GeoCloud Laser ODS

GeoCloud Wireless Laser ODS

The ODS (optical displacement sensor) is a laser-powered extensometer that provides high precision distance measurements. It is one of a new generation of efficient, battery-powered, radio-equipped, digital sensors. Typical applications include:

- Monitoring pillars, bridge decks, retaining walls, tunnel profiles for deformation.
- Monitoring heave or settlement of floor slabs (changes in ceiling-floor distances).
- Monitoring structural movements at locations that are difficult or dangerous to access.
- Monitoring rotation with its built-in 3-axis tiltmeter.

The wireless laser ODS combines a laser extensometer and a 3-axis tiltmeter to provide high-precision distance and tilt measurements.

Advantages

Remote measurements: The Laser ODS works with natural surfaces up to 165 feet away and with targets up to 500 feet away.

Easy Installation: The ODS is compact, easy to install, and requires almost no maintenance.

Cable-Free: GeoCloud sensors provide their own power and transmit measurements by radio, entirely eliminating the cost of cables, cable protection, and cable maintenance.

GeoCloud Services: GeoCloud provides access to data wherever there is an internet connection. GeoCloud services operate 24 hours checking for alarms, and generating graphs, reports, and alerts.

Laser

Sensor: Laser Class 2, 655 nm (visible red).

Range: 165 feet from natural surface target, 330 feet from white target, 500 feet from reflective target.

Resolution: 0.004 inch.

Repeatability: ±0.006 inch.

Tiltmeter

Sensors: MEMS tilt sensors in three axes.

Range: ±90° in each axis.

Resolution: 0.0001°.

Repeatability: ±0.0005°.

Hardware

Battery life: 10 years at 1 hour reporting interval, 8 years at 30 minute reporting interval, including acting as a relay.

Environmental: IP68 at 1m for 24 hours, -10°C to +50°C for full functionality of laser, -25 °C to +85°C for tiltmeter.

Dimensions: 3.5 x 3.5 x 2.4 inch high.

Communications

Protocol: Proprietary Senceive FlatMesh networking protocols, IEEE802.15.4 compliant.

Frequency: 2400-2485 MHz ISM Band. FCC Approved.

Max Transmit power: 6.5 dBm.

Max Antenna Gain: 2.2 dB.

Range: 980 feet point to point. Can be extended with nodes acting as relays.

Gateway to Internet: Cellular.