



BMS HIL Test System

Real-time battery pack simulation

The BMS Hardware-in-the-Loop (HIL) Test System is a high performance platform providing all necessary input signals used for battery pack simulation. A real-time operating system executes complex cell and pack models commonly used for BMS algorithm development and firmware regression testing.

APPLICATIONS

- Simulating an aging battery pack or individual cells
- Testing and evaluating BMS balancing, responses and tolerances
- Monitoring and evaluating a BMS during specific drive profiles

FEATURES

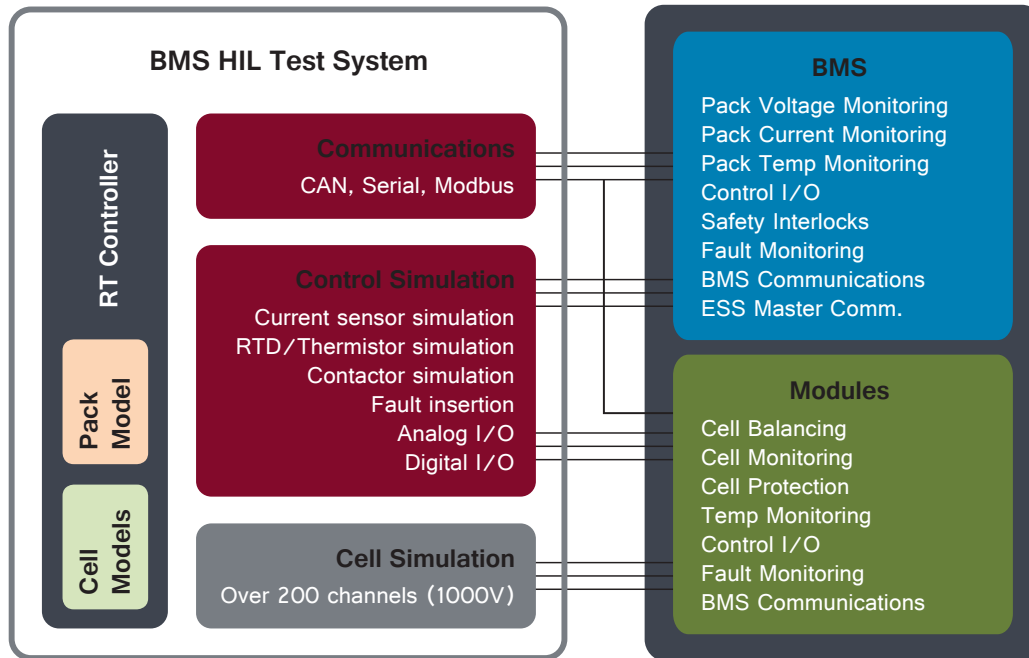
- Over 200 series connected cell channel simulation
- Pack voltage simulation up to 1000Vdc
- Current and temperature sensor simulation
- BMS control I/O and communication simulation
- Fault insertion and auxiliary system measurements
- Custom cell and pack model integration (Simulink, C++, LabVIEW, etc.)
- Software application for manual operation, automated test, and reporting

Trying to evaluate BMS and perform environmental testing?

Inquire about Bloomy's BMS Validation System.

SYSTEM DIAGRAM

The BMS HIL Test System is a modular platform, providing unique configurations to test BMS and module functionality for automotive and power grid applications.



HARDWARE SPECIFICATIONS

The following specifications are standard. Systems can be customized to accommodate specific requirements.

| CELL CHANNEL SIMULATION | | TEMPERATURE SENSOR SIMULATION | | COMMUNICATION PROTOCOLS | |
|------------------------------|---------------------------------|-----------------------------------|---|--------------------------------|-------------------------|
| Number of Channels | 12 / module | Typical Signal Type | Resistance (thermistor/RTD) | Standard Protocol | High-speed CAN |
| Max number of Modules | 20 (240 channels @ 4.2V) | Number of Channels | 12 / module | Number of Ports | 2 |
| Channel Type | Sink and Source | Range | 10Ω to 500 kΩ | Baud Rate | 40 kbits/s to 1Mbit/s |
| Voltage Range per cell | 0.0 to 5.0V | Resolution | 1Ω | Additional Protocols | LIN, SPI, RS232, Modbus |
| Voltage Resolution | 0.1 mV | Accuracy | 1% | PACK VOLTAGE SIMULATION | |
| Voltage Accuracy | ±3 mV | Additional Signal Types | Analog voltage (±10V) Analog current (0 – 40 mA) | Number of Channels | 1 channel |
| Current Range | ±500.0 mA | CURRENT SENSOR SIMULATION | | Voltage Range | up to 1000 VDC |
| Current Resolution | 0.1 mA | Typical Signal Type | Analog voltage | Current Range | 1.5 ADC |
| Current Accuracy | ±4 mA | Number of Channels | 2 channel | Programming Accuracy | ±0.25% of full scale |
| Current Limiting Accuracy | ±10 mA | Range | ±10V | BMS CONTROL I/O | |
| Common Mode Isolation | 1000 VDC CH-TO-CH, CH-TO-GND | Resolution | 16 bit | Number of Channels | 24 input / 24 output |
| CELL CHANNEL READBACK | | Accuracy | ±0.5% | Voltage Range | 0 to 60V |
| Voltage Resolution | 0.1 mV | Additional Signal Types | CAN communications | Current Drive | 150 mA |
| Voltage Accuracy | ±3 mV | BMS BUS VOLTAGE SIMULATION | | Common Mode Isolation | 60V channel-to-channel |
| Current Resolution | 0.1 mA | Number of Channels | 2 channel | | |
| Current Accuracy | ±4 mA | Voltage Range | 0 to 60V | | |
| | | Current Range | 0 to 20A | | |
| | | Power Range | 850W | | |

Call 508-281-8288 or visit
www.bloomy.com