

Children's Hospital of Wisconsin - A new course of treatment for imaging systems

Success Story

Children's Hospital of Wisconsin

Vertical Market:
Healthcare

Application:
Diagnostic Imaging equipment protection

Challenge:
To ensure continuous, clean power for valuable diagnostic imaging equipment

Solution:
A Powerware 9315 UPS system protects MRI and CAT scanners from power disturbances that would damage sensitive electronics and interrupt procedures

Benefits:
Not a single diagnostic scan interrupted due to power issues since the UPS went online

"If you want medical imaging systems to be reliable, you have to consider what happens if the power goes out. It's important to consider power protection as an integral part of the purchase of imaging systems," Ed Stanlik, Imaging Specialist

Children's Hospital of Wisconsin is the only hospital in the state dedicated solely to the care and treatment of children, and one of only 14 pediatric Level I trauma centers in the United States. Every year, the private, not-for-profit hospital admits some 20,000 children, provides emergency care for another 50,000 patients, and treats more than 200,000 children in outpatient clinics.

For nearly 5 years, the hospital's GE Medical Systems Signa Horizon magnetic resonance imaging (MRI) system had performed to expectations, but the power that fed it had not. An average of eight outages per year disrupted the diagnostic imaging process in ways that the hospital considered unacceptable.

"A power event would bring down the MRI system and trigger a chain of events that made it difficult to get the system started again," recalled Ed Stanlik, Imaging Specialist. "Even though we could restore primary power—or switch to generator power—within minutes, it could take 30 to 45 minutes to restart the MRI system after an outage."

Because the hospital's patients are children, no amount of insistence or inventive distraction can reliably get them to hold still for the 45 minutes or more required to complete an MRI scan. Most are sedated for the procedure. If a power problem interrupts the process, the child cannot be re-sedated to continue. The procedure must be rescheduled for another day—causing lost productivity for the radiology department and frustration and inconvenience for patients and their families.

Prescription for power protection

The hospital needed an uninterruptible power supply (UPS) solution that would overcome these



issues—as well as prevent the insidious system damage that could be caused by sags, surges, and other irregularities in the power supply.

The right UPS system would provide complete power conditioning and 10 to 15 minutes of backup battery power—enough time to make a graceful transition to the generator without interrupting an MRI in progress. And since the hospital was already planning installation of a second MRI unit, the UPS system had to support both MRI systems—as well as two CT (computed tomography or "CAT") scanners—with the reliability required by a Level 1 trauma facility.

Power in partnerships

To a great extent, the Children's Hospital team entrusted the selection of their UPS system to the manufacturer of their MRI systems. "They had an established relationship with Powerware that was beneficial to us in this installation," Stanlik recalled. "They had done the prerequisite testing on their test bed, and made suggestions that improved the installation. With the amount of investment at stake in our MRI systems, we weren't willing to gamble with other manufacturers."

"We also chose Powerware for its excellent reputation as a service organization," Stanclik added. "We have been using some Powerware systems for 20 years in other applications, and we have always gotten excellent support."

So in summer 2001, the hospital installed a Powerware 9315 UPS system rated for 500 kVA (kilovolt-amperes)—a powerful system that resolves power failures, sags, surges, brownouts, line noise, high voltage spikes, frequency variation, switching transients and harmonic distortion.

With this continuous UPS coverage, the MRI units receive power so clean and stable that sensitive imaging equipment doesn't even recognize power events. A built-in battery monitoring system displays information about runtime and battery health (accurate to within 3 percent). System alarms are relayed to a facilities management system that automatically pages appropriate personnel.

Power problems in remission

"The system has been working great," Stanclik said. "Since the Powerware 9315 went online two years ago, we haven't had to reschedule a single MRI due to power problems," even though power has been disrupted by monthly generator testing and the usual outages.

"The Powerware system improved productivity in the MRI department and clearly benefited patients, because they avoid having to repeat procedures. We've also enhanced the reliability of the MRI equipment itself, because sensitive electronics are not being subjected to over- or under-voltages or spikes."

Based on these results, two CT scanners will be connected to the Powerware 9315 system this summer, and additional Powerware systems are planned for deployment this year and next to protect other diagnostic imaging equipment.

Imaging and power—integral decisions

What advice would Stanclik offer planners in a similar position? "If you want medical imaging

systems to be reliable, you have to consider what happens if the power goes out. Even if the power goes out for just a short time, these new computerized systems can take 15 minutes or more to restart. That can seem like a lifetime at the wrong time."



"It's important to consider power protection as an integral part of the purchase of imaging systems," Stanclik added. "So often a facility installs new imaging equipment, then suffers the effects of power problems and hasn't budgeted for a power solution."

Investments in UPS technology are enhanced by their longevity, Stanclik says. "The life cycle of modern imaging technologies tends to be five to seven years, but these UPS systems keep performing for 20 years or more. There's real value in that."

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Ed Stanclik, Imaging Specialist

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