Case Study





Communications Applications

"The Falcon folks were great. They understood exactly what I needed to keep the 911 call center up and running."

– Dave Mackey,
Master Electrician
Mackey Electric

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Gem County, Idaho Emergency 911 Services Rely on Falcon Electric to Keep Call Center Available 24x7

Known as the Valley of Plenty, Gem County has a rich history, friendly people and abundant opportunities that give a new meaning to "plenty." Located less than 30 miles northwest of Boise, Gem County has remained a quiet and safe oasis with a population of over 16,000. Keeping Gem County and the City of Emmett, the county seat, safe is the job of Gem County's Sheriff's department which runs the county's emergency services and 911 call center.

Keeping all communications systems up and running including computer servers, phone systems, radio communications network and even the lights, is a serious issue as these systems must be available at all times for county residents. No matter if there are power outages due to storms or power utility related events, the 911 call center must be available 24x7.

Providing power backup at the call center was an uninterruptible power supply (UPS) that had been operating for 12 years. To ensure the UPS's batteries were always fully charged and ready, the department tested the batteries every month. It was this testing that showed that the batteries needed replacement and would not be able to provide dependable backup power during a power outage.

The Sheriff's office contacted master electrician Dave Mackey with Mackey Electric in Emmett to see what its options were in replacing its power protection system. Mackey had integrated new batteries for the UPS five years prior and during the years, the runtime went from 30 minutes down to a few minutes before sounding the alarm. "We looked at just replacing the batteries, but the cost was more than the UPS unit itself, so we explored other options," said Mackey. In addition, swapping out batteries was problematic. "Since the whole call center was being powered by a single UPS, we realized this was a single-point-of-failure. We would perform monthly load tests, but the real 'hold our breath' moments would occur when we had to replace the batteries. For maintenance, the call center picked the hours between 12 a.m. to 2 a.m. when the call center is quiet. We would switch the UPS into bypass mode and open it up to replace the batteries. During that time, if there was a power outage, we would be vulnerable and unprotected against any kind of power problems. Fortunately this never happened."

Finding the right solution

In reaching out to one UPS vendor, Mackey was unable to reach them do to storms in the area that had shut down its facility for a prolonged period. "What if I needed service?" thought Mackey. Not being able to wait, Mackey conducted a quick Google search for "uninterruptible power supply" and came across Falcon Electric. Falcon's military background was impressive as Mackey needed a product that could meet the needs of mission-critical applications and Falcon had experience working with the government.

"The Falcon folks were great. They understood exactly what I needed to keep the 911 call center up and running," recalls Mackey. "Of equal importance was their ability to respond quickly to my request for a detailed quote. My salesperson, Karen Williams, made sure the order was expedited. This was especially appreciated as, several vendors I spoke with did not bother to send me pricing, much less return my call."

After discussing with Falcon what protection was needed for the 911 call center and the need for zero downtime, it was determined that a redundant UPS arrangement was needed to ensure the highest level of uptime. While the call center has an engine-generator, the transition time from utility power to generator is unacceptable for the computer and communications systems. "Being on the UPS is the only way to eliminate the transient voltage issues in between the generator and the utility power," said Mackey.

Considering the zero downtime requirement, Falcon recommended three of its 10kVA FN Series models running in parallel in an N+1 redundant configuration. "The total electrical load is only 12kVA, so if something happens to one unit, the other units are still running – this was a big selling factor," said Mackey. In this configuration, each UPS is carrying 33 percent of the load. If one unit goes down, then the remaining two UPSs will share the load. "This is an elegant way to approach redundancy – eliminating a single-point-of-failure that can drop the load. When we go to maintain the UPS, I won't have to worry about a power outage; this is a tremendous advantage."

Falcon's FN Series are true regenerative on-line UPS systems that provide the highest level of protection against the widest spectrum of power problems. The incoming AC utility source is converted to DC, then to a DC to DC converter. From this DC voltage, a new AC voltage is regenerated via the inverter, which provides clean, tightly serviced or replaced without having to bring the load regulated (±2 percent) AC power to the connected equipment. The units may be serviced or replaced without having to bring the load down. Internal UPS batteries are user-replaceable and hot-swappable, again while the UPSs and connected equipment are in full operation. This was an important consideration for the call center. "I'm confident now that the 911 emergency systems are well protected no matter what," said Mackey. "It's always nice to find a supplier with a reliable product and, of equal importance, a knowledgeable sales staff. What really convinced me we made the right choice was the top-notch tech support we got when we were installing the unit: Jorge Juarez, the service manager, was thorough and patient. Compared with other suppliers, whose support staff is fulfilled by untrained techs or is entirely outsourced to a third-party, Falcon was responsive and professional, which was very refreshing. I look forward to working with them again."

Falcon FN On-line UPS Benefits:

- **Clean Power** - Double-conversion on-line design with galvanic isolation
- **Scalability** - Easily increase power levels with parallelable UPSs up to 40kVA - eliminates expense of modular approach
- **Redundancy** - True N+1 redundancy up to 30kVA eliminates single point of failure
- **Extended Runtime** - Optional extended battery cabinets and chargers available
- **Ultra-secure SNMP/HTTP Agent** - option available. Shutdown client software included at no extra cost.

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