

## OVERVIEW

The Digitex D-Series Accelerometers are high-performance, MEMS accelerometers designed for permanent installations in Structural Health Monitoring (SHM) and earthquake engineering applications. Offering uni-axial, bi-axial, and tri-axial models, the D-Series provides a wide dynamic range, excellent bandwidth, and an ultra-low noise floor. Their rugged construction and precision performance make them ideal for long-term monitoring of civil, industrial, and geotechnical structures.

## DESCRIPTION

Encased in rugged IP66/IP67 aluminum housings, D-Series accelerometers are built to withstand harsh outdoor conditions while delivering precise measurements. They feature analog differential outputs compatible with central acquisition systems such as xRover and xRover MAX. All models are powered from the central station (9-24 VDC) and can be easily mounted to most surfaces using specially designed leveling plates for accurate installation.

## KEY FEATURES

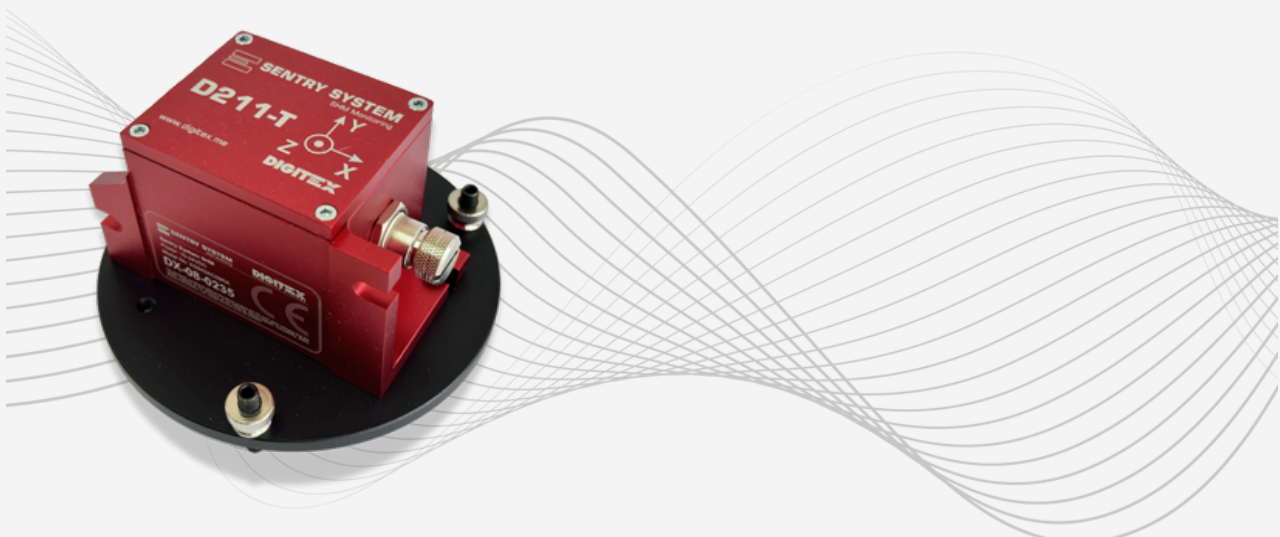
- Wide dynamic range and excellent bandwidth
- Ultra-low noise floor for precise seismic and vibration measurements
- MEMS sensor technology
- Available in uni-axial, bi-axial, and tri-axial variants
- Analog differential output for direct integration with acquisition units
- Rugged aluminum IP66/IP67 enclosure
- Operating temperature range: -20 °C to +80 °C
- Supplied levelling plate for accurate installation
- Low power consumption (45-110 mW depending on model)
- Permanent installation suitability with long-term stability

## APPLICATIONS

- Structural Health Monitoring of bridges, tunnels, dams, and high-rise buildings
- Seismic and earthquake engineering measurements
- Ambient vibration surveys and dynamic testing
- Industrial vibration monitoring
- Geotechnical and foundation monitoring
- Permanent installation in harsh outdoor environments

## BENEFITS

- High precision analog accelerometers for SHM and seismic applications
- Stable long-term performance with low noise characteristics
- Rugged IP-rated design ensures reliability in challenging environments
- Flexible configuration options (uni-, bi-, and tri-axial)
- Easy installation with levelling plate for precise orientation
- Seamless integration with Digitex central acquisition systems



### SPECIFICATIONS

#### Sensor

**Type:** Embedded low noise, low power triaxial capacitive MEMS accelerometer. Orthogonally oriented. (see Accelerometer Options)

**Supported Models :** D-230 / D-225/ D-220 / D-211 (see Accelerometer Options)

#### Axis Configuration

**Channels:** Up to three differentially connected analog channels. Can be factory configured to uni-axial or bi-axial operation. (model dependent)

#### Synchronization

**Time Base:** Done via the used digitizer (GPS or DigiSync®)

#### Interface

**Connectivity:** 12-pin M12 male circular connector. Features robust metal housing, IP67 protection, and screw-lock coupling for secure, waterproof connections in industrial environments.

#### Output

**Data Output:** Differential voltage output across the full measurement range, spanning from approximately 0.14 V to 4.5 V DC.

#### Power

**Supply Voltage:** 3.3 – 5 VDC (model dependent)

**Power Consumption:** 20 – 80 mW (average)

#### Physical

**Dimensions:** 53 × 53 × 96 mm (2.09 × 2.09 × 3.78 in)

**Weight:** 350 gr

**Enclosure:** Rugged aluminum housing, IP67 rated

**Mounting:** Horizontal or vertical using mounting plate; single anchor point, three leveling bolts, and integrated bubble level

#### Environmental

**Operating Temp.:** -20 °C to +60 °C

**Humidity:** 0 – 100 % RH (non-condensing)

#### Certification & Calibration

**Standards:** CE, RoHS, ISO9001, ISO14001

**Calibration:** Factory calibrated; individual calibration certificate included

### ACCELEROMETER MODELS

#### D230 - U/B/T

**Full-scale Acceleration:** ±3g

**Noise (In Band):** 0.7µg/√Hz

**Noise (Integrated over 0.1Hz to 100Hz):** 8µg

**Dynamic Range (0.1 to 100Hz):** 108.5dB

**Scale Factor Sensitivity:** 900mV/g

**Bandwidth (±3dB):** 550Hz

**Operating Power Consumption:** 90mW

#### D225 - U/B/T

**Full-scale Acceleration:** ±3g

**Frequency Range:** 0-200Hz

**Zero Bias Stability:** 0.03mg

**Noise (In Band):** 1µg/√Hz

**Scale Factor Sensitivity:** 1200mV/g

**Bias Temperature Error:** ±0.2mg/°C

**Operating Power Consumption:** 110mW

#### D220 - U/B/T

**Full-scale Acceleration:** ±2g

**Noise (In Band):** 7µg/√Hz

**Frequency Range :** 0-700Hz

**Non-linearity (Full Scale) :** 0.1%

**Scale Factor Sensitivity:** 1350mV/g

**Bias Temp. Coefficient:** ±0.2mg/°C

**Operating Power Consumption:** 72mW

#### D211 - T

**Full-scale Acceleration:** ±2g, ±4g

**Non-linearity (Full Scale):** 0.1%

**Noise (In Band):** 22.5µg/√Hz

**Scale Factor Sensitivity:** 400mV/g

**Cross Axis Sensitivity:** 1%

**Sensitivity due to Temperature:** ±0.01%/°C

**Operating Power Consumption:** 45mW