



# SWALE OCEANOGRAPHIC

Teledyne Benthos

## Benthos DAT

Directional Acoustic Transponder (DAT)

All-In-One: Range, Bearing, and  
Data Communication

The Benthos DAT (Directional Acoustic Transponder) is an extension to the Teledyne Benthos ATM-900 Series modem which automatically estimates the azimuthal and vertical arrival angles of a message sent by a remote modem. The system is a "modified" ultra-short baseline (USBL) which uses a broadband component of a typical modem message to form estimates of arrival angle(s). While conventional USBL devices employ tonal signals, the appropriate processing of wide band signals provides far better combined range and arrival angle estimation, especially at low Signal to Noise Ratio (SNR). The device offers a clear 360 degree field of view in azimuth, and an approximate vertical coverage spanning + 90° overhead to -50° below horizontal.

The DAT's compact size and low power consumption make it appropriate for both surface and subsurface platforms. Acoustic modem and USBL functionality can now be integrated on Autonomous Underwater Vehicles in one system. Mounting the DAT on an AUV, as an inverted USBL system, can provide navigational accuracy unsurpassed by other systems.



*Benthos DAT*

### PRODUCT FEATURES

Acoustic Modem and USBL Functionality in One Package

Compact Form Factor

Lower Power Consumption

Multiple frequency options (LF, MF, & Band-C)

Available either in a pressure housing or as an OEM board set with matching transducer

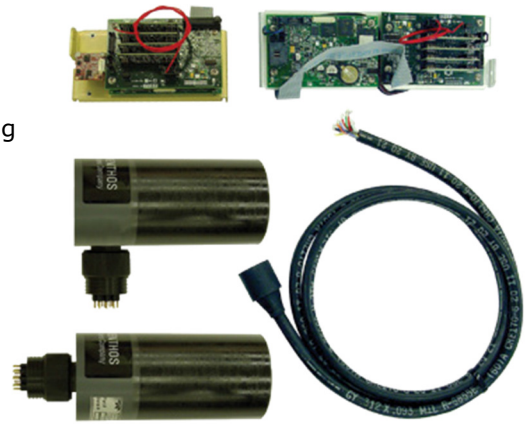
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## TECHNICAL SPECIFICATIONS

### Acoustic Modem

<b>Data Rate:</b>	140 - 15,360 bps
<b>Data Storage:</b>	6MB datalogger standard
<b>Processing:</b>	Data redundancy, 1/2 rate convolutional coding multipath guard period selection  MFSK and PSK modulation schemes
<b>Distances/Range:</b>	2 - 6 km common, greater distances possible  20+ km available using repeater functionality
<b>Frequencies:</b>	Low frequency (LF) 9-14 kHz Mid frequency (MF) 16-21 kHz Band C (C) 22 - 27 kHz
<b>Transducer:</b>	Transmit omni-directional (Toroidal pattern) Remote transducer head options available. Call for details.
<b>Connection:</b>	MBH-16-MP connector on unit, 9 pin RS-232 cable included  Port 1 RS-232, port 2 RS-232, power, ground, spare (1 PPS option)



### USBL

<b>Beamwidth:</b>	Receive – azimuth 360 degrees, vertical +/- 50 degrees
<b>Accuracy:</b>	Range, 0.3 meters Angle, +/- 0.3 degrees RMS

### OEM Kits

<b>Kit supplied with:</b>	PCB on chassis (long/short option) Remote transducer (straight/right angle option) Interface pigtail
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### DAT

<b>Depth:</b>	2000 m (other housing options available)
<b>Size:</b>	14 cm diameter x 86 cm length
<b>Weight:</b>	11 kg dry, 5 kg wet
<b>Power:</b>	300 W•Hr internal batteries (or external source)



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