



**Model OP-1 Hydrophone with  
-BT Option  
With Bluetooth Transmitter**

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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 a toggle inside of the surface housing.

Open the Housing and turn ON the power toggle switch. A Blue light next to the switch will glow indicating sufficient power from the battery pack.

*Note: There is a small power switch behind the Avantree Bluetooth box, it should always be in the ON position.*

Close the case lid and snap the case hasp on to make the box waterproof.

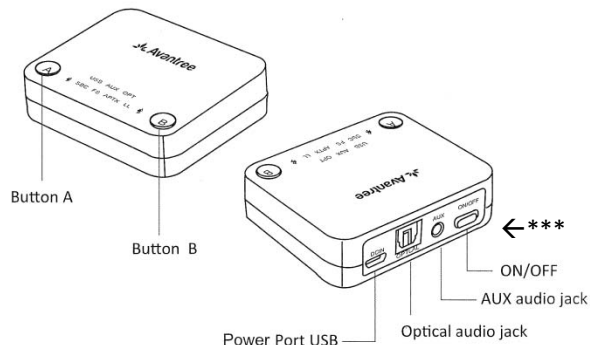


# Operation of Bluetooth

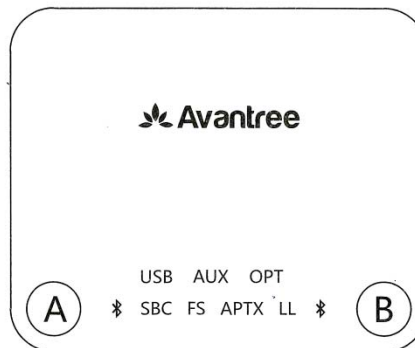
The Bluetooth transmitter will pair independently to TWO devices, such as a Bluetooth enabled loudspeaker or headphones.

Please become familiar with the following description of the Bluetooth transmitter:

## Product Overview and Basic Operation



## LED Indicators



COMPONENT	FUNCTION	OPERATION
(A)	Set A into pairing mode	After power on, press and hold (A) for 1 second, Bluetooth symbol close to (A) flashes RED and BLUE alternately.
(B)	Set B into pairing mode	After power on, press and hold (B) for 1 second, Bluetooth symbol close to (B) flashes RED and BLUE alternately.
(A) & (B)	Clear paired history	After power on, press and hold (A) and (B) together for 7 seconds, BOTH Bluetooth symbols are on BLUE for 2s.

## INDICATOR STATUS

INDICATOR	STATUS
	Power on - Flashes BLUE once per 2s
	Pairing - Flashes RED and BLUE alternately
Bluetooth symbol	Connected - Steady BLUE
	Re-connection - Bluetooth symbol close to (A) and (B) flashes BLUE once per 2 seconds
	Clear paired history - Both Bluetooth symbols are on BLUE for 2 seconds
SBC	Connected using the SBC codec
FS	Connected using the Fast-stream codec
APT X	Connected using the aptX codec
LL	Connected using the aptX Low Latency codec
USB	USB audio input selected (USB data/charging cable is plugged in and activated)
AUX	AUX input selected (3.5mm audio cable is plugged in)
OPT	Optical input selected (optical cable is plugged in and nothing is plugged into the 3.5mm audio jack)

\*\*\*Make sure the Bluetooth ON/OFF switch remains in the ON position at all times. Power is handled by the main toggle switch inside the surface housing.



## Pair and Connect to 1st Bluetooth Headphones/Speakers

- 1) Enter the Audikast into pairing mode - on first use, the Audikast will enter pairing mode automatically, Bluetooth symbol close to (A) flashes RED and BLUE alternately.
- 2) Enter your headphones/receiver into PAIRING MODE - please refer to your product user manual.
- 3) Connecting - During the pairing process, keep the devices close to each other and wait. Once connected, the Bluetooth symbol close to (A) will turn BLUE.

## Pair and Connect to 2nd Bluetooth Headphones/speakers

- 1) Pair and connect 1st headphones to the Audikast - please refer to above point 5.
- 2) Enter the Audikast into PAIRING MODE - press and hold (B) for 1 second until Bluetooth symbol close to (B) flashes RED and BLUE alternately.
- 3) Enter the 2nd headphones into PAIRING MODE - please refer to your product user manual.
- 4) Connecting - During the pairing process, keep the devices close to each other and wait. Once connected, the Bluetooth symbol close to (B) will turn BLUE.

## Re-connection.

Normally, once paired, Audikast will auto re-connect to last 2 paired headphones / speakers within 5~10 seconds after turned on. If not, please clear paired history of BOTH Audikast and your headphones/speakers(refer to their own user manual), then re-pair them with Audikast again.

## Clear Paired History of the Audikast

You may need to clear paired history of the Audikast if it is not working as expected, such as not reconnecting, continuous loose connection, short work range and etc.

Please follow following to clear paired history of the Audikast:

After power on, press and hold BOTH (A) and (B) together for 7 seconds, both Bluetooth symbols will be on BLUE for 2 seconds, then (A) enter pairing mode automatically, Bluetooth symbol close to (A) flashes RED and BLUE alternately.



## Battery Replacement

The battery pack requires eight AA Alkaline cells. When the system turns OFF due to low battery voltage, the blue light will extinguish and you will need to replace the AA Alkaline cells.

To replace the batteries, open the case and remove the battery pack.

The battery pack may be unclipped to gain better access.

Make sure the new batteries are aligned + and – correctly according to indication on the battery pack.

***Make sure that contact is made at the + side of each battery, by pressing the battery in the direction to make proper contact.***



Install the battery pack onto the clip and re-insert into the case.

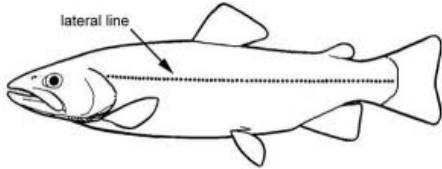
When not in use, battery life may be conserved by switching off the power toggle switch.



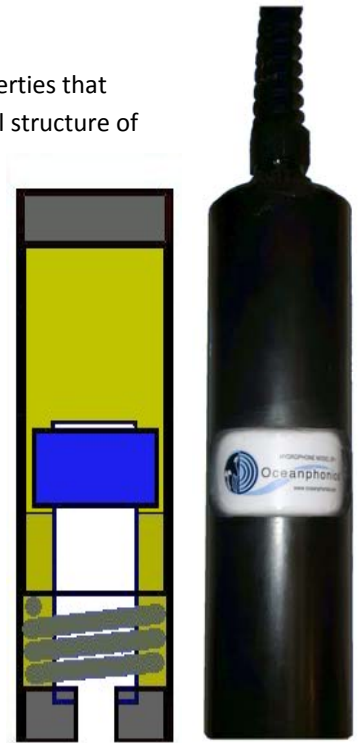
## The Unique Oceanphonics Hydrophone

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.

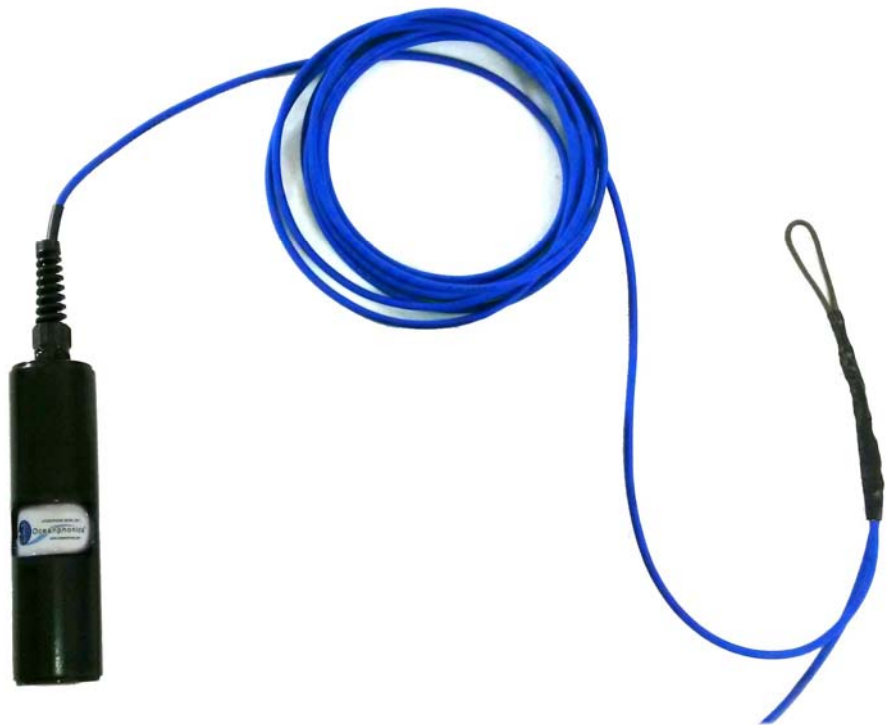


The Oceanphonics hydrophone has been developed over 25 years with experience and experimentation. In addition to the method used to pick up sound, as described above, the internal cavity also boosts mammal sounds by means of broad band resonance of the internal air chamber.



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 [-25 or -50 indicating cable length in feet] [-BT indicating BLUE TOOTH Option]
Audio pass band:	150 Hz to 20,000 Hz.
Reception:	Automatic Gain Control amplified signal with broadband resonant cavity
Maximum operating depth:	10 Meters (30 feet)
Power Source:	8 AA Alkaline cells
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

300-1095 McKenzie Avenue,

Victoria, BC Canada V8P 2L5

email: [sales@oceanphonics.com](mailto:sales@oceanphonics.com)

web: [www.oceanphonics.com](http://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!