

## Vibrating Wire Rebar Strain Meter/Sister Bar

### Description

The Vibrating Wire Rebar Strain Meter is used to measure strain in rebar embedded in reinforced concrete. The standard and most common installation method is to weld it into the existing meter.

A vibrating wire strain gauge is located axially in the center of the instrumented Rebar Strain Meter so that readings are not affected by bending of the Strain Meter. Strain readings are only proportional to the axial load exerted on the rebar. The Rebar Strain Meter is a rugged and waterproof instrument that will survive concrete placement, assuming that the electrical cable is well protected.

Depending on situations, it may be advantageous to install Rebar Strain Meters in pairs on either side of the neutral axis of the structure so that bending moment effects can be separated from the axial load. A thermistor is incorporated in the Strain Meter so that temperature effects can be correlated to change of strain in the structure.

A Sister Bar is a small diameter Rebar Strain Meter which is installed parallel to existing rebar. As its diameter is small, typically 15 mm, it is assumed that it does not disturb in any significant way the strain in the adjacent rebar of much larger diameter. It is therefore assumed that the strain measured in the Sister Bar is equal to the strain in the adjacent rebar.

The Vibrating Wire Sister bar is also used as a replacement for vibrating wire embedment strain gauges in situations where concrete is poured or cast in ways that could damage the embedment strain gauge, or simply disturb too much their orientation, whereas Sister Bars are more robust and also easier to tie to a rebar cage. Situations where Sister Bars could be preferred to embedment strain gauges include instrumented piles, tunnel concrete linings and diaphragm walls.

### VIBRATING WIRE REBAR STRAIN METER/SISTER BAR SPECIFICATIONS

ITEM	SPECIFICATION
Standard Range	3000 $\mu\epsilon$
Resolution	0.4 $\mu\epsilon$
Accuracy	$\pm 0.25\%$ F.S.
Temp. Range	-20 $^{\circ}\text{C}$ to +80 $^{\circ}\text{C}$
Size	15 mm
Length	1105 mm (43.5 in.)
Output (approx.)	1800-2800 Hz

### SPECIFICATIONS