

### Compact BMS for:

- Light Electric Vehicles
- Industrial Machines
- Robots and AGV's
- Drones and UAV's

## INTRODUCTION

The compact LiBAL c-BMS24 is developed to meet all relevant automotive requirements. ISO 26262 compliant design with key components such as Processor, ASIC and PSU are carefully selected to meet ISO 26262 with functional safety at ASIL C level.

The BMS has a very compact design and measures only 70 x 150 mm, while monitoring up to 24 Cells, covering 48V applications with any cell chemistry and up to 72V with LFP or NMC.

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 +/- 1 °C and cell voltage measurement accuracy of +/- 1.5 mV, throughout the entire temperature range (-40 to +85 °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.

## SAFETY

- ISO 26262 rated components and design
- Self-test and redundancy in safety critical measurement circuits
- Open circuit detection

## BATTERY LIFE

- High frequency sampling of current at 100 mS allows optimal detection of pulses
- Powerful and intelligent dissipative balancing at 200 mA per cell

## PERFORMANCE

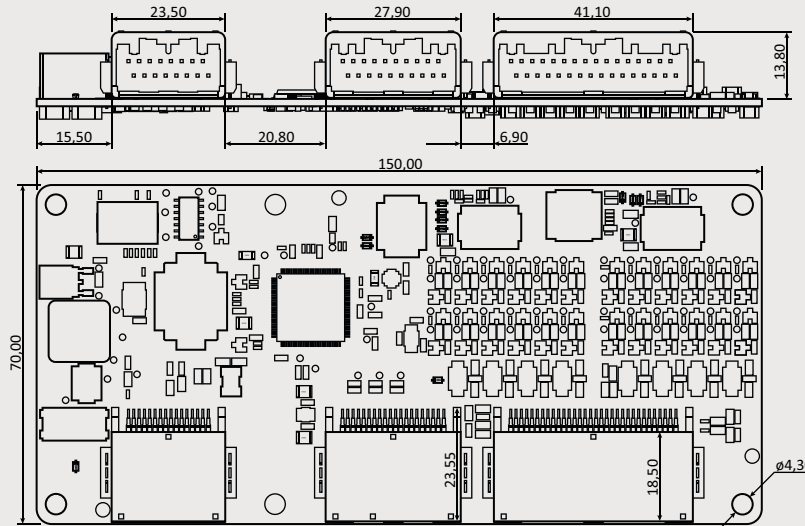
- ±1.5 mV accuracy in the complete temperature range (cell voltage)
- Optimized low power consumption mode
- ±1 °C accuracy in temperature measurement
- Advanced SOC algorithm with OCV compensation
- Advanced SOH algorithm
- Advanced SOP algorithm (State of Power)

## USABILITY

- RTC + logging of events, errors and warnings
- BMS Creator PC tool for easy configuration

## Applications





## c-BMS Compact Battery Management System for 24 cells

Dimensions in MM

### PARAMETERS

Power supply
Range of high voltage measurement
Accuracy of high voltage measurement
Range of current measurement input Shunt
Accuracy of current measurement input Shunt
Range of current measurement input (Hall effect sensor)
Accuracy of current measurement input (Hall effect sensor)
Standby consumption (sleep mode)
Active consumption
Supported CAN communication type
Supported CAN speeds
CAN ports
External General Purpose I/O's
Charger control interfaces
Number of cells
Minimum detectable cell voltage
Maximum detectable cell voltage
Cell balancing topology
Cell balancing current
Cell voltage typical sampling time
Accuracy of single cell voltage
Range of Temperature measurements
Accuracy of cell temperature (NTC)
Patents
Temperature sensor channels
Dimension

### SPECIFICATIONS

6-35 V
0 - 120 VDC
±1 VDC
±200 mV
±0.5 mV -40 – 85 °C
0.0 – 5.0 V, 0.0 -2.5 V current in, 2.5 V – 5.0 V current out
±1.25 mV -40 – 85 °C
<1.9 mW
<2.7 W
CAN 2.0A/B 11 bit and 29 bit IDs
125, 250, 500, 1k kbit/sec
1 (reference to power supply 6-35V)
4 GP I/O (Active Low) and 4 inputs
CAN
Up to 24 Cells. Minimum 11 V
0 VDC
5 VDC
Dissipative
200 mA, at cell voltage 4.2 V
100 ms
±1.5 mV from -40 to +85 °C
-40 to +85 °C
±1 °C -40 – 85 °C
Granted: ZT 200780048774, EP 0781788.6, US 8.350.529
Up to 6
170 mm x 70 mm x 15 mm, 67 g

