

ANS-420

ASELSAN TACTICAL AIRBORNE INERTIAL
NAVIGATION SYSTEM

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





ANS-420

ASELSAN TACTICAL AIRBORNE INERTIAL NAVIGATION SYSTEM

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

ANS-420 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 provides a hybrid (Inertial + GNSS) and a GNSS only navigation solution simultaneously. ANS-420 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 provides improved performance for airborne platforms. ANS-420 is a cost effective solution for all types of airborne platforms requiring position, velocity and attitude during their mission.

ANS-420 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)
Position		
Horizontal	< 10 m CEP ⁽¹⁾	N/A
Vertical	< 14.0 m PE (RMS) ⁽¹⁾	5.0 m ⁽²⁾
Velocity		
North, East	0.03 m/s ⁽¹⁾	N/A
Vertical	0.03 m/s ⁽¹⁾	< 1.0 m/s [RMS] ⁽²⁾
Attitude		
Roll, Pitch	0.1 degree ⁽¹⁾	0.3 degree ⁽⁵⁾ [RMS]
Heading	0.2 degree ^(1,4)	1.0 degree ⁽³⁾ [RMS] 3.0 degree/hour (1 σ)
Angular Velocity		
ρ, ϕ, ψ	0.1 degree /s [RMS]	0.1 degree/s [RMS]
Acceleration		
a_x, a_y, a_z	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)