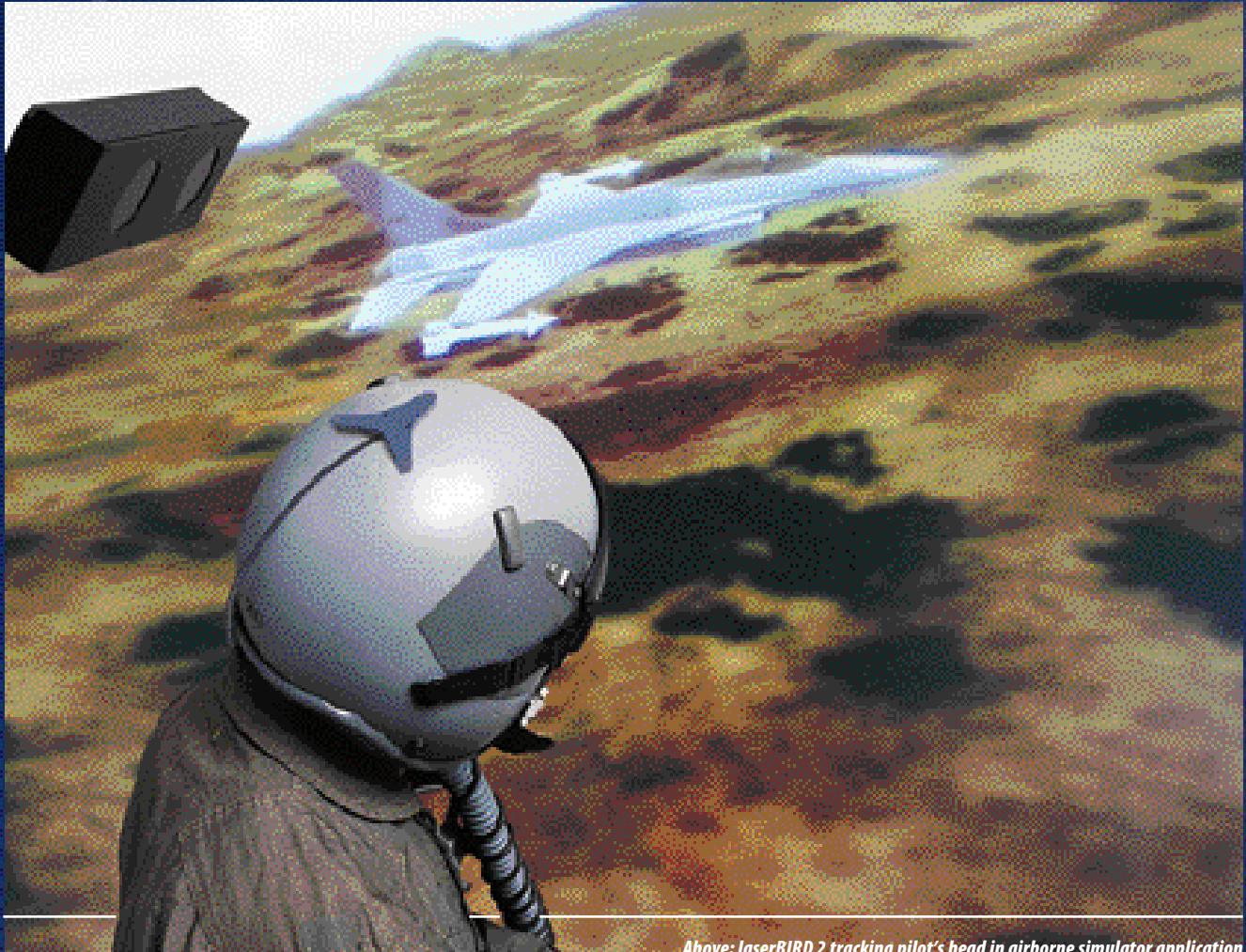


laserBIRD 2[®]

Precision Optical Tracking



Above: laserBIRD 2 tracking pilot's head in airborne simulator application

Track motion with laser accuracy!

- Exact position & orientation tracking without environmental distortion
- Immune from magnetic and acoustic interference
- Small, light-weight sensor
- Wide area tracking coverage with scanning laser technology

**Highly accurate.
Fast. Cost effective.**

 **Ascension**
Technology Corporation

laserBIRD 2[®]



Miniaturized scanner unit containing system electronics with head-mountable sensor (foreground).

Specifications

TECHNICAL

Degrees of Freedom:	6 (Position and Orientation)
Scanner Field of View:	±50° horizontal ±52° vertical
Measurement Rate:	240Hz
Lag:	Tracking response: 7.17ms; All filters off Step response: 11.34 ms
RS-232 Reporting Time:	1.0 ms; 115.2 kBaud, Position & Euler Angles
Interface:	RS-232
Prediction Capability:	Yes — customizable up to 50 ms
Sensor Position	
Operating Distance:	0.15 m to 1.83 m
Accuracy :	0.7 mm RMS; AVG filter on
Static Resolution @ 1 m:	0.1. mm
Sensor Orientation	
Angle Range*	For Sensor motion in the center of the Performance Motion Box: ±85° Azimuth, Elevation, ±180° Roll Or ±180° Azimuth, ±85° Elevation & Roll
Accuracy:	0.5° RMS; AVG filter on
Static Resolution @ 1 m:	0.05° 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 9000:2000

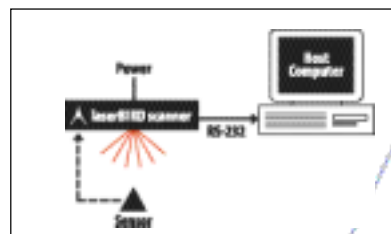
Specifications subject to change without notification.

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.

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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. Works in both fixed and motion-based platforms.
Sub-degree/Sub-Millimeter Accuracy	Best available precision for 6DOF head tracker.
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 ±50° horizontal and ±52° 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 ±85° 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



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