



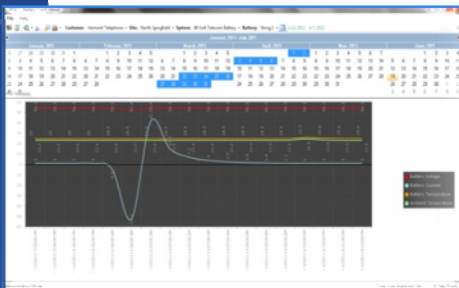
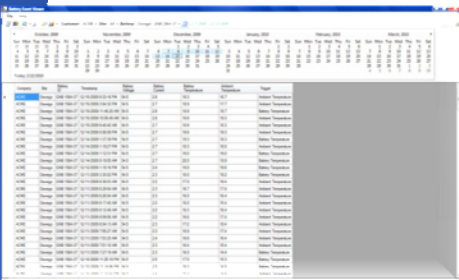
Battery Event Monitoring Service

Catastrophic battery problems can be detected early

Save money and reduce your risk of battery failures resulting in downtime - ensuring 100% reliability - at the same time predict expenses to fit your budgeting cycle, assist with replacement planning decisions and efficient personnel deployment.

Benefits

- Designed as a maintenance program enhancement, our patent pending battery monitoring service can provide around the clock assurance – by showing immediate real-time data as it happens and providing historical trending for predictive analysis.
- Float current measurements, along with string voltage, cell temperature, and ambient temperature provide cost effective advance warning of battery degradation and Thermal Runaway conditions.
- Especially suited for users responsible for many systems over a wide geographical area interested in information that can identify trends that help predict battery failure before it occurs.
- The Battery Event Monitoring system is installed, administered and maintained by the technical experts at Battery Research & Testing. All systems are monitored around the clock from our centralized facility manned by knowledgeable battery personnel who have the skills to interpret the data gathered by the system, see trends, and detect the onset of failures.
- Remote monitoring cannot completely eliminate the need for ongoing hands-on maintenance yet provides crucial information between maintenance visits.


A return on investment can be realized with just one failure prevention.

▪ **STATIONARY POWER SERVICES FOR INDUSTRY** ▪ **EXPERTS IN DC SYSTEMS** ▪
Battery Research and Testing, Inc. a WBE Enterprise ▪ 1313 County Rt. 1 ▪ Oswego, NY 13126
Toll-Free (800) 221-7123 ▪ Ph (315) 342-2373 ▪ Fax (315) 342-0797 ▪ www.batteryresearch.com



Battery Event Monitoring Service

Features

- The Battery Research & Testing - Battery Event Monitoring system - consisting of monitoring, analysis, and notification elements is a high speed, low latency, continuous, real-time monitoring system used to detect signs of battery degradation, calculate capacity, perform cycle counting, verify temperature compensation and building HVAC.
- Detects conditions that cause Thermal Runaway - before it occurs.
- Centralized monitoring facility manned by knowledgeable battery personnel.
- The monitoring hardware is non intrusive and can be installed without taking the battery offline. The system requires no user configuration or administration.
- Measures battery string voltage, current (float, discharge, and recharge), battery temperature and ambient temperature.
- View historical data on demand.
- Secure - one way data flow from site. The only site requirement is Internet connectivity.
- Notifications by voice, email or text message.

Technical Specifications

Battery Voltage

Range: 12-60 Vdc
Resolution: .1 Vdc
Accuracy: .1% (\pm .1 Vdc)

Battery Temperature

Range: -40 - 125 °C
Resolution: .1 °C
Accuracy: .5%

Float Current

Range: .1 to 10 Adc
Resolution: .1 Adc
Accuracy: 2% fs

Ambient Temperature

Range: -40 - 125 °C
Resolution: .1 °C
Accuracy: .5%

Discharge/Recharge Current

Range: $>10^+$ Adc
Resolution: .1 Adc
Accuracy: 1.5% fs

Total System latency < 10 sec.

System Notifications

Floating
Recharging
Discharging
Voltage Bounds
Temperature Bounds
Temperature Differential
High Float Current
Thermal Runaway
At Cutoff Voltage
Monitor Online
Monitor Offline
Monitor Disabled

Detecting and averting catastrophic battery failures can be a reality by using a continuous, real time monitoring, analysis, and notification system provided by the experts at Battery Research & Testing.

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Patent Pending