

The **Trillium I20 Posthole Seismometer** is a very broadband seismometer designed for down-hole deployments. The instrument is housed in a stainless steel enclosure incorporating a high-pressure, marine grade connector making it suitable for uncased buried/posthole installations. An advanced leveling system allows the instrument to self-correct over a tilt range of +/-10 degrees.

The **Trillium I20PH** is ideal for local, regional and tele-seismic studies having a response flat to velocity from 120 seconds to 145 Hz and a self-noise below the NLNM from 35 seconds to 10 Hz. Operators will appreciate the low power consumption, remote mass centering and robust no-mass lock design inherent in all Trillium seismometers.

PERFORMANCE
DEPENDABILITY
AVAILABILITY



Trillium

I20 POSTHOLE SEISMOMETER

Benefits

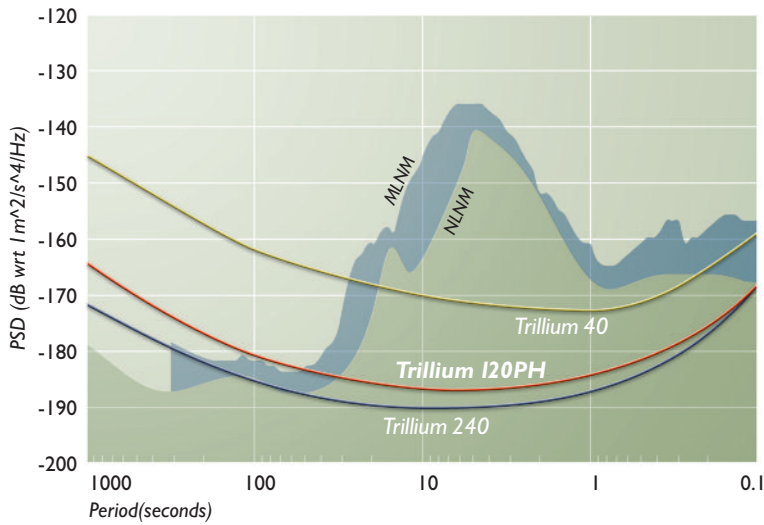
- *Automatic leveling and motorized mass centering can be remotely initiated for corrections of up to +/- 10 degrees, simplifying down-hole installation*
- *A robust, waterproof, stainless steel enclosure ensures the sensor is protected from hostile environments*
- *Cylindrical down-hole design with 6.8 inch outside diameter facilitates buried deployments*
- *Low power consumption of 620mw minimizes power source requirements at the site*
- *Quiet down-hole deployments benefit from the exceptional self-noise below NLNM from 35s to 10Hz*



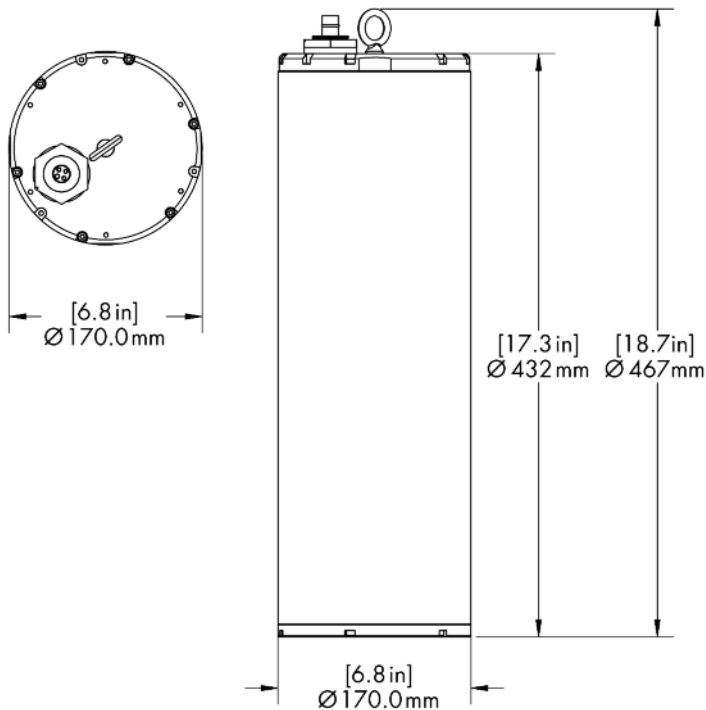
Nanometrics
SEISMOLOGICAL INSTRUMENTS

Trillium I20 Posthole Seismometer

SELF-NOISE PERFORMANCE PLOTS



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



TECHNICAL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

TECHNOLOGY	
Topology	Symmetric triaxial
Feedback	Force balance with capacitive transducer
Self-Leveling	Internal automated leveling +/- 10°
Leveling Initiation	Control line, serial port command, or scheduled delay after power-on
Mass Centering	Motorized re-centering automatically initiated during leveling sequence
Alignment	N-S line on cover for down-hole sighting Keying features for down-hole alignment rod N-S marks on base for pier installation

PERFORMANCE	
Self-noise	Below the NLNM 35 s up to 10 Hz
Sensitivity	1200 V-s/m ±0.5% precision
Bandwidth	-3 dB points at 120 s and 145 Hz
Clip Level	>15 mm/s up to 1.5 Hz
Temperature	±45°C without re-centering

INTERFACE	
Connector	SEA-CON, XSL-20-BCR
Velocity Output	40 V peak-to-peak differential Selectable XYZ or UVW mode
Mass Position Output	Three independent voltage outputs
Calibration Input	Single voltage input for all channels, independent cal enable for each Calibration in 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: Self-leveling and mass centering, UVW/XYZ mode, short/long period mode, firmware updates, temperature, mass position, instrument status, serial number and factory info

POWER	
Supply voltage	9 to 36 Volts DC isolated input
Power Consumption	620 mW typical at 15 V input
Protection	Reverse-voltage protection Auto-resettable over-current protection (No fuse to replace)

PHYSICAL	
Case Design	Stainless steel pressure vessel, submersible to 100 m depth
Diameter	172 mm (6.8")
Height	432 mm (17") not including connector or feet
Weight	21 Kg
Handling	Eye bolt on lid for lifting cable 1300 lbf (5800 N) rated

ENVIRONMENTAL	
Operating Temp.	-40°C to +55°C
Storage Temp.	-60°C to +75°C
Water Immersion	Rated to IP68 and NEMA6P for prolonged submersion
Shock	20 g half sine, 5 ms without damage, 6 axis No mass lock required for transport



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