

Industrial Battery Management system (BMS)

Description:

This industrial Battery Management System (BMS) is electronic control circuits that monitor and regulate the charging and discharge of batteries. This reference solution is composed of Infineon powerful Industrial grade XMC7200, AFE TLE9018D and transceiver TLE9015D. TLE9018DQU fulfills four main functions: Cell voltage measurement, temperature measurement, Cell balancing and isolated communication; TLE9015D works as a transceiver to connect TLE9015D and MCU main battery controller. Besides, the solution also integrates pressure and gas detection, RTC and system voltage and system voltage and current sensing functions.

Advantages: Supports 18 channels, cost down and size optimization; reduces software effort.

Features:

- 18 channel dedicated 16-bit delta-sigma ADC cell voltage monitoring, high-accuracy measurement
- Fast and synced cell voltage sampling 7µsec with 3Mbit/s iso-UART
- Up to 300mA internally current balancing and 8 channel temperature sensors
- Pressure sensor and external RTC reserved
- System voltage and current sensing
- Supports BMS up to 1500V (in series)

Core Chip:

1. **Infineon** – XMC7200, TLE9018DQU, TLE9015DQU, TLE9104SH, TLE9351VSJ, TLF50281ELV50, KP467, TCIXTMA1, FM24CL64B-GA, CY8C4148LDE-HV734
2. **Bourns** – SM91502ALA-E, SRP5030TA-4R7M, CDSOT23-T24CAN, SRF3225TAFD-101Y, SRF9045A-701Y, SM8S36A-Q, CDSOT23-0502B, SRF1206SA300W-2, MH1608-601Y,
3. **Molex** – 348260160, 348240164, 348260240, 348240244, 5023520200, 5023510200, 349610386, 5600850101, 349590383, 5600230423, 5600230721

Applications:

- Uninterruptible power supply system
- PV Solar power supply system
- Forklift, AMR, AGV, robotics

Block Diagram:

Block diagram for BMS System

