

Technical Specifications

Performance

Update rate (Hz)	60
Start-up time valid data (sec)	< 15

Attitude

Roll range (°)	±180
Pitch range (°)	±90
Resolution (°)	0.01
Static accuracy (°)	< 0.8 (3σ)
Dynamic accuracy (°)	< 1.5 (1σ) Note * Note***

Heading

Range (°)	±180
Resolution (°)	0.01
Static accuracy (°)	< 2.5 Note**
Dynamic accuracy (°)	< Note* Note**

Rate Sensors

Range (°/sec)	350
Resolution (°/sec)	0.03
Bandwidth (Hz)	20
Angular Random Walk (°/rt Hr)	< 0.5 Allan Variance
Long Term Bias (°/hr)	< 5
G sensitivity	almost not measurable up to 4G's

Acceleration Sensors

Range (G)	-1.7 to +1.7
Resolution (mG)	0.4
Bandwidth (Hz)	10

Magnetics

Range (Gaus)	-0.8 to +0.8
Resolution (nT)	30
Bandwidth (Hz)	10

Environment

Standard Operating temperature (°C)	-20 to +70
Compensated temp range (°C)	0 to +50 or -20 to +70
Non operating temp (°C)	-40 to + 85
Extended Operating Temperature and Compensation as an Option	

Electrical

Input Voltage (Vdc)	7 to 18
Power (W)	< 3.5
Load Dump	Protected
Communications	RS232 / RS422 selectable
Connector	Miniature Sub D9 with mating cable

Physical

Size (mm)	104 x 55 x 25
Weight (gr)	< 140

Processing Performance

Processor	32 bit DSP @ 150 MHz
Kalman processing	60Hz
Data update rate	60Hz

Serial Communications Standard Data Format

Port	RS 232 / RS 422 115200 Bd
VG Data format	Roll, Pitch, Rate of Turn, Slip, mG's
AHRS Data format	VG + Yaw

Serial Communications Sensor Data Format

Port	RS232 / RS 422 115200 Bd
Calibrated Data format	p, q, r, Ax, Ay, Az, Bx, By, Bz, Tp, Tq, Tr

Note * Normal flight and standard 360's, No Aerobatics No sustained 360's
 Note ** Depending on the quality of Hard Iron Calibration and constant magnetic environment of the vehicle
 Note*** Expected < 1 (1σ)



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NANO Vertical Gyro and VG based AHRS



Features

- 300 Hz gyro sampling
- Mathematics based on VG algorithm
- Magnetic Slaved Gyro Compass
- Roll, Pitch and Heading Angles in Dynamic Environments
- On Board DSP Processing
- Proprietary Kalman Filter Algorithm
- High Performance to Cost Ratio MEMS
- Temperature compensated
- Body axis can be software redefined for Horizontal and Vertical Mounting.
- Available Q2 2009

Applications

- UAVs
- Platform Stabilization
- Automotive applications
- Off Road Vehicles Stabilization
- Sports Aircraft
- Towed Array Marine applications
- Experimental Aircraft
- Under Water Vehicles
- Vehicle Behavior Measurement
- High Speed Train cabin stabilization
- Terrain Survey applications
- Robotics

Attitude is not influenced by heavily disturbed magnetic fields

The **NANO Vertical Gyro and VG based AHRS** is a reference system with remarkable price/performance relationship. The **NANO** is a solid-state six-degree-of-freedom (6DOF) unit intended for a multiple of applications, available in small quantities and OEM quantities. It can be used for Control, dynamics testing and instrumentation applications.