

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 3ESP seismometer. It is a small, lightweight, broadband, triaxial instrument, offering weak-motion performance with built in DM24 digitizer, for the price and size of a medium-motion instrument. An on-board, 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 data logger

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

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°

Remote automatic mass locking, unlocking and centring

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

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	0.02 to 50 Hz (60 to 0.02 s) standard* Options of 1 s, 30 s, 100 s or 120 s corner frequency, or with a hybrid response.
Output sensitivity	2000 V/ms ⁻¹ (2 x 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 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)	3.6 W to 4 W (with GPS)
Power voltage range	10– 36 V DC
ENVIRONMENTAL	
Operating temperature	-20 to + 65 °C (–40°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)