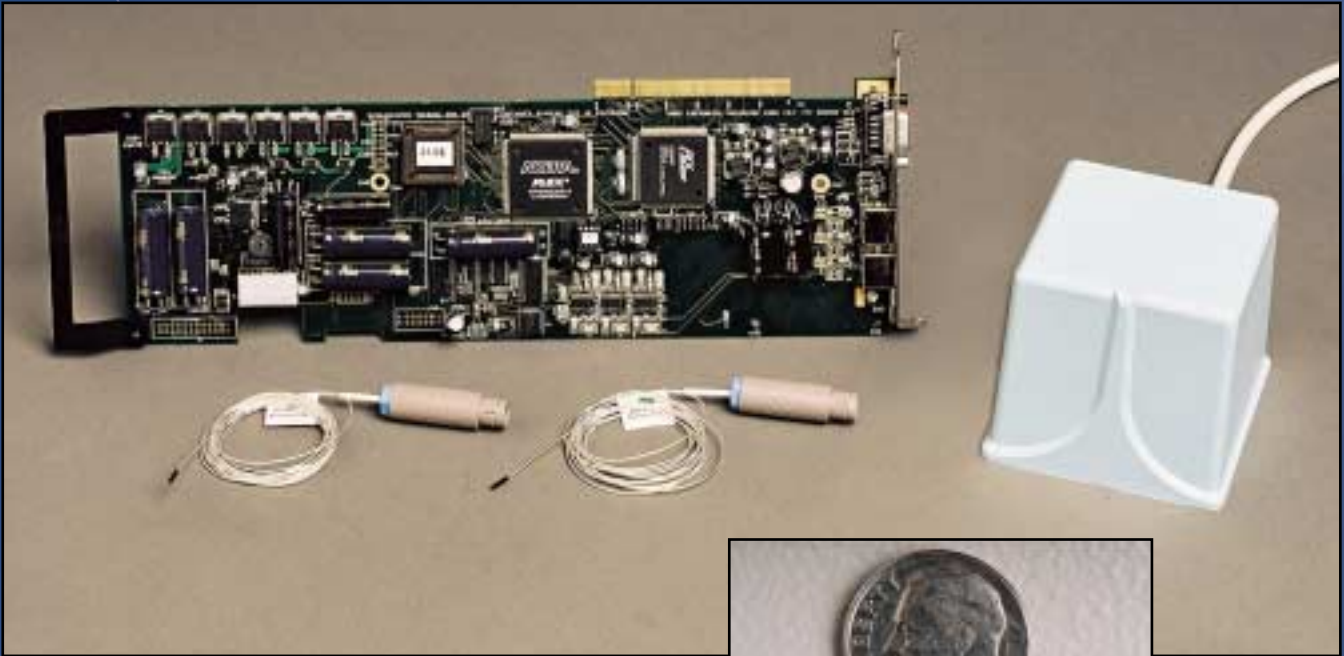


microBIRD™

6DOF Tracking
No Line-of-sight Restrictions



microBIRD provides fast, accurate tracking of two diminutive sensors per electronics card referenced to a DC magnetic field transmitter.



1.8 mm Sensor

Miniaturized DC Magnetic Sensors for Intra-body Navigation and Localization

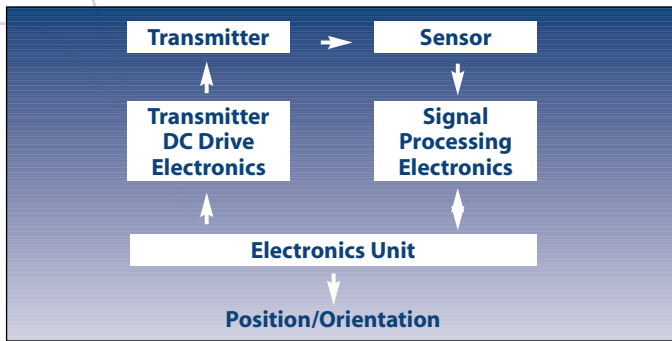
- Measure position and orientation of devices in real time
- Locate tips of instruments in 3D space
- Guide flexible tools internally to anatomical targets
- Control catheters in computer-assisted procedures

Precise. Conductive Metal Tolerant. Non-Ionizing.

 **Ascension**
Technology Corporation

microBIRD™

6DOF Tracking
No Line-of-sight Restrictions



microBIRD Block Diagram

TECHNICAL

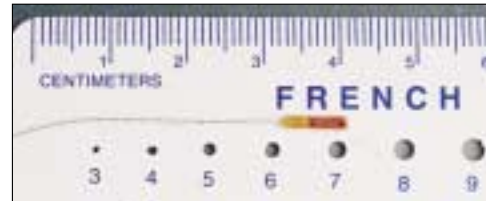
Degrees of Freedom:	6 (Position & Orientation)
Translation Range:	20 cm min to 70 cm max for X; ±30 cm for Y, Z. Forward hemisphere.
Angular Range:	All Attitude: ± 180° Azimuth & Roll; ±90° Elevation
Static Accuracy:	1.4 mm RMS position 0.3 degree RMS angular
Static Resolution Position:	0.05 mm @ 30.5 cm
Static Resolution Orientation:	0.01° @ 30.5cm
Update Rate:	Up to 90 measurements per second
Outputs:	X, Y, Z positional coordinates, orientation angle, or orientation matrix
Interface:	PCI v.2.1 compliant. Requires disc drive power connector to meet power needs
Data Format:	Binary data records
Communication:	Ascension supplied Windows API

PHYSICAL

Sensors:	<ul style="list-style-type: none"> ■ Max OD 1.8 mm; length 8.4 mm with 0.9 mm OD cable – 2 m in length ■ Ascension Medi-Mag Cable, USP class 6 jacket material or vinyl encapsulated cable ■ USP class 6 epoxy sensor housing ■ USP 6 polyester protective wrap (bare sensor only) ■ Maximum temperature 150° C ■ Sensor assembly and cable materials are EtO, gamma and cold sterilant tolerant. Semiconductor devices in connector are not gamma shielded and may be damaged or erased if exposed to Gamma radiation.
Transmitter:	9.6 cm cube with 3 m cable
PCI Card:	Standard full-length board (312 mm x 107 mm)
Power:	+12V at 1.85 amps nominal standard transmitter, 2.5A max +5V, 2A nominal
Operating Temperature/ Humidity:	15° C to 35° C; 10% to 90% non-condensing humidity
Environment:	Metal objects and stray magnetic fields in the operation volume may degrade performance. Contact us for available tools and configurations to mitigate such effects.
Warm-up:	System requires 5-minute warm-up for full accuracy

Applications for a medically-certified microBIRD:

- Intra-body navigation
- Computer-assisted procedures
- RF ablation
- Image-guided intervention and therapies
- Robotically-controlled surgery
- 3D Ultrasound
- Electrophysiology
- Brachytherapy
- Telerobotics and telesurgery



microBIRD sensor shown on French Catheter Scale

FEATURES	BENEFITS
Metal tolerance	No distortion in presence of medical grade metals such as 300-series stainless steel.
Advanced new magnetic technology	3rd generation developments overcome environmental limitations of earlier AC tracking technology.
Low cost sensors	Designed for disposability in volume applications.
No occlusions	Accuracy of measurements unaffected by insertion of sensors in human body.

Regulatory Certifications

microBIRD is a commercial tracking product; not designed for human use in medical applications. For such use, researchers and/or medical device manufacturers must comply with all pertinent FDA and international regulatory standards.

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© 2004 Ascension Technology Corp. microBIRD is an Ascension Technology Corporation Trademark. microBIRD is a general-purpose motion tracker suitable for many applications. Biomedical references in this document are examples of what medical companies can do with microBIRD trackers after obtaining all necessary medical certifications. Ascension trackers are not certified for use in medicine without the end user/OEM complying with all pertinent FDA/CE regulatory requirements. ATC 4/04

Notes on Accuracy: Accuracy is defined as the root mean squared (RMS) deviation of a true measurement of the magnetic center of a single sensor with respect to the magnetic center of a single transmitter measured over the translation range. Accuracy varies from one location to another over this translation range and will be degraded if there are interfering electromagnetic noise sources or metal in the operating environment.

Call: **800-321-6596**

Outside N. America: **802-893-6657**

Visit our web site at: **www.ascension-tech.com**

e-mail: **ascension@ascension-tech.com** Fax: **802-893-6659**

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