

# MicronNav System

## USBL Navigation and Positioning

### USBL tracking for small vehicles

The MicronNav system is an innovative Ultra-Short Base Line (USBL) positioning system designed for small vehicles. It has been primarily designed to be used in conjunction with the Trittech Micron sonar and other products in the Micron range but will also adapt well to other sonars such as those from the SeaKing range.



The system comprises a subsea MicronNav Transponder/Responder, a surface USBL transducer with integral magnetic compass and pitch/roll sensors, a surface MicronNav 100 interface hub and operating software under control of a host PC/laptop.

The MicronNav uses the very latest in spread spectrum acoustic technology. This provides a robust method for communication between the dunking transducers and the vehicle responder/transponder.

The USBL transducer can provide 180 degree hemispherical coverage below the transducer, which allows vehicle tracking in very shallow water. Omni-directional coverage is provided by the MicronNav ROV Transponder/Responder.

The MicronNav "Transponder" is a stand-alone device which responds to acoustic interrogation from the USBL head. The MicronNav "Responder" is powered and interrogated by the MicronNav through the auxiliary port on the Trittech Micron sonar (either RS232 or RS485).

### Benefits

- Quick and easy to mobilise
- Lightweight compact transponder
- Works with any standard computer
- Seamless integration into Seanet Pro

### Features

- Integrated motion sensor
- Connect via AUX port of Micron sonar
- Low power consumption

### Applications

- Mini ROV navigation
- Diver tracking system
- AUV tracking
- ROV location beacon

# Specification

System	
Positioning technology	Ultra Short Baseline (USBL)
Frequency band	20-28kHz
Tracking range	500m horizontal, 150m vertical
Range accuracy	± 0.2m
Bearing accuracy	±3° (determined by USBL integrated heading sensor)
Position update rate	0.5-10s
Targets tracked	1 responder, 15 transponders
Data display	Polar and Cartesian display with optional bitmap chart, marker overlay and tracking features
Data recording	Data recorded in Seanet Pro format
Surface navigation	Most GPS, Heading or Attitude sensors supported by Seanet Pro

MicronNav100 Surface Hub	
AC power supply	90V to 264V, 47Hz to 63Hz
DC power supply	12V to 36V, 2.1mm pin (positive core)
Power consumption	4.8W from either source with no additional load
DC power output	50W or 2A maximum current draw +33V with AC input 1.5V less than supply on DC input Defaults to highest voltage if both AC and DC are connected.
Additional ports	USB2.0, RS232, RS422, RS485, ARCNET LAN
Dimensions	232 x 185 x 52mm (width x depth x height)
Weight	1.3kg
Materials	Painted aluminium with matte anthracite textured finish
IP rating	IP21 (no protection against water ingress)
Temperature rating	5°C to 35°C (operation), -20°C to 50°C (storage)

MicronNav Transponder/Responder		USBL Transducer	
Beamwidth	Omni-directional	Operating beamwidth	180°
Power consumption	12 - 48V DC (3.5W transmitting, 0.28W standby)	Maximum diameter	110mm
Transmitter source level	169dB re 1µPa at 1m	Body tube diameter	75mm
Communication protocols	RS232 or RS485 (in Responder mode)	Height	270mm
Depth rating	750m	Weight in air	2kg
Diameter	56mm	Weight in water	0.8kg
Height	76mm	Depth rating	10m
Weight in air	225g	Deck cable length	10m standard (20, 30 and 50m available)
Weight in water	70g		

Specifications subject to change according to a policy of continual development.

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