



SEEKER Acoustic Subsea Vehicle Directional Receiver



The SEEKER acoustic directional receiver is a small but rugged passive pinger receiver used to assist operators of ROVs and AUVs to track acoustic sound sources for 25Khz to 40Khz. In addition, the SEEKER receivers can function as an “acoustic transponder interrogator” and provide accurate range and bearing to targets marked with a line of custom acoustic transponders. There are two different models of SEEKER receivers. The VADR100M, which operates to depths of 1000 meters and the VADR6000M, which is operational to 6000 meters.

The VADR Receivers consist of a 13cm diameter by 51cm long anodized aluminum housing with integral directional hydrophone array for easy mounting on a ROV or AUV. Electronics are housed in the pressure house and externally powered by the vehicle’s power supply through an 8-pin bulkhead connector. In addition, all telemetry data for controlling the VADR receivers and output data is accessed through this same connector.

A RS232 data interface is used to access the directional indication, range to target, and other operational information/control functions of the VADR receivers using an ASCII data string. Software is provided to allow the operator easy access to control and receive the necessary directional information to track the sound source.

To track an acoustic sound source, like a “Black Box” beacon, the operator selects the proper frequency through software that is provided with the unit. The VADR electronics begins to look for that acoustic signal through a directional hydrophone, which is mounted into the front of the pressure housing. The signal is processed by the electronics and then feedback is provided to the ROV operator. They then fly the ROV to the target area using the feedback provided by the VADR receiver’s software.

In addition, the ROV operator can also change the mode of the VADR receiver to track and locate ATT400 series transponders. This option allows the ROV operator to mark locations or equipment underwater and relocate them within one meter. Because the system is now operating as a transponder interrogator, the feedback to the ROV operator is more accurate and true range and bearing data is delivered to interface software. Each ATT400 transponder can be program to reply on eight(8) different frequencies allowing the marking of multiple locations with in a operational range of 750 meters.

Each VADR Receiver comes with the receiving unit, mating connector wit pigtail, operating software, and installation and operations manuals.

Specifications for VADR Receivers

Pinger Receiver Mode:

Receive Bandwidth: 25 TO 40Khz in 1Khz Increments

Receiver Sensitivity: -100Db ref 1uPa @ 1 meter

Transponder Mode:

Receive Frequencies: 27,28,29,30,21,32,33,34Khz

Interrogation Frequency: 26Khz

Acoustic Output: 180db re 1uPa @ 1m

Acoustic Signal: Coded

System Range: 750M

Directional Hydrophone:

Beam Width: 40 ± 5 degrees Conical

Bearing Indication: 4 BINS: Left or right, 3, 8, 20 or > 20 degrees

Bearing Accuracy: 5 degrees nominal in BINS 1 and 2

Bearing Resolution: 2 degrees

Control Interface:

RS232: 9600 Baud, No Parity, 8 Data Bits, and 1 Stop Bit

Connector: Seacon Peak 5507-2008

Interface Software: MicroSoft OS, Provided

Input Voltage: 18 to 32VDC, 24VDC nominal

Mechanical/Environmental:

Housing: Aluminum Hard Coat Anodized

Depth Rating: 1000M

VADR-1000M.....1000m (3280ft)

VADR-6000M.....6000m (19,685ft)

Weight in Air: 6.8kg (15lbs)

Weight in Water: 5.5kg (12lbs.)

Dimensions:

VADR-1000M...Ø11.4cm x L26.0cm (Ø4.50in x L10.3in)

VADR-6000M...Ø11.4cm x L28.0cm (Ø4.50in x L11.0in)

Operating temperature range: -18°C to 43°C (0°F to 110°F)

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Acoustic Target Transponder For the SEEKER Receiver

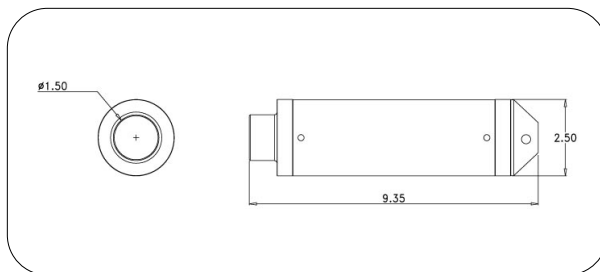


The ATT Series Target Transponders are small battery operated underwater acoustic transponders that allow you to mark and relocate targets underwater using the SEEKER VADR Receivers. Three different models give you deployment options to depths of 6000m (3280ft) with operational ranges of 750 meters (2250ft). Once deployed, a water switch activates the ATT series transponders where it can remain in the receive mode for up to 6 months waiting quietly for an interrogation signal for the VADR receivers. Once interrogated, the ATT-400 responds to the VADR receivers creating an acoustic communication protocol. The acoustic link between the receiver and transponder provides both range and bearing to the mark target or location via the software provide with the VADR receivers. Eight different user programmable channels on the ATT series transponder give each transponder its own unique ID. This allows for deployment of multiple transponders during a single deployment.

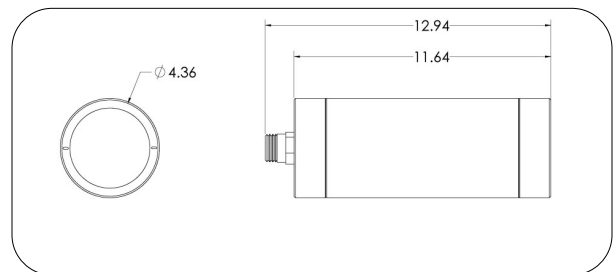
Specifications for the ATT Series Acoustic Target Transponders

Receive Frequency: 26Khz
Transmit Frequency: 27,28,29,30,31,32,33,34Khz
Acoustic Output: 180db
Acoustic Signal: Coded
System Range: 750 meters
Activation: Water Switch
Battery: 9 Volt Battery
Operational Life: 6 Month
Depth Rating:
ATT-400...100m (328ft)
ATT-400/1KM...1000m (3280ft)
ATT-400/6KM...6000m (19,685ft)

Housing:
ATT-400....Delrin
ATT-400/1KM... Aluminum Hard Anodized
ATT-400/6KM... Aluminum Hard Anodized
Size:
ATT-400... \varnothing 6.4cm x L21.0cm (\varnothing 2.50in x L8.50in)
ATT-400/1KM... \varnothing 6.4cm x L23.75cm (\varnothing 2.50in x L9.35in)
ATT-400/6KM... \varnothing 6.4cm x L23.75cm (\varnothing 2.50in x L9.35in)
Weight:
ATT-400...In Air/0.37Kg (1 lbs.) In water?
ATT-400/1KM...In Air/0.XXXKg (X lbs.) In water?
ATT-400/6KM...In Air/0.XXXKg (X lbs.) In water?



ATT Series Transponder



VADR Acoustic Receiver

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