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: ±4g, ±2g, ±1g, ±0.5g, and ±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 ±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 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 x 100 Ω
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: 11 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°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

SENSOR PERFORMANCE: FLAT RESPONSE

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