Battery HiLS
BMS Development Verification

A&D Technology

Improve the efficiency of BMS control logic development and verification

Use of a BMS Hardware-in-the Loop system (HiLS) helps to shorten the development cycle of a BMS. Testing is also more flexible, traceable, safer and easier to reproduce when testing beyond the normal range of battery operation.

The A&D BMS HiLS system has the ability to simulate up to 192 battery cells. Analog output voltage can easily be changed via a software interface.

Cost benefit from function consolidation

This is a compact and cost-effective HiL system that offers functionality such as analog voltage output, disconnection, voltage and current monitoring and noise contamination all on one multi-function I/O board.

Compact Design

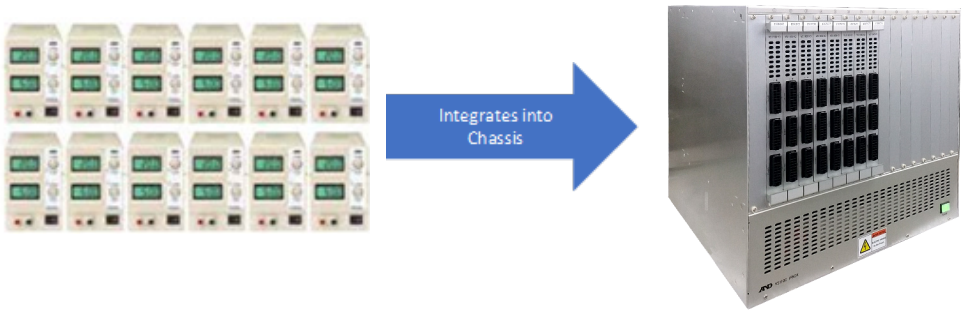
Each multi-function I/O board can simulate up to 12 cells. A total of 16 of these I/O boards can be placed in a single chassis. Hence a total of 192 cells can be simulated in one system. The chassis also includes a stabilized power supply

External Control

External control is provided via CAN communication.

Designed for Safety

The BMS is housed in a rack that prevents contact with any high-voltage parts of the system (includes interlock function), and includes temperature monitoring in enclosure, over current and short circuit protection.



Supports up to 16 I/O boards for a total simulation of 192 cells.

Highlights

- Simulate up to 192 battery cells
- Expandable in increments of 12 cells
- Multi-functional
- Disconnect function
- Voltage monitoring
- Current monitoring
- Noise contamination (optional)
- Supports modeling in Simulink®
- Storage space for BMS available in rack

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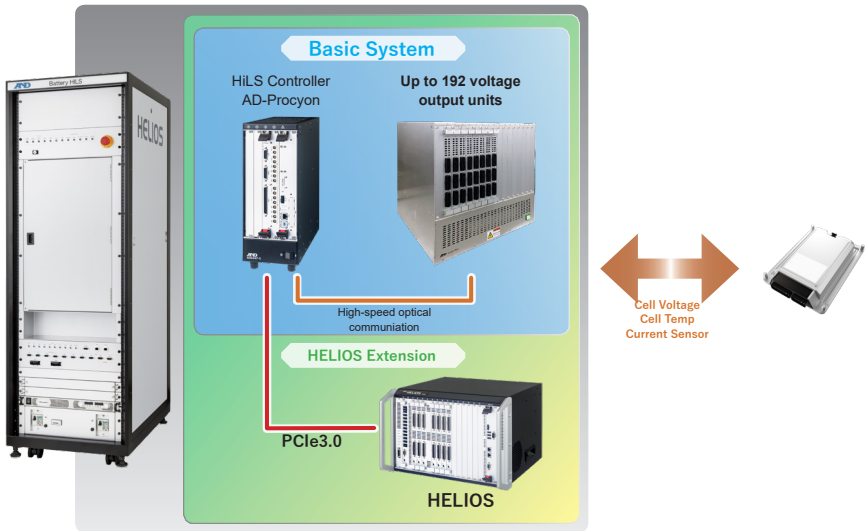
Specifications

Type		Basic Functionality	Multi Functionality
Format		VS1131	VS1141
DSP Housing		Intel Core i7 processor	
Maximum #Channels		192 channels	
Voltage output function	Range	0 to 5V (16 bit resolution)	
	Accuracy	+/- 0.1% of full scale	
	Output current	+/- 200mA	
Voltage measurement function	Range	---	0 to 5V (16-bit resolution)
	Accuracy	---	+/- 0.1% of full scale
Current measurement function	Range	---	+/-200mA or +/ 20mA
	Accuracy	---	+/- 0.1% of full scale
Disconnection function		Disconnection possible for each channel*	
Noise contamination function	Overview	---	Sine wave imposed on cell voltage
	Frequency	---	10 KHz
	Amplitude	---	1Vp-p
CAN communication function		2 high-speed CAN channels	
Power supply		AC 100V 15A	

*Maximum of 43 continuous channels can be disconnected at one time, but there is no limit to the total number of channels that can be disconnected.

The BMS HiL system I/O can be expanded by integrating A&D's HELIOS simulation and control system. In addition to cell voltage simulation, sensor simulation such as temperature can be added. The HELIOS system can be housed in the same rack, thus saving space.

Extensible I/O: Analog and digital input/output, Automotive network, ECU power supply



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