Advanced Battery Management Systems

Battery management systems (BMS) for managing both charge and discharge of individual or groups of cells is essential for safety and increasing performance of the system. Balancing can be a simple passive circuit that normalises voltages in the steady-state or highly complex, using networks of active converter circuits that provide balancing function in both transient and steady-state.

More Information

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Competitive advantage

- A range of technologies from low-cost cell balancing technologies to complex management systems that utilise ultra-low power IOT/wireless technologies to simplify the gathering of cell parameters and control the cell charge using novel dc-dc converter technologies
- A high-power density dc-dc converter technology that decreases the size and volume of the battery management system
- An IOT/wireless interfacing that decreases the complexity of the system, improving reliability and security
- Ability to provide lab-scale development with interface capability up to 50kVA

Impact

- Development of advanced BMS technologies that improve safety, reliability and lifetime whilst ensuring cell performance at optimum levels.

Successful applications

- Solar car battery management systems
- Pipeline ‘pig’ applications
- BMS systems for traction drives

Capabilities and facilities

- Hardware-in-loop simulation for rapid assessment of control techniques
- Hardware testing capability up to 50kVA, 1kV, 400A
- Arbin battery and supercapacitor tester with environmental chamber

Our partners

- RST Projects
- Taipei Locomotives