

FAST
RELIABLE



*Fast And Reliable Access
To Undersea Data.*

A Complete High Speed Bi-Directional Acoustic
Communication System That's Easy to Set-up and Use.

- ACOUSTICS
- FLOTATION
- GEOPHYSICAL
- HYDROPHONES
- IMAGING
- MODEMS
- LOCATOR
- ROBOTICS



The Fastest Way to Communicate Undersea Is Also The Most Reliable.



Topside – ATM-891/ATM880

The Benthos ATM-891 and ATM-880 topside telesear modems provide the surface component for your acoustic communication system. These surface modems are configured with a remote dunking transducer and transmit commands/data to and receive commands/data from the subsea modems located on a seafloor instrumentation package.

ATM-891 Topside Modem

AC/DC powered, portable topside modem includes an RS-232 interface, speaker and volume control and remote transducer connection.

ATM-880 Modem Module

DC powered electronics housed in a sturdy module for easy installation and reliable operation in a surface buoy. Includes connectors for remote transducer, RS-232/RS-422 serial port and DC power.

Topside Specifications

General

Frequency Band: Customer specified:
9-14kHz(LF), 16-21 kHz (MF) or 25-30 kHz (HF)

Baud Rate: 150 - 15360 bps

Bit Error Rate: Better than 10^{-7} with high SNR

Data Modulation: MFSK and PSK

Data Storage: 704K datalogger standard with additional 1 MB or 3 MB available

Processing features: Data redundancy, 1/2 rate convolutional coding, multipath guard period selection

Serial Interface: RS-232/422 at 9600, 4800, 2400 or 1200 baud; customer selectable (parity: none; data bits: 8; stop bits: 1)

Available Transducers: AT-408 omnidirectional, AT-421 directional

Physical Characteristics

Case Construction:

ATM-891: Sturdy plastic, watertight with cover closed

ATM-880: NEMA enclosure

Dimensions:

ATM-891: 10" high x 14" wide x 6.5" deep

ATM-880: 4.4" high x 9.2" wide x 11.2" deep

Weight: 11 lbs.

Standard Cable Lengths: 25, 50 and 100 meters

Operator Controls: Speaker, volume, power on/off switch (ATM-891 only)

Display and Indicators: Power on/off, speaker (ATM-891 only)

Power:

AC Input Power

ATM-891: 110/220 VAC

ATM-880: N/A

Battery Power:

ATM-891: 24 VDC

ATM-880: 14-28 VDC



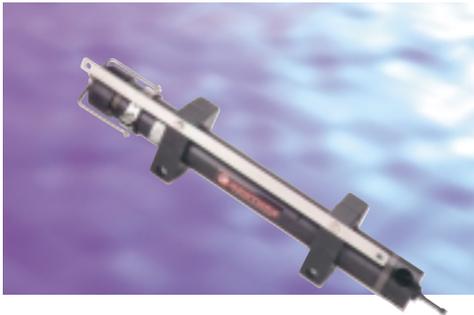
Topside and Subsea Features:

- Capable of transmitting data rates up to 15360 bps and receiving up to 2400 bps
- Ultra-reliable data transmission in either vertical or horizontal channels
- MFSK and PSK modulation schemes, as well as data redundancy, convolutional coding and multipath guard period – all ensuring robust data transmission.
- Choice of integral or remote transducer
- Choice of directional or omnidirectional radiation pattern
- Three standard frequency bands: 9-14kHz(LF), 16-21 kHz (MF) or 25-30 kHz (HF), depending on application requirements
- Easy to use Telesonar PC graphic user interface
- Doppler correction capability
- On board data storage (704K standard, expandable to 3 MB, allowing for increased data capacity and extended deployment periods)

For more than 40 years, Benthos has met the challenges presented by undersea communications. Now, our new line of high speed modems delivers unsurpassed transmission rates plus error-free operation. Our acoustic modem systems provide everything you need for your bidirectional acoustic communication system:

Subsea – ATM-885/ATM-887

The Benthos ATM-885/ ATM-887 acoustic telemetry modems provide the anchor for our underwater communications systems. These subsea modems are interfaced with a host system and acoustically transmit and receive data to/from the topside acoustic modem. Each subsea modem is available in a wide variety of configurations, including customer selected frequency range, integral or remote transducer, and as OEM board sets.



ATM-885 Acoustic Telemetry Modem – Shallow Water

Designed for use at depths up to 2000 meters, the ATM-885 is a self-contained, internally or externally powered modem with an integral transducer. It is capable of high speed transmission at 15360 bps and can receive at up to 2400 bps. It is available for applications requiring a remote transducer as the ATM-885R.



ATM-887 Acoustic Telemetry Modem – Deep Water

At depths up to 6000 meters, the ATM-887 is a self-contained, internally or externally powered modem with integral transducer. It is also capable of 15360 bps transmission and 240 bps reception. The ATM-887R is available with a remote transducer.

Subsea Specifications

General

Frequency Band: Customer specified: :
 9-14kHz(LF), 16-21 kHz (MF) or 25-30 kHz (HF)
 Transmit Rate: 150 - 15360 bps
 Receive Rate: 150 - 2400 bps
 Bit Error Rate: Better than 10^{-7} with high SNR
 Data Modulation: MFSK and PSK
 Data Storage: 704K datalogger standard
 with additional 1 MB or 3 MB available
 Processing features: data redundancy, 1/2
 rate convolutional coding, multipath guard
 period selection

Serial Interface: RS-232/422 at 9600, 4800, 2400 or 1200 baud; customer selectable (parity: none; data bits: 8; stop bits: 1)

Housing Construction: Hard coat anodized aluminum

Mounting: Stainless steel side bar

Operator Controls: Plunger-type on/off switch

Physical Characteristics

ATM-885/ATM-885R (shallow water, internally powered)

Dimensions:

ATM-885: 3.5" diameter x 33.5" long

ATM-885R: 3.5" diameter x 29.75" long

Weight:

In air: 36 lbs.

In water: 17 lbs.

Operating Depth: 2000 meters

ATM-887/ATM-887R (deep water, internally powered)

Dimensions:

ATM-887: 5" diameter x 33.5" long

ATM-887R: 5" diameter x 28.25" long

Weight:

In air: 36 lbs.

In water: 17 lbs.

Operating Depth: 6000 meters

Power:

External Input Power: 14-28 VDC

Receive Current: 0.025 amps typical

Transmit Current: 1 amp typical, 2A maximum @ 21 VDC

Standby Current: 0.001 amps

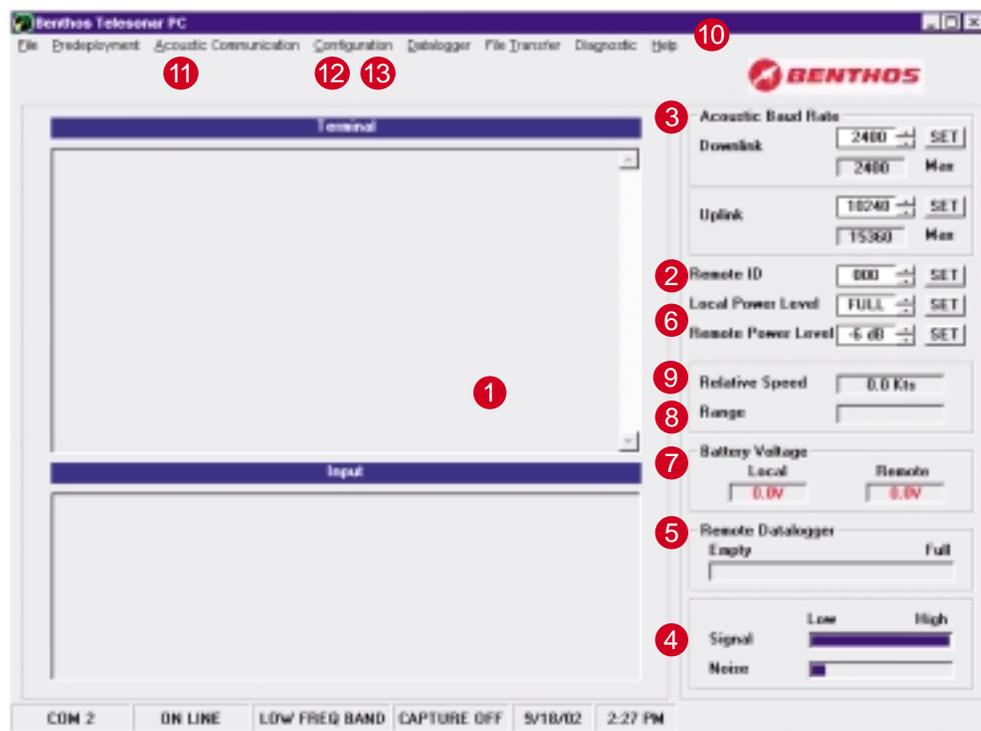
Batteries:

21V Alkaline - 18 Amp-HR

21V Lithium - 30 Amp-HR (optional)

Telesonar PC – Making Undersea Communications Easier

The Telesonar PC makes operation of a subsea communications system intuitive and easy. This graphical user interface is designed to provide a user-friendly way to set up and operate ATM-880 and ATM-890 Series Acoustic Telemetry Modems. It's no longer necessary to memorize and enter cumbersome command strings or manually change S Register settings. The Telesonar PC makes the majority of command functions and operations transparent to users – they can focus on the data, not the operation.



① Main Screen

Displays the local modem (outgoing data) and remote modem (incoming data) plus standard Windows® features and important status information.

② Remote ID

Displays and selects the remote modem address from 000 to 239.

③ Acoustic Baud Rate

Displays and selects the acoustic baud rate at which the local modem will address the remote modem.

④ Signal and Noise Level

Displays the relative levels of the received signal and noise.

⑤ Remote Datalogger

Indicates whether the remote modem is in "Datalogger Mode" and displays the relative amount of data stored in its memory (empty to full).

⑥ Power Level

Displays and selects the transmit power level of the local and remote modems.

⑦ Local and Remote Battery Voltages

Displays the voltages of the local and remote modem battery.

⑧ Range

Displays the range between the local and remote modems' transducers.

⑨ Speed

Displays the relative speed in knots between local and remote modems.

⑩ Menu Bar

Provides access to all of the modem commands through familiar pull-down menus.

⑪ Battery Capacity Calculations

A convenient tool for calculating the required transmit and receive battery pack capacities based on the user's length of deployment and amount of data to be transmitted. This allows the user to easily project the battery requirements for each deployment.

⑫ Local and Remote Modem Configuration

Easy to use configuration options allow the user to set and modify a wide variety of operational parameters for both the local and remote modems before and after deployment. Commonly used modem configurations can be stored as Config files and retrieved whenever the user requires them.

⑬ Selectable Range Options

Range can be calculated and displayed in kilometers, meters, statute miles or nautical miles.



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