

DUAL ANTENNA INERTIAL NAVIGATION SYSTEM

FEATURES

- Multimode Kalman filter
- Accepts External Aiding Input
- Tactical class IMU, 0.8 °/hr gyro
- Centimeter level position accuracy with RTK
- Dual Antenna GNSS Compassing
- Static and Transfer Alignment
- Configurable Platform - Aerial/Land/Sea
- Shock Resistance up-to 40 g
- Isolated Interfaces and Power Supply
- MIL-STD-810F/G, MIL-STD-461E/F and JSS55555 Compliant

APPLICATIONS

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

DESCRIPTION

The Octantis 2, OCT2-NS6500T is a next generation GNSS-aided MEMS based Inertial Navigation System which offers high-end tactical class performance. The OCT2-NS6500T 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, misalignment, non-linearity and other errors over the entire dynamic operating ranges. It is equipped with dual antenna multi-constellation GNSS receivers which provide centimeter level position accuracy in RTK configuration.

The OCT2-NS6500T 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, MIL-STD-461E/F and MIL-STD-704D standards.

The OCT2-NS6500T 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 OCT2-NS6500T has a dual antenna/dual GNSS receiver configuration that enables GNSS compassing in static and dynamic conditions. The built-in low noise magnetometer is a redundant heading estimation source in GNSS denied/poor visibility conditions. In addition to being accurate in high dynamics, the OCT2-NS6500T gives accurate GPS heading even in static or low dynamic conditions for antenna orientation/pointing and unmanned ground vehicle (UGV) applications.

OCT2 NS6500T



Note: This is a representational image

TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS6500T
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}	2 cm with RTK, 2 m CEP with GNSS <1% of DT with external Odometer ⁴ /external Air Data Computer
Vertical Position ^{1,2,3}	5 m (1σ) with GNSS, 2 m (1σ) relative with Barometer
Velocity	0.2 m/s RMS with GNSS
Attitude	
Roll Range	±180°
Pitch Range	±90°
Roll, Pitch Accuracy ²	0.08° RMS (static/low dynamics), 0.15° RMS (dynamic)
Heading Range	±180°
Heading Accuracy ^{1,2,5,6}	<0.3° RMS with GNSS in dynamic conditions <0.15° with 2 m baseline <0.08° with 4 m baseline <0.5° RMS with magnetometer
Angle Resolution	<0.01°
Magnetometer	
Range	±8 gauss
GPS / GNSS	
Type	72 channels L1, GNSS (GPS L1 C/A, GLONASS L1OF / BeiDou B1I)
TTFF ⁷ Cold Start	26 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

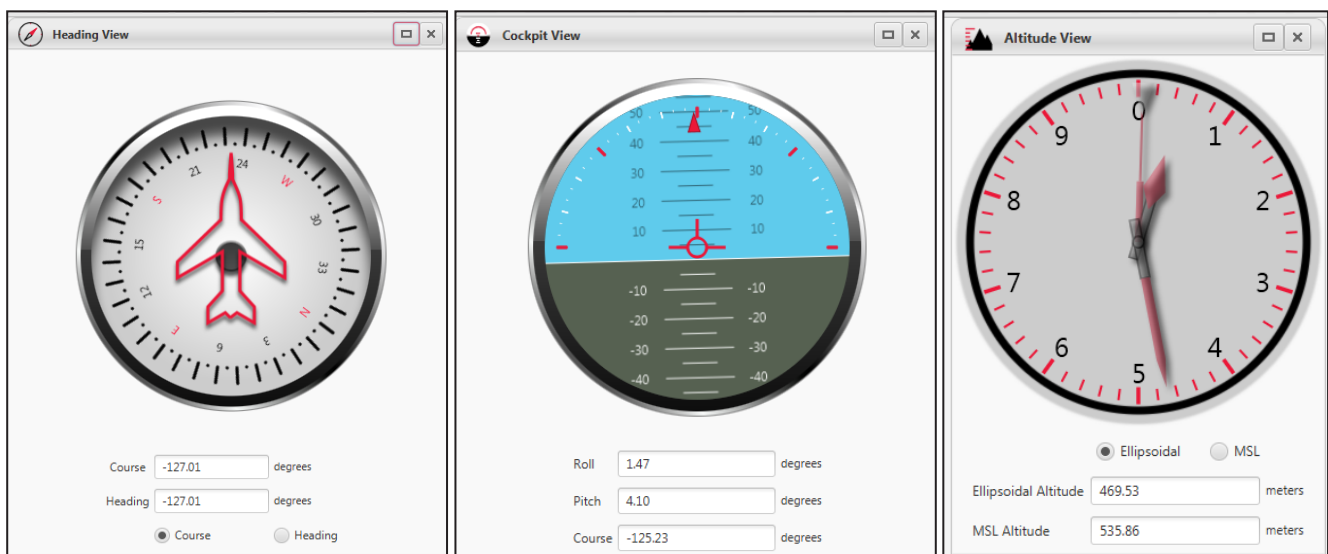
TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS6500T
Physical	
Weight	900 gms
Dimension	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-810F/G
Power Supply	As per MIL-STD-704D

SOFTWARE SUITE

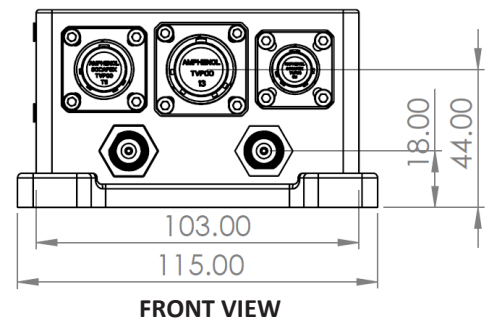
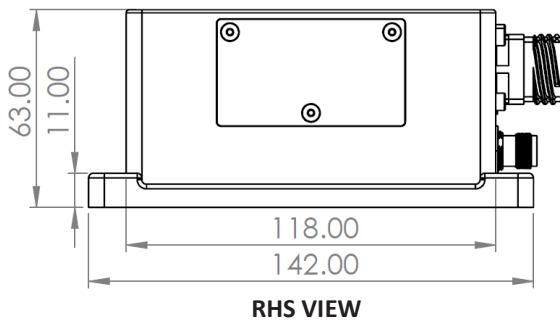
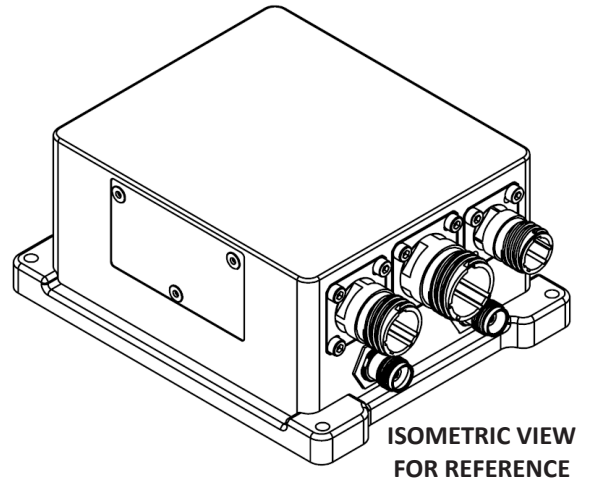
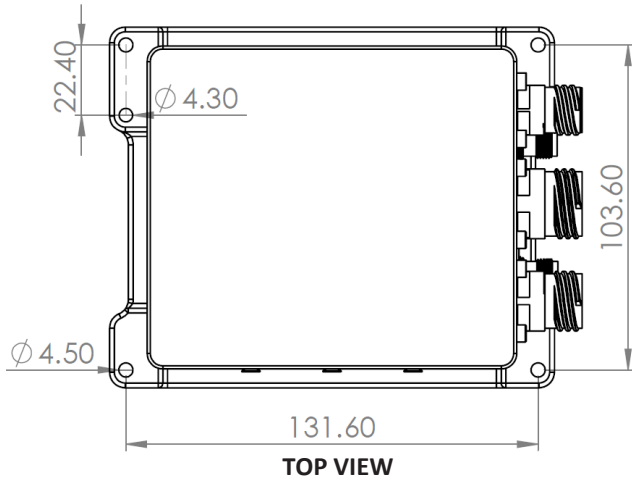
The Octantis 2 INS is accompanied by a feature rich software suite, for easy configuration, magnetic calibration, data display and logging.

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



MECHANICAL DIMENSIONS

All dimensions in mm


ORDERING INFORMATION
OCT2 - NS6500T (Product Code: 19012)