

# 4C MODULE



## Four Components:

- Four 24-Bit A/D Converters
- Three orthogonally oriented GS-ONE OMNI geophone components
- One DEEPENDER hydrophone.

## MODULE SPECIFICATIONS

Operating Temperature Range	-5 to +50°C
A/D Conversion	24-Bit Delta-Sigma
Sample Rate	1, 2, 4 ms
Pre-amplifier Gains	0, 6, 12, 18, 24, 30, 36 dB
Maximum Input Signal	1.8 Vrms
Equivalent Input Noise (@ 2ms sampling rate)	0.17 $\mu$ Vrms
Gain Accuracy	Better than 1%
Anti-alias Filter	83% Nyquist
Instantaneous Dynamic Range	124 dB
Cross-feed Isolation	> 90 dB
THD	< 0.2%
Distance between digitizer and farthest component	< 18 cm
Distance between all components	< 13 cm

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## Geophones: GS-ONE OMNI

PHYSICAL SPECIFICATIONS		
Moving Mass	13.2 g	0.466 oz
Maximum coil excursion p-p	4.06 mm	0.16 in.
Minimum coil excursion p-p	1.02 mm	0.04 in.
Diameter	30.5 mm	1.2 in.
Height	40.7 mm	1.6 in.
Weight	130 g	4.60 oz
Operating and Storage Temperature Range	-40°C to +100°C	-40°F to +212°F

ELECTRICAL SPECIFICATIONS	
All parameters are specified with 7.5 kΩ load at 25°C in all tilt positions unless otherwise stated.	
Frequency	15 Hz
Spurious Frequency	>160 Hz
Distortion at Horizontal	0.05% Typical
Coil Resistance	1450 Ω
Sensitivity at 70% Damping	69.2 V/m/s (1.75 V/i/s)
Damping	70%
Distortion at all tilt angles	<0.2% measured at 15 Hz with 0.2 in/s p-p

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## Hydrophone: DEEPENDER™ 5000-X

PHYSICAL SPECIFICATIONS	
Maximum Operating Pressure	34.5 MPa (5,000 psi)
Maximum Working Depth	3450 m (11,319 ft.)
Operating Temperature Range <sup>1</sup>	-10 to +75°C (+14 to 167°F)
Outside Diameter	50.8 mm (2.0 in.)
Length	38.1 mm (1.5 in.)

ELECTRICAL SPECIFICATIONS	
Nominal Capacitance (at 25°C 1atm)	20.0 nanofarads
Voltage Sensitivity <sup>2</sup>	4.0 V/bar
Sensitivity (dBv ref 1μPa @ 25°C)	-208.0 dB re 1V/μPa
Frequency Response (into 2 MΩ load)	3 – 15,000 Hz

1. Safe to be used slightly below 0°C as long as water is not frozen. Do not let hydrophone be frozen in ice, as this will cause irreversible damage to the crystals.

2. Voltage Sensitivity is specified when connected to 4C Module.

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