## GP-3200 Series Installation Guide

### Caution

Be sure to read the "Warning/Caution Information" on the attached sheet before using the product.

## Package Contents

(1) GP Unit (1)

(2) English and Japanese Installation Guides (one of each) <This Guide>

(3) Warning/Caution Information (1)

(4) Installation Gasket (1)
(Attached to the GP unit)

(5) Installation Fasteners (Set of 4)



(6) Power Connector (1)
(Attached to the GP unit)



(7) USB Cable Clamp (1 set)
(Holder: 1, Cover: 1)



This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local GP distributor immediately.

## About the Manual

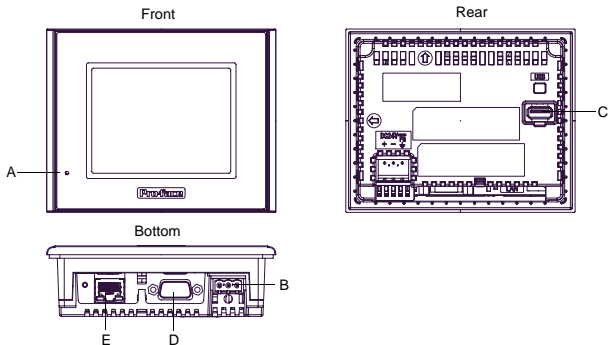For the detailed information on GP3000 series, refer to the following manual.

• GP3000 Series Hardware Manual

• Maintenance/Troubleshooting

GP3000 Series Hardware Manual can be selected from the help menu of GP-Pro EX or downloaded from Pro-face Home Page.

URL

http://www.pro-face.com/otasuke/

## Part Names and Functions

Front

Rear

Bottom

| | Name | Description |
|---|---|---|
| A | Status LED | <table><tr><td>LED</td><td>GP Status</td></tr><tr><td>Green (lit)</td><td>Normal operation (power is ON.) or OFFLINE operation.</td></tr><tr><td>Orange (blinking)</td><td>During software startup.</td></tr><tr><td>Red (lit)</td><td>When power is turned ON.</td></tr><tr><td>Not lit</td><td>Power is OFF.</td></tr></table> |
| B | Power Connector (Socket) | — |
| C | USB Host Interface (USB) | USB1.1 Host I/F<br>Connector: USB TYPE-A x 1<br>Power supply voltage: 5VDC±5%<br>Output current: 500mA (max.)<br>The maximum communication distance: 5m |
| D | Serial Interface (COM1) | Dsub 9-pin plug type. RS232C, RS422, and RS485 are switched by software. |
| E | Ethernet Interface (LAN) | 10BASE-T/100BASE-TX<br>This interface uses an RJ-45 type modular jack connector (8 pins). |

## General Specifications

■ Electrical Specifications

| | | |
|---|---|---|
| Power Supply | Input Voltage | DC24V |
| | Rated Voltage | DC19.2 to 28.8V |
| | Allowable Voltage Drop | 2ms (max.) |
| | Power Consumption | 13W (max.) |
| | In-Rush Current | 60A (max.)[*1] |
| Voltage Endurance | | AC1000V 20mA for 1minute (between charging and FG terminals) |
| Insulation Resistance | | DC500V 10MΩ (min.) (between charging and FG terminals) |

*1 The FWHM (Full-width, half maximum) value is approximately 40µs. (When exceeding 30A)

■ Environmental Specifications

| | | |
|---|---|---|
| Physical | Surrounding Air Temperature | 0 to +50°C[*1] |
| | Storage Temperature | -20 to +60°C |
| | Ambient Humidity | 10 to 90% RH (Wet bulb temperature: 39°C max. - no condensation.) |
| | Storage Humidity | 10 to 90% RH (Wet bulb temperature: 39°C max. - no condensation.) |
| | Dust | 0.1mg/m$^3$ and below (non-conductive levels) |
| | Pollution Degree | For use in Pollution Degree 2 environment. |

*1 When using AGP3200-A1-D24 in an environment where the temperature becomes or exceeds 40°C for an extended period of time, the screen contrast level may decrease from its original level of brightness.

## External Interfaces

IMPORTANT

• The GP series' serial interface is not isolated. When the host (PLC) unit is also not isolated, and to reduce the risk of damaging the RS232C/RS422/RS485 circuit, be sure to connect pin #5 SG (Signal Ground) terminal.

NOTE

• When isolation is necessary, you can use the RS232C isolation unit (CA3-ISO232-01) on COM1.

■ COM1

| Recommended Cable Connector | XM2D-0901 <made by OMRON Corp.> |
|---|---|
| Recommended Jack Screw | XM2Z-0073 <made by OMRON Corp.> |
| Recommended Cable Cover | XM2S-0913 <made by OMRON Corp.> |
| Interfit Bracket | #4-40 inch screws are used. |

| Pin # | RS232C | | RS422/RS485 | |
|---|---|---|---|---|
| | Signal Name | Meaning | Signal Name | Meaning |
| 1 | CD | Carrier Detect | RDA | Receive Data A(+) |
| 2 | RD(RXD) | Receive Data | RDB | Receive Data B(-) |
| 3 | SD(TXD) | Send Data | SDA | Send Data A(+) |
| 4 | ER(DTR) | Data Terminal Ready | ERA | Data Terminal Ready A(+) |
| 5 | SG | Signal Ground | SG | Signal Ground |
| 6 | DR(DSR) | Data Set Ready | CSB | Clear to Send B(-) |
| 7 | RS(RTS) | Request to Send | SDB | Send Data B(-) |
| 8 | CS(CTS) | Clear to Send | CSA | Clear to Send A(+) |
| 9 | CI(RI)/VCC | Called status display/+5V±5% Output 0.25A[*1] | ERB | Data Terminal Ready B(-) |
| Shell | FG | Frame Ground (Common with SG) | FG | Frame Ground (Common with SG) |

*1 The RI/VCC selection for Pin #9 is switched via software. The VCC output is not protected against overcurrent. To prevent damage or unit malfunctions, use only the rated current.
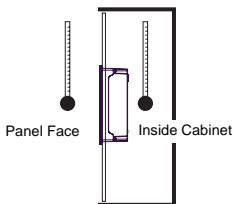
## Installations

### 1. Installation Requirements

• For easier maintenance, operation, and improved ventilation, be sure to install the GP at least 100 mm [3.94 in.] away from adjacent structures and other equipment.

Unit:mm[in.]
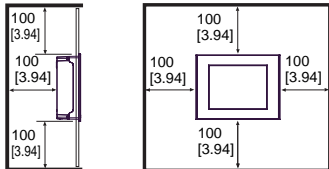


• Be sure that the ambient operation temperature and the ambient humidity are within their designated ranges. (Ambient operation temperature: 0 to 50°C, Ambient humidity: 10 to 90%RH, Wet bulb temperature: 39°C max.)
When installing the GP on the panel of a cabinet or enclosure, "Ambient operation temperature" indicates both the panel face and cabinet or enclosure's internal temperature.



• Be sure that heat from surrounding equipment does not cause the GP to exceed its standard operating temperature.

### 2. GP Installation

(1) Create a Panel Cut following the dimensions in the table below.

Unit: mm [in.]
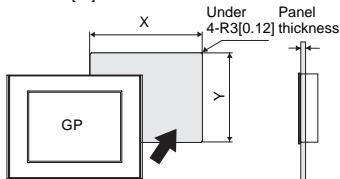


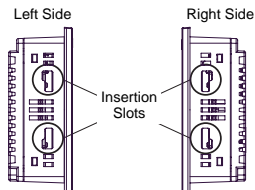| X | Y | Panel thickness |
|---|---|---|
| $118.5^{+1}_{-0}$ $[4.67^{+0.04}_{-0}]$ | $92.5^{+1}_{-0}$ $[3.64^{+0.04}_{-0}]$ | 1.6[0.06] to 5.0[0.20] |

(2) Confirm that the installation gasket is attached to the GP unit and then place the GP unit into the Panel from the front.
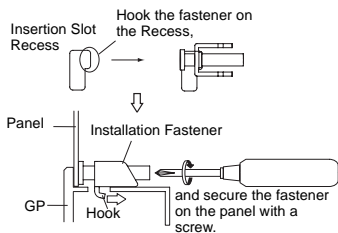
**IMPORTANT**

• It is strongly recommended that you use the installation gasket, since it absorbs vibration in addition to repelling water.
For the procedure for replacing the installation gasket, refer to "GP3000 Series Hardware Manual".

(3) The following figures show the four (4) fastener insertion slot locations. Insert each fastener's hook into the slot and tighten it with a screwdriver. Insert the installation fasteners securely into the insertion slot recess.

Insertion Slot Recess

Hook the fastener on the Recess,

Panel

Installation Fastener

GP

Hook

and secure the fastener on the panel with a screw.

IMPORTANT

- As shown in the figure above, attach the Installation Fastener in the right position. If not, the GP unit may be drop out.
- Tightening the screws with too much force can damage the GP unit's plastic case.
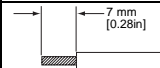- The necessary torque is 0.5N•m.

## Wiring

### ⚠ WARNING

- To avoid an electric shock, prior to connecting the GP unit's power cord terminals to the power terminal block, confirm that the GP unit's power supply is completely turned OFF, via a breaker, or similar unit.
- Any other power level can damage both the GP and the power supply.
- When the FG terminal is connected, be sure the wire is grounded.

1. Wiring the DC type power supply cable

#### ■ Power Cord Specifications

Use copper conductors only.

| Power Cord Diameter | 0.75 to 2.5mm2 (18 - 12 AWG) |
|---|---|
| Conductor Type | Simple or Stranded Wire[*1] |
| Conductor Length | 7 mm [0.28in] |

*1 If the Conductor's end (individual) wires are not twisted correctly, the end wires may either short against each other, or against an electrode.

#### ■ Power Connector (Plug) Specifications

| | | |
|---|---|---|
| | + | 24V |
| Insertion Direction | – | 0V |
| +
-
FG | FG | Grounding Terminal connected to the GP chassis |

NOTE

- The power connector (plug) is CA5-DCCNM-01 made by Pro-face or MSTB2,5/3-ST-5,08 made by Phoenix Contact.

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When connecting the Power Cord, use the following items when performing wiring. (Items are made by Phoenix Contact.)

| Recommended Driver | SZF 1-0.6x3.5 (1204517) |
|---|---|
| Recommended Pin Terminals | AI 0.75-8GY (3200519) AI 1-8RD (3200030) AI 1.5-8BK (3200043) AI 2.5-8BU (3200522) |
| Recommended Pin Terminal Crimp Tool | CRIMPFOX ZA 3 (1201882) |

■ Connecting the GP Power Cord

(1) Confirm that the GP unit's Power Cord is unplugged from the power supply.

(2) Strip the power cord, twist the conductor's wire ends, insert them into the pin terminal and crimp the terminal. Attach the terminal to the power connector.

IMPORTANT

• Use a flat-blade screwdriver (Size 0.6 X 3.5) to tighten the terminal screws. The torque required to tighten these screws is 0.5 to 0.6 N•m [5-7Lb•In.].

• Do not solder the cable connection.

(3) Attach the Power connector (Plug) to the Power Connector.
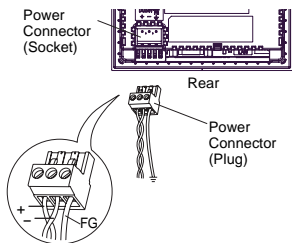


## 2. Power Supply Cautions

• Input and Output signal lines must be separated from the power control cables for operational circuits.

• To improve the noise resistance, be sure to twist the ends of the power cord wires before connecting them to the Power connector (Plug).

• The GP unit's power supply cord should not be bundled with or kept close to main circuit lines (high voltage, high current), or input/output signal lines.

• To reduce noise, make the power cord as short as possible.

• If the supplied voltage exceeds the GP unit's range, connect a voltage transformer.

• Between the line and the ground, be sure to use a low noise power supply. If there is an excess amount of noise, connect a noise reducing transformer.

• The temperature rating of field installed conductors: 75°C only.

IMPORTANT

• Use voltage and noise reducing transformers with capacities exceeding Power Consumption value.

• Must be used with a Class 2 Power Supply. (24VDC)

• Connect a surge absorber to handle power surges.

IMPORTANT

• Be sure to ground the surge absorber (E1) separately from the GP unit (E2). Select a surge absorber that has a maximum circuit voltage greater then that of the peak voltage of the power supply.
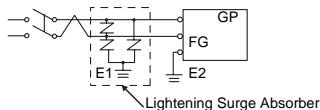
## 3. Grounding Cautions

- Be sure to create an exclusive ground for the Power Cord's FG terminal. Use a grounding resistance of 100Ω, a wire of 2mm$^2$ or thicker, or your country's applicable standard.

- The SG (signal ground) and FG (frame ground) terminals are connected internally in the GP unit.
  When connecting the SG line to another device, be sure that the design of the system/connection does not produce a shorting loop.

- The grounding wire should have a cross sectional area greater then 2mm$^2$. Create the connection point as close to the GP unit as possible, and make the wire as short as possible. When using a long grounding wire, replace the thin wire with a thicker wire, and place it in a duct.

Exclusive Grounding
(BEST)



Common Grounding (OK)



Common Grounding
(Not OK)
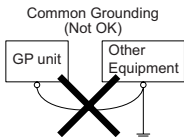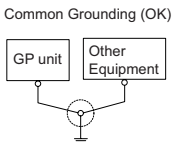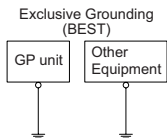


## 4. Input/Output Signal Line Cautions

- All GP Input and Output signal lines must be separated from all operating circuit (power) cables.
- If this is not possible, use a shielded cable and ground the shield.

## To prevent the USB cable from coming off

IMPORTANT

- When using USB Host Interface in Hazardous Locations, please fix the USB cable with the USB Holder.
- When using USB Host Interface in Hazardous Locations, it is necessary to meet the following requirements.

  a) Use the associated USB Cable Clamp:
  CA5-USBATL-01 (made by Pro-face)

  b) Use the USB cable with the housing that suits the associated USB Cable Clamp:
  CA3-USBCB-01 (made by Pro-face) or USB cable with the housing of the same size as CA3-USBCB-01
  (If USB cable with a small housing is used, it may not be securely fixed.)

■ Attaching the USB Holder

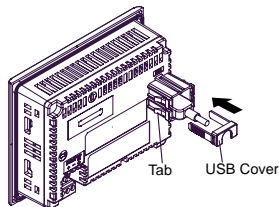(1) Before starting the procedure, lift up the tab on both sides of the USB Holder and remove the USB Cover.
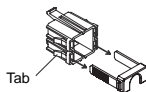
(2) Attach the USB holder to the USB Host Interface part of the main unit. Hook the upper pick of the USB holder to the attachment hole of the main unit and then insert the lower pick as shown below to fix the USB holder.



Attachment Hole
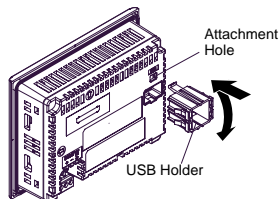
USB Holder

(3) Insert the USB cable into the USB Host Interface.
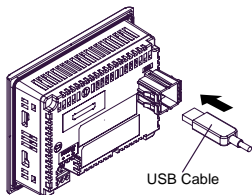


USB Cable

(4) Attach the USB cover to fix the USB cable. Insert the USB cover into the tab of the USB holder.



Tab    USB Cover

IMPORTANT

• Check the up/down orientation of the USB cover to ensure that the USB cable is secured properly.

■ Removing the USB Holder

(1) Lift up the tab of the USB holder and then remove the USB cover as shown below.
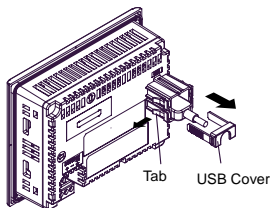


Tab    USB Cover

(2) After removing the USB cable, remove the picks pushing the USB holder from both top and bottom.

## Installation prerequisites for standards

The GP-3200 Series units are UL/c-UL listed products.

(UL File No.E220851, UL File No.E210412 )

| Product Model No. | UL/c-UL Registration Model No. |
|---|---|
| AGP3200-A1-D24 | 3580205-03 |
| AGP3200-T1-D24 | 3580205-04 |

For the detailed certification's information, refer to the Pro-face Home page.

### <Cautions>

Be aware of the following items when building the GP into an end-use product:

• The GP unit's rear face is not approved as an enclosure. When building the GP unit into an end-use product, be sure to use an enclosure that satisfies standards as the end-use product's overall enclosure.

• The GP unit must be used indoors only.

• Install and operate the GP with its front panel facing outwards.

• If the GP is mounted so as to cool itself naturally, be sure to install it in a vertical panel. Also, it's recommended that the GP should be mounted at least 100mm away from any other adjacent structures or machine parts. The temperature must be checked on the final product in which the GP is installed.

• For use on a flat surface of a Type 1Type 4X (Indoor Use Only) and/or Type 13 Enclosure.

### Hazardous Locations - Compliance and Handling Cautions

(1) Power and input/output wiring must be in accordance with Class I, Division 2 wiring methods - Article 501.10(B) of the National Electrical Code, NFPA 70 within the United States, and in accordance with Section 18-152 of the Canadian Electrical Code for units installed within Canada.

(2) Suitable for use in Class I, Division 2, Groups A, B, C, and D Hazardous Locations, or Non-Hazardous Locations only.

(3) "WARNING: Explosion hazard-substitution of any components may impair suitability for Class I, Division 2".

(4) WARNING: Explosion hazard-when in hazardous locations, turn OFF power before replacing or wiring modules.

(5) "WARNING: Explosion hazard-do not disconnect equipment unless power has been switched off or the area is known to be Non-Hazardous".

(6) In the case of use in Hazardous Locations, be sure to check that the externally connected unit and each interface have been fixed with screws and locked.
In Hazardous Locations, it's impossible to insert or pull the cable from the applicable port. Be sure to check that the location is Non-Hazardous before inserting or pulling it.

## CE Marking

• The AGP3200-A1-D24 and AGP3200-T1-D24 units are CE marked, EMC compliant products.

For the detailed information, be downloaded and refer the Declaration of Conformity from Pro-face Home Page.