

Servo Velocity Seismometer

VSE-15D-6

TOKYO SOKUSHIN CO., LTD.

3-14-34, OUGI, ADACHI-KU.TOKYO.

TEL 03-3855-5911 FAX 03-3855-5921

URL <http://www.to-soku.co.jp>

Small size, Light weight (270gr)

Low frequency range (0.1 to 70Hz)

High resolution 1.5×10^{-6} cm/s (1.5 μ kine)

or 2×10^{-8} m/s² (2×10^{-6} Gal)



Servo Velocity Sensor

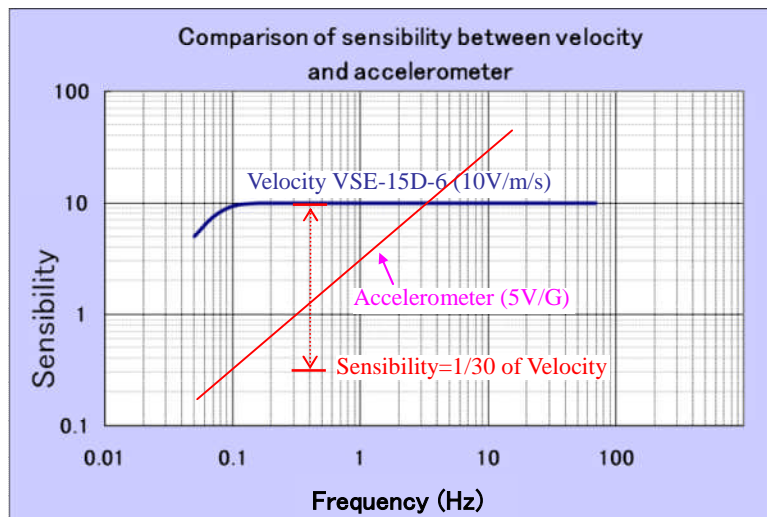
- Output (High) 1000V/m/s
- Output (Low) 100V/m/s
- Output (Tilt) 730mV/degree
- Calibration Coil

Useful for

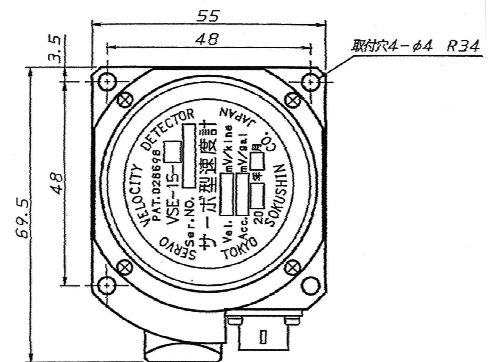
- Survey of an underground structure.
- After shock
- Micro-tremor
- Micro-earthquake
- Any of vibration Experiment

Feature

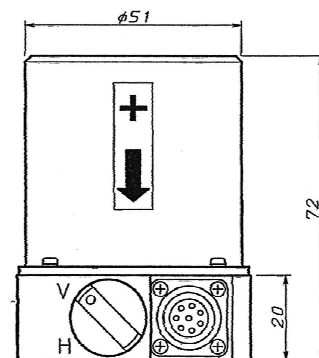
Sensibility is higher than accelerometer



Dimension



Plane



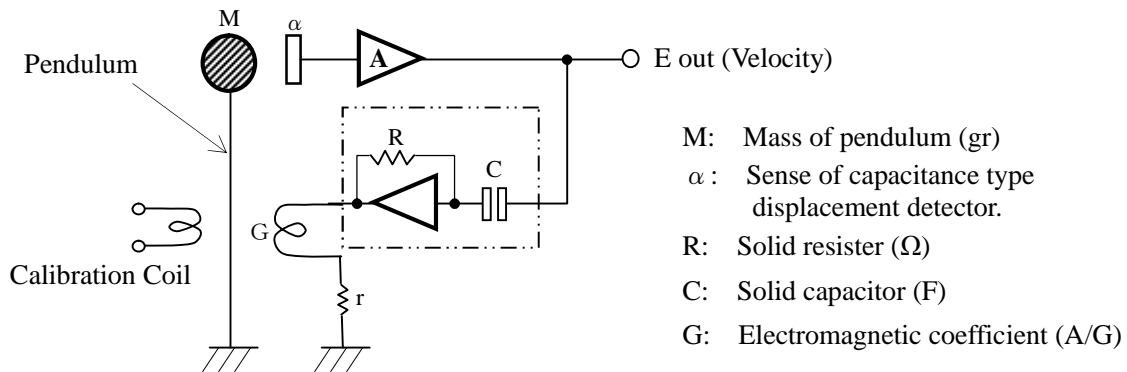
Side

SPECIFICATION

Model	VSE-15D-6
Frequency range	0.1 to 70Hz
Mode of operation	Horizontal, Vertical
Max. measuring range	±0.1m/s
Output	Velocity (Low): 100V/m/s, (High): 1000V/m/s Tilt: Approximately 730mV/degree
Max. Output voltage	±10V
Linearity	0.03% of Full scale
Resolution	Approximately $2 \times 10^{-8} \text{ m/s}^2$ ($2 \times 10^{-6} \text{ Gal}$)
Dynamic range	Approximately 140dB
Damping ration	$h = \text{about } 10000\%$
Calibration coil	Sensitivity: $600 \mu\text{A m/s}^2$ ($6 \mu\text{A/Gal}$) Coil resistance: 550Ω ($\pm 20\%$)
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.