

## ATTITUDE AND HEADING REFERENCE SYSTEM (AHRS)

### FEATURES

- Multi-modal Kalman filter
- Shock Resistance up-to 20 g
- Isolated Interfaces & Power Supply
- MIL-STD-810G, MIL-STD-461E Qualified
- DO178B Level B Compliant Software

### APPLICATIONS

- Avionics
- Tactical Grade Navigation
- Electronic Flight Instrument System
- Cockpit Display
- Standby AHRS System

**OCT2 AN5300S**



### DESCRIPTION

Aeron's Octantis 2 AHRS is indigenously designed and developed for airborne applications. The model OCT2-AN5300S AHRS has been qualified as per MIL-STD-461E, MIL-STD-810G and DO-178B level B (100% MCDC coverage) standards and accorded CEMILAC certification. The unit meets the performance as per the RTCA-DO-334 standard.

The AHRS is equipped with tactical grade MEMS-based gyroscopes, accelerometers, and built-in magnetometer which provides an uninterrupted high-performance attitude and heading information to airborne platforms. Aeron's proprietary parameter estimation engine based on multi-modal Kalman filter architecture offers superior real-time performance in demanding applications. The AHRS is an airborne qualified system which can be used as a primary or standby instrument for electronic flight instrumentation systems, cockpit displays in a wide range of fighter, transport and passenger aircrafts.



## TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value		
	OCTANTIS 2		
	AN5300S		
Acceleration (X, Y, Z)			
Range	±12 g		
Resolution	1 mg		
Angular Rate (Roll, Pitch and Yaw)			
Range	±450 °/s		
Resolution	0.1 °/s		
Magnetometer (Internal)			
Range	±4 gauss		
Resolution	0.25 mgauss		
Attitude			
Roll Range	±180°		
Pitch Range	±90°		
Roll, Pitch Static Accuracy	Less than ±1.0°		
Roll, Pitch Dynamic Accuracy <sup>1</sup>	Less than ±2.5°		
Attitude Resolution	0.01°		
Heading			
Range	±180°		
Accuracy <sup>1</sup>	Less than ±2.5°		
Heading Resolution	0.01°		
Electrical			
Input Voltage (isolated)	9 V to 32 V DC		
Power Consumption	< 2.5 Watt		
Communication Interfaces			
Input / Output Ports	RS232, RS422		
Connector	DB15 (M24308/3-2F)		
Update rate	50 Hz		
Baud Rate (RS422)	Configurable, 38400 (Default)		
Baud Rate (RS232)	Configurable, 9600 (Default)		
Data Format	Binary		
External I/Ps	True Airspeed, Magnetic Field, Pressure Altitude		
Output Parameters	Euler angles, Body Accelerations, Euler Rates, BIT (Built-In-Tests)		
Mechanical	Typical	Tolerance	Units
Dimensions	148 (L) x 115 (W) x 63 (H)	±0.3	mm
Weight	950	± 50	gms
Operating temperature <sup>2</sup>	-40 to +71		°C
Storage temperature	-55 to +90		°C
Humidity	10 to 95 (non - condensing)		% RH
MTBF (Mean Time Between Failure)	41900 hours at 30°C, 16300 hours at 55°C, As per Part Stress method of MIL-HDBK-217, Notice F		

1: 1σ accuracy after magnetic calibration and setting correct declination / offset angle

2: System is tested up to a maximum temperature of +80 °C (4 hours continuous operation)

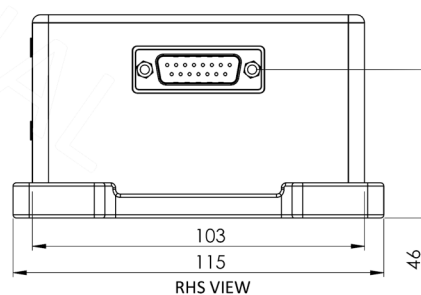
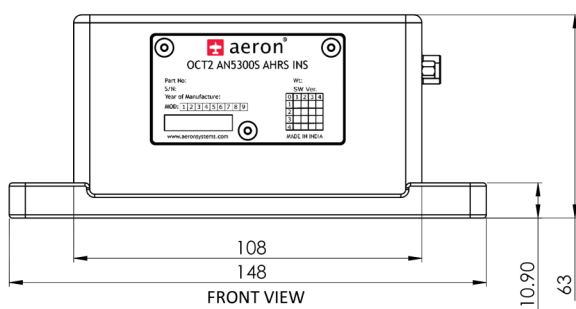
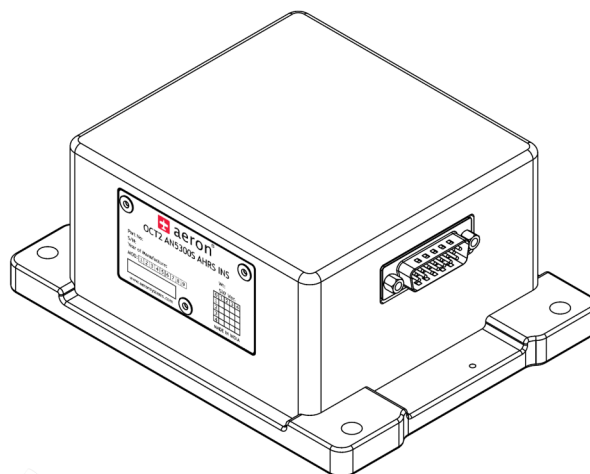
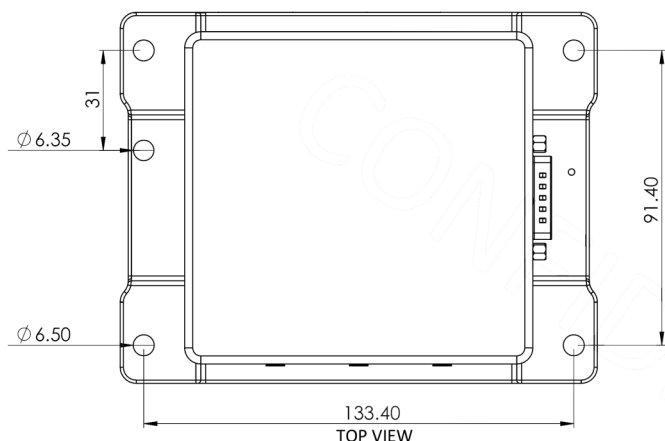
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Parameter Name	Parameter Value
	OCTANTIS 2
	AN5300S
<b>ELECTROMAGNETIC</b>	
Conducted Emissions, Power Leads	As per test CE102 of MIL-STD-461E (Basic Curve)
Radiated Emissions, Electric Field	As per test RE102 of MIL-STD-461E
Radiated Susceptibility, Electric Field	As per RS103, 60 V/m level of MIL-STD-461E
Conducted Susceptibility, Power lead	As per CS101 of MIL-STD-461E (Curve #2)
Conducted Susceptibility, Bulk Cable Injection	As per CS114 of MIL-STD-461E (Limit Curve #3)
Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation	As per CS115 of MIL-STD-461E
Conducted Susceptibility, Damped Sinusoidal Transient, Cable and Power Leads	As per CS116 of MIL-STD-461E ( $I_{Max} = 5 \text{ A}$ )
<b>ENVIRONMENTAL</b>	
Random Vibration Test	As per MIL-STD-810F, method 514.5C-17, Procedure I, Category 12
High Temperature Ground Survival Test	As per MIL-STD-810G, Method 501.5, Procedure I
Ground Operation Short Term Test	As per MIL-STD-810G, Method 501.5, Procedure II
Ground Operation Long Term Test	As per MIL-STD-810G, Method 501.5, Procedure II
Low Temperature Test	As per MIL-STD-810G, Method 502.5, Procedure I
Low Pressure (Altitude) Test	As per Clause 3.2.1.4, JSS55555: 2000, Revision No. 2
Humidity Test	As per MIL-STD-810F, Method 507.4
Acceleration Test	Structural, MIL-STD-810G, Method 513.5, Procedure I Operational, MIL-STD-810G, Method 513.5, Procedure II
Shock Survival Test	As per MIL-STD-810E, Method 516.4 Procedure I
Transit Drop Test	As per MIL-STD-810F, Method 516.5, Procedure IV
Thermal Shock Test	As per MIL-STD-810F, Method 503.4
Drip Test	As per MIL-STD-810F, Method 506.4, Procedure III
Fungus Test	As per MIL-STD-810F, Method 508.5
Fluid Contamination	As per MIL-STD-810F, Method 504.1
Corrosion Salt Fog Test	As per MIL-STD-810E, Method 509.3



### MECHANICAL DIMENSIONS

All dimensions in mm



### ORDERING INFORMATION

OCT2 - AN5300S (Product Code: 19014)