# Güralp 5TCDE

## DIGITAL FEEDBACK INTERNET ACCELEROMETER


## A digital, triaxial, force-feedback accelerometer with a large dynamic range.

The Güralp 5TCDE is suitable for seismology, hazard mitigation and civil engineering applications. An on-board, Linux-based acquisition module offers remote monitoring and control with unparalleled flexibility.

Combining the 5T strong motion instrument, a DM24 digitizer and an embedded acquisition module (EAM), the 5TCDE is a low-noise sensor with on-board and external storage options. Other benefits include a web-based user interface and multi-protocol communications over serial and Ethernet connections, an optional Wi-Fi module offers 802.11b and g connectivity.

## Applications

> Ground motion modelling
> Large earthquake source characteristics
> Earthquake Early Warning systems
> Structural health monitoring

## Key features

- Low-noise components for high precision and extra dynamic range
- Full-scale sensitivity from ± 0.1 to ± 4.0 g
- No mass-locking or sensor levelling required
- Robust and waterproof
- Up to 256 GB of on-board Flash memory storage
- Optional unlimited external USB mass storage
- Data recording in GCF or miniSEED formats
- Fast data download over Ethernet or USB
- Configuration via serial or Ethernet; command-line or web-based
- Full network security suite, including HTTPS and Firewall, allows direct, permanent connection to the internet
- LCD display allows operators to monitor triggers and memory usage in real-time
- Powerful, flexible Linux operating system
- Optional 802.11b and 802.11g Wi-Fi

Images show the Güralp 5TCDE digital feedback internet accelerometer

# Güralp 5TCDE

## SPECIFICATIONS

| | |
|---|---|
| **SYSTEM** | |
| Configuration / Topology | Triaxial orthogonal (ZNE) |
| **PERFORMANCE** | |
| Acceleration output band | DC – 100 Hz standard |
| Output sensitivity | ± 4g, ± 2 g, ± 1 g, ± 0.5 g, or ± 0.1 g |
| Peak / Full scale output | ±10 V differential |
| Sensor Dynamic Range | >165 dB |
| Cross axis rejection | 0.001 g/g |
| Linearity | 0.1% full scale |
| Lowest spurious resonance | > 450 Hz |
| Offset zeroing | Automatic on start up and on user command |
| 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) |
| **POWER** | |
| Power consumption (at 12 V DC) | 2.6 W (with GPS) |
| Power voltage range | 10– 28 V DC |
| **ENVIRONMENTAL** | |
| Operating temperature | -20 to +75 °C |

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|---|---|
| **PHYSICAL** | |
| Diameter | 176 mm |
| Height with handle | 200 mm |
| Enclosure/Materials | Hard anodised aluminium case<br>O-ring seals throughout |
| Environmental protection (IP rating) | IP67 |
| **DIGITISATION*** | |
| Digital resolution/output format | 24-bit |
| Data storage formats/Direct disk recording formats | Data recording in GCF or miniSEED formats |
| Seismic network protocols | Scream (Antelope/Earthworm), SEEDlink, or CD1.1 |
| Data storage | 16 GB Flash memory storage as standard (up to 256 GB option). |
| Communication interfaces | Ethernet, Serial and Wi-Fi |
| Sample rates | 1 to 1000 samples per second |
| * See EAM and DM24 digitiser datasheets for further details | |

Güralp Systems Limited
Midas House
Calleva Park
Aldermaston
Reading
RG7 8EA
UK

T +44 118 981 9056
F +44 118 981 9943
E sales@guralp.com

www.guralp.com



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