

# Modular inverters increase control and availability for mission-critical power systems



**Modular DC-AC inverter systems with advanced power electronics and microprocessor technology provide scalability and fault-tolerance for mission-critical AC power systems.**

**T**oday, fault-tolerant power systems must be at the heart of mission-critical infrastructure, whether that be in telecommunications, or in industrial power such as mines, and in utilities like water and wastewater facilities. Communications systems and plants in remote areas need to maintain a constant and reliable source of power. In many cases, especially in industrial environments, very high reliability AC supply is required. Often AC power is produced by generators, but when grid or generator supply fails, inverter systems are essential – converting DC (24 or 48 Vdc) to AC (120 or 230 Vac) – to ensure no down time to critical power equipment. Eaton has now released its SR1600 modular inverter system, designed to function as an extended and fully integrated power conversion component with the existing Eaton critical power conversion range, including rectifiers, DC-DC converters and solar chargers.

## Modularity for scalability

When paired with Eaton's new APS (Access Power Solutions) Series 8 modular power system and high efficiency 3 kW HDR48-ES rectifier, a scalable system can be implemented that allows the operator to start with only the capacity needed and then scale up with additional modules as the load increases over time.

For superior operating efficiency to further reduce operating costs, these systems are also compatible with Eaton 2 kW Energy Saver (ES) and 3G Access Power (APR) rectifiers, as part of

an engineered-to-order AC input, DC/AC output critical power system.

The SR-1600 is a high power-density modular rack inverter solution rated at 1.6 kW per module. A 2U rack unit can support four modules for up to 6.4 kW and the system can be scaled up to 32 modules for 51.2 kW. It forms an ideal modular backup power system for telecommunication and industrial applications, and offers seamless switching between AC and DC sources.

The AC input range is capable of operating from 150 V to 265 V for a 230 V nominal system, and from 75 V to 132 V for a 120 V nominal system. The inverters are highly efficient at approximately 95% efficiency, and maintain a near-unity power factor of better than 0.99.

## Safety and control

Advanced safety features include input reverse polarity protection, under-voltage and over-voltage protection, and output protection for short circuits, overloads, and over temperature. When coupled with Eaton's SC300 system controller, the SR1600 modules can be part of a full turn-key critical power system also comprising rectifiers, DC-DC converters and solar chargers. Chris Barson, Eaton's Product Manager, Power Quality ANZ, said: "The SC300 controller supports cyber-secure communication with the Eaton rectifiers, DC-DC converters, lithium batteries, AC power meters and solar chargers. The SR1600 modular inverter is being added to this list, creating a turn-key power, communication and control solution."

The modular inverter system will communicate

directly via the Eaton SC300 controller, which also communicates with all other devices in the DC portfolio of products, including lithium batteries.

## Advanced monitoring

The controller offers advanced control and monitoring features including Smart Alarms and a complete array of communications options with Ethernet, 4G/5G cellular (including text messaging), standard modem, TCP/IP and Modbus communications options. The SR1600 solutions are pre-configured, and all system settings are fully adjustable in software and stored in transferable configuration files for repeatable and quick one-step system setup. The inverter modules are hot-swappable, and new modules introduced into a system will automatically register and synchronise upon insertion, without the need for field team programming. This means that the modules can be removed and replaced easily by general technical staff without specialist power training. Mean time to repair becomes only a matter of minutes and can be done on site by keeping a strategic set of modules as spares. Case studies and product demonstration can be arranged with an Eaton BDM. If you are interested to learn more, please contact Eaton or email [EatonANZ@eaton.com](mailto:EatonANZ@eaton.com).



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