

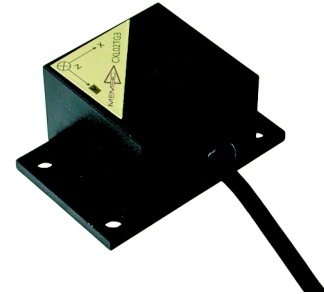


Powerful Sensing Solutions for a Better Life

CXLTG-Series

HIGH PERFORMANCE ACCELEROMETER

The TG-Series 3-Axis accelerometers are high performance $\pm 2g$ and $\pm 10g$ sensors, featuring precision three-layer silicon differential capacitive MEMS sensing elements that provide ultra low noise and excellent stability. The TG-Series sensors are fully signal conditioned and factory calibrated. The single-ended high level analog outputs do not require external signal conditioning and are easy to interface to standard data acquisition systems.



Platform Leveling



Automotive Testing

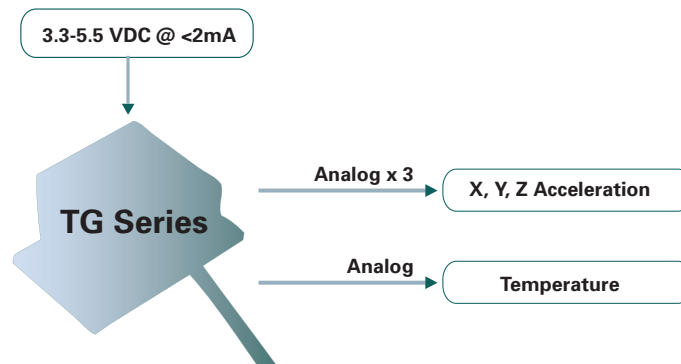
The TG-Series operates on a single DC supply from 3.3 V to 5.5 V and includes a high performance integrated temperature sensor for additional accuracy under extreme temperature applications. The typical current consumption of 1.5mA makes this triaxial device attractive for battery operated systems. The sensor is packaged in an industrial anodized aluminum package that is moisture resistant and rugged for industrial and automotive applications.

Features

- Range: $\pm 2g$ or $\pm 10g$
- High Stability
- Low Noise: $20\mu g/\sqrt{Hz}$
- Low Power $< 10mW$
- Internal Temperature Sensor

Applications

- Platform Leveling
- Automotive Testing
- Seismic Instrumentation



Performance

TG-Series

Input	CXL02TG3	CXL10TG3
Range (°)	± 2	± 10
Bias		
Bias Stability ¹ (mg)	± 8.5	± 12
Zero g Output (V)	2.5 ± 0.01	2.5 ± 0.01
Zero g Drift Over Temperature (µV/°C)	170	170
Scale Factor		
Sensitivity (mV/g)	833 to ± 67	167 to ± 13
Span Output (Volts)	0.5 to 4.5	0.5 to 4.5
Cross-Axis ² (% FS)	<3	<3
Non-Linearity ³ (% FS)	<1.5	<1.5
Mis-Alignment (% FS)	<1.0	<1.0
Noise		
Noise Density (µg/√Hz)	20	20
Noise at 100 Hz Bandwidth (mg)	0.6	0.6
Bandwidth		
Frequency Response (Hz)	>200	>200
Temperature Sensor		
Accuracy (°C)	<3	<3
Transfer Function	$T_a (^{\circ}\text{C}) = [44.4 (^{\circ}\text{C}/\text{V}) * [V_{\text{temp sensor}} / (V_{\text{supply}}/5\text{V}) - 1.375\text{V}]]$	

Specifications

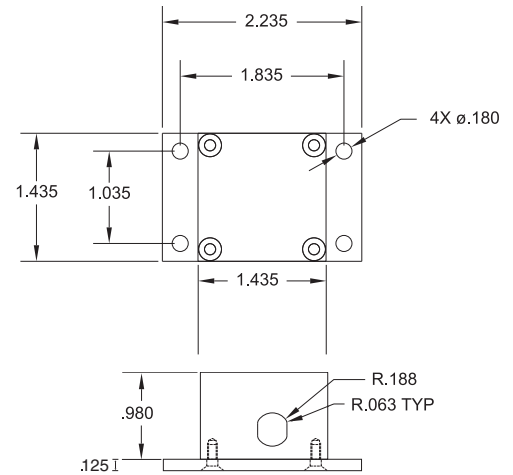
Environment	
Operating Temperature (°C)	-40 to +85
Non-Operating Temperature (°C)	-40 to +85
Shock (g)	1000 (1ms)
Vibration 20Hz to 500Hz (g rms)	20
Electrical	
Supply Voltage ⁴ (V)	3.3 to 5.5
Supply Current (mA)	<2
Output Loading, Resistive (kΩ)	10 (min)
Output Loading, Capacitive (pF)	50 (max)
Physical	
Size (in)	2.235 x 1.435 x 1.105
(cm)	5.68 x 3.65 x 2.81
Weight (oz)	3.5
(kg)	< 0.11
Cable	3' Long, 6 Conductor, PVC Jacket 1" Pigtail End, Stripped & Tinned

Ordering Information

Model	Description
CXL02TG3	± 2g, Tri-axial Precision Accelerometer
CXL10TG3	± 10g, Tri-axial Precision Accelerometer

This product has been developed by Crossbow exclusively for commercial applications. It has not been tested for, and Crossbow makes no representation or warranty as to conformance with, any military specifications or its suitability for any military application or end-use. Additionally, any use of this product for nuclear, chemical or biological weapons, or weapons research, or for any use in missiles, rockets, and/or UAV's of 300km or greater range, or any other activity prohibited by the Export Administration Regulations, is expressly prohibited without the written consent of Crossbow and without obtaining appropriate US export license(s) when required by US law. Diversion contrary to U.S. law is prohibited. Specifications are subject to change without notice. Notes¹ After temperature compensation by user. ² Cross-axis sensitivity is the output response to acceleration in the orthogonal axes. ³ Non-linearity is the deviation of the output from a best fit straight line over fullscale input range All values are specified at operation voltage of 5.0V and temperature of 25°C unless noted otherwise. ⁴ Sensitivity and Zero g Output are ratiometric to supply voltage.

Standard Package



Pin Diagram

Pin	Color	Function
1	Red	Input Power
2	Black	Ground
3	White	X-Axis Out
4	Yellow	Y-Axis Out
5	Green	Z-Axis Out
6	Blue	Temperature