

# Inductive Cable Coupler (Version 4)

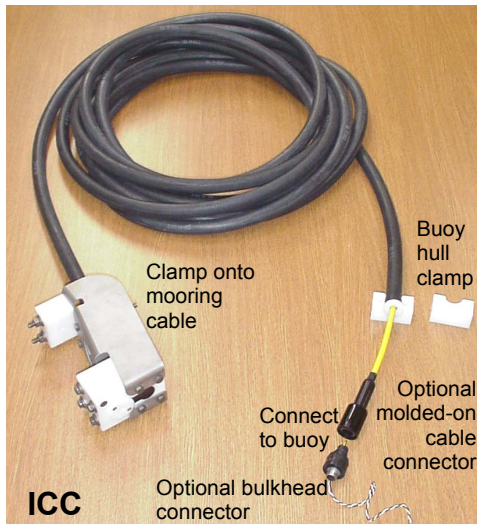
# ICC



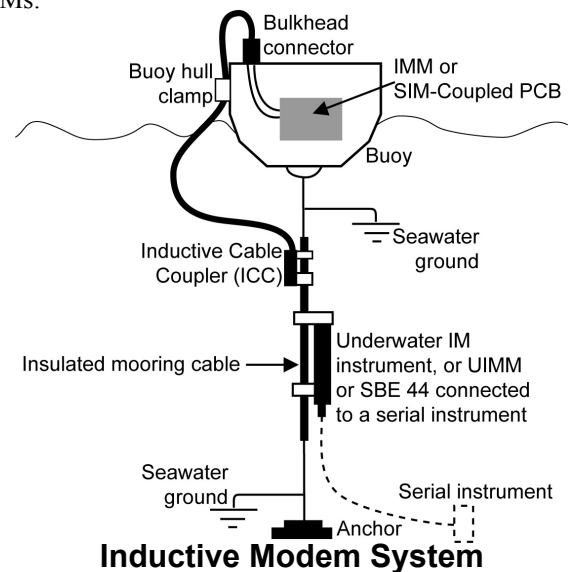
The ICC is a link in Sea-Bird's inductive modem (IM) telemetry systems. The ICC is used in applications where the plastic-jacketed wire termination is grounded to seawater (at a chain, for example). The ICC clamps to the jacketed mooring wire, and makes electrical connection with the Inductive Modem 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.

An IM telemetry system typically includes:

- **Inductive Modem Module (IMM) or Surface Inductive Modem (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 and 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:
  - MicroCAT C-T (optional P) Recorder – SBE 37-IM, 37-IMP (integral Pump), or 37-IMP-IDO (integral Pump and Integrated Dissolved Oxygen)
  - SBE 39-IM Temperature (optional pressure) Recorder
  - SBE 16*plus*-IM or 16*plus*-IM V2 SEACAT C-T (optional P) Recorder, which can acquire additional 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.



Note: ICC includes pigtail cable, conduit, and buoy hull clamp; molded-on cable connector and bulkhead connector optional.



## 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 telemetry 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.

## ICC CONFIGURATION CHOICES

- 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 (5/8 inch)
- Cable length specified up to 10 meters (32.8 feet); longer lengths available – over 50 meters (164 feet) not recommended
- 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.

## ICC DEPTH RATING

To 7000 meters (23,000 ft).

## ADDITIONAL INFORMATION

See datasheets for: SBE 37-IMP, SBE 37-IM, 37-IMP-IDO, 39-IM, 16*plus*-IM, 16*plus*-IM V2, 44; UIMM, IMM, and SIM.

06/10



**Sea-Bird Electronics, Inc.**  
13431 NE 20<sup>th</sup> Street, Bellevue, Washington 98005 USA  
Website: <http://www.seabird.com>

E-mail: [seabird@seabird.com](mailto:seabird@seabird.com)  
Telephone: (425) 643-9866  
Fax: (425) 643-9954