

NORTHERN DIVER

MINE WARFARE & MILITARY DIVING SPECIALISTS

NIMROD V₂

A compact and lighter weight modular diver hand-held underwater sonar and navigation console.





The system combines standard:

- > GPS receivers – internal & external
- > 15m tether and float
- > Mission planning
- > Digital compass/gyroscope
- > Depth reading
- > Clock/stopwatch

Typical uses are search & relocation of the following. . .

Unexploded ordnance by navy mine clearance divers, commercial EOD divers, etc.

**Seabed infrastructure within the offshore oil & gas environment
(e.g. pipelines, well heads and structures).**

**Missing persons, lost property, vehicles, aircraft, wrecks by police or
search and rescue divers.**

Seabed/lake-bed antiquities by marine biologists, archaeologists, sport divers, etc.

Housing

Dimensions (Console)	169mm(L) x 134mm(W) x 76mm(H)
Weight	~2.3kg in air, ~0.6kg in water (inc battery)
Weight (with Sonar & DVL)	~3.75kg in air, ~0.8kg in water (inc battery)
Construction	Aluminium (AL 6061-T6)
Finish	Black Hard Anodised
Connectors	LEMO W Series connectors 4 – Off External GPS Sonar DVL Auxiliary – Acoustic Modem / Thruster radio control
Temperature	
	Operating 0°C to +45°C Storage -10°C to +50°C
Operating Depth	80m

Electrical

Power Supply	12 -24V DC nominal from internal supplied battery pack (configurable)
Processor	32BIT ARM CORTEX processor
Display	5 inch, 320 x 240 pixel 16-bit colour Liquid Crystal Display Viewing angles 30 to 60 Deg.

Features

Data Storage & Logging	Internal 16Gb Flash memory (other capacities available on request). Data Logging capacity (2Mb per minute) > 100hrs on internal storage TW1421 High Gain Dual Feed Embedded GPS/GLONASS Antenna > Architecture Dual, Quadrature Feeds > 1 dB Bandwidth 31MHz
Integrated Sensors	Pressure sensor for depth calculation. Internal sensor for leak detection. Attitude /Heading reference system:- > Pitch and roll. > Electronic magnetic compass. > Rotational rate gyros. > Battery voltage level indicator
User Interface	5 solid-state piezo button interface for menu navigation.
Communication Interfaces	Bluetooth communication for sending and downloading missions USB port for connection to a PC, used for updating Firmware software

System Extras

- > Forward looking single beam sonar
- > DVL (Doppler-Velocity-Log) tracking
- > Thruster control
- > Acoustic Modem

Acoustic Modem

Dimensions: 41 x 45mm
Weight: 0.16kg (dry)
Depth rating: 300m
Max operating range: 1,2 1000m
Payload data rate: 78bit/s
Power consumption: RX/Tx0.33/6 W
Power supply: 4,7 5 .. 12V
Data lines voltage: 0 .. 3.3V
Frequency band: 10 .. 30kHz
Bit error rate: 10⁻⁶
SNR5 -2dB
Max relative velocity: +/- 1 m/s
Rated start-up time: 100ms
Operating temperature range: -5 .. 50°C
Interface: 6 UART 9600 bit/s
Configuration protocol: NMEA0183 PUWV
Cable length: 6 0.5m
Subscribers code division: 20 code channels
TX buffer size: 127 bytes
Command mode: 16 predefined messages
(9 for user applications)
Propagation time measurement resolution 8 0.0001 s

Micron Sonar

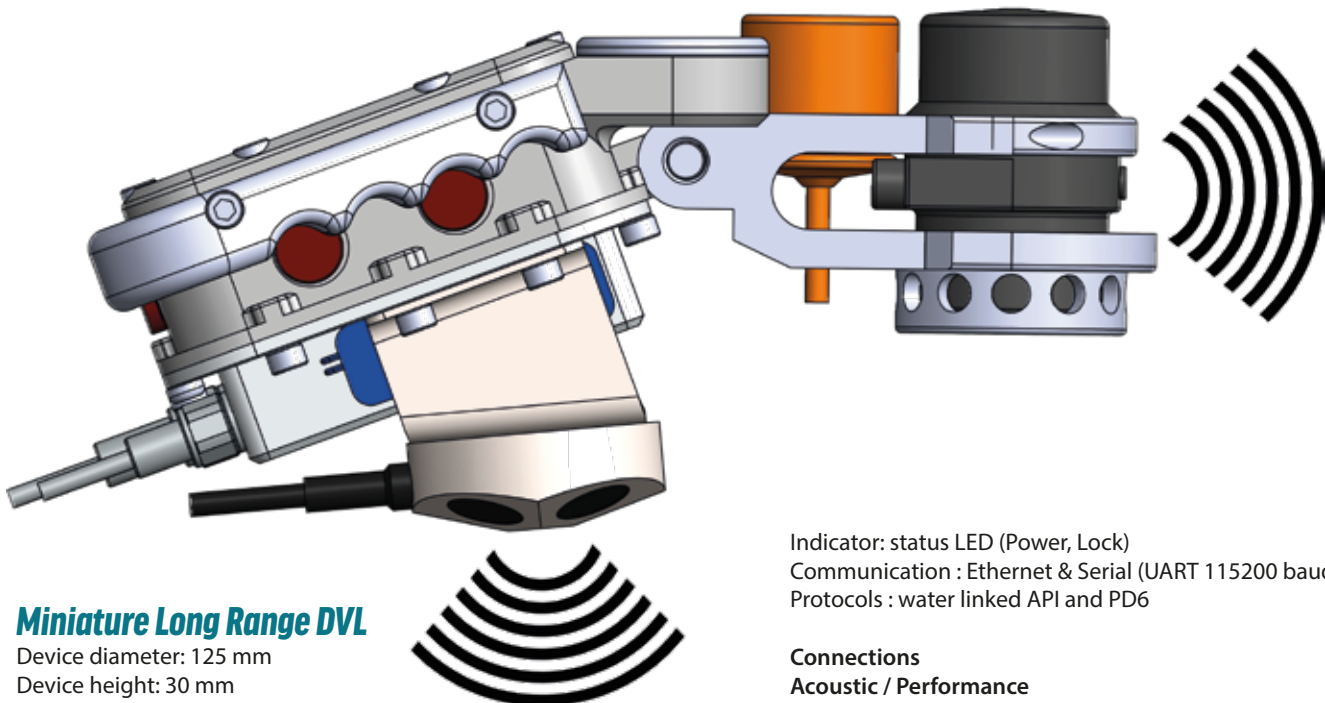
Acoustic operating frequency: CHIRP centred on 700kHz
Beam width: 35° vertical, 3° horizontal
Range maximum: 75m, minimum 0.3m
Range resolution: approximately 7.5mm (minimum)
Mechanical resolution: 0.45°, 0.9°, 1.8°, 3.6°
Scanned sector: variable up to 360°
Continuous 360° scan and sector offset mode

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: Trittech Seaneet Pro, Micron software or low-level command protocol Software features True acoustic zoom, instant reversal, image measurement, inverted head operations

Physical

Weight: 324g (in air), 180g (in water)
Depth rating: 750m standard, 3000m optional
Temperature range: -10 to 35°C
(-20 to 50°C in storage)



Miniature Long Range DVL

Device diameter: 125 mm
Device height: 30 mm
Device weight: 0.75 kg (air)
Device weight: 0.50 kg (submerged)
Depth rating: 600 to 3000 meters
Material: stainless steel 316 (back plate); PEEK (housing)
Operating temperature : -5 to 55 °C

Electrical / Interface

Input voltage: 10-30 Vdc
Power consumption: 3W
Power-on current surge: 15W
Physical interface : 3m cable w/interface module,
8 wires pwr/serial/Ethernet

Indicator: status LED (Power, Lock)
Communication : Ethernet & Serial (UART 115200 baud)
Protocols : water linked API and PD6

Connections

Acoustic / Performance

Transducer frequency: 420 MHz
Transducer setup: 4-beam convex Janus array
Transducer beam angle: 22.5 degrees
Ping rate: 2-15 Hz (adaptive to altitude)
Sensor assist: integrated AHRS
Min altitude: 5 cm
Max altitude: 125 meters (> 110m is dependent on seabed conditions, salinity levels etc.)
Max velocity: 9 m/s
Velocity resolution: 0.1 mm/s
Long term accuracy: ±1.01 % (std), ±0.1 % (performance)



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