

Schaevitz® A545 Series

DC-Operated,
Single Axis Linear Accelerometer


Clearly the first choice for precision

Features

- *Ranges $\pm 2g$ to $\pm 200g$*
- *Essentially zero temperature coefficient of damping ratio*
- *Integral temperature compensation*
- *DC input - DC output*
- *High reliability*



Introduction

The Sherborne Sensors' range of Solid State Accelerometers measure vector acceleration with high accuracy and incorporate a micromachined piezo-resistive strain gauge bridge silicon sensor incorporating an air damping feature. Unlike fluid damped devices the air damping employed is essentially independent of temperature. The transducer also incorporates positive mechanical stops conferring excellent shock resistance.

The accelerometer is compensated for the effects of temperature on both sensitivity and zero.

Typical applications include data acquisition systems, crash recorders, fatigue life monitoring and prediction; monitoring and controlling deceleration in mass transit systems; road bed analysis and fault detection equipment for high speed railways; military and civil flight simulators; autopilots and low frequency vibration monitoring.

In addition to the instruments offered in this bulletin Sherborne Sensors design and develop accelerometers for specific applications. These custom designed units can be manufactured and tested to conform to specific requirements and standards.

Designed for operation from an unregulated DC power source, the A545 is packaged in a robust aluminium alloy housing with solder pin connections. The accelerometer has a wide-range useable frequency response from DC to several kHz.

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General Specification

Input

Ranges ($\pm g$) 2; 5; 10; 20; 50; 100; 200
 Input Voltage..... 14.5 to 27Vdc
 Input Current..... 5mA dc max.

Output at 25°C

Zero Offset $\leq \pm 2$ mV
 Nonlinearity..... $\leq \pm 0.5\%$ FRO
 Hysteresis $\leq 0.02\%$ FRO
 Resolution $\leq 0.0005\%$ FRO
 Cross Axis Sensitivity $\leq \pm 1\%$ FRO
 Noise Output 1 μ V (p-p) max
 Damping Ratio 0.7 (± 0.2) @ 25°C
 Output Impedance. 2.5 to 6.5 k Ω

Environmental

Temp. Operating -40°C to +105°C
 Temp. Compensated 0°C to +50°C
 Temp. Storage -55°C to +130°C
 Thermal Sensitivity Shift ... $\leq \pm 0.02\%$ FRO/°C
 Thermal Zero Shift..... $\leq \pm 0.02\%$ FRO/°C
 Acceleration limit 400g for 2 to 10 g versions, 20 x range or 2000g, whichever is lower for other versions (any direction)
 Humidity/Immersion IP65
 Insulation Resistance ≥ 20 M Ω at 50V dc

Physical

Sensitive Axis Alignment Vertical to mounting face
 Weight 40 grams max

Electrical Connections

Solder Pin Connections Pin A - + dc excitation
 Pin B - 0V dc excitation
 Pin C - Signal
 Pin D + Signal
 Pin E - not connected
 Pin F - not connected

Range (g)	Sensitivity (Min/Max) (mV/g)	Resonant Frequency (Hz)	Frequency Response (Hz $\pm 5\%$)
± 2	6.0/9.0	700	0 to 250
± 5	2.4/3.6	800	0 to 300
± 10	1.2/1.8	1000	0 to 400
± 20	0.6/0.9	1500	0 to 600
± 50	0.24/0.36	2000	0 to 1000
± 100	0.12/0.18	3000	0 to 1500
± 200	0.15/0.30	4000	0 to 2000

DESIGNATION & ORDERING CODE

