

# High Sensitivity ICP® Accelerometers



## Applications

- Building Vibration Monitoring
- Earthquake Detection
- Structural Testing of Bridges
- Floor Vibration Monitoring
- Geological Formation Studies
- Foundation Vibration Monitoring

High sensitivity, ICP® accelerometers are specifically designed to enable the detection of ultra-low-level, low-frequency vibrations associated with very large structures, foundations, and earth tremors. These sensors typically possess exceptional measurement resolution as the result of a comparatively larger size, which furnishes a stronger output signal and a lower noise floor.

Both ceramic and quartz sensing elements are utilized in seismic accelerometer designs. Model 393C, with a quartz sensing element, offers the best low-frequency response in this series. Ceramic element styles with built-in, low-noise, signal conditioning circuitry offer the greatest measurement resolution. The model 393B31 leads the way, providing 1  $\mu$ g rms broadband resolution.

All units are hermetically sealed in either a titanium or stainless steel housing. Models that include a 2-pin, military style connector provide the added benefit of being electrically case isolated for superior RF and EMI protection.



## High Sensitivity ICP® Accelerometers

Vibration monitoring of civil structures and treasured monuments can be an essential practice for ensuring the safety of occupants or protecting the structure from catastrophic demise. Studies have shown that crowds of people in a stadium grandstand or theater balcony can impart tremendous forces and harmonic motion to the structure when the crowd acts in a synchronous manner. Earth tremors, foot traffic, and trucks & trains can impart vibration, which can cause a structure to sway, shift, crumble, or collapse. Permanent-monitoring high-sensitivity accelerometers are useful for trending, analyzing, and alerting when structural motion exceeds established safety limits to enable corrective or evasive action.

### High Sensitivity ICP® Accelerometers

				
Model Number	355B04	352B	393B04	393B05
Sensitivity	1000 mV/g	1000 mV/g	1000 mV/g	10 V/g
Measurement Range	± 5 g pk	± 5 g pk	± 5 g pk	± 0.5 g pk
Broadband Resolution	0.0001 g rms	0.00008 g rms	0.000003 g rms	0.000004 g rms
Frequency Range (± 5%)	1 to 8k Hz	2 to 10k Hz	0.06 to 450 Hz	0.7 to 450 Hz
Resonant Frequency	≥ 30 kHz	≥ 25 kHz	≥ 2.5 kHz	≥ 2.5 kHz
Temperature Range	-65 to +200 °F -54 to +93 °C	-65 to +200 °F -54 to +93 °C	0 to +176 °F -18 to +80 °C	0 to +176 °F -18 to +80 °C
Sensing Element	Ceramic/Shear	Ceramic/Shear	Ceramic/Flexural	Ceramic/Flexural
Electrical Connector	10-32 Coaxial Jack	10-32 Coaxial Jack	10-32 Coaxial Jack	10-32 Coaxial Jack
Electrical Ground Isolation	Yes	No	No	No
Housing Material	Titanium	Titanium	Titanium	Titanium
Sealing	Hermetic	Hermetic	Hermetic	Hermetic
Weight	11 gm	25 gm	50 gm	50 gm
Size	0.40 x 0.95 x 0.63 in 10.2 x 24 x 16 mm	3/4 x 1.10 in 3/4 in x 28 mm	0.99 x 1.22 in 25 x 31 mm	0.99 x 1.22 in 25 x 31 mm
Mounting	Through Hole	10-32 Thread	10-32 Thread	10-32 Thread
<b>Supplied Accessories</b>				
Wax/Adhesive	080A109	080A109	—	—
Adhesive Mounting Base	—	080A12	—	—
Mounting Stud/Screw	081B45	081B05, M081B05	081B05, M081B05	081B05, M081B05
<b>Additional Accessories</b>				
Magnetic Mounting Base	—	080A27	—	—
Triaxial Mounting Adaptor	—	080B11	—	—
Mating Cable Connector	EB	EB	EB	EB
Recommended Cables	002, 003 CE	002, 003 CE	002, 003 CE	002, 003 CE

# High Sensitivity ICP® Accelerometers

Decaying infrastructures, particularly bridges, have received heightened awareness in recent years. Among the several techniques for determining the health and longevity of such civil structures are vibration measurements for continuous monitoring, modal analysis, and structural integrity investigation. High sensitivity accelerometers are utilized for generating signals in response to a variety of stimuli including traffic, wind, and programmatic impulse. When analyzed, these signals provide insight for determining the condition and safety of the structure. Such an investigative analysis can lead to a recommendation for remedial construction or further monitoring.



## High Sensitivity ICP® Accelerometers

	CE 	CE 	CE 	
Model Number	393A03	393B12	393C	
Sensitivity	1000 mV/g	10 V/g	10 V/g	1000 mV/g
Measurement Range	± 5 g pk	± 0.5 g pk	± 0.5 g pk	± 2.5 g pk
Broadband Resolution	0.00001 g rms	0.000008 g rms	0.000001 g rms	0.0001 g rms
Frequency Range (± 5%)	0.5 to 2000 Hz	0.5 to 2000 Hz	0.1 to 200 Hz	0.02 to 800 Hz
Frequency Range (± 10%)	0.3 to 4000 Hz	0.1 to 2000 Hz	0.07 to 300 Hz	0.01 to 1200 Hz
Resonant Frequency	≥ 10 kHz	≥ 10 kHz	≥ 700 Hz	≥ 3.5 kHz
Temperature Range	-65 to +250 °F -54 to +121 °C	-50 to +180 °F -45 to +82 °C	0 to +150 °F -18 to +65 °C	-65 to +200 °F -54 to +93 °C
Sensing Element	Ceramic/Shear	Ceramic/Shear	Ceramic/Flexural	Quartz/Compression
Electrical Connector	2-Pin MIL-C-5015	2-Pin MIL-C-5015	2-Pin MIL-C-5015	10-32 Coaxial Jack
Electrical Case Isolation	Yes	Yes	Yes	No
Housing Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Sealing	Hermetic	Hermetic	Hermetic	Hermetic
Weight	210 gm	210 gm	635 gm	885 gm
Size	1 3/16 x 2.21 in 1 3/16 in x 56.1 mm	1 3/16 x 2.21 in 1 3/16 in x 56.1 mm	2.25 x 2.8 in 57.2 x 71.1 mm	2.25 x 2.16 in 57.2 x 54.9 mm
Mounting	1/4-28 Thread	1/4-28 Thread	1/4-28 Thread	10-32 Thread
<b>Supplied Accessories</b>				
Mounting Stud/Screw	081B20, M081B20	081B20, M081B20	081B20, M081B20	081B05, M081B05
<b>Additional Accessories</b>				
Magnetic Mounting Base	080A54	080A54	—	080A21
Triaxial Mounting Adaptor	080A57	080A57	080M189	080M16
Mating Cable Connector	AP	AP	AP	EB
Recommended Cables	024	024	024	002, 003 CE

Hochwertige Messtechnik und Beratung aus einer Hand



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