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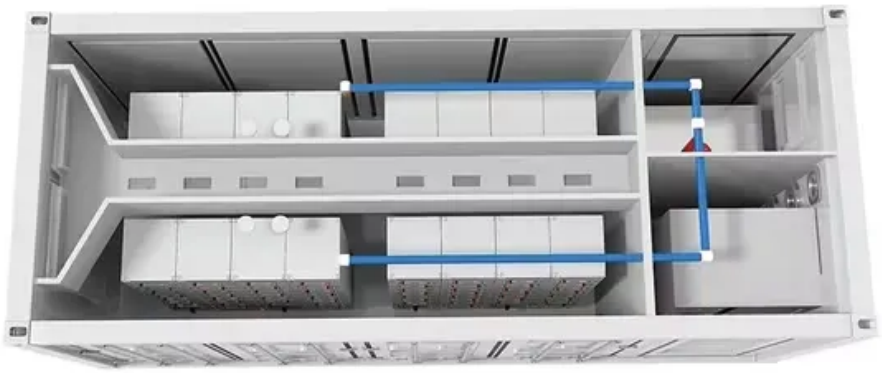
SolarTech Power Solutions

Peak Outdoor Power



Overview

What is peak power?

Peak power refers to the maximum instantaneous power a device or system draws or delivers—typically lasting milliseconds to a few seconds. For example, when a pump, air conditioner, or microwave starts up, it draws significantly more power than during normal operation.

What is peak demand?

Utility companies define peak demand as the highest average power usage over a 15 or 30-minute window in a billing cycle. Infrastructure and pricing revolve around these peaks, not your daily average consumption. Commercial utility bills often include: Demand charges: Fees based on your highest monthly peak power draw.

What is a peak power inverter?

Inverters have two key ratings: Continuous power: The sustained output (e.g., 5 kW). Surge (peak) power: Short bursts of higher output (e.g., 7.5–10 kW for a few seconds). Peak rating depends on internal components—capacitor bank size, IGBT ratings, thermal limits. Undersized inverters trip or throttle under startup surges.

What is the difference between average power and peak power?

By contrast, average power is the sustained power over time, the figure your utility meter tracks and your energy bill reflects. Analogy: Imagine water flowing through a pipe. Average power is the steady flow, while peak power is the sudden surge when the faucet opens full blast.

How does a battery management system manage peak power?

Battery Management Systems (BMS) manage peak power by: Example: A 48V, 3.5kWh battery with an 80A peak limit (~3.8kW) might not support a 5kW inverter if a 2kW microwave surge spikes current above 80A briefly. Hybrid

and off-grid systems need to account for both daily energy (kWh) and instantaneous power (kW).

What is the peak power limit for a battery management system?

Startup currents can be 3–7× higher than normal operation. Battery Management Systems (BMS) manage peak power by: Example: A 48V, 3.5kWh battery with an 80A peak limit (~3.8kW) might not support a 5kW inverter if a 2kW microwave surge spikes current above 80A briefly.

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