

# 3D Guidance trakSTAR™

Class 1, Type B Applied Part

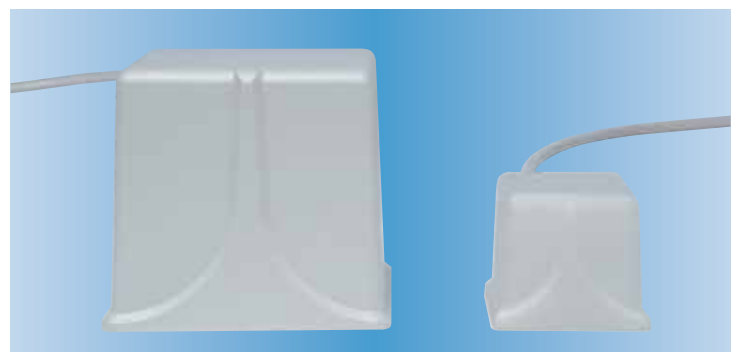


Desktop electronics unit tracks multiple sensors simultaneously

## 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

FAST PORTABLE AFFORDABLE

# 3D Guidance trakSTAR

## Technical

### Sensor Configurations

Model 90 (0.9 mm), Model 130 (1.5 mm), Model 180 (2.0 mm), Model 800 (8.0 mm)

### Degrees of Freedom

6 (Position and Orientation)

### Update Rate

Up to 420 updates/second for each sensor (Default: 240 updates/second)

### Translation Range

#### MODEL 90 SENSOR

- Mid-Range Transmitter: 36 cm (14 inches)
- Short-Range Transmitter: Contact Ascension

#### MODEL 130 SENSOR

- Mid-Range Transmitter: 46 cm (18 inches)
- Short-Range Transmitter: Contact Ascension for latest test results.

#### MODEL 180 SENSOR

- Mid-Range Transmitter: 58 cm (23 inches)
- Short-Range Transmitter: Contact Ascension for latest test results.

#### MODEL 800 SENSOR

- Mid-Range Transmitter: 78 cm (31 inches)
- Short-Range Transmitter: 46 cm (18 inches)

All Attitude:  $\pm 180^\circ$  Azimuth & Roll,  $\pm 90^\circ$  Elevation

Position: 1.4 mm (0.055 inch) RMS

Orientation:  $0.5^\circ$  RMS

\*Higher accuracies achievable in smaller tracking volumes.

\*Accuracies vary depending on specific transmitter-sensor configurations.

Position: 0.5 mm (0.02 inch) at 30.5 cm (12 inches)  
Orientation:  $0.1^\circ$  at 30.5 cm (12 inches)

### Angular Range Static Accuracy\*

### Static Resolution

### 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

20.0 cm (7.8 inch) x 14.7 cm (5.8 inch) x 4.1 cm (1.6 inch) metal box fitting into a 13.3 cm (5.25 inch) PC drive bay

### Transmitters

- Mid-Range: 9.6 cm (3.8 inch) cube with 3.3 m (10.9 ft) cable
- 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 (10.9 ft) cable

### Passive Sensors

MODEL 90: 0.9 mm (0.04 inch) x 7.25 mm (0.29 inch) with 3.3 m (10.9 ft) cable

MODEL 130: 1.5 mm (0.05 inch) x 7.7 mm (0.30 inch) with 3.3 m (10.9 ft) cable

MODEL 180: 2.0 mm (0.07 inch) x 9.9 mm (0.38 inch) with 3.3 m (10.9 ft) cable

MODEL 800: 8.0 mm (.31 inch) x 20.0 mm (0.78 inch) with 3.3 m (10.9 ft) cable

#### Model 180 & 130 only:

- Ascension Medi-Mag Cable, USP class 6 jacket material.
- USP class 6 sensor housing.
- 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.
- Sensors and cable assemblies are fragile components and must be sheathed, isolated and safeguarded prior to use in patients.

### Power

Drawn from PC's power supply through rear panel connector.

+ 12V: 1.6A nominal; 2.9A maximum

+ 5V: 600mA nominal

### Operating Temperature Environment

$5^\circ\text{C}$  to  $40^\circ\text{C}$ ; 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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