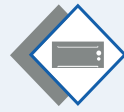


# Next Generation BMS System

a leading manufacturer and supplier of power resistors, battery chargers, transformers, inductors, sheet metal enclosures, UPS & more.

**PENBRO NG-BMS™** is designed to optimize the performance and longevity of Pb and Ni-Cd battery systems, ensuring that they run at their best at all times. One of the key features of our **NG-BMS™** is the ability to monitor each individual cell within the battery pack. Additionally, our BMS utilizes cloud-based infrastructure services, allowing you to access real-time data and monitoring from anywhere, at any time. With **PENBRO NG-BMS™**, you can rest assured that your batteries are operating at peak efficiency, saving you money and reducing the risk of downtime. From mission critical applications to renewable energy systems and more, our **NG-BMS™** is the perfect solution for anyone looking to maximize the performance of their battery systems.



## Lead Acid and Ni-Cad maintenance challenges

The maintenance challenges associated with lead-acid and Ni-Cad batteries, such as water loss, sulfation, corrosion, overheating, improper charging, and temperature sensitivity, can significantly reduce battery life and performance if not properly addressed. To overcome these challenges, a specialized system such as the **PENBRO NG-BMS™** can be implemented to effectively monitor and manage the battery's performance, thus solving most of these issues and prolonging the battery's lifespan.

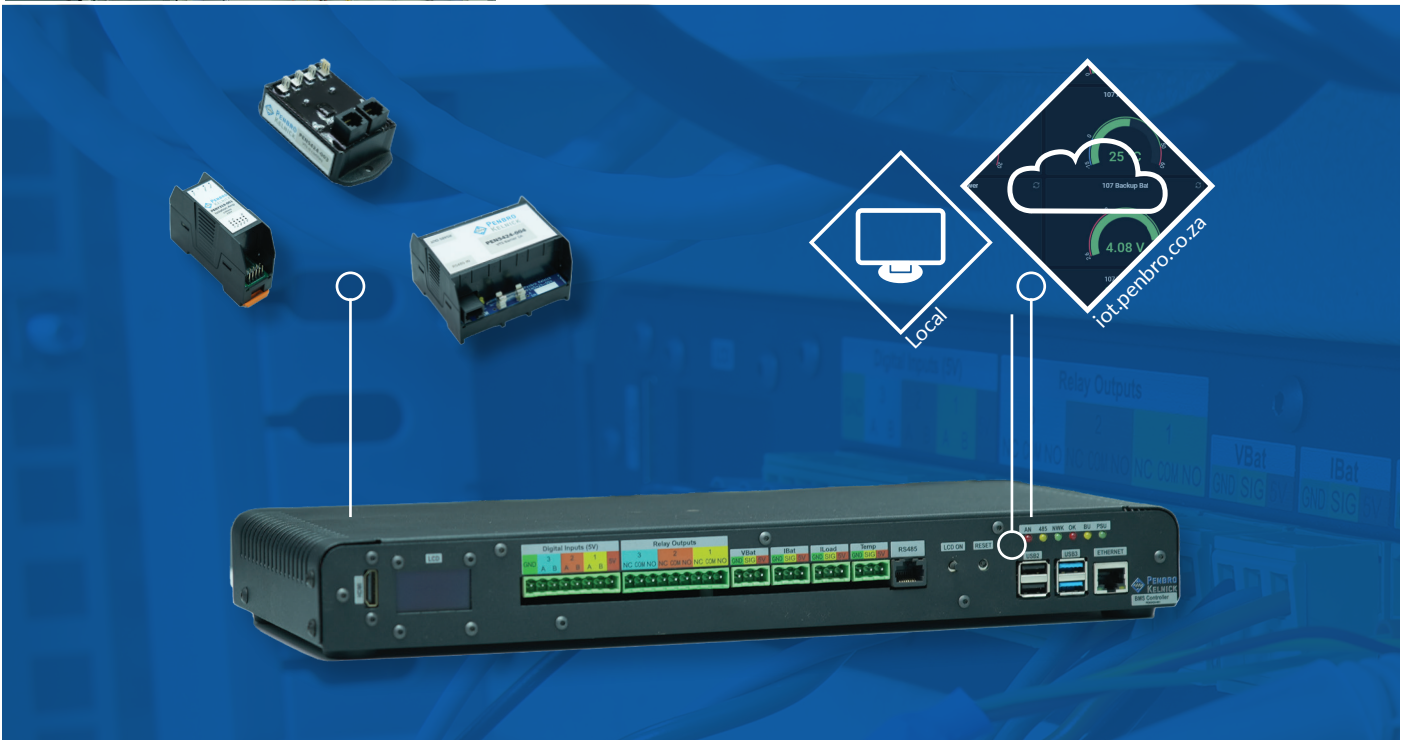
## SOLUTION



## Protect your investment with our Next Generation Battery Management System

Proper maintenance and monitoring can help to mitigate the most common problems and extend the life of lead-acid and Ni-Cad batteries. It's important to continuously monitor charging and discharging status and the overall condition of the battery.

It's also essential to choose the right charger and to use it appropriately to avoid overcharging or undercharging the battery. Our **NG-BMS™** system can contribute to minimize these challenges. by monitoring and recording all the battery/cell parameters in real-time. This allows you to identify any issues early on and take appropriate action to prevent damage and prolong the life of your batteries.



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# BMS Peripherals

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## PENBRO KELNICK

a leading manufacturer and supplier of power resistors, battery chargers, transformers, inductors, sheet metal enclosures, UPS & more.

**PENBRO NG-BMS™ includes a variety of Peripherals to monitor and manage the performance of your battery. These include:**



### ○ VTS Transducer

Isolated voltage & temperature sensor for cell or battery monitoring.

- IS Rated for Ex environments.
- Single unit measures up to 4 cells or batteries.
- Additional units can be added for measuring up to 1000 cells/batteries.



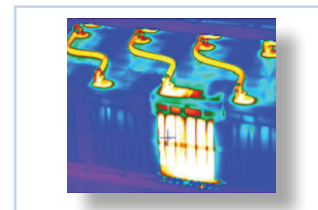
### ○ Voltage Transducer

Isolated measurements for voltages up to 1000VDC.



### ○ Protection Barrier

For compliance with intrinsic safe environment requirements.



### ○ Integration

Accommodates sensors such as gas and smoke detectors, humidity, motion, infrared / thermal, etc.

### ○ Local Storage Server

To store and visualize data from multiple BMS in a local control room when dealing with islanded systems.

### ○ Communication Modules

LTE, Sigfox, GSM, LoRa can be attached to the NG-BMS systems that are installed in remote areas.

### ○ Temperature

1-Wire interface for measuring ambient or other temperatures

### ○ Current transducer

Various sensors to suit your needs.

- HALL Non-Invasive
- Split-Core
- Shunt

All these Peripherals provide real-time data to the BMS and the user, to manage and optimize the performance of the battery, and to prevent the various challenges associated with Pb and Ni-Cd batteries.

## EXPERTISE AND COMMITMENT: THE PENBRO ENGINEERING AND SERVICE TEAM

At Penbro, we pride ourselves on our highly skilled and experienced engineering and service team. Penbro's team is fully trained and equipped to handle the design and installation of batteries, BMS, and other related equipment. We have the expertise and knowledge to ensure that your battery systems are installed correctly and efficiently, minimizing downtime and maximizing performance.

Penbro team understands the importance of proper installation and maintenance of battery systems. We work closely with our customers to understand their specific needs and requirements, ensuring that the system is tailored to meet their unique needs.

Our team is committed to providing the highest level of service and support. We are available to answer any questions and provide guidance throughout the entire process, from planning and design to installation and maintenance. We also offer ongoing support and maintenance services to ensure that your battery systems continue to operate at peak efficiency.

In addition, our engineers are also trained and experienced to handle the integration of BMS with other systems, such as renewable energy systems, mission critical applications and more, to ensure that all the systems work together seamlessly and efficiently. Overall, Penbro's team's expertise and commitment to customer service, you can trust us to provide you with the best possible solution for your backup power needs, ensuring that your systems are installed, maintained, and operated correctly.

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