



# Squeeze every last drop out of your back up

**PowerShield8 battery management system**  
Solution overview

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# PowerShield8 battery management system

In the high-pressure world of data center management, PowerShield is a refreshing presence.

As committed, industry-leading experts, we provide battery management tools enabling you to clearly understand what is happening with your UPS battery systems. You can ensure maximum uptime while getting the most out of your battery investment.

## Solution overview

### Facing the squeeze?

As the heart of the digital economy, data center operators are squeezed by conflicting pressures. Maintaining the highest possible availability at the lowest possible cost.

PowerShield is a global supplier of battery management systems, supporting data centers to achieve maximum availability by helping ensure power back-up is always available. We also enable you to get the maximum value out of your considerable investment in battery protection.

### Our latest release: PowerShield8

PowerShield8 combines robust hardware devices for the reliable monitoring and collection of battery data with smart software dashboards. These provide a real-time view of battery health and predictive analytics about future performance. All backed by world-class technical expertise in battery management.

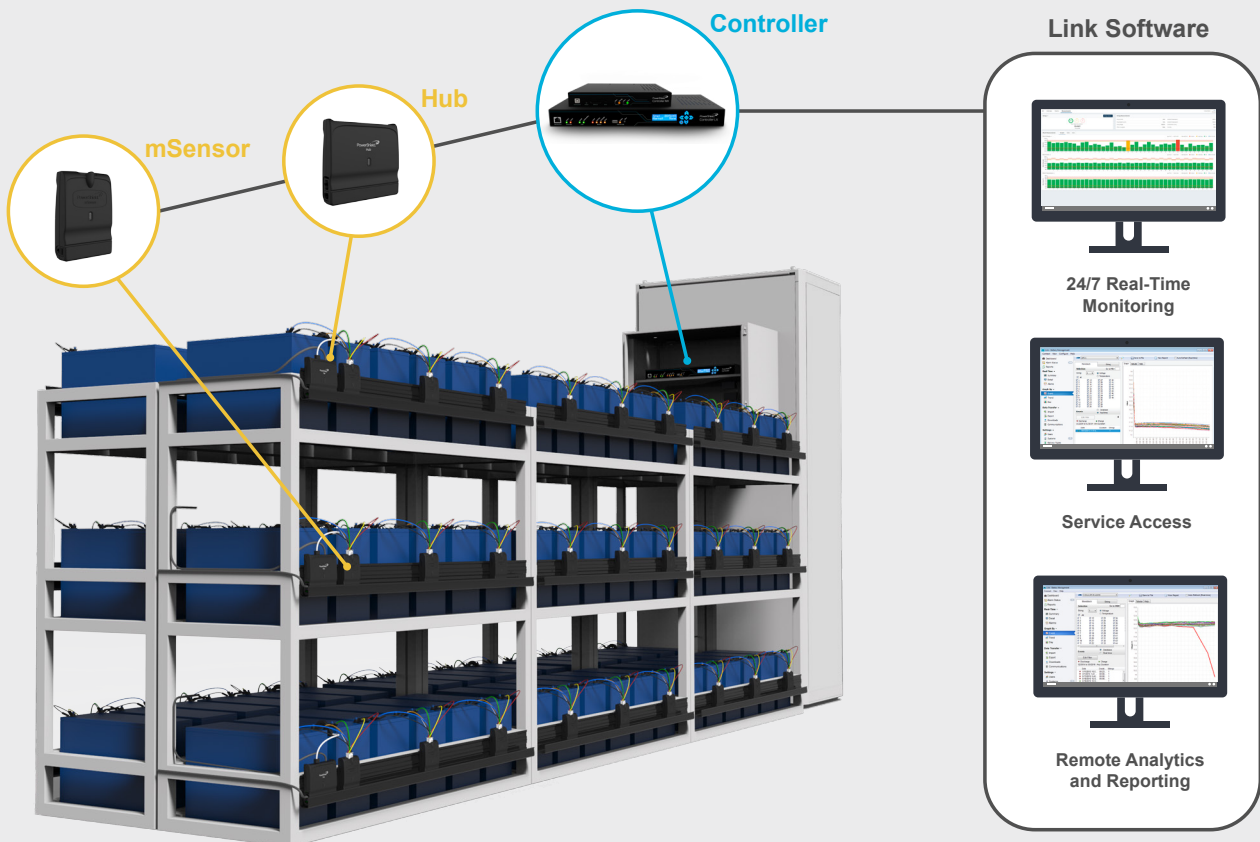


Figure 1. Typical PowerShield8 battery management system setup

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# Link battery management software

## Turning battery data into actionable insight

Link battery management software is a window into the health and performance of your battery systems. It enables you to make informed decisions quickly and proactively. Bundled with your PowerShield8 system, the Link software application manages the Controller and records all battery readings in its database for viewing, trending and reporting.

Data is turned into actionable information in the form of alerts and dashboards. Link also sends key information to control room and facility management systems. Available across sites and to multiple users, Link comes with no additional licensing or costs.

### What's the juice?

- Instant, clear information for making decisions about your batteries.
- Confidence that the right people will be alerted to any issues and be able to take action.
- Ease of operation and training.

### Key features:

- Reduce the cost of manual monitoring and intervention (and the associated health and safety risk).
- Live discharge data.
- Permanent connection to multiple sites: for unlimited number of batteries.
- Real time battery status.
- Remote access via LAN.
- Alarm and activity log.
- Graphing and analysis tools.
- Discharge – individual events in detailed activity summary.
- Trending – impedance change, end-of-life, charge voltage, temperature.

## Reporting service

Talk to your PowerShield representative about our monthly Reporting Service which provides expert analysis of your battery monitoring data.

- Complete awareness of the overall condition of your batteries.
- Assurance any battery issues will be identified to enable a timely response.
- Reduce the internal effort required for monitoring battery performance data.

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# Controller

## The brain of your battery management system

The Controller is an intelligent hardware device that at four second intervals captures, processes and stores all relevant data collected from batteries and the operating environment.

With regular monitoring comes the accumulation of data, the ability to report and spot trends, and make informed decisions. At the heart of this is the Controller. Dependent on the size of your organisation, PowerShield8 offers flexibility and scalability with two Controller options – MX and LX. Similar in capability, Controller MX has been designed for small to medium size battery systems of up to 4 strings. Alternatively, Controller LX supports larger configurations of up to 8\* strings of batteries.

The Controller captures, processes and stores data from the Hubs and mSensors. This includes battery voltage (DC and ripple), impedance and temperature, string voltage and current (DC and ripple), humidity, plus ambient temperature.

### What's the juice?

- Have confidence that battery data is being gathered and recorded every four seconds.
- Know that battery data will always be available and problems identified quickly.
- Find the option for accessing and understanding the data recorded that suits your operation.

### Key features

- Simple installation, minimal cabling and the capability to monitor UPS batteries that are up to 8 strings per system.
- A user-friendly web interface with smartphone/tablet friendly status screens.
- Dry contact inputs can be utilised for monitoring battery breaker status, door status, electrolyte level sensors or other 3rd party devices.
- Battery behaviour captured accurately through non-latching alarms, providing high resolution record of battery readings that cross two level alarm limits. Also captures the extreme values recorded during alarms.
- Integration with infrastructure management systems enabled with built-in protocols (SNMP, ModbusTCP, HTTP).
- Access options for non-networked sites, including LCD version of the Controller LX with keypad access, and simplified data collection option with USB port.

# Supporting components

## Hub

A Hub on each battery string connects the various data points required to provide an accurate picture of your battery bank's current and future state.

The Hub reduces the need for excessive cabling. It allows for more batteries to be added to every cable as well as being able to hold two roles (e.g. ambient temperature and current transducer). This reduces the clutter of a system and streamlines the configuration.

The Hub takes inputs from sensors at the battery rack and connects them through to the Controller. It also connects with external sensors to measure current and ambient temperature, and has an on-board sensor to gauge humidity, communicating this data to the Controller for aggregation.

## mSensors

mSensors enable you to quickly and accurately record data from every battery. Located at the battery, mSensors gather individual voltage (DC and ripple), impedance (Ohmic value) and temperature for VRLA, VLA and Ni-Cd batteries.

Advanced circuits in the mSensor drive fast data sampling and powerful measurement algorithms. 750Vdc optical isolation inside the mSensor keeps the dangerous voltages at the battery and away from the operator, while still ensuring battery data is passed to the monitoring system at speed.

Designed for use with batteries in racks or cabinets, mSensors come with pre-terminated harnesses, making them a simple 'plug and play' solution. This makes the hardware easy to install.

### Key features:

- Ni-Cd, 2V, 4V, 6V, 8V, 12V, 16V solutions.
- Simultaneous voltage sampling across all batteries.
- Temperature measured at negative terminal as per IEEE guidelines.
- 750Vdc optical isolation.
- Factory terminated harness.
- Cabinet or rack compatible.
- On-board high precision reference for impedance self-calibration.

## Available as separate components

The mSensor communicates via Modbus, meaning it can be easily integrated with existing site management devices. This allows expansion of your remote monitoring capabilities, without additional infrastructure. Alternatively, through a communication interface, battery data can be pushed direct to the cloud independent of existing equipment.

\*Contact PowerShield for further details.

## About PowerShield

PowerShield specialises in the design, manufacture, installation and operation of advanced battery monitoring systems for organisations with critical services that rely on continuous power. We provide the most advanced and most cost-effective tools for monitoring and managing stand-by battery banks. Continuous data sampling, reporting and battery management capability from PowerShield delivers reduced costs, peace of mind that you have batteries that perform when needed, and you are maximising the life of your batteries.