

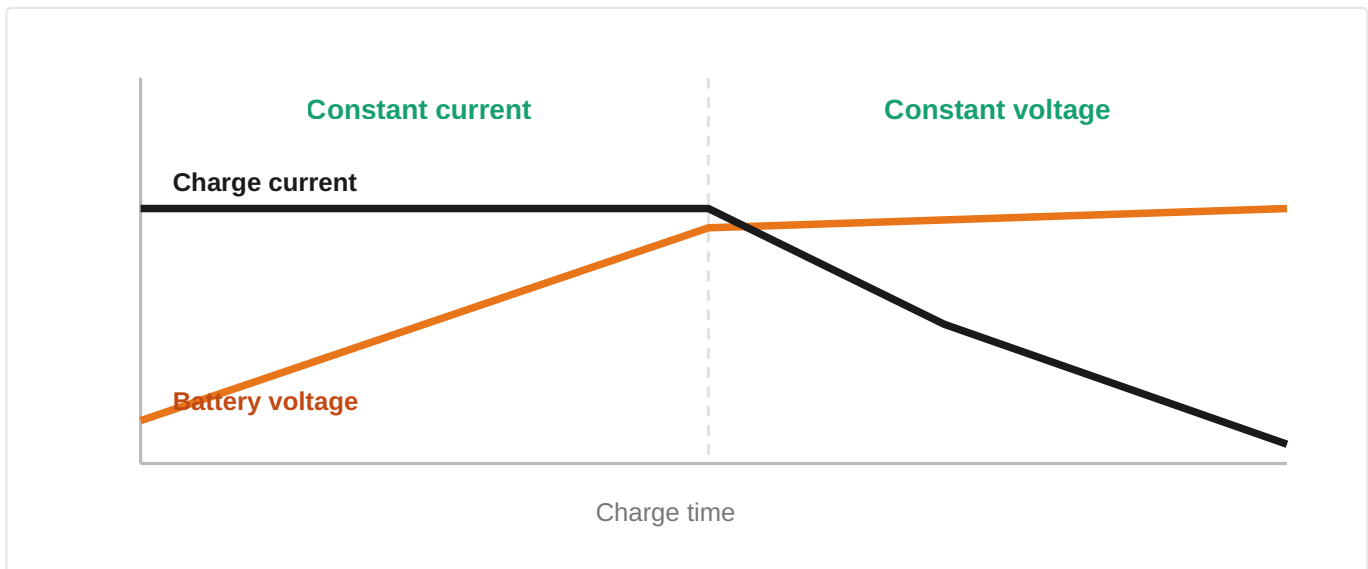
LEAD-ACID GUIDE

How to Charge VRLA Batteries Correctly (and Make Them Last)

Most lead-acid batteries die from poor charging, not age. Get the voltages, temperature and timing right and you will get the full life.

ATB Power · Battery Solutions · 6 min read

Charging is the single biggest factor in VRLA battery life. The goal is to return the charge fully and promptly, without overcharging. Use a constant-voltage, current-limited charger set to the right profile.



Constant-current / constant-voltage (CC/CV) charging: hold the current until the battery reaches the charge voltage, then hold the voltage while current tapers.

— Target voltages (per 12 V, 25 C)

MODE	AGM	GEL
Cyclic / boost	14.4 to 14.7 V	14.1 to 14.4 V
Float / standby	13.5 to 13.8 V	13.6 to 13.8 V
Max charge current	up to 0.30 C	up to 0.20 C

For 6 V batteries use half these voltages; for 2 V cells use the per-cell figures (2.40 to 2.45 VPC cyclic, 2.25 to 2.30 VPC float). Always defer to the model datasheet.

— Compensate for temperature

Adjust about minus 4 mV per cell per degree C away from 25 C (around minus 24 mV/C for a 12 V battery). Raise voltage when cold, lower it when hot. Many smart chargers do this automatically.

— Habits that extend life

- Recharge fully and soon after each discharge. Leaving a battery part-charged causes sulfation.
- Do not overcharge. It dries out a sealed VRLA permanently.
- Do not equalize a sealed VRLA unless the maker tells you to.
- In storage, recharge before open-circuit voltage drops below about 12.4 V, and at least every 6 months.

QUICK CHECK

A rested, fully charged 12 V VRLA reads about 12.8 to 12.9 V. Below 12.4 V it needs charging before use or storage.

Need help choosing or specifying?

Talk to ATB for datasheets, fitment and custom configurations.

[Request specifications](#)

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