

# InterSense® IS-1200®+ HOBIT Hybrid Optical-Based Inertial Tracker

Precision  
Inertial-Optical 6-DOF  
Motion Tracking System



# InterSense® IS-1200®+ HOBIT



The IS-1200®+ HOBIT is the world's most advanced 6-DOF tracker designed for precision and performance for extremely demanding military and commercial tracking applications. Advanced sensor fusion algorithms blend the information from the built-in MEMS inertial sensors, with a wide-angle optical sensor locked onto passive reference patterns (fiducials) in cockpits or rooms to continuously provide the most accurate, extreme low latency, high refresh rate, jitter-free roll, pitch, yaw, x, y and z information for any critical application. This rugged system is designed for challenging environments that can track in direct sunlight or total darkness with the optional built-in illuminator. The tough machined aluminum packaging protects the precision optics and electronics from contaminants. The IS-1200®+ HOBIT low-power, small-sized package can be head-worn with minimal impact or integrated into any object for virtually unlimited tracking. The power and interface comes from a USB port for flexibility and ease of integration into your tracking application. Fiducial constellation can be installed and accurately mapped in a few minutes using VisualMapper software provided. Once installed, the sensor is always ready without need for additional calibration. An auto-harmonization algorithm allows the system to self-align the fiducial constellation with the vehicle INS or attitude reference.

## Technical Specifications

### Key Features

- Unparalleled Accuracy and Performance
- Tracks in Total Darkness to Direct Sun
- Rugged and Reliable
- Proven in Mission Critical Vehicle Applications

### General Specifications

**Weight:** 75 grams (visible light model)  
**Operating Temperature:** +10° to +45° C  
**Degrees of Freedom:** 6 (Yaw, Pitch, Roll, X, Y, and Z)

**Maximum Angular Rate:** 2000° per second  
**Maximum Linear Acceleration:** 16 G  
**Orientation Accuracy:** 0.3° RMS\*  
**Position Accuracy:** 2 mm RMS, typical cockpit conditions\*  
**Latency:** 9 ms (prediction off)  
**Prediction:** Up to 50 milliseconds  
**Lens Field of View (FOV):** 130°  
**Max Tracking Range:** 25x the fiducial diameter  
**Min Fiducials in View for Optical Lock:** 5 in FOV  
**Orientation Drift Rate Out of Optical Lock:** 10 mrad RMS per minute

**Time to Acquire Optical Lock:** <0.1 second  
**Max Fiducials Per Installation:** 200  
**Orientation Update Rate:** 200 Hz, programmable  
**Position Update Rate (fixed installation):** 200 Hz, programmable  
**Position Update Rate (moving platform):** 20 Hz

### U.S. Patents

5,645,077; 5,807,284; 6,162,191; 6,176,837; 6,314,055; 6,361,507; 6,409,687; 6,474,159; 6,681,629; 6,757,068; 6,786,877; 6,922,632; and 7,000,469.

	IS-1200®+ HOBIT (Visible Light)	IS-1200®+ HOBIT (IR)	IS-1200®+ OEM
Illumination Source	Ambient Visible Light	Built-in Infrared Illuminator	Contact Thales for additional information on custom OEM configurations to meet your tracking needs.
Fiducial Type	Black-and-white paper markers (print your own)	Retro-reflective markers (purchase from Thales)	
Operations	Indoors (daylight or artificial lighting)	Unrestricted (total darkness to direct sun)	
Interface Options	USB or RS422	USB or RS422	
Available Focus Ranges	175–650 mm 500 mm–infinity	75–225 mm 175–650 mm	

\*Accuracy will vary due to factors such as distance from fiducials, and the number and spread of fiducials in the camera FOV.

Specifications are subject to change without notice.

### Thales Visionix

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