

PRODUCT DATA

Piezoelectric Accelerometer Charge Accelerometer — Type 4381, 4381 S and 4381 V

FEATURES

- General purpose
- High sensitivity
- Low-level, low-frequency measurements

Description

Type 4381 is a piezoelectric, DeltaShear[®], Unigain[®] accelerometer with side connector. Type 4381 features 10–32 UNF receptacle for output connection and can be mounted on the object by means of a 10–32 UNF threaded steel stud.

Characteristics

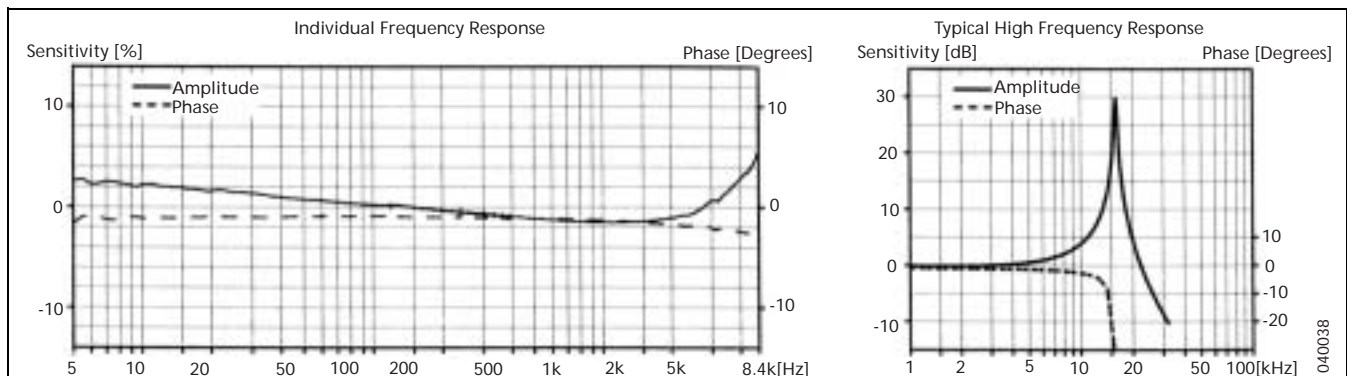
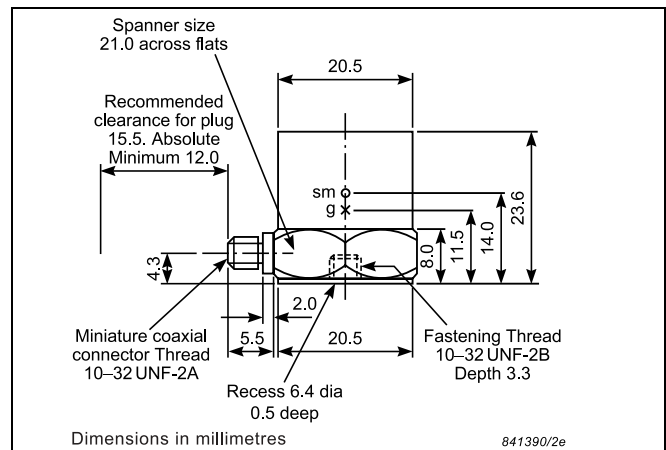
This piezoelectric accelerometer may be treated as a charge source. Its sensitivity is expressed in terms of charge per unit acceleration (pC/g).

The DeltaShear design involves three piezoelectric elements and three masses arranged in a triangular configuration around a triangular centre post. 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 is a PZ 23 lead zirconate titanate element. The housing material is titanium.



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 – Charge Accelerometer Type 4381, 4381 S and 4381 V

	Units	4381/4381 S	4381 V
Dynamic Characteristics			
Charge Sensitivity (@ 159.2 Hz)	pC/g	98 ± 2%	98 ± 15%
Frequency Response		See typical Amplitude Response	
Mounted Resonance Frequency	kHz	16	
Amplitude Response ±10% [1]	Hz	0.1 to 4800	
Transverse Sensitivity	%	<4	
Transverse Resonance Frequency	kHz	4	
Electrical Characteristics			
Min. Leakage Resistance @ 20°C	GΩ	≥20	
Capacitance	pF	1200	
Grounding		Signal ground connected to case	
Environmental Characteristics			
Temperature Range	°C (°F)	-74 to 250 (-101 to 482)	
Humidity		Welded, sealed	
Max. Operational Sinusoidal Vibration (peak)	g pk	2000	
Max. Operational Shock (± peak)	g pk	2000	
Base Strain Sensitivity	Equiv. g/μ strain	0.003	
Thermal Transient Sensitivity	Equiv. g/°C (g/°F)	0.002 (0.011)	
Magnetic Sensitivity (50 Hz–0.03 Tesla)	g/T	0.1	
Physical Characteristics			
Dimensions		See outline drawing	
Weight	gram (oz.)	43 (1.51)	
Case Material		Titanium	
Connector		10–32 UNF-2A	
Mounting		10–32 UNF-2B × 3.3 mm threaded hole	

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

Ordering Information

Type 4381 includes the following accessories:

- Carrying box
- Calibration chart
- AO 0038: Low noise cable fitted with 10–32 connectors, 1.2 m
- 10–32 UNF threaded steel stud. Length 12.7 mm

Type 4381 S includes the following accessories:

- Carrying box
- Calibration chart
- AO 0038: Low noise cable fitted with 10–32 connectors, 1.2 m
- 10–32 UNF threaded steel stud. Length 12.7 mm
- UA 0078: Accessory box including:
 - Cementing stud, 10–32 UNF
 - EP610 input adaptor, TNC to 10–32 UNF microdot
 - Mounting magnet, 10–32 UNF thread
 - Case of beeswax

- Insulating disk
- Insulating stud
- Steel stud 10–32 UNF × ½"
- Tools

Type 4381 V includes the following accessories:

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

OPTIONAL ACCESSORIES

- AO 0038: 260°C Teflon® low-noise cable, 10–32 UNF, length 1.2 m (4 ft)
- AO 0122: 250°C, reinforced super low noise cable, 10–32, 3 m (10 ft)
- AO 0231: 260°C Teflon low-noise cable, 10–32 UNF/TNC, length 3 m (10 ft)
- AO 1382: Teflon low noise cable, double screened 10–32, 1.2 m (4 ft)
- DB 0544: 10–32 UNF Round tip

- JJ 0207: 2-pin TNC/10–32 UNF plug adaptor
- JP 0162: 10–32 UNF to TNC connector adaptor
- QA 0013: Hexagonal key for 10–32 UNF studs
- QA 0029: Tap for 10–32 UNF thread
- UA 0559: Mechanical filter for Accelerometer
- UA 0642: Mounting magnet and 2 insulating discs
- UA 0866: Cement stud 10–32 UNF 0.14 mm (set of 25)
- YG 0150: Steel stud 10–32/10–32 with flange
- YJ 0216: Beeswax for mounting
- YP 0080: Probe with sharp tip
- YP 0150: 10–32 UNF insulated stud. Length 12.7 mm
- YQ 2960: 0–32 UNF threaded steel stud. Length 12.7 mm
- YQ 2962: 0–32 UNF threaded steel stud. Length 7.62 mm

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

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