



# RE BMS

## INTELLIGENT BATTERY MANAGEMENT SYSTEM

Designed & Manufactured in Europe | Grid-Scale BESS | Large-Format Cells

RE BMS is an intelligent battery management system for grid-scale energy storage. It combines high-accuracy cell monitoring, real-time state estimation, and advanced balancing across a three-layer architecture - from individual cells to full system control.

Designed and manufactured in Europe, built to meet the safety, performance, and regulatory demands of modern energy storage infrastructure.

## WHAT SETS IT APART



### European-Made

No supply chain risk, IAA compliant from day one



### Full System Design

Solutions covering from cell monitoring to facility wide BESS control



### Accurate SoX For Life

SoC/SoH accuracy maintained over the lifetime of the system



### Recover more Energy

Higher-current balancing recovers energy other systems leave behind

## LAYER 1

## BATTERY MANAGEMENT UNIT

Voltage Measurement	Cell voltages reported to $\pm 2$ mV accuracy
Temperature Sensing	Up to 20 NTC thermistor inputs per module
Balancing	Fast (>300 mA) passive balancing Active balancing for larger cell format (optional)
Communication	isoSPI daisy-chain (Pack Controller Interface)
Isolation	Galvanic isolation via isoSPI interface
Target Cell Format	300+ Ah large-format (LFP)
Module Configuration	Up to 52 cells per module
Diagnostics	Open wire detection, cell-level fault monitoring

## LAYER 2 PACK CONTROLLER

### Low-Power Electronics

System Voltage	1500 VDC
State Estimation	SoC/SoH estimation $\pm 2\%$ maintained through life (Smart SoX firmware)
External Communication	CAN, RS485 / Modbus RTU, Modbus TCP, Ethernet
Internal Communication	isoSPI daisy-chain (to BMUs)
Isolation Monitoring	Integrated isolation monitoring
Diagnostics	Pack-level fault monitoring, self-test sequences, open wire detection

### DC Power Management (Optional)

Contactor(s) Drive	DC string contactor control with integrated drive circuits
Pyro-Fuse Integration	Pyro-fuse triggering for irreversible fault isolation
Pre-Charge Circuit Current	DC bus pre-charge control
Measurement	Pack-integrated shunt current sensing
HV Sensing	High-voltage bus measurement and monitoring
Contactor Weld Detection	Continuous monitoring for contactor weld faults
Protection Features	Overcurrent, overvoltage, undervoltage, short-circuit, thermal shutdown (pack and cell level)

## LAYER 3 MASTER CONTROLLER (OPTIONAL)

Communication	Ethernet, Modbus TCP
Fleet Management	Multi-rack coordination and system-level control
EU Battery Passport	Data aggregation and reporting support
Operating Temperature	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ (target)

## REGULATORY COMPLIANCE

EU Industrial Accelerator Act (IAA)	Designed for compliance
IEC 61508	SIL 2
IEC 62619 [ESS safety]	Compatible
UL 1973	Target certification
IEC 62443 [Cybersecurity]	Design conformity
EU Battery Passport	Layer 3 support



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