

# 1725 IMU



## Fiber Optic Gyro Inertial Measurement Unit



### Key Features

- High bandwidth for demanding dynamic applications
- Low noise
- Superior shock and vibration performance
- 3 high-performance KVH FOGs provide superior, reliable performance
- 3 high-quality MEMS accelerometers
- High accuracy 6-degrees-of-freedom angular rate and acceleration data
- Versatile interfaces
- Compact size

### Applications

- 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
- Navigation, guidance, and positioning

### Superior FOG Performance, Affordable Prices

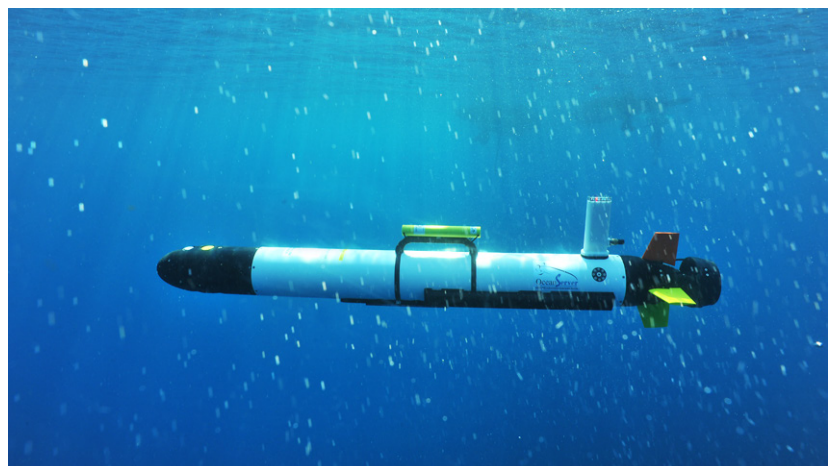
The 1725 IMU from KVH is a game-changing 6-degrees-of-freedom (6-DOF) sensor that delivers the high performance and stability of KVH's fiber optic gyros (FOGs) at MEMS prices. The 1725 IMU joins KVH's array of advanced inertial sensors designed to meet the demanding needs of a wide range of navigation and stabilization applications. Like KVH's highly successful 1750 IMU, the 1725 IMU leverages the technology of three DSP-1750 FOGs, the world's smallest high-performance FOG, integrated with three low-noise MEMS accelerometers. This 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.

### Compact Package Designed for Easy Integration

The 1725 IMU weighs less than .7 kg (under 1.45 lbs.) and is a compact package designed for easy integration in higher-level systems. The flexible interfaces and programmable message outputs, baud and data rates make the 1725 IMU highly versatile so as to address the needs of a broad range of demanding applications such as inertial navigation systems for unmanned platforms, precision stabilization systems for radar and optical systems, precision pointing and stabilization systems for antennas and weapons platforms, as well as high-accuracy mobile mapping systems.

### No Compromise Between High Performance and Low Price

The 1725 IMU is highly adaptable, featuring RS-422 asynchronous communication with user programmable data output rates from 1 to 1000 Hz. With its high bandwidth and low noise, the 1725 IMU can provide the data output required for challenging applications, and still help keep program costs low. KVH's 1725 IMU makes the traditional tradeoff between performance and price obsolete. Get both FOG-quality performance and affordability with the KVH 1725 IMU.



*Accurate and reliable inertial navigation data provided by KVH high-performance inertial sensors is crucial for underwater unmanned vehicles such as the Iver2 from OceanServer Technology Inc., since GNSS signals do not penetrate deep underwater.*

# KVH 1725 IMU

## Performance Specifications

<b>Input Rate (max)</b>	±490°/sec
<b>Bias Instability (25°C)</b>	≤1°/hr, 1σ
<b>Bias vs. Temp. (≤°C/min)</b>	≤4°/hr, 1σ
<b>Bias Offset (25°C)</b>	±5°/hr
<b>Scale Factor Non-linearity (max rate, 25°C)</b>	≤200 ppm, 1σ
<b>Scale Factor vs. Temperature (≤1°C/min)</b>	≤300 ppm, 1σ
<b>Angle Random Walk (25°C)</b>	≤0.017°/√hr (≤1°/hr/√Hz)
<b>Bandwidth (-3 dB)</b>	≥440 Hz

## Electrical/Mechanical

<b>Initialization Time (valid data)</b>	≤3 sec
<b>Data Interface</b>	Asynchronous or Synchronous RS-422
<b>Baud Rate</b>	Selectable 9.6 Kbps to 921.6 Kbps
<b>Data Rate</b>	User Selectable 1 to 1000 Hz
<b>Dimensions (max)</b>	88.9 mm Dia x 73.7 mm H (3.5" x 2.9")
<b>Weight (max)</b>	0.7 kg (1.45 lbs)
<b>Power Consumption</b>	8 W (max), 5 W (typical)
<b>Input Voltage</b>	+9 to +36 VDC

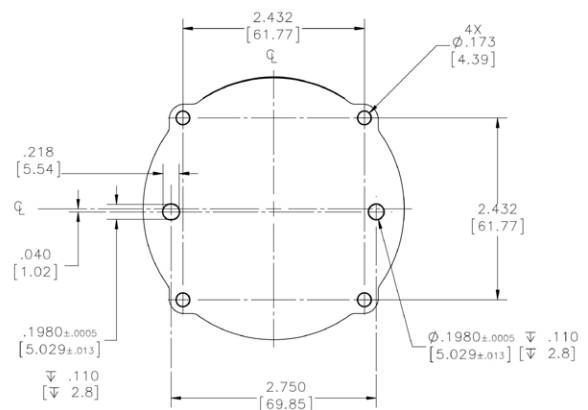
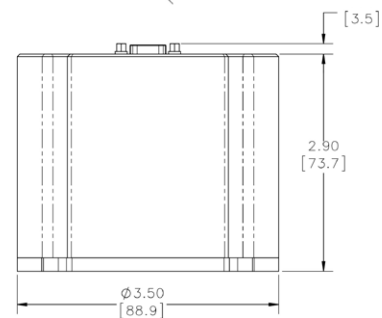
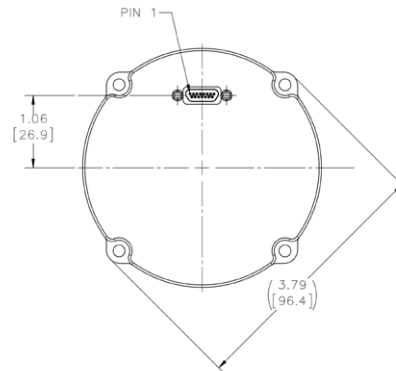
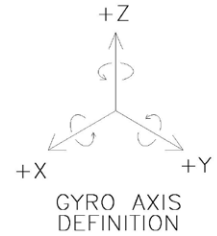
## Environment

<b>Temperature (operating)</b>	-40°C to +75°C (-40°F to +167°F)
<b>Shock (operating)</b>	9 g, 11 msec, sawtooth
<b>Vibration (operating)</b>	8 g rms, 20-2000 Hz random

## Accelerometers

<b>Input Limit (max)</b>	±10 g
<b>Bias Instability (constant temp)</b>	<0.1 mg, 1σ
<b>Scale Factor Temperature Sensitivity</b>	250 ppm/°C, 1σ (max) ≤100ppm/°C, 1σ (typical)
<b>Velocity Random Walk (25°C)</b>	≤0.12 mg/√Hz (0.23 ft/sec/√hr)
<b>Bandwidth (-3 dB)</b>	≥200 Hz

For detailed interface control drawings (ICD) and technical manuals on this product, please visit [www.kvh.com/1725IMUmil](http://www.kvh.com/1725IMUmil) and click on the **Manuals** tab.



Automated vehicles utilized in manufacturing and inventory control use heading and navigation data provided by KVH high-performance gyros and inertial units to enable them to efficiently and safely navigate.



KVH Industries, Inc. • 50 Enterprise Center • Middletown, RI 02842 • U.S.A. • Phone: +1 401 847-3327 • Fax: +1 401 845-2410

©2015, KVH Industries, Inc.

Specifications subject to change without notice

KVH is a registered trademark of KVH Industries, Inc.

Protected by one or more of the following U.S. and foreign patents: US 8,866,564 US 7,317,847, US 6,763,153, US 6,718,097, US 6,707,558, US 6,429,939, US 6,370,289 B1, US 6,134,356, US 6,041,149, US 5,768,462, US 5,739,944, US 5,552,887. Additional patents pending.