

Transponders for Locating Underwater Objects

USA-based JW Fishers has introduced a line of low-cost transponders and an interrogator used to locate them. The Fishers MFT-1 multifrequency transponder is capable of transmitting 9 different frequencies between 24kHz and 33kHz. Having transponders with different frequencies allows many to be deployed in the same area with each transmitting a unique signal.

The standard MFT-1 will operate from 4 to 8 months depending on the type of batteries installed. An optional extended housing is available that accepts more batteries, tripling the operating time. A Very Long Duration housing is also an option which holds enough batteries to operate the transponder for several years.

Fishers DHI-1 interrogator is compatible with other manufacturer's transponders as well as its own, and will detect transponders with frequencies in the range between 24 and 33kHz. To get the transponder to start sending a signal, the interrogator first hits it with a 26kHz coded pulse. The two devices will communicate with each other at a distance of up to 3,000 feet. The transponder then starts broadcasting its signal which is picked up by the interrogator, guiding the operator directly to it. The DHI-1 can either be carried by a diver or deployed from a boat. An earphone alerts the diver or topside operator to the detection of a signal, and a digital readout shows the distance, with a built-in compass providing the heading. The DHI-1 has a rechargeable NiCad battery pack that powers the interrogator for 12 continuous hours.

Attempting to relocate underwater objects in a low-visibility environment can be challenging. Acoustic transponders solve this problem. Today these underwater locating beacons are being employed by a wide range of users. One of the uses for transponders is attaching them to AUVs, ROVs, and side scan sonar. Should the AUV fail to surface, or the ROV or side scan umbilical be cut, the transponder ensures the equipment will be not be lost.

One advantage of using a transponder over a conventional acoustic pinger is that the transponder is "invisible" in the underwater environment until it is triggered to begin transmitting a signal. Another advantage is its very low power consumption. A pinger constantly transmits an acoustic signal which uses up its battery power, but a transponder sits in a dormant state using very little power until it receives an activation code from an interrogator. Only after receiving the code does the transponder begin to transmit its signal.

Image: Diver prepares to enter the water with Fishers DHI-1 Interrogator; Inset photo – Fishers MFT-1 transponders shown with 3 different size housings.