3T Borehole

The 3T Borehole (3TB) offers reliable, high quality performance in long period monitoring applications.

KEY FEATURES

- Covers the complete seismic spectrum with a single transfer function
- 120 s to 50 Hz or 360 s to 50 Hz, other bespoke options available on request
- Hybrid velocity-acceleration responses available offering unrivalled dynamic range.
- Single-jaw hole lock for inner borehole diameters of 99 to 203 mm, or backfill with sand to minimise convection
- Waterproof and durable with O-ring seals throughout
- Built-in inclinometer option for attitude checking at depth
- Operates with a tilt tolerance of up to 2.5 ° with an option to increase this to 12.5 °
- Strain relief mechanism fully isolates the sensors from any motions in the load-bearing cable

APPLICATIONS

> National observatories
> Microseismic monitoring
> Robust velocity subsurface modelling
> Teleseismic earthquake monitoring
> Nuclear test ban treaty monitoring

3TB WITH SINGLE JAW HOLE-LOCK

SPECIFICATIONS

SYSTEM		
Configuration / Topology		Triaxial orthogonal (ZNE)
PERFORMANCE		
Velocity output band	3T-120: 3T-360:	120s (0.0083 Hz) to 50 Hz 360 s (0.0028 Hz) to 50 Hz Contact Güralp to discuss other frequency response options
Output sensitivity		1500 V/ms^{-1} (2 x 750 V/ms^{-1}) differential standard output (full-scale clip level of 13 mm/s) Contact Güralp to discuss alternative high sensitvity (high gain) options
Peak / Full scale output		Differential: ±20 V (40 V peak-to-peak) Single-ended (e.g. mass positions): ±10 V (20 V peak-to-peak)
Sensor Dynamic Range		167 dB at 1 Hz (Full octave width across 1 Hz)
Self-noise	3T-120: 3T-360:	Below NLNM 166 s (0.006 Hz) to 10 Hz Below NLNM 200 s (0.005 Hz) to 10 Hz
Cross axis rejection		65 dB
Linearity		> 111 dB
Lowest spurious resonance		> 140 Hz
Transfer function		User manual is available to download from the website. Each sensor is provided with full calibration details including measured sensitivity, measured frequency response and instrument poles and zeros
Calibration controls		Independent signal & enable lines exposed on sensor connector
Operational tilt		Up to 2.5 ° (option to increase this to 12.5 °)

MASS / MONITORING CONTROL	
Locking	Remote auto mass lock/unlock
Mass centre	Remote automatic mass centreing
POWER	
Power voltage range	11– 30 V DC* (24 V DC recommended)
Power consumption (at 12 V DC)	1.1 W
**Power voltage for operation of this unit only. Connection to additional instrumentation or use of longer cables may result in a higher input voltage requirement.*	
ENVIRONMENTAL	
Operating temperature	-20 to +75 °C
PHYSICAL	
Instrument diameter	89 mm
Inner borehole diameter	99 mm to 203 mm
Case height (exc. lifting bail)	795 mm without hole-lock 1280 mm with single jaw hole-lock
Enclosure/Materials	Stainless steel casing Gold plated contacts O-ring seals throughout
Communication / Connectors	100 bar/10 MPa waterproof connector
Hole-lock install mechanism	Spring-loaded single jaw with passive skids or studs (>60 kg force)

For deployments exceeding 100 metres in depth, we recommend the integrated Downhole Minimus digitiser. For more information see the Borehole brochure or datasheet DAS-MIN-0003

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DAS-BHO-0001 Issue Q