



The Leader in Automated Test, Data Acquisition and Control Systems

## FLEX BMS™ Validation System



### *Simplified evaluation of multiple battery management systems*

The *FLEX BMS™* Validation System is a quick-connecting, highly flexible test system for rapid evaluation of centralized, single-board and distributed battery management systems. Utilizing Bloomy's industry-leading battery cell simulators, COTS instrumentation, and industry-standard connectors and models that run in real-time, the *FLEX BMS™* Validation System can easily be reconfigured to test a wide variety of BMSs. The *FLEX BMS™* Validation System is used by national and regional safety and standards labs for certifying the BMS for a wide array of e-mobility products and applications.

### APPLICATIONS

- Rapid evaluation of many different types of BMSs
- Functional safety testing
- Hardware, software and firmware regression testing
- SoC and SoH algorithm tuning

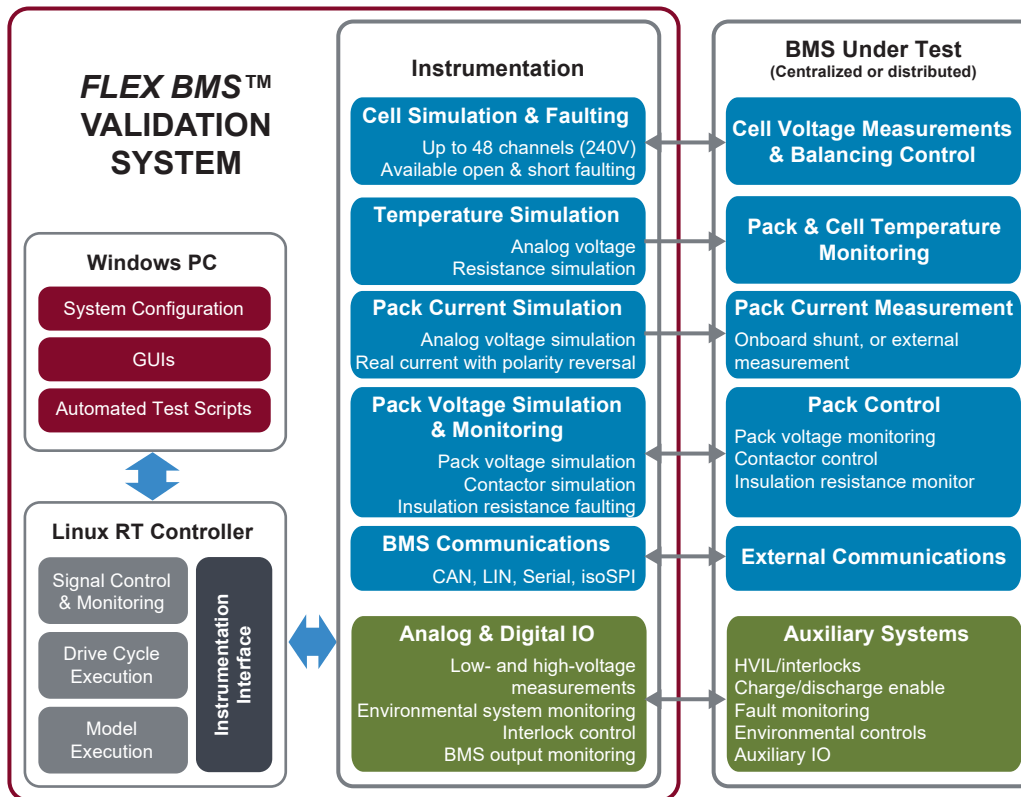
### FEATURES

- Up to 48 cells of simulation
- Voltage- or resistance-based thermistor simulation
- Simulate real pack current charging and discharging up to 600A through the BMS
- Simulate and monitor all BMS IO signals & communications
- Easily reconfigurable with standard DSub connectors and breakout boards
- Intuitive UI with model-based or direct IO control of simulated signals
- Ergonomic, flexible and easy-to-use

Need to simulate more than 48 cells?

Inquire about Bloomy's full-featured BMS HIL Test System.

## SYSTEM DIAGRAM



## HARDWARE SPECIFICATIONS

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

SIGNAL TYPE	QTY	DESCRIPTION	DETAILS
Cell Simulation	12-48	Simulation of individual cells	0-5VDC, Sink/Source 500mA ±3mV accuracy, 0.1mV resolution
Temperature Simulation	4-32	Simulation of cell/pack temperatures	Analog Voltage (±10V) Resistance (0-65kΩ)
Pack Current Simulation	1-2	Simulation of full pack current (eg 400A)	1-4 Analog Voltage (±10V) (isolated or non-isolated) 1x Programmable PS (30A, 60A, 150A, 600A options) with polarity reversing relays for charge/discharge
Vehicle Discretes	2-8	Controlling ignition, interlock, enable, CAN power	Fixed power supply with 5, 12, or 24V digital output control
Insulation Resistance Sim	1-2	Simulation HV resistance to test BMS monitor circuits	Fixed resistors with high voltage switching
Communications	1-4	BMS-Vehicle, Module, etc.	CAN, LIN, Serial, IsoSPI
Contactors	2-4	Simulation of contactors to verify BMS control	Real contactors w/faulting or HV DCDC with modeling
Misc. BMS IO	4-12	Misc. analog/digital inputs and outputs to/from BMS	Analog/digital inputs & outputs for simulation/monitoring
Vehicle/CAN Power	1	5, 12V or 24V main power	Available as fixed or Programmable Power Supply