

Concrete Surface Mount Vibrating Wire Strain Gauge

Applications

To measure strain on concrete structures including:

- On tunnel lining and supports.
- The monitoring of pipeline integrity.
- Bridge supports and platforms.
- Concrete structures showing stress tension.

Operating Principle

The concrete surface mounted strain gauge comprises of two anchors that are secured to the concrete surface that is to be monitored. A tensioned wire between the two anchor points is plucked electronically, which induces a vibration that has a frequency proportional to the extension of the wire.

When load is applied to the structure the deformation of the structure changes the position of the anchors and the frequency output produces a proportional change.

An electromagnet is used to pluck the tensioned wire and measure the frequency of vibration via a signal cable to a readout unit. The readout unit measures the frequency and applies a constant gauge factor to display a reading in microstrain.

O-ring seals are utilized between the protective tube and the gauge end blocks to provide waterproofing and allow the tube to remain unstressed.

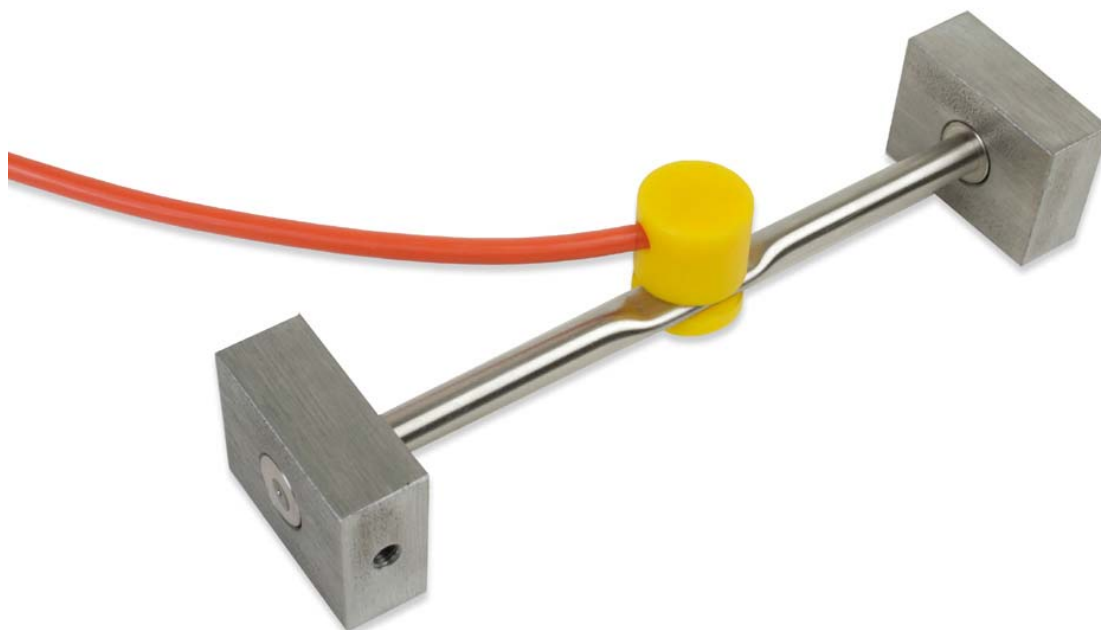
The gauges and coils are re-useable.

Advantages and Limitations

- Robust, reliable and easy to use.
- Can be used with long cable lengths with no degradation of signal.
- Strain gauge can be adjusted to allow for the most effective use of the range.
- Has in-built thermistor which allows for thermal effects to be automatically compensated.
- Gauge and coils are re-useable.

Performance

- Measuring Range: 3000 $\mu\epsilon$
- Sensitivity: 1.0 $\mu\epsilon$
- Accuracy: $\pm 0.1\%$
- Active Gauge Length: 150mm
- Operating Temp: -20 to +80°C
- Dimensions: 165mm x 90mm x 150mm



BELL LANE, UCKFIELD, EAST SUSSEX, TN22 1QL, ENGLAND
Telephone:
Nat 01825 765044
Int +44 1825 765044
email: sales@soil.co.uk

Telefax:
Nat 01825 761740
Int +44 1825 761740
Website: www.soil.co.uk

**DATA SHEET
ST3**

Ordering Information

ST3-1 Concrete Surface Mounted VW Strain Gauge

ST3-1.1 Concrete Surface Mounted VW Strain Gauge

Includes two mounting blocks.

ST3-2 Installation Kit

ST3-2.1 Installation kit for the strain gauge

CA-1 Connecting Cable and Fittings

CA-1-4-S Cable, 4 core

CA-1.5 Cable End Plug

CA -1.6 Joint Sealing Kit

ST3-3 Installation Accessories

ST3-3.1 Spare Mounting Blocks



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Telephone:
Nat 01825 765044
Int +44 1825 765044
email: sales@soil.co.uk

Telefax:
Nat 01825 761740
Int +44 1825 761740
Website: www.soil.co.uk

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