

# TRIAXYS™ MINI

Directional Wave Buoy

## FEATURES & BENEFITS:

- Easy to deploy
- Spin and impact resistant
- 5 year rechargeable battery life
- Supports any telemetry
- >5 years of data storage capacity
- Continuous wave sampling



*Highly portable buoy designed for short-term wave measurement deployments.*



**TRIAXYS™**

**TRIAXYS™ MINI**  
Directional Wave Buoy

*A “Mini” Revolution in Wave Measurement*

## TRIAXYS™ MINI Directional Wave Buoy

The TRIAXYS™ Mini Directional Wave Buoy is an easy to deploy, rugged and economical instrument for the measurement of directional waves. The stainless steel hull has a high strength-to-weight ratio and is powder-coated for additional corrosion resistance. The buoy is relatively small (0.6 m diameter) and lightweight (60 kg) allowing for easy deployment by two people from almost any vessel.

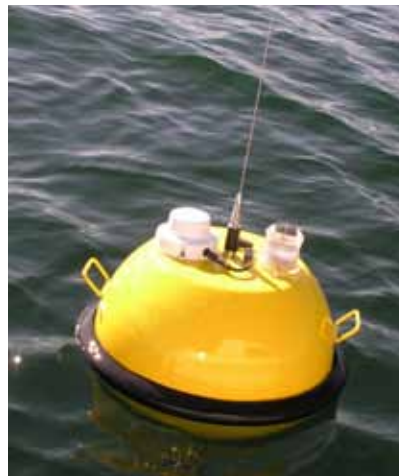
The TRIAXYS™ Mini's standard power supply, Lithium Thionyl Chloride battery packs, allows up to 60 days of data transmission. The versatility of the Mini allows longer-term deployments of up to six months to be achieved by adding additional battery packs.

The heart of the TRIAXYS™ Mini Wave Buoy was developed from the proven AXYS WatchMan500™, which integrates sensor systems and provides onboard data processing, data logging, telemetry and diagnostic/set-up routines. The TRIAXYS™ sensor and telemetry module contains the telemetry system (e.g., VHF transmitter), data logging system, processing unit and the sensor unit, which is comprised of 3 accelerometers, 3 rate gyros and a Fluxgate compass. The processing unit samples and analyses the data and controls all the TRIAXYS™ Mini's systems.

TRIAXYS™ directional wave processing software uses an iterative algorithm based on the Fast Fourier Transform (FFT) analysis to solve the full non-linear equations of buoy motion in six degrees of freedom. The six degrees of freedom are defined by the measured accelerometer (3) and rotational rate gyro (3) signals. Roll, pitch and yaw angles are measured as well as accelerations, displacements and velocities from which heave, surge and sway are determined.

The use of surge and sway velocities instead of roll and pitch angles provides a more accurate measure of wave kinematics that defines the direction of wave propagation. The abridged data can be either contained in the internal data logger or transmitted by the previously incorporated telemetry communication to either a land or ship-based transceiver.

For operational and safety purposes, the TRIAXYS™ Mini is also capable of monitoring its moored location through the use of the onboard GPS receiver coupled with the AXYS buoy mooring WatchCircle™ Alarm.



## Specifications

- Physical Description**  
 Diameter: 0.72m (29.5 inches) outside bumper  
 0.6m (25.5 inches) hull  
**Weight (including batteries):**  
 2 packs = 58 kg (128 lb)  
 4 packs = 71kg (156lbs)  
**Weight (excluding batteries):** 43 kg (95 lb)  
**Obstruction Light:** Amber LED  
 Programmable with three miles visibility
- Materials**  
 Hull: Stainless steel 316  
 Lifting handles: Welded stainless steel
- Sensors/Processor**  
 Processor: WatchMan500™  
 Water temperature: Thermilinear composite network  
 Accelerometers: Flexure suspension servo (Range  $\pm 2g$ )  
 Rate: Piezoelectric vibrating gyroscope (Maximum angular velocity  $\pm 80^\circ/s$ )  
 Compass: Microprocessor controlled Fluxgate (Accuracy  $\pm 0.5^\circ$ )  
 GPS: 12 channel
- Power System**  
 Operational system voltage: 10.5 to 19.0 VDC  
 Batteries: lithium thionyl chloride or lead acid  
 Battery packs: 2 packs standard, expandable to 4 packs  
 On/Off Switch: located on communication cable
- Telemetry Options**  
 - VHF  
 - INMARSAT D+  
 - IRIIDIUM  
 - CDMA, GPRS (cellular)

### Resolution/Accuracy

	Range	Resolution	Accuracy
Heave	$\pm 20$ m	0.01 m	Better than 2%
Period	1.5 to 33 seconds	0.1 sec	Better than 2%
Direction	0 to 360°	1°	3°
Water Temp.	-5 to +50°C	0.1°C	$\pm 0.5^\circ C$

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