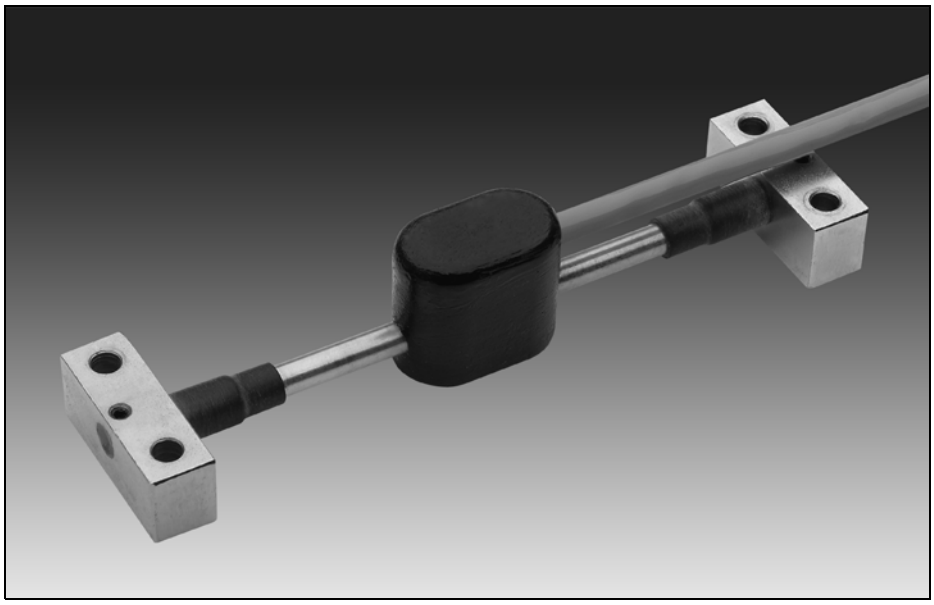
VW Surface-Mount Strain Gauge



Applications

Surface-mount strain gauges are used to measure strain in steel or strain in concrete surfaces. Applications include:

- Monitoring strain in steel structural members during and after construction.
- Monitoring load in struts used to brace deep excavations.
- Measuring strain in tunnel linings and supports.
- Monitoring areas of concentrated stress in pipes.
- Monitoring cracks in concrete structures (long-base surface mount gauge).

Operation

The strain gauge operates on the principle that a tensioned wire, when plucked, vibrates at a frequency that is proportional to the strain in the wire.

The gauge is constructed so that a wire is held in tension between two mounting blocks that are welded to the structural member. Loading of the structural member changes the distance between the two mounting blocks and results in a change in the tension of the wire.

An electromagnet is used to pluck the wire and measure the frequency of vibration. Strain is then calculated by applying calibration factors to the frequency measurement.

Installation

The strain gauge is screwed onto mounting plates, which are welded, screwed, or bonded to the structure.

Because there are a wide variety of surfaces to which the gauge can be attached, two types of mounting plates are available, one for steel and one for concrete.

Advantages

Permanently Attached Coils: The coils used to excite and read the vibrating wire are permanently attached to the gauge. This prevents accidental separation of the coil from the body during installation and wiring operations.

Easy Installation: Mounting plate system ensures that gauges are not damaged during attachment to the structure. The gauges can also be removed, if necessary, and moved to a different location.

Field Adjustable: The strain gauge can be adjusted so that most of its range is available to measure compression or tension, as required by the application.

Reliable Signal Transmission: The arc-weldable strain gauge provides a strong signal which can be transmitted reliably over long distances with properly shielded cable.

SURFACE-MOUNT STRAIN GAUGE

VW Surface Mount Strain Gauge. .52650306

Strain gauge is designed for monitoring strain in steel structures or strain in concrete or masonry surfaces. Includes built-in thermistor or RTD. Requires signal cable and mounting plates.

Range: 3,000 microstrain. User can set tension to maximize range for the application.

Resolution: 1 microstrain with VW Data Recorder.

Accuracy: ± 0.1% FS.

Thermal Coefficient: 11ppm / °C.

Gauge Length: 140 mm (5.5").

MOUNTING PLATES

Mounting Plates for Steel 52650320
Mounting Plates for Concrete 52650330

Set of two plates. The version for steel can be arc-welded to a steel surface. The version for concrete or masonry is bonded to the surface and anchored by screws. Proper positioning of mounting plates requires use of installation tool.

INSTALLATION TOOLS

Installation Tool 52650380

Heavy-gauge, precision machined tool is used to align and space mounting plates at installation time. With the plates properly aligned, it is possible to set the initial tension of every gauge identically. The tool can be used with both steel or concrete mounting plates.

SIGNAL CABLE

Signal Cable 50613324

Shielded cable with four 24-gauge tinned-copper conductors and flexible polyurethane jacket rated to 80°C(176°F).

Universal Terminal Box. 57711600

Provides connections for 12 sensors. Indicator plugs into universal connector on panel. Sensors selected by rotary switch. Weatherproof fiberglass box is 290 x 345 x 135 mm deep (11.5 x 13.5 x 5.25").

READOUTS

Compatible readouts include the VW Data Recorder and other VW readouts. See separate data sheet for details.

DATA LOGGERS

Compatible with Campbell Scientific CR10X datalogger with vibrating wire interface. See separate data sheet for details.

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