Outage management

GridAdvisor™ Series II

Improving outage management, providing distribution intelligence

Cooper Power Systems
by Eaton
Improving outage management

The GridAdvisor™ Series II smart sensor helps utilities improve the efficiency in which they operate their distribution systems by improving outage management and capacitor bank maintenance while providing critical system information not previously available. This simple yet sophisticated device can announce directional fault targeting, detect capacitor bank fuse failure and provide real time line monitoring at nearly any location via DNP3 protocol. The GridAdvisor Series II smart sensor saves both operation and maintenance dollars by reducing drive time, and maximizes energy dollars by keeping capacitors online, operating at peak efficiency. These industry leading sensors are are hotstick installable and the easiest way to gain SCADA visibility across the power distribution network. No additional hardware or software is required. The smart sensor meets or exceeds IEEE Std 495™-2007 standard making it suitable for both overhead and underground applications.

Outage management

Electric utilities continuously look for ways to utilize technology to improve reliability by reducing the frequency and duration of customer outages. For nearly 30 years, electric utilities relied primarily on faulted circuit indicators (FCIs) to assist in locating outages within their system. These FCIs require physical inspection of the device locations to look for a mechanical target or other type of indication. The Eaton’s Cooper Power Systems GridAdvisor Series II smart sensor provides a significant advancement in fault detection and location. It incorporates today’s flexible communication technologies with traditional fault circuit indicators to integrate FCI data into operation systems including SCADA and Outage Management Systems (OMS). The smart sensor provides electric utilities the ability to achieve greater reliability and reduce operating and maintenance expenses. The GridAdvisor Series II is designed to quickly and accurately indicate both permanent and momentary faults, find their location, shorten response time, and improve reliability indices.

Capacitor bank monitor

GridAdvisor Series II smart sensor provides feedback as to which capacitor banks may be off-line due to fuse operations. Customers can set sensor alarm limits on neutral current to detect potential fuse operations. This reduces the need for physical bank inspections, minimizing operations and maintenance efforts. This solution can be applied to switched or un-switched grounded neutral capacitor banks, without any additional cable preparation.
The smart sensor allows utilities to maximize benefits of capacitor investment by ensuring all banks are in service. Having more VAR availability results in an increased system capacity and efficiency.

**Key features**
- Patented Energy Harvesting technology to eliminate external power sources
- Penta-band multimode 3G/4G cellular modem with replaceable SIM card
- Replaceable battery to increase longevity of smart sensor
- Upgradeable over-the-air firmware eliminates costly trips to update sensor
- ProView™ NXG application standard interface provides common configuration platform for use with other Eaton’s Cooper Power System products
- DNP3 protocol for simple integration into SCADA, OMS and other Smart Grid applications
- Accurate Demand Reporting to provide SCADA visibility to remote substations
- Directional Fault Targeting to better isolate faults on closed loop or paralleled circuits
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**How it works**

The GridAdvisor Series II smart sensor is an integrated line sensor and cellular modem. The sensor continuously monitors the line to which it is connected. The GridAdvisor Series II smart sensor is a DNP3 level 2 compliant device. The sensor’s line monitoring data can be retrieved directly by SCADA or OMS via DNP3 polls. The sensor can also be configured to report by exception via DNP3 messages when line monitoring data changes outside of a configurable dead band.

In outage management applications the sensor monitors the power system for a high rate of current change followed by a loss of potential. This waveform characteristic is used to report system disturbances and provide fault targeting to the utility. The variable trip characteristic does not need a static trip threshold programmed into sensor. This frees a protection or control engineer from having to custom program each sensor for the specific installed location.

As a capacitor bank monitoring sensor, it measures current levels on the common neutral conductor and uses cellular communications networks to transmit readings. High neutral current readings may indicate blown capacitor bank fuses or other bank failure. The GridAdvisor Series II smart sensor identifies such unexpected current levels, and issues alerts to operation and maintenance personnel.

The smart sensor utilizes a penta-band multimode modem simplifying the deployment strategy for a utility. A single sensor can be installed for high speed packet access (HSPA)+ 4G networks or code division multiple access (CDMA) networks maximizing the coverage of multiple public cellular providers including Verizon®, AT&T® and more. The wide spectrum of supported frequencies gives the sensor a true global footprint.

**End to end solution**

The Yukon™ GridServer 2.0 software is offered to customers looking for improved ways to manage and integrate their fleet of smart sensors. The software will reduce the man hours required to set up, commission and integrate sensors into the various client applications needing sensor data. It can concentrate the thousands of sensor connections that exist into a more manageable data connection for SCADA or OMS using DNP3 or inter-control center communications protocol (ICCP). Yukon GridServer 2.0 also provides user administration tools allowing multiple working groups to leverage the same IT infrastructure. The software can also generate email or SMS text messages to user defined distribution lists when an event is reported from the smart sensors.

Proven solutions for the power industry

Eaton’s Cooper Power Systems is aimed at implementing solutions to enhance the performance of electrical power networks. Eaton’s Cooper Power Systems products have a proven track record of meeting customers’ needs with innovative and reliable solutions for integration and automation.

The team behind our products has valuable experience in custom designs and consulting services, and an outstanding reputation for customer support, making Eaton’s Cooper Power Systems a leader in the field of enterprise automation solutions for the power industry.

For more information about how these smart products can benefit integration, security and communications, contact Eaton’s Cooper Power Systems and request a demonstration.