

VW Strain Gauge VWS-2800

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



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Overview



APPLICATIONS

For measuring strain in stranded anchors

FEATURES

Low profile

Specially designed mounting

Robust design

High accuracy

Wide strain range

Insensitive to long cable lengths

Integral Thermistor

Suitable for remote reading and data logging

Geosense® VWS-2800 vibrating wire strain gauge is designed for the monitoring of strain along stranded anchors.

The gauge is housed within a robust cover to de-bond it from the surrounding grout and the specially-designed mounting blocks ensure the strain is transferred from the strand to the gauge. The low profile design means that multiple sensors can be installed along the bonded length of strand anchors.

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. The end blocks can be attached by either arc welding, bonding or groutable anchors to steel or concrete.

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 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.



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Specifications

GENERAL

Gauge length	150mm
Overall length	156mm
Resolution	1 $\mu\epsilon$
Strain range	7500 $\mu\epsilon$
Accuracy	$\pm 0.1\%$ to $\pm 0.5\%$ FS
Non linearity	$< 0.5\%$ FS
Coil resistance	180 Ω
Coefficient of thermal expansion	12.0 ppm/ $^{\circ}\text{C}$
Thermal factor	K $< 0.1\%$ FS/ $^{\circ}\text{C}$
Temperature range	-20 $^{\circ}\text{C}$ to +80 $^{\circ}\text{C}$
Frequency range	850-1550
Cable	2 pair x Type 900 - VW Sensor with Foil Screen & Drain Wire
Cable sheath	Orange PUR 5mm \varnothing

ORDERING INFORMATION

Cable length	
Readout	

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Further Information

READOUTS

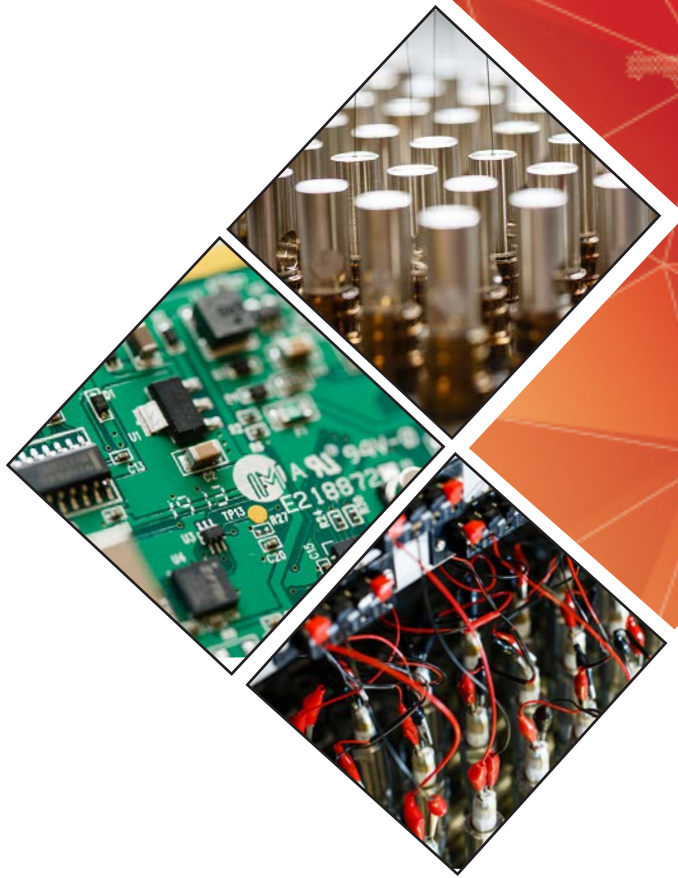
VWS-2800 vibrating wire strain gauges may be read by the VWR-1 or any vibrating wire readout device and may be readily data logged using GeoLogger G8-plus, Campbell Scientific or any other data loggers with vibrating wire interface modules.

CABLES

Vibrating wire strain gauges output a frequency signal, and are therefore insensitive to resistance changes in connecting cables caused by contact resistance or leakage to ground. Cable may be readily and simply extended on site without special precautions. Gauges may be read up to 1000 metres away from their installed location without change in calibration.

FULLY WATERPROOF

VWS-2800 strain gauges are fully waterproof all stainless steel construction with coils encapsulated with epoxy resin. The protective tube assembly is totally sealed to the embedment flanges by laser welding, thus eliminating any possibility of seal degradation. During the testing and stressing procedures, the welds are fully checked by tensile testing carried out in excess of the elastic limit of the protective tube assembly.



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