



# ***NIMROD - UNDERWATER NAVIGATION & SONAR SYSTEM***

*NIMROD is easy to use and designed to give information in a clear and concise way*

**NORTHERN DIVER**



NIMROD, "THE SEEKER" is designed to aid divers in locating items underwater and as an underwater navigation aid between waypoints, without the need to surface, via a GPS receiver, which floats on the water's surface.

The system can take the information from Google Earth, or alternatively from known co-ordinates, to plan the mission. To ensure the diver is travelling in the correct direction, each waypoint can be named and the route is shown on a screen.

The system is also fitted with a Tritech Micron sonar. This can be used to locate ordinance and other objects of interest while conducting a tactical or circular search around a known datum. The range can be controlled on the sonar up to 100 metres. The system also offers a gain control for the sonar, which increases/decreases the clarity of the image on the screen.



# NIMROD DISPLAYS

## SCREEN 1

- MKR indicates (left front button) to mark mission plan
- Mission Plan (right of the screen)
- Battery Life Indicator (top centre)
- Sonar (left of the screen)
- Heading, Direction and Range (bottom right)
- REC shown (left back button) is off
- Mission Plan shows ND HQ quarry as start point, far side indicates next named waypoint at a distance of 141m (bottom of screen)



Sonar can also be full screen or split screen with mission plan (as shown)



## SCREEN 2

- Time (top left)
- Battery Life Indicator (top centre)
- Artificial Horizon showing a 24° down angle (top right)
- Stop Watch (middle left)
- Depth (bottom left)
- Magnetic Compass with heading indicator (bottom of screen)

## SCREEN 3

- AUX OFF indicates (forward left button) additional DVL
- Battery Life Indicator (top centre)
- GPS On (right top button)
- Power Off (left back button)
- SNR-Sonar Off (right back button)
- GPS Position (bottom)



## SCREEN 4

- MOD page (top left button). This allows user to set the time i.e. press the top left button to change the H (hours), M [minutes] and S (seconds).
- To alter the time: press the top right (+) and bottom right (-) buttons
- Battery Life indicator (top centre)

There are 7 screens in total with more available for future updates

# NIMROD SONAR + GPS

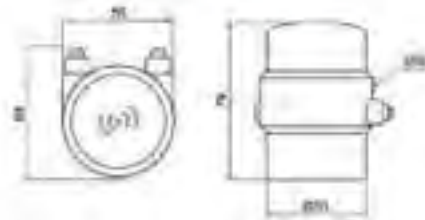
## SONAR

The Tritech Micron Sonar is the smallest digital CHIRP sonar in the world and is ideal for use by small ROVs, as a first-rate obstacle avoidance sonar in miniature form.

CHIRP technology dramatically improves the range resolution compared with conventional scanning sonar's - it is a feature normally associated with much larger, more expensive systems.

The Micron also utilises Digital Sonar Technology (DST) to offer exceptional clarity and resolution - a feature normally associated with much larger, more expensive systems.

- Micro sonar under 80mm in height
- 750m depth rating
- True acoustic zoom
- Digital CHIRP system
- Forward looking sonar, 360° sonar and sector scan sonar modes
- Inverted mode sonar operation
- Hard boot protected transducer



### ACOUSTIC

**Operating frequency** CHIRP centred on 700kHz. Beam width 35° vertical, 3° horizontal. **Maximum range** 75m. **Minimum range** 0.3m. **Range resolution** approximately 7.5mm (minimum). **Mechanical resolution** 0.45°, 0.9°, 1.8°. **Scanned sector** Variable up to 360°. **Continuous 360° scan?** Yes. **Sector offset mode?** Yes.

### ELECTRICAL, COMMUNICATIONS AND SOFTWARE

**Power requirement** 12 - 48V DC at 4VA (average). **Maximum cable length** 1000m using RS485. **Communication protocols** RS485 (twisted pair), RS232. **Surface control** Computer using standard serial port, SeaHub or USB-RS232/RS485 converter. **Control software** Tritech Seanet Pro, Micron software or low-level command protocol. **Software features** True acoustic zoom, instant reversal, image measurement, inverted head operations.

### PHYSICAL

**Weight in air** 324g. **In water** 180g. **Depth rating** 750m standard. **Temperature range** -10 to 35°C (-20 to 50°C in storage).

## GPS FLOAT

### GPS POSITION

To obtain the divers position, NIMROD connects to a floating GPS receiver that the diver tows behind them. When a precise positional fix is required, the diver can pull in the umbilical cable to ensure the float is directly above them.

### GPS RECEIVER

**Type** GPS L1 C/A-code, SPS, 66 acquisition and 48 tracking channels  
**Sensitivity** High Sensitivity: -148dBm (Cold Start Acquisition), -160 dBm (Navigation), -163 dBm (Tracking)  
**Data Output** RS232 Output, 9600baud, NMEA protocols (RMC, GGA, GSV, GSA), fix rate at 1Hz  
**Datum** WGS84

