



SM-4 Geophone Element

- Precision machined rotating coil design with precious metal contacts for consistent, reliable, prolonged field performance.
- Choice of three Natural Frequencies, 8, 10 and 14 Hz and two standard coil resistances, 375 and 71 ohm
- Vertical and horizontal versions available for 3C applications
- 3 year limited warranty



The SM-4 digital-grade geophone element is designed for low weight, long field life and ultra-reliable performance. Precision engineered components and computerized test equipment ensure consistency in manufacture and operation throughout and beyond the replacement guarantee period of 3 years.

Applications: General 2D and 3D seismic exploration, bandwidth 10 Hz up to 180 Hz.

Implementation: Can be installed in any I/O Sensor standard geophone case.

Specifications

INPUT/OUTPUT, INC.

	8 Hz	10 Hz	14 Hz	
Frequency				
Natural frequency	8 Hz	10 Hz	14 Hz	
Tolerance	+/- 6.3%	+/- 5%	+/- 5%	
Max. tilt angle for specified Fn	20°	25°	25°	
Typical spurious frequency	160 Hz	180 Hz	190 Hz	
Distortion				
Distortion with 0.7 ips coil to case velocity p.p.	<0.2%	<0.2%	<0.2%	
Distortion measurement frequency	12 Hz	12 Hz	14 Hz	
Max. tilt angle for distortion specification	15°	20°	20°	
Damping				
Open circuit damping for 375 Ω coil	0.315	0.25	0.18	
Open circuit damping for 71 Ω coil	0.3	0.24	0.17	
Damping calibration shunt resistance 375 Ω coil	2,257 Ω	1,339 Ω	645 Ω	
Damping calibration shunt resistance 71 Ω coil	393 Ω	235 Ω	114 Ω	
Damping with shunt	0.6	0.6	0.6	
Tolerance with shunt	+/- 5%	+/- 5%	+/- 5%	
Resistance				
Standard resistances (other values available)	375 or 71 Ω	375 or 71 Ω	375 or 71 Ω	
Tolerance	+/- 5%	+/- 5%	+/- 5%	
Sensitivity				
Sensitivity with 375 Ω coil	28.8 V/m/s	28.8 V/m/s	28.8 V/m/s	(0.73 V/in/s)
Sensitivity with 71 Ω coil	12.8 V/m/s	12.8 V/m/s	12.8 V/m/s	(0.325 V/in/s)
Tolerance	+/- 5%	+/- 5%	+/- 5%	
RtBcFn with 375 Ω coil	6,000 Ω Hz	6,000 Ω Hz	6,000 Ω Hz	
RtBcFn with 71 Ω coil	1,100 Ω Hz	1,100 Ω Hz	1,100 Ω Hz	
Moving mass 375 Ω coil	11 g	11 g	11 g	(0.38 oz)
Moving mass 71 Ω coil	11.7 g	11.7 g	11.7 g	(0.41 oz)
Maximum coil excursion p.p.	2 mm	2 mm	2 mm	(0.08 in)
Physical Characteristics				
Diameter	25.4 mm	25.4 mm	25.4 mm	(1.00 in)
Height	32 mm	32 mm	32 mm	(1.25 in)
Weight	74 g	74 g	74 g	(2.59 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*

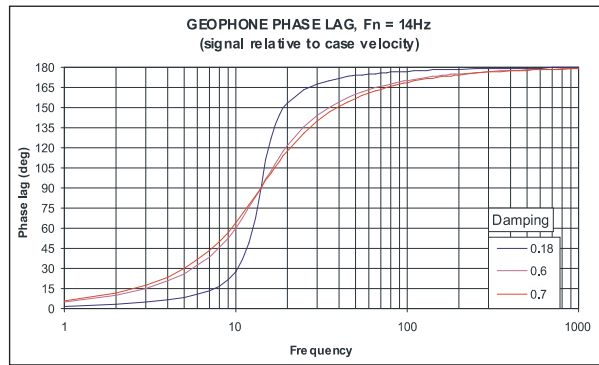
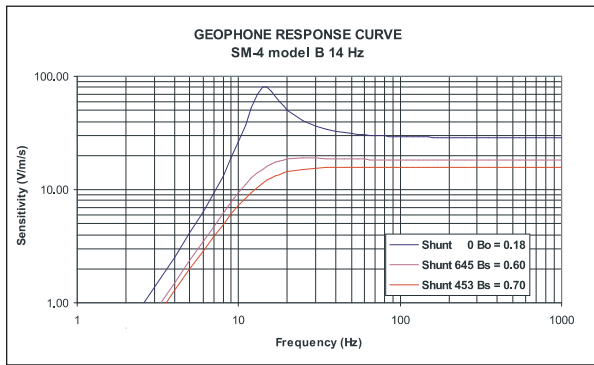
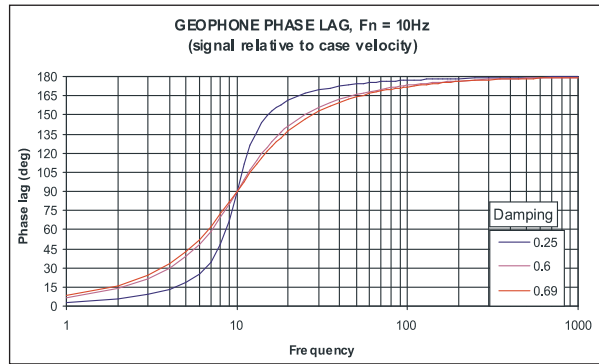
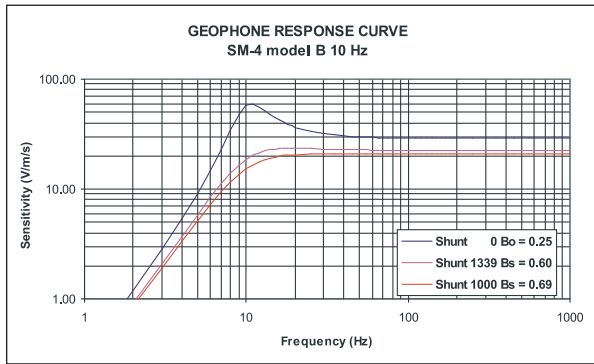
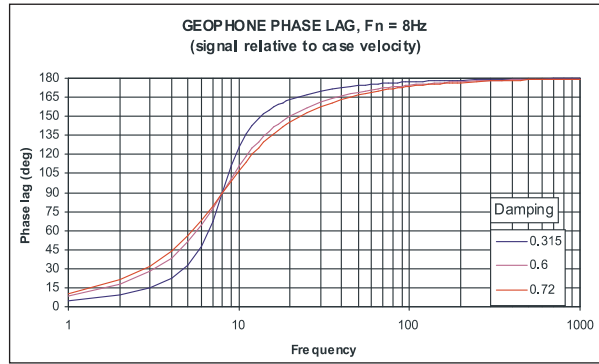
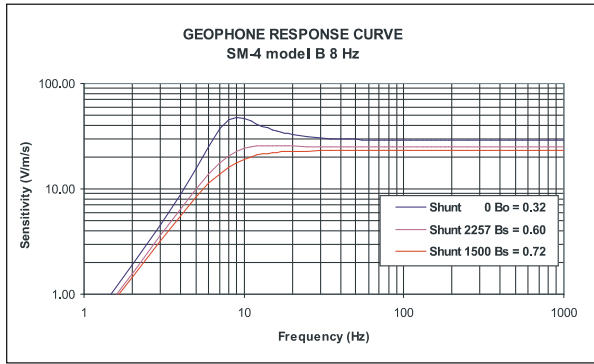
3 yrs

3 yrs

3 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



Ordering Information

SM4 Geophone Elements

P/N SM-4/U-B 8 375
 P/N SM-4/U-B 10 375
 P/N SM-4/U-B 14 375

P/N SM-4/U-B 8 71
 P/N SM-4/U-B 10 71
 P/N SM-4/U-B 14 71

All the above are upright vertical elements with insulating discs. For horizontal versions change U-B to H-B. For standard version (pins down) change U-B to S-B.

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