

Güralp 3ESPCDE



PORTABLE WEAK MOTION DIGITAL SEISMOMETER



A low noise sensor with convenient web-based user interface and communications over serial and Ethernet.

The Güralp 3ESPCDE is a development from the well-proven 3ESPC seismometer. It is a small, lightweight, broadband, triaxial instrument, offering weak-motion performance with built in DM24 digitiser, for the price and size of a medium-motion instrument. The on-board EAM - Linux-based acquisition module - offers remote monitoring and control, with unparalleled flexibility.

Applications

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

Key features

Broadband force-feedback instrument with built-in DM24 digitiser and EAM acquisition module

Standard response of 60 s to 50 Hz. Option of 30 or 120 s low-pass corner

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°

Remote automatic mass locking, unlocking and centring

Communication includes Ethernet, Wi-Fi and Serial with a host of options such as GSM or VSAT

Up to 64 GB of on-board Flash memory storage

Configuration, monitoring and control via web interface, terminal-based menu system or Linux command line

Seismic protocols include SEED, MiniSEED, CD1.1, GCF and SCREAM

SPECIFICATIONS

SYSTEM	
Configuration / Topology	Triaxial orthogonal (ZNE)
PERFORMANCE	
Frequency Bandwidth	0.017 to 50 Hz (60 to 0.02 s) standard. Option of 30 s or 120 s low-pass corner Contact Güralp to discuss other frequency response options
Output sensitivity	6000 V/ms ⁻¹ (2 x 3000 V/ms ⁻¹) differential output Contact Güralp to discuss alternative high sensitivity (high gain) options
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 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
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
POWER	
Power consumption (at 12 V DC)	2.65 W (without GPS or Ethernet)
Power voltage range	11 – 28 V DC
ENVIRONMENTAL	
Operating temperature	-20 to + 65 °C

PHYSICAL	
Diameter	176 mm
Height without feet or handle	273 mm
Height with feet	300 mm
Height with feet and handle	358 mm
Enclosure/Materials	Hard anodised aluminium
Weight	9.4 kg
Alignment	Bubble level on lid; north arrow on handle and base; adjustable feet up to 4°
Connectors	Military specification bayonet
DIGITISER	
Digital resolution/output format	24-bits
Internal storage capacity	Flash memory storage options available up to 64 GB
Communication interfaces	Serial, Ethernet or Wifi

* See DM24 datasheet for full specifications