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Ceramic Shear Triaxial Accelerometer

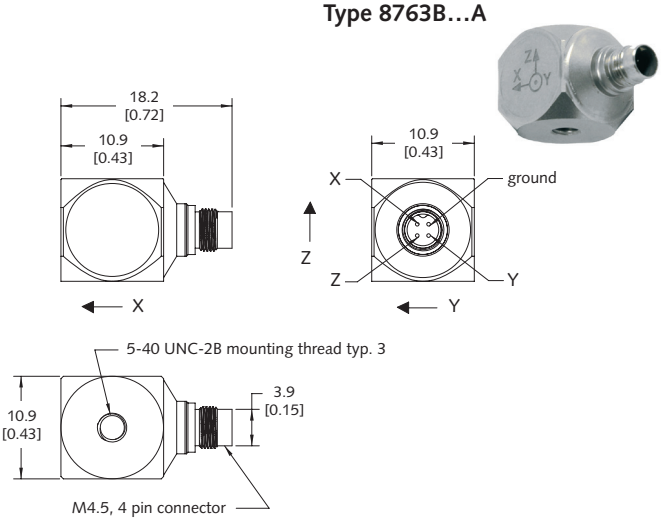
Type 8763B...

Miniature IEPE Triaxial Accelerometer, with TEDS Option

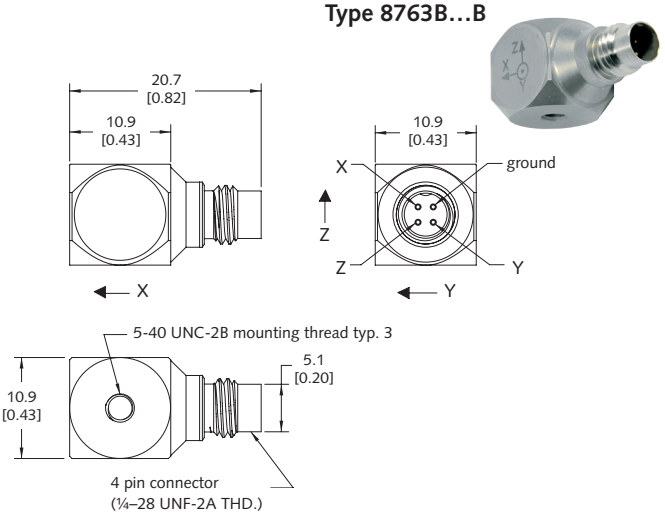
The Type 8763B… triaxial accelerometer measures vibration in three orthogonal axes. This 10.9 mm [0.43 in] cube accelerometer has a ±50, 100, 250, 500, 1,000 and 2,000 g measuring range with a low mass.

- Miniature, low mass cube
- Qty: 3, 5–40 threaded holes for mounting ease
- M4.5 and ¼–28, 4 pin connector options
- Hermetic, titanium construction
- Low base strain sensitivity
- Voltage output
- Ceramic shear sensing element
- TEDS option
- Water resistant IP68 (up to 10 bars) option available
- Conforming to CE

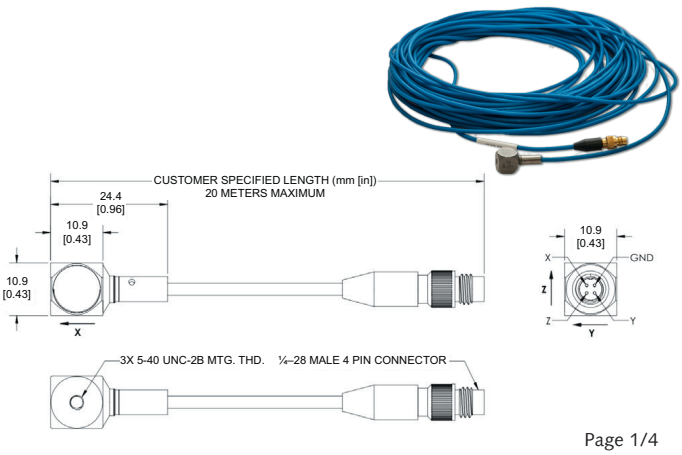
Type 8763B…A



Type 8763B…B



Type 8763BxCBsp



Description

Type 8763B… is an IEPE (Integrated Electronics Piezoelectric) triaxial accelerometer permitting vibration measurements in three mutually perpendicular axes: x, y and z.

Type 8763B… uses Kistler shear element technology, assuring high immunity to base strain. The welded titanium construction provides a lightweight hermetic housing. The miniature 4 pin ceramic insulated connector provides long-term stability over the operating temperature range. An integral silicone cable variant is available for application of underwater vibration testing at up to 10 bars [150 psi]. In addition to adhesive mounting, Type 8763B… has three 5–40 threaded holes for flexible stud mounting on a test object, fully utilizing each mounting side of the cube design. Additionally, three threaded holes provide reliable mounting for calibration of each orthogonal axis. See PiezoStar® triaxial Type 8766A… for high temperature 165 °C [+330 °F] and other frequency response options.

Application

Type 8763B… provides wide frequency response in each axis, ideal for dynamic vibration measurements. It is well-suited for lightweight structures. Kistler Type 1784B…K03 is a M4.5, 4 pin to 3x BNC breakout cable. In addition, the Kistler M4.5, 4 pin sensor connector can be adapted for use with traditional ¼–28, 4 pin compatible cables, using the Kistler Type 1784AK02 extension cable. Other ¼–28, 4 pin breakout cables include: Type 1756C...K03/K04 and flexible Type 1734A…K03 cables.

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This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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Technical Data

Type	Unit	8763B050...	8763B100...	8763B250...	8763B500...	8763B1K0...	8763B2K0...
Acceleration range	g	±50	±100	±250	±500	±1,000	±2,000
Acceleration limit	g	±100	±200	±500	±1,000	±2,000	±2,000
Threshold (1 Hz ... 10 kHz), nom.	g_{rms}	<0.0004	<0.0006	<0.0015	<0.0025	<0.0035	<0.0045
Sensitivity, at 100 Hz, 10 g_{rms}	mV/g	100±15 %	50±15 %	20±15 %	10±15 %	5±15 %	2.5±15 %
Resonant frequency, nom.	kHz	35	35	55	55	55	55
Frequency response, ±5 % ±10 %	Hz	0.5 … 7,000 0.3 … 10,000	0.5 … 7,000 0.3 … 10,000	1 … 10,000 0.7 … 15,000	1 … 10,000 0.7 … 15,000	1 … 10,000 0.7 … 15,000	1 … 10,000 0.7 … 15,000
Amplitude linearity	%FSO	±1					
Transverse sensitivity, max. 5 %	%	2.5					
Environmental							
Base strain sensitivity @250 με	g/με	0.002	0.002	0.005	0.005	0.005	0.005
Shock (1 ms pulse width), max.	g	5,000					
Vibration, max.	g	200	400	1,000	2,000	2,000	2,000
Operating temperature range	°C [°F]	–54 ... 100 [–65 … 210]	–54 ... 100 [–65 … 210]	–54 ... 120 [–65 … 250]			
Time constant	s	≥0.8	≥0.8	≥0.4	≥0.4	≥0.4	≥0.4
Temp. coeff. of sensitivity, –54 ... 24 °C [–65 … 75 °F] 23 ... 100 °C [75 … 210 °F]	%/°C [%/°F]	0.18 [0.10] 0.01 [0.006]	0.18 [0.10] 0.01 [0.006]	0.18 [0.10] –0.04 [–0.02]	0.18 [0.10] –0.04 [–0.02]	0.18 [0.10] 0.02 [0.01]	0.18 [0.10] 0.02 [0.01]
Output							
Bias, nom.	VDC	13					
Impedance	Ω	<100					
Current	mA	2					
Voltage, F.S., nom.	V	±5					
Supply							
Current, nom.	mA	2 … 18					
Voltage	VDC	22 … 30					
Construction							
Weight Type 8763BxAx	grams	4.5	4.5	3.6	3.6	3.6	3.6
Type 8763BxBx	grams	5.0	5.0	4.1	4.1		
Case material		Titanium					
Sealing-housing/connector	seal	Hermetic					
Sealing - Type 8763B...CBsp integral cable option	type	IP68 - tested for 16 bars during 48 hours					
Mounting torque	N·m [lbf/in]	0.7±0.07 [6.2±0.7]					
Connector Type 8763BxAx Type 8763BxBx Type 8763BxCBsp	type	M4.5, 4 pin ¼–28, 4 pin integral cable terminated with 4 pin (¼–28)					

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

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Accessing TEDS Data

Accelerometers with a "T" suffix are variants of the standard version incorporating the 'Smart Sensor' design. Viewing an accelerometer's data sheet requires a TEDS compatible data acquisition system. Their Interface provides negative current excitation (reverse polarity) altering the operating mode of the PiezoSmart® sensor, allowing the program editor software to read or add information contained in the memory chip.

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure with wax or adhesive or using the supplied adaptor stud. The instruction manual for Type 8763B… provides detailed information regarding mounting surface preparation.

Accessories Included	Type
• Mounting stud, 5-40 to 10-32	8416
• Mounting wax (except for integral cable sensors)	8432
• Mounting stud, 5-40 to M6	8418

Optional Cables**	Type
• Fluoropolymer jacketed breakout cable, ¼–28, 4 pin (neg.) to 3x BNC (pos.); (xx = length: 3, 5, 10 meters)	1756CxxK04
• Fluoropolymer jacketed breakout cable, M4.5 4 pin (neg.) to 3x BNC (pos.); (xx = length: 1, 3, 5 & 10 meters)	1784BxxK03
• Fluoropolymer jacketed cable, M4.5, 4 pin (neg.) to ¼–28, 4 pin (pos.); (length = 0.5 and sp meters)	1784AK02
• Flexible silicone jacketed breakout cable, ¼–28, 4 pin (neg.) to 3x BNC (pos.); (xx = length: 1, 3, 5, 10 meters)	1734AxxK03/K04

Optional Accessories	Type
• 5-40 stud to 10-32 stud, ground isolated mounting base	8400K06
• 5-40 stud to M6 stud, ground isolated mounting base	8400K04
• 5-40 stud, ground isolated adhesive mounting base	8440K01
• 5-40 to M6 stud	8418
• 5-40 stud to 5-40 Hex	8420
• Adhesive, ground isolated mounting base, 5-40 threaded hole	8434
• Magnetic mounting base, 5-40 threaded hole	8450A

** Special lengths available; please contact Kistler

Ordering Key

Type 8763B… □ □ □ □

Measuring Range

±50 g	**050**
±100 g	**100**
±250 g	**250**
±500 g	**500**
±1,000 g	**1K0**
±2,000 g	**2K0**

Connector

M4.5, 4 pin (pos.)	**A**
Standard, ¼–28, 4 pin (pos.) [only in 50, 100, 250 & 500 g ranges]	**B**
Waterproof IP68	**C**

Variants/TEDS Templates

Base model (without TEDS)	**B**
Default, IEEE 1451.4 V0.9 Template 0 (UTID 1)*	**T**
IEEE 1451.4 V0.9 Template 24 (UTID 116225)*	**T01**
LMS Template 117, Free format Point ID*	**T02**
LMS Template 118, Automotive Format (Field 14 Geometry = 0)*	**T03**
LMS Template 118, Aerospace Format (Field 14 Geometry =1)*	**T04**
P1451.4 V1.0 template 25 - Transfer Function Disabled*	**T05**
P1451.4 V1.0 template 25 - Transfer Function Enabled*	**T06**

* With A & B connectors type only as a standard. For any combination of both TEDS and Waterproof capabilities, please contact Kistler.

Cable Length

To be specified upon order (for integral cable waterproof Type 8763BxCB only) – Max. = 20 m	**SP**
No integral cable (A & B connector options)	—

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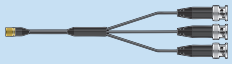
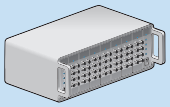
Measuring Chains

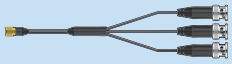
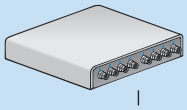
IEPE Sensor and Customer IEPE Compatible DAQ

Measuring	Connecting	Amplifying	Acquiring	Analyzing
Types 8763B...	Types 1734A..., 1756C..., 1784B...K03 (4 pin neg. to 3x BNC pos.)		IEPE Compatible Data Acquisition Unit (customer supplied)	Laptop (customer supplied)


IEPE Sensor and Kistler LabAmp

Measuring	Connecting	Amplifying	Acquiring	Analyzing
Types 8763B...	Types 1734A..., 1756C..., 1784B...K03 (4 pin neg. to 3x BNC pos.)	Type 5165A... Conditioning and Data Acquisition	Ethernet Cable Type 1511 Analog Output ±10 V	Notebook with LabAmp GUI

Note: Type 1784B…K03 is used for Type 8763B…A…;
Type 1756C… and Type 1734A… are used for
Type 8763B…B… and Type 8763B...CBsp

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