

# 3D Guidance trakSTAR™

Class 1, Type B Applied Part

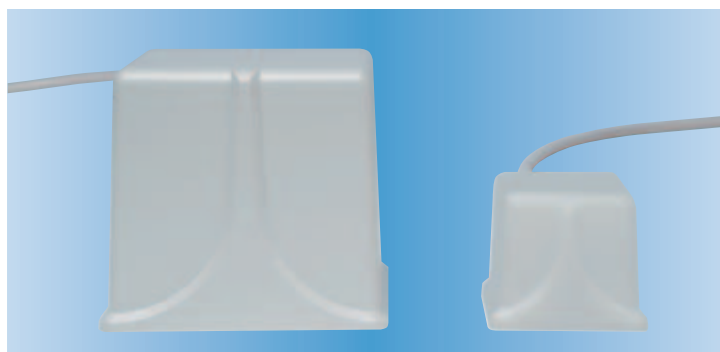
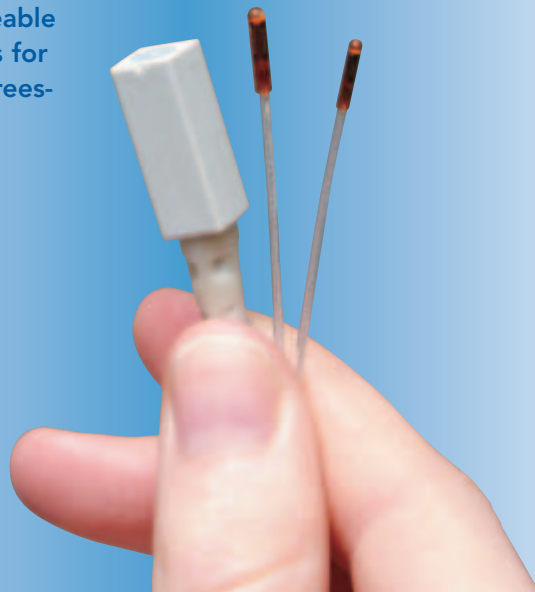


Desktop electronics unit tracks multiple sensors simultaneously

## Track Objects with New Magnetic DC Technology

- ▶ **Fast, dynamic tracking** – 240 to 420 updates per second.
- ▶ **Miniaturized passive sensors** – outputs unaffected by “power-line” noise sources.
- ▶ **All attitude tracking** – no inertial drift or optical interference.
- ▶ **High metal immunity** – no distortion from non magnetic metals.

Interchangeable sensor sizes for full six degrees-of-freedom tracking



Magnetic field transmitter options for mid and short-range tracking



**Ascension**  
Technology Corporation

Tracking 3D Worlds

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## Technical

Sensor Configurations	Model 800 (8.0 mm), Model 180 (2.0 mm) Model 130 (1.5 mm)
Degrees of Freedom	6 (Position and Orientation)
Update Rate	Up to 420 updates/second for each sensor (Default: 240 updates/second)
Translation Range	<b>MODEL 800 SENSOR</b> <ul style="list-style-type: none"><li>• Mid-Range Transmitter: 78 cm (31 inches)</li><li>• Short-Range Transmitter: 46 cm (18 inches)</li></ul> <b>MODEL 180 SENSOR</b> <ul style="list-style-type: none"><li>• Mid-Range Transmitter: 58 cm (23 inches)</li><li>• Short-Range Transmitter: Contact Ascension for latest test results.</li></ul> <b>MODEL 130 SENSOR</b> <ul style="list-style-type: none"><li>• Mid-Range Transmitter: 46 cm (18 inches)</li><li>• Short-Range Transmitter: Contact Ascension for latest test results.</li></ul>
Angular Range	All Attitude: $\pm 180^\circ$ Azimuth & Roll, $\pm 90^\circ$ Elevation
Static Accuracy*	Position: 1.4 mm (0.055 inch) RMS Orientation: 0.5° RMS *Higher accuracies achievable in smaller tracking volumes. *Accuracies vary depending on specific transmitter-sensor configurations.
Static Resolution	Position: 0.5 mm (0.02 inch) at 30.5 cm (12 inches) Orientation: 0.1° at 30.5 cm
Outputs	X, Y, Z positional coordinates, orientation angles, orientation matrix or quaternions
Interface	USB 1.1 and 2.0
Data Format	Binary data records
Communication	Windows API and Drivers

## Physical

Electronics Unit	18.5cm (7.3 inch) x 29.2 cm (11.5 inch) x 6.4cm (2.5 inch)
Transmitters	<ul style="list-style-type: none"><li>• Mid-Range: 9.6 cm (3.8 inch) cube with 3.3 m (10.8 ft) cable</li><li>• Short-Range: 6.27 cm (2.5 inch) x 4.6 cm (1.8 inch) x 5.2 cm (2.1 inch) with 3.3 m (10.8 ft) cable</li></ul>
Passive Sensors	<b>MODEL 800:</b> 8 mm (.31 inch) x 20 mm (0.78 inch) with 3.3 m (10.8 ft) cable <b>MODEL 180:</b> 2 mm (0.07 inch) x 9.7 mm (0.38 inch) with 2 m (6.6 ft) cable <b>MODEL 130:</b> 1.5 mm (0.05 inch) x 7.7 mm (0.30 inch) with 2 m (6.6 ft) cable <b>Model 180 &amp; 130 only:</b> <ul style="list-style-type: none"><li>• Ascension Medi-Mag Cable, USP class 6 jacket material.</li><li>• USP class 6 sensor housing.</li><li>• Sensor assembly and cable materials are EtO and cold sterilant tolerant. Warning: Semiconductor devices in sensor connector are not gamma shielded and may be damaged or erased if exposed to gamma radiation and/or autoclaving.</li><li>• Sensors and cable assemblies are fragile components and must be sheathed, isolated and safeguarded prior to use in patients.</li></ul>
Power	100 - 240V ~ 50/60 Hz
Operating Temperature Environment	5°C to 40°C; 90% non-condensing humidity Ferromagnetic objects and stray magnetic fields in the operation volume may degrade performance. Contact us for assistance in using our Optimization Tools to minimize metallic distortion and noise interference.

## FEATURE BENEFITS

### Metal tolerant

80% less distortion due to non-magnetic conductive metals compared to AC magnetic trackers. Outputs unaffected by composite materials. Capable of driving errors induced by highly conductive metals (such as aluminum) to zero by adjusting measurement rate.

### Advanced new magnetic technology and signal processing

- Better dynamic performance over longer ranges.
- "Power-line" noise filtered out.

### Occlusion and drift free

Clear line-of-sight between transmitter and sensor(s) is not required.

### Body mountable transmitter

New lightweight coil set can be externally mounted on head or body.

### Onboard diagnostics

Self-diagnostics and run-time monitoring for improved tracker reliability and safety.

### Software support

XP/Pro and XP embedded compatible with SDK and sample programs. API with expert support facilitates incorporation into user applications.



### Regulatory Certifications

- Class I Device with Type B Applied Part (Sensors), EN60601-1 Compliant.
- RoHS and WEEE compliant.
- Medical users must comply with all pertinent FDA/CE/IRB certifications prior to using this device in human patients.

### Note on Accuracy

Accuracy is defined as the root mean square (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 specified translation range. Accuracy varies from one location to another over this range and will be degraded if there are interfering electromagnetic noise sources or metal in the operating environment, which have not been identified and minimized.



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