# What is Inertial Navigation System ?

**Inertial Navigation System (INS in brief)** is a self-contained navigation technique in which measurements provided by accelerometers and gyroscopes are used to track the position and orientation of an object relative to a known starting point, orientation and velocity.

Inertial navigation is used in a wide range of applications including the navigation of aircraft, tactical and strategic missiles, spacecraft, submarines and ships.

The advantage of an INS is that it requires no external references in order to determine its position, orientation, or velocity once it has been initialized.

An INS can detect a change in its geographic position (a move east or north, for example), a change in its velocity (speed and direction of movement) and a change in its orientation (rotation about an axis). It does this by measuring the linear acceleration and angular velocity applied to the system. Since it requires no external reference (after initialization), it is immune to jamming and deception.

SkyMEMS Inertial Navigation Systemt composed of MEMS accelerometer, MEMS gyroscope and high performance information processing circuit and system functional module, it is mainly used to measure 3D position, speed, acceleration, attitude angle, and angular rate, etc.

The system enjoys smaller size, lighter weight, lower cost, and lower power consumption, faster start-up, and higher reliability, better dynamic environment adjustment, etc. it can get better performance to work with GPS and BEIDOU satellite position system, and it can be applied in tactical weapon, unmanned aircraft fields.

## Applications of Motion Reference Unit

SkyMEMS Inertial Navigation System is a high performance pure inertial MEMS sensors, it enjoys high reliability, high stability, and survivability in high shock environment, which has been widely used in the following fields:

- Rocket
- Tactical Weapon