

INERTIAL NAVIGATION SYSTEMS

FEATURES

- Multimode Kalman filter
- Accepts External Aiding Data
- Position Accuracy 1 cm with RTK
- Velocity Accuracy 3 cm/s with RTK
- Multi-Constellation L1/L2/L5 with NavIC
- Shock Resistance up-to 40 g
- Isolated Interfaces and Power Supply
- Ethernet Interface
- MIL-STD-810G & MIL-STD-461E Compliant
- 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 series of Inertial Navigation Systems are next-generation NAV systems offering tactical performance with high-performance MEMS sensors. The Octantis 2 series is a high performance system with an exclusive selection of low-noise accelerometers, low-drift gyroscopes, magnetometer, barometer and multi-constellation GNSS including support for centimeter level positioning with multi-frequency RTK option.

Aeron's proprietary parameter estimation engine based on multi-modal Kalman filter works optimally utilizing the high-speed processor architecture offering real-time performance in demanding applications. The Octantis 2 INS system is ruggedized and qualified to MIL-STD-810G & MIL-STD-461E standards incorporating vibration and EMI rejecting features in the design.

Octantis 2 has multiple isolated interfaces for communication. It has a provision for interfacing odometer and externally providing aiding data from other external sensors.

The sensing elements are characterized in our in-house lab and corrected for temperature drifts, misalignment, non-linearity and other errors over the dynamic operating ranges.

OCT2-NS7300D-01A has an integrated multi-frequency 440 channel L1/L2/L5 GNSS receiver offering centimeter level position accuracy in RTK mode.

OCT2 NS7300D-01A



TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS7300D-01A
Acceleration	
Range	±15 g
Noise Density	90 µg/√Hz
Bias Instability	±1.5 mg
Angular Rate	
Range	±450 °/s
Noise Density	0.007 °/s / √Hz
Bias Instability	1 °/hr
Position & Velocity Accuracy	
Horizontal Position ^{1,2,3}	1 cm with RTK 1.5 m in Standalone mode 2% of DT with external Odometer ⁴ / external Air Data Computer
Vertical Position ^{1,2,3}	2 cm with RTK 2 m in Standalone mode
Velocity	3 cm/s with RTK 0.2 m/s in Standalone mode
Attitude	
Roll Range	±180°
Pitch Range	±90°
Roll, Pitch Accuracy ²	0.15°
Heading Range	±180°
Heading Accuracy ^{1,2,5,6}	0.5° with GNSS 1° with Magnetometer
Angle Resolution	<0.01°
Barometer	
Range	300-1200 hPa
Accuracy	±0.5 hPa
Magnetometer	
Range	±4 gauss
GPS / GNSS	
Type	440 channel, L1/ L2/ L5 Code / Carrier phase GPS, GLONASS, GALILEO, BEIDOU and IRNSS/NavIC
TTFF ⁷ Cold Start	45 s
Reacquisition Time	1 s
Electrical	
Input Voltage	12 V to 32 V DC
Power Consumption	<6 W
Connector	D38999 Series III
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

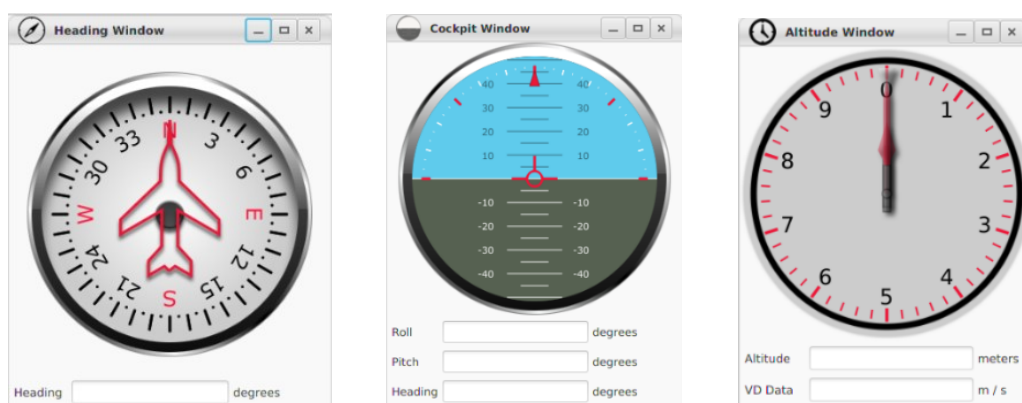
TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS7300D-01A
Physical	
Weight	<1 kg
Size	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
Output Parameters	Euler angles, Position in Geodetic, NED velocities, Body Accelerations, Body Rates and Quaternion
Environmental	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-45 °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 /√Hz
MTBF	15000 hours
EMI/EMC	As per MIL-STD-461E
Environmental Tests	As per MIL-STD-810G

SOFTWARE SUITE

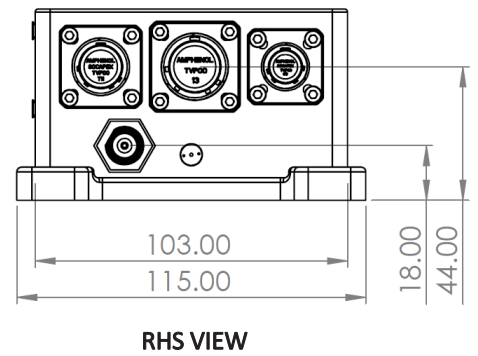
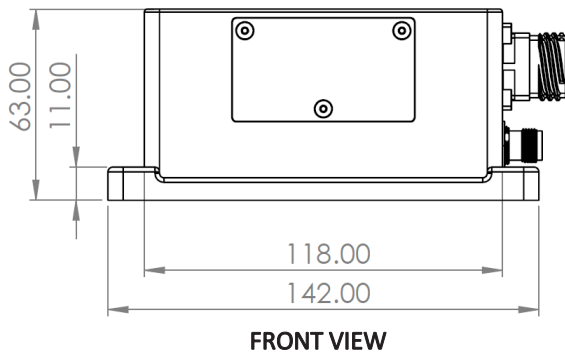
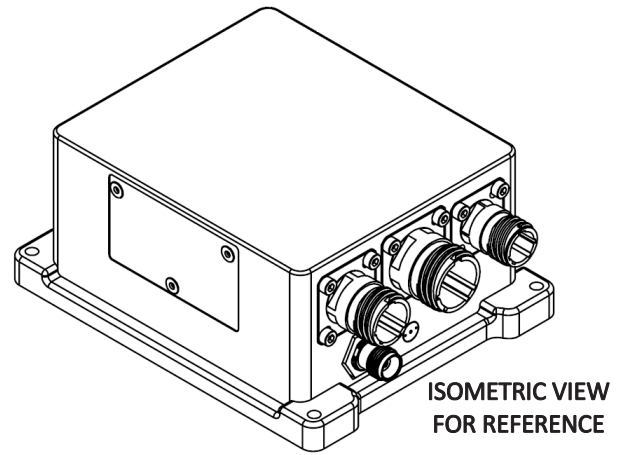
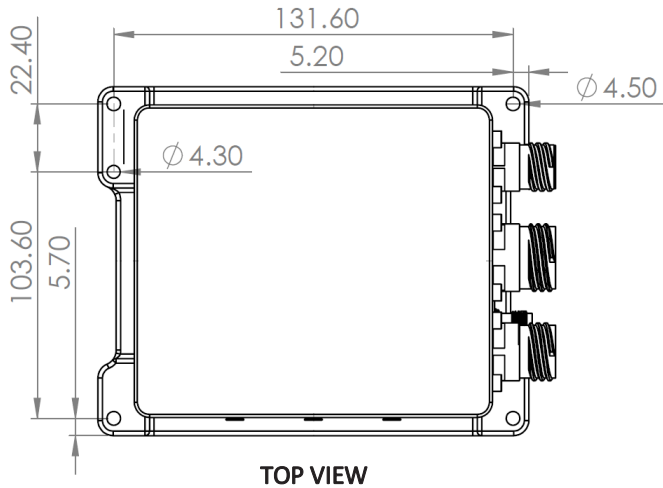
Octantis 2 INS comes with a feature rich software suite, for easy configuration, magnetic calibration, data display and data logging.

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



MECHANICAL DIMENSIONS

All dimensions in mm



ORDERING INFORMATION

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