DATA SHEET



VE-53-DH Short-Period Seismometer

Overview

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The VE-53-DH is a downhole, triaxial short-period seismometer designed for seismic monitoring applications.

Based on a state of the art geophone mass-spring system with electronic feedback, the VE-53-DH seismometer is ideally suited for installations with low to moderate noise.

The VE-53-DH is housed in an extremely robust downhole housing of austenitic stainless steel.

Offering a remarkable stability under temperature fluctuations or against ageing, the VE-53-DH requires no mass locking due to the innovative design of the unit.

The VE-53-DH is equipped with electronic offset adjustment features that make its installation very user friendly. This powerful feature allows the users to install the VE-53-DH without mechanical offset adjustment and fine levelling.

The advanced iSensor™ interface allows easy deployment using built-in hardware like compass as well



Key Features

- Sensitivity 1000 V/m/s differential
- Built-in compass as well as tilt, temperature, and humidity sensors
- Extremely robust downhole housing
- Suitable for borehole diameters of 100 mm and larger
- ▶ Proprietary iSensor[™] interface
- Dynamic range > 125 dB (0.9 15 Hz) > 120 dB (0.9 - 30 Hz)
- Full scale range: 20 mm/s (± 10 mm/s)
- Bandwidth 1 to 80 Hz (-3 dB) or 8.0 s (0.125 Hz) to 160 Hz (BB version)

as tilt, temperature and humidity sensors.

The VE-53-DH seismometer is directly compatible with all GeoSIG solutions.



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www.geosig.com

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VE-53-DH Short-Period Seismometer

Axes

X - Y - Z

X - Y - Z

Alignment**

 $\frac{H-H-V}{H-H-V}$

Specifications

General Characteristics

VE-53-DH-BB: VE-53-DH:

** H: Horizontal, V: Vertical

1000 V/m/s differential (2 x 500 V/m/s)

20 mm/s (± 10 mm/s) nominal output

Uniaxia

Biaxial

Over damped geophones

> 125 db (1 - 15 Hz)

Triaxia

Sensitivity: Full scale range:

Sensor Element

Type: Dynamic range:

Nonlinearity: ± 0.05% of f Cross axis sensitivity: ± 1 % typical

Bandwidth:

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> 120 db (1 - 30 Hz)
± 0.05% of full scale maximum
± 1 % typical
± 3 % maxiumum
1.1 s (0.9 Hz) to 89 Hz



Damping: Full scale output: Measuring range: 0.7 critical 0 ±10 V differential > M1 (Local - 10 Km) and > M1.5 (Regional - 100 Km)

iSensor™ interface

iSensor[™] interface is a state of the art innovative and proprietary hardware and software interface developed by GeoSIG, which allows through its special computer software, the operation, control, logging and data export for the built in:

- compass - tilt sensor - temperature sensor - humidity sensor Power 9 to 18 VDC Supply voltage: 60 mA typical, 100 mA max. @15 VDC Consumption: Overvoltage protection: All pins are protected Testing Test input: Activated by applying a 12 VDC voltage to generate an output of a pulse with an amplitude of 50% of the full scale Environment/Housing Austenitic stainless steel Housing type: \$ 89 mm x 502 mm Housing size: 7.5 kg (typical configuration) Weight: Watertight up to 10 bar (100 m) Index of protection: -20 to +70 °C (operating) Temperature range: -40 to +75 °C (non-operating) **\$ 89 mm** 502 mm

Options

- Cable & connector:
- Surface control unit:
- See separate document (GS_Sensor_Connector_Options)
 iSensor interface

Ordering Information

Specify:

Type of VE-53-DH, full scale range, depth of deployment, cable length, and other applicable options

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