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Underwater Inductive Modem Module

UIMM

Overview

TThe Underwater Inductive Modem Module (UIMM) provides a quick way for system integrators and instrument/sensor manufacturers to adapt new or pre-existing RS-232 instruments, such as acoustic current meters, Doppler profilers, optical sensors, etc., for integration with real-time moorings using Sea-Bird's Inductive Modem (IM) telemetry (see Application Note 92: Real-Time Oceanography with Inductive Moorings and the Inductive Modem Module (IMM) for detailed system description). The UIMM is simply an Inductive Modem Module (IMM) housed in a pressure case and incorporating an integral inductive coupler and cable clamp. It is designed to be cable-connected to an RS-232 serial instrument, and then clamped to the jacketed mooring wire. The UIMM can also be used as a substitute for an IMM (housed inside a buoy) and an Inductive Cable Coupler (ICC); it receives inductive communications from other underwater IM devices and sends the data via RS-232 to the surface buoy (or bottom junction in a cabled observatory).

The UIMM is user-configured via RS-232 to send and receive commands to control the serial instrument and receive or retrieve data. Through its 4-pin connector, the UIMM communicates with the RS-232 instrument and consumes a small amount of power from it.

Components

Inductive Modem (IM) system provides reliable, low-cost, real-time data transmission for up to 100 IM-enabled instruments using plastic-coated wire rope (typically 3x19 galvanized steel) as both transmission line and mooring tension member.

IM instruments clamp anywhere along the mooring, which is easily reconfigured by sliding and re-clamping instruments on the cable. In a typical mooring, an Inductive Modem Module (IMM) in the buoy communicates with IM instruments and interfaces to a computer/data logger (not supplied by Sea-Bird) via RS-232. The data logger is programmed to poll each IM instrument for data, and sends the data to a satellite link, cell phone, etc.

UIMM interfaces to a serial instrument at 300, 600, 1200, 2400, 4800, 9600, or 19200 baud, while transmitting data at 1200 baud over the IM line.

Features

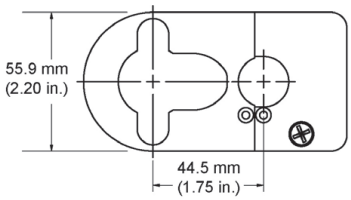
- Integrates RS-232 instruments to Sea-Bird's Inductive Modem (IM) telemetry system
- Requires small amount of power from serial instrument (no internal batteries)
- 350 m plastic or 7000 m titanium housing
- Seasoft© V2 Windows software package (setup)
- Sea-Bird's field-proven IM telemetry, with more than 3000 Sea-Bird IM instruments deployed since 1997
- Five-year limited warranty

Underwater Inductive Modem Module

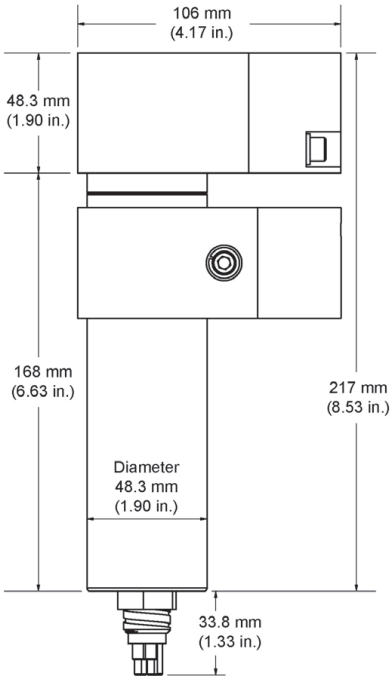
UIMM

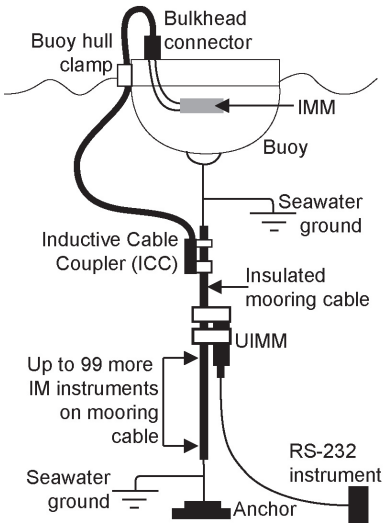
Options

- Plastic (350 m) or titanium (7000 m) housing
- Wire guide and mounting clamp in one of 9 sizes



Power Consumption	External power required: 6 - 30 VDC Quiescent current: 300 microWatt * Operating current: 15 milliWatt * **Power draw higher for input voltages>19 VDC; consult factory.*
Sensor Interface	RS-232 Sensor baud rate 300, 600, 1200, 2400, 4800, 9600, or 19200 (IM telemetry rate 1200 baud)
Memory for Sensor Data	16 KByte (40 stored samples maximum)
Housing, Depth Rating, & Weight	Plastic, 350 m; Weight (with mounting guide and mooring clamp) 1.1 kg in air, 0.45 kg in water Titanium, 7000 m





Typical Ocean Mooring
(other configurations available)

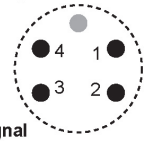
Mooring Schematic

In a typical mooring, an Inductive Modem Module (IMM) or Surface Inductive Modem (SIM) housed in the buoy communicates with underwater IM instruments and is interfaced to a computer or data logger via an RS-232 serial port.

The computer / data logger (not supplied by Sea-Bird) is programmed to poll each IM instrument on the mooring for its data, and send the files to a telemetry transmitter (satellite link, cell phone, RF modem, etc.). Communication between the computer / data logger and IMM/SIM is full-duplex RS-232C. Commands and data are transmitted half-duplex between the IMM/SIM and UIMM. The UIMM interprets the commands, relays commands to the serial instrument, and transmits replies from the instrument to the IMM/SIM.

In typical surface buoys, the jacketed mooring wire is connected to the buoy with a length of chain, grounding the wire to seawater at each end. An Inductive Cable Coupler (ICC) connects the IMM/SIM to the jacketed wire above the uppermost IM-enabled instrument and below the point where the wire is grounded.

Wet-Pluggable
MCBH-4MP (WB), TI
(3/8" length base, 1/2-20 thread)



Pin	Signal
1	Common
2	RS-232C data receive
3	RS-232C data transmit
4	External power in (6 - 30 VDC)

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