OneDot™

Mini MEMS IMU Attitude Module

OneDot MEMS IMU attitude module is powered by a MEMS six-degree-of-freedom inertial sensor and delivers ultra-stable, high-precision IMU data thanks to its state-of-the-art signal processing and filtering algorithms. Featuring advanced quaternion Kalman attitude filtering and intelligent multi-dimensional motion recognition, it accurately tracks 3D angle changes in real time. All of this comes in an ultra-compact 9.7 mm × 10.1 mm package, making it ideal for space-constrained applications.

Technical Features

- 3D Attitude Output
- Three-Axis Arbitrary Orientation Installation
- Quaternion Filtering
- FFT Frequency-Domain Analysis
- Detection of Rapid Acceleration, Deceleration, and Sharp Turns
- Detection of Collision, Rollover, and Drop Events
- Automatic Parking Assistance

Application Areas

- 3D Attitude Measurement
- Angle/Stabilization Platforms
- Virtual/Augmented Device Attitude
- Attitude and Motion Behavior Analysis

Performance Specifications

Hardware Specifications

Gyroscope	Maximum Range	±2000deg/s
	Angular Random Walk	0.2deg/$\sqrt{hr}$
	Bias Stability	3 deg/hr
	Bias Temperature Drift	±0.005 deg/s/°C
	Bias Repeatability (at 25 °C)	±3 deg/s
	Nonlinearity	±0.1%
Accelerometer	Maximum Range	±16g
	Velocity Random Walk	0.3mg /$\sqrt{hz}$
	Bias Stability	2.5mg
	Bias Temperature Drift	±0.1mg/°C
	Bias Repeatability (at 25 °C)	50mg
	Nonlinearity	±0.1%

Software Specifications

Attitude Accuracy (1σ)	Pitch	0.5°
	Roll	0.5°
	Yaw	1.5°
Data Output Rate	1 Hz (default), configurable up to 100 Hz	
Online Sensor Calibration	< 10 s	
Frequency Detection	Resolution 0.01 Hz, effective range 0.1 Hz – 100 Hz (high-frequency options customizable)	