GP-3300/3400 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)

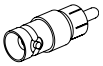
(2) English and Japanese installation Guides (1 of each) <This Guide>

(3) Warning/Caution Information (1)

(4) Installation Gasket (1, attached to the GP unit)

(5) Installation Fasteners (Set of 4)

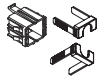
(6) RCA-BNC Convertor (1)
(Only for AGP-3450T)



(7) AUX Connector (1)
(Only for GP-3400 Series)

(8) Power Connector (1)
(Attached to the GP unit for GP-3300 Series)

(9) USB Cable Clamp (2 port) (1 set)
(Holder: 1, Cover: 2)
(Only for GP-3400 Series)



(10) USB Cable Clamp (1 port) (1)
(Holder: 1, Clamp: 1)
(Only for GP-3300 Series)

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 manuals.

- GP3000 Series Hardware Manual
- Maintenance/Troubleshooting

The manuals can be selected from the help menu of GP-Pro EX or downloaded from Pro-face Home Page.

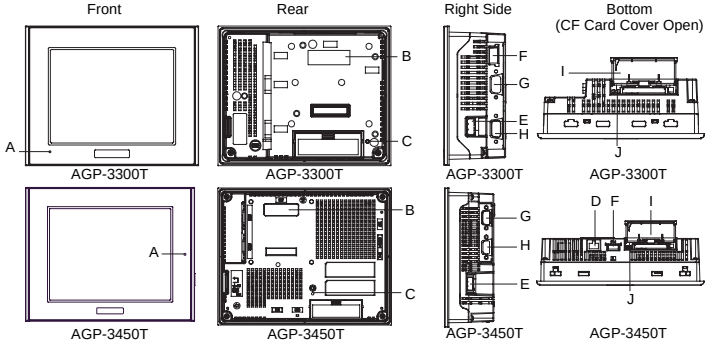
URL

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

NOTE

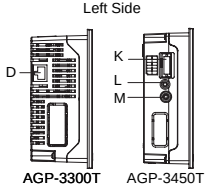
- When using GP-3300 Series with Pro-Designer, refer to "AGP-3300 Series User Manual" (PDF File). AGP-3300 Series User Manual can be selected from [Manual] in the dialog box displayed after the CD-ROM of Pro-Designer is inserted.

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</td></tr><tr><td>Flashing</td><td colspan="2">During software startup</td></tr></table> (The logic program is disabled in the AGP-3302B/3301L/ 3301S. The Status LED turns on only in Operation Mode (Drawing).)
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. (Except for AGP-3302B)
D	Ethernet Interface (LAN)	10BASE-T/100BASE-TX This interface uses an RJ-45 type modular jack connector (8 pins). (Except for AGP-3301∗ / AGP-3302B)
E	Power Connector (Socket)	—

F	USB Host Interface (USB)	Complies with USB 1.1. Uses a “TYPE-A” connector. Power supply voltage:5 VDC ±5%, Output current:500mA(max.) The maximum communication distance: 5m
G	Serial Interface (COM1)	Dsub 9-pin plug type. RS232C, RS422, and RS485 are switched by software. (AGP-3302B supports RS232C only.)
H	Serial Interface (COM2)	Dsub 9-pin socket type. RS422 and RS485 are supported. (AGP-3302B has Dsub 9-pin plug type and supports RS422 only.)
I	CF Card Cover	(Except for AGP-3302B)
J	Dip Switches	Located inside the CF Card Cover. (Except for AGP-3302B)



K	AUX Input/Output and Sound Output Interface (AUX)	Used for external reset, alarm output, buzzer output, and sound output. (Except for GP-3300 series)
L	AUDIO Input Interface (L-IN/MIC)	It’s an interface to which a microphone is connected. A mini jack connector (∅3.5 mm) is used. (Supported by AGP-3450T only)
M	VIDEO Input Interface (V-IN)	It’s an interface to which a video camera is connected. NTSC (59.9 Hz) and PAL (50 Hz) are supported. A RCA connector (75Ω) is used. (Supported by AGP-3450T only)

General Specifications

■ Electrical Specifications

		AGP-3300∗/3301∗	AGP-3302B	AGP-3400∗/3450T
Power Supply	Input Voltage	DC24V		
	Rated Voltage	DC19.2 to 28.8V		
	Allowable Voltage Drop	5ms (max.)	10ms (max.)	
	Power Consumption	26W (max.)	18W (max.)	28W (max.)
	In-Rush Current	30A (max.)		
Voltage Endurance		AC1000V 20mA for 1minute (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*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 GP-3300 Series or STN Color LCD model 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

- This GP unit's serial port 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 the #5 SG (Signal Ground) terminal.

■ 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.>

Pin #	RS232C		RS422/RS485 (Except AGP-3302B)	
	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

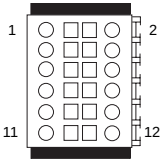
Recommended Cable Connector	XM2A-0901 <made by OMRON Corp.>
	XM2D-0901 <made by OMRON Corp.> (AGP-3302B only)
Recommended Jack Screw	XM2Z-0073 <made by OMRON Corp.>
Recommended Cable Cover	XM2S-0913 <made by OMRON Corp.>

Pin #	RS422/RS485 (Except AGP-3302B)		RS422 (AGP-3302B only)	
	Signal Name	Meaning	Signal Name	Meaning
1	TRMRX	Termination (Receiver side: 100Ω)	RDA	Receive Data A(+)
2	RDA	Receive Data A(+)	RDB	Receive Data B(-)
3	SDA	Send Data A(+)	SDA	Send Data A(+)
4	RS(RTS)	Request for Send	ERA	Data Terminal Ready A(+)
5	SG	Signal Ground	SG	Signal Ground
6	VCC	+5V±5% Output 0.25A*1	CSB	Clear to Send B(-)
7	RDB	Receive Data B(-)	SDB	Send Data B(-)
8	SDB	Send Data B(-)	CSA	Clear to Send A(+)
9	TRMTX	Termination (Receiver side: 100Ω)	ERB	Data Terminal Ready B(-)
Shell	FG	Frame Ground (Common with SG)	FG	Frame Ground (Common with SG)

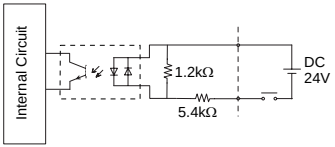
*1 The VCC output for Pin #6 is not protected against overcurrent. To prevent damage or unit malfunctions, use only the rated current.

■ AUX Input/Output and Sound Output Interface (Supported by GP-3400 series only)

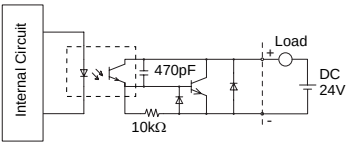
Recommended Cable Connector	S2L3.5/12/90F90F <made by Weidmuller>
Terminal Block	B2L3.5/12LH <made by Weidmuller>

Pin Arrangement	Pin#	Signal Name	Direction	Meaning
 (Cable connection side)	1	RESET IN_A	Input	External Reset Input
	2	RESET IN_B	Input	
	3	RUN+	Output	RUN Signal
	4	RUN-	Output	
	5	ALARM+	Output	ALARM Signal
	6	ALARM-	Output	
	7	BUZZER+	Output	Buzzer Signal
	8	BUZZER-	Output	
	9	NC	-	Not Connected
	10	NC	-	Not Connected
	11	SP	Output	Speaker Out
	12	SP_GND	Output	Speaker Ground

• Input Circuit



• Output Circuit

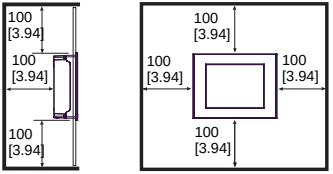


Installations

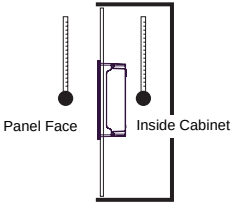
1. Installation Requirements

- 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 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.

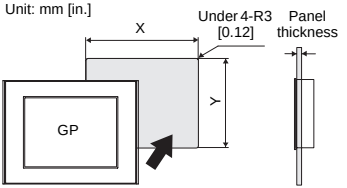


- Be sure that heat from surrounding equipment does not cause the GP to exceed its standard operating temperature.

2. GP Installation

(1) Create a Panel Cut and insert the GP into the panel from the front.

Unit: mm [in.]



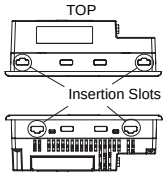
GP	X	Y	Panel thickness
GP-3300 Series	156.0^{+1}_{-0} [$6.14^{+0.04}_{-0}$]	123.5^{+1}_{-0} [$4.86^{+0.04}_{-0}$]	1.6[0.06] to 5.0[0.20]
GP-3400 Series	204.5^{+1}_{-0} [$8.05^{+0.04}_{-0}$]	159.5^{+1}_{-0} [$6.28^{+0.04}_{-0}$]	1.6[0.06] to 10.0[0.39]

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

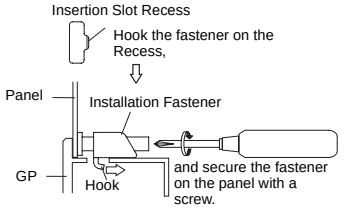
IMPORTANT

- 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.



(The figure shows the GP-3300 series.)



IMPORTANT

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

3. Wiring and attaching/detaching the AUX connector (GP-3400 series only)

IMPORTANT

- Be sure to remove the AUX Connector from the GP unit prior to starting wiring. Failure to do so may cause an electric shock.

■ Items Required to Wire Connectors

[Screwdriver]

Recommended type: SDI (Product No. 900837) <Weidmuller Japan>
If another manufacturer is used, be sure the part has the following dimensions:
point depth: 0.4mm [0.02in.]
point height: 2.5mm [0.10in.]
length from the point to the handle: 80mm [3.15in.]
Point shape should be DIN5264A, and meet Security Standard DN EN60900.
Also, the screwdriver's tip should be flat as indicated in order to access the narrow hole of the connector:

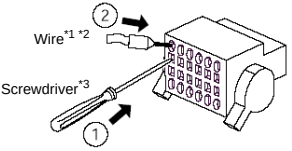
Screwdriver Tip Shape

■ Detachment

Turn the tabs on the levers at both ends of the connector, and the connector is released from the GP.

■ Wiring and attachment

(1) Insert the tip of the screwdriver into one of the square holes. Then, insert the cable into the corresponding round hole. When you pull out the screwdriver, the cable is locked. For the pin assignment of the AUX connector, refer to "External Interfaces".



(2) Insert the wired AUX connector into the auxiliary I/O or sound output interface (AUX) on the left side of the GP unit on. If the connector cannot be fully inserted, turn the tabs on the levers at both ends of the connector in the reverse direction and insert the connector.

*1 Wire should be AWG22 to AWG18 thick, and twisted.
Applicable wire sizes are UL1015 and UL1007.

*2 Be sure to strip from 6.5 to 8.0mm [0.26 to 0.31in.] of cover from the wire.

IMPORTANT

- Be sure to strip only the amount of cover required. If too much cover is removed, the end wires may short against each other, or against an electrode, which can create an electric shock. If not enough cover is removed the wire cannot carry a charge.
- Do not solder the wire itself. This could lead to a bad or poor contact.
- Insert each wire completely into its opening. Failure to do so can lead to a unit malfunction or short, either against wire filaments, or against an electrode.

*3 Do not rotate the point of the screwdriver inside the square-shaped opening. It may cause a malfunction.

Wiring

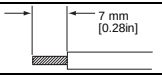
⚠ WARNING

- 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

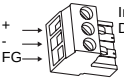
■ Power Cord Specifications

Use copper conductors only

Power Cord Diameter	0.75 to 2.5mm^2 (18 - 12 AWG)
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.)

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.

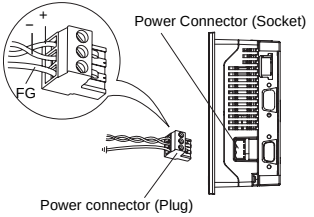
(2) When using GP-3300 Series, remove the power connector (plug) from the main unit. (When using GP-3400 Series, the power connector (plug) is packaged with other accessories.)

(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 0.6 N•m [5-7 Lb•In.].
- Do not solder the cable connection.

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



2. Power Supply Cautions

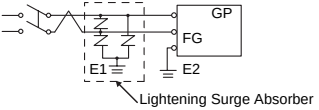
- Input and Output signal lines must be separated from the power control cables for operational circuits.
- To improve the noise resistance, be sure to twist the ends of the power cord wires before connecting them to the Power connector (Plug).
- The GP unit's power supply cord should not be bundled 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.

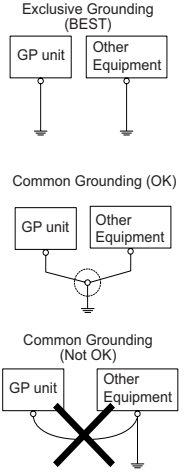
IMPORTANT

- 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.



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

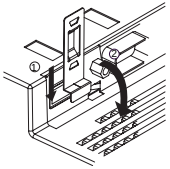
IMPORTANT

- When using USB Host Interface in Hazardous Locations provided in UL1604, please fix the USB cable with the USB Holder. If it's not fixed so that the connector on the GP's side and the PLC's side cannot come out, the USB Host Interface cannot be used in the Hazardous Locations.

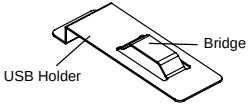
1. GP-3300 Series units

■ Attaching the USB Cable Clamp

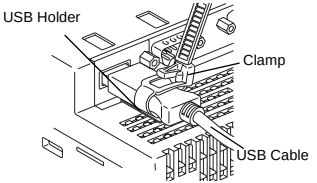
(1) Insert the USB holder into the slot in front of the GP unit's USB port and pull it down and forward.



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

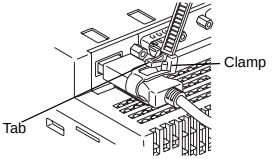


(3) Insert the USB cable into the port. Fasten the band around the plug and secure it with the clamp.



■ Removing the USB Cable Clamp

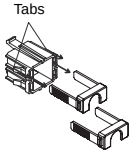
(1) Lower the tab and lift the clamp to release the plug.



2. GP-3400 Series units

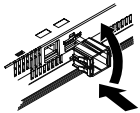
■ Attaching the USB Holder

(1) Before starting the procedure, orient the two tabs on both sides of the USB Holder in the direction of the arrows in the figure and remove the USB Cover.

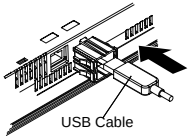


(2) Attach the USB holder to the USB Host Interface part of the main unit. Hook the lower pick of the USB holder to the attachment hole of the main unit and

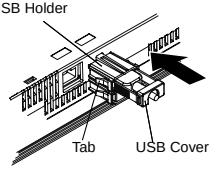
then insert the upper pick as shown below to fix the USB holder.



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



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

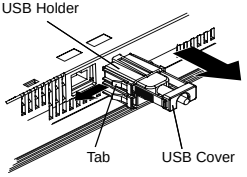


IMPORTANT

- When using the GP, be sure to attach all the 2 USB covers.

■ Removing the USB Holder

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



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

UL/c-UL/CSA Approval

The GP-3300/3400 Series units are UL/c-UL/CSA listed products.

(UL File No.E220851, UL File No.E182139, CSA File No.219866)

Product Model No.	UL/c-UL/CSA Registration Model No.
AGP3300-L1-D24	3280007-03
AGP3300-S1-D24	3280007-02
AGP3300-T1-D24	3280007-01
AGP3301-L1-D24	3280007-13
AGP3301-S1-D24	3280007-12
AGP3302-B1-D24	3280007-24
AGP3400-T1-D24	3280035-01
AGP3400-S1-D24	3280035-02
AGP3450-T1-D24	3280035-31

These products conform to the following standards:

- UL508
  Industrial Control Equipment
- UL1604
  Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (classified) Locations
- CSA-C22.2 No.14-M95
  Industrial Control Equipment
- CSA-C22.2 No.213-M1987
  Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

<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.
- Serial Interface (COM2) is not Limited Power Source.
- For use on a flat surface of a Type 4X (Indoor Use Only) and/or Type 13 Enclosure.

UL1604/CSA-C22.2, No.213 - Compliance and Handling Cautions

(1) Power and input/output wiring must be in accordance with Class I, Division 2 wiring methods - Article 501-4(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 components may impair suitability for Class I, Division 2", and "AVERTISSEMENT: RISQUE D'EXPLOSION-LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIAL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION2".

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

(5) WARNING: Explosion hazard-confirm that the power supply has been turned OFF before disconnecting equipment, or confirm that the location is not subject to the risk of explosion.

(6) "WARNING: Explosion hazard-do not disconnect equipment unless power has been switched off or the area is known to be Non-Hazardous", and "AVERTISSEMENT: RISQUE D'EXPLOSION-AVANT DE DECONNECTER L'EQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNE NON DANGEREUX".

(7) 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 AGP3300-L1-D24/AGP3300-S1-D24/AGP3300-T1-D24/AGP3301-L1-D24/AGP3301-S1-D24/AGP3302-B1-D24/AGP3400-S1-D24/AGP3400-T1-D24/AGP3450-T1-D24 units are CE marked, EMC compliant products. These units also conform 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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