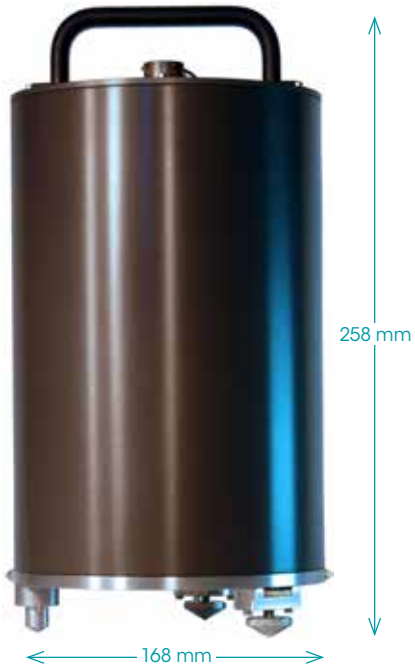
Güralp 3ESPCD

PORTABLE WEAK MOTION DIGITAL SEISMOMETER



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

The Güralp 3ESPDC is a development from the well-proven 3ESP seismometer. It is a small, lightweight, broadband, triaxial instrument, offering weak-motion performance with a built in DM24 digitizer for the price and size of a medium-motion instrument.

Applications

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

Images: Guralp 3ESPCD digital seismometer

Key features

Covers the complete seismic spectrum with a single transfer function

Response from 120s to 50Hz (60s - 50Hz standard). Options of 1, 30 and 100 s low pass corners.
Option of 100 Hz high frequency corner

On board 24-bit digitizer with configurable output and up to 16 GB of built in Flash memory

High linearity: >107dB, 111dB vertical

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

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

Robust automatic mass locking, unlocking and centring

Adjustable feet allow for up to 4° tilt (8° optional)

Low power consumption (750 mW from 10-30 V DC.

Truly portable - under 9 kg with lifing handle and convenient access to connectors

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

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SPECIFICATIONS

SYSTEM	
Configuration / Topology	Triaxial orthogonal (ZNE)
PERFORMANCE	
Frequency Bandwidth	0.02 to 50 Hz (60 to 0.02 s) standard Option of 1 s, 30 s, 100 s or 120 s corner frequency, or with a hybrid response.
Output sensitivity	2000 V/ms^{-1} (2*1000 V/ms^{-1}) differential output - optional sensitivities from 1500 V/ms^{-1} to 20,000 V/ms^{-1}
Peak / Full scale output	± 10 V differential
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)
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	Sine, step and broadband calibration via web interface or command-line
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
POWER	
Power consumption (at 12 V DC)	0.6 W
Power voltage range	10– 36 V DC Optional low power 5 V DC available (output ± 4.5 V)
ENVIRONMENTAL	
Operating temperature	-20 to +65 °C (–55 °C option)

PHYSICAL	
Diameter	168 mm
Height with handle	258 mm
Height without handle	187 mm
Enclosure/Materials	Hard anodised aluminium
Weight	8.3 kg
Communication / Connectors	Mil-spec connector (optional 1500 psi waterproof connector or user connector)
DIGITISER	
Digital resolution/output format	24-bits
Data storage	Up to 16 GB of built in Flash memory
Communication interfaces	Simple and fast live data download over FireWire. Ethernet and Wi-Fi options available

* See DM24 datasheet for full specifications

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DAS-C3E-0002 Issue C