# 3D Guidance trakSTAR® 2

Class 1, Type B Applied Part


**Desktop electronics unit tracks, both 5DOF and 6DOF sensor options**

## Track Objects with New Magnetic DC Technology

- **Disposable sensors** – Track the tip of instruments in real time
- **All attitude tracking** – No line-of-sight restrictions
- **Fast dynamic tracking** – 240+ updates per second
- **High metal immunity** – Flat (tabletop) transmitter shields measurement distortions
- **Flexible configurations** – New transmitter/sensor options expand procedural coverage

**Interchangeable sensor sizes for low cost five and full six degrees–of–freedom tracking**

**Miniaturized sensors**

**Multiple magnetic field transmitter options**

Ascension Technology Corporation
an NDI company

FAST PORTABLE AFFORDABLE

# 3D Guidance trakSTAR® 2

Specifications

## Technical

| | |
|---|---|
| **Sensor Configurations** | Model 55 (0.56 mm), 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** | Default: 240 updates/second; higher rates available. |
| **Angular Range** | All Attitude: ± 180° Azimuth & Roll, ± 90° Elevation |
| **Static Accuracy*** | Position: 1.4 mm (0.055 inch) RMS<br>Orientation: 0.5° RMS<br>*Higher accuracies achievable in smaller tracking volumes. |
| **Static Resolution** | Position: 0.5 mm (0.02 inch) at 30.5 cm (12.0 inches)<br>Orientation: 0.1° at 30.5 cm (12.0 inches)<br>*Resolution measured for tracker with mid-range transmitter and 8 mm sensor. |
| **Outputs** | X, Y, Z positional coordinates, orientation angles, orientation matrix or quaternions |
| **Interface** | USB 2.0 and RS-232 |
| **Data Format** | Binary data records |
| **Communication** | Windows API and Drivers |

## Physical

| | |
|---|---|
| **Electronics Unit** | 29.0 cm (11.4 inches) x 18.4 cm (7.2 inches) x 5.7 cm (2.2 inches) metal box |
| **Transmitters** | • Short-Range: 6.4 cm (2.5 inches) x 4.6 cm (1.8 inches) x 5.2 cm (2.0 inches) with 3.3 m (10.8 ft.) cable<br>• Mid-Range: 9.6 cm (3.7 inches) cube with 3.3 m (10.8 ft.) cable<br>• Flat: 56.0 cm (22.0 inches) x 56.0 cm (22.0 inches) x 2.8 cm (1.1 inches) with 3.0 m (9.8 ft.) cable<br>• MAGnet: 20.6 cm (8.1 inches) x 20.6 cm (8.1 inches) x 4.6 cm (1.8 inches) with 3.0 m (9.8 ft.) cable<br>• miniMAG: 10.2 cm (4.0 inches) x 10.7 cm (4.2 inches) x 5.3 cm (2.08 inches) with 3.0 m (9.8 ft.) cable |
| **Sensors** | **Model 55, 90, 130 & 180 only**:<br>• Ascension Medi-Mag Cable, USP class 6 jacket material.<br>• USP class 6 sensor housing.<br>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** | The unit's internal supplies will operate from 100 to 240V, at 50/60 Hz. Power consumption is 70 VA. |
| **Operating Temperature** | 5°C to 40°C; 90% non-condensing humidity |
| **Environment** | Ferromagnetic objects and stray magnetic fields in the operation volume may degrade performance. Contact us for assistance in minimizing metallic distortion and noise interference. |

**Regulatory Certifications**
- Class 1 IEC 60601-1 Compliant Class 1 Type B Applied Part (Sensors).
- 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.

| FEATURE | BENEFITS |
|---|---|
| **Metal tolerant** | • Outputs unaffected by composite materials. Capable of driving errors induced by highly conductive metals (such as aluminum) to zero by adjusting measurement rate.<br>• Metal shield in flat transmitter for accurate tracking on a metal procedural table without distortion. |
| **Advanced technology and signal processing** | Improved dynamic performance over longer ranges. |
| **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 mounted on head or body. |
| **Onboard diagnostics** | Self-diagnostics and run-time monitoring for improved tracker reliability and safety. |
| **Software support** | USB tracker control API for XP/Pro, XP, Vista, Window 7, 32 & 64 bit, Sample programs. |
| **Low Cost Sensors** | Five degrees–of–freedom sensors designed for disposability in high volume applications. |


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