

PHOTONIC SENSORS

L1 Silicon Photonic 3-Axis Gyroscope

Three-axis solid-state optical gyroscope rated over a wide -45°C to $+65^{\circ}\text{C}$ range.



Key Features

- Solid state — no moving parts
- Wide operating range, -45°C to $+65^{\circ}\text{C}$
- Temperature stability $\leq 1^{\circ}/\text{h}$ across the full range
- Angular random walk $\leq 0.1^{\circ}/\sqrt{\text{h}}$
- Measurement range $\pm 800^{\circ}/\text{s}$ on three axes
- Bandwidth $\geq 400\text{ Hz}$

Applications

- Inertial navigation in harsh environments
- Platform stabilization outdoors and airborne
- Downhole and industrial attitude sensing
- Robotics and unmanned vehicles

Overview

The L1 is the wide-temperature member of the gyroscope family. It measures angular rate on three axes with silicon photonic interferometry, holding $1^{\circ}/\text{h}$ temperature stability and repeatability across a -45°C to $+65^{\circ}\text{C}$ span.

Where the L2 optimizes for the lowest noise, the L1 optimizes for environmental range. Both are solid state, with no moving parts to survive shock or vibration.

Specifications

Performance

PARAMETER	VALUE	UNIT	CONDITIONS
Measurement Range	± 800	$^{\circ}/s$	
Temperature Stability	≤ 1	$^{\circ}/h$	10 s, 1 σ , -45 $^{\circ}C$ to +65 $^{\circ}C$
Bias Repeatability	≤ 1	$^{\circ}/h$	1 σ
Scale Factor Nonlinearity	≤ 50	ppm	1 σ
Angular Random Walk	≤ 0.1	$^{\circ}/\sqrt{h}$	
Bandwidth	≥ 400	Hz	

Environmental

PARAMETER	VALUE	UNIT
Operating Temperature	-45 to +65	$^{\circ}C$

Order or request a quote

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Specifications are subject to change without notice and do not constitute a warranty. Confirm all parameters with Lightwit Photonics sales before ordering.