

## TECHNICAL SPECIFICATIONS

(Subject to change without notice)

Hydrophone Model OP-1

Audio pass band: 150 Hz to 20,000 Hz.  
Reception: Automatic Gain Control Mode 1; and Reduced Gain, no AGC Mode 2.  
Maximum operating depth: 10 Meters (30 feet)  
Power Source: 12 Volt ship's power  
Power Voltage Range: 11.0 Volts to 18 Volts  
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 Hydrophone 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.

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rev 2.1

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# OPERATOR'S MANUAL



## Model OP-1 Hydrophone



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.

The **OP-1** Hydrophone is **Active** meaning that the amplifying electronics are inside the hydrophone casing.

Sound is provided at "Line Levels" not "Microphone Levels". In addition to the RCA plugs connecting to your Stereo Amplifier system, a red wire connects to the Stereo 12 Volt positive source. This supplies a low current bias to the hydrophone active electronics.

There are two GAIN MODES:

1. Long Distance HIGH GAIN with Automatic Gain Control and
2. Short Distance LOW GAIN with NO Automatic Gain Control.

The first mode is used to listen to creatures at a distance with no powered boats operating in the area. The second is used when other powered boats are close by. A contact at the surface end of the cable programs the MODE. There are three wires at the surface end of the cable:

**RED** - To the Positive Terminal of the 12 volt ship battery, typically connected at the back of the Stereo Amplifier +12 V terminal.

**BLACK** - (Negative), connected at the back of the Stereo Amplifier GROUND terminal, close to the RCA jacks. Most amplifiers provide GROUND also to the RCA Aux in terminals; make sure this is the case so that a ground loop is not created because extra noise could be introduced into the system.

**YELLOW** - This is the GAIN MODE connection. This is typically connected to a customer supplied SWITCH at a remote location such as at the operator console. Alternately for permanent single mode operation it may be connected at the back of the Stereo Amplifier as follows:

- ✓ If **YELLOW** is **connected to BLACK** then the hydrophone is programmed to **Short Distance LOW GAIN with NO Automatic Gain Control**.
- ✓ If the **YELLOW** is **connected to RED**, then the hydrophone is programmed to **Long Distance HIGH GAIN with Automatic Gain Control**.