



Using standard headset sensors, images will skew and lag



SpacePoint VR tracks head movements precisely

Courtesy of Professor F

SpacePoint VR eliminates head-tracking errors.

Headset designers for virtual and augmented reality applications know all too well the frustrations of trying to track head movement with consumer-grade sensors. Most standard inertial sensors have latency issues, resulting in inaccurate tracking of head movement – which can leave users feeling nauseous or disoriented. And getting the sensors to fuse data together into usable information is often not the simple task it first appears.

Now there's SpacePoint VR, an integrated 3D motion-tracking system from PNI Sensor Corporation that tracks real head movement with incredible, lightning-fast accuracy. Built by inertial sensor fusion experts with 25+ years of real-world expertise, SpacePoint VR takes the guesswork out of accurately tracking head movement. SpacePoint VR has tracking latency of less than 1 ms – imperceptible to the human eye.

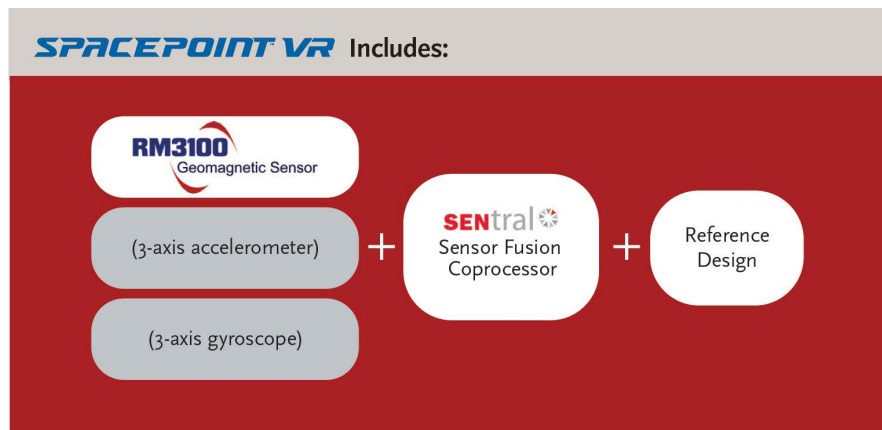
- **SpacePoint VR** is an easy-to-integrate system that combines outputs from multiple sensors and applies our sensor fusion algorithms to get military-grade accuracy.
- **SpacePoint VR** software uses continuous auto-calibration technology combined with our patented Kalman filter algorithms, so the output is extremely accurate in all environments.
- **SpacePoint VR** firmware resides on a coprocessor, which offloads sensor management and fusion work from your application processor.
- **SpacePoint VR** handles all the motion sensor calculations, so there are no unpleasant surprises or wasted engineering time.

SpacePoint VR:
Always headed
in the right
direction.

Specifications*

System

Tracking Latency	< 1 ms sensor update to quaternion update
Gyro Drift Compensation	Within 3°/hour
Heading Accuracy	< 4° RMS
Tilt Error	< 2°
Data Update Rate	Up to 1 KHz
Output	Mag, Accel, Gyro, Quaternion, Timestamps
I2C Interface Frequency	Up to 3.4 MHz on host interface I2C side; up to 1 MHz on sensor bus
Operating Temperature	Room temperature



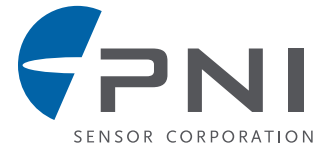
RM3100 Geomagnetic Sensor

Noise	15 nT	
Sensitivity	~20.6 nT/LSB	
Current Consumption	21.6 μ A/Hz (in VR mode)	
Field Measurement Range	-800 μ T to +800 μ T	
Dimensions	Sen XY	6.0 x 2.1 x 2.2 mm
	Sen Z	3.0 x 3.0 x 5.75 mm
	MagI2C	4.0 x 4.0 x 0.75 mm

SENtral Coprocessor

Supply Voltage (VDD)	1.6 to 3.3 V	
Current Consumption	Peak	800 μ A (in VR Mode)
	Average	320 μ A (Mag rate = 62 Hz, Accel rate = 120 Hz, Gyro rate = 200)
	Standby	5 μ A
Dimensions	1.6 x 1.6 x 0.5 mm	

Reference Designs available for high volumes. For availability, please contact sales@pnicorp.com.



With over 30 years of experience, PNI is the world's foremost expert in precision location, motion tracking, and fusion of sensor systems into real-world applications.

PNI's sensors and algorithms serve as the cornerstone of successful IoT projects and other mission-critical applications where pinpoint location, accuracy, and low power consumption are essential. Building on decades of patented sensor and algorithm development, PNI offers the industry's highest-performance geomagnetic sensor in its class, location and motion coprocessors, high-performance modules, sensor fusion algorithms, and complete sensor systems. PNI's technology is used in consumer electronics and wearables, smart parking, IoT, robotics, automotive, military, and other applications, by customers such as Nintendo, Samsung, iRobot, Sony, ST Microelectronics, General Motors, and Ford.

To learn more about PNI products and markets, please visit www.pnicorp.com.

PNI SENSOR CORPORATION
2331 Circadian Way
Santa Rosa, CA 95407 USA
Phone: +1-707-566-2260
Fax: 707-566-2261

*Specifications are subject to change.
©2016 PNI Sensor Corporation. All rights reserved.
[1025765, R02 5/17]