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IMU188 Miniature 6DoF MEMS (https://www.skymems.com/products imu188-miniature-6dof-mems-imu/)



## IMU188 Miniature 6DoF MEMS IMU

- Precision 6 Dof IMU with High G capable to 10000g
- Dynamic Range: Gyro  $\pm 450^\circ/\text{s}$ , Acc  $\pm 16\text{g}$
- Bias Instability: Gyro  $1.2^\circ/\text{h}$ , Acc  $50\mu\text{g}$
- Full Temperature Range Accuracy Assured
- High Bandwidth, RS422, up to 2000Hz Data Output
- Compact and Light weight,  $24.95 \times 22.39 \times 8.1\text{mm}$ , 22 grams(with wire)

- Working Temperature: -40~+85°C



Contact



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## Product Categories



## Brief Introduction

IMU188 Inertial Measurement Unit is a high-performance, small-size, and high vibration and shock resistant (up to 10000g) inertial measurement unit (IMU), it combines 3-axis accelerometer and 3-axis MEMS gyros, and its gyro-bias instability can be better than 1.2°/h. suited for navigation, control, and dynamic measurement solutions for defense and commercial applications.

IMU188 Inertial Measurement Unit adopts special structure which enjoys excellent anti-vibration and shock-proof ability, so it is very suitable for harsh vibration environments, and it has been successfully widely used in gimbal stabilization, target drones, rain-seeding rockets, etc.

# Technical Specifications

Parameter	Test Condition	Min.	Typical	Max.	Unit
<b>Gyroscopes</b>					
Range <sup>①</sup>			±450		°/s
Bias Instability	Allan variance		1.2		°/h
Bias Stability	10s average(-40~+85°C, fixed temp.)		5		°/h
Bias Repeatability			3		°/h
Full Temperature Bias (peak)			0.03		°/s
Random Walk			0.2		°/vh
Non-linearity			100		ppm
Axial Coupling Coefficient				1%	%
Linear Acceleration Effect on Bias			0.002		°/s/g

Bandwidth			200		Hz
<b>Accelerometers</b>					
Range <sup>①</sup>			±16		g
Bias Instability	Allan variance	25	50	75	ug
Initial Bias Error		3	4	5	mg
Resolution			0.01		mg
Scale Factor Accuracy			0.1		%
Non-linearity			0.01		%FS
Random Walk		0.01	0.015	0.02	m/s/ √h
Bandwidth			150		Hz
<b>Interface<sup>②</sup> (RS422)</b>					
Baud Rate		115200	460800	921600	bps
Output Rate		200	1000	2000	Hz
<b>Reliability</b>					
MTBF	20000h				
Continuous Working Time	120h				
<b>Electrical Features</b>					
Supply Voltage	5 V				
Power Consumption	< 0.2 W				
<b>Environment Conditions</b>					

Operating Temperature	-50°C ~ 85°C
Storage Temperature	-55°C ~ 105°C
Vibration Resistance	20-2000Hz, 6.06g
Shock Resistance	half sine, 10000g, 0.5ms

#### **Physical Parameter**

Size	24.95 × 22.39 × 8.1 mm
Weight	22 grams (with wire)
Connector	pigtail

Note:

$g = 9.80665 \text{ m/s}^2$

- ①: The range of Gyroscopes and Accelerometers can be configured in our factory.
- ②: The baud rate and output rate can be configured in our factory.

## **Typical Application**

- Gimbal Stabilization
- Target Drone
- Armoured Personnel Carrier
- Rain-Seeding rocket

## **Product Advantages**

### **Why Selecting IMU188 Inertial Measurement Unit?**

IMU188 Inertial Measurement Unit is designed and produced by SkyMEMS, it enjoys high performance and accuracy, small-size, and high reliability with competitive price. It is a tactical inertial measurement unit sensor, which has the main following advantages:

## **1. High Accuracy, High Performance , small size and Powerful Functions**

IMU188 Inertial Measurement Unit is a precision 6 DoF MEMS inertial measurement unit, which enjoys excellent technical advantages:

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- Full Temperature Range Accuracy Assured
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IMU188 Inertial Measurement Unit adopts big brand components, high-class glue encapsulation, advanced production craft, and fully calibrated, which assured that our products have real actual precise and perfect performance.

## **2. Aerospace Level Reliability, 12-step Strictest Quality Control**

We have advanced product test team and measurement equipment, and we cherish the quality as the life of the company, all our products must pass the strictest quality control procedures, our unique 12-step quality control assures our products enjoy top level quality.

### **3. Competitive Price, ODM supported**

With strict cost control and massive production, we can provide the most competitive cost-effective prices, and we have abundant ODM service experience for customers around the world, that is why we can build up long term win-win cooperation with our customers.

### **4. Successful Applications in many Fields, 200+ Customers are Using**

We are continuously focusing on MEMS measurement & control technologies. IMU188 has been widely used in Seeker, Platform Stabilization, etc. and now more than 200 customers are using our IMU around the world.

## **5. World-class Production Line, Fast Delivery**

We have the world class production line to assure that the production procedures are scientific, precise, and normative, which also can assure our products to be fast delivered.

## **6. Service with Heart, Professional Technical Support**

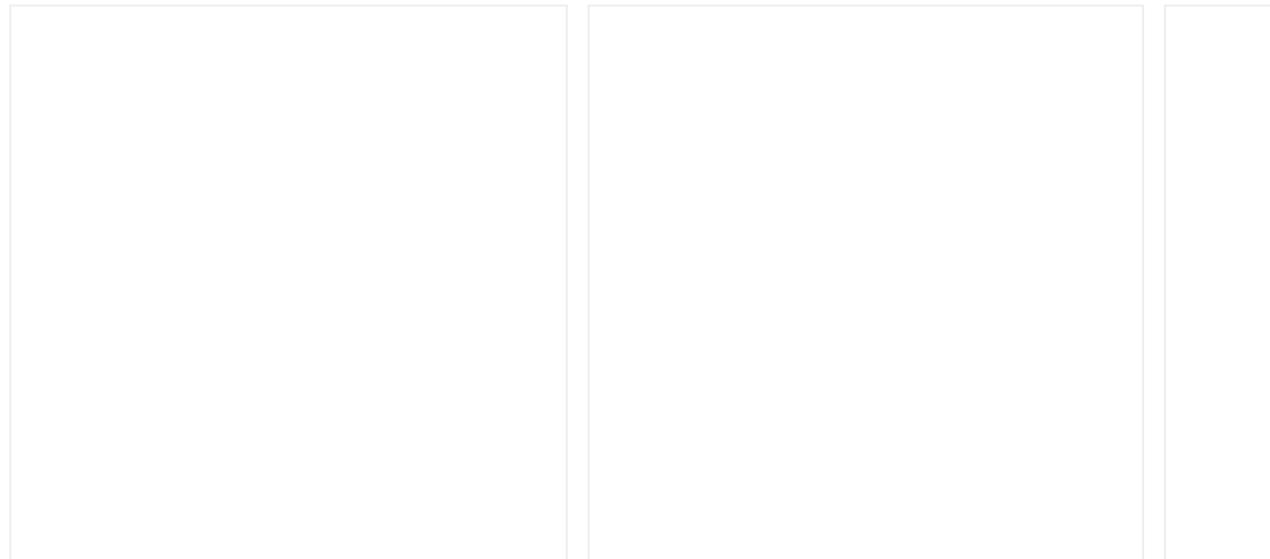
We have the professional technical support engineer team, which can provide 24-hour technical support and excellent after-sale service.

Serving customers with heart is the principle of SkyMEMS, Customer demand is the fundamental driving force of our development.

We treat our customers with heart, customers' satisfaction is the direction and target of SkyMEMS. Through continuously technology innovation and service upgrading, we will realize win-win cooperation with customers.

## FAQ

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- Inertial Measurement Unit(/product-category/imu/)
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- Fiber Optic Gyro(/product-category/fiber-optic-gyro/)
- MEMS Accelerometer(/product-category/mems-accelerometer/)
- Tilt Sensor(/product-category/inclinometer/)
- Integrated Navigation System(/product-category/gnss-ins/)

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**What is the difference between a fiber optic gyro and a ring laser gyro? (<https://www.skymems.com/what-is-the-difference-between-a-fiber-optic-gyro-and-a-ring-laser-gyro/>)**

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