

PRODUCT DATA

Piezoelectric Accelerometer Subminiature Charge Accelerometers — Types 4374, 4374-S and 4374-L

USES

- High-level, high-frequency measurements
- Measurements in confined spaces
- Measurements on delicate structures
- Vibration testing and analysis

Description

Type 4374 is a piezoelectric, Planar Shear accelerometer. The integrated side cable terminates with a 10–32 UNF connector. Type 4374 is mounted on the object adhesively.

Characteristics

This piezoelectric accelerometer may be treated as a charge source. Its sensitivity is expressed in terms of charge per unit acceleration (pC/g).

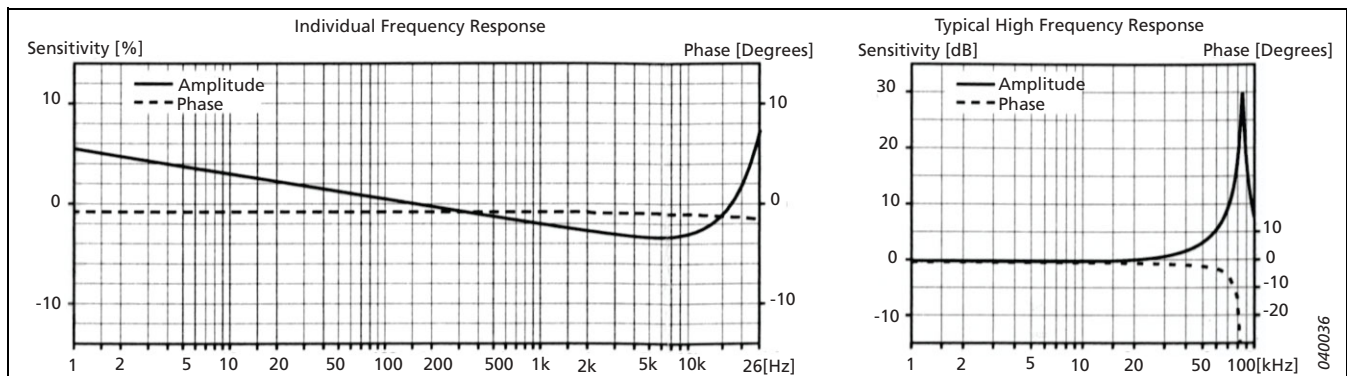
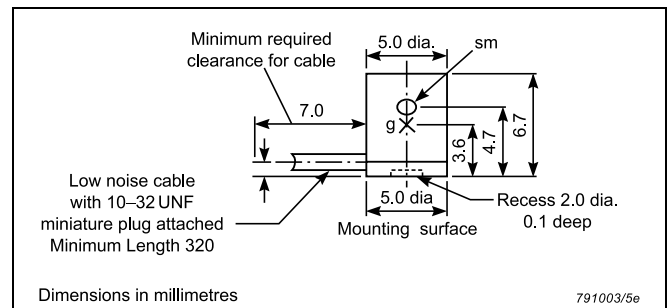
In the Planar Shear design, the piezoelectric element undergoes shear deformation as in the DeltaShear® design. Two rectangular slices of piezoelectric material are arranged on each side of a rectangular centre post. Two masses are formed, as shown, and held in position using a high tensile strength clamping ring. The ring prestresses the piezoelectric elements to give a high degree of linearity. The charge is collected between the housing and the clamping ring. The piezoelectric element used in Type 4374 and



Type 4374-S is PZ 27. Type 4374-L is PZ 23. The housing material is beryllium.

Calibration

The sensitivity given in the calibration chart has been measured at 159.2 Hz and an acceleration of 10 g. For 99.9% confidence level, the accuracy of the factory calibration is $\pm 2\%$.



Specifications – Subminiature Charge Accelerometer Type 4374, 4374-S and 4374-L

	Units	4374/4374-S	4374-L [2]
Dynamic Characteristics			
Charge Sensitivity (@ 159.2 Hz)	pC/ms ⁻² (pC/g)	0.15 ±20% (1.5)	0.11 ±15% (1.1)
Frequency Response		See typical Amplitude Response	
Mounted Resonance Frequency	kHz	85	
Amplitude Response ±10% [1]	Hz	1 to 26000	
Transverse Sensitivity	%	<5	
Transverse Resonance Frequency	kHz	21	
Electrical Characteristics			
Min. Leakage Resistance @ 20°C	GΩ	≥20	
Capacitance	pF	600	
Grounding		Signal ground connected to case	
Environmental Characteristics			
Temperature Range	°C (°F)	-74 to +250 (-101 to +482)	
Humidity		Sealed	
Max. Operational Sinusoidal Vibration (peak)	g pk	5000	
Max. Operational Shock (± peak)	g pk	25000	
Base Strain Sensitivity	Equiv. g/μ strain	0.0005	
Thermal Transient Sensitivity	Equiv. g/°C (g/°F)	1 (0.56)	
Magnetic Sensitivity (50 Hz–0.03 tesla)	g/T	3	
Physical Characteristics			
Dimensions		See outline drawing	
Weight	gram (oz.)	0.65 (0.02)	
Case Material		Beryllium	
Connector		Integral cable 10–32 UNF	
Mounting		Adhesive	

[1] Low-end response of the transducer is a function of its associated electronics

[2] Type 4374-L is designed to be used with Hand-arm Transducer Set Type 4392 and earlier Human-vibration Unit Type 2522

Ordering Information

Type 4374 includes the following accessories:

- Carrying box
- Calibration chart
- AO-0038-D-012: Low noise cable fitted with 10–32 UNF connectors, 1.2 m (4 ft)
- 10–32 UNF microdot extension connector

Type 4374-S includes the following accessories:

- Carrying box
- Calibration chart
- AO-0038-D-012: Low noise cable fitted with 10–32 UNF connectors, 1.2 m (4 ft)

• UA-1079: Accessory box including:

- 10–32 UNF microdot extension connector
- Input adaptor, TNC to 10–32 UNF microdot
- Case of beeswax
- Washer

Type 4374-L includes the following accessories:

- Carrying box
- Calibration chart
- 10–32 UNF threaded steel stud. Length 12.7 mm
- 10–32 UNF microdot extension connector

OPTIONAL ACCESSORIES

- AO-0038-D-012: 260°C Teflon® low-noise cable, 10–32 UNF, length 1.2 m (4 ft)
- AO-0122-D-030: 250°C, reinforced super low noise cable, 10–32 UNF, 3 m (10 ft)
- AO-1382-D-012: Teflon low noise cable, double screened 10–32 UNF, 1.2 m (4 ft)
- JJ-0032: Extension connector 10–32 UNF
- JJ-0207: 2-pin TNC to 10–32 UNF plug adaptor
- JP-0162: 10–32 UNF to TNC connector adaptor
- QS-0007: Tube of cyanoacrylate adhesive
- YJ-0216: Beeswax for mounting

Brüel & Kjær reserves the right to change specifications and accessories without notice

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