

Inductive Cable Coupler ICC

The ICC is a link in Sea-Bird's Inductive Modem (IM) telemetry systems, for applications where the plastic-jacketed wire termination is grounded to seawater (at a chain, for example). The ICC clamps to the jacketed mooring wire, and makes electrical connection with the Inductive Modem Module (IMM) or Surface Inductive Modem (SIM) via a cable housed in reinforced-rubber conduit. The conduit's upper end is fixed to the buoy hull with the provided clamps. The conduit/cable must be long enough to prevent buoy motion from pulling it completely straight and putting tension on the ICC.

Each IM system typically includes:

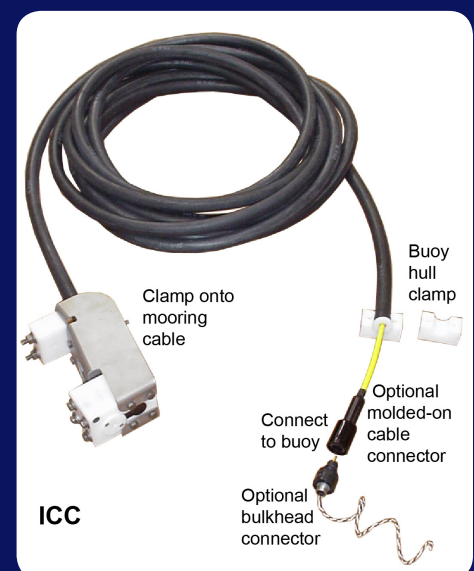
- **IMM or SIM**, housed in a buoy or on land. The IMM or SIM provides the link between the underwater IM instruments and computer / buoy controller.
- **Inductive Cable Coupler (ICC)**, which links the underwater IM to the IMM or SIM for typical buoy applications.
- **Underwater IM instruments**, up to 100 inductively coupled instruments on a jacketed mooring wire. Compatible instruments include:
 - SBE 37 MicroCAT C-T (optional pressure) Recorder – 37-IM, 37-IMP (integral Pump), and 37-IMP-ODO (integral Pump and integrated Optical Dissolved Oxygen).
 - SBE 39-IM Temperature (optional pressure) Recorder.
 - SBE 16plus-IM and 16plus-IM V2 SeaCAT C-T (optional pressure) Recorder, which can acquire data from optional auxiliary sensors (oxygen, fluorescence, etc.).
 - Underwater Inductive Modem Module (UIMM) or SBE 44 Underwater IM, which links to a current meter, Doppler profiler, etc. with a standard serial interface.
 - Instruments by other manufacturers with built-in Sea-Bird underwater IMs.

Features

- Sea-Bird's field-proven IM telemetry, with more than 3000 Sea-Bird IM instruments deployed since 1997.
- Five-year limited warranty.

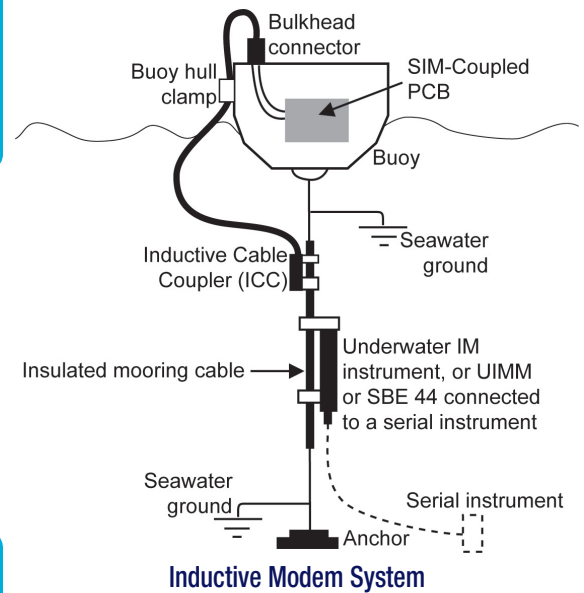
Components

An 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 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.



Principles of Inductive Coupling

A transformer has two or more coils that share a magnetic field. Materials such as ferrite can be used to form a transformer core that ensures the necessary sharing of magnetic fields. When using the ICC with Sea-Bird's IM system, the ends of the mooring cable are grounded to the seawater. This causes a current to flow through the mooring wire and seawater. The ICC senses this current, providing a voltage for presentation to the IMM or SIM.



Options

- ICC comes with pigtail cable, conduit, and buoy hull clamp. Optional molded-on cable connector and matching bulkhead connector can be ordered; consult factory for availability.
- Mooring cable diameter – 1/4 inch, 5/16 inch, 3/8 inch, 1/2 inch, 6 mm, 8 mm, 10 mm, 12 mm, or 16 mm; heavy duty version for 38 mm diameter mooring wire.
- Cable length specified up to 10 m; longer lengths available (> 50 m not recommended).

ICC

Depth rating to 7000 m

Underwater Instrument

See SBE 37-IM, 37-IMP, 37-IMP-ODO, 39-IM, 16plus-IM, 16plus-IM V2, 44, and UIMM datasheets

SIM or IMM

See respective datasheets