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Triaxial

Triaxial Transducers

Wilcoxon Research manufactures a variety of triaxial sensors which consist of three sensing elements within a single housing. These transducers allow for the acquisition of multi-directional data at a single mounting location. Proponents of multi-axial sensors cite the increase speed of data collection, its inherently consistent readings and reduction in wiring for permanent installations.

Wilcoxon Triaxial Transducers:

Model	Style	Sensitivity	Low Freq	High Freq	Accel Range
993A	shear	100 mV/g	2 Hz (all axis)	2,000 Hz	50 g peak
993A-5	shear	100 mV/g	2 Hz (all axis)	2,000 Hz	50 g peak
993B-5	shear	25 mV/g	2 Hz (all axis)	7,000 Hz (X & Y) 10,000 Hz (Z)	150 g peak
993B-6	shear	50 mV/g	2 Hz (all axis)	7,000 Hz (X & Y) 10,000 Hz (Z)	75 g peak
993B-7	shear	100 mV/g	2 Hz (all axis)	7,000 Hz (X & Y) 10,000 Hz (Z)	40 g peak

Note: Frequency @ $\pm 3dB$.

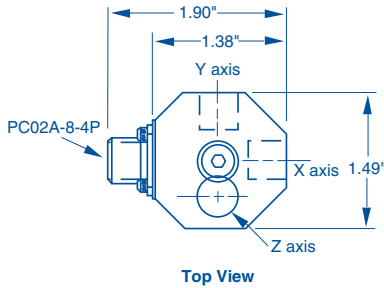
Biaxial sensors contain two sensing elements within a single housing. Contact Wilcoxon for further information on these and many other products.



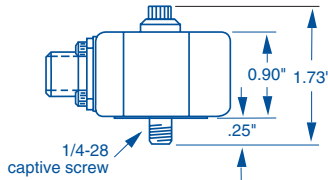
Model 993A Triaxial Accelerometer

FEATURES:

- Rugged design
- Easy to mount



Top View



Side View

DYNAMIC

Sensitivity, $\pm 10\%$, 25°C	100 mV/g
Acceleration Range	50 g peak
Amplitude Nonlinearity	1%
Frequency Response:	
All Channels, $\pm 10\%$	2 - 2,000 Hz
Transverse Sensitivity, max.	5% of axial
Temperature Response	
-50°C	+10%
+25°C	+0%
+80°C	+3%
+120°C	-7%

ELECTRICAL

Power Requirement:	voltage source	18 - 30 VDC
	current regulating diode	2 - 10 mA
Electrical Noise, equiv. g:		
Broadband	2.5 Hz to 25 kHz	150 μ g
Spectral	10 Hz	20 μ g/ \sqrt Hz
	100 Hz	2 μ g/ \sqrt Hz
	1000 Hz	0.6 μ g/ \sqrt Hz
Output Impedance, max.		100 Ω
Bias Output Voltage		12 VDC
Grounding		case isolated, internally shielded

ENVIRONMENTAL

Temperature Range	-50 to 120°C
Vibration Limit	500 g peak
Shock Limit	5,000 g peak
Electromagnetic Sensitivity, equiv. g.	100 μ g/gauss
Sealing	Epoxy
Base Strain Sensitivity	0.0005 g/ μ strain

PHYSICAL

Sensing Element Design	PZT ceramic / shear
Weight	88 grams
Case Material	hardcoated aluminum
Mounting	1/4-28 captive socket head screw
Output Connector	4 pin, Bendix PC02A-8-4P
Mating Connector	R9W
Recommended Cabling	J9T4

CONNECTOR PIN SHELL	FUNCTION
A	axis Y, power / signal
B	axis X, power / signal
C	axis Z, power / signal
D	common (all channels)

ACCESSORIES SUPPLIED: 1/4-28 captive screw (International customers specify mounting requirements); Calibration data (level 2).



Model 993A-5 Triaxial Accelerometer with Integral Cable



FEATURES:

- Rugged
- General purpose
- Industrial
- Easy to mount

DYNAMIC

Sensitivity, $\pm 10\%$, 25°C	100 mV/g
Acceleration Range	50 g peak
Amplitude Nonlinearity	1%
Frequency Response:	
All Channels, $\pm 10\%$	2 - 2,000 Hz
Transverse Sensitivity, max.	5 % of axial
Temperature Response	-50°C +10%
	+25°C +0%
	+80°C +3%
	+120°C -7%

ELECTRICAL

Power Requirement:	voltage source	18 - 30 VDC
	current regulating diode	2 - 10 mA
Electrical Noise, equiv. g:		
Broadband	2.5 Hz to 25 kHz	150 μ g
Spectral	10 Hz	20 μ g/ $\sqrt{\text{Hz}}$
	100 Hz	2 μ g/ $\sqrt{\text{Hz}}$
	1000 Hz	0.6 μ g/ $\sqrt{\text{Hz}}$
Output Impedance, max.		100 Ω
Bias Output Voltage		12 VDC
Grounding		case isolated, internally shielded

ENVIRONMENTAL

Temperature Range	-50 to 120°C
Vibration Limit	500 g peak
Shock Limit	5,000 g peak
Electromagnetic Sensitivity, equiv. g.	250 μ g/gauss
Sealing	Epoxy
Base Strain Sensitivity	0.002 g/ μ strain

PHYSICAL

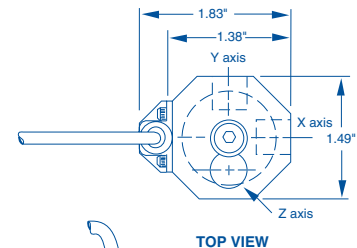
Sensing Element Design	PZT ceramic / shear
Weight	90 grams
Case Material	Hardcoated Aluminum
Mounting	10-32 captive screw
Mating Connector	Not applicable
Recommended Cabling	Integral cable provided, J98, 6 ft.

FUNCTION

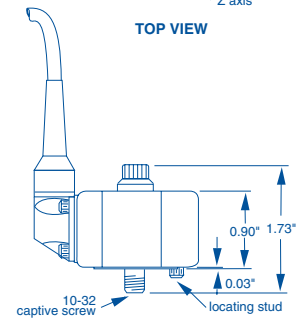
axis X, power / signal
axis Y, power / signal
axis Z, power / signal
common (all channels)
N/C

CABLE CONDUCTOR COLOR

Green
Red
White
Black
Shield



TOP VIEW



SIDE VIEW

ACCESSORIES SUPPLIED:

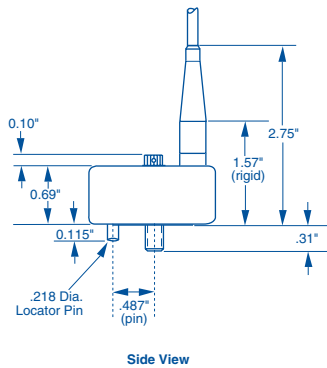
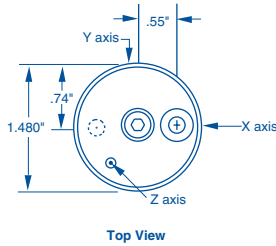
10-32 captive screw (International customers specify mounting requirements); Calibration data (level 2).





FEATURES:

- Rugged design
- Hermetic
- Broad Frequency Response
- Easy to mount
- EMI/RFI protection
- ESD protection
- Reverse wire protection
- Low Noise
- Low weight



Model 993B Series

Premium. Triaxial Accelerometers

	993B-5	993B-6	993B-7
DYNAMIC			
Sensitivity, $\pm 10\%$, 25°C	25 mV/g	50 mV/g	100 mV/g
Acceleration Range	150 g peak	75 g peak	40 g peak
Amplitude Nonlinearity	1%		
Frequency Response:			
Z Axis ± 3 dB	2 - 10,000 Hz	—	—
X & Y Axis ± 3 dB	2 - 7,000 Hz	—	—
Transverse Sensitivity, max.	7% of axial	—	—
Temperature Response	-50°C	-10%	
.....	+120°C	+15%	

ELECTRICAL			
Power Requirement:	voltage source	18 - 30 VDC	—
	current regulating diode	2 - 5 mA	—
Electrical Noise, equiv. g:			
Broadband	2.5 Hz to 25 kHz	336 μ g	220 μ g
Spectral	10 Hz	24 μ g/ \sqrt Hz	15 μ g/ \sqrt Hz
	100 Hz	3.2 μ g/ \sqrt Hz	2.0 μ g/ \sqrt Hz
	1000 Hz	2 μ g/ \sqrt Hz	1.1 μ g/ \sqrt Hz
Output Impedance, max.	400 Ω	—	—
Bias Output Voltage	11 VDC	—	—
Grounding	case isolated, internally shielded		

ENVIRONMENTAL	
Temperature Range	-50 to 120°C
Vibration Limit	500 g peak
Shock Limit	5,000 g peak
Electromagnetic Sensitivity, equiv. g.	100 μ g/gauss
Sealing	Hermetic
Base Strain Sensitivity, max	0.0005 g/ μ strain
Hydrostatic Pressure, max	100 psi

PHYSICAL	
Sensing Element Design	PZT ceramic / shear
Weight	134 grams
Case Material	316L stainless steel
Mounting	1/4 - 28 captive screw
Mating Connector	Not applicable
Integral Cabling	J12, 16 ft.

FUNCTION

axis X, power / signal
axis Y, power / signal
axis Z, power / signal
common (all channels)
N/C

CABLE CONDUCTOR COLOR

Green
Red
White
Black
Shield

ACCESSORIES SUPPLIED:

1/4-28 captive screw (International customers specify mounting requirements);
Calibration data (level 3).

OPTIONS:

3 Conductor, shielded cable is supplied with CSA intrinsically safe model.



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