CruizCore® XG1010

Features

- Ultra Low Bias Drift
- High Resolution and Accuracy
- Outstanding Scale Factor Linearity
- Fast Start-up
- Fully Self Contained
- Digital Output (USB)
- Low Power Consumption
- Low Cost
- Roughed and Compact Package
- User Friendly Monitoring and Testing Program
- Adjustable Parameters

Applications

Robotics, Vehicles, **Virtual Reality, Medical Devices**

Description

The CruizCore® XG1010 is a fully self-contained MEMS digital gyroscope based on the CruizCore® R1 Series platform. Compared with the R1 Series, the XG1010 was designed with convenient packaging and communication interfaces to allow its use as a standalone sensor. It provides USB, the output and baud rate are adjustable for the customers' convenience. The XG1010 includes a MEMS gyroscope, internal voltage regulation, data acquisition and signal processing circuitry, communication interfaces and a RISC microprocessor running our patented error correcting algorithm. Because it uses MEMS sensors, it has the advantage of being light weight, small size and consuming low power. The XG1010 is packaged in a hard case for increasing protection against external impact. The XG1010 uses an adaptive reduced order Kalman filter to stabilize angular rates and heading angles, virtually eliminating the most common errors (i.e. bias drift, scale factor, temperature effects). The XG1010 has a 50Hz bandwidth and can precisely measure angular rates up to ± 100 °/sec, it can also measure rates up to ± 150 °/sec with lesser accuracy. The start-up time is less than 1 second, which is used to compute bias parameters; it does not require further calibration thereafter. The XG1010 is the best single axis rate measuring solution for navigation applications.

Specification

Performance	Input Dynamic Range	± 100 °/sec (Continuous)
		± 150 °/sec (Instantaneous)
	Rate Noise (1σ @ 50Hz bandwidth)	< 0.1 °/sec
	Scale Factor Nonlinearity	0.5 % (Typical)
	Bandwidth	50 Hz
	Output Rate	Selectable(10, 25, 50 and 100Hz)
	Bias Drift	10 °/hr
Physical	Weight	< 15 grams
	Size	35.9mm X 35.9mm X 17mm
Electrical	Power Consumption	< 50mW (@5V)
	Input Power Voltage	4.75 ~ 5.25 V
Environmental	Operating Temperature	-20 ~ 80 °C
	Storage Temperature	-40 ~ 100 °C
	Shock	200 gRMS

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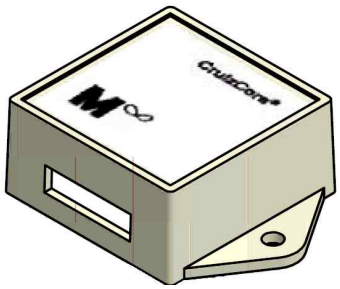


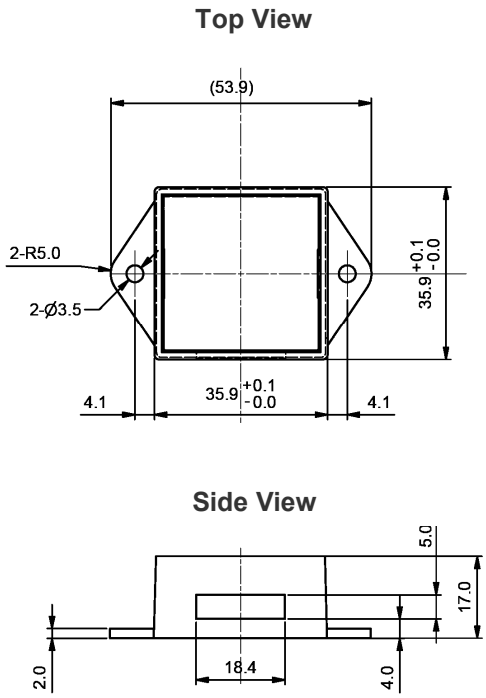
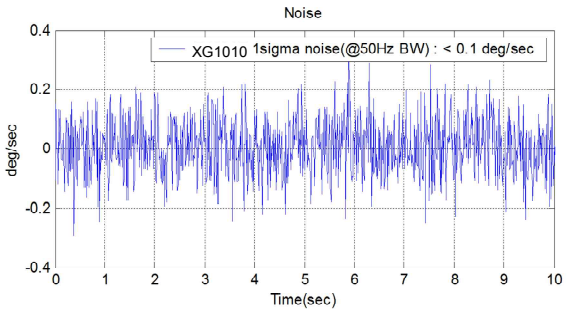
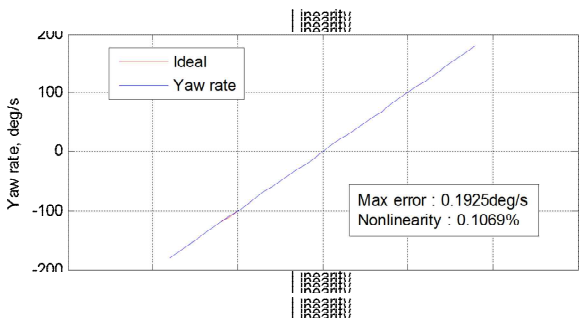


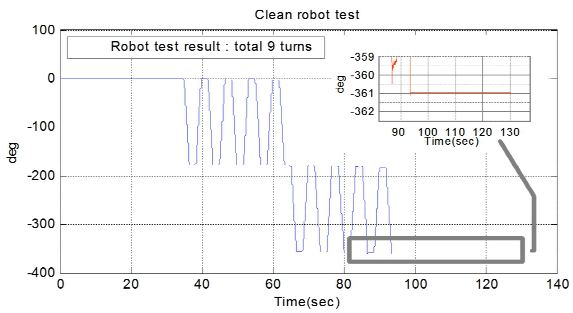
Figure 1. Dimension



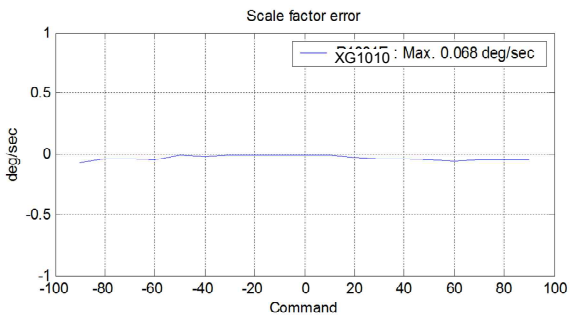
(a) Short Term Noise
N1σ < 0.1 deg/sec



(c) Rate Output vs Real Rate



(b) Angle Output (Robot Test)



(d) Rate Error

Figure 2. Performance Test

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