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[IMU3000 Analog Output Inertial Measurement Unit](#)

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IMU3000 Analog Output Inertial Measurement Unit

High Precision analog output inertial measurement unit, 3000g high overload resistance, widely applied in precision weapon, etc.

- High Precision Military 6 DoF Mini IMU
- 3 Angular Rates and 3 Linear Acceleration as well as Rotation Rate Outputs
- Data Output Rate: 100Hz
- Range: Gyro (X axis) $\pm 20000^\circ/\text{s}$, Accel $\pm 100\text{g}$

- High Overload Resistance: 3000g
- Compact and Light weight D40*25mm, <90grams



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Product Categories



Brief Introduction

IMU3000 high performance inertial measurement unit is a rugged compact military inertial navigation system, it adopts MEMS-based inertial sensors and temperature compensation and non-orthogonal error compensation algorithm, which provides precise 3 angular rates and 3 linear acceleration outputs as well as rotation rate at 100Hz in dynamic environment.

IMU3000 Inertial Measurement Unit enjoys small size and light weight, and it is housed in an ultra-durable and compact rugged housing, it enjoys high reliability in harsh environment, it has been widely applied in unmanned control, underwater systems, control & stabilization etc.

Technical Specifications

Parameter ValueRemarksAccelerometersElectrical FeaturesPhysical Parameter

Gyroscopes		
X Axis Range	±20000°/s	
X Axis Accuracy	7°/s	
Y/Z Axis Range	±300°/s	
Y/Z Axis Accuracy	0.05°/s	
Bias Stability	≤0.05°/s	1σ
Data Output Rate	1KHz	
Range: X,Y,Z	±100g	
Accuracy	±0.5g	
Bias Stability	≤0.05g	1σ

Bandwidth	100Hz	
Data Output Rate	1KHz	
Axial Verticality	better than 0.5°	
Rotation Rate		
Range	≥30r/s	
Accuracy	0.5 r/s	
Data Output Rate	100Hz	
Environment Conditions		
Overload Resistance	3000g axial overload	
Working Temperature	-40℃～55℃	
Storage Temperature	-45℃～65℃	
Relative Humidity	≤95% (+25℃)	
MTBF	6000hours	
IP Rating	IP67	
Input Power Supply	+5V±0.5VDC	
Interface	RS232	LVTTL (3.3V)
Output Baud Rate	230400bps	
Size	D40*25mm	
Weight	90grams	
Connector	J30J-9ZK	

Typical Application

Product Advantages

Why Selecting IMU3000 Inertial Measurement Unit ?

IMU3000 Inertial Measurement Unit is designed and produced by SkyMEMS, it enjoys high performance and accuracy, and high reliability with competitive price. It is a popular inertial measurement unit sensor in the market, which has the main following advantages:

1. High Accuracy, High Performance and Powerful Functions

IMU3000 Inertial Measurement Unit is a precision 6 DoF MEMS inertial measurement unit, which enjoys excellent technical advantages:

- High Precision Military 6 DoF Mini IMU
- 3 Angular Rates and 3 Linear Acceleration as well as Rotation Rate Outputs
- Data Output Rate: 100Hz
- Range: Gyro (X axis) $\pm 20000^{\circ}/s$, Accel $\pm 100g$
- High Overload Resistance: 3000g
- Compact and Light weight: D40*25mm, <90grams

IMU3000 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, and have developed the most advanced inertial measurement unit IMU3000 for high shock application. and IMU3000 has been widely used in unmanned control, underwater systems, control & 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.

IMU3000 Analog Output Inertial Measurement Unit is a high-performance and cost-effective product that offers precise measurements of angular and linear acceleration, angular rate, and magnetic field. As a leading analog output inertial measurement unit manufacturer and supplier from China, this product

provides a comprehensive solution for various applications, including aerial and land vehicles, autonomous robots, and aerospace.

The IMU3000 features an advanced micro-electromechanical systems (MEMS) technology that guarantees accurate and reliable data. It has three-axis accelerometer, gyroscope, and magnetometer sensors that work together to deliver precise measurements of motion and orientation. The unit's analog output interface enables easy integration with a variety of systems, making it suitable for various applications.

One of the key advantages of IMU3000 is its high dynamic performance. The product has a low noise level and can provide real-time data with a high update rate. This makes it ideal for applications that require precise motion tracking and navigation, such as unmanned aerial vehicles (UAVs) and self-driving cars. Additionally, the product has a compact design and lightweight, making it easy to install in tight spaces and reducing the overall weight of the system.

IMU3000 also offers a flexible and customizable solution. The product can be tailored to meet specific requirements, such as environmental specifications and interface types. The unit has an operating temperature range of -40°C to 85°C, making it suitable for use in harsh environments. The product also has a low power consumption and supports long-term continuous operation, making it ideal for battery-powered systems.

In conclusion, IMU3000 Analog Output Inertial Measurement Unit is a versatile, reliable, and cost-effective solution for precise motion tracking and navigation. As a leading China factory and supplier of analog output inertial measurement units, we have the expertise and resources to provide a comprehensive solution to meet your specific requirements. Whether you need a custom product or a standard solution, we are committed to delivering high-quality products and services to meet your needs.

FAQ

Q: What does inertial measurement unit measure?

A: Inertial Measurement Units (IMUs) is a self-contained system that measures linear and angular motion usually with a triad of gyroscopes and triad of accelerometers. An IMU can either be gimbaled or strapdown, outputting the integrating quantities of angular velocity and acceleration in the sensor/body frame.

Q: What is the Working Principle of IMU sensor??

A: IMUs operate by use of reference data, bias values from an initial starting point, and calculate changes to these values using its integrated sensors. A central processing unit calculates directional information; position, speed, orientation, and direction of movement, at a given time in space using the IMU. The sensors suffer from orientation drift as they calculate these variables using a process known as dead-reckoning and are subject to accumulative errors.

Q: What are the Degrees of freedom of IMU sensor?

A: IMUs measure six degrees of freedom. This includes the measurement of linear motion over three perpendicular axes (surge, heave, and sway), as well as rotational movement about three perpendicular axes (roll, pitch, and yaw). This yields six independent measurements that together define the movement of an object or vehicle.

Q: What is Basic principle of inertial navigation?

A: the ability to measure the acceleration of vehicle it would be possible to calculate the change in velocity and position by performing successive mathematical integrations of the acceleration with respect to time.

In order to navigate with respect to our inertial reference frame, it is necessary to keep track of the direction in which the accelerometers are pointing.

Rotational motion of the body with respect to inertial reference frame may be sensed using gyroscopic sensors that are used to always determine the orientation of the accelerometers. Given this information it is possible to resolve the accelerations into the reference frame before the integration process takes place.

Q: What is Aircraft Axes Definition?

A: The three axes of the aircraft are:

The roll axis which is roughly parallel to the line joining the nose and the tail

Positive angle: right wing down

The pitch axis which is roughly parallel to the line joining the wingtips

Positive angle: nose up

The yaw axis is vertical

Positive angle: nose to the right

Q: whether the connector and cable length can be selected?

A: yes, no problem, please let us know the connector type and cable length you want, then we can do it.

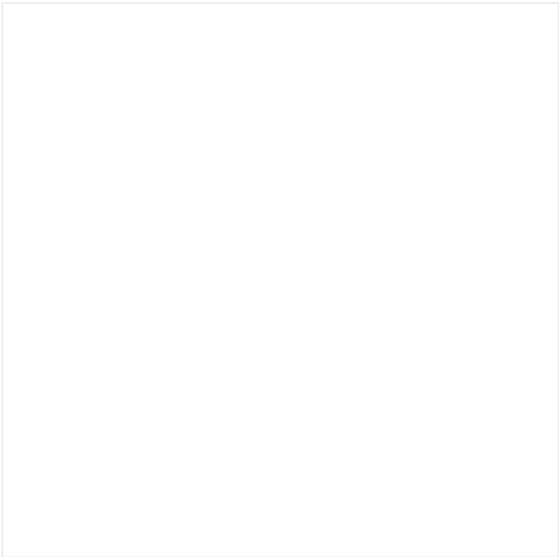
Q: How about the delivery time?

A: for our standard model, if we have them in stock, only need 2~3days to re-test before shipping, if it is out of stock, then need around 2 weeks to arrange the production and tests. For the ODM electronic product, if needing to modify the structure, it will need around 3~4 weeks to arrange the production and tests.

Q: How to arrange the payment?

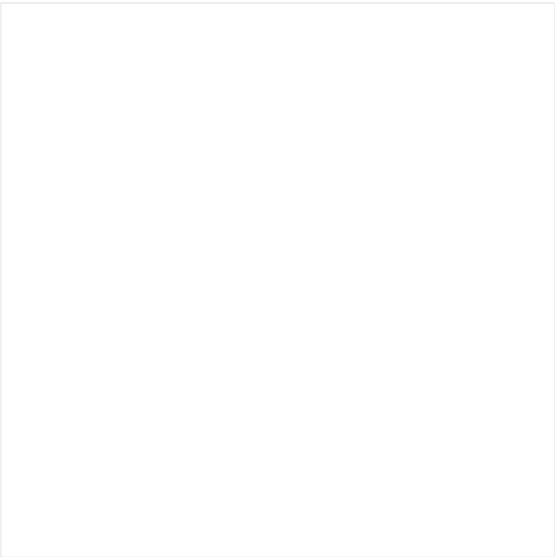
A: about the payment, please pay to our company account, the beneficiary's name: NANJING SKY MEMS TECHNOLOGY CO., LTD. And our email is only @skymems.com to contact with u formally. To notice this to avoid the loss.

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