

# ADVOCEAN

## ACOUSTIC DOPPLER VELOCIMETER FOR DEMANDING ENVIRONMENTS

### CAPABLE and TOUGH

Rugged build quality with high-end ADV<sup>®</sup> 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.

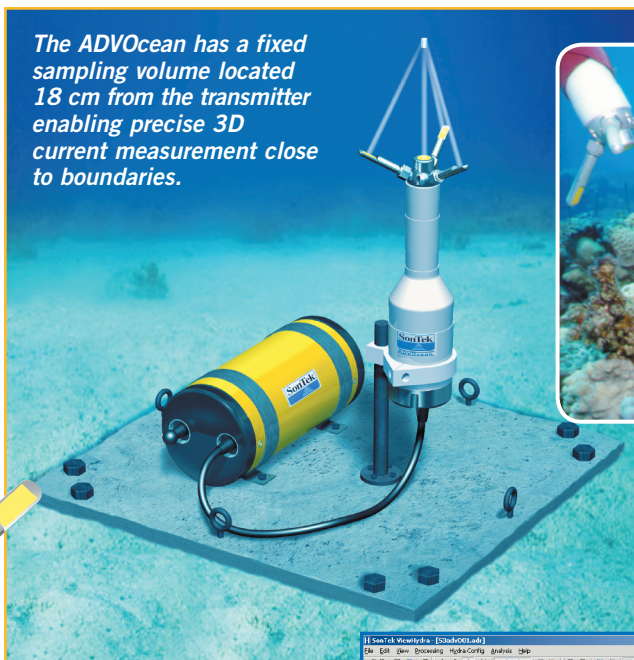
#### APPLICATIONS

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

#### FEATURES

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

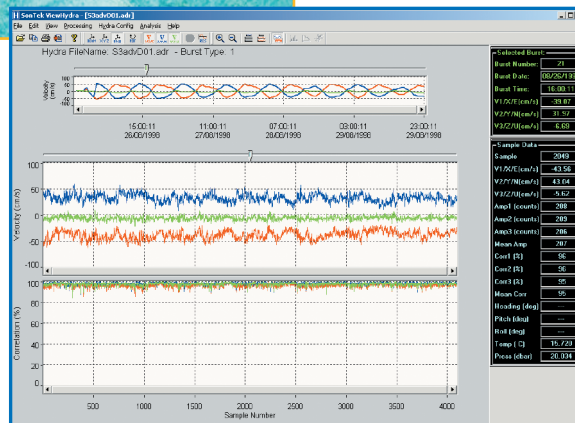
The ADVOcean has a fixed sampling volume located 18 cm from the transmitter enabling precise 3D current measurement close to boundaries.



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



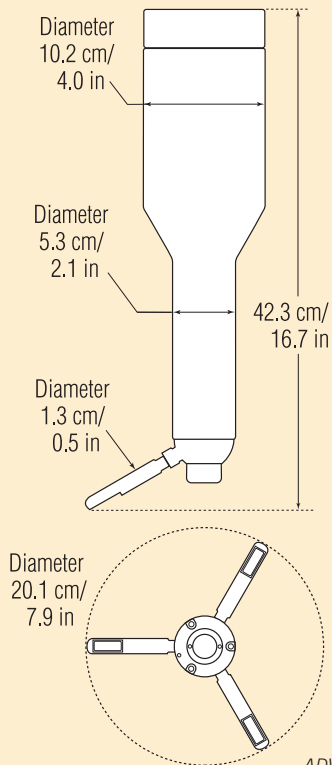
ADV Ocean probe with expanded Delrin housing.



ViewHydra Windows software for data display and analysis.

# SPECIFICATIONS

## ADVOcean/Hydra



ADVOcean probe with expanded Delrin housing



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 cm
- Stainless steel probe head and housing with 0.5" thick stainless steel arms
- Multiple Independent Sampling Schemes
- Temperature Sensor
- Processor electronics package in cylindrical underwater canister (16.8 cm/6.6" diameter by 30.5 cm/12.0" 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 recorder, and two alkaline battery packs (approximate canister dimensions are 16.8 cm/6.6" dia. by 72.4 cm/28.5" height)
- ViewHydra Windows data analysis software

### Hydra Optional Features

- RPT silicon resonance pressure sensor (.01% accurate - up to 20 m depths only)
- SeaBird MicroCAT serial interface (externally cabled)
- OBS turbidity sensor analog 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,  $\pm 0.5$  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  $\pm 1^\circ$
- Built-in calibration procedure to compensate for ambient magnetic fields

### Power

- Input power: 12-24 VDC
- Typical power consumption: 2.5 - 4.0 W (continuous operation); 0.001 W (stand-by)
- Battery capacity (two alkaline packs): 1200 W-hr

### Environmental

- Depth Rating Delrin Probe: 250 m – (Call for deeper ratings)
- Depth Rating Stainless steel probe
- Operating Temp: -5°C - 45°C
- Storage Temp: -10°C - 60°C

### GLOBAL HEADQUARTERS

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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.