

# WIRELESS BATTERY MONITORING SYSTEM

**ELECTRONICS  
4ALL**

## TECHNICAL DATA SHEET

ORDER CODE: BMS-1001-TH  
CATEGORY: Sensors

## Intelligent Monitoring for Ultimate Battery Bank Reliability.

### PRODUCT OVERVIEW

#### General Description

For businesses that depend on mission-critical systems, E4A's Battery Monitoring System is crucial for maintaining uninterrupted power. Our advanced solution offers continuous data sampling and real-time reporting, ensuring you have peace of mind with constant oversight of battery health. The system can be installed on various types of batteries, including maintenance-free VRLA, wet cells, lead acid, and NiCad. By providing detailed insights and timely alerts, E4A's monitoring capabilities help prevent even minor battery failures from disrupting your operations, allowing you to take swift action and ensure reliable power protection for your enterprise.



### PRODUCT BENEFITS

#### 01 Optimizes Maintenance

Continuous data collection provides a precise assessment of battery health, allowing for proactive maintenance and minimizing the need for emergency repairs.

#### 02 Reduces Manual Check

Automation through real-time monitoring decreases the need for manual inspections, saving on labor costs and allowing staff to focus on more critical work.

#### 03 Extends Battery Life

Timely insights into battery health help maintain optimal operating conditions, extending the lifespan of battery banks and reducing frequency of replacements.

#### 04 Reduces Warranty Claims

Comprehensive documentation from real-time monitoring strengthens warranty claims, reducing costs and strengthening the claim.

#### 05 Prevents Unexpected Failures

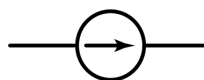
Real-time monitoring helps identify potential issues before they escalate, reducing the risk of sudden battery failures and minimizing costly repairs.

### MEASURED PARAMETERS

✓ Voltage



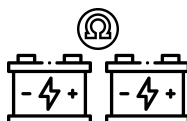
✓ Current



✓ Internal Battery  
Fuel Gauge



✓ Intercell  
Resistance



✓ Ambient  
Temperature



✓ Ambient  
Humidity



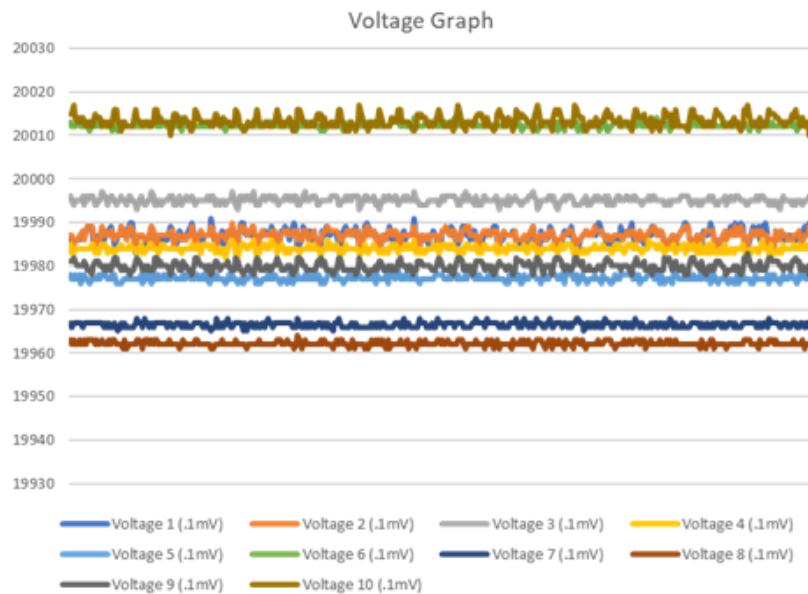
# FEATURES

- ✔ **24/7 Alarm Notifications**  
Continuous alerts for immediate awareness of battery issues
- ✔ **Autonomous Operation**  
Powered by the battery being monitored and equipped with internal battery for emergency use
- ✔ **User-Defined Reporting**  
Customizable intervals for generating reports
- ✔ **Automatic Data Logging**  
Captures and records data during flat, charge, and discharge cycles
- ✔ **Customizable Alarm Limits**  
Allows users to set specific thresholds for alerts
- ✔ **Wireless Data Transmission**  
Utilizes Bluetooth 5.0, eliminating the need for battery room LAN cable pulls
- ✔ **Compatibility**  
Supports Lead Acid, Li-Ion, VRLA, and NiCad batteries
- ✔ **4.3kV DC Isolation Barrier**  
Ensures safe operation with high voltage systems
- ✔ **Coverage**  
One sensor monitors up to 10 battery cells

## Real-Time Alarm Level Display and Historical Data

Our real-time alarm level display provides an up-to-date status of each cell's health. Users can easily review historical battery parameters by selecting a date range of interest, thanks to the cloud-based platform that ensures your data is always secure and accessible. This means your historical data is preserved without risk of being overwritten.

Additionally, the system's graphing capability allows you to observe trends and identify abnormalities, offering valuable insights into system health even when no alarms are present.



## E4A IOT MANAGER

Unlock the full potential of your sensor network with E4A's IoT Manager — a powerful, web-based platform designed for real-time monitoring, control, and analysis of your IoT devices.

- 01 Real-Time Sensor Dashboard
- 02 Advanced Data Analytics
- 03 Customizable Alarm Thresholds
- 04 Remote Setpoint Configuration
- 05 Historical Data Review
- 06 Plus Much More!

**SIGN UP HERE!**



**Don't Have an Account? No Problem!**

Just scan the QR code and follow the prompts. Once you contact us, we'll handle the setup and get you connected — quick and hassle-free.

# TECHNICAL SPECIFICATIONS

## Power Supply

Main Power	Self-Powered (by battery being monitored)
Supply Voltage (Lead-Acid)	11-36VDC
Supply Current (Lead-Acid)	10.3mA (ON), 6.3mA (OFF) @ 25VDC
Other Power (Optional)	Internal Battery (3.6VDC, 3300mAh Li-ion)
	5.5mm barrel connector
	USB Type B (5VDC @ 500mA)
Supply Voltage (DC Input)	7-15VDC (2.5x5.5mm barrel jack)
Supply Current (DC Input)	1.5A @ 12VDC
Overvoltage Category	1
Current Consumption	<1A

## Operating Specifications

Operating Temperature	-20°C to +60°C (lead-acid powered)
Internal Battery	Battery charging disabled above 45°C
	Battery charging disabled below 10°C
	Battery discharging disabled above 60°C
Storage Temperature	-40°C to +85°C (battery installed)
	-40°C to +85°C (battery not installed)
Operating Humidity	20-85% (operating and storage)
Ingress Protection Rating	IP30
Pollution Degree	2

## Measurement Characteristics

Analog Front End	11-36VDC local lead-acid battery string input
	Up to 10 individual series connected cells
	0-5VDC measurement range per cell
Resolution	24-bit resolution
Temperature Measurement	40°C to +120°C (±0.5°C accuracy)
Humidity Measurement	0-100% relative humidity (±3.5% accuracy)

## Physical Characteristics

Housing Material	ABS plastic
Physical Dimensions	Height: 120mm / 4.7 inches
	Width: 50mm / 1.9 inches
	Depth: 90mm / 3.5 inches
Weight	300g
Mounting	Universal DIN rail 35mm width
	Magnetic mount

## Communications

Wireless Module	2.4GHz Bluetooth 5.0 transceiver
Communication Range	300m line of sight
Communication Interval	User programmable in 10 second increments
Output Power	Up to +5dBm with temp. compensation
Receiver Sensitivity	-105dBm, 125kbps
Security	AES 128-bit crypto accelerator
	ECC and RSA public key accelerator (PKA)
	SHA2 accelerator (full suite up to SHA-512)
	True Random Number Generator (TRNG)

## Interface

Indicators	Front fascia membrane (red, green, orange LED)
User Interface	3 push buttons (user-programmable)
	1 power button
	2 rotary encoders
Voltage Battery Interface	2 x 6 terminal block
Current Battery Interface	1 x 4 terminal block
Communication Port	USB 2.0 debugging interface

# SPARE PARTS AND ACCESORIES

Part Description	E4A Part Number
Dual Band Gateway	E4A-BFA-00004-01
Quad Band Gateway	E4A-BFA-00005-01
AC/DC Adapter	E4A-PWS-00001-01
Current Transducer	E4A-SEN-00002-00
DIN Rail Mounting Clip	E4A-ENC-00008-00
Current Clamp Cable Assembly	E4A-CBL-XXXXX **
Battery Cells Cable Assembly	E4A-CBL-XXXXX **

\*\*Cable assembly parts are custom based on the battery bank configuration

## CERTIFICATIONS

FCC	2AXVKBMS01
Industry Canada	26661-BMS01
Safety	61010-1



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## DISTRIBUTORS

