



NAVIGATION SENSOR UNIT

The NSU is a compact lightweight Integrated navigation system. The unit includes an Inertial Measurement Unit (IMU), a Navigation Computer, an embedded airborne C/Acode GPS Receiver, DGPS, static and dynamic pressure sensors.

The main task of the equipment is to provide changes in aircraft rate, attitude, magnetic heading, position, altitude and airspeed for use by the flight control system, autonomous navigation system and other sensors (e.g. radar antenna stabilisation).

The NSU provides:

- Navigation mode with the utilisation of GPS, IMU
- Air Data Sensor, Magnetic heading reference
- AHRS mode with the utilisation of IMU, Air Data Sensor, Magnetic heading reference
- ADS mode with the utilisation of Air Data Sensors, Temperature sensor and baro altitude correction data
- Built-in Test and monitoring capability for failure detection and management
- System Pre-Flight test and initialisation interface.

APPLICATIONS

- Unmanned Air Vehicles (UAVs)
- Target drones
- Surveillance systems
- Optronic system stabilisation and targeting
- Aircraft instrumentation pods
- SAR antenna stabilisation
- Fixed and rotary wings aircraft, where a navigation sensor is required.

FEATURES

- Compact, lightweight, small size unit
- Excellent cost/performance ratio
- Multiple communication channels (RS-422 and Ethernet LAN, ARINC429 and Mil-STD 1553B option).

Navigation data provided by the NSU include:

- Body axis rates (p, q and r)
- Body axis accelerations (Ax, Ay and Az)
- Attitude data (roll and pitch angle)
- True Heading
- Position (UTM zone and East North)
- Velocities (Vn, Ve and Vv)
- Altitude (Integrated inertial/aided sensor)
- Pressure altitude; Pressure altitude rate
- True airspeed
- Indicated airspeed
- Static and differential pressure (Ps and Pd)
- GPS one pulse per second time mark; GPS time
- Wind Velocity east-north
- GPS data (X, Y, Z, satellite number, S/N, FOM, ecc)
- Total Air temperature (TAT).

The position coordinates (X,Y,Z) are referred to WGS 84 ellipsoid.

TECHNICAL CHARACTERISTICS

SYSTEM PERFORMANCE

Roll/pitch	0.2° (1σ)
Heading	0.5° (1σ)
Position	15m CEP GPS C/A Code
Velocity	0.1m/s (1σ) GPS C/A Code
Altitude	25m (1σ) GPS C/A Code
Pressure altitude	20m (1σ) (0 - 11000m) ≤0.34 % (>11000m)
Indicated airspeed	1m/s (1σ)
True airspeed	1m/s (1σ) (assuming < 1°C TAT accuracy and airspeed >15m/s up to 0.95M)

TECHNICAL DATA

Weight	2.6Kg
Dimensions (L x W x H)	158 x 147 x127 mm
Voltage supply	28V (D0-160C) -17 to 32V DC (normal operation)
Power consumption	28 W (Start-56W)

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40°C to +70°C
Linear acceleration	15G test level for every axis and directions
Shock	20g for 11ms
Vibration	MIL-STD-810E (jet aircraft), 20-2000Hz Wo = 0.04 G2/Hz, operational

