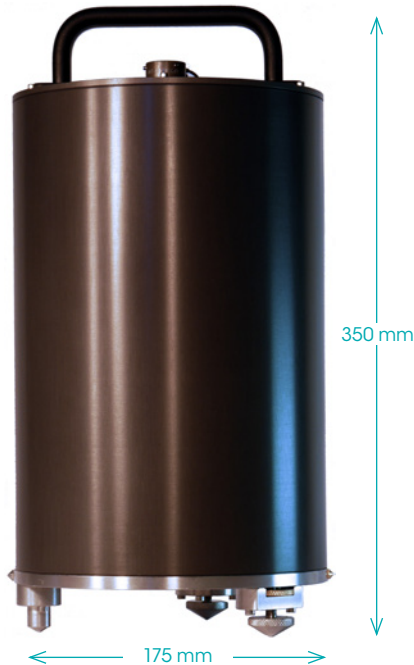


Güralp 3ESPCD



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

SENSOR: GÜRALP 3ESPC MEDIUM MOTION SEISMOMETER

SYSTEM	
Configuration / Topology	Triaxial orthogonal (ZNE)
PERFORMANCE	
Frequency Bandwidth	0.017 to 100 Hz (60 to 0.01 s) with option of a 120 s low-pass corner. Contact Güralp to discuss other frequency response options
Output sensitivity	6000 V/ms ⁻¹ (2*3000 V/ms ⁻¹) differential output
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	> 140 dB
Self-noise below USGS NLNM	>30s to >16 Hz
Cross axis rejection	> 62dB
Linearity	> 111 dB vertical; > 107 dB horizontal (USGS figures)
Lowest spurious resonance	> 300 Hz (vertical)
Calibration controls	Sine, step and broadband calibration via web interface or command-line
Operating tilt range	± 2.5° from horizontal
MASS / MONITORING CONTROL	
Sensor Mass positions	Three independent sensor mass position outputs (single ended)
Locking	Remote auto mass lock/unlock
Mass centre	Remotely controlled automatic mass centring
SUPPORTING DOCUMENTATION	
Calibration values	Measured sensor sensitivity, frequency response, instrument poles & zeros, digitiser sensitivity and test results enclosed

DIGITISER / DATA-LOGGER: GÜRALP CD24

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, network voting via Scream! software add-ons
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
POWER	
Power consumption (at 12 V DC)	1.6 W (without GPS or Ethernet)
Power voltage range	10– 28 V DC
ENVIRONMENTAL/PHYSICAL	
Operating temperature	-20 to +65 °C
Diameter	175 mm
Height without feet and handle	274 mm
Height with feet	299 mm
Height with feet and handle	350 mm
Enclosure/Materials	Hard anodised aluminium
Weight	9.3 kg
Alignment	Bubble level on lid; north arrow on handle and base; adjustable feet up to 4°
Connectors	Military specification bayonet