

# Ceramic Shear Accelerometer

Type 8774A50, 8776A...

## Light Weight, Voltage Mode, Accelerometer

Small envelop size and light weight, the Type 8774A... and 8776A... are general purpose vibration measuring accelerometers designed for OEM applications. Containing identical sensing elements, the five models in this family of accelerometers differ in mounting attachment (adhesive or stud), envelope configuration (side or top connector) and frequency response.

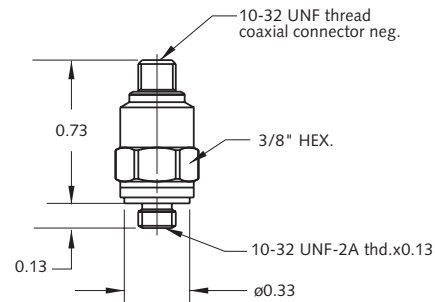
- Low impedance voltage mode
- High sensitivity, high resolution, low transverse sensitivity
- Rugged connector for repeated connections
- Priced for OEM or low cost/channel applications
- Conforming to CE

### Description

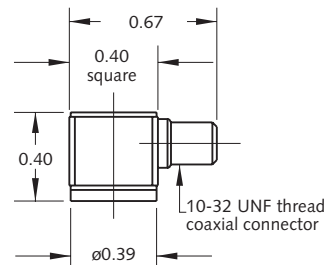
The Type 8774A... and 8776A... are low impedance, voltage mode accelerometers designed for vibration measurement in single or multichannel applications. The unique connector design is rugged and maintains excellent integrity with repeated connections. The ceramic sensing element components are carefully 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, lightweight and hermetic sealing. A low impedance, voltage output is provided by the internal electronic impedance converter. This output allows for the use of an inexpensive coaxial cable, while providing high noise immunity and insensitivity to cable motion. Power this accelerometer with one of Kistler's couplers, signal conditioners or from any voltage mode piezoelectric sensor supply.

### Application

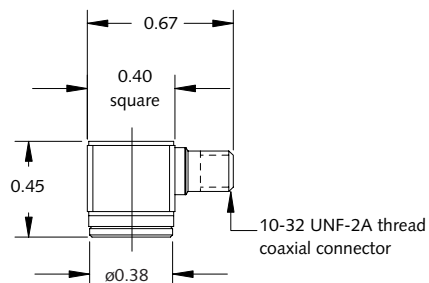
Types 8774A... and 8776A... are multipurpose accelerometers, useful for many applications. These accelerometers provide 2,5 mg threshold suitable for use in low level measurement applications. The wide bandwidth and rugged construction are ideal for impact and vibration related applications including condition monitoring and vehicle testing.



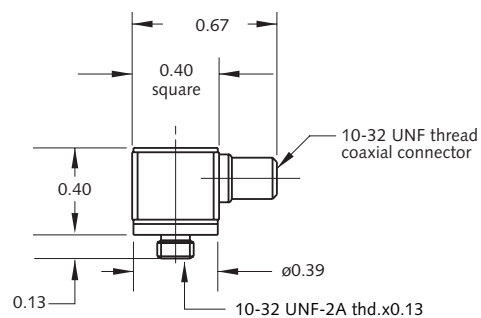
Type 8774A50



Type 8776A50



Type 8776A50M1  
Type 8776A50M3



Type 8776A50M6

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## Technical Data

Specification	Unit	Type 8774A50	Type 8776A50
Acceleration range	g	±50	±50
Acceleration limit	gpk	±500	±500
Threshold, nom. (noise 300 $\mu$ Vrms)	grms	0.003	0.003
Sensitivity, $\pm 15$ %	mV/g	100	100
Resonant frequency mounted, nom.	kHz	44	40 (M3: 38)
Frequency response, $\pm 5$ %	Hz	1 ... 10000	1 ... 7000
Type 8776A...M3	Hz	–	0.5 ... 4000
Type 8776A...M6	Hz	–	1 ... 10000
Phase shift, $< 5^\circ$	Hz	4 ... 2000	4 ... 2000
Amplitude non-linearity	%FSO	0.5	±1
Time constant, nom.	s	$\geq 0,5$	$\geq 0,5$
Type 8776A...M3	s	–	$\geq 1$
Transverse sensitivity, nom. (max. 5)	%	1.5	1.5
Type 8776A...M3	%	–	3

## Environmental

Base strain sensitivity @ 250 $\mu\epsilon$	g/ $\mu\epsilon$	0.002	0.0005
Type 8776A...M3	g/ $\mu\epsilon$	–	0.001
Type 8776A...M6	g/ $\mu\epsilon$	–	0.002
Shock limit (1 ms pulse)	gpk	5000	5000
Temperature coefficient of sensitivity	%/ $^\circ$ F	–0.07	–0.07
Operating temperature range	$^\circ$ F	–65 ... 250	–65 ... 250

## Output

Bias, nom.	VDC	11	11
Impedance	$\Omega$	$\leq 100$	$\leq 100$
Voltage full scale	V	±5	±5
Current	mA	2	2

## Source

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

## Construction

Sensing element	Type	ceramic-shear	ceramic-shear
Housing/base	material	titanium	titanium
Degree of protection case/connector	Type	epoxy	epoxy
Connector	Type	10-32 neg.	10-32 neg.
Ground isolated		with pad	no (M3: yes)
Mass	g	4	4 (M3: 4,3/M6: 4,5)
Mounting Type	Type	–	adhesive/wax
Type 8774A50, 8776A50M6 (10-32 thd.x3,3 dp)	Type	stud	stud
Mounting torque (Type 8774A50, 8776A50M6)	lbf-in	18	18

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

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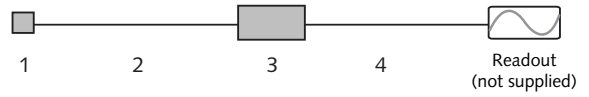
### Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensors can be attached to the structure utilizing the integral stud, wax or adhesive.

The instruction manual for the Type 8774A... and 8776A... provides detailed information regarding mounting surface preparation and proper application of adhesive.

### Measuring Chain

- |   |                                      |      |            |
|---|--------------------------------------|------|------------|
| 1 | Low impedance sensor                 | Type | 8774/6A... |
| 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       |



### Included Accessories

- |                |      |      |
|----------------|------|------|
| • Mounting wax | Type | 8432 |
|----------------|------|------|

### Optional Accessories

- |  |      |      |
|--|------|------|
| • Adhesive mounting pad                    | Type | 8436 |
| • Mounting magnet                          |      | 8452 |
| • Mounting cube for Type 8774A...          |      | 8524 |
| • Cube for adhesive mounting Type 8776A... |      | 8526 |

### Ordering Key

		Type 8774A <input type="checkbox"/>
<b>Range</b>		
±50 g	50	↑

### Ordering Key

		Type 8776A <input type="checkbox"/> <input type="checkbox"/>	
<b>Range</b>			
±50 g	50	↑	↑
<b>Variants</b>			
Standard	-		
Ground isolated	M1		
Ground isolated/long time constant	M3		
Integral stud	M6		

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