

# 131D-01/1

## UNIAXIAL ACCELEROMETERS



The uniaxial 131D-01/1 is single-axis  $\pm 4g$  full scale accelerometer with a noise performance of  $1.2 \mu g/rtHz$ . The accelerometer outputs an industry standard  $\pm 10V$  full scale output. The 131D-01/1 is best suited for structural engineering applications (building, bridge, dam monitoring) when the project requires accelerometers to be deployed in uniaxial configuration. The Reftek 131B-01/1 housing is made of anodized aluminum and is sealed to meet IP67 standards for watertight integrity. Mounting is accomplished with two bolts on one of two axes, thus the sensor may be oriented in any direction, including in the vertical axis. This feature is an ideal application for structure monitoring, allowing for flexibility of installation.

Reftek model 131D Accelerometers provide excellent dynamic range and low noise performance useful when paired with digitizers like the Reftek 130-MC. These accelerometers use a Micro-Electro-Mechanical System (MEMS) variable capacitance displacement sensor. The accelerometer is inherently stable over temperature, with excellent reliability, exceptional linearity over a broad dynamic range, excellent bias stability, and little hysteresis errors or offset drift problems that are usually associated with other accelerometer designs. The model 131D uniaxial is available in horizontal and vertical model versions.

### KEY FEATURES

- » Low Noise.
- » State-of-the-Art MEMS Capacitive Accelerometer
- » Sensitivity & Offset stable over wide temperature range

### APPLICATIONS

- » Building Arrays
- » Structural Monitoring
- » Site Response

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| <b>MODEL</b>                                       | <b>131D</b>  |
| <b>ELECTRICAL</b>                                  |  |
| <b>Full-scale Range</b>                            | $\pm 4g$   |
| <b>Full-scale Output</b>                           | $\pm 10V$  |
| <b>Sensitivity</b>                                 | $2.5V/g$   |
| <b>PERFORMANCE - MEMS CAPACITIVE ACCELEROMETER</b> |  |
| <b>Self-Noise</b>                                  | $1.2 \mu g/rtHz$   |
| <b>Dynamic Range</b>                               | 118 db (DC -10 Hz) @ 200sps                                      |
| <b>Linearity</b>                                   | $\pm 1\%$ of full scale  |
| <b>Frequency Response</b>                          | DC - 600 Hz ( $\pm 3$ dB)  |
| <b>Self-test Response</b>                          | Logic level input will produce 0.5g positive output              |
| <b>Lightning Protection</b>                        | Built-in surge protection  |
| <b>Cross Axis Sensitivity</b>                      | $< 0.0005g/g$  |
| <b>Thermal Drift</b>                               | $< 0.5mg/^\circ C$   |
| <b>Natural Frequency</b>                           | 1300 Hz  |
| <b>POWER</b>                                       |  |
| <b>Supply Voltage</b>                              | 9-18 VDC   |
| <b>Supply Current</b>                              | 60 mA typical  |
| <b>ENVIRONMENTAL</b>                               |  |
| <b>Operating Temperature</b>                       | $-4^\circ F$ to $140^\circ F$ ( $-20^\circ C$ to $60^\circ C$ )  |
| <b>Storage Temperature</b>                         | $-40^\circ F$ to $185^\circ F$ ( $-40^\circ C$ to $85^\circ C$ ) |
| <b>Humidity</b>                                    | 0 - 100% non-condensing  |
| <b>MECHANICAL - UNIAXIAL PACKAGE - 131D-01/1</b>   |  |
| <b>Dimensions</b>                                  | 3"H x 3.3"W x 3.2"D (7.6 x 8.4 x 8.1 cms)                        |
| <b>Weight</b>                                      | 1 lbs (~0.5 kg)  |
| <b>Mounting</b>                                    | Two bolts on one of two axes                                     |

### 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](mailto:support@reftek.com).