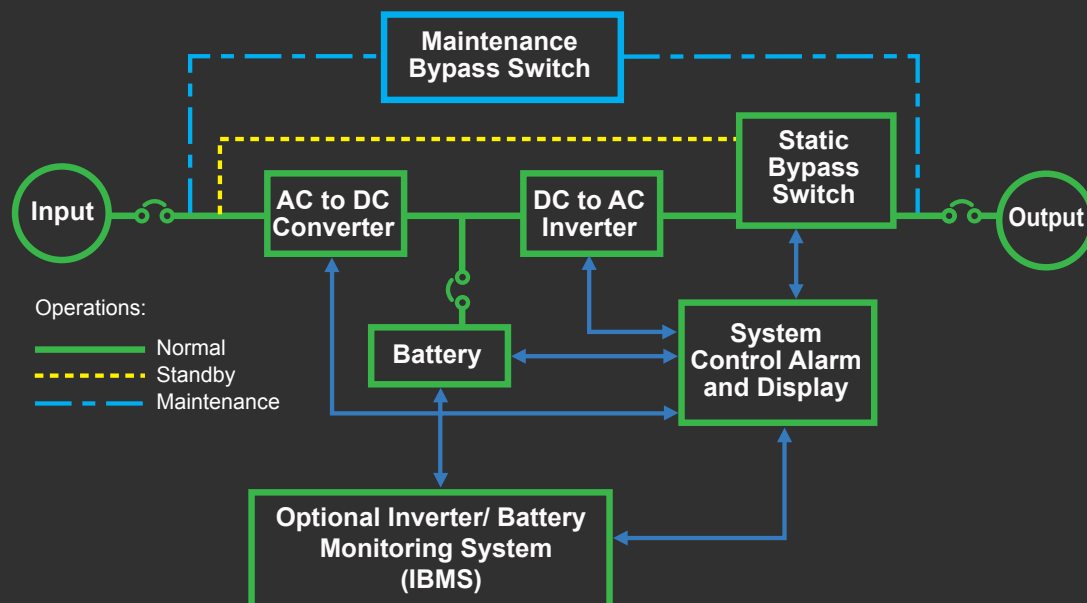


# Integrated Inverter/Battery Monitoring System (IBMS)

Battery monitoring at its finest



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## DSPM's Monitoring System (IBMS)

If you're operating mission critical systems relying on the protection of a UPS/ inverter with battery bank, system monitoring is essential. It's about peace of mind - knowing that the system is functioning properly and being constantly monitored. Knowing that everything has been done that can be done, to protect your enterprise from the consequences of a power failure.

### All batteries will fail, it is just a matter of time

It only takes the failure of one battery to compromise the entire battery string. It is often assumed that batteries are meticulously maintained, but this is rarely so. Many batteries are not inspected or maintained beyond an annual service visit. Unknown and undetected battery failures become apparent right at the time when you need the batteries the most - during a power failure.

DSPM Monitoring System provide more than rudimentary battery monitoring. The IBMS can identify faults within individual batteries, and detect an imbalance in the performance of multiple strings. To ensure the integrity of the battery system, it is necessary to detect failing blocks before they affect the performance of the entire system. The effectiveness of a battery monitoring system is proportional to the number of points that are monitored and the frequency that this occurs. With regular monitoring comes the accumulation of data, the ability to report and spot trends, and the ability to take timely remedial action.

DSPM's IBMS provides an advanced and most cost-effective tool for monitoring battery banks. DSPM's continuous data sampling, reporting and battery monitoring capability delivers reduced costs, gives peace of mind, and most importantly - ensures that you have batteries that perform when needed.

### When and where it matters the most

DSPM's Monitoring System takes a total approach to battery monitoring. This means that by selecting from a range of options, the system can be tailored to meet your specific requirements. Maintenance free VRLA or wet cells, lead acid or Nicad - DSPM has a solution for your battery.

### Understanding your batteries

#### Individual battery voltage

Incorrect charge voltages may result in loss of capacity, accelerated grid corrosion, excessive gassing and premature end of life. Voltage also identifies catastrophic failures, such as short circuit cells, and gives true visibility of performance under discharge.

#### Ambient temperature

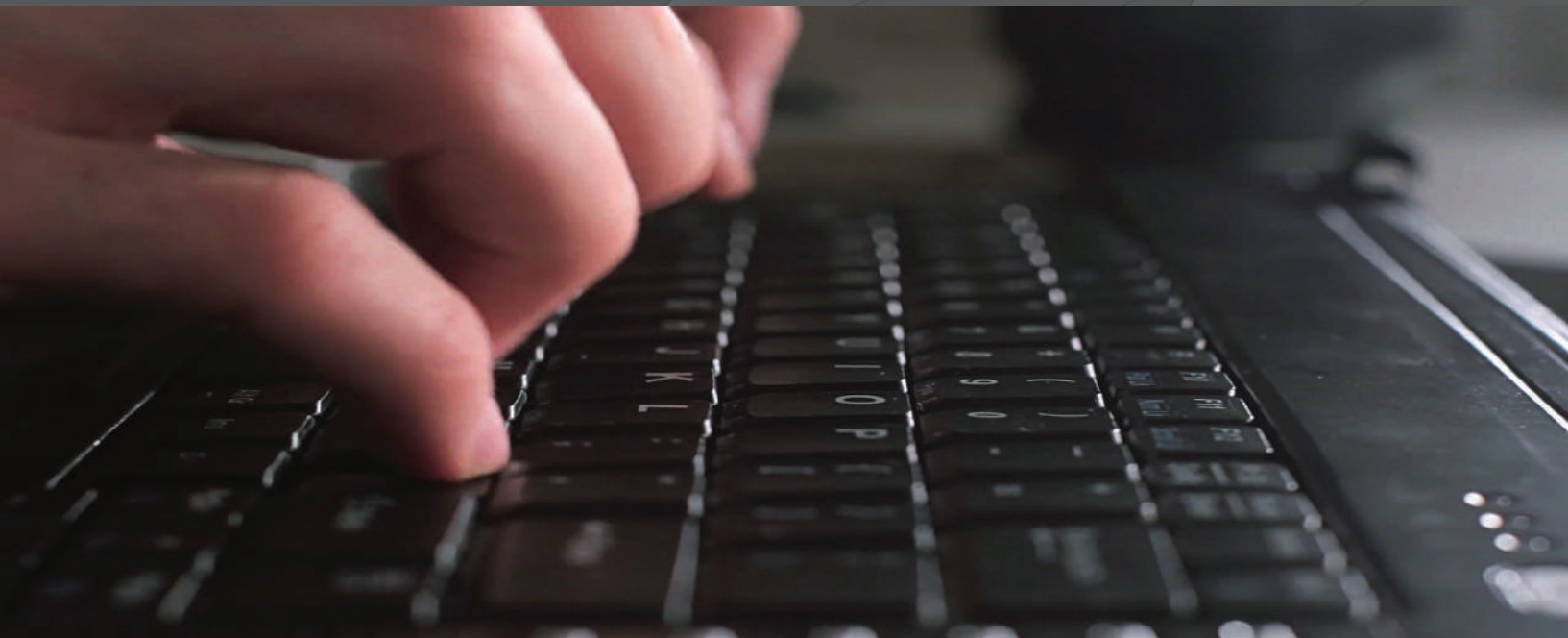
A battery is normally specified at degrees centigrade. Temperatures outside of the specified range can significantly affect the battery's corrosion rate, and therefore the life of the battery. An 8-10deg temperature increase can decrease battery life by 50%.

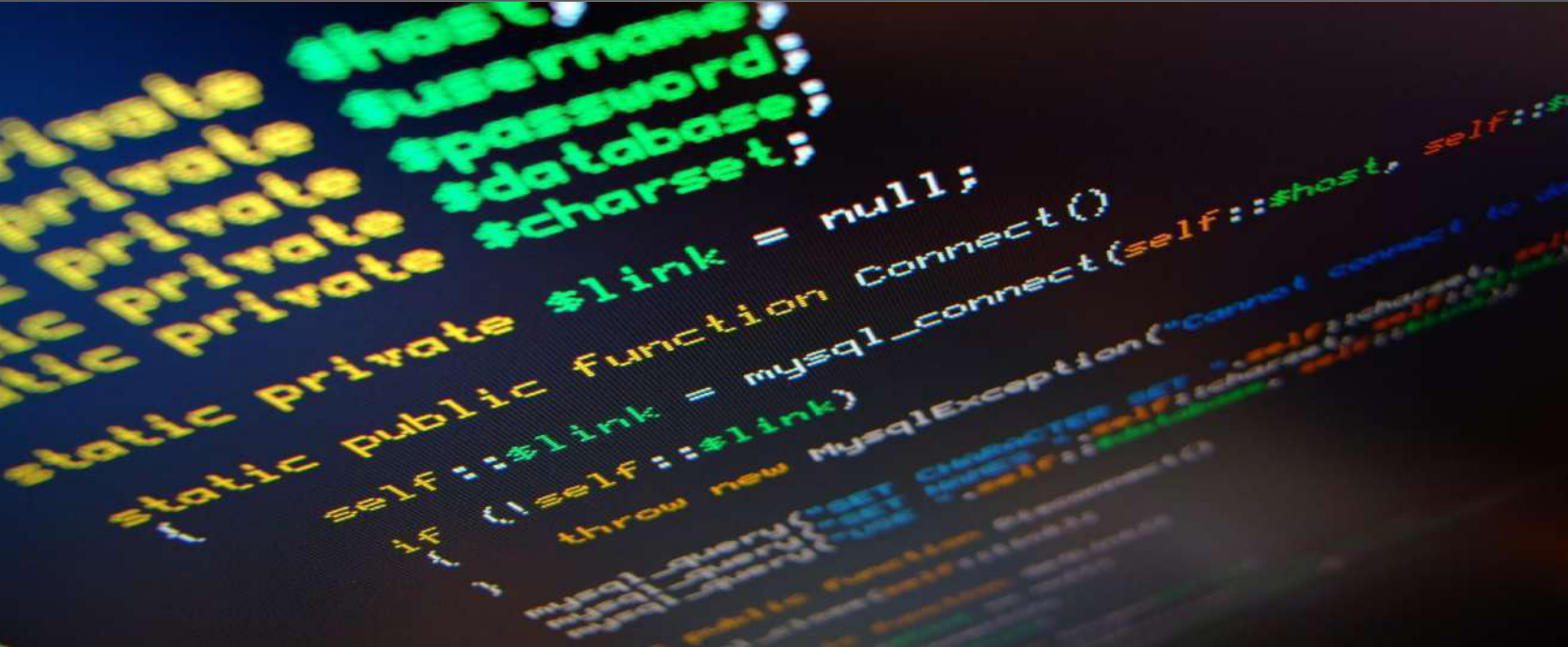
#### String current

String current monitoring measures the energy delivered or accepted by each battery string. A UPS/ inverter will only measure total current and cannot detect imbalances between strings. An imbalance highlights potential problems within a battery string. String current measurement also allows detection of incorrect battery charging and any significant earth leakage faults.

#### Individual battery

The impedance of a battery will increase with age. High impedance results in a battery that cannot supply the required current - its key task. High impedance also highlights poor connections and open circuit batteries before failure. Batteries can fail in a very short period of time (less than a week) so measuring batteries daily allows you to detect faulty batteries. By trending battery voltage you can accurately determine the end-of-life of the battery. It is designed to be evaluated every month.





### Battery temperature

Measuring the temperature of each battery highlights poor connections and excessive charger ripple. Temperature is a critical parameter for all batteries. Most importantly, battery temperature measurements allow the early detection of thermal runaway.

### The financial benefits

By definition, wherever there is a bank of batteries, there is a mission-critical environment being protected. It follows that if the batteries are unable to perform when they are needed, the consequences and costs are going to be serious. Power failures happen all too often and at a time like that the investment in the UPS/ Inverter, battery bank and battery monitoring system needs no further financial justification.

However, even in day-to-day operation, DSPM battery monitoring provides a strong return. The following cost savings are worth considering:

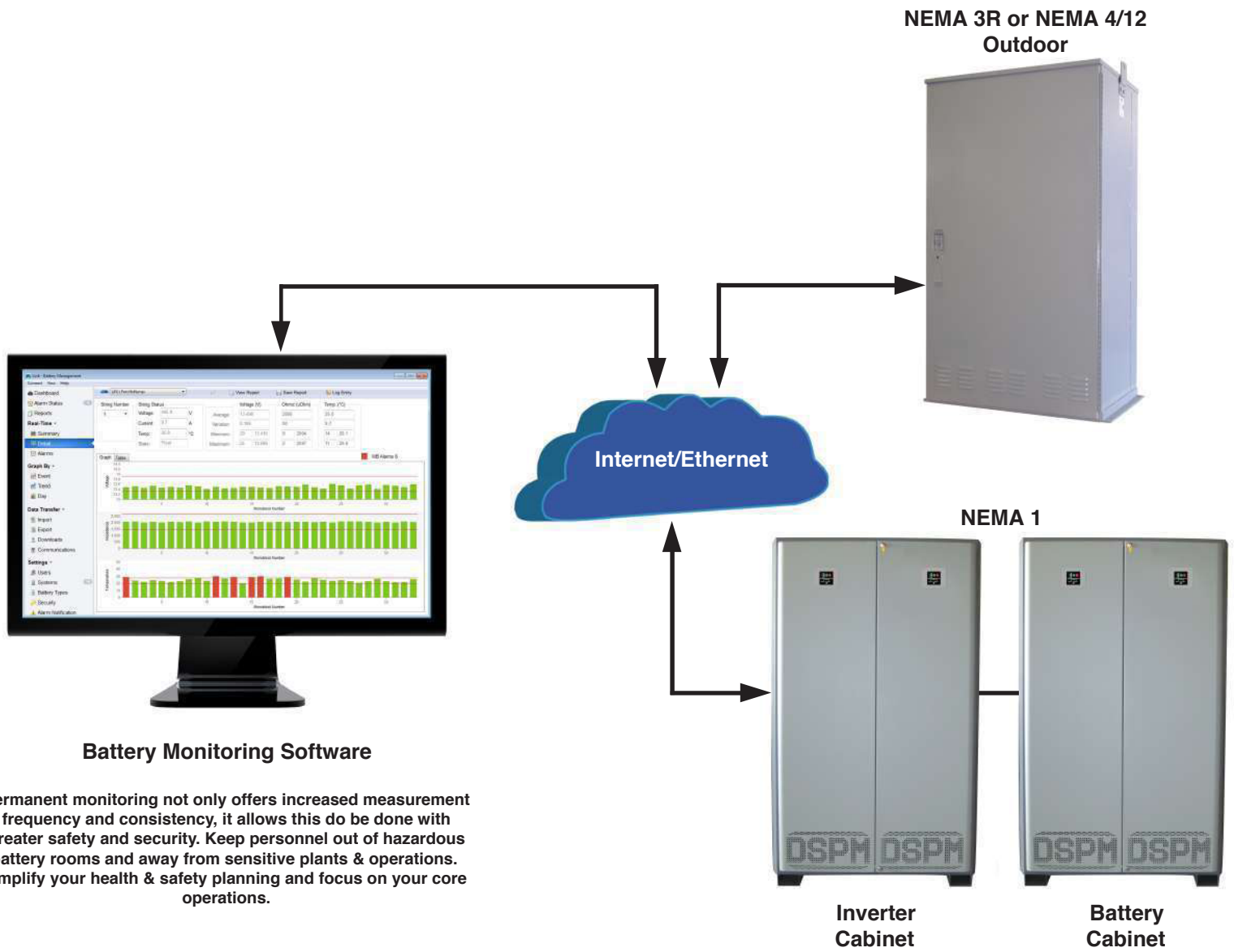
- Fewer batteries to purchase - through extending the service life of the ones installed.
- Reduced manpower - through automation & reduced number of discharge tests.
- Reduced call-out charges - through effective preventive maintenance.
- Planned battery purchasing - through avoiding emergency replacements.
- Reduced travel and time - through remotely accessing status data.
- Successful warranty claims - through having documentary evidence.
- Reduced insurance premiums.
- Guarantee battery power when needed.
- Avoid liability claims.

### System Monitoring features

- 24/7 alarm notification.
- Automatic capture and recording of data during float, charge & discharge.
- Voltage sampling - all batteries simultaneously every minute.
- Planned battery purchasing - through avoiding emergency replacements.
- Built in intelligence for battery state recognition and comparable voltage readings.
- User defined alarm limits.
- On-board memory.
- Batteries
- Flexible to suit battery model & application.



**Ensure that you can see and understand what is happening in your UPS/ inverter system including all batteries, charger and converter parameters.**



## Email Alarm/Remote Dispatch

### DSPM Monitoring Software

- Proactive monitoring tool
- Real time battery status
- Alarm & activity log with on-screen pop-ups and email alerts
- Live discharge display
- Automated data management
- Battery history database for life trending

### Data presentation is the key for efficient management

A single battery monitoring system can monitor up to 46 batteries per cabinet. Connecting multiple systems via DSPM Monitoring Software gives visibility to an unlimited number of batteries from a single desk.

### DSPM Monitoring offers:

- LAN integration for remote monitoring via software.

# Technical Specifications

## Sentinel Monitor

The monitor captures, processes and stores data from a range of sensors.

Battery Inputs	Unlimited	Memory	Up to 350,000 Data Points
Sensor Type	Volt, Current, Temperature	Operating Temperature	0°C to 50°C/32°F to 122°F
String Voltage	240V-600VDC	Storage Temperature	0°C to 70°C/32°F to 158°F
Current Inputs	All Batteries	Service Port	RS232, RJ45
Sensor Type	Hall Effect	Comport 1	Primary monitoring connection with option of: Ethernet - 10Base-T
Measurement Range	3A-1000A		
Voltage Accuracy	±1% + Sensor Accuracy		
Measurement Range	0°C to 80°C/ 32°F to 176°F		
Temperature Accuracy	±1°C/1.8°F		

DSPM Monitoring System is UL Listed

