

HIMAX 3.2V 3000mAh LiFePO4 Battery Pack

Model: HW-18650-1S2P-3.2V-3000mAh • Category: Communication Equipment / M2M Module

1. PRODUCT OVERVIEW & APPLICATION

The **HIMAX HW-18650-1S2P-3.2V-3000mAh** is a high-reliability industrial-grade Lithium Iron Phosphate (LiFePO4) battery pack specifically engineered for severe environments in industrial IoT frameworks. It provides robust backup power integration for wireless routing units, Data Transmission Units (DTUs), Remote Terminal Units (RTUs), and power grid distribution automation terminals.

Operating seamlessly as an Uninterruptible Power Supply (UPS), the module is constantly trickle-charged via internal step-down circuitry from an external 12V/24V primary DC rail. Upon critical grid failover, the battery pack activates instantaneously with **zero-millisecond latency**, ensuring crucial emergency telemetry and last-gasp alarms are broadcasted effectively without triggering unexpected hardware resets.

2. KEY TECHNICAL FEATURES & COMPLIANCE OVERVIEW

Electrochemical Safety & Resilience

- **Intrinsic Thermal Safety:** Utilizing a highly resilient olivine crystal structure that mitigates risks of structural degradation, preventing thermal runaway or gas-swelling up to +60°C.
- **Advanced Float Operation:** Tailored to suppress internal lithium-plating and capacity degradation during multi-year continuous 100% State-of-Charge (SoC) configurations.
- **High Pulse Discharge:** Engineered with a low internal resistance (IR) matrix capable of supporting 1C continuous and 2C burst transients required by multi-band 4G/5G cellular modules.

Quality & Global Compliance

- **ISO 9001 Quality Framework:** Formulated and physically assembled strictly within an ISO 9001 certified manufacturing workflow to ensure consistency across batches.
- **Designed to Meet Global Standards:** Electrically and structurally configured to align with rigorous safety standards including **UL, CE, and IEC62133** industrial baselines.
- **Logistics-Ready Architecture:** Formulated to seamlessly fulfill the testing prerequisites of **UN38.3 and MSDS** protocols, allowing risk-free international maritime and air cargo shipping.

3. COMPREHENSIVE TECHNICAL SPECIFICATIONS

Parameter / Technical Feature	Specifications & Customization Scope
Brand / Manufacturer	HIMAX Battery (Shenzhen HIMAX Electronics Co., Ltd.)

Parameter / Technical Feature	Specifications & Customization Scope
Battery Chemistry	Lithium Iron Phosphate (LiFePO4)
Cell Configuration	1S2P (Two premium 18650 industrial cells in parallel)
Nominal Voltage	3.2V
Fully Charged Voltage	3.65V (BMS upper cutoff threshold customizable from 3.60V to 3.65V)
Discharge Cut-off Voltage	2.5V (BMS lower cutoff threshold customizable from 2.0V to 2.5V)
Nominal Capacity / Energy	3000mAh / 9.6Wh
Internal Resistance (IR)	≤ 60mΩ (Fully charged state, at 1kHz AC measurement)
Standard Charge Method	0.2C (600mA) Constant Current / Constant Voltage (CC/CV)
Max Continuous Discharge	1C (3A)
Peak Pulse Discharge Current	2C (6A) for < 2 seconds (Designed for high-power multi-band 5G burst emissions)
Operating Temperature (Discharge)	-20°C to +60°C (Stable thermal performance in unventilated enclosures)
Operating Temperature (Charge)	0°C to +45°C (Low-temperature charging down to -20°C customizable via specialized cells*)
Cycle Life (80% DOD)	≥ 2500 cycles (Capacity retention ≥ 80% of initial rated specification)
Design Float Service Life	6 to 8 Years (Under continuous 100% SoC standby charging conditions)
Physical Dimensions	Approx. 20.0mm (Thickness) × 37.0mm (Width) × 67.0mm (Length) [Custom geometry, form factor and layout orientations available upon request]
Approximate Weight	~ 92g
Outer Wrapping Material	Industrial-grade flame-retardant PVC heat-shrink film
Standard Lead Connector	JST-PH 2.0mm 3-Pin keyed female plug (Positive polarity layout configuration)
Connector Customization Options	Molex, JST, Hirose, AMP series, or high-grade tinned silicone bare wires for terminal blocks
Wire Specification & Length	Standard UL 1007 28AWG, Length: 100mm [Wire gauge, length, and stripping fully customizable]

Parameter / Technical Feature	Specifications & Customization Scope
BMS / PCM Functions	Over-charge, Over-discharge, Over-current, and Short-circuit protective tracking <i>[NTC Thermistors / Temperature protection lines can be integrated dynamically]</i>
Optional Smart Protocols	I2C, SMBus, or HDQ communication protocol integration available for volume contracts

4. B2B CUSTOMIZATION & REGULATORY SUPPORT SCOPE

Recognizing that industrial hardware integration presents unique enclosure boundaries and diverse charging topologies, **HIMAX Battery** provides comprehensive OEM/ODM custom tailoring. Engineering customization spans physical outer profiles, mounting brackets, specialized wire harness lengths, and precise BMS threshold parameter alignments.

Note on Product Certification: While our designs conform to global standards (UL, CE, IEC, UN38.3, MSDS), formal testing procedures and official certificate provisioning can be fully accommodated and integrated into high-volume custom contracts. Contact our technical team to map out tailored regulatory compliance schemes for your specific deployments.

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 Focus Areas: LiFePO4, Lithium-Ion, NiMH Battery Systems

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