

AHRS-200[®]

AHRS-200[®] is a high precision strip-down AHRS system which combines ultra-low noise crystal 3-axis gyroscopes, MEMS 3-axis accelerometer, 3-axis magnetometer, barometer and high speed MCU in a single, compact board. All sensors are calibrated over their temperature · bias · scale factor · axis alignment and g-sensitivity in order to make them ideal for the best applications.

While moving and when encountering magnetic distortion, **AHRS-200[®]** employs a patented Kalman filtering algorithm that intelligently fuses with gyros and accelerometers to overcome errors due to erratic motion and changes in the local magnetic field to generate optimal Attitude and Heading data outputs.

Application :

- Stabilization platform control
- Aviation control system (UAV, Fixed wing, Rotor, etc)
- Ground vehicle control
- Underwater vehicle control
- Autonomous vehicle
- Robots



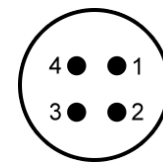
Feature :

- Suitable for primary attitude reference
- All solid state components (no moving parts)
- All sensors have temperature · bias · scale factor · axis alignment calibration
- Auto self-calibrate attitude when system fixed and power on
- Enable 1° to 2° compass heading accuracy
- Dynamic heading accuracy 1.0° (RMS)
- Overcome errors due to erratic motion and changes in the local magnetic field
- 24-bit ADC digital pressure sensor
- Environmentally sealed (waterproof)
- Small size, light weight, compact design
- Low power consumption
- High CP value



Specification

Gyroscope		Attitude	
Angular rate (3-axis)	±300°/s	Range (Pitch/Roll)	±90°/ ±180°
Noise density	0.004°/s/√Hz	Static accuracy	0.3°
Non linearity(Full Scale)	±0.5%	Dynamic accuracy	0.5°
Accelerometer		Resolution	0.05°
Acceleration (3-axis)	±3 g	Update rate	
Noise density	120 μg/√Hz	AHRS	10 Hz (default)
Non linearity(Full Scale)	±0.5%	Power	
Magnetometer		Prime power	5±5% VDC
Magnetic field range (3-axis)	± 8 Gauss	Power consumption	< 0.5 W
Linearity	± 0.1% of full scale	Interface and Connector	
Field resolution	2 mGauss	Interface	UART, RS-232
Barometer		Data connector	O-type 4-pin
Pressure range 300~1,200mbar (9,500m~ -500m)		Baud rate 4,800~115,200 bps (default 115,200 bps)	
Resolution	Pressure 0.02 mbar	Environment	
	Temperature 0.01°C	Compensated temperature	- 10°C to +70°C
Relative accuracy(700~1000 mbar)	±0.1 mbar	Operating temperature	- 40°C to +85°C
Long term stability	± 1 mbar/year	Vibration	4 g, RMS (20~2000 Hz)
Heading		Shock	40 g, 11 ms 1/2 sine wave
Range	0~360°	Environmentally sealed	IP67
Static accuracy	0.5°	Physical	
Dynamic accuracy (RMS)	1.0°	Dimensions	50 x 50 x 22 mm
Resolution	0.05°	Weight	<40 grams
Magnetic heading	1.0°~2.0°	Enclosure	Aluminum alloy



1. Power in
2. Rx
3. Tx
4. Ground