



GSL51100-3U Lithium Battery Module: Powering the Future with GSL Energy

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Modular Design for Scalable Energy Solutions

As a flagship product of GSL Energy, the GSL51100-3U lithium battery module exemplifies advanced energy storage technology through its stackable architecture. This 3U form factor (133.35mm height) enables flexible configuration across residential and commercial applications, achieving capacities from 5kWh to megawatt-scale systems. The module's liquid cooling system maintains optimal operating temperatures between -20°C to 55°C, ensuring 95% round-trip efficiency even under peak loads.

Core Technical Specifications

Nominal voltage: 51.2V DC ±2%

Energy density: 185Wh/kg at cell level

Cycle life: 6,500 cycles at 80% DoD (Depth of Discharge)

Parallel capability: Up to 16 modules in single cabinet

Intelligent Battery Management System

The integrated 4th-gen BMS employs adaptive cell balancing with ±15mV voltage tolerance, extending service life by 20% compared to conventional systems. Real-time monitoring tracks 18 parameters including:

Individual cell voltages

Temperature gradients across module

State of Health (SoH) predictions

Safety Compliance & Certifications

Compliant with UL 9540A fire safety standards, the module features:

Gas venting channels for thermal runaway mitigation

Arc-resistant terminal covers (IP65 rating)

Galvanic isolation between battery stack and enclosure

Applications Across Energy Ecosystems

Field data from 12MW solar+storage installations demonstrate the module's versatility:

Peak Shaving: 40% demand charge reduction for commercial users

Frequency Regulation: 98.7% response accuracy in grid-tied systems



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Microgrid Support: 200ms transition time during grid outages

Comparative Performance Metrics

Third-party testing against NMC (Nickel Manganese Cobalt) alternatives shows:

Parameter
GSL LFP Module
Industry Average

Calendar Life
15 years
10 years

Thermal Runaway Onset
>250°C
170-200°C

Sustainable Manufacturing Philosophy

GSL's closed-loop production recovers 92% of raw materials, including:

- Lithium iron phosphate cathode regeneration
- Electrolyte solvent distillation
- Aluminum casing recycling

With ISO 14064-3 certified carbon footprint tracking, each module offsets 1.2 tons CO₂ equivalent over its lifecycle. The modular architecture allows phased capacity upgrades, aligning with evolving energy needs while minimizing electronic waste.

Web: <https://www.sphoryzont.edu.pl>