The OMNI Transmitter

NOVEMBER 2016 NEWSLETTER

- INSTRUMENTATION
- ELECTRICAL SERVICES
- CONTROLS

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A Peek Inside -

OMNI LIGHTING RETROFIT PROJECT

Omni recently completed a large-scale lighting retrofit project at a pharmaceutical manufacturing facility in Maryland. More than 3,000 fluorescent light fixtures were replaced with new energy-efficient LEDs in office areas, the central utility building (CUB), and production areas, including clean rooms, in order to save energy and reduce utility costs. The challenge was to compete the project in a timely, organized fashion with no interruptions to daily plant and administrative operations.

Project planning began with obtaining and verifying the necessary fixtures, controls, and voltage for each area, and all lighting circuits and breakers were charted and prepared for lockout/tagout procedures. Lighting installation in administrative areas took place during the night shift when no one was around, and Omni took great care to leave no trace of our presence and make sure all lights operable for the next day's work. Special permission was obtained to enter executive offices and secure areas. Lighting on the loading dock area was performed during the night as well to avoid interruption of shipping and receiving activities. CUB replacements were coordinated with facility maintenance staff and completed during daytime hours.

Lighting installation in production areas, labs and clean rooms required the most intensive planning, scheduling, and coordination. Omni worked closely with plant personnel to schedule work between batches in production areas, with no interruptions. Extreme care was taken to avoid turning off breakers needed for ongoing lab experiments.

In the end, of all of the careful planning and organization resulted in a successful project and a satisfied client.

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OMNI TECH TALK: Uninterruptible Power Supplies

Power problems and outages pose significant risk to critical systems and equipment. Sags, spikes, surges, noise, frequency instability, harmonic distortion, and power failure can adversely affect process controls, PLCs, BAS, CPUs, computer servers, switches, and other sensitive electronic systems. Resulting data loss, equipment failure, down time, and even injuries and fatalities can be prevented with a UPS, or uninterruptible power supply, a device that provides instantaneous, temporary emergency power when interruption or failure occurs. UPS allow time for generators or other standby sources to take over when during power outages and supply clean power within a ±10% range when anomalies occur.

There are three main types of UPS. Standby is powered directly by the input power and provides basic surge protection and battery backup in smaller applications like personal computer protection. Line-interactive UPS is similar in operation to standby, but offers improved performance by better regulating voltage and filtering features. It maintains the inverter in line and redirects the battery's DC path from charging mode to current supply when power is interrupted or lost. On-line UPS provides the highest level of protection by combining a double conversion power circuit and an inverter to provide both conditioned power and outage protection. This type is recommended for critical applications.

When selecting a UPS, criticality of the load, power requirements, battery run time, installation, cost, and maintenance needs should all be factored in.

TECH TIDBIT: Fire Alarm Strobe Synchronization

Lights flashing at certain intensities and frequencies can initiate seizures in about 3 percent of people with epilepsy, and many other individuals can experience headaches, nausea and dizziness when exposed to flashing lights. Because fire alarm strobe lights are a very common trigger for photosensitive epileptics, NFPA 72 code requires synchronization of strobes in the same room or adjacent spaces within the same field of view to mitigate the risk of seizures.

Proper preventive maintenance, essential to proper UPS function, is often overlooked, and we've seen even the most pricey, sophisticated UPS systems fail when needed due to lack of care. Most recently, Omni was called in to correct power-related issues that occurred when random dips and spikes sent PLCs and VFDs into fault, shutting down various systems and causing others to limp along, running only partially. Technicians traced the problem to loose connections and terminal corrosion in a central UPS that had not been regularly tested and maintained.

For expert advice and assistance on UPS options, issues, and maintenance, contact Omni at 908-412-7130.

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FROM THE PANEL SHOP: NEMA 6 and 6P Submersible Enclosures

The National Electrical Manufacturers Association (NEMA) defines standards for various grades of electrical enclosures according to their ability to prevent personnel access to hazardous parts, and to prevent ingress or damage to electrical and electronic components, controls and instruments from various foreign objects and substances such as water, dust, dirt, oil, and chemicals. Enclosures should have a NEMA rating appropriate for the application and environmental conditions.

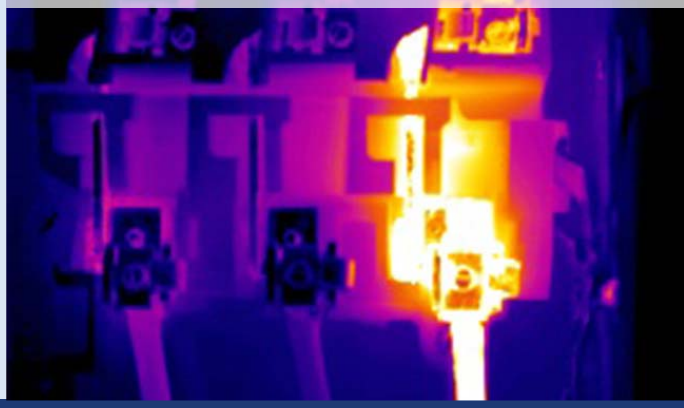
When the possibility of submersion in water or other liquids is present, NEMA 6 or 6P submersible enclosures may be required. NEMA 6 enclosures are temporarily submersible for short periods of time at limited depths, whereas 6P enclosures can withstand more prolonged occasional submersion and offer an added level of protection against corrosive materials like saltwater and caustic chemicals. Both provide a degree of protection against windblown dust, falling dirt, hose-directed water, and are undamaged by external ice formation.

NEMA 6 enclosures can be made of a variety of materials like aluminum, stainless steel, plastic, and fiberglass, and sturdier NEMA 6P enclosures are usually made of stainless steel. Applications where NEMA 6 and 6P electrical enclosures are often used include lift stations, underground tanks, waste water treatment plants, sump pumps, wells, and anywhere there is risk of storm water or tidal flooding. They are also used in quarries, mines, and manholes.

Thermal imaging of electrical systems is often specified to be performed at the end of a project when full load or close-to-full load is achieved. The purpose is to identify increased temperatures on equipment, wiring, terminations and motors. Thermal imaging is also used to troubleshoot many other issues in electrical, mechanical and structural as well. Thermal imaging can help uncover facility problems with harmonics, unbalanced loads, loose connections and insulation failure. These problems can morph into much bigger issues if they are not identified and remedied.

On a recent Omni project at a large manufacturing facility, technicians using thermal imaging and an amp meter on a temporary 750kw generator feeding critical loads discovered excessive heat between phases on the 3-phase feeders. Phase amperage anomalies were identified and re-distributed among all three phases. This issue, had it gone unchecked, could have resulted in generator and cooling load failure when it was most needed in the summer months.

Thermal Imaging: Project Problem Solved



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