

# Pack batteries in parallel





## Overview

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Why should you connect a lithium battery pack in series or parallel?

Connecting together well-matched lithium battery packs in series or parallel allows increasing capacity or voltage compared to using just a single pack. Pay special attention to safety. Following best practices during mechanical and electrical integration keeps your custom battery banks running optimally.

What is a battery pack configuration?

Battery pack configurations determine how much power a battery can provide and for how long. Whether you're choosing a battery pack for an electric vehicle, a robotics project, or an energy storage system, understanding the difference between series and parallel connections can help you make the best decision.

What is a parallel battery setup?

In parallel battery setups, branch cables (battery to busbar) and main cables (busbar to controller/inverter) within each group should have equal length and thickness. This ensures consistent resistance and balanced battery discharge, preventing any battery from being overloaded.

What happens if you add a battery in parallel?

Similarly, each added battery in parallel increases the total energy storage and allows the battery pack to deliver more current to high-power devices. If you connect two 3.6V Li-ion cells (each 4200mAh) in parallel:



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### [BU-302: Series and Parallel Battery Configurations](#)

Read about serial and parallel battery configurations. Connecting battery cells gains higher voltages or achieves improved current loading.



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Single Cell Applications  
Series Connection  
Tapping Into A Series String  
Parallel Connection  
Series/Parallel Connection  
Terminology to Describe Series and Parallel Connection  
Safety Devices in Series and Parallel Connection  
Simple Guidelines For Using Household Primary Batteries  
Simple Guidelines For Using Secondary Batteries  
The battery industry specifies the number of cells in series first, followed by the cells placed in parallel. An





example is 2s2p. With Li-ion, the parallel strings are always made first; the completed parallel units are then placed in series. Li-ion is a voltage based system that lends itself well for parallel formation. Combining several cells into See more on batteryuniversity

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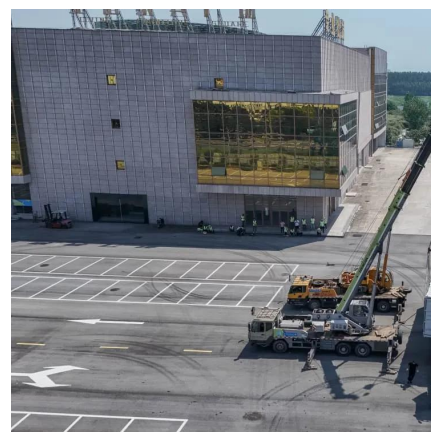


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