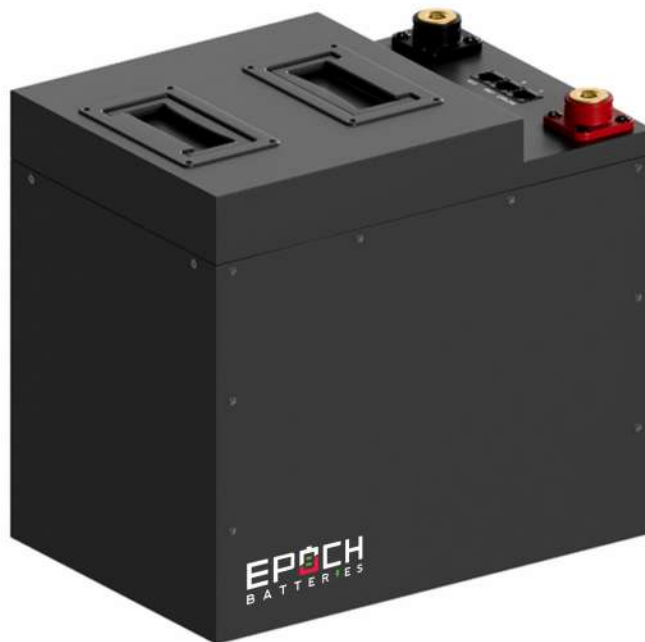




Epoch 12V 334Ah

Essential Series · Bluetooth · Self-Heated



4.28 kWh · 300A continuous BMS · Active balancing · Victron comms · 11-year warranty

Model: 12334A-MC | 4S1P prismatic LiFePO₄ | Document: User Manual Rev 7 | July 2026

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1 · Safety first

Lithium iron phosphate (LiFePO₄) batteries are inherently safer than other lithium-ion chemistries — but they still store significant energy. Read this section in full before installing or operating your Epoch 12V 334Ah battery.

DANGER · Risk of fire, burns, and electric shock

Never short-circuit the battery terminals. The internal BMS can deliver up to 600 amps for 10 seconds, which will instantly melt tools, jewelry, or wire. Always cover the positive terminal with an insulating cap during installation. Wear safety glasses and remove rings, watches, and bracelets before working on the battery.

CAUTION · Use only inside the rated environment

This battery is rated IP21 — dust protected and resistant to vertical drips (indoor / condensation safe). It is not waterproof. Do not install in engine bays, on open boat decks, or anywhere exposed to spray, rain, or submersion. Mount inside a battery box, locker, or dry equipment compartment.

CAUTION · Charging temperature limits

Do not charge above 131°F (55°C). Between –22°F and 32°F (–30°C to 0°C) the internal heater engages automatically and the BMS blocks charge current until cells warm above 41°F (5°C). Discharging is permitted from –4°F to 140°F (–20°C to 60°C) without preheating.

General rules

- Do not disassemble, crush, puncture, or burn the battery.
- Do not connect batteries of different ages, capacities, or states of charge in parallel without first balancing them to within 0.05V of each other.
- Always install a properly rated fuse or breaker on the positive cable within 18 in (45 cm) of the battery terminal.
- Use only copper lugs sized for the conductor and crimped with the correct die. Tinned lugs are recommended in marine environments.
- Keep the battery upright. Do not invert during operation.
- Keep away from children and pets.

2 · What's in the box

- One (1) Epoch 12V 334Ah Essential Series LiFePO₄ battery, model 12334A-MC (metal case, self-heated, Bluetooth, active balancing, Victron comms)
- Two (2) M10 stainless terminal bolts and washers (female terminals in the battery)

NOTE · Inspect on arrival

Photograph the packaging if any damage is visible. Lithium batteries shipped via ground freight are insured — contact Epoch support within 48 hours of delivery to file a claim. See section 13 for contact details.

3 · Specifications at a glance

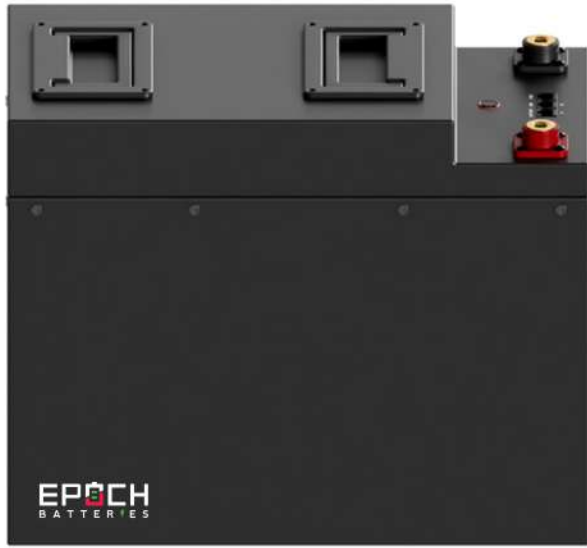
Model	12334A-MC
Chemistry	Lithium iron phosphate (LiFePO ₄), grade-A prismatic cells
Cell configuration	4S1P
Nominal capacity	334 Ah · 4.28 kWh
Nominal voltage	12.8 V
Operating range	10.0 V (cutoff) — 14.6 V (max charge)
Active balancing	Yes, 2 A
Max continuous charge	300 A
Max continuous discharge	300 A (150 A recommended for daily use)
Peak discharge	600 A for 10 seconds
Case	Metal enclosure (unique within Essential Series)
Ingress protection	IP21 — indoor / drip resistant
Terminals	Two M10 female threaded inserts (one +, one —)
Terminal torque	13–17 N·m (115–150 in·lb)
Weight	75 lb (34.0 kg)
Dimensions (L × W × H)	15.35 × 8.07 × 11.02 in (390 × 205 × 280 mm)
Self-heating	Internal heating film, auto-engages below 32°F (0°C)
Bluetooth	Yes — Epoch Li-ion app (iOS & Android)
Victron comms	Yes — Victron CAN-bus protocol (BMS becomes the controlling BMS)
Parallel limit	Up to 4 in parallel, plug & play
Charge temperature	–22°F to 131°F (–30°C to 55°C) — heater engages below 32°F
Discharge temperature	–4°F to 140°F (–20°C to 60°C)
Storage temperature	32°F to 95°F (0°C to 35°C)
Certifications	UL 1642, UL 9540A, IEC 62619:2022, CE, RoHS
Shipping classification	UN 38.3, Class 9
Warranty	11 years (see section 13 for terms)

NOTE · Cell configuration: 4S1P

Four prismatic 3.2 V LiFePO₄ cells in series make up the 12.8 V pack. Single string — no internal parallel groups — which simplifies balancing and makes single-cell failures rare and easy to diagnose in the app.

4 · Getting to know your battery

Model 12334A-MC is built around a powder-coated steel enclosure — the only metal-cased model in the Essential lineup. The metal case gives it superior crush resistance and EMI shielding compared to its PC+ABS siblings, but lowers the ingress rating to IP21 because the seams are not gasketed for water. The trade-off makes it ideal for indoor RV bays, off-grid cabins, marine compartments, and equipment racks.



Twin recessed carry handles on the top plate; the port deck hosts the M10 positive (red) and negative (black) female terminals, the power button, and three RJ45 sockets labeled BATTERY LINK A & B, and CAN.

M10 female terminals

The top plate carries one positive (red) and one negative (black) M10 female threaded insert — (two M10 stainless bolts and washers are included). Female terminals eliminate the exposed stud common on competing batteries, reducing the chance of an accidental short during installation.

Active balancing

The internal BMS includes a 2 A active balancer that continuously moves charge between the four prismatic cells. Active balancing keeps cell voltages tightly matched across the full state-of-charge range — not just at the top of charge — which extends usable capacity and cycle life compared with passive (bleed-resistor) designs.

Bluetooth, self-heating, and Victron CAN

A built-in Bluetooth radio reports live voltage, current, SOC, cell balance, and temperature to the free Epoch Li-ion app. An integrated heating film draws from the battery itself to warm the cells above freezing before accepting charge current — no external thermostat or charger lockout needed. A CAN-bus port speaks Victron's open protocol, letting the battery act as the controlling BMS for a Cerbo GX system. See section 8.

5 · Installation

Tools & materials

- Torque wrench capable of 13–17 N·m (115–150 in·lb)
- 16 mm (or adjustable) wrench for M10 hardware
- Insulated socket / nut driver
- Heat-shrink-insulated copper lugs sized to your cable (M10 hole)
- Class T or ANL fuse + holder, sized to load (≤ 300 A per battery)
- Marine-grade tinned copper cable, sized per the table below

Cable sizing (single battery, 12 V)

Continuous load	Recommended cable	Fuse
≤ 100 A	2 AWG (33 mm ²)	150 A
≤ 150 A (recommended max)	1/0 AWG (50 mm ²)	200 A
≤ 200 A	2/0 AWG (70 mm ²)	250 A
≤ 300 A (BMS max)	4/0 AWG (95 mm ²)	350 A Class T

Round up cable size for runs longer than 6 ft (2 m) or installations in elevated ambient temperatures. All M10 ring terminals must be crimped with the matching die — never soldered.

Step-by-step

1. Verify state of charge in the Epoch Li-ion app (target 30–60% for installation).
2. Mount the battery upright on a flat surface in a dry, ventilated compartment. Strap or restrain to handle vehicle motion.
3. Pre-install fuses, breakers, and disconnects on the positive cable within 18 in (45 cm) of the terminal.
4. Connect the negative cable first, then the positive cable. Reverse the order when removing.
5. Torque each M10 bolt into the female terminal to 13–17 N·m (115–150 in·lb). Do not exceed 17 N·m — over-torque can damage the threaded insert.
6. Power up downstream electronics one at a time and confirm normal operation.

CAUTION · Bank rules — read before paralleling

Before paralleling batteries, every battery must be within 0.05 V of the others. Charge each battery individually to ~13.6 V and let them rest 1 hour, then connect. Mixing unbalanced batteries causes large equalizing currents that the BMS will see as a fault and may trigger disconnect. Maximum: 4 in parallel at 12 V (plug & play). This battery does not support series connections. Contact Epoch for systems above 4P.

6 · Wiring & parallel banks

The diagrams and rules in this section cover the most common Epoch 334Ah configurations — from a single battery through 4-in-parallel banks, and how to link multiple batteries over CAN-bus so the system sees them as one virtual pack. In every case the main fuse must sit within 18 in (45 cm) of the battery positive terminal, and all M10 terminals must be torqued to 13–17 N·m.

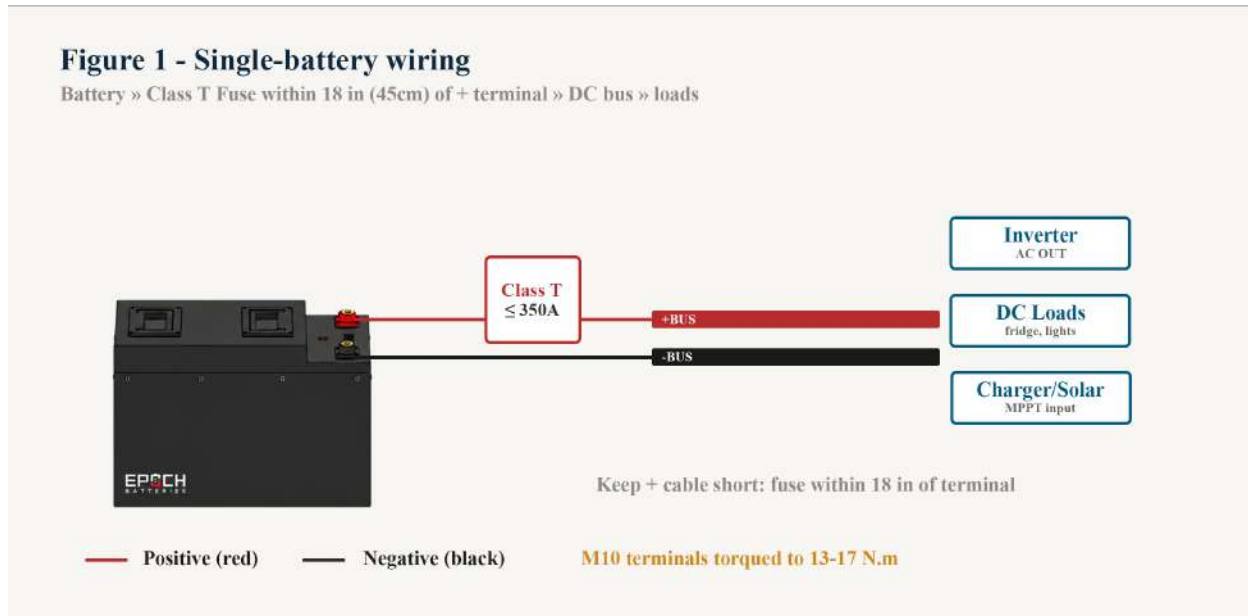


Figure 1. Single 12V 334Ah battery feeding a DC bus through a Class T fuse.

6.1 Parallel connections — more capacity

Purpose. Increase system capacity (Ah) and continuous current while keeping the pack at 12.8 V nominal.

How to connect

- Bond all positive terminals together → one common positive node.
- Bond all negative terminals together → one common negative node.
- For 2 batteries: take the positive feed from Battery A and the negative feed from Battery B to balance the load path.
- For 3 or more batteries: use a dedicated bus-bar with identical cable lengths and cross-sections from each battery to the bus-bar.

What changes

- Capacity: additive — e.g. $2 \times 334 \text{ Ah} = 668 \text{ Ah}$ (8.55 kWh); $4 \times 334 \text{ Ah} = 1,336 \text{ Ah}$ (17.1 kWh).
- Current output: additive — e.g. $2 \times 300 \text{ A} = 600 \text{ A}$ continuous; $4 \times 300 \text{ A} = 1,200 \text{ A}$ continuous.
- Voltage: unchanged — still 12.8 V nominal.

Before you connect

- All batteries must be within 0.05 V of each other before you close the last link — charge or discharge as needed to equalize.
- Install a separate fuse per battery on its positive lead, sized for that battery's continuous rating.
- Run the CAN data-link cables per section 6.3 so the bank appears as one virtual pack to the GX.

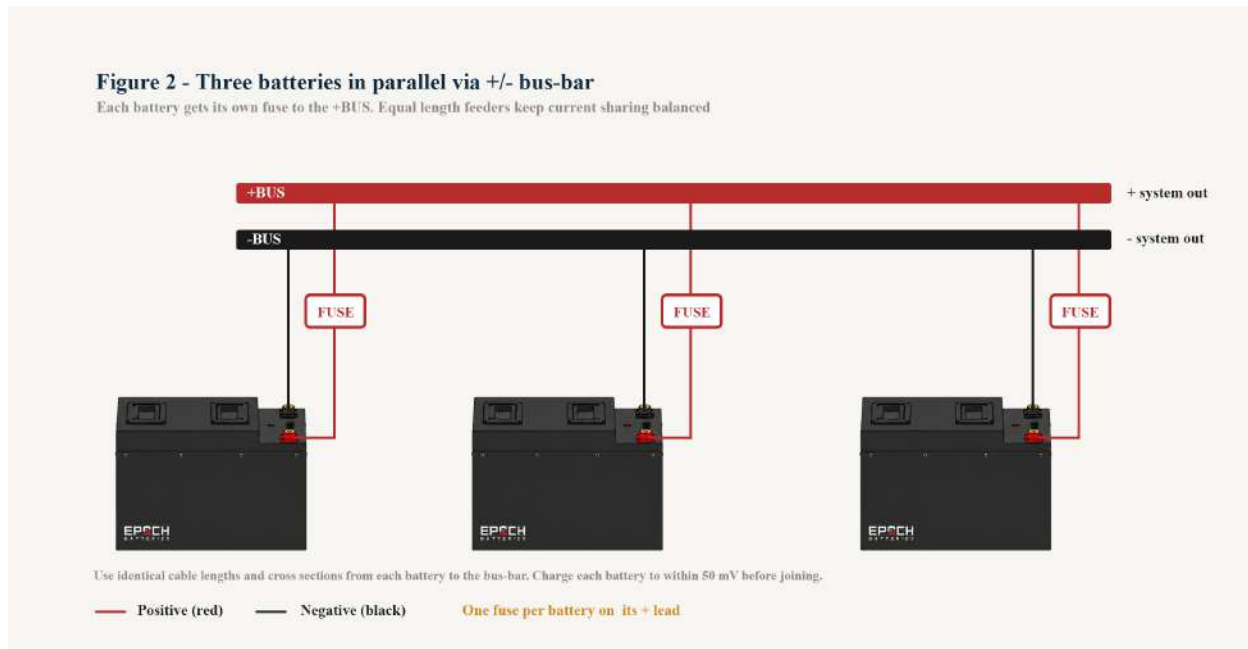


Figure 2. Three batteries in parallel — 12 V × 1,002 Ah (12.83 kWh). Use equal-length cables and a separate fuse per battery. Maximum 4 in parallel (12 V × 1,336 Ah / 17.1 kWh).

NOTE · Parallel limit — 334Ah

The 12334A-MC is validated up to 4 batteries in parallel at 12 V (12 V × 1,336 Ah / 17.1 kWh). Beyond that, contact Epoch support — larger banks need additional fusing and bus-bar design to manage current sharing and fault isolation.

6.2 Multi-battery CAN-bus networking

Once the power connections are made, link the batteries together over CAN-bus so that a Cerbo GX or Ekrano sees the entire bank as a single virtual pack. Only one battery — the host — talks to the GX; the others (nodes) publish their cell-level data upstream through the chain.

CAN ports on the port deck

- BATTERY LINK A (left socket): receives data from the previous battery in the chain, or on the host battery is unused.
- BATTERY LINK B (middle socket): transmits data to the next battery in the chain.
- CAN (right socket): connects to the Victron GX BMS-Can port on the host battery only. On node batteries this port is unused.

Host vs node role

- Host battery: the one wired to the GX via the CAN port. The battery auto-negotiates its role — no DIP switches or manual addressing required.
- Node batteries: the 2nd, 3rd, and 4th batteries in the chain publish their cell data upstream through BATTERY LINK A/B. No configuration needed.
- The host battery reports as "DRIFT" on the GX Device List (this is the internal name of the BMS platform Epoch uses).

Daisy-chain wiring

- Plug a straight-through RJ45 patch cable from the GX BMS-Can port into the CAN socket of the host battery.
- From the host's BATTERY LINK B, run an RJ45 patch to BATTERY LINK A of the next battery. Repeat down the chain.
- Any Cat5e/Cat6/Cat7 patch cable works. If you need extra length, use standard Ethernet patch — do not use crossover cables.

Figure 3 - V2 CAN-bus daisy chain to a Victron GX

Only the host battery's CAN port connects to the GX. Node batteries chain BATTERY LINK B » A. A 120Ω terminator caps the last free port.

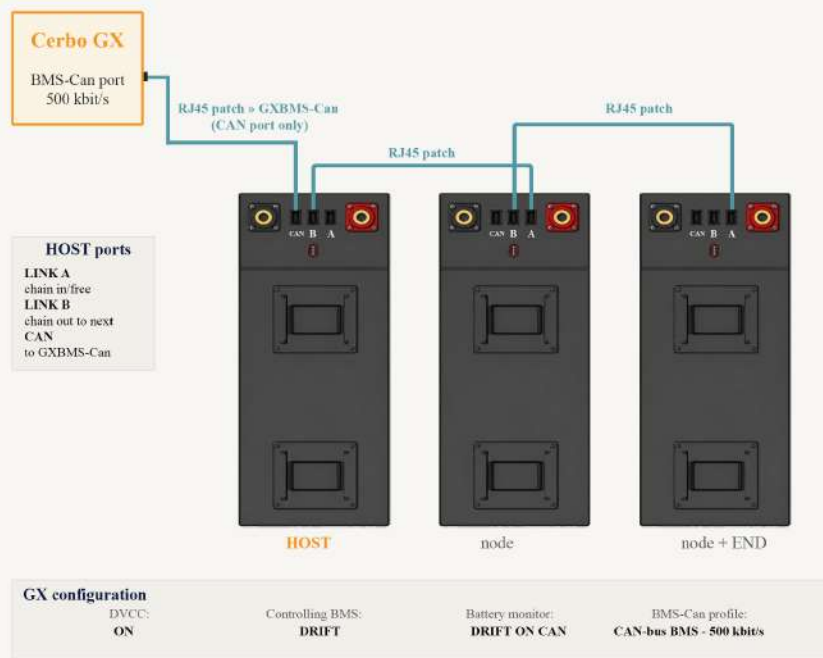


Figure 3. CAN-bus daisy chain for a multi-battery bank. Only the host battery's CAN port connects to the Cerbo GX BMS-Can. Node batteries daisy-chain BATTERY LINK B → BATTERY LINK A with standard RJ45 patch cables. The GX Device List will show the host battery as "DRIFT".

NOTE · What the GX sees

Once the chain is up, the GX Device List shows a single battery entry combining all cells. Voltage, current, SOC, cell balance, temperature, and up to 10 BMS alarm states are consolidated through the host. Individual cell voltages from every battery in the bank are visible in the GX battery detail page — useful for diagnosing an imbalanced pack.

7 · Charging

BMS high-voltage cutoff	14.6 V
Bulk / Absorption	14.2–14.4 V
Absorption end condition	Stop when charge current $\leq C/20$, or 15 min maximum
Float	Disabled (preferred), or 13.3–13.6 V
Re-bulk voltage	13.2 V
Equalization / recondition	Disabled
Temperature compensation	0 mV/°C (disabled) — LiFePO ₄ does not need it
Max continuous charge	300 A per battery
Charge temperature	–22°F to 131°F (–30°C to 55°C) — heater handles cold
Low-temp charge protection	Yes (BMS-managed)

Profile selection on common chargers

If your charger has a generic LiFePO₄ preset, start there and then verify the absorption voltage matches the table above. If your charger only offers "Lithium" or "Custom" mode, use the Custom LiFePO₄ profile shown in section 8. Float is not required — LiFePO₄ has near-zero self-discharge and the active balancer keeps cells in trim without a holding voltage. Disable float when possible; if your charger cannot disable it, set it to 13.3–13.6 V.

CAUTION · Never use a desulphation or equalize cycle

AGM/flooded modes apply voltages above 15 V and can damage the BMS. Confirm your charger is in LiFePO₄ or Custom mode before connecting.

NOTE · Absorption stop condition

Epoch specifies absorption ends when charge current falls below $C/20$ (16.7 A for a single 334 Ah battery) or after 15 minutes, whichever comes first. Set your charger's tail current to ~17 A per battery in the bank.

8 · Victron settings & system examples

Victron Energy gear is one of the most common pairings for Epoch batteries. The 12334A-MC speaks Victron's CAN-bus protocol natively, so when it is wired to a GX device the battery becomes the controlling BMS — it tells the MultiPlus, MPPTs, and Orion exactly what voltages and currents to deliver. You can also run the battery standalone (no GX) by configuring each Victron device with a custom LiFePO₄ profile.

Option A — Comms with a Cerbo / Ekrano GX (recommended)

With CAN comms the battery's own protection limits flow directly into the Victron system. DVCC must be enabled, and the GX will override the MultiPlus's absorption, float, tail, and adaptive-charge settings — there is no need to configure those values manually.

Wiring

- For a single-battery system: use a straight-through RJ45 patch cable from the battery's CAN port to the GX's BMS-Can port (the lower of the two RJ45 ports on a Cerbo GX). The GX BMS-Can socket is already internally terminated.
- For multi-battery banks: see section 6.2 for the CAN daisy-chain wiring (Figure 3).

GX configuration

- Settings → Services → VE/BMS-Can: profile = CAN-bus BMS (500 kbit/s).
- Settings → DVCC: turn DVCC ON; set Controlling BMS to DRIFT (the Epoch BMS reports as DRIFT on the GX).
- Settings → System setup → Battery monitor: select DRIFT on VE/BMS-CAN. A SmartShunt is optional with comms.
- In DVCC settings, SVS, STS, and shared current sense enabled — the BMS will publish voltage, current, SoC, and temperature.

NOTE · What the BMS controls when CAN is active

The Epoch BMS publishes Charge Voltage Limit (CVL), Charge Current Limit (CCL), and Discharge Current Limit (DCL). DVCC will respect — and can lower but not raise — these limits. Any absorption / float / tail current you set in VictronConnect on a charger is ignored while the GX is in charge. Disable adaptive charging on the MultiPlus.

Option B — Standalone Victron (no GX)

If you are not running a GX, configure each Victron charger (SmartSolar MPPT, Orion XS, MultiPlus / Quattro) with the Custom LiFePO₄ profile below. Use VictronConnect → battery settings → switch to Expert mode → preset User defined.

Battery type	User defined
Battery voltage	12 V
Absorption voltage	14.2 V (range 14.2–14.4 V)
Float voltage	Disabled, or 13.5 V (range 13.3–13.6 V)
Equalization voltage	Disabled
Re-bulk voltage offset	1.2 V (re-bulk at 13.2 V)
Absorption duration	Adaptive 1 hour max (tail current ends it sooner)
Tail current	17 A (C/20 for a single 334 Ah battery; scale per bank size)
Bulk time limit	10 hours
Temperature compensation	0 mV/°C (disabled — BMS manages temperature)
Low temperature cut-off	–30°C (heater handles cold charging down to –30°C)
BatterySafe mode	Disabled
Equalization automatic	Disabled

MultiPlus / Quattro additional settings (standalone only)

- Charger → Battery type: Lithium
- Charger → Charge curve: Fixed (disable Adaptive)
- Inverter → DC input low shutdown: 11.5 V
- Inverter → DC input low restart: 12.5 V
- Inverter → DC input low pre-alarm: 11.8 V
- ESS → Sustain voltage: 12.4 V (if using ESS assistant)

Recommended Victron components

- Solar: SmartSolar MPPT 100/30, 100/50, or 150/35 (size to array).
- DC-DC: Orion XS 12/12-50 (alternator → battery).
- AC charger / inverter: MultiPlus, MultiPlus-II, or Quattro.
- System controller (recommended): Cerbo GX or Ekrano GX with DVCC — unlocks CAN comms.
- Monitoring (optional with CAN): SmartShunt 500 A — the CAN feed already provides SoC, voltage, current, and temperature.
- Protection: Class T fuse on the positive cable within 18 in (45 cm) of the battery.

Figure 4 - Example Victron system with one EPOCH 12V 334Ah

Solar (MPPT) + alternator (Orion DC-DC) + AC Charger/inverter (MultiPlus), monitored by Cerbo GX over V2 CAN.

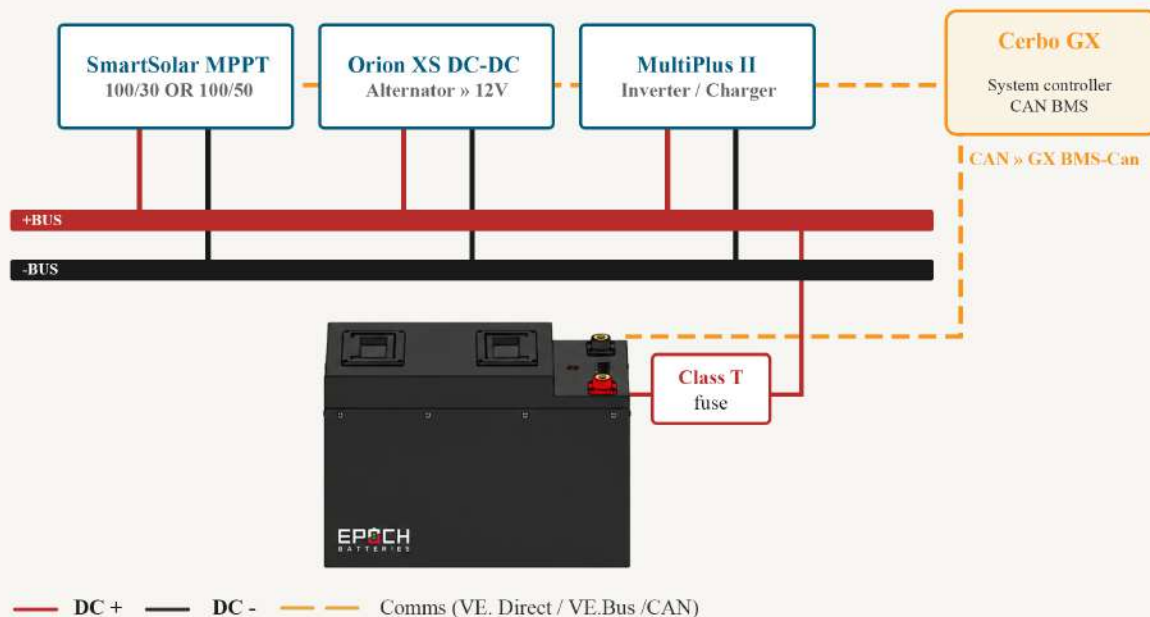


Figure 4. Reference Victron system with one Epoch 12V 334Ah — solar, alternator, AC charging, and CAN comms to a Cerbo GX over BMS-Can. For multi-battery banks, see section 6.2 (Figure 3).

9 · Bluetooth & the Epoch Li-ion app

Every Epoch 12V 334Ah battery includes a Bluetooth radio that broadcasts live data to the free Epoch Li-ion app on iOS and Android.

Install the app

- Visit: <https://www.epochbatteries.com/apps/epoch-li-ion>

First-time pairing

1. Enable Bluetooth and Location permissions for the app on your phone.
2. Open the Epoch Li-ion app.
3. Tap the battery to connect.
4. Once connected, navigate to the dashboard and tap the icon next to the battery name to rename the battery. Set the battery name to something memorable (e.g. "Van House Bank 1") so multi-battery systems are easy to identify.

Data you can monitor

- Pack voltage, current, and direction (charging/discharging)
- State of charge (%) and remaining Ah
- Per-cell voltages and balance status
- Temperature at the cell stack and at the BMS
- Cycle count and total Ah throughput
- Heater status (idle / heating)
- BMS protection history (over-voltage, under-voltage, over-current, over/under-temperature events)

NOTE · One phone at a time

The BMS allows a single Bluetooth connection per battery. Disconnect from the app on one phone before pairing with another.

10 · Self-heating function

LiFePO₄ cells cannot accept charge current below freezing without permanent damage. The Epoch 12V 334Ah includes an internal heating film that warms the cell stack whenever a charger is connected and cell temperature drops below 32°F (0°C).

How it works

- The BMS monitors cell-pack temperature continuously.
- When a charging source is detected and cells are below 32°F (0°C), the heater engages automatically.
- Charge current is blocked until the cells warm above 41°F (5°C), at which point normal charging resumes.
- Heater draws roughly 60 W from the pack — about 0.4% SOC per hour.
- Discharging (powering loads) is unaffected and works down to -4°F (-20°C) without heating.

NOTE · Cold-weather best practice

If your battery is in a uninsulated compartment in sub-freezing weather, leave the charger powered and connected — the BMS will idle the heater on and off to keep the cells in the safe charging window. The heater only activates when both (a) cells are cold and (b) a charger is present.

11 · Storage & maintenance

- Store at 30–60% state of charge (12.8–13.0 V resting).
- Top up to 60% every 6 months during long-term storage.
- Storage temperature: 32°F to 95°F (0°C to 35°C). Avoid direct sun.
- Wipe the case with a dry cloth — never use solvents or pressure-washers.
- Inspect terminals and re-torque to 13–17 N·m at every service interval.
- Update the Epoch Li-ion app when prompted to keep firmware compatibility current.

12 · Troubleshooting

No output / battery appears dead	BMS may be in protection mode. Connect a charger — incoming voltage on the terminals will wake the BMS. If still no output, contact support.
Charger won't bring battery above ~13.6 V	Charger is likely set to a flooded/AGM profile. Switch to LiFePO ₄ or Custom (see section 7 voltages).
Cells out of balance in the app	Run a full charge at low current ($\leq 0.2C$ / 67 A) and hold at absorption for 2–3 hours. The internal balancer works at the top of charge.
Bluetooth won't connect	Force-quit the app, toggle phone Bluetooth off and on, and re-scan. Metal compartments reduce range — move within 10 ft. Only one phone can be paired at a time.
Charging blocked in cold weather	Expected behaviour when cells are below 32°F (0°C). Heater warms the stack automatically; allow up to 60 minutes before charging resumes.
Persistent over-current trips	Inverter surge may exceed 300 A continuous / 600 A peak. Add a second battery in parallel or move large surge loads to a separate string.

13 · Warranty & support

Your Epoch 12V 334Ah Essential Series battery carries an 11-year limited warranty against defects in materials and workmanship under normal operating conditions described in this manual. Warranty does not cover damage from physical abuse, water immersion, reverse polarity, short circuits caused by improper installation, charging outside specified voltage limits, or modification of the case or BMS.

Filing a claim

- Visit <https://warranty.epochbatteries.com> with your serial number and proof of purchase.
- Include screenshots of the Epoch Li-ion app showing voltage, SOC, and any BMS event history.
- Photograph the installation and the terminal connections.
- Allow 2–5 business days for Epoch to respond with next steps.

Where to find your serial number (and MAC address)

The serial number is located on top of the battery, at the center, between the handles. The MAC address is a unique network identifier that appears in the Epoch Li-ion app Bluetooth pairing tab.

NOTE · Manufacturer contact

Epoch Batteries · Marietta, Georgia, USA · veteran-owned and operated. Phone: 1-888-501-1846. Email: support@epochbatteries.com. Web: epochbatteries.com

14 · Disposal & recycling

LiFePO₄ batteries are non-toxic and considered safe for landfill disposal in most US states — but the steel, copper, and lithium are valuable. Return end-of-life batteries to any lithium battery recycling drop-off, or contact us for more details.

CAUTION · Before disposal

Discharge to roughly 25% SOC, cover both positive terminals with insulating caps, and transport upright. Damaged or swollen batteries must be reported to the carrier as hazardous freight.