GeoSIG
swiss made to measure

DATA SHEET

VE-53
Short-Period Seismometer

Overview

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

The VE-53 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.

The VE-53 offers a remarkable stability under temperature fluctuations or against ageing. In addition, due to the innovative design of the unit, no mass locking is required.

The VE-53 is housed in a sealed, cast aluminium housing that 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.

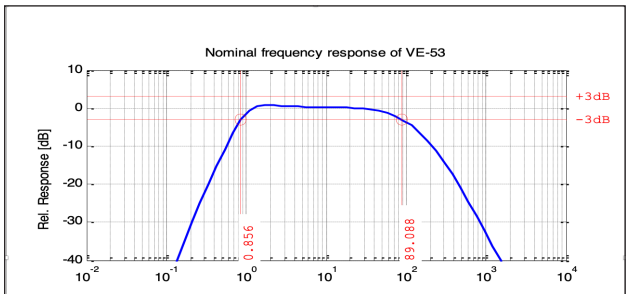
Stainless steel or Ex-proof packaging options are also available.

Key Features

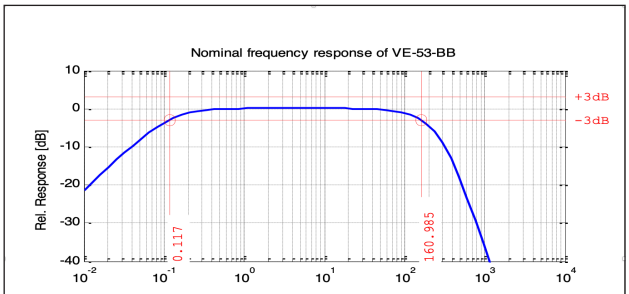
- Sensitivity 1000 V/m/s differential
- Bandwidth 1.1 s (0.9Hz) to 89 Hz
  8.0 s (0.125 Hz) to 160 Hz (BB version)
- Dynamic range >125 dB (0.9 - 15 Hz)
  >120 dB (0.9 - 30 Hz)
- Robust mechanical design
- Excellent temperature and ageing stability
- Low power consumption
- Easy testing, low maintenance

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

Link to VE-53 sensor response files in the IRIS NRL library



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	

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VE-53 Velocity Sensor

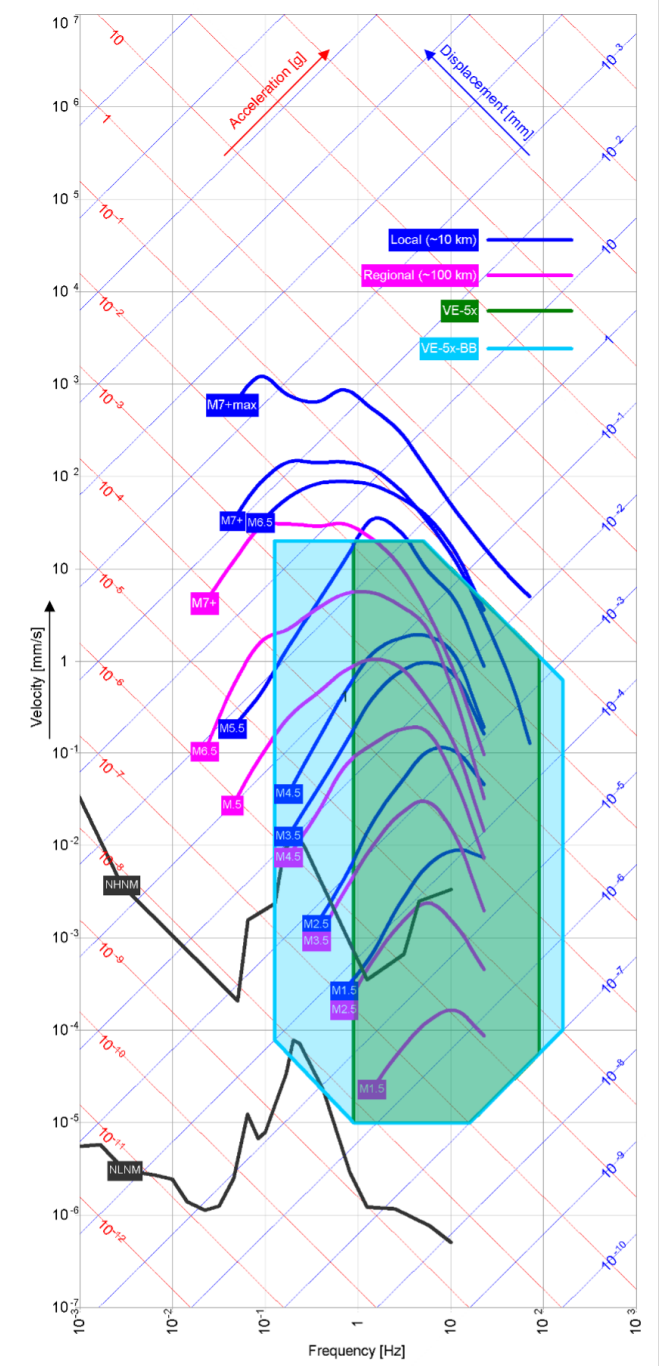
Specifications

General Characteristics

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 x (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
Measuring range: (see plot, bottom left)	> M 1 (Local - 10 Km) and > M 1.5 (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

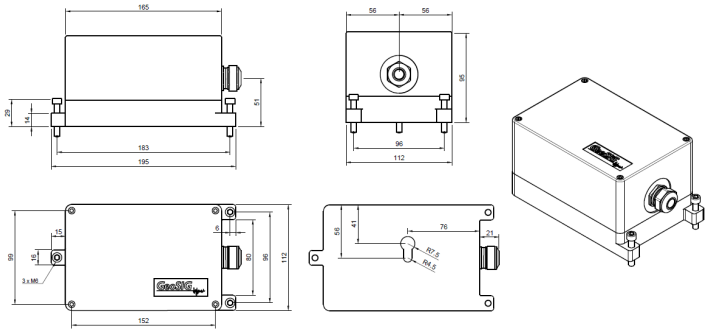
Test input:	Activated by applying a 12 VDC voltage to generate an output of a pulse with an amplitude of 50% of the full scale

Environment / Housing

Housing type:	Cast aluminium Sealed access cover optional stainless steel or EX-proof
Housing size:	195 x 112 x 95 mm
Weight:	2.5 kg
Index of protection:	IP65 optional IP68
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 within a GeoSIG recorder.

Ordering Information

Please specify applicable options