AGP3300-U1-D24
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 (1 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 port) (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 detailed information on the GP3000 series, refer to the following manuals:

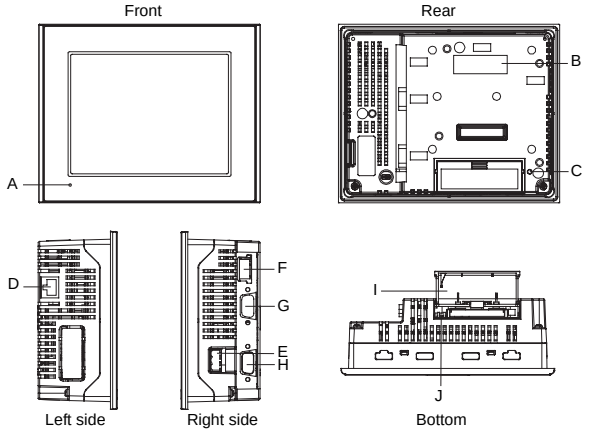
- GP3000 Series Hardware Manual
- Maintenance/Troubleshooting
- Device/PLC Connection Manual

The manuals 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



	Name	Description
A	Status LED	<table><tr><th>Color</th><th>Indicator</th><th>Operation Mode (Drawing)</th><th>Logic execution mode (when logic is enabled)</th></tr><tr><td rowspan="3">Green</td><td rowspan="2">ON</td><td>OFFLINE</td><td>—</td></tr><tr><td>In operation</td><td>RUN</td></tr><tr><td>Flashing</td><td>In operation</td><td>STOP</td></tr><tr><td rowspan="2">Red</td><td>ON</td><td colspan="2">When power is turned on.</td></tr><tr><td>Flashing</td><td>In operation</td><td>Major Error</td></tr><tr><td rowspan="2">Orange</td><td>ON</td><td colspan="2">Backlight burnout or GP malfuction *1</td></tr><tr><td>Flashing</td><td colspan="2">During software startup</td></tr></table> *1 When backlight replacement or repair of the GP is required, please contact your local GP distributor.
B	Expansion Unit Interface (EXT)	Used to connect an expansion unit that can transmit data.
C	CF Card Access LED	Lit in green when the CF Card is inserted and the cover is closed, or when the CF Card is being accessed. **NOTE** • Do not remove or insert the CF Card when the LED lamp is on. Doing so may damage data on the CF Card.
D	Ethernet Interface (LAN)	10BASE-T/100BASE-TX This interface uses an RJ-45 type modular jack connector (8 pins).

E	Power Connector (Socket)	—
F	USB Host Interface (USB)	Complies with USB 1.1. Uses a “TYPE-A” connector. Power supply voltage:DC5V ±5%, Output current:500mA (max.) The maximum communication distance: 5m
G	Serial Interface (COM1)	D-sub 9-pin plug type. RS232C, RS422, and RS485 are switched by software.
H	Serial Interface (COM2)	D-sub 9-pin socket type. RS422 and RS485 are supported.
I	CF Card Cover	
J	DIP Switches	Located inside the CF Card Cover.

General Specifications

■ Electrical Specifications

Power Supply	Input Voltage	DC24V
	Rated Voltage	DC19.2 to 28.8V
	Allowable Voltage Drop	5ms (max.)
	Power Consumption	26W (max.)
	In-Rush Current	30A (max.)
Voltage Endurance		AC1000V 20mA for 1 minute (between charging and FG terminals)
Insulation Resistance		DC500V 10MΩ (min.) (between charging and FG terminals)

■ Environmental Specifications

Physical	Surrounding Air Temperature	0 to 50°C
	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.

■ Structural Specifications

Installation	Grounding	Grounding resistance of 100Ω, 2mm^2 or thicker wire, or your country's applicable standard. (Same for FG and SG terminals)
	Structure*1	Rating: IP65f NEMA #250 TYPE 1 (Front surface at panel embedding) Feature size: All-in-one Installation configuration: Panel embedding
	Cooling Method	Natural air circulation

*1 The front face of the GP unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Even though the GP unit's level of resistance is equivalent to these standards, oils that should have no effect on the GP can possibly harm the unit. This can occur in areas where either vaporized oils are present, or where low viscosity cutting oils are allowed to adhere to the unit for long periods of time. If the GP's front face protection sheet becomes peeled off, these conditions can lead to the ingress of oil into the GP and separate protection measures are suggested. Also, if non-approved oils are present, it may cause deformation or corrosion of the front panel's plastic cover. Therefore, prior to installing the GP be sure to confirm the type of conditions that will be present in the GP's operating environment.
If the installation gasket is used for a long period of time, or if the unit and its gasket are removed from the panel, the original level of the protection cannot be guaranteed. To maintain the original protection level, be sure to replace the installation gasket regularly.

External Interfaces

IMPORTANT

- For instructions on how to connect to other devices, always refer to the “GP-Pro EX Device/PLC Connection Manual”.
- Always connect the #5 SG (Signal Ground) of the GP unit to the connected device, especially if the connected device is also not isolated. Failure to do so may damage the RS232C/RS422/RS485 circuit.

■ 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.>
Fitting fastener	#4-40 (UNC)

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.

■ COM2

NOTE

- Always connect close to the GP unit's COM port when terminating with the termination pins (TRMRX/TRMTX).

Recommended Cable Connector	XM2A-0901 <made by OMRON Corp.>
Recommended Jack Screw	XM2Z-0073 <made by OMRON Corp.>
Recommended Cable Cover	XM2S-0913 <made by OMRON Corp.>
Fitting fastener	#4-40 (UNC)

Pin #	RS422/RS485	
	Signal Name	Meaning
1	TRMRX	Termination (Receiver side: 100Ω)
2	RDA	Receive Data A(+)
3	SDA	Send Data A(+)
4	RS(RTS)	Request for Send
5	SG	Signal Ground
6	VCC	+5V ±5% Output 0.25A*1
7	RDB	Receive Data B(-)
8	SDB	Send Data B(-)
9	TRMTX	Termination (Receiver side: 100Ω)
Shell	FG	Frame Ground (Common with SG)

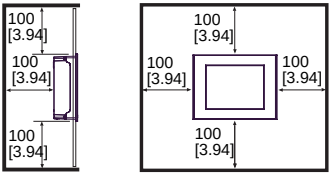
*1 The VCC output for Pin #6 is not protected against overcurrent. To prevent damage or unit malfunctions, use only the rated current.

Installations

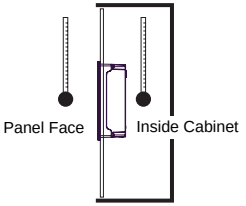
1. Installation Requirements

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

Unit:mm[in.]



- Be sure that the surrounding air temperature and the ambient humidity are within their designated ranges. (Surrounding air 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, “Surrounding air temperature” indicates both the panel face and cabinet or enclosure’s internal temperature.

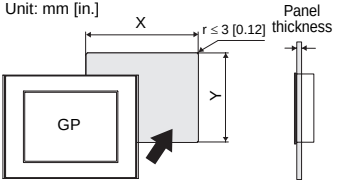


- Be sure that heat from surrounding equipment does not cause the GP to exceed its standard operating temperature.

2. GP Installation

(1) Create a Panel Cut and insert the GP into the panel from the front. Determine the panel thickness according to the panel thickness range with due consideration of panel strength.

Unit: mm [in.]



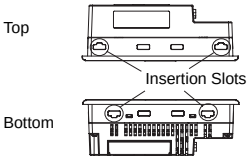
GP	X	Y	Panel thickness
AGP-3300 U	156.0^{+1}_{-0} [$6.14^{+0.04}_{-0}$]	123.5^{+1}_{-0} [$4.86^{+0.04}_{-0}$]	1.6 [0.06] to 5.0 [0.20]

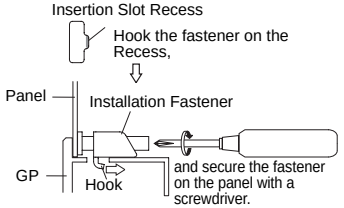
(2) Confirm that the installation gasket is attached to the GP unit and then place the GP unit into the Panel from the front.

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.





IMPORTANT

- Tightening the screws with too much force can damage the GP unit's plastic case.
- The necessary torque is 0.5N•m.

Wiring

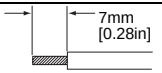
⚠ WARNING

- 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 Cord

■ Power Cord Specifications

Use copper conductors only.

Power Cord Diameter	0.75 to 2.5mm^2 (18 - 12AWG)
Conductor Type	Simple or Stranded Wire*1
Conductor Length	

*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
	−	0V
	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.

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

Recomended Driver	SZF 1-0.6x3.5 (1204517)
Recomended Pin Terminals	AI 0.75-8GY (3200519) AI 1-8RD (3200030) AI 1.5-8BK (3200043) AI 2.5-8BU (3200522)
Recomended 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.

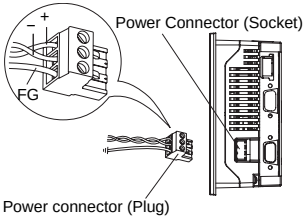
(2) Remove the power connector (plug) from the right side of the main unit.

(3) 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 0.6N•m [5-7Lb•In.].
- Do not solder the cable connection. Doing so may damage the unit due to abnormal heat or cause a fire.

(4) Attach the Power connector (Plug) to the GP.



2. Power Supply Cautions

- Input and Output signal lines must be separated from the power control cables for operational circuits.
- To improve 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.
- Be sure to use a low noise power supply between the line and the ground. If there is an excess amount of noise, connect a noise reducing transformer.
- The temperature rating of field installed conductors: 75^{o}C only.

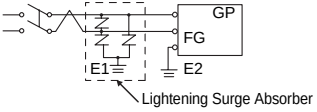
IMPORTANT

- 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.

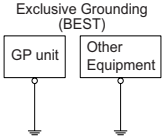
IMPORTANT

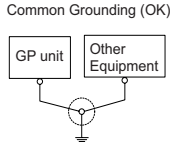
- Be sure to ground the surge absorber (E1) separately from the GP unit (E2). Select a surge absorber that has a maximum circuit voltage greater then that of the peak voltage of the power supply.

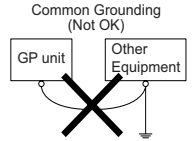


3. Grounding Cautions

- 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.







4. Input/Output Signal Line Cautions

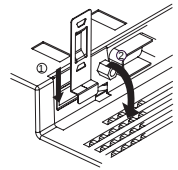
- All GP Input and Output signal lines must be separated from all operating circuit (power) cables.
- If this is not possible, use a shielded cable and ground the shield.

Securing the USB cable connection

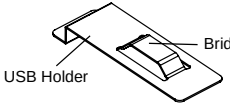
When using a USB device, attaching the USB holder to the USB Interface located on the side of the GP unit prevents the USB cable Interface from becoming disconnected.

■ Attaching the USB Cable Clamp

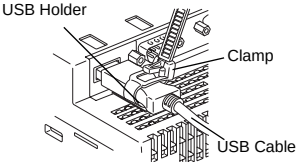
(1) Insert the USB holder into the slot in front of the GP unit's USB port and pull it down and forward.



(2) Pass the band of the USB cable clamp through the bridge of the USB holder.

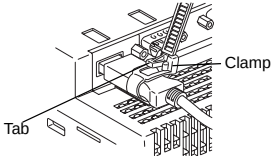


(3) Insert the USB cable into the port. Fasten the band around the plug and secure it with the clamp.



■ Removing the USB Cable Clamp

(1) Lower the tab and lift the clamp to release the plug.



UL/c-UL Approval

The AGP3300-U1-D24 unit is a UL/c-UL listed product.

(UL File No.E220851)

Product Model No.	UL/c-UL Registration Model No.
AGP3300-U1-D24	3710015-01

These products conform to the following standards:

- UL508
  Industrial Control Equipment
- CSA-C22.2 No.142-M1987 (c-UL Approval)
  Process Control Equipment

<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 1 Enclosure.

CE Marking

- The AGP3300-U1-D24 unit is a CE marked, EMC compliant product. This unit also conforms to EN55011 Class A, EN61000-6-2 directives.

Inquiry

Do you have any questions about difficulties with your GP?
Please access our site anytime that you need help with a solution.

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

Note

Please be aware that Digital Electronics Corporation shall not be held liable by the user for any damages, losses, or third party claims arising from the uses of this product.

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