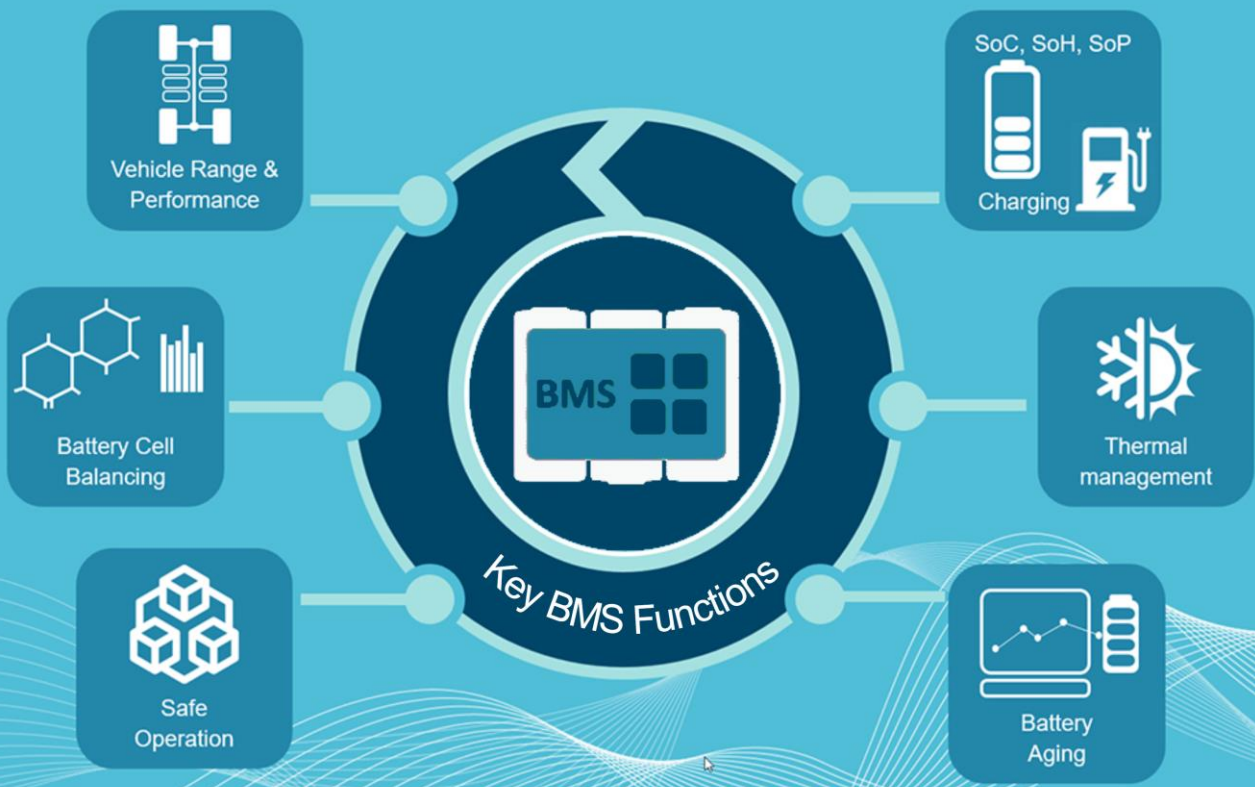


HIL TEST SYSTEM FOR

Battery Management Systems





Key Features

- Battery Cell Simulation
 - 1-200 cells
 - 0.01-8 V
 - Accuracy +/- 0.5 mV
 - Nominal Current 0-4.9 A
 - Accuracy +/- 2 mA
 - Passive & Active Balancing
 - μ A Current Measurement
- Fault Simulation of cells
 - Open
 - Short
 - Reverse Polarity
- Temperature Simulation
 - NTC/PTC Simulation
 - 2/4 channels per card
 - 0 Ohm .. 8.1 MOhm
 - Resolution 1 Ohm
 - Accuracy +/- 1 %
- Isolation Resistance Simulation
 - 2 channels per card
 - 20 k Ω .. 65 M Ω
 - Resolution 1 kOhm
 - Accuracy +/- 1 %
- Supports high voltage up to 1000V
- Shunt emulation
- Communication Simulation (CAN/FlexRay/LIN/AE)
- Battery Models Integration
- Real-Time Execution
- Programmable Power Supplies & Load
- Automated and Manual Test
- Scripting and Logging
- Remote Access and Diagnostics
- Scalable and Software Defined Architecture

Our BMS HIL Test solution is based on scalable and software defined PXI architecture powered by LabVIEW and Veristand software. The test system emulates the battery cells in real-time environment, fault simulations, temperature simulations, isolation resistance simulation and communication interfaces.

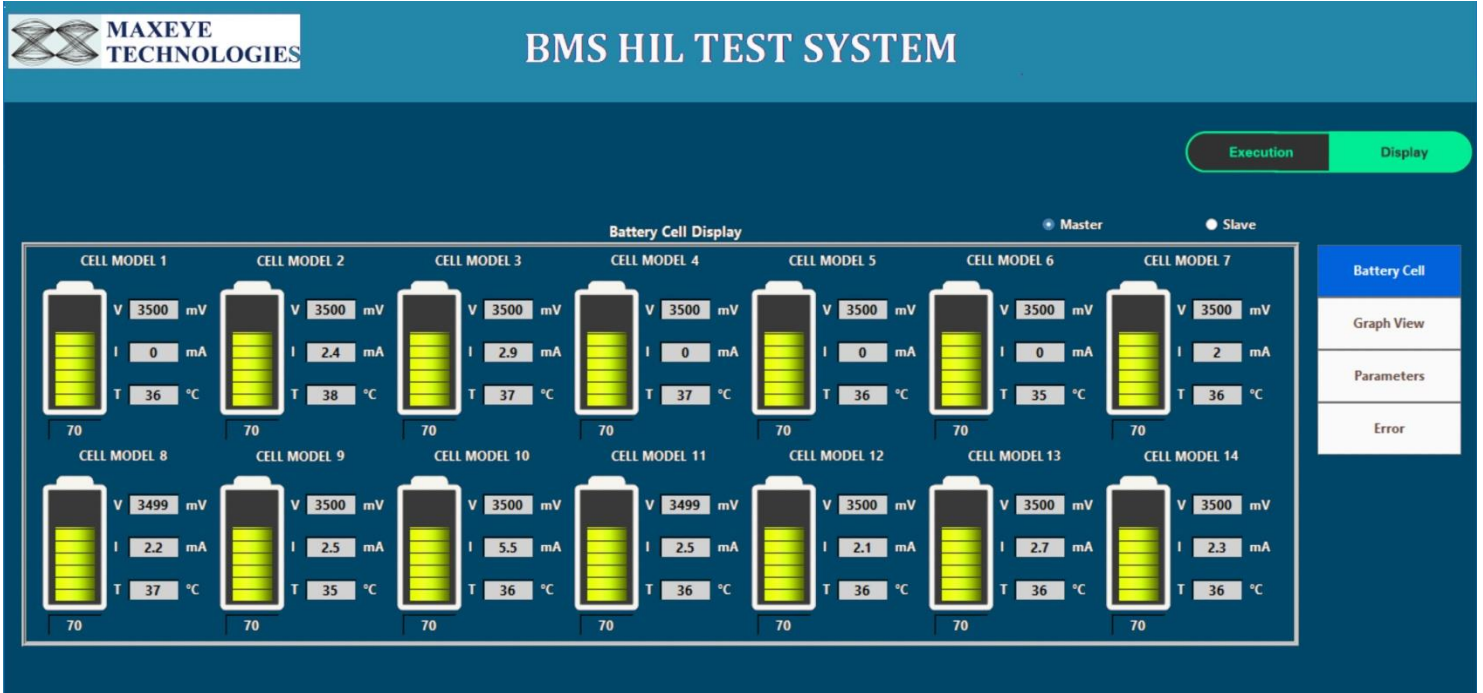
Our BMS test system allows testing on cell level with high precision. The electrical emulation of virtual cells ensures safe, repeatable and complete automated testing of BMS.



Battery Management HIL System Test Cases

Function	Test System Features	Test System Components
Monitoring	Cell voltage	NI PXI System, Battery Cell Simulator, Temperature, R-ISO Components CAN/FlexRay/LIN
	Pack voltage	
	Charge current	
	Discharge current	
	Temperature of pack/module	
	Isolation resistance	
	Communication failure	
Protection	Cell over charge	NI PXI System, Battery Cell Simulator, FSU, Temperature, R-ISO Components CAN/FlexRay/LIN
	Cell deep discharge	
	Short circuit of cell	
	Open circuit of cell	
	Reverse polarity of cell	
	Over temperature of cell	
	Under temperature of cell	
Safety	Cell balancing	NI PXI System, Cell Simulator Temperature R-ISO CAN/FlexRay/LIN
	Thermal management	
	Isolation failure	
	Communication Cable failure	
Estimations	State of charge (SOC)	NI PXI System, Battery Cell Simulator CAN/FlexRay/LIN
	State of health (SOH)	
	State of power (SOP)	
	State of energy (SOE)	
	Life cycle estimation	
Hardware Integration	NI PXI System, Battery Cell Simulator	NI PXI System, Battery Cell Simulator, Temperature, R-ISO Components CAN/FlexRay/LIN
	Fault Simulation Unit	
	Temperature Simulation, Isolation Resistance	
	HIL breakout panel	
	Automated Physical Signal Integration	
	Communication Interfaces	
Automated Test	Real-Time Execution of Battery Models	LabVIEW and Veristand
	Custom Test Cases	
	Automated Test Sequences and Logging	
	Remote access and Diagnostics	
	Scalable and Customizable Architecture	

MaxEye BMS HIL Test Automation Software supports Manual & Auto mode. In manual mode, the BMS tested with or without battery model & drive profiles. In Auto-mode, the tool supports test case creation, configuration & execution.



About MaxEye Technologies

MAXEYE Technologies founded in 2011, is a privately held company based in Bengaluru and Chennai, India, Silver Alliance Partner of National Instruments. We are a Test and Measurement company, specialized in providing turnkey solutions, products and consulting services. We have strong expertise in providing Test and Measurement solutions for Automotive Infotainment, ADAS, EV and IOT devices testing and ATE Development.

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