BLOOMY™

BMS HIL TEST SYSTEM

Why BMS HIL Testing?

Hardware-in-the-Loop (HIL) battery simulation is the best approach for Battery Management System (BMS) firmware algorithm development and regression testing. The BMS HIL Test System utilizes special battery simulation hardware, a model, and automated test software to comprehensively test the BMS in real time.

Features

- Safe, efficient, and repeatable battery simulation
- Simulates the entire battery system, including cells, temperature sensors, pack current, contactors, and digital communications
- Simulates imbalance, drive profiles, charge/discharge cycles, thermal runaway and other faults in real time
- Integrates Simulink, MapleSim, C++, and other model types
- Streamlines BMS development and time-to-market

BMS HIL Test System Architecture

Hardware

The system hardware consists of series-connected Battery Simulator 1200 units, a National Instruments (NI) PXI-based real-time controller and measurement and control modules. Simulates all of the battery's signals for the BMS.

Software

The system software is developed using the NI VeriStand real-time test software environment. The software provides configuration and execution of cell models, custom stimulus profiles, as well as manual control.

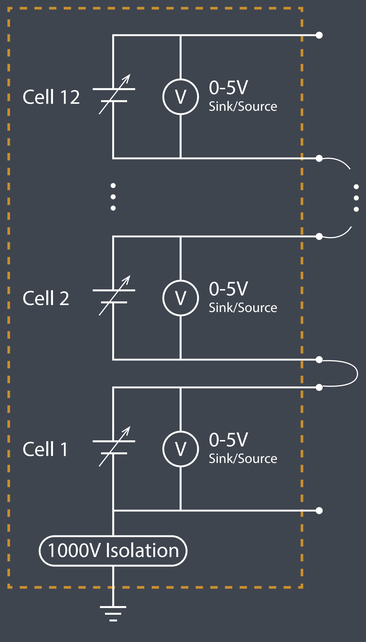
Battery Simulator 1200

Cell Simulation

The **Battery Simulator 1200** provides isolated channels to simulate battery sink and source characteristics. The high isolation and 1U packaging allows multi-unit stacking, providing solutions with over 200 channels of simulation capability.

Features

- 12 independently controlled cell channels
- Sink and source 5VDC and 500mA per channel
- 1000V channel-to-channel and channel-to-ground isolation
- Built-in channel voltage and current readback
- Ethernet (LAN) and high-speed CAN control communications
- NI LabVIEW drivers
- FCC, CE certified



NATIONAL INSTRUMENTS Platinum Alliance Partner
Embedded Control Specialty