

BMS Validation System



Simulate and measure BMS activity

The BMS Validation System is a configurable platform simulating the essential signals used by Battery Management Systems (BMS) and cell monitoring modules with the ability to perform environmental testing on multiple BMS units simultaneously. The system implements single point value testing to evaluate specific BMS functions such as cell over and under voltage scenarios, cell leakage current, lost communications, or faulty system I/O.

APPLICATIONS

- Laboratory evaluation
- Parametric testing
- Life-cycle testing
- HALT, HASS testing

FEATURES

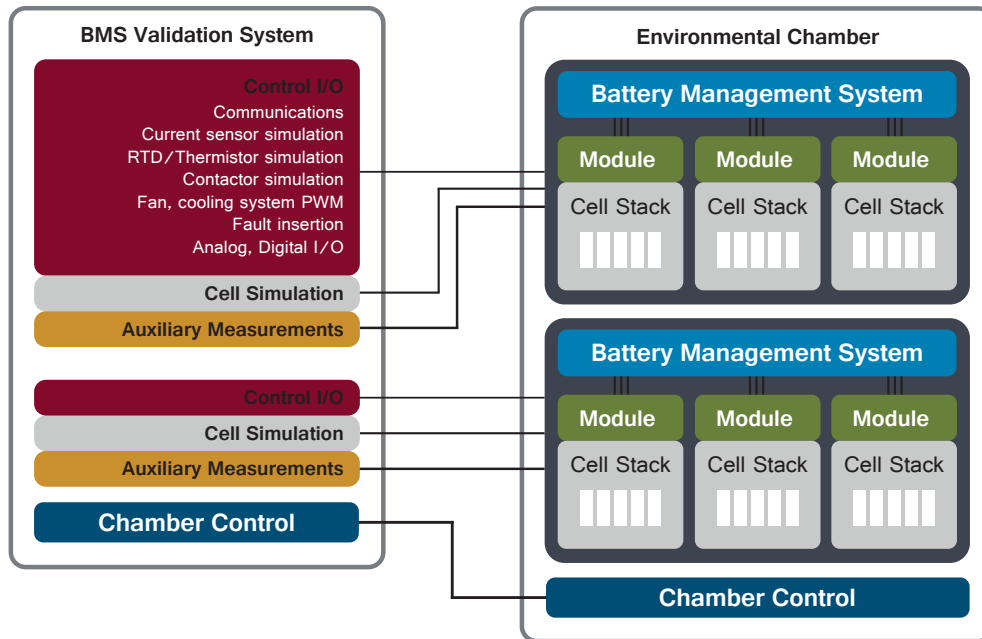
- Simultaneous testing of multiple units
- Hardware configurations for up to 1000V pack simulation
- Individually controlled cell voltage simulation for over 200 channels
- BMS current, temperature, I/O, communications simulation
- Fault insertion and auxiliary system measurements
- Chamber and vibration control interface for environmental testing
- Software application for manual operation, automated test, and reporting

Trying to evaluate BMS algorithms?

Inquire about Bloomy's BMS HIL Test System.

SYSTEM DIAGRAM

The BMS Validation System is a modular platform, providing a range of channel count and types, and can be packaged as a desktop unit or portable test station. The diagram below shows two BMS and Modules in an environmental chamber.



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		
<i>Higher accuracies can be achieved with a custom relay matrix and an integrated 7.5 digit DMM.</i>		Current Range	0 to 20A		
		Power Range	850W		

Call 508-281-8288 or visit
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