

# PRODUCT DATA

## Piezoelectric Accelerometer Charge Accelerometers — Types 4384, 4384-S and 4384-V

### USES

- General purpose
- High sensitivity
- High-frequency measurement
- Vibration testing and analysis

### Description

Type 4384 is a piezoelectric, DeltaShear<sup>®</sup>, Unigain accelerometer with top connector. Type 4384 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

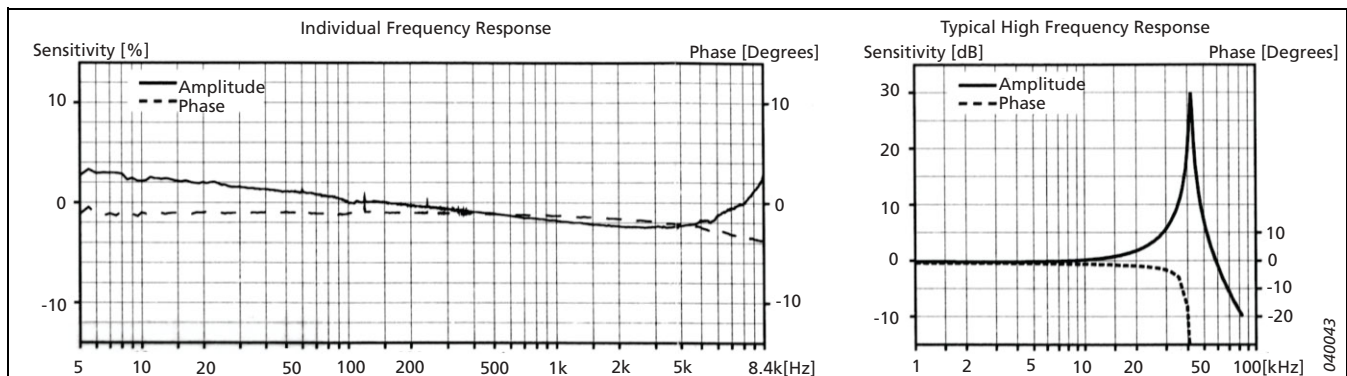
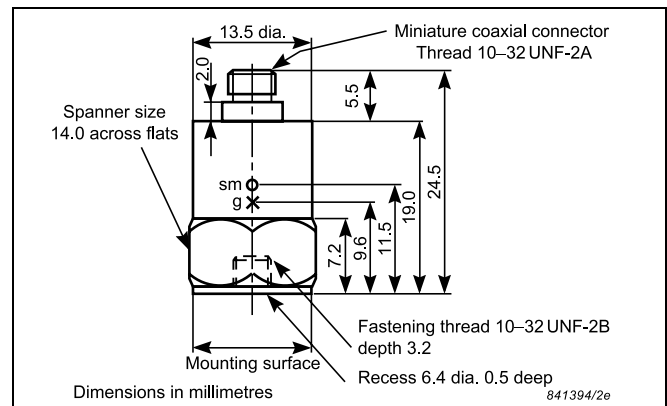
This piezoelectric accelerometer may be treated as a charge source. Its sensitivity is expressed in terms of charge per unit acceleration (pC/g).

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 4384, 4384-S and 4384-V

	Units	4384/4384-S	4384-V
<b>Dynamic Characteristics</b>			
Charge Sensitivity (@ 159.2 Hz)	pC/g	9.8 ± 2%	9.8 ± 15%
Frequency Response		See typical Amplitude Response	
Mounted Resonance Frequency	kHz	42	
Amplitude Response ±10% [1]	Hz	0.1 to 12600	
Transverse Sensitivity	%	<4	
Transverse Resonance Frequency	kHz	15	
<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)	-54 to +250 (-65 to +482)	
Humidity		Welded, sealed	
Max. Operational Sinusoidal Vibration (peak)	g pk	6000	
Max. Operational Shock (± peak)	g pk	20000	
Base Strain Sensitivity	Equiv. g/μ strain	0.002	
Thermal Transient Sensitivity	Equiv. g/°C (g/°F)	0.04 (0.011)	
Magnetic Sensitivity (50 Hz–0.03 Tesla)	g/T	0.4	
<b>Physical Characteristics</b>			
Dimensions		See outline drawing	
Weight	gram (oz.)	11 (0.39)	
Case Material		Titanium	
Connector		10–32 UNF	
Mounting		10–32 UNF × 3.2 mm threaded hole	

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

## Ordering Information

**Type 4384** includes the following accessories:

- Carrying box
- Calibration chart
- AO-0038-D-012: Low noise cable fitted with 10–32 connectors, 1.2 m
- 10–32 UNF threaded steel stud. Length 12.7 mm

**Type 4384-S** includes the following accessories:

- Carrying box
- Calibration chart
- AO-0038-D-012: 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 × 1/2"
- Tools

**Type 4384-V** includes the following accessories:

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

### 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-0231-D-030: 260°C Teflon low-noise cable, 10–32 UNF/TNC, length 3 m (10 ft)
- AO-1382-D-012: Teflon low noise cable, double screened 10–32 UNF, 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-0641: Extension Connector, 10–32 UNF/TNC
- 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 UNF/10–32 UNF 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

HEADQUARTERS: DK-2850 Nærum · Denmark · Telephone: +45 4580 0500  
Fax: +45 4580 1405 · www.bksv.com · info@bksv.com

Australia (+61) 2 9889-8888 · Austria (+43) 1 865 74 00 · Brazil (+55) 11 5188-8161  
Canada (+1) 514 695-8225 · China (+86) 10 680 29906 · Czech Republic (+420) 2 6702 1100  
Finland (+358) 9-755 950 · France (+33) 1 69 90 71 00 · Germany (+49) 421 17 87 0  
Hong Kong (+852) 2548 7486 · Hungary (+36) 1 215 83 05 · Ireland (+353) 1 807 4083  
Italy (+39) 0257 68061 · Japan (+81) 3 5715 1612 · Republic of Korea (+82) 2 3473 0605  
Netherlands (+31) 318 55 9290 · Norway (+47) 66 77 11 55 · Poland (+48) 22 816 75 56  
Portugal (+351) 21 4169 040 · Singapore (+65) 6377 4512 · Slovak Republic (+421) 25 443 0701  
Spain (+34) 91 659 0820 · Sweden (+46) 33 225 622 · Switzerland (+41) 44 8807 035  
Taiwan (+886) 2 2502 7255 · United Kingdom (+44) 14 38 739 000 · USA (+1) 800 332 2040

Local representatives and service organisations worldwide

**Brüel & Kjær** 

