Sensata EL

Battery Management System

c-BMS18™

Battery Management System

The c-BMS18 features compact hardware for 18 cells in series and the latest software capabilities, along with advanced Sensata Technologies proprietary algorithms developed for low voltage BMS. It supports connecting up to 10 battery packs in parallel, providing flexibility in battery design along with improved safety and serviceability. The battery packs connected in parallel are battery swappable, eliminating downtime and range concerns normally associated with EVs and other electric applications due to the need for charging.

Hybrid SOC, along with advanced SOH, SOP, and SOE algorithms ensure that the c-BMS18 can maintain high measurement accuracy even with cell chemistries such as LFP, without the need for a full charge-discharge cycle or long rest time, essentially increasing overall system uptime.

Using the Creator™ software with the c-BMS18, the battery designer can define unique, application-specific battery settings, safety strategies, optimised battery performance, and battery life. The c-BMS18 is cell-agnostic both in terms of form factor and chemistry.

Highlights

Safety

- Safety-rated key components
- Self-test and redundancy in safety critical measurement circuits
- Open circuit detection

Usability

- RTC + logging of events, errors and warnings
- BMS Creator PC tool for easy configuration
- Requires no external power supply
- Supports UDS protocol for OTA software upgrades

Performance

- Individual cell voltage measurement accuracy to within ±1.6 mV at 25 °C
- Optimized low power consumption mode
- ±1 °C accuracy in temperature measurement
- Hybrid SOC algorithm & OCV compensation
- Advanced SOH algorithm based on capacity fading and internal resistance estimation

Battery Life

- High frequency sampling of current at 10 mS allows optimal detection of pulses
- Powerful and intelligent dissipative balancing at 325 mA peak per cell
- Heater control
- Temperature sampling rate at 100 mS to ensure optimal battery operation

Features

- 18 voltage channels (max. 65V)
- Capable of supporting up to 10 packs in parallel
- Battery swappable
- Advanced SOH, SOP & SOE algorithms

Applications