

Very Broadband Seismometer

KS-54000/KS-1



- Ultra low noise
- Three-component system
- 0.003 to 5 Hz (optional up to 16 Hz for acceleration response)
- Cased borehole installation (KS-54000) or vault installation (KS-1)

Geotech's Model **KS-54000** is a borehole, Model **KS-1** a vault, three-component seismometer, designed for ultra low-noise monitoring for frequencies from 0.003 to 5 Hz, being below the Low Noise Model for frequencies up to 5 Hz. The KS-54000 instruments have been a vital component in the test ban monitoring programs, as well as in global seismology studies.

Typical installations are in cased boreholes at depths of approximately 100 m to maximize isolation from cultural surface noise. A less expensive version, the KS-54000-P Posthole sensor, is designed for installations approximately 10 m deep where surface noise is not a consideration.



KS-1 sensor package



KS-1 electronics

TECHNICAL SPECIFICATIONS

OPERATING CHARACTERISTICS

<u>Configuration</u>	- Three-component
<u>Number of outputs and Type</u>	- Three, differential
<u>Sensitivity</u>	- 15,000 V/(m/sec ²) or 2,400 V/(m/sec); other values possible
<u>Response</u>	- Flat to velocity or acceleration, 0.003 to 5 Hz (or 16 Hz)
<u>Distortion</u>	- Less than 100 ppm to ½ full scale
<u>Noise</u>	- Below USGS Low Noise Model from 0.003 to 5 Hz
<u>LevelOutput, Mass Monitor</u>	- 40 Vp-p, maximum
<u>Number and Type</u>	- Three, single-ended
<u>Sensitivity</u>	- 510 V/(m/sec ²)
<u>Response</u>	- Flat to acceleration, DC to 5 Hz
<u>Level</u>	- 20 Vp-p, maximum
<u>Calibration Input</u>	
<u>Resistive Mode</u>	- Equivalent to flat earth acceleration
<u>Capacitive Mode</u>	- Equivalent to flat earth velocity
<u>Type</u>	- Voltage - sine wave, pulse, etc.
<u>Level</u>	- 20 Vp-p, maximum
<u>Power Requirements</u>	
<u>Operating</u>	- 24 Vdc, 100 mA, nominal
<u>Installation</u>	- 24 Vdc, 450 mA, typical

ENVIRONMENTAL CHARACTERISTICS

<u>Operating Temperature</u>	- -25 to +60 °C, non-convecting
<u>Storage Temperature</u>	- -55 to +85 °C
<u>Borehole Tilt</u>	- Less than 10 degrees
<u>Borehole Casing</u>	- API 7 in., 6 in. (15 cm) minimum I.D.
<u>Hydrostatic Pressure</u>	- Non-submersible

PHYSICAL CHARACTERISTICS

<u>Dimensions</u>	
<u>Height</u>	- 249 cm (98 in.), with pilot
<u>Diameter</u>	- 13.7 cm (5.38 in.), nominal - 14.9 cm (5.88 in.), maximum with key
<u>Net Weight</u>	- 66 kg (145 lbs.)
<u>Shipping Data</u>	
<u>Weight</u>	- 227 kg (500 lbs.)
<u>Volume</u>	- 1.45 m ³

A complete line of ancillary equipment is available for cased boreholes of various sizes.