

# Power

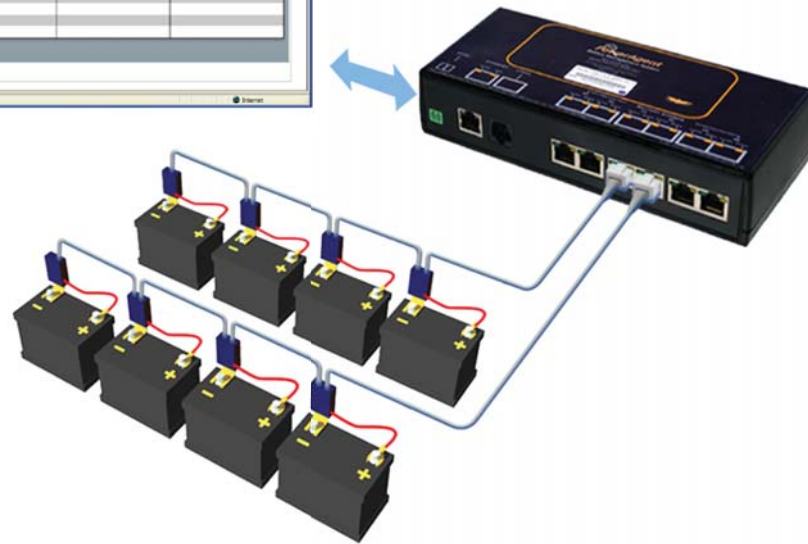
## PowerAgent

Remote Battery Monitoring



- Ethernet, TCP/IP or SNMP
- Flexible, scalable, easily installed
- Programmable alarm thresholds for each battery
- Built-in email notification
- Sensors powered from monitored battery

The PowerAgent BMS is a remote monitoring system that alerts managers to degradations in the power-producing capacity of batteries in their inside/outside plant uninterruptible power supplies. Based on an advanced patent-pending technology called “admittance” testing, the BMS employs DSP (Digital Signal Processing) and standards-based interface protocols to facilitate seamless integration of battery monitoring into an enterprise-wide network management fabric.



**What Pieces Make Up The System?**

The PowerAgent BMS has three components:

**Sensors:** A sensor is attached to the terminal posts of each monitored battery. The sensors measure the battery’s admittance (internal resistance), voltage, and post temperature

**A Site Controller:** The site controller communicates with each of the sensors and collects the most recent measurement data. It checks each measurement against locally stored alarm thresholds and alerts the user’s monitoring software if an abnormality occurs. The site controller is fully Ethernet TCP/IP compatible, and has a built-in web server and SNMP interface.

**Monitoring Software:** The PowerAgent BMS system, with its native standards-based SNMP interface, is the only battery monitoring system that gives the user ‘freedom of choice’ to select the optimum software for the application.

**Software choices include:**

- No software – The site controller’s internal web interface provides information for all components connected to the Site Controller.
- Lookout™ Software provides a global view of multiple installations with the ability to “drill in” to details. Lookout™ is provided at no charge.
- Continuity SBL enterprise-class battery system monitoring and analysis package provides predictive trending information and can manage thousands of battery sites.
- Any software that supports an SNMP interface.



## PowerAgent

### Why Is Remote Battery Monitoring Important?

The proliferation of high-capacity, high reliability back-up power systems comes with multiple costs of ownership. A typical mission critical lead-acid battery plant requires regular maintenance visits from personnel who perform visual inspections, make measurements of electrical parameters related to state of health and compile reports for submission and analysis by network maintenance managers. If the battery manufacturer's guidelines for environmental control, charging rates and regular maintenance are followed, a typical absorbed mat electrolyte primary cell can be expected to last from six to ten years, and a multi-cell monobloc can be expected to last four to seven years, delivering reliable discharge performance when it is required.

In the best cases, regular maintenance and inspections are performed two to four times per year and paper reports are generated. These reports are typically not integrated into an enterprise database that could otherwise be mined to facilitate pro-active, just-in-time maintenance, battery replacement and inventory management. Consequently, actual battery life and runtime often falls short of expectation.

Recent developments in "Ohmic AC Measurement" technology have made it possible to automate the process of collection and analyzing important battery performance metrics. This technology now delivers consistent and continuous information in a form that enterprise IT systems can collect and analyze in order to reduce maintenance visits while improving network reliability and extending battery life, thus reducing operational costs.

### Hardware and Software: Decoupled

Most battery monitoring systems require proprietary software. Interfacing these systems to other operations center software systems has traditionally been difficult, complex and unreliable.

The PowerAgent BMS battery monitoring system employs open TCP/IP & SNMP standards at the site controller level. This hardware and software decoupling enables the most appropriate monitoring option to be selected.

### PowerAgent BMS Advantages

The PowerAgent BMS system uses small intelligent sensors mounted to each battery to provide exact information on a battery by battery basis. These sensors are then daisy-chained together with common CAT-5 (Ethernet) jumper cables to deliver individual battery-specific information to a small, affordable, standards-based site control unit, which in turn shares it with the desired monitoring software over a LAN, WAN, or the Internet. Since mechanical and electrical connections to the battery are only made once at installation time, subsequent readings are consistent and accurate.

Typical PowerAgent applications include installation in Alpha Enclosures for outdoor powering applications.



Wireless Transfer Enclosure (WTE)



Argus TE



Fiber Backhaul Enclosure (FBE)



# PowerAgent

## Specifications

### Site Controller

Number of Monitored Strings	6 max
Number of Batteries	100 max
Network Interface	Ethernet 10/100 BaseT
Network Protocols	TCP/IP, UDP, HTTP, SNMP, Telnet, DHCP, SMTP
Local Diagnostic Interface	Proprietary 9600 baud, RJ-45, ASCII
Power	15 to 60Vdc, 2W nom, (110/220Vac power pack available)
Dimensions	6.0" x 9.0" x 1.6"
Mounting	Rack or wall



### Sensor Modules

Model Number PAS-PA-BSx-y-z	
Measurements	String volts, battery volts, temperature, dynamic resistance/admittance
Controller Interface	2 ea, RJ-45
Mounting	Mounts on battery negative terminal; wire/lug connection to positive terminal
Indicators	Red/green LED
Power	Powered from monitored battery; 10ma avg standby current
Isolation	Optically isolated from controller
Size	1.5" x 3.0" x 0.75"



## Part Numbers

### Site Controller and Sensor Modules

PBT-PA-BMS-SC1	Site Controller
PBT-PA-BS1-2-1	2V Battery Sensor (type 1) "L" bracket
PBT-PA-BS1-12-1	12V Battery Sensor (type 1) "L" Bracket
PBT-PA-BS1-2-2	2V Battery Sensor (type 2) "Z" bracket
PBT-PA-BS1-12-2	12V Battery Sensor (type 2) "Z" bracket
PBT-PA-BS1-2-5	2V Battery Sensor (type 5) "Z" bracket with 12mm bolt
PBT-PA-BS1-12-3	12V Battery Sensor (type 3) "FT" bracket
PBT-PA-BS1-12-4	12V Battery Sensor (type 4) two wire sensor (no brkt)
PBT-PA-BS2-12-1	2V high voltage Battery Sensor (type 1) "L" bracket
PBT-PA-BS2-12-2	12V High voltage Battery Sensor (type 2) "Z" bracket
PBT-PA-BS2-12-4	12V High Voltage Battery Sensor (type 4) two wire sensor (no brkt)

### Accessories

PBT-WT-2	Optional 24Vdc wall transformer for powering controller from AC
PBT-RK-1	19" rack shelf
PBT-PRG-USB	Programming adaptor

### Battery Monitoring Cable Kits

PBT-PAC-BMS-04	4 battery
PBT-PAC-BMS-12	12 battery
PBT-PAC-BMS-20	20 battery
PBT-PAC-BMS-24	24 battery
PBT-PAC-BMS-30	30 battery
PBT-PAC-BMS-40	40 battery

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