

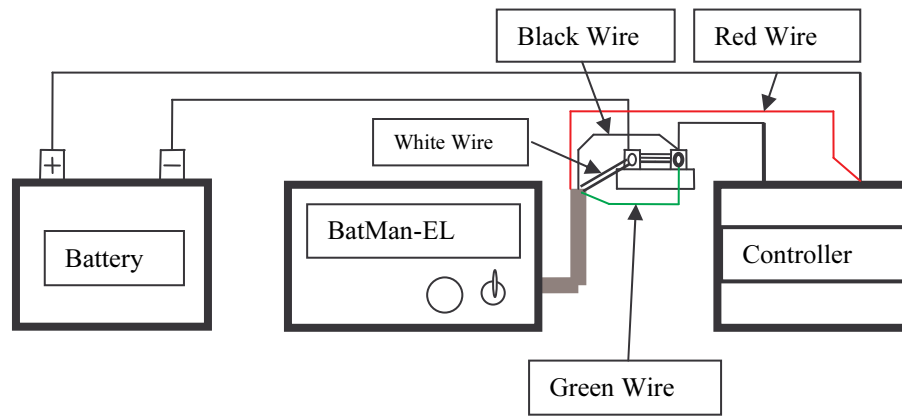
## Bruce Sherry Designs

# Battery Manager EL User Manual

The purpose of this document is to describe the intended use of the Bruce Sherry Designs Battery Manager II Electrathon Version.

The Battery Manager EL is a battery monitoring and measuring instrument. Its intended use, is to measure the performance of batteries used in electric racing applications. It measures and displays four quantities:

1. Battery current. -350 to +50A.



**Wiring Diagram.**

## Wiring

The shunt goes on the negative side of the battery!

**Red:** Battery Positive.

**Black:** Meter Negative, Controller side of shunt.  
This wire has the 3/8" lug to go on the big bolt where you hook up the negative lead to your controller.

**Green:** Meter Load side sense.  
This wire goes to the little screw terminal on the same side of the shunt as the black wire.

**White:** Meter battery negative.  
This wire goes on the other little screw terminal on the shunt. The 3/8" bolt goes to the NEGATIVE side of the battery. Make no other connections to these two points.

When the unit is powered up, it should display its software revision, and serial number for two seconds, then start measuring the current and voltage of the battery pack. While waiting for the race to start, press the "Clear" button for more than four seconds, and the Amp/Hours, and clock will clear to zero when you let go. When the race starts, the clock should start in the first second, due to the high currents used to get the car going, all it takes is more than 25 Amps to start it off. Then as the race progresses, check your Amp/Hours at points you might be able to figure in your head, like every 15 minutes. If you expect to use 40AH during the race, you should have used 10 of them in the first 15 minutes, 20, in the first half hour, and so on. If you are using too much, slow down a bit, or maybe speed up if you are not using enough. If you are using too much, you might let off the throttle a little earlier, and coast farther in to the corners. If you aren't using enough, you might dive into the corners a bit harder, and actually use your brakes, rather than coasting.

In trying to estimate how many Amp/Hours you might expect to use during a race, remember that the higher currents you draw, the fewer Amp/Hours you can expect to get. This means, that on a nearly constant speed course, like a big oval, or a velodrome, you can expect to get more from your batteries, than on a road course with slow corners and a lot of braking.

## Typical Installation Problems:

If your meter:	Possible Problem:	Remedy:
Always Reads about +40A.	The shunt is on the positive side of the battery.	Move shunt to negative side of battery.
Reads 0A at 0A, but stops at about +40A.	The shunt sense wires are reversed.	Swap the two sense wires on the small shunt screws.

If your unit fails, for any reason, send it to:

Bruce Sherry Designs Repair  
15621 N.E. 164<sup>th</sup> Street  
Woodinville, WA 98072

We will repair it and send it back the same way it came to us, Fed-Ex, UPS, or US Mail. Please understand the Battery Manager I is intended for racing, and if it is damaged, there will be a repair charge. If it can reasonably be blamed on faulty materials or workmanship, there will be no charges.

Controls:

ON-OFF switch, 1 for on, 0 for off.

Display contrast, full dark, is all the way clockwise. When the unit is very warm, as on a hot summer day, you may need to turn the contrast control counter-clockwise a bit to be able to read the display.

Dimensions:

3.26" High by 5.63" Wide x 0.91" Thick, not including the knob and switch. The display characters are 4.84mm(0.2") wide by 9.66mm(0.38") high.

Specifications:

Current +40A (charge) to -365A (discharge).

Voltage +7 to +35V

Clock starts after -0.0256AH used. Accurate to within about 5 seconds per hour.

The Battery Manager EL gives you the information you need to get the most out of the batteries in your electric race car.

Let's go racing!

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