

PRODUCT DATA

Piezoelectric Accelerometer Charge Accelerometer — Type 4391, 4391 S and 4391 V

USES

- Industrial measurements
- Vibration measurements
- Conditioning monitoring

Description

Type 4391 is a piezoelectric, DeltaShear[®], Unigain[®] accelerometer with top connector. Type 4391 features a TNC receptacle for output connection. It can be mounted on the object by means of a 10–32 UNF threaded steel stud.

Characteristics

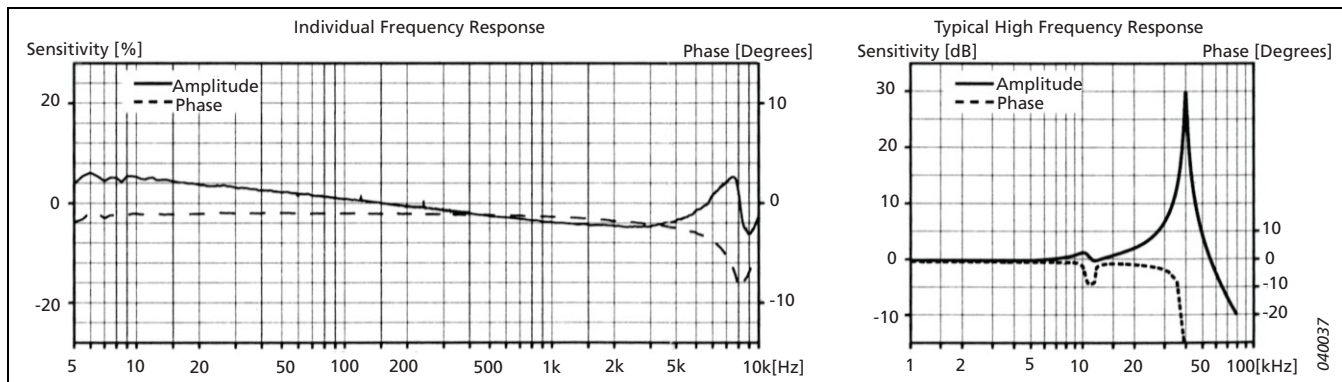
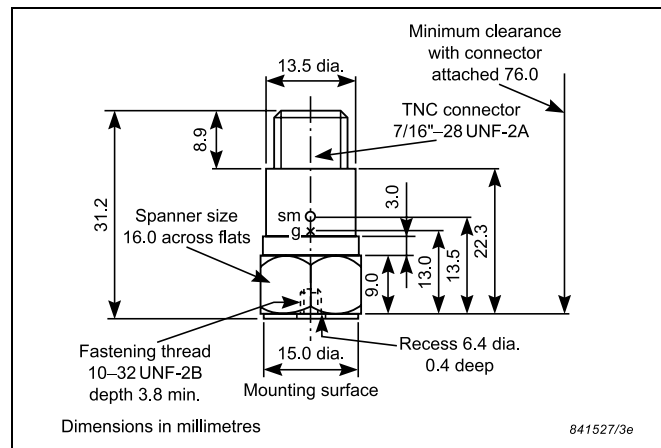
This piezoelectric accelerometer may be treated as a charge source. Its sensitivity is expressed in terms of charge per unit acceleration (pC/g).

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 4391, 4391 S and 4391 V

	Units	4391/4391 S	4391 V
Dynamic Characteristics			
Charge Sensitivity (@ 159.2 Hz)	pC/g	9.8 ± 2%	9.8 ± 15%
Frequency Response		See typical Amplitude Response	
Mounted Resonance Frequency	kHz	40	
Amplitude Response ±10% [1]	Hz	0.1 to 10000	
Transverse Sensitivity	%	<4	
Transverse Resonance Frequency	kHz	12	
Electrical Characteristics			
Min. Leakage Resistance @ 20°C	GΩ	≥ 20	
Capacitance	pF	1200	
Grounding		Electrically insulated for ground loop protection	
Environmental Characteristics			
Temperature Range	°C (°F)	-55 to 180 (-67 to 356)	
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	0.0005	
Thermal Transient Sensitivity	Equiv. g/°C (g/°F)	0.02 (0.011)	
Magnetic Sensitivity (50 Hz–0.03 Tesla)	g/T	0.4	
Physical Characteristics			
Dimensions		See outline drawing	
Weight	gram (oz.)	16 (0.56)	
Case Material		Titanium	
Connector		TNC	
Mounting		10–32 UNF × 3.8 mm threaded hole	

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

Ordering Information

Type 4391 includes the following accessories:

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

Type 4391 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 0844: Accessory box including:
 - AO 0231 Cable, 3 m, TNC to 10–32 UNF

- Cementing Stud, 10–32 UNF, single unit
- UA 0642 Mounting magnet, 10–32 UNF thread, single unit
- Steel stud 10–32 UNF × ½"
- Tools

Type 4391 V includes the following accessories:

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

OPTIONAL ACCESSORIES

- AO 0193: 180°C PTFE/PFA low-noise cable TNC, length: 1.2 m (4 ft) (Ø2.7 mm)
- AO 0231: 260°C Teflon® low-noise cable, 10–32 UNF/TNC, length 3 m (10 ft)

- AO 0268: 85°C spiralised cable low-noise, polyurethane jacket, TNC, length: 1.1 – 4 m (Ø12.5 mm)
- AO 1382: Teflon low noise cable, double screened 10–32, 1.2 m (4 ft)
- QA 0029: Tap for 10–32 UNF thread
- QA 0042: Hexagonal key for M3 studs
- UA 0559: Mechanical filter for Accelerometer
- UA 0866: Cement stud 10–32 UNF 0.14 mm (set of 25)
- UA 0642: Mounting magnet and 2 insulating discs
- YQ 2962: 0–32 UNF threaded steel stud. Length 7.62 mm
- YQ 2960: 0–32 UNF threaded steel stud. Length 12.7 mm

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

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