

Datasheet

Avtrak Navigator



Description

Autonomous Underwater Vehicle (AUV) positioning, homing, acoustic telemetry and emergency recovery assistance. These are just some of the features of the AvTrak Navigator instrument from Sonardyne.

The AvTrak Navigator is a second generation acoustic positioning and communications instrument designed to form part of an integrated AUV navigation system. It combines the functions of transponder, transceiver, USBL vehicle homing and acoustic telemetry link in one low power device that has been designed to meet the requirements of a variety of vehicle types and missions.

The instrument operates using Sonardyne's proprietary Wideband signalling mode and with a variety of other subsea systems and transponders operating in the Sonardyne Medium Frequency (MF) band. It is also fully compatible with Sonardyne's family of LBL and USBL survey quality navigation systems.

The AvTrak Navigator has a comprehensive yet easy to use command language that allows the AUV to undertake simultaneous LBL

ranging and USBL homing operations as well as robust and high speed acoustic telemetry for AUV data exchanges with other subsea assets such as AUVs, surface platforms and docking stations. It also supports remote USBL tracking from a surface vessel.

The instrument comprises a main pressure housing containing a forward looking USBL array for vehicle homing and docking as well as a remote transducer for surface tracking and acoustic telemetry. It also comprises a battery back-up supply and acoustically commanded digital IO to control functions such as acoustic abort and ballast jettison to facilitate location and recovery in the event of vehicle failure.

A unique feature of the AvTrak Navigator is its much lower power operation than traditional cabled USBL systems. This reduces the energy drain on the AUV's battery and therefore improves endurance.

The instrument is provided with a hard-anodized aluminium housing which is depth rated to 1,500 metres. The remote omni-directional transducer can be supplied with a

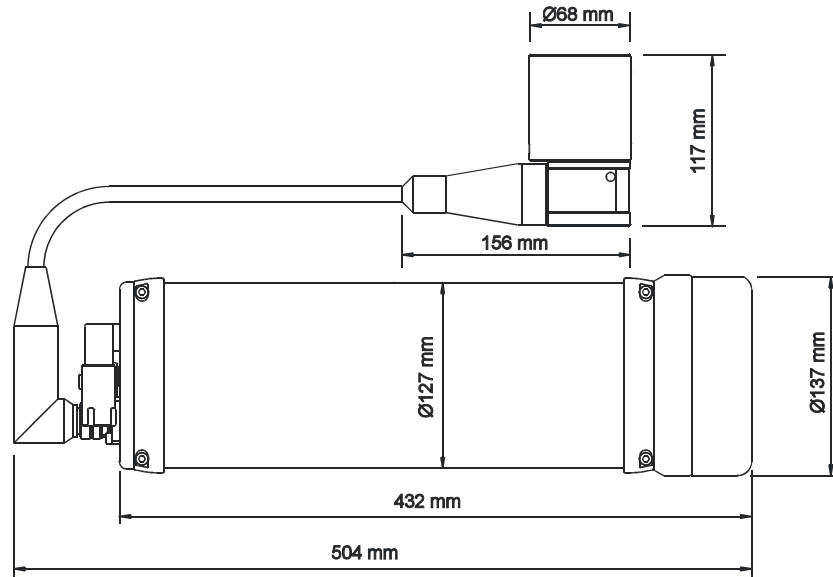
selection of cable lengths and connector arrangements to suit flexible location on the AUV.

Key Features

- Incorporates Sonardyne Wideband® signal technology
- Internal trickle charged emergency back-up battery
- MF operating frequency
- Supports USBL homing to remote assets such as docking stations
- Supports ranging and telemetry to remote assets such as surface platforms or docking stations
- Compatible with Ranger USBL for surface vessel combined tracking, telemetry and positioning
- Two telemetry modes: Robust and High Data Rate Link
- SMS telemetry protocol support
- Hundreds of operating channels allowing truly independent acoustic operation
- Emergency relocation mode
- Easy to operate using new serial port command interface
- Extremely low power consumption

Specifications

AvTrak Navigator



System Features		Type 8092
Depth Rating		1,500 Metres
Frequency Band		MF (19-36kHz)
Source Level (re 1 μ Pa @ 1m)	Omni-Directional	192 dB Navigation
		188 dB Telemetry
Remote Transducer	Directionality	Hemispherical Omni-Directional
Ranger Measurement		5cm Accuracy, 2cm Repeatability
USBL Array	Beam Width	± 90 Degrees
	Measurement Error	0.1% Slant Range at high SNR *
Telemetry	Robust Wideband SMS	600 bps (user rate)
	High Data Rate Link	10,000 bps (Tx only) *
Digital Outputs	Output 1	Open Collector (sink ~ 100mA)
	Output 2	Open Collector (sink ~ 100mA) or, Regulated Output (12v @ 300mA)
Communication	Standard	RS232 (3 Wire)
	Baud Rate	9,600 to 115,200 Baud
	Transceiver Protocol	*
External Supply Voltage		18-50 Volts DC
Power	Listening (transponder mode)	250mW
	Quiescent	<2W (<1W option)
	Peak (during transmission)	<50W
Emergency Internal Battery Pack (Lithium-Ion 15v)	Lithium-ion (rechargeable)	2Ah
	Listening	30 days
	Continuous 4 sec interrogation	Approx 3 days at low power
Mechanical Construction		Anodised Aluminium alloy and Plastics
Dimensions		137mm x 432mm
Weights (Air / Water)		*

* to be confirmed.