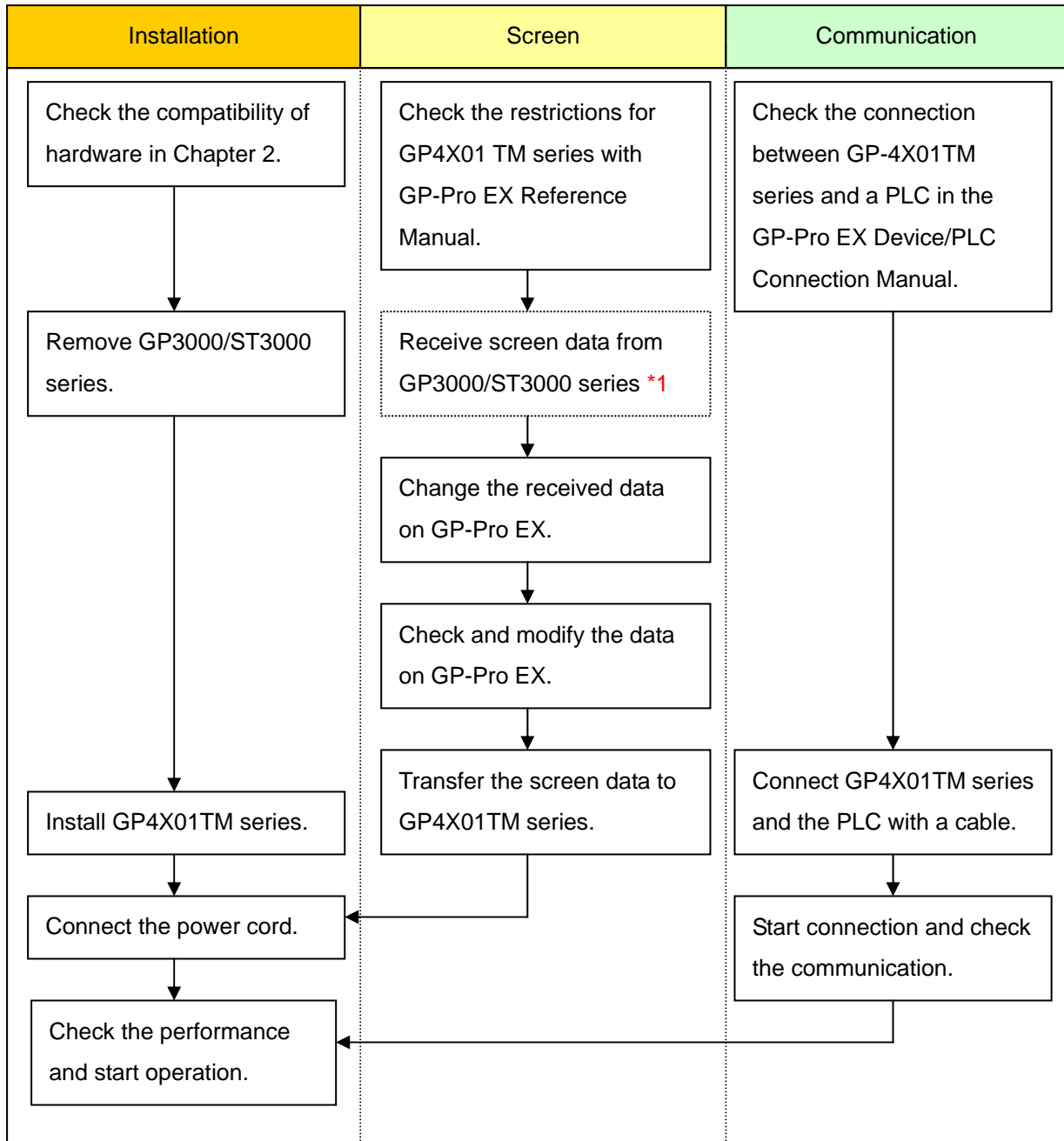
2.10 Power Consumption

The power consumption of GP3000/ST3000 series is different from that ofGP4X01TM series.

GP-3301L	GP-3302B ST-3301B/3302B	ST-3201A ST-3211A	GP-4201TM	GP-4301TM
26W or lower	18W or lower	13W or lower	6.5W or lower	6.8W or lower

For the detailed electric specifications, see the hardware manual.

Chapter 3. Replacement Procedure

3.1 Work Flow

Installation	Screen	Communication
Check the compatibility of hardware in Chapter 2.	Check the restrictions for GP4X01 TM series with GP-Pro EX Reference Manual.	Check the connection between GP-4X01TM series and a PLC in the GP-Pro EX Device/PLC Connection Manual.
Remove GP3000/ST3000 series.	Receive screen data from GP3000/ST3000 series *1	
	Change the received data on GP-Pro EX.	
	Check and modify the data on GP-Pro EX.	
Install GP4X01TM series.	Transfer the screen data to GP4X01TM series.	Connect GP4X01TM series and the PLC with a cable.
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 display unit, not in any other device

3.2 Preparation

Requirements for receiving screen data from GP3000/ST3000 series *1	PC in which GP-Pro EX Transfer Tool is installed *2
	A USB data-transfer cable (model: CA3-USBCB-01) *GP3000/ST3000 series also allows you to transfer screen data with a CF card/USB flash drive, or Ethernet.
Requirements for converting screen data of GP3000/ST3000 series and transferring them toGP4X01TM series	PC in which GP-Pro EX Ver.2.71 or later is installed.
	A USB datda-transfer cable (model: ZC9USCBMB1) or A commercial USB cable (USB A/mini-B) *GP4X01TM series also allows you to transfer screen data via USB flash drive or on Ethernet.

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

*2:   The software version must be the same as or higher than the version that you used when creating screen data for GP3000/ST3000 series.

We recommend you upgrade to the latest version if you don't know the version you use. Upgrade it on our website OtasukePro! (http://www.pro-face.com/otasuke/).

3.3 Receive screen data from GP3000/ST3000 series

This section explains, as an example, how to receive screen data from GP3000/ST3000 series using a transfer cable, 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].
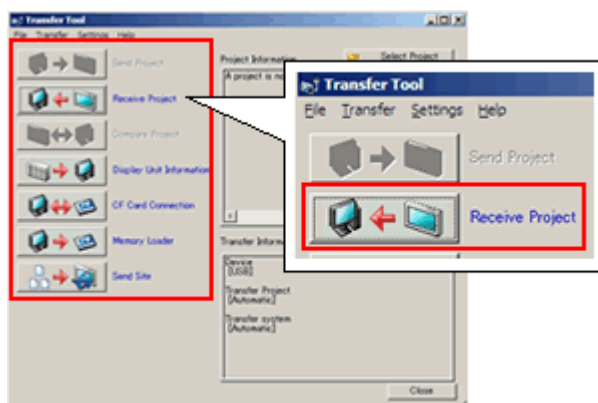
1.   Connect a USB transfer cable to a unit of GP3000/ST3000 series.


2.   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].


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

4. 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.
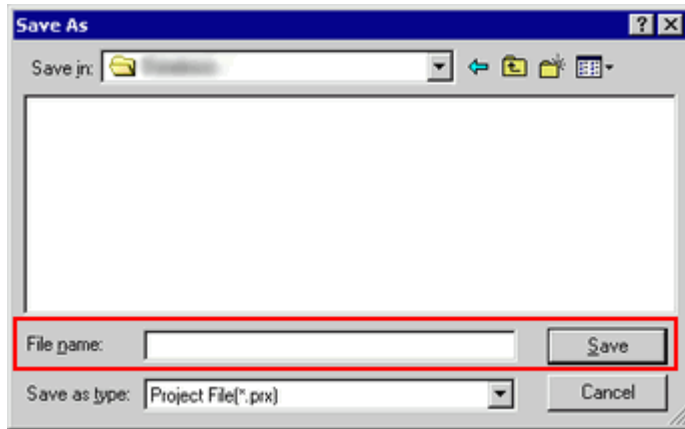
The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)
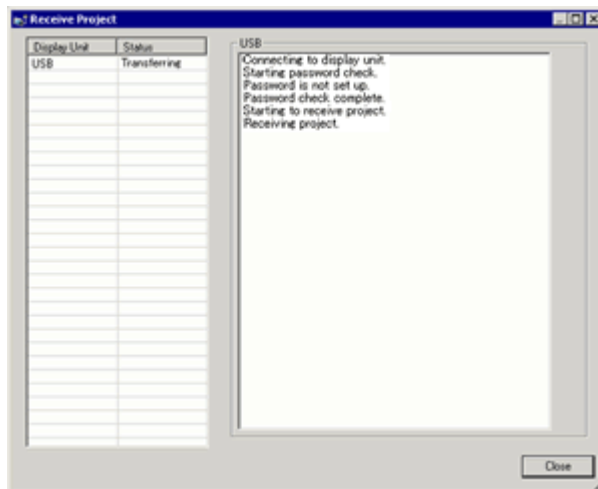
5. When transfer is completed, the status displayed in the dialog box will change from [Transferring] to [Complete Transfer]. Click [Close] to close the dialog box.
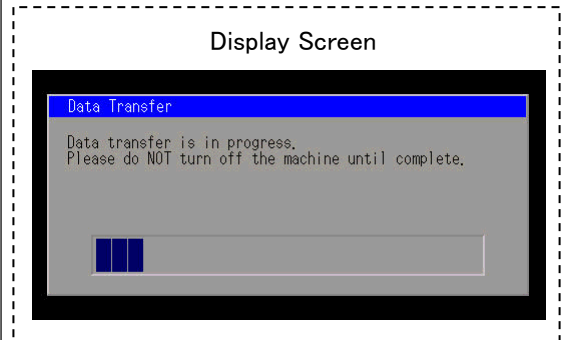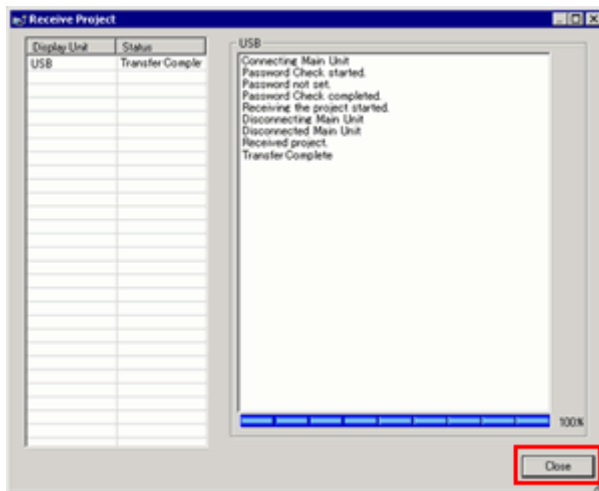
6. Close the Transfer Tool.

| 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.

 |
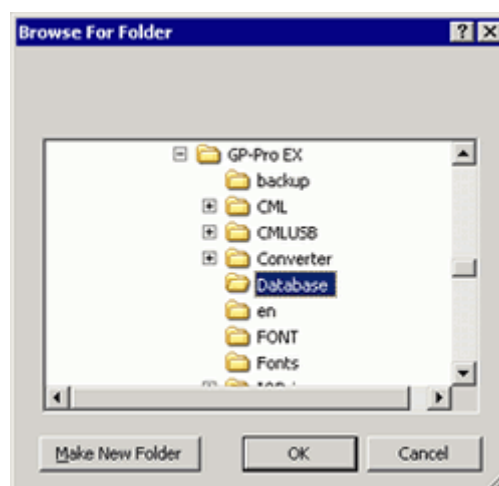
3.4 Change the Display Unit type

Open the received project file (*.prx) of GP3000/ST3000 series with GP-Pro EX and change the display unit type toGP4X01TM series.

1. Open the received project file (*.prx) with GP-Pro EX.
2. Change the Display Unit type to GP-4301TM or GP-4201TM in [Display] on [System Settings] of GP-Pro EX.

NOTE
・ If you change the Display Unit type, the parts or the function settings that do not support GP4X01TM series are deleted, initialized, or changed. For the functionsGP4X01TM series doesn't support and the important notes, see [3.6 Differences of software]. ・ Depending on a setting of the project file, the message as shown below appears, the Display Unit may not change toGP4X01TM series. When the message appears, check the cause and the solution in 5.1 When the Display Unit cannot be changed] and then change the Display Unit again.
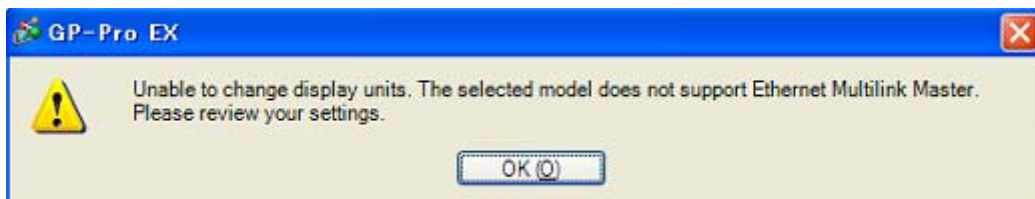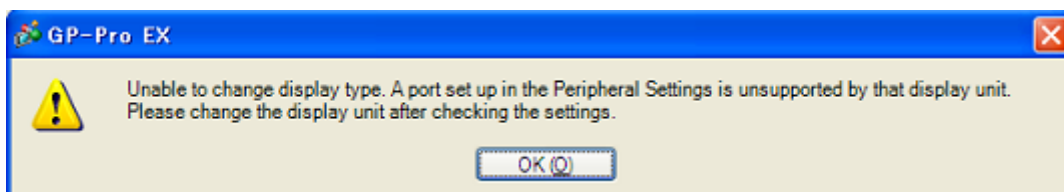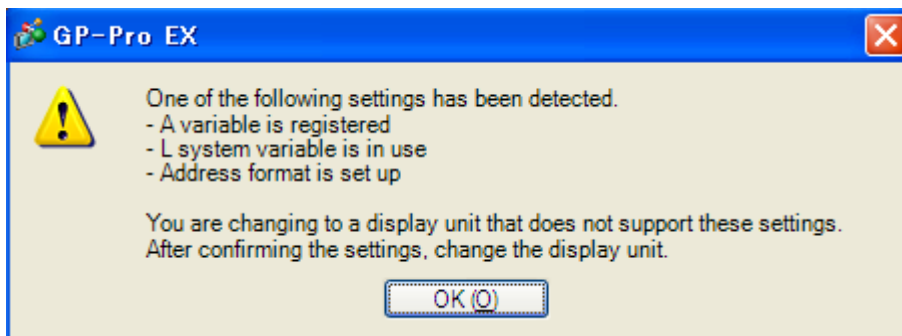
3.5 Transfer screen data toGP4X01TM series

Transfer the project file after conversion and changing the Display Unit type to GP4X01TM series. You can transfer data toGP4X01TM series via a USB transfer cable (model: ZC9USCBMB1), USB flash drive, or Ethernet. Here, this section explains, as an example, how to transfer screen data via a USB transfer cable.

PC   USB transfer cable   GP
                   (ZC9USCBMB1)

1. Connect your PC and the GP unit with a USB transfer cable (model: ZC9USCBMB1). 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].

---

2. Turn on the power ofGP4X01TM series. The "Initial Start Mode" will appear. The English screen starts first. Touch the right part of [Language] to change the language. 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.
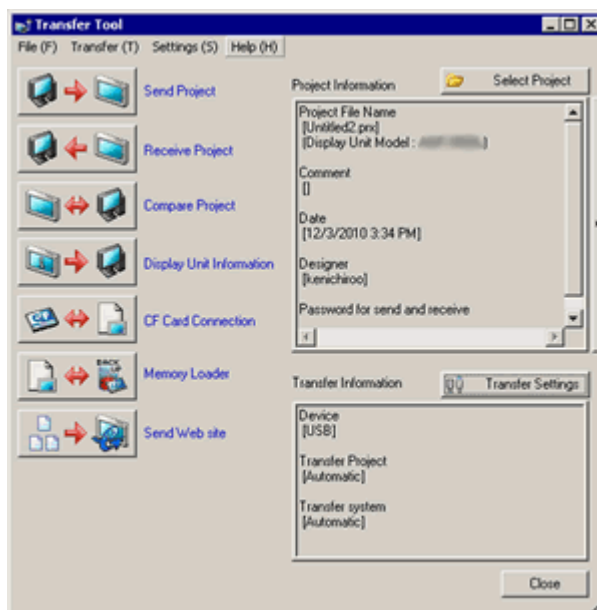
To transfer a different project file, click the [Select Project] button and select a project file.

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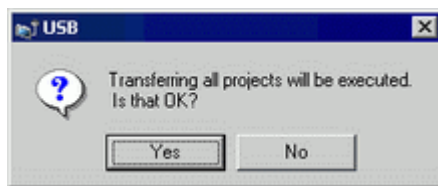
6. The following dialog box appears during transfer and you can check the communication status. (The display unit enters the Transferring mode and communication with the device such as a PLC is terminated.)

7.   When transfer is completed, the status displayed in the dialog box will change from
      [Transferring] to [Transfer Complete]. Click [Close] to close the dialog box.
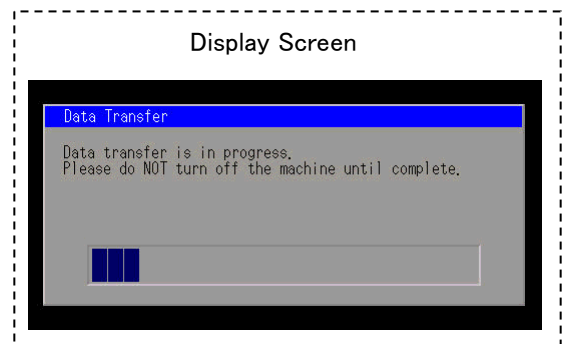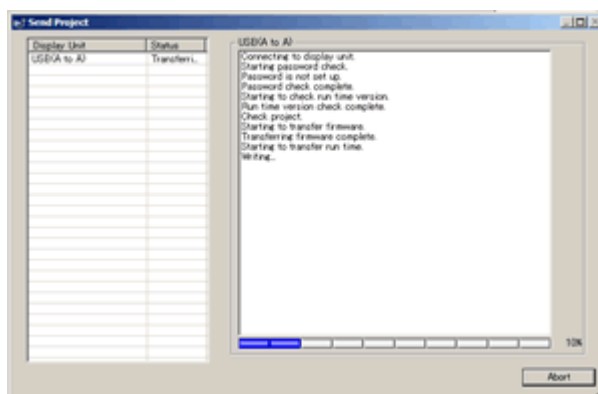
      (The display unit will be reset and a screen of the transferred project file will be displayed.)

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

If you change the Display Unit toGP4X01TM series on GP-Pro EX after receiving data from GP3000/ST3000 series, the function settings GP4X01TM series does not support are deleted from the project file.

The functions to be deleted from the GP-Pro EX's project files.

Parts	Text Alarm
	Alarm
	VM Unit Display (Image Unit Display)
	Special Data Display
	Sampling Data Display
	Special Data Display
The other functions	Sound Settings
	Transfer CSV Data on Recipe
	Sampling Setting *1

*1: In the Sampling settings, only the [Display/Save As CSV, Printing Language] setting that is not supported by GP4X01TM series is deleted.

NOTE
For details of GP-Pro EX's parts and functions that cannot be used or have restrictions on GP4X01TM series, refer to [For Those Using GP-4*01TM] in the GP-Pro EX Reference Manual. (http://www.pro-face.com/otasuke/files/manual/soft/gpproex/new/refer/mergedProjects/welcome/welcome_rr_gm4000.htm)

Chapter 4. Communication with Device/PLC

4.1 Driver list

IMPORTANT
・The followings are information as of September 2011. More connectable drivers will be added. Please check our website "Otasuke Pro!" for the latest information. For the devices/PLC each driver supports, see [Connectable Devices] (http://www.pro-face.com/product/soft/gpproex/driver.html). ・If an unsupported driver is set in a project file, a message appears and the model cannot be changed to GP-4301TM. (See [5.1 When the Display Unit cannot be changed])

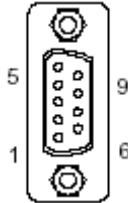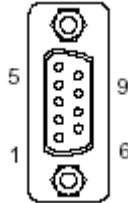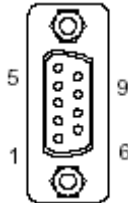| PLC	
Manufacturer	**Series**
OMRON Corporation	C/CV Series HOST Link
	CS/CJ Series Ethernet
	CS/CJ Series HOST Link
KEYENCE Corporation	KV-700/1000/3000/5000CPU Direct
	KZ10_80R/T Series CPU Direct
Koyo Electronics Co., Ltd.	KOSTAC/DL Series CCM SIO
	KOSTAC/DL Series MODBUS TCP
JTEKT Corporation	TOYOPUC CMP-LINK Ethernet
(Formerly Toyoda Machine Works)	TOYOPUC CMP-LINK SIO
TOSHIBA Machine Co., Ltd.	TC Series (TCmini/TC200)
Panasonic Electric Works, Ltd. (Formerly Matsushita Electric Works, Ltd)	FP Series Computer Link SIO
Fuji Electric Co., Ltd.	MICREX-F Series SIO
	MICREX-SX Series Ethernet
	MICREX-SX Series SIO
Mitsubishi Electric Corporation	A Series CPU Direct
	A Series Computer Link
	A Series Ethernet
	FX Series Computer Link

	FX Series CPU Direct
	FX Series Ethernet
	Q Series CPU Direct
	Q Series QnU CPU Ethernet
	Q/QnA Serial Communication
	Q/QnA Series Ethernet
	QnA Series CPU Direct
	QUTE Series CPU Direct
YASKAWA Electric Corporation	MP Series SIO (Extension)
YOKOGAWA Electric Corporation	Personal Computer Link SIO
Fatek Automation Corp.	FB Series SIO
LS Industrial System	MASTER-K Series Cnet
	XGT Series Cnet
	XGT Series FEnet
Rockwell Automation, Inc.	DF1
	DH-485
	EtherNet/IP
Schneider Electric SA	MODBUS SIO Master
	MODBUS Slave
	MODBUS TCP Master
	Uni-Telway
Siemens AG	SIMATIC S7 Ethernet
	SIMATIC S7 MPI Direct
Siemens Building Technologies	SAPHIR SIO
Temperature Controller	
Manufacturer	**Series**
YOKOGAWA Electric Corporation	Personal Computer Link SIO
RKC Instrument Inc.	Temp. Controller MODBUS SIO
	Temperature Controller
Inverter/Servo/Industrial Robot	
Manufacturer	**Series**
YASKAWA Electric Corporation	MP/Servo Ethernet

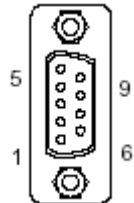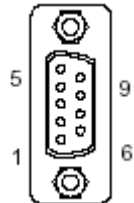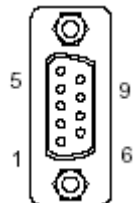| Other Devices	
Manufacturer	**Series**
Digital Electronics Corporation	General Ethernet General SIO Memory Link
Modbus-IDA	General MODBUS RTU SIO Master General MODBUS TCP Master

4.2 Shapes of COM ports

For GP-3301L

	GP-3301L	GP4X01TM series
COM1	25 pin D-Sub (male) RS-232C/422/485 supported 5 ⬚ 9 1 ⬚ 6	9 pin D-Sub (male) RS-232C/422/485 supported 5 ⬚ 9 1 ⬚ 6
COM2	9 pin D-Sub (male) RS-485 (422) supported 5 ⬚ 9 1 ⬚ 6	-

NOTE
The COM1 port on GP4X01TM series is 9-pin D-Sub male. The COM2 port on GP-3301L is 9-pin D-Sub female. The pin assignment and the shape of male/female connector are different from those of GP4X01TM series. Because of it, the existing PLC connection cables cannot be used. If you use the existing connection cables, see [4.5 Cable Diagram at the time of replacemet].

For GP-3302B/ST-3301B/ST-3302B/ST-3201A/ST-3211A
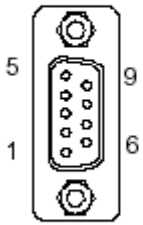
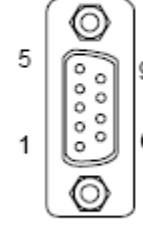|	GP-3302B/ST-3301B/ST-3302B ST-3201A/ST-3211A		GP4X01TM series
COM1	25 pin D-Sub (male) RS-232C/422/485 supported		9 pin D-Sub (male) RS-232C/422/485 supported
COM2	GP-3302B/ST-3301B ST-3201A/ST-3211A	ST-3302B	-
	9 pin D-Sub (male) RS-422/485 supported	9 pin D-Sub (female) RS-485 MPI only supported	

4.3 Signals of COM ports

4.3.1 Differences of COM1 signals
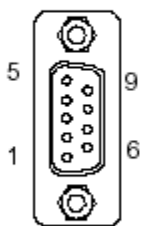
◆For GP-3301L

RS-232C (male)

Pin Arrangement	Pin No.	RS232C		
		Signal Name	Direction	Meaning
	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send Possible
	9	CI(RI)/VCC	Input/-	Called status display +5V±5% Output 0.25A [*2]
(GP unit side)	Shell	FG	-	Frame Ground (Common with SG)

RS-422/485(male)

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(+)
	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(-)
(GP unit side)	Shell	FG	-	Frame Ground (Common with SG)

◆For GP-3302B/ST-3301B/ST-3302B/ST-3201A/ST-3211A

RS-232C (male)

Pin Arrangement	Pin No.	RS232C		
		Signal Name	Direction	Meaning
(GP unit side)	1	CD	Input	Carrier Detect
	2	RD(RXD)	Input	Receive Data
	3	SD(TXD)	Output	Send Data
	4	ER(DTR)	Output	Data Terminal Ready
	5	SG	-	Signal Ground
	6	DR(DSR)	Input	Data Set Ready
	7	RS(RTS)	Output	Request to Send
	8	CS(CTS)	Input	Send Possible
	9	CI(RI)/VCC	Input/-	Called status display +5V±5% Output 0.25A *2
	Shell	FG	-	Frame Ground (Common with SG)
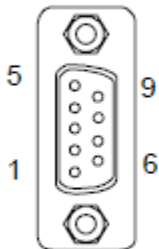
◆ForGP4X01TM series

RS-232C (male)

Pin Arrangement	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)	Input	Called status display
	Shell	FG	-	Frame Ground (Common with SG)

*There's no VCC output.

RS-422/485 (male)

Pin Arrangement	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)

4.3.2 Difference of COM2 signals
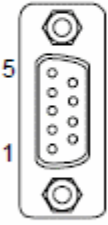
◆For GP-3301L

RS-422/485 (male)

Pin Arrangement	Pin No.	RS422/RS485		
		Signal Name	Direction	Meaning
(GP unit side)	1	TRMRX	-	Termination (Receiver side: 100Ω)
	2	RDA	Input	Receive Data A(+)
	3	SDA	Output	Send Data A(+)
	4	RS(RTS)	Output	Request for Send
	5	SG	-	Signal Ground
	6	VCC	-	+5V±5% Output 0.25A *1
	7	RDB	Input	Receive DataB(-)
	8	SDB	Output	Send Data B(-)
	9	TRMTX	-	Termination (Receiver side: 100Ω)
	Shell	FG	-	Frame Ground (Common with SG)
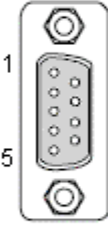
◆For GP-3302B/ST-3301B/ST-3201A

RS-422/485 (male)

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(+)
	5	SG	-	Signal Ground
	6	CSB	Input	Send Possible B(-)
	7	SDB	Output	Send Data B(-)
	8	CSA	Input	Send Possible A(+)
(male)	9	ERB	Output	Data Terminal Ready B(-)
	Shell	FG	-	Frame Ground (Common with SG)

◆For ST-3302B/ ST-3211A

RS-485 MPI (female)

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]
	7	NC	-	-
(female)	8	LINE(-)	Input/ Output	LINE(-)
	9	NC	-	-
	Shell	FG	-	Frame Ground[1] (Common with SG)

*1: The SG and FG terminals are isolated.

*2: When providing power via the Siemens AG PROFIBUS connector, power cannot be connected to the device/PLC.

◆ForGP4X01TM series

GP4X01TM series does not have COM2.

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 connetion cable used for GP3000/ST3000 series can be also used for GP4X01TM series. But, please note that there are the precautions and restrictions as described below.

| IMPORTANT |
| --- |
| ・ Please check the connection configurations GP4X01TM series supports with GP-Pro EX Device/PLC Connection Manual before using the connection cable. (http://www.pro-face.com/otasuke/files/manual/gpproex/new/device/index.htm)

・ When using the following connection methods or connection cables, the cable cannot be used. Please check the GP-Pro EX Device/PLC Connection Manual stated above and prepare a connection cable for GP4X01TM series newly.
Siemens MPI Connection
GP-3301L COM2 Connection
Mitsubishi A Series Programming Console I/F Cable
　(Model: GP430-IP10-O)
Mitsubishi A Series Direct Cable
　(Model: GP2000-CBLA/5M-01)
Mitsubishi FX Series Programming Console I/F Cable
　(Model: GP430-IP11-O, GP2000-CBLFX/5M-01, GP2000-CBLFX/1M-01) |

Chapter 5 Appendix

5.1 When the Display Unit type cannot be changed,

Depending on a project file's function setting, the following message may appear and the Display Unit may not be able to be changed to GP4X01TM series.
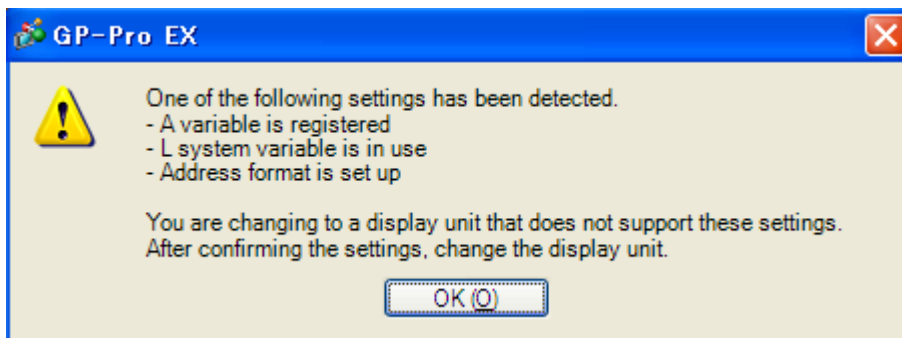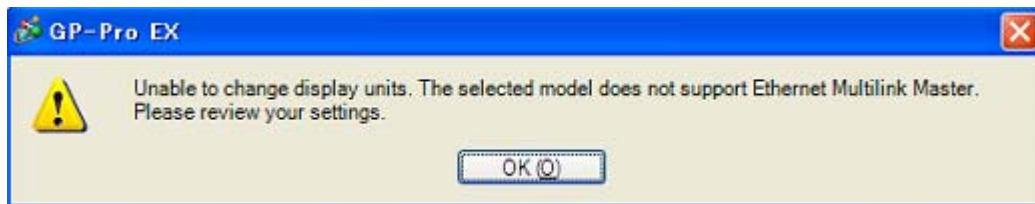

[Cause]

- Logic settings are made.-> Solution (1)-1

- L system variables are used.-> Solution (1)-2

- I/O Settings are made.-> Solution (1)-3

- Unsupported variables are registered in Symbol Variable Setting.-> Solution (1)-4

- In Logic Programs Setting, [Address Format] is selected.-> Solution (1)-5
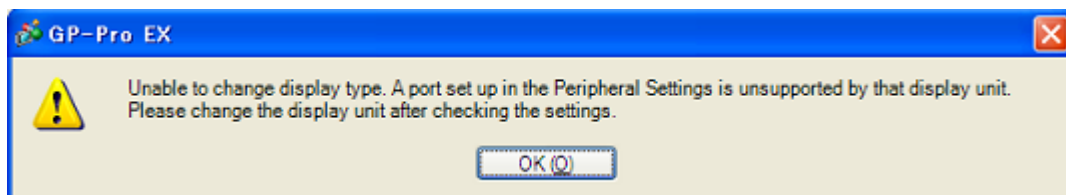
[Cause]

- In Device/PLC Setting, multiple communication drivers are registered.-> Solution (2)-1

- A communication driver that is not supported is set.-> Solution (2)-2

- The function using the unsupported port (COM2) is set. -> Solution (2)-3

[Cause]

[Master] is selected in [Ether Multilink Settings].-> Solution (3)-1

[Solutions]

(1)-1: Logic settings are made.

Because GP4X01TM series does not support Logic Function, if logic settings are made, the Display Unit cannot be changed. Open the logic screens, check the logic settings, and delete them.

(1)-2: L system variables are used.

[L System Variable] is a logic variable starting with [#L_].

Because GP4X01TM series does not support Logic Function, [L System Variable] cannot be used. When [L System Variable] is used, the Display Unit cannot be changed. Check where the address is used and delete it or replace it with another address.

1. Click [Project]->[Utility]->[Cross Reference].
2. Select [Symbol Variable] for [Device/PLC].
   If a L system variable is used, an address starting with [#L_] is displayed.
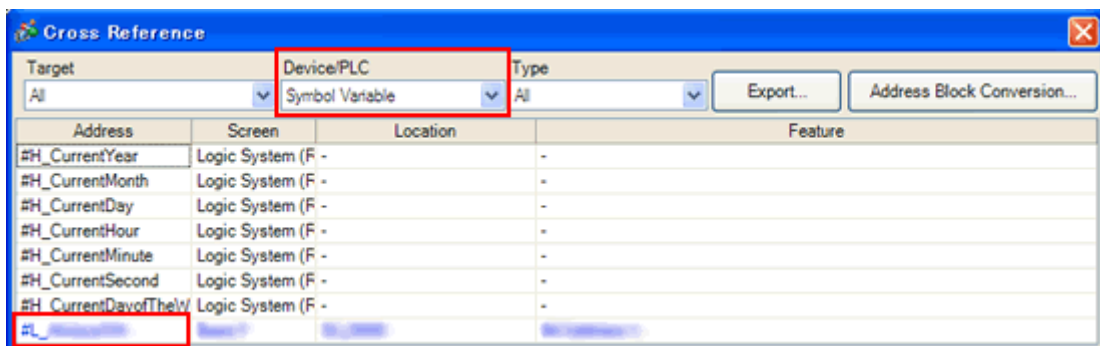
(1)-3: I/O settings are made.
GP4X01TM series does not support I/O Connection. If I/O Settings are made, the Display Unit cannot be changed.
Click [Project]->[System Settings]->[I/O Driver] and check the displayed I/O settings.

(1)-4: Unsupported variables are registered in Symbol Variable Setting.
GP4X01TM series supports only the variables of [Word Address] or [Bit Address].
Click [Common Settings]->[Symbol Variable]. If variables except [Word Address] or [Bit Address] are registered, the Display Unit cannot be changed. If a variable except these 2 types is registered, change the type to [Word Address] or [Bit Address], or replace it with another address.

(1)-5: In Logic Programs Setting, [Address Format] is selected.
GP4X01TM series does not support Logic Function. When [Address Format] is selected for [Register Variable] in the Logic Programs Setting, even if no logic setting is made, the Display Unit cannot be changed.
Click [Project]->[System Settings]->[Logic Programs]. If [Address Format] is selected for [Register Variable], change it to [Variable Format].

(2)-1: In Device/PLC Setting, multiple communication drivers are registered.
For GP4X01TM series, only one communication driver can be set. (But, if [Enable Ethernet Multilink] is selected, and GP4X01TM series is used as a slave, up to 2 can be set.) If the Device/PLC setting exceeds the upper limit, the Display Unit cannot be changed.
Click [Project]->[System Settings]->[Device/PLC]. Check the displayed Device/PLC setting.

(2)-2: A communication driver that is not supported is set.
If a communicaton driver that cannot be used for GP4X01TM series is set, the Display Unit cannot be chagned.
Click [Project]->[System Settings]->[Device/PLC] and check the displayed Device/PLC setting and change the communication driver setting.
For the communication drivers that are supported by GP4X01TM series, see [4.1 Driver List].

(2)-3: The function using the unsupported port (COM2) is set.
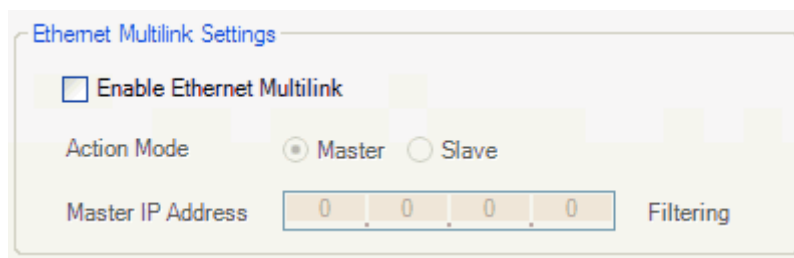COM1 is the only one port that GP4X01TM series has. If COM2 is selected for [Port] in the [Script] setting, the Display Unit cannot be changed.
Click [Project]->[System Settings]->[Script]. Check the displayed port setting of Script.

(3)-1: [Master] is selected in [Ether Multilink Settings].

GP4X01TM series cannot be a master at the time of Ether multilink connection (can be a slave only.). If [Master] is selected in [Ether Multilink Settings], the Display Unit cannot be changed. After disabling the Ether multilink setting, change the Display Unit.

1. Click [Project]->[System Settings]->[Display Unit].
2. In [Ether Multilink Settings] in the [Extended Settings] tab, uncheck [Enable Ether Multilink].