



**Model OP-1 Hydrophone with
-9V Option
9V Battery and Headphone Connector**

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Introduction

Oceanphonics is a word we have created that describes the art of listening and even comprehending sounds underwater made by mammals and other intelligent ocean dwelling creatures. Phonics means "to hear, identify, and manipulate phonemes (a basic unit of a language's phonology)...which is combined with other phonemes to form meaningful units such as words..."

Whale vocalization may be clearly heard by underwater microphones. Combined with these sounds are several other factors that whales in the vicinity use to understand the state of each other, both mood, distance, spacial surroundings, and even distance to prey. Here are the combined factors:

1. The underwater environment consists of an incompressible medium which carries sound much more readily than air. Vocalizing not only provides communication between animals, but also carries with it an echo that will intuitively convey distance to the ocean floor, surface or other large objects such as rock outcroppings or cliff faces.
2. Range finding clicks are generated by orcas or dolphins to comprehend the distance to prey or close objects. One ping will within a split second bring awareness of the distance and number of fish or other food sources that are being pursued. Other animals in the area will know that it is feeding time.

During play periods orcas tend to vocalize more. Many researchers have attempted to parse and understand these sounds. The breaking down of vocalization into basic elements or phonemes to try and develop a phonetic understanding is a fascinating experience. Researchers have determined that the "language" of orcas differs between geographically separated pods. This acoustic experience may be heard by an underwater microphone called a hydrophone. The [Oceanphonics hydrophone](#) has been uniquely optimized to receive mammal sounds so as to provide the listener with a truly fascinating soundscape.

Operation and Deployment of the Hydrophone

Before the Hydrophone is deployed it is important to secure the Soft Eye onto your boat in some way. The cable itself should not be tied but the full tension should be taken up by the Soft Eye. Up to 200 pounds strain may be placed on the Soft Eye which is a Kevlar filament that follows all the way through to the Hydrophone casing. This will take the strain instead of the internal copper conductors, ensuring many years of successful operation.

The Hydrophone should be deployed over the side of your boat away from propellers and other objects that the cable may foul on.

The power is switched ON by means of the rotary Volume Control.

Turn the volume control clockwise past the click.



Battery Replacement

The battery requires one 9 Volt Alkaline pack. Remove the 9 Volt cover.

Make sure the new battery is aligned with the + and – correctly according to indication in the battery pack enclosure.



Install the battery pack into the enclosure re-insert the cover.

When not in use, battery life will be conserved by switching off the power switch.

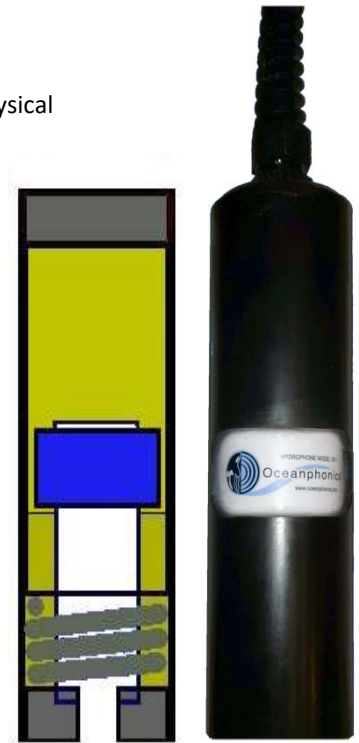
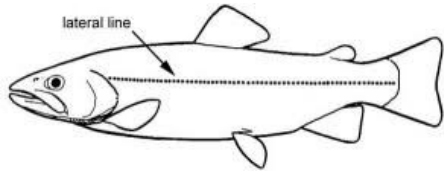
Plug your stereo headphone into the 1/4" plug. If your headphones have a connector that is 3.5 mm instead of 1/4" then use the adapter (supplied).



The Unique Oceanphonics Hydrophone

You have in your possession an extremely unique hydrophone. It is constructed with physical properties that allow the best reception of sounds made by mammals vocalizing underwater. A look at the internal structure of the hydrophone will reveal an internal air cavity. Please refer to the drawing on the right. In the center of the hydrophone is the *air cavity (white)* allowing the best sensitivity to be rendered to the cylindrical microphone element (blue). Because there is air inside, there is also a weighted area (indicated by a grey coil) which keeps the hydrophone oriented properly when in the water.

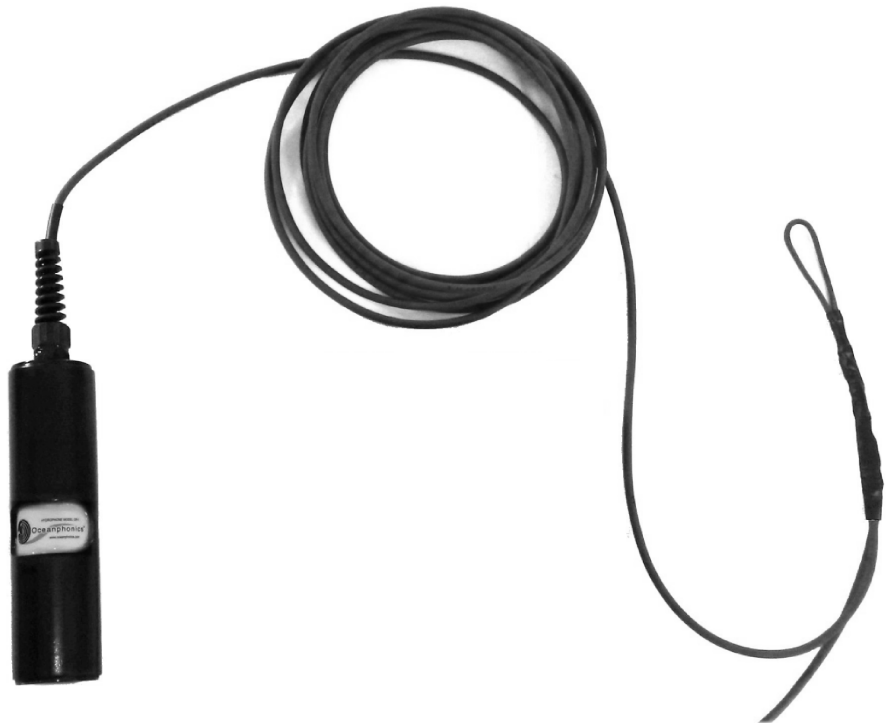
Nature uses a similar method to sense sound underwater as water is a non-compressible medium. Fish can “hear” or sense sound vibrations in the water by means of nerves down the sides of their body in combination with a gas-filled swim bladder. Sound vibrations would in theory pass through skin and muscle, however sound is sensed by the fish between the water and air transition in their body.



The Oceanphonics hydrophone has been developed over 25 years with experience and experimentation. In addition to the method used to pick up sound, as described above, the internal cavity also boosts mammal sounds by means of broad band resonance of the internal air chamber.

Another feature of your hydrophone allows full protection of the sensitive element, located in the window behind the Oceanphonics label, not at the bottom where it could typically be damaged by rocks on the ocean floor or by being dropped on concrete.

The cable contains a Kevlar strength member in the core, allowing complete strain relief of the internal conductors. A “soft eye” loop containing this strength member is used to attach the hydrophone to your boat. Proper attachment of this cable will allow for many years of commercial service.



Technical Specifications

Hydrophone	Model OP-1 [-9V Option] [-25 or -50 indicating cable length in feet]
Audio pass band:	150 Hz to 20,000 Hz.
Reception:	Automatic Gain Control amplified signal with broadband resonant cavity
Maximum operating depth:	15 Meters (50 feet)
Power Source:	9 V Alkaline pack
Average Battery Life:	over 15 hours
Protection:	Automatic Resettable Fuse (Internal)

DISCLAIMER The **OCEANPHONICS** Hydrophone is intended for use by vessel operators or crew who are aware of and trained to deal with the risks and hazards connected with hanging gear into the water from a motorized vessel. The **OCEANPHONICS** Hydrophone is intended to be positioned under the surface of the ocean and if used with the vessel under way can possibly foul in a propeller and break, or more importantly disable the vessel's ability to bring passengers back. It is the personal responsibility of captain and crew to ensure that length of cable cast into the water does not foul in the vessel's propeller(s).

WARRANTY The manufacturer warrants this product, for a period of one year from the original date of purchase, to be free of defects arising from material or craftsmanship used or provided by the manufacturer, provided the **OCEANPHONICS** product is used in compliance with the operating instructions set out in this operator's manual. The validity of this warranty is conditional upon the completion of sale and date of sale. (See Limitations). This warranty is voided in the event that service, or repairs to the **OCEANPHONICS** system are not performed by the factory. Should this **OCEANPHONICS** Hydrophone prove to be defective within the warranty period, it will be repaired or replaced free of charge, at the election of the manufacturer, excluding shipping and handling charges.

LIMITATIONS This warranty specifically does not extend to damage to the cable or housing arising from the fouling or impact of the **OCEANPHONICS** Hydrophone by a propeller or other object, or any damage to the **OCEANPHONICS** system caused by improper maintenance, modification or tampering to the Hydrophone. Warranty is non-transferable and is solely for the benefit of the original owner.

DISCLAIMER OF LIABILITY The manufacturer, its distributors and retailers MAKE NO WARRANTIES, either expressed or implied, with respect to the **OCEANPHONICS** Hydrophone, or this operator's manual except for those stated above. IT IS EXPRESSLY UNDERSTOOD that in purchasing or using the **OCEANPHONICS** Hydrophone, the owner or any other person who may use it accepts it "AS IS" with the entire risk as to its quality, performance, merchantability, or fitness for any particular purpose being with the buyer or user. This excludes replacement of defective parts to the original owner, in the first year after purchase under the conditions set forth in the preceding limited warranty section. By purchasing the **OCEANPHONICS** Hydrophone it is agreed and understood that in no event will the manufacturer, its distributors or retailers be held liable for any personal injuries arising from its operation, or for any damages whether direct, indirect, incidental, or consequential, even if the manufacturer, distributor or retailer have been advised of such damages.

OCEANPHONICS

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web: www.oceanphonics.com

Please call this number if you have further questions about this product, installation or operation.

1-250-479-4868

We would be happy to speak with you and welcome your comments!

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