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Easytrak Pyxis USBL, Model 3690



Key features

- Integrated INS + USBL
- Bi-directional Sigma 2 Spread Spectrum acoustics
- Calibration free, easy mobilisation
- Independent INS data
- Improved positioning accuracy and stability
- Multi-Fire optimised beacon refresh rate
- 16 target tracking
- Geographical navigation overlays
- Data and Event Logging
- Data replay functionality
- Data telemetry options
- ITAR free export

Easytrak Pyxis Overview

The Easytrak Pyxis USBL takes the best of applied acoustic engineering's USBL technology and combines it with a highly advanced inertial navigation system (INS) from one of the most respected names in the industry, to create a state of the art, inertially aided Ultra Short Baseline system capable of accurate subsea tracking with survey grade performance.

The high precision combination of aae's Sigma 2 acoustic protocols and SBG Systems' OEM version of the Navsight Apogee INS brings together two leading names in the field of marine technology, resulting in aae's most accurate and long range positioning system, providing many time, cost and performance benefits to global survey operators.

As a tightly coupled, factory fitted package, Pyxis is a calibration free system able to immediately operate from any vessel as soon as the work site has been reached. The MEMS based INS does not fall under ITAR regulations, and the range restricted option means the whole system can be shipped unhindered and without export control to almost anywhere in the world.

Available with omni-directional and directional transceiver options, and boasting an accuracy of up to 0.1% of slant range, the versatility and enhanced capabilities of Pyxis makes it the go-to choice for critical USBL operations.

Pyxis Technical Specification

EASYTRAK PYXIS CONSOLE, MODEL 3690

Provides DC power, high speed digital communications to the 3700 series transceiver and IMU with an embedded graphic navigation interface. Part # EZT-3690

Dimensions	19" Rack mount. 3U 483.0mm x 133.0mm x 348.0mm
Weight	7.5kg
Power requirements	90 – 250 Vac
Connection to transceiver	Rear panel connector for 3700 series Transceiver
Built-in PC	Industrial i7 board running embedded Win 10, 64GB HD
Temperature	Operating: -10° to +40°C Storage: -20° to +50°C
Front panel indicators	LED indicators for power and serial status
Serial communications	2 x RS-232 / RS485 External Input Port 3 x Individual INS Data Out RS232 Ports 2 x Positional Data Out RS232 Ports UDP Data Out
GNSS Antenna Connection	2 x TNC connection 2 x TNC GNSS Antenna 2 x 25m GNSS Antenna Cable
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
INS Data Output	3 Independent reference points NMEA, ASCII, BINARY, TSS, SIMRAD
Ext Compass Input	SGB-HTDS, SGB-HTDT, NMEA HDT,HDM, HDG
Ext VRU Input	$HCXDR , TSS1
Ext GNSS 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	GNSS Time synch internal
Responder Output	4 x Positive 12V pulse 5ms, BNC
Nav In (Key In)	1 x Positive 12V pulse 5ms, BNC
PPS	1 x 5V Pulse, BNC
USB	6 ports available, 2 on front panel
Ethernet	2 x 1Gbps standard RJ45 jack, Ethernet UDP Data Port

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Pyxis Technical Specification

EASYTRAK TRANSCEIVER, TYPE 3782

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

EZT-3782-N Range Limited Non-Export Controlled Model.
EZT-3782-C Export Controlled Model.

Material	Stainless steel standard
Weight in air/water	15.5kg
Dimensions	200mm reducing to 152mm Ø x 432mm
Temperature	Operating: -10° to +40°C Storage: -20° to +50°C
Depth rating	30m
Electrical supply	48Vdc (from console)
Depth sensor (Pressure Sensor)	5 bar, accuracy 0.25% between -10° to +40° C
Temperature sensor	1° resolution between -10° and +40° C
Cable	50m standard (30-100m options). 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	0.25% of slant range, acoustic repeatability 0.12° DRMS at > 10° depression angle
Range resolution	Calculated to 0.01m resolution
Max range	Up to 2000m, range limited version available (995m)
Frequency band (MF)	18 - 32 kHz
Tracking beam pattern	180°
Transmitter	Variable, typical max 192dB re 1µPa at 1m
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	>2Hz refresh rate. Internally set or external key (NAV IN) Multi Fire up to 10 common interrogate beacons

Integrated NavSight Apogee INS:

	RTK (Real Time Kinetic)	PPK (Post Processed Kinetic)
Roll / Pitch over 360°	0.008° rms	0.005° rms
Heading 2m / 4m (baseline)	0.04 / 0.025° rms	0.04 / 0.025° rms
Position x, y / altitude (z)	0.01m / 0.02m	0.01m / 0.02m

5 cm Heave, 2 cm Delayed Heave

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Pyxis Technical Specification

EASYTRAK TRANSCEIVER, TYPE 3780

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

EZT-3780-N Range Limited Non-Export Controlled Model.
EZT-3780-C Export Controlled Model.

Material	Stainless steel standard
Weight in air/water	20.0Kg
Dimensions	200mm Ø reducing to 152mm Ø x 432mm
Temperature	Operating: -10° to +40°C Storage: -20° to +50°C
Depth rating	30m
Electrical supply	48Vdc (from console)
Depth sensor (Pressure Sensor)	5 bar, accuracy 0.25% between -10° to +40° C
Temperature sensor	1° resolution between -10° and +40° C
Cable	50m standard (30-100m options). 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	0.12% of slant range, acoustic repeatability 0.07° DRMS at > 20° depression angle
Range resolution	Calculated to 0.01m resolution
Max range	Up to 3000m, range limited version available (995m)
Frequency band (MF)	18 - 32 kHz
Tracking beam pattern	170°
Transmitter	Variable, typical max 192dB re 1µPa at 1m
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	>2Hz refresh rate. Internally set or external key (NAV IN). Multi Fire up to 10 common interrogate beacons.

Integrated NavSight Apogee INS:

	RTK (Real Time Kinetic)	PPK (Post Processed Kinetic)
Roll / Pitch over 360°	0.008° rms	0.005° rms
Heading 2m / 4m (baseline)	0.04 / 0.025° rms	0.04 / 0.025° rms
Position x, y / altitude (z)	0.01m / 0.02m	0.01m / 0.02m

5 cm Heave, 2 cm Delayed Heave. Options: Post-processing with Qinertia PPK

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