

Charge Controller Size Calculator

Calculate charge-controller current from PV array power, nominal battery voltage, and an explicit sizing margin before equipment-specific review.

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

Inputs

Input	Value	Unit
PV array power	1200	W
Battery voltage	48	V
Sizing margin	25	%

Results

Result	Value	Unit
Array current	25	A
Margin factor	1.25	x
Recommended controller current	31.25	A

Calculation details

Detail	Value	Unit
Calculation basis	Array current equals array watts divided by battery voltage. Recommended controller current applies the entered sizing margin.	
Review boundary	Charge-controller sizing arithmetic only; no PV string Voc, Isc, temperature, NEC, controller topology, listing, or manufacturer limit is applied.	

Formulas

$$I_{array} = \frac{P_{array}}{V_{battery}}$$

$$M_{sizing} = 1 + \frac{S}{100}$$

$$I_{controller} = I_{array} \times M_{sizing}$$

Warnings and limitations

This is simplified controller-current arithmetic only. It does not check PV string voltage, short-circuit current, temperature correction, controller topology, listing, or code compliance.