SM2 - Miniature Strain Gauge

Strain Gauge

SM-2W

LONG-TERM RELIABILITY
HIGH RESOLUTION AND ACCURACY
LOW PROFILE DESIGN TO MINIMIZE ERRORS

The SM-2 series of miniature vibrating wire strain gauges is used to measure variations in strain, which allows stress evaluation when the material's modulus of elasticity is known.

Description

The **SM-2** consists of a length of steel wire tensioned between two end blocks and protected by a connecting tube. The exterior forces applied on the end blocks modify the tension in the wire, hence its resonant frequency, which is read by a built-in electro-magnet.

The **SM-2** is offered in two models, **SM-2W** and **SM-2A**, that differ in their installation. The SM-2W is designed to be spot-welded on a surface and then covered by a protective housing which contains the electromagnet. The **SM-2A** can be installed in small confined spaces. Its electromagnet surrounds the connecting tube.

Unless otherwise specified, the gauge tension is factory-adjusted at mid-range. According to the anticipated strain direction, the tension can later be easily modified using the spring fitting on the gauge. This compressed spring compensates for the wire tension and contributes in making the **SM-2** a very compliant gauge.

A thermistor incorporated into the gauge supplies information on the effects of temperature on the materials.

Key Features

- Low profile design to minimize errors caused by bending of structural members
- 3000 microstrain range with adjustablewire tension
- Corrosion resistant: stainless steel and ABS plastic components
- Frequency signal easy to process andtransmit over long distances
- High resolution and accuracy
- Ease of installation
- Long-term reliability

Applications

- Structural members of buildings and bridges
- Steel girders, pipelines and reservoirs
- Dams and nuclear power plants
- Hollow core rock bolts and rebars
- Bridges, piers, retaining walls
- Piles and caissons
- Tunnel supports

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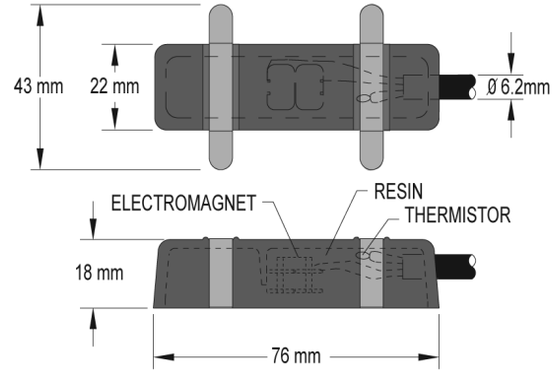
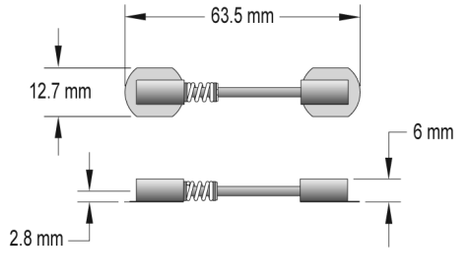
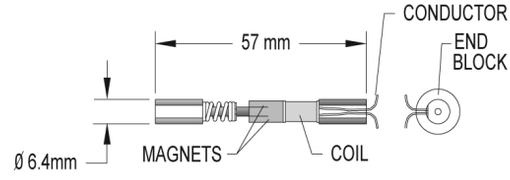
Specifications

MODEL	SM-2W and SM-2A
Range	3000 με
Resolution with MB-3TL	0.4 με (linear unit)
Accuracy	± 0.5% F.S.
Operating temperature	−20 to +80°C
Active gauge length	50.8 mm
Thermistor	3kΩ (see model TH-T)
Thermal coefficient	11ppm\$^0$C
Electrical cable	IRC-41A, IRC-41AP (optional)



SM-2W electromagnet housing





Installation

The SM-2W gauge is designed to be spot-welded on flat or curved surfaces (the circular plane has to be perpendicular to the gauge axis). The electromagnet housing is separate from the gauge. It can be permanently spot-welded in place over the gauge, or carried around with a reading unit. The SM-2A normally is kept tight inside a small diameter bore with a setscrew.

Ordering Information

Please specify:
- Model
- Cable length

Optional Accessories

- Setting tools
- Protective cover
- Readout instruments: MB-6T(L), SENSLOG

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