# SECURE AIRCRAFT TRACKING MODULE (SATM)

## FEATURES

- **Communications:**
  - Secure Iridium module
    - Single Burst Data (SBD)
  - GNSS Module
    - GPS, GLONASS, Galileo, BeiDou
  - Secure Bluetooth LE 4.0
    - Up to 150m of range
  - Ethernet
- **Security:**
  - RTCA DO-326, 356, and 354, compliant
  - AES Encryption Engine
  - Trusted Platform Module (TPM) for RSA Authentication
- **Microelectromechanical Systems Sensors:**
  - 3-axis Accelerometer
  - 3-axis Gyroscope
  - 3-axis Magnetometer
  - Pressure Sensor
- **Data Processing:**
  - ASIC design for high reliability and security
  - Complies with DO-254 DAL "C"
- **Storage:**
  - 4 GB of flash
  - Unlimited Cloud storage
- **Interfaces:**
  - ARINC 717
  - 8 input discrete key-lines
  - Optional: ARINC 429 4 RX/1 TX
- **Autonomous Power:**
  - Internal hold up for 7 minutes of operation
  - Optional: Battery Pack for 14 hours of operation
- **Power:**
  - 28 VDC
  - 2.5 Watts Nominal

## SUMMARY OF BENEFITS

- **Aircraft Tracking/ Data Alerts:**
  - Meets ICAO Annex 6
  - Meets ICAO recommendation for Virtual Flight Data Recorder
- **Additional Benefits:**
  - Real-time QAR FDR
  - Internal 9-axis MEMS chip provides aircraft attitude
  - Internal accelerometer
  - Crew or Airline Operation Center can place system into distress mode
  - A 24 hour Airport Mode to detect a door open or aircraft movement (with external battery option)
  - Alerts via triggers on any internal sensor or FDR parameter
  - Secure web based interface allowing data monitoring in real-time at AOC



*Part Number: TA-AM1002-001*
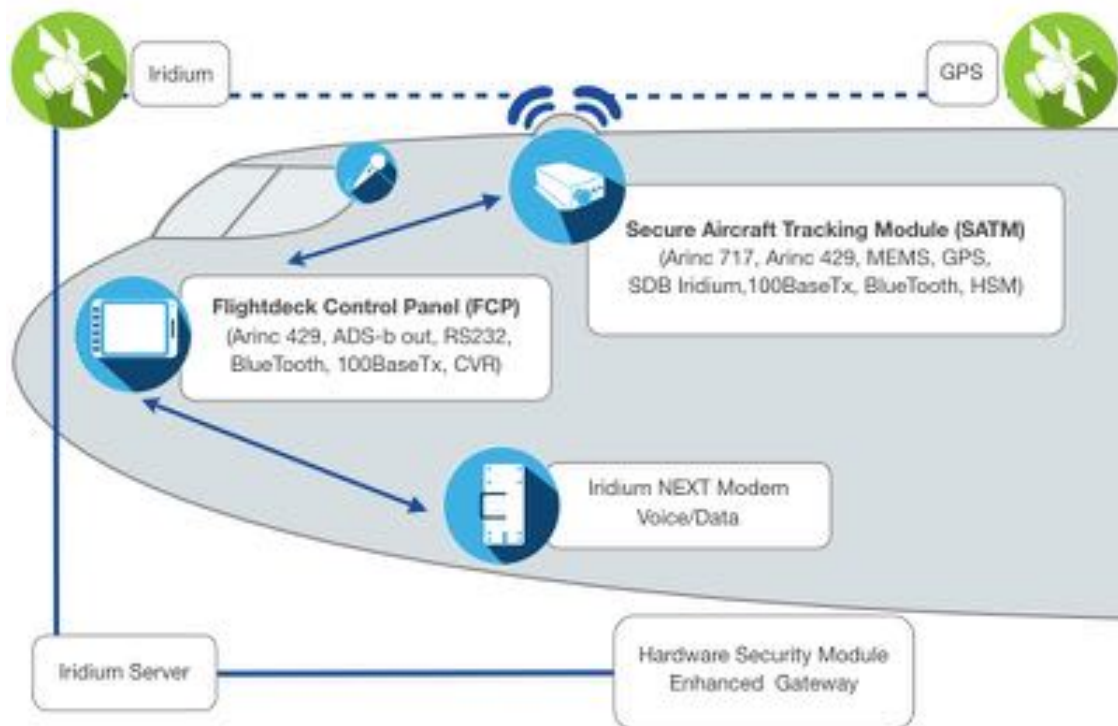
**Product Overview**

The Secure Aircraft Tracking Module (SATM) is a low cost, low weight LRU designed to meet the aircraft tracking requirements provided by the International Civil Aviation Organization (ICAO). The SATM provides true real-time global aircraft position, altitude, pitch, row, yaw, speed, heading, and vertical velocity over a secure data link to any Airlines Operation Center (AOC).

In normal mode, the SATM will provide aircraft status to AOC at predetermined intervals based on the airlines' requirements. The system has a geo-fenced internal set of parameters that can trigger abnormal mode, autonomously providing real time aircraft information. The aircraft crew or ground center (via the bi-directional Iridium link) can place the system into distress mode to allow real time monitoring, and the airline can set other alert triggers such as unusual attitude, airspeed out of range, altitude, input discretes, etc.

The SATM provides real-time inflight data tracking, real-time ground tracking, and informs the AOC when aircraft is powered and when power is removed. In Airport Mode, up to 24 hours of aircraft monitoring is achieved when depowered on the ground with external battery. In Airport mode the SATM will monitor aircraft location, door status and aircraft movement providing AOC with real-time updates on aircraft entry and movements.

The SATM has an optional Bluetooth radio to allow a secure connection for system status.

The SATM also has a connection to the Digital Flight Data Acquisition Unit (DFDAU) thru an ARINC 717 link. All Flight Data Recorder (FDR) parameters are available for exceedance or trend analysis in real-time and all the information is available for download after the flight using a high-speed 100 BaseTx connection.

The SATM has an option for up to (4) 429 Rx and (1) 429 Tx to support aircraft that do not have DFDAU or ARINC 717 connections.