

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 sub-sea Micron Modem, 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 Micron Modem.

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 Micron Modem.

The Micron Modem is a stand-alone device which either responds to acoustic interrogation from the USBL head (transponder mode), or is triggered by RS232 / RS485 (responder mode). The responder trigger can come either from the auxiliary port on a Trittech Micron sonar, or directly from the MicronNav 100 interface hub.

Both the USBL transducer and the Micron Modem can be commanded to switch from positioning mode to data transfer mode, allowing the same hardware to be used to establish an underwater acoustic communications link.

Benefits

- Quick and easy to mobilise
- Lightweight compact Micron Modem
- 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 Altitude 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	USB 2.0, RS232, RS422, RS485, ARCNET LAN
Dimensions	232 x 185 x 52mm (width, depth, height)
Weight	1.3kg
Materials	Painted aluminium with matte anthracite textured finish
IP rating	IP21 (no protection against water ingress)
Temperature rating	5 to 35°C operating, -20 to 50°C storage

Micron Modem		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	30m
Weight in air	225g	Deck cable length	10m standard 20, 30, 50m available
Weight in water	70g		

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

Document: 0656-SOM-00002, Issue: 04

Marketed by:

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