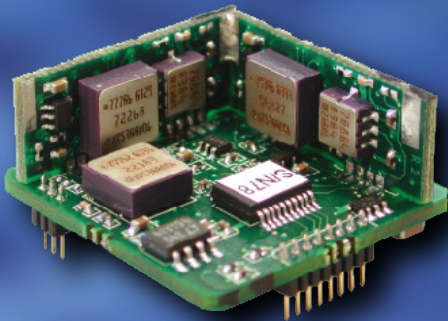


Crista IMU

The Crista Inertial Measurement Unit (IMU) is a small, three axis inertial sensor that provides high resolution angular rate and acceleration data via a serial interface. The standard serial interface provides temperature compensated rate and acceleration readings. The user controls data update rate and over-sample averaging of output data. A GPS Pulse-Per-Second (PPS) input signal interface allows time correlation of IMU and GPS data. The OEM Sensor Head is also available as a stand alone unit.



Crista OEM Sensor Head



Crista IMU

Key Features

- Small form factors to fit easily into customer applications
- Inexpensive. Uses available automotive grade MEMS sensors
- Used in other CCT products. Tried and tested solution
- Provides raw rate and acceleration data to support customer algorithms
- Calibration of gain, temperature bias, acceleration affects, and alignment
- Software driver support and integration documentation provided as with other CCT products

Specifications

	Crista IMU	Crista OEM Sensor Head	
Electrical	Supply Voltage	4.4 - 8 Volts	4.4 - 8 Volts
	Power	0.5 W (typical) 0.75 W (max)	0.2 W (typical)
Mechanical	Size	2.05 inches x 1.55 inches x 1.00 inches	1.10 inches x 1.15 inches x 0.59 inches
	Weight	36.8 grams (1.3 oz)	7.0 grams (0.25 oz)
Gyros	Range	$\pm 300^\circ / \text{sec}$	
	¹ Scale Factor Error	$< 3^\circ / \text{sec}$ (@ 25 °C)	
	In-Run Bias Error		
	Fixed temperature	$< 0.2^\circ / \text{sec}$ (warmed up)	
	Over temperature	$< 0.6^\circ / \text{sec}$	
	Linear Acceleration Effects	$0.2^\circ / \text{sec} / \text{G}$ typical ; $1.5^\circ / \text{sec} / \text{G}$ max uncorrected	
	Noise (1 σ , no over-samples)	$< \pm 0.7^\circ / \text{sec}$	
	² Cross Axis Rate Error	2.6 % uncorrected	
	A/D Measurement Resolution	$0.0155^\circ / \text{sec}$	
	Converted data rate resolution	$0.009^\circ / \text{sec}$ (max rate = $300^\circ / \text{sec}$)	
Bandwidth	2 nd order LPF Fc=100 Hz.		
Accelerometers	Range	$\pm 10 \text{ G}$	
	Scale Factor Error	$< 100 \text{ mG}$ (0.98 m/s^2) (@ 25 °C)	
	In-Run Bias Error		
	Fixed temperature	$< 25 \text{ mG}$ (0.245 m/s^2)	
	Over temperature	$< 51 \text{ mG}$ (0.500 m/s^2)	
	Turn-on to Turn-on Bias	$< 30 \text{ mG}$ (0.295 m/s^2)	
	Noise (1 σ , no over-samples)	$< \pm 12 \text{ mG}$ (0.120 m/s^2)	
	² Cross Axis Rate Error	2.6 % uncorrected (Includes alignment and off axis acceleration)	
	A/D Measurement Resolution	0.62 mG	
	Converted data rate resolution	0.30 mG (max rate = 10 G)	
Bandwidth	Passive LPF, Fc = 50 Hz		
Environmental	Operating Temperature	-40C to +70C (Calibrated Temperature Range)	
	Max Acceleration	500 G	

¹ Based on room ambient temperature. Nonlinearity from best fit straight line. Typically much better at lower rates / accelerations.

² Includes alignment and off axis acceleration.