

MEMS Inertial Navigation System with GPS

FEATURES

- Accurate orientation and navigation data
- RS232 interface
- User selectable refresh rates from 10 to 50 Hz
- Low cost and light weight
- Advanced statistical filtering
- Vibration resistant
- Wide temperature operation

APPLICATIONS

- Inertial guidance
- Platform stabilization and control
- Unmanned vehicle navigation
- Embedded vehicle electronics and avionics
- Inertial parameter measurement



DESCRIPTION

ARN-NS0535 is a MEMS-based inertial navigation system with GPS. It uses MEMS accelerometers, gyroscopes, 3 axis magnetometer which combined with GPS gives accurate attitude, heading and navigation information. The device incorporates advanced statistical filters along with state-of-art electronics to render a low cost high performance solution.

This strap down system is very well suited for aerospace, marine and ground applications and most appropriate for unmanned/automated applications where method of inertial guidance is a requirement. The system has a small size and is designed to perform in static and dynamic conditions. The device can fit into aircraft avionics and can be used to provide precise attitude and heading information for controlling unmanned ground and aerial vehicles.

ARN-NS0535 navigation system gives user provision to select output data refresh rate from 10 Hz to 50 Hz and can be interfaced with data terminal equipment quite simply making data acquisition and analysis easy. The system is integrated with GPS for highly reliable position and velocity information.



SPECIFICATIONS

Table 1

Parameter	Value	Unit
Acceleration		
Range*	±2, ±6	g ^s
Noise Density	24 (Max. @ 1V/g sensitivity)	μV/√Hz
Resolution	0.2	mg
Angular Rate		
Range	±300	°/s
Noise Density	< ±0.05	°/s/√Hz
Resolution	0.06	°/s
Altitude		
Range	0 to 15	km
Resolution	< 0.25	m
Accuracy:	< 2	m
Position/Velocity		
Position accuracy	< 2.5 (CEP) with GPS < 20 (in 1 min) without GPS	m
Velocity accuracy	< 0.2 with GPS < 0.8 (in 1 min) without GPS	m/s
Attitude		
Roll, Pitch accuracy	< 0.5	°
Heading accuracy	< 1.0	°
Angle Resolution	<0.1	°
Electrical:		
Input voltage:	8-12	VDC
Power consumption:	< 5	W
Physical		
Weight	< 0.4	kg
Size	< 9.8W x 6.2B x 4.3H	cm
Update rate	10-50	Hz
Environment		
Operating temperature	-20 to +70	°C
Storage temperature	-55 to +85	°C
Humidity	10% to 90% RH (non condensing)	
Survival Shock	20	g

* Different models available
 \$ Acceleration due to gravity

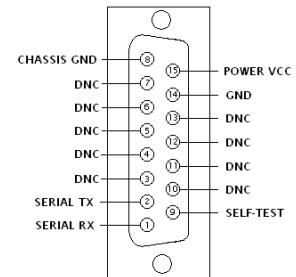
MODELS INFORMATION

Table 2

Model	Description	Acceleration(g)
ARN-NS0535-2	Inertial navigation system, interface with PC, user manual	± 2
ARN-NS0535-6	Inertial navigation system, interface with PC, user manual	± 6

Contact us for information on related products.

Specifications subject to change without notice.

PIN DIAGRAM

PACKAGE DIMENSION
