

How big a battery is needed with a 3000w inverter





Overview

How many batteries do I need for a 3000 watt inverter?

So to get more capacity you can hook up multiple batteries to an inverter. To work out how many batteries you need for a 3000 watt inverter you just need to know how many amps your inverter uses each hour. (The same equation as above: running Watts ÷ Volts = Inverter Amps). Then you just multiply your inverter amps by the runtime you need.

How do I run a 3000W inverter?

To run a 3000W inverter, you'll need a lithium battery bank sized to match your energy demands and runtime. For continuous 3000W output, calculate total watt-hours (Wh) by multiplying power (3000W) by runtime (hours). Factor in inverter efficiency (85-95%) and battery depth of discharge (DoD, typically 80% for LiFePO4).

How many amps does a 3000 watt inverter use?

Since the recommended C-Rate for lithium batteries is 0.5C, you would need at least batteries with a capacity of $(250A \div 0.5 =) 500Ah$ 12V or 6 kWh. For a 3000 watt inverter at 24 volts: $3000 \text{ watts} / 24 \text{ volts} = 125 \text{ amps}$. You would need batteries with a capacity that allows the inverter to draw 125 amps safely.

How long can a 3000 watt inverter run?

Let's say you have a 300Ah battery. $300 \div 250 = 1.2$ hours. Drawing 3000 watts from a 300Ah battery will run for a maximum of 1.2 hours. If you reduce your power draw to 2000 watts, you would increase your runtime to nearly 2 hours! Remember, a 3000W inverter won't always draw maximum power, it depends what appliances you are running.



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