

SMART BMS




by Idneo

Adapting our BMS to your application

Battery Management System Li-Lion battery packs with a flexible design to meet the needs of light electrical vehicles (eBikes, Scooter, AGV, Motorcycle and up to L7).


We provide engineering and manufacturing services focused on BMS development based on Functional Safety oriented design for **each specific application**.



 **Two-wheelers**


45A-REG <60V SIL-1
4xNTC BAL-65mA <100uA

Open-FW RTOS OV, UV, OC, SC, OT, UT, OTF
BOOTLOADER SoC SoH SoP
LOGGING CANOpen Cells
USB CAN 3 - 16 NMC, NCA, LFP, LTO

 **AGV / AMR**

75A-REG <60V SIL-1
6xNTC BAL-65mA <100uA

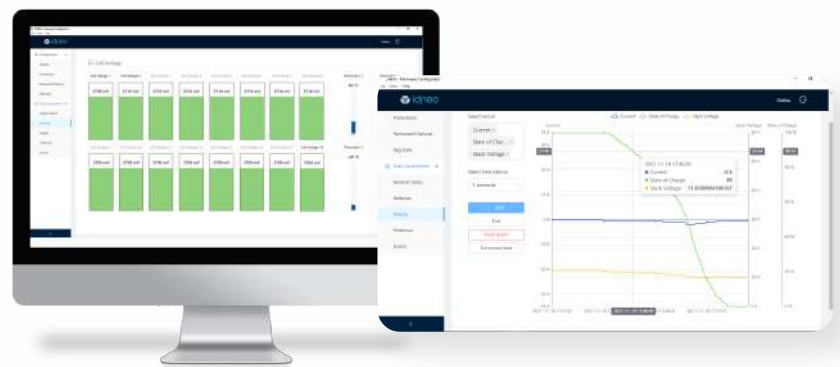
RTOS Open-FW OV, UV, OC, SC, OT, UT, OTF
BOOTLOADER LOGGING SoC SoH SoP
MODBUS CANOpen MQTT Cells
USB RS-485 CAN WiFi 3 - 16 NMC, NCA, LFP, LTO

 **Four-wheelers**

150A-REG <60V ASIL-C
8xNTC BAL-200mA

RTOS ISO 26262 OV, UV, OC, SC, OT, UT, OTF
BOOTLOADER DIAG SoC SoH SoP
UDS XCP CAN Cells Cell Thermal Model
3 - 16 NMC, NCA, LFP, LTO

Including SW application to **monitor and configure the BMS in a variety of environments:** PC application, CAN-based communications, remote control & monitoring through WiFi link. Introducing **cloud-based data management services** (BI dashboard, data analytics, AI continuous learning).



Flexible Customization Services



Functional Safety

Based on applicable rule such as IEC 61508 or ISO 26262
HaRa Analysis, Safety Plan
Technical safety concept, safety requirements, system level analysis (S-FMEA, s-FTA), system integration & testing
HW design safety analysis, FIT calculation, FMDA, DFA, Safety verification
Software level safety analysis, requirement & architecture



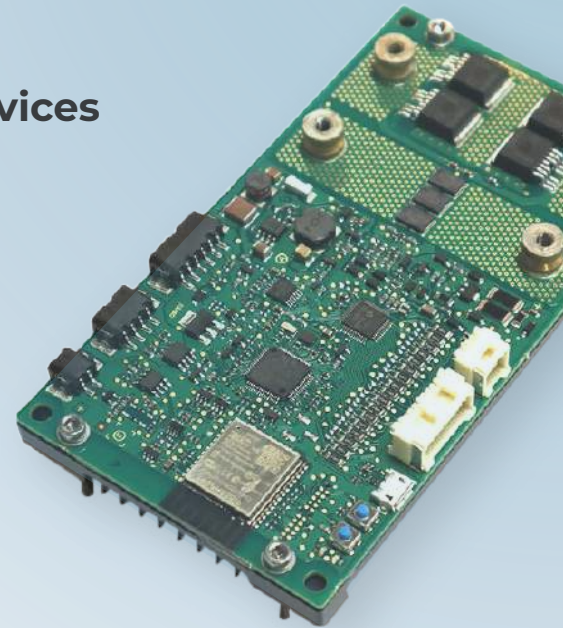
Firmware

Firmware framework with open API to allow customers develop their own algorithms
Customization of new functionalities
Custom communications through available interfaces
Customization of own protocols & algorithms
System level balancing in a multi-BMS system
Battery Swap algorithm for parallel connection
Open Firmware parameters (Vpack, VBat, Vcell, Idsch, Ichg, Tint, External temperature sensors, etc)
Custom SoC routine based on specific battery chemics



Power & Protection Parameters

Charge & discharge continuous & peak currents
High-side or Low-Side Topology for shunt resistor & power switches
Electronics & thermal simulation
Custom Heat Sink
Number of external Thermistors
External or internal Fuse
Increase cell balancing current with external circuitry
Pre-Discharge & pre-Charge FETs
Separate charge & discharge paths
Safety & Secondary monitor (Cell voltage, voltage & current sensing, ...)



Form factor & dimensions

Communication & Interfaces

Custom interfaces with battery chargers
Custom interfaces with motor controller
Adaptability to any connector interface:
CANOpen, RS485, USB, PWM, GPIO, WiFi, BLE

Auxiliary I/O's

Customization current I/O's for many services or functions
Heater & Fan
Indicators (Low battery, SOC level, Power Switch State, ...)
PWM to report battery parameters such as the SoC
External Analog/Digital input & output
External output for high-side or low-side connection

Compliant



Ongoing

