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-*

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FOR FURTHER INFORMATION
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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:		
- voltage:	15 V ± 1 V	
- current:	40 mA	
Output signal:		
- no load voltage (square pulse):	0 V to 11 V	
Mean frequency of LC circuits:	34.5 kHz	
Frequency difference between LC circuits:	± 7.5 kHz	
Output impedance:	10 ohms at 34.5 kHz	
Stabilization time:	1 ms	
Electrical cable:	2 shielded pairs with central Kelvar core (13 mm diameter)	
Base length:	3 to 50 m	1.5 m**
Diameter:		
- stainless-steel extension rod:	6 mm	6 mm
- end flange	150 mm	250 mm
- PVC telescoping coupling	32 mm	19 mm
- PVC casing:	25 mm	25 mm
- PVC sensor housing:	113 mm	58/39 mm
Pressure rating:	200 m H_2O	200 m H_2O
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.

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