

# Accurate Positioning System

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High precision monitoring for  
ground stability with a cost-effective solution

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Introducing GNSS-based monitoring system. Leverage the high precision of GNSS technology to accurately assess ground movements in the long term. All this, relying on leading technology with the most competitive offer in the market.

## Cost-efficient GNSS monitoring with the precision you need

Unlike traditional GNSS solutions, the Accurate Positioning Systems allows you to deploy monitoring systems with the data quality you need, at a fraction of the cost.



### RELY ON FIELD-PROVEN TECHNOLOGY

Leverage top-tier instrumentation, connectivity and software providers for a seamless deployment experience



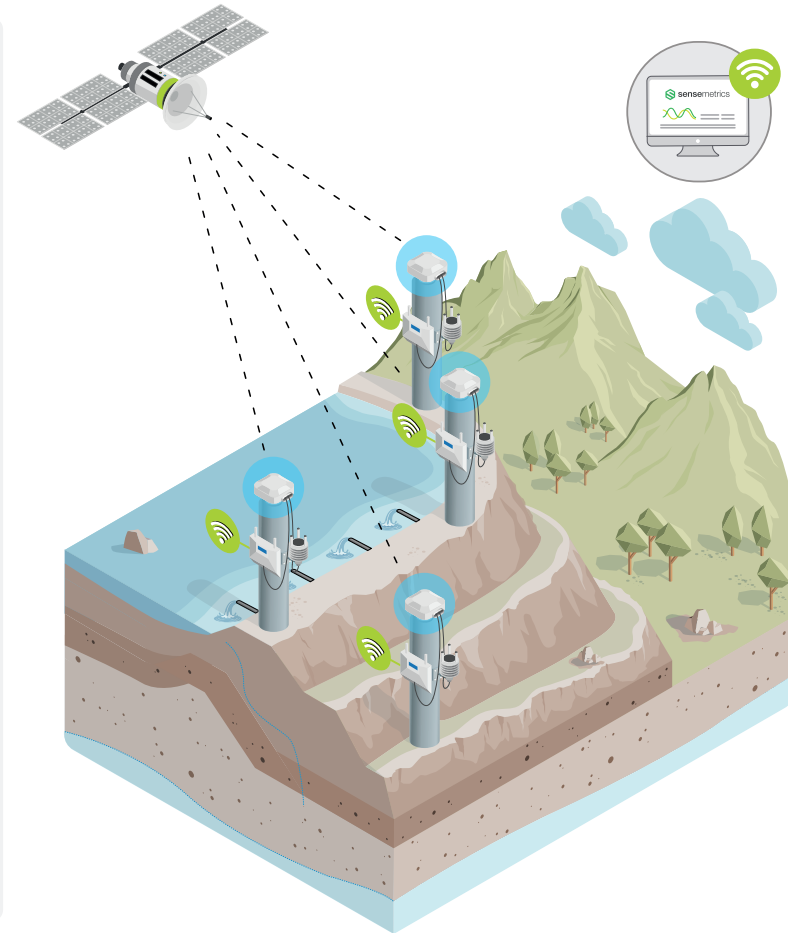
### MINIMIZE COSTS ON HARDWARE DEPLOYMENT

Take advantage of a disruptive technological solution that drastically reduces the initial investment and deployment times compared to traditional GNSS monitoring.



### STREAMLINE YOUR DATA PROCESSING WITH DEDICATED SOFTWARE CONFIGURATIONS

Leverage the readily integration fo Topcon's GNSS devices into Sensemetrics software to easily determine what precision is required and adjust to reach those requirements.



## Areas of application

Deploy your systems in multiple locations and integrate data for accurately monitor ground movements.



### Slope stability

Mining - Construction - Hydrodams

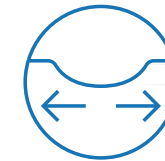
Slope stability deals with soil mass stability: an inclined mass of soil needs to withstand its own weight, surcharge, and water conditions, either flow or hydrostatic. Worldsensing's Accurate Positioning System allows to assess the evolution of ground movements in these ground structures by measuring its displacement both vertical an horizontal.



### Settlement monitoring

Mining - Construction

An Accurate Positioning System can help you monitor ground structures and the appearance of settlements resulting from heavy loads pressing the ground. By assessing its long term evolution, engineers can take action to protect buildings or other civil infrastructure prone to suffer the effects of these vertical ground movements.a



### Subsidence and heave

Construction

Assess the evolution of these critical geotechnical phenomena of contracting and expanding soil. Use Worldsensing's Accurate Positioning System with millimetric precision to take action when these vertical movements can pose a threat to nearby civil infrastructure and buildings.

## The building blocks of the Accurate Positioning System



### 1 Topcon GNSS receiver

Leverage the high precision capabilities of Topcon's AGM-1 GNSS receiver, featuring:

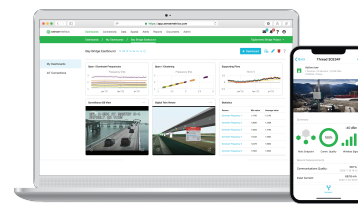
- Precision up to 3 mm in the horizontal axis, and 7 mm on the vertical axis.
- Precision dual-frequency GNSS smart antenna.
- Multi-constellation with default support for GPS and GLONASS.



### 2 ThreadX3 enabled

Leverage the power our ThreadX3, a fully autonomous connectivity station for robust and continuous monitoring:

- Plug & Play sensor integration.
- Attach 3D positioning capability to any Thread, with precision up to 2-3mm.
- Differential GPS post-processing utilizing local control station(s).
- Supports operation in distributed applications leveraging solar panels and wireless mesh communications.
- Process positions at rates varying from 1 hr to 24 hr, supporting varied wake schedules.



### 3 Sensemetrics software platform

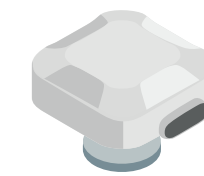
Manage your network deployment from a single software platform, from network to node configuration:

- User-selected Grid and Datum selections for translation to cartesian coordinates (NEH).
- Assumes wake schedule of Thread device, allowing for optimization of power settings suitable to the application.
- Calculates all standard geospatial derivative metrics, including: position, displacement, velocity and acceleration.
- Provides GNSS specific diagnostics, including: covariance Matrix, dilution of Precision, tracked satellites, epoch count.

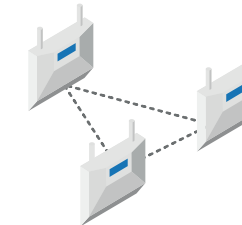
## An integrated monitoring solution

A seamless data flow from sensors to platform for better data-based decision making.v

GNSS Receiver



ThreadX3



Bently Software



RS-232

Cellular Ethernet

### Monitoring instrumentation

Connect Topcon's AGM-1 GNSS receiver to a ThreadX3 in a simple connect-and-collect installation. Half your deployment times compared to similar GNSS projects. Configure your required precision and adjust it according to the project's needs at every step.

### Connectivity enablers

Rely on ThreadX3, multi-sensor connectivity enables that simplifies the deployment of flood monitoring systems. Create a network of different stations under a mesh network for added system redundancy. Process positions at rates varying from 1 hr to 24 hr, supporting varied wake schedules.

### Software layer

Work with Worldsensing's preferred software partner for data processing of your monitoring data. Leverage the readily integration of Topcon's AGM-1 GNSS with Sensemetrics receiver to make advanced data processing, and use this data to trigger notifications and other M2M data-driven actions.



Worldsensing is a global IoT pioneer. Founded in 2008, the infrastructure monitoring expert serves customers in more than 70 countries, with a network of global partners to jointly drive safety in mining, construction, rail and structural health.

Worldsensing is headquartered in Barcelona and has a local presence in the UK, North and South America, Singapore, Australia and Poland. Investors include Cisco Systems, McRock Capital, ETF, Kibo Ventures, JME Ventures and Bentley Systems.

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