

48V Battery Cable Size Chart

Reference material · Savolture · savolture.com/blog/48v-battery-cable-size-chart/

Cable sizing for a 48V LiFePO4 battery bank comes down to one number: the continuous DC current your inverter draws at 48V, with a 25% safety margin applied per NEC continuous-load practice. Undersized cable is a real fire risk under sustained load — always size to the margin column, not the nominal column, and always pair the cable with a correctly rated DC fuse or breaker.

Inverter Size to Cable Size (48V Systems)

Inverter (cont.)	DC Current @ 48V	+25% Margin	Cable (AWG)	Metric (mm²)
3 kW	~63 A	~78 A	6 AWG	16 mm²
5 kW	~104 A	~130 A	4 AWG	25 mm²
6 kW	~125 A	~156 A	2 AWG	35 mm²
8 kW	~167 A	~208 A	1/0 AWG	50 mm²
10 kW	~208 A	~260 A	2/0 AWG	70 mm²
12 kW	~250 A	~313 A	3/0 AWG	95 mm²
15 kW	~313 A	~391 A	4/0 AWG	120 mm²

Why 48V Needs Thinner Cable Than 12V or 24V

Same 5kW Load	System Voltage	Continuous Current	Typical Cable
12V system	12 V	~417 A	4/0 AWG (120 mm²)
24V system	24 V	~208 A	2/0 AWG (70 mm²)
48V system	48 V	~104 A	4 AWG (25 mm²)

Savolture offers 48V LiFePO4 battery systems built to UL standards. Full guide with the ÷4 Rule and three-segment cable-run sizing: savolture.com/blog/48v-battery-cable-size-chart/