

# 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 new or 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 teleseismic 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  $\pm 4^\circ$  mass-centering range permitting installations in downhole deployments that are up to  $4^\circ$  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  $-50^\circ\text{C}$*



### Benefits

- A robust, waterproof, stainless steel enclosure ensures the sensor is protected from harsh environments
- Ultra low power consumption of 230 mW minimizes power source requirements at the site
- Tilt tolerance of 0 to  $4^\circ$  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:** 0° to 4° 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

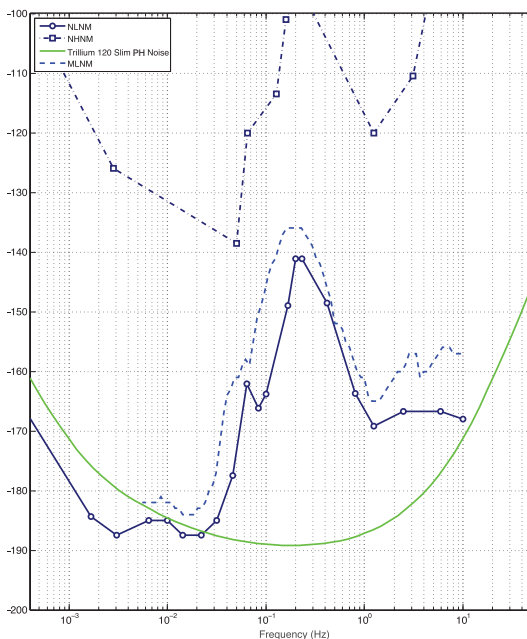
### PERFORMANCE

**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 0.12 g above 10 Hz  
**Dynamic Range:** 168 dB @ 1 Hz  
**Temperature:** ±45°C without re-centering  
**Magnetic Sensitivity:** 1 (m/s<sup>2</sup>)/T (Standard Model)  
 <0.03 (m/s<sup>2</sup>)/T (Polar Certified & Magnetic Shield Models)

### AVAILABLE MODELS

**T120-SPH2:** Standard Model  
**T120-SPH2-XC:** Polar Certified Model, Magnetic Shield  
**T120-SPH2-M:** Standard Model, Magnetic Shield

### SELF-NOISE GRAPH



### 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) with onboard web server standard HTTP to select sensor operating modes, and to access state-of-health, virtual level bubble, firmware updates and metadata  
 • Plug-and-Play automated workflow interface to select sensor operating modes, and to access state-of-health, virtual level bubble and metadata

### POWER

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

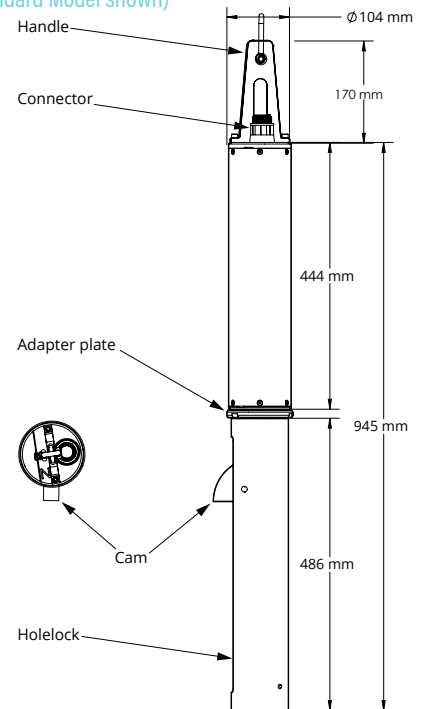
### PHYSICAL

**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 & Magnetic Shield Models)  
 -50°C to 60°C (Polar Certified Model)  
**Storage Temperature:**  
 -40°C to +70°C (Standard & Magnetic Shield Models)  
 -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

### SLIM PH WITH OPTIONAL HOLE-LOCK FOR BOREHOLE APPLICATIONS (Standard Model shown)



Contact a product expert Toll Free: 1 855 792 6776 | [sales\\_mkt@nanometrics.ca](mailto:sales_mkt@nanometrics.ca)