VE-53 / VE 52 / VE 51 Short Period Seismometer

Features

- Sensitivity 1000 V/m/s differential
- Bandwidth 1.1 s (0.9 Hz) to 89 Hz
  8.0 s (0.125 Hz) to 160 Hz (BB version)
- Dynamic Range > 125 dB (0.9 - 15 Hz)
  > 120 dB (0.9 - 30 Hz)
- Robust mechanical design
- Excellent temperature and aging stability
- Low power consumption
- Easy testing, low maintenance
- Downhole version (VE-5x-DH) is also available*

Outline

The VE-5x is a triaxial short period seismometer designed for seismic monitoring applications.

The VE-5x seismometer is based on a state of the art geophone mass-spring system with electronic feedback. It is ideally suited for installation in vaults with low to moderate noise.

VE-5x offers a remarkable stability under temperature fluctuations or against aging. In addition due to the innovative design of the unit no mass locking is required.

The VE-5x is housed in a sealed cast aluminium housing. The housing incorporates a single bolt mounting system with three levelling screws.

The broaderband version, VE-53-BB, is suitable for applications involving an extended frequency range.

Stainless steel or Ex-proof packaging options and a downhole version, VE-53-DH, are also available.

The VE-5x seismometer is directly compatible with all GeoSIG solutions.

Gain Factor (K) | Poles (P) | Zeros (Z)
--- | --- | ---
9.200e+005 | -1.317e+000+0.000e+000i | 1.000e+000
-6.064e+002+0.000e+000i
-3.665e+000+5.141e+000i
-1.960e+001+0.000e+000i
-1.471e+000+0.000e+000i

Gain Factor (K) | Poles (P) | Zeros (Z)
--- | --- | ---
3.879e+009 | -1.079e+003+0.000e+000i | 0.000e+000
-0.000e+000
-7.411e+000+1.000e+000i
-3.332e+003+1.332e+003i
-3.332e+003+1.332e+003i
Specifications

VE-53 / VE 52 / VE 51 Short Period Seismometer

General Characteristics
Configurations:

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** Specifications subject to change without notice. **

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Specifications

**VE-53 / VE 52 / VE 51 Short Period Seismometer**

**General Characteristics**

**Configurations:**
- Triaxial
- Biaxial
- Uniaxial

**Axes Alignment:**
- VE-52 (BB-H): X (or Y) – Z, H – H
- VE-52 (BB-HV): X (or Y), H – V
- VE-51 (BB): X (or Y), Z, H

**Sensitivity:**
1000 V/m/s differential (2 x 500 V/m/s)

**Full Scale Range:**
20 mm/s (± 10 mm/s) nominal output

**Sensor Element**

**Type:** Over damped geophones

**Dynamic Range:**
- > 125 dB (1 – 15 Hz)
- > 120 dB (1 – 30 Hz)

**Linearity:**
± 0.05 % of full scale maximum

**Cross Axis Sensitivity:**
± 1 % typical
± 3 % maximum

**Bandwidth:**
1.1 s (0.9 Hz) to 89 Hz
8.0 s (0.125 Hz) to 160 Hz (BB version)
flat response within -3 dB crossing points

**Damping:**
0.7 critical

**Full Scale Output:**
0 ± 10 V differential
optional 0 ± 5 V pseudo-differential

**Measuring Range (see plot):**
- > M1 (Local -10 Km) and
- > M1.5 (Regional -100 Km)

**Power**

**Supply Voltage:**
9 to 18 VDC

**Consumption:**
59 mA typical, 88 mA max. @15 VDC

**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**

**Housing Type:**
- Cast aluminium
- Sealed access cover
  - optional
- stainless steel or ex-proof

**Housing Size:**
195 x 112 x 96 mm

**Weight:**
2.5 kg

**Index of Protection:**
IP 65
optional IP 68

**Temperature Range:**
- -20 to 70 °C (operating)
- -30 to 80 °C (non-operating)

**Humidity:**
0 to 100 % (non-condensing)

**Usage**

**Orientation:**
- Floor mount
- optional
- Wall mount
  - See separate document
  - (GS_Sensor_Orientation)

**Cable & connector:**
See separate document
  - (GS_Sensor_Connector_Options)

**Mounting:**
- Single bolt, surface mount, adjustable within ± 10°

**标准 VE-5x**

Floor mounted, 2 m cable with cable inlet and concrete anchor, includes recorder mating connector if delivered with a GeoSIG recorder.

**Ordering Information**

Please specify applicable options

* See separate datasheet for DH sensor. The BB version is not available as downhole version.

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