

The low-noise **Trillium 120** is now available with improved performance



Trillium I20Q/QA

Broadband Seismometer



New and Improved!

- > Improved clip level at high frequencies
- > Flattened transfer function
- > Lower noise floor
- > Lower power consumption
- > Very broadband performance from a portable low power seismometer
- > Internal seismometer web page assures data quality with increased visibility to state of health and instrument controls (via SLIP to Centaur or Taurus digital recorders)
- > Installation simplified with motorized "one touch" mass centring (**T120-QA-SV1**)
 - > Mass centring rarely required after initial installation
 - > Local and remote mass centring now possible

This new version of the **Trillium 120** seismometer (**models T120-Q-SV1 & T120-QA-SV1**) maintains the high performance of the Trillium 120P/PA while boasting new internal electronics that provide higher clip levels at high frequencies, lower noise floor, lower power consumption and flattened response. This broadband seismometer technology is deployed world-wide for vault earthquake monitoring in observatories and portable deployments where lower noise floors are required.

The Trillium 120Q/QA is an exceptional seismometer having an instrument self-noise within 1 db of the NLNM at 100 seconds and below the NLNM up to 10 Hz.

This instrument incorporates the same symmetric triaxial design and suspension system as the highly successful Trillium 240. The robustness and reliability of the mechanical suspension is well-proven, with over 2000 Trillium units operating in the field.



Trillium I20Q/QA

Specifications subject to change without notice.

PERFORMANCE

Self-noise	See plot at right
Sensitivity	1200V-s/m (Reference User Guide for precise value)
Precision	±0.5% relative to User Guide specification
Bandwidth	-3dB points at 120s and 150Hz
Clip Level	>16.6 mm/s up to 10Hz and 0.17g above 10Hz
Temperature	±45°C without re-centering

INTERFACE

Connector	19-pin MIL-C-26482
Velocity Output	40V peak-to-peak differential Selectable XYZ or UVW mode
Mass Position	Three independent voltage outputs
Calibration Input	Single voltage input with one active-high control signal per channel; Calibration with XYZ or UVW
Control Lines	Auto-level & 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: 120 QA - automatic mass centring / 120 Q - manual mass centring, UVW/XYZ mode, short/long period mode, firmware updates, temperature, mass position, case tilt, instrument status, serial number and factory info

POWER

Supply Voltage	9 to 36 Volts DC isolated input
Power Consumption	560mW typical at 12V input
Protection	Reverse-voltage protection Auto-resettable over-current protection (No fuse to replace)

TECHNOLOGY

Topology	Symmetric triaxial
Feedback	Force balance with capacitive transducer
Mass Centering	Automatic motorized re-centering, can be remotely initiated (T120-QA-SV1)
Leveling	Integrated bubble level; Adjustable locking leveling feet
Alignment	Vertical scribe marks for (N and S); Precision guide in cover for straight-edge, line or laser level; 5/16" holes for alignment rods (E & W)

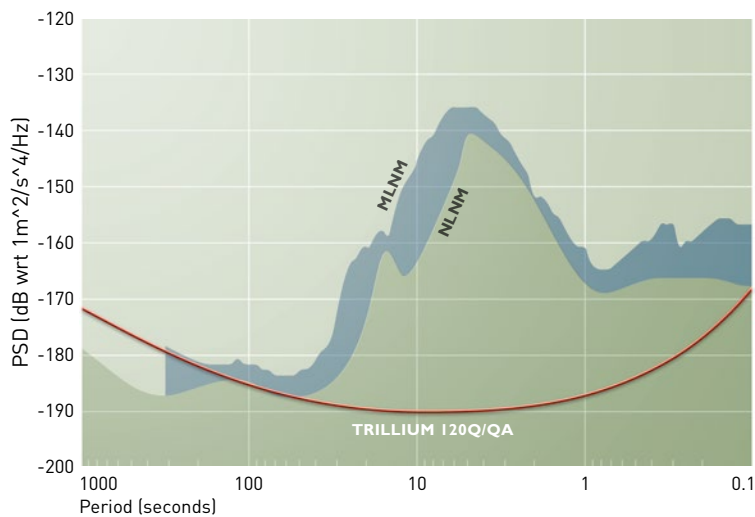
PHYSICAL

Diameter	21.0 cm
Height	21.4 cm +/-0.5cm depending on leveling feet extension
Weight	7.2 kg
Height	238mm (9.37in.), including connector
Handling	Detachable lifting handle on lid

ENVIRONMENTAL

Operating Temp.	-20°C to +60°C (Ultra-low temperature option available. Please contact Nanometrics.)
Storage Temp.	-40°C to +70°C
Optional	Insulating cover available for quick and convenient installation
Humidity	0 to 100%
Shock	20g half sine, 5 ms without damage, 6 axis No mass lock required for transport
Packaging	Rated to IP68 and NEMA6P for outdoor use

SELF-NOISE PERFORMANCE PLOT



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

