

Battery packs with different capacities





Overview

Is it safe to use batteries with different capacities?

No, no, not safe. Overcharged battery may explode because of overheating. why would you want to use batteries with different capacities?

If your BMS is completely trustworthy, it will cut off charging when the smaller cell is full and discharging when it is empty, restricting the larger cell to the smaller capacity.

Can you mix different capacity lithium batteries?

Yes, you can mix different capacity lithium batteries, whether a normal 12V 100Ah battery or a Lithium server rack battery. You can combine different capacity batteries in parallel. You cannot combine different capacity batteries in series. There are a few points you need to consider when wiring in parallel. Let's explore these three points.

Are cell capacity and pack size linked?

Obviously Cell Capacity and Pack Size are linked. The total energy content in a battery pack in it's simplest terms is: $\text{Energy (Wh)} = S \times P \times \text{Ah} \times V_{\text{nom}}$ Hence the simple diagram showing cells connected together in series and parallel. What about flexibility in pack size?

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What voltage should a battery bank be?

The total battery bank must be at the same voltage. You must create a separate system for different voltages if you have different voltage batteries. Your total battery bank, which can have multiple different capacities (Ah), all need to be the same voltage, whether 12V, 24V, or 48V. You need to choose one of these three voltages.



Battery packs with different capacities

Performance comparison and analysis of lithium Battery packs ...

The capacity of these battery packs significantly influences their performance characteristics, including energy density, power output, cycle life, and safety. Below is a detailed analysis of ...

Cell Capacity and Pack Size

Jan 30, 2023 · The following table shows cell capacities grouped in columns, the top half of the table then shows ~800V packs with 192 cells in parallel and the bottom half shows the ~400V ...

Why You Shouldn't Mix Different LiFePO4 Batteries in a Pack

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What safety risks exist when mixing cell capacities in DIY

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Cell Capacity and Pack Size

Jan 30, 2023 · The following table shows cell capacities grouped in columns, the top half of the table then shows ~800V packs with 192 cells in parallel ...

Why connecting different capacity batteries in

Dec 4, 2025 · Connecting batteries of the same voltage but with different capacities is not recommended. Different capacity batteries will have internal resistance differences, which ...

Using Cell Balancing to Maximize the Capacity of

Oct 7, 2025 · For portable systems requiring 6V or more of operating voltage, battery packs utilize battery cells connected in series. A series connection results in a pack voltage equal to the ...

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Cells with different capacities in parallel/series ok?

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Can You Mix Different Capacity Lithium Batteries?

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Can You Mix Different Battery Capacity

Aug 6, 2025 · Yes, you can mix batteries of different capacities--but with major risks. Many assume it's harmless, yet improper mixing can lead to failure or hazards. Battery performance ...

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