



INTRODUCTION

The s-BMS is an exceptionally flexible and cost effective Battery Management System for automotive and industrial and ranging from 12VDC up to 1000VDC. It manages rechargeable lithium batteries of any chemistry and from any battery supplier allowing you maximum battery sourcing freedom.

The system consists of a master board (BMCU) communicating with up to 32 monitoring boards (LMU). Each LMU manages 3–8 cells in series and 2 temperature sensors. The BMCU handles pack level measurements, data logging, application and charger interfaces.

The PC Diagnostic Software provides an intuitive suite of system configuration tools as well as displays for monitoring battery and BMS performance. It allows you to set battery parameters such as limit voltages and temperatures, allowable charge and discharge rates or improve SoC estimation with your own battery model.

To simplify integration, CAN frames can be constructed at “Bit level” to broadcast any of the parameters measured and calculated by the s-BMS. 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

- 12 VDC to 1000 VDC
- Up to 256 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

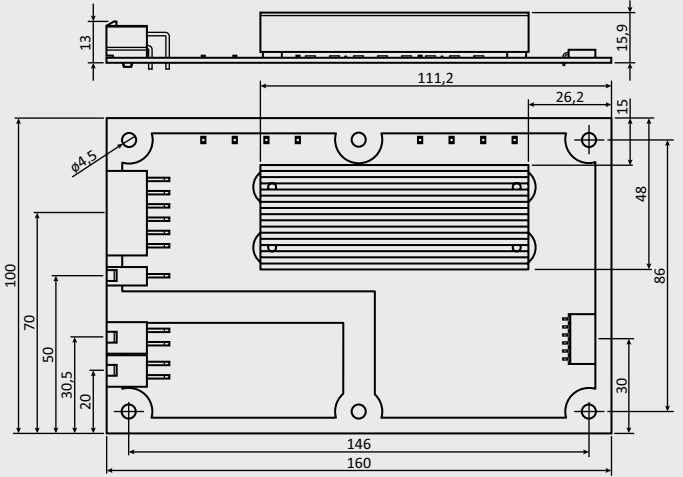
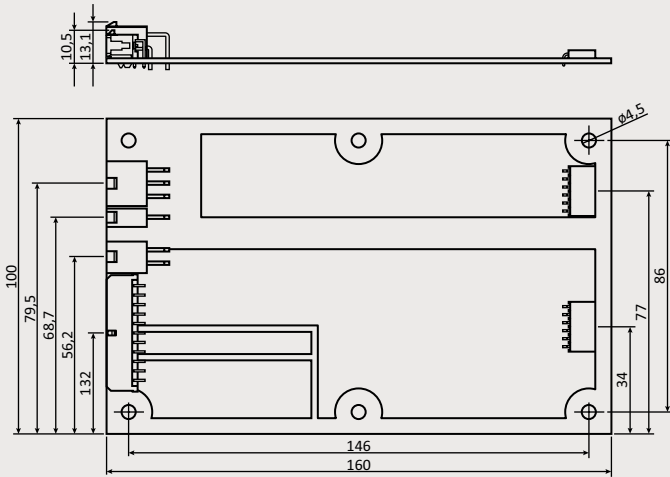
- Detection of 27 error modes and 17 warning conditions
- Noise and vibration robust
- 40° to +85°C operational range

FUNCTIONALITY

- Cell voltages 0-5V, ±2mV accuracy
- SOC and SOH estimation
- LEAK detection
- Cell balancing up to 840mA/cell
- Thermal management
- Advanced charger control
- Data logging
- Advanced Auto-off function

Applications





BMCU

LMU

Dimensions in MM

System Voltage Range	12 - 1000VDC
Cells per LMU	3-8 Cells
Cells per System	3 - 256 Cells in series
Capacity	2000Ah Max
Balancing Current	840mA @ 4.2VDC Max (Optional Heat Sink for boosted performance)
Input Voltage	12 VDC (9VDC - 14VDC)
Current Consumption: BMCU	<150mA operating / 0 mA in sleepmode
Current Consumption: LMU	<10mA operating. LMU is powered from cells / <3mA sleepmode
Temperature Sensor Temperature Sensors per LMU	2 on LMU PCB and 2 for Battery pack monitoring 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 5Hz Current measurement by Shunt (100 – 1000 μΩ), 400mV max, Sampling 5Hz
Dimensions	160 x 100 mm (Eurocard size), 20 mm stacking height BMCU 86g, LMU 72g, LMU with optional heatsink 146g
Coating	3M™ Novec™ electronic coating EGC-1700
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 detect, 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	Supported operating systems: Windows Professional, XP, Vista, 7, 8.1 and 10 PRO version: Configuration of battery and application parameters 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	Specifications: Operational -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.x patents pending

