

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, software and firmware regression testing.

FEATURES

- Over 200 cells of simulation
- Pack voltage simulation up to 1000 VDC
- 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

APPLICATIONS

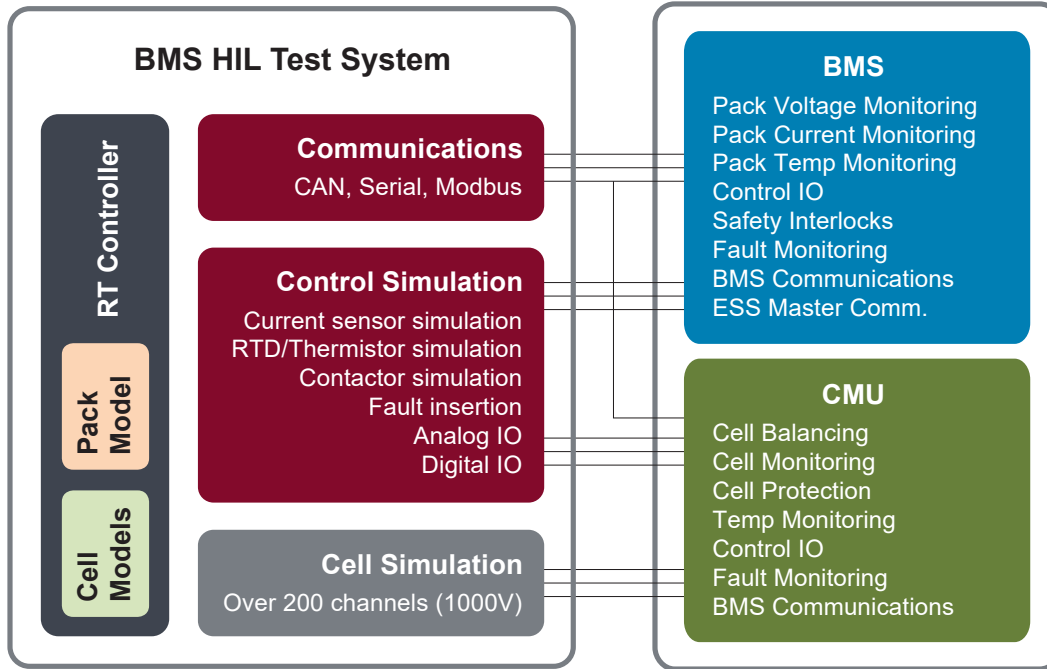
- Functional safety testing and tuning of BMS hardware, software and firmware
- Evaluating BMS balancing, responses, and tolerances
- Monitoring and evaluating a BMS during simulated drive cycles and load profiles

Need to perform ESS, HASS and HALT testing?

Inquire about Bloomy's BMS Environmental Test 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	Voltage	Resistance	Standard Protocol	High-speed CAN
Max number of Modules	20 (240 channels @ 4.2V)	Number of Channels	4 to 64		Number of Ports	2
Channel Type	Sink and Source	Range	$\pm 10V$	2.5 Ω – 1.5M Ω	Baud Rate	40 kbits/s to 1Mbit/s
Voltage Range per cell	0.0 to 5.0V	Resolution	<1 mV	2 Ω	Additional Protocols	LIN, SPI, RS232, Modbus
Voltage Resolution	0.1 mV	Accuracy (typical)	0.03%	0.2%	PACK VOLTAGE SIMULATION	
Voltage Accuracy	± 3 mV	CURRENT SENSOR SIMULATION			Number of Channels	1 to 10
Current Range	± 500.0 mA	Typical Signal Type	Analog voltage		Voltage Range	Up to 1000 VDC
Current Resolution	0.1 mA	Number of Channels	2 channel		Output Power	5W 30W 1500W
Current Accuracy	± 4 mA	Range	$\pm 10V$		Resolution	0.1V 0.1V 0.003V
Current Limiting Accuracy	± 10 mA	Resolution	16 bit		Accuracy (typical)	1-2% 1-2% 0.075%
Common Mode Isolation	1000 VDC	Accuracy	$\pm 0.5\%$		BMS CONTROL I/O	
CELL CHANNEL READBACK		Additional Signal Types	CAN communications		Number of Channels	Up to 32 input / 32 output
Voltage Resolution	0.1 mV	BMS BUS VOLTAGE SIMULATION			Voltage Range	0 to 30V
Voltage Accuracy	± 3 mV	Number of Channels	2 channel		Current Drive	Up to 150 mA
Current Resolution	0.1 mA	Voltage Range	0 to 60V		Common Mode Isolation	30V bank-to-bank
Current Accuracy	± 4 mA	Current Range	0 to 20A			
		Power Range	850W			

Call (860) 298-9925 or visit
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