

Data Sheet



CE

SISTER BAR STRAIN GAGE

**MODEL EDS-12V
MODEL EDS-12V-EX**

OVERVIEW

Encardio-rite models EDS-12V/EDS-12V-EX vibrating wire sister bar strain gage, also known as rebar strain gage, are specially designed for embedment in concrete structures. These are ideal for measurement of strain in concrete structures such as piles, diaphragm/slurry walls, bridge abutments, tunnel lining, dams, foundations etc.

FEATURES

- Precision, low cost reliable sensor for long-term installation.
- Easy to install and water proof.
- Reliable and precise measurement possible.
- Fully encapsulated for protection against handling and installation damage.
- Rugged construction.

APPLICATION

- Strain measurement during pile testing – can be used in concrete piles as well as cast in-place concrete piles
- Strain measurement in reinforced concrete structures.
- Strain measurement in diaphragm/slurry walls.
- Strain measurement in tunnel linings, dams and bridge abutments. Provides reliable and high resolution readings.



DESCRIPTION

The model EDS-12V vibrating wire sister bar strain meter consists of a hollow bar with vibrating wire strain gage mounted co-axially inside. The hollow bar is extended on the two sides with 12 or 16 mm dia reinforced bars.

Model EDS-12V-EX has the sensor welded onto it, with proper protection for special applications.



Model EDS-12V-EX

The sister bar sensor houses a permanent magnet and a plucking coil assembly. The wire when plucked by the sensor vibrates at its natural frequency that is proportional to the tension in the wire. Any change in strain, directly effects the tension in the wire, resulting in a corresponding change in its frequency of vibration. The strain is proportional to the square of the frequency that can be measured and displayed directly in micro strain by Encardio-rite's EDI series vibrating wire indicator. The data can also be automatically collected at desired frequency, stored and transmitted to remote server by a suitable datalogger. An in-built thermistor is provided for temperature measurement for accurate determination of effective strain.

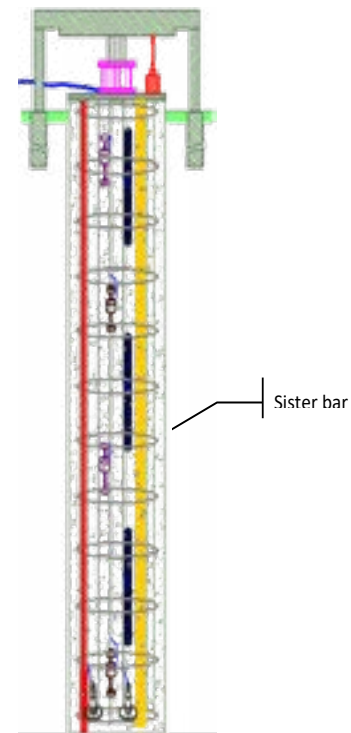
Main purpose of the strain gage is to indirectly determine stress and its variation with time, quantitatively. Change in stress is determined by multiplying the measured strain by the modulus of elasticity.

Both models are supplied ready for embedment in concrete by tying the sister bars alongside an existing length of rebar in the rebar cage. The strain transfer from the surrounding concrete to sister bar strain gage is uniform and equal. Sister bars can also be installed in pairs on both the sides of neutral axis to separate bending moments from axial load.

SPECIFICATION

Range	2500 μ strain
Resolution	0.4 μ strain
Accuracy ¹	\pm 0.25% fs
Sensitivity	1 μ strain
Non linearity	<0.5% fs
Dimension $\Phi \times l$ (mm)	26 x1400 (for 12.0 Φ) 30 x1400 (for 16.0 Φ)
Temperature limit normal	-10 to +55°C
Protection	VW strain gage encapsulated inside hollow bar
Thermistor	YSI 44005 or equivalent (3 kOhms at 25°C)

¹Accuracy established under laboratory conditions.



Typical instrumentation scheme for

*All specifications are subject to change without prior notice

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