Eaton energizes regional growth for grocery chain

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Keith Norton, director of engineering, K-VA-T Food Stores

Background
Food City is owned by K-VA-T Food Stores, a privately held family- and employee-owned corporation headquartered in Abingdon, Virginia. Under the Food City brand, K-VA-T operates more than 100 retail food outlets, as well as 75 pharmacies and 56 fuel stations. The company has established a national reputation for excellence—ranking among Progressive Grocer’s list of America’s 50 Largest Supermarket Chains, Supermarket News’ list of the top 75 North American food retailers and Forbes magazine’s list of the largest privately held companies. Closely following market trends, the company has grown steadily to meet customer demand by expanding into new areas with new retail locations and remodeling current facilities to stay on the cutting edge of grocery technology, product selection and consumer demand.

Challenge
In 2010, Food City sought an electrical distribution solution to support a site expansion with a stringent timeline for project execution and a few unique power system demands. The company hoped to work with a dependable vendor to create a replicable model that would reduce the cost and complexity of power deployment for future projects. “Although we were looking for the most cost-effective solution, we also knew we needed a project partner with the expertise to help us make the best decisions for the success of our business,” said Keith Norton, director of engineering at K-VA-T Food Stores. In each of its facilities, the company employed a unique control room design that required compact equipment to accommodate overhead cable trays. Further, Food City relied on a third-party building management system across its entire enterprise to monitor and control equipment. To ease management, the company needed power equipment with embedded intelligence and communication capabilities to integrate into its existing building software.

Location:
Southeastern U.S.

Segment:
Retail construction

Challenge:
Develop a customized and compact power management solution to meet building requirements and provide dynamic manufacturing capabilities to support cost-effective and rapid construction of new retail locations.

Solution:
Robust power distribution, control and protection solution including the space-saving Eaton Integrated Facility Systems (IFS) switchboard with mounted power transformers, and 9355 uninterruptible power system (UPS).

Results:
Integrated electrical distribution and control equipment in a single customized and factory-assembled package. Centralized UPS systems provide facility-wide backup power to enhance reliability and reduce installation, equipment and logistics costs.
To meet the need of future construction project requirements, the framework for the power distribution solution would need to accommodate the varying demands of each installation—with capacity to feed subpanels in locations with expansive kitchens, fuel stations and offices.

Since Food City’s UPS architecture relied on multiple standalone units that were replaced as needed with different models to protect financial records, point-of-sale equipment and other important assets, proactive maintenance became increasingly difficult. Because of Food City’s unique needs, it required the expertise and manufacturing capabilities to quickly develop and standardize a solution that could easily be applied for future projects, as well as a vendor that could provide a one-stop shop for nearly all necessary electrical equipment.

Solution

After consulting with Eaton engineering experts and visiting Eaton’s South Carolina manufacturing facility, Food City discovered the many benefits of Eaton’s field service network and Integrated Facility Systems (IFS) switchboard.

“Eaton took one look at our existing panel relays and said ‘we can do it better,’” told us Norton. “They then quoted a solution that would not only make power distribution at all new Food City locations more robust, but also make the process easier and less expensive.”

By utilizing a mounted design, the switchboard could integrate traditionally separate electrical distribution and control equipment—such as transformers and automatic transfer switches—into a single space-saving, factory-assembled and pre-tested package. With this capability, Eaton could customize the IFS to meet Food City’s specific needs, while creating a replicable model for future projects.

Eaton was also able to integrate its dry-type distribution transformer directly into the IFS switchboard. Due to Underwriters Laboratories’ (UL’s) standards for heat dissipation, most power equipment manufacturers can only provide transformers in bulky freestanding enclosures. However, Eaton’s innovative distribution transformer technology allows the units to be safely wall-mounted—simplifying panel wiring and consolidating the footprint of power distribution equipment.

Additionally, Eaton designed the IFS to communicate directly with Food City’s building management software and integrate into intelligent circuit breakers that could communicate with the automatic transfer switch. These capabilities enable centralized monitoring of all power components, with the ability to quickly react to potentially harmful conditions and emergency power outages. Providing a centralized monitoring system with breakers saves valuable control room footprint while lessening the potential for unplanned downtime.

To support areas with larger power demands—such as kitchens, offices and fuel stations—Eaton provided Food City with a quickly deliverable subpanel solution for reliable, local distribution of power. To save on wiring and simplify installation, the subpanels could be factory-installed with intelligent breakers or step-down transformers to meet the needs of specific installations.

To address backup power challenges, Food City adopted the Eaton 9355 UPS as a centralized backup power system, offering industry-leading power density with up to a 75 percent smaller footprint and 13 percent more power capacity than comparable UPSs. Located in a temperature-controlled closet within the electrical room, the unit’s sleek tower design includes internal batteries and an integrated power distribution module to reduce space. The centralized solution also provides comprehensive power protection for the entire facility, which mitigated the need for investment in multiple UPS units.

Results

Food City was able to consolidate electrical distribution components including switchboards, dry-type transformers, automatic transfer switches, building controls circuit breakers and the Eaton 9355 UPS for centralized power protection into a single package to simplify delivery and reduce equipment costs.

The compact equipment helped Food City reduce the space needed for control room design and left plenty of overhead space to accommodate cable trays. To speed up installation, the IFS solution was delivered pre-wired and tested, helping Food City maintain its aggressive construction timeline.

The centralized solution is also helping Food City eliminate the need for nearly 25 smaller UPS units at each location to minimize equipment costs, and simplify maintenance and installation. In addition to a three-year service warranty, Food City has demonstrated its confidence in Eaton by adopting the benefits of the IFS and 9355 UPS in many newer projects—including new retail sites, its corporate headquarters and its regional data center.

“Aside from providing a better solution, Eaton had a much greater presence in the field than others we have worked with, as well as an amazing level of professionalism and courtesy,” said Norton. “They understand our business and provide the expertise we need to succeed and invest in more growth. We feel that Eaton has been one of the best partnerships we’ve established.”

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