



IS-600
Mark 2

- *Fast & Smooth performance*
- *6-DOF Motion Prediction*
- *Wireless SoniDiscs™*
- *Immune to Magnetic Interference*

IS-600
Mark 2
PLUS

- *Upgraded Pentium™ Processor*
- *State-of-the art Ultrasonics*
- *Improved Resolution & Off-axis Accuracy*
- *Four tracked stations at 180 Hz*

IS-600 Mark 2 Precision Motion Trackers

Robust 6 degree-of-freedom motion tracking for simulation and training.

The IS-600 Mark 2 line delivers high-fidelity 6 Degree-of-Freedom (6-DOF) position and orientation tracking without the issues associated with other tracking technologies. Utilizing a hybrid of inertial and ultrasonic sensing technologies, the IS-600 Mark 2 achieves performance and robustness superior to any single-technology tracking device.

Superior Accuracy and Robustness

The IS-600 family uses InterSense's SensorFusion software to obtain superior position and orientation resolution and stability. Position tracking performance is enhanced by combining inertial sensors with ultrasonic drift correction, resulting in vastly improved update rates, resolution, and immunity to environmental interference.

Fast and Jitter-Free

The InterSense IS-600 design virtually eliminates the lag and jitter common to other systems, thus overcoming issues that are the source of simulator sickness in immersive head-mounted display applications.

Motion Prediction

The IS-600 can predict angular & position motion up to 50 ms, compensating for graphics rendering delays and minimizing simulator lag.

Four Operating Modes

GEOS™ Mode: Gyroscopic Earth-Stabilized Orientation Sensing for smooth sourceless 3-DOF orientation tracking with internal update rates up to 500 Hz.

PULSAR™ Mode: Pulsed Acoustic Ranging provides 3-DOF ultrasonic position tracking. Can be configured to run either hard-wired or wireless.

DUAL Mode: 6-DOF orientation and position tracking. The sensors operate independent of each other.

FUSION Mode: The best 6-DOF orientation and position tracking, using sensor fusion algorithms to combine inertial and ultrasonic measurements.

Distortion-Free

InterSense's patented inertial sensing technology is not susceptible to the electromagnetic interference common in other tracking sys-

tems, allowing the IS-600 to deliver smooth, steady performance, even in noisy, metal-cluttered environments.

Installation Flexibility

The X-bar is modular in design with detachable ReceiverPods, allowing custom configurations such as inside auto and flight simulators.

IS-600 Mark 2 PLUS Features

The Mark 2 PLUS offers millimeter resolution, improved stability, and increased noise immunity from environmental interference.

The Pentium processor allows four fusion mode stations to track simultaneously at 180 Hz.

Hardwired SoniDiscs provide maintenance free operation with a battery powered option available for configuration flexibility.

InterSense IS-600 Mark 2 Specifications

Technology Overview

The IS-600 obtains its primary motion sensing using a miniature solid-state integrated inertial instrument (InertiaCube™) which senses angular rate of rotation and linear acceleration along three perpendicular axes. The angular rates are integrated to obtain the orientation (yaw, pitch, and roll) of the sensor, and the linear accelerations are transformed into a reference coordinate frame and double-integrated to keep track of changes in position (x, y, and z). With the SoniDiscs, ultrasonic time-of-flight distance measurements are obtained and used for starting position and to correct any drift in the inertial position and orientation tracking.

Fusion Mode Specifications	IS-600 Mark 2 PLUS	IS-600 Mark 2
Degrees of Freedom	6 (per station)	6 (per station)
Resolution	Typical*:	Typical*:
Position (X/Y/Z)	1.5 mm RMS	2.5 mm RMS
Angular (P/R/Y)	0.05° RMS	0.10° RMS
Stability	Typical*:	Typical*:
Position (X/Y/Z)	4 mm RMS	7.0 mm RMS
Angular (P/R, Y)	0.1°, 0.2° RMS	0.25°, 0.5° RMS
Max update rate	Serial – 115.2 k baud	Serial – 115.2 k baud
1 station	180 Hz	180 Hz
2 stations	180 Hz	120 Hz
3 stations	180 Hz	90 Hz
4 stations	180 Hz	60 Hz
Genlock options	NTSC, TTL, internal sync	NTSC, TTL, internal sync
Prediction range	50 ms	50 ms
Latency	2 - 5 ms (w/o prediction)	4 - 10 ms (w/o prediction)
Interface	RS-232 up to 115.2 kbaud Ethernet optional	RS-232 up to 115.2 kbaud
Protocol	Industry standard protocols Compatible with IS-900/ IS-300	Industry standard protocols Compatible with IS-900/ IS-300
Tracking Coverage Area		
Long X-Bar	One - 2.5 m x 2.5 m, Four - 25 m ²	One - 3.5 m x 3.5 m, Four - 50 m ²
Short X-Bar	One - 2.0 m x 2.0 m, Four - 16 m ²	One - 2.3 m x 2.3 m, Four - 22 m ²
	* Measurements made at 1.3 meters below X-Bar	
Physical	100-240 VAC, 60 W	
Power Fusing	100-120 VAC: T250V, 1.0A 220-240 VAC: T250V, 0.5A	
Operating Temperature	0 to 50° C (32 to 122° F)	
Storage Temperature	-20 to 70° C (-4 to 158° F)	
	Dimensions	Weight
InertiaCube™ Sensor	26.9 mm x 34.0 mm x 30.5 mm	60.0 g
SoniDisc™ Position Sensor	25.4 mm x 25.4 mm x 16.5 mm	11.3 g
Long X-Bar Installed	1.42 m x 1.42 m x 0.04 m	3.7 kg
Short X-Bar Installed	0.71 m x 0.71 m x 0.04 m	3.0 kg
ReceiverPod (each)	0.12 m x 0.08 m x 0.04 m	0.36 kg
Base Unit Signal Processor	42.5 cm x 30.5 cm x 10.2 cm	3.81 kg
		Cable Length
		3 m extendible to 9 m
		3 m extendible to 9 m ^A
		6 m extendible to 10 m ^B
		6 m extendible to 10 m ^B
		0.6 m extendible to 6 m ^B
		N/A

^A Mark 2 ships with infrared triggered, battery powered SoniDiscs. Mark 2 PLUS ships with hardware triggered & powered SoniDiscs.

^BTotal X-Bar plus ReceiverPod cable length not recommended to exceed 12 m.

Compatibility

The IS-600 Mark 2 is compatible with industry leading software and hardware, including:

- Virtual Research
- Division
- SoftImage
- Xtensory
- Superscape
- Multigen-Paradigm
- Meta VR
- Kaydara
- EAI Sense8
- n-Vision
- Kaiser Electro Optics
- PuppetWorks

More Information

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The next generation in motion tracking.