Why is Power Protection Required for Medical Imaging Applications?

Power protection has long been thought to be an option required only under the most extreme conditions. Those rare sites that have constant voltage fluctuations or brownouts must have a power conditioner installed. Or, those sites that have regular short duration outages must require a UPS to eliminate the constant downtime. In today's world of power deregulation and with a dramatic reduction in new power plants being constructed, those rare sites are becoming less rare. More medical facilities across the country are realizing that those uncommon power problems are becoming more common. More customers are having long-term service issues where power is the culprit. More customers are spending larger amounts of capital for higher levels of technology that demand more consistent and reliable power. More customers require continual uptime to meet the 24 hour demand requirements of the medical equipment. More customers understand the cost justification of providing proper power protection from the beginning.

All manufacturers of sensitive electronic equipment, including MRI systems, specify the requirement to comply with certain power requirements, such as maintaining voltage within + 10%. Most manufacturers of medical equipment have tighter voltage (+ 2%) specifications while the device is gathering images. This basic requirement is becoming harder to assure in the volatile world of power distribution. Power problems occur from the utility when power is switched from one grid to another. Power problems occur on the street when a car slides into a telephone pole, a tree branch falls onto overhead wires, or when construction begins across the street. Power problems more often occur within facilities due to large motor switching, or improper design of the power distribution system. Power problems often increase during the summer months when power usage is at the maximum requirement for industry and for home cooling requirements. When the available power is minimized, then the power problems are maximized. Power problems change over time and can be elusive for many months and then can come crashing in for several months and then disappear for several months.

It is important for the customer to understand the fact that it is their responsibility to maintain power within the specifications. The customer will point to the utility to deliver the required power for the hospital equipment. But, it is impossible for the local utility to deliver the level of power required for sensitive medical equipment, such as MRI, CT Scanners, Cath Labs, or LinAc systems. Data processing personnel realized a long time ago that the power delivered by the local utility does not necessarily match the requirements for the sensitive data processing equipment found in the computer room. It is hard to find a data center today that does not employ a UPS system for complete power protection against outage conditions.

Radiology, Cardiology, and Oncology departments are coming to grips with this same fact across the country. Those departments are trying to meet the needs of their patients with power distribution that was designed for non-sensitive equipment. Radiology department administrators are realizing the long-term costs of ignoring proper power protection by witnessing the increased downtime, shouldering the stress and burden of rescheduling patients and paying the high cost of replacement parts and service to fix intermittent problems. Power protection is becoming a requirement for assuring proper equipment operation.

It is important to provide power protection for medical equipment today. It is equally important to assure that the power distribution is appropriate for the equipment requirements. In too many cases the National Electric Code (NEC) is followed to assure the proper electrical safety and the requirements for proper medical equipment operation are ignored. Many times, this results in a grounding system that is sized to meet the safety requirements, but is undersized to meet the proper equipment operation. A site power audit, prior to ordering the medical equipment, can eliminate many of these problematic situations. Site audits, using qualified power quality personnel associated with the medical equipment industry, can uncover problems with the grounding system, the distribution system, or the outside utility. Consult CPN Power for more information on this topic. Making power problems a non-issue at the beginning of the process will better assure fewer long-term equipment problems. It also eliminates the number one finger-pointing problem, namely power.

Call for more detailed information or to review an application.

CPN POWER

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