

±1 g to ±15 g Rugged Uniaxial, Biaxial, or Triaxial Accelerometer for Quick Shipment



Technical Data*

Features and Benefits

High Accuracy and Linearity over Wide Temperature Range

The voltage output for the XL403A is directly proportional to the acceleration along the axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated. Accuracy is improved by minimizing variations due to temperature and aging effects, resulting in sensors that are more stable over temperature than piezoelectric or piezoresistive devices.

Calibration Certificate

Each XL403A is supplied with a calibration certificate listing sensitivity and offset, as well as the on-axis and transverse alignment parameters needed to ensure rapid and efficient system implementation. The alignment data can be used to compensate the measured values if needed.

Self-Test on Digital Command

A TTL-compatible self-test input causes a simulated acceleration to be injected into the accelerometer to verify channel integrity.

Small Size

Complete conditioned uniaxial, biaxial, or triaxial accelerometer in less than a cubic inch.

Built-In Power Supply Regulation

Unregulated DC power from +8.5 to +36 Volts is all that is required to measure acceleration and temperature. Reverse power voltages of up to -80V can be withstood indefinitely. Transients of +80V for 550ms compatible with MIL-STD-704A can be withstood with full operation.

Easy Installation

Integrated cable with 9-pin connector makes it easy to wire. Two through-holes and four tapped holes simplify mounting.

Suitable for Harsh Environments

The XL403A is robust and can be used in harsh environments. The unit will survive 5000g powered or unpowered.

Earth Friendly Design

Lead-free design makes the XL403A environmentally safe while Spectrum Sensors' assembly process ensures reliable functionality. Fully potted electronics eliminates the possibility of tin whiskers-related failures.

Warranty

All Spectrum Sensors accelerometers come with a three-year factory warranty.

Get Started on Simplified Acceleration and Temperature Measurements

The Spectrum Sensors XL403A is ready when you are. In stock and ready to ship, you can be taking measurements in less time than with built-to-order accelerometers.

The small size and built-in power regulation allow the XL403A to fit where other accelerometers can't. Choose bandwidth up to 800 Hz and range options of ±1 g to ±15 g to measure accelerations on one, two or three axes.

Tested over the -40 to +85°C temperature range, the accelerometers have a nominal full scale output swing of ±2 Volts. The zero g output level is nominally +2.5 Volts. Precise values are available on the included calibration certificate.

PRELIMINARY

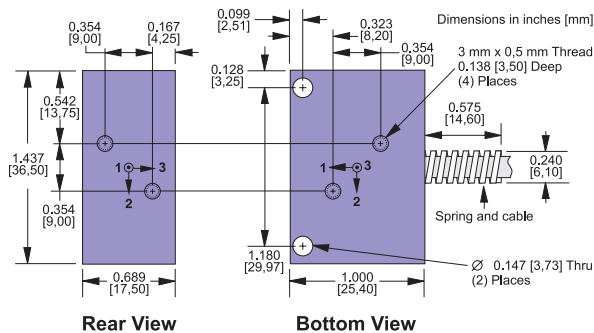
Specifications - improved specifications available upon request

$T_A = T_{MIN}$ to T_{MAX} ; $8.5 \leq V_S \leq 36$ V; Acceleration = 0 g unless otherwise noted; within one year of calibration.

Parameter	Min	Typical	Max	Units	Conditions/Notes
Range Measurement Full Scale	±1		±15	g	On each axis. Must specify via Option Rnnn
Sensitivity At 25°C, Option R005 Drift T_{MIN} to T_{MAX}		400† ±0.65	±3	mV/g %	Precise values on cal certificate Percent of sensitivity at 25°C
Zero g Bias Level At 25°C Drift T_{MIN} to T_{MAX}		2.5 20		V mg	Precise values on cal certificate At 1.25°C/min. temperature rate of change
Alignment Deviation from Ideal Axes		±1.0	±3.0	degrees	Precise values on cal certificate Can be compensated if required
Transverse Sensitivity		±0.25		%	Inherent sensor error, excluding misalignment
Nonlinearity		0.1	0.5	% FSR	Best fit straight line
Frequency Response, 5-pole	0		800	Hz	Upper cutoff per Option Bnnn, -3dB pt ±10%, 5-pole Butterworth filter
Noise Density		100		μg/√Hz	10 Hz to 400 Hz
Self-Test Pull-up Resistor	5			kΩ	Logic "1" ≥ 3.5 V, Logic "0" ≤ 1.5 V, "0" causes self-test
Temperature Sensor Sensitivity 0°C Bias Level		6.45 509		mV/°C mV	Accuracy ±1°C
Outputs Output Voltage Swing Capacitive Drive Capability	0.05	1000	4.95	V pF	$I_{OUT} = \pm 0.5$ mA
Power Supply (Vs) Input Voltage Limits Input Voltage - Operating Input Current Rejection Ratio	-80 +8.5		+80 +36	V V mA dB	-80 V continuous, >38 V if ≤550 ms, duty <1% Continuous DC
Temperature Range (TA)	-40		+85	°C	
Mass		38		grams	Precise values on cal certificate
Shock Survival	-5000		+5000	g	Any axis for 0.5 ms, powered or unpowered

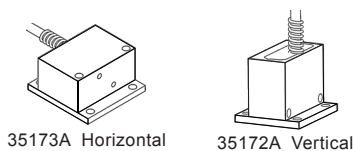
†Scale linearly with range option Rnnn; see Ordering Information

Mechanical

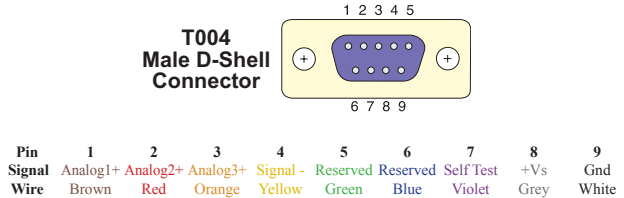


Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

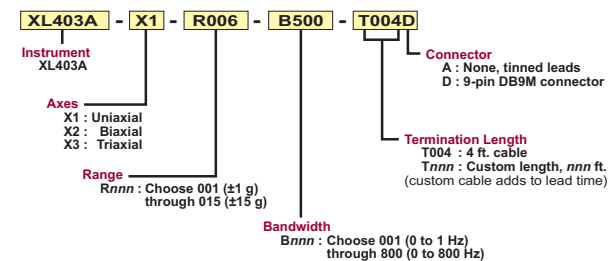
Mounting adapters (sold separately)



Connections



Ordering Information



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