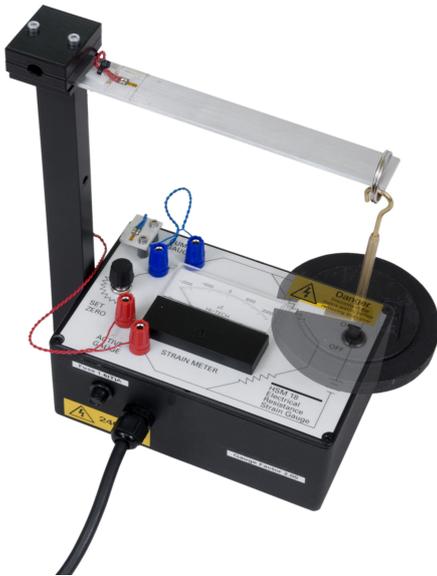




# ELECTRICAL RESISTANCE STRAIN GAUGE HSM18



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 45°. A detailed label on the unit shows the wheatstone bridge arrangement and how the specimen strain gauges connect into the circuit.

#### Related Laws/Applications

- 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:  $\varnothing$ 9.52mm 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

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS