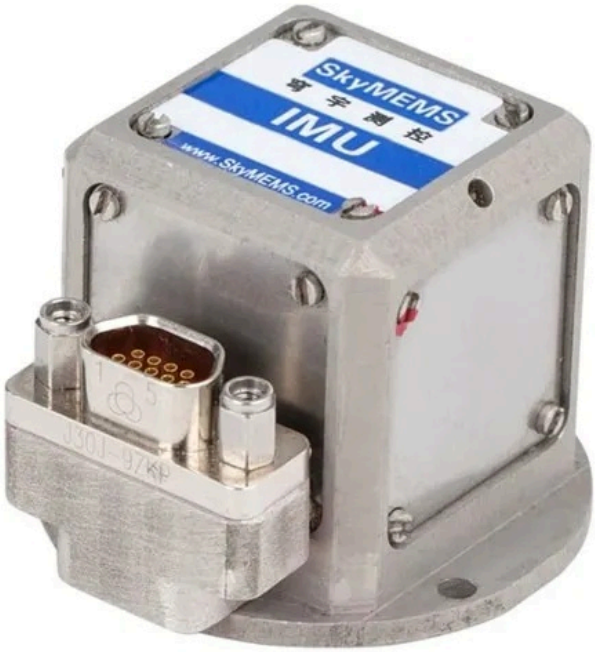

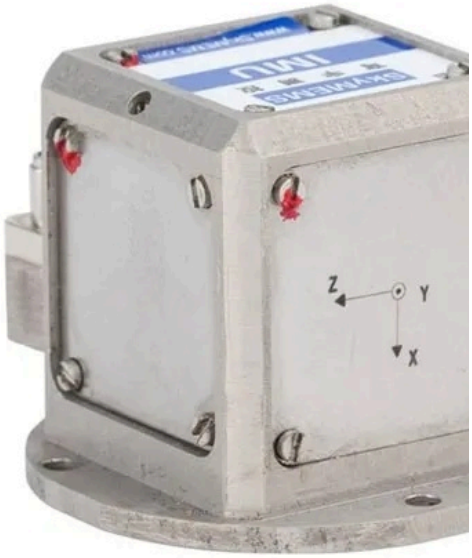

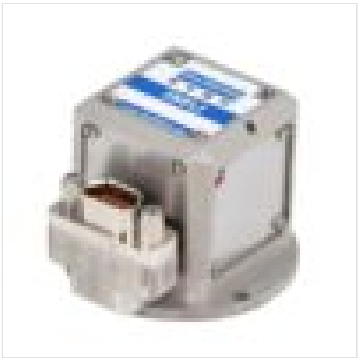

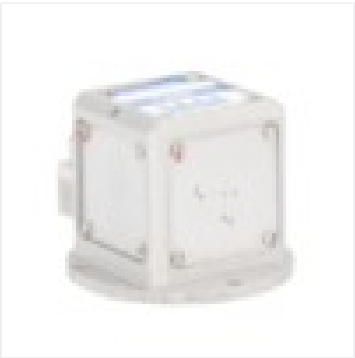

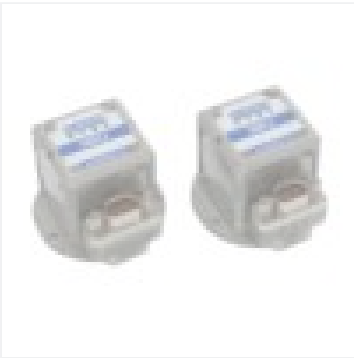

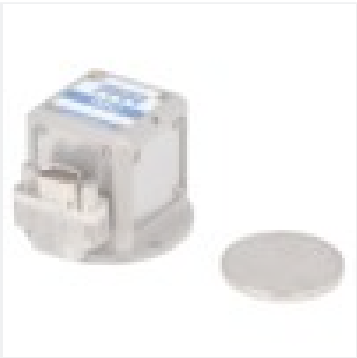

IMU1000

High Overload Resistance 10000g MEMS Inertial Measurement Unit, widely applied in precision weapon, rocket, etc.

- High Stability, High Reliability, High Accuracy, High Survivability in Harsh Environment, Fully Calibrated
- Angular Range:±150°/s, Acceleration Range：±10g (Supporting Custom Design)
- Bias Stability: Gyro 30°/h, Acc 1mg (1σ)
- Overload Resistance:10000g, IP67 Protection
- Wide Temperature: -40°C～+85°C

- Compact Size: 38*35*28mm

Contact

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Product Categories

Brief Introduction

IMU1000 Miniature High Overload Resistance MEMS Inertial Measurement Unit adopts the newest MEMS technologies, it is a new type of micro inertial measurement unit which enjoys high reliability, high stability, and adjustment in harsh environment. The system is composed of micro accelerometer, micro gyroscope and high-performance information processing circuit, it is mainly used to measure 3D linear acceleration and 3D angular acceleration, if combined with navigation processing circuit, more inertial parameters including position, speed, attitude and other parameters can be calculated.

Compared with traditional inertial measurement system, this system enjoys smaller size, lighter weight, lower cost, and lower power consumption, faster start-up, and higher reliability, better dynamic adjustment, etc. it is widely applied in unmanned control, underwater systems, etc.

Technical Specifications

NameSpecsRemarksAccelerometer

Gyroscope		
Range	±150°/s	ODM supported
Resolution	≤0.1°/s	
Bias stability	30°/h	1σ standard
Bias repeatability	20°/h	1σ standard
Range	±10g	ODM supported
Resolution	≤1mg	
Bias stability	1mg	1σ standard
Bias repeatability	1mg	1σ standard

Other Specs		
Zero time drift	≤1mV/h	
Zero output noise	≤10mV	
Stability time	≤0.2s	
Power supply	5±0.25V	
Output votage	0.1±0.1V~4.9±0.1V	
Weight	50g	
Dimension	38*35*28mm	
Working temperature	-40~+85°C	
Overload resistance	10,000g	

Typical Application

IMU1000 Inertial Measurement Unit is a high performance 6 DoF MEMS-based inertial sensors, which has been widely used in the following fields:

– Unmanned Control

– Underwater Systems

– Control & Stabilization

– Measurement & Testing

Product Advantages

Why Selecting IMU1000 Inertial Measurement Unit?

IMU1000 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**

IMU1000 Inertial Measurement Unit is a precision 6 DoF MEMS inertial measurement unit, which enjoys excellent technical advantages:

– High Stability, High Reliability, High Accuracy, High

Survivability in Harsh Environment, Fully Calibrated

– Angular Range:±150°/s, Acceleration Range：±10g

(Supporting Custom Design)

– Bias Stability: Gyro 30°/h, Acc 1mg (1σ)

– Overload Resistance:10000g, IP67 Protection

– Wide Temperature: -40°C～+85°C

– Compact Size: 38*35*28mm

IMU1000 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 IMU1000 for high shock application. and IMU1000 has been widely used in artillery rocket, 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.

FAQ

Q: What is an IMU sensor?

A: An inertial measurement unit (IMU) is an electronic device that measures and reports a body's specific force, angular rate, and sometimes the magnetic field surrounding the body, using a combination of accelerometers and gyroscopes, sometimes also magnetometers.

Q: What is Dead reckoning?

A: Dead reckoning is the calculation of current position by use of a previously determined location and the advancement of that position by a known or estimated directional speed over an elapsed time. The process was first used in marine navigation and relied upon manual measurements. IMUs calculate accurate directional information using integrated sensors and operate using these same principles.

Orientation drift is the propagation of orientation errors. Small measurement errors of acceleration and angular velocity produce larger errors in velocity that are compounded into even greater errors in position. Orientation drift, the difference between the actual position and orientation from the measured values, increases with respect to time as measurement errors are compounded. IMUs typically incorporate some amount of calibration in order to compensate for orientation drift.

Q: What are the Sensor types that IMU sensor is composed of?

A: The IMU is comprised of at least two dedicated sensors, one or more linear accelerometers and one or more gyroscopes or angular accelerometers. An optional magnetometer may be integrated into the unit to calibrate against orientation drift.

Accelerometers detect the direction and magnitude of change in velocity. Simple accelerometers measure linear motion while biaxial and triaxial accelerometers detect a change in velocity over a plane or three-dimensional space, respectively. The IMU possesses a triaxial (sometimes referred to as a triad) accelerometer, or otherwise uses multiple accelerometers that are aligned across perpendicular axes.

Gyroscopes detect the angular rate or orientation about a given directional vector. The angular rate is relative to a reference surface. The IMU uses multi-axis gyros to provide measurements in three orthogonal directions. These angular movements must be aligned with those of the accelerometer.

Q: What is the Terms Definition for Navigation?

A: Inertia is the property of bodies to maintain constant translational and rotational velocity, unless disturbed by forces or torques, respectively (Newton's first law of motion).

An inertial reference frame is a coordinate frame in which Newton's laws of motion are valid. Inertial reference frames are neither rotating nor accelerating.

Inertial sensors measure rotation rate and acceleration, both of which are vector- valued variables.

Gyroscopes are sensors for measuring rotation: rate gyroscopes measure rotation rate, and integrating gyroscopes (also called whole-angle gyroscopes) measure rotation angle.

Accelerometers are sensors for measuring acceleration. However, accelerometers

Cannot measure gravitational acceleration. That is, an accelerometer in free fall (or in orbit) has no detectable input.

The input axis of an inertial sensor defines which vector component it measures.

Multi-axis sensors measure more than one component.

An inertial measurement unit (IMU) or inertial reference unit (IRU) contains a cluster of sensors: accelerometers (three or more, but usually three) and gyroscopes (three or more, but usually three). These sensors are rigidly mounted to a common base to maintain the same relative orientation.

Q: What is the Relation to guidance and control?

A: Navigation is concerned with determining where you are relative to where you want to be.

Guidance is concerned with getting yourself to your destination.

Control is concerned with staying on track.

There has been quite a bit of synergism among these disciplines, especially in the development of missile technologies where all three could use a common set of sensors, computing resources, and engineering talent. Therefore, the history of development of inertial navigation technology has a lot of overlap with that of guidance and control.

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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- Fiber Optic Gyro(/product-category/fiber-optic-gyro/)
- MEMS Accelerometer(/product-category/mems-accelerometer/)
- Tilt Sensor(/product-category/inclinometer/)
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