



Vibrating wire Strain gauges OG100VW

Technical Features

The strain gauges are based on the principle of the vibrating wire. A steel wire is pre-tensioned and placed inside the sensor. The free frequency (squared) of vibration of the chord is proportional to the length of the chord. In this way it is possible to measure the $\Delta L/L$ and using the correct gage factor the μ -strain value ($\Delta L/L \times 10^{-6}$).

The strain gauges can be placed directly in the casting of concrete (Embedment Type) or welded (Weldable Type) to the steel structure. For evaluating thermal effect the instrument has a built-in thermistor. Readings are possible with portable readout unit (Geotester) or dataloggers (OG799/D300VW). Vibrating wire working principle ensures accuracy and long-term stability and makes the instrument insensitive to the length of the cable and resistant to moisture.

Applications

The Vibrating wire strain gauges are used in measuring stress of reinforced concrete structures, concrete and steel structures.

They are suitable for the following applications:

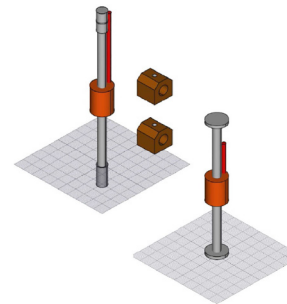
- Final lining Galleries
- Foundations, diaphragms, pilings
- Load tests on pole
- Steel Structures
- Dams, Bridges and viaducts

Installation

- Embedment Type : installation with iron wire to steel bars (installation in concrete pole);
- Arc Weldable Type : installation on steel between the 2 provided blocks using an electrical welder (installation on concrete or steel surface or on the steel of an armored concrete pole);
- Spot Weldable Type : installation on steel surface using an electrical spot-welder (installation at 120° on pipes, steel surfaces)

Related Instrumentation

- 2x2x0.25 PUR cable
- NTC
- Positioning frame
- Geotester 3.0 Manual readout unit
- Datalogger D1600PRO-D3200PRO
- OtrMonitoring web site



Technical Specifications

			
Model	OG100VW-E	OG100VW-A	OG100VW-S
Description	Vibrating wire strain gauges (Embedment Type)	Vibrating wire strain gauges (Weldable Type)	Spot weldable vibrating wire (Spot Weldable Type)
Wire length	155 mm	165 mm	50.0 mm
Range	$\pm 1.500 \mu\text{-strain}$	$\pm 1.500 \mu\text{-strain}$	$\pm 1.500 \mu\text{-strain}$
Sensibility	$1 \mu\text{-strain}$	$1 \mu\text{-strain}$	$1 \mu\text{-strain}$
Coil resistance	$\sim 150 \text{ Ohm}$	$\sim 150 \text{ Ohm}$	$\sim 50 \text{ Ohm}$
Accuracy	0.5% F.S.	0.5% F.S.	0.5% F.S.
Typical zero frequency	800-1000 Hz	800-1000 Hz	2500 Hz
Built-in temperature	NTC3K	NTC3K	NTC3K
Working Temperature	$-20^{\circ}\text{C} / +80^{\circ}\text{C}$	$-20^{\circ}\text{C} / +80^{\circ}\text{C}$	$-20^{\circ}\text{C} / +80^{\circ}\text{C}$
Long term stability	0.1% F.S. (1 year)	0.1% F.S. (1 year)	0.1% F.S. (1 year)
Gauge Factor	$3.304 \times 10^{-3} [\mu\text{-strain}/\text{Hz}^2]$	$4.062 \times 10^{-3} [\mu\text{-strain}/\text{Hz}^2]$	$3.896 \times 10^{-4} [\mu\text{-strain}/\text{Hz}^2]$

Codes & Part Numbers

P/N 2006000 Strain Gauge vibrating wire embedment
 P/N 2006001 Strain Gauge vibrating wire arc weldable
 P/N 2006002 Strain Gauge vibrating wire spot weldable
 P/N 2006100 Welded fixing blocks
 P/N 2006101 Bar fixing blocks
 P/N 2006102 Pin Fixing blocks
 P/N 2006103 Dummy Gauge for arc weldable
 P/N 2006104 Protective plastic foil for spot weldable