

# Specifications

## Features

- Unique - Zero Battery consumption
- Can charge a completely discharged battery
- No radio interference
- Temperature compensation (.028V/C or .016V/F)
- Fully encapsulated in epoxy potting
- 5 year warranty
- Manufactured with solar power
- Designed and built in North America

**Model** ASC 50W / S3.5

## Electrical Specifications

For 12 volt Batteries (custom voltages 6 to 20 volts)  
Lead acid & sealed lead acid batteries (SLA)  
Status Lights: 1 LED (charging)  
PV input voltage 0 to 22 volts DC  
Max. Charging current (at 50 °C) 3.5 amps DC  
Typical solar consumption 7 mA daylight only, 0.5mA when in standby  
Battery consumption zero, 0.0 mA  
Min. Battery voltage to begin charge = 13.5 Volts  
Regulation method Low frequency On-Off series  
Typical set points: Off: 14.2 volts, Resume: 13.3 volts  
Temperature Compensated.

## General Specifications

Temperature range: -40°C to 50°C / -40°F to 120°F  
Case: ABS case, completely sealed in epoxy  
Weight: 50 g / 2 oz.  
Size (H x W x D): 3.8 x 7.0 x 3.1 cm / 1.5 x 2.75 x 1.3 in.  
Wire: 18 AWG, 15 cm / 6 in.

## Features & Options

Optional Dual Battery Charging  
Custom voltage setpoints  
Custom wire lead lengths

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60335-1:2012  
60335-2-29:2004

## 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 has a 6.5 KW array which is used to manufacture our controls.



57 Alexander Street  
Belleville Ontario  
Canada K8N 2H4  
Phone: 613 962-9889  
Fax: 613 962-9889  
Email: [info@eco-energy.ca](mailto:info@eco-energy.ca)  
[www.eco-energy.ca](http://www.eco-energy.ca)

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# Installation Guide

## ASC 50W

## 50 Watt Advanced Solar Controller With Temperature Compensation



Advanced Control Solutions

# ASC 50W



Before charging, read the instructions



**WARNING: Explosive gases. Prevent flames and sparks. Provide adequate ventilation during charging.**



**Disconnect (or cover the PV module) supply before making or breaking the connections to the battery.** Failure to do this can result in the load being directly

connected to the PV and the excess voltage may damage the load. A three pin connector can be used on the battery which disconnects the load when the battery is removed or replaced to help prevent this.

## Unique Design

Our latest innovation in solar charge controllers, the Advanced Solar Controller 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. 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.

# Installation

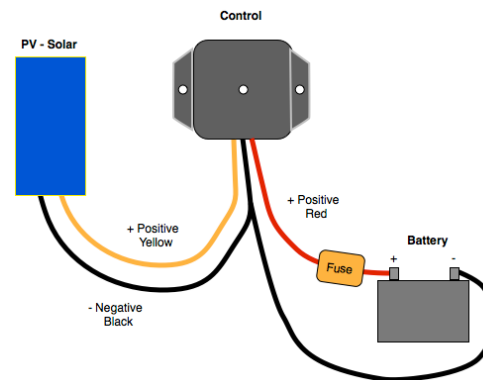
## Location

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 & temperature measurement. The distance from the solar panels to the controller should not exceed 18m/60 feet.

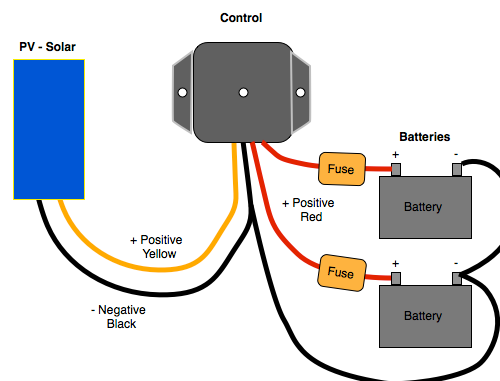


## Wiring

Min. 1mm<sup>2</sup> #18 AWG wire should be used. Fuse of 5 Amps or less should be used.



The optional dual battery charger has two red wires and is wired as follows:



# Operation

The control 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.

The control will not be damaged if 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.

## 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.

The charging light should go out when the battery voltage reaches 14.2 volts at 22C (72F).



Do not connect a power supply (other than a solar module) to the solar input. Some power supplies are too slow to current limit, resulting in excessive currents & damage.