Buddipole Solar Charge Controller

Features

- Controls charge current from solar panel to 12 volt lead acid or Lithium Iron battery
  - Compatible with four series cell Lithium Iron A123 type battery
  - Compatible with six series cell Flooded, Gel or AGM type lead acid battery
- Controls charging current with solid state FET charge control switch
- Detects Panel and Battery state on either connector
- Indicates Status with Red and Green Color LEDs
- Uses convenient Standard Anderson PowerPole connectors

Specifications

- Maximum Panel Power 75 watts (15-17 volt nominal panel)
- Maximum Panel Voltage 27 VDC (open circuit)
- Minimum Panel Voltage 17 VDC (open circuit)
- Maximum Battery Voltage 14.4 VDC (full charge)
- Minimum Battery Voltage 10 VDC

Status LEDs

Red LED ON	Charging in Progress
Green LED ON	Panel illuminated and Battery is Charged
Green LED flashes every 1 second	Panel dark and Battery is Charged
Green LED flashes every 4 seconds	Panel dark and Battery needs Charging
Both LEDs OFF	Both terminals below 10 volts

Usage

This Solar Charge Controller is intended for Field Use with a Solar Panel and a 12 volt lead acid or A123 Lithium Iron battery pack. Lithium batteries should be periodically charged with a balancing charger to insure that proper cell balance is maintained. This Solar Charge Controller does not monitor or guarantee cell balance.

This Controller generates a small amount of heat when charge current is flowing. In order to avoid overheating the unit it is advisable to keep it out of direct sunlight when in use.

Connect a 12 volt battery on one connector, and a solar panel to the other connector. Make sure to observe proper polarity, red is positive voltage, black is ground. When the solar panel output voltage is greater than 15 volts, and the battery is between 10 and 14.4 volts the Controller will connect the panel to the battery and charging current will flow. If the battery is below 10 volts or above 14.4 volts, or the panel is below 15 volts charging will stop. Note that when charging is going on that the panel and battery voltage are the same as they are connected together.

In normal operation the LED indicator will alternate between RED for charging, and GREEN for fully charged. If the solar panel does not have light the Controller will flash the GREEN LED every one second if the battery is fully charged, or every four seconds if it is less than fully charged. Refer to the chart on the front page for LED status information.

The Controller draws a few milliamps of current, so it is best to disconnect it when not needed to preserve the battery's charge (such as during the night).

Important Notes

This controller switches charging current into a battery. Do not attempt to operate a radio directly from a solar panel with this Controller without a battery in the circuit. It does not reduce panel voltage and the radio may be damaged. A battery is required to be in the circuit for proper voltage regulation. If connecting a radio to the battery while charging it is important to insure that the battery does not become disconnected from the circuit at any time. If this occurs the radio may briefly be exposed to the full panel voltage which could result in serious damage to the radio. The best configuration is one where there are two connectors on the battery, one for the radio and one for the charger, and each connector has its own separate fuse. In this situation a disconnect of either connector results in a configuration that is not damaging to the equipment.

Exceeding the Controller's power rating will cause excessive heat generation in the current control switch and may damage the controller.

Solar panels have much higher open circuit voltages than their nominal ratings. Nominal ratings for 12 volt panels are 15-17 volts at maximum power and open circuit voltages are up to 27 volts. Excessive voltage will damage the controller. Never allow more than 30 volts to reach the Controller input or output terminals.

The Controller must be kept dry, water may cause improper operation and/or damage to the Controller.

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