

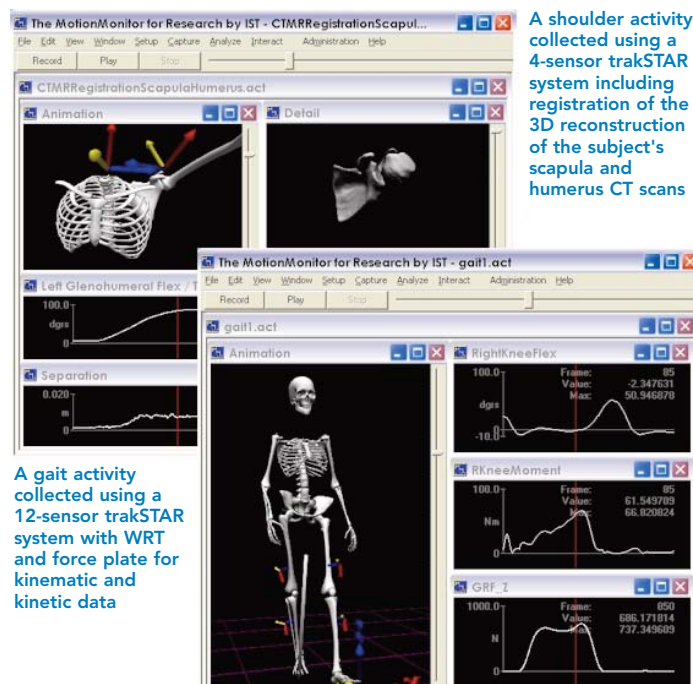
3D Guidance trakSTAR™ WIDE-RANGE



trakSTAR's wide-range transmitter generates DC magnetic fields for wide-range tracking of miniaturized sensors. Each synchable electronic unit (shown at right) tracks 4 sensors.

Track up to 16 Miniaturized Sensors Simultaneously Over a 2 Meter Range

- ▶ **Fast, dynamic tracking** – up to 240 updates per second for each sensor.
- ▶ **Flexible configurations** – track from 1 to 16 sensors.
- ▶ **All attitude tracking** – no orientation restrictions, no inertial drift, mechanical linkages, or optical occlusions.
- ▶ **Software support** - Windows drivers, utilities, sample code, MATLAB and labVIEW toolkit.



Sensors are small and lightweight for unobtrusive tracking of people and objects.

IMAGES COURTESY MICHAEL D. SCULLY

IMAGE COURTESY INNOVATIVE SPORTS AND TRAINING



Ascension
Technology Corporation

Tracking 3D Worlds

FAST, SCALABLE, USER FRIENDLY

3D Guidance trakSTAR™ WIDE-RANGE

Technical

Sensor configurations	MODEL 800 (8.0 mm - diameter)
Max number of sensors	16
Degrees of freedom	6 (Position and Orientation)
Update rate	Up to 240 updates/second for each sensor
Translation range	2.1 m (7.0 ft)
Angular range	All Attitude: ± 180° Azimuth & Roll, ± 90° Elevation
Static accuracy*	Position: 3.8 mm (0.15 inch) RMS Orientation: 0.5° RMS
Static resolution	Position: 0.5 mm (0.02 inch) at 1.0 m (39 inches) Orientation: 0.1° at 1.0 m (39 inches)
Outputs	X, Y, Z positional coordinates, orientation angles, orientation matrix or quaternions
Interface	USB 2.0
Data format	Binary data records
Communication	Windows API and Drivers
Line of sight restrictions	None

Physical

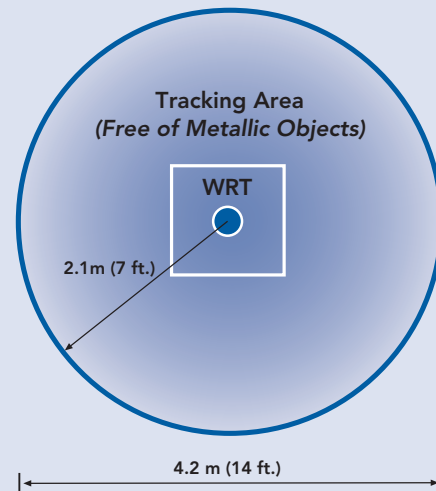
Electronics unit	18.5 cm (7.3 inches) x 29.2 cm (11.5 inches) x 6.4 cm (2.5 inches)
Transmitter	WRT 30.5 cm (12 inches) cube with 6.1 m (20 ft) cable
Passive sensors	MODEL 800: 8.0 mm (.31 inch) x 8.0 mm (.31 inch) x 20 mm (0.78 inch) with 9.1 m (30.0 ft) cable (Available also with 3.3 m (10.9 ft) cable)
Power	100 - 240 V ~ 50/60 Hz
Operating temperature	10°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 using our optimization tools to minimize metallic distortion and noise interference.
Metal distortion	Always keep transmitters and sensors away from floor, walls, and ceiling, especially if metals are within or nearby.

FEATURE BENEFITS

Wide-Range tracking	New wide-range coil set doubles tracking volume of Ascension trackers using a mid-range transmitter.
Metal tolerance	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 wider ranges.
Occlusion and drift free	Clear line-of-sight between transmitter and sensor(s) is not required.
Onboard diagnostics	Self-diagnostics and run-time monitoring for improved tracker reliability and safety.
Developer support	USB tracker control API for XP/Pro, XP, Vista 32 & 64 bit, Linux 32 & 64 bit, MAC OS. Sample programs. Analytical software toolkits for MATLAB and labVIEW direct Windows interface to tracker.

Set-Up

Wide-Range Transmitter (WRT)



Regulatory Certifications:

- EN 61010-1; EN 61326-1 Compliant.
- RoHS and WEEE Compliant.
- FCC Part 15, Class A.

*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.

Tracking
3D Worlds