

Uniaxial Force Balance Accelerometer



Features

- ◆ Low noise
- ◆ Extended bandwidth – DC to 200 Hz
- ◆ User-selectable full-scale range
- ◆ Calibration coil (standard)
- ◆ Single-end or differential output (User selectable)

For use in a variety of applications

The EpiSensor ES-U2 force balance accelerometer is a uniaxial surface package designed primarily for structural engineering applications. However, it can be used in a variety of applications for measuring accelerations up to $\pm 4g$ and down to the ambient noise level. With full-scale recording ranges of ± 0.25 to $\pm 4g$ (user selectable) the ES-U2 provides on-scale recording of earthquake motions even at near-fault locations and in a wide variety of structure types.

Because the ES-U2 is extremely low-noise, it can detect motions of the ambient vibration field at most urban sites and civil structures from 1 Hz to 200 Hz. This makes the ES-U2 a unique sensor at a great price. The output of the ES-U2 is an amplified, conditioned signal—it requires no external electronics other than a data acquisition system.

The significantly improved 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 processing confusion.

Output circuitry is also significantly enhanced. Four types of outputs can be field-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 Kinematics earthquake recording instruments. The $\pm 10V$ single-ended output and $\pm 20V$ differential output are well suited for use with Kinematics' new Everest 24-bit digital recorder and Quanterra's 24-bit digital recorders.

EpiSensor force balance accelerometers are also available in triaxial surface and borehole (the FBA ES-SB shallow and FBA ES-DH deep) packages.

EpiSensor ES-U2 Specifications

Dynamic range:	140 dB+
Bandwidth	DC to 200 Hz
Calibration coil:	Standard
Full-scale range:	User selectable: $\pm 0.25g$, $\pm 0.5g$, $\pm 1g$, $\pm 2g$ or $\pm 4g$
Outputs:	User selectable at: $\pm 2.5V$ single-ended $\pm 10V$ single-ended $\pm 5V$ differential $\pm 20V$ differential
Zero adjust	User-friendly access hole for simple, safe efficient adjustment
Linearity:	$< 1000 \mu g/g^2$
Hysteresis:	$< 0.1\%$ of full scale
Cross-axis sensitivity:	$< 1\%$ (including misalignment)
Zero point thermal drift:	$< 500 \mu g/^{\circ}C$ (1g sensor)
Power consumption:	Quiescent current < 9 mA from ± 12 V
Mounting:	Dual bolt for horizontal or vertical mounting
Operating Temperature:	-20° to $70^{\circ}C$ (0° to $160^{\circ}F$)
Housing:	EMI/RFI Watertight enclosure 55 x 65 x 97mm (2.2"x 2.6"x 3.8")
Weight:	0.35kg (0.77 pounds)

