Air Data, Attitude and Heading Reference System (ADAHRS)
IS&S Air Data, Attitude and Heading Reference System (ADAHRS)

The IS&S ADAHRS replaces independent DG/VG’s, AHRS and air data computers in a single, compact, low weight unit. The ADAHRU is digital but provides analog interfaces to adapt to legacy autopilots and avionics instruments.

The ADAHRS incorporates an integral Inertial Measurement Unit (IMU) which includes tri-axial accelerometers and gyros. The IMU is adaptable to include an integral air data module to measure static and total pressure for independent display of air data information.

An external Magnetic Sensor Unit (MSU) input is used to provide long term magnetic aiding to compute Magnetic Heading output. A Directional Gyro Heading output can be computed if the DG mode is selected via provided interfaces.

The ADAHRS can be configured for aircraft specific parameters such as Maximum Allowable Airspeed Limit, static source error correction, type of temperature probe, attitude offset calibration, MSU calibration, and other optional functionality via the Installation Configuration Module (ICM).

Designed with the latest in MEMS Gyro technology coupled with the unparalleled history of IS&S air data and RVSM product experience; the result is a highly reliable and accurate ADAHRS for retrofit and OEM applications.

Features & Benefits
- Versatile interface capability
- Highly accurate data sensors
- Directional Gyro Mode
- Software RTCA DO-178C Level A
- Complex Electronic Hardware: RTCA DO-254 Level A
- Hardware Qualification: RTCA DO-160G
- Control interfaces via discreetes and/or ARINC 429
- Increased safety and reliability
- Logistics and maintenance benefits by integrating multiple functions into one LRU
- No forced air cooling
- Analog I/O module configuration in support for legacy integration
- RVSM capable
- GPS aiding for improved accuracy beyond certified specification

Technical Overview
The IS&S ADAHRS replaces independent DG/VG’s, AHRS and air data computers in a single, compact, low weight unit. The ADAHRU is digital but provides analog interfaces to adapt to legacy autopilots and avionics instruments.
**System Specifications**

**ADAHRU Signal Inputs/Outputs**
- **RS422:** 2 RX/TX channels, 1 RX only channel
- **ARINC 429:** 2 outputs (ADC, AHRS). Outputs are configurable
- **Analog:** Temperature Probe
  - Magnetic Sensor Unit (MSU)
- **Discretes:** 4 input discretes
  - 1 AHRS valid discrete out

**Analog Output Configuration** differs between aircraft types. IS&S will adapt the analog card to the application where the ADAHRS is installed.

**Certifications**

| TSO C106 | Air Data Computer |
| TSO C201 | Attitude and Heading Reference System |

**DO-334 Compliance**
- A3 = Attitude
- H1 = Magnetic (Slaved) Heading
- H9 = Directional Gyro (DG) Heading
- T1 = Slip/Skid

Degraded attitude mode with unavailable air data is A4.

**Operating Specifications**

| ADAHRS Unit |
| Weight: | 2.8 lbs. |
| Power: | 28 VDC, 12 watts |
| Reliability: | 45,000 hours MTBF |
| Qualifications: DO 160G, DO-178C Level A, DO-254 Level A |

**Outline Dimensions**

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[Diagram of ADAHRS unit specifications and outline dimensions]
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IS&S is the world’s leading supplier of RVSM systems and integrator of Cockpit Information Systems (Cockpit/IP®) for the Commercial Air Transport, Military, and Business Aviation Markets. IS&S incorporates leading edge technologies into sophisticated, cost-effective solutions for the aerospace industry.

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