

# 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 5TC strong motion instrument, a CD24 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 of  $\pm 2$  g as standard

No mass-locking or sensor levelling required

Robust and waterproof

Up to 64 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

## SPECIFICATIONS

SYSTEM		PHYSICAL	
Configuration / Topology	Triaxial orthogonal (ZNE)	Diameter	175 mm
PERFORMANCE		Height without handle	140 mm
Acceleration output band	DC – 100 Hz standard	Height with handle	203 mm
Output sensitivity	± 2 g	Weight	3.5 kg
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)	Enclosure/Materials	Hard anodised aluminium case O-ring seals throughout
Sensor Dynamic Range	>147 dB @ 0.1 Hz >151 dB @ 1 Hz >146 dB for 5 Hz	Environmental protection (IP rating)	IP67
Cross axis rejection	0.001 g/g	DIGITISATION*	
Linearity	0.1% full scale	Digital resolution/output format	24-bit
Lowest spurious resonance	> 450 Hz	Data storage formats/Direct disk recording formats	Data recording in GCF or miniSEED formats
Offset zeroing	Automatic on start up and on user command	Seismic network protocols	Scream (Antelope/Earthworm), SEEDlink, or CD1.1
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	Internal storage capacity	Flash memory storage options available up to 64 GB
Calibration controls	Sine, step and broadband calibration via web interface or command-line	Communication interfaces	Ethernet, Serial and optional Wi-Fi
MASS / MONITORING CONTROL		Sample rates	1 to 1000 samples per second
Sensor Mass positions	Three independent sensor mass position outputs (single ended)	* See EAM and CD24 digitiser datasheets for further details	
POWER			
Power consumption (at 12 V DC)	2.6 W (with GPS)		
Power voltage range	11– 28 V DC		
ENVIRONMENTAL			
Operating temperature	-20 to +75 °C		