

Case Study

Improving Power Reliability with a UPS Upgrade and Battery Monitoring

Product Overview

A routine inspection at a large industrial facility identified that the sites existing UPS was obsolete, unsupported and at end of life. To protect operational continuity, Colterlec delivered a complete upgrade including a modular UPS, a safer battery rack and a DFUN battery monitoring system. The new solution improves reliability, Safety and long term performance.

Reliable backup power is essential to the facility's operations. The ageing system created risks to uptime, safety and maintenance efficiency. Colterlec designed a modern, data-driven solution that improves resilience and ensures the system performs when needed.

CHALLENGES

The site needed more than just a replacement. They required a solution that would:

- Improve reliability and reduce downtime
- Remove single points of failure
- Extend battery life and reduce replacement costs
- Increase visibility between service intervals
- Ensure batteries perform during outages
- Lower fire and thermal runaway risk
- Reduce electric shock and arc flash hazards during maintenance

OUR SOLUTION

We designed, supplied and installed a system that ticked all the boxes. Together, the system transforms battery maintenance from reactive to proactive and provides confidence in backup power availability.

Modular UPS System

A new modular Socomec UPS was installed to provide built-in redundancy and faster recovery if a module requires servicing. Hot-swappable power modules support continuous operation and deliver a stable, high-quality power supply for critical loads.



Safer Battery Rack

A custom rack with inter-shelf isolators divides each 36-battery string into Extra Low Voltage sections. This design reduces electrical hazards, minimises arc flash potential and creates a safer working environment during maintenance and replacement activities.

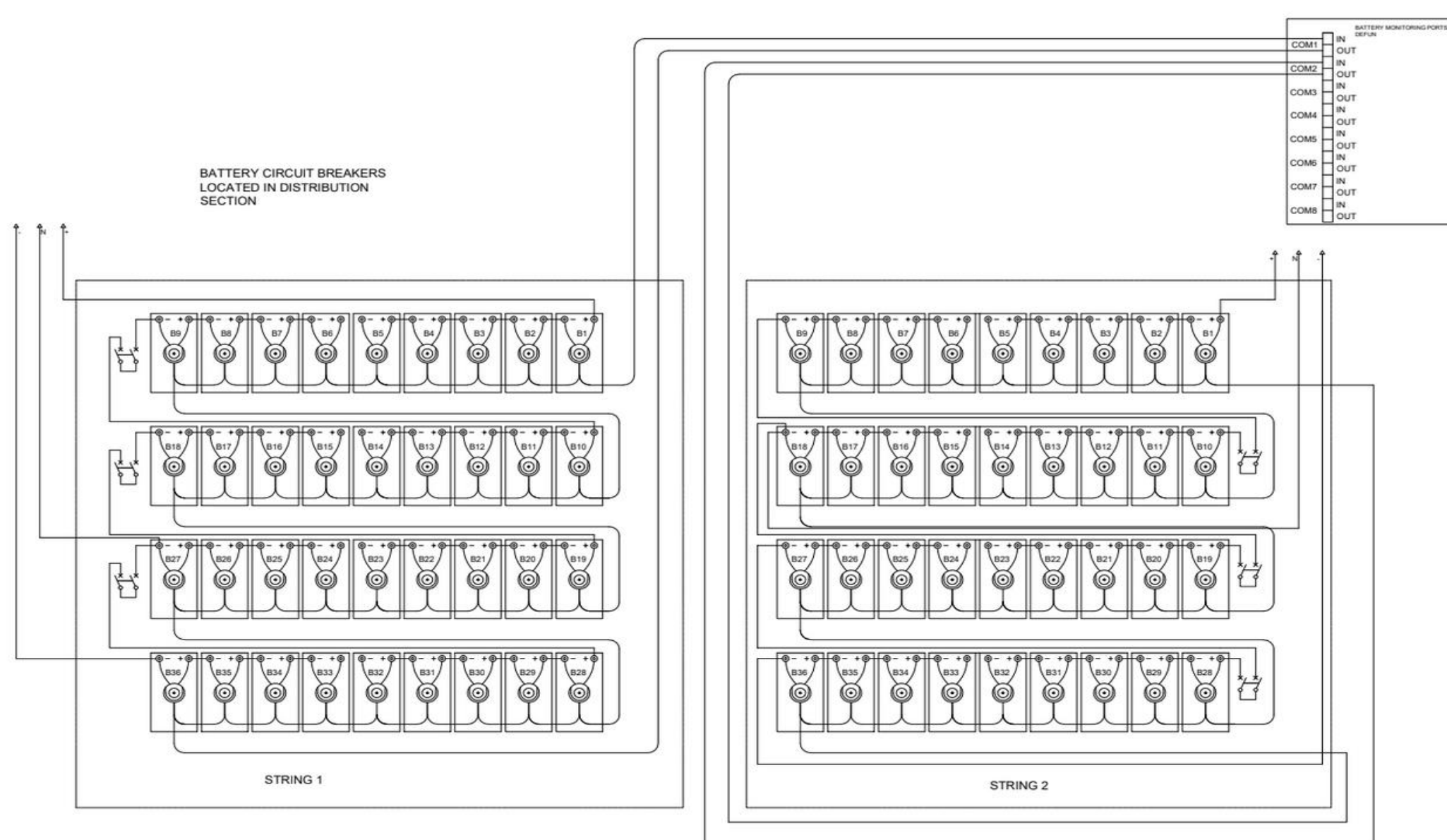


Figure 1. Battery circuit breakers in distribution section



DFUN Battery Monitoring

For battery health, we added the DFUN PBMS9000 with PBAT61 sensors across two strings of 36 x 105Ah batteries.

The sensors provide real-time visibility, with configurable alerts for early detection, online passive cell balancing and automatic discharge reports.

We also included an optional Human-Machine Interface (HMI) for easy local monitoring.



DFUN BATTERY MONITORING FEATURES

Key Monitoring Capabilities

- Voltage, temperature, impedance and ripple current
- Configurable alarms for early issue detection
- Online passive cell balancing to extend battery life
- Automatic discharge reports and trending with five years of stored data
- Redundant power supplies and ring communication for reliability
- Auto-addressing sensors for faster installation



DFUN PBAT61-12 Battery Sensor

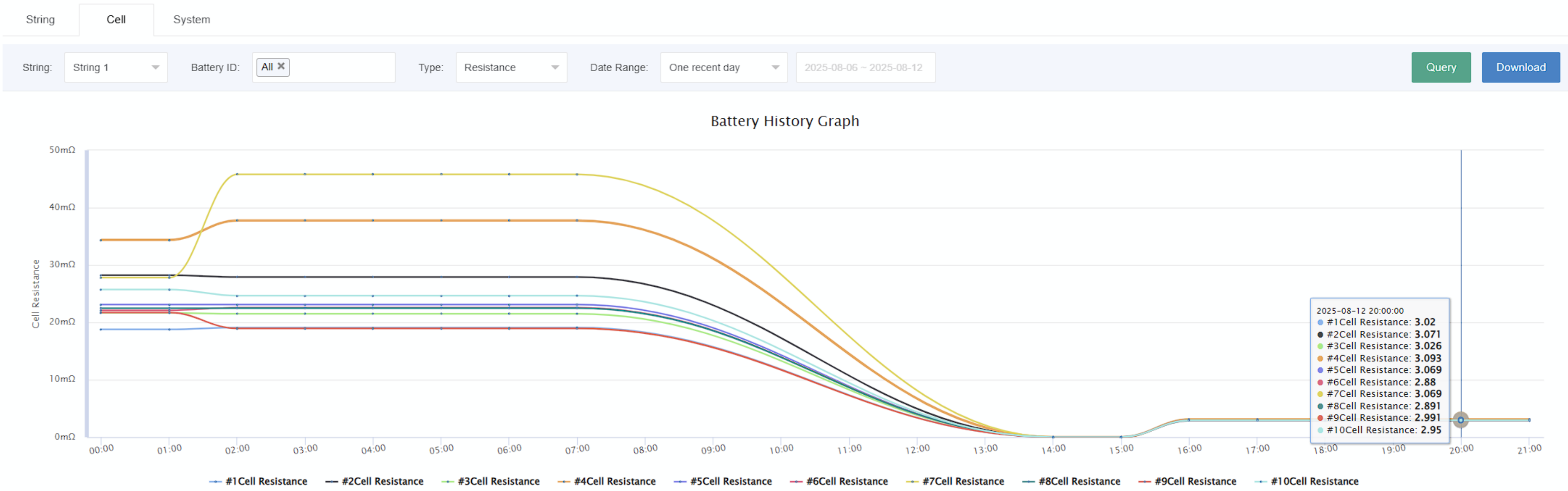


Figure 2. Example graph demonstrating battery cells impedance after replacement of failed batteries

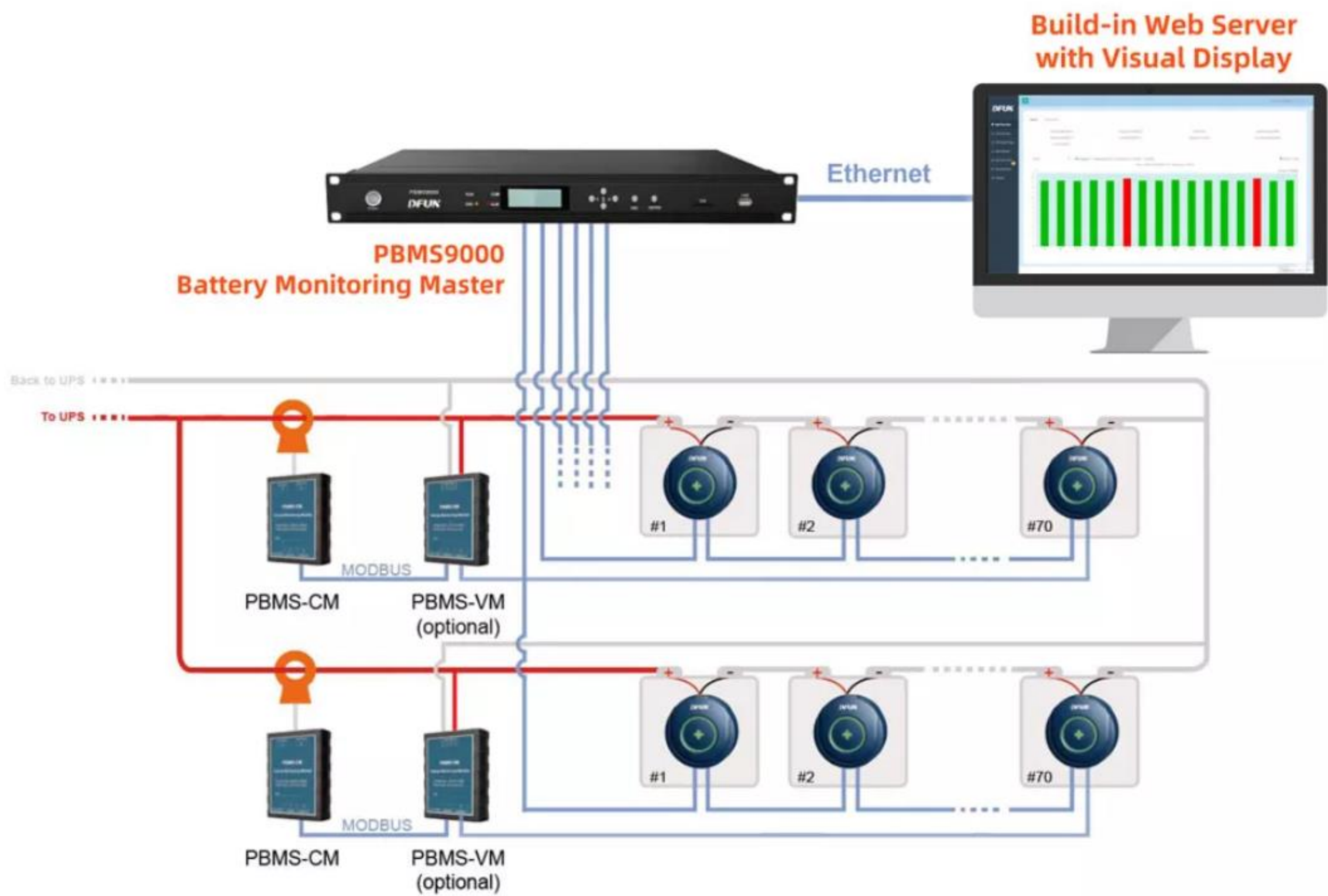


Figure 3. Standard system layout

THE RESULTS

The upgrade delivered measurable improvements in reliability, safety and operational value.

- **Better reliability** - The modular UPS design reduced single points of failure and improved repair times.
- **Smarter maintenance** - Real-time battery data enables proactive action and ensures only poor condition batteries are replaced, reducing unnecessary costs and saving time.
- **Longer battery life** - Online passive cell balancing adds 2–3 years to battery life.
- **Confidence during outages** - Live State of Charge (SOC) and State of Health (SOH) data ensure batteries will support the load during an outage.
- **Improved safety** - Temperature monitoring reduces fire risk, and manual testing hazards are gone thanks to software and HMI visibility.
- **Detailed reporting** - Automatic discharge reports and five years of data support predictive maintenance.
- **Safer work environment** - Inter-shelf isolators keep voltages low and reduce arc flash potential.
- **Stable power supply** - Ripple current and voltage monitoring ensure the UPS delivers clean, reliable power and prevents premature battery failure.

Reliable backup power starts with a strong UPS system. Upgrading to a modular UPS gave our client the redundancy and resilience they needed to keep operations running smoothly.

Adding DFUN Battery Monitoring took things further, giving real-time insights, predictive maintenance and longer battery life. Together, these upgrades reduce safety risks, cut downtime and give the team confidence that critical systems will stay online when it matters most.

Want to improve your power reliability?

Call our team on **1300 36 26 26** to see how we can help upgrade your UPS and battery systems.

