laserBIRD®

Precision Optical Tracking

Above: laserBIRD tracking pilot's head in airborne simulator application

Track motion with laser accuracy!

- **Exact position & orientation tracking without environmental distortion**
- **Small, light-weight sensors**
- **Wide area tracking coverage with new scanning laser technology**
- **Miniaturized scanner with self-contained DSP electronics offers smallest form factor and easiest placement of all available optical trackers**

Wide tracking angle.
Highly accurate. Cost effective.

Ascension
Technology Corporation

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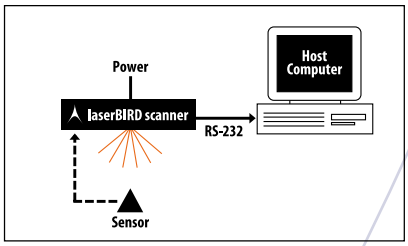
Scanner unit and sensor with cables.

Applications:

- Head/object tracking in simulators & virtual/augmented reality systems.
- Real-time navigation in image-guided procedures.
- Instrument tracking in biomedics.
- Guidance & control of robotic devices.
- Biomechanical measurement and feedback.



Features	Benefits
Scanning laser beam technology	No metallic distortion, noise or acoustic interference. Ambient light resistant.
1 mm Accuracy	Highest precision of all optical trackers.
Unique Prediction Capability	Customizable prediction parameters. Only predicts motion along axis of interest.
Measurement rate of 240 meas/sec	Instantaneous tracking solution without discernable lag.

Performance:

Performance is based on measurements taken from one scanner unit to one sensor. Position and angle accuracy assumes the sensor is within the angular range or field-of-view of the scanner laser beams (approximately ±50º horizontal and ±60º vertical) and that the sensor is between 43 cm and 106 cm from the scanner unit. The sensor unit must also maintain a clear line of sight between detectors and the scanner, and not exceed the detector orientation range of ±85º with respect to the scanner.

Regulatory:

EMC:
EN 61326-1: 1998; 47CFR; Part 15; Subpart B; Class A limits
Safety:
EN 61010-1; 1995
Laser Safety:
FDA/CDRH: 21 CFR 1040.10-11
Laser Hazard Classification: Class 1
CE: EN 60825-1
Laser Hazard Classification: Class 1

Specifications

TECHNICAL	
Degrees of Freedom:	6 (Position and Orientation)
Scanner Field of View:	±50º horizontal ±60º vertical to 0.75 m ±54º vertical to 1.2 m
Measurement Rate:	240Hz
Lag:	Tracking response: 5.17ms; All filters off Step response: 9.34 ms
RS-232 Reporting Time:	1.1 ms; 115.2 kBaud, Position & Euler Angles
Interface:	RS-232
Prediction Capability:	Yes — customizable up to 50 ms
Sensor Position	
Operating Distance:	0.25 m to 1.83 m
Accuracy @ 1:	1.0 mm RMS; AVG filter on
Static Resolution @ 1 m:	0.1. mm
Sensor Angles	
Angle Range*	For Sensor motion in the center for the Performance Motion Box: ±85º Azimuth, Elevation, ±180º Roll Or ±180º Azimuth, ±85º Elevation & Roll
Accuracy @ 1 m:	1º RMS; AVG filter on
Static Resolution @ 1 m:	0.05º Sensor Position
PHYSICAL	
Scanner dimensions (L X W X H):	32 cm x 9 cm x 4 cm
Scanner Weight:	1.53 kg
Sensor Dimensions (L X W X H):	10 cm x 9 cm x 1 cm
Sensor Weight:	40 g

*Note: Angular range decreases gradually as sensor motion moves outside the box toward the edges of the Operation Region.

Certified ISO 9001

Specifications subject to change without notification.

laserBIRD is a general purpose tracking device suitable for many applications. Ascension trackers are not certified for use in medicine without the end-user/OEM complying with all pertinent FDA/CE/QSR regulatory requirements.

AT11/02.

Ascension Technology Corporation

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