

GYPRO®4300

High Performance Closed-Loop MEMS Gyroscope With Digital Interface

10°/h bias stability and repeatability

KEY FEATURES

- ± 300°/s range yaw rate gyroscope – Z-axis
- Fully hard-coded electronic, no embedded software
- Built-in temperature compensation and self-test
- Hermetic SMD ceramic package for reliable assembly on FR4
- Complementarity with AXO® high performance accelerometers which share the same digital interface

KEY PERFORMANCES

- 10°/h bias stability and repeatability
- Very good bias instability of 0.3°/h (Allan var.)
- Angular random walk of 0.10°/√hr
- Residual scale factor error of 600ppm (-40 to +85°C)
- Excellent vibration rejection of 0.5°/h/g²
- Start-up time < 1s and low latency ≤ 1ms
- Non classified under dual-use export control

GENERAL DESCRIPTION

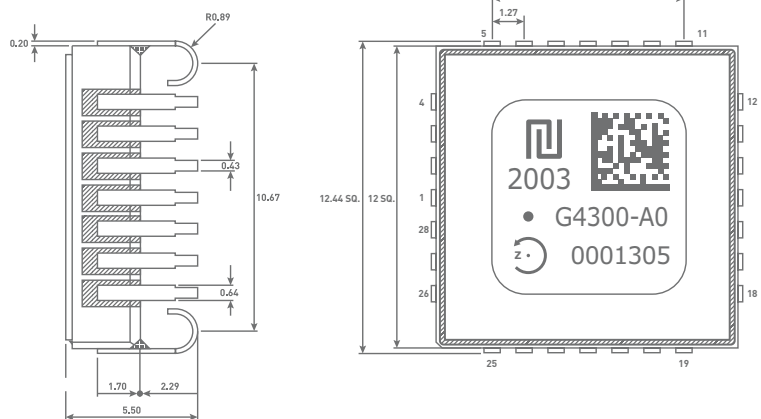
The GYPRO®4300 high performance closed-loop MEMS gyro offers a digital and SMD alternative to incumbent fiber optical gyros, dynamically tuned gyros and quartz gyros at a fraction of their size, weight and cost. Its 24 bit SPI interface eases its integration and reduces the e-BOM.

With its high bias stability and excellent scale factor performances over temperature and under demanding vibrations conditions, the GYPRO®4300 overpasses all commercially available MEMS gyro components and is free from dual-use export control, according to Annex 1 of Council Regulation (EC) No 428/2009. GYPRO® angular rate sensors are ideally complemented by AXO® high performance digital accelerometers and are REACH and RoHS compliant.

GYPRO®4300 is a low noise sensor which provides an excellent repeatability over temperature and a low latency. Our gyro is well suited to precision attitude, guidance and motion control and GNSS-aided positioning applications in demanding industrial, land, railway and naval environments.

TARGETED APPLICATIONS

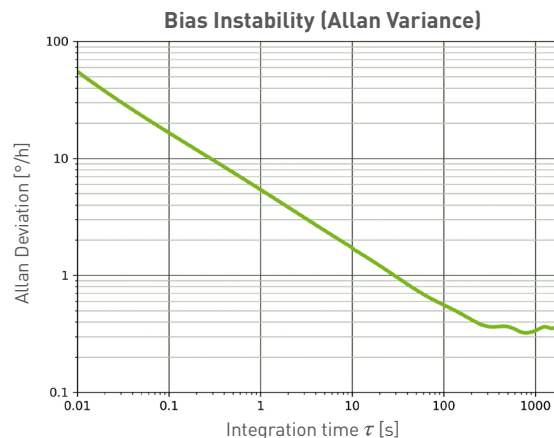
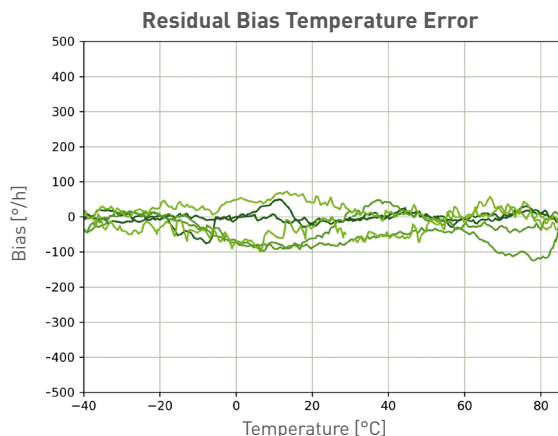
- IMU [Inertial Measurement Unit]
- INS [Inertial Navigation System] for GNSS-aided positioning and short-term navigation
- AHRS [Attitude and Heading Reference Systems]
- Precise motion & attitude control systems
- Aiming, pointing and stabilization systems
- Rate Of Turn Indicator
- Test instrumentation
- North-finding



12 x 12 x 5.5 mm³, 1.4 g,
J-Lead ceramic package



TYPICAL PERFORMANCES



KEY SPECIFICATIONS

Parameter	Typical values	Unit	Note
Input range	± 300	$^{\circ}/s$	
Operating temperature range	-40 to +85	$^{\circ}C$	
Scale factor non linearity	100	ppm	
Residual scale factor temperature error (1 sigma)	300	ppm	Compensated
Scale factor run to run repeatability	25	ppm	
Bias instability (Allan Variance)	0.3	$^{\circ}/h$	
Angular Random Walk	0.10	$^{\circ}/\sqrt{hr}$	
Bias in-run (short term) stability	10	$^{\circ}/h$	1 hour at room temp
Bias run to run repeatability	10	$^{\circ}/h$	
Residual bias temperature error (1 sigma)	35	$^{\circ}/h$	Compensated
Axis misalignment	< 20	mrad	
Bandwidth	> 200	Hz	
Data rate	1800	Hz	
Latency	≤ 1	ms	
Start-up time	< 1	s	
G sensitivity	15	$^{\circ}/h/g$	All axis - under 1g
Vibration rectification	0.5	$^{\circ}/h/g^2$	7.3g rms (20-2000Hz)
Survival shock	2000 0.3	g ms	
Power supply	5	V	
Current consumption	25	mA	
Size (L x l x h)	12 x 12 x 5.5	mm	

Sensors are factory calibrated and compensated for temperature effects to provide a high-accuracy digital output over the temperature range. Raw data output can also be chosen to enable compensations at the IMU or at the system level. Different programming (e.g. BW, data rate, latency...) and calibration can be made on demand.

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