A545 Multi Axis Series

DC-Operated,
Bi-axial & Tri-axial Linear Accelerometer

Sherborne Sensors
.... the first choice in precision

Features

- *Ranges ± 2g to ± 100g*
- *Integral overload protection*
- *Critical damping ratio 0.7 nominal for 2g, 5g, 10g & 20g versions (0.6 for 50g & 0.5 for 100g) with essentially zero temperature coefficent*
- *Integral temperature compensation*
- *DC input - DC output*
- *Suitable for DC and AC acceleration applications*
- *Available in 2 and 3 axis versions*

Introduction

The Sherborne Sensors' A545 range of multi-axis accelerometers measure vector acceleration in three mutually perpendicular planes with high accuracy and incorporate piezo-resistive strain gauge bridge sensors incorporating gas damping. Unlike fluid damped devices, the gas 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 biomechanical investigations, data acquisition systems, crash test, impact, shock and vibration analysis.

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

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.

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General Specification

Input

Ranges (±g)	2; 5; 10; 20; 50; 100
Excitation	5.00 ± 0.01 Vdc. Regulated to 8ppm/V (Max)
Input Current	5mA dc max per axis

Output at 25°C

Zero Offset	≤ ± 2 mV
Nonlinearity	≤ ±0.5% FRO
Hysteresis	≤ 0.02% FRO
Resolution	≤ 0.0005% FRO
Cross Axis Sensitivity	≤ ±1% FRO
Noise Output	10μV (rms) max
Damping Ratio	0.7 (±0.2) @ 25°C
Output Impedance.	1.2 to 6.5 kΩ

Range (g)	Full Range Output (Min/Max) (mV)	Resonant Frequency (Hz)	Frequency Response (Hz ± 5%)
± 2	16/32	700	0 to 150
± 5	24/36	800	0 to 250
± 10	24/36	1000	0 to 350
± 20	24/36	1500	0 to 550
± 50	24/36	4000	0 to 1000
± 100	24/36	6000	0 to 1300

Note: The full range output is that obtained using 5volt excitation

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	≤ ±0.02% FRO/°C
Thermal Zero Shift	≤ ±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 MΩ at 50V dc

Physical

Sensitive Axis Alignment	See diagram
Weight	40 grams max

Electrical Connections

Solder Pin Connections .....
Pin A : + dc excitation
Pin B : 0V dc excitation
Pin C : - Signal 'X' axis
Pin D : + Signal 'X' axis
Pin E : - Signal 'Y' axis
Pin F : + Signal 'Y' axis
Pin G : – Signal 'Z' axis (option)
Pin H : + Signal 'Z' axis (option)

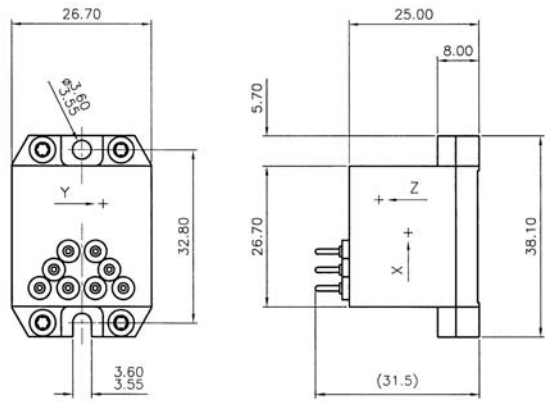
DESIGNATION & ORDERING CODE

A545 – 000□ – □□ G

Series Number

2. Dual-axis (X & Y)
3. Tri-axis (X, Y & Z)

Range in g



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