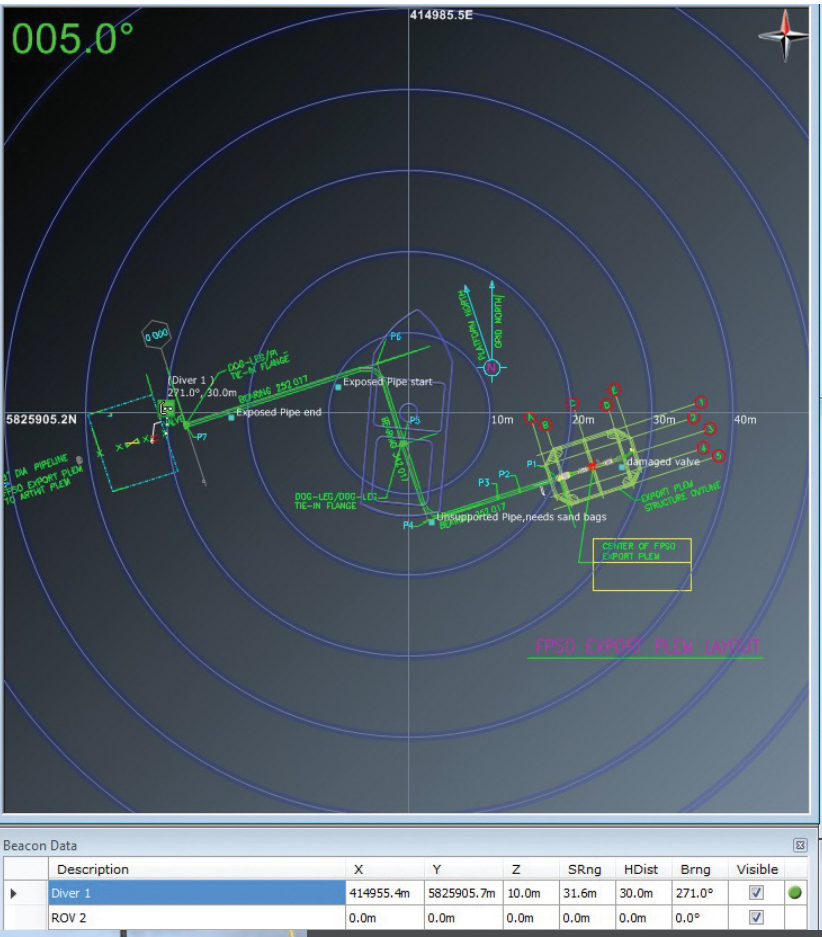
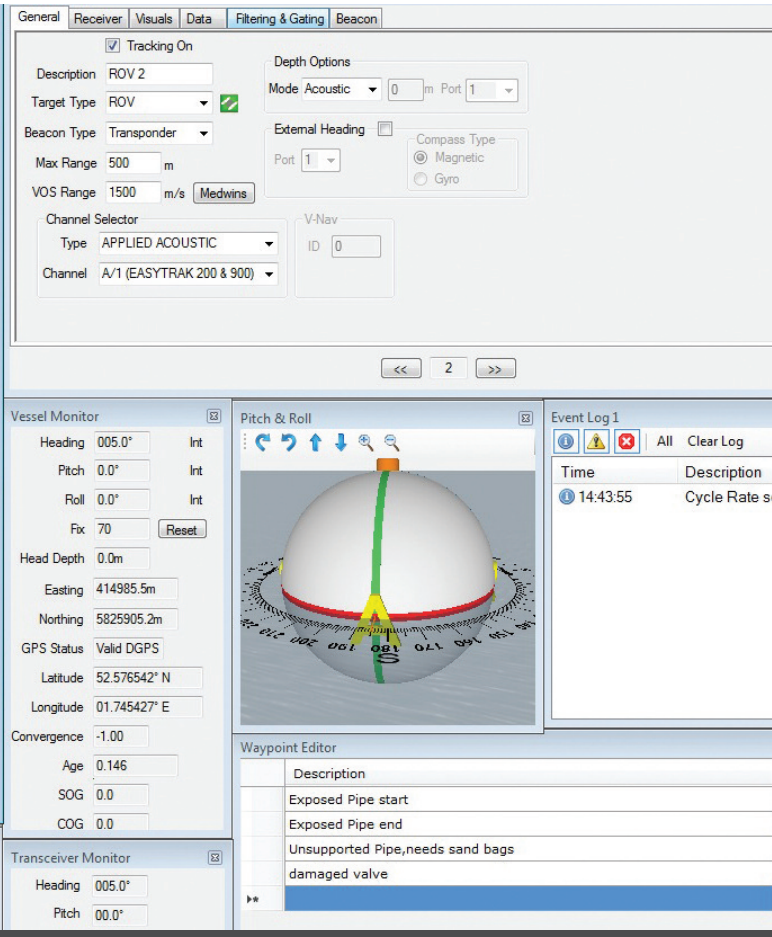
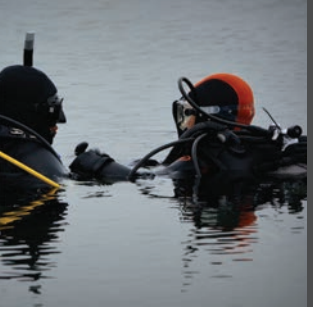
APPLIED ACOUSTICS

Underwater Technology

An AAE Technologies Group Company

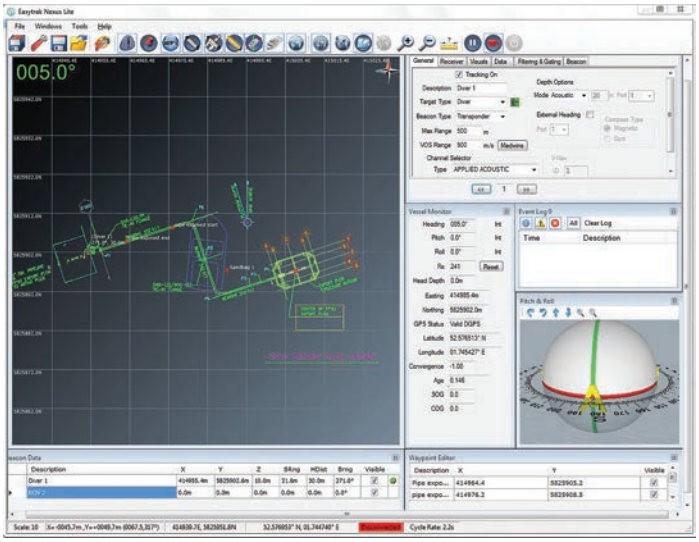






Nexus Lite USBL

www.appliedacoustics.com



Nexus Lite USBL

A fully flexible and versatile subsea positioning system

Key features

- Bi-directional Sigma Spread Spectrum acoustics
- Full hemispherical beam pattern
- 8 target tracking
- Internal data logging
- Optional EchoPLOT geographical overlay
- Optional EasyCAL USBL calibration software
- USB connectivity

The Nexus Lite is a fully featured digital USBL system, condensed into a small command console for users to connect their own existing PC. Featuring many of the attributes of the Nexus 2 USBL, the system is designed to be extremely portable and operational from any vessel of opportunity from riverboats to ocean going survey vessels.

Nexus Lite uses Applied Acoustics' proprietary Sigma Spread Spectrum acoustic protocols to provide a secure communication link between its transceiver and up to eight transponders; and while optimum results are achieved with Sigma enabled products, Nexus Lite supports all Applied Acoustics' legacy products as well as any transponder operating on HPR channels.

With its full 180° hemispherical beam pattern, Nexus Lite is particularly efficient in very shallow water where divers, small ROV's, and shallow towed systems require tracking and monitoring. The system also has applications in marine sciences, particularly for deploying and marking positions of scientific instrumentation; and with the ability to operate Applied Acoustic's range of release transponders, recovery of these instruments is also a task easily undertaken by Nexus Lite.

Applied Acoustics' in-house software, developed and refined over many years, drives the system in an intuitive and easy to operate manner, allowing the inexperienced operator to obtain a usable working knowledge of the Nexus Lite in a short space of time. The software can be enhanced with the addition of optional extras such as EasyCAL USBL calibration and EchoPLOT geographical chart overlay packages. Furthermore, each system is embedded with remote access software, which if used with a correctly enabled PC, allows Applied Acoustics' Support Teams to monitor and assist with operations from anywhere in the world.

GPS enabled, and with a host of configurable features and serial ports allowing the connection of up to four external sensors, the Nexus Lite system the very definition of versatility and flexibility.

Technical Specification

EASYTRAK NEXUS LITE CONSOLE, MODEL 2695

Provides DC power, high speed digital communications to the transceiver with a USB interface to user PC running Easytrak Nexus Lite software.

Dimensions	1U, 254 x 54 x 260mm
Weight	1.0kg
Power requirements	48Vdc / Vac Adapter Input: 90Vac – 230Vac 47-63Hz typically 3A
Connection to transceiver	Rear panel connector for 2683 Transceiver
Temperature	Operating: -10° to +40°C Storage: -20° to +50°C
Front panel indicators	LED indicators for power and serial status
Serial communications	4 x Console RS-232 Data Ports. System utilises PC ports if available
Data Output	AAE format V1 and V2, TP-II2EC, TP-EC W/PR, Simrad 300P, Simrad 309, Simrad $PSIMSSB, Pseudo $GPRMC, NMEA $GPGGA, NMEA $GPVTG, NMEA $GPTLL, Pseudo $GPGGA, KLEIN 3000 (Quick set) Multiple outputs available
Compass Input	SGB-HTDS, SGB-HTDt, NMEA HDT, HDM, HDG
VRU Input	TCM-2.X, $HCXDR , TSS1
Calibration	Optional EasyCal 2 USBL Calibration tool.
GPS / DGPS Input	NMEA; GLL, GGA, RMC Geo Referenced Graphical Overlay. GeoTiff, DXF
Target Heading Input	NMEA HDM, HDT, HDG, PNI TCM2
Target Depth Input	NMEA DBT, DBK, DBS, DPT, AAE
Time in	GPS Time synch
Responder Output	Positive 12V pulse 5ms long
Audio	Audible activity indicator

EASYTRAK TRANSCEIVER, TYPE 2683

Factory calibrated multi-element transceiver head complete with integral AHRS, depth sensor and temperature sensor.

Material	316 Stainless steel
Weight in air/water	11kg/8.5kg
Dimensions	100mm x 500mm (Ø x L)
Temperature	Operating: -10° to +40°C Storage: -20° to +50°C
Depth rating	30m
Electrical supply	48Vdc
(Pressure sensor)	between -10° to +40° C
Temperature sensor	1° resolution between -10° and +40° C
Cable	30m standard (20-100m options) with connectors. 12.8mm Ø

ACCURACY/PERFORMANCE

Accuracy is based on the correct speed of sound being entered, no ray bending and an acceptable S/N ratio

Position accuracy	1.0% of slant range, with external sensors Acoustic accuracy excluding heading correction errors
Range resolution	Calculated to 0.1m resolution
Frequency band (MF)	18 - 30 kHz
Tracking beam pattern	Hemispherical, 180°
Transmitter	190dB re 1µPa at 1m
Integrated AHRS:	
Bearing resolution	0.1° displayed. Internally calculated to 0.01°
Heading sensor accuracy	0.8° rms standard; +/- 0.1° resolution/repeatability
Pitch/Roll sensor accuracy	+/- 0.20° rms +/- 0.1° resolution/repeatability
Beacon types	AAE Sigma 1, Sigma 2 Digital Spread Spectrum and AAE Tone channels. AAE V-NAV channels. HPR 400 channels 1100, 1000, 1200A, 1300A Series Beacons, Digital Depth Transponders, AAE Release and Telemetry Beacons.
Interrogation rate	Internally set or external key
System	Externally assessed for immunity and emissions; conforms to 89/336/EEC. RoHS compliant

With on-going research and development in cutting edge technology and acute awareness of current and future industry needs, our commitment to our customers is second to none. We are equally determined to aid and assist our customers worldwide with a network of partners, suppliers and overseas Support Centres. Together, we offer engineering excellence, trusted products and a first class professional service on a global scale.

APPLIED ACOUSTICS
Underwater Technology
An AAE Technologies Group Company

Applied Acoustic Engineering Ltd
Marine House, Marine Park
Gapton Hall Road
Great Yarmouth NR31 0NB
United Kingdom

T +44(0)1493 440355
F +44(0)1493 440720
E general@appliedacoustics.com
W www.appliedacoustics.com