

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

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PRODUCT FEATURES

- Acoustic Modem and USBL Functionality in One Package
- Compact Form Factor
- Lower Power Consumption
- Multiple frequency options (LF, MF, and 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

Data Rate:	140 - 15,360 bps
Data Storage:	6MB datalogger standard
Processing:	Data redundancy, 1/2 rate convolutional coding multipath guard period selection MFSK and PSK modulation schemes
Distances/Range:	2 - 6 km common, greater distances possible 20+ km available using repeater functionality
Frequencies:	Low frequency (LF) 9-14 kHz Mid frequency (MF) 16-21 kHz Band C (C) 22 - 27 kHz
Transducer:	Transmit omni-directional (Toroidal pattern) Remote transducer head options available. Call for details.
Connection:	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

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

OEM Kits

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

Depth:	2000 m (6,560 ft) other shallow and deep housing options available
Size:	5.5 in (14 cm) diameter x 33.9 in (86 cm) length (dimensional drawing available)
Weight:	24 lbs (11 kg) dry, 11 lbs (5 kg) wet
Power:	300 W•Hr internal batteries (can also be powered by external source)

