

Servo Velocity Seismometer

VSE-15D

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Small size, Light weight (270gr)

Low frequency range (0.2 to 70Hz)

**High resolution 1×10^{-5} cm/s (10 μ kine)
or 10^{-7} m/s² (10⁻⁵Gal)**



Servo Velocity Sensor

Output (High) 1000V/m/s

Output (Low) 100V/m/s

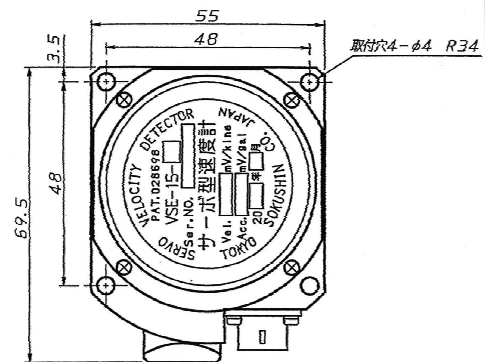
Output (Acc) 5mV/Gal

Calibration Coil

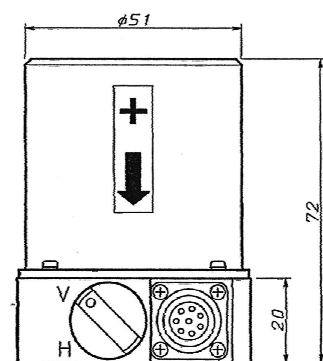
Useful for

- Survey of an underground structure.
- After shock
- Micro-tremor
- Micro-earthquake
- Any of vibration Experiment

Dimension



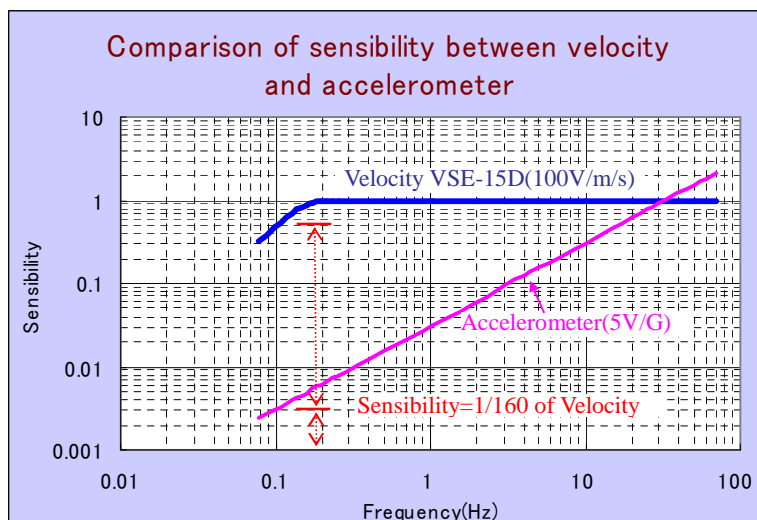
Plane



Side

Feature

Sensibility is higher than accelerometer

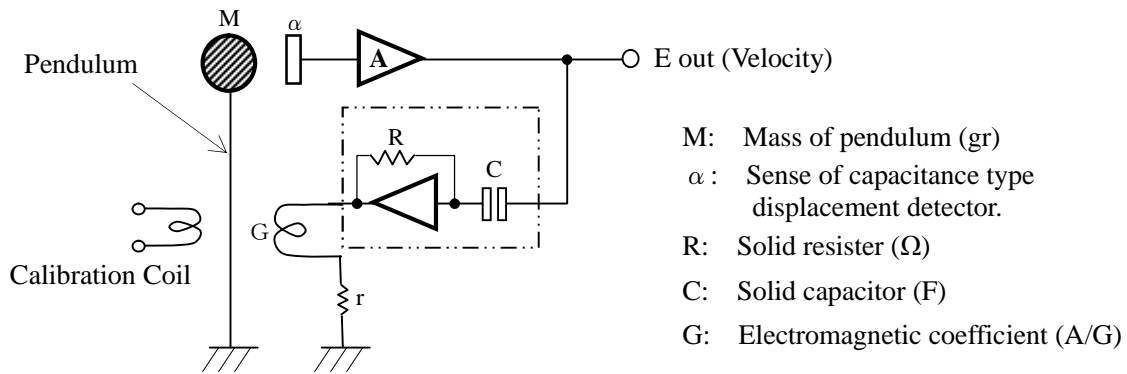


SPECIFICATION

Model	VSE-15D
Frequency range	0.2 to 70Hz
Mode of operation	Horizontal, Vertical
Max. measuring range	±0.1m/s
Output	Velocity (Low): 100V/m/s, (High): 1000V/m/s Acceleration: 5mV/Gal
Max. Output voltage	±10V
Linearity	0.03% of Full scale
Resolution	10 ⁻⁷ m/s ² (10 ⁻⁵ Gal)
Dynamic range	Approximately 140dB
Damping ration	h = about 10000%
Calibration coil	Sensitivity: 600μA m/s ² (6μA/Gal) Coil resistance: 550Ω (±20%)
Max. Output voltage	±10V
Power requirements	±15VDC
Current consumption	Approximately 15mA
Cross axis sensitivity	0.03G/G
Sensitivity of temperature coefficient	0.01%/°C
Temperature coefficient of zero-shift	0.05%/°C
Temperature range	-10°C to 50°C
Allowable shock	30G (less than 0.1sec)
Dimension	55 × 69.5 × 72 mm

PRINCIPLE

The principle of servo velocity seismometers is similar to general servo accelerometers, but it adapts the differentiating circuit in the feedback circuit.



The related expression to particle velocity [m/s] and sensing output [E out] is shown as

$$E \text{ out} = \frac{M \cdot r}{G \cdot C \cdot R} \quad [\text{V/m/s}]$$

The sensitivity of velocity seismometer is determined by the stable elements of the M, R, r, C and G. Therefore, the change in α and the scale factor of amplifier (A) do not affect the characteristics of the velocity seismometer.

This is a good point of servo velocity seismometer, and it is possible to maintain the stable sensitivity and characteristics for a long period.

The specification may change without notification because of the proved product.