SENSOR Nederland bv

SM-6 Geophone

- Long travel version of the SM-4 8 Hz, 10 Hz and 14 Hz geophone, also available in 4.5 Hz natural frequency
- Special orientations on request beyond the normal vertical and horizontal options
- Widely used in industrial vibration monitoring systems
- Rugged construction with precious metal rotating coil contacts
- 2 year warranty

The SM-6 geophone is a long coil travel version of the time proven SM-4 geophone. The extra coil travel offers an advantage for higher tilt requirements and where larger amplitude signals may be encountered, for example in industrial vibration monitoring. A range of natural frequencies is available from 4.5 Hz to 14 Hz, providing choice of the correct geophone for a wide variety of applications.

The SM-6 can be supplied for vertical and horizontal orientation, other specialized versions are available on request, for example Galperin (54.7 deg.), 45 deg.

The SM-6 is an ideal choice for the shear wave horizontal elements partnering an SM-4 vertical geophone in a 3-component package.

A variety of I/O Sensor land cases can accommodate SM-6 geophone elements, making them suitable for an extensive range of field applications.

Specifications

	SM-6/U-B			
Frequency				
Natural frequency	8 Hz	10 Hz	14 Hz	
Tolerance	± 0.5 Hz	± 5%	± 5%	
Maximum tilt angle for specified Fn	20°	25°	25°	
Typical spurious frequency	150 Hz	170 Hz	190 Hz	
Distortion				
Distortion with 0.7 in/s p.p coil to case velocity	< 0.2%	< 0.2%	< 0.2%	
Distortion measurement frequency	12 Hz	12 Hz	14 Hz	
Maximum tilt angle for distortion specification	15°	20°	20°	
Damping				
Open circuit damping	0.315	0.25	0.18	
Damping calibration shunt resistance	2,257 Ω	1,339 Ω	645 Ω	
Damping with shunt	0.6	0.6	0.6	
Tolerance with shunt	± 5%	± 5%	± 5%	
Resistance				
Standard coil resistance	375 Ω	375 Ω	375 Ω	
Tolerance	± 5%	± 5%	± 5%	
Sensitivity				
Open circuit sensitivity	28.8 V/m/s	28.8 V/m/s	28.8 V/m/s	(0.73 V/in/s)
Tolerance	± 5%	± 5%	± 5%	
RtBcFn	6,000 ΩHz	6,000 ΩHz	6,000 ΩHz	
Moving mass	11.1 g	11.1 g	11.1 g	(0.39 oz)
Maximum coil excursion p.p.	4 mm	4 mm	4 mm	(0.16 in)
Physical Characteristics				
Diameter	25.4 mm	25.4 mm	25.4 mm	(1 in)
Height	36 mm	36 mm	36 mm	(1.42 in)
Weight	81 g	81 g	81 g	(2.85 oz)
Operating temperature range	-40°C to 100°C	-40°C to 100°C	-40°C to 100°C	(-40°F to 212°F)
Warranty period*	2 yrs	2 yrs	2 yrs	

(*) 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.)

SM-6 LOW FREQUENCY GEOPHONE	A-Coil	B-Coil
Frequency		
Natural frequency	4.5 Hz	4.5 Hz
Tolerance	± 0.5 Hz	± 0.5 Hz
Maximum tilt angle for specified Fn	0	0
Typical spurious frequency	140 Hz	140 Hz
Distortion		
Distortion with 0.7 ips p.p. coil to case velocity	< 0.3%	< 0.3%
Distortion measurement frequency	12 Hz	12 Hz
Maximum tilt angle for distortion specification	0	0
Damping		
Open circuit damping	0.265	0.56
Open circuit damping tolerance	+/- 5%	+/- 5%
Resistance		
Standard coil resistance	375 Ω	375 Ω
Tolerance	± 5%	± 5%
Sensitivity		
Open circuit sensitivity	28.0 V/m/s (0.71 V/in/s)	28.8 V/m/s (0.73 V/in/s)
Tolerance	± 5%	± 5%
RtBcFn	3,875 Ω Hz	6,000 Ω Hz
Moving mass	16.1 g (0.57 oz)	11.1 g (0.39 oz)
Maximum coil excursion p.p.	4 mm (0.16 in)	4mm (0.16 in)
Physical		
Diameter	25.4 mm (1 in)	25.4 mm (1 in)
Height	36 mm (1.42 in)	36 mm (1.42 in)
Weight	81 g (2.85 oz)	81 g (2.85 oz)
Operating temperature range	-40°C to 100°C (-40°F to +212°F)	-40°C to 100°C (-40°F to +212°F)
Warranty period*	1 year	1 year

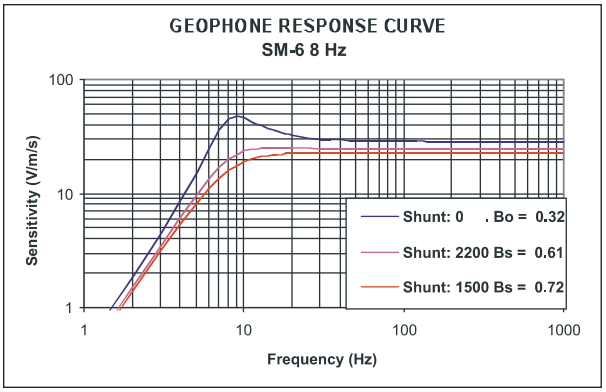
(*) Warranty excludes damage caused by high voltage and physical damage to the element case.

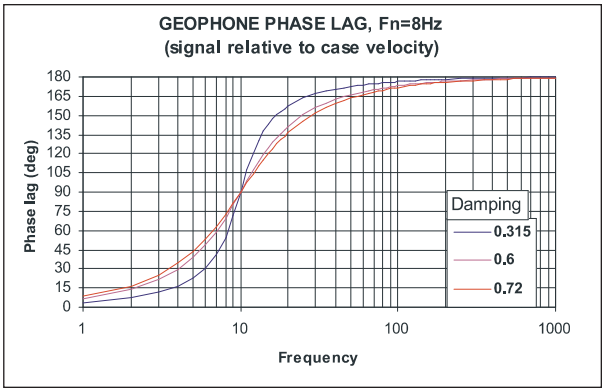
All parameters are specified at 20°C in the vertical position unless otherwise stated

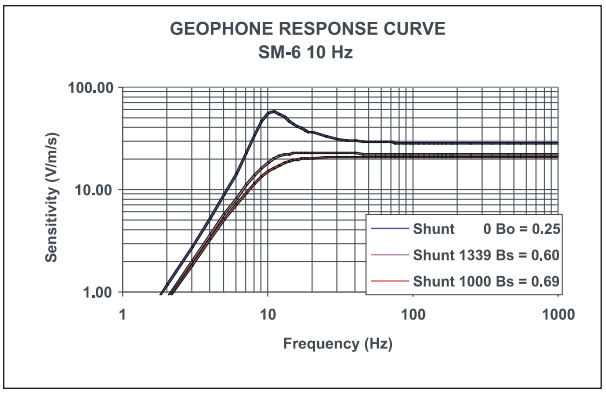
Ordering Information

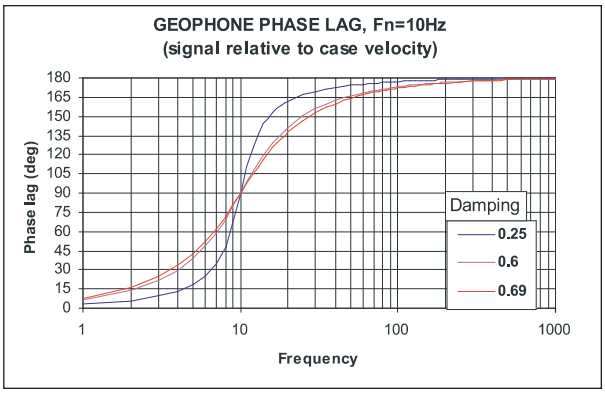
SM-6	
4.5 Hz	
upright A-coil	SM-6/U-A 4.5 Hz 375 Ω
horizontal A-coil	SM-6/H-A 4.5 Hz 375 Ω
upright B-coil	SM-6/U-B 4.5 Hz 375 Ω
horizontal B-coil	SM-6/H-B 4.5 Hz 375 Ω
8 Hz	
upright	SM-6/U-B 8 Hz 375 Ω
horizontal	SM-6/H-B 8 Hz 375 Ω
10 Hz 375	
upright	SM-6/U-B 10 Hz 375 Ω
horizontal	SM-6/H-B 10 Hz 375 Ω
14 Hz 375	
upright	SM-6/U-B 14 Hz 375 Ω
horizontal	SM-6/H-B 14 Hz 375 Ω

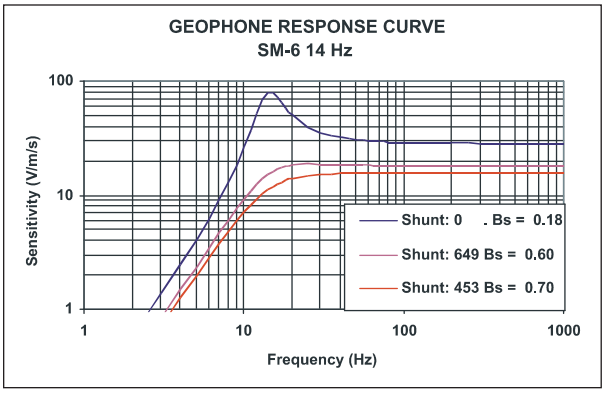
Geophone Response Curve and Phase Lag

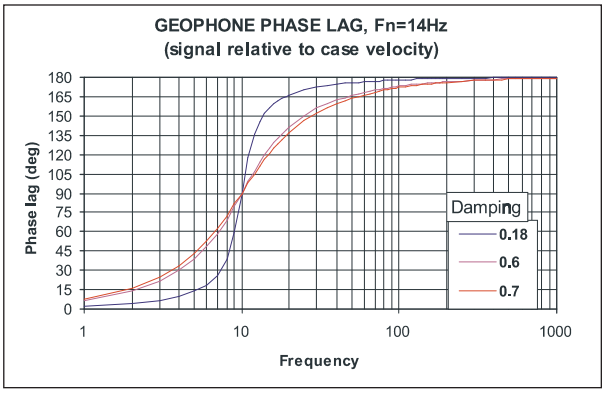












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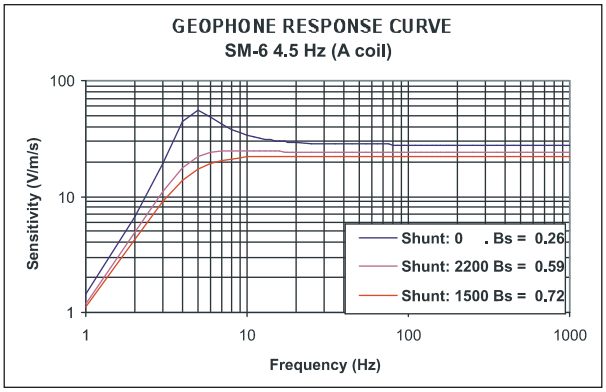

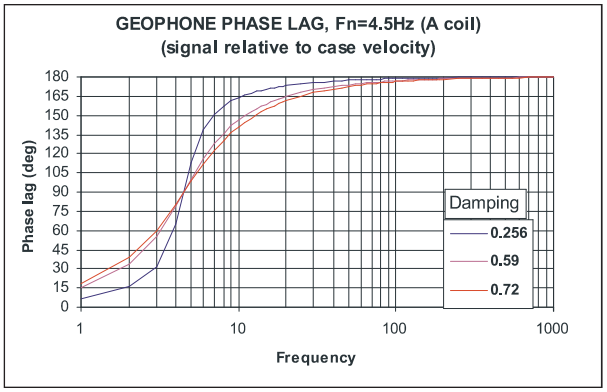

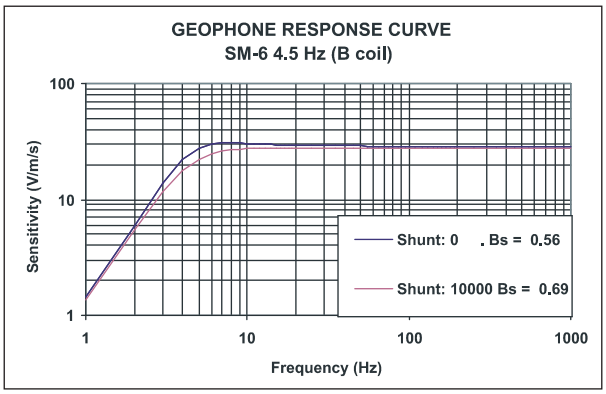

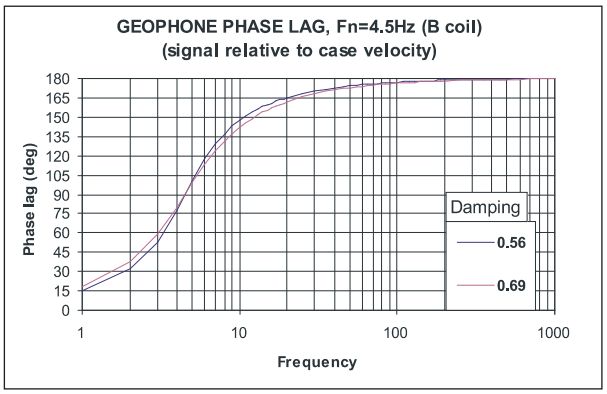

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