BATTERY MONITORING SYSTEM
FOR UTILITY SUB-STATION DC SUPPLY, VLA-VRLA-NICAD

Utility Substation Battery System

BTECH's S5 battery Monitoring and Validation Systems are designed specifically for 130 volt and 250 volt substation battery systems. The S5 system is designed to collect data from NiCad's as well as 2 volt VLA/VRLA cells. The S5 system can manage data from dual charging applications and the systems can endure the harsh environments sometimes found in the utility industry. BTECH's impedance measurement technology is considered the reference method for stationary monitoring system ohmic testing. BTECH's S5 systems has the sensitivity and high-end filtering required to finding failing cells in any application and UPS/charger type. BTECH's patented rate of change analysis finds bad units well before they pose a risk to your critical systems. BTECH's S5 systems use fewer wires than any of our competitors. The wire set is pre-designed, pre-terminated and tested; cutting installation time in half in while increasing system reliability.

Key System Features

- Real-Time Monitoring of System/String/Unit Voltages, Float, Charge and Discharge Current
- Programmable Cell Impedance Measurement: Up to 24x/Day
- Battery Discharge Data Logging
- Up to 220 Individual Units and 2 Strings per system

Utility Industry Considerations for Battery Monitoring:

- Smart grid and regulatory efforts require real-time access to the sub-station battery
- Ability to detect open circuits
- Centralized data access and reporting
- ISO audit compliance
- Standardization of DC plant management
- Consistent evaluation techniques
- Improved DC plant asset management
- Elimination of manual testing
- Redundant battery string may not be necessary

Facility Management System Integration

- MODBUS over TCP/IP for simple third-party software integration
- DNP3
- IEC61850
- SNMP
- (6) Programmable Output Relays
- (4) Programmable Input Relays

Alarm and Data Acquisition Ports:

- Integral Network Card
- Integral Dial Up 56k Modem
- Local: RS-232 and USB
- Alarms: Text message to multiple cell phones, pagers or e-mail addresses through BVM Software or BMS integration

NERC PRC-005 Compliance

BTECH's products monitors the parameters NERC has determined to be critical to Sub-Station reliability

- High and Low Float Voltage
- DC Ground Fault
- Proper Float Voltage
- String Continuity
- Individual String Current Monitoring for multi-string systems
- Inter-cell Connections
- Internal Ohmic Values with baselines (Initial Impedances)
- Battery Discharge Data Logging

Safety

BTECH's Quick-Disconnect Safety Fuses simplify battery replacements while protecting personnel during installation and maintenance.

Why BTECH Is The World Leader In Battery Monitoring

WE'RE SUPERIOR

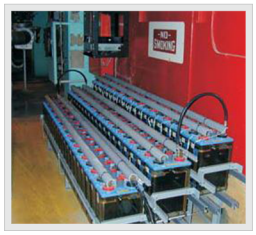
With over 7,000 systems installed worldwide, BTECH's patented impedance method provides rock solid data accuracy and stability, allowing more time to respond – no other system comes close.

WE'RE NON-DESTRUCTIVE

With a load signal optimized to the battery type, our system never subjects your batteries to a stressful load test. Plus, our system is not powered by your batteries avoiding unnecessary parasitic battery loads.

WE KNOW YOUR BATTERIES

BTECH doesn't just manufacture battery monitoring systems, BTECH's core competencies include DC plant experts, DC plant maintenance and UPS/charger design requirements. These core skills not only enable BTECH to provide the industry leading consulting services our customers expect but also provide unbiased support on the best practices in battery maintenance, battery testing and battery monitoring.



BTECH Inc.
ISO 9001:2008

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System Specifications

Measurement Capability:
- Total Voltage: 0-600V
- Unit Voltage:100-150 VDC
- Unit Impedance: 100μΩ to 20 mΩ

Temperature:
- Unit and Ambient: -32°F to 160°F
- Differential: 15°F from default ambient

Discharge Events:
- Date & Time
- System Voltage
- Load Current
- Power Removed
- Unit Voltage Decay

Discharging Logging:
- Programmable

Connection Capacity:
- Total Number Strings: 2
- Total Number of Units: 220

Measurement Accuracy & Repeatability:
- System Voltage: +/-0.1% Full Scale
- Unit Voltage: +/-0.1% of Reading
- Unit Impedance: +/-0.1 mΩ
- Temperature: +/-1.0°F

Power Requirements
- 75 – 150 VDC (DC Distribution panel preferred) or Protected 110 – 250 VAC 50/60 Hz (AC Supply)

Enclosure:
- SCM – 600 Controller: NEMA 1 Metal Rack or Wall Mount
- VM24i Module:
  - Voltage/Temperature/Current Flame Retardant Poly
- 1 Current Transducer per string 1% sensitivity

LED Indicators – VM24i DCM:
- Green = Power On

LED Indicators – SCM 600 Controller:
- Green = Summary No Alarms
- Yellow = Summary Maintenance Alarms
- Red = Summary Critical Alarms
- Red Equipment = Hardware Failure
- Alternating Green = Performing Measurement

Software:
- BVM 4.x Windows® based software package
- BVM Observer 4.x designed for Windows® 7 or above

System Configuration

S5H	1	02	060	C	O	WM	00
type	strings	point voltage	monitoring points	measurement	options	configuration	custom code
S5H (60-600V)	1-4 1	2 02	2-120 060	clamp, per string: C		Rack Mounted, RM	
		1.2 01		clamp, per system: T		Wall Mounted, WM	
		4 04		shunt, per string: S		Shelf Mounted, WM	
		6 06					
		8 08					
		12 12					
		16 16					

Testimonials

"In 1995 we purchased the BTECH monitoring system for each of 5 UPS units with more than 300 batteries in the system for our corporate offices. Since their installation we have not had one battery related outage of an operating UPS unit.

The BTECH system has fore warned of more than 30 potential battery failures allowing us to replace before they fail…The only way to know how your batteries are performing is to monitor their performance on weekly basis. BTECH has provided flawless service in maintaining our battery back-up systems."

-Ken Rheault, Consumer Energy

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