

# GridAdvisor 3 sensor



## Description

Due to the energy transition, managing a safe and reliable grid is becoming increasingly challenging. By collecting accurate, granular grid measurements in strategic locations, utilities have access to the data they need to manage changing load conditions and disruptive grid events that threaten grid stability.

Eaton's GridAdvisor™ 3 sensor helps utilities operate their distribution systems more efficiently by improving outage and asset management. In addition, it provides real-time monitoring and historical profiling of the grid at both overhead and underground circuits. The GridAdvisor 3 sensor saves both operation and maintenance costs by reducing drive time and maximizes energy dollars by keeping assets online operating at peak efficiency. These industry-leading sensors are hot stick installable and the easiest way to gain SCADA visibility across the power distribution network.



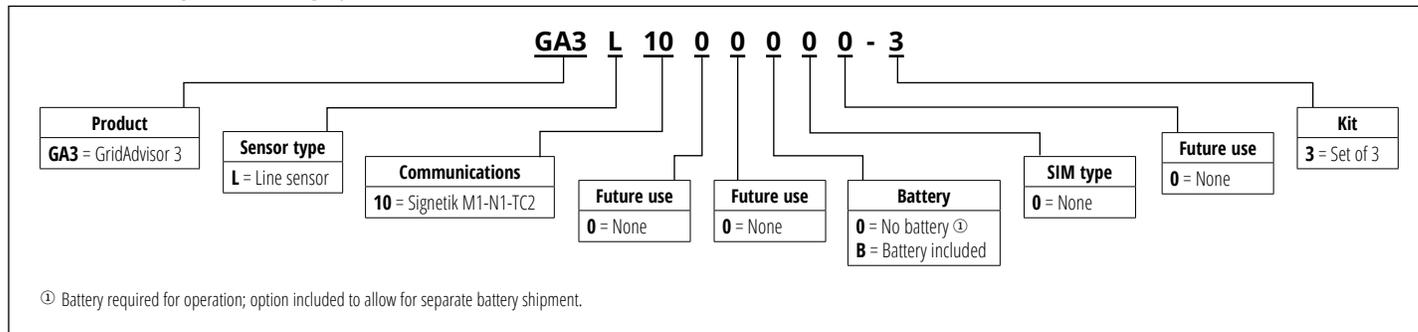
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## Ordering information

To order a GridAdvisor sensor solution:

- From **Table 1**, construct a catalog number that describes the required sensor
- From **Table 2**, specify the catalog number that describes the accessories that can ordered as spare parts or extended warranties

**Table 1. Catalog numbering system**



**Table 2. GridAdvisor accessories**

Description	Catalog number
GridAdvisor 3 spare 3-battery kit	GA3-BK3
GridAdvisor 3 spare 1-battery kit	GA3-BK1
GridAdvisor 3 USB battery charger	GA3-BATCHG

**Table 3. Legacy GridAdvisor Series II accessories**

Description	Catalog number
GridAdvisor Series II spare 3-battery kit	E0013X00G53
GridAdvisor Series II external battery charger	E0013X00G59
SENA Bluetooth adapter	E0013X00G56

## Features

### Physical design

The GridAdvisor 3 line sensor is designed for installation on both overhead conductors and underground cable with a single clamp-style hot stick. The sensor uses a spring-loaded clamp mechanism and a twist lock feature to ensure the device goes on easily and stays in place unless intentionally removed from service. The lightweight, small form factor allows for installation in numerous applications across the grid. Embedded wireless communications and energy harvesting technology eliminates the need for any external wiring, and various statuses and alarms can be locally annunciated with dual high-visibility, multicolor LEDs.

### Real-time current monitoring

The GridAdvisor 3 line sensor monitors line current to provide real-time situational awareness for utility operations. The current is digitally sampled and processed to calculate RMS load current as well as monitor disturbances and anomalies. The current is also averaged to provide a steady-state demand current, which can be reported, profiled, and archived locally for later retrieval. The sensor can capture peak demand to help inform planning studies. The sensor, with its high rate of sampling, can also measure and report harmonic current content up to the 15th harmonic for power quality analysis.

### Grid reliability and resiliency

The GridAdvisor 3 line sensor employs accurate fault detection to help utilities improve grid reliability. By leveraging fault and outage annunciation from sensors deployed strategically throughout the grid, trouble crews can identify smaller sections of line to patrol time and reduce time to find faults. Fault magnitude reporting and directional targeting further pinpoint fault location, and GPS location and time synchronization maximize coordination with other grid assets and systems. The sensor can also bolster grid resiliency by sensing momentary faults and other disturbances that could be precursors to more catastrophic events. High-frequency digital sampling and processing at 128 samples/cycle is also captured for pre-/post-events oscillography and stored locally for additional post-event analysis.

### Asset management

With its small form factor and easy installation, the GridAdvisor 3 line sensor is ideal for use in monitoring assets at any point along the grid, including some purpose-built asset applications.

Recloser contact lifecycle monitoring provides a means to estimate remaining contact life on protection devices based on the IEEE® Recloser Duty Cycle Test, decrementing with every interruption and alarming when the remaining life reaches a low or critical threshold.

Configured as a capacitor bank monitor, the sensor monitors the current flowing in the common neutral of a shunt distribution capacitor bank, alarming on an imbalance indicating failure of one or more phases, or alarming on an open bank at zero current. This feature 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.

## Communications

The GridAdvisor 3 line sensor provides remote communications for both real-time operational data and for device maintenance and diagnostics, including settings and firmware updates. The sensor has an embedded cellular modem, leveraging the latest IoT technologies on both commercial carriers and private LTE networks. Leveraging modules that have multi-band support and numerous certifications makes the sensor a truly global product. The modem has an embedded SIM on board, as well as a user-accessible SIM tray for simple and flexible provisioning.

The GridAdvisor 3 is DNP3-native, meaning the sensor can be directly integrated to SCADA or any DNP3 controlling station via standard protocol.

The sensor also includes a Bluetooth radio with up-to-date low energy and cybersecurity standards that can be leveraged to provide wireless connectivity for on-site personnel or for integration to a local edge gateway, enabling additional analytics and communications flexibility.

A USB-C connector port provides a simple means for connectivity and power during bench testing or provisioning, as well as charging the sensor battery in the absence of line current.

## Technical information

**Table 4. Ratings and specifications**

Description	Rating
Minimum harvesting current	5 A
Continuous current rating	1200 A
Fault withstand	>25 kA for 10 cycles
Load current accuracy	±1% 20–600 A (±0.2 A 0–20 A, ±2% >600 A)
Sampling frequency	128 samples/cycle
Fault detection	Digital variable trip, static trip, percentage trip
Oscillography	10 cycles pre-event and 30 cycles of post-event current
Harmonic measurement	2nd, odd harmonics up to 15th
Conductor range	0.25–2.25 inches (6.35–57.15 mm)
Weight	4.0 lb
Temperature rating	–40 to +85 degrees Celsius
Local indication	High visibility dual multi-color LEDs
Local communications	USB-C (comms, power, charge) and low energy Bluetooth 5.0+
Remote communications	LTE CATM1/NB-IoT multi-band radio
GPS support	GPS location and time synchronization
Applicable standards	IEEE Std 495-2007 IEEE Std 1686-2013 IEC 5100-4-2 FCC ANSI C37.90.2 IEC 60244-21 1, 2, and 3

## Dimensions

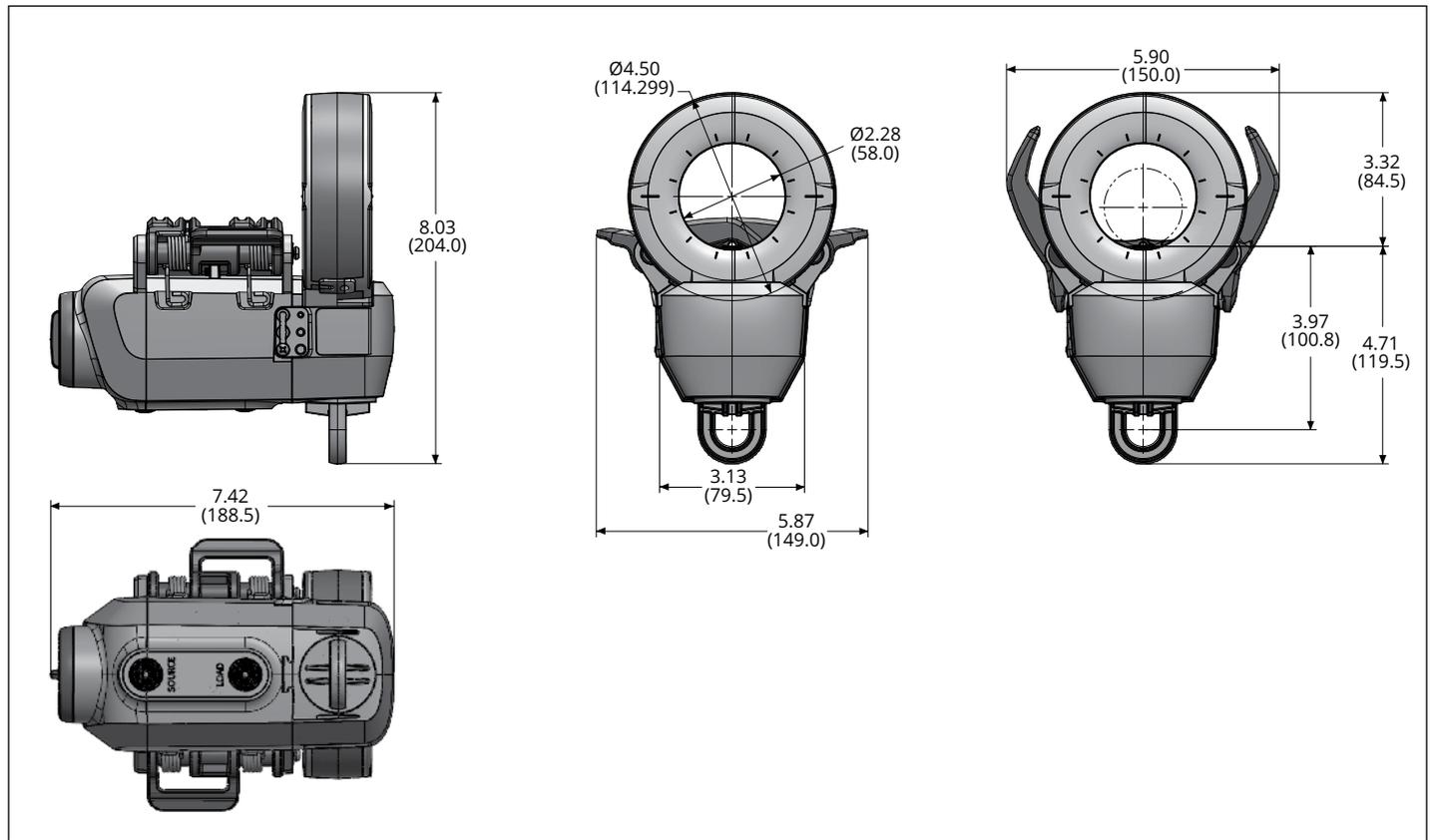


Figure 1. Grid Advisor 3 assembly—dimensions in inches (mm)

## Additional information

Refer to the following literature for technical information:

- IL915006EN GridAdvisor 3 line sensor installation instructions
- MN915005EN GridAdvisor 3 line sensor ProView NXG software programming manual

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