# Schaevitz® A640 Series

## DC-Operated Accelerometer with unfiltered and low pass filter outputs

Sherborne Sensors
Clearly the first choice for precision .....

### Features

- *Ranges ±1g to ±20g*
- *Essentially zero temperature coefficent 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 confering 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.



MECO MEASUREMENTS & CONTROLS
Via Enrico Cernuschi, 4 20129 Milano
Tel. +39 02 4 692 680 Fax +39 02 4 694 602 info@mecoitalia.it www.mecoitalia.it

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## DC-Operated Accelerometer with unfiltered and low pass filter outputs

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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 (±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 ..... ±5V dc ±2%
Zero Offset ..... ≤ ±2% FRO
Nonlinearity..... ≤ ±0.5% FRO
Hysteresis ..... ≤ 0.02% FRO
Resolution ..... ≤ 0.0005% FRO
Cross Axis Sensitivity ..... ≤ ±1% FRO
Noise Output ..... 5mV (RMS) max.
Damping Ratio ..... 0.7 (±0.2) @ 25°C
Output Impedance. ……< 1Ω
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 (½ sine wave)
Acceleration..... Will withstand constant 20 times rated range in all 3 axes without damage
Humidity/Immersion ..... IP65
Insulation Resistance ..... ≥ 20 MΩ at 50V dc

### Physical

Weight ……120 grams max

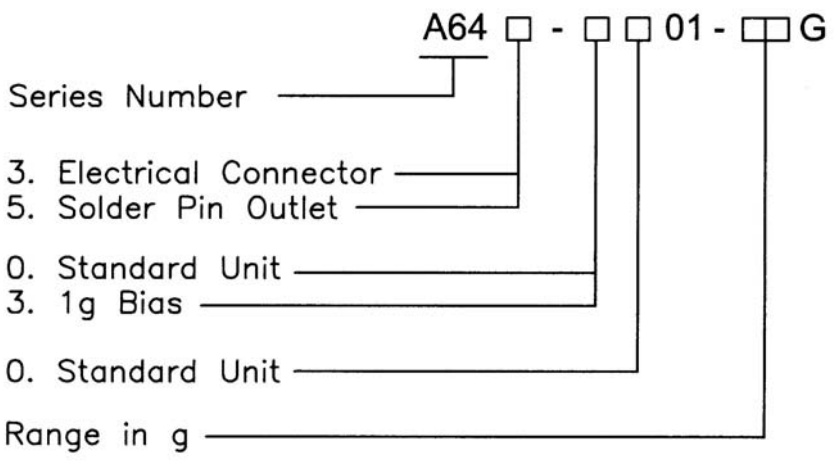
### Electrical Connections

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

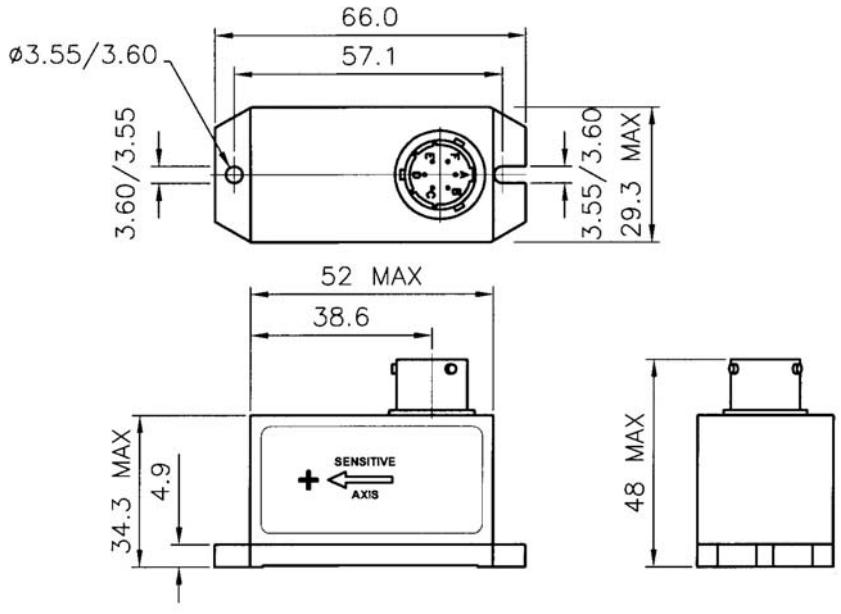
Pin A – supply +
Pin B – supply 0v
Pin C - signal ground
Pin D - signal output (filtered)
Pin E - signal output (unfiltered)
Pin F – not connected

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

### DESIGNATION AND ORDERING CODE




Please specify Mating Connector 3CON-0009 if required.



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