

High-shock CCLD Accelerometer Types 8339 and 8339-001

Uses and Features

- Low impedance
- Case isolated
- Rugged construction
- High-level mechanical shock and pyroshock measurements (up to 50,000 *g*)



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Description

Types 8339 and 8339-001 are low-impedance, piezoelectric, compression-accelerometers intended for measurement of very high-level, continuous vibration, mechanical shock and pyroshock. The output and ground signal are isolated from the mounting surface to prevent ground loops.

For rigid mounting, the accelerometers' bases have an integral 10–32 UNF threaded fixing stud that is dimensioned to transmit the full motion of the test object to the piezoelectric element without distortion.

Characteristics

The design is of a particularly sturdy construction, comprising a hardened 17–4 PH stainless steel housing and a strain-isolated compression design. The piezoelectric element is quartz and is treated to withstand very high dynamic stress with negligible problems of “zero shift”^{*}.

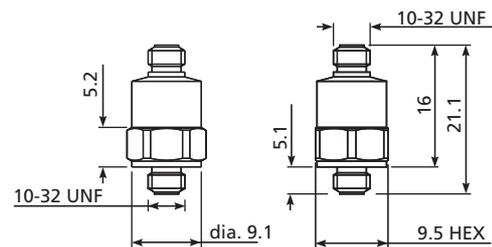
The transducers feature a first-order, low-pass filter (6 dB/octave) to repress unwanted high-frequency content (5% suppression at 20 kHz) that may hide low-frequency and low-level information.

Calibration

The sensitivity given on the calibration chart has been measured at 159.2 Hz with a 95% confidence level, using a coverage factor $k = 2$.

Versions

- Type 8339 has a sensitivity of 0.25 mV/*g* and a full range output of 20,000 *g*
- Type 8339-001 has a sensitivity of 0.1 mV/*g* and a full range output of 50,000 *g*



All dimensions in mm

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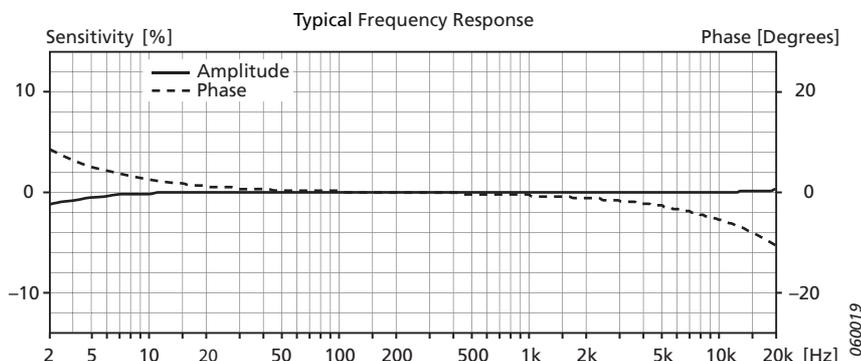
^{*} For more details on the zero-shift effect, see Handbook: [Piezoelectric Accelerometers and Vibration Preamplifier](#)

Specifications – High-shock CCLD Accelerometer Types 8339 and 8339-001

	Units	8339*	8339-001*
Dynamic Characteristics			
Voltage Sensitivity (at 160 Hz)	mV/ms ⁻² (mV/g)	0.025 +22/-18% (0.25 ±20%)	0.01 +22/-18% (0.1 ±20%)
Measuring Range	g	±20,000	±50,000
Frequency Response		See typical amplitude response	
Mounted Resonance Frequency	kHz	>130	
Amplitude Response (±10%)	Hz	1 to 20000	
Residual Noise (1 to 10 kHz)	mg	<150	<350
Transverse Sensitivity†	%	<10	
Linearity (at full scale)	%	±1	
Electrical Characteristics			
Output Impedance	Ω	100	
Start-up Time (to final bias ±10%)	s	<0.1	
DC Output Bias Voltage	At room temp.	V	9 ±1
	In specified temp. range	V	7.5 to 10
Power Supply	Constant current	mA	2 to 20
	Unloaded supply voltage	V	+24 to +30
Grounding		Case insulated	
Environmental Characteristics			
Temperature Range	°C (°F)	-51 to +121 (-60 to +250)	
Humidity		Hermetic	
Max. Non-destructive Shock Level (peak)	kms ⁻² (g)	800 (80000)	
Base Strain Sensitivity	Equiv. ms ⁻² /με (g/με)	1.3 (0.13)	
Thermal Transient Sensitivity	Equiv. ms ⁻² /°C (g/°F)	30 (1.71)	
Temperature Coefficient of Sensitivity	%/°C	+0.03	
Magnetic Sensitivity (50 Hz, 0.038 T)	ms ⁻² /T (g/kG)	2000 (20)	
Physical Characteristics			
Dimensions		See outline drawing	
Weight	gram (oz)	5.8 (0.2)	
Sensing Element		Quartz	
Construction		Compression	
Case Material		17-4 PH stainless steel	
Connector		10-32 UNF	
Mounting		Integral 10-32 UNF stud	
Optimum Mounting Torque	Nm (lb in)	1.8 (15)	

* All values are typical at 25 °C (77 °F) unless measurement uncertainty is specified

† The transverse sensitivity measurement is associated with approximately 4% uncertainty from electrical noise of the test equipment



Compliance with Standards

CE The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives

RCM RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME

China RoHS China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China

WEEE WEEE mark indicates compliance with the EU WEEE Directive

Ordering Information

Types 8339 and 8339-001 include the following accessories:

- Carrying box
- Calibration chart

OPTIONAL ACCESSORIES

- AO-1419-D-xxx* Low-noise cable
10-32 UNF to 10-32 UNF
- AO-0687-D-xxx* Super low-noise cable with extensive, molded connector relief,
10-32 UNF to 10-32 UNF, max. 120 °C (248 °F)
- AO-0122-D-xxx* Double-screened, robust cable 10-32 UNF to 10-32 UNF, max. 250 °C (482 °F)
- AO-0755-D-xxx* Double-screened, robust cable with extensive relief at connectors 10-32 UNF to 10-32 UNF, max. 135 °C (275 °F)
- QA-0029 Tap for 10-32 UNF thread
- JP-0145 BNC to 10-32 UNF plug adaptor

SERVICE

8339-CFF Factory Standard Calibration

* xxx = length in decimetres

