PENLINK

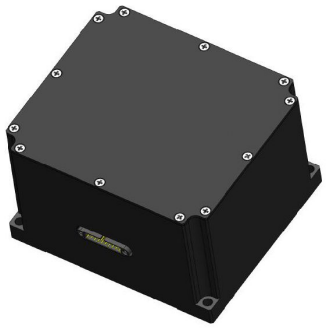
3 Axes Digital Output Gyroscope

DATASHEET

GENERAL DESCRIPTION

The B2300D is a 3 axes tactical grade digital output gyroscope. The gyroscope is available in a rugged hermetically sealed housing designed to withstand the harshest environmental conditions.

The B2300D digital output gyro is suitable for a range of applications. The tactical performance, very low noise and high MTBF, combined with the small size make this 3 axes gyroscope the ideal choice for platform stabilisation.



FEATURES

- In run Bias stability (room temperature) <0.3 °/hr
- Very low output noise (≤ 0.015 °/s RMS @ 100 Hz)
- Very High MTBF (500,000 hrs)
- Large bandwidth (≥300 Hz)
- Robust (800 g shock)
- RS 422 interface

APPLICATIONS

The B2300D is particularly suited to the following applications:

- **Platform Stabilisation** of optical systems and payloads, or other sensitive systems on Airborne, Land-based or Marine platforms
- Stabilization of Pointing and Directional systems
- Active Heave Compensation crane and winches
- Industrial control systems
- Short term navigation
- Satellite and Space system attitude control

PRINCIPLES OF OPERATION

Solid-state Coriolis Vibrating Gyros are based on the control of standing waves in a physical body, called a resonator (shown below, right) which is housed within a protective case (shown below, left). The protective case which contains the resonator is called a Sensitive Element (SE), and there is one such SE per axis in all our gyroscopes.

The oscillations in the resonator are generated and detected by piezoelectric actuators, which are attached to the base of the resonator. A closed-loop electronic system is used to control the standing wave oscillation in the resonator, and to null the effects of Coriolis forces induced by the rotation of the resonator, providing as output a signal which is proportional to the gyroscope angular rate.

This electromechanical system is key to the very low output noise, and facilitates the large dynamic range required in several demanding applications.

RELATED PRODUCTS

Penlink also offers a selection of accessories such as cables for use with the B2300D gyroscopes, which will help with bench and field-testing of this gyroscope.

Penlink inertia sensor also include both Tactical and Navigation grade accelerometers

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Parameter	Unit	Value
		GI-CVG-B2300D
Number of axis		3
Output format		Digital
Output interface		Asynchronous RS-422
Output signal rate	kHz	2 (1, 4 & 8 also available)
Temperature compensation (Bias, SF)		Yes
Measurement range	deg/sec	±200 (tunable between 20 and 300)
Bandwidth (-3dB)	Hz	≥ 300
In run Bias stability (room temp.)	deg/hr	≤ 0.3
Bias stability, full temperature range, 1σ	deg/hr	≤ 10
Bias repeatability, turn-on to turn-on, 1σ	deg/hr	1 typical
Angular Random Walk (steady conditions)	deg/√hr	0.015 typical
Quiescent noise (1 – 100 Hz), RMS	deg/sec	≤ 0.02
Scale factor error, full temperature range, 1σ	ppm	≤ 3500
Scale factor linearity	ppm	≤ 1500
Start up time	sec	1 sec typical
Misalignment	mrad	< 8
Input signal (MIL STD 461 and 1275)	VDC	+5 VDC to +40 VDC
Power consumption	Watt	< 6 @15V
Operational temperature	degC	-40 to +85
Storage temperature	degC	-55 to +90
Vibration, operational		3.63 g rms (DEF STAN 00-35) and 12 g rms, 5Hz-2kHz
Shock	g, ms	800g, 0.6ms half sine
MTBF, (MIL-HDBK 217F)	hours	500,000
Electromagnetic Environmental Effects		MIL-STD-461F
Lifetime	years	> 17
Weight	kg	1.25
Dimensions	mm	H72 x L115 x W100
Built-in-test		Yes

SPECIFICATION

Information in table.

DISCLAIMER

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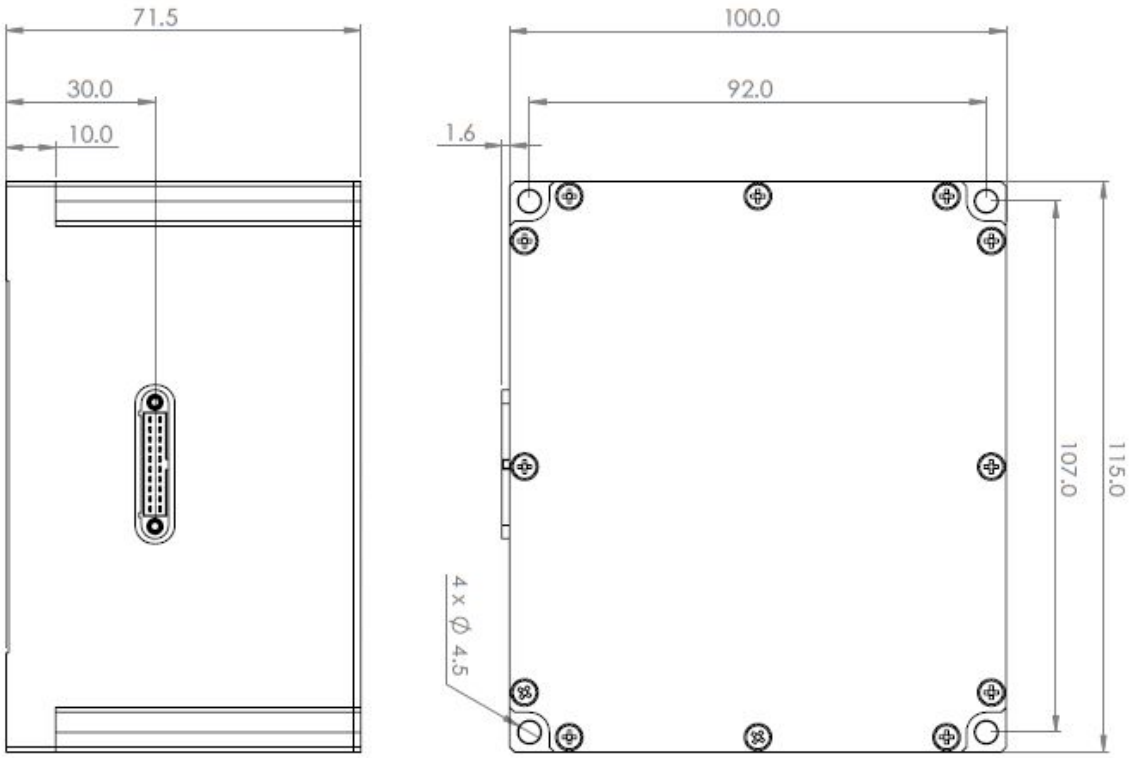

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Let's talk business!

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- Engineering & Product design
- Inspection & Quality management
- Simulation & Design verification
- Assembly & Testing
- Advanced Manufacturing
- Value-Added Products & Services