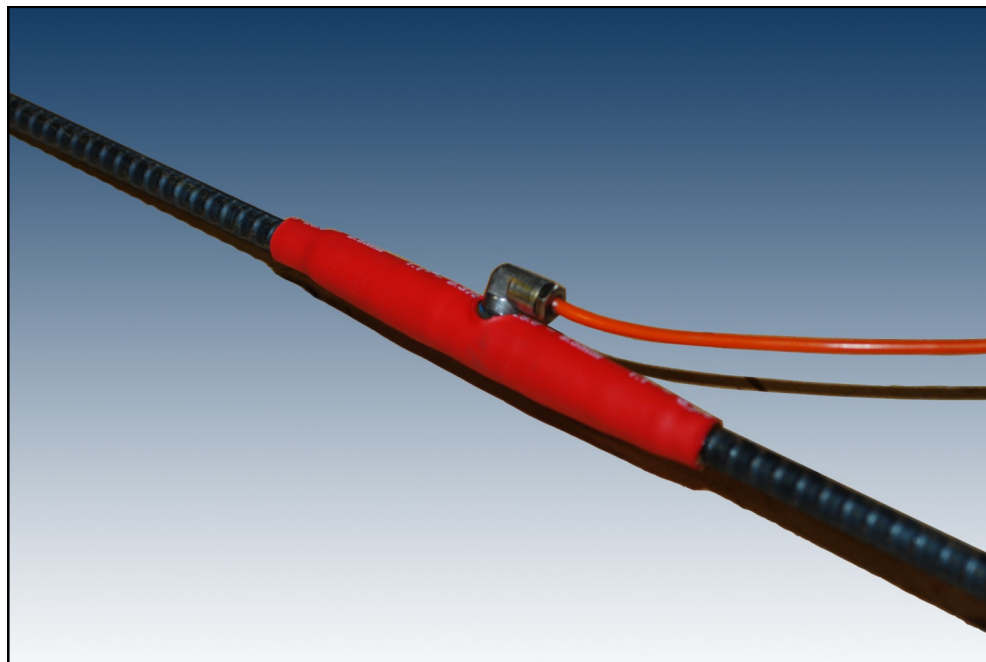




INSTRUMENTS

# Vibrating Wire Sister Bar/ Rebar Strain Gauge



on this wire changes the resonant frequency of the wire. This change in frequency is directly proportional to the strain changes in the structure being monitored.

Thanks to the two long lengths of rebar attached on either end, there is a full transfer of the strain within the concrete to the gauge. Additionally, the sensor can be read with any commercially available Vibrating Wire Readout. (Please see separate data sheets for available vibrating wire readout instrumentation.)

## Applications

The Vibrating Wire Sister Bar and Rebar Strain Gauge are used for measuring concrete strains. Geo-Instruments strain gauges are extremely durable, reliable, waterproof and easy to use. In addition to allowing for temperature data with the integrated thermistor, they have long term stability, are suitable for remote reading and data logging, and are unaffected by bending. Their typical applications include:

- Piles and mass concrete

- Monitoring strains in reinforcing bars during construction, pile testing, and service life
- Monitoring of strain due to load
- Diaphragm and slurry walls
- Bridges and dams

## The Technology

Within Geo-Instruments Rebar Strain Gauge, there is a wire held under tension that is read by an excitation/reading coil. Any change in the strain/tension

## Installation

The Rebar Strain Gauge is installed by welding the gauge into the reinforcing cage within the concrete. The Sister Bars are installed alongside existing lengths of rebar within the cage.

The Strain Gauges and Sister Bars are usually installed in pairs within the structure on either side of a neutral axis. This ensures that bending moments can be separated from axial loads.

## Main Office

24 Celestial Drive, Suite B  
Narragansett RI, 02882  
Phone 800.477.2506  
Fax 401.633.6021

## Northwest Office

2100 196th Street SW, Suite 109  
Lynnwood WA, 98036  
Phone 800.477.2506  
Fax 401.633.6021

We make it easy to  
get the data you need.

[www.Geo-Instruments.com](http://www.Geo-Instruments.com)

[sales@Geo-Instruments.com](mailto:sales@Geo-Instruments.com)



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**Sensor**

Range	2500 Microstrain
Resolution	<0.4 Microstrain
Accuracy	±0.25% FS
Temperature Range	-20 to +80°C
Length	900mm
Excitation Method	Pluck or Sweep
Rebar Strain Gauge Diameters	16mm, 18mm, 20mm, 22mm, 25mm, 28mm, 32mm, 36mm and 40mm
Sister Bar Diameter	12mm
Frequency Range	1800-2800Hz

**Coil Housing**

Type	Integral, with Thermistor
Standard Cable Lengths	3, 10 & 25m
Thermistor Type	NTC 3k $\Omega$
Thermistor Accuracy	±0.5°C
Thermistor Resolution	±0.1°C
Water Proof Rating	Up to 2000kPa
Cable Weight Per Metre	30g
Cable Type	4 Core PVC Sheath, Foil Screen & Drain Wire 4mm $\varnothing$

**Installation Accessories**

- Nylon Ties
- Colored Adhesive Tapes
- Crimping Tool
- Crimping Sleeves

**Readouts**

- Vibrating Wire Handheld Readout