

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)

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 $\pm 0.005g$

Non-linearity: $< 0.015\%$ total non-linearity

Hysteresis: $< 0.005\%$ of full scale

Cross-axis Sensitivity: $< 0.5\%$ total

Offset Temperature Coefficient:

- Horizontal sensor: $60 \mu g/^{\circ}C$, typical
- Vertical sensor: $320 \mu g/^{\circ}C$, 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-/under-voltage 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 mm
- Weight 960 g

Shock:

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

Operating Temperature: $-20^{\circ}C$ to $+60^{\circ}C$

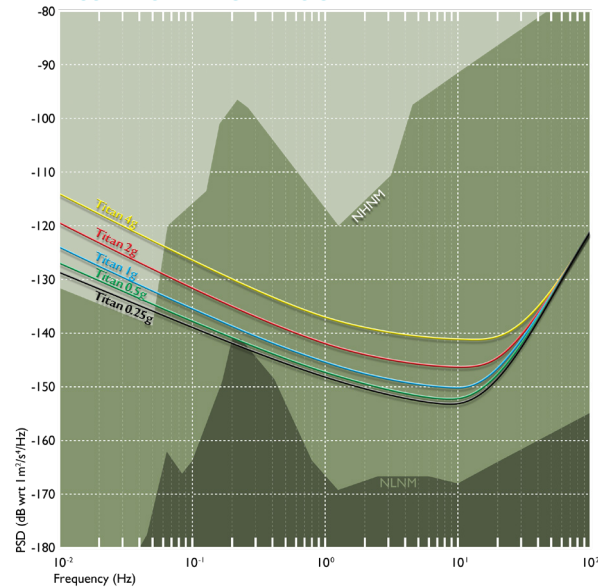
(Ultra-low temperature option available. Please contact Nanometrics.)

Storage Temperature: $-40^{\circ}C$ to $+70^{\circ}C$

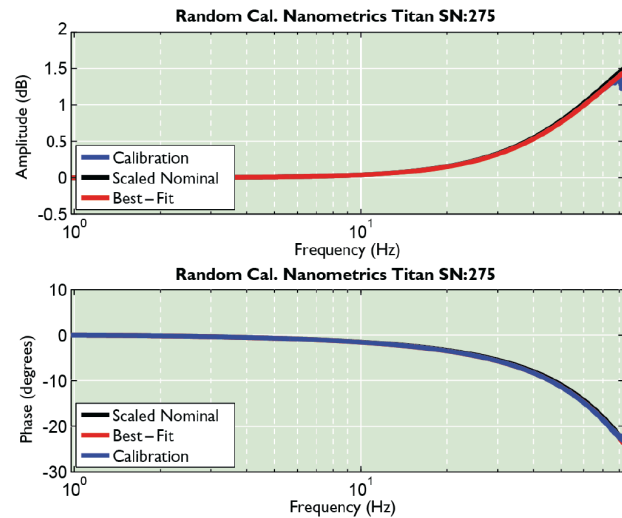
Humidity: 0 to 100%

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

TITAN ACCELEROMETER SELF-NOISE



SENSOR PERFORMANCE: FLAT RESPONSE



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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