



TRILLIUM COMPACT HORIZON

VAULT & DIRECT BURY SEISMOMETER

We've taken the proven **Trillium Compact** and made it even smaller and lighter, with no compromise in ruggedness or performance. This true broadband seismometer is ideal for both shallow direct burial and vault applications, where minimal size, weight and power are essential.

Performance and Versatility

The ultra-portable **Trillium Compact Horizon** maintains every aspect of the **Trillium Compact** performance while being the smallest and lightest model ever produced. At just over 1 kg, it is 1/3 of the weight of the direct-bury Trillium Compact Posthole.

The updated design now meets a broader range of use cases, featuring a corrosion proof titanium housing that can be shallow buried up to 10 m depth.

The Result of Continuous Improvement

The innovative Trillium Compact Horizon is the result of continuous research and engineering that has produced ground-breaking advances in performance, size, weight and power in several new instruments, including the Trillium SlimPH and the Trillium 360 GSN for the Global Seismographic Network.

Nanometrics' commitment to ongoing product development is demonstrated across our instrument portfolio and has resulted in this improved version of our most compact seismometer.



Benefits:

- Designed for both shallow bury and vault installs
- Highly portable and easy to deploy
- Offers best-in-class power consumption
- Immersible to 10 m (able to survive indefinitely in a flooded vault)
- Top-mounted connector to facilitate direct bury
- Compatible with existing Trillium Horizon cables

Suite of Low-Power Instrumentation

When paired with the Nanometrics' Low-Power Pegasus Data Acquisition System, a Compact Horizon station uses **less than 400 mW of power**.

The exceptionally low power consumption significantly reduces battery requirements and extends experiment durations.



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

TECHNICAL SPECIFICATIONS TRILLIUM COMPACT HORIZON

Specifications subject to change without notice

TECHNOLOGY

Topology: Symmetric triaxial

Feedback: Force balance with capacitive transducer

Mass centering: Not required

PERFORMANCE

Self-noise: See self-noise graph

Sensitivity/120 models: (Nominal) 750 V-s/m;
(Actual) 754.3 V-s/m $\pm 0.5\%$

Sensitivity/model TCH20-1-1500: (Nominal) 1500
V-s/m; (Actual) 1510.8 V-s/m $\pm 0.5\%$

Sensitivity/all other 20 models: (Nominal) 750
V-s/m; (Actual) 753.1 V-s/m $\pm 0.5\%$

Accuracy: $\pm 0.5\%$ relative to User Guide specification

Bandwidth/120s: -3 dB points at 120 s and 108 Hz

Bandwidth/20s: -3 dB points at 20 s and 108 Hz

Clip level:

13 mm/s up to 10 Hz and 0.17 g above 19 Hz
(Model TCH20-1-1500)

26 mm/s up to 10 Hz and 0.17 g above 10 Hz
(All other Models)

Oper. Tilt Range/120s: $\pm 2.5^\circ$

Oper. Tilt Range/20s: $\pm 10^\circ$

Parasitic Resonances: None below 200 Hz

Dynamic Range/120s: 159 dB @ 1 Hz

Dynamic Range/20s: 156 dB @ 1 Hz

LEVELING AND ALIGNMENT

Leveling: Locking feet available separately

Physical Bubble Level: Accessory included

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

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
- Three channel mass positions available
through serial port

Calibration Input:

- Single voltage input and one active-high
control signal to enable all three channels
- Remote calibration in XYZ or UVW mode
- Independent channel selection by serial port

Control Lines: Cal. Enable or Long/short Period
mode, XYZ/UVW mode

Serial Port:

- RS-232 compatible serial IP (SLIP) with onboard
HTTP web server 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

AVAILABLE MODELS

TCH120-1: 120s Standard Model

TCH120-1-XC: 120s Polar Certified Model

TCH20-1: 750 V/s/m, 20s Standard Model

TCH20-1-1500: 1500 V/s/m, 20s Standard Model

TCH20-1-XC: 20s Polar Certified Model

POWER

Supply Voltage: 9 to 36 V DC isolated input

Power Consumption/120s: 180 mW typical

Power Consumption/20s: 220 mW typical

Protection:

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

PHYSICAL

Diameter: 85.5 mm

Height: 101 mm - case height

138 mm - including handle

Weight: 1.1 kg

Housing: Titanium

ENVIRONMENTAL

Operating Temperature:

-20°C to 60°C (Standard Models)

-50°C to 60°C (Polar Certified Models)

Storage Temperature:

-40°C to +70°C (Standard Models)

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

Shock:

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

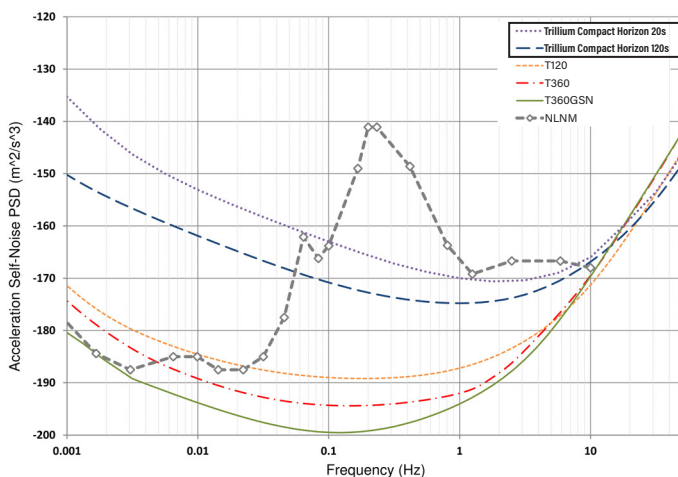
Magnetic: Insensitive to natural variations of
the earth's magnetic field

Ingress Protection:

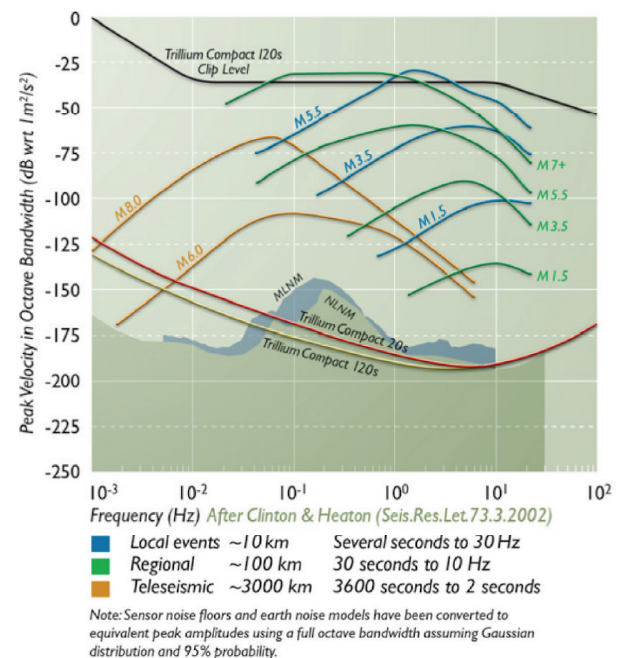
(Standard Models) Rated to IP68 for dust protection,
and water and immersion resistance to 10 meters
(Polar Certified Models) Rated to IP68 at 2 m for 72
hours when connector is mated

Humidity: 0% to 100% (submersible)

SELF-NOISE GRAPH



Seismometer self-noise plotted against NLNM (after Peterson, 1993) and MLNM (after McNamara and Buland, 2004)



Note: Sensor noise floors and earth noise models have been converted to equivalent peak amplitudes using a full octave bandwidth assuming Gaussian distribution and 95% probability.

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



Listening to the Earth

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