TRILLIUM COMPACT
COMPACT VAULT SEISMOMETER

The world's best-selling broadband seismometer, the small highly portable **Trillium Compact** is available in several configurations to best suit your deployment

Class-leading performance

The **Trillium Compact** is extremely simple to deploy with no mass lock and no mass centering required. The exceptionally small size significantly reduces the time and effort required for site preparation and installation. Continuous quality data are available within minutes of deployment with no requirement for further intervention.

The **Trillium Compact 120s** combines the superior performance of a broadband seismometer with the installation convenience of a rugged geophone. The 120s instrument incorporates a symmetric triaxial force feedback sensor design with a response flat to velocity from 120 seconds to 100Hz.

The **Trillium Compact 20s** features the same force feedback sensor design with a response flat to velocity from 20 seconds to 100Hz. The 20s instrument features an industry-leading tilt tolerance of 10°, making deployments very fast and efficient in various surface conditions. Several base foot options are available for different terrains.

The **Trillium Compact Posthole** models are also available that feature a stainless steel enclosure and waterproof connector ideally suited for downhole deployments of up to 300 meters.

Trillium Compact

Benefits

- Low-noise broadband seismometer performance combined with the handling and installation convenience of a geophone
- Ultra-low power consumption (180 mW) allows for smaller power systems and higher station reliability
- Exceptionally small size significantly reduces the time and effort required for site preparation and installation
- Quick and easy to deploy with no mass lock, no mass centering and a wide tilt range
- Integrated web server facilitates instrument management

Optional transport case doubles as thermal insulating cover for surface deployments.

TECHNICAL SPECIFICATIONS TRILLIUM COMPACT

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:
Model TC120-SV1: (Nominal) 750 V•s/m; (Actual) 754.3 V•s/m ±0.5%
Model TC20-SV1: (Nominal) 750 V•s/m; (Actual) 753.1 V•s/m ±0.5%
Model TC120-SV1-1500: (Nominal) 1500 V•s/m; (Actual) 1510.8 V•s/m ±0.5%
Accuracy: ±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:
Models TC120-SV1/TC20-SV1: 26 mm/s up to 10 Hz and 0.17 *g* above 10 Hz
Model TC120-SV1-1500: 13 mm/s up to 10 Hz and 0.17 *g* above 19 Hz
Oper. Tilt Range/120s: ±2.5°
Oper. Tilt Range/20s: ±10°
Parasitic Resonances: None below 200 Hz
Dynamic Range/120s: 159 dB @ 1 Hz
Dynamic Range/20s: 156 dB @ 1 Hz

LEVELING AND ALIGNMENT

Leveling: Adjustable locking feet
Physical Bubble level: 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

AVAILABLE MODELS

TC120-SV1: 120 second Standard Model
TC120-SV1-1500: 1500 V/s/m, 120 second
TC20-SV1: 20 second Standard Model

INTERFACE

Connector: 14-pin, shell size 12, MIL-C-26482 Series I, top mounted

Velocity Output: 40 V peak-to-peak differential
- Selectable XYZ or UVW mode

Mass Position Output: Single ±4 V output representing maximum mass position
- 3-channel mass positions available through serial port

Calibration Input: Single voltage input and one active high control signal to enable all 3 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

POWER

Supply Voltage: 9 to 36 VDC 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: 90 mm
Height:
- body and connector: 113 mm
- with leveling feet fully retracted: 128 mm
- with leveling feet fully extended: 135 mm

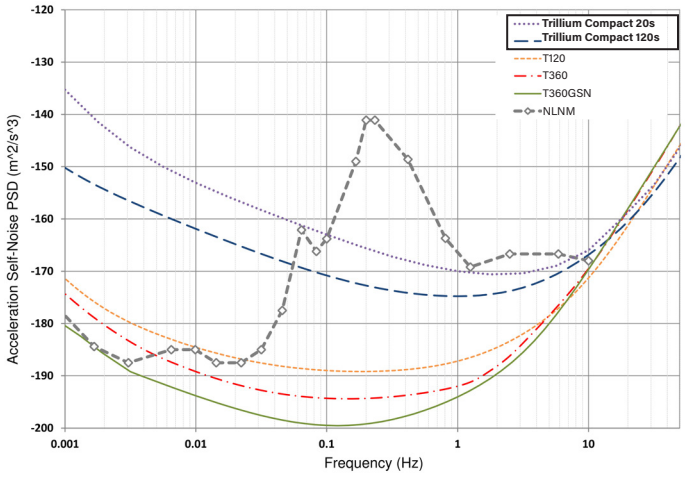
Weight: 1.2 kg
Housing: Resistant to corrosion, scratches & chips

ENVIRONMENT

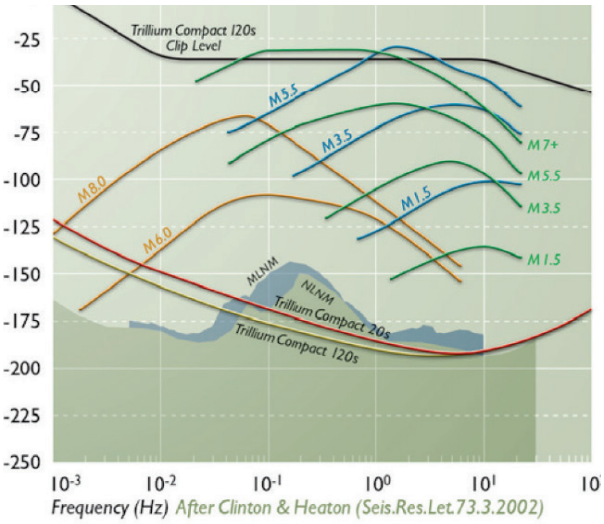
Operating temperature:
–20°C to 60°C
Storage temperature: –40°C to 70°C
Shock:
- 100 *g* half sine, 5 ms without damage, 6 axes
- No mass lock required for transport

Magnetic: Insensitive to natural variations of the earth's magnetic field
Ingress Protection: Rated to IP67 for outdoor use, dust, and immersion resistance
Humidity: 0% to 100%

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.

nanometrics
Listening to the Earth

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