

## 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.

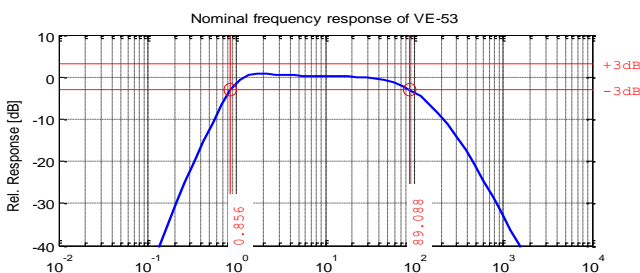
VE-5x offers a remarkable stability under temperature fluctuations or against aging. In addition due to the innovative design of the unit no mass locking is required.

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

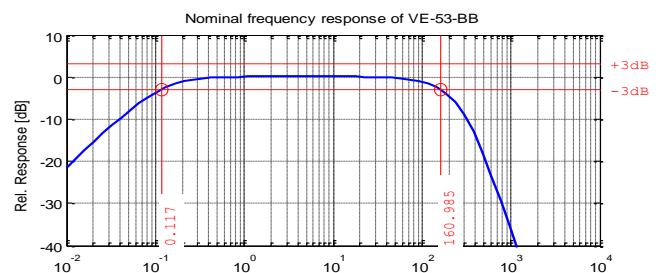
The broaderband version, VE-53-BB, is suitable for applications involving an extended frequency range.

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



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

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

## General Characteristics

Configurations:

VE-53(-BB):

VE-52(-BB)-H:

VE-52(-BB)-HV:

VE-51(-BB)-H:

VE-51(-BB)-V:

	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

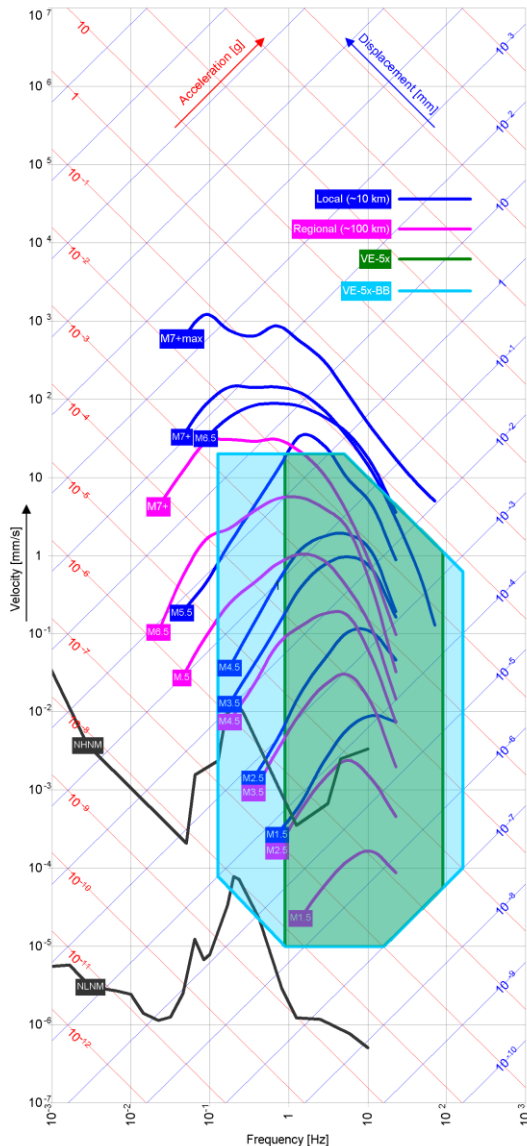
8.0 s ( 0.125 Hz ) to 160 Hz ( BB version )  
flat response within -3 dB crossing points

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)

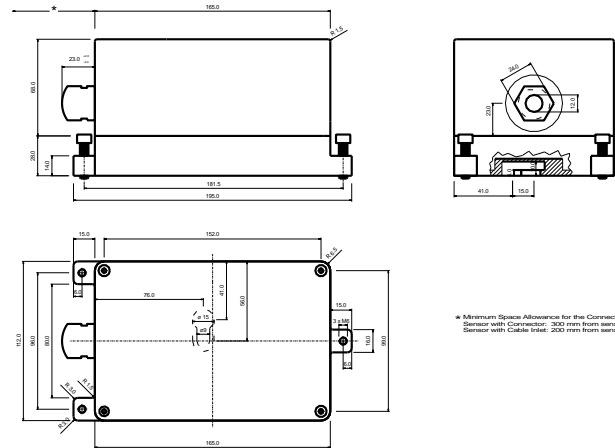
Cable & connector:

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.