

# 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<sup>®</sup>, Unigain<sup>®</sup> 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

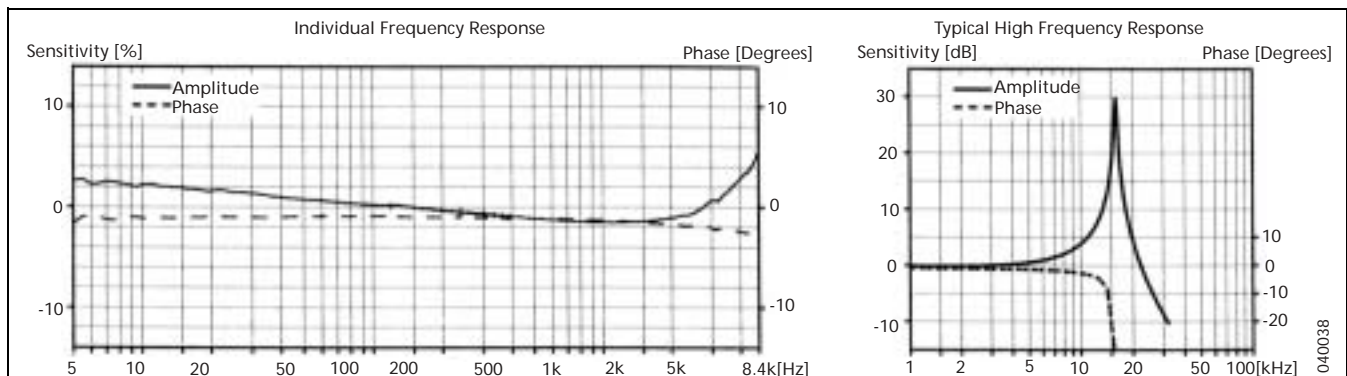
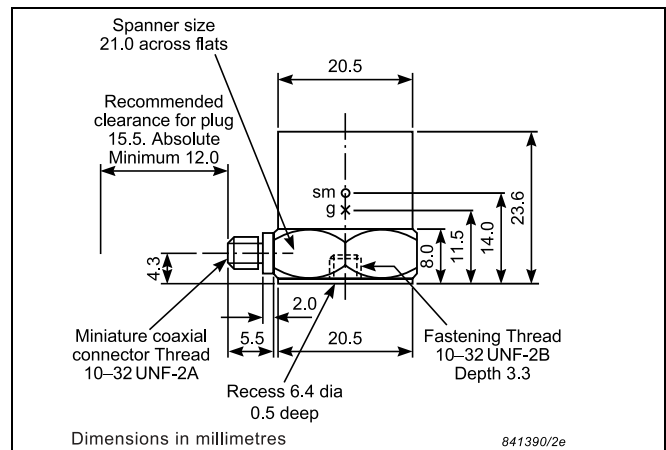
This piezoelectric accelerometer may be treated as a charge source. Its sensitivity is expressed in terms of charge per unit acceleration (pC/g).

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
<b>Dynamic Characteristics</b>			
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	
<b>Electrical Characteristics</b>			
Min. Leakage Resistance @ 20°C	GΩ	≥20	
Capacitance	pF	1200	
Grounding		Signal ground connected to case	
<b>Environmental Characteristics</b>			
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	
<b>Physical Characteristics</b>			
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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