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BMS1000 Series Battery Management System

Features

- Scalable from 12 to 256 Series Cells
- Temperature Sensor for Each Cell Group
- Supports up to 850V Systems
- Low Steady State Cell Voltage Measurement Error (<3 mV)
- Individual Cell Shunt Resistors for Passive Balancing
- Externally Powered for Low Quiescent Battery Current
- Shunt Monitor Circuit for Pack Current Sensing
- Pack Level Voltage Monitoring
- Integrated Precharge Circuit and Resistor
- Main Contactor Control Circuit
- 6 General Purpose Digital Inputs
- 6 General Purpose Digital Outputs
- 12/24V Nominal Compatible Power Input
- CAN 2.0B Communication Port to Vehicle System
- Data Logging Support on MicroSD Card
- USB Interface for System Configuration
- >1000V Isolation Barrier between Accessory and Motive Circuits

Applications

- Electric and Hybrid-Electric Vehicles
- Stationary Energy Storage Systems
- Backup Battery Systems

Description

The BMS1000 Series Battery Management System is a modular system consisting of one BMS Master Module (e.g. BMS1000MT) and 1 to 64 BMS Monitor Modules (e.g. BMS1101ST). Each Monitor Module has the ability to monitor and balance up to 12 series cells, allowing the system to be configured for battery packs with 12 to 256 series cells. The system yields excellent measurement accuracy across all common pack conditions.

The BMS Master Module communicates with the Vehicle Control Unit (VCU) via a standard CAN Bus interface, with multiple supported baud rates. Standard output messages include cell voltages, cell temperatures, pack voltage, pack current and fault flags. The system can be configured to run an internal balancing algorithm or execute balancing commands received from the VCU.

The Master Module features an integrated precharge and main contactor control circuit that can be used to perform common motor control precharge and contactor functions for easier system integration.

Both the Master and Monitor Modules are intended to be integrated into the battery enclosure for maximum safety and system reliability, but may also be installed externally in an appropriately sealed enclosure close to the battery cells.

Specifications

Parameter	Value
Maximum Cell Voltage	4.750 V
Minimum Cell Voltage	1.500 V
Maximum 12 Cell Stack Voltage	57 V
Minimum 12 Cell Stack Voltage	14 V
Maximum Quiescent Battery Current	10 µA
Maximum Temperature Measurement	80 °C
Minimum Temperature Measurement	-30 °C
System 12V/24V Input Voltage	7.5V – 32.0V
Active System 12V/24V Input Current	< 600mA

Typical System Diagram

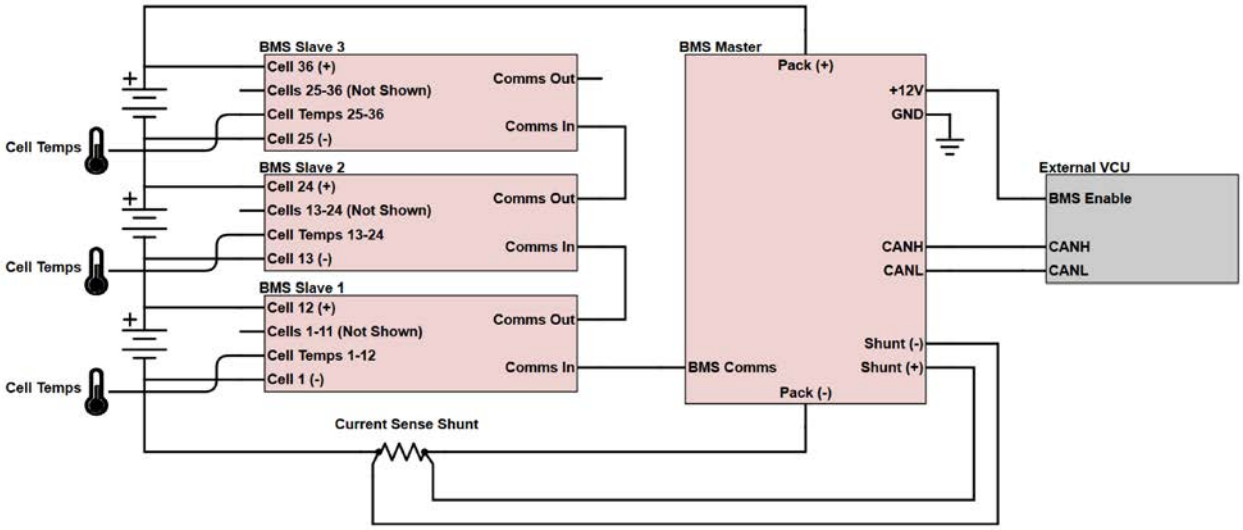

Figure 1: 36-Cell System Diagram showing Minimum Required Connectivity for Basic BMS Function

Contact

Please contact us for questions or requests for additional information regarding the BMS1000 Series:

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