
GenBMS – Battery Management System

Overview

A **Battery Management System** (BMS) is an *electronic control system* that manages safely and efficiently a rechargeable lithium battery pack. Its main function is to track the *State of Charge (SoC)* and *State of Health (SoH)* of the battery pack, as well as perform maintenance actions such as cell balancing to provide maximum lifetime for the pack. Moreover It must monitor the main variables of the pack to avoid any possible overheating that can cause explosions.

GenBMS is a Battery Management System designed for Li-Ion and Li-po battery packs from 2 to 4 series cells and with a maximum inrush current of 12A.

Made of the experience of Genport, **GenBMS** is able to provide all the safety protection: **over current, over / under voltage, over temperature and short circuit.**

Thanks to the *Texas Instruments's* IC on board, **GenBMS** is fully compliant with the SMBus ver. 1.1 which enable it to dialog with the host system. The Impedance Track™ algorithm implemented can also guarantee SoC estimate error less than 1% thru the entire lifetime.

Specifications

- Operating Voltage: 7.4 – 14.8 V (2 to 4 Li-Ion or Li-po cells)
- Maximum Current : 12 A
- Cell balancing
- SMBus 1.1 compliant
- Gas Gauge, accuracy 1%
- JEITA guidelines compliant
- 5 LED Display for battery-pack conditions
- Lifetime data logging

Protections

- Primary and secondary over and under voltage protection
- Over current protection
- Short Circuit protection

- Over temperature protection
- AFE watchdog
- Discharge and charge FET fault
- Open thermistor detection
- Cell imbalance detection

Circuit Layout

