

Ceramic shear accelerometer

Lightweight, multi-purpose, 50 ... 500 g ranges

Types 8774B...,
8776B...

Small, envelope size and lightweight, Types 8774B... and 8776B... are general purpose vibration measuring accelerometers. Containing identical sensing elements, the different models in this family of accelerometers differ in mounting attachment (adhesive or stud), envelope configuration (side or top connector, as well as waterproof integral cable options) and g ranges.

- High frequency response, high resolution, low transverse sensitivity
- Low noise
- Ground isolated adhesive mount option
- Waterproof IP68 integral cable option (up to 16 bar)
- Conforming to CEC

Description

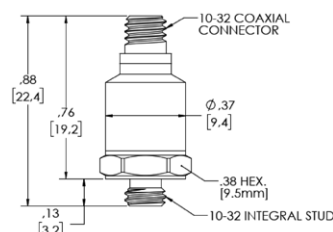
Types 8774B... and 8776B... are low impedance, voltage mode accelerometers designed for vibration measurement in single or multi-channel applications. The unique connector design is rugged and maintains excellent integrity with repeated connections. The ceramic sensing element components are carefully 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 a waterproof vibration testing up to 16 bars option. 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

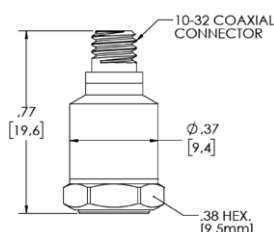
Types 8774B... and 8776B... are multi-purpose accelerometers, useful for many applications. These accelerometers provide down to 0.4 mg threshold and are suitable for use in low level measurement applications. The wide bandwidth and rugged construction are ideal for various applications, such as operational modal analysis, condition monitoring, or vehicle testing.



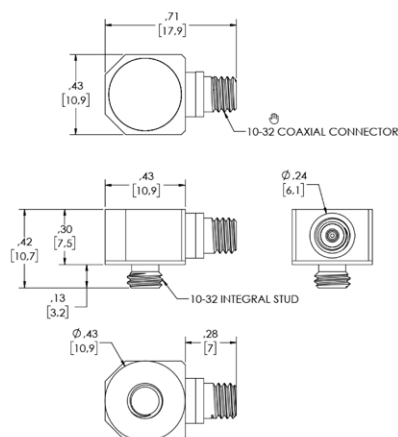
Type 8774B...SSP: integral cable IP68



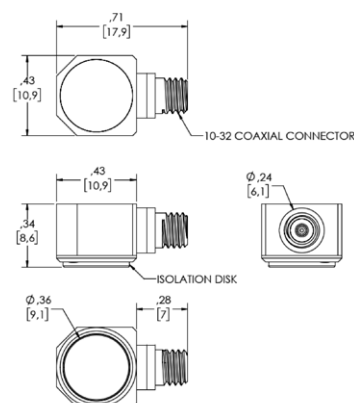
Type 8774B...S:
top connector and
stud mount



Type 8774B...A:
top connector and
adhesive mount



Type 8776B...S:
side connector and
stud mount



Type 8776B...A:
side connector and
adhesive mount



Dimensions are shown in in. [mm], unless otherwise noted

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Technical data: Type 8774B...

Type number	Unit	8774B050...	8774B100...	8774B250...	8774B500...
Dynamic					
Acceleration range	g	±50	±100	±250	±500
Frequency response, ±5% – S Versions (int. stud)	Hz	0.5 ... 10,000		1 ... 10,000	
Frequency response, ±5% – A Versions (adhesive)	Hz	0.5 ... 8,000		1 ... 8,000	
Frequency response, ±10% – S Versions (int. stud)	Hz	0.3 ... 18,000		0.7 ... 20,000	
Frequency response, ±10% – A Versions (adhesive)	Hz	0.3 ... 12,000		0.7 ... 12,000	
Sensitivity @ 100 Hz, 10 g _{rms}	mV/g	100±15%	50±15%	20±15%	10±15%
Resonant frequency, nom.	kHz	50		70	
Transverse sensitivity, typ. (max.)	%	2 (5)			
Amplitude linearity	%FSO	±1			
Electrical					
Output – Bias, nom.	VDC	13			
– Impedance	Ω	<200			
– Current	mA	2			
– Voltage, F.S., nom.	V	±5			
Threshold (1 Hz ...10 kHz), nom.	g _{rms}	0.00021	0.00025	0.00095	0.0012
Time constant	s	0.8 ... 2.0		0.4 ... 1.5	
Supply – Current, nom.	mA	2 ... 18			
Source – Voltage	VDC	22 ... 30			
Ground isolation	yes/no	yes (A – Adhesive); with accessory (S – Stud)			
Environmental					
Acceleration limit	g	±100	±200	±500	±1,000
Shock (1 ms pulse width), max.	g	5,000			
Operating temperature range	°C [°F]	-54 ... 100 [-65 ... 212]		-54 ... 110 [-65 ... 230]	-54 ... 120 [-65 ... 248]
Base strain sensitivity @250 µε	g	0.002			
Physical					
Weight, 8774B...	grams	3.2 (S – Int.Stud); 3 (A – Adhesive)		2.9 (S – Int.Stud); 2.7 (A – Adhesive)	
Weight, 8774B...SP (without cable)	grams	3.2 (S – Int.Stud); 2.9 (A – Adhesive)		2.9 (S – Int.Stud); 2.7 (A – Adhesive)	
Sensing element	material	Ceramic Shear			
Case material		Titanium			
Sealing	type	Hermetic (Type 8774B...SP option: IP68 (waterproof) tested at 16 bar for 48 hours)			
Mounting torque (Types 8774B...S)	N·m (lbf-in)	2±0.2 (18±2)			
Connector	type	For connector versions: 10–32 neg; For int. cable versions: 10–32 pos.			

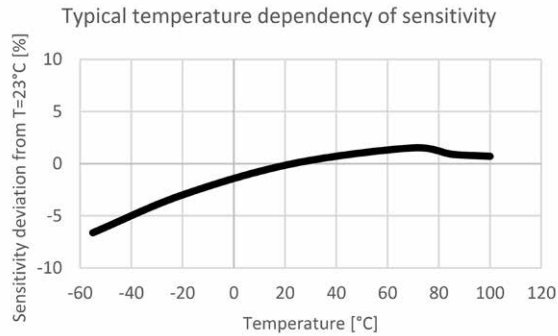
1 g = 9.80665 m/s², 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

Technical data: Type 8776B...

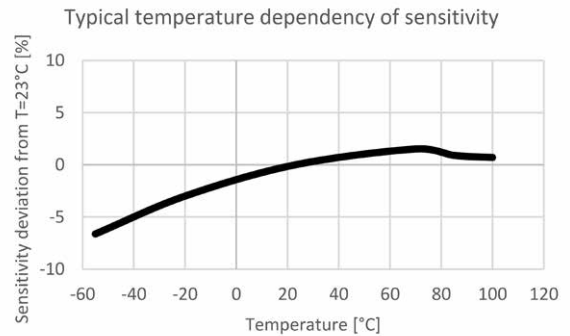
Type number	Unit	8776B050...	8776B100...	8776B250...	8776B500...
Dynamic					
Acceleration range	g	±50	±100	±250	±500
Frequency response, ±5% – S Versions (int. stud)	Hz	0.5 ... 10,000		1 ... 10,000	
Frequency response, ±5% – A Versions (adhesive)	Hz	0.5 ... 8,000		1 ... 8,000	
Frequency response, ±10% – S Versions (int. stud)	Hz	0.3 ... 18,000		0.7 ... 20,000	
Frequency response, ±10% – A Versions (adhesive)	Hz	0.3 ... 15,000		0.7 ... 15,000	
Sensitivity @ 100 Hz, 10 g _{rms}	mV/g	100±15%	50±15%	20±15%	10±15%
Resonant frequency, nom.	kHz	50		70	
Transverse sensitivity, typ. (max.)	%	2 (5)			
Amplitude linearity	%FSO	±1			
Electrical					
Output – Bias, nom.	VDC	13			
– Impedance	Ω	<200			
– Current	mA	2			
– Voltage, F.S., nom.	V	±5			
Threshold (1 Hz ...10 kHz), nom.	g _{rms}	0.00021	0.00025	0.00095	0.0012
Time constant	s	≥0.8		≥0.4	
Supply – Current, nom.	mA	2 ... 18			
Source – Voltage	VDC	22 ... 30			
Ground isolation	yes/no	yes (A – Adhesive); with accessory (S – Stud)			
Environmental					
Acceleration limit	g	±100	±200	±500	±1,000
Shock (1 ms pulse width), max.	g	5,000			
Operating temperature range	°C [°F]	-54 ... 100 [-65 ... 212]		-54 ... 110 [-65 ... 230]	-54 ... 120 [-65 ... 248]
Base strain sensitivity @250 µε	g	0.005			
Physical					
Weight, 8776B...	grams	3.3		3	
Weight, 8776B...SP (without cable)	grams	3.3 (S – Int.Stud); 2.9 (A – Adhesive)		3.2 (S – Int.Stud); 2.9 (A – Adhesive)	
Sensing element	material	Ceramic Shear			
Case material		Titanium			
Sealing	type	Hermetic (Type 8776B...SP option: IP68 (waterproof) tested at 16 bar for 48 hours)			
Mounting torque (Types 8776B...S)	N·m (lbf-in)	2±0.2 (18±2)			
Connector	type	For connector versions: 10–32 neg; For int. cable versions: 10–32 pos.			

1 g = 9.80665 m/s², 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

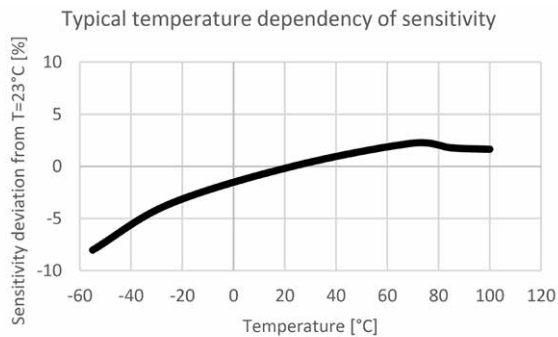
Type 8774B050...



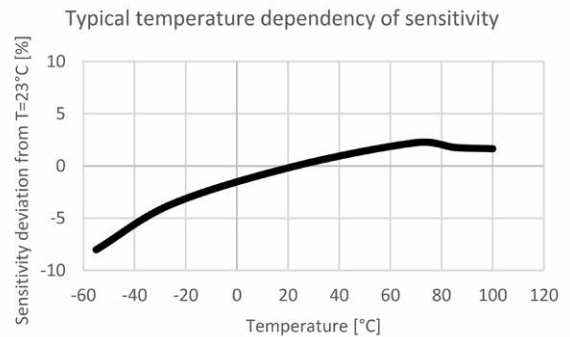
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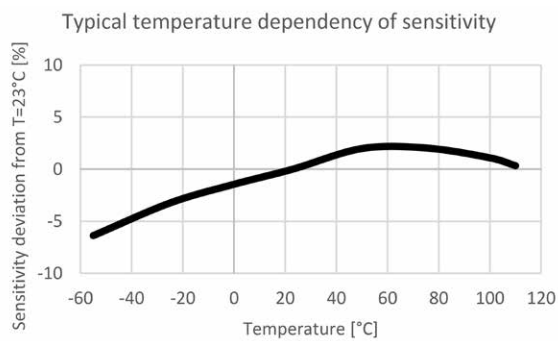
Type 8774B100...



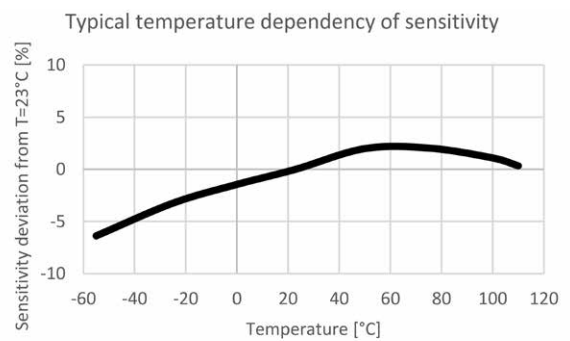
Type 8776B100...



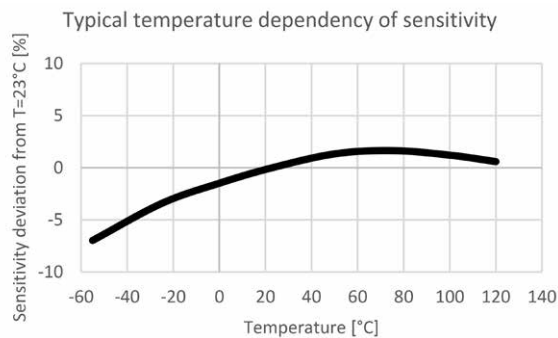
Type 8774B250...



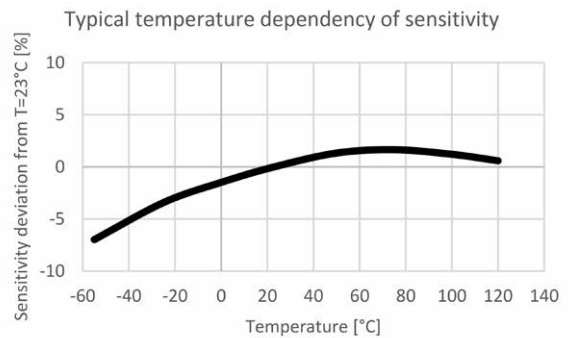
Type 8776B250...



Type 8774B500...



Type 8776B500...



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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 (S option), wax or adhesive (A option). When removing adhesive mount versions of Types 8774B... or 8776B..., make sure that the adhesive strength does not exceed 600 psi; this value can be lowered for most adhesives by increasing temperature or using a solvent. The instruction manual for Types 8774B... and 8776B... provides detailed information regarding mounting surface preparation and proper application of adhesive.

Included accessories

- Mounting wax (with A - Adhesive variants only)
- ISO 17025 Calibration Certificate
- IP68 Waterproof Test Certificate of Conformity (only for Type 877XB...SP options)

Type

8432

Optional accessories

- Adhesive mounting pad
- Mounting magnet
- Mounting cube for Type 8774B...
- Cube for adhesive mounting for Type 8776B...
- 10-32 Neg. to BNC Pos. connection adaptor

Type

8436

8452A

8524

8526

1721

Ordering key

Connector

Top	4
Side	6

Acceleration range

50 g	050
100 g	100
250 g	250
500 g	500

Mounting

Adhesive	A
Integral stud	S

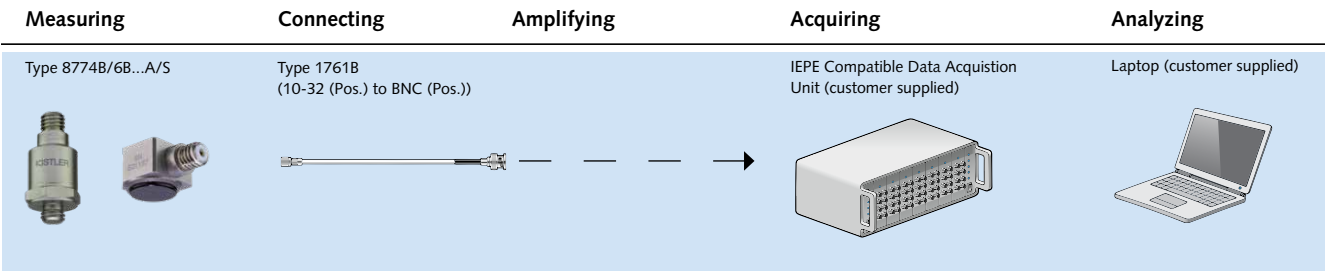
Cable

Connector	—
Customer specified (for waterproof IP68 integral cable – maximum 20 meter length)	SP

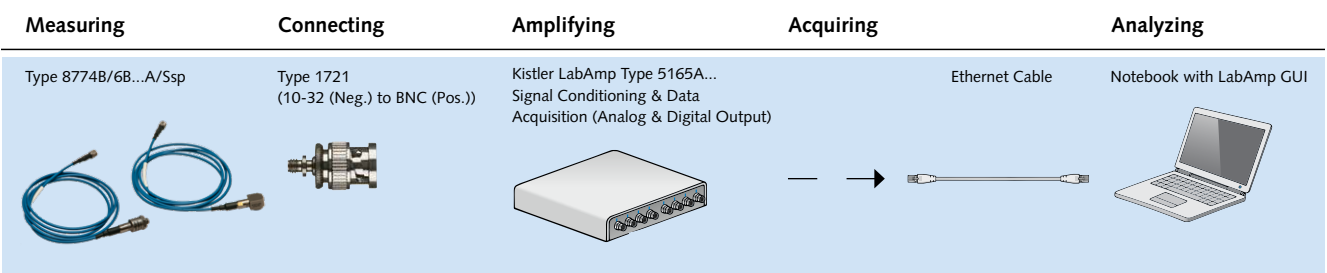
Type 877 B

Measuring Chains

IEPE Sensor and Customer IEPE Compatible DAQ



IEPE Sensor and Kistler LabAmp



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