Marine Battery Management Applications Powered by leagend UPS Battery Management Solution

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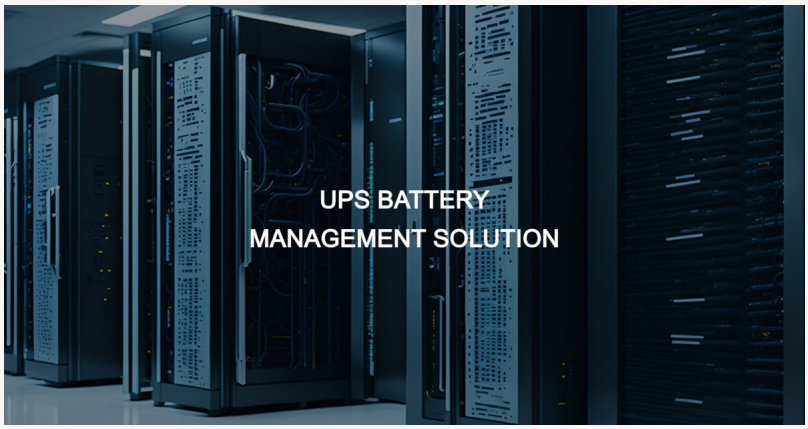
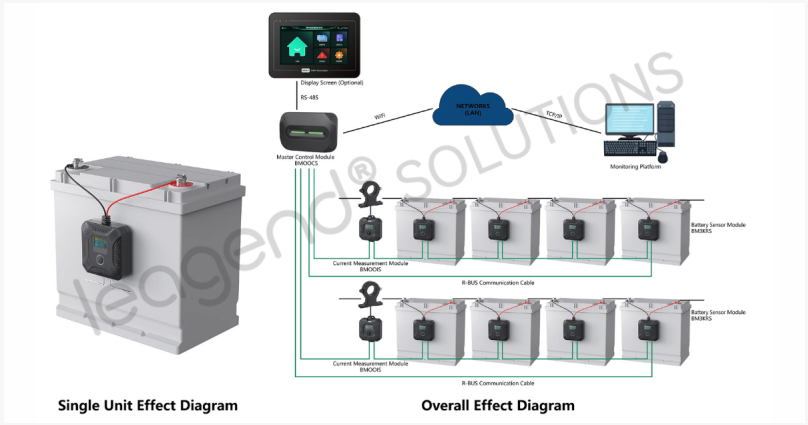


leagend cloud UPS BMS solution



ups battery management solution

NEW YORK, NY, UNITED STATES, July 4, 2025 /EINPresswire.com/ -- Effective management of battery systems aboard marine vessels requires continuous monitoring, operational reliability, and resilience in demanding environments. leagend UPS Battery Management Solution, originally developed for data centers and industrial UPS systems, has been successfully adapted for marine battery applications. This technical release outlines the solution's functionality, application scenarios, and operational benefits within marine environments.

Application of leagend UPS Battery Management Solution in Marine Systems

Onboard UPS battery systems in yachts, workboats, and commercial ships supply critical backup power for navigation, communications, lighting, and auxiliary systems. Continuous performance and predictive maintenance are essential in these isolated, high-risk environments. leagend UPS Battery Management Solution continuously monitors parameters including voltage, current, internal resistance, and temperature, delivering precise data to support safe and reliable marine operations.

Collected information is visualized through unified data dashboards and, where applicable, transmitted to cloud servers via wired or wireless communication, enabling shore-based teams

and vessel operators to track battery status in real time.

Marine

leagend SOLUTIONS

Key Operational Requirements in Marine Battery Management
leagend identifies several technical challenges unique to marine UPS battery systems:

Environmental Durability: Batteries on marine vessels are subject to temperature extremes, humidity, salt spray, and constant vibration. Continuous monitoring detects degradation trends and parameter abnormalities early.

Safety Management: Real-time measurements of internal resistance and temperature support early detection of cell imbalance or potential thermal incidents.

Energy Efficiency and Runtime Planning: Accurate State of Health (SoH) reporting allows operators to manage load distribution and optimize operational runtime during long-distance voyages or standby periods.

Compliance and Predictive Maintenance: Comprehensive historical records and trend data support operational audits and preventive service planning, extending battery service life and reducing replacement frequency.

System Architecture and Core Components
leagend UPS Battery Management Solution deployed in marine UPS systems includes:

Data Collection Modules: Installed at battery busbars to capture electrical and thermal parameters.

Control and Display Interfaces: Providing real-time data visualization and alarm reporting directly onboard.

Cloud and Analytics Platforms: Enabling historical data access, diagnostic analytics, and fleet-wide oversight.

Operational Features for Marine Applications
Continuous Real-Time Monitoring of voltage, current, resistance, and temperature parameters.

Graphical SoH Visualization for immediate health status reference.

Cloud Connectivity for shore-based fleet management and maintenance scheduling.

Customizable Alarm Thresholds to alert operators of operational risks or abnormal readings.

Modular Configuration supporting single or multi-string UPS battery systems across various marine vessel types.

Application Scenarios in Marine Operations
Yacht Power Systems: Enables crews to track auxiliary and main power bank health during long passages.

Fleet Vessel Management: Centralizes real-time battery health reporting for operational efficiency and service planning.

Commercial Shipping: Ensures navigation, communications, and emergency lighting systems maintain backup readiness.

Remote Offshore Platforms: Allows limited-access sites to transmit battery data to control centers for remote supervision.

System Integration Framework of the leagend UPS Battery Management Solution
Sensory Layer: Acquiring battery parameters directly from connected strings.

Edge Control Layer: Processing data, handling alarms, and interfacing with local displays.

Communication Layer: Transmitting data over Wi-Fi, Ethernet, or cellular networks.

Cloud Infrastructure: Centralizing data for long-term analysis and remote monitoring.

User Interface Layer: Offering web- and mobile-based dashboards with reporting features.

About leagend SOLUTIONS
leagend SOLUTIONS is a division of leagend Optoelectronics Co., Ltd., founded in 2014. The division focuses on research and development of battery monitoring technologies, diagnostic systems, and integrated battery management solutions. Its core development principles—intelligence, precision, safety, and low energy consumption—support solution deployments across lead-acid battery manufacturing, data center power infrastructure, renewable energy systems, telecom, and marine UPS applications.

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