

RUGGED INERTIAL NAVIGATION SYSTEM

FEATURES

- Multimode Kalman filter
- Accepts External Aiding Data
- Tactical class IMU, 0.8 °/hr gyro
- Centimeter level position accuracy with RTK
- Multi-Constellation L1/L2/L5 GNSS with IRNSS
- Advanced GNSS with anti-jamming and interference rejection
- Superior tracking robustness under heavy mechanical shocks or vibrations
- Isolated Interfaces and Power Supply
- MIL-STD-810F/G, MIL-STD-461E/F and JSS55555 Compliant

APPLICATIONS

- Inertial Guidance and Dead Reckoning
- Armored Vehicle Navigation
- Platform Stabilization and Control
- Unmanned Vehicle Navigation
- Antenna Orientation and Stabilization
- Mapping and Surveying
- Land Navigation
- Tactical Grade Navigation

DESCRIPTION

The Octantis 2, OCT2-7300D-01A is a next generation GNSS-aided MEMS based Inertial Navigation System which offers high-end tactical class performance. The OCT2-7300D-01A is equipped with Aeron's proprietary Inertial Measurement Unit (IMU) which consists of 3-axis low-noise accelerometers and low-drift gyroscopes. The IMU sensing elements are characterized in-house and compensated for temperature drifts, mis-alignment, non-linearity and other errors over the entire dynamic operating ranges.

The OCT2-7300D-01A has a proprietary parameter estimation engine based on a multi-modal Kalman filter. It works optimally by utilizing the high-speed processor architecture offering superior performance in demanding applications. The Kalman estimator delivers low drift position, velocity and attitude estimations in GPS denied conditions at high update rates. The system is ruggedized and complies to MIL-STD-810F/G and MIL-STD-461E/F standards.

The system has multiple interfaces for data capture, provision for interfacing external odometer/air data input and feeding in aiding data from other external GNSS systems. The built-in low noise magnetometer is a redundant heading estimation source in GNSS denied/poor visibility conditions.

The OCT2-NS7300D-01A model has a multi-frequency (L1/L2/L5), multi-constellation GNSS receiver with 445 tracked channels and best in class signal sensitivity. The built-in GNSS receiver is resistant to radio frequency interference and protects the device performance from intentional jamming and spoofing.

The OCT2-NS7300D-01A performs well in dynamic conditions and gives the highly accurate attitude, heading, position, velocity and altitude data over high update rates for guidance, navigation and control applications.

OCT2 NS7300D-01A



Note: This is a representational image

TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS7300D-01A
Acceleration	
Range	±16 g
Bias Instability	<15 µg
Angular Rate	
Range	±450 °/s
Bias Instability	0.8 °/hr
Position & Velocity Accuracy	
Horizontal Position ^{1,2,3}	<0.8 cm with RTK 1.5 m CEP with GNSS 1 m CEP with SBAS <1% of DT with external Odometer ⁴ / external Air Data Computer
Vertical Position ^{1,2,3}	<2 cm with RTK 5 m (1σ) with GNSS 3 m (1σ) with SBAS 2 m (1σ) relative with Barometer
Velocity	0.05 m/s RMS with GNSS
Attitude	
Roll Range	±180°
Pitch Range	±90°
Roll, Pitch Accuracy ²	0.06° RMS (static/low dynamics) 0.1° RMS (dynamic)
Heading Range	±180°
Heading Accuracy ^{1,2,5,6}	<0.3° RMS with GPS in dynamic conditions <0.5° RMS with magnetometer
Angle Resolution	<0.01°
Barometer	
Range	300-1100 hPa
Accuracy	±1 hPa
Magnetometer	
Range	±8 gauss
GPS / GNSS	
Type	445 channel, L1/ L2/ L5 Code / Carrier phase GPS, GLONASS, QZSS, BEIDOU and IRNSS/NavIC
TTF ⁷ Cold Start	45 s
Reacquisition Time	1 s
Connector	TNC
Electrical	
Input Voltage	12 V to 32 V DC
Power Consumption	<7 W
Connector	D38999
Interface Options	RS232, RS422, Ethernet, CAN and 1PPS from GNSS

1 - Open sky conditions

2 - RMS levels

3 - Baseline <40 km

4 - 1-2 %, subject to Odometer accuracy

5 - Accuracy after magnetic calibration and setting correct declination / offset angle

6 - After magnetic calibration for Hard Iron and Soft Iron disturbances, and in static magnetic field

7 - Time to First Fix

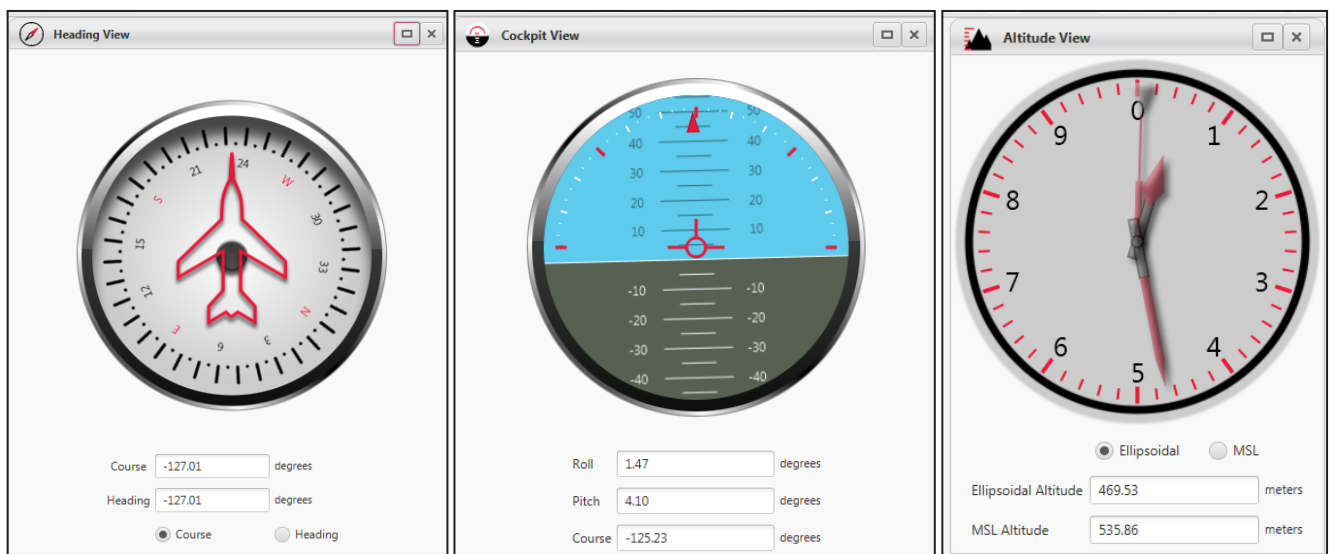
TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS7300D-01A
Physical	
Weight	<1 kg
Dimensions	142 mm (W) x 115 mm (B) x 63 mm (H)
Update rate	100 Hz (Navigation data) 200 Hz (IMU data)
Data Format	NMEA / Binary
External I/Ps	Odometer/Air Data
Output Parameters	Euler angles, Position in Geodetic, NED velocities, Body Accelerations, Body Rates and Quaternion
Environmental Compliant	
Operating Temperature	-40 °C to +85 °C
Humidity	10% to 90% RH (non - condensing)
Survival Shock	Up to 40 g
IP Protection	IP65
Vibration	0.04 g ² /VHz
EMI/EMC	As per MIL-STD-461E/F
Environmental Tests	As per MIL-STD-810G

SOFTWARE SUITE

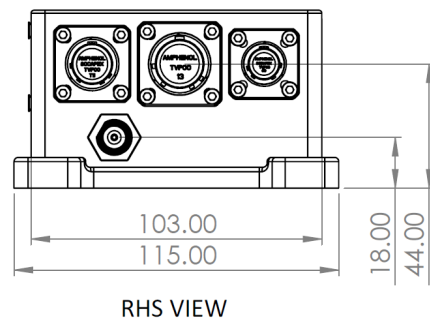
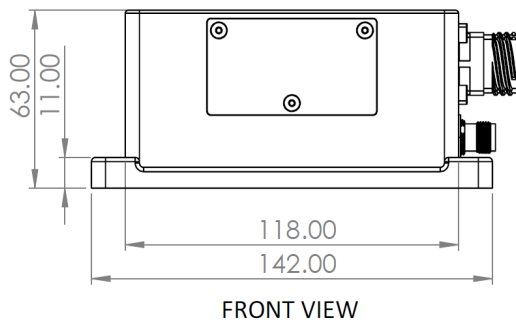
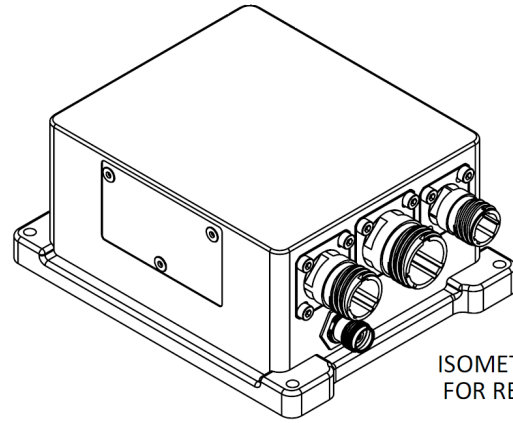
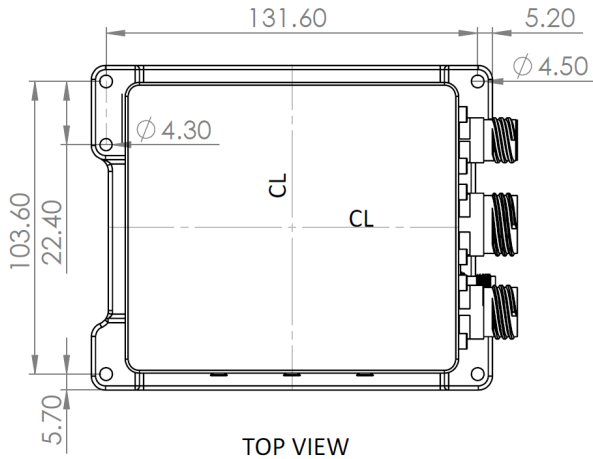
The Octantis 2 INS is accompanied by a feature rich software suite, for easy configuration, magnetic calibration, data display and data logging.

Note: These images of the software suite are for reference.



MECHANICAL DIMENSIONS

All dimensions in mm



ORDERING INFORMATION

OCT2 - NS7300D-01A (Product Code: 19021)