Specifications

Features
- Very low power consumption
- Protection against load short-circuit & overload
- Reliable -100% solid state
- No radio interference
- Silent
- No need to derate
- Fully encapsulated in epoxy potting
- 5 year warranty
- Manufactured with solar power
- Designed and built in North America

Model 4VS4AA or VS4A-24V

Electrical Specifications
Voltage configurations 12 V & 24V (6V to 30V avail.)
Max. input voltage 39 volts
Max. current (at 50 °C) 4 amps DC
Power Consumption
Standby - 0.2 mA, ON - 2.3 mA
18 gauge wire leads
Typical set points: Off: 13.3 Volts On: 12.0 Volts Off
Adjustable with screw driver on back from approx.:
lowest (full counter clockwise) 12.8 On 11.5 Off
highest (full clockwise) 13.8 On 12.5 Off
Normal separation between setpoints is 1.3 Volts
(other voltage setpoints available.)

General Specifications
Temperature range: –40° to +50°C (-40° to +160°F)
Case: ABS, sealed in epoxy
Weight: 50 grams
Size(H x W x D): 3.8 x 7.0 x 3.1 cm (1.5 x 2.75 by 1.3 inches)
Mounting: wall mountable

Features & Options
Built in load snubbing diode
12 or 24 Volts
Options: Status Light: completely sealed with no adjustment, custom wire lengths, 1 LED (Load On), and custom voltage setpoints.

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

Eco Energy is powered by solar power.

eco energy

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Installation Guide

Voltage Switch

4 Amp Battery Discharge Protection

eco energy

Intelligent Charging Solutions

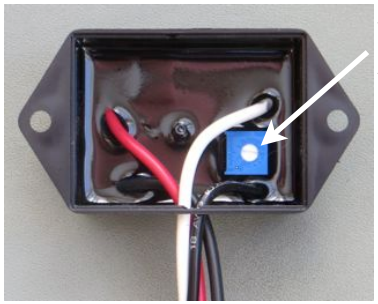
Voltage Switch 4 Amp
VS4A

Normal Operation
The voltage switch protects your batteries from being excessively discharged. The input voltage is constantly monitored with an extremely efficient low power draw design.

When the input voltage is above the ON setpoint (typically 13.3 volts) the load will be turned on.

When the input voltage is below the OFF setpoint (typically 12.0 volts) the load is turned off to protect the battery from being discharged excessively.

Voltage Adjustment
The voltage setpoints are adjustable by turning the adjustment on the back of the control with a small screwdriver.



The on and off setpoints move together. Turning clockwise increases the setpoints. The voltage separation between the on and off setpoints is fixed during manufacturing. Different separations and voltage setpoints can be ordered.

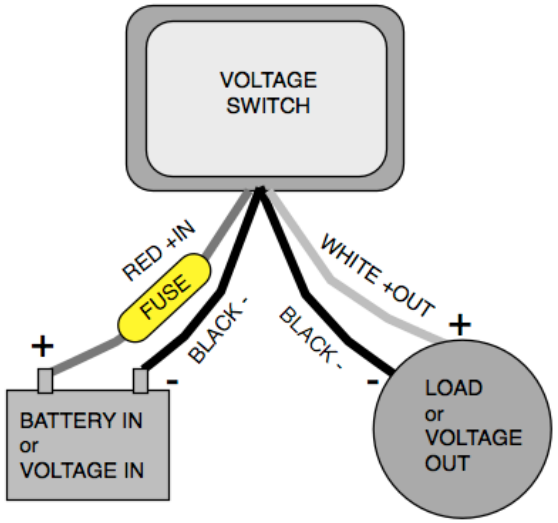
- WARNING -
DO NOT EXCEED A LOAD OF 4 AMPS
A Load > 4 Amps can damage the control

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 in direct sunlight. The controller should be installed near the batteries, to ensure an accurate battery voltage measurement. The distance from the batteries or input power to the controller should not exceed 40 feet.

Wiring
- WARNING -
DO NOT REVERSE INPUT POLARITY
Reverse input polarity will damage the control

#18 AWG or larger wire must be used.
The positive wires are Red. The negative wires are Black (both black wires are connected together inside the control). A relay can be installed directly on the output wires to increase the current or voltage capabilities.



Operation

- WARNING -
MOTORS & COILS PRODUCE VOLTAGE SPIKES
A large voltage spike will damage the control

A motor, pump or other inductive load on the battery input to the control will briefly turn into a generator when turning off. This will cause a large negative voltage spike. A diode, or voltage snubber is required on the motor, pump or relay to prevent large voltage spikes into the control.

Fault Conditions
Loads such as DC motors, and incandecent lights can have large starting currents as much as 10 times the running current. A high current may trigger the overcurrent protection and turn off the load.

After an over current fault the output will remain off until reset.

To reset the control after a short circuit or overload, to turn off power to the input.

The load will also be turned off when the control is too hot, however it will automatically turn back on when cooled sufficiently.

Basic Testing
Verification of the Voltage Set point
A precision power supply can be put on the input with the power supply current limit at or below the controller rating.

The load will turn on when above the voltage setpoint and turn off when below the Off setpoint.