



TRILLIUM HORIZON 120

DOWNHOLE AND VAULT SEISMOMETER

The Trillium Horizon 120 provides the versatility of both downhole and vault installations. This rugged, lightweight, easy-to-deploy sensor can either be directly buried down to 10 meters deep (for better performance and lower logistical costs), or set on a pier for a vault installation.

Local, regional & teleseismic studies

With outstanding broadband performance and exceptionally low self-noise, the sensor has a response flat to velocity from 120 seconds to 150 Hz. Operators will appreciate the automatic mass centering and robust no-mass lock design inherent in all Trillium seismometers.

Ideal for instrument pools

This sensor provides all the flexibility you need with a smaller financial investment and less storage space required than purchasing both vault and direct-bury instruments.

A highly integrated station solution

When using the Horizon with our popular Centaur digitizer, you'll have access to a digital leveling bubble through the Centaur GUI. The virtual leveling bubble makes for easy leveling down a dark hole, or once buried, gives you the ability to check levelness at any time.

When combined with our Pegasus digitizer the Trillium Horizon 120 provides a true broadband station with an overall power consumption of less than 450 mW, providing an ideal solution for rapid response applications that require high resolution data.



Benefits:

- Ultra-low power consumption (230 mW)
- Designed for both shallow bury and vault installs
- Ideal for regional and teleseismic studies
- Highly portable and easy to deploy
- Features a digital bubble level for easy downhole leveling
- Stainless steel and resistant to the elements
- Immersible to 10 m (able to survive indefinitely in a flooded vault)
- Top-mounted connector to facilitate direct bury
- Automatic mass centering



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

TECHNICAL SPECIFICATIONS TRILLIUM HORIZON 120

Specifications subject to change without notice. Refer to User Guide for detailed and comprehensive specifications.

TECHNOLOGY

Topology: Symmetric triaxial

Feedback: Force balance with capacitive transducer

Mass centering: Automatic mechanical recentering, can be remotely initiated

PERFORMANCE

Self-noise: See self-noise graph

Sensitivity/model TH120-2-2000: (Nominal) 2000 V·s/m; (Actual) 1999.1 V·s/m ±0.5%

Sensitivity/all other models: (Nominal) 1200 V·s/m; (Actual) 1202.5 V·s/m ±0.5%

Accuracy: ±0.5% relative to User Guide specification

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 (Standard, Polar Certified & Magnetic Shield Models)
- 10.0 mm/s up to 20 Hz and 0.12 g above 20 Hz (2000 V/s/m Model)

Dynamic Range:

- 168 dB @ 1 Hz (Standard, Polar Certified & Magnetic Shield Models)
- 164 @ 1 Hz (2000 V/s/m Model)

Operating Tilt Range: ±1.5°

Temperature: ±45°C without recentering

Magnetic Sensitivity: <0.03 (m/s²)/T (Polar Certified & Magnetic Shield Models)

AVAILABLE MODELS

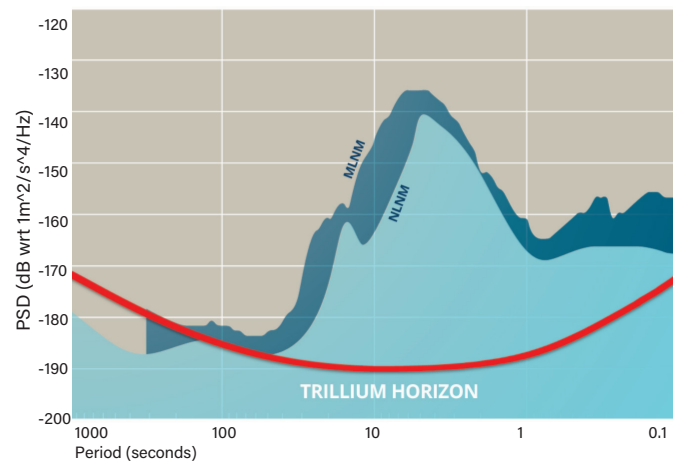
TH120-2: Standard Model

TH120-2-XC: Polar Certified Model

TH120-2-M: Magnetic Shield

TH120-2-2000: 2000 V/s/m

SELF-NOISE GRAPH



INTERFACE

Connector: 19-pin UTS7-14D19P32

Velocity Output: 40 V peak-to-peak differential

- Selectable XYZ or UVW mode

Mass Position Output: Three independent ±4 V outputs

Calibration Input: Single voltage input with one active-high control signal for all channels; calibration with XYZ or UVW

Control Lines: Mass Center, Calibration Enable, XYZ/UVW mode

Serial Port:

- RS-232 compatible serial IP (SLIP) with onboard HTTP web server to select sensor operating modes, to mass center, 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

LEVELING AND ALIGNMENT

Bubble level: Removable

Digital bubble level: Graphical bullseye level is available via Centaur digital recorder GUI

Alignment: Vertical scribe marks for (N and S); precision guide in cover for straight-edge, line, or laser level

Digital tiltmeter: Reports case tilt from vertical for easy installation and remote troubleshooting when using Centaur digital recorder

POWER

Supply Voltage: 9 to 36 V DC isolated input

Power Consumption: 230 mW typical quiescent

Protection:

- Reverse-voltage and over-voltage protected
- Self-resetting over-current protection

PHYSICAL

Diameter: 170 mm

Height: 174 mm, not including connector, feet

- 241 mm with handle and feet

Weight: 9.7 kg

Handling: Detachable lifting handle included

Optional: Internal magnetic shield

ENVIRONMENTAL

Operating Temperature:

-20°C to +70°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)

Optional: Insulating cover available for quick and convenient installation

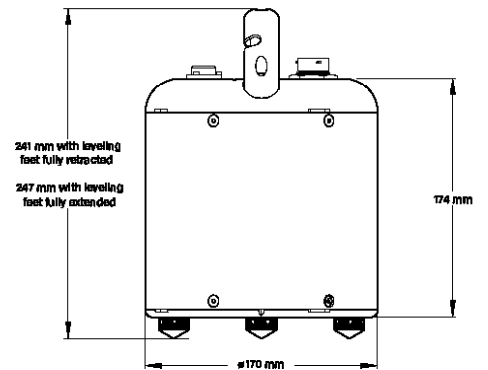
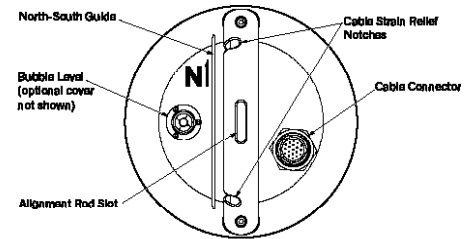
Humidity: 0% to 100% (submersible)

Shock:

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

Depth of Deployment: 10m for a dry, or partially water-filled hole

Ingress Protection: (Standard Models) Rated to IP68 and NEMA 6P to 10m for prolonged immersion (Polar Certified Model) Rated to IP68 at 2 m for 72 hours when connector is mated



Contact a product expert Toll Free: 1 855 792 6776 | sales_mkt@nanometrics.ca



Listening to the Earth

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