

## Battery Buying Guide

Selecting batteries for your solar power system can be overwhelming. With all the different types, sizes and varying price points, it's easy to get confused. We're here to help you make the best decision for your needs and budget. If you want to take a deep dive into battery chemistry, please check out [Battery chemistry, care, and terminology](#).  
(link)

We can help!

Our solar application engineers can help you source the right products and answer any questions you may have about batteries. There are various types of solar batteries, each with their own unique features and benefits, so it's important to have a good understanding of them before making a decision.

### What types of Batteries are commonly used in solar applications?

The most common types of batteries used in solar applications are flooded lead-acid, absorbed glass mat (AGM), and lithium-ion. It's important to choose the right type of battery for your specific needs and to ensure that it is properly maintained to maximize its lifespan and efficiency.

Lead-acid solar batteries are affordable and widely used, while lithium-ion batteries have a slightly higher upfront cost, they offer higher energy density and longer lifespan. Ultimately, the choice of solar battery type depends on the specific application and budget. Let's explore.

### Lithium & Lithium-Ion batteries

Lithium and Lithium-ion are extremely safe and offer the best levelized cost of all solutions for most renewable energy applications. They are resilient to abuse, can accept fast charging/discharging, and aren't affected by a partial state of charge. They can be expanded over time, which is ideal for most dynamically growing applications. They must be charged above freezing, so they may need to be installed in a temperature controlled environment depending on the product and application.

Bes for:

### Flooded lead acid batteries

Flooded lead acid batteries are lead batteries with a liquid electrolyte solution. They have a low upfront cost but require various levels of maintenance and can be sensitive to abusive high demanding applications. Sensitive to over-discharge and partial state of charge. These must be used in a well-ventilated area, during the charging of these batteries the off-gas is highly flammable hydrogen gas.

Best for:

**Absorbed glass mat (AGM) batteries** are lead-acid batteries with electrolytes saturated in a fiberglass mat. These are sealed recombinant batteries, they do not off-gas hydrogen. They are considered maintenance-free lead acid batteries. AGM batteries are sensitive to over-discharge and partial state of charge just like flooded lead acid batteries.

Best for:

\*There are certainly other less commonly used battery types and chemistries. The above are the most common.

## How do I choose the best batteries for my system?

When it comes to choosing the right battery for your solar power system, there are a few key factors to consider. First and foremost, you want to make sure that the battery you choose is compatible with your system's voltage and amperage requirements. Additionally, you'll want to consider the battery's capacity, or the amount of energy it can store, as well as its allowable depth of discharge, or the percentage of energy that can be safely drained from the battery before it needs to be recharged. Other important factors to consider include the battery's cycle life, or how many times it can be charged and discharged before it starts to degrade, as well as its temperature range and overall durability. By carefully weighing all these factors, you can ensure that you choose a battery that will provide reliable, long-lasting power for your solar energy system.

Our team of solar application engineers can help you figure out which batter solution is best for your project needs, and your budget!

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Want to read more about the different types of battery chemistries? Check out [Everything you wanted to know about solar battery options.](#)