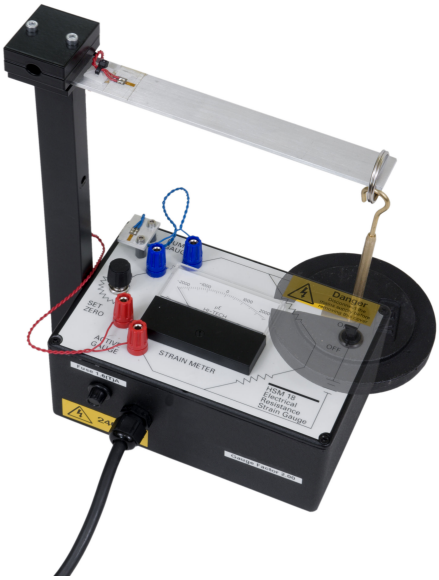
ELECTRICAL RESISTANCE STRAIN GAUGE

HSM18



Year 2
study

Features

- Compact, bench top unit
- Wheatstone Bridge label to aid learning
- Torsion, bending in one unit
- Easy connections to bridge
- Hangers and weights set supplied
- Ability for customer specific specimens to be used
- Colour coding wires and sockets for quick and easy connection

Description

The apparatus has been designed to illustrate the basic features of electrical resistance strain gauges and their application in measuring bending and torsion.

A cantilever has a single gauge bonded onto its surface, and an identical gauge is fixed to an unstressed piece of the same material for temperature compensation. The two gauges form part of a wheatstone bridge which has a balancing potentiometer, and whose meter is calibrated directly in microstrains.

The cantilever is loaded by the Load hanger and calibrated weights hung from its free end. A torsion bar is also supplied having two gauges bonded orthogonally at 45º. A detailed label on the unit shows the wheatstone bridge arrangement and how the specimen strain gauges connect into the circuit.

Related laws

- Electrical Resistance Strain Gauges
- Bending and Torsion
- Cantilever
- Wheatstone Bridge
- Second moment of Area
- Surface Stress

- Neutral axis
- Modulus of Elasticity
- Bending Theory
- Polar moment of Inertia

Learning capabilities

- To show the application of strain gauges in the measurement of stress due to bending and torsion
- To demonstrate the use of wheatstone bridge arrangements in measuring change of resistance
- Visibly shows location of strain gauges within wheatstone bridge arrangement and the position and use of balancing potentiometers
- With optional extras to show other methods of temperature compensation in conjunction with tension and compression specimens
- Dummy, temperature compensation gauges
- Wiring of strain gauges

Technical Specification

- Cantilever specimen: 229(L) x 25.4(W) x 3.175(t) mm; aluminium
- Torsion tube: Ø9.52mm O.D x 1.62mm wall thickness; aluminium
- 120ohm nominal strain gauge resistance
- Strain meter reading in microstrain (??)
- Wheatstone bridge arrangement
- Balancing potentiometers
- Universal 15V Integral power supply used

Recommended Ancillaries

- HSM18c
- HSM18t

What’s in the Box?

- 1 x HSM18
- 1 x Cantilever assembly
- 1 x Torque tube assembly
- 4 x Stirrup ring
- 1 x Load hanger
- 1 x Power supply
- 7 x 2N; 2 x 5N; 2 x 10N
- Instruction manual
- Packing list
- Test sheet

You might also like

- HST35

Weights & Dimensions

- Weight: 2 kg
- Length: 195mm
- Width: 120mm
- Height: 300mm

Essential Services

- 110/120VAC 60HZ or 220/240V 50Hz, single phase, live neutral and earth

Ordering information

To order this product, please call PA Hilton quoting the following code:
HSM18