

# GridAdvisor Series II smart sensor



## Description

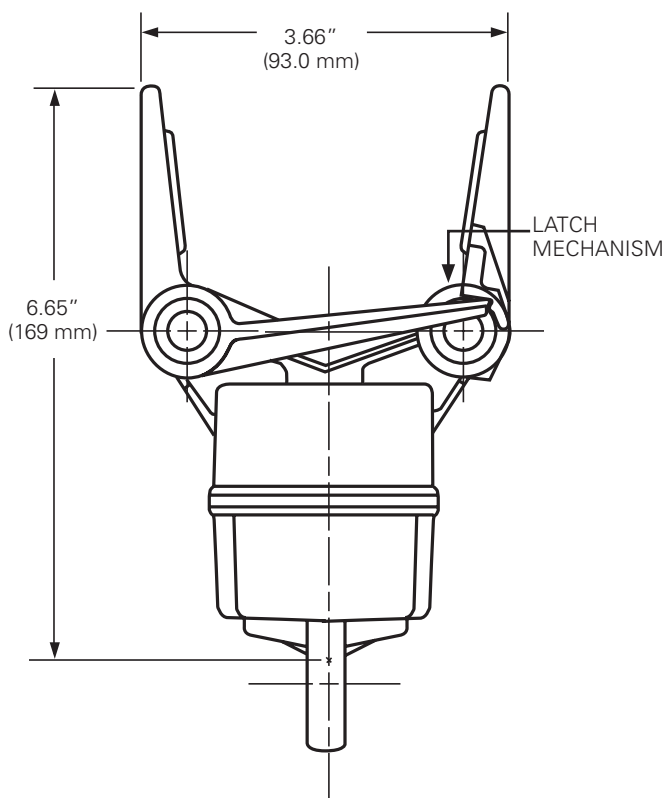
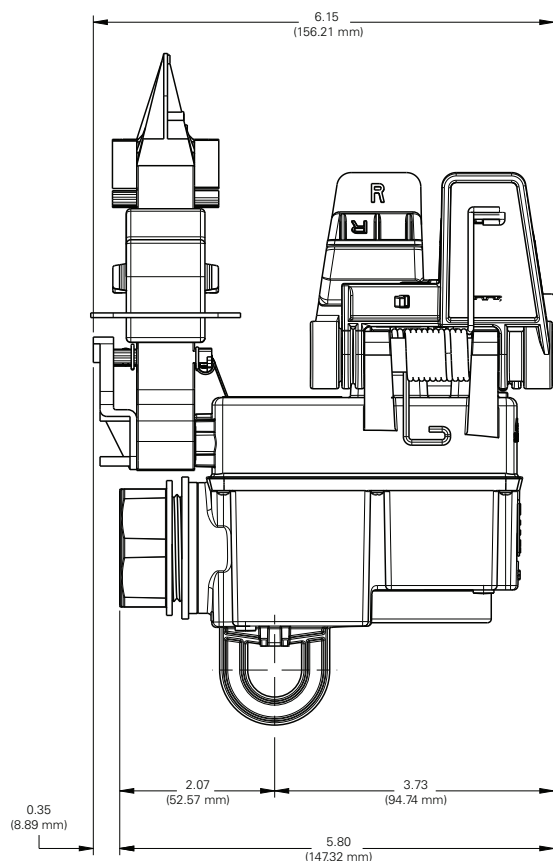
Eaton helps utilities improve the efficiency in which they operate their distribution systems with its Cooper Power™ series GridAdvisor™ Series II smart sensor by improving outage management, capacitor bank maintenance, and providing critical system information not previously available. This simple yet sophisticated product can annunciate directional fault targeting, detect a capacitor bank fuse failure and provide a DNP3 scannable line monitoring device at nearly any location.

The smart sensors meet or exceed the IEEE Std 495™-2007 standard making them suitable for underground applications. 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. Being hotstick installable with no additional hardware or software needed, the smart sensor is the easiest way to gain SCADA visibility across the power distribution network.

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**Features and dimensions of the GridAdvisor Series II smart sensor**



**Table 1. Electrical Ratings and Characteristics**

Description	Ratings and Characteristics
Catalog Number	E0013X41G12 (LTE)
Catalog Number	E0013X41G10 (CMDA/HSPA+)
Power Requirements	5 Amps primary current
Reset Time	Field Configurable 1-2 hours
Trip Current	100, 350 variable trip di/dt
Mode of Indication	Dual LEDs and DNP3
Minimum Operating Voltage	5.0 kV
Maximum Operating Voltage	69 kV L-L
Fault Withstand Capability	25 kA for 10 Cycles per IEEE Std 495™-2007 standard
Temperature Range	-40 degrees C to +85 degrees C
Materials	Corrosion-resistant and submersible per IEEE Std 495™-2007 standard
Weight	2.42 lbs (1.1 kg)

## Construction

The GridAdvisor Series II smart sensor consists of a sensor unit with an integral dual LED indicator powered by a rechargeable Lithium phosphate battery. Rugged solid-state construction ensures dependability and accuracy. Installation can be achieved on a wide range of cable diameters with a single hotstick. The sensor unit itself features a clamping mechanism design that allows easy snap-on connection to the live conductor with the use of a single hotstick.

## How it works

The GridAdvisor Series II smart sensor is a conductor-mounted line sensor with integrated communications capability. The smart sensor continuously monitors the line it is connected to and reports the data via the DNP3 protocol over either the integrated cellular modem or over the integrated Bluetooth radio connected to a Bluetooth access point. This DNP3 data can then be integrated directly into any head end system such as SCADA or OMS.

In a capacitor bank monitor application GridAdvisor Series II smart sensors 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.

In an outage management application the smart 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 of the smart sensor does not need a static trip threshold programmed into sensor. This frees protection and control engineers from having to custom program each sensor per the specific location it is installed.

The smart sensor utilizes a penta-band multimode modem simplifying the deployment strategy for a utility. A single smart sensor can be installed for LTE networks (E0013X41G12) or HSPA+ networks or CDMA networks (E0013X41G10) 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.

## Testing

GridAdvisor Series II smart sensors are made of corrosion resistant materials and meet or exceed the IEEE Std 495™-2007 standard "Guide for Testing Faulted Circuit Indicators".

100% automated production testing verifies the sensor functionality.

The electronic components are completely encapsulated to prevent any environmental damage.

## Installation

Installation is quick and easy. No special tools are required. The patented clamping mechanism of the smart sensor provides for easy installation on an energized system using a single hotstick.

## Options

### Testing/reset tool

The manual testing/reset tool can be ordered using catalog number SMRT.

### Battery kit

Extra batteries can be ordered with a minimum quantity of five (5) using catalog number E0013X00G55.

### SENA® Bluetooth® dongle

The SENA® Bluetooth® dongle is a USB to Bluetooth® adapter for communicating with computer and ProView® NXG software to GridAdvisor Series II smart sensor. A SENA® dongle can be ordered using catalog number E0013X00G56.

## Programming information

For complete programming, installation, testing and resetting instructions, please refer to *User Manual MN915003EN GridAdvisor Series II Smart Sensor Installation Instructions*.

For programming instructions with the SENA® dongle, please refer to *Application Guide, IL915004EN GridAdvisor Series II Smart Sensor, SENA® Parani™ USB Bluetooth® Adapter Installation and Connection Instructions*.

## Ordering information

To order a GridAdvisor Series II smart sensor see Table 2.

**Table 2. GridAdvisor Series II Smart Sensor Ordering Information**

Description	Catalog Number
GridAdvisor Series II LTE	E0013X41G12
GridAdvisor Series II	E0013X41G10
Reset Tool	SMRT
Battery Kit	E0013X00G55
SENA® Bluetooth® Dongle	E0013X00G56

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