Bruce Sherry Designs
Battery Manager II, Electric Vehicle Version

BatMan-EV Users Manual

The purpose of this document is to describe the intended use of the Bruce Sherry Designs Bat Man-EV.

The BatMan-EV is a battery monitoring and measuring instrument. It's intended use, is to measure the performance of batteries used in electric vehicle applications. It measures and displays four quantities:

1. Battery current. -750 to +40A.
2. Amp/Hours used since reset. + 999.9 to -999.9Ah.
2. Battery Voltage +40 to +350V.
4. Watt/Hours used since reset. +18200 to -18200Wh.

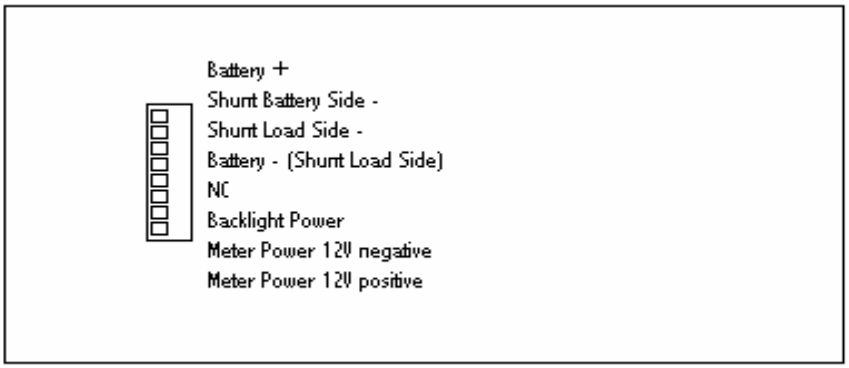
Negative values indicate current or watts out of the battery (discharge), positive values indicate current or watts into the battery (charge).

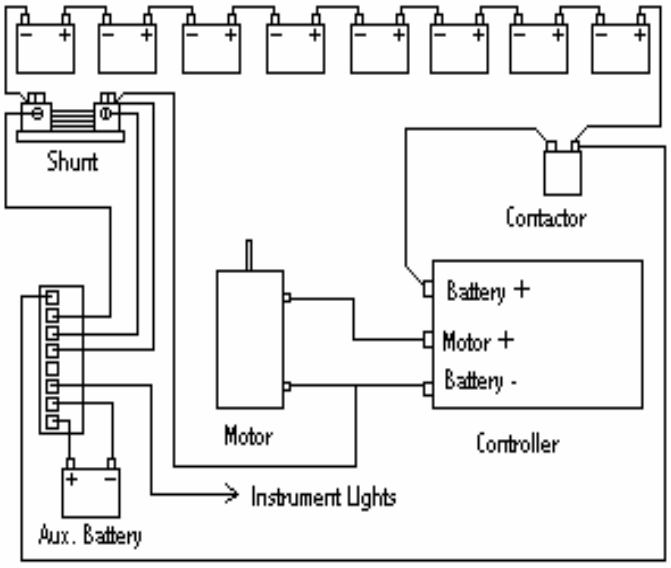
Controls.

The BatMan-EV has two controls on the front panel. It has a contrast knob, which can be turned clockwise to darken, or counter-clockwise to lighten the display. It also has a Clear button, which can be pressed for four seconds or more to reset the Amp/Hour and Watt/Hour displays.

Connections.
It is connected to the Vehicle through an 8 pin screw terminal connector located on the back of the unit. Current is measured with a 1000A=100mV shunt connected between the negative side of the traction pack, and all load connections. With the connector on the left, the pins, from the top have the following signals:

1. Traction Pack Positive.
2. Shunt Battery side.
3. Shunt Load side.
4. Battery Negative (Shunt load side).
5. No Connection.
6. Backlight power if so equipped.
7. Meter Power Negative (12V Ground).
8. Meter Power Positive (12V +).





BatMan-EV Wiring Diagram

Wiring

The shunt goes on the negative side of the battery!

1. Battery Positive.
   This wire pin should connect to the battery side of your main contactor.
2. Meter Battery side current sense.
   This wire goes to the little screw terminal on the same side of the shunt as battery negative terminal. **Make no other connections to this point.**
3. Meter Controller side current sense.
   This wire goes to the little screw terminal on the same side of the shunt as the load (the negative lead to your controller). **Make no other connections to this point.**
4. Meter battery negative.
   This pin should connect to a 3/8" ring lug, and connect to the load side of the shunt, where your controller connects.
5. Reserved.
   Make no connection to this point.
6. Backlight Power.
   This wire connects to your instrument light system, if your unit has a backlight.
7. Meter Power Negative.
   This is the isolated negative power to run the BatMan, usually your cars ground.
8. Meter Power Positive.
   Isolated positive power for the BatMan.

Once the connections have been made, you are ready to go. The unit should power up displaying it's software revision and serial number for two seconds, and from then on it will display it's measurements.

The values that the unit displays are:

1. **Battery Current.** +50A charge to -750A discharge
2. **Amp/Hours** since clear. This is calculated by accumulating the current over time.
3. **Battery voltage.** Up to 350V
4. **Watt/Hours** since clear. This is calculated by accumulating the product of current and voltage over time.

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

Bruce Sherry Designs Repair
15621 N.E. 164th 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 BatMan-EV is intended for racing, and if it is damaged, there will be a repair charge. If it can reasonably blamed on faulty materials or workmanship, there will be no charges.

Controls:

1. **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.
2. **Clear Button.** The clear button clears the accumulated Amp/Hour and Watt/Hour values. In order to do this, press the Clear button for at least four seconds. The accumulated values will clear to zero when you let go of the button.

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 +50A (charge) to 750A +- 0.5A (discharge).
Battery Pack Voltage +40 to +350 +- 1V
Meter Power: 10 to 15VDC @ 0.025A

The BatMan-EV gives you the information you need to get the most out of the batteries in your electric car.

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