

TITAN

POSTHOLE ACCELEROMETER

The Titan Posthole force balance triaxial accelerometer is ideally suited for national networks and research applications requiring reliable and durable instrumentation for strong motion and free-field studies. The accelerometer is housed in a waterproof stainless steel enclosure and can be deployed in a direct burial posthole or cased borehole, which enables co-location with broadband posthole seismometers.

The Titan Posthole features industry leading dynamic range that, when combined with ultra-low self-noise performance, mitigates cultural noise resulting in precise measurements and high quality data.

It is the first accelerometer to incorporate software selectable full scale range and offset zeroing capabilities. Operators will also appreciate the instrument's low power consumption, making the Titan Posthole the instrument of choice for difficult to access or remote deployments, where site visits should be minimized.

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 $\pm 0.25 \text{ g}$ to $\pm 4 \text{ g}$ with independent horizontal and vertical range selection.



*Polar Certified Model available for
operating temperatures down to -50°C*



Ease of Use

- 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

TECHNICAL SPECIFICATIONS TITAN PH

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

Full Scale Range: Electronically selectable range: $\pm 4g$, $\pm 2g$, $\pm 1g$, $\pm 0.5g$, and $\pm 0.25g$ (nominal)

Sensitivity accuracy: $\pm 0.5\%$

Bandwidth: DC to 430 Hz

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

DIGITAL COMMAND AND CONTROL INTERFACE

Serial Port:

- RS-232 compatible Serial Line Internet Protocol (SLIP)
- Onboard web server standard HTTP

DIGITAL COMMAND AND 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

Connector: 16-pin, marine SubConn MCBH16MSS, top mounted

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: Init OK, output signal valid

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

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

PHYSICAL AND ENVIRONMENTAL

Diameter: 97 mm

Height: 160 mm - body and connector

Weight: 3.2 kg

Operating Temperature:

-20°C to +60°C (Standard Model)

-50°C to +60°C (Polar Certified Model)

Storage Temperature:

-40°C to +70°C (Standard Model)

-60°C to +70°C (Polar Certified Model)

Shock:

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

Ingress Protection: Rated to IP68 at 300 m for continuous immersion

Humidity: 0% to 100% (submersible)

AVAILABLE MODELS

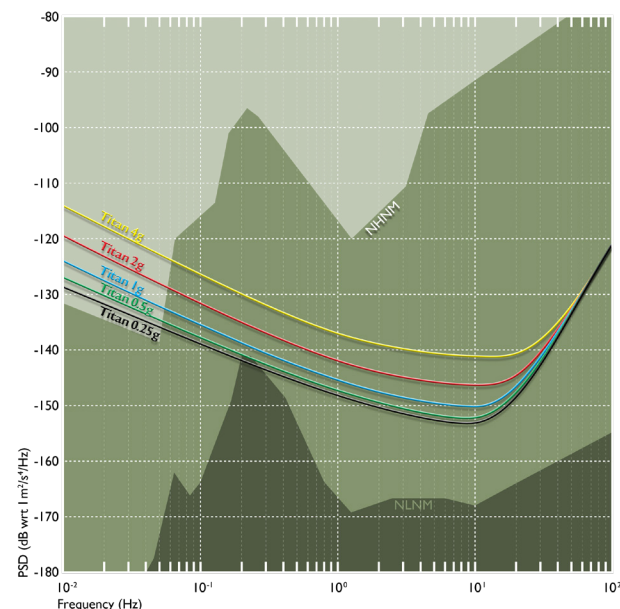
TACCL-PH2: Standard Model

TACCL-PH2-XC: Polar Certified Model

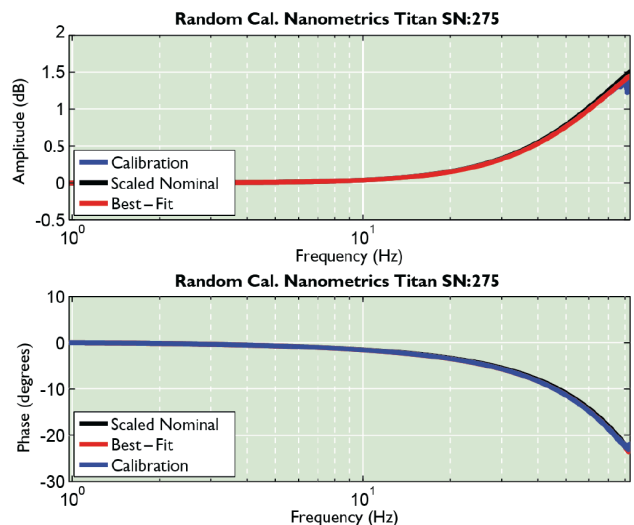
Accessories:

- T-CHL2: Compact Holelock for 141 mm - 174 mm Borehole

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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