

GridAdvisor Insight RE series optical underground elbow sensor system



GridAdvisor RE120 sensor

The GridAdvisor Insight optical elbow sensor utilizes a 100% “all optical” measurement platform for unparalleled accuracy and precision of voltage readings, across multiple voltage classes. Specifically designed for installation in standard underground elbow interfaces. All signals from the sensor are connected via optical fiber connections to a “plug & play” m410 modular optical sensor platform, that is fully ruggedized and scalable.

Product overview

- 4 kV to 15 kV submersion rated, 95 kV BIL, 60 Hz
- Voltage sensing modular elbow adapter
- Sensing voltage: 4 kV to 15 kV
- Transients: 10 dB (10x steady-state condition)
- Harmonics: measurements to 50th voltage harmonic
- 3/8-16 UNC mount standard—200 A
- Approximate weight: 5 lb (5.4 kg)

Features and benefits

The GridAdvisor Insight optical elbow adapter sensor is a direct replacement for standard resistive voltage divider sensors and capacitive coupler sensors. Because of the “all optical” sensor design, there are no conductive materials used for the measurement of both voltage as well as the transmission of the optical signals. The insulator body is cast 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 HCEP ensure highly reliable performance in wet or humid conditions. All calibration and performance settings are stored in the ruggedized modular electronics enclosure located at the base of the optical cable. When integrated with the m410 modular optical sensor processor, this provides for a “highly accurate” and “low cost” precision solution for distribution grid monitoring and control.

GridAdvisor optical features

All-optical solution for voltage measurements:

- RE120: voltage-only optical elbow sensor
- REC220: elbow sensor with current ring for optical voltage and current sensing
- Designed for harsh operational environments
- Calibration and offsets are contained within the RE120 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 Insight optical elbow adapter sensor installs directly inside standard 200 A elbows via a 3/8-16 UNC conduction rod.

Performance

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



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Specifications

Sensor

- Insulator body rating 15 kV, 20 ft (6 m) cable length
- 3/8-16 UNC mount standard —200 A
- Submersion rated to 25 ft (seven days)
- Transients: 10 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: $-22\text{ }^{\circ}\text{F}$ to $+185\text{ }^{\circ}\text{F}$ ($-30\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$)
- Relative humidity: 5% to 95%

Typical included components

- Three GridAdvisor RE120 sensors
- Suggested insulation guide

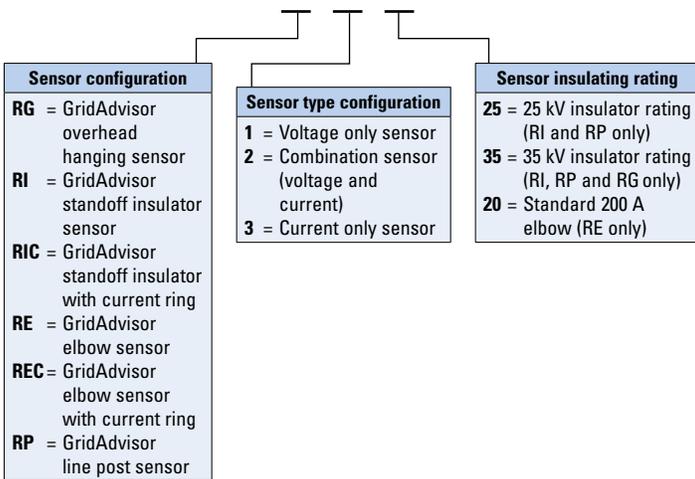
Test reports

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

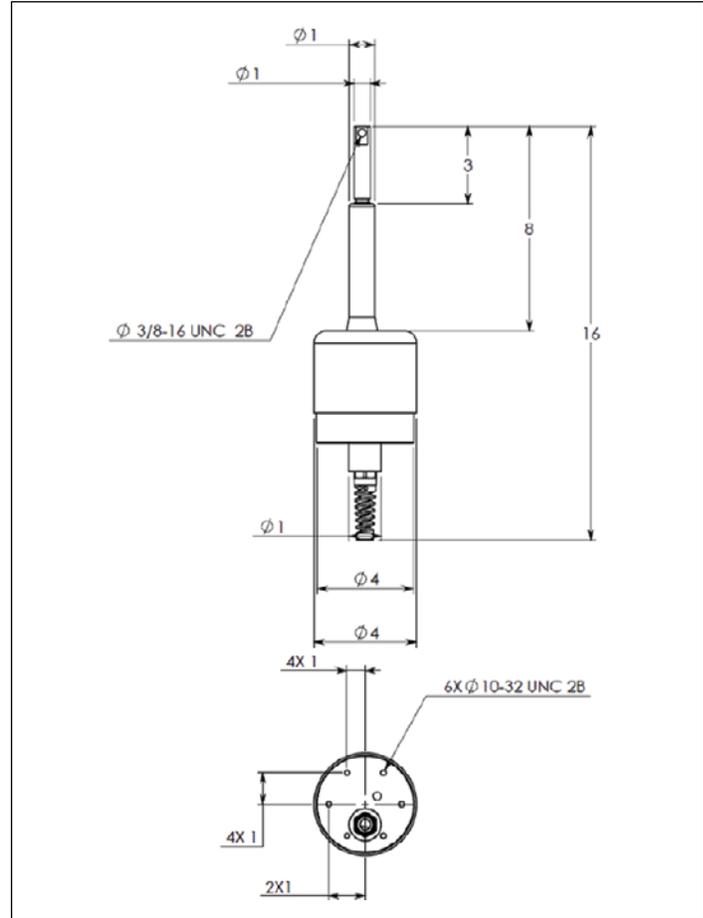
Certifications

- BIL: 95 kV; ac withstand: 1 minute, 34 kV
- Partial discharge per IEEE® Std. 4

GridAdvisor voltage and current configurator



Unit dimensions



SKU: RE120
 Additional styles available.
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