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FORTIS

STRONG MOTION ACCELEROMETER



Designed to be 'best in class', our most versatile accelerometer yet.

KEY FEATURES

> Slimline design
> Switchable gain
> Easy, rapid deployment
> Also available with waterproof, stainless steel casing for posthole deployment

APPLICATIONS

> Earthquake early warning systems
> Structural health monitoring
> Shake intensity research

Fortis

The Güralp Fortis is a strong motion analogue accelerometer with an innovative, slim-line design for fast installation in any environment.

FORTIS DIMENSIONS:



THE FORTIS IS ALSO AVAILABLE IN A STAINLESS STEEL CASING SUITABLE FOR POSTHOLE DEPLOYMENT*



*GAIN IS CONTROLLABLE REMOTELY VIA THE GÜRALP MINIMUS DIGITISER



Our state-of-the-art gain switch allows the instrument to perform optimally in a wide range of earthquake shaking scenarios providing versatility for all earthquake early warning and structural health monitoring applications.

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

The Fortis has one output which can be set at a wide range of gain options, providing flexibility for all strong motion monitoring applications.

The system has both a flat response to ground acceleration from DC to 100 Hz and a stable phase response within the passband.

The hard anodised aluminium casing protects the instrument from water, allowing it to be deployed in a range of environments.

Posthole Deployment

For subterranean deployments, the Fortis^{PH} instrument incorporates the Fortis sensor housed in a stainless steel enclosure with a 100 bar / 10 MPa waterproof connector and an optional lifting bail.

Require a digital accelerometer?

The Fortimus digital acceleromer is integrated with the feature-rich Minimus digitiser in one compact unit. Simple to use and quick to install, the Fortimus offers advanced data recording and communications features plus an ultra-low-latency mode for earthquake early warning. Find out more here: www.guralp.com/products/fortis-and-fortimus

Applications

- Earthquake Early Warning systems
- Structural Health Monitoring (e.g. dams, infrastructure, buildings)
- Surface and vault installation
- Posthole deployment
- Networked Arrays

Key features

Very low-noise components for high precision and enhanced dynamic range

Fixing bolt allows rapid installation for structural health monitoring

Slimline shape

Switchable gain from 0.5 to 4.0 g controllable manually on the sensor or remotely using the Güralp Minimus digitiser

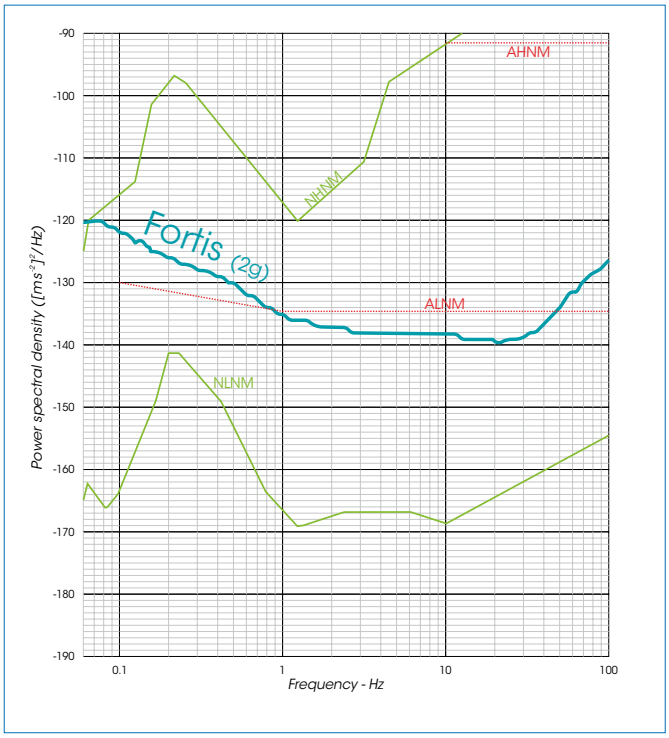
Simple installation with a single M8 fixing bolt; robust and waterproof

The sensor doesn't require levelling to operate, however a physical bubble level is provided for instances where a level installation is desired

Isolated power supply for 10 - 36 V operation

Acceleration offsets adjustable for <1 mV precision

Sensor self-noise



Fortis

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SPECIFICATIONS

SYSTEM	
Configuration / Topology	Triaxial orthogonal
PERFORMANCE	
Acceleration output band	DC – 100 Hz standard Option of DC - 200 Hz
Gain switch options	±4 g, ±2 g, ±1 g or ±0.5 g
Sensitivity	2.5 V/g, 5 V/g, 10 V/g, 20V/g
Peak / Full scale output	Differential: ±20 V (40 V peak-to-peak)
Clip level	4.2 g
Sensor Dynamic Range	> 160 dB
Self-noise below NHNM	> 0.06 Hz (< 17 seconds)
Self-noise below AHNM	DC to 100 Hz
Self-noise below ALNM	0.8 to 45 Hz
Cross axis rejection	0.001 g/g
Linearity	0.1% full scale
Lowest spurious resonance	> 450 Hz
Damping	0.7 critical or 70% critical
Offset zeroing	Automatic on start up and on user command
Calibration controls	Independent signal & enable lines exposed on sensor connector
POWER	
Power voltage range	10– 36V DC*
Power consumption (at 12 V DC)	1.5 W standard < 1.2 W option - contact Güralp for more information

**Power voltage for operation of this unit only. Connection to additional instrumentation or use of longer cables may result in a higher input voltage requirement*

ENVIRONMENTAL	
Operating temperature	-20 to +70 °C

PHYSICAL	
Standard Fortis:	
Diameter	125 mm
Height with feet and ports	99 mm
Height (sensor only)	66 mm
Enclosure/Materials	Hard anodised aluminium
Weight	1.1 kg
Communication / Connector	Military specification connector
Optional fixing	M8×75 fixing bolt
Environmental protection	IP68 - protection against effects of prolonged immersion at 3 m depth for 72 hours
Posthole Fortis:	
Diameter	125 mm
Height (exc. connector)	78 mm
Enclosure/Materials	Stainless steel
Communication / Connector	100 bar / 10 MPa waterproof connector (height 32 mm)
Optional lifting bail assembly (height)	259 mm
Environmental protection (IP rating)	IP68 - protection against effects of permanent immersion under pressure to 350 m depth

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In the interests of continual improvement with respect to design, reliability, function or otherwise, all product specifications and data are subject to change without prior notice.

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