



## Lithium (LiFePo4)

### Battery Owners Manual

#### Battery Packs Covered

|          |          |          |          |
|----------|----------|----------|----------|
| 12V96Ah  | 24V72Ah  | 36V72Ah  | 48V72Ah  |
| 12V144Ah | 24V144Ah | 36V105Ah | 48V105Ah |
| 12V216Ah | 24V300Ah |          | 48V160Ah |
| 12V288Ah |          |          | 48V320Ah |
| 12V600Ah |          |          |          |

#### **WARNING!**

- Always wear safety glasses when working with any type of battery
- Do not short circuit the battery terminals
- Do not connect the battery terminals with reverse polarity
- Do not charge more than 1C or 175A max (C=amp hours of the battery pack)
- Do not continuously discharge more than 1C or 175A max (C=amp hours of the battery pack)
- Do not momentarily discharge more than 600A for 3 seconds
- Do not momentarily discharge more than 300A for 30 seconds
- Do not open the battery pack for any reason, there is a risk of electric shock.
- Do not connect batteries in series to obtain a higher voltage pack.
- Do not connect more than 3 batteries in parallel
- Only parallel connect battery packs of identical voltage, capacity, and age

#### **Storage**

Charge at least every six months

If storing unused for extended periods, disconnect loads and store at 50% state of charge

If storing unused for extended periods, store at room temperature

#### **Installation**

Make sure the battery pack voltage is correct for the application.

Do not connect with reverse polarity.

Always secure battery pack in place with mounting strap or battery hold down kit

Use only M8 or 5/16 ring terminals

Torque terminal bolts to 150-155 in/ft - Do not over tighten

If an inverter or DC-DC voltage converter will be used, connect battery terminals prior to connecting an inverter or converter. Terminal arc damage is not covered under warranty.

## Charging Method

The approved charging method for Eco Battery Lithium (LiFePo4) batteries is CC/CV (constant current/constant voltage). If your battery charger has an adjustable absorption setting, it should be set to 1 hour max. If your battery charger has an adjustable float setting, it should be set at 13.5V or off. Float charging above 13.5V will reduce the battery pack lifespan. Charging on a regular basis above the recommended charge rate will reduce the battery pack lifespan. Occasional charging at max rate will not significantly affect the lifespan of the battery pack.

### Charging voltages:

| Battery Model         | Bulk Recommended | Bulk Max    | Float |
|-----------------------|------------------|-------------|-------|
| All 12V Battery Packs | 14.2V            | 4.6V (Max)  | 13.5V |
| All 24V Battery Packs | 28.4V            | 29.2V (Max) | 27.0V |
| All 36V Battery Packs | 42.6V            | 43.8V (Max) | 40.5V |
| All 48V Battery Packs | 57.0V            | 58.4V (Max) | 54.0V |

### Charging & Discharging Recommended / Max Rates:

| Battery Model | Recommended Charge Rate | Max Charge Rate |
|---------------|-------------------------|-----------------|
| 12V 96Ah      | <48A                    | 96A             |
| 12V 144Ah     | <72A                    | 144A            |
| 12V 216Ah     | <108A                   | 150A            |
| 12V 288Ah     | <100A                   | 175A            |
| 12V 600Ah     | <100A                   | 175A            |
| 24V 72Ah      | <36A                    | 72A             |
| 24V 144Ah     | <72A                    | 144A            |
| 24V 300Ah     | <100A                   | 150A            |
| 36V 72Ah      | <36A                    | 72A             |
| 36V 105Ah     | <52A                    | 105A            |
| 48V 72Ah      | <36A                    | 72A             |
| 48V 105Ah     | <52A                    | 105A            |
| 48V 160Ah     | <80A                    | 150A            |
| 48V 320Ah     | <100A                   | 150A            |

## Troubleshooting

| Problem   | Possible Causes  | Remedy  |
|---|--|---|
| Battery won't charge, but has voltage at terminals    | Battery temperature is less than 34F                                       | Warm the battery or wait until ambient temp rises above 34F |
| Battery won't discharge, but has voltage at terminals | BMS has been damaged due to short circuit or over current                  | Contact Eco Battery   |
| No voltage at terminals                               | Battery is depleted  | Charge Battery  |
|   | BMS is in protect mode due to short circuit, over current, or over voltage | Disconnect battery terminals For 1 minute, then re-connect  |
|   | BMS is in protect mode due to short circuit, over current, or over voltage | Contact Eco Battery   |

## Recycling

Many states now require the recycling of lithium ion batteries. Please check your state and local regulations to determine your specific recycling requirements. Do not dispose of your Lithium (LiFePO<sub>4</sub>) battery pack.

## Warranty

Eco Battery, LLC warrants each Eco Battery branded Lithium Iron Phosphate (LiFePO<sub>4</sub>) battery ("the Battery") sold by Eco Battery or any of its authorized distributors or dealers, to be free of manufacturers defects for a period of 8 years ("the Warranty Period") from the date of sale as determined by customer's sales receipt. Terms and conditions apply. See [www.ecobattery.com/warranty](http://www.ecobattery.com/warranty) for full warranty policy and exclusions.

**You must register your battery at [www.ecobattery.com/register](http://www.ecobattery.com/register) in order to receive full warranty coverage. Any battery not registered within 60 days from date of purchase shall be covered by the conditions of this warranty policy for a period of one (1) year from date of purchase.**

