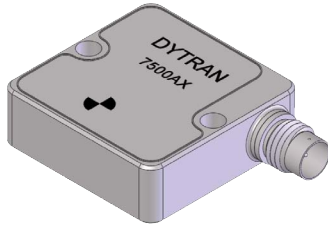


# Sensors and Systems for Static and Dynamic Acceleration Measurements

- Airbag testing
- Crash testing
- Flight testing
- Flutter testing
- Ride quality
- Robotics
- Seismic monitoring
- Tilt measurement



**7500A Series**



## High Precision DC MEMS Accelerometers

**Features:**

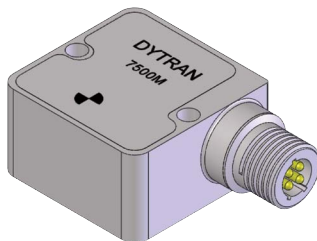
- Single axis
- MEMS technology
- Ultra low noise
- Differential output
- Operates from +9 to +32 VDC
- Low profile
- Mounting via two #4 or M3 screws
- 1/4-28 radial connector
- Hermetically sealed

**Applications:**

- Airbag testing
- Crash testing
- Robotics
- Seismic monitoring
- Tilt measurement

Specifications	Units	7500A1	7500A2	7500A3	7500A4	7500A5	7500A6	7500A7
Weight	oz (gm)	0.46 (13)						
Housing		titanium						
Sensitivity	mV/g (mV/m/s <sup>2</sup> )	1,000 (100)	400 (40)	200 (20)	80 (8)	40 (4)	20 (2)	10 (1)
Range	g (m/s <sup>2</sup> )	2 (20)	5 (49)	10 (98)	25 (245)	50 (590)	100 (981)	200 (1,961)
Frequency Response, 3dB	Hz	0-400	0-600	0-1,000	0-1,500	0-2,000	0-2,500	0-2,500
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	8 (78)	9 (88)	10 (98)	25 (245)	50 (590)	100 (981)	200 (1,961)
Maximum Shock	g (m/s <sup>2</sup> )	5,000 (49,033)						
Temperature Range	°F (°C)	-67 to +257 (-55 to +125)						
Environmental Seal		hermetic						

**Models 7500M10 & 7500M11**



## High Precision DC MEMS Accelerometers

**Features:**

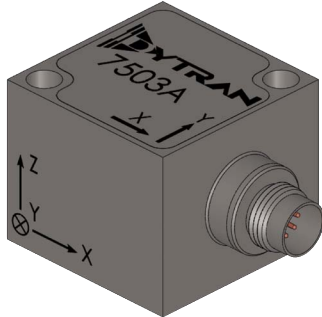
- Single axis
- MEMS technology
- Ultra low noise
- Differential output
- Operates from +9 to +32 VDC
- 4-pin radial "Mighty Mouse"® connector
- Mounting via two #4 or M3 screws
- Hermetically sealed

**Applications:**

- Flight testing
- Flutter testing
- In-flight vibration testing
- Low frequency aircraft/airframe vibration measurements

Specifications	Units	7500M10	7500M11
Weight	oz (gm)	1.59 (45)	
Housing		stainless steel	
Sensitivity	mV/g (mV/m/s <sup>2</sup> )	40 (4)	5 (0.5)
Range	g (m/s <sup>2</sup> )	50 (491)	400 (3,924)
Frequency Response, 3dB	Hz	0-300	
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	50 (491)	400 (3,924)
Maximum Shock	g (m/s <sup>2</sup> )	5,000 (49,033)	
Temperature Range	°F (°C)	-67 to +257 (-55 to +125)	
Environmental Seal		hermetic	

7503A Series



## High Precision Triaxial DC MEMS Accelerometers

**Features:**

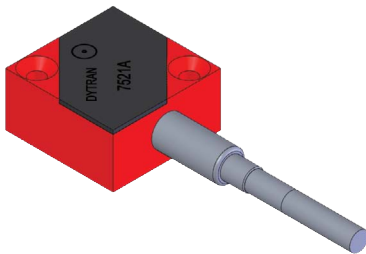
- Triaxial
- MEMS technology
- Ultra low noise
- Differential output
- Operates from +9 to +32 VDC
- 5/16-32 radial connector
- Mounting via two M2 screws
- Hermetically sealed

**Applications:**

- Airbag testing
- Crash testing
- Robotics
- Seismic monitoring
- Tilt measurement

Specifications	Units	7503A1	7503A2	7503A3	7503A4	7503A5	7503A6	7503A7
Weight	oz (gm)	0.88 (25)						
Housing		titanium						
Sensitivity	mV/g (mV/m/s <sup>2</sup> )	1,000 (100)	400 (40)	200 (20)	80 (8)	40 (4)	20 (2)	10 (1)
Range	g (m/s <sup>2</sup> )	2 (20)	5 (49)	10 (98)	25 (245)	50 (590)	100 (981)	200 (1,961)
Frequency Response, 3dB	Hz	0-400	0-600	0-1,000	0-1,500	0-2,000	0-2,500	0-3,000
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	12 (118)	14 (137)	15 (147)	38 (373)	75 (736)	150 (1,472)	300 (2,943)
Maximum Shock	g (m/s <sup>2</sup> )	5,000 (49,033)						
Temperature Range	°F (°C)	-67 to +221 (-55 to +105)						
Environmental Seal		hermetic						

7521A Series



## Lightweight DC Accelerometers

**Features:**

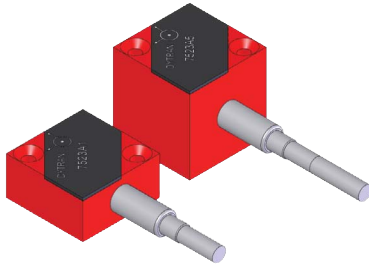
- Single axis
- Small footprint
- Broad operating temperature range
- Low mass
- +5 VDC operation
- Integral cable
- Mounting via two M2 screws

**Applications:**

- Airbag testing
- Crash testing
- Robotics
- Seismic monitoring
- Tilt measurement

Specifications	Units	7521A1	7521A2	7521A3	7521A4	7521A5	7521A6	7521A7
Weight	oz (gm)	0.13 (3.7)						
Housing		aluminum						
Sensitivity	mV/g (mV/m/s <sup>2</sup> )	550 (56)	280 (29)	93 (9.5)	55 (5.6)	36 (3.7)	18 (1.8)	8 (0.8)
Range	g (m/s <sup>2</sup> )	2 (20)	5 (49)	15 (147)	33 (324)	50 (490)	100 (981)	225 (2,206)
Frequency Response, 3dB	Hz	0-1,500	0-1,500	0-1,500	0-400	0-400	0-400	0-400
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	3,000 (29,430)	3,000 (29,430)	5,000 (49,050)	25,000 (245,250)	30,000 (294,300)	40,000 (392,400)	55,000 (539,550)
Maximum Shock	g (m/s <sup>2</sup> )	4,000 (39,227)						
Temperature Range	°F (°C)	-55 to +257 (-48 to +150)						
Environmental Seal		epoxy						

7523A Series



## Lightweight Triaxial DC Accelerometers

### Features:

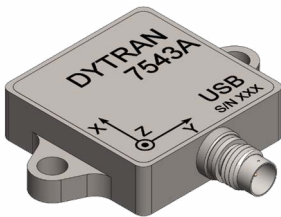
- Triaxial
- Small footprint
- Broad operating temperature range
- Low mass
- +5 VDC
- Integral cable
- Mounting via two M2 screws

### Applications:

- Airbag testing
- Crash testing
- Robotics
- Seismic monitoring
- Tilt measurement

Specifications	Units	7523A1	7523A3	7523A5
Weight	oz (gm)	0.35 (10)		
Housing		aluminum		
Sensitivity	mV/g (mV/m/s <sup>2</sup> )	550 (55)	93 (9.3)	36 (3.6)
Range	g (m/s <sup>2</sup> )	2 (20)	15 (147)	50 (490)
Frequency Response, 3dB	Hz	X&Y: 1,500 Z: 0-500	0-1,500	0-400
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	3,000 (29,430)	10,000 (98,100)	40,000 (392,400)
Maximum Shock	g (m/s <sup>2</sup> )	4,000 (39,227)		
Temperature Range	°F (°C)	-67 to +257 (-55 to +125)		
Environmental Seal		epoxy		

Model 5340



## VibraScout Measurement System

### Features:

- Triaxial
- DC to 1600 Hz bandwidth
- Continuous logging of XYZ acceleration data, temperature, roll and pitch to .txt file
- Display of pitch and roll data
- Embedded micro-controller
- Hermetically sealed
- USB and variable capacitance MEMS technology

### Applications:

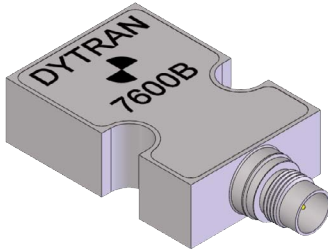
- Quick, easy, field data collection
- Airbag testing
- Crash testing
- Flight testing
- Noise, Vibration and Harshness (NVH)
- Seismic monitoring
- Ride quality
- Roll-over studies
- Tilt measurement

### Included in the VibraScout:

- Triaxial DC accelerometer, model 7543A
- Windows compatible analysis software (no license required)
- 15 foot USB cable, model 6330A15

Specifications	Units	7543A
Weight	oz (gm)	0.60 (17)
Housing		titanium
Range	g (m/s <sup>2</sup> )	16 (157)
Frequency Response, 3dB	Hz	0-1,600
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	X&Y: 290; Z: 430 (X&Y: 2,845; Z: 4,218)
Maximum Shock	g (m/s <sup>2</sup> )	10,000 (98,067)
Temperature Range	°F (°C)	-40 to +185 (-40 to +85)
Environmental Seal		hermetic

7600B Series



## High Performance VC Accelerometers

### Features:

- Single axis
- Differential mode
- Available ranges of 5g to 200g
- Hermetically sealed
- VC technology powered by strain gage amplifiers
- 4-pin radial connector
- Mounting via two 4-40 screws

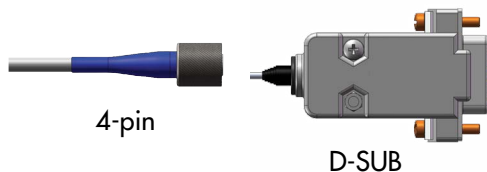
### Applications:

- Airbag testing
- Crash testing
- Flight testing
- Ride quality
- Seismic monitoring

Specifications	Units	7600B1	7600B2	7600B3	7600B4	7600B5	7600B6
Weight	oz (gm)	0.13 (3.6)					
Housing		titanium					
Sensitivity	mV/g (mV/m/s <sup>2</sup> )	100 (10)	50 (5)	20 (2)	10 (1)	5 (0.5)	2.5 (0.25)
Range	g (m/s <sup>2</sup> )	5 (49)	10 (98)	25 (245)	50 (490)	100 (981)	200 (1,961)
Frequency Response, ±3dB	Hz	0-600	0-1,000	0-1,500	0-2,000	0-2,500	0-3,000
Output Noise	µg/√Hz (µm/s <sup>2</sup> /√Hz)	9 (88)	10 (98)	25 (245)	50 (491)	100 (981)	200 (1,962)
Maximum Shock	g (m/s <sup>2</sup> )	2,000 (19,620)					
Temperature Range	°F (°C)	-40 to +176 (-40 to +80)					
Environmental Seal		hermetic					

## Cables

Model	Connector A	Connector B	Description	For Use With
6854A	4-pin	cutoff	Four conductor, Teflon® jacket, black	7500A
6877A	4-pin	4-pin	Four conductor, Teflon® jacket, black	7500A
6895A	4-pin	cutoff	Four conductor, Teflon® jacket, white	7600B
6949A	4-pin	D-SUB, 9-pin	Four conductor, Teflon® jacket, white	7500A
6956A	9-pin	(3) D-SUB, 9-pin	Four conductor, Teflon® jacket, white	7500A
6330A	4-pin	USB	Four conductor, Teflon® jacket, black	7543A



4010

## Signal Conditioner Amplifier

Specifications	Units	4010
Channels		3
Size (H x W x D)	in (cm)	3.3 x 8.4 x 9.6 (8.3 x 21.3 x 23.4)
Connectors (Input / Output)		D-SUB, 9-pin / BNC
Power Source		50-60 Hz line
Gain		0.01 to 999.9

The Dytran model 4010 is a microprocessor controlled, 3-channel DC signal conditioner amplifier designed for use with bridge-type or differential output accelerometers and pressure sensors for a variety of general purpose laboratory testing applications. Units incorporate a variable gain adjustment, shunt calibration capability and multiple excitation level settings.

Recommended Cables and Signal Conditioners

# Trusted Expertise.

The team at Dytran Instruments has more than 30 years of experience in the successful design and manufacture of piezoelectric and DC MEMS sensing technologies to support a variety of demanding applications and program requirements. Dytran carefully monitors each aspect of our in-house manufacturing processes, from the choice of sensing elements and housings, to connectors, soldering and cables, to ensure precision measurement accuracy of finished products within extreme environments. All models are subjected to rigorous in-house quality assurance testing procedures and regular design reviews for continuous product improvements.

This brochure highlights Dytran's line of DC MEMS accelerometers, designed to support low-frequency vibration measurement applications. Typical applications for individual models of Dytran DC MEMS sensors can be found within the charts presented in this brochure. In addition to the models listed here, Dytran has the necessary in-house capabilities to custom design and package nearly any sensor, connector or cable to precise customer or test program specifications, with highly competitive pricing and lead times. Calibration services are A2LA accredited to the ISO 17025 standard, ensuring product quality and uniformity.

For assistance in evaluating your application requirements, contact a member of the Dytran Technical Sales team at [info@dytran.com](mailto:info@dytran.com).

signal conditioners

impulse hammers

accelerometers

cables

custom designs

pressure sensors

accessories

force sensors