

Features

- 6DOF Attitude Reference System
- High Resolution and Accuracy
- Outstanding Scale Factor Linearity
- Low Drift Error
- Fast Start-up and Fully Self-contained
- Digital Output (RS232/USB)
- Roll, Pitch, Yaw, Raw rates, and Accelerations Outputs
- Wide Bandwidth
- User Friendly Monitoring and Testing Program
- Low Power Consumption
- Rugged and Compact Package



Applications

- UAVs and Micro Air Vehicles
- Robot Navigation
- Virtual Reality Systems
- Motion Capture Systems
- Game Input Devices
- Exercise and Sport
- Biomechanics

Description

The CruizCore® XA3300 is an attitude heading reference system that among others, can measure attitude, angular rate and acceleration under dynamic conditions. It is a highly integrated, compact, light, and fully self-contained navigation system. The XA3300 encloses three gyroscopes, three accelerometers, and three magnetometers. It calculates stabilized attitude by fusing gyroscope, and accelerometer data. In its basic operation, the CruizCore® XA3300 provides raw IMU measurements such as angular rates and accelerations. Internally, it implements an adaptive Kalman filter that integrates gyro and accelerometer, and a temperature compensation algorithm that improves the angular rate accuracy .

Specification

Performance	Input Range		± 100 °/sec, ±1.7g (Continuous)
			± 300 °/sec, ±1.7g (Instantaneous)
	Roll, Pitch, Heading Accuracy	Static Error	< 0.5 °
		Dynamic Error	< 2 ° ¹⁾
		Heading Error	< 1 ° ²⁾
	Resolution	0.05 °	
Bandwidth	20 Hz		
Update Rate	< 100 Hz (USB, RS-232)		
Physical	Weight	20 g (Including case)	
	Size (L, W, H)	53.9 mm X 35.9 mm X 17 mm	
Electrical	Power Consumption	< 400 m W	
	Input Voltage	4.75 ~ 5.25 V	
Environmental	Operating Temperature	-20 ~ 70 °C	
	Shock	200 g RMS	

- 1) Under moderate motion
2) External magnetic field compensated

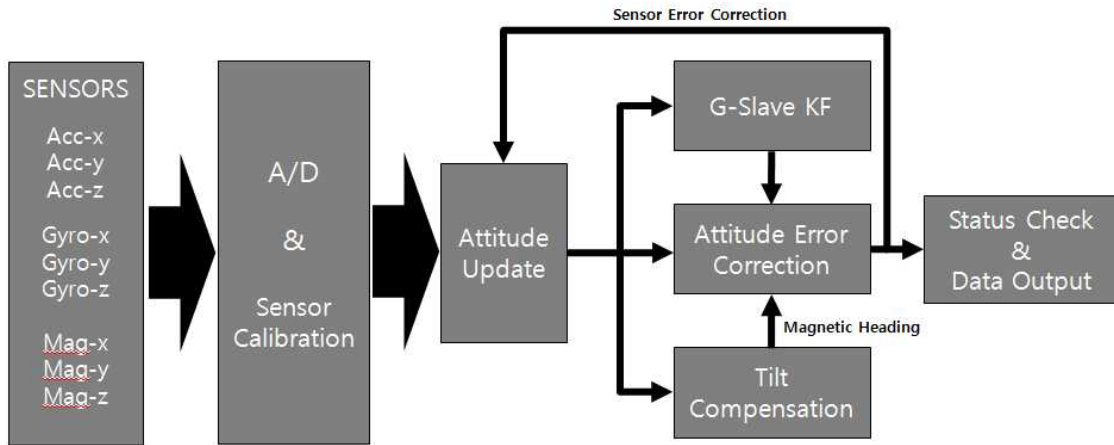


Figure 1. Architecture of Integration Algorithm



Figure 2. USB Pin Arrangement

Number	Name	Function
1	V _{BUS}	+5V Power
2	D-	USB Data +
3	D+	USB Data -
4	GND	GND

Table 1. USB Pin Functions

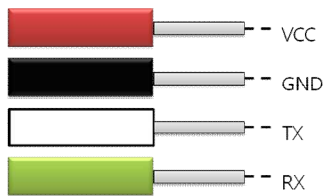


Figure 3. RS-232 Pin Arrangement

Wire color	Name	Function
RED	V _{CC}	+5V Power
BLACK	GND	GND
YELLOW	TX	RS-232 Transmit Data
GREEN	RX	RS-232 Received Data

Table 2. RS-232 Pin Functions

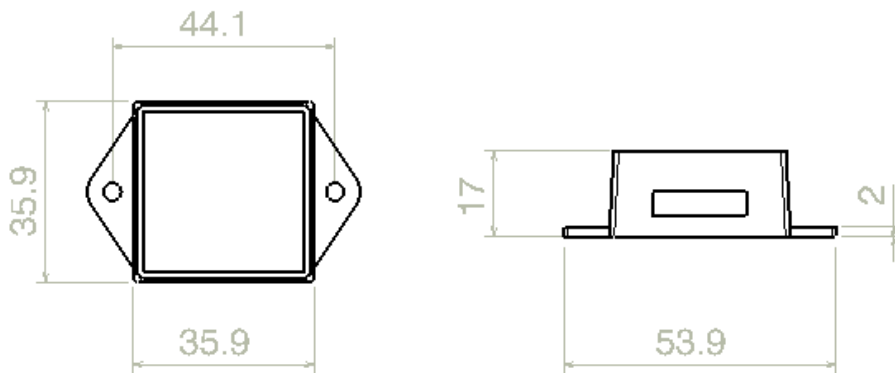


Figure 3. Physical Dimension