

48V LiFePO4 Battery Voltage Chart

Reference material · Savolture · savolture.com/blog/48v-lifepo4-battery-voltage-chart/

A “48V” LiFePO4 battery is a 16-cell (16S) pack, nominally 51.2V ($16 \times 3.2\text{V}$). Rested and full it sits near 54.4V; it charges to about 56.8–57.6V; practical empty is about 48V; and the BMS cuts off near 40V (2.5V/cell). Because the LFP discharge curve is flat, voltage alone is a poor way to read state of charge in the 20%–90% range — use a shunt monitor or an inverter reading the BMS over CAN/RS485 for accuracy.

State-of-Charge Voltage Table (16S / 48V Pack)

State of Charge	Per Cell	48V Pack (16S)	Notes
100% (rested)	3.40 V	54.4 V	After charge, current tapered, settled
90%	3.35 V	53.6 V	Top of the flat plateau
70%	3.30 V	52.8 V	Flat plateau — voltage barely moves
50%	3.28 V	52.5 V	Mid-plateau — hardest point to read by voltage alone
30%	3.25 V	52.0 V	Still on the plateau
20%	3.20 V	51.2 V	Nominal voltage point — plateau ending
10%	3.00 V	48.0 V	Practical empty for daily cycling
0% (BMS cutoff)	2.50 V	40.0 V	BMS disconnects to protect cells

Charging Stage Voltages

Stage	Per Cell	48V Pack (16S)	What It Does
Bulk / charge	up to 3.55-3.60 V	up to ~56.8-57.6 V	Constant current until pack reaches absorption voltage
Absorption	3.55-3.60 V	56.8-57.6 V	Hold while current tapers; cells balance near the top

Savolture offers 48V LiFePO4 battery systems built to UL standards. Full guide with charging curves, temperature derating, and BMS behaviour: savolture.com/blog/48v-lifepo4-battery-voltage-chart/