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GeoSIG
swiss made to measure

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.

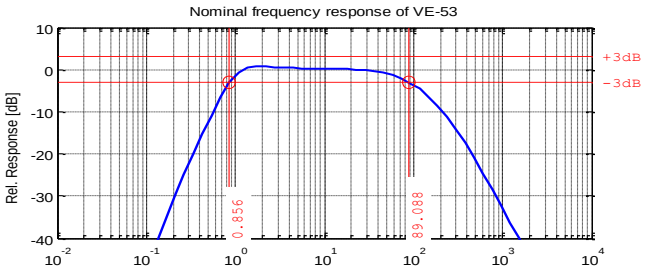
VE-5x offers a remarkable stability under temperature fluctuations or against aging. In addition due to the innovative design of the unit no mass locking is required.

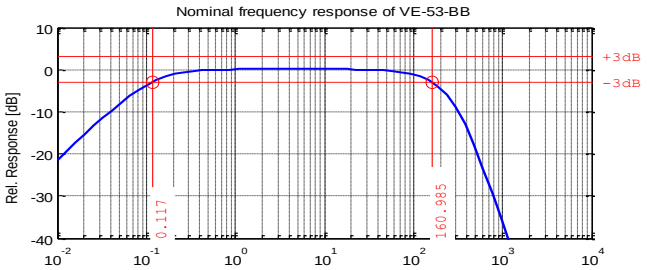
The VE-5x is housed in a sealed cast aluminium housing. The housing incorporates a single bolt mounting system with three levelling screws.

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 -6.064e+002+0.000e+000i -3.665e+000+5.141e+000i -3.665e+000-5.141e+000i -1.960e-001+0.000e+000i -1.471e+003+0.000e+000i	1.000e+000

Gain Factor (K)	Poles (P)	Zeros (Z)
3.879e+009	-1.079e+003+0.000e+000i -7.411e-001+0.000e+000i -1.332e+003+1.332e+003i -1.332e+003-1.332e+003i	0.000e+000

ISO 9001
REGISTERED FIRM

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

General Characteristics

Configurations:

	Triaxial	Biaxial	Uniaxial	Axes	Alignment**
VE-53(-BB):	■			X – Y – Z	H – H – V
VE-52(-BB)-H:		■		X – Y	H – H
VE-52(-BB)-HV:		■		X (or Y) – Z	H – V
VE-51(-BB)-H:			■	X (or Y)	H
VE-51(-BB)-V:			■	Z	V

** H: Horizontal, V: Vertical

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

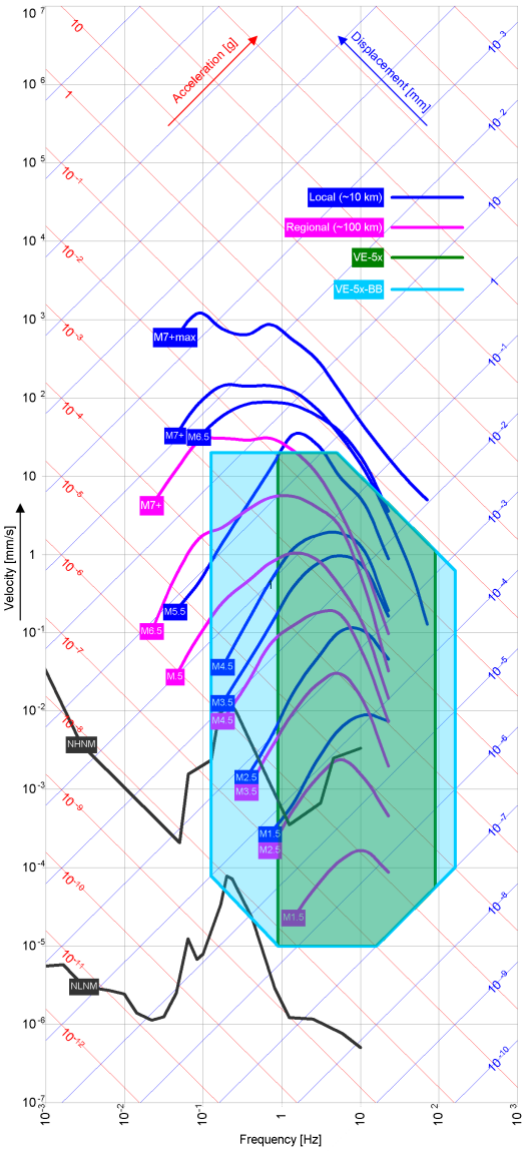
Cross Axis Sensitivity: ± 1 % typical
± 3 % maximum

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)

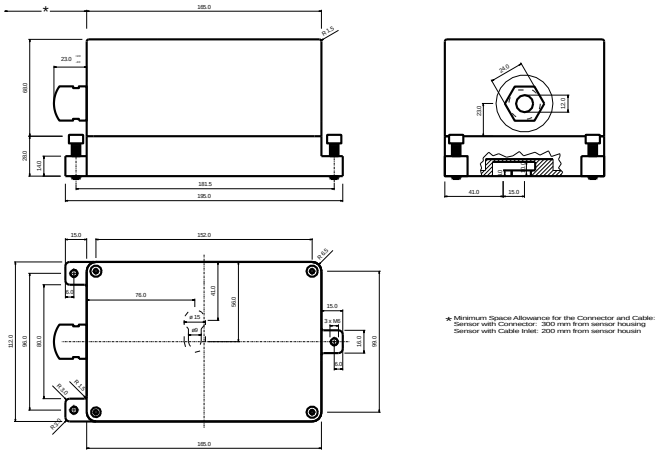
Humidity: 0 to 100 % (non-condensing)

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°



Standard 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.