

ECO SERIES | GROUP 31 | DEEP CYCLE

12V 314Ah LiFePO4 Battery

High-capacity Eco Series LiFePO4 power for RV, marine, solar, off-grid, backup, and 12V auxiliary systems.



MASTER RATINGS TABLE

Single source for nominal voltage, capacity, stored energy, and current ratings.

12.8V
NOMINAL VOLTAGE

314Ah
NOMINAL CAPACITY

4.02kWh
STORED ENERGY

250A
CONT. DISCHARGE

250A
CONT. CHARGE

750A @ 5s
PEAK DISCHARGE

Max 4S / 16P
SERIES / PARALLEL

IP54
WEATHER RESISTANT

DEEP-CYCLE LOAD WARNING

The 750A rating is a short-duration 5-second peak only. Do not design continuous loads above the 250A per-battery continuous limit. This model is a deep-cycle battery; for engine starting or cranking, use a cranking-rated battery or confirm compatibility with Epoch before installation.

LOW-TEMP CHARGE PROTECT

IP54 RATED

MAX 4S / 16P

Eco Series Deep-Cycle LiFePO4 Power

The Epoch 12V 314Ah Eco Series LiFePO4 Battery is a high-capacity Group 31 deep-cycle lithium battery built for practical 12V energy storage. It provides 4.02kWh of stored energy, 250A continuous output, advanced BMS protection, low-temperature charge protection, and IP54 weather-resistant construction.

Primary use

Deep-cycle 12V house power and auxiliary energy storage. Not for cranking unless Epoch confirms compatibility.



Low-temp protection

Charge cutoff protection helps prevent charging below the published temperature range.



Advanced BMS

Built-in management protects against over-current, short circuit, and temperature extremes.



4,500+ cycles

Long-cycle LiFePO4 design for maintenance-free service compared with lead-acid batteries.



IP54 enclosure

Dust-protected and splash-resistant housing for everyday RV, marine, mobile, and outdoor use.



Group 31 footprint

Group 31 footprint with 13.75 in base length, 15.5 in handle length, 7.63 in width, and 10.5 in terminal height.



Expandable system

Supports up to four in series and up to sixteen in parallel when matched and protected.

COMPATIBLE APPLICATIONS

- RV, camper, trailer, and motorhome house-power systems
- Marine electronics, pumps, lighting, and accessory loads
- Solar energy storage for cabins, trailers, boats, and off-grid systems
- Van, overland, mobile auxiliary, backup, and 12V equipment power

Category	Rating / Detail
Series	Eco Series
Battery type	Deep-cycle LiFePO4
Group size	Group 31
Cell configuration	4S1P prismatic LiFePO4
Warranty	6-year manufacturer warranty

Deep-cycle battery notice

Use lithium-compatible charging equipment. Do not mix batteries of different model, age, capacity, or state of charge in series/parallel banks.

Master Specification Tables

Ratings at 25 deg C unless otherwise noted. Verify charger programming, cable ampacity, fuse ratings, battery tray clearance, and environmental limits before final installation.

Electrical	Rating
Nominal voltage	12.8V
Nominal capacity	314Ah @ 0.2C
Nominal energy	4.02kWh
Operating range	10.0V - 14.6V
Max charge voltage	14.6V
Max continuous discharge	250A
Max discharge current	250A continuous
Peak discharge	750A @ 5 seconds
Max continuous charge	250A
Recommended charge	0.5C / approx. 157A
Cell configuration	4S1P prismatic LiFePO4
Series / parallel	Max 4S / max 16P

Mechanical / Environmental	Rating
Dimensions	13.75 in base / 15.5 in handles x 7.63 in W x 10.5 in H
Weight	57 lb / approx. 25.85 kg
Group size	Group 31
Terminal	M8 bolt / verify supplied torque
Case material	ABS and PC blend, UL94-V0
IP rating	IP54
Charge temp	0C to 55C
Discharge temp	-20C to 60C
Storage temp	0C to 35C recommended
Low-temp charge	Charge protection enabled
Cycle life	4,500+ cycles

DIMENSIONAL REFERENCE



Group 31 footprint

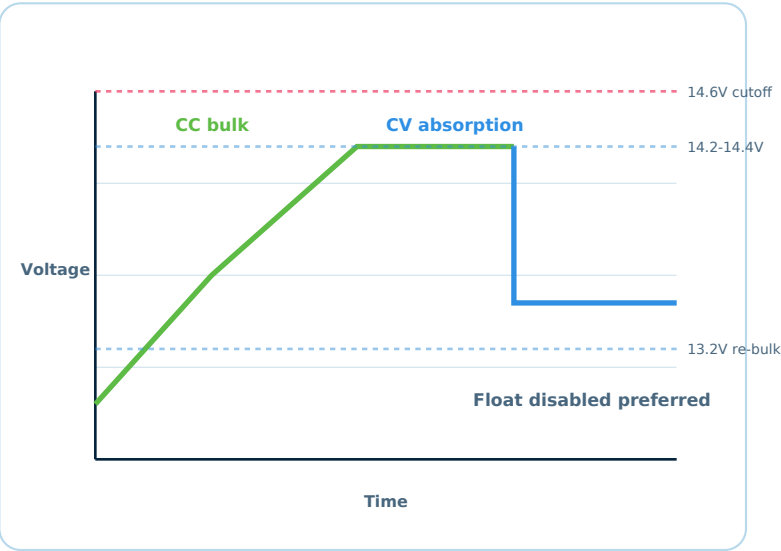
Plan tray clearance, terminal hardware, cable bend radius, ventilation, and service access.



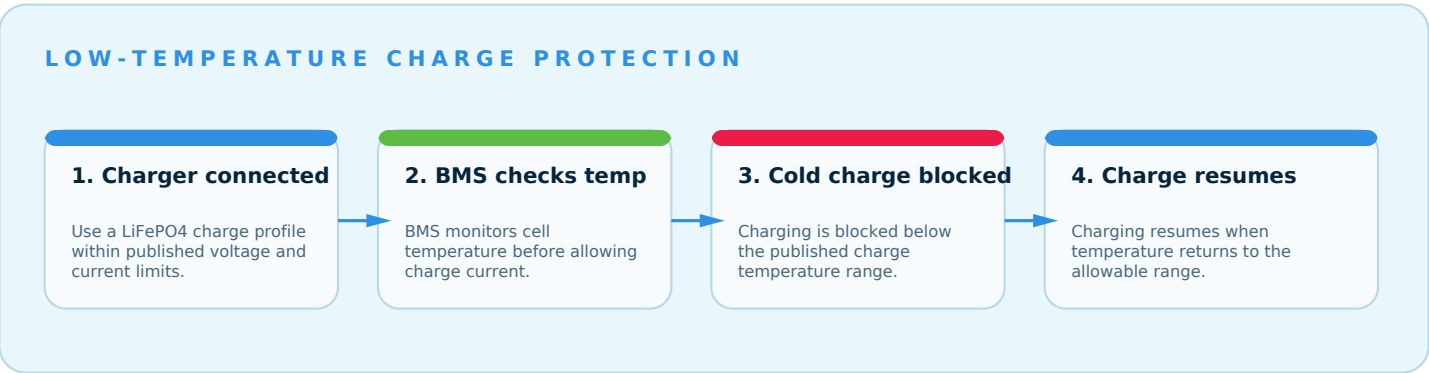
Overall: 13.75 in L @ base / 15.5 in L @ handles x 7.63 in W x 10.5 in H Weight: 57 lb / approx. 25.85 kg | Group 31 form factor

Recommended Charging Settings

Program chargers, inverter/chargers, converters, solar controllers, and DC-to-DC chargers for LiFePO4 operation. Disable equalization and temperature compensation.



Setting	Recommended value
Max continuous charge	250A
Bulk / absorption	14.2V - 14.4V
Absorption end	Current <= C/20 or 15 min max
Float	Disabled preferred, or 13.3V - 13.6V
Re-bulk	13.2V
Equalization	Disabled
Temperature compensation	0mV/deg C / none
BMS high-voltage cutoff	14.6V
SOC recalibration	14.6V



Eco Series model has no Bluetooth and no self-heating. Charge only within temperature limits. Do not use lead-acid equalization modes.

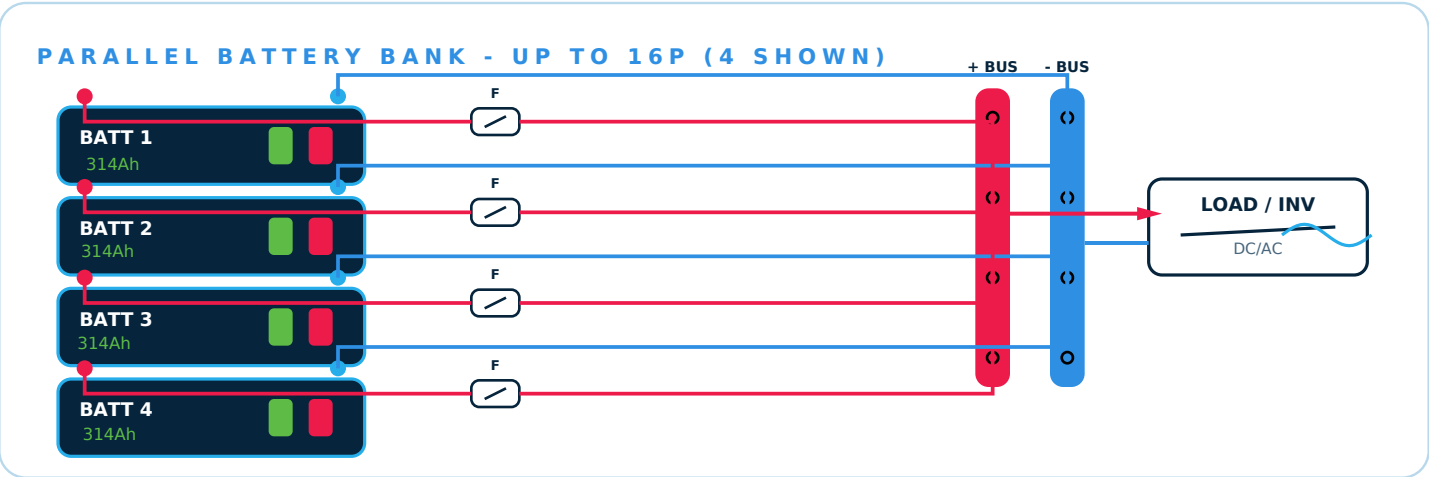
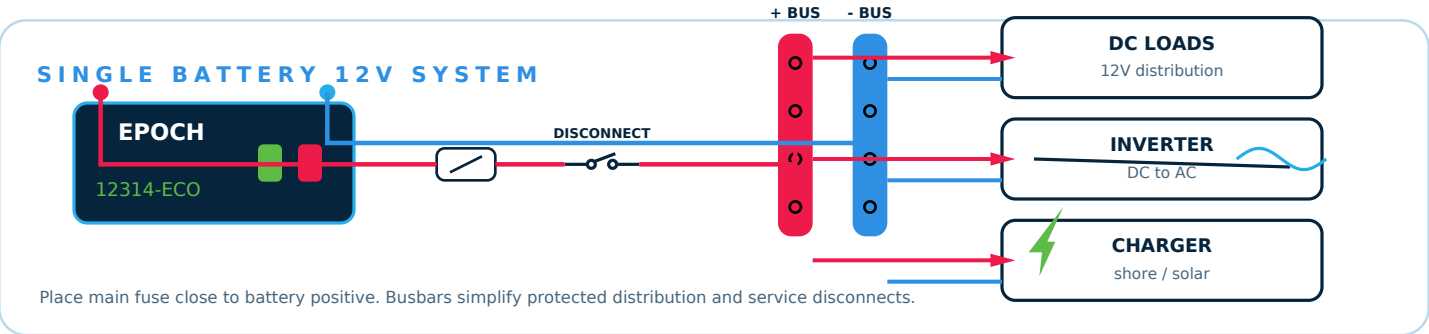
BMS protection	Function
Overcharge / over-discharge	Disconnects or limits operation to protect cells
Over-current	Protects against sustained loads above ratings
Short circuit	Rapid BMS cutoff / protected
High / low temperature	Disconnects when outside operation range
Operating voltage range	10.0V - 14.6V

12V Wiring Configurations

Vector schematic diagrams for LiFePO4 system planning. Final designs must be reviewed for cable ampacity, fuse coordination, voltage drop, environmental conditions, and applicable electrical or marine codes.

IMPORTANT

Use matched batteries.
Fuse each branch/string
and verify cable ampacity.



Configuration	Nominal voltage	Capacity	Stored energy	Notes
1 battery	12.8V	314Ah	4.02kWh	Single Group 31 battery
2 batteries parallel	12.8V	628Ah	8.04kWh	Use common busbars
4 batteries parallel	12.8V	1,256Ah	16.08kWh	Balance branch lengths
16 batteries parallel	12.8V	5,024Ah	64.32kWh	Maximum supported parallel bank

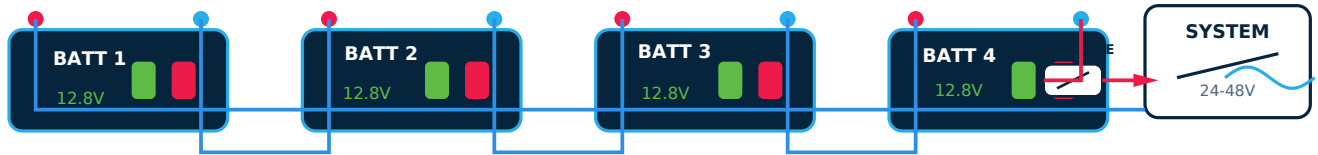
Higher Voltage Battery Banks

Model 12314-ECO supports up to four batteries in series and up to sixteen in parallel when installed as matched batteries with compatible charging equipment, fusing, disconnects, and system-level protection.

Banking rule

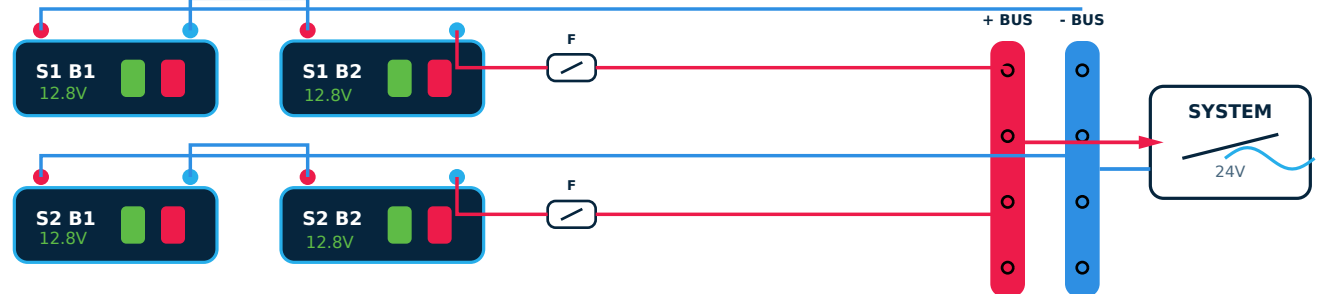
Use matched batteries at the same SOC before connecting.

SERIES BATTERY BANK - UP TO 4S



Series wiring increases voltage while amp-hour capacity remains 314Ah per string. Use a charger/inverter rated for the full bank voltage.

SERIES-PARALLEL CONCEPT - 2S2P EXAMPLE



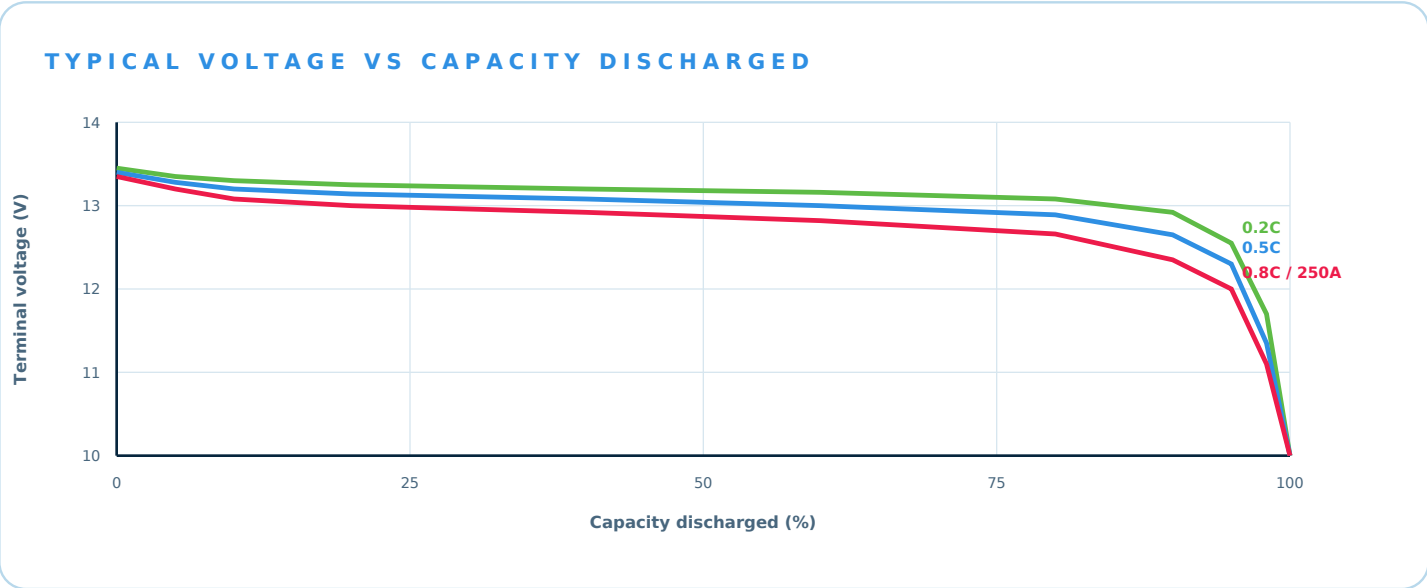
Series-parallel banks must use identical strings, string fusing, equal cable lengths, and busbar takeoffs.

Configuration	Nominal voltage	Capacity	Stored energy	Notes
2S	25.6V	314Ah	8.04kWh	24V systems
3S	38.4V	314Ah	12.06kWh	36V systems
4S	51.2V	314Ah	16.08kWh	48V systems
16P	12.8V	5,024Ah	64.32kWh	Maximum supported parallel bank

Do not hot-connect batteries. Pre-charge large inverters where required. Confirm full-bank charger voltage, inverter low-voltage settings, conductor insulation rating, enclosure clearance, and overcurrent protection before energizing.

Performance Planning Curves

Curves below are planning visuals for LiFePO4 behavior and current-limit communication. Actual voltage, runtime, and available capacity vary with temperature, battery age, cable voltage drop, load profile, BMS limits, and test method.



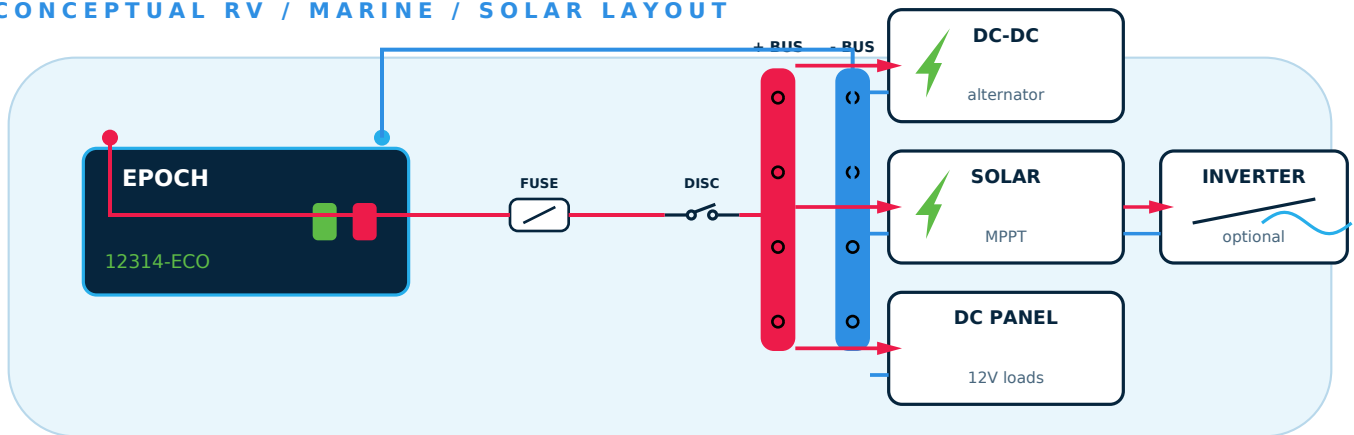
Application Layouts & Planning

Designed for high-capacity 12V energy systems that need maintenance-free LiFePO4 storage with BMS protection and Group 31 fitment. Use the diagram as a conceptual planning reference, not as installation instructions.

Compatibility target

Confirm tray fit, charger, inverter, alternator, and load requirements.

CONCEPTUAL RV / MARINE / SOLAR LAYOUT



Conceptual layout only. Verify charger settings, cable size, fuse ratings, and system voltage before installation.

TYPICAL LOADS

Electronics

Fish finders, navigation, radios, pumps, lighting

House power

12V panels, small inverters, RV, van, and solar

RUNTIME ESTIMATE

Nominal energy

4.02kWh per battery

80% planning energy

Approx. 3.22kWh per battery

Formula

Runtime hr = usable Wh / load W

EXAMPLES

100W DC load

Approx. 32.2 hr at 80% planning energy

500W DC load

Approx. 6.4 hr at 80% planning energy

Parallel bank

Multiply usable energy by number of batteries

Planning note

Runtime examples are simplified estimates. Inverters, converters, cabling, temperature, age, BMS limits, duty cycle, and real load behavior will change real-world results.

Safety, Storage & Commissioning

This page summarizes planning practices for safe handling and system readiness. Refer to the latest Epoch user manual and local codes for complete instructions before installation, operation, transport, or service.

INSTALLATION CHECKLIST

- ✓ Use only LiFePO4-compatible chargers with equalization disabled.
- ✓ Route cables away from sharp edges, hot surfaces, abrasion points, and moving parts.
- ✓ Install appropriate fuses or circuit breakers and verify voltage ratings.
- ✓ Secure the battery upright in a dry, ventilated, accessible location.

STORAGE & HANDLING

- ✓ Store in a cool, dry location and protect from direct sunlight, rain, and impact.
- ✓ For long-term storage, maintain approximately 50% SOC and periodically recharge.
- ✓ Do not submerge, pressure wash, short-circuit, disassemble, crush, or incinerate.
- ✓ Keep away from children, pets, conductive tools, flames, and incompatible batteries.

Compliance / Listings	Detail
Cell compliance	UL 1642 cells, UL 9540A cells, IEC 62619:2022
Product compliance	CE, RoHS
Transport	UN 38.3, Class 9 lithium battery shipping classification
Warranty	6-year manufacturer warranty
Protection	Advanced BMS with overcharge, over-discharge, over-current, short-circuit, and temperature disconnects

Critical warnings

- Never reverse polarity or connect positive and negative terminals directly with a conductor.
- Stop use and disconnect if the battery emits odor, becomes abnormally hot, is damaged, deformed, submerged, or shows abnormal behavior.
- For emergency response, use appropriate lithium battery fire response procedures and contact qualified personnel.

Revision	Date	Description
V01	2026-06-20	Expanded visual data sheet for 12314-ECO using current product-page data and the established Epoch data-sheet template.

Epoch Batteries

1-888-501-1846 | support@epochbatteries.com

3075 Chastain Meadows Pkwy, Marietta, GA 30066, USA | 954 Ponce de Leon Ave, Suite 401, San Juan, PR 00907, USA