



**SUPER SLIM Deep Cycle Battery  
RV / Van / Camper / Overland**

**USER MANUAL**



# READ BEFORE INSTALLING!



## WARNING

- ✔ Keep the battery away from liquids and humid environments.
- ✔ Prevent accidental contact between the terminals to avoid short circuits.
- ✔ Charge only within a safe temperature range of 0°C to 45°C.
- ✔ Store the battery at temperatures between -20°C and 60°C.
- ✔ Protect the battery from physical impacts or drops.
- ✔ Never expose the battery to flames or high heat sources.
- ✔ Store and use the battery in areas shielded from direct sunlight.
- ✔ Refrain from opening or tampering with the battery components.
- ✔ Do not puncture, pierce, or damage the battery casing.
- ✔ Avoid drilling or modifying the battery housing.



# BATTERY INSTALLATION AND USAGE GUIDELINES



## SECURING THE BATTERY

While lithium batteries are lighter than lead-acid counterparts, they must still be securely mounted to prevent becoming hazardous projectiles in moving vehicles, RVs, carts, or boats. Ensure your battery is firmly secured before travel. For additional safety, consider using appropriate mounting brackets. If you're uncertain, seek professional advice.



## PROTECTING THE BATTERY ENCLOSURE

Avoid drilling into the aluminum battery enclosure under any circumstances, as this may penetrate internal cells and cause thermal runaway or hazardous emissions. Use only the provided mounting holes and screws no longer than 13mm. To ensure proper installation, we recommend using a mounting kit with compatible screws and brackets, or secure the battery with straps or clamps.



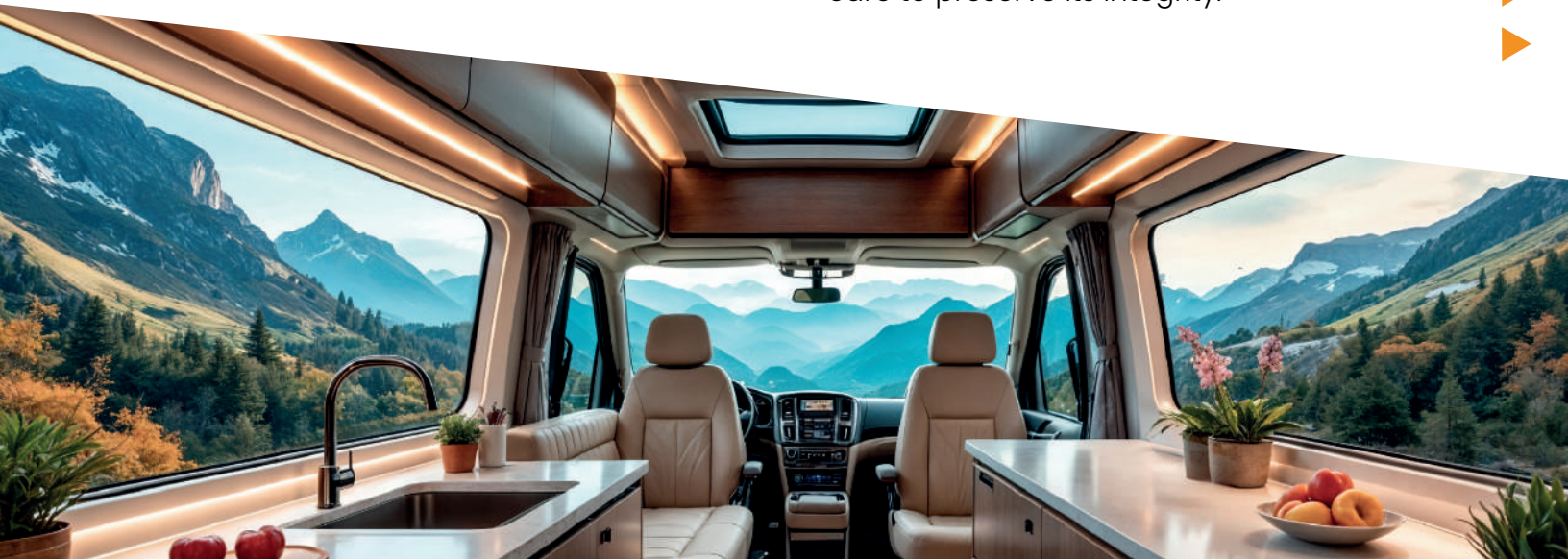
## TEMPERATURE MANAGEMENT

Lithium batteries perform best and last longest in a stable, cool environment between 10°C and 25°C. The operational temperature range extends from 0°C to 45°C; however, prolonged exposure outside this range may reduce performance and lifespan. If the battery operates above 60°C, cease use immediately. For extreme temperature environments, consider relocating the battery or implementing temperature control measures.



## SHOCK AND VIBRATION RESISTANCE

Although lithium batteries are robustly designed, they are not intended for continuous exposure to high-impact shock or vibrations. Standard use in vehicles like 4WDs is acceptable, but excessive vibrations or accidental drops may cause damage or failure. Handle and operate the battery with care to preserve its integrity.





### WATER AND SALT EXPOSURE

The battery enclosure is rated as IP20 and is not waterproof. Avoid exposing the battery to water, submersion, or direct water spray. If water is likely to pool near the battery, ensure it is positioned upright with the terminals and electronics at the top, allowing any water to drain away without contacting critical components. For marine environments or prolonged exposure to salty air, install the battery in a protected, enclosed space to prevent corrosion.



### PREVENTING SHORT CIRCUITS

While the internal Battery Management System (BMS) protects against short circuits, avoid creating accidental connections between the positive and negative terminals. Use insulated tools when working near the battery, and always secure terminal caps when not in use. Work on passive wiring first, connecting the live battery as the final step. If unsure, consult a qualified electrical professional.



### MAXIMIZING LONGEVITY

To extend the life of your lithium battery, minimize the depth of discharge (DOD) during each cycle. A lower DOD ensures a higher number of charge cycles, maximizing your investment. For example, a battery discharged to 50% DOD can achieve approximately 5,000 cycles, whereas discharging to 80% DOD reduces the cycle life to around 2,000. Consider selecting a battery with sufficient capacity to avoid frequent deep discharges.



### BATTERY MANAGEMENT SYSTEM (BMS)

Each battery is equipped with an internal Battery Management System (BMS), a solid-state electronic circuit designed to protect against overcharging, over-discharging, and other potentially hazardous conditions. The BMS ensures safe operation and prevents damage to the battery pack, making it an essential component for maintaining optimal battery performance.





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# BATTERY COMPONENTS

## INSTALLATION PLATES:

- Available in one style, compatible with most vehicle models.
- Two plates are included, along with nuts, screws, and bolts for easy installation.



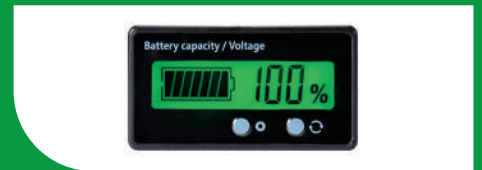
## ANDERSON CONNECTORS:

- The battery is equipped with two blue Anderson plug connectors, both for input and output.
- These connectors are used for charging the battery and running loads.



## LCD SCREEN:

- Provides a clear and convenient display of your battery's charge level at any given time, thanks to the integrated Battery Management System (BMS).



# INSTALLATION

## STOWAGE RECOMMENDATIONS

The slim profile of the Super Slimline battery makes it ideal for installation in tight spaces, such as behind or under vehicle seats. Always ensure the battery is securely strapped or fastened to prevent movement during transport. Proper stowage not only protects the battery but also enhances safety on the road.



Behind a seat



Back of a 4x4



Strapped at the back of a 4x4

## MOUNTING ORIENTATION

Super Slimline batteries can be mounted flat with the labels facing up or on their side with the writing oriented correctly. Avoid mounting the battery with the writing upside down, as this may place internal cells in an unfavorable position.





# CONNECTING

## CONNECTING IN STANDARD MODEL

Both, SP-12V100-SRV and SP-12V200-SRV batteries are equipped with two blue Anderson plug connectors on the side. These connectors can be used for both charging the battery and powering connected devices. You can utilize one connector for charging and the other for running loads.

### AVAILABLE CHARGING SOURCES:

- ✓ **External AC charger:** Connect using the blue Anderson connector.
- ✓ **External (regulated) solar charger:** Connect using the blue Anderson connector.
- ✓ **External DC-DC charger:** Connect using the blue connector.

When connecting chargers or devices to the battery, always use the blue Anderson connectors. Verify that the connections are made correctly, ensuring the positive and negative terminals are properly matched. Do not use any Anderson plugs other than blue for these connections.



# PICKING THE RIGHT CHARGER

Selecting the right charger for your lithium battery is just as important as choosing the battery itself. With numerous options available on the market, it's essential to invest in a high-quality charger. A reliable charger not only extends the lifespan of your battery but also enhances the safety of your electrical system.

There are two primary types of battery chargers: AC/DC and DC/DC. Each serves a distinct purpose. AC/DC chargers are typically used for charging your battery at home or at a caravan park. On the other hand, DC/DC chargers are designed for use within a vehicle or caravan and can sometimes be installed in the engine bay.

## AC/DC CHARGERS

Much like the name suggests, these chargers take the AC current from a wall outlet and provide charge to your batteries. Generally, these are used in large caravan systems where shore power is available at caravan parks. These chargers do not provide any power while the vehicle is moving, so they are often paired with a DC/DC charger.

## DC/DC CHARGERS

This type of charger is the most common in 12v setups and will be present in almost every 4x4 and caravan auxiliary battery system. These chargers work by taking the current generated from your vehicle's alternator and charging your auxiliary battery with it. However, your vehicle's alternator isn't designed to charge an auxiliary battery because it doesn't provide





the specific charging profile needed, therefore a DC/DC charger is required to convert the alternator's output into a consistent & optimized charge tailored to your battery's chemistry. The introduction of smart alternators in modern vehicles increases the need for a high-quality DC/DC charger to increase the life and efficiency of your battery.



## MORE ON CHARGE

To ensure optimal performance and longevity, you may need both an AC/DC charger and a DC/DC charger based on your specific requirements. With various options available on the market, each offering different voltage and current outputs, it's essential to select the correct charger for your battery. Chargers with higher current outputs can charge your battery faster, but it's crucial to match the charger to your battery's specifications.

To determine the appropriate charger size, start by knowing your battery's capacity (Ah rating). As a general guideline, we recommend choosing a charger that provides around 20% of your battery's Ah rating. For example, a 200Ah battery would require a charger in the 40A–50A range. For larger batteries, like our 400Ah RV Battery, a higher-capacity charger is necessary, such as the REDARC Alpha Manager series, which offers 50A, 75A, and 100A charging options.

Different chargers will also come with different features, the most popular features you should look:

### **Inbuilt Solar Charger:**

Allows you to stay off-grid longer by regulating the current from external solar panels and topping up the battery when away from mains power, or when the vehicle is not running.

### **Bluetooth Connectivity:**

Enables you to monitor the charging status of your battery charger remotely.

### **Overcharge Protection:**

A high-quality charger will have an intelligent overcharge monitor to protect the battery from damage due to overcharging.

## USER GUIDE

Once installed and connected, the battery becomes operational immediately. Its integrated Battery Management System (BMS) actively monitors and protects the battery, ensuring safe and efficient performance without the need for user intervention under normal operating conditions.

To monitor the battery's voltage, you can use an external device, such as our remote voltage monitor (as shown in the image).

Unlike traditional lead-acid batteries, lithium batteries maintain a steady voltage throughout the majority of their discharge cycle. A significant drop in voltage typically occurs only when the battery is nearing 90% depletion.











Sonny Power Co. leverages 15 years of expertise and experience in R&D, design, and manufacturing of Lithium-Iron Phosphate (LiFePO<sub>4</sub>) cathode materials and power supply systems. We are proud to produce our own top-tier products, ensuring the highest standards of quality and reliability. Sonny Power Co. offers a comprehensive range of LiFePO<sub>4</sub> Battery Packs, including 6V, 12V, 36V, 48V, 51.2V, and 72V options.


Our products are extensively utilized across various applications such as lead-acid battery replacements, Low-Speed Vehicles (LSV) like golf carts, Automated Guided Vehicles (AGV), forklifts, and aerial working platforms. Additionally, our batteries are ideal for marine and RV power systems, power sports, energy storage solutions, Uninterruptible Power Supplies (UPS), and 5G communication systems. Upgrade your golf cart, RV, or camper with our high-performance LiFePO<sub>4</sub> batteries. Our advanced battery solutions are also perfect for trolling motors, marine and boat applications.





## WARRANTY

# 8 YEAR LIMITED WARRANTY

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