



Connecting batteries in series

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If you're thinking about adding more than one battery to your house battery bank, then you've likely come across the idea of connecting batteries in series vs parallel. The way batteries are connected together can dramatically influence the performance and efficiency of the devices they power.

Both configurations have unique attributes and are suited to different types of circumstances. Through this post, we will help you understand how they differ, their implications on battery performance and where each configuration is most appropriately used.

Whether you want to increase the capacity of your RV, fishing boat or golf cart battery bank, you're going to want to make sure you know the pros and cons of each and which wiring situation is best for your application.

Wiring batteries in series involves connecting them end-to-end, effectively boosting the overall voltage while maintaining the same capacity. Conversely, wiring batteries in parallel means connecting all positive terminals together and all negative terminals together, which increases the total capacity while keeping the voltage constant.

Wiring batteries in series is a technique used to increase the total voltage output of a battery system, while maintaining the same capacity (also known as ampere-hours or Amp Hours, abbreviated Ah).

When batteries are connected in series, it means the positive terminal of a battery is connected to the negative terminal of the next, creating a chain or series of batteries. Depending on how many batteries you have in your battery bank, this increases the battery bank's voltage while keeping the total battery capacity the same.

This configuration is beneficial for devices or applications that require a higher voltage to function efficiently. This is why you often see batteries in series in devices like trolling motors, golf carts and larger RVs.

An advantage of this, aside from ensuring you have the device operating at its required voltage, is that series connections reduce the current, or amps, that flow through the wires. Thus you can use thinner wires between your electronic devices in your power system.

However, there is a key limitation to consider with this configuration. Since the batteries are connected like dominoes in a chain, if one battery fails or gets disconnected, it interrupts the entire circuit, and the device stops working.

Further, when wiring batteries in series you must ensure that all of the batteries connected are of the same voltage. In other words, do not try to connect a 12V battery in series with a 24V battery to attain 36 volts.

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And you must also be sure that the battery chemistry of all batteries in the series connections are the same. So you cannot wire a flooded lead acid battery in series to an AGM or lithium battery.

Wiring batteries in parallel is a common configuration that serves to increase the total amp hour capacity, or longevity, of a battery bank while maintaining the same voltage level. When batteries are connected in parallel, the positive terminal of a battery is connected to that of the next, and the same goes for the negative terminals.

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