



51V 105Ah Lithium-Ion Battery Datasheet

Premium Lithium Iron Phosphate (LiFePO₄) Battery for Electric Golf Cars.

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1. Technical Specifications

1. Battery Pack Specifications:

The following table provides a detailed technical specification:

Battery Pack General Specifications	
Model	EVR051105
Battery Type	Sinopoly SP-A-LFP104Ah
Nominal Voltage	51.2V
Voltage Range	32 ~ 58.4V
Nominal Capacity	104Ah
Nominal Energy Capacity	5325 Wh
Cycle Life	Temp. 25 °C, 0.3C charging, then stop and rests for 30min, then 0.3C discharge. The cycle life is required \geq 4000 times for reatching discharge capacity $<$ 80% the nominal capacity.
Electrical Specifications	
Rated Voltage/Cell	3.2V
Voltage Range per Cell	2V - 3.65V
Charge Voltage Max	58.4V
Charge Current Max	0.5 C (40A)
Discharge Voltage Min	32V
Continuous Discharge Current	2C (208A)
Recommended Discharge Current	1C
Recommended Discharge Power	5325 W
Mechanical Specifications	
Casing	Metal with sealing
Package Weight	~ 35 kg
Dimensions (mm)	~ 670 x 220 x 150 mm (customizable)

2. BMS Specification

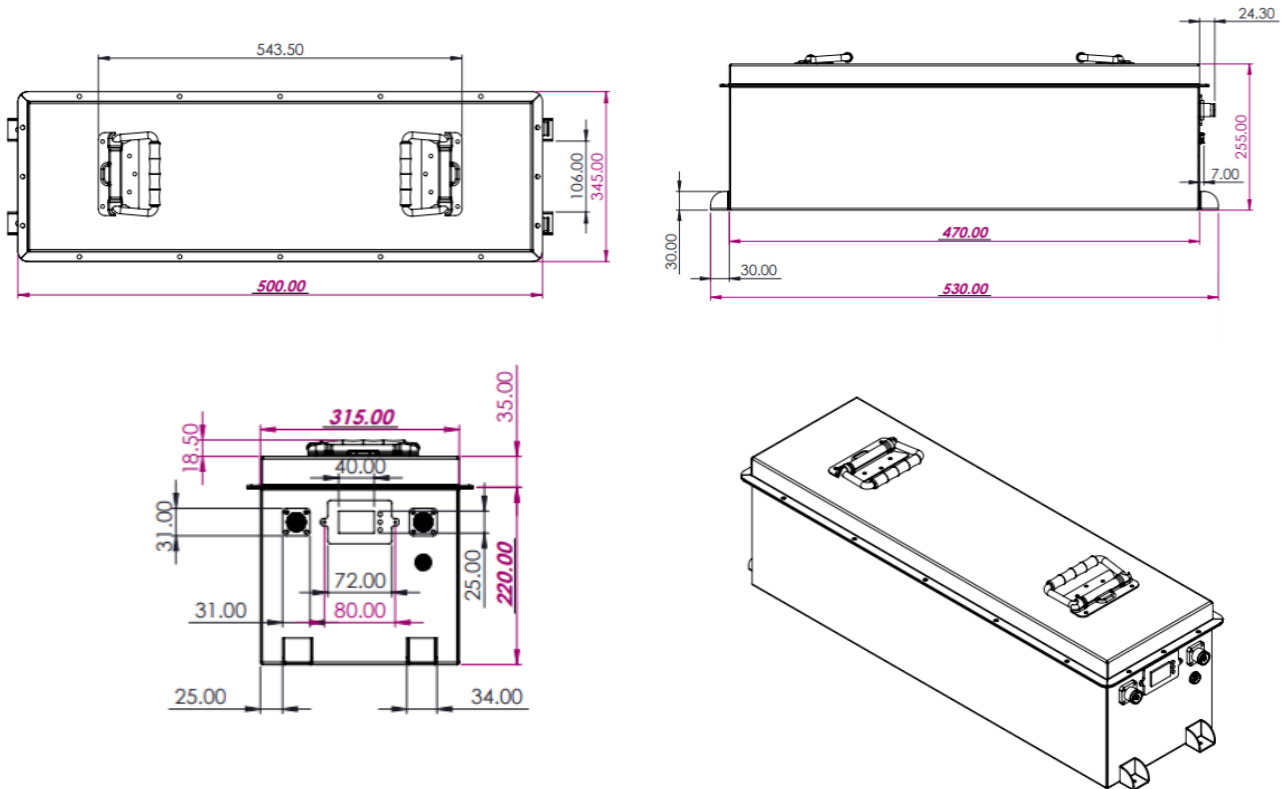
The following table provides a detailed technical specification:

Battery Management System (BMS) Specifications	
Model	EVR16S60V
Over charge detection voltage	3.7V ± 0.04V
Overcharge release voltage	3.55V ± 0.05V
Over discharge detection voltage	2.6V ± 0.1V
Over discharge release voltage	2.7V ± 0.1V
Discharge Overcurrent Protection	220A ± 5A
Short circuit detection delay	256µs
Charge balance start voltage	3.5V
Balance current	80mA
Environmental Conditions	
Operating Temperature	-20°C ~ 80°C
Charging Temperature Range	0 – 55°C
Discharging Temperature Range	-20 – 55°C
Humidity	10% – 90%
Cooling Method	Natural Cooling and Heat Sink
Ingress Protection	IP21
Built-in Protections	
Overcharge protection	Available
Over-discharge protection	Available
Overcurrent and short circuit protection	Available
Temperature-based charge/discharge protection	Available
Cell Balancing Capability (Keep Voltages Uniform Across Cells)	Available

2. Mechanical Drawing and Casing Design

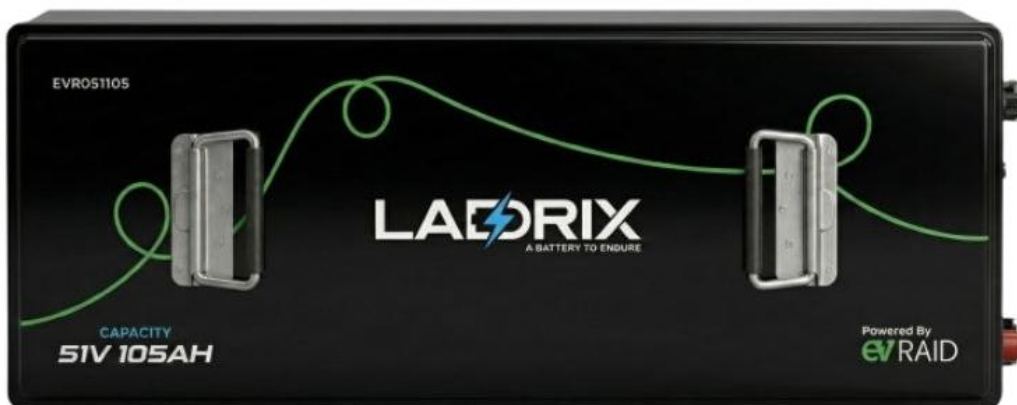
1. Mechanical Drawing of Battery Pack Assembly

The Mechanical drawing shows the overall dimensions and external layout of the battery pack.



2. Battery Pack Casing Design & External Views

The rendering images illustrate the mechanical design and casing structure.



3. Mobile Application



AVAILABLE NOW

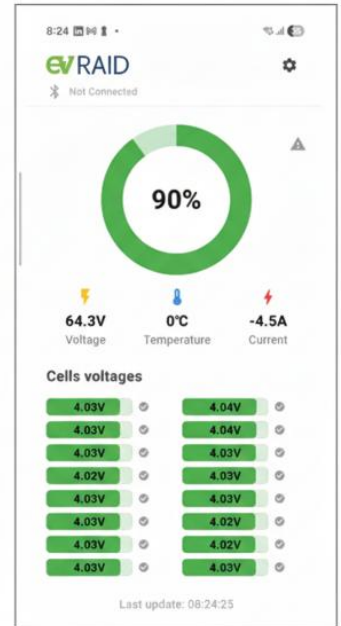
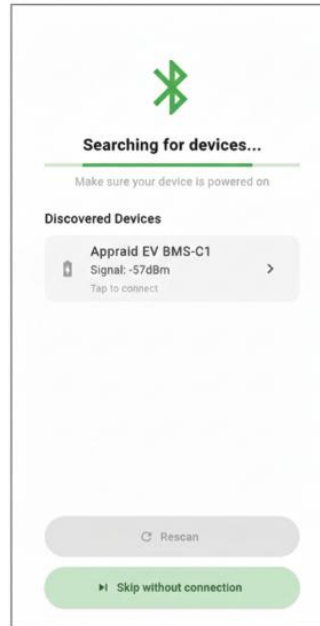
EVRAID: Battery Monitor

- Connect via smartphone
- Monitor battery

SCAN QR CODE TO DOWNLOAD ON



Bluetooth 5.0 is compatible with the EVRAID iOS/Android Battery Monitor App for tracking voltage, temperature, current, and individual cell health.



4. Connection Port & Interface Command

Item	SPEC	Interface	Refer
Energy Battery Storage Connector Socket Female Straight 8mm			

5. APPLICATIONS



eMobility

Bikes, scooters, wheel-chairs, and more.



Energy Storage

Residential, commercial, off-grid backup systems, and more.



Portable Power

Power tools, outdoor applications, and more.

6. Charger Specification

The battery pack is delivered without an external charger.

When using a charger, the nominal charging voltage should be 58.4V and up to 40A



Item	Specification
Model	STS3300
Charger Type	AC/DC On-Board Lithium Battery Charger
Battery Type	Lithium-ion
Rated Battery Voltage	48V System
Max Output Voltage	60V
Max Output Current	40A
Input Voltage Range	AC 90V – 260V
Input Frequency	50/60 Hz (Universal AC Input)
Power Factor	≥ 0.99 (Active PFC)
Efficiency	≥ 93%
Charging Method	CC/CV (Constant Current / Constant Voltage)
Operating Temperature	-30°C to +45°C
Display	LCD Display (Voltage, Current, Charging Time, Temperature)
Startup Function	0V Start (for BMS low voltage protection)
Cooling & Protection	Semi-sealed potting, enhanced heat dissipation
Ingress & Durability	Splash-proof, anti-vibration, reinforced isolation

Dimensions (L×W×H)	288 × 180 × 100 mm
Protection Functions	Input OV/UV, Output OV, Over-current, Over-temp (>70°C), Reverse polarity, Low temp protection
Safety Tests	1500V withstand test, ≥50MΩ insulation resistance
Compliance Testing	Vibration & Drop test per GB/T 2423.8-1995

7. Screen Compatibility & Signal Interface Strategy

1. Screen Integration & Signal Interface

The vehicle display system was originally designed for a 48V lead-acid battery configuration, where battery level indication is derived from pack voltage (approximately 42–54V).

To ensure full compatibility, the EVRAID lithium battery provides an adjusted analog voltage output from the BMS that emulates the expected lead-acid voltage behavior.

No modification to the existing display hardware is required.

2. Integration Summary

Item	Description
Battery Type	51.2V Lithium
Display Input Type	Voltage-based (legacy architecture)
Integration Method	BMS-generated scaled analog voltage
Display Voltage Window	Mapped to ~42–54V equivalent
SOC Calculation	Internally managed by BMS
CAN (Speed & Odometer)	Unchanged – from motor controller

3. Key Notes

- True SOC is calculated internally by the BMS.
- Analog output is scaled to simulate lead-acid discharge behavior.
- Existing CAN communication between controller and display remains unchanged.
- All protection and safety logic are fully managed within the BMS.

8. Compliance & Certification

All battery packs offered in this quotation are designed, manufactured, and tested in compliance with relevant international standards to ensure **performance, safety, and reliability** in line with their intended application. The following standards and certifications apply:

1. Electrical Safety and Abuse Resistance

- **Electrical Safety & Abuse Evaluation** (safe and stable battery behavior under normal and abnormal electrical operating conditions).
- **Charge & Discharge Performance** (reliable performance during charging, discharging, and stress scenarios).

2. Environmental and Mechanical Robustness

- **Resistance Validation** (vibration, shock, temperature variation, and humidity).
- **Operational Durability Assessment** (confirmation of durability during handling, transportation, and real-world operation).

3. Functional System Performance

- **System-Level Integration Validation** (ensure reliable interaction with the vehicle platform).
- **Lifecycle Performance Verification** (predictable and stable operation across the intended lifecycle)

4. Operational Reliability and Readiness

- **Long-Term Stability Testing** (confirm long-term stability and performance consistency).
- **Operational Robustness Assurance** (dependability for daily operational use).

9. Warranty Terms, Conditions & Support

We are pleased to offer high-quality Lithium battery systems, engineered to deliver superior performance and reliability for light EV applications. The following terms and conditions govern the warranty coverage applicable to the battery units supplied under this quotation.

1. Warranty Coverage

The battery is covered by a limited warranty for a period of **3 Years** from the date of purchase.

This warranty covers:

- Defects in materials and workmanship under normal and proper usage conditions.
- Abnormal capacity loss is not attributable to natural degradation due to aging or cycling, provided the battery is within the specified operating limits.
- The integrated **Battery Management System (BMS)**, including the embedded communication module, against defects affecting normal operation, communication stability, or controller interaction under approved conditions.

2. Conditions for Validity

The warranty shall remain valid only if the following conditions are met:

- Installation and operation must be carried out by qualified personnel in accordance with the manufacturer's specifications and safety guidelines.
 - The battery must be used strictly within its designed parameters, including:
 - Operating voltage, current, and charge/discharge cycles
 - Recommended Depth of Discharge (not exceeding 80%)
- Ambient temperature range of 0°C to 55°C (charging) and –20°C to 60°C (discharging)
- The battery must be charged at least once every **three (3) years** during periods of non-use or storage to prevent cell degradation.

3. Exclusions and Limitations

This warranty **does not cover** failures, defects, or damage resulting from any of the following:

- Improper or unauthorized **installation**, misuse, or modification of the battery or its components.
- Physical **damage** caused by impact, fire, water submersion, corrosion, or exposure to harsh environmental conditions.
- Incorrect cabling, reversed polarity, or the use of incompatible chargers or systems.
- Operation outside of approved electrical configurations, such as unsupported series or parallel connections.
- Tampering with the battery management system (BMS), serial labels, or casing.