

# DSP-3400 FOG

High-performance, Single-axis Fiber Optic Gyro



## Key Features

- Rugged, modular design
- Patented Digital Signal Processing (DSP)
- Exceptional bias stability and linearity
- Single-axis, modular design for multi-axis configurations
- Commercial off-the-shelf (COTS) product

## Applications

- Automated inventory tracking
- Antenna/radar/optics stabilization
- Gun/turret stabilization
- IMU, GPS/INS integration
- AHRS integration



*KVH's DSP-3400 helps to stabilize gimbale cameras on law enforcement helicopters, aiding in aerial surveillance and emergency response*

## High-speed Point-to-Point Data Communications

The KVH DSP-3400 offers the reliability and robust design found in all members of the DSP-3000 series, but adds the benefits of a true RS-422 interface and a 1000 Hz synchronous output in a durable, shielded package. As a result, the DSP-3400, with its robust, modular design, is a powerful option for use in applications requiring FOG output to be transmitted over a longer distance.

The entire DSP-3000 series uses KVH's patented Digital Signal Processing (DSP) electronics. KVH's breakthrough DSP design overcomes the limitations of analog signal processing, virtually eliminating temperature-sensitive drift and rotation errors. In addition, KVH's DSP technology offers significant performance improvements in such critical areas as scale factor and bias stability, scale factor linearity, turn-on to turn-on repeatability, and maximum input rate. Exceptional low noise (ARW), insensitivity to cross-axis error, and shock and vibration robustness make the DSP-3000 series a perfect fit for demanding industrial applications. This performance, combined with the inherent simplicity and reliability of our mature all-fiber optical circuit, establish the DSP-3000 series as an affordable, outstanding solution for motion sensing, stabilization, navigation, and precision pointing applications.



*KVH FOGs are used in automated inventory tracking systems to ensure that products are transported quickly and safely inside warehouses.*

## Precision, Performance, and Price

Fabricated from KVH's proprietary E•Core® polarization maintaining fiber, the KVH DSP-3400 delivers superior precision and reliable performance at a lower cost than other comparable fiber optic and mechanical gyroscopes. Its temperature stability and repeatability make it particularly well-suited for precision stabilization, GPS integration, and multi-axis tactical-grade inertial measurement

systems. The noise spectrum of the DSP-3400 is exceptionally flat, lacking the discrete noise components of mechanical gyros. With no moving parts to maintain or replace, the DSP-3400 lasts longer, functions better, and yields significant product life cycle savings.

Specifications	KVH DSP-3400 Single-axis Fiber Optic Gyro
	<b>Digital</b>
<b>Input Rate</b> ( <i>max</i> )	±375°/sec
<b>Bias Instability</b> (25°C)	≤1°/hr, 1σ
<b>Bias vs. Temperature</b> (≤1°C/min)	≤6°/hr, 1σ
<b>Bias Offset</b> (25°C)	±20°/hr
<b>Scale Factor Non-linearity</b> ( <i>max rate, 25°C</i> )	≤500 ppm, 1σ
<b>Scale Factor vs. Temperature</b> (≤1°C/min)	≤500 ppm, 1σ
<b>Angle Random Walk</b> (25°C)	≤0.067°/√hr (≤4°/hr/√Hz)
<b>Electrical/Mechanical Interface</b>	<b>Digital</b>
<b>Bandwidth</b> (-3 dB)	440 Hz
<b>Initialization Time</b> ( <i>valid data</i> )	≤5 secs
<b>Data Interface</b>	Synchronous RS-422
<b>Baud Rate</b>	115.2 Kbps
<b>Data Rate</b>	1000 Hz Synchronous
<b>Physical Specifications</b>	<b>Digital</b>
<b>Dimensions</b> ( <i>max</i> )	88.9 mm L x 58.4 mm W x 43.5 mm H (3.5" x 2.3" x 1.7")
<b>Weight</b> ( <i>max</i> )	0.3 kg (0.66 lbs)
<b>Power Consumption</b>	3 W (max), 1.25 W (typical)
<b>Input Voltage</b>	+5, ±10% VDC
<b>Environmental Specifications</b>	<b>Digital</b>
<b>Temperature</b> ( <i>operating</i> )	-40°C to +75°C (-40°F to +167°F)
<b>Shock</b> ( <i>operating</i> )	40 g, 10 msec, half-sine
<b>Vibration</b> ( <i>operating</i> )	8 g rms, 20-2000 Hz
<b>MTBF</b>	≥55,000 hours

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For detailed interface control drawings (ICD) and technical manuals on this product, please visit [www.kvh.com/DSP3400docs](http://www.kvh.com/DSP3400docs)



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