



## LCD Battery Monitor Part# BMK-72



### Introduction

The Eco Battery LCD Battery Monitor Kit is designed specifically for Eco Battery Lithium (LiFePo4) batteries. The LCD can display voltage, amperage, and % of battery capacity. This kit includes LCD display gauge, a sampling shunt, connection cable, and hardware.

**NOTE:** It is advised that your battery be fully charged before you begin installation. For installation videos on golf carts and other FAQ's, please visit: [www.ecobattery.com/install](http://www.ecobattery.com/install)

### Bill of Materials

1X LCD Display and bracket	1X 500A Sampling Shunt
1X 3M Connection Cable	1X Positive Lead Wire
2X M8x30 Brass Bolt	2X M8 Brass Nut
2X M8 Brass Lock Washer	2X M8 Brass Washer

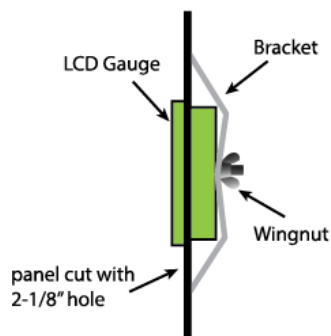


### Installation Instructions

Before you Begin:

- ★Power off and/or remove fuses to all devices connected to the battery before installation. Golf carts should be in tow mode.
- ★Connect shunt only as shown in this manual, inline with the negative circuit. Incorrectly installing shunt in positive circuit will irreversibly damage the shunt and monitor.
- ★Do not cut or extend shielded wire that connects the shunt to the LCD monitor. If extending is necessary, please order a longer cable from [www.ecobattery.com](http://www.ecobattery.com).

### LCD Installation



1. Disconnect all negative battery cables, and ensure they will not touch the battery terminals during installation.
2. Determine mounting location for the LCD display. Ensure there is adequate length of shielded cable to reach from the battery's negative terminal to the LCD. Check for adequate clearance behind LCD mounting location, and that you will not damage any components behind where you will be drilling.
3. Use a 2-1/8" or 54mm hole saw to make a hole in the desired location.
4. Mount the LCD in the hole you drilled, and secure it from behind the panel by using the included bracket and wing nut.
5. Connect shielded cable to LCD, and route other end of cable near the battery negative terminal.

### Shunt Installation



image of completed installation

1. Use a mini flat head screwdriver to connect the bare end of the positive lead wire to either of the 2 small "+" terminals on the shunt. Attach the other end with the ring terminal to battery B+.

**Note:** Make sure the highest drawing cables are installed on B+ first (touching the battery terminal), with the shunt wire on top.

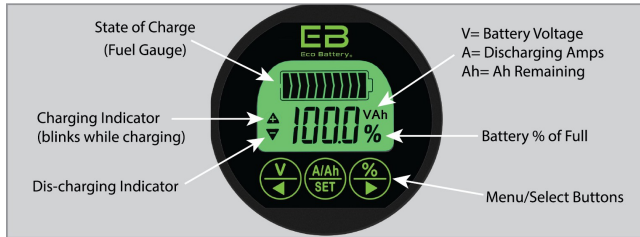
2. Attach the shunt's B- side directly to the battery's negative terminal, using a M8x30mm brass bolt, 1 brass flat washer, and 1 brass lock washer.

**Important:** If you have a 12V voltage reducer (for lights, radio, etc.) or 120V inverter installed, remove it's input fuse before proceeding. These devices can cause battery terminal arcing upon connection, and can void your battery warranty. Always install converter or inverter input fuses after all battery cables have been connected.

3. Connect all negative power and charging cables (that were originally connected to battery B-) to the "P-" side of the shunt, using a M8x30 brass bolt, 2 brass flat washers, 1 brass lock washer, and a M8 brass nut. The bolt should be installed from the bottom, with the nut on top.






4. Connect shielded cable to shunt. LCD should power on.

## Programming




The Eco Battery LCD Monitor has default settings for 72Ah Batteries. If installing on a 72Ah battery, you may skip Step 1 and proceed to Step 2. If installing on a different Ah battery, you must perform step 1 and step 2.

### Step 1: Set Ah Capacity





If Ah is not currently displayed, press / release the  until the LCD displays Ah capacity. Press/hold the  key for 3s until the value begins to blink. Use the  or  keys to set your battery's Ah rating, then press the  key to save.

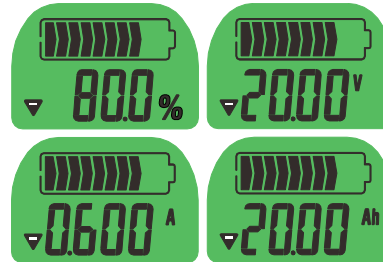
**IMPORTANT:** Make sure that the battery is FULLY CHARGED before setting the capacity % to full. Your LCD will not accurately display battery life if not fully charged at this time. If you cannot fully charge at this time, you may still use the battery, however the LCD will not accurately display battery % and capacity information until the battery is fully charged, and step 2 is performed.

### Step 2: Set Capacity To Full

While displaying battery % on the LCD, press/hold the  key for 3 seconds until the LCD shows 100%.

## Display Parameters

Upon initial power on, the LCD will display the battery capacity percentage. Press  to display battery capacity in Ah, Press  to display battery voltage; press  again to display the current in amps. To return to battery capacity %, press .



sample image of display parameters

★While discharging, the LCD's backlight will be steady on, and will display the selected parameter. (battery % remaining, battery voltage, or discharge current). The small triangle on the lower left hand side will also display a "-" symbol, to indicate discharging.

**Note:** If the backlight blinks while discharging, it means that the shunt's B- and P- connections are reversed. Correct the installation and test again.

★While charging, the LCD's backlight will blink, and display the desired parameter. (battery % remaining, battery voltage, or charging current, in amps). The small triangle on the lower left hand side will also display a "+" symbol, to indicate charging.

★If the discharge or idle current is more than .1 amps (100mA), the LCD backlight will be steady on. If discharge current is less than .1A (100mA), the backlight will turn off, indicating sleep mode.

## Specifications

Voltage Range	8V - 100V
Current Range	0-500A
Idle Power Use	6 mA
Sleep Power Use	60 uA
Back light Power Use	100mA
Current accuracy	±1.0 %
Capacity accuracy	±1.0 %
Voltage accuracy	±1.0 %
Preset capacity value	72 Ah
Temperature range	14° - 140° F
Exterior size	2.3" Dia x .78" Depth

### Tips / Troubleshooting

★For extended battery storage, always turn off any power draws. If the LCD backlight is still on, it means there is still something drawing from the battery.

★If LCD doesn't power on, check all wiring. Make sure the connectors on both ends of the shielded cable are fully seated.

★If after several charge/discharge cycles the capacity % is not being correctly calculated, charge the battery fully, then re-perform step 2, "Set Capacity to Full".

★If display is frozen, and/or buttons are unresponsive, disconnect shunt's shielded cable for 10 seconds, then reconnect.

For additional help and troubleshooting visit our FAQ's section at [www.ecobattery.com/FAQ](http://www.ecobattery.com/FAQ). Or contact the dealer you purchased from. You can also reach Eco Battery directly at 877-ECO-BATT.

### Warranty

Eco Battery warrants to the original purchaser that this product will be free from manufacturer defects for a period of 1 year. For full warranty policy go to [www.ecobattery.com/warranty](http://www.ecobattery.com/warranty)