

SM-7 Geophone

- Available in 10-Hz, 14-Hz, 20-Hz, 30-Hz, and 50-Hz versions; all with high spurious frequencies for extended response
- Ideal for faster sample rate systems and high resolution surveys
- Vertical and horizontal units are produced, allowing multi-component use
- Compatible with other I/O Sensor geophones of like frequency
- 2-year limited warranty



The SM-7 geophone is available where broader bandwidth is required in high-resolution applications. It is an advanced, high spurious geophone manufactured in a range of natural frequencies from 10 Hz to 50 Hz. The unique, patented spring design used in the SM-7 geophone provides a clean, wide band response combined with excellent distortion characteristics. This geophone is well suited to high sample rate, digital recording. Vertical and horizontal versions of this geophone are produced, making them suitable for multi-component applications.

The SM-7 geophones can be installed in a variety of Sensor land cases; the 50-Hz element is larger and can be installed into the PE-11 land case.

Specifications

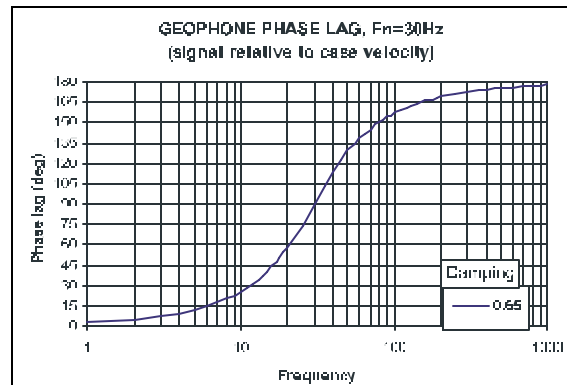
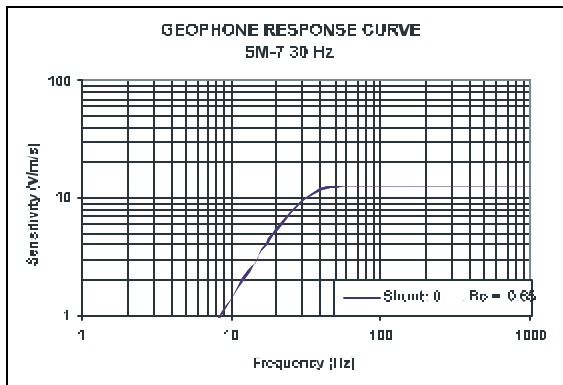
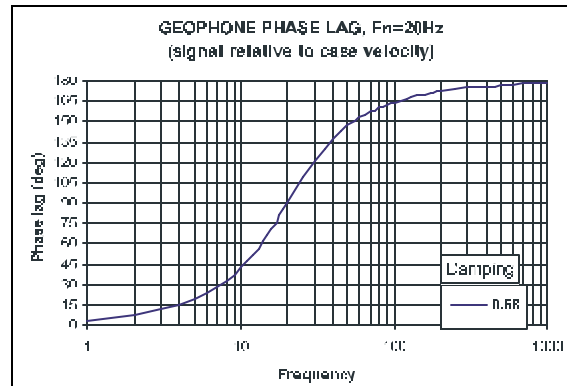
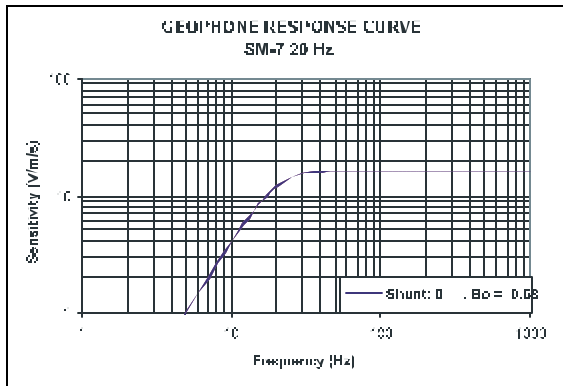
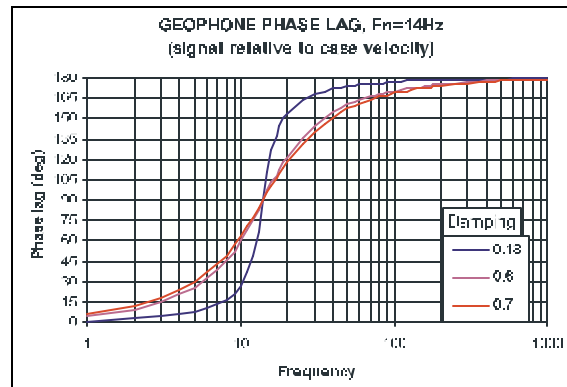
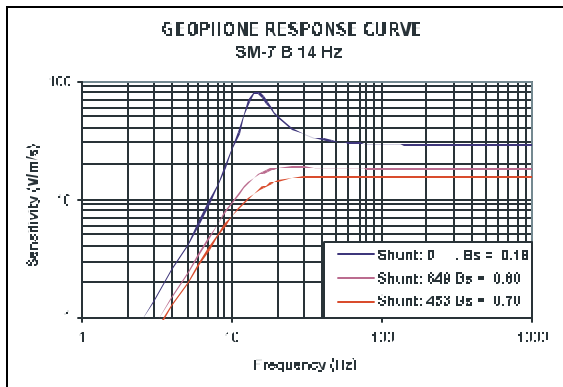
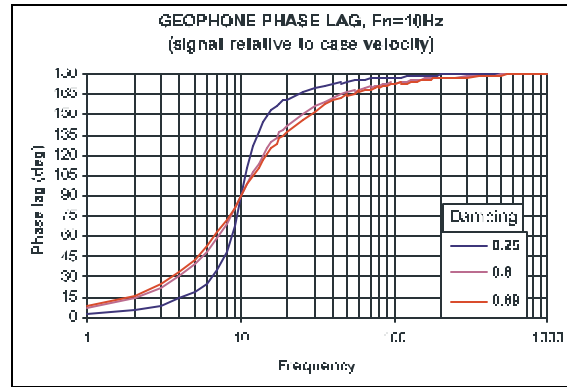
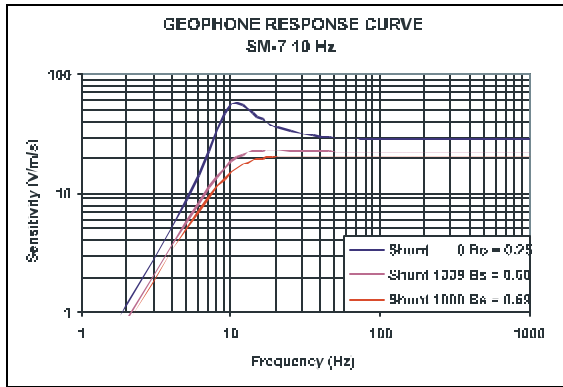
INPUT/OUTPUT, INC.

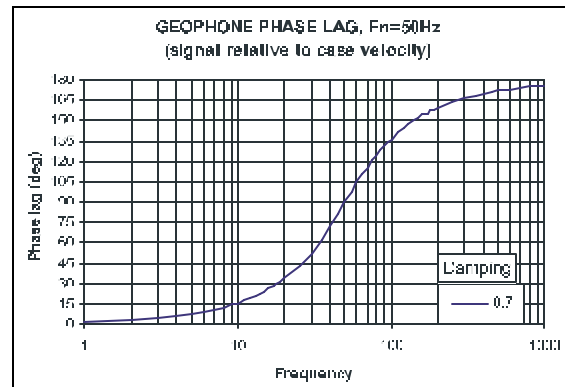
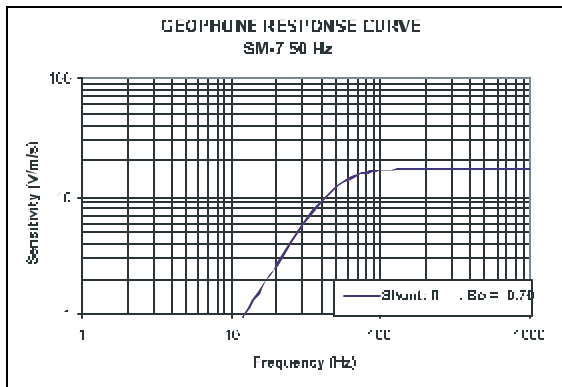
	SM-7/U-B 10 Hz 375 W	SM-7/U-B 14 Hz 375 W
Frequency		
Natural frequency (f_n)	10 Hz	14 Hz
Tolerance	±5%	±5%
Maximum tilt angle for specified f_n	25°	25°
Typical spurious frequency	340 Hz	420 Hz
Distortion		
Distortion with 0.7 in/s p.p. coil-to-case velocity	<0.2%	<0.2%
Distortion measurement frequency	12 Hz	14 Hz
Maximum tilt angle for distortion specification	20°	20°
Damping		
Open-circuit damping	0.25	0.18
Damping calibration-shunt resistance	1,339 Ω	645 Ω
Damping with shunt	0.60	0.60
Tolerance with shunt	±5%	±5%
Resistance		
Standard coil resistance	375 Ω	375 Ω
Tolerance	±5%	±5%
Sensitivity		
Open-circuit sensitivity	28.8 V/m/s (0.73 V/in/s)	28.8 V/m/s (0.73 V/in/s)
Tolerance	±5%	±5%
$R_t B_c f_n$	6,000 Ω Hz	6,000 Ω Hz
Moving mass	11 g (0.38 oz)	11 g (0.38 oz)
Maximum coil excursion p.p.	2 mm (0.08 in)	2 mm (0.08 in)
Physical Characteristics		
Diameter	25.4 mm (1 in)	25.4 mm (1 in)
Height	32 mm (1.26 in)	32 mm (1.26 in)
Weight	74 g (2.6 oz)	74 g (2.6 oz)
Operating temperature range	-40°C to +100°C (-40°F to +212°F)	-40°C to +100°C (-40°F to +212°F)
Limited Warranty Period*		
	2 years	2 years
	* Warranty excludes damage caused by high-voltage and physical damage to the element case.	
	All parameters are specified at +20°C in the vertical position unless otherwise stated.	

Specifications (cont.)

INPUT/OUTPUT, INC.

	SM-7/U-ET 20Hz 375 W	SM-7/U-GT 30Hz 370 W	SM-7/U-GT 50Hz 370 W
Frequency			
Natural frequency (f_n)	20 Hz	30 Hz	50 Hz
Tolerance	±5%	±5%	±5%
Maximum tilt angle for specified f_n	25°	180°	180°
Typical spurious frequency	450 Hz	500 Hz	570 Hz
Distortion			
Distortion with 0.7 in/s p.p. coil-to-case velocity	0.2%	0.2%	0.2%
Distortion measurement frequency	20 Hz	30 Hz	50 Hz
Maximum tilt angle for distortion specification	20°	180°	180°
Damping			
Open-circuit damping	0.68	0.65	0.7
Open-circuit damping tolerance	±5%	±5%	±5%
Resistance			
Standard coil resistance	375 Ω	370 Ω	370 Ω
Tolerance	±5%	±5%	±5%
Sensitivity			
Open-circuit sensitivity	16.5 V/m/s (0.42 V/in/s)	12.8 V/m/s (0.32 V/in/s)	17.2 V/m/s (0.44 V/in/s)
Tolerance	±5%	±5%	± 5%
$R_B C f_n$	2,777 Ω Hz	1,740 Ω Hz	3,060 Ω Hz
Moving mass	7.8 g (0.27 oz)	7.5 g (0.24 oz)	7.7 g (0.27 oz)
Maximum coil excursion p.p.	2 mm (0.08 in)	>1 mm (>0.04 in)	>1 mm (>0.04 in)
Physical Characteristics			
Diameter	25.4 mm (1 in)	25.4 mm (1 in)	26.8 mm (1.06 in)
Height	32 mm (1.26 in)	32 mm (1.26 in)	32 mm (1.26 in)
Weight	74 g (2.6 oz)	74 g (2.6 oz)	83 g (2.92 oz)
Operating temperature range	-40°C to +100°C (-40°F to +212°F)	-40°C to +100°C (-40°F to +212°F)	-40°C to +100°C (-40°F to +212°F)
Limited Warranty Period*			
	2 years	2 years	1 year
	* Warranty excludes damage caused by high-voltage and physical damage to the element case.		
	All parameters are specified at +20°C in the vertical position unless otherwise stated.		





Ordering Information

SM-7 10 Hz

SM-7/U-B 10 Hz 375 Ω (upright) P/N 1007070
SM-7/H-B 10 Hz 375 Ω (horizontal) P/N 1007090

SM-7 14 Hz

SM-7/U-B 14 Hz 375 Ω (upright) P/N 1007130
SM-7/H-B 14 Hz 375 Ω (horizontal) P/N 1007140

SM-7 20 Hz

SM-7/U-ET 20 Hz 375 Ω (upright) P/N 1007160
SM-7/H-ET 20 Hz 375 Ω (horizontal) P/N 1007180

SM-7 30 Hz

SM-7/U-GT 30 Hz 370 Ω (upright) P/N 1007230
SM-7/H-GT 30 Hz 370 Ω (horizontal) P/N 1007220

SM-7 50 Hz

SM-7/U-GT 50 Hz 370 Ω (upright) P/N 1007250
SM-7/H-GT 50 Hz 370 Ω (horizontal) P/N 1007260

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