GNAY
GUANXINGNAV

GNI86AY
Inertial Measurement Unit
Brief Datasheet

1. Overview

The GNI86AY Micro-inertial Measurement Unit (IMU) is a small, high-performance, low-cost inertial measurement unit (IMU) based on MEMS technology, which can measure 3-axis angular velocities and accelerations.

This device provides stable measurement performance as a result of its error compensation of temperature and axes. It ensures the stable and excellent performance of the product under static and on-board dynamic conditions, and ensures that it still provides excellent and reliable measurement data for users under harsh environmental conditions.

Product features
a) Based on MEMS Process;
b) Digital Gyros &Accelerometers;
c) High Speed Processor Embedded;
d) Compensation & Calibration;
e) Low Power, Small Size;
f) High tolerance.

Application field
a) Integrated Navigation Systems & Inertial Guidance Systems
b) Flight Control Guidance systems
c) Attitude Heading Reference Systems (AHRS)
d) Stabilization of Antennas, Cameras and Platforms

2. Package information
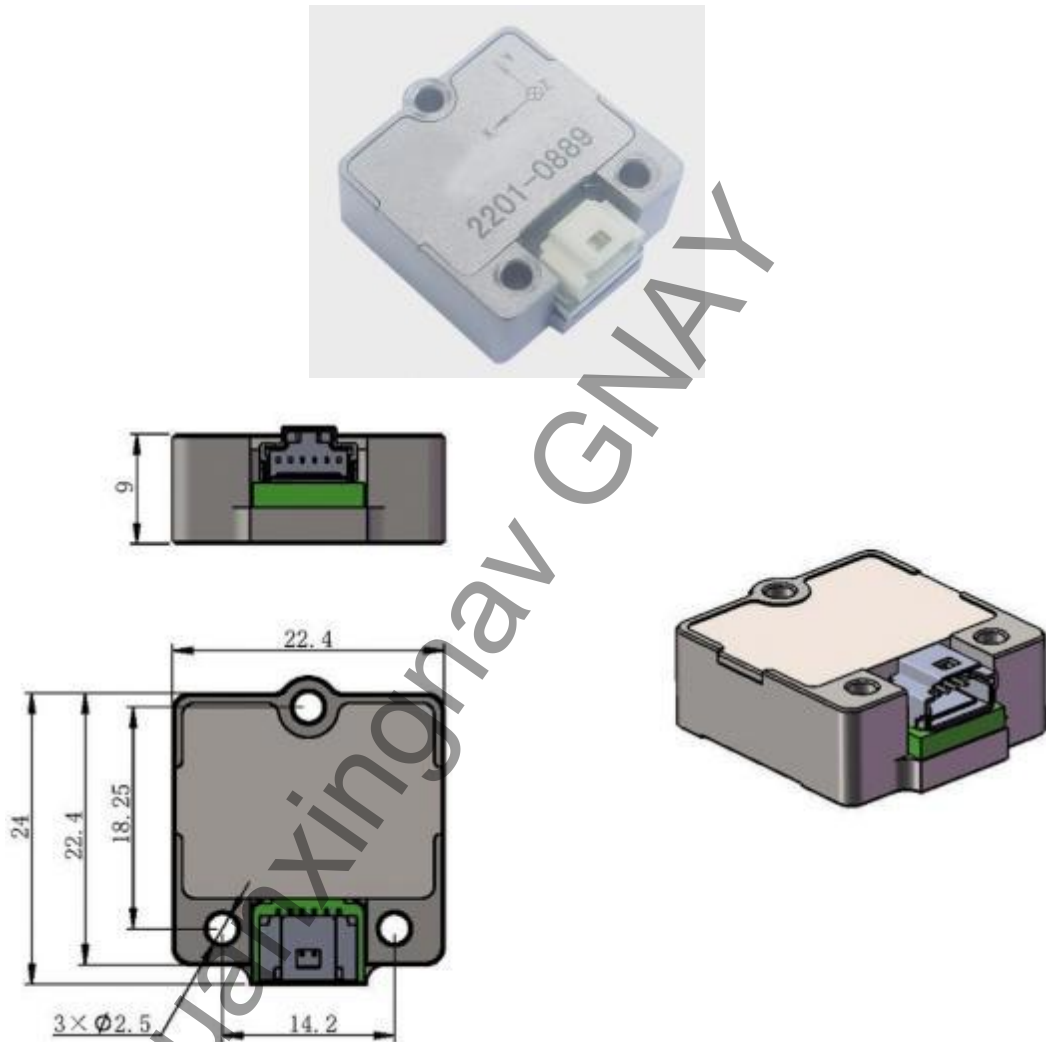
Figure 2.1 shows GNI86AY outline and mechanical data.

Figure 2.1 GNI86AY package outline and mechanical data (units: mm)

3. GNI86AY specifications

Gyros performance	
Range	±250 °/s
Bias in Full temperature (1σ,10s on average)	≤150 °/h
Bias Stability (1σ,10s on average)	≤10 °/h
Bias Repeatability	≤10 °/h
Angle Random Walk	≤0.25 °/√h
Scale Factor Non-linearity	≤50 ppm
Installation error	≤0.7°
Bandwidth (-3 dB)	≥100 Hz
Accelerometers performance	
Range	±60 g
Bias in Full temperature (1σ, 10s on average)	≤2.5 mg
Bias Stability (1σ, 10s on average)	≤0.2 mg
Bias Repeatability	≤0.2 mg
Non-linearity	≤200 ppm
Installation error	≤0.7°
Bandwidth (-3 dB)	≥100 Hz
System performance	
Output data rate	200 Hz
Weight	≤25 g
Size	24 mm×22.4 mm×9 mm
Supply Voltage	5±0.3 V
Power Consumption	≤0.3 W
Interface	UART
Connector	Molex
Operating Temp.	-50 °C~+85 °C
Storage Temp.	-50 °C~+95 °C

4. Pin description and Digital interfaces

The definition of pins is shown in Table 4.1

Table 4.1 Pin connection

Name	Function
VCC(+5V)	Power supply
VGND	Power ground
Tx-	Transmit negative
Tx+	Transmit positive