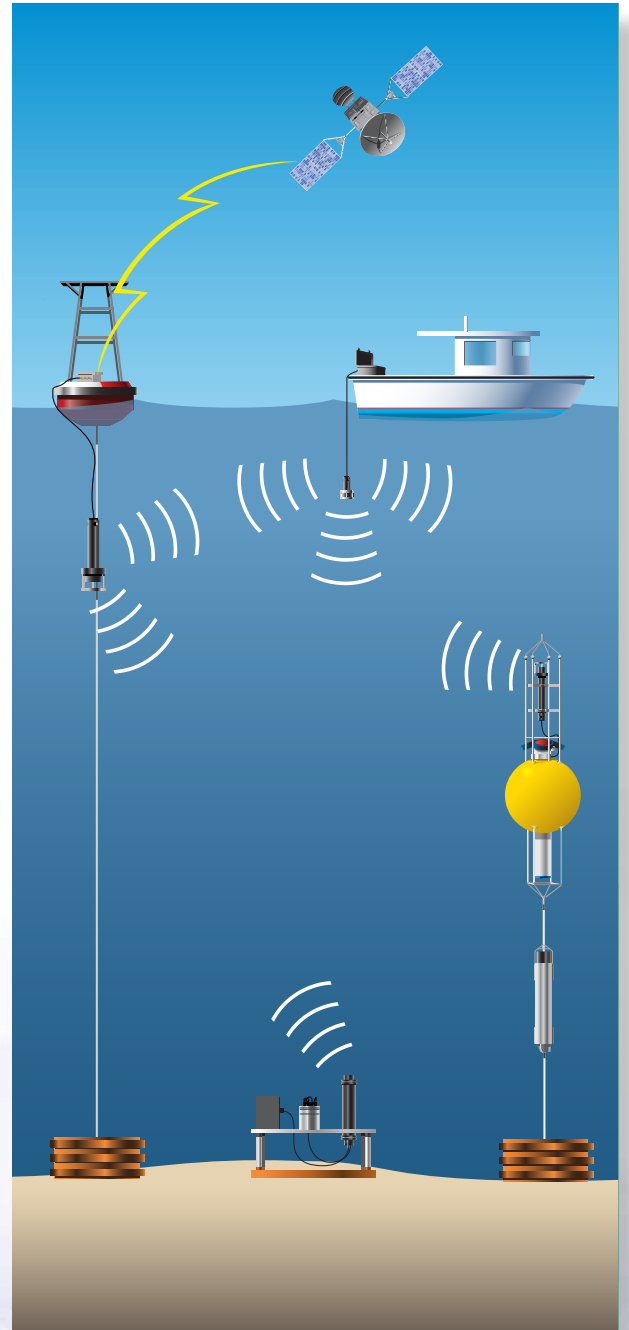


# Modems

## ACOUSTIC TELEMETRY MODEMS

# Subsea Wireless Communication

Teledyne Benthos underwater acoustic modems are used in worldwide subsea applications and are the only modems available in a combined modem/acoustic release configuration. Reduce the expense and clutter of wired sensors by making any subsea sensor wireless for shallow or deep water applications. OEM configurations are available.



INNOVATIVE UNDERSEA SYSTEMS TECHNOLOGY



**TELEDYNE  
BENTHOS**

A Teledyne Technologies Company

## 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

- Standard modem electronics
- Integrated or remote transducer options
- Flash data logger creates discrete records for query and retrieval

### Options

- Dual serial ports: connect two instruments for transmission or data logging



### UDB-9400

- Standard deck box
- Good for boats, dock, and other real time environments
- Internal batteries or AC/DC power connector
- Speaker
- Serial port
- Transducer and cable included
- Splash proof case
- Communicates to Acoustic Releases & Modems



### ATM-903 Series

- For AUV applications
- For mounting in your own pressure 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) MFSK
- 2560 - 15,360 bits per second (bps) PSK

### Frequency Band

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

### Data Storage

- 6144 KB datalogger standard

### 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
- OEM electronics
- Omnidirectional and directional transducers

### Interfaces

- Command line

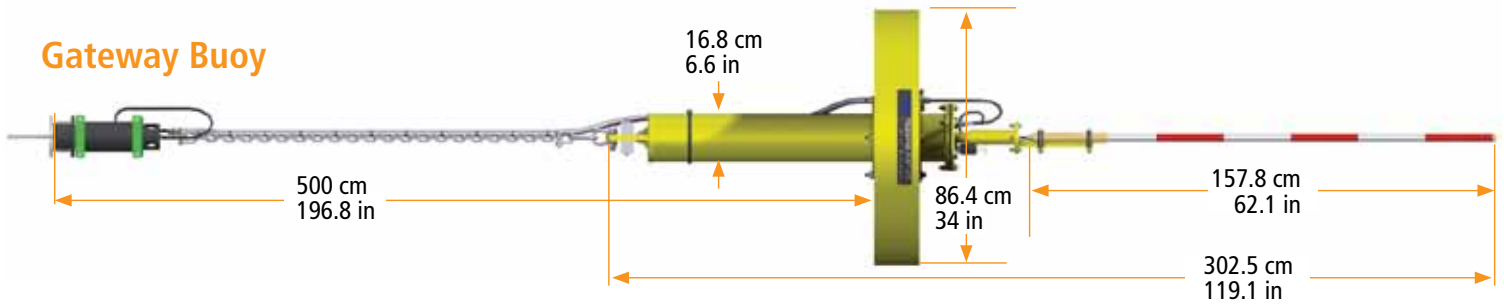
### Distances–Range

- 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

## 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

## 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

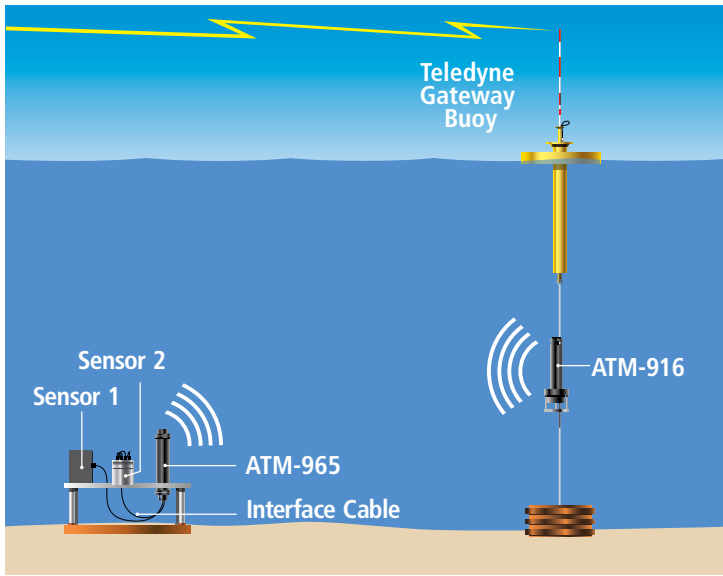
## D

- 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
- M ... Multiple Channel Receive Capability Enabled for LBL Navigation Systems

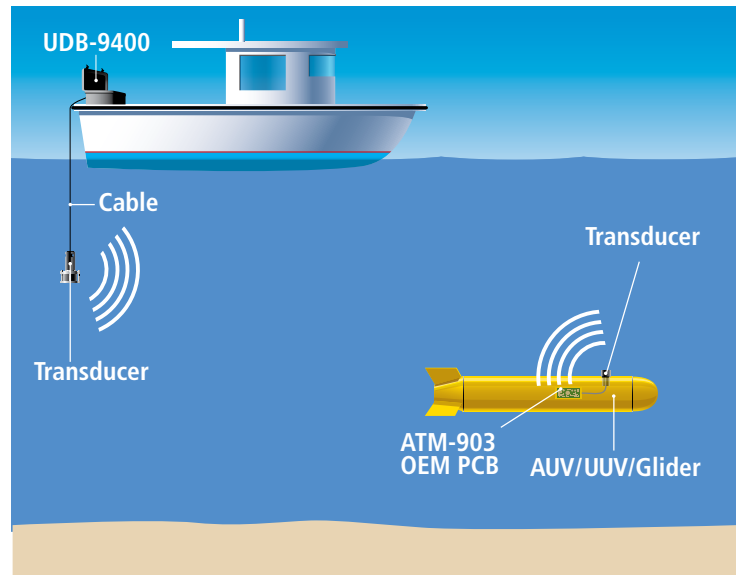
**Note:** Specification designators A through D are required, whereas specification designator E is for selected options.



### Oceanographic

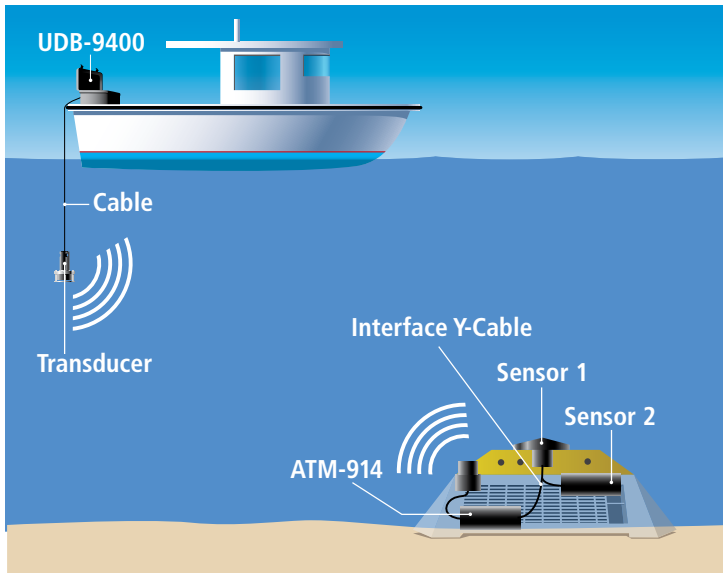
Real-time command, control, and acquisition of data from underwater instrumentation

- Acoustic Doppler Current Profiler
- Current meters
- Tide gauges



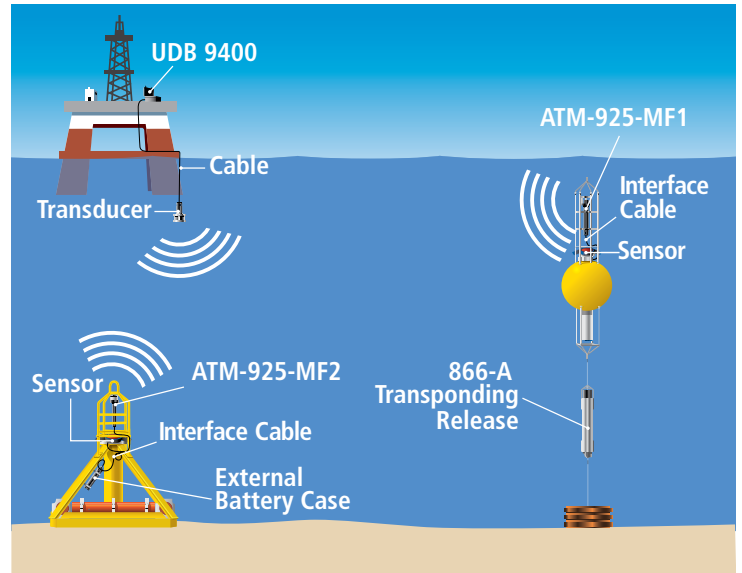
### Military

- 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