

# Traversing Probe Magnetic Extensometer

## Applications

The Geo-Instruments Traversing Probe Magnetic Extensometer is designed to measure settlement and heave in near vertical borehole applications. It's many geotechnical and structural applications include:

- Monitoring of landslide areas
- Monitoring of ground movements due to tunnel construction and excavation
- Suitable for work on or adjacent to railway lines and tunnels
- Monitoring deformations of retaining walls/embankments
- Provides an early warning system of pending landslide areas and slope failure by monitoring the stability and movement of natural slopes, highways, railways, and dams

## Features

- Reliable and accurate
- Simple to install and to read
- Any number of points can be monitored at very little extra cost and with no increase of borehole diameter
- Magnet targets and portions of access tubing can be excavated or added
- Displacements can be measured in three dimensions when this instrument is combined with an In Place Inclinometer
- One probe reads multiple loca-



tions; only the central access tubing and magnet targets are permanently installed in the ground

- Various types of magnet targets are available

## Operation

The Geo-Instruments Traversing Probe Magnetic Extensometer is comprised of ring magnet targets sliding on a central access tube. This is then installed and fixed in the ground at locations where the monitoring of movement coaxial to the central access tube is required. In addition, plate magnets are installed in soil or fill during construction and 6 legged spider magnets are retained by leaf springs in the boreholes. A sus-

pending probe incorporating triple read switches is then lowered within the access tubing and senses the magnet targets positions outside of the tubing.

## Targets and Readings

Multiple types and sizes of ring magnet targets are available. The magnet targets can be grouted into rock, retained by leaf spring legs, or buried as plates in soil or fill. Readings are made with the reed switch probe and are relative to either a magnetic datum target located in stable ground that is not expected to move or to topographic measurements taken from the measuring point at the top of the access tubing.

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**We make it easy to  
get the data you need.**

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**Traversing Probe**

A probe incorporating three reed switches travels within the access tube via a graduated tape and detects the locations of the magnets outside the tube via their magnetic field. The reed switch closes on entering the magnetic field which activates a beeper and an indicator light within the reel via electrical conductors on a graduated tape. The graduated tape is used to measure the distance from the top of the access casing to each magnetic target. Changes in the distance required to reach these magnetic targets reflects the movements of rock and soil movements along the axis of the access casing. Various tape lengths are available.

**Access Tubing**

The access tubing is built up from successive 10ft (3m) lengths coupled together. Tubing types are either specific to extensometer measurement in one axis or can be combined with inclinometer measurements, using inclinometer casing, to provide measurement of movement in three axis. Fixed or telescoping tubing is also available and may be specified.

**PROBE / REEL**

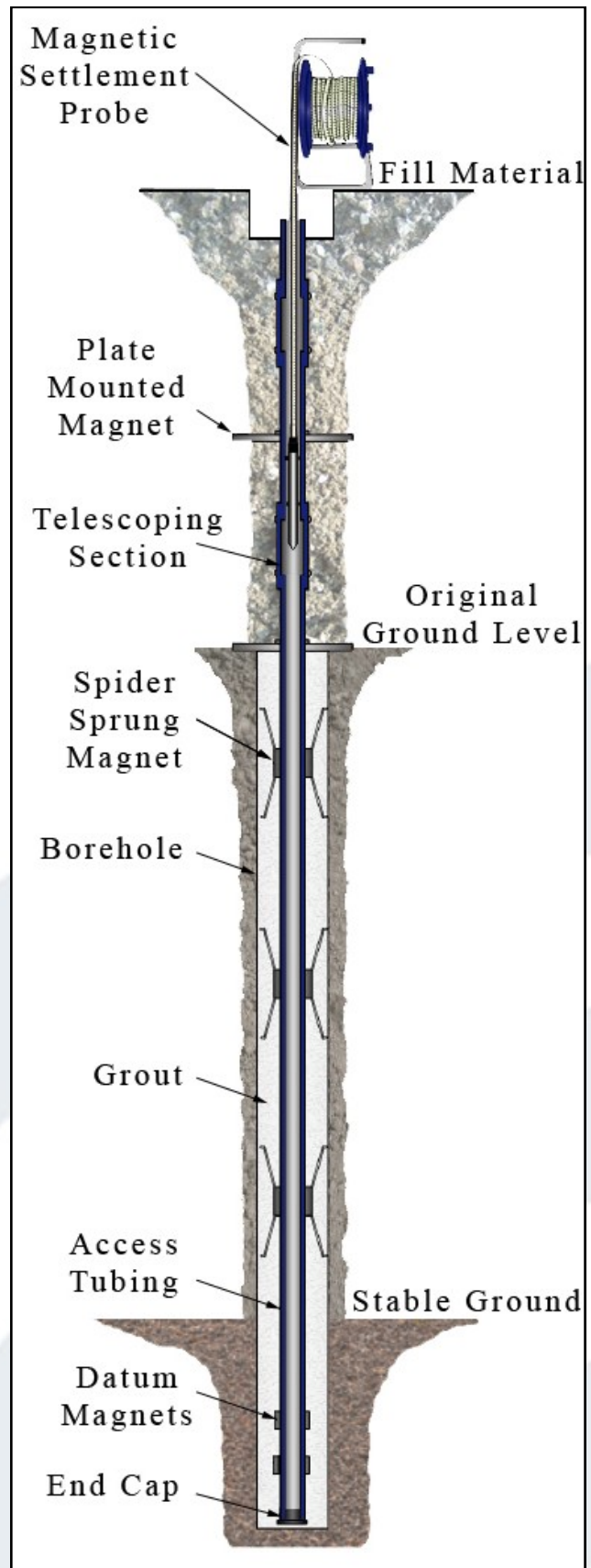
Range	30m   50m   100m   150m   200m
Resolution	1mm
Repeatability <sup>2</sup>	±2mm
Operating temperature range	-30 to +80° C
Gradiations	mm/cm/m
Indicators	Audio & visual
Probe material	Stainless steel
Probe diameter	16mm
Tape type	Contoured /shaped copper conductors
Tape material	Steel / polypropylene coated
Reel material	Steel frame / polypropylene hub
Battery life	12 Hrs continuous use
Battery type	1 x PP3 / 6LR61 / MN1604
Weight	1.7kg   2.0kg   3.0kg   3.8kg   4.6kg

**MAGNET TARGETS**

Type	Spider	Plate	Datum
Body material	PVC	PVC	PVC
Leg material	Spring Steel	N/A	N/A

**ACCESS TUBING**

Material	PVC
Dimensions	24mm ID x 33.5mm OD x 3m Long
Joint Type	Flush Coupled Bonded or Flush Coupled Bonded Thread



**Traversing Probe Magnetic Extensometer Complete Installation**