Güralp 5TC

STRONG MOTION FEEDBACK ACCELEROMETER

A very compact, triaxial accelerometer

The Güralp 5TC is a low-noise, force-feedback accelerometer with a large dynamic range. The 5TC is suitable for seismology, hazard mitigation and civil engineering applications.

The 5TC can be offered with a 100 Hz or 200 Hz low-pass corner frequency. Full-scale gain is available up to 4g.

Key features

- Low-noise components for high precision and enhanced dynamic range
- 50% smaller footprint than the original 5T
- Full-scale sensitivity from options 0.1 to 4.0 g
- Low-pass corner from 100 Hz, with a 200 Hz option available
- Simple installation with a single M8 fixing bolt; robust and waterproof
- No sensor levelling required
- Isolated power supply for 10 - 36 V operation
- Acceleration offsets adjustable for < 1 mV precision

Applications

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

Images show the Güralp 5TC accelerometer

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SPECIFICATIONS

SYSTEM	
Technology	Force feedback (force-balance) accelerometer
Configuration / Topology	Triaxial orthogonal (ZNE)
PERFORMANCE	
Velocity output band (flat response within -3 dB crossing points)	DC to 100 Hz standard DC to 200 Hz option available Contact Güralp to discuss other frequency response options
Output sensitivity options	±4 g, ±2 g (standard), ±1 g, ±0.5 g, or ±0.1 g
Peak full-scale output voltage	Differential: ±20 V (40 V peak-to-peak) Single-ended (e.g. mass positions): ±10 V (20 V peak-to-peak)
Self noise below NHNM (New High Noise Model; Peterson, 1993, USGS)	>0.15 Hz (6.7 s) (USGS-tested figure)
Sensor dynamic range (at standard output sensitivity)	145 dB @ 1 Hz 140 dB @ 5 Hz
Cross axis rejection	0.001 g/g
Linearity	0.1% full -scale
Lowest spurious resonance	>450 Hz
MASS / MONITORING CONTROL	
Mass locking	No mass locking required
Offset zeroing	Automatic on start-up and user command

CALIBRATION	
Calibration input	Independent signal and enable lines exposed on sensor connector
CONNECTORS	
Analogue output	26-pin Mil-spec (military specification bayonet) connector
POWER	
Power supply voltage	10–36 V DC
Power consumption (at 12 V DC)	0.61 W
PHYSICAL / ENVIRONMENTAL	
Operating temperature range	-20 to +70 °C
Operating humidity range	0-100% relative humidity
Enclosure ingress protection	IP68 - protection against prolonged effects of immersion under pressure (tested under 3 m of water for 72 hours)
Enclosure material	Hard-anodised aluminium case O-ring seals throughout
Diameter	122 mm
Height	99 mm
Weight	1.3 kg
Alignment	Bubble level on lid; north arrow on lid; adjustable feet
SUPPORTING DOCUMENTATION	
Calibration values	Measured sensor sensitivity, frequency response, instrument poles and zeros enclosed
Full user's guide	Available online at: https://www.guralp.com/documents/MAN-050-0004.pdf

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