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Find the *Bruel & Kjaer 4394* at our website: ***Click HERE***

PRODUCT DATA

Miniature DeltaTron® Accelerometer Types 4394 and 4397-A

Piezoelectric Accelerometers

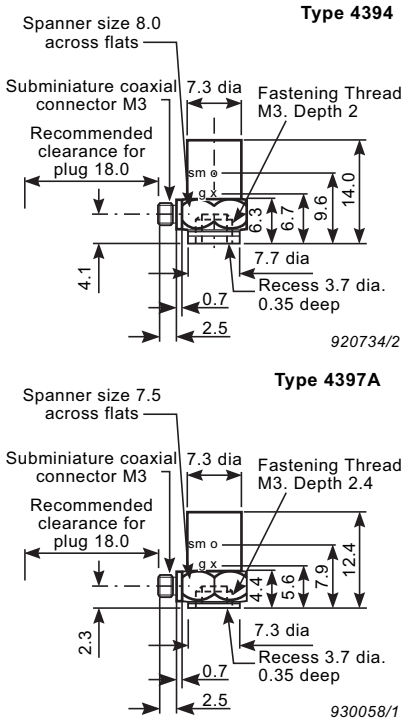
Features

- High frequency
- High sensitivity-to-mass ratio

Description

Types 4394 and 4397-A are piezoelectric DELTA-SHEAR® Unigain accelerometers with side connectors. Both transducers feature an M3 connection and can be mounted on the measurement object by means of an M3 threaded steel stud. The two types differ from each other in that Type 4394 has a ceramic isolated base.





Characteristics

These piezoelectric accelerometers may be treated as voltage sources. Their sensitivity is expressed in terms of voltage per unit acceleration (mV/ms^{-2}).

The DELTA-SHEAR design involves three piezoelectric elements and three masses arranged in a triangular configuration around a central triangular post. A clamping ring pre-stresses these elements to give a higher degree of linearity. The signal is collected between the housing and the clamping ring and amplified in the built-up DeltaTron amplifier. The piezoelectric element used in Types 4394 and 4397-A is PZ 23 lead zirconate titanate. The housing material is titanium.

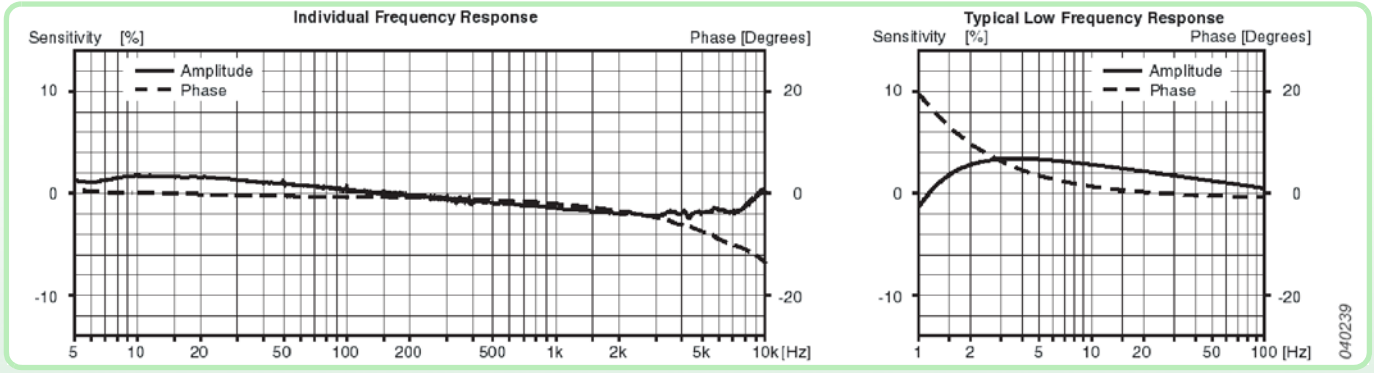
Calibration

The sensitivity given in the calibration chart has been measured at 159.2 Hz. For a 95% confidence level, the accuracy of the factory calibration is ±0.7%.

S- Versions

Type 4394-S is identical to Type 4394, but includes a standard accessory box, UA-1218. Similarly, Type 4397-S is identical to Type 4397-A, but includes UA-1218. For a list of the accessories included, see Ordering Information.

Fig. 1 *Frequency response curves for Types 4394 and 4397-A*



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Specifications – Types 4394 and 4397-A*

	Unit	4394	4397-A
Dynamic Characteristic			
Charge Sensitivity (@ 160.2 Hz)	mV/ms^{-2}	1.0 ±2%†	
Measuring Range	g	±500	
Frequency Response		See typical amplitude response	
Mounted Resonance Frequency	kHz	52	53
Amplitude Response ±10%	Hz	1 to 25000	
Residual Noise	mg	1.5	
Transverse Sensitivity	%	<4	
Electrical Characteristics			
DC Output Bias Voltage	V	12 ±0.5	
Output Impedance	Ω	10	
Power Supply	mA	2 to 20	
Start-up Time	s	5	
Grounding		Insulated	Signal ground to case
Environmental Characteristics			
Temperature Range	°C (°F)	–50 to +125 (–58 to +257)	
Humidity		Welded, sealed	
Max. Non-destructive Shock (peak)	g pk	10 000	
Base Strain Sensitivity	Equiv. g/μ strain	0.0005	
Thermal Transient Sensitivity	Equiv. g/°C (g/°F)	0.2 (0.11)	
Magnetic Sensitivity (50 Hz – 0.03 Tesla)	g/T	5	
Physical Characteristics			
Dimensions		See outline drawings	
Weight	gram (oz.)	2.9 (0.10)	2.4 (0.09)
Case Material		Titanium	
Connector		M3	
Mounting		M3 × 2 mm threaded hole	

* All values are typical at 25°C (77°F) unless otherwise specified

† Range of measured value. The uncertainty of the measurement is ±0.7% for a 95% confidence level. See the calibration chart for further details on measurement uncertainty.

COMPLIANCE WITH STANDARDS

CE Compliance with EMC Directive and Low Voltage Directive of the EU

Compliance with the EMC requirements of Australia and New Zealand

Ordering Information

Types 4394 and 4397-A

include the following accessories:

- Calibration Chart
- Carrying Box
- AO-1381: Sturdy, Insulated, Double-screened Cable, fitted with 10–32/M3 connectors, length 1.2 m
- YS-8381: Steel Stud, M3/M3, with flange

Types 4394-S and 4397-S

include the following accessories:

- Carrying Box
- Calibration Chart
- UA-1218: Standard Accessory Box, which includes:
  - Extension connector for cable 10–32/10–32 UNF
  - Plug adaptor BNC/10–32 UNC
  - Cement stud M3, Ø 8.0 mm
  - Mounting wax
  - Tube cyanoacrylate adhesive
  - Tap for M3 thread
  - Hexagonal key for M3 studs

Optional Accessories*	
AO-0283	Sturdy Low-noise Cable, 10–32 UNF/M3, length 1.2 m (4 ft), 260°C (500°F)
AO-0339	Flexible Low-noise Cable, 10–32 UNF/M3, 1.2 m (4 ft)
AO-1381	Sturdy, Insulated Double-screened Cable, 10–32 UNF/M3, 1.2 m (4 ft)
UA-0867	25 × Cement Stud, M3, Ø8.0 mm
UA-0186	25 × Extension Connector 10–32 UNF
UA-1075	5 × Mounting Magnet
UA-1221	25 × Steel Stud with Flange, M3/M3, 3.5 mm
WA-0224	Mechanical Filter
JP-0145	Plug Adaptor, BNC/10–32 UNF
QA-0041	Tap for M3 Thread
QA-0042	Hexagonal Key for M3 Studs
QS-0007	Tube of Cyanoacrylate Adhesive
YJ-0216	Beeswax for Mounting
Type 4397-A only	
UA-1193	10 × Insulated Stud, M3/M3, 2.4 mm
YQ-2003	M3 Threaded Steel Stud, 5 mm
YQ-2007	M3 Threaded Steel Stud, 8 mm
Calibration Services	
4394-CAF	Accredited Calibration
4394-CAI	Accredited Initial Calibration
4394-CFF	Factory Standard Calibration
4394-CTF	Traceable Calibration
4397-CAF	Accredited Calibration
4397-CAI	Accredited Initial Calibration
4397-CFF	Factory Standard Calibration
4397-CTF	Traceable Calibration

* Additional accessories, cables and services are available (see www.bksv.com)

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