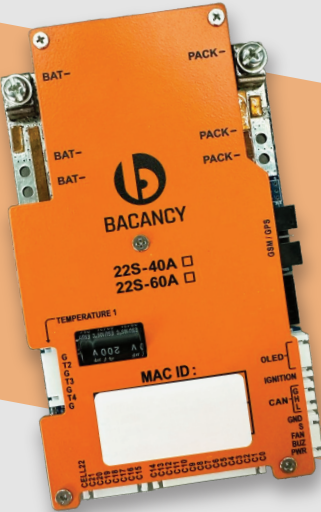


# BATTERY MANAGEMENT SYSTEMS (BMS 22S-60A)



## FEATURES

- ◆ Designed to **Optimise Battery Usage and Performance.**
- ◆ Accurate Estimation of **SOC and SOH**
- ◆ Offers **Cloud-Based BMS Analytics and Statistics**
- ◆ **Battery Protection** from Over Heating, Over Charging and Over Discharging

## APPLICATIONS



EV | HEVs | Electrical Storage Equipment | Swappable Battery Systems | UAVs | Industrial Robotics

## TECHNICAL SPECIFICATIONS

### Voltage

Operating Voltage Range	40 V to 110 V
Cell Voltage Measurement Range	Up to 5 V

### Current

Charging and Discharging Current	Constant 60 A
Peak Discharge Current	~80 A (30 Second)

### Power

Standby Power Consumption	~ 0.21 W (Without Ignition), ~ 0.08 W (With Ignition)
Operating Power Consumption	~ 1.02 W (With Active 4G Module, BLE and Wi-Fi)
Full Discharge Sleep Consumption	~0.081 W (With / Without Ignition Type BMS)

### Cell Supported

Chemistry	NMC / NCM, LFP
Monitored Cells	17s to 22s (In Series Configuration)

### Balancing Method

Cell Balancing Topology	Dissipative (Passive; Default up to 150 mA & Scalable on Request)
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### Communication

Wireless	BLE 4.2   Wi-Fi   GSM / GPRS / LTE Interface
Wired	Non-Isolated CAN
Machine to Machine	MQTT Protocol

### Extra Features

Digital I/O Pin	2 Output Pin (Fan & Buzzer) & 1 Input Pin ADC Based (Smoke Sensor)
Temperature Sensor	4 NTC for Battery Pack (External Support) & 1 On-Board FET Thermistor (Internal Support)

### Measurement Accuracy

State of Charge (SOC)	± 4% (SOC Algorithm with OCV Compensation)
Temperature	± 2°C
Cell Voltage	± 10 mV
Current	Up to 3% at Calibration Point

### Safety

Protection	Over/under cell voltage, over/under temperature during charge and discharge, over current during charge and discharge, pack over/under voltage and MOSFET failure notification
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### Calculation

SOH & SOC	Coulomb Counting and OCV Models
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### Standard

Compliance	AIS-156 Amendment-3
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### Support

Integration Option	Small OLED, Buzzer, Fan, Smoke Detection Sensor and Ignition Signal
Software	Firmware Over-The-Air (FOTA)
Event Log Data	Alert, Fault and Diagnose

### Environment

Operating Temperature	-20°C to 85°C
Storage Temperature	-30°C to 85°C
Relative Humidity	5 % to 95 % No Condensation

### Mechanical

Dimension (L X B X H)	159 X 95 X 20 mm
Weight	280 g & 144 g (Without Enclosure)

