EPOCH BATTERIES

USER MANUAL

ESSENTIAL SERIES

12V 300Ah

HEATED BLUETOOTH LiFePO4 BATTERY

MODEL 12300A-H

DEEP CYCLE · BLUETOOTH · INTERNAL HEATING · GROUP 31 · IP54



12.8 V	300 Ah	3.84 kWh	200 A	400 A
NOMINAL VOLTAGE	CAPACITY	STORED ENERGY	CONTINUOUS DISCHARGE	PEAK (≤ 3 s)

! Read this manual completely before installing, charging, operating, storing or servicing the battery.

Revision V02 · September 2026
EpochBatteries.com

ABOUT THIS MANUAL

IMPORTANT NOTICES AND SAFETY SYMBOLS

Purpose

This manual provides instructions for safe handling, installation, charging, operation, storage, maintenance, troubleshooting and warranty support for the Epoch 12300A-H. It helps users and installers reduce risk, protect connected equipment and get reliable performance.

Qualified installation

Battery systems can deliver very high current. Installation and service should be performed by people who understand DC electrical systems, lithium battery charging, overcurrent protection, conductor sizing, terminal torque and safe work practices. When the battery is part of a boat, RV, vehicle, trailer, cabin or building system, follow all applicable codes and equipment manufacturer requirements.

Product changes

Specifications, accessories, firmware, labels and documentation may change without notice. Use the latest Epoch Batteries documentation and product labeling, and confirm that the model on your battery label matches this manual.

Warranty and compliance

Failure to follow this manual, using incompatible chargers or accessories, modifying the battery, improper installation, abuse, water intrusion beyond the product rating, incorrect polarity, overcurrent events or operation outside specified limits may void warranty coverage and may create safety hazards.

⚠ WARNING

Incorrect installation or use can cause fire, electric shock, severe injury, death, or damage to the battery and connected equipment. Stop and contact Epoch Batteries support if any instruction is unclear.

Safety signal words

⚠ DANGER	Indicates a hazardous situation that, if not avoided, **will** result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation that, if not avoided, **could** result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates practices that can damage the battery, connected equipment or property.

How to read the figures

CONCEPTUAL DIAGRAM	Explains a principle or a typical layout. It is simplified, not to scale and not a substitute for a system design reviewed against applicable codes.
MODEL-SPECIFIC DATA	Shows published ratings or dimensions for model 12300A-H.

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12V 300Ah · MODEL 12300A-H

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QUICK REFERENCE

Nominal voltage · capacity	**12.8 V · 300 Ah**
Stored energy (nominal)	**3.84 kWh**
Max continuous discharge	**200 A**
Peak discharge	**400 A for ≤ 3 s**
Max continuous charge	**200 A**
Recommended charge current	**100 A**
Bulk / absorption	**14.2–14.4 V**
Float	**Off (preferred) or 13.3–13.6 V**
Maximum charge voltage	**14.6 V**
Low-voltage disconnect	**10.0 V**
Charge temperature	**–20 °C to 55 °C with heating**
Heater: charging pauses / resumes	**0 °C / 5 °C**
Terminal torque (M8)	**8–12 N·m**
Maximum bank	**4S4P**

1-888-501-1846
Monday–Friday, 9 AM–4 PM Eastern

01
INTRODUCTION

ABOUT YOUR BATTERY AND THIS MANUAL

Thank you for choosing Epoch Batteries. The 12300A-H is a 12.8 V, 300 Ah, 3.84 kWh heated Bluetooth LiFePO4 battery designed for high-capacity 12 V deep-cycle energy systems.

This manual explains how to install, charge, operate, store and maintain the battery safely in RV, marine house-power, solar, off-grid, backup, van, camper and auxiliary 12 V applications where the system requirements match the battery specifications.

KEEP THIS MANUAL

Store it with the battery or with your vehicle or vessel documents. The latest version is available at epochbatteries.com/resources.

Who should use this manual

- **End users** who need safety, charging, Bluetooth and storage guidance.
- **Installers** who need model-specific electrical limits, terminal information and battery-bank requirements.
- **Dealers, support teams and service technicians** who need a consistent troubleshooting and warranty reference.

Check your battery label first

Confirm that the model number on the battery label is **12300A-H**. Similar-sized Epoch batteries can use different BMS current limits, apps, heaters and bank configurations, and earlier production may carry different ratings. If your label does not match this manual, contact Epoch support before installing the battery or changing charger settings.

Is this battery right for your system?

The 12300A-H is a lithium deep-cycle battery in a Group 31 footprint. It suits many Group 31 applications, but it is not a drop-in replacement for every lead-acid or AGM installation. Before installation, verify tray fitment, terminal clearance, cable size, overcurrent protection, charger profile, charging-source compatibility and load requirements.

NOTICE

Deep-cycle battery. This model is not a cranking-rated battery. For engine starting, use a cranking-rated battery or confirm compatibility for the specific engine and installation directly with Epoch before installation.

Product page and downloads
Scan for the latest user manual, technical data sheet and Safety Data Sheet (SDS).

02
PRODUCT OVERVIEW

FEATURES, USES AND KEY TERMS

A 12.8 V, 300 Ah, 3.84 kWh lithium iron phosphate battery for high-capacity 12 V deep-cycle systems. It combines internal heating for cold-weather charging, Bluetooth monitoring and an advanced battery management system in a Group 31 footprint with an IP54 enclosure.

LiFePO4 chemistry
Lithium iron phosphate cells for thermal stability, long cycle life and dependable deep-cycle operation.

300 Ah · 3.84 kWh
About 3.84 kWh of nominal stored energy in a Group 31 case weighing 58 lb.

Internal heating
Below 0 °C, charge current powers heating pads that warm the battery to 5 °C before charging resumes.

Bluetooth monitoring
The Epoch Li-Ion app shows SOC, voltage, current and temperature from a built-in BMS shunt; no external shunt needed.

Advanced BMS
Protection against overcharge, over-discharge, over-current, short circuit and temperature extremes.

IP54 enclosure
Dust-protected and splash-resistant for protected RV, marine, mobile and outdoor compartments. Not submersible.

Expandable to 4S4P
Up to four matched batteries in series (48 V class) and four in parallel (1,200 Ah), with correct fusing and wiring.

Maintenance-free
No watering, acid service or routine lead-acid maintenance. Periodic inspection keeps it safe.

Primary uses

- RV, camper, travel-trailer and motorhome house-power systems
- Van, overland and off-grid auxiliary power
- Marine house power for electronics, lighting, pumps and accessories
- 12 V trolling motors where current requirements match the battery ratings
- Solar storage for cabins, trailers, boats, backup and off-grid systems
- 24 V, 36 V and 48 V systems using matched batteries in series, up to the 4S4P limit

Key terms used in this manual

LiFePO4 (lithium iron phosphate)
A lithium-ion chemistry valued for thermal stability and long cycle life. This battery uses a 4S1P arrangement — 4 cells in series — to reach 12.8 V nominal.

Nominal voltage
The typical voltage during discharge — 12.8 V for this battery. Actual voltage varies with state of charge, load and temperature within the 10.0–14.6 V operating range.

Amp-hour (Ah)
A measure of charge capacity. The 300 Ah rating is measured at a 0.2C discharge rate (60 A).

Watt-hour (Wh) and kilowatt-hour (kWh)

A measure of energy: volts × amp-hours. 12.8 V × 300 Ah = 3,840 Wh ≈ 3.84 kWh. This is nominal energy, not a guaranteed usable-energy figure.

C-rate

Current expressed relative to capacity. For this battery 1C = 300 A, 0.5C = 150 A, 0.2C = 60 A and C/20 = 15 A.

Continuous and peak current

Continuous current can be sustained; peak current is a short-duration rating. This battery allows 200 A continuous and 400 A for up to 3 seconds.

State of charge (SOC)

Remaining charge as a percentage of full. The app's SOC is a calculated estimate; resting voltage alone is not a precise SOC indicator for LiFePO4.

Battery management system (BMS)

Electronics inside the battery that monitor voltage, current and temperature and switch off charging or discharging to protect the cells.

Depth of discharge (DoD)

How much of the capacity has been used. At 70% DoD, 30% state of charge remains.

Low-voltage disconnect (LVD)

The BMS switches off the output at 10.0 V to prevent over-discharge. The published reconnect voltage is 12.0 V.

Bulk, absorption and float

Charger stages: constant-current bulk, then constant-voltage absorption at 14.2–14.4 V, then an optional low-voltage float. Float disabled is preferred for this battery.

Equalization

A lead-acid maintenance mode that applies elevated voltage. It must be disabled for LiFePO4 batteries.

Temperature compensation

A charger feature that adjusts voltage with temperature for lead-acid batteries. Set it to 0 mV/°C (off) for this battery.

Series and parallel

Series connections add voltage while capacity stays at 300 Ah; parallel connections add capacity while voltage stays at 12.8 V.

Overcurrent protection device

A fuse or DC-rated circuit breaker that protects wiring from overloads and short circuits.

IP54

An IEC 60529 enclosure rating: 5 = dust-protected, 4 = protected against splashing water from any direction. Not waterproof or submersible.

Parasitic load

A small, continuous draw from connected equipment that discharges the battery even when the system appears to be off.

Low-temperature charge cut-off

The BMS disables charging when the battery's internal temperature drops to 0 °C. On this battery, incoming charge current then powers the heating pads until the battery reaches 5 °C, when charging resumes. The cells never accept charge current while any temperature reading is below 0 °C.

Shunt

A precision resistor used to measure current. This battery's shunt is built into the BMS, accurate to 0.2 A on discharge, so no external shunt is needed.

Cycle life

The number of charge–discharge cycles a battery can deliver before its capacity falls to a stated end-of-life level. This battery is rated for 4,000+ cycles.

03
SPECIFICATIONS

MODEL 12300A-H RATINGS AT 25 °C UNLESS NOTED

GENERAL	
Brand	Epoch Batteries
Model / SKU	12300A-H
Series	Essential Series
Battery type	Heated Bluetooth deep-cycle LiFePO4
Group size	BCI Group 31
Chemistry	LiFePO4 (lithium iron phosphate)
Cell type	Prismatic LiFePO4
Cell configuration	4S1P
Bluetooth	Yes — Epoch Li-Ion app (iOS and Android)
Bluetooth security PIN	Printed on the battery's lid; can be changed in the app
Current sensing	BMS-integrated shunt; 0.2 A accuracy on discharge
Internal heating	Yes — for cold-weather charging
Cycle life	4,000+ cycles
Warranty	11-year limited manufacturer warranty

ELECTRICAL	
Nominal voltage	12.8 V
Nominal capacity	300 Ah @ 0.2C
Stored energy (nominal)	3.84 kWh (3,840 Wh)
Operating voltage range	10.0–14.6 V
Maximum charge voltage	14.6 V
Internal resistance	≤ 30 mΩ
Low-voltage disconnect	10.0 V
Reconnect voltage	12.0 V
Inverter / load cutoff	11.2 V

CURRENT RATINGS	
Max continuous discharge	200 A
Recommended discharge current	150 A
Peak discharge	400 A for up to 3 s
Max continuous charge	200 A
Recommended charge current	100 A
Short-circuit protection	800 A @ 500 µs

BATTERY BANKS	
Series connection	Max 4 batteries (up to 48 V system class)
Parallel connection	Max 4 batteries (up to 1,200 Ah)
Maximum configuration	4S4P

TEMPERATURE AND ENVIRONMENT	
Charge temperature (with heating)	–20 °C to 55 °C (–4 °F to 131 °F)
Discharge temperature	–20 °C to 60 °C (–4 °F to 140 °F)
Storage temperature (recommended)	0 °C to 35 °C (32 °F to 95 °F)
Self-discharge	≤ 3% per month
Operating altitude	< 3,000 m (≈ 9,840 ft)
Enclosure rating	IP54 — dust-protected, splash-resistant; not submersible

HEATING SYSTEM	
Low-temperature charge cut-off	0 °C (32 °F) — charging is disabled
Cell charge acceptance	Only when every battery temperature reading is at or above 0 °C (32 °F)
Heater power source	Incoming charge current only; never stored battery energy
Heater activation	Charger connected and supplying at least 0.5 A
Charging resumes after a cut-off	Automatically at 5 °C (41 °F)
Heating system tested to	–20 °C (–4 °F)
Rated external ambient	Down to –40 °C (–40 °F)

MECHANICAL	
Dimensions (L × W × H)	13.75 × 7.63 × 10.00 in (349.3 × 193.8 × 254.0 mm)
Length at handles	15.5 in (393.7 mm)
Height with terminal bolts	10.5 in (266.7 mm)
Weight	58 lb (26.3 kg)
Case material	ABS / PC blend, UL94-V0 flame rating
Terminal type	M8 bolt
Terminal torque	8–12 N·m (71–106 in-lb)

BMS PROTECTION	
Overcharge	Disconnects or limits operation to protect the cells
Over-discharge	Low-voltage disconnect at 10.0 V; reconnect at 12.0 V
Over-current	Protects against sustained loads above ratings
Short circuit	Rapid cutoff, rated 800 A @ 500 µs
High temperature	Disconnects outside the operating range
Low temperature	Charging disabled at 0 °C; resumes at 5 °C after heating

COMPLIANCE AND LISTINGS	
Cell-level certifications	UL 1642; IEC 62619:2022
Product	CE; RoHS
Transport	UN 38.3; Class 9 lithium battery shipping classification
Enclosure	IP54 per IEC 60529

Ratings at 25 °C unless otherwise noted. Recommended charger settings are in Section 9, page 20. Verify charger programming, cable ampacity, fuse ratings and environmental limits before final installation. UL 1642 and IEC 62619 certifications apply at the cell level (the cells used in this battery), not to the complete battery assembly.

04
SAFETY

READ BEFORE INSTALLING, CHARGING OR SERVICING

Safe use depends on correct equipment, proper wiring, clean connections, compatible chargers, correct terminal torque and operation within the temperature and current limits in this manual.

⚠ DANGER

Short-circuit hazard. Never connect the positive and negative terminals together, and never let tools, jewelry or other conductive objects bridge them. A short circuit can release extremely high current and cause arcing, burns, fire or equipment damage.

General safety rules

- Read all instructions before use and keep this manual for reference.
- Keep the battery away from children and pets.
- Do not open, drill, crush, puncture, drop, burn or modify the battery.
- Remove jewelry, use insulated tools and wear appropriate personal protective equipment.
- Confirm polarity before connecting chargers, loads, DC-to-DC chargers, solar controllers, inverters or series/parallel wiring.
- Stop using the battery immediately if it becomes unusually hot, emits odor or smoke, leaks, swells, makes unusual sounds or is physically damaged.

Do not

- Mix this battery with lead-acid batteries in the same bank.
- Mix different battery models, capacities, ages or chemistries in a series or parallel bank.
- Connect it to a charger, alternator system, converter, inverter charger, solar controller or DC-to-DC charger that cannot be configured for LiFePO4.
- Use lead-acid equalization, desulfation or repair modes.
- Exceed 200 A continuous charge current or 200 A continuous discharge current.
- Exceed 400 A peak discharge current, or draw more than 200 A for longer than 3 seconds.
- Install the battery without properly sized DC overcurrent protection.
- Submerge, pressure-wash or expose the battery to standing water.
- Continue use after a severe impact, fire, water intrusion or visible case damage.

⚠ WARNING

External protection is required. The internal BMS protects the cells. It does not replace a correctly rated external fuse or DC circuit breaker for your wiring.

If something goes wrong

If the battery smokes, becomes unusually hot, emits odor, leaks, swells or behaves abnormally, stop use immediately. If it is safe to do so, disconnect chargers and loads. Move people away from the battery and contact emergency services when fire, smoke, chemical exposure or injury is possible. Follow the product Safety Data Sheet (SDS) and emergency responder instructions.

⚠ WARNING

Do not use water directly on a damaged or burning lithium battery unless directed by emergency responders. Use an appropriate extinguisher and follow local emergency procedures.

SAFETY DATA SHEET

The SDS for this battery is listed under Downloadable resources on the product page. Keep a copy with your emergency information.

05
INSTALLATION

PREPARE, LOCATE AND SECURE THE BATTERY

Pre-installation checklist

Most installation problems can be prevented before the first cable is attached.

- [ ] The battery case is undamaged and the terminals are clean.
- [ ] The label shows model 12300A-H, and voltage, capacity and application requirements have been confirmed.
- [ ] The tray or mounting location fits the 13.75 × 7.63 × 10.00 in case (15.5 in (393.7 mm) long at the handles and 10.5 in (266.7 mm) high with terminal bolts) with cable clearance.
- [ ] The charger, inverter charger, converter, solar controller or DC-to-DC charger is configured for LiFePO4.
- [ ] All batteries in a bank are the same model, age and capacity, and are at the same state of charge.
- [ ] The main fuse or circuit breaker is selected for the wire, load and system voltage.
- [ ] Cables and lugs are sized for current, length, voltage drop and installation environment.
- [ ] Polarity has been verified with a multimeter before making final connections.
- [ ] Terminal hardware and a torque wrench for 8–12 N·m (71–106 in-lb) are available.
- [ ] The Epoch Li-Ion app is installed if you will monitor the battery during commissioning.
- [ ] The PIN, serial number and MAC address stickers on the battery's lid have been photographed or recorded.
- [ ] The battery will be registered within 90 days of purchase for full warranty coverage (Section 14).

WARRANTY TIP

Damage caused by an unsecured or improperly secured battery is excluded from warranty coverage. Use a tray, strap or bracket rated for the application.

Epoch offers a battery tray sized for the 12300A-H as an accessory.

Choose the location

- Install in a clean, dry, accessible location protected from accidental impact.
- Allow airflow around the battery and connected equipment.
- Keep away from heat sources, sparks, open flames, fuel and flammable materials.
- Avoid prolonged direct sunlight and locations that exceed the temperature limits.
- Do not install where standing water can collect around the case or terminals.

Mounting and orientation

Secure the battery so it cannot slide, tip or strike nearby equipment during operation, vehicle or trailer motion, vessel motion or transport. Use a tray, strap, bracket or enclosure appropriate for the application. Choose mounting hardware rated for the battery's weight of 58 lb (26.3 kg). Install the battery upright unless Epoch documentation for this exact model allows another orientation, and keep the top terminals and wiring protected from accidental contact.

Environmental protection

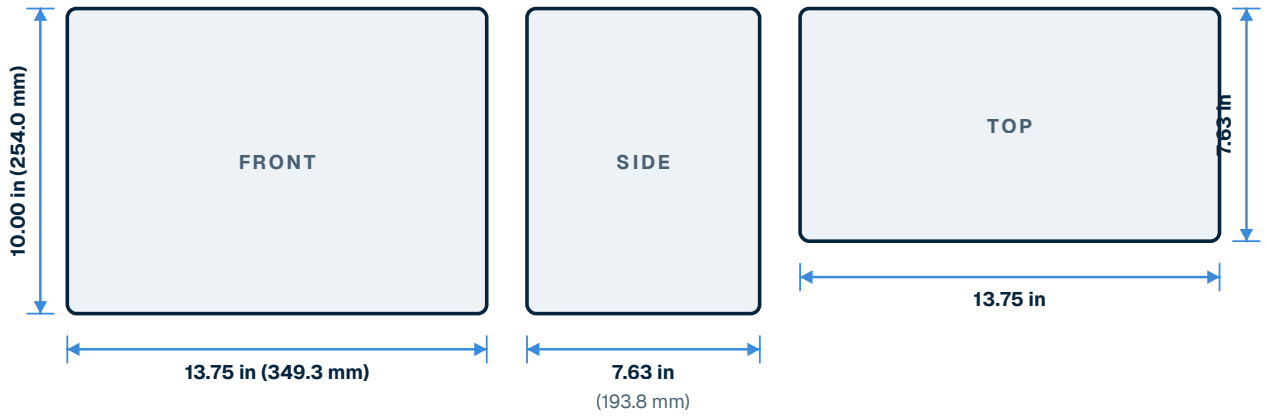
The IP54 enclosure is dust-protected and splash-resistant for many everyday mobile, RV, marine house-power and outdoor environments. It is not designed for submersion, pressure washing, bilge flooding or continuous water exposure.

NOTICE

Leave enough clearance above the terminals for cable bend radius, terminal boots and inspection. Do not force cables to bend sharply at the terminal posts.

MODEL-SPECIFIC DATA

Simplified case outline. All three views share one scale; drawing is not full size.



Overall case dimensions of the 12300A-H (Group 31 footprint). The battery is 15.5 in (393.7 mm) long at the handles and 10.5 in (266.7 mm) high with terminal bolts. Allow additional space for terminal hardware, cable bend radius, ventilation access and service removal.

06
ELECTRICAL CONNECTIONS

POLARITY, TERMINALS AND PROTECTION

Polarity

Connect positive (+) to positive and negative (–) to negative. Reverse polarity can damage the battery, charger, inverter, electronics or connected loads, and reverse-polarity damage is excluded from warranty coverage.

⚠ DANGER

Before tightening the final connection, use a multimeter to confirm system polarity and voltage. Never rely only on cable color or assumptions.

KEY TERM: AMPACITY

The current a conductor can carry continuously without exceeding its temperature rating. It depends on wire size, insulation rating, bundling and ambient temperature.

WHY FUSE NEAR THE BATTERY?

A fault on an unprotected cable can draw very high current from the battery. A main fuse close to the positive terminal protects the entire cable run.

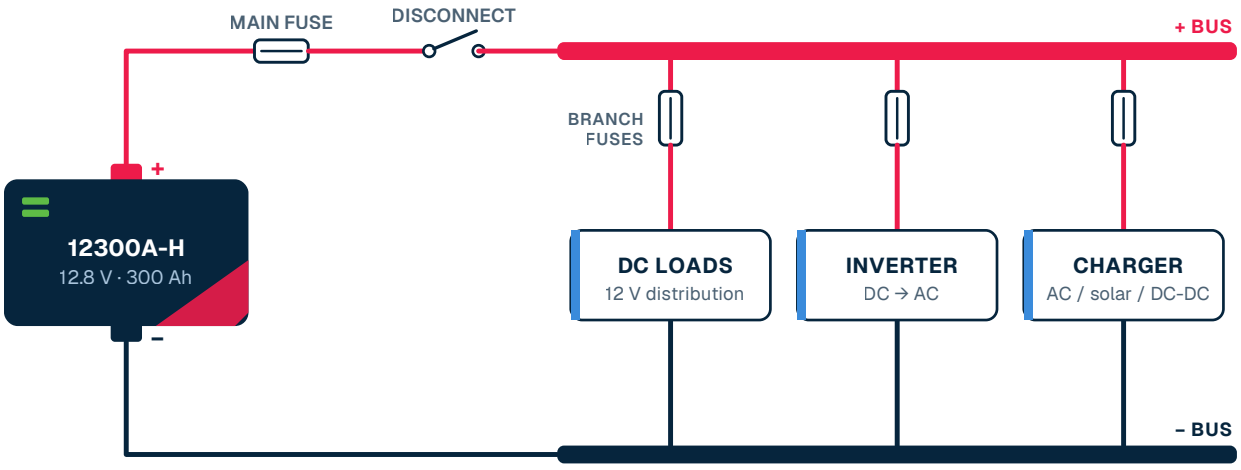
Terminal connection procedure

1. Turn off chargers, inverters, loads and DC disconnects before wiring.
2. Remove jewelry and use insulated tools.
3. Keep terminal caps or covers in place until each terminal is being wired.
4. Use clean, properly crimped lugs with flat contact surfaces.
5. Connect and tighten the positive terminal, then connect and tighten the negative terminal.
6. Tighten the M8 terminal hardware to 8–12 N·m (71–106 in-lb). Do not over-tighten.
7. Install terminal boots or protective covers after final torque is confirmed.

Cable and protection requirements

ITEM	REQUIREMENT
Cable size	Size conductors for maximum current, circuit length, voltage drop, ambient temperature and applicable code requirements.
Main protection	Install a fuse or DC-rated circuit breaker as close as practical to the battery positive terminal.
Voltage rating	Protection devices and switches must be rated for the maximum system voltage — especially in series banks.
Wire ampacity	The fuse or breaker must protect the smallest conductor in the circuit.
Lug stack	Keep the terminal stack flat and secure. Use a busbar if several conductors must connect to one battery terminal.
Cable routing	Route cables away from sharp edges, heat sources, moving parts and wet areas.

CONCEPTUAL DIAGRAM



Single-battery 12 V system. Place the main fuse as close as practical to the battery positive terminal; busbars simplify protected distribution and service disconnects. Terminal positions are simplified — both terminals are on the battery lid. Final designs must be reviewed for cable ampacity, fuse coordination, voltage drop, environmental conditions and applicable electrical or marine codes.

Disconnecting the battery

1. Turn off all chargers and loads.
2. Open the DC disconnect or breaker.
3. Remove the negative cable, then the positive cable.
4. Cap or cover the terminals immediately.

NOTICE

Charge or discharge switches in the app, where available, are operating controls. They do not provide safe electrical isolation for service — open the DC disconnect and remove the cables.

07
BATTERY BANKS

SERIES, PARALLEL AND SERIES-PARALLEL

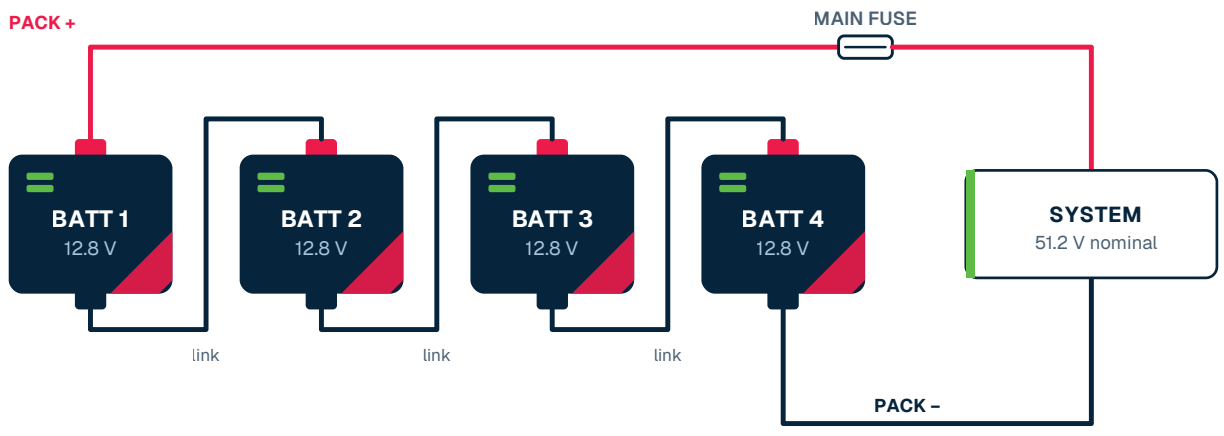
The 12300A-H supports up to 4 batteries in series and up to 4 in parallel, to a maximum 4S4P configuration. Use only matched 12300A-H batteries of similar age, condition and firmware, all at the same state of charge.

Series connections — more voltage

Series wiring connects the negative terminal of one battery to the positive terminal of the next. Voltage adds up while capacity stays at 300 Ah. Use chargers, inverters, fuses and switches rated for the complete bank voltage.

BATTERIES IN SERIES	SYSTEM CLASS	NOMINAL VOLTAGE	CAPACITY	ENERGY
1S	12V	12.8 V	300 Ah	3.84 kWh
2S	24V	25.6 V	300 Ah	7.68 kWh
3S	36V	38.4 V	300 Ah	11.52 kWh
4S	48V	51.2 V	300 Ah	15.36 kWh

CONCEPTUAL DIAGRAM



Series bank, up to 4 batteries. Each link joins one battery's negative terminal to the next battery's positive terminal. Terminal positions are simplified.

⚠ WARNING

Series banks can exceed touch-safe voltages and require equipment rated for the complete bank voltage. Do not connect more than 4 batteries in series.

IF ONE BATTERY GOES OFFLINE

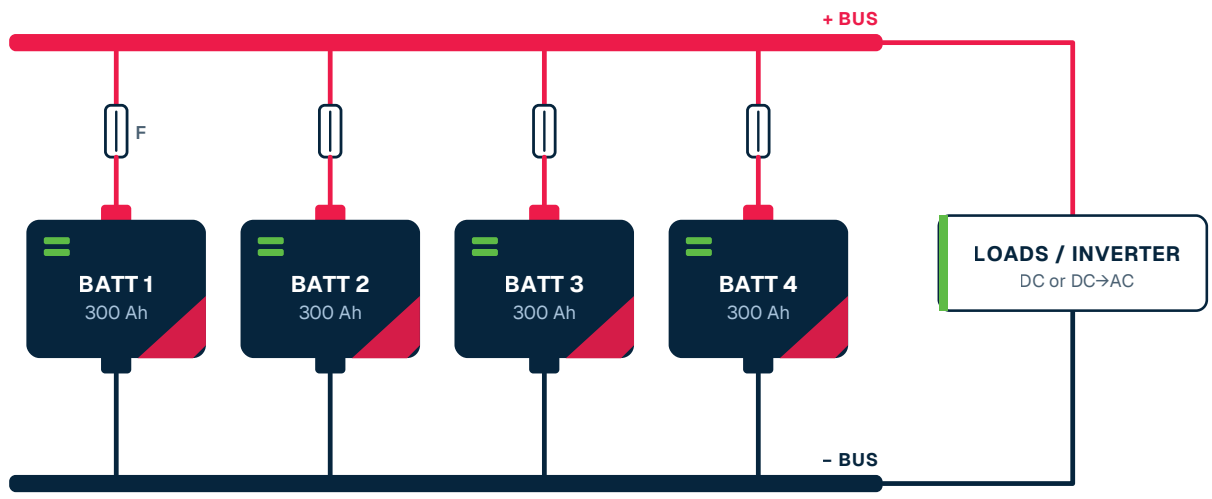
Parallel connections — more capacity

Parallel wiring connects positive to positive and negative to negative. Capacity and runtime add up while voltage stays at 12.8 V nominal. Use balanced wiring so each battery sees similar resistance during charging and discharging.

If one battery in a parallel bank disconnects — for example, because its BMS has switched off — the remaining batteries carry the whole load and the bank's current capability drops. Reduce the load; do not rely on the original bank limit.

BATTERIES IN PARALLEL	SYSTEM CLASS	NOMINAL VOLTAGE	CAPACITY	ENERGY
1P	12V	12.8 V	300 Ah	3.84 kWh
2P	12V	12.8 V	600 Ah	7.68 kWh
3P	12V	12.8 V	900 Ah	11.52 kWh
4P	12V	12.8 V	1,200 Ah	15.36 kWh

CONCEPTUAL DIAGRAM



Parallel bank, up to 4 batteries. Fuse each battery branch, keep branch cables equal in length and gauge, and connect the system through common busbars.

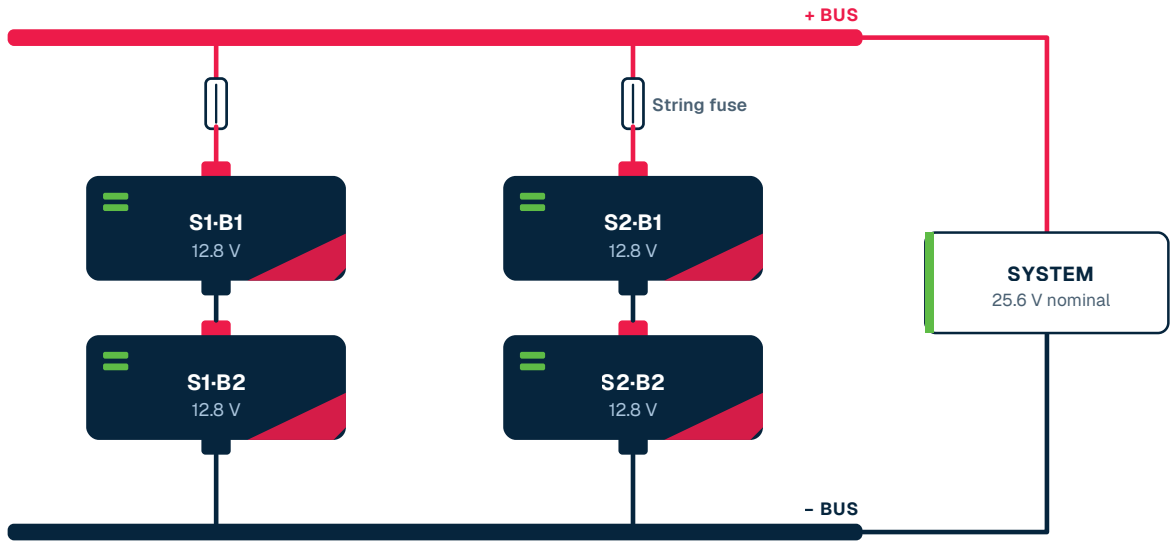
Balanced wiring practices

- Charge each battery fully before connecting batteries into a bank.
- Use identical cable lengths and gauges for each battery whenever practical.
- Connect loads and chargers through properly rated positive and negative busbars for larger banks.
- Fuse each battery or string when required by the system design and applicable standards.
- Do not daisy-chain large banks where unequal cable resistance could cause uneven charging or discharging.

Series-parallel banks and the 4S4P maximum

Series-parallel banks connect identical series strings in parallel. Every string needs the same number of batteries, its own string fuse, equal cable lengths and busbar takeoffs. A 4S4P bank uses 16 matched batteries for a 48 V system class with up to 1,200 Ah and approximately 61.44 kWh of stored energy.

CONCEPTUAL DIAGRAM



Series-parallel concept (2S2P example). Strings must be identical and individually fused, with equal cable lengths to the busbars.

BANK CONFIGURATION MATRIX — NOMINAL VOLTAGE · CAPACITY · STORED ENERGY

	1P	2P	3P	4P
1S	**12.8 V** · 300 Ah 3.84 kWh · 1 battery	**12.8 V** · 600 Ah 7.68 kWh · 2 batteries	**12.8 V** · 900 Ah 11.52 kWh · 3 batteries	**12.8 V** · 1,200 Ah 15.36 kWh · 4 batteries
2S	**25.6 V** · 300 Ah 7.68 kWh · 2 batteries	**25.6 V** · 600 Ah 15.36 kWh · 4 batteries	**25.6 V** · 900 Ah 23.04 kWh · 6 batteries	**25.6 V** · 1,200 Ah 30.72 kWh · 8 batteries
3S	**38.4 V** · 300 Ah 11.52 kWh · 3 batteries	**38.4 V** · 600 Ah 23.04 kWh · 6 batteries	**38.4 V** · 900 Ah 34.56 kWh · 9 batteries	**38.4 V** · 1,200 Ah 46.08 kWh · 12 batteries
4S	**51.2 V** · 300 Ah 15.36 kWh · 4 batteries	**51.2 V** · 600 Ah 30.72 kWh · 8 batteries	**51.2 V** · 900 Ah 46.08 kWh · 12 batteries	**51.2 V** · 1,200 Ah 61.44 kWh · 16 batteries

Before energizing a bank

- Do not hot-connect batteries. Make all bank connections with chargers, loads and disconnects off.
- Pre-charge large inverters where required.
- Confirm full-bank charger voltage, inverter low-voltage settings, conductor insulation rating, enclosure clearance and overcurrent protection.

08
APPLICATIONS

PLANNING DEEP-CYCLE SYSTEMS

If one battery in a parallel bank disconnects — for example, because its BMS has switched off — the remaining batteries carry the whole load and the bank's current capability drops. Reduce the load; do not rely on the original bank limit.

The 12300A-H is designed for systems that need efficient 12 V energy storage with Bluetooth monitoring and cold-weather charging support. Confirm alternator, charger, inverter and load requirements before energizing.

RV, van and camper systems

Use the battery as a house-power battery for compatible 12 V DC loads and power systems. Confirm that converters, inverter chargers, alternator charging equipment and DC-to-DC chargers are programmed within the LiFePO4 settings in Section 9.

Marine house power

Use the battery for onboard electronics and accessory loads where continuous and peak current demands are within specification. Protect it from bilge water, salt spray, unsecured tools and direct terminal exposure.

Trolling motors

The battery can power 12 V trolling motors — or 24 V and 36 V motors through matched series banks — where the motor's current requirements stay within the battery ratings.

Solar and off-grid systems

Program solar charge controllers for LiFePO4. Disable equalization and set temperature compensation to 0 mV/°C (off). Confirm that the solar array's open-circuit voltage and the controller output are appropriate for the battery bank voltage.

Alternator charging

When charging from a vehicle alternator, a DC-to-DC charger is highly recommended to protect both the alternator and the battery. Program it with the LiFePO4 settings in Section 9.

Inverter sizing

At 12.8 V nominal, the 200 A continuous rating is about 2,560 W of DC output before inverter losses. A single battery is commonly suited to 12 V inverter systems in the 2,000 W to 2,400 W class when installed with proper cabling, fusing, inverter sizing and load management.

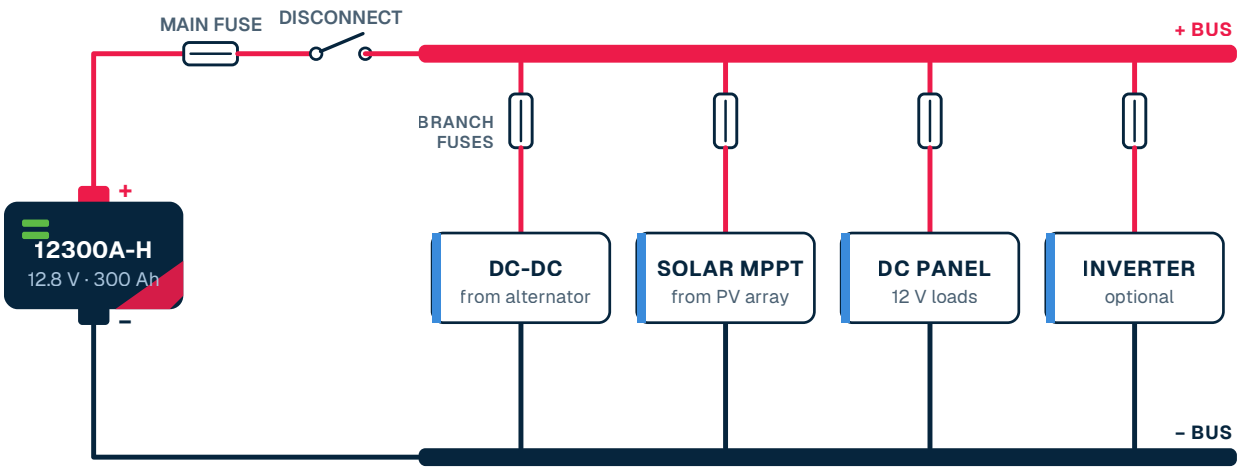
Backup and standby systems

For standby use, test the system periodically under load and confirm that the charger keeps the battery within the recommended voltage range. Do not leave parasitic loads connected for long periods without a maintenance-charge schedule.

NOTICE

Engine starting. This model is not marketed as a cranking-rated battery. Use a cranking-rated battery for engine starting unless Epoch confirms compatibility for the specific engine and installation.

CONCEPTUAL DIAGRAM



Conceptual RV / marine / solar layout. Use it as a planning reference, not as installation instructions. Verify charger settings, cable size, fuse ratings and system voltage before installation.

Estimating runtime

Runtime depends on how much energy you plan to use and how fast your loads draw it. For planning, this manual uses 80% of nominal energy — about 3,072 Wh (240 Ah) per battery. This is a conservative planning assumption, not a rating.

Runtime (h) ≈ usable Wh ÷ load (W) or **usable Ah ÷ load (A)**

PLANNING NOTE

For a parallel bank, multiply usable energy by the number of batteries. Inverter efficiency and idle draw, cabling, temperature, battery age, BMS limits and duty cycle change real-world results.

EXAMPLE (ONE BATTERY)	CALCULATION	ESTIMATED RUNTIME
100 W DC load	3,072 Wh ÷ 100 W	≈ 30.7 h
250 W DC load	3,072 Wh ÷ 250 W	≈ 12.3 h
500 W DC load	3,072 Wh ÷ 500 W	≈ 6.1 h
10 A DC load	240 Ah ÷ 10 A	≈ 24.0 h

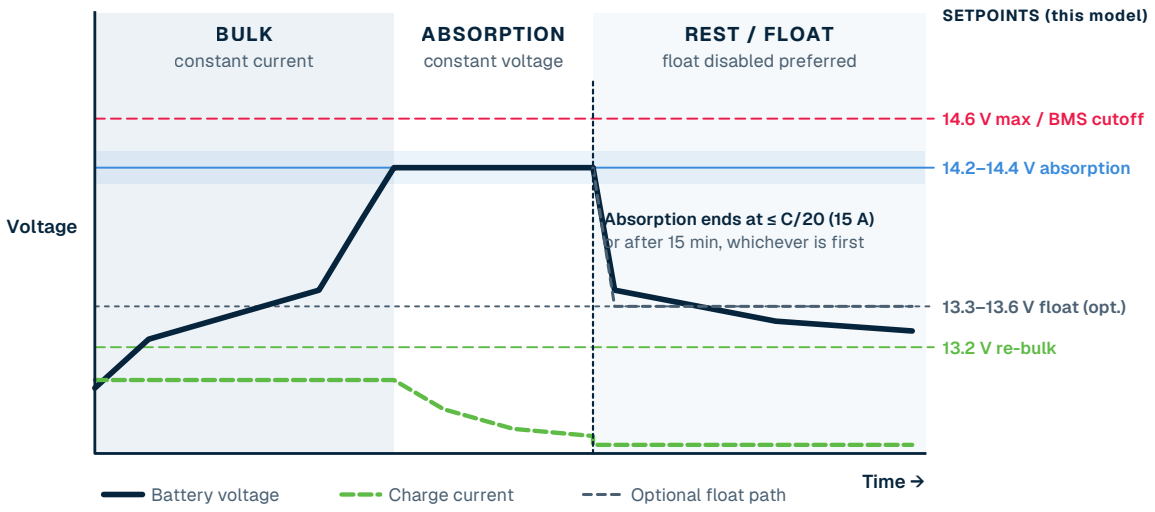
09
CHARGING

SETTINGS, SOURCES AND COLD-WEATHER CHARGING

Use lithium-compatible charging equipment programmed for LiFePO4 — an AC charger, converter, inverter charger, solar charge controller or DC-to-DC charger. Disable lead-acid features such as equalization and temperature compensation.

RECOMMENDED CHARGING SETTINGS — MODEL 12300A-H	
Bulk / absorption voltage	**14.2–14.4 V**
Absorption end	Charge current ≤ C/20 (15 A) or 15 min, whichever comes first
Float voltage	Disabled (preferred) or 13.3–13.6 V
Re-bulk voltage	13.2 V
Maximum continuous charge current	200 A
Recommended charge current	**100 A**
Temperature compensation	0 mV/°C (off)
Equalization	Disabled
Charger temperature limit setting	0 °C to 55 °C (32 °F to 131 °F) unless the charger has approved cold-charge logic
BMS high-voltage cutoff	14.6 V
SOC recalibration voltage	14.6 V

CONCEPTUAL DIAGRAM



Charging stages with this model's setpoints. The curve shape illustrates the stages only; it is not measured data and not to scale.

How the charging stages work

- **Bulk.** The charger delivers steady current — up to 200 A, 100 A recommended — while battery voltage rises.
- **Absorption.** The charger holds 14.2–14.4 V while current tapers. End absorption when current falls to C/20 (15 A) or after 15 min, whichever comes first.
- **Rest or float.** Float disabled is preferred; if your charger requires float, set 13.3–13.6 V. The charger restarts bulk when voltage falls to the 13.2 V re-bulk setting.

WHY IS FLOAT DISABLED?

LiFePO4 batteries do not need a float charge to stay full, and prolonged high-voltage holds are unnecessary. That is why float disabled is the preferred setting for this battery.

Setting up your charging sources

- **AC chargers, converters and inverter chargers:** select a LiFePO4 profile or program the settings above. Do not use lead-acid, AGM or gel profiles.
- **Solar charge controllers:** program the settings above and confirm the array's open-circuit voltage suits the controller and bank voltage.
- **Alternators:** use a DC-to-DC charger programmed for LiFePO4.
- **Several sources at once:** when solar, shore power and alternator charging can run together, keep their combined current within the 200 A continuous charge limit and your wiring limits.
- **Existing chargers:** confirm the ratings on your battery label before raising a charger's current limit; earlier production may carry different ratings.

First charge

Before first use, fully charge the battery with a compatible LiFePO4 charger unless it is already at the state of charge your application requires. Confirm charger voltage, current and polarity before connecting.

Cold-weather charging and internal heating

Charging lithium cells below freezing can damage them, so the BMS protects them automatically. When the battery's internal temperature drops to 0 °C, the low-temperature cut-off disables charging and incoming charge current is directed to the internal heating pads. Charging resumes automatically once the battery reaches 5 °C; the cells never accept charge current while any battery temperature reading is below 0 °C.

1 · Charger connected
A LiFePO4 charger supplies at least 0.5 A of charge current.

2 · Charging paused
At 0 °C the low-temperature cut-off disables charging.

3 · Pads warm the battery
Incoming charge current powers the heating pads, not stored battery energy.

4 · Charging resumes
Automatically once the battery reaches 5 °C.

- While the cells warm, the app may show little or no charge current. This can be normal — allow time for heating before assuming a fault.
- The heater activates only while a charger is connected and supplying at least 0.5 A. It draws power from the incoming charge current, never from the battery's stored energy, so it does not warm the battery during discharge or storage.
- Charging in freezing weather works by heating first. Below 0 °C, in external ambient conditions down to –40 °C (–40 °F), the heating pads warm the battery while charging stays paused. The heating system is rated for these conditions and has been tested down to –20 °C (–4 °F).
- The –20 °C to 55 °C charge-temperature rating applies with internal heating: the battery is warmed first, and the cells themselves never charge below 0 °C.
- If your charger has its own battery-temperature sensor, set its charge temperature limits to 0 °C to 55 °C (32 °F to 131 °F) unless the charger has approved cold-charge logic.

⚠ WARNING

Never bypass the BMS, force-charge a protected battery or defeat a low-temperature lockout. Let the BMS and heater manage cold-charge protection.

Charging environment

- Charge in a ventilated area away from flammable materials.
- Keep terminals clean and protected from accidental short circuits.
- Do not charge a battery that is swollen, leaking, smoking, unusually hot or physically damaged.
- Stop charging and disconnect if the charger, cables, fuse or battery behaves abnormally.

NOTICE

Do not use lead-acid equalization, desulfation or repair modes. They are designed for lead-acid batteries and can exceed the 14.6 V maximum charge voltage.

10
BLUETOOTH MONITORING

EPOCH LI-ION APP FOR iOS AND ANDROID

The built-in Bluetooth module connects to the free Epoch Li-Ion app for iOS and Android, so you can view state of charge, voltage, current, temperature and battery status on your phone. App screens and available data may vary by app version and battery firmware.

App Store
Search “Epoch Li-Ion” or scan the code with your iPhone camera.

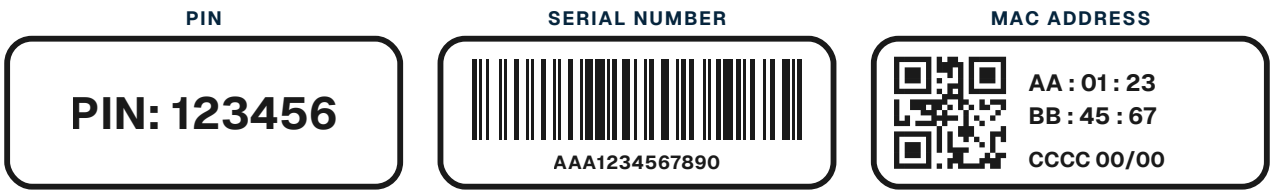
Google Play
Search “Epoch Li-Ion” or scan the code with your Android phone.

Find the labels on the battery lid

Identification stickers on the battery's lid carry the details you need for the app, registration and support. Photograph them before installation, while the lid is easy to see, and copy the values into the commissioning record in Section 15.

- **PIN sticker** — the original Bluetooth security PIN: your password for connecting to the battery in the app. You'll be asked for it the first time you connect.
- **Serial number sticker** — identifies your battery's individual production and test records. If you need support or warranty assistance, Epoch can use it to review the manufacturing and quality-control records for your battery. No action is needed, but keep it available for verification, warranty registration and after-sales support.
- **MAC address sticker** — a unique communication identifier that helps the Epoch Li-Ion app find and connect to the correct battery, especially when several Epoch batteries are nearby. It is printed on the label and embedded in the QR code for quick identification.

CONCEPTUAL DIAGRAM



Example lid labels. Look for stickers like these on the battery's lid. The values shown are examples — your battery's PIN, serial number and MAC address are different.

Set up the app

1. Install the Epoch Li-Ion app from the Apple App Store or Google Play.
2. Turn on Bluetooth on your phone.
3. Allow Bluetooth (nearby devices) permissions when prompted.
4. On Android, turn on location services if the operating system requires them for Bluetooth scanning.
5. Open the app near the battery and select it from the device list. If several batteries are nearby, match the MAC address on the battery's lid.
6. The first time you connect, enter the Bluetooth security PIN printed on the battery's lid when prompted.

Bluetooth security PIN

The PIN is your password for connecting to the battery through the Epoch Li-Ion app. You'll be asked to enter it the first time you connect. It prevents unauthorized Bluetooth connections and is required to access the battery's information and settings. The original PIN is printed on the battery's lid.

Changing the PIN

1. Connect to the battery in the Epoch Li-Ion app.
2. Open Advanced Settings.
3. Select the option to change the battery PIN code and enter a new PIN.

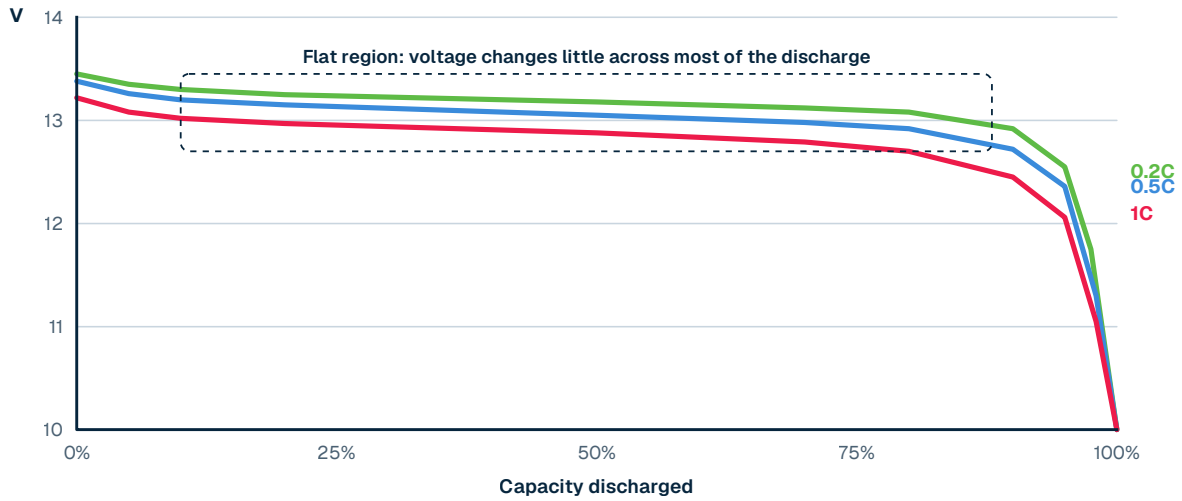
NOTICE

Keep your PIN secure and choose one you can remember — you'll need it for future access. After a change, the sticker on the lid still shows the original PIN, so keep a secure record of the new one.

Reading the app

Check voltage, current, temperature and any active alarms together, not state of charge alone. SOC is a calculated estimate. The battery measures current with a shunt built into its BMS, accurate to 0.2 A on discharge, and tracks charging and discharging in detail to calculate SOC — so you don't need an external shunt. LiFePO4 voltage stays nearly flat across most of the discharge (see the figure below), so resting voltage alone cannot give a precise SOC. The app's estimate may occasionally correct itself in a sudden step; that is a recalculation, not a sudden loss of stored energy.

CONCEPTUAL DIAGRAM



Typical LiFePO4 terminal voltage versus capacity discharged at 25 °C. A conceptual illustration of the chemistry's flat voltage profile — not measured data for this model. Actual values vary with temperature, age, load and test method.

Recommended monitoring checks

WHEN	WHAT TO CHECK
Before installation	Resting voltage, state of charge and absence of active faults.
During first charge	Voltage, current, temperature and charge status.
During heavy loads	Current draw stays within the continuous and peak limits.
During storage	State of charge at least every 3 months; recharge as needed.
After a fault	Record app data and fault messages before contacting support.

If the app cannot find the battery

- Move closer to the battery and refresh the device list.
- Close the app on other phones or tablets that may already be connected to the battery.
- Check that you are entering the current PIN — if it has been changed, the PIN on the lid sticker no longer applies.
- Confirm Bluetooth, nearby-device and — on some Android versions — location permissions.
- Update the app. If the battery may be asleep, cycling the charger or load can wake it.

MONITORING AID

Bluetooth data is a monitoring aid. It does not replace proper wiring, overcurrent protection, compatible charging equipment or safe installation practices.

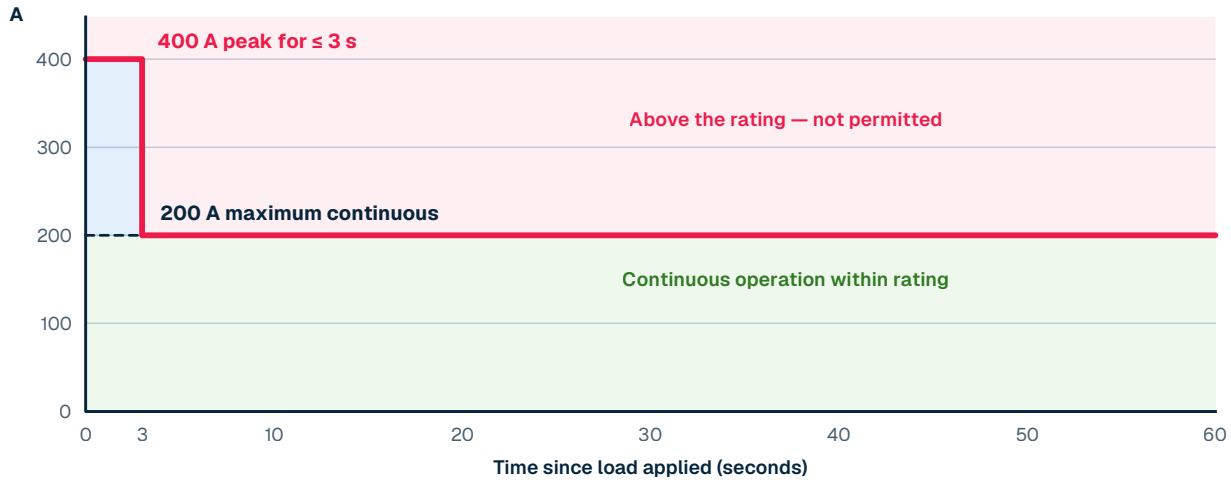
11

OPERATION AND STORAGE

LIMITS, DAILY USE AND LONG-TERM STORAGE

OPERATING LIMIT	VALUE
Continuous discharge limit	200 A
Peak discharge limit	400 A for up to 3 seconds
Continuous charge limit	200 A
Operating voltage range	10.0–14.6 V
Discharge temperature	–20 °C to 60 °C (–4 °F to 140 °F)
Charge temperature	–20 °C to 55 °C (–4 °F to 131 °F), with heating

MODEL-SPECIFIC DATA



Allowable discharge current over time for one 12300A-H. The 400 A rating is a short-duration peak only: do not size continuous loads, busbars, switches, conductors or overcurrent protection around it. Use the continuous load current, surge profile, voltage drop and applicable standards.

Depth of discharge

LiFePO4 batteries can deliver more usable energy than lead-acid batteries, and routine operation at a moderate depth of discharge can improve long-term service life. Avoid leaving the battery fully depleted — recharge promptly after deep use. Routine full discharges are not needed as maintenance.

WARRANTY AND STORAGE

The limited warranty excludes storage above 60 °C (140 °F) or below –40 °C (–40 °F), prolonged storage in a fully discharged state, and batteries left uncharged for more than three months.

Storage

- Store in a clean, dry location at 0 °C to 35 °C (32 °F to 95 °F) whenever practical.
- For long-term storage, charge to approximately 50% state of charge or higher.

- Disconnect loads and chargers during storage unless the system is designed for standby maintenance.
- Check the state of charge at least every 3 months and recharge as needed.
- Protect the terminals from accidental short circuits during storage and transport.

NOTICE

A battery stored at a very low state of charge can enter low-voltage protection and may not be recoverable if left discharged for an extended period.

12
MAINTENANCE

INSPECTION SCHEDULE AND TERMINAL CARE

The 12300A-H is maintenance-free compared with lead-acid batteries: it needs no watering or acid service. Routine inspections keep it operating safely.

INTERVAL	ACTION
Before each trip or use	Inspect the case, terminals, cables, fuses, disconnects and mounting hardware.
Monthly during active use	Check terminal tightness, cable condition, app status and resting voltage.
At least every 3 months in storage	Check state of charge and recharge as needed.
Annually	Inspect torque, wiring layout, protection devices, battery tray, ventilation and charger settings.
After any fault or impact	Stop use, inspect for damage, record app data and contact support as needed.

Terminal maintenance

- Turn off and disconnect chargers and loads before maintenance.
- Keep terminals clean and dry. Use a soft brush or dry cloth to remove dust and debris.
- Do not use solvents, abrasive cleaners or pressure washing on the battery.
- Confirm the M8 terminal hardware is tightened to 8–12 N·m (71–106 in-lb).
- Replace damaged lugs, cables, boots or hardware before returning the battery to service.

Voltage and current checks

Use a reliable multimeter to compare terminal voltage with the app reading. Resting voltage changes slowly on LiFePO4 batteries, so use the app's state of charge and a load test when you need a more complete health check.

⚠ WARNING

Never place a multimeter's current (amps) input across the battery terminals — it creates a short circuit. Measure current with a DC clamp meter or a correctly rated shunt.

13

TROUBLESHOOTING

SYMPTOMS, CAUSES AND CORRECTIVE ACTIONS

Use the table below to identify common causes and corrective actions. Stop testing and contact support if there is smoke, heat, odor, swelling, leaking liquid, arcing or visible damage.

Before you start

- Note the model, serial number, charger model and settings, how the system is wired and what changed before the problem began.
- Record the app's voltage, current, temperature, state of charge and exact alarm text, with photos or screenshots.
- Measure voltage directly at the battery terminals, not only at the inverter or charger.

SYMPTOM	LIKELY CAUSES	CORRECTIVE ACTIONS
Battery will not charge	Charger off or faulted; reverse polarity; incompatible profile; BMS protection; cells warming in cold weather; blown fuse; battery already nearly full.	Confirm charger settings and polarity. Check fuses and disconnects. Measure voltage at the battery while charging. In cold weather, allow the heater time to warm the cells — charging resumes at 5 °C and needs at least 0.5 A of charge current. Review app alarms. A nearly full battery accepts little current.
No output or low voltage	Battery discharged; parasitic load; BMS low-voltage protection; open fuse or disconnect.	Disconnect loads and measure at the battery terminals. Charge with a compatible LiFePO4 charger. Check for parasitic draws before storage. Do not connect another battery across the terminals to force a wake-up.
Shuts down when a load starts	Surge above the 400 A / 3 s peak rating; sustained load above 200 A; inverter inrush; loose or undersized connections causing voltage drop.	Compare the load's surge and running current with the ratings. Check connections and cable size. Use the inverter's pre-charge or soft-start provisions where required. Try a smaller load to confirm normal output.
Bluetooth not found	Phone Bluetooth off; permissions not granted; out of range; another device connected; battery asleep; app version; incorrect security PIN.	Enable Bluetooth and permissions. Move closer and refresh. Close the app on other devices. Enter the current PIN — the lid sticker shows only the original PIN. Update the app. Cycle the charger or load to wake the battery.
Low runtime	Load higher than expected, including inverter idle draw; battery not fully charged; cold temperature; imbalance in a bank; parasitic loads.	Fully charge with the recommended profile. Measure the load current. Check bank wiring balance. Test batteries one at a time in a bank.
Fuse or breaker trips	Short circuit; overload; inrush current; undersized protection; damaged cable.	Disconnect loads. Inspect wiring. Confirm load current and protection rating. Replace damaged parts.
Battery becomes hot	High ambient temperature; excessive current; poor ventilation; charger fault.	Reduce load or charge current. Improve ventilation. Confirm charger settings. Stop use if heating is abnormal.
App shows a fault	The BMS detected a voltage, current, temperature or short-circuit protection condition.	Record the fault. Remove the load or charger. Allow protection to reset when conditions return to normal.

⚠ WARNING

Do not repeatedly reset a fuse, breaker, charger or BMS fault without identifying the cause. Repeated faults can indicate unsafe wiring or an equipment mismatch.

When to contact Epoch support

Stop using the battery if the case is cracked or separated, or if you see swelling, leakage, unexplained heat, odor or water intrusion. Do not open or reseal the battery. For repeated shutdowns, failed charging or implausible readings, contact support with the model, serial number, order information, installation photos, charger settings and alarm screenshots.

14

WARRANTY AND SUPPORT

11-YEAR LIMITED MANUFACTURER WARRANTY

The 12300A-H is backed by an 11-year limited manufacturer warranty covering qualifying defects in materials and workmanship under normal use, subject to Epoch Batteries' warranty terms, model-specific remedy schedule and claim procedures.

Register your battery

Registration within 90 days of purchase is required for full warranty coverage. If the battery is not registered within that time, the warranty period begins from the battery's original manufacturing date. Proof of ownership is required for any claim, and coverage is non-transferable: it applies only to the original purchaser.

Register online
epochbatteries.com/pages/product-registration
Have your order number and the serial number from the sticker on the battery's lid ready.

What is not covered

- Misuse, abuse, neglect, or improper handling, installation, maintenance or service.
- Damage from an unsecured or improperly secured battery.
- Loose, corroded or improperly connected terminals.
- Reverse polarity, short circuits and overcurrent.
- Series or parallel connections beyond the limits for this model, or mixing models, capacities, ages or chemistries in a bank.
- Use with incompatible chargers, accessories or third-party products.
- Use outside the specified voltage, current, temperature or environmental limits.
- Storage above 60 °C (140 °F) or below –40 °C (–40 °F), prolonged storage fully discharged, or batteries left uncharged for more than three months.
- Excessive resistance from poor crimps, undersized cables or damaged wiring, and faults in the external electrical system.
- Impact, dropping, collision, fire, flood, water submersion or pressure washing.
- Opening, modification, disassembly, unauthorized repair or tampering.
- Applications the battery was not designed for, including repeated engine starting or current draw above the rated discharge capacity.

How to make a warranty claim

1. Gather your proof of purchase, model number, serial number, installation date and a description of the issue and when it began.
2. Record photos or videos of the installation, cables, fuses, charger settings and any damage, plus app screenshots or fault messages.
3. Contact Epoch support for troubleshooting, then submit your claim through the Warranty Portal at warranty.epochbatteries.com.

4. Wait for approval and an RMA number with packing and shipping instructions. Do not ship a battery without a valid RMA — shipments without one may be refused.
5. Package the battery safely and in compliance with lithium battery shipping regulations, using a UN-approved lithium battery shipping box where required. The customer arranges and pays for shipment to Epoch.

This summary does not replace the full warranty terms at epochbatteries.com/pages/11-year-warranty, which govern coverage, remedies and exclusions.

Contact Epoch Batteries

1-888-501-1846
Monday–Friday, 9 AM–4 PM Eastern

support@epochbatteries.com
Photos, invoices and app screenshots

epochbatteries.com/support
Messages, FAQs and scheduled calls

warranty.epochbatteries.com
Warranty claims, returns and repairs

3075 Chastain Meadows Pkwy, Marietta, GA 30066, USA

954 Ponce de Leon Ave, Suite 401, San Juan, PR 00907, USA

15
RECORDS

COMMISSIONING AND MAINTENANCE LOG

Commissioning record

Battery model / SKU	12300A-H
Serial number	
MAC address	
Purchase date	
Warranty registration date	
Installation date	
Installer / owner	
Application	
System voltage	
Number of batteries and configuration	
Initial resting voltage	
Initial state of charge	
Charger model and settings	
Main fuse / breaker rating	
Cable gauge and length	
Terminal torque confirmed (8–12 N·m)	
Bluetooth app connected	
Bluetooth security PIN recorded	

Maintenance log

DATE	VOLTAGE / SOC	INSPECTION NOTES	ACTION TAKEN	INITIALS

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Manuals, data sheet and SDS for 12300A-H

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