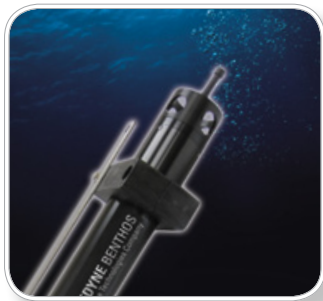




Benthos Acoustic Modems

Subsea Wireless Communication



COMMUNICATE
ACOUSTIC
DATA ACQUISITION
UNDERWATER
REMOTE
RELIABLE



**TELEDYNE
BENTHOS**
Everywhereyoulook™

ATM-900 Series Modems

The Teledyne Benthos ATM-900 Series Acoustic Telemetry Modems are a major enhancement to previous modem lines offered. The new ATM- 900 Series provides a long list of special purpose, flexible extensions supporting multiple capabilities beyond “just” underwater communications. These capabilities range from high capacity data logging, through updated data storage and user command line interfaces to real-time clock integration. Each surface unit can operate using cables from 2m to 200m with a mating transducer for each cable. Both directional and omnidirectional transducers are available



Standard Features

- ATM-900 Series modem electronics
- Integrated or remote transducer options
- Flash file system data logger creates discrete records for query and retrieval

Options

- Dual serial ports: connect two instruments for transmission or data logging
- SD card for expanded data storage
- In-band acoustic recorder: records any ambient sounds with in-band of operation
- Arbitrary wave form playback

UDB-9400

- ATM-900 Series modem deck box
- Good for vessels, dock, and other operational environments
- Internal batteries or AC/DC power connector
- Speaker
- Serial port
- Transducer and cable included
- Splash proof case
- Communicates to Acoustic Releases & Modems
- 25m to 200m cables available

ATM-903 Series

- Ideal for AUV applications
- For mounting in your customer supplied housing
- Transducer, power cable and serial cable included



ATM-910 Series

- 500 meter depth rated
- Alkaline batteries, 378 W•HR optional
- Remote head optional
- Corrosion resistant housings



ATM-920 Series

- 2000 meter depth rated
- Alkaline batteries, 378 W•HR optional
- Remote head optional



ATM-960 Series

- 6000 meter depth rated
- Alkaline batteries, 588 W•HR optional
- Remote head optional

General Specifications

Baud Rate

- 140-2400 bits per second (bps) Multiple Frequency Shift Keying (MFSK)
- 2560 -15,360 bits per second (bps) Phase Shift Keying (PSK)

Frequency Band

- Customer Specified
 - 9 - 14 kHz (LF)
 - 16 - 21 kHz (MF)
 - 22-27 kHz (Band C)

Processing Features

- Data redundancy, 1/2 rate convolutional coding,
- Multipath guard period selection
- MFSK and PSK modulation schemes

Configurations

- Deck Box
- 500m, 2000m and 6000m depth rated subsea units
- Customer integrated electronics
- Omnidirectional and directional transducers

Distances–Range

- 2-6 km common, greater distances possible

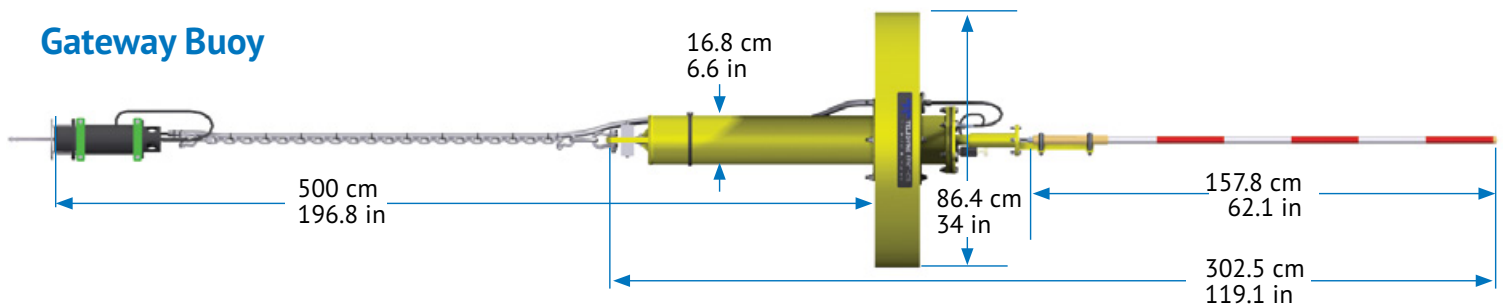
Deployment Length

- Up to 2 years
- 3-6 months typical with hourly transmissions
- Unlimited with external power supplied

Data Storage

- 6144 KB datalogger standard
- Expanded memory option available

Gateway Buoy



- 2-man deployable
- Remote system monitoring from shore base station
- Rechargeable batteries
- Freewave, 900 MHz spread spectrum communication
- 2 month deployment (based on Freewave transmission to shore station)
- Internal space for custom options
- Uses ATM-916 Series Modem
- Requires shore-based RF system (not included)

ATM-900 Series Part Number Designator Legend

The ATM-900 Series Acoustic Telemetry Modem uses a new model number and part number scheme. This allows for the model number to be used as the part number and simplifies both the ordering and support processes.

ATM - ABC - D - E

A

9.... ATM-900 Series 4th Generation Acoustic Telemetry Modem Software Version 8.x

B

- 0**.... Original Equipment Manufacturer Printed Circuit Board (OEM PCB) Electronics
- 1**.... Polyvinyl Chloride (PVC) Housing Material, Depth Rated to 500 meters (1640 feet)
- 2**.... Aluminum Housing Material, Depth Rated to 2,000 meters (6560 feet)
- 6**.... Aluminum Housing Material, Depth Rated to 6,000 meters (19,680 feet)

C

- 0**.... Transducer Not Included
- 3**.... OEM, Remote Transducer, no Internal Battery
- 4**.... Remote Transducer, Internal Battery
- 5**.... Integrated Transducer, Internal Battery
- 6**.... Integrated Transducer, No Internal Battery
- 7**.... Remote Head No Battery

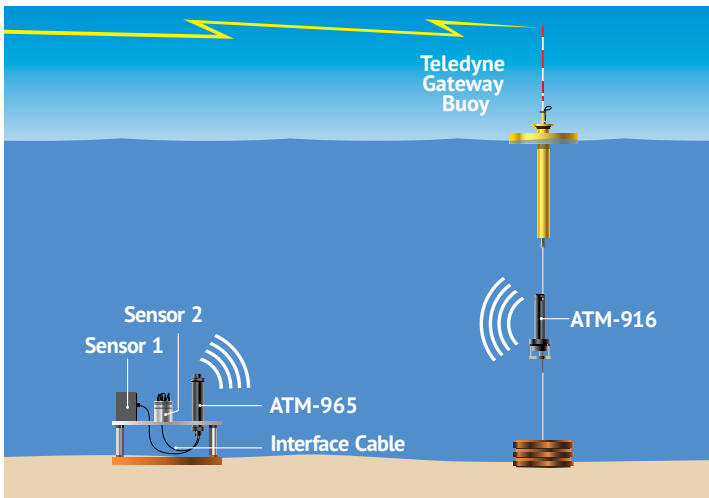
D

- LF1** ... Low Frequency (9 – 14 kHz) Omni-Directional Transducer
- LF2** ... Low Frequency (9 – 14 kHz) Directional Transducer
- MF1**.. Medium Frequency (16 – 21 kHz) Omni-Directional Transducer
- MF2**.. Medium Frequency (16 – 21 kHz) Directional Transducer
- BC1** .. Interoperability Band C (22 – 27 kHz) Omni-Directional Transducer

E

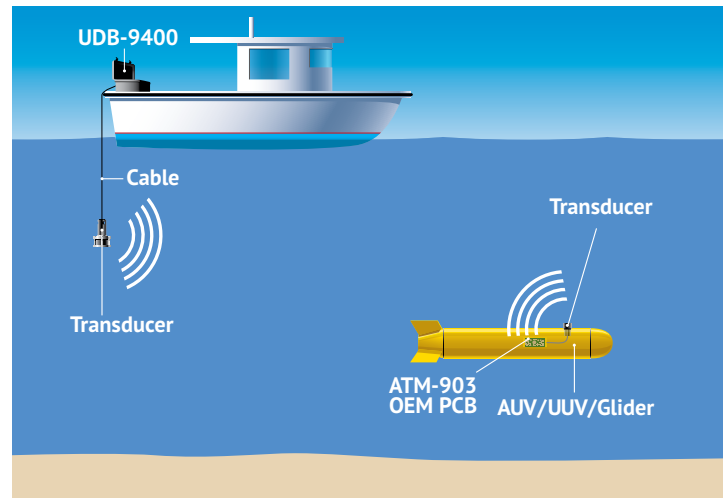
- B**.....Dual Serial Port Enabled
- D**SDHC Data Logger
- M**....Multiple Channel Receive Capability Enabled for LBL Navigation Systems
- P**.....PSK Coprocessor
- I**In-Band Acoustic Recorder
- W** ...Arbitrary Wave Form Playback

Note: Specification designators A through D are required, whereas specification designator E is for selected options.



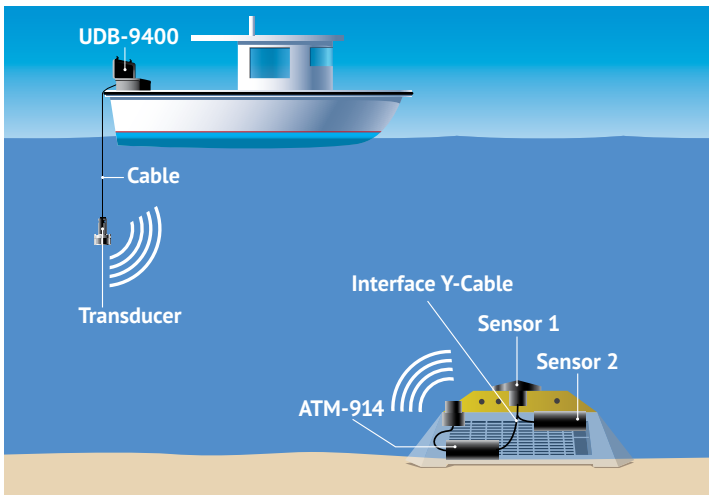
Oceanographic

- Real-time command, control, and acquisition of data from underwater instrumentation
- Acoustic Doppler Current Profiler
- Current meters
- Tide gauges



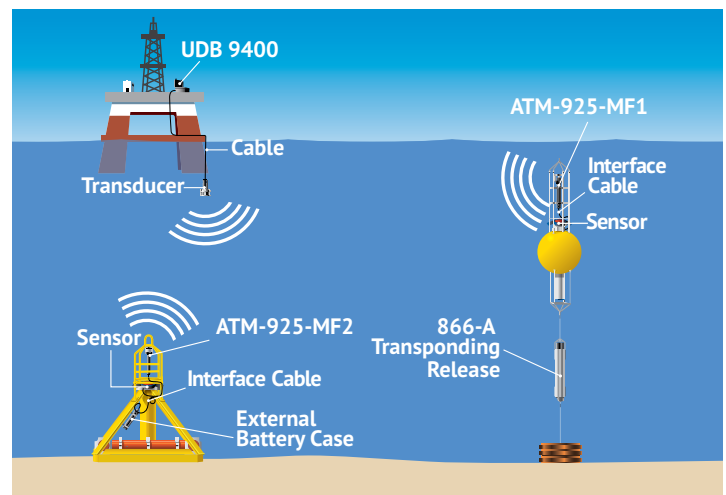
Vehicle Communication

- AUV/UUV glider communication
- Autonomous Ocean Sampling Network communication (AOSN)
- Tactical underwater local area network communications



Ocean Research/Ocean Studies

- Ocean observatories
- Trawl Resistant Bottom Mount (TRBM)
- CTD instruments
- Acoustic Doppler Current Profiler



Offshore Oil/Gas Industry

- Command, control, and acquisition of data from remote underwater instrumentation
- Long range, low frequency communication with remote wellhead location
- Wireless communications between platform and sea floor instrumentation



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