

# SUBMERSIBLE ARGOS BEACON MODEL 113C



Model 113C



On mooring float



Self - flotation option

**Overview.** The Brightwaters Model 113C Submersible Argos Beacon is a marker transmitter designed to assist in the location of submerged moorings that come to the surface after intentional release or mishap. The beacon uses a pressure switch transmitter cutoff to shut down the transmitter when submerged.

**Physical specifications.** The standard hull material is PVC plastic. An optional upgrade to ABS is available for low temperature environments. External hardware is silicon bronze and 300 series stainless steel. The beacon can be submerged to 200 meters depth. Overall dimensions are approximately 39 inches (100 cm) long and 4.3 inches (10.9 cm) in diameter. An o-ring sealed closure allows access to the internal electronics for battery replacement by the end user.

**Electronic specifications.** The beacon uses an Argos-2 “Platform Transmitter Terminal” (PTT), which is tracked using the joint US-French Argos satellite data system. The PTT transmits a coded radio signal at 401.650 MHz. Standard transmit characteristics are 90 second interval, 360mS duration, and ½ watt power. The Argos satellites detect these signals as they pass overhead, allowing the beacon to be located anywhere on Earth. Locations are accurate to within a few hundred meters. Frequency of position updates increases with increasing latitude, at mid latitudes about 8-10 positions can be expected per day.

**Batteries and endurance:** Three different battery packs can be used interchangeably in the standard beacon:

- a) Standard alkaline battery pack: 12 volts @ 7.5 amp-hours. 110 day transmission.
- b) Lithium battery option 1: 10.2 volts @ 8.5 amp-hours. 130 day transmission.
- c) Lithium battery option 2: 10.2 volts @ 17.0 amp-hours. 260 day transmission.

Transmission endurance estimates assume standard transmission characteristics initiated after a 1 year submerged deployment. Lithium batteries are recommended for low temperature environments. If required, the hull can be lengthened to accommodate other battery configurations.

A pressure switch shuts down the Model 113C when it is submerged to a depth greater than 10 feet (3 meters). The Model 113C can also be shut down if desired (for example, when on deck for extended periods) by the application of an external magnet. When submerged, power drain is zero except for battery self-discharge (5% per year for alkaline, less than 2% per year for lithium). When deactivated with the shutdown magnet, power drain is self-discharge plus 0.01 amp-hour per month.

**Self-flotation option:** Makes the beacon free-floating and self-orienting so it can be attached to the top of a mooring using a tagline. Four deep-sea trawl floats mounted around the midsection of the beacon hull provide flotation. An attachment point is provided at the bottom of the beacon to fit the pin of a ½ inch (12 mm) bow-style shackle.

*Founded in 1990, Brightwaters Instrument Corporation supplies semicustom and full custom scientific and oceanographic equipment to governments, universities, and the private sector.*



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