

# Specifications

## Features

- Unique - zero battery consumption
- Protection (PV & Batt), against short-circuit & reverse polarity (except 24V), overload, over temperature & battery removal
- Extreme -40°C to +85°C (-40°F to +185°F)
- Can charge a completely discharged battery
- Series design (not shunt)
- Reliable -100% solid state, quiet, completely sealed
- No radio interference
- Silent
- No need to derate
- Temperature compensation (.028V/C = .016V/F)
- Fully encapsulated in epoxy potting
- Solid aluminum case
- 5 year warranty
- Manufactured with solar power
- Designed and built in North America

## Model S6

### Electrical Specifications

Voltage configurations 12 V (custom voltages 6 to 20 V)  
Max. PV open circuit voltage 30 volts  
Max. Charging current (at 85 °C) 6 amps DC  
Battery consumption zero  
Typical solar consumption 8 mA daylight only, 3 mA without LED  
16 gauge wire leads  
Typical set points: Off: 14.2 Volts On: 13.2 Volts  
(28.4 and 26.4V for 24V controls)

### General Specifications

Temperature range: -40° to +85°C -40° to +185°F  
Case: Solid aluminum case, completely sealed in epoxy.  
Weight: 200 grams  
Size (H x W x D): 6.4 x 9.6 x 1.3 cm (2.5 x 3.75 x .5")  
Mounting: wall mountable

### Features & Options

Status Lights: 1 LED (charging)  
Regulation method Low frequency On-Off series type  
Built in blocking diode  
Custom voltage setpoints

## 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, natural gas pipeline operations and other solar battery charging applications around the world.

Eco Energy is powered by solar power.



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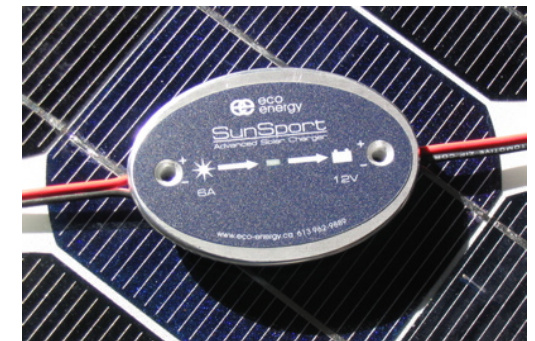
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# Installation Guide

## SunSport 6

## 6 Amp Solar Charge Controller

Intelligent Charging Solutions



# SunSport 6

Our latest innovation in solar charge controllers, the SunSport series. 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 no battery drain - Battery standby power consumption is zero! In the dark they use absolutely zero power, ideal for PV systems where efficiency is important. Boaters can 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 – our latest innovation; 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. Save up to 10% more power from a 5 Watt module.

Safer - SunSport controls have more built in protection and safety features than any others on the market. They feature automatic over-temperature shutdown, protection from battery removal conditions, over-current, solar and battery reverse polarity, short circuit and over-voltage protection of the inputs and outputs. Eco Energy is the first to combine all of these safety features into one controller. In remote applications, there is no need to worry about accidentally damaging the controllers.

SunSport 10 Marine - Marine option specifically designed for boats charges two isolated batteries from one panel. Completely sealed for protection from the harsh salt water environment.

Many innovations in a sleek new design. Going solar

# Installation

## WARNING

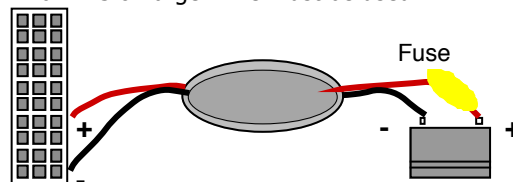
Controllers should not be installed in the same enclosure as batteries as this is a corrosive environment.

## 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 must be used.



**Solar +** In is Red closest to the solar symbol.

The negative wires are Black (both black wires are connected together inside the controller so only one negative wire can be used if it is more convenient.)

**Battery Out +** Red closest to the battery symbol.

# Operation

The controller protects batteries from overcharging. It allows solar power to charge the battery until the battery rises to the full voltage set point. It then shuts off the solar power until the battery voltage drops by approximately 5%.

Because the battery voltage fluctuates, it is normal for the charging light to turn on and off as the battery approaches full charge.

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.

No damage will occur if the battery is removed, leaving the control directly connected to the solar module. In this case the charging light turn on briefly when the solar module first turns on.

The control will automatically limit the current if too many solar panels are put on the input.

## Basic Testing

Connect the control directly to a solar module (in bright sunlight) without a battery. The charging light should come on briefly, and then go out.

If this does not occur the control requires service.

## Verification of the Voltage Set point

A power supply can be put on the input with the power supply current limit at or below the controller rating. The charging light should go out when the battery voltage reaches 14.2 volts.