

# GridAdvisor Insight RG235 optical medium-voltage and current sensor system



GridAdvisor RG235 sensor

The GridAdvisor Insight RG series optical medium-voltage and current sensor system utilizes a 100% “all optical” measurement platform for unparalleled accuracy and precision of both voltage and current across multiple voltage classes. Installation time for a typical three-phase system is less than 3 hours, resulting in significant deployment savings. All signals from the sensor are connected via optical fiber connections to a “plug & play” modular optical sensor platform m410 modular optical sensor platform that is fully ruggedized and scalable.

## Product overview

- 4 kV to 35 kV outdoor rated, 220 kV BIL, 60 Hz
- Includes both current and voltage sensing
- Sensing voltage: 4 kV to 35 kV
- Sensing amperes: 5 A to 25 kA
- Transients: 40 dB (10x steady-state condition)
- Harmonics: measurements to 50th voltage harmonic
- Approximate weight: 15 lb (6.8 kg)

## Features and benefits

The GridAdvisor Insight optical medium-voltage and current sensor is a direct replacement for standard potential transformers and current transformers. Because of the “all optical” sensor design, there are no conductive materials used for the measurement of both voltage and current. The insulator body is casted in hydrophobic cycloaliphatic epoxy (HCEP) using a state-of-the-art injection molding process. HCEP construction provides superior arc track, ozone and ultraviolet-resistant properties while maintaining physical strength. The hydrophobic surface properties of the HCEP ensure highly reliable performance in wet or humid conditions. All calibration and performance settings are stored in the ruggedized modular electronics enclosure at the base of the optical cable. The m410 modular optical sensor processor provides a “highly accurate” and “low cost” precision solution for distribution grid monitoring and control.

## GridAdvisor optical features

All-optical solution for voltage and current measurements:

- One SKU for 4 kV to 35 kV voltage and current classes
- Modular, hot-swappable and plug & play
- Calibration and offsets are contained within the RG235 sensor

## HCEP benefits

- Enhanced water shedding properties
- Reduced contamination-related leakage
- Improved product quality, reliability and UV protection
- Results in a more consistent and reliable product

## Installation

The GridAdvisor optical medium-voltage and current sensor installs directly on the conductor wire using anti-rotation, conduction grade, aluminum wire clamps. A shot-gun stick hook located on the top of the GridAdvisor RG235 sensor enables, safe and quick live installations.

## Performance

The GridAdvisor Insight optical medium-voltage and current sensor provides both high accuracy and precision that remains constant regardless of applied voltage or current. Average accuracy and precision is  $\pm 0.5\%$  within a temperature range of  $-30\text{ }^{\circ}\text{C}$  ( $-22\text{ }^{\circ}\text{F}$ ) to  $+85\text{ }^{\circ}\text{C}$  ( $+185\text{ }^{\circ}\text{F}$ ).



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## Specifications

### Sensor

- Insulator body rating 35 kV, 55 ft (17 m) cable length
- Wire clamp adjustable diameter 0.162 to 1.125 inches
- Transients: 40 dB (10x steady-state condition) minimum
- Harmonics: measurements to 50th harmonic
- Accuracy:  $\pm 0.5\%$  voltage and current
- Long-term stability  $\pm 0.25\%$

### Environmental

- Operational:  $-40\text{ }^{\circ}\text{F}$  to  $+185\text{ }^{\circ}\text{F}$  ( $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$ )
- Relative humidity: 5% to 95%

### Typical included components

- Three GridAdvisor RG235 sensors
- Suggested insulation guide

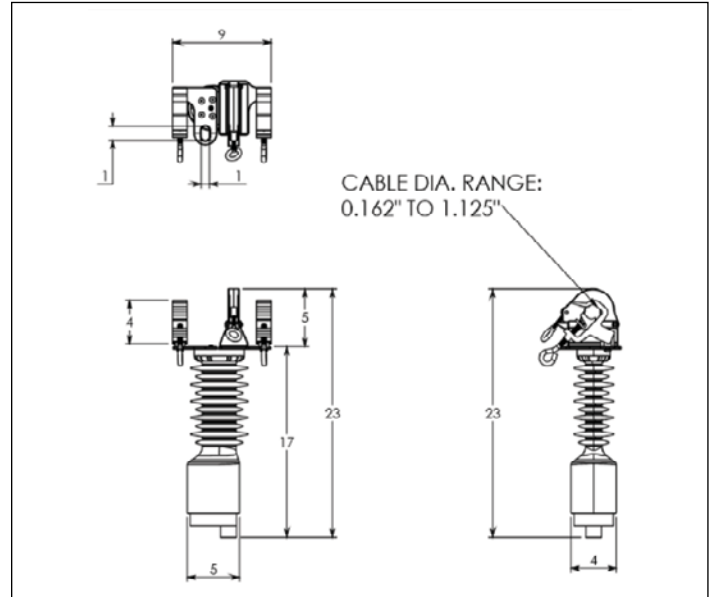
### Test reports

Test reports are stored electronically and can be emailed in various formats at the time of shipment.

### Certifications

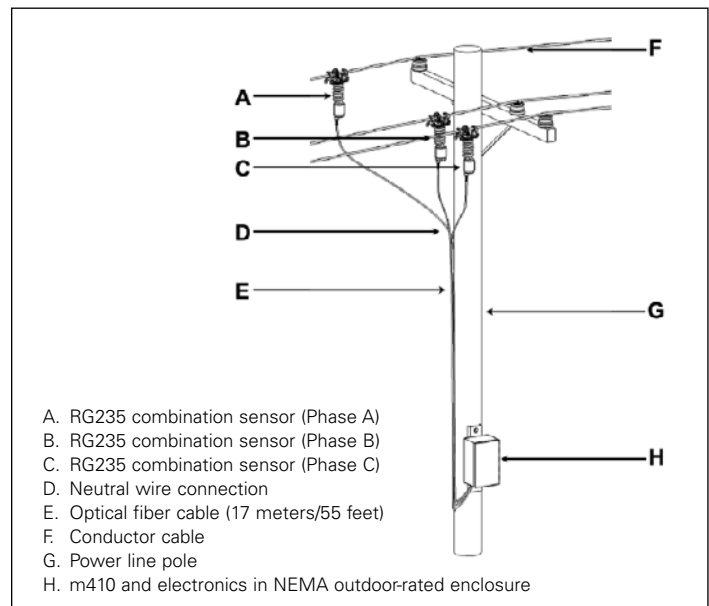
- Acid atmosphere: MIL-STD-810G, Method 518.1
- Salt fog: MIL-STD-810G, Method 509.5
- Temperature shock: MIL-STD-810G, Method 503.5
- Vibration: MIL-STD-810G, Method 514.6, 514.6C-4
- BIL: 200 kV full-wave lightning impulse
- Partial discharge per IEEE<sup>®</sup> Std. 4

## Unit dimensions

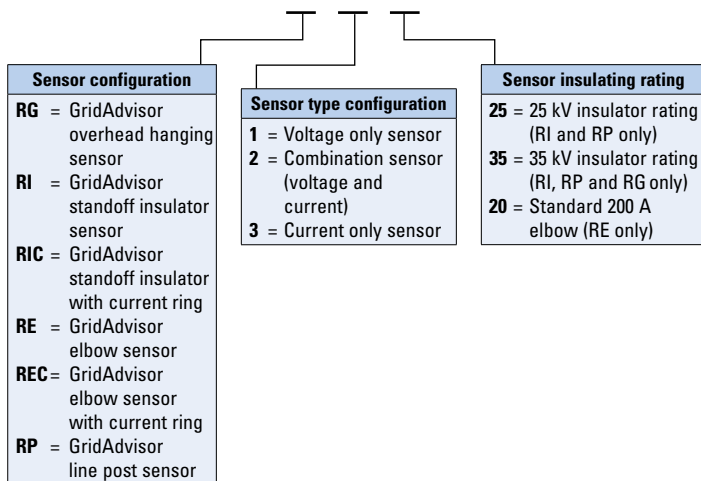


SKU: RG235  
Additional styles available.  
Contact your Eaton sales representative.

## Typical three-phase monitoring application



## GridAdvisor voltage and current configurator



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