P-1725 IMU

Photonic Inertial Measurement Unit

Key Features

- Non-ITAR
- Exclusive KVH photonic integrated chip (PIC) technology
- High bandwidth for demanding dynamic applications
- Low noise
- Superior shock and vibration performance
- 3 high-performance photonic FOGs provide superior, reliable performance
- 3 high-performance 10g or 16g accelerometers
- High accuracy 6-degrees-of-freedom angular rate and acceleration data
- Versatile interfaces
- Compact size

Applications

- Autonomous and unmanned commercial and defense platforms (ground/aerial/marine surface/submersible)
- Antenna and camera system stabilization
- EO/FLIR system stabilization
- GPS/GNSS-aiding inertial navigation
- Mobile mapping systems
- Motion sensing systems
- Targeting and pointing systems
- Autonomous navigation, guidance, and positioning

Affordable, Reliable FOG-based IMU with **Photonic Integrated Chip (PIC) Technology** for Improved Performance in Challenging Stabilization and Navigation Applications

The new KVH P-1725 IMU is a compact, non-ITAR IMU featuring breakthrough PIC technology for increased reliability, and upgraded high-performance 10g or 16g accelerometers for outstanding FOG performance as affordable as MEMS alternatives. An advanced inertial sensor, the P-1725 IMU is designed to meet the demanding needs of a wide range of navigation and stabilization applications. Leveraging KVH's revolutionary PIC technology, the P-1725 includes three photonic FOGs integrated with three high-performance, low-noise 10g or 16g accelerometers. The resulting low-cost/high-performance IMU is ideal for manned and unmanned platforms, as well as navigation or stabilization systems where low cost, high performance, and high bandwidth are critical for success.

PIC Technology for Superior Performance

PIC INSIDE

KVH's new PIC technology reinvents FOG technology with improved reliability, unit-to-unit repeatability, and easier integration with an integrated planar optical chip that replaces individual fiber optic components. The result is a precision photonic fiber optic gyro sensor that is more durable and reliable with increased performance designed for a high level of repeatability.

No Compromise Between High Performance and Low Price

With its high bandwidth and low noise, the P-1725 IMU can provide the data output required for challenging applications such as autonomous navigation systems, precision pointing and stabilization systems, as well as mobile mapping systems and still help keep program costs low. KVH's P-1725 IMU makes the traditional trade-off between performance and price obsolete. Get both advanced photonic FOG-based quality performance and affordability with the KVH P-1725 IMU. The compact P-1725 is designed for easy integration into new or existing systems.

The P-1725 offers high bandwidth and excellent shock and vibration resistance for autonomous applications.

Protected by U.S. Patent 10,274,319. Additional patents pending.

KVH P-1725 IMU

Performance Specifications – Gyros

Input Rate	±490°/sec (max)
Bias Instability (25°C)	≤0.05°/hr, 1σ (typical) ≤0.1°/hr, 1σ (max)
Scale Factor Non-linearity (full rate, 25°C)	≤75 ppm, 1σ (typical)
Angle Random Walk (ARW) (25°C)	≤0.017°/√hr (≤1.0°/hr/√Hz)

Performance Specifications – Accelerometers

	10g	16g
Input Range	±10g (max)	±16g (max)
Bias Instability (25°C)	15 µg, 1σ	24 µg, 1σ
Velocity Random Walk (25°C)	34 µg/√Hz	54 µg/√Hz
Bandwidth (-3 dB)	≥200 Hz	≥200 Hz

Environment

	10g	16g
Temperature (operating)	-40°C to +75°C (-40°F to +167°F)	-40°C to +75°C (-40°F to +167°F)
Shock (operating)	9g (11 ms, sawtooth)	15g (11 ms, sawtooth)
Vibration (operating)	8g rms (20-2000 Hz, random)	10g rms (20-2000 Hz, random)

Electrical/Mechanical

Data Interface	RS-422 Full Differential, Asynchronous or Synchronous
Dimensions	88.9 mm Dia x 73.7 mm H (3.5" x 2.9")
Weight	0.7 kg (1.54 lbs)
Power Consumption	5 W (typical), 8 W (max)

For technical manuals, expanded specifications, and additional information, please visit: **kvh.com/P1725docs**

kvh.com/P1725

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