## TITAN ACCELEROMETER

The Titan is a force balance triaxial accelerometer that provides exceptional performance over a wide frequency range from DC to 430 Hz and features industry leading dynamic range and ultra-low self-noise performance that is comparable to that of some broadband seismometers.

As the first accelerometer to incorporate digitally selectable full scale range and offset zeroing capabilities; the Titan's features are ideal for difficult to access or remote deployments, where site visits should be minimized. The triaxial sensor and electronics are housed in a rugged, compact aluminum enclosure featuring a single bolt anchoring slot, adjustable leveling screws and integrated bubble level.

#### Industry Leading Performance Attributes:

- Industry leading 166 dB dynamic range
- Ultra-low self-noise comparable to some broadband seismometers
- Wide operational frequency range: DC to 430 Hz
- Best in class thermal stability and high accuracy provide increased data quality
- Full scale range of  $\pm 0.25 g$  to  $\pm 4 g$  with independent horizontal and vertical range selection

#### Ease of use advantages:

- Electronically selectable full scale range facilitates remote sensor control when deployments are distant or difficult to access
- Integrated web server provides efficient instrument management and control
- Installation features that include an integrated bubble level, adjustable leveling screws, single bolt keyhole mount, and a compact footprint ensure that deployments are completed efficiently and quickly





Combine the Titan with the Centaur digitizer to achieve a complete data acquisition and recording system that is suitable for deployment in both remote and networked locations.



Titan accelerometer connected to and powered by a Centaur digitizer



## TECHNICAL SPECIFICATIONS TITAN ACCELEROMETER

Specifications subject to change without notice

#### ACCELEROMETER TECHNOLOGY AND PERFORMANCE

**Topology:** Triaxial, horizontal-vertical **Feedback:** Force balance with capacitive displacement transducer

**Centering:** Electronic offset zeroing via user interface or control line

Full-scale Range: Electronically selectable range:  $\pm 4g$ ,  $\pm 2g$ ,  $\pm 1g$ ,  $\pm 0.5g$ , and  $\pm 0.25g$  (peak) Sensitivity accuracy:  $\pm 0.5\%$ Bandwidth: DC to 430 Hz (-3 dB point)

- Dynamic Range: (Integrated RMS)
- 166 dB @ 1 Hz over 1 Hz bandwidth
- 155 dB, 3 to 30 Hz

Offset: Electronically zeroed to within ±0.005*g* Non-linearity: < 0.015% total non-linearity Hysteresis: < 0.005% of full scale Cross-axis Sensitivity: < 0.5% total Offset Temperature Coefficient:

#### Horizontal sensor: 60 µg/°C, typical

- Vertical sensor: 320 µg/°C, typical

#### **AVAILABLE MODELS**

TACCL-N1: Standard Model TACCL-V1: Vertical Mount Model

#### **DIGITAL COMMAND AND CONTROL INTERFACE**

Digital Interface: Onboard web server standard HTTP

- RS-232 compatible Serial Line Internet Protocol (SLIP)
- · RS-232 command-line interface

#### **DIGITAL COMMAND & CONTROL INTERFACE** (CONT'D)

- Commands: Gain range selection
- Auto-zero, or set to specific offset
- Self-test
- Calibration enable
- · State of health request
- Firmware updates
- Data Outputs: Sampled XYZ outputs (in volts and g)
- Instrument temperature
- Trimmer settings
- Instrument serial number
- Hardware assemblies and firmware revisions

#### **HARDWARE INTERFACE**

Connectors: MIL-C-26482G Series 1, 14-pin, shell size 12

Acceleration Output: 40 Vpp differential Output Impedance:  $2 \times 100 \Omega$ 

**Calibration Input:** Single voltage input, all channels enabled together

**Control Input:** Single control signal can be configured to initiate auto-zero, initiate self-test, or enable calibration

Status Output: Asserted: Unit OK, output signal valid

 Deasserted: Self-test in progress or failed, autozeroing in progress, calibration enabled, or starting up

Serial Port: 9600 Baud RS-232 compatible

#### POWER

Supply Voltage: 9 to 36 V DC isolated input Power Consumption: 1.1 W typical quiescent Protection: Reverse-voltage and over-/undervoltage protected

Self-resetting over-current protection
 Isolation: Supply power is isolated from signal ground

**Grounding:** Predrilled holes (4) for M4 x 5 grounding lug screw

Voltage Disconnect: Software configurable (low/high)

#### **PHYSICAL AND ENVIRONMENTAL**

**Housing:** Aluminum, surface resistant to corrosion, scratches, and chips

Mounting: Single bolt keyhole mount

Leveling: Integrated bubble level

Adjustable locking leveling screws

- Size: Length: 140 mm
- Width: 85 mm
- Height: 58 mmWeight 960 g

#### Weight 960

#### Shock:

100 g half sine, 5 ms without damage, 6 axes
No mass lock required for transport

**Operating Temperature:** -20°C to +60°C

(Ultra-low temperature option available. Please contact Nanometrics.)

Storage Temperature: -40°C to +70°C Humidity: 0 to 100%

Ingress protection: Rated to IP68 at 2 m for 72 hours

#### **TITAN ACCELEROMETER SELF-NOISE**

#### -80 -90 -100 -110 -120 -130 -140 -150 1m²/s4/Hz) 91-र्षू -170 铝 G -180 , 10-2 10 100 10' Frequency (Hz)



Test results courtesy of USGS

### Contact a product expert Toll Free: 1 855 792 6776 | sales\_mkt@nanometrics.ca

# Listening to the Earth

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