TRILLIUM 120
SLIM POSTHOLE SEISMOMETER

Nanometrics industry-leading Trillium 120-class posthole seismometer in a slim form-factor of just 104 mm, ideal for use in existing narrow, cased boreholes. The Slim Posthole provides a small, light and ultra low power instrument in a durable stainless steel enclosure with a high pressure marine grade connector.

Local, regional & teleseismic studies

The Trillium 120 Slim Posthole is a very broadband seismometer ideal for local, regional and tele-seismic studies, having a response of flat to velocity from 120 seconds to 150 Hz and exceptionally low self-noise. Operators will appreciate the low power consumption, remote mass centering and robust no-mass lock design inherent in all Trillium Seismometers. Its many simple-to-use features, such as automatic mass centering that can be remotely initiated, and digital case tilt reporting make for fast and successful installation every time.

Real-Time Tilt and Azimuth Correction

The slim posthole has a wide range tensioner, a ±4° mass-centering range permitting installations in downhole deployments that are up to 4° from vertical. When used with the Centaur Digital Recorder, an innovative real-time tilt and azimuth correction feature permits the digitizer to correct for any tilt and misalignment at the source, eliminating the need for correction downstream.

Hole-lock Accessory for Borehole Applications

The slim posthole can also be paired with Nanometrics' hole-lock accessory kit which is available in 4 different sizes and features a robust stainless steel enclosure and spring actuated hole-lock mechanism.

Also available:

- Trillium Borehole 120 and Trillium Horizon for vault or shallow direct bury

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

Trillium SlimPH

Benefits

- A robust, waterproof, stainless steel enclosure ensures the sensor is protected from hostile environments
- Ultra low power consumption of 230 mW minimizes power source requirements at the site
- Tilt tolerance of 0 to 4° from vertical
- True vertical data provided by the Centaur digitizer, informed by Trillium's integrated tilt sensor
- Quiet down-hole deployments benefit from exceptional self-noise (see graph p.2)
- Automatic mass centering that can be remotely initiated

TECHNICAL SPECIFICATIONS TRILLIUM 120 SLIM PH

Specifications subject to change without notice

SEISMOMETER

TECHNOLOGY

Topology: Symmetric triaxial
Feedback: Force balance with capacitive transducer
Mass Centering: Automatic motorized re-centering, can be remotely initiated
Tilt range: 0º to 4º from vertical
Alignment: North line on top cap; realtime azimuth correction with Centaur digital recorder
Digital tiltmeter: Reports case tilt from vertical for easy installation and remote troubleshooting when using Centaur digital recorder
Virtual bubble level: Graphical bullseye level is available via Centaur digital recorder GUI

PERFORMANCE

Self-noise: See plot
Nominal Sensitivity: 1200 V-s/m (reference User Guide for precise value)
Precision: ±0.5%
Bandwidth: -3 dB points at 120 s and 150 Hz
Clip Level: 16.6 mm/s up to 10 Hz and and 0.12 *g* above 10 Hz
Dynamic Range: > 168 dB @ 1 Hz
Temperature: ±45°C without re-centering
Magnetic Sensitivity: 1 $(m/s^2)/T$ (Standard Model) <0.03 $(m/s^2)/T$ (Polar Certified & Magnetic Shield Models)

INTERFACE

Connector: 20-pin marine
Velocity Output: 40 V peak-to-peak
- Selectable XYZ or UVW mode

Mass Position Output: Three independent ±4V outputs for UVW
Calibration Input: Single voltage input for all channels, single calibration enable pin for all channels
- Calibration in XYZ or UVW
- Independent channel selection by serial port

Control Lines: Mass Center, Calibration Enable, XYZ/UVW mode
Serial Port: RS-232 compatible serial IP (SLIP)
- Onboard web server standard HTTP
- For enhanced instrument control and status: mass centering, case tilt reporting, UVW/XYZ mode, short/long period mode, firmware updates, temperature, mass position, instrument status, serial number and factory info

POWER

Supply Voltage: 9 to 36 Volts DC isolated input
Power Consumption: 230 mW typical at 15 V input
Protection:
- Reverse-voltage and over-voltage protected
- Self-resetting over-current protection

PHYSICAL

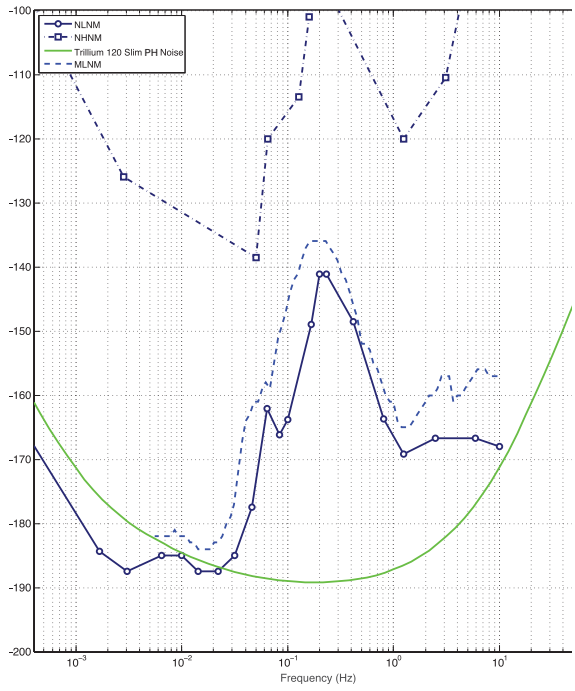
Case Design: Stainless steel pressure vessel
Diameter: 104 mm (Standard Model)
106 mm (Polar Certified & Magnetic Shield Models)
Height: 444 mm (Standard Model)*
455 mm (Polar Certified & Magnetic Shield Models)*
*Not including handle
Weight: 10 kg (Standard Model)
~11.5 kg (Polar Certified & Magnetic Shield Models)
Hoisting Attachment Point: Handle on lid for lifting cable 1500 lb rated

ENVIRONMENTAL

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: 20 *g* half sine, 5 ms without damage, 6 axis
- No mass lock required for transport

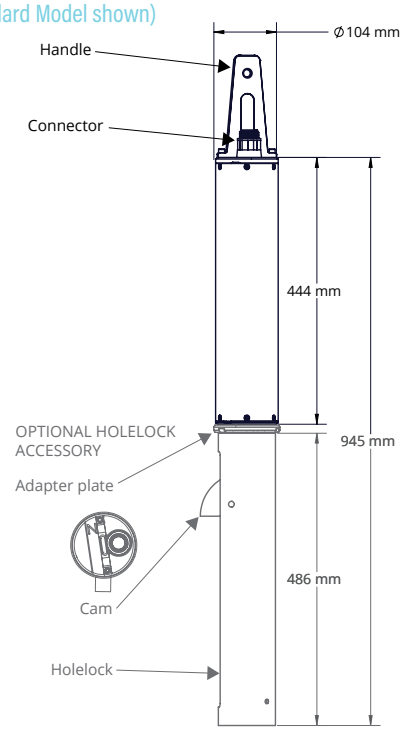
Humidity: 0% to 100% (submersible)
Pressure: Enclosure optimized to be insensitive to atmospheric variations
Ingress Protection: Seismometer is rated to IP68 and NEMA6P to 300 m for prolonged immersion

SELF-NOISE GRAPH



SLIM PH WITH OPTIONAL HOLE-LOCK FOR BOREHOLE APPLICATIONS

(Standard Model shown)



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