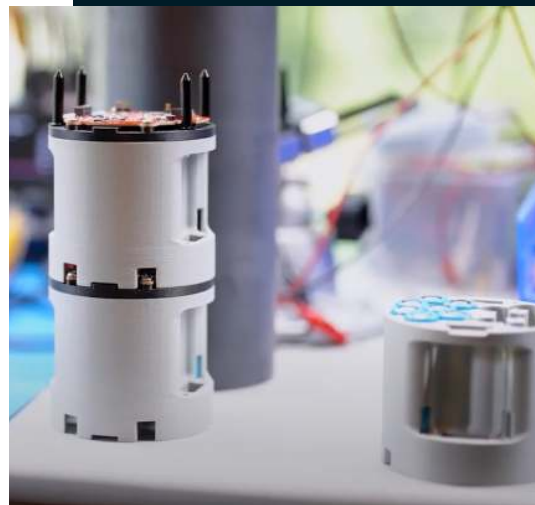




BATTERY MANAGEMENT SYSTEMS

Intelligent, Modular,
Mission-Driven Energy Solutions



Redefining battery system engineering with cell-level intelligence, scalable architecture, and uncompromised safety for mission-critical applications.



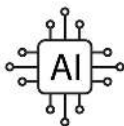
Cell-Level Engineering Mastery

Engineered from the individual cell up, enabling chemistry flexibility, custom dimensioning, and optimized performance.



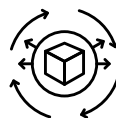
Dual-Layer Protection Architecture

Independent hardware and configurable software protections scalable from cost-sensitive to mission-critical systems.



AI-Optimized Power Management

Machine learning-driven performance tuning, degradation prediction, adaptive charge profiles, and lifetime extension.



Modular & Scalable Design

Standardized pack and module building blocks for flexible energy scaling and rapid deployment.



Manufacturability-Focused Engineering

Reduced wiring complexity, independent module validation, and efficient production scaling.

STANDARD PSFi BATTERY ARCHITECTURE

Example Battery Pack Configuration: 7S architecture (25.2V nominal), Dual 7S 100Wh batteries per pack, ~200Wh per pack (configurable), Scalable 'LEGO-style' Modular Stacking

Battery Module Configuration: ≤ 7 Packs per module, 200Wh to 1400Wh in 200Wh Increments

Core BMS CCAs: 7S BMS Channel A CCA, 7S BMS Channel B CCA, Battery Section Embedded Node CCA

BATTERY MANAGEMENT SYSTEMS



CORE BATTERY MANAGEMENT CAPABILITIES

- High-accuracy battery monitoring and protection
- Real-time State-of-Charge (SoC) and State-of-Health (SoH) tracking
- Advanced cell balancing and thermal management
- Multi-chemistry support (Li-Ion, LiFePO4, NiMH, and emerging chemistries)
- External smart charging architecture with embedded charge control
- Comprehensive lifetime data logging (voltage, current, temperature extremes, cycle count)

PRIMARY & SECONDARY PROTECTION SUITE

Primary Protections

- Cell undervoltage and overvoltage protection
- Overcurrent (charge & discharge) protection
- Short circuit protection
- Under/over-temperature protection
- And more...

Secondary / Permanent Fail Protections

- Permanent fail overvoltage/undervoltage
- Permanent fail overcurrent
- Voltage imbalance detection
- Short circuit latch
- Safety Overtemperature Permanent Fail
- Permanent fail charge & discharge FET
- And more...

ELECTRICAL DESIGN & INTEGRATION

- Standardized electrical and communication interfaces
- Modular power buses for distributed control
- Designed to meet UN 38.3
- Reduced wiring and harness complexity for Design for Manufacturability (DFM)

AI-POWERED INTELLIGENCE

- Predictive degradation modeling
- Adaptive charge and discharge profiles
- Hardware vs. software protection optimization
- Digital twin simulation prior to hardware validation
- Lifetime performance analytics and end-of-service algorithms

MARKET APPLICATIONS

- Industrial & Commercial Robotics
- Unmanned Air, Ground & Surface Systems
- Energy Storage Systems
- Aerospace & Defense
- Medical Devices
- Marine & Subsea Equipment

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