



Orientation & Heading Without GPS

Far Target Location / UAVs / Maritime Vessels / Munitions
Survey Equipment / Hand-Held Weapons / Vehicles / Aircraft



Accurate GPS Denied Navigation

The Sky Polarization Azimuth Sensing System, SkyPASS®, provides highly accurate localization information in a low-power, low-cost, small, lightweight form factor. The system is passive and well suited for any man or vehicle platform to provide mission-critical, accurate localization information regardless of GPS accessibility.

Features and Benefits

- North finding in challenging conditions
- Works without GPS
- Less than 2 mil accuracy in good conditions
- Works in civil twilight
- Suitable for any air, land, sea, weapon, and soldier platforms
- Low SWaP-C
- Spoof-proof
- Driftless
- Immediate time-to-fix; no setup or leveling
- Not affected by magnetic disturbances
- Easy installation and integration

SkyPASS has a demonstrated heading accuracy of <2 mil (0.1°) and can operate from before sunrise to after sunset in good sky conditions. SkyPASS detects the polarization map of the sky and uses it to calculate localization information. Sky polarization is observable from any point on Earth (including from air vehicles).

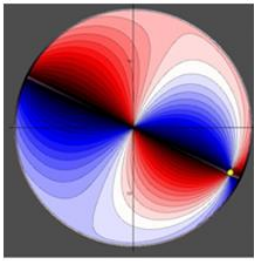
SkyPASS is configured to use sky polarization tracking as well as sun tracking for the hours when the sun is high in the sky. The switch between sun and polarization tracking occurs automatically. SkyPASS also uses both sensing methods, when available, to provide redundancy and improved accuracy.

*** Specifications subject to change**
SkyPASS is ITAR and EXPORT Controlled

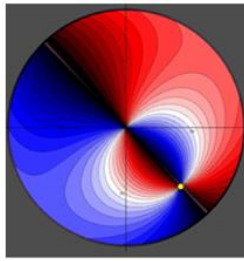
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See More. Know More.®

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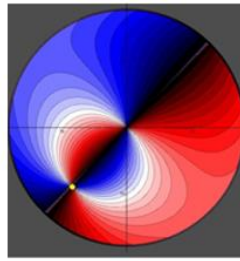
How It Works



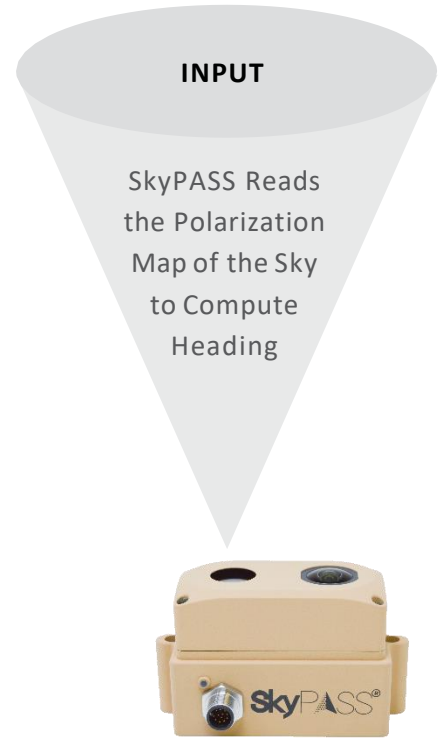
8:00



10:00



15:00



Sky polarization, an upper atmosphere phenomenon, is observable from any point on earth or from any aerial platform. Polarization maps of the sky at different times of day are shown above. The sun is shown as a small yellow disc and the center of each plot is the zenith. Using advanced algorithms and optics, SkyPASS detects the polarization map of the sky and uses it to compute highly accurate orientation or heading.

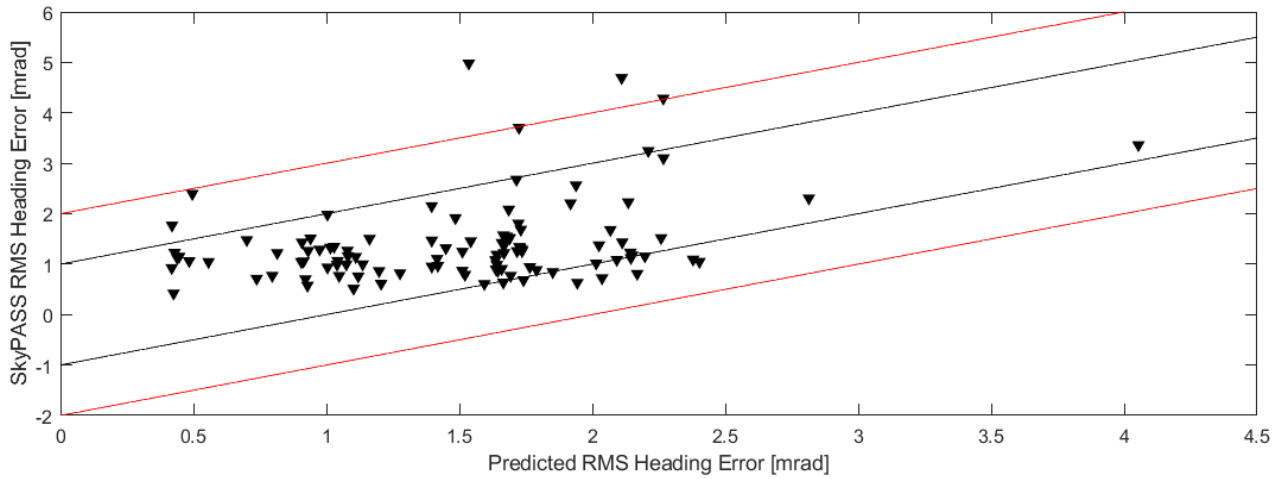
Specifications

Part Number	SkyPASS-Gen3
Heading Accuracy	<2 mil (0.1°) ¹
Resolution	0.2 mil (0.01°)
Max Measurement Frequency (Hz)	1
Roll/Pitch Accuracy	4 mil (0.2°) ²
Size - L x W x H (in)	3.5 x 1.9 x 2.4 ²
Weight (oz)	8
Power Draw – Measure (W)	4.1
Power Draw - Idle (W)	3.1
Input Voltage (VDC)	4-10
Interface	RS232, RS422
Environmental	Designed to IP67
Time of Day	Daytime + Civil twilight ³
Sky Conditions	Full Operation in Clear Skies Limited Operation or Degraded Accuracy in Haze, Fog, and Cloudy Conditions
Price	\$25,000
Availability	10-12 week lead time

1. RMS error, good conditions 2. Main housing body, not including mounting dog-ears 3. Operation during parts of civil twilight 4. Non-jittering platforms; 5. Position accurate to within 10km required 6. Time accurate to within 10s required

GPS Denied Navigation and Localization

SkyPASS Provides Accurate Heading with A Predicted Confidence Metric Eliminating Large Errors Associated with Alternative Devices



SkyPASS can provide accurate orientation for stationary platforms for targeting, surveying applications, or navigation. SkyPASS provides heading, roll, and pitch to within a fraction of a degree in a small, lightweight form factor which can be easily integrated into a variety of static or dynamic platforms.



SkyPASS Gen2 has been fully integrated into a Far Target Locator (FTL) platform designed by NTA, Inc.



SkyPASS Platforms

Drones • Vehicles • Personnel

In Development

Nighttime Functionality

Position Capability

We Put the A in A-PNT!



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Internationally Renowned Experts

Polaris Sensor Technologies, Inc. is a dynamic commercial and prime government supplier providing innovative designs, unique products and state-of-the-art analyses of optical systems. We have a team of optical experts with extensive experience in designing high-performance systems. Our portfolio includes polarization-based imaging systems, sensors, seekers, light scattering modeling, and measurement services.

Located in Huntsville, Alabama, our engineering facility features an extensive laboratory. Holding many national and international patents, Polaris creates custom hardware and unique software solutions providing our customers with the ability to meet mission objectives.

What can we do for you?

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