

## INERTIAL NAVIGATION SYSTEMS

### FEATURES

- Multimode Kalman filter
- Accepts External Aiding Data
- Position Accuracy < 2.5 cm CEP with RTK
- Velocity Accuracy < 2 cm/s with RTK
- Platform Customization – Aerial/Land
- Shock Resistance up-to 20g
- Isolated Interfaces & Power Supply
- Ethernet Interface
- MIL-STD-810G & MIL-STD-461E Qualified
- JSS55555 Compliant

### APPLICATIONS

- Inertial Guidance & Dead Reckoning
- Armored Vehicle Navigation
- Platform Stabilization and Control
- Unmanned Vehicle Navigation
- Antenna Orientation & Stabilization
- Mapping & Surveying
- Avionics
- 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 highly integrated 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 & EMI rejecting features in the design.

Octantis 2 has multiple isolated interfaces for communication. It has a provision for interfacing odometer and externally feeding in aiding data from other external sensors. The OCT2 variants have a solid-state memory built-in for data logging.

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

NS7300D has an integrated multi-frequency GNSS receiver offering centimeter level position accuracy in RTK mode.

NS7300D



## TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS7300D
<b>Acceleration</b>	
Range	±15 g
Noise Density	160 µg / √Hz
Resolution	0.1 mg
Bias	±1.5 mg
<b>Angular Rate</b>	
Range	±480 °/s (upgradable up to 1900 °/s )
Noise Density	0.006 °/s / √Hz
Bias Instability	< 1 ° / hr
<b>Position &amp; Velocity Accuracy</b>	
Position	2.5 cm CEP with RTK , 0.5 m with DGPS correction, 2% of DT with external Odometer <sup>1</sup> / external Air Data Computer
Velocity	< 2 cm/s with RTK 0.2 m/s with GNSS (w/o RTK) < 0.8 m/s (in 1 min) w/o GNSS
<b>Attitude</b>	
Roll Range	±180°
Pitch Range	±90°
Roll, Pitch Accuracy	0.15° (1σ) with GNSS aiding
Heading Range	±180°
Heading Accuracy <sup>2</sup>	0.5°
Angle Resolution	< 0.01°
<b>Magnetometer</b>	
Range	±4 gauss
<b>GPS / GNSS</b>	
Type <sup>3</sup>	132 channel 25Hz, L1/ L2 Code / Carrier phase GPS & GLONASS (NS7300D - 01) or 544 channel 20Hz, L1/ L2/ L5 Code / Carrier phase GPS, GLONASS, GALILEO, BEIDOU & IRNSS (NS7300D - 02)
TTFF <sup>4</sup> Cold Start	45 s
Reacquisition Time	1.2 s
GPS Modules	1
<b>Electrical</b>	
Input Voltage	20-30 VDC (isolated)
Power Consumption	6W
Connector	D38999 series III

- 1 - 0.5 - 2 %, subject to Odometer accuracy  
2 - 1σ, Static accuracy after magnetic calibration.  
3 - Refer ordering information  
4 - Time to First Fix

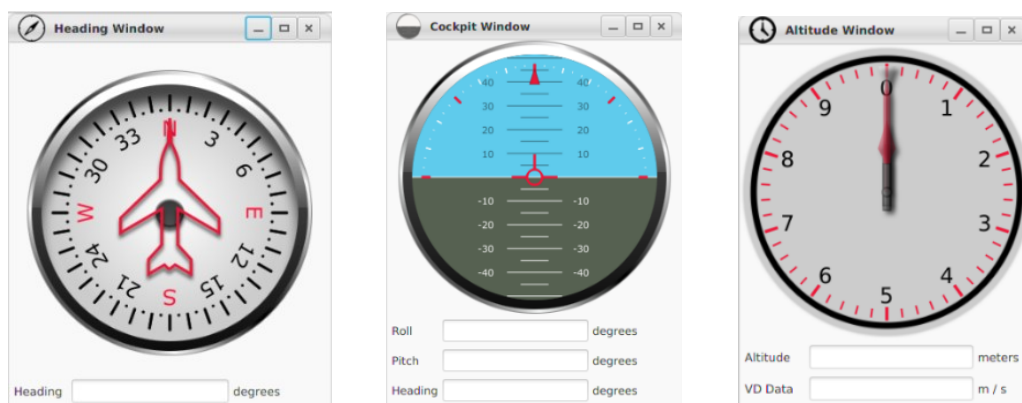
## TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	NS7300D
<b>Physical</b>	
Weight	900 gms
Size	142 mm (W) x 115 mm (B) x 62.10 mm (H)
Update rate	Up to 50 Hz
Data Format	NMEA / Binary
External I/Ps	Odometer
Output Parameters	Euler angles, Position in Geodetic, NED velocities, Body Accelerations, Body Rates, Quaternion
<b>Environmental</b>	
Operating temperature	-40°C to +85°C
Storage temperature	-45°C to +90°C
Humidity	10% to 90% RH (non - condensing)
Survival Shock	Up to 20g
IP Protection	IP67
Vibration	0.04 g <sup>2</sup> /vHz
MTBF	22000 hours
EMI/EMC	As per MIL-STD-461E
Environmental Tests	As per MIL-STD-810G
Interface Options	RS232 (isolated), RS422 (isolated), Ethernet (isolated TCP), 1PPS from GNSS

## SOFTWARE SUITE

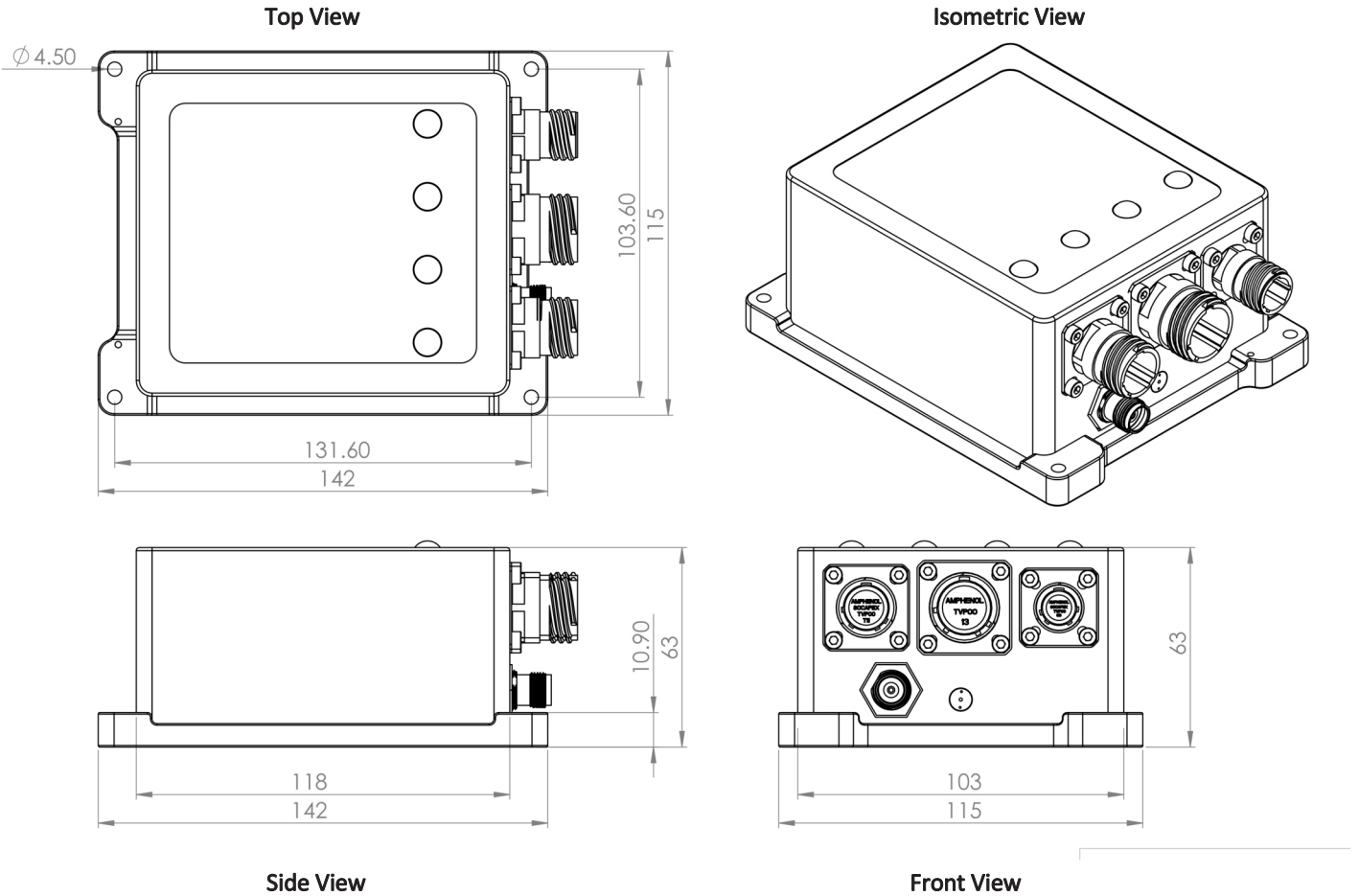
Octantis 2 INS comes with a feature rich software suite, for easy configuration, magnetic calibration, data display and data logging.

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



## MECHANICAL DIMENSIONS

All dimensions in mm



## ORDERING INFORMATION

OCT2 - NS7300D - 01

- 01 - 136 Channel L1/L2 GNSS (Product Code: 19013)
- 02 - 544 Channel L1/L2/L5 GNSS (Product Code: 19016)