

3T/5T Borehole



COMPLETE BOREHOLE SEISMIC STATION



Exceptional dynamic range achieved with this hybrid 3T/5T package, designed specifically for borehole applications.

The Güralp 3T/5T combines our best selling 3T broadband seismometer and proven 5T strong motion accelerometer. This allows for simultaneous monitoring of both weak and distant seismic events, and near-field, high intensity shaking, in a single instrument.

The instrument has a diameter of just 89 mm and can be used in boreholes of up to 229 mm diameter using either single-jaw or three-jaw hole lock units.

Key features

Total realised dynamic range of over 200 dB

Exceptionally low noise floor

89 mm diameter x 1480 mm high (excluding connector)

Hole lock units with cable pass-through available, allowing installation in boreholes already containing an instrument

Optional down-hole digitiser

Optional down-hole data acquisition module

Strain relief mechanism fully isolates the sensors from any motions in the load-bearing cable

Applications

- > Vertical arrays
- > Earthquake Early Warning systems
- > Strong-motion monitoring and modelling

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SPECIFICATIONS

SYSTEM		PHYSICAL	
Configuration / Topology	Two sensors, each with triaxial, orthogonal (ZNE) components	Diameter	89 mm
PERFORMANCE		Case height excluding connector	1480 mm
Velocity output band	0.008 to 50 Hz (120 s to 0.02 s) Also available with 360 s and/or 100 Hz corners	Enclosure/Materials	Stainless steel case Gold plated contacts O-ring seals throughout
Output sensitivity	3T sensor: 3000 V/ms ⁻¹ (2*1500 V/ms ⁻¹) differential output . Options from 200 V/ms ⁻¹ to 20 kV/ms ⁻¹ 5T sensor: 5 V/g, ± 2 g standard. Other options available	Borehole diameter	103 mm to 229 mm
Peak / Full scale output	±10 V differential	Borehole install mechanism	Spring-loaded jaw with passive skids or studs (>60 kg force)
Sensor Dynamic Range	3T sensor: > 140 dB 5T sensor: > 140 dB		
Self-noise	3T sensor: 0.005 to 20 Hz (200 to 0.0 s) below NLNM (vertical) 5T sensor : > 0.007 Hz (140 s) above NHNM		
Cross axis rejection	3T sensor: > 62 dB 5T sensor: > 0.003 g/g		
Linearity	3T sensor: > 107 dB 5T sensor: > 70 dB		
Lowest spurious resonance	3T sensor: > 140 Hz 5T sensor: > 400 Hz		
Offset zeroing	5T sensor: via remote control		
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	Remote calibration on both 3T and 5T sensors		
MASS / MONITORING CONTROL			
Locking	3T sensor: remote auto mass lock/unlock		
Mass centre	3T sensor: remote automatic mass centring		
POWER			
Power voltage range	11– 30 V DC* (24 V DC recommended)		
Power consumption (at 12 V DC)	2.0 W		
<i>*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.</i>			
ENVIRONMENTAL			
Operating temperature	-20 to +65 °C (-55 °C option)		

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In the interests of continual improvement with respect to design, reliability, function or otherwise, all product specifications and data are subject to change without prior notice.

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