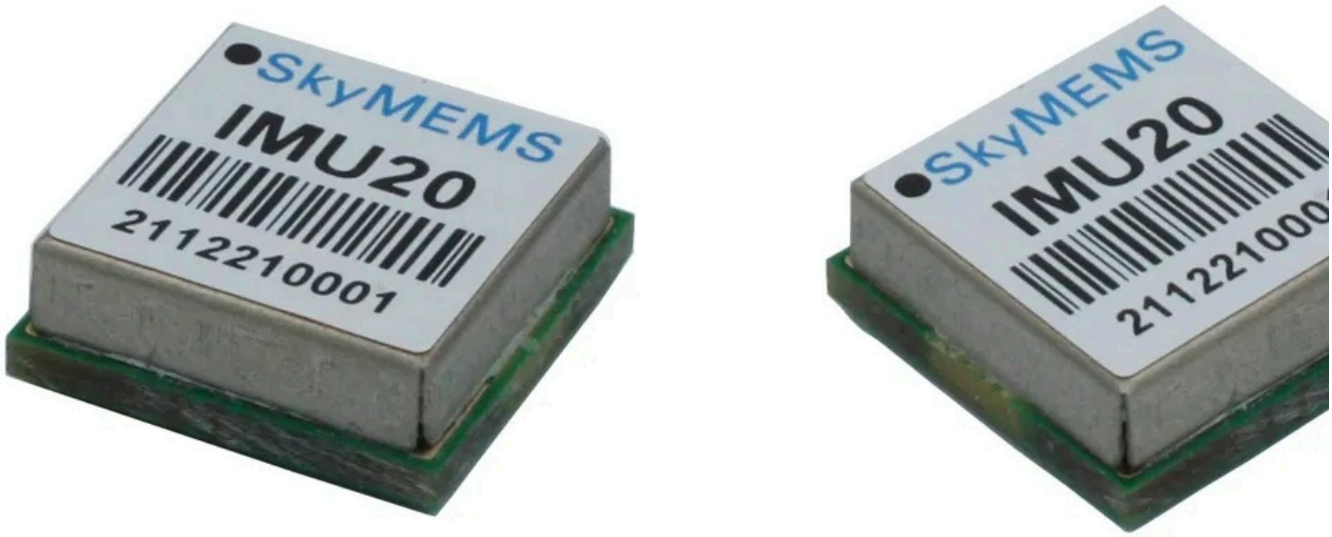

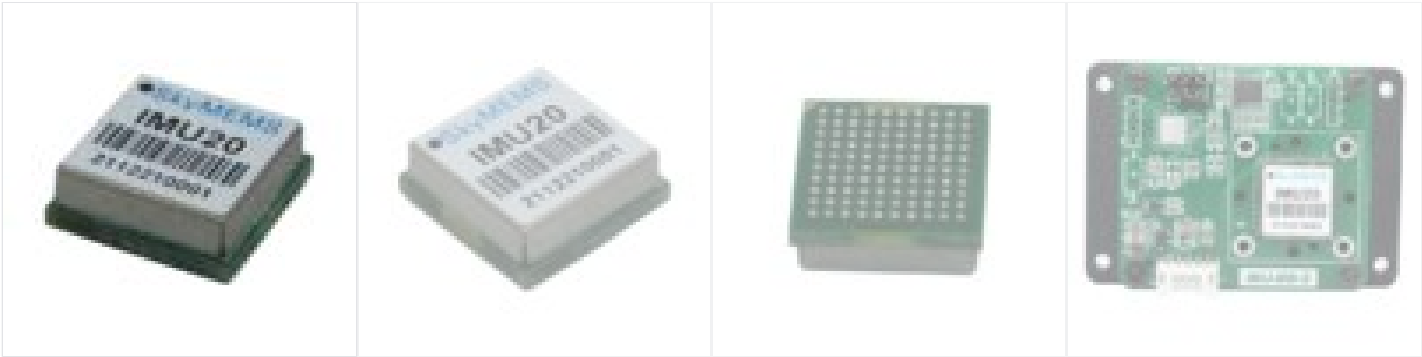

IMU20 6dof IMU

High Precision IMU20 6dof IMU, full calibration, widely used in unmanned rover, smart agriculture, AGV, platform stabilization, etc.

- High Precision 6 DoF Mini IMU with Full Calibration
- MEMS 3 Axis Accelerometers and 3 Axis Gyroscopes
- Range: Accelerometer ±6g, Gyroscope ±400dps
- Multiple Interfaces: SPI or UART
- Up to 200Hz Output Data Rate (can support max 400Hz)

- High Reliability in Harsh Environment
- Wide Operating Temperature Range: -40~+85ºC
- Small Size: 15mm * 15mm * 5 mm

Contact

WhatsAPP
(tel:+86-13372038516)

Skype
(skype:+8613372038516?chat)

Product Categories

Brief Introduction

IMU20 China 6dof IMU manufacturer are based on MEMS technology, which adopt advanced signal processing, A/D conversion, digital filter, temperature compensation and rate table inertial calibration, then output the accurate 3-axis acceleration and 3-axis angle rate data. IMU20 series IMU have passed the strictest tests, it enjoys high performance in noise, bias stability, non-linearity, repeatability, temperature drift, shock proof, etc., IMU20 6dof IMU from China factory is an ideal option for Unmanned

Aircraft and ROVs, Smart Agriculture, robotics, AGV, Machine Control, Platform Stabilization, etc.

Technical Specifications

Parameter ValueGyroscopesEnvironment ConditionsPhysical Parameter

Min	Typical	Max	
Range:	-400°/s		+400°/s
Bias Instability	2°/h	3°/h	4°/h
Bias Stability at Full Temperature Range	0.08°/s	0.1°/s	0.2°/s
Resolution		0.01°/s	
Non-linearity		0.1%FS	
Cross-axis Sensitivity		0.1%FS	
Random Walk	0.2°/√hr	0.3°/√hr	0.5°/√hr
Bandwidth		50Hz	
Accelerometers			

Range: X, Y, Z	-6g		+6g
Bias Instability	5μg	10μg	15μg
Bias Stability at Full Temperature Range	3mg	4mg	5mg
Resolution		0.5mg	
Non-linearity		0.1%FS	
Cross-axis Sensitivity		0.1%FS	
Random Walk	0.03m/s/√hr	0.05m/s/√hr	0.07m/s/√hr
Bandwidth		50Hz	
Working Temperature	-40~+85°C		
Storage Temperature	-55~+100°C		
Electrical Features			
Input Power Supply	3.3VDC		
Power Consumption	<0.15W		
Interface	SPI / UART (optional)		
Output Frequency	200Hz (settable)		
Size	15 x 15 x 5mm		
Weight	<3grams		

Typical Application

IMU20 China 6dof IMU (Inertial Measurement Unit) supplier is a high performance 6 DoF MEMS-based inertial sensors, which has been widely used in the following fields: – Unmanned Vehicle – Smart Agriculture – Unmanned Aircraft and ROVs – Robotics Control – AGV – Drones – Machine Control – Platform Stabilization – Antenna Pointing

IMU20 6dof IMU widely used in unmanned vehicle

The typical China IMU20 6dof IMU from supplier for unmanned vehicle use includes a three-axis accelerometer and three-axis rate sensor. The inertial measurement unit (IMU) is a device that directly measures a vehicle's three linear acceleration components and three rotational rate components (and thus its six degrees of freedom). An IMU20 6dof IMU supplier is unique among the sensors typically found in an unmanned vehicle because an IMU needs no connection to or knowledge of the external world. This environment independence makes the IMU a core technology for both safety and sensor-fusion. An accurate IMU can also determine and track attitude precisely. When driving, the direction or heading of the unmanned vehicle is as crucial as its position. Driving in a slightly wrong direction even briefly may put the unmanned vehicle in the wrong lane. Dynamic control of the unmanned vehicle requires sensors with dynamic response. An IMU does a nice job of tracking dynamic attitude and position changes accurately. Its fully environment-independent nature lets an IMU track position even in tricky scenarios such as slipping and skidding where tires lose traction. IMU80 IMU module provide reliable performance with good accuracy in dynamic environment, it has been widely used in unmanned vehicles by the Chinese leading companies, now more than hundreds of thousands IMU80 IMU modules are used in the unamend vehicles.

IMU20 6dof IMU widely used in UAS Navigation & Control

UAV is unmanned aerial vehicle, commonly known as a drone, is an aircraft without a human pilot aboard. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers. SkyMEMS IMU80 Inertial Measurement Unit is an industrial level IMU module, it can provide continuous acceleration and gyro angle for the UAV, which has been widely used in small UAV flight control.

IMU20 6dof IMU widely used in AGV

Automated Guided Vehicles (AGVs) are also known by other names such as Mobile Robots, SGV (Self-Guided Vehicle), Guided Carts, Autonomous Vehicles, and Driverless Vehicles. Regardless the type of automated guided vehicle (forklift, tow tractor, cart, etc), the self-driving robot requires an Automated Guidance System that drives the AGV and informs the AGV Management System about the robot positioning. Choosing the right vehicle guidance technology is essential because it will influence the AGV Robot System performance. That’s where the IMU comes in. It provides backup position information for navigation. In addition, an IMU handles all other aspects of managing a robotic vehicle in

an environment where vehicle position and angle are not only critical for safe maneuvering, but also for proper sensor suite functionality for the intended application of vine growth and health monitoring. SkyMEMS's IMU20 6dof IMU modules use high-performance MEMS sensors that features excellent stability, low power consumption and low noise characteristics. And their linearity characteristics enable high-precision measurement of various kinds of movement over a wide range from slow to fast. And it is very easy to be integrated into the system, and this allows them to be widely used in AGV applications.

Product Advantages

Why Selecting IMU20 6dof IMU?

China IMU20 6dof IMU manufacturer 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

IMU20 Inertial Measurement Unit is a precision 6 DoF MEMS inertial measurement unit, which enjoys excellent technical advantages: – MEMS 3 Axis Accelerometers and 3 Axis Gyroscopes – Range: Accelerometer ±6g, Gyroscope ±400dps – Multiple Interfaces: SPI or UART – Up to 200Hz Output Data Rate (can support max 400Hz) – High Reliability in Harsh Environment – Wide Operating Temperature Range: -40~+85ºC – Small Size: 15mm * 15mm * 5 mm IMU20 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 Tens of Fields, 1000+ Customers are Using

We are continuously focusing on MEMS measurement & control technologies, and have developed the most advanced inertial measurement unit IMU80. and IMU20 has been widely used in Unmanned Vehicle, Smart Agriculture, Unmanned Aircraft and ROVs, Robotics Control, AGV, Drones, Machine Control, Platform Stabilization, Antenna Pointing, etc. and now more than 1000 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: Why does IMU20 6dof IMU become so hot selling product?

A: 1) IMU20 6dof IMU is chip-based inertial measurement unit, which has been widely used in unmanned vehicles, smart agriculture, AGV, etc., and now the sold qty can reach 30k per year 2) since we produce IMU20 in big qty, so IMU20 IMU module can enjoy ultra-cost-effective, which assure that it can be widely used. 3) IMU20 can be pin to pin compatible with ADIS16505, and we can provide faster delivery, usually we have them in stock, we only need to do the tests before delivery. 4) we can provide customized design for IMU modules, so that make the IMU module more suitable for your application, we can provide the most flexible solution to our customers. 5) IMU20 IMU module provide the most reliability, its quality has been proven by the leading companies in China.

Q: How to keep IMU20 6dof IMU bias calibration good after time? What a procedure?

A: In fact, before we do the high and low temperature compensation and turntable calibration, we have done ESS in the high and low temperature box for 48 hours to release the environmental stress and ensure that the stress deformation is as small as possible. But after a long time, 10 months or a year later, due to the characteristics of the MEMS sensor itself, the performance may have little change. At this time, if the customer has high accuracy requirement, they can return to our factory for calibration again.

Q: if turning off the fusion algorithm that IMU20 China 6dof IMU supplier itself has, can be the output frequency of IMU80 up to 500Hz?

A: if without internal algorithms, it can reach 500Hz, if with algorithms, only can reach 200Hz, cause the inside MCU has limited computing ability.

Q: What is IMU20 working temperature?

A: The test temperature is -40 to 85 °, and the actual temperature may exceed 85 ° when testing high temperature. Actually, during the test, we kept IMU20 stay at both -40° and 85° for an hour

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 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 gimballed or strapdown, outputting the integrating quantities of angular velocity and acceleration in the sensor/body frame.

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 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: 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/)
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