



## Frequently Asked Questions

### 1. What are the advantages of a Lithionics Battery®?

- American Made: Designed, Manufactured and Serviced in the USA.
- Dedication to Quality and Safety: 100% Load & Capacity Testing, 3rd Party UL & UN DOT Safety Testing
- Proprietary NeverDie® Battery Management System Technology
- Modular, Expandable, Plug-and-Play Battery System Design

[LITHIONICS BATTERY® MISSION STATEMENT VIDEO](#) | [LITHIONICS BATTERY® BMS TECHNOLOGY](#)

### 2. Why don't we publish pricing?

Pricing for our lithium battery models is available by contacting Lithionics Battery® direct or through one of our dealers. For the following reasons, we prefer to work with you one-on-one before you make your purchase decision.

- Safety: for our large-format lithium energy storage systems, personal service and interaction with our customers ensures that where and how you will use the battery is the optimal and safest installation.
- Durability: advanced Lithium requires specific charging settings & algorithms. No lithium batteries are truly "drop in replacements" for lead-acid batteries. Therefore, we want to ensure that your installation will be using the correct charging devices & settings before purchase.
- Options: As a factory, we manufacture many varieties of lithium battery models and Battery Management Systems. By discussing your application via phone (or partially by email) we are able to offer the best system at the best price.

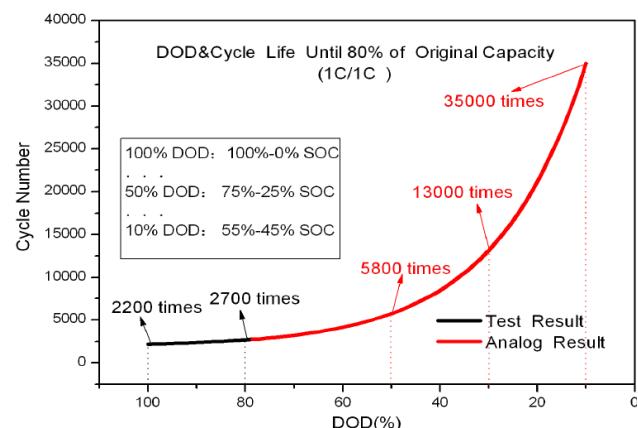
### 3. How do I charge a Lithium Battery?

Lithium batteries require specific charge profiles in order to effectively & safely balance the lithium cells. Beware of battery importers who will tell you "you can use any charger you like on our batteries." Please contact Lithionics Battery® for recommendations regarding charging equipment and settings. We offer a variety of advanced charging devices and can recommend solutions for your application.

[READ FULL RECOMMENDED CHARGE SETTINGS](#)

### 4. How long will it last?

Lithium battery lifespan is rated in charge & discharge cycles. A cycle is counted when you discharge and then recharge the battery. The depth-of-discharge can also affect cycle life, for example using 50% or 80% of your battery's capacity before recharging. Many other factors such as temperature, storage conditions, and discharge/ charge rates can impact cycle life. However, our NeverDie® Battery Management System is designed to only allow the battery to be operated within its recommended parameters to optimize the lifespan of your system. The following chart details the cycle life you can expect from your lithium battery based on the depth-of-discharge percentage.



## 5. How do I store lithium batteries safely?

Storage conditions can greatly impact your battery cycle life and available capacity. Please consult our Storage Guide for recommendations on storing your lithium batteries properly.

READ FULL [STORAGE GUIDE](#)

## 6. How do I determine the battery state-of-charge? What about state-of-health?

Lithium battery voltage maintains a very consistent and flat voltage delivery over the course of discharging. Therefore, voltage can only be used to determine battery state-of-charge when the battery is either fully charged or fully depleted. Voltage cannot accurately represent battery state-of-charge when the battery is between 20-80%. Therefore, we recommend the use of our State-of-Charge display or Bluetooth® telemetry option to monitor accurate battery state-of-charge and battery Status and Fault Code. Our Advanced Series NeverDie® Battery Management System features a high accuracy hall effect sensor to measure charge & discharge current to calculate battery state-of-charge percentage. The State-of-Charge display or Bluetooth® App also features valuable battery data such as voltage, current, temperature, status/fault codes, and more. The SoC Display tracks data on battery usage and battery life.

## 7. What are the battery case dimensions?

When designing our lithium battery models, we do our best to follow the standard BCI group sizes to fit where lead-acid batteries are in use. However, in some cases due to the differences in lithium cell form factors, our case sizes may vary slightly from standard sizes. The chart below summarizes approximate dimensions for common case sizes. However, we recommend consulting our product data sheets for complete product details and dimensions.

Case	Length	Width	Height
G15	4.53	3.53	7.33
UB12500	7.72	6.52	6.83
G34EXT	10.56	6.97	8.71
G31-SC	12.50	6.50	8.46
G31EXT	12.94	6.80	10.36
30H	14.93	7.98	13.44
GC2E	22.05	8.05	13.69
5D	24.04	8.02	13.39
5DR	24.04	8.02	16.54
8D	22.95	13.08	12.48
8DR	23.00	13.00	13.97

Note: Dimensions are in Inches (approximate).  
See Product Data Sheet for Complete Product Detail.

## 8. What are the differences between Standard, GT, GTR & GTX Series modules?

As we take advantage of new lithium cell topologies and advances in manufacturing techniques, our battery models are differentiated by the prefix. A brief description of the differences in battery series are defined below. However, all our battery modules utilize high quality & safe lithium iron phosphate chemistry with ION EXT (Nano-Ceramic Kevlar Shutdown Curtain) fire prevention technology.

### Standard Series (85 Watt-hours/kg)

- High Quality Lithium Iron Phosphate Chemistry
- Reliable, Cost Effective Solution
- Suitable for engine cranking & deep cycle use

### GTR Series (100 Watt-hours/kg)

- Utilizes Robotic Manufacturing Techniques
- Allows Modules to be Installed on their Side for Low Profile Height
- Internal Heater Kit Option Available
- Suitable for engine cranking & deep cycle use

### GT Series (109 Watt-hours/kg)

- Increased Energy Density
- Increased Charge & Discharge Rates
- Internal Heater Kit Option Available
- Suitable for engine cranking & deep cycle use

### GTX Series (131 Watt-hours/kg)

- Utilizes Advanced & Precision Manufacturing Techniques
- Offers Highest Energy Density for Lithium Iron Phosphate
- Internal Heater Kit Option Available
- Suitable for engine cranking & deep cycle use

## **9. What is the time limit on when I can add new batteries in parallel to batteries already purchased, installed and in use?**

Batteries age via a term called Capacity Fading, or, capacity is reduced over time in which current capacity is compared with SOIC or state-of-initial-capacity. Most battery makers, if not all, will NOT allow old to be mixed with new. We do permit new batteries to be added to our client's systems via our Plug and Play Combiner Box kit. However, there are always limits to any tolerance. We need the old batteries to be at 90 percent of their original capacity, or, "at 90% SOIC." Cycle life is based on counting cycles until 80% SOIC is reached, so, when at 90%, you are half-way thru your cycle life. As batteries age, the internal resistance rises and mixing old with new is problematic in various ways.

Without actually measuring capacity, our rule of thumb is 2 years. When batteries are more than 2 years old, they must be measured at the factory to confirm what SOIC they are at. It is possible to measure usable amp hours by manual methods by our clients, using controlled, steady discharge rates that do not vary and then recording the amp hours discharged over time.

However, on new battery systems shipped in 2020, we have a new metering system which measures, records and reports AMP HOUR THROUHPUT. This means that consumers can now know how much use vs theoretical use that have consumed.

### Example:

-A 12V600A battery should provide approximately 600 amp hours X 2000 cycles = 1,200,000 amp-hours of THROUHPUT. If your gage reads 600,000, then, you are about half way through your cycle life hours. It would be acceptable to add more modules in parallel.

-For older BMS systems that have no SoC gage metering, use 2 years (the serial number is the date produced) as a general guide.