
Specifications

Features

- 5 year warranty
- Manufactured with solar power
- Designed and built in North America
- very low battery consumption
- Extreme Temp -40°C to +85°C (-40°F to +185°F)
- Can charge a completely discharged battery
- Low radio interference

Model S5-MIL

Electrical Specifications

Voltage configurations 12 volts or 24 volts (fixed)
(custom voltages 10 to 36 volts)

Max. PV open circuit voltage 40V (60V for 24V)

Max. Charging current 5 amps DC

Battery consumption 0.7mA, 2.5 mA when charging

Typical set points: 14.4V / 28.8V Volts at 20°C (68°F)
temperature compensated.

16 gauge wire leads.

General Specifications

Temperature range: -40°C to +85°C / -40°F to +185°F

Case:

Solid aluminum case, completely sealed in epoxy.

Weight: 140 grams / 5oz.

Size (H x W x D): 6.7 x 9.6 x 1.8 cm / 2.6 x 3.8 x .8"

Features & Options

Status Light: charging

Regulation method pulse width modulation (PWM)
type. Built in blocking diode. Custom voltage set
points.

Warranty

Full 5-Year Warranty

Warranted in entirety, except abuse, within a period of 5 years following the date of purchase. In the event a defect develops during the warranty period, return the unit to eco energy, postage paid. Eco energy will repair or replace the product with a new or reconditioned unit of equivalent quality.

Eco Energy

Since 1992, Eco Energy has been in the business of designing and manufacturing solar charge controllers, battery chargers, low voltage disconnects, current boosters DC converters and battery voltage monitors.

Eco Energy controls are currently used in power systems for remote homes and cottages, recreational vehicles, boats, telecommunication and navigational systems, parking meters, natural gas pipeline telemetry and other solar battery charging applications around the world.

Eco Energy is powered by solar power.



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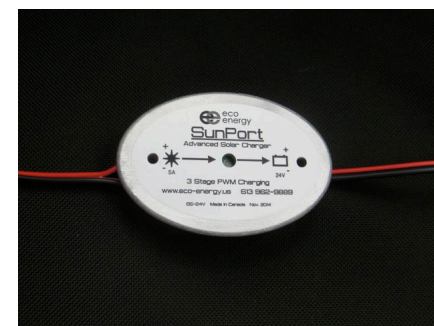
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Installation Guide

Advanced Solar Charge Control

5 Amp - 3 Stage PWM Extreme Environment

S5-MIL



Advanced Control Solutions

Advanced Solar Charge Controls

Our latest innovation in controls. Tough, easy to install and practically indestructible.

This high performance solar charge controller increases battery life by preventing overcharging. Overcharging can cause corrosion and buckling of the lead plates, increased battery water loss and excess hydrogen gas.

The control also prevents power loss back into the solar modules at night, so an external blocking diode is not required.

Unique low battery drain - Battery standby power consumption is 0.2 mA. In the dark they use no power, ideal for PV systems where efficiency is important. Leave it connected all winter without draining the batteries. Some other controls which have a standby current draw will drain the battery over the winter with no solar input, reducing the freeze protection of the battery.

Efficient Design – automatic nighttime shutdown with an intelligent design results in the controller using < 1/10th the power of the industry average. Other controls stay on all night, wasting precious power.

Installation and Operation

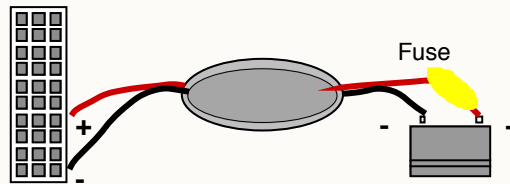
Location

The controller needs to be in a cool location in order to function properly. It should not be in direct sunlight, or mounted in a hot location such as the back of a solar module. The controller should be installed near the batteries, to ensure an accurate battery voltage measurement. The distance from the solar panels to the controller should not exceed 60 feet.

Wiring

#16 AWG or larger wire should be used. There are two PV input terminals which are connected together in parallel for easy expansion of additional panels. Either set of PV input terminals can be used. The control keeps the batteries isolated from each other on the positive side.

Battery Neg- terminals are connected together in the control.



As an additional safety precaution a fuse can be installed between the positive output of the control and the positive terminal of the battery.

Operation

The controller protects batteries from overcharging. It allows solar power to charge the batteries until the batteries rise to the full voltage set point. It then maintains the battery voltage at this set point.

It then maintains the battery voltage at this set point. Because a battery voltage fluctuates, it is normal for the charging light to turn on and off as the battery approaches full charge. When full charge is achieved the charging light will go out completely.

Charging Flashes

Three Flashes - Charging below charging set point
Two Flashes - Charging at charging set point
One Flash - In float charging mode
No Flash - Charging on hold

The control will switch to float mode after the battery has been at the charging set point for a minimum of 10 minutes and a maximum of 4 hours. The amount of time the battery takes to reach the charging set point determines the amount of time that is required before switching to float mode. The control will stay in float mode for a minimum of 5 minutes. If the battery voltage drops below the float set point a new charging cycle will begin.

At night the control shuts down to save power.

Fault Conditions

The charging light is off to indicate a fault during solar short circuit, solar or reversed battery, over-temperature and battery short circuit conditions. Remove solar power to reset the control.

No damage will occur if the battery is removed, or if the control is directly connected to the solar module without a battery.

Testing

To test the operation of the control measure the current from the solar module or to the battery.



Do not measure the output voltage without the control connected to a battery as the control shuts off if the battery voltage is too low for safety in the event of a short circuit.