

c-BMS24™

Compact Battery Management System for 24 cells

The compact c-BMS24 is developed to meet all relevant requirements for low voltage applications. Featuring carefully selected safety rated key components compliant such as the processor, ASIC, and PSU, the c-BMS is capable of accurate measurement accuracy and high safety.

The BMS has a very compact design and measures only 70 x 150 mm, while monitoring up to 24 Cells, typically covering 48V applications, up to 100V depending on cell chemistry.

The c-BMS24, with its powerful dual core safety rated processor and state of the art application specific integrated circuit (ASIC), can reach temperature accuracy of $\pm 1^\circ\text{C}$.

The BMS Creator™ software ensures, that the battery designer can create a unique BMS based on the standard cost optimized hardware. The battery designer can define a unique and application dedicated safety strategy, optimizing battery performance and battery life, which are achievable with the chosen Lithium cell.

The c-BMS24 is cell agnostic both in terms of form factor and chemistry and thus enables a full sourcing flexibility thereby reducing the design risk. With a standardized volume produced PCBA platform and automotive grade high quality components the c-BMS24 become a very cost efficient and compact solution.

Highlights

Safety

- 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

Battery Life

- High frequency sampling of current at 100 mS allows optimal detection of pulses

Performance

- $\pm 1^\circ\text{C}$ accuracy in temperature measurement
- Advanced SOH algorithm
- Advanced SOP algorithm (State of Power)

Features

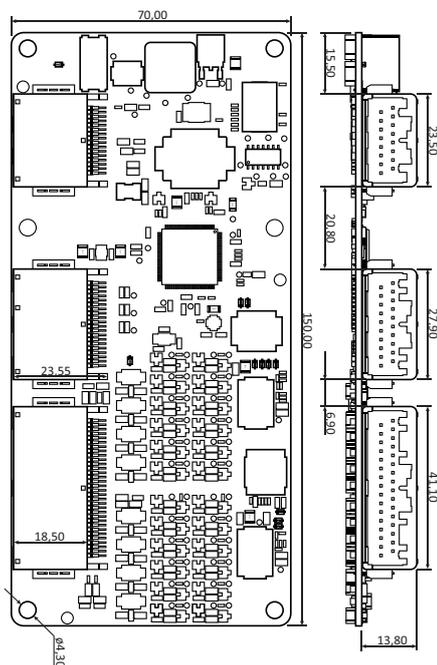
- Safety rated key components
- Centralized board with compact footprint
- Low power consumption mode
- Optimized low power consumption mode

Applications



c-BMS24 Compact Battery Management System

Technical Specifications



c-BMS Compact Battery Management System for 24 cells

Parameters	Specifications
Power supply	6-35 V
Range of high voltage measurement	0 - 120 VDC
Accuracy of high voltage measurement	±1 VDC
Range of current measurement input Shunt	±200 mV
Accuracy of current measurement input Shunt	±0.5 mV -40 – 85 °C
Range of current measurement input (Hall effect sensor)	0.0 – 5.0 V, 0.0 -2.5 V current in, 2.5 V – 5.0 V current out
Accuracy of current measurement input (Hall effect sensor)	±1.25 mV -40 – 85 °C
Standby consumption (sleep mode)	<2,5 mW
Active consumption	<2.7 W
Supported CAN communication type	CAN 2.0A/B 11 bit and 29 bit IDs
Supported CAN speeds	125, 250, 500, 1000 kbit/sec
CAN ports	1 (reference to power supply 6-35V)
External General Purpose I/O's	4 GP I/O (Active Low) and 4 inputs
Charger control interfaces	CAN
Number of cells	Up to 24 Cells. Minimum 11 V
Minimum detectable cell voltage	0 VDC
Maximum detectable cell voltage	5 VDC
Cell balancing topology	Dissipative
Cell balancing current	200 mA, at cell voltage 4.2 V
Cell voltage typical sampling time	100 ms
Accuracy of single cell voltage	±1,6 mV at 25 °C
Range of Temperature measurements	-40 to +85 °C
Accuracy of cell temperature (NTC)	±1 °C -40 – 85 °C
Patents	Granted: ZT 200780048774, EP 0781788.6, US 8.350.529
Temperature sensor channels	Up to 6
Dimension	170 mm x 70 mm x 15 mm, 67 g

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