

Constant Current Resistive Load Test (5/3/2023)

Purpose: Before attempting to charge a battery, it makes sense to test the constant current regulation ability of the generator charger system with a nonvolatile load.

Description: A control program is written that reads from the isolated current sensor and creates a feedback loop to regulate the current. A 250Ω load is attached across the output of the generator system, and the current set point is tested at several values. The theoretical current at the set point is calculated, and the actual current is measured using a hall effect multimeter.

Results:

ADC Code Set Point	Theoretical Current (A)	Measured Current (A)	Calculated Average Voltage (V)
120	0.98	1.04	260
100	0.815	0.87	217.5
75	0.605	0.74	185

An ADC set point of 50 was also attempted. This set point was not regulated in a stable manor.

Analysis: The generator system seems to regulate with more stability and accuracy at higher voltages: approximately 150V-275V. The first test battery pack for charging should be in this voltage range.