

GAA Slope Monitoring System

Description

NOTE: This is a legacy and discontinued product not available for order.

Geo-Acoustic Aware (GAA) is a low-cost, reliable solution for the spatial infill of ground movement data instead of traditional instrumentation (Inclinometers, ShapeArray) at shallow depths, and to allow for early warning of movement. It is used in conjunction with Inclinometers, In-Place Inclinometers, ShapeArray (SAA), piezometers, weather sensors, and other instruments to monitor slow to moderate slope movement rates in landslides, roads and highways, pipelines and tailings dams.

The sensor is attached to a steel pipe (waveguide) in a borehole backfilled with packed angular gravel. The GAA sensor detects acoustic emission stress waves generated by inter-particle friction. Increases in acoustic emission stress waves indicate accelerating slope movement. The sensor is connected to the GAA2820 Data Logger for real-time monitoring.

Acoustic emission stress waves are counted by the data logger during the reading interval (1 hour recommended) and the recorded value is the sum of the waves during this period. This recorded value is called Ring Down Count (RDC). RDC/hour is correlated to the landslide velocity scale presented by Cruden & Varnes (1996)*. The RDC represents an approximation of movement velocity and order of magnitude changes in RDC represents acceleration of the ground.

GAA boasts increased range over other solutions. In cases of large-displacement where traditional instrumentation will exceed their range, GAA can measure, record and transmit data as the waveguide continues to deform in the ground (>500 mm displacement).

The waveguide and data logger are simple to install. The data logger setup and future data collection is done using a laptop. RST's DT Logger Host Software is also included.

Wireless communication via the RSTAR network allows the data to be combined with other data sets and boasts a large open country Hub-to-Node range.

Geo-Acoustic Aware Specifications

ITEM	SPECIFICATION
Reporting Units	Ring Down Count (RDC)
Memory Records	Up to 600,000 records including time, RDC
Power Source	Lithium 'D' cell battery
Battery Life	Up to 1.5 years (assuming 1 hour reading frequency) / 4 memory fills depending on temperature and use
Communication	RSTAR, USB (for setup)
Dimensions	190 x 75 x 55 mm (7.48 x 2.95 x 2.17 in.)
Temperature Range	-40°C to 60°C (-40° to 140°F)
Enclosure	NEMA 4X (IP65)

MEMORY SPECIFICATIONS

ITEM	SPECIFICATION
Memory Size	4MB
Data Transfer	2,300 data points per second
Interval Mode	1 hour recommended (optional 15 minutes)
Time Format	Month / day / year Hour / minute / second
Memory Full Behaviour	“Wrap around” or “fill & stop” option
Specifications	