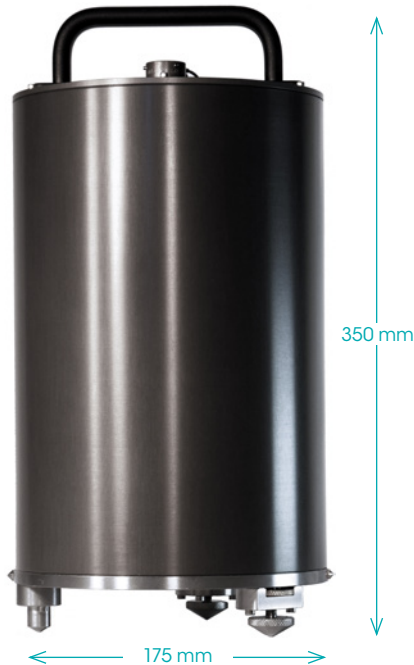


Güralp 3ESPCD



PORTABLE WEAK MOTION DIGITAL SEISMOMETER



Our proven, all-purpose 3ESPC design with integrated digitiser in a highly compact form factor.

The Güralp 3ESPCD is a development from the well-proven 3ESPC seismometer. It is a small, lightweight, broadband, triaxial instrument, offering weak-motion performance with a built in CD24 digitiser for the price and size of a medium-motion instrument.

Applications

- > Field-based monitoring stations
- > Surface vault
- > Post-hole
- > National seismic networks
- > Regional research projects
- > Rapid temporary deployments e.g. aftershock and volcanic unrest monitoring

Key features

Covers the complete seismic spectrum with a single transfer function

60 s - 100 Hz standard frequency response, 120 s low-pass corner option available

On board 24-bit digitiser with configurable output and up to 32 GB of built in Flash memory

High linearity: >107 dB, 111 dB vertical

Over 140 dB dynamic range; low self noise over a wide frequency band

Cross axis rejection over 62 dB; sensor axes orthogonal to within +/- 0.05°

Robust automatic mass locking, unlocking and centring

Adjustable feet allow for levelling up to 4° tilt

Truly portable - 9.3 kg with lifting handle and convenient access to connectors

Simple and fast live data download over FireWire. Ethernet and Wi-Fi options available

SPECIFICATIONS

SYSTEM		USER INTERFACE / SOFTWARE	
Configuration / Topology	Triaxial orthogonal (ZNE)	Digitiser control and configuration	Digitiser and sensor control via Güralp Scream! software (free download) and command line
PERFORMANCE		Triggering modes	STA/LTA, level, external, software. Per-channel voting and network voting via additional software or hardware.
Frequency Bandwidth	60 s (0.017 Hz) to 100 Hz standard Option of 120 s (0.0083 Hz) to 100 Hz Contact Güralp to discuss other frequency response options	REAL-TIME DATA COMMUNICATION	
Output sensitivity	6000 V/ms ⁻¹ (2*3000 V/ms ⁻¹) differential output Contact Güralp to discuss alternative high sensitivity (high gain) options	Interfaces	Streaming via RS232 serial with Ethernet and Wi-fi optional. Simple and fast live data download via FireWire
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)	Protocols	GCF (Scream!)
Sensor Dynamic Range	> 140 dB	ON-BOARD DATA STORAGE	
Self-noise below USGS NLNM	>30s to >16 Hz	Internal storage capacity	Flash memory storage options available up to 32 GB
Cross axis rejection	> 62dB	Data recording	GCF
Linearity	> 111 dB vertical; > 107 dB horizontal (USGS figures)	POWER	
Lowest spurious resonance	> 300 Hz (vertical)	Power voltage range	10– 28 V DC*
Calibration controls	Sine, step and broadband calibration via web interface or command-line	Power consumption (at 12 V DC)	1.6 W (without GPS or Ethernet)
Operating tilt range	± 2.5° from horizontal	<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>	
MASS / MONITORING CONTROL		PHYSICAL/ENVIRONMENTAL	
Sensor Mass positions	Three independent sensor mass position outputs (single ended)	Operating temperature range	-20 to +65 °C
Locking	Remote auto mass lock/unlock	Operating humidity range	0-100% relative humidity
Mass centre	Remotely controlled automatic mass centring	Enclosure ingress protection	IP68 - protection against effects of prolonged immersion at 3 m depth for 72 hours
DIGITISER PERFORMANCE		Enclosure/Materials	Hard anodised aluminium O-ring seals throughout
Digitiser type	Fourth-order sigma-delta	Diameter	176 mm
Digitiser resolution	24-bit	Height without feet and handle	274 mm
Dynamic range	> 132 dB at 20 samples per second	Height with feet	299 mm
Sample rates	1 to 1000 sps (up to four simultaneous streams with different sample rates available)	Height with feet and handle	350 mm
Digital filter types	FIR (linear phase) and IIR (for low latency mode)	Weight	9.3 kg
Decimation filters	501-point FIR, ÷2, ÷4 and ÷5 in configurable sequences	Alignment	Bubble level on lid; north arrow on handle and base; adjustable feet up to 4°
Anti-aliasing filter at Nyquist	> 160 dB	Connectors	Military specification bayonet
Output format	GCF	SUPPORTING DOCUMENTATION	
Sample rates available	1 to 1000 samples per second	Calibration values	Measured sensor sensitivity, frequency response, instrument poles & zeros, digitiser sensitivity and test results enclosed
Absolute accuracy	< 1 %		
Nominal sensitivity	0.9 µV/count		
Linearity	± 0.5°C		

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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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