

MEMS Attitude & Heading Reference System



Features

- ◆ Tactical grade MEMS sensor employed (bias stability for gyro better than 1 deg./h; for accelerometer better than 0.1mg)
- ◆ Highly accurate, real-time attitude computation of carrier body, continuously and dynamically
- ◆ Mature algorithm based on EKF & Quaternion theory, running on a 32-bit high speed processor, guarantees accuracy of the real-time computation
- ◆ Various errors sources compensated, including non-orthogonality; hard & soft iron and temperature dependent sensor offset and sensitivity

Applications

- ◆ Aerospace, Aeronautics & Oceanology
- ◆ Control, Automation and Robots
- ◆ Platform Stabilization
- ◆ IOT (Internet of Things) Nodes Deployment (Asset Tracking / Structural Healthy Monitoring / etc.)

Key Specifications

OUTPUT DATA

Accuracy, Static	
-pitch	± 0.2°
-roll	± 0.2°
-yaw	± 1.0°
Accuracy, Dynamic	1.0° RMS
Angular Resolution	
-pitch	0.01°
-roll	0.01°
-yaw	0.05°
Angular Range	
-pitch	± 90°
-roll	± 180°
-yaw	± 180°
Altitude	
-accuracy	10 m
-resolution	0.2 m
-range	-500 → 9000 m
Temperature	
-accuracy	± 1 ° C
-resolution	± 0.1 ° C
-range	-40 → 135° C
Output Data Rate (ODR)	100 Hz

INTERFACE & ENVIRONMENT

Power Supply	
-voltage	5 - 12V
-current	200 mA
Temperature	
-storing	-40 → 135° C
-operation	-20 → 85° C
Data Interface	
-standard	RS232
-optional	RS485 / RS422

MECHANICAL

Characteristic Dimension	
-length	30 mm
-width	30 mm
-height	30 mm
Weight	70 gram
Mechanical Characteristics	
-hermetic level	IP66
-no. of installation holes	4
-reference surface	bottom surface

General Introduction

DynaCube™ DC50S is a “high-end tactical grade” inertia system. It has an extremely small form factor and weight and features a built-in anti-vibration mechanism which help eliminate much low frequency noise due to user environment. The system is able to output attitude of its carrier body continuously and dynamically. Plus it sends out auxiliary signals including acceleration, angular rate, geomagnetic field, temperature and barometric information.

DynaCube™ DC50S employs the most accurate MEMS inertial sensors commercially available. Particularly for the gyroscope and accelerometer, the performance level has reached the highest limit within the MEMS sensor domain, and it can be classified as “tactical grade”, a term which traditionally only applies to high end, very costly inertial sensors based on optical technology.

DynaCube™ Mini-AHRS enjoys a wide spectrum of applications, particularly most suitable for UAVs.

Contact Information

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