



Sister Bar/Rebar Strain Meter VWS-4000 Series

Used to monitor strain along stranded anchors. The low profile design means that multiple sensors can be installed along the bonded length of strand anchors



Sister Bar/Rebar Strain Meter VWS-4000 Series

Overview



Geosense® VWS-4000 series vibrating wire Sister Bars and Rebar Strain Meters are designed to be embedded in concrete to measure strains due to imposed loads.

SISTER BAR

The VWS-4000 Sister Bar is installed by tying it alongside an existing length of rebar within the cage. Available in two diameters: 12 and 16mm.

REBAR STRAIN METER

The VWS-4001 Rebar Strain Meter is installed by welding it into the existing rebar cage at a location within the structure where loads can be accurately passed from the concrete into the gauge. Available in various diameters to match the size of the rebar cage into which it is to be welded.

APPLICATIONS

- Pile Load Testing
- Concrete Piles
- Tunnel Linings
- Mass concrete structures
- Diaphragm walls and barrettes

FEATURES

- Built-in thermistor
- Reliable long-term performance
- Rugged, suitable for demanding environments
- High accuracy
- Insensitive to long cable lengths
- Direct concrete embedment



Sister Bar/Rebar Strain Meter VWS-4000 Series

Specifications

GENERAL

Models	VWS-4000	VWS-4001
Thermistor	3k ohms at 25°C	3k ohms at 25°C
Over-range	+20%	+20%
Resolution	0.4 $\mu\epsilon$ *	0.4 $\mu\epsilon$ *
Accuracy	$\pm 0.25\%FS$	$\pm 0.25\%FS$
Operating range	2600 $\mu\epsilon$	2600 $\mu\epsilon$
Cable	2 pair PUR outer sheath	2 pair PUR outer sheath
Cable Type	Type 900 - VW Sensor with Foil Screen & Drain Wire	
Installation	Direct Embedment	Direct Embedment
Effective Gauge Length	50mm (nominal)	50mm (nominal)
De-bonded Length	175mm	175mm
Overall Length	915mm**	915mm**
Standard Diameter	12, 16mm	12, 16mm
Coefficient of thermal expansion	12ppm/°C	12ppm/°C

* Readout dependent

** Other lengths available on request

OPTIONS & ACCESSORIES

In-house calibration
Readout units
Terminal units

ORDERING INFORMATION

Sister Bar or Rebar Strain Meter
Cable length
Rebar size
Lightning protection

Sister Bar/Rebar Strain Meter VWS-4000 Series

Further Information

REBAR STRAIN METERS

They are normally installed in pairs within the structure on either side of the neutral axis to separate bending moments from axial loads.

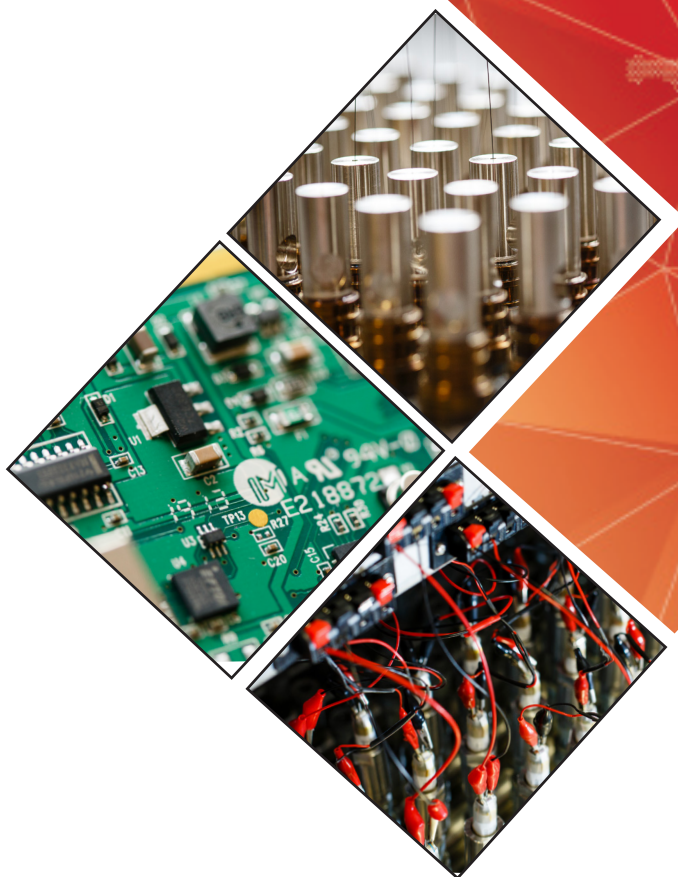
They comprise two lengths of ribbed rebar welded to a central gauge section. The central gauge section has a miniature stainless steel, fitted along the longitudinal axis of the gauge. The strain gauge operates on the principle that a tensioned wire, when plucked, vibrates at its resonant frequency. The square of this frequency is proportional to the strain in the wire.

The gauge consists of two end blocks with a tensioned steel wire between them. Around the wire is a magnetic coil which when pulsed by a vibrating readout or data logger interface plucks the wire and measures the resultant resonant frequency of vibration. As the steel or concrete surface undergoes strain the end blocks will move relative to each other.

The tension in the wire between the blocks will change accordingly thus altering the resonant frequency of the wire.

The coil units and cable connection are encapsulated with a proprietary rigid epoxy resin to keep the gauge de-bonded from the concrete.





HEAD OFFICE

Nova House
Rougham Industrial Estate
Rougham, Bury St Edmunds
Suffolk IP30 9ND
England

+44 (0)1359 270457
sales@geosense.com
support@geosense.com

NORTH AMERICA OFFICE

15 West 38th Street
Suite 632
New York
NY 10018

+1 518-920-3483
sales@geosense.com
support@geosense.com

www.geosense.com

Specifications are subject to change without notice and should not be construed as a commitment by Geosense. Geosense assumes no responsibility for any errors that may appear in this document. In no event shall Geosense be liable for incidental or consequential damages arising from the use of this document or the systems described in this document. All Content published or distributed by Geosense is made available for the purposes of general information. You are not permitted to publish our content or make any commercial use of our content without our express written consent. This material or any portion of this material may not be reproduced, duplicated, copied, sold, resold, edited, or modified without our express written consent.

V1.8 03/2025