

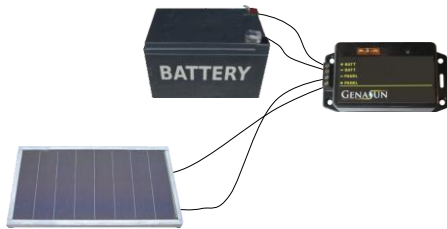
# System Connection

## 1. Connect the Solar Panel.

- Note that if you connect the solar panel to your system ground, your batteries will be damaged

## 2. Connect the Battery.

- A small spark while connecting the battery is ok.



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## Mounting


When choosing a location, please observe the following:


- Do not expose directly to water
- Do not mount near a source of heat.









# Run/Charge Indication



The GV-5 has one indicator LED, which can blink either red or green.



 **Standby.** The battery is connected properly, and charging will begin when solar panel power is available.

**LED:**  [8-10s between green blinks]



 →  **Charging, with less current than about 1.5 A.**  
**LED:**  [faster green blinking]



 ⇨  **Charging, with more current than about 1.5 A.**  
**LED:**  [longer green blinks]



 **Current Limit:** The GV-5 is charging the battery with 5A, and the panel could probably produce more power. Might work better with a GV-10.  
**LED:**  [long green blink, then short green blink]



 **Battery charged.**  
**LED:**  [solid green]



# Error Indication

 **Over-temperature:** The GV-5 internal temperature is too high.  
**LED:**  [sets of 2 red blinks]

 **Overload:** The GV-5 has been overloaded. This could be caused by changing the solar panel connections while the GV-5 is operating.  
**LED:**  [sets of 3 red blinks]

 **Battery voltage too low.** The GV-5 cannot begin charging due to low battery voltage. If the nominal battery voltage is correct (12V), charge the battery by some other means before use.  
**LED:**  [sets of 4 red blinks]

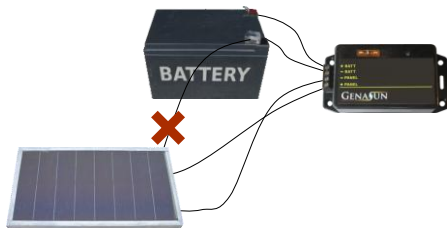
 **Battery voltage too high.** If the nominal battery voltage is correct (12V), check the functioning of other chargers that may be connected to the system.  
**LED:**  [sets of 5 red blinks]

 **Panel voltage too high:** Only 12V nominal solar panels may be used with the GV-5.  
**LED:**  [sets of 6 red blinks]

# Technical Specs

Maximum Output Current .....4 A  
Panel Voc..... 0 – 27 V  
Operating Consumption..... 125  $\mu$ A (0.125 mA)  
Night Consumption ..... 90  $\mu$ A (0.090 mA)  
Battery Float Voltage ..... 13.8 V  
Absorption Voltage..... 14.4 V  
(GV-4-Li: no absorption stage)  
Battery Float Voltage, GV-4-Li-12.5V ..... 12.5 V  
Battery Float Voltage, GV-4-Li-14.2V ..... 14.2 V  
Battery Float Voltage, GV-4-Li-15.2V ..... 15.2 V  
Battery Float Voltage, GV-4-Li-16.7V ..... 16.7 V  
Electrical Efficiency (typical).....94% - 98%  
Tracking Efficiency (typical)..... 99%  
Operational Temperatures ..... -40°C – 85°C  
Weight ..... 2.8 oz., 80 g  
Size ..... 4.3 x 2.2 x 0.9", 11 x 5.6 x 2.5 cm

Note: In the GV-4, the **positive** side of the battery is connected to the **positive** side of the solar panel.



**!** Do not connect the solar panel to your system ground!

It is best to connect the solar panel only to the GV-4, and to nothing else.

The GV line of Solar Charge Controllers with Maximum Power Point Tracking:

**GV-4:** Available for 12V Lithium or Lead-Acid Batteries. Output current: up to 4A.

**GV-5:** Available for 12V Lithium or Lead-Acid Batteries. Output current: up to 5A. Low voltage disconnect for continuous loads up to 5A.

**GV-10:** Available for 12V Lithium or Lead-Acid Batteries. Output current: up to 10.5A.

**GV Boost Controllers** for systems with battery voltage **higher** than the panel voltage. GV Boost Controllers are available for systems with 12V, 24V, 36V, and 48V battery voltages.

# GV-4

**MPPT Solar Charge Controller with Maximum Power Point Tracking**

**User's Manual & Operating Instructions: MPPT GV-4 and GV-4-Li**