Automatic transfer switch case study

Eaton's modern transfer switches help major medical centers maintain continuous power

In order to provide high-quality healthcare services and support critical life safety equipment, all healthcare facilities need to be prepared to withstand temporary and extended power outages. Even extremely short power outages lasting a few seconds can compromise the health of individual patients and cause costly damage to sensitive medical equipment and IT systems.

When a major medical center in the midwestern United States needed to overhaul its standby and emergency power system equipment, it required a modern solution that would support critical power reliability as well as simplify routine maintenance without sacrificing uptime.

Summary

- **Challenge:** Upgrade power systems to proactively prevent power loss and maintain uptime for critical life safety equipment
- **Solution:** A customized bypass isolation automatic transfer switch (ATS) with ATC-900 controller
- **Results:** New bypass isolation ATS architecture improves uptime and serviceability, while real-time data enables more-informed decisions

Challenge

Modernize emergency and standby power systems by replacing 42 aging automatic transfer switches with bypass isolation automatic transfer switches.

The legacy ATS architecture left the medical center's technicians no good choice when performing regular maintenance, inspection and testing required by NFPA 110®. They either had to work on live equipment or schedule system downtime to de-energize equipment. With a critical need for uptime, the medical center decided to replace most of its existing ATS units with bypass isolation transfer switches.

However, floor space was limited for this upgrade. In addition, each of the new bypass isolation transfer switches and three legacy ATS models being retained would need to communicate via existing network wiring with human machine interface (HMi) remote annunciator controllers.

The medical center issued an RFP to identify a partner capable of completing the ATS system modernization. A family owned-and-operated electrical contractor was selected to support the project with a proposal that combined Eaton's bypass isolation ATS technology with an HMi remote annunciator controller and communication solution. This contractor had a successful history of projects with the healthcare facility and had frequently collaborated with Eaton on other healthcare and commercial facilities, which positioned both companies to help the medical center meet its project goals

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Solution

A mix of standard and customized bypass isolation ATS units with ATC-900 controllers replacing most legacy ATS units, installed in areas with limited floor space.

Bypass isolation ATS technology has been around for about 20 years. However, there have been recent advancements in switch design and functionality. Eaton's bypass isolation ATS provides dual switching functionality and redundancy for critical applications and improves uptime. The primary switching mechanism (the ATS) handles the day-to-day distribution of electrical power to the load, while the secondary switching mechanism (the automatic bypass) serves as a backup or redundant device. When in the automatic bypass mode of operation, the control system monitors the normal power source and automatically transfers to an alternate source should the normal source fail.

Transfer to the automatic bypass switch is easily initiated and controlled via a single door-mounted selector switch. For simplified maintenance and improved serviceability, Eaton's bypass isolation ATS models include a compartmentalized, draw-out construction with safety interlocks. This feature enables technicians to isolate the ATS from the power source(s) and withdraw or remove it to perform regularly scheduled maintenance, inspection and testing.

For this particular project, remote annunciation was specified. Our HMi Remote Annunciator Controller (RAC) serves as a powerful management interface and facilitates monitoring of up to eight ATS units. A RAC can display real-time status and alarm history information, analyze power quality data, program system setpoints and initiate engine tests. This customized add-on enables facility management to remotely monitor and control all transfer switches from two centralized locations.

Eaton's product team and manufacturing facility in North Carolina created the system design and communications architecture to help the medical center ensure compliance with legacy equipment. In collaboration with the electrical contractor, Eaton worked to minimize cost and expedite project delivery by leveraging existing cabling for Ethernet and serial communications.

Results:

ATS system modernization ensures uptime, simplifies maintenance and provides real-time data and actionable insights.

Equipped with redundant ATS technology, the medical center is now able to initiate transfers to emergency power to ensure critical loads remain powered without interruption. Modernization also eliminates the need for a technician to be physically present and alert to complete a manual transfer of the bypass switch during routine ATS maintenance.

What's more, the upgrade to the medical center's ATS architecture improves its operational intelligence and has led to more-informed decisions by facility management. The intuitive HMi RAC interface provides real-time system level visibility of transfer switch status and condition. These controls also enable the facility to actively monitor and inventory transfer switch equipment that is integral to the essential electrical system (EES) and loads served. Real-time insights help the facility management team to identify changes in system performance and better understand conditions leading up to unplanned outages, so they can establish preventive measures and take corrective measures. Actionable data also allows the team to prioritize investments and actions, such as additional equipment upgrades or targeted energy audits.

To learn more about how we can help your medical center modernize its standby and emergency power system equipment, visit

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