

# DSP-3100 FOG

High-performance, Single-axis Fiber Optic Gyro



## Key Features

- Industry standard 26-pin connector
- Single-axis, modular design for multi-axis configurations
- Patented Digital Signal Processing (DSP)
- Exceptional bias stability and linearity
- Industry standard RS-422 communications
- Commercial off-the-shelf (COTS) product

## Applications

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



Airborne surveying applications use KVH's DSP-3100 to provide the stabilisation necessary to produce clear images.

## Increased Accuracy in a Smaller Form Factor

Designed for demanding applications requiring high-speed data output, the KVH DSP-3100 offers a powerful high-speed RS-422 interface with 1000 Hz asynchronous in a package more compact than the KVH DSP-3400. With its industry-standard Samtec 26-pin connector, it offers a versatile package ideal for installations with tighter installation requirements while not sacrificing performance, reliability, or durability.

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.



Underwater Remotely Operated Vehicles (ROVs) depend on the KVH DSP-3100 for precise navigation information to complete their tasks.

## Precision, Performance, and Price

Fabricated from KVH's proprietary E•Core® polarization maintaining fiber, the KVH DSP-3100 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-3100 is exceptionally flat, lacking the discrete noise components of mechanical gyros. With no moving parts to maintain or replace, the DSP-3100 lasts longer, functions better, and yields significant product life cycle savings.

Specifications	KVH DSP-3100 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>	Asynchronous RS-422
<b>Baud Rate</b>	375 Kbps
<b>Data Rate</b>	1000 Hz
<b>Physical Specifications</b>	<b>Digital</b>
<b>Dimensions</b> ( <i>max</i> )	87.9 mm L x 66.0 mm W x 24.9 mm H (3.5" x 2.6" x 1.0")
<b>Weight</b> ( <i>max</i> )	0.2 kg (0.44 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>	>20,000 hours

For detailed interface control drawings (ICD) and technical manuals on this product, please visit [www.kvh.com/DSP3100docs](http://www.kvh.com/DSP3100docs)

DS\_DSP3100\_7-19



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