

# Accelerometers

## INSTRUMENTATION, TA SERIES

- ▼ Amplified Output
- ▼ DC Response, Wide Bandwidth
- ▼ Piezoresistive Micro-machined Silicon Sensor

## Applications

- ▼ Automotive Testing
- ▼ Industrial Vibration Monitoring



## TA Series

The TA Series Instrumentation Accelerometers are designed specifically for automotive test applications and industrial vibration monitoring. The DC to 1000 Hz bandwidth and low noise of these sensors are ideal for many test and measurement applications. The TA Series features a buffered, single-ended output voltage that is measured differentially with respect to a 2.5 V reference. The sensors require a +5 VDC supply voltage.

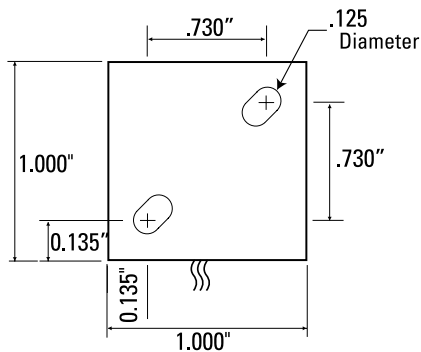
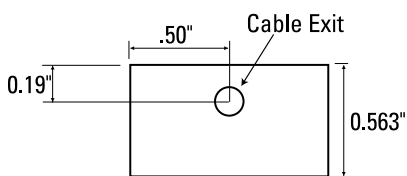
The sensing element of the TA Series consists of a micro-machined silicon mass suspended by multiple beams from a silicon frame. Each hermetically sealed element is signal conditioned, precisely aligned in a mounting block, and potted with an

industrial strength cable. Every unit is thoroughly tested by Crossbow before it leaves the factory.

Each sensor is shipped with a calibration sheet stating the zero acceleration output and sensitivity. Additional calibration information, such as a frequency sweep, or temperature drift can also be included.

The module may be securely attached using screws or an adhesive. The output requires no signal conditioning and is easy to interface to standard data acquisition systems.

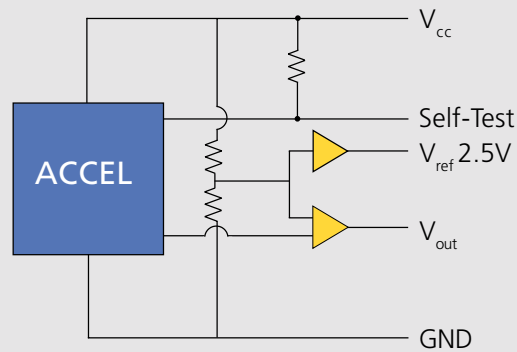
Please visit our website ([www.xbow.com](http://www.xbow.com)) or contact us directly for additional application information on this product.



Specifications	Min	Typical	Max
<b>Performance</b>			
Input Range (g)			
CXL25TA1Z		± 25	
CXL50TA1Z		± 50	
Sensitivity (mV/g)			
CXL25TA1Z		80 ± 4	
CXL50TA1Z		40 ± 2	
Non-Linearity (% Span)		± 0.2	± 1
Transverse Sensitivity (% Span)		± 1	± 4
Zero Acceleration Output (VDC)	2.4	2.5	2.6
Reference Output Voltage (VDC)	2.4	2.5	2.6
Noise (mV rms)			
CXL25TA1Z		20	
CXL50TA1Z		10	
Bandwidth (Hz)		1000	
<b>Environment</b>			
Operating Temperature Range (°C)	- 40		+ 85
Temp. Coefficient – Span (% Span)		± 2	
Temp. Coefficient – Zero (% Span)		± 2	
Shock/Acceleration Limit (g)			2000
<b>Electrical</b>			
Supply Voltage (VDC)	4.5	5.0	5.5
Supply Current (mA)		10	
Output Current Source (mA)		1.0	
Output Current Sinking (mA)		0.5	
<b>Physical</b>			
Size	0.563" x 1.00" x 1.00 (1.43 cm x 2.54 cm x 2.54 cm)		
Weight	1.52 oz (43 gm)		

**Notes**

All values are specified at an operational voltage of 5.0 VDC and temperature of 25°C unless noted otherwise. Sensitivity is ratiometric to supply in the range of 5 V ± 0.5 V. Non-linearity is the deviation from a best fit straight line at full scale. Transverse sensitivity is error measured in the primary axis output created by forces induced in the orthogonal axis. Transverse sensitivity error is primarily due to the effects of misalignment. Zero g drift is specified as the typical change in 0 g level from its initial value at +25°C to its worst case value at Tmin or Tmax. Self Test: To enable self-test, ground self-test pin. Specifications subject to change without notice



**Block Diagram**

Color	Function
Red	+ 5V Supply
Black	Ground
White	+ 2.5 Ref. Output
Green	Signal Output
Blue	Self Test Input

**Pin Diagram**

**Ordering Information**

Model	Description	Span (g)	Sensitivity (mV/g)	Noise (mV rms)	Bandwidth (Hz)
CXL25TA1Z	Z-axis Instrumentation Accelerometer	± 25	80 ± 4	20	DC-1000
CXL50TA1Z	Z-axis Instrumentation Accelerometer	± 50	40 ± 2	10	DC-1000