

# ANS | 420-A

TACTICAL AIRBORNE INERTIAL  
NAVIGATION SYSTEM

#Navigation



FIBER OPTIC GYROSCOPE TECHNOLOGY  
GENUINE DESIGN INERTIAL MEASUREMENT UNIT  
IN MOTION ALIGNMENT WITH GNSS  
EMBEDDED RECEIVER GNSS



**aselsan**

# ANS | 420-A

## TACTICAL AIRBORNE INERTIAL NAVIGATION SYSTEM

ANS 420-A is an integrated position and attitude determination system with embedded GNSS receiver which is intended for application to air platforms.

ANS 420-A consists of strapdown inertial measurement unit, system processor unit, power supply unit, Embedded GNSS Receiver (EGR) and chassis. The system provides linear acceleration, linear and angular velocity, position, attitude and heading to the host vehicle systems continuously.

ANS 420-A provides a hybrid (Inertial + GNSS) and a GNSS only navigation solution simultaneously. ANS 420-A is also capable of using external barometric pressure altitude data to complement hybrid navigation solution.

The tightly coupled / loosely coupled mechanization of inertial and GNSS data and ability to use external pressure altitude data of ANS 420-A provides improved performance for airborne platforms.

ANS 420-A is a cost effective solution for all types of airborne platforms requiring position, velocity and attitude during their mission.

ANS 420-A is an open architecture and hardware/software flexible unit which can be adapted to various airborne platforms.

### General Specifications

- Hybrid and GNSS Only Navigation Solution
- 3 Axes Position, Velocity and Attitude
- 3 Axes Angular Rates and Linear Accelerations
- Embedded GNSS Receiver
- True and Magnetic Heading Calculation
- External Heading and Barometric Altitude Update
- Configurable Flight Control Filters
- Built In Test Capability
- Low Power Consumption (<30W @ 28VDC)
- Field Programmable Software
- No Periodic maintenance

### System Interfaces

- MIL-STD-704F Compliant 28VDC Power Interface
- 2x RS422 Asynchronous Serial Interface
- Have Quick and 1PPS Interface
- Active and Passive RF Antenna Interface
- Ethernet Interface

### Navigation Performance

	With GNSS (Full Performance)	Without GNSS (After Full Performance)
<b>Position</b>		
Horizontal	< 10 m CEP <sup>(1)</sup>	N/A
Vertical	< 14.0 m PE (RMS) <sup>(1)</sup>	5.0 m <sup>(2)</sup>
<b>Velocity</b>		
North, East	0.03 m/s <sup>(1)</sup>	N/A
Vertical	0.03 m/s <sup>(1)</sup>	< 1.0 m/s ( RMS ) <sup>(2)</sup>
<b>Attitude</b>		
Roll, Pitch	0.1 degree <sup>(1)</sup>	0.3 degree <sup>(5)</sup> ( RMS )
Heading	0.2 degree <sup>(1,4)</sup>	1.0 degree <sup>(3)</sup> ( RMS ) 3.0 degree/hour (1 $\sigma$ )
<b>Angular Velocity</b>		
p, q, r	0.1 degree /s ( RMS )	0.1 degree/s ( RMS )
<b>Acceleration</b>		
a <sub>x</sub> , a <sub>y</sub> , a <sub>z</sub>	5.0 mg ( RMS )	5.0 mg ( RMS )

### Notes

- (1)- Provided that HDOP<1.39 and VDOP<1.97.
- (2)- Barometer aided, reference to the barometer.
- (3)- Under appropriate circumstances with delta true heading aiding.
- (4)-Under sufficient platform maneuver.
- (5)-Valid up to 4 hour navigation without GNSS.

### Environmental Conditions

- MIL-STD-810

### Electromagnetic Environmental Effects

- MIL-STD-461

### Dimensions and Weight

- ~ 26cm x 19cm x 12.5 cm (including connectors)
- < 5 kg (with GNSS receiver)



Specifications are subject to change without any notice. | All tolerances are within  $\pm 10\%$ .