

Schaevitz® A640 Series

DC-Operated Accelerometer with
unfiltered and low pass filter outputs

Features

- Ranges $\pm 1g$ to $\pm 20g$
- Essentially zero temperature coefficient of damping ratio
- Filtered and unfiltered outputs simultaneously available
- Integral temperature compensation
- DC input - DC output
- Signal ground isolated from power ground
- High reliability



Introduction

The Sherborne Sensors' range of Solid State Accelerometers measure vector acceleration with high accuracy using a micromachined (MEMS) 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.

The A640 series will in many cases replace the now discontinued Schaevitz Series A400 accelerometers and is mechanically inter-changeable.

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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DC-Operated Accelerometer with unfiltered and low pass filter outputs



Designed for operation from an unregulated DC power supply the A640 series features a MEMS technology solid-state sensor with integral air damping. Electrical termination is via a military style, bayonet lock electrical connector. The accelerometer has a high useable frequency response and is fitted with a 5Hz low pass filter as standard. The accelerometer may be supplied with the output biased at 1g to offset the earth's gravitational field.

General Specification

Input

Ranges ($\pm g$) 1; 2; 3; 5; 10; 20
 Input Voltage +6 to 32Vdc Unregulated
 Input Current 40mA dc nom.

Output at 25°C

Full Range Output $\pm 5V$ dc $\pm 2\%$
 Zero Offset $\leq \pm 2\%$ FRO
 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 5mV (RMS) max.
 Damping Ratio 0.7 (± 0.2) @ 25°C
 Output Impedance. $< 1\Omega$
 Filtered output response ... -3dB at 5Hz, 2-pole

Environmental

Temp. Operating -40°C to +100°C
 Temp. Compensated 0°C to +50°C
 Temp. Storage -55°C to +130°C
 Shock 200g for 2ms
 (1/2 sine wave)
 Acceleration Will withstand constant 20 times rated range in all 3 axes without damage
 Humidity/Immersion IP65
 Insulation Resistance $\geq 20 M\Omega$ at 50V dc

Physical

Weight 120 grams max

Electrical Connections

Connector Type Bayonet lock, MIL-C-26482, 6 pin, Shell Size 10

Pin A – supply +
 Pin B – supply 0v
 Pin C - signal ground
 Pin D - signal output

(filtered)

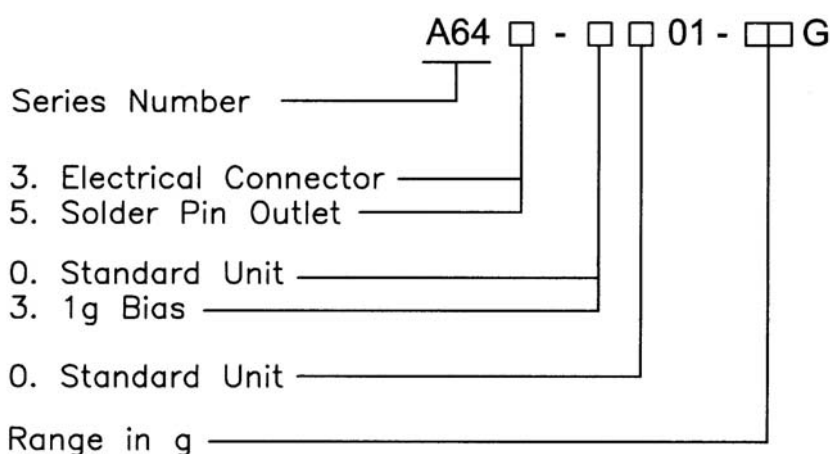
Pin E - signal output

(unfiltered)

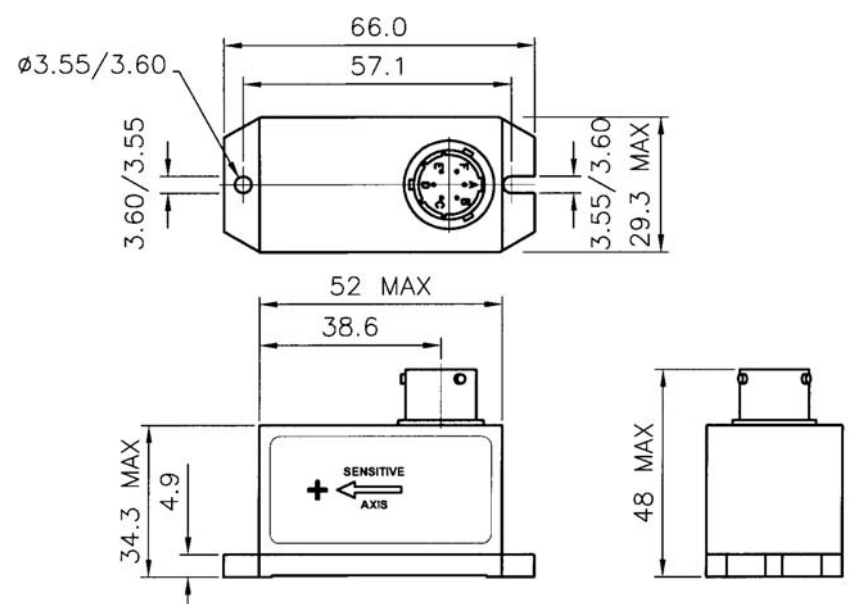
Pin F – not connected

Range	Resonant Frequency (Hz)	Unfiltered Frequency Response (Hz $\pm 5\%$)	Thermal Zero Shift (%FRO/°C)	Thermal Span Shift (%FRO/°C)
± 1	700	0 to 250	$\leq \pm 0.12$	$\leq \pm 0.06$
± 2	700	0 to 250	$\leq \pm 0.06$	$\leq \pm 0.06$
± 3	800	0 to 300	$\leq \pm 0.10$	$\leq \pm 0.06$
± 5	800	0 to 300	$\leq \pm 0.06$	$\leq \pm 0.06$
± 10	1000	0 to 400	$\leq \pm 0.06$	$\leq \pm 0.06$
± 20	1500	0 to 600	$\leq \pm 0.06$	$\leq \pm 0.06$

DESIGNATION AND ORDERING CODE



Please specify Mating Connector 3CON-0009 if required.



1 Ringway Centre, Edison Road, Basingstoke, Hampshire, RG21 6YH, United Kingdom
 Tel: +44 (0) 870 444 0728 Fax: +44 (0) 870 444 0729 Email: sales@sherbornesensors.com
 Website: www.sherbornesensors.com