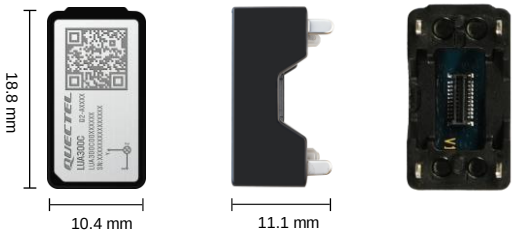
Quectel LUA300C (00)

Automotive Grade
6-axis IMU Module



LUA300C (00) is an automotive grade, compact, high-performance IMU module based on ST's ASM330LHB chip. The module seamlessly integrates a 3-axis gyroscope and 3-axis accelerometer. Rigorously factory calibrated, the gyroscope and accelerometer parameters, such as bias error over temperature, scale factor error and misalignment error, undergo precision trimming during production. This meticulous calibration ensures consistent module performance, delivering continuous, stable and accurate sensor measurements across a wide temperature range.

Compared to the complexity of discrete designs, LUA300C (00) provides a simple and cost-effective solution for integrating high-performance IMU in industrial and automotive systems. All the module already be calibrated in factory, thus greatly reducing the difficulty of user integration.

The module is compact in size and easy to integrate, which can greatly shorten the product development cycle for customer. Designed and manufactured according to the Quality Management System based on IATF 16949:2016 Standard. Its high stability, high precision, and small size make it ideal for ADAS, high-precision navigation, and robotics.

Key Features

- Factory calibrated 3-axis gyroscope and 3-axis accelerometer
- Compact size: 18.8 mm × 10.4 mm × 11.1 mm
- Wide temperature range: -40 ℃ to +105 ℃
- Designed and manufactured according to the Quality Management System based on IATF 16949:2016 standard

Factory Calibrated
High-performance
Automotive
3-axis Accelerometer
3-axis Gyroscope
Operating Temperature Range: -40 °C to +105 °C
RoHS Compliant

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IMU Module	LUA300C (00)
Dimensions	18.8 mm × 10.4 mm × 11.1 mm
Weight	Approx. 2.4 g
Vibration Resistance	2.76g①
Temperature Range	
Operating Temperature	-40 °C to +105 °C
Storage Temperature	-40 °C to +105 °C
Gyroscope Specifications	
Range	±250 °/s
Bias Instability (Allan)	2.5 °/h
Angular Random Walk	0.2 °/$\sqrt{h}$
Bias Error over Temperature (10 s Smoothing, 1σ)	0.03 °/s
Scale Factor Error (@ 25 ℃)	0.3 %
Non-Linearity (@ 25 ℃)	0.005 % FS
Misalignment Error	0.003°
Bandwidth	49 Hz
Accelerometer Specifications	
Range	±8g①
Bias Instability (Allan)	30μg①
Velocity Random Walk	0.025 m/s/$\sqrt{h}$
Bias Error over Temperature (10 s Smoothing, 1σ)	0.8mg①
Scale Factor Error (@ 25 ℃)	0.02 %
Non-Linearity (@ 25 ℃, ±1g①)	0.006 %
Misalignment Error	0.01°
Bandwidth	41.65 Hz
Interfaces	
SPI②	Max. clock frequency: 10 MHz
Electrical Features	
Supply Voltage Range (VCC)	3.0–3.6 V, typ. 3.3 V
I/O Voltage	Following VCC
Power Consumption (@ 3.3 V)	2.6 mA
Certification	
Others	RoHS
Quality & Reliability	
Quality & Reliability	Designed and manufactured according to IATF 16949:2016 standard

NOTE:
1. ①: "g" stands for gravitational acceleration.
2. ②: The module contains 3 SPI slave devices, so the host should be able to support 3 SPI slave devices.

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