BENDER pulse

Case Study

Enhancing power quality management at a major hospital

Overview

A significant power quality event recently impacted a major hospital, causing operational disruptions due to abnormalities in harmonic distortion, voltage unbalance, and voltage dips. This incident highlighted the critical need for effective power quality management to safeguard sensitive hospital equipment and ensure uninterrupted service.

Challenge

The hospital experienced several issues with its power supply that threatened the functionality of its critical infrastructure, including operating theatres.

Key challenges included:

- High Total Harmonic Distortion (THD) exceeding 5%, leading to potential overheating and failures of equipment
- Voltage unbalance peaking at 80%, risking the efficiency and longevity of motors and transformers
- Brief but significant voltage dips to 180-190V, disrupting sensitive electronic equipment

Solution

To address these issues and prevent future occurrences, the hospital implemented a comprehensive power quality monitoring (PQM) system from Bender.

This system included:

- Installation of PQM devices at key points to continuously monitor and record detailed power quality data
- Utilisation of advanced software for instant notification of faults and data trending to identify issues before they cause disruptions
- Remote access capabilities allowing maintenance teams to pinpoint problems without onsite interventions, enhancing response times and maintenance efficiency



Comprehensive power quality monitoring (PQM)



Implementation

The approach included several strategic steps:

- Immediate notification of faults through the PQM system, enabling quick response to disturbances
- Identification of the specific feeder with insulation faults using the new system, eliminating the need for manual disconnection and inspection
- Remote adjustments and diagnostics to prevent unnecessary site visits and ensure continuous monitoring

Outcomes

The implementation of the PQM system transformed the hospital's approach to maintenance and power management:

- Immediate awareness and faster resolution of faults, reduced downtime and enhanced operational efficiency
- The system's ability to pinpoint exact issues saved significant time in maintenance by focusing efforts only where necessary
- Remote management capabilities prevented a potential second site visit, saving costs and minimising disruptions to hospital operations

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