



800V Battery Cell Simulation Tower

FEATURES

- Electronically simulates the cells, thermistors, contactors, pre-charge circuits, sensors, taps, and communications of an 800V battery pack
- Provides near-instantaneous SOC changes
- Optionally executes real-time models to control the simulated pack state
- Simulates drive cycles, load profiles, alarms, fault case scenarios, and cell ageing
- Integrates CMUs and a BMS within the same enclosure

BENEFITS

- Accurate and repeatable test stimulus
- Increased test coverage beyond the safe operating region of a real battery
- Does not require chemical fire suppression

APPLICATIONS

A battery surrogate for many test applications, including BMS, ECU, LRU, vehicle integration, SIL, and iron bird.

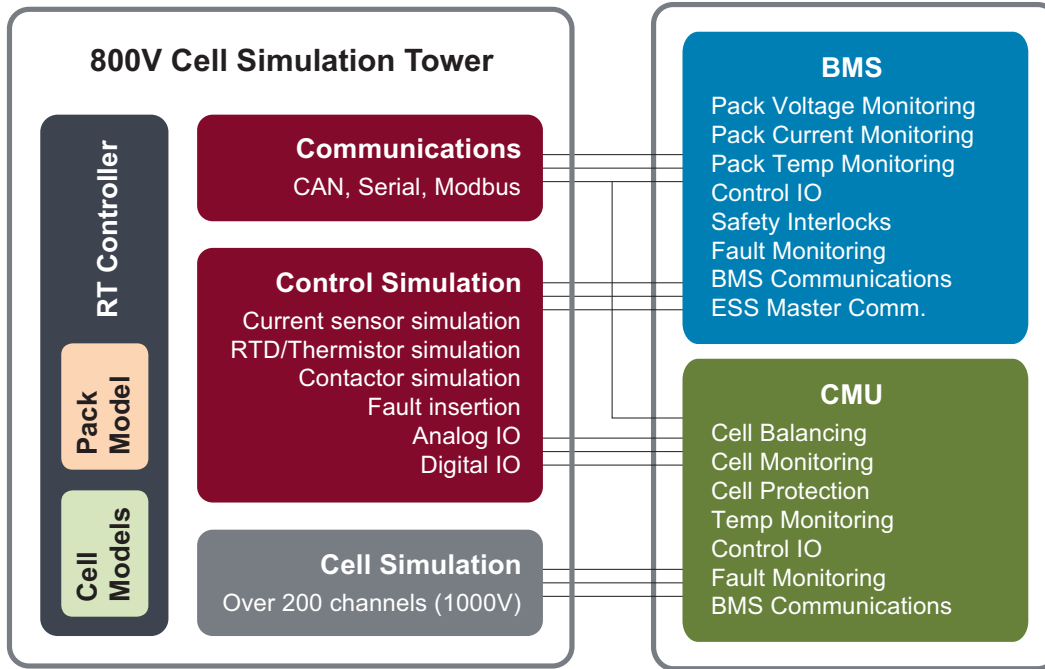
A safe, efficient test stimulus for HIL validation of high-voltage systems

The 800V Battery Cell Simulation Tower is an electronic functional equivalent of an 800V battery pack, without the hazards and inefficiencies of real battery cells. An accurate and repeatable test stimulus, the 800V Battery Cell Simulation Tower may be used for hardware-in-the-loop (HIL) testing of battery management systems (BMS), or combined with a BMS to form a battery surrogate for testing and validating many battery-sensitive systems. Applications include testing chargers, inverters, power controls, energy management systems, automotive electronic controls (ECUs), aerospace line replaceable units (LRUs), as well as vehicle simulators and iron birds.

The 800V Battery Cell Simulation Tower provides full, immediate control of the BMS without the delays and hazards inherent with charging and discharging real battery cells. It is a must-have for every high voltage battery electrification test lab!

SYSTEM DIAGRAM

The 800V Battery Cell Simulation Tower is a modular platform, providing a unique configuration to test battery sensitive devices and functionality.



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 240	Number of Ports	2
Channel Type	Sink and Source	Range	±10V 2.5Ω – 1.5MΩ	Baud Rate	40 kbits/s to 1 Mbit/s
Voltage Range per cell	0.0 to 5.0V	Resolution	<1mV 2Ω	Additional Protocols	LIN, SPI, RS232, Modbus
Voltage Resolution	0.1mV	Accuracy (typical)	0.03% 0.2%	PACK VOLTAGE SIMULATION	
Voltage Accuracy (requires remote sense)	±1mV	CURRENT SENSOR SIMULATION		Number of Channels	1 to 10
Balancing Current Range*	±500.0mA; output derates linearly under 2V	Typical Signal Type	Analog voltage	Voltage Range	Up to 1000VDC
Current Resolution	0.1mA	Number of Channels	2 to 4	Output Power	5W 30W 1500W
Current Limiting Accuracy	±10mA	Range	±10V	Resolution	0.1V 0.1V 0.003V
Common Mode Isolation	1000VDC reinforced/double	Resolution	16 bit	Accuracy (typical)	1-2% 1-2% 0.075%
CELL CHANNEL READBACK		Accuracy	±0.5%	BMS CONTROL I/O	
Voltage Resolution	0.1mV	Additional Signal Types	CAN communications, Bi-directional Power Supply	Number of Channels	Up to 32 input / 32 output
Voltage Accuracy	±1mV	* Do you have special requirements for cell, bus, or pack current; isolation, temperature simulation, or communications? Contact us.			
Current Resolution	0.1mA				
Current Accuracy	±1mA				
Common Mode Isolation	30V bank-to-bank				

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