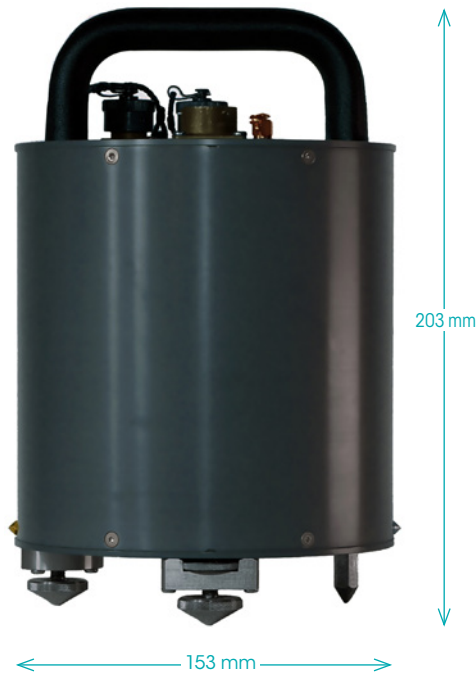


Güralp 6TD



BROADBAND SEISMOMETER WITH
INTEGRATED DIGITISER



An ultra lightweight, three component digital seismometer.

The Güralp 6TD is ideally suited for rapid, one-person installations in medium noise sites.

A true broadband, force-feedback instrument, the 6TD has zero mechanical non-linearity (the overall measured linearity exceeds 90 dB). The three components are orientated true to the sensitive axes to an accuracy better than 0.1°

Lightweight and waterproof to IP67 standard, with O-ring seals throughout, the 6TD is suitable for installation in a wide range of environments.

Applications

- > Monitoring volcanic unrest
- > Induced seismicity monitoring e.g. hydraulic fracturing
- > Rapid deployments e.g. aftershock monitoring

Images show the Güralp 6TD digital broadband seismometer

Key features

True broadband force-feedback instrument

Lightweight and waterproof to IP67 with 'O' ring seals throughout

Quick and easy, one-person installation

No mass clamping required - plug in and go

High sensitivity and dynamic range

On-board 24-bit digitizer with configurable output

Up to 32 GB of on-board Flash memory

Simple and fast live data download over FireWire

Ethernet and Wi-Fi options available

Smart case available for controlling multiple instruments

The 6T is also available as an analogue instrument for use with your own recording system

SPECIFICATIONS

SYSTEM	
Configuration / Topology	Triaxial orthogonal (ZNE)
PERFORMANCE	
Velocity output	30 s (0.03 Hz) to 100 Hz standard Contact Güralp to discuss other frequency response options
Output sensitivity	2400 V/ms ⁻¹ (2*1200 V/ms ⁻¹) differential output
Peak full-scale output voltage	Differential: ±20 V (40 V peak-to-peak) Single-ended (e.g. mass positions): ±10 V (20 V peak-to-peak)
Self noise	-172 dB (Relative to 1 [m/s ⁻¹] ² Hz ⁻¹)
Cross axis rejection	> 60 dB
Linearity	> 95 dB
Lowest spurious resonance	> 450 Hz
Calibration controls	On board signal; generator: sine wave, impulse and broadband noise
MASS / MONITORING CONTROL	
Sensor Mass positions	Three independent sensor mass position outputs (single ended)
Mass centre	Remotely controlled automatic mass centring
DIGITISER PERFORMANCE	
Digitiser type	Fourth-order sigma-delta
Digitiser resolution	24-bit
Dynamic range	> 132 dB at 20 samples per second
Sample rates	1 to 1000 sps (up to four simultaneous streams with different sample rates available)
Digital filter types	FIR (linear phase) and IIR (for low latency mode)
Decimation filters	501-point FIR, +2, +4 and +5 in configurable sequences
Anti-aliasing filter at Nyquist	> 160 dB
Output format	GCF
Sample rates available	1 to 1000 samples per second
Absolute accuracy	< 1 %
Nominal sensitivity	0.9 µV/count
Linearity	± 0.5°C
USER INTERFACE / SOFTWARE	
Digitiser control and configuration	Digitiser and sensor control via Güralp Scream! software (free download) and command line
Triggering modes	STA/LTA, level, external, software. Per-channel voting and network voting via additional software or hardware.
REAL-TIME DATA COMMUNICATION	
Interfaces	Streaming via RS232 serial with Ethernet and Wi-fi optional. Simple and fast live data download via FireWire
Protocols	GCF
ON-BOARD DATA STORAGE	
Internal storage capacity	Flash memory storage options available up to 32 GB
Data recording	GCF (Scream!)
POWER	
Power voltage range	11 - 28 V DC*
Power consumption (at 12 V DC)	0.93 W (without GPS or Ethernet)
*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.	
PHYSICAL/ENVIRONMENTAL	
Operating temperature	-20 to +65 °C
Enclosure ingress protection	IP68 - protection against effects of prolonged immersion at 3 m depth for 72 hours
Diameter	153 mm
Height without feet and handle	173 mm
Height without handle	203 mm
Height with feet and handle	245 mm
Enclosure/Materials	Hard anodised aluminium case Gold plated contacts O-ring seals throughout
Weight	3 kg
Alignment	Bubble level on lid; north arrow on handle and base; adjustable feet
Connectors	Military specification bayonet
SUPPORTING DOCUMENTATION	
Calibration values	Measured sensor sensitivity, frequency response, instrument poles & zeros, digitiser sensitivity and test results enclosed
Full user's guide	Available online at: https://www.guralp.com/documents/MAN-T60-0002.pdf