



DATASHEET | DECEMBER 2023

A New Era in Navigation



Applications

- Tactical Grade Applications
- Unmanned Aerial Vehicle (UAV) Guidance
- Missile Guidance
- Aeronautics and Aviation
- Robotics

Key Performance Features

- Fully-Integrated Optics and Electronics
- Advanced Optics and FPGA Electronics for Higher Accuracy, Lower Noise and Greater Efficiency
- FPGA-Based Closed-Loop Design for Improved Drift Stability, Higher Linearity, and Greater Flexibility
- Bandwidth to 300 Hz
- More Economical than Competing Systems

U.S. Patent No. 7,746,476; 8,773,665; 8,798,405; 8,823,946

Suitable for Demanding Applications

EMCORE's closed-loop Fiber Optic Gyroscope (FOG) technology is designed for fast, accurate navigation and gyrocompassing, and low noise line-of-sight stabilization. Our long-standing leadership in the development of highly-accurate defense and military grade fiber optic components and systems has paved the way for the development of more accurate and economical FOG components. EMCORE's FOGs are setting the new benchmark for tactical and navigational grade gyros for a wide variety of guidance, navigation and aeronautics applications.

EMCORE's EG-200 Fiber Optic Gyro fully-integrated optics and electronics, and is a superior device in regards to weight and form-factor for tactical applications. It incorporates advanced, next-generation Field Programmable Gate Array (FPGA) electronics that deliver higher accuracy, lower noise, greater efficiency and reliability, combined with low cost. The integrated FPGA electronics also improve optical drift stability, environmental flexibility and linearity compared to competing technologies. The EG-200 can be calibrated internally for better thermal effect and has both digital and analog outputs to accommodate the widest variety of installation parameters.

EMCORE's EG-200 is the clear choice when selecting a precision solid-state gyroscope component for tactical grade applications.

Performance Highlights

Parameter	EG-200
Fiber Optic Gyro Type	Closed-Loop
Bias over Temp, Uncompensated	$\leq 20^\circ/\text{hr}, 1\sigma$
Bias over Temp, With Compensation	$< 0.8^\circ/\text{hr}, 1\sigma$
Bias In-Run Stability @ 25 °C	$\leq 1.0^\circ/\text{hr}$
ARW @ 25 °C	$\leq 0.04^\circ/\sqrt{\text{hr}}$
Bandwidth @ -90° phase and @ -3dB	300 Hz



EG-200

Lithium-Niobate Fiber Optic Gyroscope (FOG)

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Performance Specifications

Parameter	EG-200
Gyro Performance	
Fiber Optic Gyro Type	Closed-Loop
Bias over Temp, Uncompensated	$\leq 20^\circ/\text{hr}, 1\sigma$
Bias over Temp, With Compensation	$< 0.8^\circ/\text{hr}, 1\sigma$
Bias In-Run Stability @ 25 °C	$\leq 1.0^\circ/\text{hr}$
ARW @ 25 °C	$\leq 0.04^\circ/\sqrt{\text{hr}}$
Scale Factor (Typical)	0.025 to 0.03 Arc-Sec per LSB (0.027 typ.)
Scale Factor Non-Linearity	< 100 ppm
Maximum Input Rate	300°/sec
Bandwidth @ -90° phase and @ -3dB	300 Hz
Electrical/Mechanical	
Initialization Time (valid data)	1 sec
Output Data Rate	1900 to 2100 Hz
Dimensions	3.3" x 3.3" x 0.8", 83.8 mm x 83.8 mm x 20.3 mm
Weight	0.127 kg, 0.28 lbs
Power Consumption	$< 1.3\text{W}$ at room temp., $< 3.8\text{W}$ over temp.
Environmental	
Temperature: Operating	-40 °C to +75 °C (-40 °F to +167 °F)
Shock: Non-Operating	800g, 4 msec, half-sine
Vibration: Non-Operating	12 g rms, 10-2000 Hz
Physical	
Number of Axes	1 Axis
Housing	Anodized Aluminum
MTBF	100,000 hr

Dimensions/Scale



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MADE IN USA

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