

APPLICATION NOTE

ACOUSTIC RELEASE FOR LONG TERM DEPLOYMENT

CUSTOMER APPLICATION

- Long term mooring deployments for the Ocean Tracking Network

SOLUTION

- Push Off Transponding Release
PORT MF-E

EQUIPMENT

- Underwater Equipment:
PORT MF-E
5-year life
17 kHz to 26 kHz
- Shipboard Equipment:
AMD200RMFE portable deck unit
20 meter cable
17 kHz to 26 kHz



Scenario

The Ocean Tracking Network (OTN) is a long-term, multimillion dollar, world-wide marine research project. Run from its headquarters' office at Dalhousie University in Halifax, Canada, this program will provide funding and equipment to researchers throughout the world to track and study marine life.

One of the methods of study involves tagging fish and other marine life with small pingers, or acoustically active devices that emit a signal in preset intervals typically measured in seconds. In association with this an acoustic array of receiving devices is placed on the sea floor. These receivers, normally placed every 800 meters in a line covering a potential migration path, are like a toll booth for the fish. When the fish swims by, the receiver listens for, and records the unique tag identification number and pinger information that is transmitted by the tagged fish. That acoustic tag data is then stored in the receiver. The receivers are moored on the sea floor in water depths ranging from tens of meters to hundreds of meters underwater. Often the receivers and the associated mooring equipment are required to sit on the sea floor for one to five years in a listen and receive mode. The subsea environments are often very challenging for equipment that is deployed for long periods. Biofouling and corrosion are underwater conditions, often prevalent in this environment, that could render the equipment inoperable.

The challenge for programs such as OTN is to have a reliable method to deploy, relocate and retrieve their acoustic receivers and subsea mooring package. Dalhousie University recently selected the ORE Offshore Push Off Release Transponder (PORT) for this important job.



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Solution

Dalhousie University, in addition to acting in an overall program management capacity for the world wide Ocean Tracking Network, has also deployed a string of acoustic receivers off the coast of Canada. For this deployment they have selected the ORE Offshore PORT MF-E and it's unique capabilities. The unit operates for five years on welded "AA" alkaline batteries. To meet a five year deployment life, other units in the marketplace require lithium battery packs that are much more expensive, hazardous and difficult to ship due to stringent regulations. Additional features of the PORT include: a release load of 250 kg, capable water depth of 3500 meters and acoustic reply status which indicates a tilted angle or an upright condition, release confirmation and battery status. The frequencies used are 17 kHz to 26 kHz and capable of over 2000 meters range for relocation. The release can also be fitted with a strongback as an option if the customer chooses.



The PORT (Push Off Release Transponder) is ideal for deployments in coastal environments. The mechanical drive off system is the best choice for deployments where common release mechanisms can fail due to growth or sediment build up. Unlike traditional releases that use a metallic lever mechanism for their release function, the PORT uses a non-corrosive Ultem link that is physically pushed off of the unit when commanded. This eliminates the often troublesome issues of biofouling and corrosion that causes failures in other units. Additionally, the medium frequency acoustic command structure is very reliable in areas where vessel traffic is common and is unsurpassed in multi-path environments.

The surface command unit selected for the OTN project was the model AMD200RMFE. This portable deck box is capable of transmitting all medium frequency ORE commands, in a light weight, cost effective configuration. The system is battery operated and comes complete with a dunking transducer and 20 meters of cable. This system includes ranging capability and the ability to receive status from the underwater systems. Additionally, the PORT MFE users can use the Trackpoint ultra short baseline (USBL) acoustic tracking surface unit to communicate with the acoustic releases and obtain compass bearing and down-angle to the subsea unit. This option allows a user to easily obtain the range and bearing information that saves costly ship time and allows the boat to steam directly towards the subsea mooring package for retrieval.

The ORE Offshore PORT acoustic transponding release is a reliable, long-life solution for many programs around the world, and it is now a part of the Ocean Tracking Network as well.

Thank you to the Ocean Tracking Network and Dalhousie University for their valuable input to this application note.

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