

ADVOCEAN

ACOUSTIC DOPPLER VELOCIMETER FOR DEMANDING ENVIRONMENTS

CAPABLE and TOUGH

Rugged build quality with high-end ADV[®] performance is what the ADVOcean is all about. Representing the ultimate solution to measuring precise 3D velocity in the most challenging environments, the ADVOcean/Hydra can be integrated with an array of external sensors for a complete oceanographic data collection system. With the optional RPT pressure sensor, this powerful system is able to sample both pressure and velocity at up to 25 Hz, making it the definitive solution for studying nearshore processes.

APPLICATIONS

- Turbulence
- Nearshore dynamics
- Boundary layers
- Directional waves
- Sediment transport

FEATURES

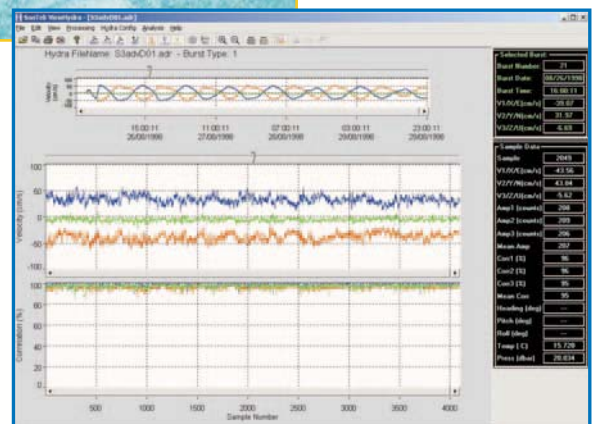
- Extremely rugged construction
- Enhanced sensitivity for low backscatter environments
- Acoustic altimetry
- ViewHydra software

The ADVOcean has a fixed sampling volume located 18 cm from the transmitter enabling undisturbed 3D current measurement with high precision.



ADV Ocean being used for a near-boundary measurement close to a coral reef.

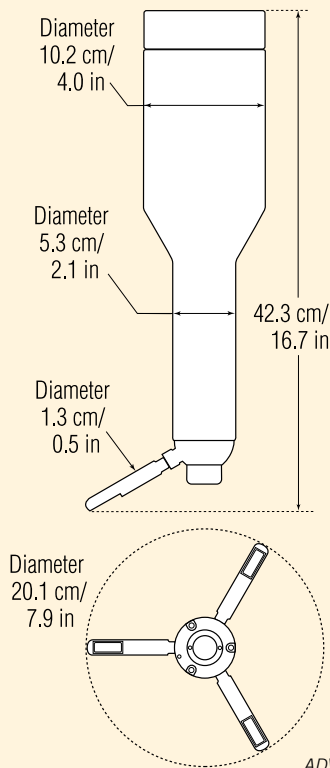
ViewHydra Windows software for data display and analysis.



ADV Ocean probe with expanded Delrin housing.

SPECIFICATIONS

ADVOcean/Hydra



The SonTek Hydra (ADVOcean autonomous configuration) can be factory-integrated with CT, pressure, and turbidity sensors as shown.

ADVOcean Standard Features

- 5 MHz acoustic frequency
- Distance to sampling volume: 18cm
- Sampling volume size: 2.0 cc
- Stainless steel probe head and housing with 0.5" thick stainless steel arms
- Integrated Temperature Sensor
- Processor electronics package in cylindrical underwater canister (16.5 cm/6.5" diameter by 35.3 cm/13.9" height)
- RS 232 Communications

ADVOcean Optional Features

- Expanded Delrin housing to accommodate compass/tilt sensor and pressure sensor
- Piezoresistive pressure sensor (0.1% accuracy) or RPT silicon resonance pressure sensor (0.01% accuracy - up to 20 m depths only)
- RS 422 communications

Hydra Standard Features (ADVOcean In Autonomous Configuration)

- 5MHz ADVOcean Probe with integrated compass/tilt sensor, piezoresistive pressure sensor, and expanded Delrin housing
- Processor electronics package in cylindrical underwater canister with 128 MB recorder and two alkaline battery packs (approximate canister dimensions are 16.5 cm/6.5" dia. by 74.9 cm/29.5" height)
- ViewHydra Windows data analysis software

Hydra Optional Features

- RPT silicon resonance pressure sensor (0.01% accuracy - up to 20 m depths only)
- 512 MB or 1 GB recorders
- SeaBird MicroCAT serial interface (externally cabled)
- D&A OBS turbidity sensor analog interface (externally cabled)
- Paroscientific quartz resonance pressure sensor

- frequency interface (externally cabled)
- 10 MHz ADV Probe on stem or flexible cable with 10 cm distance to sampling volume
- ViewHydra Pro advanced data analysis software featuring directional wave processing

Velocity

- Programmable velocity range scales: 5,20,50, 200,500 cm/s
- Resolution: 0.1 cm/s
- Accuracy: $\pm 1\%$ of measured velocity, ± 0.5 cm/s at up to 25 Hz (please contact SonTek about higher sampling rates).

Temperature

- Resolution: 0.01°C
- Accuracy: $\pm 0.1^\circ\text{C}$

Compass/Tilt

- Resolution: Heading, Pitch, Roll 0.1°
- Accuracy: Heading $\pm 2^\circ$
- Accuracy: Pitch, Roll $\pm 1^\circ$

Power

- Input power: 12-24 VDC
- Typical power consumption: 2.5 - 4.0 W (continuous operation)
- Battery capacity (two alkaline packs): 1200 W-hr

Environmental

- Depth Rating Delrin Probe: 400 m
- Depth Rating Stainless steel probe: 400 m (depth ratings up to 2000 m are possible, call for details)
- Operating Temp: -5°C - 45°C
- Storage Temp: -10°C - 60°C



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10 MHz ADV on stem with 10 cm distance to sampling volume shown at left. At right is the 5 MHz standard ADVOcean with the stainless steel probe housing.

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