

Majorpower touts benefits of DC-to-DC converters

Southern California Edison to use firm's gear

Majorpower for the last decade focused on designing high-frequency, isolated power converters and Southern California Edison (SCE) is upgrading its private network with the manufacturer's DC-to-DC converters, Samuel Norman, a partner at the Mebane, NC-based firm, told us recently. The model SCE is deploying serves applications needing stable, 48-volt DC power converted from a 130-volt DC battery backup source, he added.

The modular converter design lets the system be deployed in multiple configurations and sized to the capacity of each installation's power load. The controller is equipped with a simple network management protocol (SNMP) option that allows remote access and lets technicians monitor the power-converter system from a central control center.

Majorpower added the SNMP card as an option to let users "access system status information from across the network," Norman said. It lets users monitor active alarms.

Majorpower has over 50 high-frequency isolated power converters in service at the Grand River Dam Authority in Vinita, Okla, he added. "We've also worked with SMECO (Southern Maryland Electric Cooperative), on overlays to their tower-based, DC rectifier systems that powers their data network which collects information from smart meters."

Majorpower has 25 full-time staffers and is working to help the industry transition from constant-voltage, ferro-resonant, transformer-based designs to high-frequency, pure sine-wave inverters, DC rectifiers and modular isolated DC-DC converters, the firm said. The new gear is typically smaller, higher efficiency and has a quieter option for power-conversion equipment used to support the critical application electronics being deployed to run a smarter and more integrated grid, Norman said.

Modular designs, used in the telecom and cable industry for decades, provide extra flexibility for capacity growth as the utility operator grows the amount of data equipment deployed to support a smarter network.

Smaller, electronic modular designs typically require forced-air cooling compared with the ferro-resonant convection cooling methods – and require environmentally controlled interior spaces to function long-term, he added.

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The firm's Majotel product family is deployed in Europe, North America and South America, Norman said.

The system has exceptional range for environmental operational conditions: For the AC-DC rectifiers, the input range is 90-290V AC and 100% DC output across the full range, he added. Many competitors will start to de-rate output power below 175V AC.

For DC-to-DC converters, the temperature operational range is up to 75°C, Norman said. Other products on the market are rated to 50 degrees, he added.

The idea of moving power conversion equipment such as rectifiers, converter and inverters, from outside to inside used to be considered cutting edge but as the grid becomes smarter, the idea of power-conversion equipment installed in the same rack with the network data equipment, in an environmentally controlled space such as a server room, is becoming more widely adopted, he added.

"As the utility operators incorporate more smart grid network equipment, they will be able to see increased value by using our new power-conversion designs; giving them flexible, modular solutions for growth and increased resource efficiencies," Norman said.

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