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HEXIS

DUAL TRIAXIAL SENSORS, WIDE DYNAMIC RANGE



Acceleration and velocity monitoring combined in a single system for exceptional dynamic range

KEY FEATURES

> Acceleration and velocity sensors combined in a single posthole system
> Dynamic range >200 dB
> Adjustable long-period corner for velocity sensor and adjustable gain for acceleration sensor
> Easy, rapid deployment
> Slimline stainless steel enclosure with a 100 bar/10 MPa waterproof connector for posthole deployment

APPLICATIONS

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

Hexis

The Güralp Hexis combines two triaxial sensors, the Fortis accelerometer and the Certis medium-motion seismometer, for maximum dynamic range in a posthole instrument.

Durable and corrosion resistant stainless steel enclosure, with a 100 bar / 10 MPa waterproof connector and an integrated lifting bail.



Designed for posthole and direct burial deployments, Hexis achieves a total realised dynamic range that exceeds 200 dB by combining our advanced Certis medium-motion seismometer with our respected Fortis accelerometer.

Certis Seismometer

Certis' new sensor technology delivers medium-motion seismic monitoring data with instrument state-of-health, response and calibration data. When partnered with the Minimus digitiser, the Certis can also output to serial and offers a remotely adjustable long-period corner to suit the deployment environment.

Fortis Accelerometer

The Güralp Fortis is a very low-noise, force-feedback accelerometer with a flat response to ground acceleration from DC to 100 Hz and a stable phase response within the passband. The Fortis' output can be set, remotely, at a wide range of gain options, providing flexibility for all strong motion monitoring applications.

Robust design for downhole deployments

The Hexis is housed in a stainless steel enclosure with a 100 bar/10 MPa waterproof connector and an optional lifting bail.

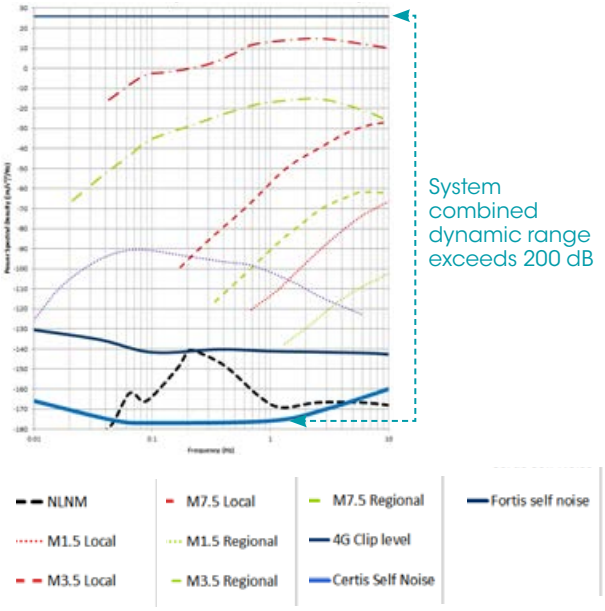
Key features

- Very low-noise components for high precision and enhanced dynamic range of over 200 dB
- Mutually aligned sensor units for optimal deployments
- Accelerometer benefits from remote switchable gain from 0.5 to 4.0 g when partnered with the Minimus digitiser
- Seismometer benefits from remote, user-selectable long-period corner settings between 20 s and 120 s when partnered with the Minimus digitiser
- Acceleration offsets adjustable for <1 mV precision
- Isolated power supply for 10 - 36 V operation
- Slimline stainless steel enclosure with a 100 bar/10 MPa waterproof connector and an integrated lifting bail
- State of Health streaming

Applications

- Earthquake Early Warning systems
- Structural Health Monitoring (e.g. dams, industry, buildings)
- Volcano observatories
- Networked Arrays
- Posthole and direct burial

Dynamic range



Hexis

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SPECIFICATIONS

SYSTEM		
Configuration / Topology		Triaxial orthogonal for both sensors
PERFORMANCE		
Velocity output band (Certis)		120 s (0.0083 Hz) to 100 Hz User selectable long-period corner of 20 s, 30 s, 45 s, 60 s, 90 s, 100 s, 110 s and 120 s
Acceleration output band (Fortis)		DC to 100 Hz Option of DC to 200 Hz
Output sensitivity	Certis:	750 V/ms^{-1} (2 x 375 V/ms^{-1}) differential standard output. Other options available
	Fortis:	±4 g, ±2 g, ±1 g or ±0.5 g
Peak / Full scale output		Differential: ±11 V (22 V peak-to-peak) Single-ended: ±5.5 V (11 V peak-to-peak)
Sensor Dynamic Range	Certis:	155 dB
	Fortis:	> 160 dB
	Total combined:	> 200 dB
Self-noise	Certis:	-175 dB from 10 seconds to 1 Hz
	Fortis:	> 0.06 Hz (< 17 seconds) below NHNM DC to 100 Hz below AHNM 0.8 to 45 Hz below ALNM
Cross axis rejection	Certis:	> 65 dB
	Fortis:	0.001 g/g
Linearity	Certis:	> 95 dB
	Fortis:	0.1% full scale
Lowest spurious resonance	Certis:	> 450 Hz
	Fortis:	> 450 Hz
Offset zeroing (Fortis)		Automatic on start up and on user command
Transfer function		Measured sensitivity, frequency response and instrument poles and zeros are stored within the instrument and accessible via web interface of the digitiser

POWER	
Power voltage range	10 – 36V DC*
Power consumption (at 12 V DC)	< 2 W standard

**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	
Diameter	126 mm
Height with feet and connector	203 mm
Height (sensor only)	167.5 mm
Enclosure/Materials	Stainless steel
Weight	7.8 kg
Communication / Connector	100 bar / 10 MPa waterproof connector (height 32 mm)
Humidity	0 - 100%
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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