LiBAL s-BMS 9 - 16 cells™

Housed Battery Management system

LiTHIUM BALANCE
BATTERY MANAGEMENT SYSTEMS

TECH-MOBILE.HU

ROBUST INTEGRATION SYSTEM OPTIMIZED FOR 9 - 16 CELLS BATTERY PACK APPLICATIONS:

- Electric vehicles
- Hybrid vehicles
- Marine vessels
- Energy storage

INTRODUCTION

The LiBAL s-BMS 9-16 cells™ is a dedicated and cost effective Battery Management System for industrial, motive, and stationary battery packs with 9-16 cells in series. It manages rechargeable lithium batteries of any chemistry and from any battery supplier allowing you maximum battery sourcing freedom. The product is an stand alone housed solution which is easy to integrate and install on any give battery pack.

The PC Diagnostic Software provides displays for monitoring battery and BMS performance. It also allows you to configure all battery parameters such as limit voltages and temperatures, allowable charge and discharge rates or improve SoC estimation with your own battery model.

CAN frames can be constructed at “Bit level” to broad-cast the parameters measured and calculated. A post processing module allows you to scale and manipulate values and broadcast them on the CAN bus with no custom development needed. This allows the s-BMS to work as a drop in replacement for many existing systems.

FLEXIBILITY

9 to 16 cells in series
All battery parameters easily configured
User-definable event responses and warnings
User configurable I/Os and CAN messages
Battery model for intelligent rate control
Embedded post processing of CAN values

SAFETY

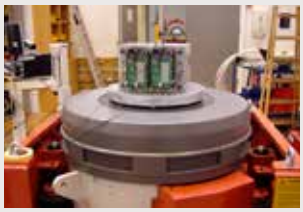
Detection of 27 error modes and 17 warning conditions
Noise and vibration robust
-40° to +85°C operational range

FUNCTIONALITY

Cell voltages 0-5V, ±2mV accuracy
SOC and SOH estimation
LEAK detection
Cell balancing up to 840mA/cell
Cell and Pack resistance estimation
Thermal management
Advanced charger control
Data logging via PC diagnostic tool

TESTED TO HELL SO YOU CAN USE IT ON EARTH WITH CONFIDENCE!

- Electromagnetic interference >200 volts/m
- Fast transients 4kV on all inputs
- HALT tested on all 3 vibration axes
- Tested from -90°C up to 120°C



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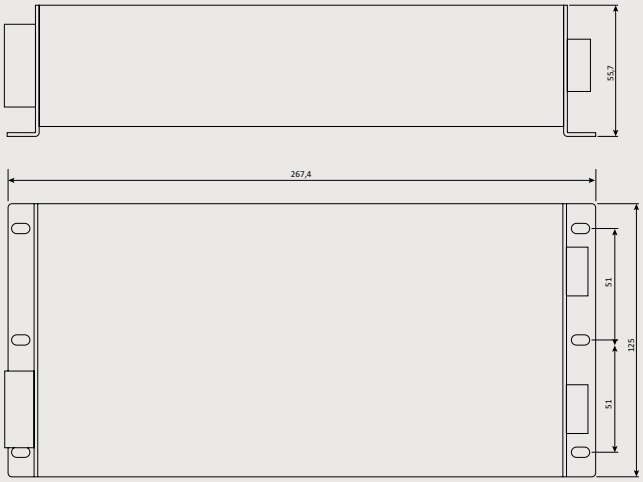
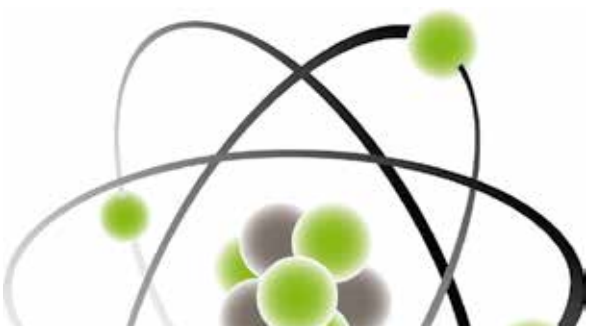


LiBAL s-BMS 9-16 Cells™ Housed Battery Management System

Cells per System	9-16 Cells in Series
Capacity	Up to 5000 Ahr
Balancing Current	Up to 840mA @ 4.2VDC
Input Voltage	Control Unit only: 12 VDC (9VDC - 14VDC)
Current Consumption:	Control Unit only – from 12V supply: <150mA operating
Temperature Sensor	1 to 4 per Unit. Type NTC , 10KΩ @ 25 DegC , β Value : 3900
Measurement Specifications	Cell Voltage: Range 0-5V, Accuracy ±2mV typical, <±10mV max., Sampling 1Hz
	Temperature accuracy ±1.5°C (dependent on sensor)
	Pack voltage 0-1000V, accuracy ±1V, Sampling 5 Hz
	Current Measurement by Shunt (100 – 1000 μΩ) , 400mV max, Sampling 5 Hz
Dimensions	268 x 125 x 56mm, 988g, Length with cables 500mm
Control IOs	HV Contactors, Charge Contactor, Precharge Contactor
User Defined IOs (max. 3)	Fan Control, Heater Control, HV Interlock, Low SOC Warning, Mid Pack Relays,
	Error LED, Off Board Leak Detection, Low Power Charger Mode (e.g. dual chargers)
Communication	CAN bus 2.0 A&B for system integration
	RS232 PC diagnostics interface
Charger Control Options	Analogue voltage control, PWM 1-5 KHz, CAN 2.0 A&B
Protection Modes	Capable to monitor and handle 27 safety critical error modes
	Capable to report 17 unique warnings conditions
	Capability to broadcast system status, errors and warnings over CAN
Diagnostic Tool	Licencing via USB Dongle (allowing multiple device usage)
	Supported Operating Systems: Windows Professional, XP, Vista, 7, 8
	Pro Version - Calibration Development capability
	Service Version - Field Service & troubleshooting
	Requires USB to RS 232 converter cable or RS232 port on device
EMC Immunity	Tested as per EN61000-4-3 (80MHz – 1000MHz) at 200 V/m, EN61000-4-4 (4kV)
Temperature	-40° to 85°C
Vibration Tolerance	Tested as per EN60068-2-6 random vibration (10 – 1000Hz)
Certifications	CE marking
Patents	U.S. Patent No. 8,350,529. China Patent No. ZL 2007 8 0048774. Patents pending



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