

Güralp 3TDE



WEAK MOTION DIGITAL BROADBAND SEISMOMETER



A digital broadband sensor offering unparalleled flexibility.

The Güralp 3TDE is a well proven, established design based on the 3T seismometer and DM24 digitiser. An on-board, Linux-based acquisition module offers remote monitoring and control, with unparalleled flexibility.

The 3TDE combines the well-regarded 3T weak motion instrument, an integrated DM24 digitizer and an EAM embedded acquisition module to form a low noise sensor with on-board and external storage options, a convenient web-based user interface and multi-protocol communications over serial and Ethernet connections. This capability makes the 3TDE ideal for long-period and permanent deployments.

Key features

Covers the complete seismic spectrum with a single transfer function

Responses from 360 s to 50 Hz (120 s - 50 Hz standard).

Options of 30 and 60 s LP corners, of 100 and 200 Hz HF corners

Measured self noise below the USGS NLNM from > 200 s to 20 Hz (Vertical)

High linearity: > 107 dB, 111 dB vertical (USGS figures)

Over 140 dB dynamic range over the entire passband (USGS figure)

Cross axis rejection over 65 dB; sensor axes orthogonal to within +/- 0.05 °

Remote, automatic electronic mass locking, unlocking and centring

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

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

Configuration, monitoring and control via web interface, terminal based menu systems or the Linux command line

Applications

- > Surface and subsurface vault
- > Posthole
- > Networked Arrays
- > Volcanology
- > Geophysical and petrochemical exploration

SPECIFICATIONS

SYSTEM	
Configuration / Topology	Triaxial orthogonal (ZNE)
PERFORMANCE	
Frequency Bandwidth	0.008 to 50Hz (120 to 0.02 s) standard Options of 30 s, 60 s or 360 s long period corner frequency, or with hybrid response
Output sensitivity	1500 V/ms ⁻¹ (2 × 750 V/ms ⁻¹) differential output - optional sensitivities 1000 V/ms ⁻¹ to 20 000 V/ms ⁻¹
Peak / Full scale output	±10 V differential
Sensor Dynamic Range	> 140 dB (USGS figure)
Self-noise below NLNM	>200 s to 20 Hz (Vertical)
Cross axis rejection	> 65 dB
Linearity	> 111 dB vertical; > 107 dB horizontal
Lowest spurious resonance	> 140 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)	2.0 W with GPS receiver
Power voltage range	12– 36 V DC
ENVIRONMENTAL	
Operating temperature	-20 to +75 °C (-55 °C option)

PHYSICAL	
Diameter	168 mm
Height with handle	376 mm
Height without handle	323 mm
Enclosure/Materials	Stainless steel case
Weight	14.2 kg
Communication / Connectors	Mil-spec connector
DIGITISER*	
Digital resolution/output format	24-bits
Data storage formats/Direct disk recording formats	Data recording in GCF or miniSEED formats
Data communication protocols/seismic protocols	Scream (Antelope/Earthworm), BRP, SEEDlink, CD1.0/1.1, GCSD, GSMS, WIN and others
Communication interfaces	10BASE-T/100BASE-T Ethernet, serial, PPP, Wi-Fi, USB
Configuration/control interface	Web browser, terminal based menus, Linux control line
*See DM24 digitiser datasheet for more information	