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See Also:

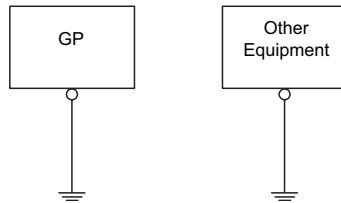
<http://www.axcontrol.com/automation/pro-face/gp-4000>

Grounding

Exclusive Grounding

When supplying power to the GP unit, separate the input/output and power lines as shown below.

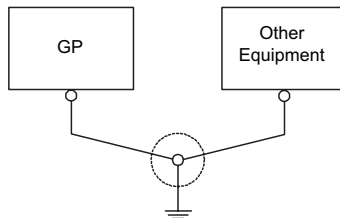
Connect the frame ground (FG) terminal on the power plug to an exclusive ground.



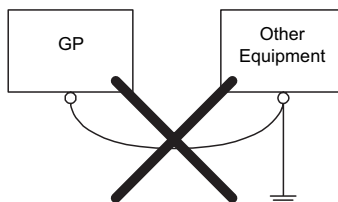
Precautions

Electromagnetic Interference (EMI) can be created if the devices are improperly grounded. EMI can cause loss of communication. Do not use common grounding, except for the authorized configuration described below. If exclusive grounding is not possible, use a common grounding point.

Correct grounding



Incorrect grounding



- Check that the grounding resistance is 100 Ω or less.*¹
- The FG wire should have a cross sectional area greater than 2 mm² (AWG 14)⁽¹⁾. 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.
- FG and SG terminals are internally connected in the GP unit. When connecting an external device to the GP unit using the SG terminal, check that you do not create a short-circuit loop when you set up the system.

*¹ Observe local codes and standards. Ensure the ground connection has a resistance of 100 Ω and that the ground wire has a cross-section of at least 2 mm² or AWG 14.

5.3 SD Card Insertion/Removal

What Is in This Section?

This section contains the following topics:

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Inserting the SD Card	152
Before Removing the SD Card	154
Removing the SD Card	155
SD Card Data Backup	156

Introduction

NOTICE

LOSS OF DATA

When using the GP unit and a SD Card, observe the following to avoid losing valuable data:

- Since accidental data loss can occur at any time, back up GP unit screen and SD Card data regularly. Once GP unit data is lost, it cannot be recovered.
- Before removing the SD Card from the GP unit, make sure you run the Offline Mode's hardware removal process. If you do not run the removal process and forcibly extract the SD Card, data on the SD Card may become corrupted.
- While a SD Card is accessed, do not turn OFF or reset the GP unit, and do not insert or remove the SD Card. Doing so could damage the SD Card, or corrupt its data.
- Before using the SD Card, familiarize yourself with the SD Card's front and rear face orientation, as well as the position of the SD Card connectors. If the SD Card is not positioned correctly when inserted into the GP unit, the card's internal data and GP unit could become damaged.

Failure to follow these instructions can result in equipment damage.

NOTICE

LOSS OF DATA

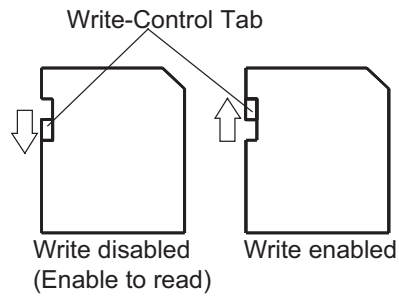
When handling the SD Card, follow the instructions below to prevent internal data on the SD Card from being destroyed or a SD Card malfunction from occurring:

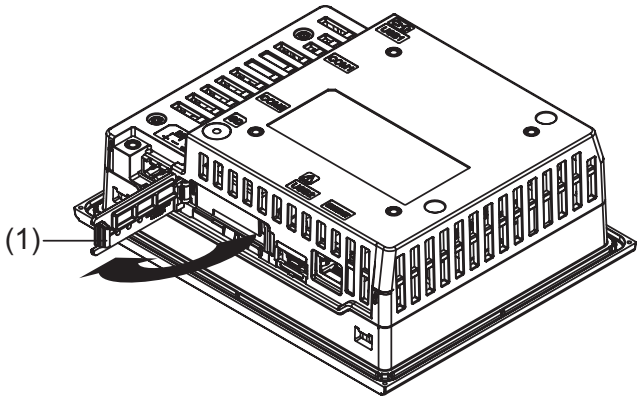
- Avoid storing the SD Card where there is static electricity or electromagnetic waves.
- Avoid storing the SD Card in direct sunlight, near a heater, or other locations where high temperatures can occur.
- Do not bend the SD Card.
- Do not drop or strike the SD Card against another object.
- Keep the SD Card dry.
- Do not touch the SD Card connectors.
- Do not disassemble or modify the SD Card.
- Use only SD Cards formatted using FAT or FAT32. The GP unit does not recognize NTFS formatted SD Cards. Format the SD Card on your computer using FAT or FAT32.

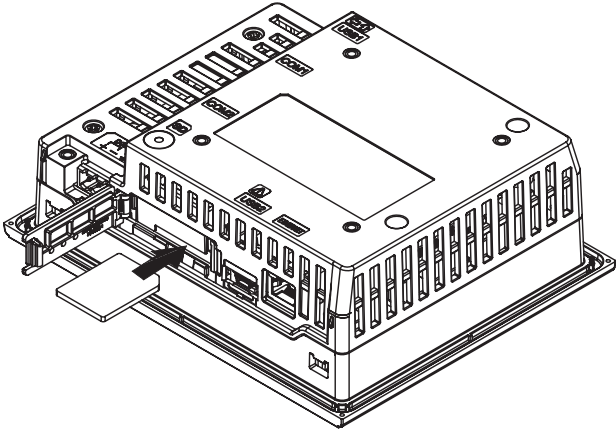
Failure to follow these instructions can result in equipment damage.

Inserting the SD Card

NOTE: As shown in the image below (example on the left-hand side), you can set the Write-Control Tab to prevent write operations to the SD Card. Push the tab up, as shown in the example on the right-hand side, to release the lock and enable writing to the SD Card. Before using a commercial-type SD Card, read the manufacturer’s instructions.



Step	Action
1	<p data-bbox="498 819 920 846">Pull on the tab and open the SD Card cover.</p>  <p data-bbox="498 1271 573 1298">1 Tab</p>

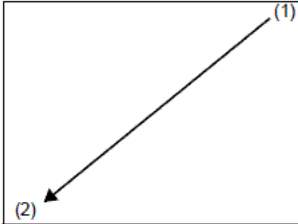
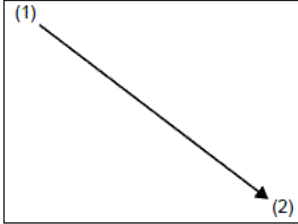



Step	Action
2	<p data-bbox="477 200 1210 227">Insert the SD Card into the SD Card interface, and push until you hear it “click”.</p>  A technical line drawing of a rectangular electronic device, likely a network switch or router, shown from a three-quarter perspective. The top surface is populated with various ports and indicators. On the front-left side, there is a recessed SD card slot. An SD card is shown being inserted into this slot, with its gold contacts facing the device. The device has a textured front panel with vertical ridges and several circular indicators on top.
3	<p data-bbox="477 695 718 722">Close the SD Card cover.</p>

Before Removing the SD Card

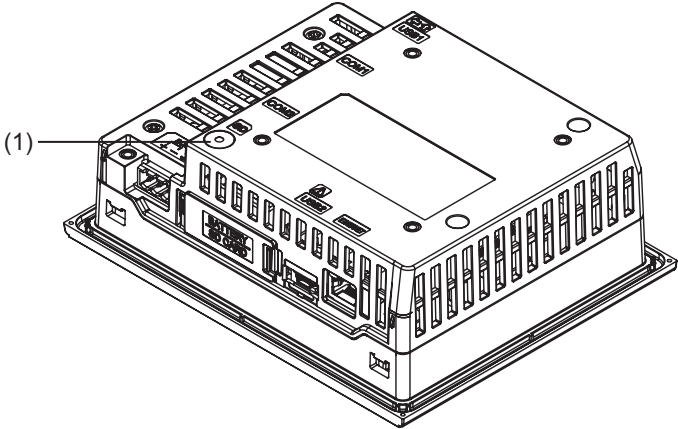
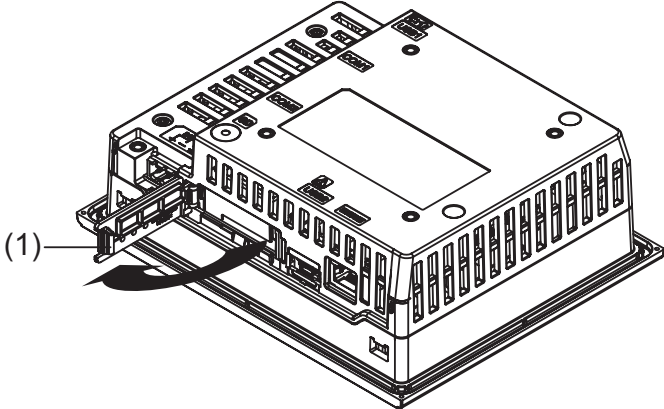
Do not remove the SD Card while it is being accessed. Doing so could corrupt the data on the SD Card. Before removing the SD Card from the GP unit, make sure you run the following procedure to stop SD Card operation.

NOTE:

- When the GP unit is in offline mode or in screen transfer mode, you cannot stop SD Card operation. Return to RUN mode to stop the SD Card.
- When the SD Card removal process is complete, the GP unit's SD Card Access LED is off. Confirm the lamp is off, then remove the SD Card.
- For instructions on how to stop SD Card operation, refer to the GP-Pro EX Reference Manual, "Safely Detaching the SD Card or USB Storage Device".

Step	Action
1	<p>Either touch the top-right then the bottom-left corner, or the top-left then bottom-right corner of the panel (within a 40 pixel area) in 0.5 seconds.</p> <div style="display: flex; align-items: center; justify-content: center;">  or  </div>
2	<p>In the system menu, touch the SD Card icon.</p> 
3	<p>In the "Remove SD Card?" message, touch [Yes].</p>
4	<p>When the GP unit completes the removal process, the SD Card icon disappears from the system menu.</p> 
5	<p>Touch the Close icon to exit the system menu.</p> 

Removing the SD Card

Step	Action
1	<p>Make sure the SD Card Access LED is off.</p>  <p>(1)</p> <p>1 SD Card Access LED</p>
2	<p>Push down the tab on the SD Card cover, then pull open the cover.</p>  <p>(1)</p> <p>1 Tab</p>
3	<p>Push the SD Card once to release, and pull out the card. After removing the card, close the cover.</p> <p>NOTE: After using the SD Card, store the SD Card in its case or other safe location.</p>

SD Card Data Backup

To make your backups, you can either insert the SD Card directly into the SD Card interface on your computer, or use a commercially available SD Card reader.

5.4 USB Cable Clamp

Overview

This section presents the USB cable clamp.

What Is in This Section?

This section contains the following topics:

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USB Cable Clamp for USB (Type A)	158
USB Holder for USB (mini-B)	160

USB Cable Clamp for USB (Type A)

Introduction

When using a USB device, attaching a USB cable clamp to the USB interface to prevent the USB cable from being disconnected.

⚠ DANGER

POTENTIAL FOR EXPLOSION

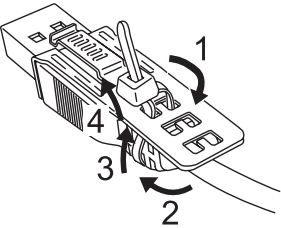
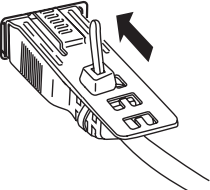
- Verify that the power, input and output (I/O) wiring are in accordance with Class I, Division 2 wiring methods.
- Substitution of any component may impair suitability for Class I, Division 2.
- Confirm that the USB cable has been attached with the USB cable clamp before using the USB interface.
- Remove power before attaching or detaching any connectors to or from the unit.

Failure to follow these instructions will result in death or serious injury.

Attaching the USB Cable Clamp

NOTE: Watch your fingers. The edge of the clip is sharp.

Step	Action
1	<p>Mount the clip to the USB mark connector shell so that it overlaps. The clip matches the 27 to 43.5 mm [1.06 to 1.71 in.] length of the USB connector.</p>
2	<p>Align the clip and the USB cable connector shell. Adjust the position of the holes where the clip is attached. To ensure stability, select the clip-hole position that is closest to the base of the connector shell.</p>

Step	Action
3	<p>As shown, pass the tie through the clip hole. Next, turn the tie and pass it through the head so that the USB cable can pass through the center of the tie loop. The clip is now attached to the USB cable.</p>  <p>NOTE:</p> <ul style="list-style-type: none"> ● Check the direction of the head beforehand. Make sure the USB cable is through the center of the tie loop and that the tie can pass through the head. ● You can substitute the tie provided with PFXZCBCLUSA1 (manufactured by Pro-face, or other commercially available ties with a width of 4.8 mm [0.19 in.] and thickness of 1.3 mm [0.05 in.].
4	<p>While pressing the grip on the clip, insert the cable from step 3 all the way into the USB host interface. Make sure that the clip tab is secured to the USB cable attached to the GP unit.</p> 

Removing the USB Cable

Remove the USB cable while pushing the grip section of the clip.

