

# AE 801

## Datasheet



### Features

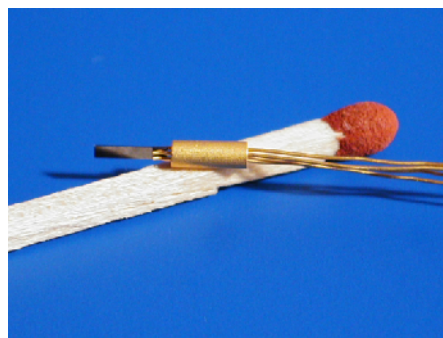
- Low Cost
- Small size
- Easy to mount
- High stability,
- High output signal
- Low impedance
- Response from DC to 5 kHz

### Description

A single crystal silicon beam with one ion implanted resistor on each side is mounted in a special miniature header. A deflection of the beam gives a change in the resistors; one will increase in value and the other will decrease. In most applications the element is connected with two passive resistors to form a Wheatstone Bridge, giving an electrical output signal proportional to the deflection of the beam. The cylindrical header of the sensor element makes it easy to mount and makes mechanical stable measuring devices with good long-term stability. The AE801 element is being used in a large variety of applications covering the military, medical, industrial control and other fields where the well-proven and easy to use design makes it a reliable and cost effective solution.

### Application

- Medical
- Aerospace, Military
- Industrial instrumentation
  - Force Sensors
  - Position Sensors
  - Accelerometers
  - Pressure Sensors
  - Inclometers



### Specifications

#### Input parameters

Voltage excitation	1 - 10 V DC or AC
Recommended voltage excitation	< 6 V
Resistor value	1 000 Ohm $\pm$ 25 %
Resistance matching	$\pm$ 10 %
Deflection of the beam at full scale	typ. 70 $\mu$ m
Load at tip of beam at full scale	0.12 N
Safe overload	120 % of FSO

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## Output parameters

Full scale output (FSO)	30 mV / V $\pm$ 30 %
Gauge factor of ind. resistor	55 ... 70
Non-linearity (typ.)	$\pm$ 0.25 % FSO
Hysteresis (typ.)	$\pm$ 0.10 % FSO
Temperature increase by internal power dissipation	0.25 °C / mW in oil 1 °C / mW in air
Breakdown voltage between resistor	min. 15 V

## Environmental parameters

Temperature range	- 55 °C to + 125 °C
Temperature coefficient of individual resistor	$0.8 \times 10^3$ / °C $\pm$ 25 %
Thermal zero shift	$\pm$ 0.02 % FSO / °C
Thermal sensitivity shift	- 0.17 $\pm$ 0.05 % of reading / °C
Natural frequency (in air)	ca. 12 kHz

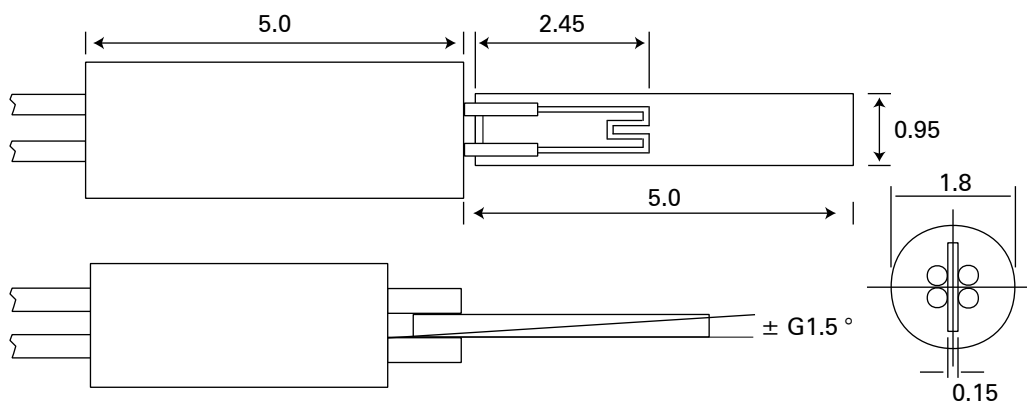
## Electrical insulation

Isolation voltage <sup>1</sup>	min. 200 V DC
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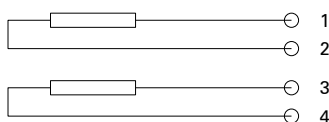
## Mechanical Data

Modulus of elasticity	$1.6 \times 10^5$ N / mm <sup>2</sup>
Spring constant at full length (typ.)	2 N / mm
Weight approx.	120 mg

## Drawing



### Electrical Schematic



### Wheatstone Bridge Circuit

