

Inverter Size Calculator

Estimates preliminary inverter capacity from running load, surge load, power factor, planning margin, and efficiency. It does not select a model or approve installation details.

Generated October 9, 2026

<https://www.elecatrix.com/solar-backup-power/inverter-size-calculator/>

Inputs

Input	Value	Unit
Running load	1800	W
Surge load	3500	W
Power factor	0.9	PF
Planning margin	25	%
Inverter efficiency	92	%

Results

Result	Value	Unit
Minimum continuous rating	2250	W
Minimum surge rating	4375	W
Estimated apparent power	2500	VA
Estimated DC input	2445.6522	W
Margin multiplier	1.25	x

Calculation details

Detail	Value	Unit
Calculation basis	Continuous inverter rating applies the entered margin to running watts. VA and DC input estimates apply entered power factor and efficiency.	
Selection boundary	Inverter estimate only; no waveform, surge duration, battery current, conductor, protection, listing, ventilation, transfer, utility, or code-compliance result is made.	

Formulas

Margin multiplier = 1 + (margin (%)/100)

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Continuous rating (W) = running watts x margin multiplier

Surge rating (W) = surge watts x margin multiplier

Apparent power (VA) = (continuous rating (W)/power factor)

Efficiency factor = (efficiency (%)/100)

Estimated DC input (W) = (continuous rating (W)/efficiency factor)

Warnings and limitations

This inverter size estimate uses entered load assumptions only. It does not approve waveform, surge duration, battery current, protection, transfer equipment, utility interconnection, or code compliance.