

# Ceramic Shear Accelerometer

Typ 8784A5, 8786A5

## High Sensitivity, General Purpose, Voltage Mode Accelerometers

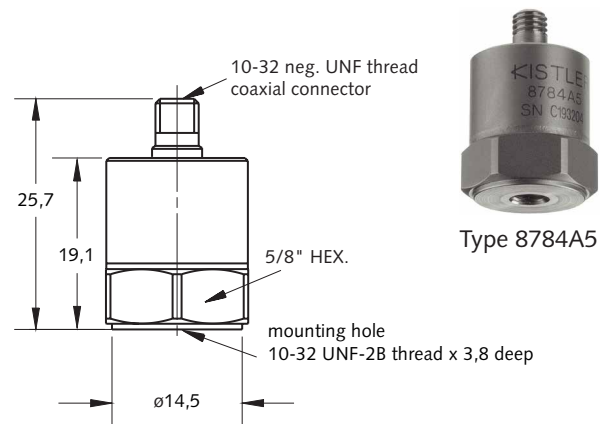
Top and side connector multipurpose accelerometer for low level vibration measurements in wide range of applications. Rugged hermetically sealed titanium housing accelerometers designed specifically for OEM applications.

- Low impedance, voltage mode
- Ceramic shear sensing element
- High sensitivity; resolution less than 1 mg
- Low transverse sensitivity
- Rugged connector for repeated connections
- Priced for OEM
- Conforming to CE

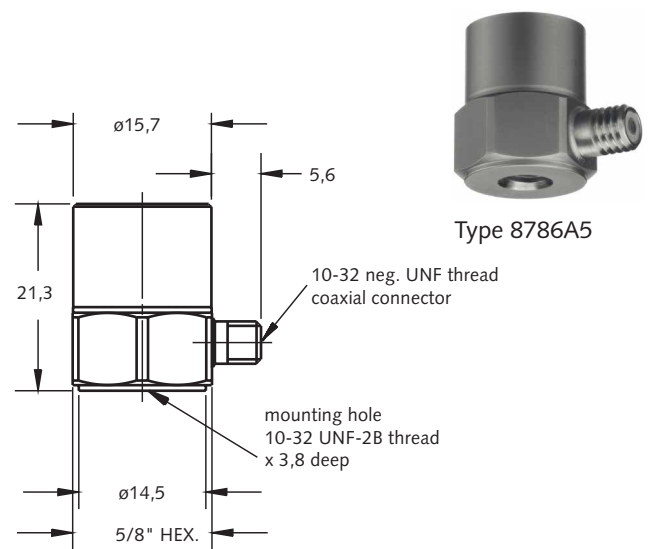
### Description

The Type 8784A5 (top connector) and 8786A5 (side connector) are low impedance, voltage mode accelerometers designed for vibration measurements in single to multichannel applications. The ceramic sensing element components have been designed to provide the level of performance most often required in general purpose vibration measurements. Kistler's shear technology assures high immunity to base strain, thermal transients and transverse accelerations. Other outstanding features include high frequency response, light weight and hermetic sealing. The unique connector design is rugged and maintains excellent integrity with repeated connections.

An internal microelectronic Piezotron® signal conditioning circuit converts the charge developed in the ceramic element as a result of the accelerometer being subjected to a vibration, into a useable high level voltage output signal at a low impedance level. This output allows for the use of inexpensive coaxial cable, while providing high noise immunity and insensitivity to cable motion. Power to the accelerometers Type 8784A5 and 8786A5 can be provided by any Kistler Type 5100 series coupler or by any industry standard voltage mode IEPE (Integral Electronic Piezo-Electric) power supply/coupler.



Type 8784A5



Type 8786A5

### Application

Types 8784A5... and 8786A5... are multipurpose accelerometers, useful for many applications including laboratory or industrial environment. These accelerometers provide less than one milligramme resolution suitable for use in low level measurement applications. The wide bandwidth and rugged construction is ideal for impact and vibration related applications including condition monitoring and vehicle testing. These sensors offer excellent performance and cost advantages for demanding OEM applications.

8784A\_000-257e-10.14

## Technical Data

Specification	Unit	Type 8784A5/86A5
Acceleration range	g	±5
Acceleration limit	gpk	±500
Threshold, nom.	grms	0,0004
Sensitivity, ±10 %	mV/g	1 000
Resonant frequency mounted, nom.	kHz	27
Frequency response, ±5 %	Hz	1 ... 6 000
Amplitude non-linearity	%FSO	±1
Time constant, nom.	s	≥0,5
Transverse sensitivity, nom. (max. 5)	%	1,5

## Environmental

Base strain sensitivity @ 250 µε	g/µε	0,005
Shock limit (1 ms pulse)	gpk	2 500
Temperature coefficient of sensitivity	%/°C	-0,05
Operating temperature range	°C	-55 ... 80

## Output

Bias, nom.	VDC	11
Impedance	Ω	≤500
Voltage full scale	V	±5

## Source

Voltage	VDC	18 ... 30
Constant current	mA	2 ... 20

## Construction

Sensing element	Type	ceramic-shear
Case/base	material	titanium
Degree of protection case/connector (EN 60529)		IP68
Connector	Type	10-32 neg.
Ground isolated		with pad
Mass	grams	21
Mounting (10-32 thd.x3,8)	Type	stud
Mounting torque	N·m	2

1 g = 9,80665 m/s<sup>2</sup>, 1 Inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,113 N·m

## Mounting

A threaded 10-32 UNF stud provides positive attachment of the accelerometer to the test structure. Reliable and accurate measurements require that the mounting surface be clean and flat. The instruction manual for the Types 8784A5... and 8786A5... provides detailed information regarding mounting surface preparation.

## Included Accessories

• Mounting stud (10-32 thd.)	Type 8402
• Mounting stud, 10-32 to M6	8411

## Optional Accessories

• Mounting stud (10-32 to 1/4-28 thd.)	Type 8410
• Adhesive mounting pad	8436
• Mounting magnet	8452A

## Ordering Key

### Range

±5 g, top connector	4A5
±5 g, side connector	6A5

Type 878

## Measuring Chain

1 Low impedance sensor	Type 87...
2 Sensor cable, 10-32 pos. to BNC pos.	1761B...
3 Power supply/signal conditioner	51...
4 Output cable, BNC pos. to BNC pos.	1511

