

# Ceramic Shear

Type 8202A..., 8203A...

## High Sensitivity, Charge Mode, Accelerometer

Designed for long-term, high temperature stability, the 8202A10 and 8203A50 accelerometers measure vibration in wide range of applications.

- High impedance, charge mode
- High temperature to 250°C
- Ceramic Shear sensing element
- Low transverse sensitivity
- Long-term stability at extended temperatures

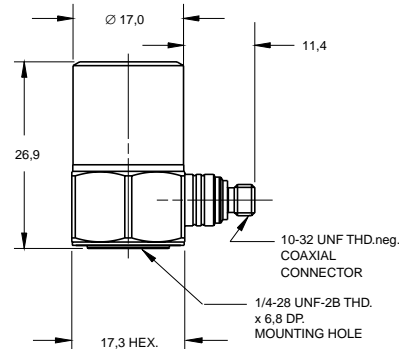
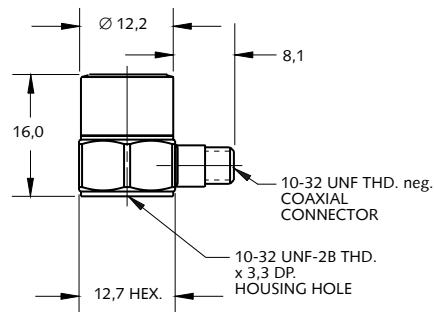
### Description

The 8202A10 and 8203A50 are high impedance, charge mode accelerometers designed for vibration measurements where temperature extremes may be experienced. A ceramic shear sensing element produces a significant charge output that can be easily converted into a useable analog voltage signal via a charge amplifier. Kistler's shear technology assures high immunity to base strain, thermal transients and transverse accelerations. A unique connector design features a ceramic insulator for long-term stability even at extended operating temperatures. Other outstanding features include high frequency response, light weight and hermetic sealing. It is recommended that low noise transducer cables be used between the accelerometer and the input of the charge amplifier or charge converter.

Internal of these hermetically sealed accelerometers, is a shear mode, ceramic sensing element, providing a significant charge output. Type 5050A(X) In-Line Charge Amplifier is recommended for use with the 8202A10 and 8203A50. The 5050A(X) is a lower cost alternative to the laboratory amplifier allowing the measurement system to take on the appearance of the traditional voltage mode accelerometer and power supply/coupler.

### Application

The 8202A10 and 8203A50 are ideal for automotive, aerospace and environmental testing where low impedance sensors are limited by temperature range. they can also be used in vehicle testing, ESS, and modal analysis applications.



### CE Compliant Information

Because high impedance, charge mode accelerometers contain no electronics, CE certification to the EMC Directive is not appropriate. When a high impedance accelerometer is used with a CE certified signal conditioner (i.e., charge amplifier....), it is said that this system is CE compliant.

**Technical Data**

Type	Units	8202A10	8203A50
Acceleration Range	g	±2000	±1000
Threshold nom.	g <sub>rms</sub>	0,03	0,0006
Sensitivity ±15%	pC/g	-10	-50
Resonant Frequency mounted, nom.	kHz	45	24
Frequency Response ±5%	Hz	5 ... 10000	5 ... 4000
Amplitude Non-linearity	%FSO	±1	±1
Insulation Resistance @	23 °C	≥1 x 10 <sup>8</sup>	≥1 x 10 <sup>8</sup>
	250 °C	≥1 x 10 <sup>8</sup>	≥1 x 10 <sup>8</sup>
Capacitance	pF	500	1400
Transverse Sensitivity typ., (max. 5%)	%	1,5	1,5
Long Term Stability	%	±1	±1
Environmental:			
Base Strain Sensitivity @ 250 µε	g/µε	0,005	0,003
Shock Limit (1ms pulse)	g <sub>pk</sub>	5000	5000
Temperature Coefficient of Sensitivity	%/°C	0,13	0,13
Temperature Range Operating	°C	-70 ... 250	-70 ... 250
Construction:			
Sensing Element	type	ceramic/shear	ceramic/shear
Housing/Base	material	stainless steel	stainless steel
Sealing - housing/connector	type	hermetic	hermetic
Connector	type	ceramic, 10-32 neg.	ceramic, 10-32 neg.
Weight	grams	14,5	44,5
Mounting Torque	Nm	2	2

1 g = 9,80665 m/s<sup>2</sup>, 1 inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,1129 Nm

**Mounting**

Reliable and accurate measurements require that the mounting surface be clean and flat. The accelerometers can be attached to the structure utilizing the supplied 1-28 stud. The Operating Instruction Manual for the 8202A10 and 8203A50 provides detailed information regarding mounting surface preparation.

**Supplied Accessories - 8202A10**

8402 10-32 thd. mounting stud  
8411 mounting stud 10-32 to M6, shipped only outside N.A.

**Optional Accessories - 8202A10**

8452A mounting magnet  
8502 triaxial mounting cube

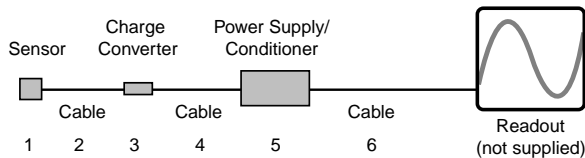
**Supplied Accessories - 8203A50**

8410 1/4-28 to 10-32 thd. mounting stud  
8412 1/4-28 to 1/4-28 thd. mounting stud  
8411 mounting stud 10-32 to M6, shipped only outside N.A.

**Optional Accessories - 8203A50**

8421 1/4-28 to M8 thd. mounting stud  
8506 triaxial mounting cable  
8456 magnetic mounting base

**Ordering Information**



sp = specify cable length in meters

- 1 - 8202A10 ceramic shear accelerometer
- 8203A50 ceramic shear accelerometer
- 2 - 1635Csp premium low noise cable, or
- 1635Asp low noise cable
- 3 - 5050 series charge converter
- 4 - 1511sp output cable, BNC pos. to BNC pos.
- 5 - 5100 coupler series or dual mode amplifier or
- 5010 dual mode charge amplifier
- 6 - 1511sp output cable, BNC pos. to BNC pos.

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