LiBAL c-BMS24™
Compact Battery Management System for 24 cells

LiTHIUM BALANCE
BATTERY MANAGEMENT SYSTEMS

INTRODUCTION

The compact LiBAL c-BMS24 is developed to meet all relevant requirements for low Voltage applications. Featuring carefully selected ISO 26262 compliant key components 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 ±1 °C and SOC accuracy to within ±0,5%

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 key components

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

Individual cell voltage measurement accuracy to within ±1.6 mV at 25 °C

Optimized low power consumption mode

±1 °C accuracy in temperature measurement

SOC algorithm with OCV compensation with SOC accuracy to within ±0,5%

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

23,50   27,90   41,10   13,80

15,50   20,80   6,90

150,00

70,00

23,55   18,50   ø4,30
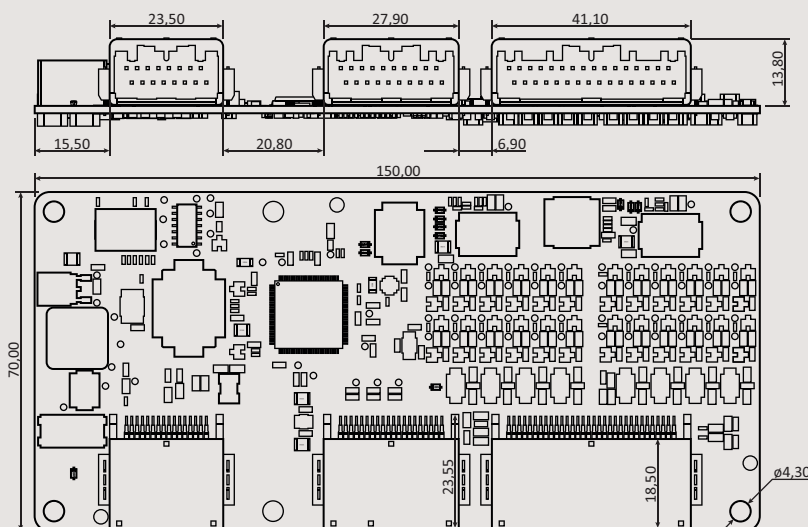
c-BMS Compact Battery Management System for 24 cells

Dimensions in MM

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, 1k 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