



4-202

Accelerometers

Strain Gage Accelerometer



Applications

- Aircraft Flight Test
- Missile/Rocket Test
- Suspension Test
- Deceleration/Brake Test

Features

- Operates from ± 5 g to ± 250 g
- Wide temperature range
- Low cross axis sensitivity

Description

Performance characteristics of the CEC 4-202 Strain Gage Accelerometer are distinctly superior to any comparable instrument available today. It is one of the smallest temperature compensated strain gage accelerometers on the market. External dimensions are approximately 1 inch cubed, and the weight is 3 ounces.

Designed for measuring static or dynamic accelerations perpendicular to the mounting surface, the 4-202 is available in ranges from ± 5 g to ± 250 g. Operable temperature range is -65°F to $+250^{\circ}\text{F}$ (-54°C to $+121^{\circ}\text{C}$). Combined linearity and hysteresis is conservatively rated at less than $\pm 0.75\%$ of full range output.

The 4-202 is a linear unbonded strain gage bi-directional accelerometer with four active arm, spring-type sensing elements. Allowable overacceleration (up to 20 times rated range) is achieved by incorporating mechanical stops on the instrument.



4-202 Strain Gage Accelerometer

Performance Specifications

INPUT

Acceleration Ranges: ±5 g to ±250 g
Standard Ranges: ±5, ±10, ±25, ±50, ±100, and ±250
Static Over Acceleration: No damage will be caused by static accelerations listed below when applied along each of the three mutually perpendicular axis.

Instrument Range	Static Over Acceleration	Approx. Natural Frequency (Hz)
±5	100	300
±10	100	400
±15	100	530
±25	200	650
±50	250	880
±100	500	1250
±250	500	2000

Cross Axis Sensitivity: The sensitivity to acceleration applied perpendicular to the sensitive axis will be less than 0.01 g/g for inputs up to three times rated range or 150 g's, whichever is less.

Rated Electrical Excitation: 5 VDC
Maximum Electrical Excitation: 12 VDC or AC RMS without damage
Input Resistance: 350 Ω ±15%

OUTPUT

Full Range Output: 40 mV +25%/-10%
Typical Frequency Response: ±5%, 0 Hz to 1/3 natural frequency
Residual Unbalance: Within ±5% of full range output at zero acceleration
Linearity and Hysteresis: Combined effects of linearity and hysteresis do not exceed ±0.75% of full range output as measured from the best straight line through the calibration points, when tested within the compensated temperature range.
Damping: 0.7 ±0.1 of critical
Output Resistance: 350 Ω ±15%
Resolution: Infinite

ENVIRONMENTAL

Compensated Temperature Range: -65°F to 250°F (-54°C to +121°C)
Operable Temperature Range: -70°F to +300°F (-57°C to +149°C)
Thermal Zero Shift: Within 0.01% full range output/°F over the compensated temperature range.
Thermal Coefficient of Sensitivity: Within 0.01% full range output/°F over the compensated temperature range.
Vibration Limit: The instrument performs within the specification after being exposed to linear vibration of 25 g's peak from 10 to 2000 Hz (limited by 1/2 D.A.), when applied along any axis perpendicular to the central axis.
Shock: Three 100 g half sine wave shaped impacts in each direction of each axis with a duration of 11 milliseconds will not cause damage.
Altitude: Any pressure altitude from 0-15 psia.
Humidity: The unit operates satisfactorily after exposure to the humidity test as outlined in MIL-E-5272, Procedure 1, Rev.C.

PHYSICAL

Dimensional Outline: See drawing
Electrical Connection: Two feet of shielded 4-conductor cable. The cable shield is electrically insulated from the instrument case.
Insulation Resistance: 500 megohms minimum at 45 VDC over compensated temperature range.
Weight: Less than 3.0 ounces, excluding cable.
Finish: Clear anodized

Ordering Information

When ordering, specify type number for acceleration.

Type	Range	Type	Range
4-202-0001	±5 g	4-202-0018	±50 g
4-202-0015	±10 g	4-202-0019	±100 g
4-202-0016	±15 g	4-202-0020	±250 g

Please consult your sales representative for confirmation and delivery information. In keeping with CEC's policy of continuing product improvement, specifications may be changed without notice.

