



Frequently Asked Questions

Below you will find the answers to the questions we get asked the most on RELiON and lithium batteries.

General

Frequently Asked Questions



I want to upgrade to lithium iron phosphate batteries. What do I need to know?

As with any battery replacement, you need to consider your capacity, power, and size requirements, as well as making sure you have the right charger. Keep in mind, when upgrading from lead-acid to LiFePO₄, you may be able to downsize your battery (in some cases up to 50%) and keep the same runtime. Most existing charging sources are compatible with our lithium iron phosphate batteries. Please contact RELiON technical support if you need assistance with your upgrade and they will be happy to make sure you pick the right battery.

[Contact Us](#)

damaged — most commonly from over or under-voltage, over current, high temperature or external short-circuiting. The BMS will shut off the battery to protect the cells from unsafe operating conditions. All RELiON batteries have a built-in BMS to manage and protect them against these types of issues.

[Read the Blog](#)

+ What size terminals and bolts come on RELiON batteries?

RELiON's LiFePO₄ batteries feature M6, M8 or M10 terminals. These types of terminals are insert terminals, also referred to as internal threads, and come with bolts. The terminal and bolt sizes are metric and the numerical signifier is the dimension in mm. For example, the M8 terminal is 8mm in diameter. The bolts have coarse threads (1.25tpi). Longer bolts, if needed, can be found at most hardware stores.

+ Can you mount the batteries in any position?

Yes, because there is no fluid inside of LiFePO₄ batteries. This gives you the flexibility to install the battery where it is best suited for your application.

+ What's the difference between parallel and series connections?

Parallel connections involve connecting 2 or more batteries together to increase the capacity of the battery bank. In this case, the positive terminals are connected together and the negative terminals are connected together of all the batteries until you reach your desired capacity. Series connections involve connecting 2 or more batteries together to increase the voltage of the battery system. The positive of one battery is connected to the negative of another until the desired voltage is achieved. For example, if you connect 2 x 12V batteries in series, the battery system will be 24V.

[Read the Blog](#)

+ Will a 12V, 100Ah lithium iron phosphate battery give a longer run time than a 12V, 100Ah lead-acid battery under the same conditions?

Yes. Lithium iron phosphate batteries provide more useable capacity than a lead-acid equivalently rated product. You can expect up to twice as much runtime.

equipment, then store in temperatures anywhere between 23 to 95°F. If you're storing your battery for only 3 to 6 months, then it's safe to store at a 50% state of charge. Unlike lead-acid batteries, a partial state of charge does not harm lithium batteries.

Where can I buy RELiON batteries?

RELiON batteries can be purchased online with free ground shipping within the continental U.S. You can also order through our dealers and distributors all over the world. Use our online tool to locate a dealer in your area.

[Buy Now](#)

How quickly can I get my batteries after I order them on RELiON's website?

Online orders are shipped via UPS ground from Rock Hill, SC within 1-2 business days after your order is placed. The transit time will depend on the shipping address. You will be notified via email when your order ships.

How long has RELiON been in business?

RELiON Battery was founded in 2014. RELiON's founder-owned and operated a lead-acid battery company for over 20 years prior to founding our company with the goal of developing innovative and efficient energy storage solutions.

[Learn More](#)

How do LiFePO₄ batteries perform in cold temperatures?

As with all batteries, cold temperatures will result in reduced performance. LiFePO₄ batteries have significantly more capacity and voltage retention in the cold when compared to lead-acid batteries. Important tips to keep in mind: When charging lithium iron phosphate batteries below 0°C (32°F), the charge current must be reduced to 0.1C and below -10°C (14°F) it must be reduced to 0.05C. Failure to reduce the current below freezing temperatures can cause irreversible damage to your battery. RELiON's LT Series is specifically designed for cold charging, utilizing charge current to heat the battery before allowing charge. With the LT series, you can start the charge below 0°C (32°F).

+ How do LiFePO₄ batteries perform in hot temperatures?

LiFePO₄ batteries will provide their full capacity and performance until they reach the Battery Management (BMS) protection level. The BMS maximum temperature ranges from 60-80°C (140-176°F). Refer to the data sheet for your particular model to find the exact upper temperature limit. LiFePO₄ batteries produce less heat than other lithium chemistries, but if they reach an upper limit, our BMS will protect the battery by shutting it off.

[Data Sheets](#)

+ Are there required certifications to ship lithium iron phosphate batteries in the U.S.?

Yes, the Department of Transportation requires UN38.3 certification. All batteries must be UN38.3 certified in order to be legally transported via land, sea or air.

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+ What is the expected life of a LiFePO₄ battery?

Battery life is measured in life cycles and RELiON's LiFePO₄ is typically rated to deliver 3500 cycles at 100% depth of discharge (DOD). Actual life expectancy is dependent on several variables based on your specific application. If used for the same application, a LiFePO₄ battery can last up to 10X longer than a lead-acid battery.

+ How are LiFePO₄ batteries safer than other lithium batteries?

Phosphate-based batteries offer superior chemical and mechanical structure that does not overheat to unsafe levels. Thus, providing an increase in safety over lithium-ion batteries made with other cathode materials. This is because the charged and uncharged states of LiFePO₄ are physically similar and highly robust, which lets the ions remain stable during the oxygen flux that happens alongside charge cycles or possible malfunctions. Overall, the iron phosphate-oxide bond is stronger than the cobalt-oxide bond, so when the battery is overcharged or subject to physical damage then the phosphate-oxide bond remains structurally stable; whereas in other lithium chemistries the bonds begin breaking down and releasing excessive heat, which eventually leads to thermal Runaway. Lithium phosphate cells are incombustible, which is an important feature in the event of

chance of harm. If you're selecting a lithium battery and anticipate use in hazardous or unstable environments, LiFePO₄ is likely your best choice. It's also worth mentioning, LiFePO₄ batteries are non-toxic, non-contaminating and contain no rare earth metals, making them an environmentally conscious choice.

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What type of solar charge controller do I need to charge my batteries with my solar panels?

There are two types of charge controllers. Both work with RELiON batteries. Pulse width modulation (PWM) Maximum power point tracking (MPPT).

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Batteries or Product

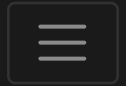
Frequently Asked Questions

-  Does RELiON offer a dual-purpose battery?
-  There are a few RB100 battery options, which one is right for me?
-  How does the RB100-LT (Low Temp) battery work?
-  How many CCAs (cold cranking amps) does the RB100 have?

Charging and Discharging

Frequently Asked Questions

-  Can I use my existing lead-acid battery charger (Wet, AGM or Gel) to charge RELiON lithium iron phosphate batteries?
-  Can I use my alternator to charge my lithium iron phosphate batteries?
-  How long will it take to charge a lithium battery?
-  How can I determine the state of charge (SOC) of my lithium iron phosphate battery?
-  How strictly do I need to follow the recharging limits?
-  Are lithium batteries poorly affected by partial state of charge (PSOC)?
-  How deep can a lithium iron phosphate battery be discharged?
-  How does the rate of discharge effect capacity?

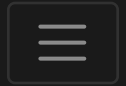
RELi³ON[®]

InSight Series

















Frequently Asked Questions

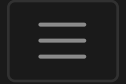
- + What is the InSight Series?
- + How strictly do I need to follow the recharging limits?
- + Can InSight batteries be connected in parallel or series?
- + How does regenerative braking work for golf carts?
- + How do I determine the number of InSight 48V batteries I need?
- + How do I install InSight 48V batteries?
- + Why do I need spacer batteries?




Trolling Motor Batteries



Frequently Asked Questions

-  How many RELiON lithium trolling motor batteries do I need?
-  Which RELiON 12-Volt battery should I use for my trolling motor?
-  Are RELiON lithium batteries a drop-in replacement to my lead-acid battery?
-  Can I install my RELiON lithium batteries on their side?
-  What size cables should I use to connect my RELiON lithium batteries?
-  Are my RELiON Lithium batteries waterproof?
-  Do I need to use a lithium starter battery if my trolling motor batteries are lithium?
-  Do my RELiON lithium batteries have peak current limitations?
-  Does RELiON offer a lithium starter battery?
-  How much can I discharge my RB100-HP dual-purpose battery and still start my engine?
-  Is it OK to connect my starting battery in parallel with one of my RELiON lithium trolling motor batteries to assist with starting if needed?
-  How long will my RELiON lithium batteries live?
-  Will my existing battery gauge provide an accurate state of charge for my lithium batteries?
-  What does it mean if the voltage of my RELiON lithium battery is ≤ 4 -Volts?
-  How do I store my RELiON lithium batteries?
-  What type of charger should I use for my RELiON lithium batteries?



-  What is the maximum current I can use to charge my RELiON lithium batteries?
-  Do I need to charge my batteries each time I use them?
-  Will it harm my batteries if I leave the charger connected for extended periods of time?

Ask Our Experts

If you have any questions that we haven't answered, please reach out to us.
Our Technical Support team will be happy to answer any questions.

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