



Fill Extensometer Model 3050-RT-ERI200

FEATURES

- **High resolution**
- **Wide measuring range**
- **Rugged: materials resistant to shocks and vibrations caused by explosions and earthquakes**
- **Easy installation and maintenance**
- **Measuring principle provides for compensation for thermal drift and long-term zero shift**
- **Frequency output signal is easy to process and transmit over long distances**
- **Continuous and accurate measurement of displacements and axial deformations over long base lengths**



Applications

- *Designed for short-term or long-term monitoring of displacements between two points inside any type of man-made fill.*
- *The fill extensometer is normally installed horizontally in trenches. However, in some applications such as for measuring settlement at the point of contact with the foundation, it is installed vertically.*
- *To monitor the lateral movement of embankment dam cores or embankment spreading, several ERI fill extensometers are assembled together in series. The in-line assembly allows the deformation gradient to be measured over the whole length of the profile.*

Description

The Roctest fill extensometer is comprised of:

- An outer protective telescopic casing fitted with two end flanges.
- An inner co-axial stainless-steel rod. The rod is fixed at one extremity to an end flange and has a DC inductive displacement sensor fastened to its other extremity.
- A metal coupling ring attached to the other end flange in which the displacement sensor is free to slide.
- A four-conductor shielded cable linking the sensors to a junction or switching box or to a readout station.

The coupling ring is made of anodized aluminium. The sensors slide virtually friction-free inside the coupling rings. Together a sensor and a coupling ring form a pair of oscillating circuits, the output of which are frequencies.* A unique difference in the output frequencies exists for each position of the sensor relative to the ring. The electronic system that meas-

Fill Extensometer 3050-RT-ERI200

ures the difference between the output frequencies of the two circuits provides an excellent means for the automatic correction of thermal zero-shift and long-term zero drift. The output frequency signal is not particularly affected by the length of the transmission line. However, line amplifiers are recommended for lengths over 300 metres.

* The sensing device measures the differential variation of the count-up/count-down frequencies of two oscillating circuits and is patented under French patent N° 78.24650 and US patent N° 4.255.975.

Readings and Interpretation

Readings are taken manually with a portable FC series readout or with a C.A.F. or SENS-LOG automated data acquisition system. Each instrument comes with a calibration curve to convert frequency into a displacement value.

Ordering Information

Please specify:

- Model
- Base length
- Number of sensors
- Electrical cable length
- Readout unit or data acquisition system

Specifications

Model	ERI 200	ERI 28	
Linear measuring range:	± 100 mm	± 50 mm	
Non-linear measuring range:	± 200 mm	± 100 mm	
Resolution:	< 0.02 mm	< 0.02 mm	
Accuracy	0.5 mm	0.1 mm	
Power supply:	15 V ± 1 V 40 mA 0 V to 11 V 34.5 kHz ± 7.5 kHz 10 ohms at 34.5 kHz 1 ms 2 shielded pairs with central Kelvar core (13 mm diameter)		
- voltage:			
- current:			
Output signal:			
- no load voltage (square pulse):			
Mean frequency of LC circuits:			
Frequency difference between LC circuits:			
Output impedance:			
Stabilization time:			
Electrical cable:			
Base length:	3 to 50 m	1.5 m**	
Diameter:	6 mm 150 mm 32 mm 25 mm 113 mm		
- stainless-steel extension rod:			6 mm
- end flange			250 mm
- PVC telescoping coupling			19 mm
- PVC casing:			25 mm
- PVC sensor housing:	58/39 mm		
Pressure rating:	200 m H ₂ O	200 m H ₂ O	
Operating temperature range:	0 to 50°C	0 to 50°C	

** Other base lengths are available upon request

Due to on-going design improvements and reviews, we reserve the right to amend product and specifications without prior notice.



FOR FURTHER INFORMATION

environmental systems & services | 8 River Street, Richmond VIC 3121 Australia
 T + 61 3 8420 8999 | F + 61 3 8420 8900 | geotechnical@esands.com | www.geosystems.com.au