Batteries in series

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Are you looking to upgrade your Campervan or boat"s battery system? Understanding the difference between wiring your batteries in series and parallel might be an essential part of optimising your power capacity.

In a series connection, the positive terminal of one battery is connected to the negative terminal of the next, resulting in a higher overall voltage. This is ideal for applications that require a higher voltage, such as powering large appliances.

On the other hand, a parallel connection involves connecting the positive terminals together and the negative terminals together, resulting in a higher overall capacity. This is ideal for applications that require a longer battery life, such as powering lights or a small fan.

So, which approach should you choose? It depends on your specific power requirements. If your system requires a higher voltage output, such as for larger appliances or equipment, a series connection may be more suitable. However, if your priority is longer usage time and higher capacity, a parallel connection may be the way to go. Ultimately, choosing between series or parallel is down to your required load and systems design as we"ll discuss in more depth throughout this blog.

Series wiring allows you to increase the voltage of your lithium leisure batteries, which is often necessary for high-demand applications. Because of the increased voltage, charging your batteries becomes more efficient and effective. However, there are a couple of disadvantages to this approach. There is a risk of uneven discharge if one battery "wears out" faster than the others, it can cause an uneven discharge throughout the entire system, leading to further damage.

Also, if one battery fails, the whole system fails. With series wiring, the battery circuit is not complete unless all batteries are functioning properly. This means if one battery fails, the whole system fails.

Parallel wiring is a method of connecting multiple lithium leisure batteries with the aim of achieving higher overall capacity, while keeping the voltage the same as a single battery. By connecting the positive terminals of each battery together and the negative terminals together, you can effectively increase the amount of charge the batteries can hold.

For example, two Fogstar Drift 12v 105Ah batteries connected in parallel would give you a total capacity of 210Ah, but the voltage would still be the same as one 12v battery.

Parallel wiring increases the overall capacity and runtime of the batteries, making it ideal for applications that require a long duration of power. Additionally, if one battery fails, the others will continue to operate. It is especially important to closely manage the charge and discharge cycles of batteries that have been wired in

parallel.

Whilst a good BMS can protect your system against overcharge and unbalanced cells, there is a greater risk of unequal battery charging with parallel connected batteries. It may be worth investing in a SmartShunt to monitor the charge and discharge cycles of your batteries more closely.

When it comes to wiring your Lithium Leisure Batteries, choosing between series and parallel configurations can impact the overall performance and lifespan of your batteries. Here"s what you need to know:

It"s important to stipulate that all Leisure Battery brands are very different. They all utilise different Battery Management Systems (BMS), and many on the market may not give you an option to connect in Series or Parallel. Check before you purchase your batteries!

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