

UmiX 40–5MG

Fiber-Optic Gyroscope Inertial Measurement Unit

UmiX 40–5MG is a solid-state 6-axis high performance IMU designed for a range of demanding applications. The sensor core provides north-seeking grade Fiber-Optic Gyroscopes (FOG) with long term stability suitable for GNSS-denied navigation, as well as short term performance required for high-end stabilization systems.



KEY PERFORMANCE IN NAVIGATION

- Autonomous and static alignment
- Capable of high heading precision
- Long term performance stability
- Resilient to long GNSS dropout



FEATURES

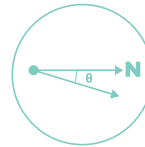
- Free of ITAR components
- North-seeking grade FOG
- Navigation grade accelerometers
- High MTBF (80 000 hours)
- High performance vs. size ratio
- Rugged design for harsh environments
- Low power consumption

MASTERING IN-HOUSE TECHNOLOGY

UmiX 40 integrates in-house technology for both FOG and vibrating quartz accelerometers, benefiting from the 30 years track record of Exail in FOG design and manufacture. Exail develops and manufactures all key components of the sensors, enabling miniaturization whilst assuring continuous performance improvements.

KEY PERFORMANCE IN STABILIZATION

- Low noise
- Low latency
- High bandwidth
- 3D rotation measurement



EASE OF INTEGRATION

- Plug and play
- True IMU
- Provides fully compensated sensor data in an orthogonal reference frame
- Lever arm, coning & sculling application
- Digital serial output with adjustable baud and data rates
- Synchronization signal available
- Transmission clock available
- Single supply voltage
- Two mounting options
- Hermetically sealed to maximize reliability and long-term performance

TECHNICAL SPECIFICATIONS

Fiber-Optic Gyroscopes

Dynamic	$\pm 2000^\circ/\text{s}$	
Angular random walk	$8 \text{ m}^\circ/\sqrt{\text{h}}$	
Bandwidth	5 kHz	
Bias instability	$10 \text{ m}^\circ/\text{h}$	1σ
Bias thermal residual	$50 \text{ m}^\circ/\text{h}$	1σ
Scale factor thermal residual	40 ppm	1σ

Interfaces

Misalignment	100 μrad
Volume	$\varnothing 88.9 \times \text{H}75 \text{ mm}$
Weight	< 770 g
Mounting	3 top screws 6 bottom screws M4 screws
Alignment Pins	2 x $\varnothing 5 \text{ mm}$ EF6 holes
Supply voltage	+ 5 V DC
Consumption	< 4,5 W @ ambient T° < 8 W over full T° range
Connector	21 pin micro D – socket
Communication	RS422
Data rate	100 to 10,000 kHz
Cooling	Conduction through baseplate

Vibrating quartz accelerometers

Dynamic	$\pm 100 \text{ g}$	
Bias instability	10 μg	1σ
Bias thermal residual	250 μg	1σ
Scale factor thermal residual	40 ppm	1σ
Rectification	50 $\mu\text{g} / \text{g}^2$	1σ

Environmental characteristics

Full performance temperature range	-32 to +71 $^\circ\text{C}$
Full performance vibration range	5 grms [20 – 1000 Hz]
Operating shocks	40 g - 11 ms

PLATFORM INTEGRATION



Gimbal



UAV



Missile



Land vehicles



UGV



High & low
velocity guided &
unguided systems



Airborne sensors:
• Optronic
• Radar
• EM



Pointing &
designation for
land platforms