



SOUNDNINE INC

*Helping build successful
monitoring systems*

Ulti-modem Underwater Inductive Modem

Sea-Bird Compatible IM

The Ulti-modem connects serial instruments to real-time inductive telemetry allowing underwater communication over common plastic jacketed wire rope (mooring line). It interfaces easily with most CTDs, acoustic profilers, CO2 sensors and other scientific instruments. Typical communication range exceeds 6Km.

The Ulti-modem is uniquely small, robust and power efficient, offering a new standard of performance, ease of use, versatility and affordability. It is self-powered with one AA lithium battery and also accepts external power.

Innovative dual-mode technology allows the Ulti-modem to maintain compatibility with inductive modem products from Sea-Bird Electronics (1200 baud) and allow faster communication up to 19200 baud with other S9 products on the same mooring.

The Ulti-modem's extremely high signal to noise ratio provides the highest degree of immunity from fish bite or other cable degradation allowing reliable communication in more challenging environments. The Ulti-modem monitors the strength of received signals. This unique feature allows the greatest possible confidence in the reliability of inductive communications.

Ulti-modem installs concentrically on the mooring wire in seconds using a cordless driver. The modem has two halves. One is a pressure housing containing the electronics, the other serves as a clamp sized to match the jacket diameter of the wire rope. The sensor is clamped on the wire by joining the halves with four captive screws. The Ulti-modem can be used on cables with jacket diameters ranging from 5/32 in. (4 mm) to 5/8 in. (16 mm). It can be installed on different size cables by selecting a clamping half of matching size. Additional clamping halves are sold separately for under \$100 USD each. S9 supplies custom size clamp halves with no customization charge.



Ulti-modem with titanium battery cover removed



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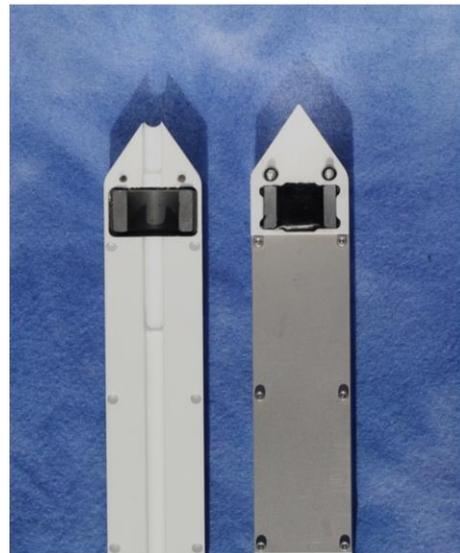
R010H

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Moorings

The Ulti-modem may be used both at the buoy (with no separate coupler required) and with instruments on the mooring line. It supports the same basic commands as the SBE IMM in addition to newer and simpler interfaces. The Ulti-modem interfaces easily with the DANTE Buoy Controller.

The Ulti-modem can send one command causing all S9 products and SBE sensors on the mooring to sample simultaneously. Another command then causes all S9 sensors and Ulti-modems to report data in their assigned order at high speed (with no polling). This greatly simplifies system programming. The faster inductive communication reduces system on-time, saving power for longer deployments and allowing more data collection.



Inside view of pressure housing and clamp

Logging

In simple logging applications the Ulti-modem records and timestamps serial data on an 8MB internal flash memory and transmits that data as requested by a remote device.

Data Streaming

In streaming mode the Ulti-modem records and timestamps serial data on an 8MB internal flash memory while transmitting that data in real time. Ulti-modems can efficiently share the communications channel allowing multiple buffered data streams at the same time. This allows a single modem to receive interleaved data streams from tens of other modems at the same time.

Timing Applications

The Ulti-modem includes a real-time clock allowing high accuracy time synchronization across multiple underwater instruments. In a typical mooring including a GPS receiver, all Ulti-modems may be easily maintained within one second of GPS time for the duration of the deployment. Ulti-modems are capable of time synchronization accuracy on the order of 10 microseconds.

Specifications:

Sensor Interface: RS-232

Power:

Supply voltage: 3.3 – 28 VDC

Quiescent current: < 25 microAmps

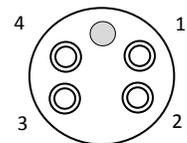
Operating current: 1.5 milliAmps (receive)
8 milliAmps (transmit)

Battery: 3.6V AA Lithium cell; Saft LS-14500 or equivalent.

Size: 230 mm (L) x 35 mm x 46 mm

Materials: PET & Titanium

Depth Rating: 1,000 meters



Male Face View
MCBH 4M

- 1 Common
- 2 RS-232 Transmit
- 3 RS-232 Receive
- 4 External Power +

