

ECO SERIES | GROUP 24 | DEEP CYCLE

# 12V 100Ah LiFePO4 Battery

Compact 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

**100Ah**  
NOMINAL CAPACITY

**1.28kWh**  
STORED ENERGY

**100A**  
CONT. DISCHARGE

**100A**  
CONT. CHARGE

**300A @ 5s**  
PEAK DISCHARGE

**Max 4S / 16P**  
SERIES / PARALLEL

**IP54**  
WEATHER RESISTANT

## DEEP-CYCLE LOAD WARNING

The 300A rating is a short-duration 5-second peak only. Do not design continuous loads above the 100A 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

NO BLUETOOTH

NO SELF-HEAT

IP54 RATED

MAX 4S16P

# Eco Series Deep-Cycle LiFePO4 Power

The Epoch 12V 100Ah Eco Series LiFePO4 Battery is a compact Group 24 deep-cycle lithium battery built for practical 12V energy storage. It provides 1.28kWh of stored energy, 100A 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 24 footprint**

Compact 10.25 in x 6.75 in x 9.00 in size for Group 24 replacement applications.



**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 24                     |
| 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         | 100Ah @ 0.2C           |
| Nominal energy           | 1.28kWh                |
| Operating range          | 10.0V - 14.6V          |
| Max charge voltage       | 14.6V                  |
| Max continuous discharge | 100A                   |
| Max discharge current    | 200A                   |
| Peak discharge           | 300A @ 5 seconds       |
| Max continuous charge    | 100A                   |
| Recommended charge       | 50A                    |
| Cell configuration       | 4S1P prismatic LiFePO4 |
| Series / parallel        | Max 4S16P              |

| Mechanical / Environmental | Rating                             |
|----------------------------|------------------------------------|
| Dimensions                 | 10.25 in L x 6.75 in W x 9.00 in H |
| Weight                     | 21 lb / 9.5 kg                     |
| Group size                 | Group 24                           |
| 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 24 footprint

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

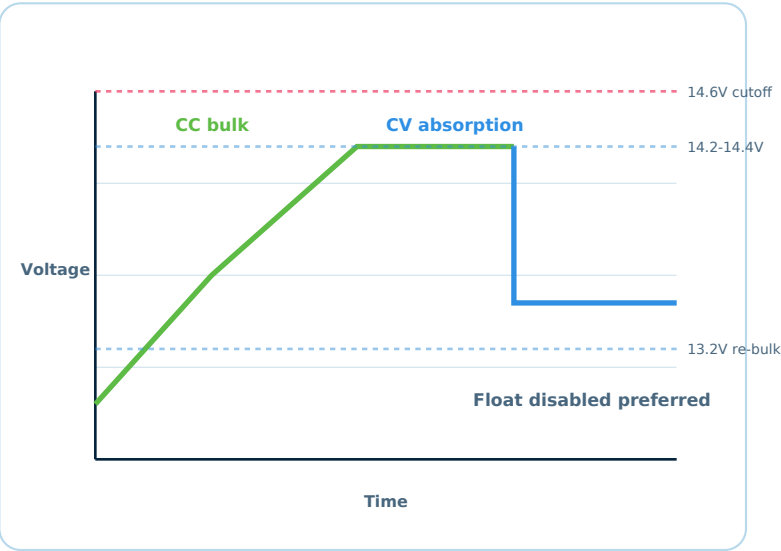


Overall: 10.25 in L x 6.75 in W x 9.00 in H

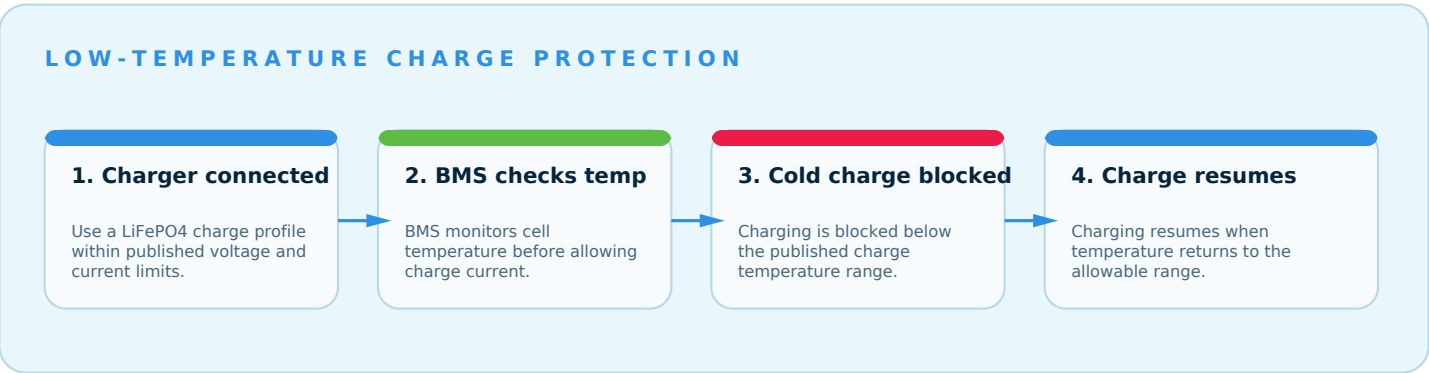
Weight: 21 lb / 9.5 kg | Group 24 form factor

## 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    | 100A                                 |
| 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                                    |

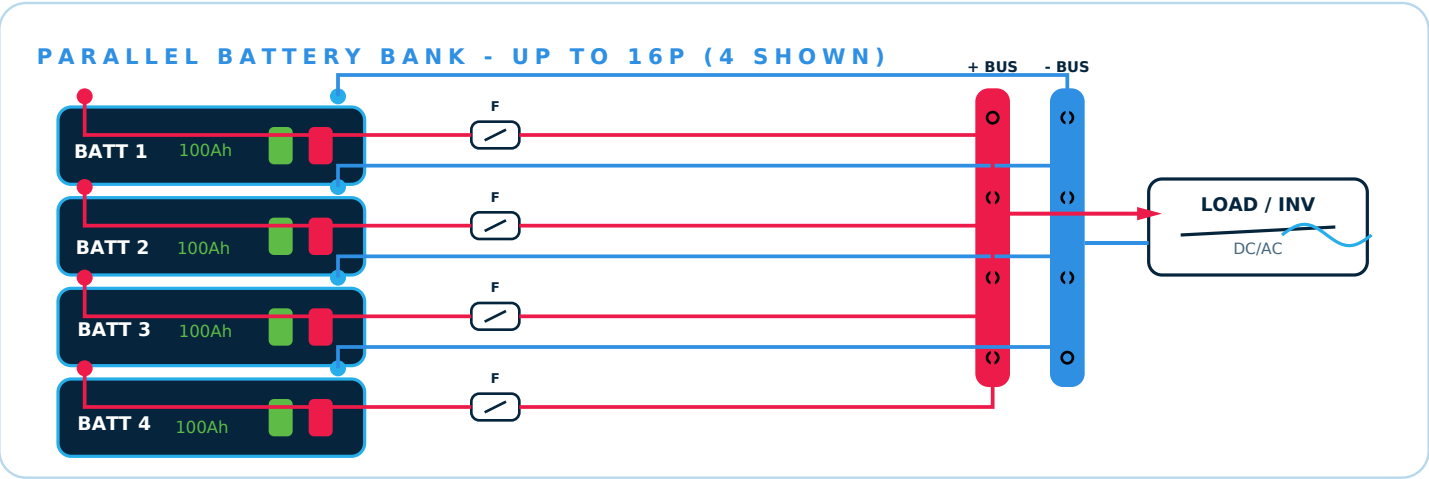
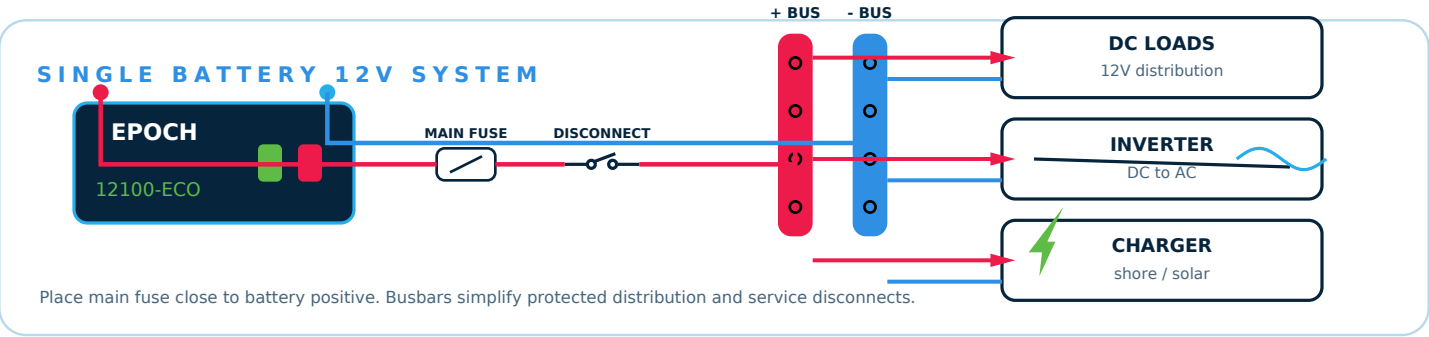
12V & PARALLEL CONFIGURATIONS

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           | 100Ah    | 1.28kWh       | Single Group 24 battery         |
| 2 batteries parallel  | 12.8V           | 200Ah    | 2.56kWh       | Use common busbars              |
| 4 batteries parallel  | 12.8V           | 400Ah    | 5.12kWh       | Balance branch lengths          |
| 16 batteries parallel | 12.8V           | 1,600Ah  | 20.48kWh      | Maximum supported parallel bank |

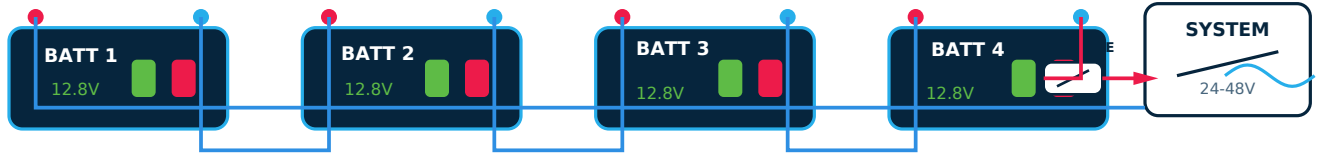
# Higher Voltage Battery Banks

Model 12100-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

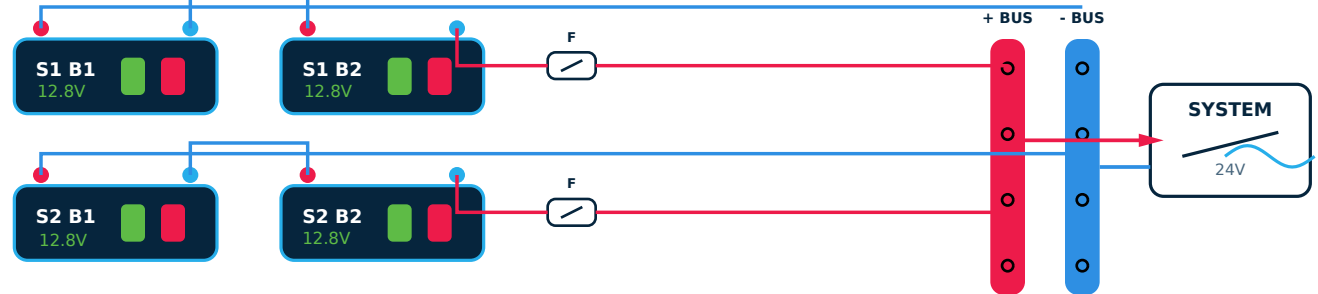
Use matched batteries at the same SOC before connecting.

### SERIES BATTERY BANK - UP TO 4S



Series wiring increases voltage while amp-hour capacity remains 100Ah 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.

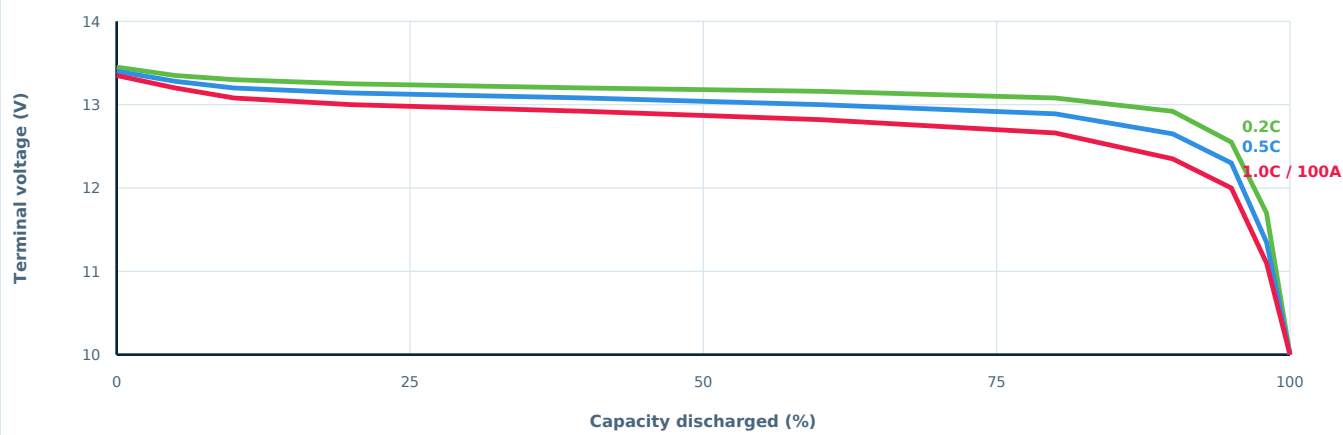
| Configuration | Nominal voltage | Capacity | Stored energy | Notes                           |
|---------------|-----------------|----------|---------------|---------------------------------|
| 2S            | 25.6V           | 100Ah    | 2.56kWh       | 24V systems                     |
| 3S            | 38.4V           | 100Ah    | 3.84kWh       | 36V systems                     |
| 4S            | 51.2V           | 100Ah    | 5.12kWh       | 48V systems                     |
| 4S16P max     | 51.2V           | 1,600Ah  | 81.92kWh      | Maximum supported configuration |

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.

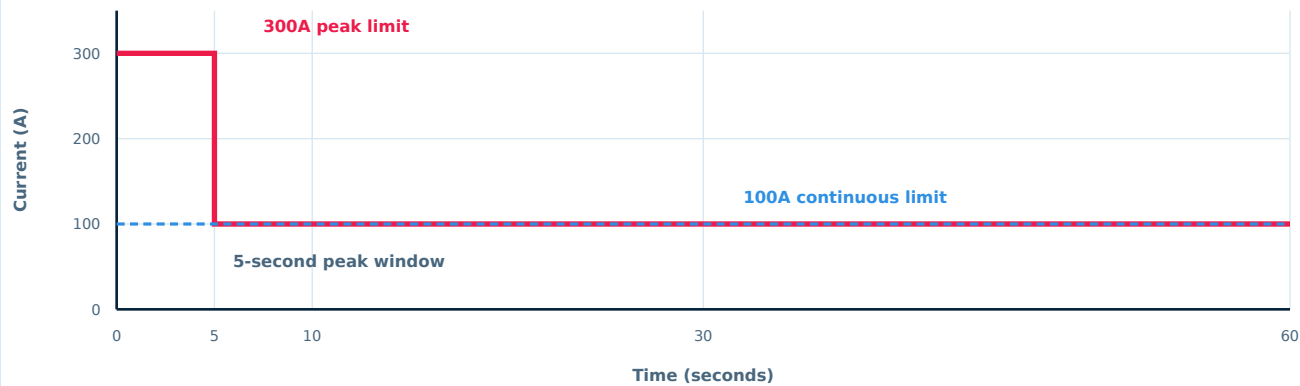
# Performance Planning Curves

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.

TYPICAL VOLTAGE VS CAPACITY DISCHARGED



ALLOWABLE CURRENT OVER TIME



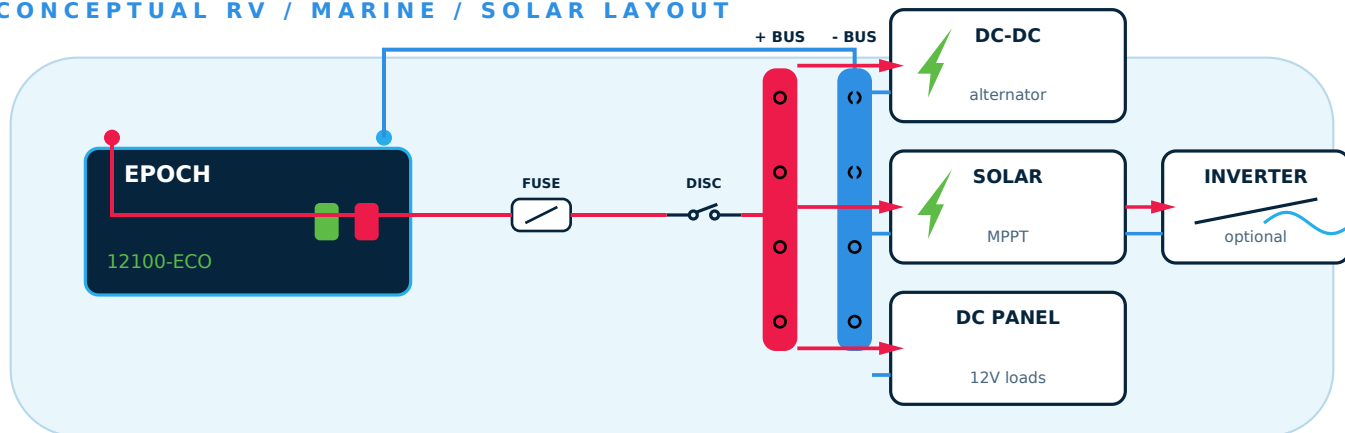
# Application Layouts & Planning

Designed for compact 12V energy systems that need maintenance-free LiFePO4 storage with BMS protection and Group 24 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

1.28kWh per battery

### 80% planning energy

Approx. 1.02kWh per battery

### Formula

Runtime hr = usable Wh / load W

## EXAMPLES

### 100W DC load

Approx. 10.2 hr at 80% planning energy

### 500W DC load

Approx. 2.0 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 12100-ECO using current product-page data and the established Epoch data-sheet template. |