



GeoCloud Tiltmeter



GeoCloud Mini-Tiltmeters

## GeoCloud Wireless Tiltmeters

Tiltmeters are used to monitor small changes in inclination. They are ideal for monitoring structural rotation, differential settlement, deformation, and convergence. GeoCloud tiltmeters are a new generation of efficient, battery-powered, wireless digital sensors.

There are two versions: The larger Wireless Tiltmeter offers longer battery life. The smaller Wireless Mini-Tiltmeter is compact and discrete.

### Applications

- Monitoring the stability of structures adjacent to excavations.
- Monitoring landslides, rockfalls, and embankments.
- Monitoring movement of shoring walls.
- Monitoring the tilt of piers and piles.
- Monitoring differential settlement and heave.
- Monitoring deformation in tunnels.
- Monitoring effects of jet, compaction, and compensation grouting in real time.

## Advantages

- **High Performance:** GeoCloud tiltmeters provide high resolution, high precision, low noise measurements.
- **Cloud or Local Access:** The cellular gateway transmits measurements to the internet for cloud access. The USB gateway provides on-site access for real-time control.
- **Versatile Mounting Options:** GeoCloud tiltmeters can be installed in any orientation. A wide variety of plates and brackets provide convenient mounting to walls, stakes and poles, and track ties.
- **Self-Configuring Communications:** GeoCloud tiltmeters automatically optimize communication paths to the gateway.
- **Cable-Free:** GeoCloud tiltmeters 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 a day, processing measurements, checking for alarms, and generating graphs, reports, and alerts.

### Wireless Tiltmeter

**Sensors:** MEMS sensors in three tilt axes.

**Range:**  $\pm 90^\circ$  in each axis.

**Resolution:** 0.0001°.

**Repeatability:**  $\pm 0.0005^\circ$ .

**Battery life:** 12 to 15 years, with data transmissions at 25 minute intervals.

**Environmental:** IP68 at 1m for 24 hours,  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$ .

**Dimensions:** 3.5 x 3.5 x 2.4 inch high.

### Wireless Mini-Tiltmeter

**Sensors:** MEMS sensors in three tilt axes.

**Range:**  $\pm 90^\circ$  in each axis.

**Resolution:** 0.0001°.

**Repeatability:**  $\pm 0.0005^\circ$ .

**Battery life:** 4 to 5 years with data transmissions at 25 minute intervals.

**Environmental:** IP68 at 2 m for 24 hours,  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$ .

**Dimensions:** 2.3 inch x 1.78 inch high

### Communications

**Protocol:** Proprietary Senceive FlatMesh network protocol, IEEE802.15.4 compliant.

**Frequency:** 2400-2485 MHz ISM Band. FCC approved.

**Max Transmit power:** 6.5 dBm.

**Max Antenna Gain:** 2.2 dBi.

**Range:** 980 feet point to point. Can be extended when nodes act as repeaters.

**Gateway to Internet:** Cellular.