REFTEK SYSTEMS INC.

147A

HIGH RESOLUTION ACCELEROMETERS

The 147A High Resolution Accelerometers are a force-balance accelerometer that converts acceleration signals into voltage signals to measure various low frequency and ultra-low frequency motion. The 147A accelerometer is available in both triaxial and uniaxial packages.

The 147A accelerometer uses a state of-the-art force balance feedback technique to make up for the mechanical characteristic limitations of conventional accelerometers. This overcomes the shortcomings of nonlinear distortion and threshold of sensitivity of elastic measuring parts.

The advanced features of the 147A accelerometer include high sensitivity, large linear range, high resolution, and high dynamic range.

The 147A accelerometer has DC response. The 147A Low Noise model is +/- 4g full scale and provides excellent dynamic range, which is useful when used with 24-bit digitizers like the 130-MC Multi-Channel Recorder and 130S Series Data loggers. High sensitivity, large linear range, high resolution, and high dynamic range make the 147A model best suited for free field applications such as micro zonation, site response, earthquake monitoring, and more.

The 147A housing is sealed to meet IP67 standards for watertight integrity. For the triaxial package, mounting is accomplished with a single bolt, and 3 point leveling.

The following chart is a graphic presentation of the sensor amplitude operating range via the ANSS method.

KEY FEATURES

- Low Noise
- State-of-the-Art Accelerometer
- Sensitivity & Offset Stable

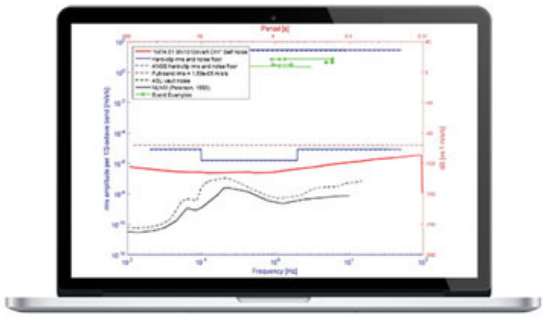
APPLICATIONS

- Free Field Reference
- Building Arrays
- Structural Monitoring
- Site Response
- Aftershock Studies

147A

HIGH RESOLUTION ACCELEROMETERS

MODEL	147A
ELECTRICAL	
Full-scale Range	±4 g
Full-scale Output	±10 V differential, 20 VPP
Sensitivity	2.5 V/g
PERFORMANCE	
Self-Noise	<1 µm/s/s
Dynamic Range	>155 dB (DC to 10 Hz)
Linearity	<0.1 %
Frequency Response	Flat DC-100 Hz +/- 0.05 dB ; DC-250 Hz +/- 3 dB
Damping	0.7
Self-test Response	Logic level input will produce consistent g level output
Lightning Protection	Built-in surge protection
Cross Axis Sensitivity	<1%
Hysteresis	<0.1% of full-scale
Thermal Drift	≤600 µg/°C
POWER	
Average Power	<1 W Triaxial Version
Power Supply	+9 to +18 VDC
ENVIRONMENTAL	
Operating Temperature	–4 °F to 140 °F (–20 °C to 60 °C)
Storage Temperature	–40 °F to 185 °F (–40 °C to 85 °C)
Humidity	0 – 100% not-condensing
Watertight Integrity	IP67
Shock	Survives a 1 meter drop on any axis
MECHANICAL - TRIAXIAL PACKAGE	
Dimensions	4.9 W x 5.3 L x 3.85 H inches (12.5 x 13.5 x 9.8 cms) Height without connector 3.25 inches (8.25 cms)
Weight	4.4 lb (2 Kg)
MECHANICAL - UNIAXIAL PACKAGE	
Dimensions	2.48 W x 5.04 L x 2.72 H inches



Amplitude Operating-Range Diagram in Acceleration Units; Strong-Motion Acceleration Sensor "Class A"; Test of "147A-01 Ch. 1"

ORDERING INFORMATION – TRIAXIAL PACKAGE

PART NO.	DESCRIPTION
97499-20	147A-01/3: Accelerometer, Triaxial, Low Noise, with mounting kit
97499-30	147A-01/3: Accelerometer, Triaxial, Low Noise, with mounting kit and 10m cable to 130 DAS
98082-00	Accelerometer Cable, 147A to 130 DAS, 33 ft
98082-50	Accelerometer Cable, 147A to 130 DAS, 50 ft
98082-100	Accelerometer Cable, 147A to 130 DAS, 100 ft
98082-150	Accelerometer Cable, 147A to 130 DAS, 150 ft
98082-200	Accelerometer Cable, 147A to 130 DAS, 200 ft
98082-250	Accelerometer Cable, 147A to 130 DAS, 250 ft

ORDERING INFORMATION – UNIAXIAL PACKAGE

PART NO.	DESCRIPTION
106293-01	Horizontal Use - 147A-01/1: Uniaxial Accelerometer, Low Noise, with 6' mating pigtail cable
106293-02	Vertical Use - 147A-01/1: Uniaxial Accelerometer, Low Noise, with 6' mating pigtail cable

CUSTOMER SUPPORT

REF TEK products are installed in locations around the world, from urban settings to rainforests to deserts. The environments are often challenging for electronics and REF TEK Systems is committed to providing reliable, practical support. Our team includes seismologists and seismic installation experts as well as engineers and technicians. **Contact support@reftek.com**.