

# MINING MONITORING

TYPES: OPEN PIT | UNDERGROUND | TAILINGS



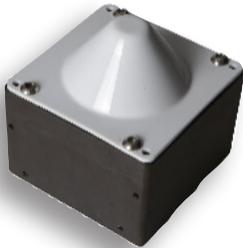
## PRODUCTS

- ✓ **Piezometers** → Pore pressure
- ✓ **In-Place Inclinometers** → Vertical sub-surface displacement
- ✓ **Triaxial Tilt Meters** → Displacement and rotation
- ✓ **Load & Pressure Cells** → Stress of rock and concrete mass
- ✓ **Strain Gauges** → Stress monitoring of concrete and metal structures
- ✓ **Crack Sensors**
- ✓ **Soil Moisture Sensors**
- ✓ **Optical Displacement Sensor (ODS)** → movement and convergence measurements
- ✓ **Temperature Sensors**
- ✓ **FlatMesh® Camera**

## MINING CHALLENGES

Senceive's wireless solutions for mining provide automatic, long-life, robust, reliable and near-real time monitoring. The ability to monitor multiple parameters using our sensor interface range provides "big-data" for a site and all the information required to aid prediction of failure and prevent catastrophes.

The low power system primarily allows remote structural/geotechnical monitoring to help with quick decision making and act as an early warning system by providing SMS text alerts and 24/7 imaging to identify any movement.



## WHY WIRELESS?

Compared to other types of monitoring systems, a wireless solution for mining is far more cost effective and less labor intensive than traditional wired systems, manual monitoring, optical systems and Automatic Total Stations (ATS). In most cases of open-pit mining and tailings, the system requires no power infrastructure at all and can operate autonomously with the ability to be remotely configured anywhere in the world. Compared to ATS systems, which can be extremely expensive for larger sites, a wireless solution provides better range, coverage of the site and can be installed in spaces with minimal clearance.

Senceive uniquely offers two wireless platforms to suit different types of mine. The FlatMesh® platform is designed for dense deployments and provides an Intelligent Earthworks Solution which aids prediction. The GeoWAN® platform, which is a star topography, can see through obstacles and provides longrange capability of up to 15km.

## OUR SOLUTION

The scalable systems are ideally suited to remote locations, as they are completely wireless and autonomous with practically no maintenance required at all. The products are virtually 'plug and play', which allows for ease of installation and flexibility for redeployments, which is further facilitated by the option of solar panels for FlatMesh® and minimal power infrastructure required for GeoWAN®.

The ruggedized sensors have been explicitly designed for harsh environments, so they are waterproof, durable and built for longevity with a battery life of up to 15 years. The versatile and reliable systems also give the client the control of their data and setup, by allowing registered users to access the WebMonitor visualization software anywhere in the world. It also offers the option to use their own client software, change reporting rates and trigger levels, add new sites and much more. Assistance is always on hand from our dedicated support team.

