

# ANS-510K

ASELSAN LAND INERTIAL  
NAVIGATION SYSTEM

1 MILS  
POINTING ACCURACY

MIL-PRF-71185  
PERFORMANCE SPECIFICATION

EMBEDDED GPS  
SAASM OR SPS





# ANS-510K

## ASELSAN LAND INERTIAL NAVIGATION SYSTEM

ANS-510K is an integrated position and attitude determination system for land vehicles. ANS-510K supplies linear acceleration, linear and angular velocity, position, attitude to the host vehicle systems continuously.

ANS-510K has an open architecture and hardware/software flexible unit which can be adapted to various land platforms.

ANS-510K consists of strapdown inertial measurement unit, system processor unit, power supply unit, Embedded GPS Receiver (EGR) and chassis. ANS-510K is capable of using 12 channel P(Y) coded SAASM GPS receiver or commercial SPS GPS receiver as embedded GPS receiver. ANS-510K is also capable of using external GPS receiver.

The tightly coupled, embedded INS/GPS and integrated odometer mechanization of ANS-510K provides improved performance for land platforms.

ANS-510K provides a hybrid (inertial+GPS+Odometer) navigation solution, inertial only navigation solution and a GPS only navigation solution simultaneously. ANS-510K has the capability of providing high performance position and attitude with odometer update in case of lack of GPS signal.

Long mean time between failure (MTBF) and internal built in test capability reduces the logistics requirement to a minimum. ANS-510K does not require periodic maintenance.

### General Specifications

- Embedded Military (SAASM) or Commercial (SPS) GPS receiver
- Hybrid, Free Inertial, GPS Only Navigation Solution
- Odometer Update
- UTM or Geographical Position Calculation
- True, Grid or Magnetic Heading Calculation
- Position Update
- Start-Up BIT, Periodic BIT
- Field Programmable Software
- No periodic maintenance

### System Operational Modes

- Initialization
- Alignment
  - Gyro Compass (GC) Alignment
  - In Motion Alignment with Internal/External GPS
- Navigation
  - Hybrid Navigation (HNAV)
  - Inertial Navigation (INAV)
- Initiated Built In Test (IBIT)

### System Interfaces

- MIL-STD-1275D Electrical Power Interface
- High speed RS422 Serial Test Interface
- RS422 Serial User Interface
- Spare RS422 Serial Interfaces
- External GPS Interface (ICD-GPS-153)
- Have Quick and 1PPS Interface (ICD-GPS-060)
- KYK-13 Interface
- Active and Passive RF Antenna Interface
- Discrete Interfaces

### Navigation Performance (in compliance with MIL-PRF-71185)

	Horizontal Position (CEP)	Vertical Position (PE)
Inertial+ODO+GPS (PPS)	10 m	10 m
Inertial + ODOMeter (with ZUPT every 60 minutes)	0.0025 x Distance travelled (Distance travelled > 4 km)	0.00067 x Distance travelled (Distance travelled > 10 km)
	10 m (Distance travelled < 4 km)	6.7 m (Distance travelled < 10 km)
Free Inertial (with ZUPT every 4 minutes)	18 m	10 m
Azimuth	1 mils RMS ( <0.2 mils RMS, with internal GPS )	
Roll, Pitch	0.5 mils RMS ( <0.2 mils RMS, with internal GPS)	

### Alignment Modes and Durations

Ground Alignment Mode	GPS In-Flight Alignment Mode	Stored Heading Mode
15 min.	10 min.	30 sec.

### Environmental Conditions

- MIL-STD-810

### Electromagnetic Environmental Effects

- MIL-STD-461 / DO-160E

### Dimensions and Weight

- ~ 26cm x 19cm x 15cm (including connectors)
- Less than 6.2 kg with GPS receiver installed

