

The phone system plays a big role in ensuring smooth operations at the Juvenile Evaluation Center in North Carolina. What if there's a medical emergency? Would you want to be without a phone to call for help? We didn't think so and neither did JEC. They use ONEAC together with their Toshiba phone system to ensure continuous service when lightning strikes those beautiful Blue Ridge Mountains.

Ground Scatter Knocks Out Phone System

The Juvenile Evaluation Center (JEC), a training school for youths, is situated on the Blue Ridge Mountains near Asheville, North Carolina.

The Challenge

JEC took over the site of a former U.S. Army hospital in 1961. Their facility sits in a highly lightning-prone area and is subject to "ground scatter" lightning—dangerous blue lines of electricity that jump above and around the ground.

Thirteen buildings are fed with underground cable to the main building that houses the Toshiba DK424 phone

system with four expansion cabinets and the central communications.

When lightning strikes the mountain, there is a potential for the entire phone system to go down.

Electronic systems, such as computer and telephone systems, are not capable of handling these strong surges. A lightning strike can hit, "jump" into the cable and "run" back to any system not protected.

If surges "jump" into the product through the cable, circuit boards can be damaged. This can temporarily disable any electronic system in the vicinity of lightning.

Continuous telephone service is imperative in the event of a medical emergency. And court-appointed counselors need to be able to speak to the residents. Medical appointments need

to be made each day. And parents must have the ability to talk to their children living in the facility.

"JEC is a self-contained facility, isolated from the community. We're limited to using the radio communications system for emergencies and that's not very reliable," explained Biddix.

"If the radio goes out, we have to drive to an alternate location to use a phone. That's just not an option in an emergency."

The Search

Previously, JEC tried to use Diteck surge protectors which only protected against over-voltage surges. The lines were continually over-driven and circuits were lost.

"A lightning strike can send over 6,000 volts to the system. A surge suppressor just can't protect that kind of strike," Biddix explained.

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The ONEAC Difference

It's well established that power problems are the leading cause of network downtime and data loss. Lightning and outages are the most visible of these. And most power protection products protect against them to some degree. But fast edged transients and other conducted noise can be just as dangerous. ONEAC's low impedance, full output isolation transformers eliminate them completely, while most products are only capable of protecting against a portion. That difference can have a major impact on reliability.

The evidence shows that switching from standard filter-based protection to ONEAC leads to an average 35 percent reduction in hard failures, 80 percent reduction in "no trouble found" service calls and equally dramatic reductions in a host of other mysterious system ills.

The cost of an ONEAC total protection is a small fraction of your total investment in electronic systems and support. Doesn't it make more sense to specify the one that offers you complete power protection?

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—Harry Biddix,
Facility Maintenance
Supervisor

The Solution

Toshiba contacted ONEAC and explained the type of problems JEC was experiencing. Soon after, Toshiba and ONEAC visited the site.

“Together Toshiba and ONEAC approached JEC very professionally—they knew a lot about the problems we were experiencing and believed in the ONEAC product enough to give it to JEC to test for a year,” explained Biddix.

ONEAC installed a 750VA power conditioner and 150 special telephone line protectors for use with their 66 Block M1-50.

“We now have added insurance against disruptions of service. Damage to cards has been minimal since the ONEAC products were installed in July,” stated Biddix.

How does this work? The ONEAC telephone line protection products are over-voltage and frequency sensitive protectors. They protect the phone system by clamping at a lower voltage than surge suppression devices.

“I had used a similar type of lightning protection many years ago so I was aware of the capability. But I’d never seen a telephone line protection product reduced so much in size as ONEAC is. Size really is important,” Biddix explained.

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