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Technical Documentation

SunLight Quick Test

SunLight Controller Quick Test

v01

Abstract:

This is a quick test procedure intended only to verify the basic charge and load control functionality of the SunLight controller. This procedure does not fully test the load timer functionality and its automatic activation/deactivation of the load.

Before you begin:

- This is a quick test procedure intended only to verify the basic charge and load control functionality of the SunLight controller. This procedure does not fully test the load timer functionality and its automatic activation/deactivation of the load. Full timer and load functionality is assumed by verification of Step 2. Please refer to the SunLight Field Testing document for detailed testing instructions that cover the controller's full range of functionality.

- The procedures outlined below assume a basic knowledge of electric circuits and the necessary safety precautions to be used when working with live circuits present in solar energy systems.

- All voltages will be given for a 12V nominal system. For a 24V nominal system, all voltages should be double.

Recommended Tools:

- Digital Multi Meter (frequency and duty cycle measurements are helpful)
- Flat Bladed Screwdriver
- A lighting load (a type 1156 automotive brake lamp works well for 12V systems)
- A battery bank (of appropriate voltage for the controller)
- A solar array in full sun and/or a Power Supply (of appropriate voltage for the controller)
- Wire for connections to the SunLight.

Test Procedure:

1) Connect the battery and verify that the controller powers up, indicated by three flashes of the red light.

2) Connect the load and set the load switch to any setting desired. Press the test button to verify the correct operation of the load timer and load.

- The red light should flash a number of 0-9 times respective to the selected timer setting when counting clockwise from the OFF position, i.e. OFF = 0 flashes, 2hr setting = 1 flash, 4hr setting = 2 flashes, 6hr setting = 3 flashes……D/D = 9 flashes, and the load should activate for the 5 minute test period then shut off again. If the above is correct, proceed to Step 3. There is no need to wait for the 5 minute test period to end.

3) Connect a power supply (current limited to within the controller's nameplate rating and set to 16V-20V) or

a PV panel placed in full sun to the Solar Input Terminals (Terminals #4 and #3). Be sure to observe correct polarity. Verify that the green charging light illuminates to confirm the controller is receiving power on its solar input connection. There will be an approximate 10 minute transitional delay before the controller registers a daytime state and starts charging the battery.

4) After a delay of 10-15minutes, the controller should be charging the battery. This can be verified by measuring the voltage drop between the Solar+ terminal (#4) and the Battery+ terminal (#2). One of the following two scenarios should be observed:

A) If the battery voltage is below the controller's 14V regulation set point the controller will be Bulk charging and there will be less than 1V drop (usually ~.5V) measured between the solar+ and battery+.

B) If the battery voltage is at 14V and there is more than 1V drop measured between the solar+ and battery+, then the controller is properly charging the battery voltage at its 14V regulation set point.

The SunLight controller under test should be fully operational if steps 1-4 have been verified as correct.