

Micron INS

Micron Inertial Navigation System for ROVs and AUVs



Micron INS is supplied in a single subsea bottle equipped with integrated core inertial sensors, attitude sensor and a depth sensor. The system has a mounting bracket available and this, along with additional software configuration utilities, makes vehicle integration easy, accurate and reliable. Micron INS calculates heading, position, attitude, velocity and depth using high rate data from an advanced miniature core MEMS Inertial Measurement Unit aided by an integrated high-accuracy pressure sensor and triaxial set of magnetometers.

Micron INS also supports integration with USBL, DVL, altimeter and GPS units for increased accuracy. Proprietary time correlation algorithms and an Extended Kalman Filter (EKF) optimally fuse and filter the data from these various integral and external sensors to provide a robust navigational solution. Micron INS is fully supported through Trittech's MicronNav System for integration and operation with Trittech's subsea navigation products. A stand-alone Graphical User Interface (GUI) also provides a rich 2D chart plotting, navigation and diagnostics display as well as configuration utilities for commissioning and testing Micron INS.

When used in conjunction with a Trittech sonar, the user benefits from the multiplexing capabilities of Trittech products, removing the need for additional communication channels on the ROV. Micron INS is constructed around a modular software architecture, allowing Trittech to offer optional software modules which can expand the capability of the base Micron INS System. The modules can provide varying degrees of vehicle control, please contact Trittech for further details

An Inertial Navigation System for Small Vehicles

The Micron INS is a very small, fully-integrated subsea Inertial Navigation System. Micron INS can be deployed stand-alone or aided by a wide range of aiding sensors on the vehicle such as DVL, GPS and USBL. A true plug and play solution that provides previously unattainable attitude and positional accuracy for small ROV and AUV markets.

Benefits

- Fully integrated Inertial Navigation System
- Excellent heading and attitude performance
- Simple installation and configuration
- Integrate into subsea positioning systems
- Compatible with Trittech MicronNav

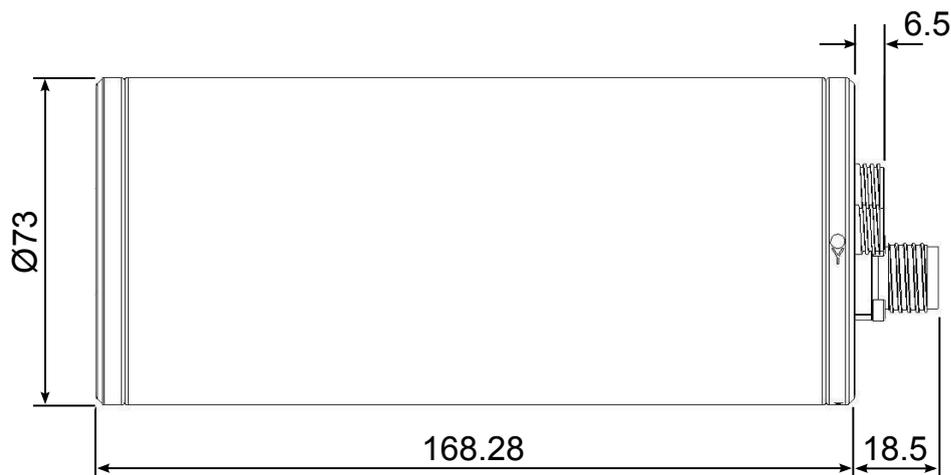
Features

- USBL, DVL, GPS fusion
- Integrated high-accuracy depth
- 3D positioning and velocity
- Miniature size

Applications

- Subsea navigation
- ROV position enhancement
- AUV position stabilisation
- Core for automated vehicle control

Specification



Not to scale, dimensions in mm.

Positioning	
Units	Relative: metres Absolute: latitude/longitude
Resolution	0.01m
Accuracy (DVL aided)	0.7% distance travelled RMS
Unaided drift	7 nautical miles per hour
USBL Improvement	3x

Heading	
Static accuracy	0.3° RMS
Dynamic accuracy	0.75° RMS

Attitude	
Range	Roll: $\pm 180^\circ$ Pitch: $\pm 90^\circ$
Accuracy	less than 0.2° RMS

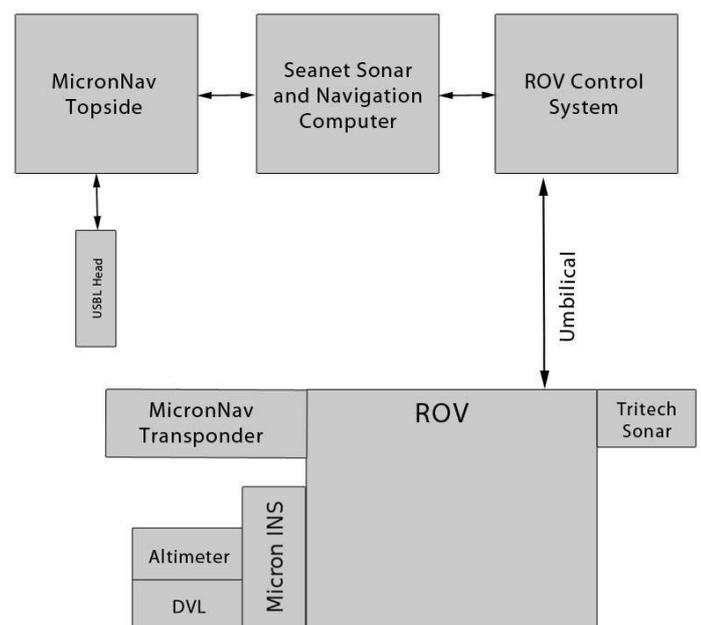
Acceleration	
Range	$\pm 4g$
Bias stability	0.07mg

Depth	
Range	500m
Accuracy	0.1% RMS

Velocity	
Range	$\pm 10\text{m}\cdot\text{s}^{-1}$
Accuracy (DVL aided)	0.2%, $\pm 0.001\text{m}\cdot\text{s}^{-1}$

Physical	
Weight in air	1.04kg
Weight in water	0.32kg
Materials	Aluminium

Interfaces	
Input voltage	10 – 30V DC
Power consumption	7W (no additional sensors)
Communication protocols	Ethernet or RS232
Connectors	2x Trittech Micron 1x Impulse
Additional sensors	RS232 (2x), Ethernet



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

Document: 0722-SOM-00002, Issue: 03