



9 AAA640 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 Sensors range of Solid State Accelerometers measure vector acceleration with high accuracy using an advanced micromachined (MEMS) silicon sensor incorporating a gas damping feature. 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 also compensated for the effects of temperature on both sensitivity and zero.

Designed for operation from an unregulated DC power supply the AAA640 series has 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 acceleration due to gravity.

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 AAA640 series will in many cases replace the long discontinued Schaevitz® Series AAA400 accelerometers and is mechanically inter-changeable.

In addition to the product described in this bulletin, Althen Sensors design and develop accelerometers for specific applications. These custom designed units are manufactured and tested to conform to the highest specific requirements and standards.



GENERAL SPECIFICATION

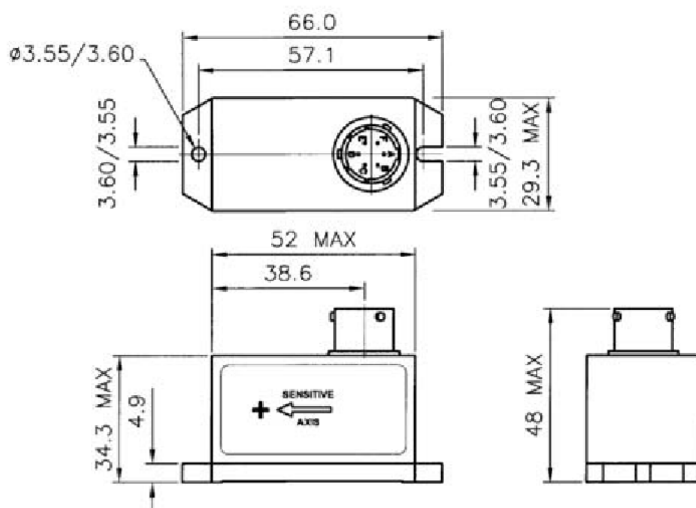
Input

Ranges $\pm 1, 2, 3, 5, 10, 20g$
Input Voltage +6 to 32Vdc Unregulated
Input Current 100mA dc max.

Output at 25°C

Full Range Output $\pm 5V$ DC $\pm 2\%$
Zero Offset $\leq \pm 2\%$ FRO
Non-linearity $\leq \pm 0.5\%$ FRO
Hysteresis $\leq 0.02\%$ FRO
Resolution $\leq 0.001\%$ FRO
Cross Axis Sensitivity $\leq \pm 1\%$ FRO
Noise Output 5mV rms (DC to 10kHz) max
Damping Ratio 0.7 (± 0.2) @ 25°C
Output Impedance $< 1\Omega$
Filtered output response ... -3dB at 5Hz, 2-pole

Range (g)	Resonant Frequency (Hz)	Unfiltered Frequency Response (Hz)	Thermal Zero Shift (%FRO/°C)	Thermal Span Shift (%Reading/°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	$\leq \pm 0.06$	$\leq \pm 0.06$



ENVIRONMENTAL

Temp. Operating -40°C to $+100^\circ\text{C}$
Temp. Compensated 0°C to $+50^\circ\text{C}$
Temp. Storage -55°C to $+130^\circ\text{C}$

Shock 200g for 2ms ($\frac{1}{2}$ sine wave)

Acceleration Will withstand constant 20 times rated range in all 3 axes without damage

Humidity/Immersion IP65

EMC Directive EN 61326: 1998

EMC Emissions

EN 55022: 1998, 30 MHz to 1 GHz

EMC Immunity

EN61000-4-2 1995 inc A1: 1998 & A2: 2001, ± 4 kV
EN61000-4-3: 2002, 10 V/m
EN61000-4-4: 2004, ± 1 kV
EN61000-4-4: 2004, ± 2 kV
EN61000-4-6 1996 inc A1: 2001, 3 Vrms
EN61000-4-6 1996 inc A1: 2001, 10 Vrms
EN61000-4-8: 1994
Incorporating Amendment A1:2001, 30 A/m

Insulation Resistance ≥ 20 M Ω 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

Please specify Mating Connector 3CON-0009 if required

DESIGNATION AND ORDERING CODE

