RENNOVA BATTERY CELL SIMULATOR

A Battery Cell Simulator, also known as a BMS (Battery Management System) Tester, is a specialized test system used to simulate the behavior and characteristics of battery cells for the purpose of testing and evaluating BMS functionality.

Battery Management Systems (BMS) are critical components in battery packs used in various applications, including electric vehicles, renewable energy systems, and portable electronics. The BMS is responsible for monitoring and controlling the battery's performance, ensuring its safe and efficient operation, and optimizing its lifespan.

The Battery Cell Simulator/BMS Tester is designed to replicate the electrical and environmental conditions that battery cells experience during normal operation. It allows comprehensive testing of the BMS's functions, such as cell voltage monitoring, current sensing, temperature monitoring, state of charge estimation, and cell balancing.

Here are some key aspects and functionalities of a Battery Cell Simulator/BMS Tester:

1. Cell Voltage Simulation: The tester simulates the voltage characteristics of battery cells, allowing the BMS to monitor and respond to varying cell voltages. It enables the evaluation of the BMS's ability to accurately measure cell voltages and detect abnormal voltage levels.
2. Current Simulation: The tester can simulate different charging and discharging currents to assess the BMS's current sensing capabilities. It allows testing of current monitoring, overcurrent protection, and accurate current measurement of the BMS.
3. Temperature Simulation: The tester can simulate temperature variations to evaluate the BMS's temperature monitoring and protection functions. It enables testing of temperature sensors, thermal management, and thermal runaway detection of the BMS.
4. State of Charge (SOC) Simulation: The tester provides simulation of the battery's state of charge, allowing the BMS to estimate the battery's remaining capacity accurately. It helps verify the accuracy of the SOC estimation algorithm and the BMS's ability to provide reliable battery capacity information.
5. Cell Balancing Testing: The tester can simulate cell imbalances by adjusting the voltage levels of individual cells. This allows evaluation of the BMS's cell balancing algorithms and its capability to equalize cell voltages during charging and discharging.

6. Fault Simulation: The tester may include the capability to simulate various faults or abnormal conditions, such as cell failures, communication errors, or voltage spikes. This helps assess the BMS's fault detection, protection, and fault recovery mechanisms.

By using a Battery Cell Simulator/BMS Tester, manufacturers, developers, and engineers can thoroughly test and validate the performance and reliability of BMSs. It ensures that the BMS operates correctly under different operating conditions, protects the battery cells from overcharging or over-discharging, and enhances the overall safety and efficiency of battery systems.

Variants

- Manually controlled
- PC controlled
- Open loop
- Close loop

Features

- Power Input – 230V,5A
- No. of Cells – Standard 24 (customizable as per requirement)
- Max Current o/p per cell – 100mA
- Voltage O/P per cell – 0 to 5V variable as per knob setting
- Temperature simulation – 24 cells (customizable as per requirement)