

Shallow Borehole EpiSensor

Force Balance Accelerometer



Model SBEPI is a *cost effective* triaxial downhole package useful for relatively shallow borehole installations. The unit consists of three EpiSensor force balance accelerometer modules mounted orthogonally in one small convenient package. The diameter of the SBEPI is only 2.625", making it suitable for installation in a 3" diameter hole.

With full-scale recording ranges of ± 0.25 to $\pm 4g$, the SBEPI provides on-scale recording of earthquake motions even at near-fault locations.

The significant bandwidth of DC to 200 Hz allows engineers and scientists to study motions at higher frequencies while maintaining the very important DC response that allows simple field calibration and reduces post-processing confusion.

Output circuitry is also significantly enhanced. Four types of outputs can be selected by the user: $\pm 2.5V$ single-ended, $\pm 10V$ single-ended, $\pm 5V$ differential or $\pm 20V$ differential. The $\pm 2.5V$ single-ended output is appropriate for use with traditional Kinometrics earthquake recording instruments. The $\pm 10V$ single-ended output and $\pm 20V$ differential output are well suited for use with a wide range of digital recorders currently on the market.

EpiSensor force balance accelerometers also available in the HypoSensor deep borehole package, Model FBA ES-DH.

Features

- ◆ Extended bandwidth – DC to 200 Hz
- ◆ Low noise
- ◆ Fits in 3" diameter hole
- ◆ Factory-selectable full-scale range
- ◆ Calibration coil (standard)
- ◆ Double-stage transient protection

- ◆ Single-end or differential output (user selectable)

Options

- ◆ Single 12Vdc supply
- ◆ 110-meter cable (in place of the 40 m cable)
- ◆ Wellhead junction box, P/N 108390-04-PL

Specifications

Dynamic range:	155 dB+	Power consumption:	12mA from +/- 12V (Standard Amp)
Bandwidth:	DC to 200 Hz		35mA from +/- 12V (Low Noise Amp)
Calibration coil:	Standard		Single supply option available
Full-scale range:	Factory-selectable at $\pm 0.25g$, $\pm 0.5g$, $\pm 1g$, $\pm 2g$ or $\pm 4g$	Operating Temperature:	-20° to $70^{\circ}C$ (0° to $160^{\circ}F$)
Outputs:	User selectable at: $\pm 2.5V$ single-ended $\pm 10V$ single-ended $\pm 5V$ differential $\pm 20V$ differential	Housing:	Watertight to 140 psi, 67 mm diameter x 250 mm (2.625" x 10" stainless steel) Provided with attached 40 m cable—110 meter cable is optional
Linearity:	$< 1000 \mu g/g^2$	Weight:	2.3 kg (5 lbs) (85 lbs. with 40 m cable in shipping container)
Hysteresis:	$< 0.1\%$ of full scale	Ordering Information:	Specify: Full-scale range, outputs, noise (standard or low) and options, if any
Cross-axis sensitivity:	$< 1\%$ (including misalignment)		
Zero point thermal drift:	$< 500 \mu g/^{\circ}C$ (1g sensor)		