



GEN3

USER MANUAL

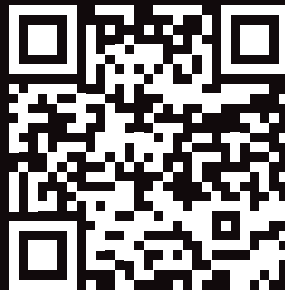
www.ecobattery.com



FOR MORE PRODUCT INFO AND
INSTALLATION INSTRUCTIONS

SCAN CODE OR VISIT

www.ecobattery.com/quickstart





THANK YOU FOR
YOUR PURCHASE!

REGISTER YOUR BATTERY

Your battery must be registered within 60 days of purchase to activate your full duration limited warranty. Batteries not registered within 60 days of purchase will carry a 1 year limited warranty only!



www.ecobattery.com/register

GEN3

LITHIUM BATTERIES

Models Covered:



38.4V 105Ah
A-038105-04



51.2V 105Ah
A-051105-03



51.2V 60Ah
A-051060-05



51.2V 160Ah
A-051160-06



51.2V 105Ah
A-051105-01



70.4V 105Ah
A-070105-06

READ BEFORE INSTALL



HEAVY
TEAM LIFT REQUIRED



HIGH VOLTAGE
HANDLE WITH CARE



DO NOT PRESSURE
WASH OR SUBMERGE



CHARGE BATTERY
BEFORE USE

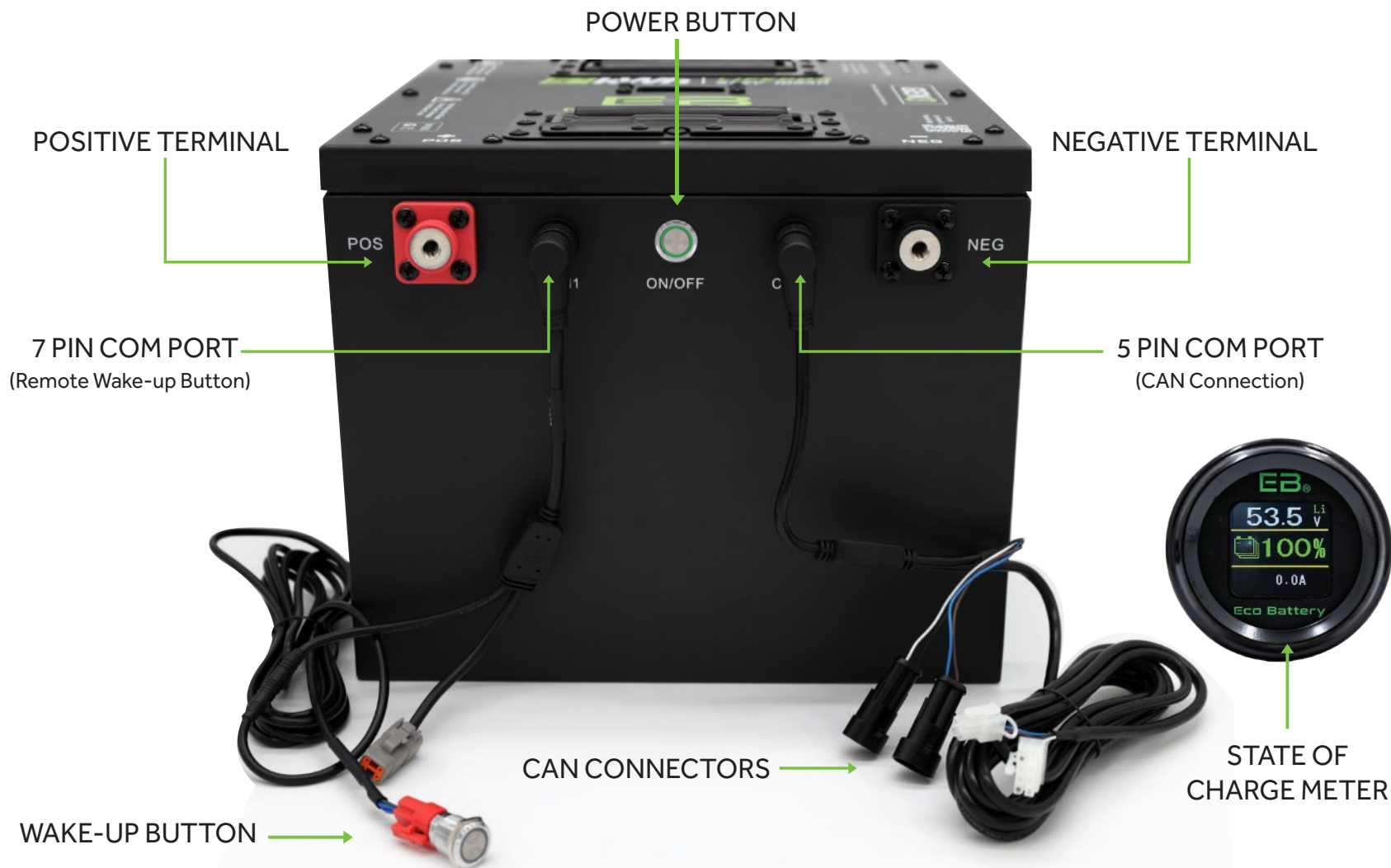
WARNINGS

- ⚡ High Voltage. DO NOT install or service this battery unless you are properly trained.
- ⚡ Use only with components that have the same voltage and current rating as the battery.
- DO NOT touch or connect to the terminals unless the battery is manually turned off.
- DO NOT open or attempt to service the battery, there are no user serviceable parts inside.

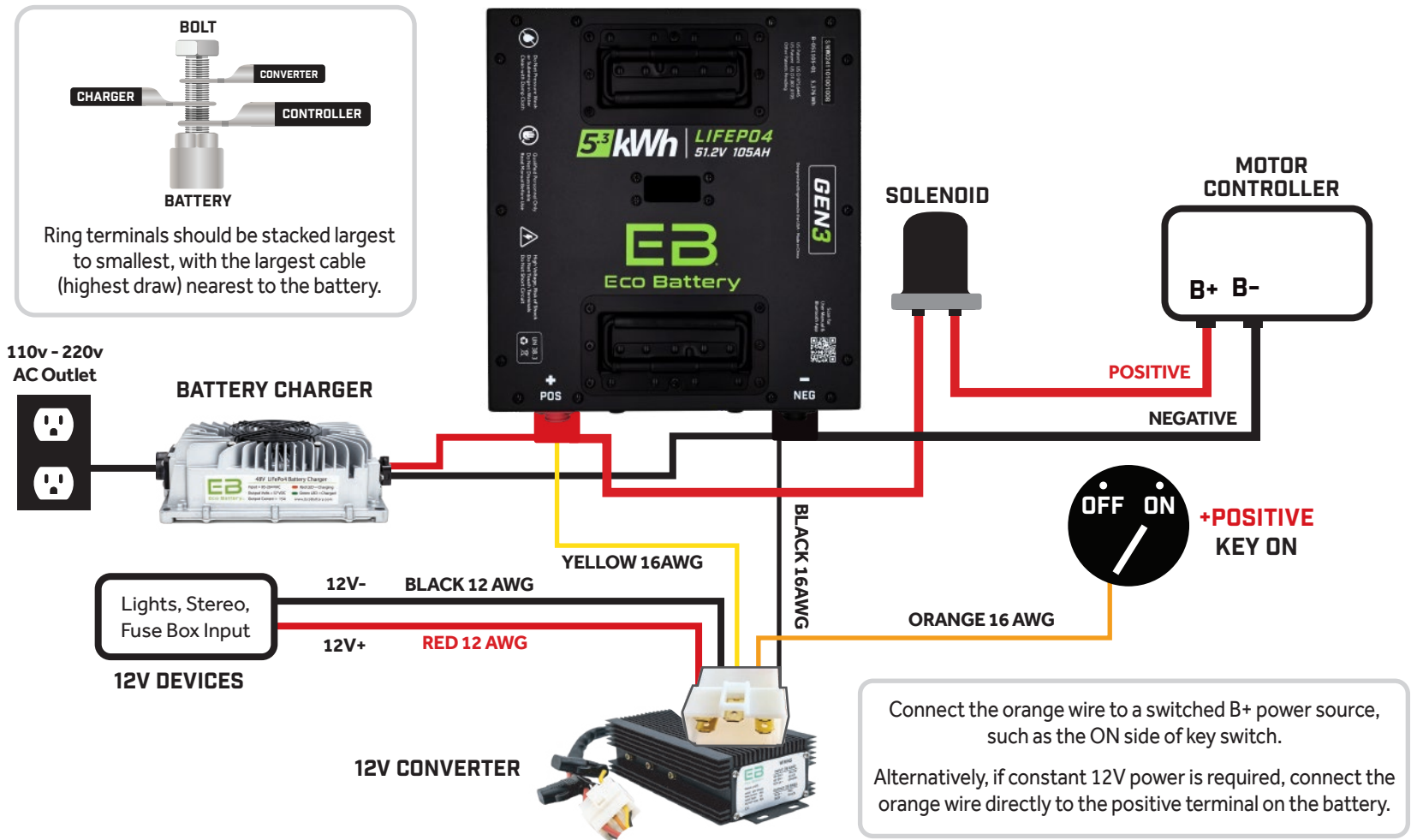
USE & CARE

- Charge the battery daily to ensure it is always fully charged and ready to use.
- Batteries will not charge if the internal battery temperature falls below 34F.
- DO NOT pressure wash, submerge, or use chemical agents to clean your battery.
- Clean the battery using a damp cloth that does not include chemical agents.

BATTERY COMPONENTS



QUICKSTART GUIDE



POWERING ON YOUR BATTERY

POWER BUTTON

POWER BUTTON



Gen3 batteries utilize a momentary (non-latching) on/off button. To power the battery ON, press/hold the button until the green LED illuminates (~1 sec), then release. The LED indicator on the button will illuminate anytime the battery is powered on.

To power the battery OFF, press/hold the power button, then release it when the LED indicator begins to flash (~3 sec). The LED indicator will continue to flash, indicating it is powering down, and will turn off when the battery is completely powered down.

The battery does not need to be turned off after each use. It is recommended to leave the power button on and the battery charger connected if the cart will be used within 15 days. If the cart will be unused for longer than 15 days, charge the battery above 50%, disconnect the charger AC power cord, and turn the battery off.

WAKE UP BUTTON

WAKE-UP BUTTON



The Remote Wake-Up Button can be used to power on or awaken a battery that has entered Power Save Mode. (see page 11)

The button can be routed and installed on the dash or anywhere that is convenient. For safety reasons and to avoid inadvertent shutdowns, the remote wake up button cannot turn the battery OFF, it can only turn the battery ON. To power on or to wake a battery that has gone into Power Save Mode, simply press and release the wake-up button. The LED indicator on the Remote Wake-Up Button will be solid green anytime the battery is powered ON.

CHARGING

CHARGER

Use only genuine Eco Battery lithium chargers, or a lithium charger specifically approved by Eco Battery. This will ensure optimal charging and extend the battery's service life.

DO NOT USE UNAPPROVED BATTERY CHARGERS OR TENDERS.

DO NOT CONNECT DC OUTPUT CABLES TO BATTERY WITH REVERSE POLARITY. Doing so will cause irreversible damage and is not covered under warranty.



BATTERY CHARGER

CHARGING INSTRUCTIONS

1. Connect the DC output ring terminals to the battery terminals.
2. Connect AC input to AC power.
3. Charger LED will blink red when charging and will be a solid green when complete.

Battery must be powered on with the power button illuminated to accept a charge.

Note: If your charger utilizes CAN charging, you will need to connect the CAN connector from the charger into either of the two CAN ports on the meter cable.

CHARGE TIME

The charge time can be calculated by the formula below:
$$\text{Ah Capacity of Battery} / \text{Charging Amps of Charger}$$

Example : 105Ah Battery / 15A Charger = 7 hours
(assuming the battery is fully depleted)

Recommended extension cord lengths:

Up to 15' = 12 -14 AWG
10 to 25' = 10 -12 AWG
>25' = not recommended



CAN CONNECTOR
FROM CHARGER

The Eco Battery charger is not a float charger or battery maintainer, and will not hold the battery at 100% after a charge. If left plugged in, the battery must drop below a pre-set voltage before a new charge cycle can begin. It is normal for the state of charge to drop as low as 90% before the charger begins a new cycle, but it will not allow the battery to be completely discharged while plugged in.

It is a common misconception that lithium batteries develop a "memory" while charging and that they need to be completely discharged and charged with each use. This is not the case with Eco Battery lithium batteries. Charging every night will not harm the battery and will ensure that you are always topped off and ready for your next adventure. Topping off or partially charging to extend range is perfectly acceptable.

All Eco Battery chargers are capable of accepting AC input of 100 - 250 VAC, single phase, 50 or 60 hztz.

CAN COMMUNICATIONS

CAN CONNECTORS

The two connectors located on your meter cable are CAN communication ports used for diagnostics or communicating with a charger or motor controller.

Some battery chargers are CAN enabled and will have a male CAN plug to connect to either one of the two CAN ports. If your charger is CAN enabled, the charger will NOT charge unless CAN is connected.

If your motor controller is CAN enabled and compatible with the Eco Battery CAN protocol, connect the CAN connector from the controller into either of the CAN ports on the meter cable.



CAN RESISTOR

The Eco Battery system uses CAN communication to connect batteries, chargers, controllers, and displays. A proper CAN network requires 60-120 Ω of resistance, typically provided by one or two 120 Ω resistors.

Gen3 Eco Batteries are manufactured without a 120 Ω CAN resistor. Most golf carts have one built into the OEM controller or touchscreen, but some may not. If missing, communication can degrade or fail, requiring a resistor to be added.

If needed, Eco Battery offers a 120 Ω CAN Resistor Pass-Through (#A-4209), which may or may not be included with your battery bundle, meter, or charger. If your charger isn't working or if advised by Eco Battery Support, plug the pass-through into a battery CAN receptacle and connect downstream devices as usual.

To check CAN resistance, power off all devices, set a multimeter to Ω , and measure between CAN H and CAN L on any CAN connector.

- **0-50 Ω :** Too much resistance—do not add a resistor.
- **130 Ω or higher:** Not enough resistance—add the pass-through resistor.

For questions, contact our experienced Eco Battery Tech Support.



STATE OF CHARGE METER (SOC%)



BATTERY VOLTAGE: The voltage will vary based on the current load or charge placed on the battery.

STATE OF CHARGE: The state of charge is displayed in percent. 0% = empty | 100% = full
100 - 50% = **Green** 49 - 20% = **White**. 19 - 0% = **Red**

BATTERY CURRENT: Discharge current (in amps) is displayed as a negative number. Charging current (in amps) is displayed as a positive number.

CALIBRATION: The SOC meter does not require calibration by the end user, as it receives its data directly from the battery's BMS. The BMS will perform a self-calibration at the end of each full charge cycle and periodically during rest periods. Accuracy is +/- 5%.

SLEEP TIMER: Depending on BMS settings, your meter may power off after periods of inactivity. To wake the meter, the battery needs to see current in or out of it. Pressing the remote wake-up button, driving your cart a few feet, connecting the charger, or cycling the power button will awaken the meter.

TROUBLE CODES: Eco Battery meters are programmed to display DTCs (Diagnostic Trouble Codes) if a battery fault has been detected. These faults can vary in severity depending on the situation. (See Page 14 for Trouble Codes)

If a trouble code appears on your meter, please record the trouble code and contact your dealer to discuss the code and, if necessary, take any actions required to correct it.

Due to lithium's flat voltage curve, reading the SOC% on the Eco Battery meter is the most accurate method for monitoring your battery's state of charge. Using voltage to determine the state of charge is not recommended.

TIP: Avoid running the battery completely dead. Although the BMS protects against detrimental discharge, it is not advised to run your battery below 20%. When driving your cart, be aware of your state of charge, just as you would monitor your vehicle's fuel gauge. The further you are from a charging location, the more battery capacity you should reserve.

POWER SAVE MODE

Your battery is programmed to enter Power Save Mode after extended periods of inactivity. Power Save Mode will ensure that your battery will not be fully depleted in the event that your cart sits for an extended period of time. All golf carts have some degree of power consumption while sitting idle (even with the key off), and Power Save Mode will ensure that your battery will not be completely depleted upon your return. The time that must elapse before Power Save Mode will be activated is dependent on SOC (see below).

When Power Save Mode is active, the battery completely powers down, preventing both charging and discharging. The meter, remote wake-up button LED, and power button LED will all turn off. To exit Power Save Mode, simply press and release either the remote wake-up button or the on/off button on the battery.

When in Power Save Mode, the green LED on the remote wake up button and the on/off button on the battery will not be illuminated.

If your battery has gone to sleep on its own, we suggest fully charging it before using it again.

When % =	Power Save
0% - 19%	24 hours
20% - 100%	7 days

STORAGE

It is always good practice to turn the key off to your golf cart when not in use.

For long term storage, charge the battery above 50%, unplug the AC power source to the charger, and turn off the power.

After long term storage, it is advised to fully charge the battery before use, regardless of SOC displayed. During long term storage, the state of charge may drift, and must be fully charged to re-calibrate.

Charge your battery at least once every 6 months.

If your golf cart will be stored below -4°F, remove the battery from the cart and store in temperatures above -4°F. Also, keep in mind that, while the battery will still function between -4°F and 32°F, the battery will not take a charge below 32°F. (See Cold Weather pg 12)

***Do not use non-approved third party battery chargers or tenders. Use of any non-approved Eco Battery chargers will void the warranty on your battery.**

COLD WEATHER



Your battery is equipped with a temperature sensor that will shut it down in temperatures below -4 °F. This feature protects the battery from cell damage caused by excessively low operating temperatures.

While your battery will discharge down to -4°F, it will not accept any type of charge below 32°F. This includes plug in charging as well as regenerative charging from your cart's motor controller.

It is not recommend to drive a golf cart equipped with regenerative charging/braking systems when the overnight low temperature is under 32°F. Doing so may cause the battery to enter self-protection mode and can lead to braking system faults on certain carts.

It is important to note that the above temperatures are in reference to the core battery temperature and not the ambient air temperature. Your actual core battery temperature could be drastically different from the ambient air temperature as the battery will increase and decrease in temperature at a much slower rate than ambient air temperature.

As with all batteries, you may notice a decrease in performance and range in colder temperatures. This is normal and expected. Some decreases in performance may include shorter run times, slightly slower acceleration, and larger than normal voltage drops.

CLEANING



Be mindful that there are sensitive electronics in your battery when cleaning your golf cart.

Although your lithium battery is well sealed, **DO NOT CLEAN BY PRESSURE WASHING.**

Pressure washing can lead to premature damage to the lid seal of the battery, and is not covered under the warranty policy.

The recommended procedure for cleaning your battery is blowing it off with a leaf blower, or wiping it off with a clean damp cloth.

NEVER USE CHEMICALS OF ANY SORT TO CLEAN YOUR BATTERY.

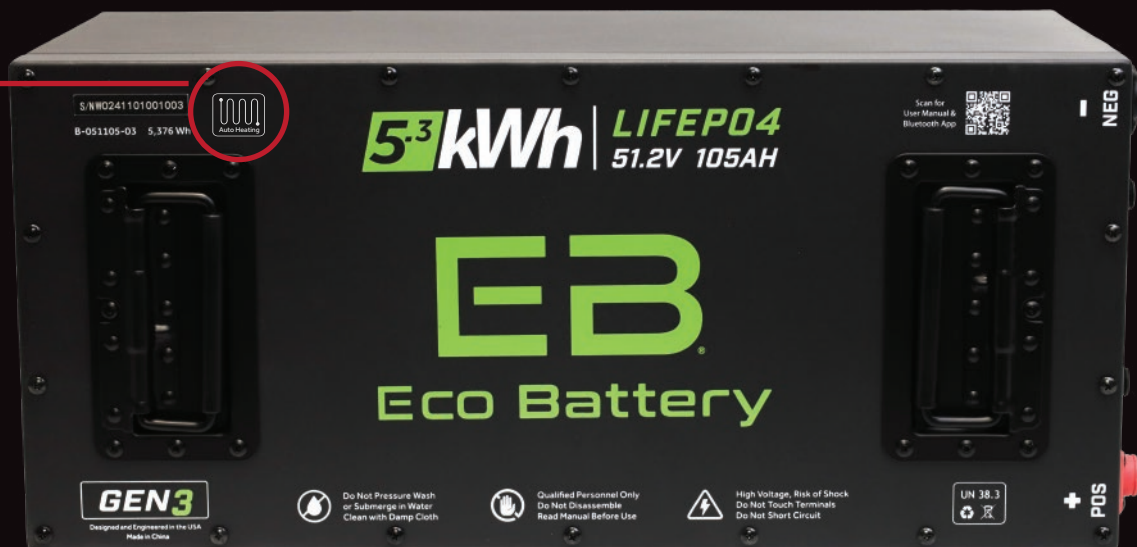
HEATED BATTERY (SELECT SKUS ONLY)



Your particular Eco Battery lithium battery model may be equipped with an internal heater. This heater is fully automatic and requires no input or programming by the user. The purpose of this heater is to enhance cold weather performance and operation, and to allow complete battery charging in ambient temperatures down to -30°F.

The internal heater is automatically activated when the battery charger is plugged in and the devices are properly communicating via CAN. Once the system has passed a self-check, the heater will begin to warm the battery cells, and charging will begin once the internal battery temperature is above 34°C. The heater will automatically stop once the internal battery temperature is above 50°F. During charging, and in the event the ambient temperature is cold enough to bring the internal battery temperature to below 32°F again, the heater will automatically start a new heating cycle.

Identifying Your
Auto Heating
Battery



BMS ERROR CODES

CODE	ERROR DESCRIPTION	LEVEL
E01	MOS Error	1
E02	External Short Circuit	1
E03	Cell Differential	1
E04	Cell Over Voltage	2
E05	Cell Under Voltage	2
E06	Pack Over Voltage	2
E07	Pack Under Voltage	2
E08	Discharge Over Current	3
E09	Charge Over Current	3
E10	Discharge Temp High	3
E11	Charge Temp High	3
E12	Charge Temp Low	3
E13	Discharge Temp Low	3
E14	MOS Temp High	3
E15	SOC Low	3
E16	External Communication Error	1
E17	Internal Communication Error	1

Level 1 =

Serious Fault.
Will not self-resolve.
Contact Eco Battery

Level 2 =

Major Fault.
Will self-resolve if conditions
allow

Level 3 =

Minor Fault.
Will self-resolve if conditions
allow



NEED MORE HELP?



877-326-2288

support@ecobattery.com

For additional product info, user manuals, user guides, and warranty information visit <https://ecobattery.com/pages/quickstart>

DOWNLOAD OUR APP!



Available on the
App Store



ANDROID APP ON
Google play





CONNECT WITH US



Subscribe to our **YouTube** Channel for installation videos, build highlights & more.

Our Eco Battery Group on **Facebook** is the place to be with fellow Eco Battery users, tips, tricks and great conversation for all things cart and lithium.



Follow Us

@ecobatterylithium





www.ecobattery.com