

TRIAXYS™ Mini DIRECTIONAL WAVE BUOY



The TRIAXYS™ Mini Directional Wave Buoy is a highly portable buoy designed for short-term wave measurement deployments. Canada.

Features:

- Easy to deploy and recover
- On board data logging and processing
- User configurable
- Battery powered
- Supports a variety of telemetry options
- Use tethered or free floating
- Lower operating and deployment costs
- User configurable
- Rugged and reliable wave sensor
- Advanced motion and directional wave analysis

Description:

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.



Triaxys mini iss A April 07

Specifications:

Description (cont):

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 WatchMan™ DCP, 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.

• Physical Description

Diameter:

Hull: 0.6m (25.5 inches)

Bumper: 0.72m (29.5 inches)

Weight (including battery packs): 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

Water temperature: Thermilinear composite network

Acceleration: Flexure suspension servo (Range $\pm 2g$)

Rotation: Piezoelectric vibrating gyroscope (Maximum angular velocity $\pm 80^\circ/s$)

Direction: Microprocessor controlled Fluxgate compass (Accuracy $\pm 0.5^\circ$)

A/D and sampling frequency: 14 bit at 4 Hz

GPS: 12 channel with WatchCircle™

Antenna: One Ringo 3 dB Gain with 30m RG-213/U Cable

• Power System

Operational system voltage: 10.5 to 17.0 VDC

Batteries: lithium thionyl chloride

Battery packs: 2 packs standard, expandable to 4 packs

On/Off Switch: located on communication cable

• Telemetry Options

- VHF
- INMARSAT D+
- ARGOS
- IRIDIUM
- GPRS, GSM

Resolution / Accuracy:

	Range	Resolution	Accuracy
Heave	+/- 20 m	0.01 m	< than 2 %
Period	1.6 to 30 seconds	0.1 seconds	< than 2 %
Direction	0 – 360°	3°	3°
Water Temperature	-5 to + 50° C	0.1 ° C	+/- 0.5 ° C