

ATTITUDE AND HEADING REFERENCE SYSTEM (AHRS)

FEATURES

- Extended Kalman filter
- Redundant Triaxial solid state MEMS accelerometers, gyroscopes
- External True Airspeed Aiding
- External Magnetometer Input
- High dynamic range upto ± 450 deg./s and $\pm 15g$
- Functional shock sustainance 20g
- MIL-STD-810G, MIL-STD-461E Qualified
- Software DO178B Level B + Compliant



APPLICATIONS

- Inertial Guidance
- Platform stabilization and control
- Unmanned Vehicle Navigation
- Embedded vehicle electronics and avionics
- Inertial parameter measurement

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-810F 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 (g)	±15	
Resolution (mg)	1	
Bias Instability (mg)*	5	
Angular Rate (Roll, Pitch and Yaw)		
Range (°/s)	±450	
Resolution (°/s)	0.1	
Bias Instability (°/hr)*	4	
Magnetometer (Internal)		
Range (guass)	±4	
Resolution (mguass)	0.25	
Attitude		
Roll Range (deg)	±180	
Pitch Range (deg)	±90	
Roll, Pitch Static Accuracy (deg)	< ±1.0	
Roll, Pitch Dynamic Accuracy ¹ (deg)	< ±2.5	
Attitude Resolution (deg)	0.01	
Heading		
Range (deg)	±180	
Accuracy ¹ (deg)	Less than ±2.5	
Heading Resolution (deg)	0.01	
Electrical		
Input Voltage (isolated) (V DC)	12 to 32	
Power Consumption (W)	< 2.5	
Communication Interfaces		
Input / Output Ports	RS232, RS422	
Connector	DB15 (M24308/3-2F) Male	
Update rate (Hz)	50	
Baud Rate (RS422) (bit/s)	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
Dimensions (mm)	148 (L) x 115 (W) x 63 (H)	±0.3
Weight (gms)	900	±50
Operating temperature ² (°C)	-40 to +71	
Storage temperature (°C)	-55 to +90	
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)

* - Short Term/Allan Variance

MADE IN INDIA

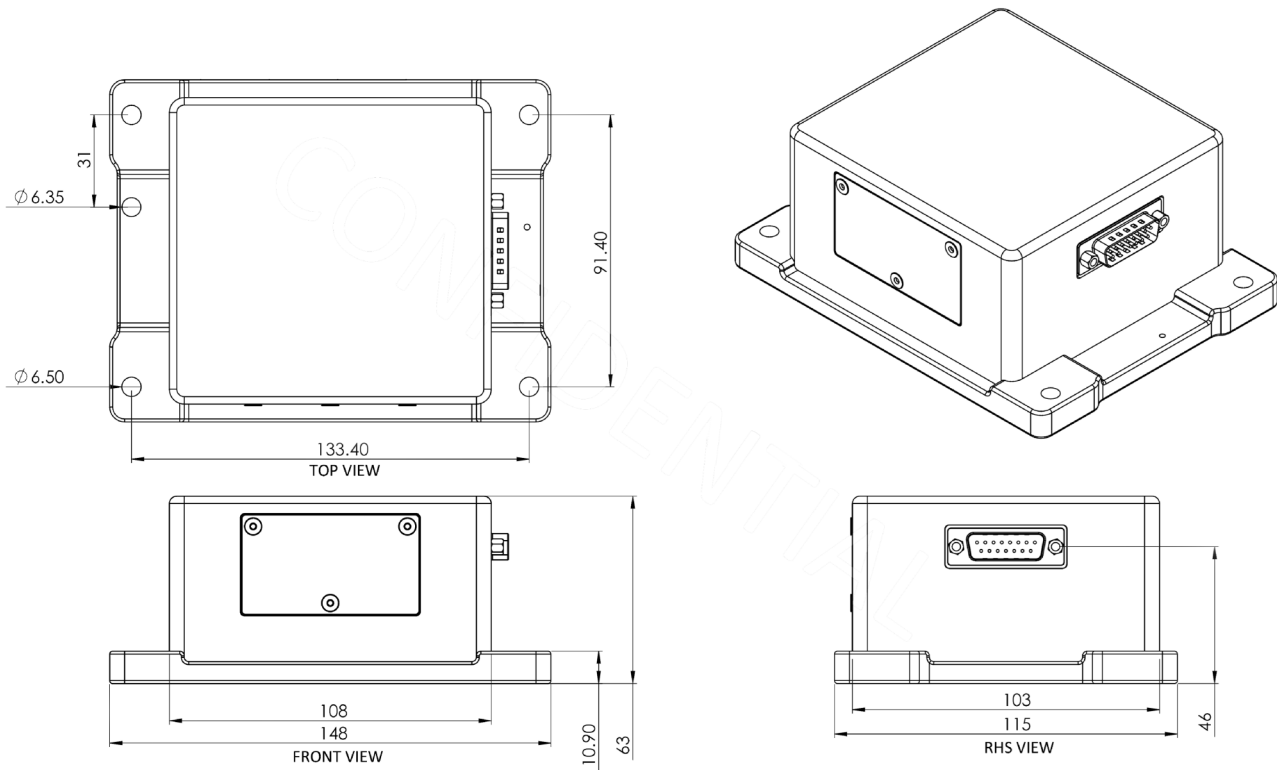
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TECHNICAL SPECIFICATIONS

Parameter Name	Parameter Value
	OCTANTIS 2
	AN5300S
ELECTROMAGNETIC	
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 (Fixed wind Internal < 25m nose to tail)
Radiated Susceptibility, Electric Field	As per RS103, 60 V/m level of MIL-STD-461E (Aircraft internal, AF type)
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 ($I_{Max} = 5 \text{ A}$)
ENVIRONMENTAL	
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 the dimensions in mm



ORDERING INFORMATION

OCT2 - AN5300S (Product Code: 19014)