



CODEVINTEC

Tecnologie per le Scienze della Terra e del Mare

45° 27' 39.384" N
9° 07' 30.145" E

Titan Accelerometer



The Titan is a force balance triaxial accelerometer that provides exceptional performance over a wide frequency range from DC to 430 Hz.

Benefits

- > The precise, kinematic 360° gimballed auto-levels from any orientation ensuring successful deployment and implementation.
- > Comprehensive State-of-Health logging includes case orientation, providing a powerful data set for optimizing deployment techniques.
- > Ultra-low 180mW typical power consumption reduces battery costs
- > 120-second true broadband seismometer provides the same exceptional dynamic range and low noise performance as the proven Trillium Compact land seismometers
- > Compatible with Scripps Oceanographic Institute ABALONES ocean bottom system and other OBS systems



Titan – Accelerometer

The Titan 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 ± 0.25 g to ± 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

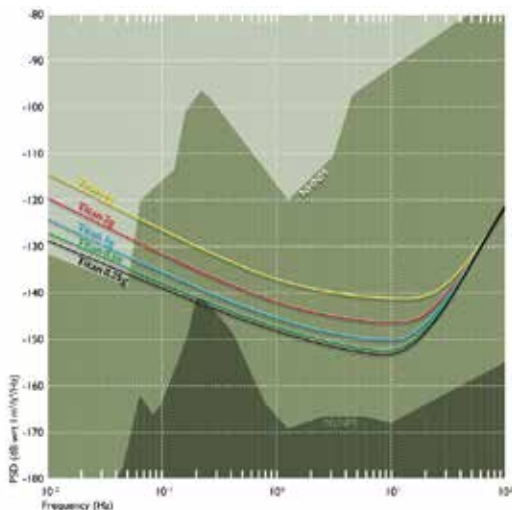
Accelerometer technology and performance

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

Digital Command and Control Interface

Digital Interface	Onboard web server standard HTTP > RS-232 compatible Serial Line Internet Protocol (SLIP) > R-232 command-line interface
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Titan accelerometer self-noise



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

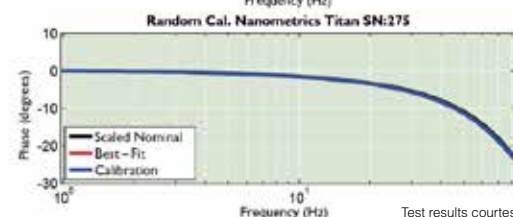
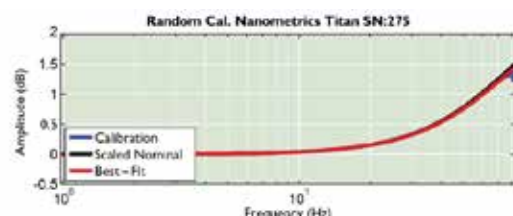
Power

Supply Voltage	9 to 36 V DC isolated input
Power Consumption	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
Operating Temperature	-20°C to +60°C (Ultra-low temperature option available. Please contact Codevintec.)
Storage Temperature	-40°C to +70°C
Humidity	0 to 100%
Ingress protection	Rated to IP68 at 2 m for 72 hours

Sensor performance: Flat response



Test results courtesy of USGS