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Title: Battery cabinet discharge power calculation formula

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What is a battery discharge calculator?

A battery discharge calculator is an essential tool for anyone using lithium batteries in off-grid power systems, drones, RVs, boats, robotics, or portable electronics. This guide explains how to calculate runtime, what key inputs you need, and how to avoid common mistakes.

How do you calculate power consumption?

The basic principle is: $\text{Runtime (hours)} = \frac{\text{Usable energy}}{\text{Power consumption}}$ Where: Usable energy depends on battery capacity (Ah or Wh), depth of discharge (DoD), and system efficiency. Power consumption is the device's load in watts or amps.

How to calculate lithium battery runtime?

Key inputs you need to calculate lithium battery runtime Measured in amp-hours (Ah) or watt-hours (Wh). Example: $100 \text{ Ah} \times 12 \text{ V} = 1200 \text{ Wh}$. Each has different efficiency, discharge curves, and recommended DoD. Voltage sag under high loads should be considered. Continuous or variable loads in watts or amps.

What are some common pitfalls in battery discharge calculations?

Common pitfalls in battery discharge calculations Avoid these mistakes: Ignoring DoD policies- Over-discharging reduces lifespan. Skipping inverter losses - Can shorten runtime by 10-15%. Not accounting for surge currents - Startup spikes can drain capacity faster. Mixing units - Always match Wh with watts,Ah with amps.

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