SAFEROUTE+™

ADS-B In solutions for safer, more efficient flight

SafeRoute+ is the only ADS-B In retrofit solution for airlines. It increases safety and efficiency during all phases of flight using a suite of Automatic Dependent Surveillance-Broadcast (ADS-B) In applications while also enabling higher runway throughput.

SafeRoute+ creates an environment of shared traffic situational awareness between pilots and air traffic controllers. A simple upgrade to the TCAS 3000SP™ or T³CAS® computers, it uses the existing displays to provide basic ADS-B In information; and the new ADS-B Guidance Display (AGD) from ACSS for advanced applications.

SafeRoute+ provides the pilots a precise forward field of view of surrounding aircraft up to 100 nautical miles using a Cockpit Display of Traffic Information (CDTI). CDTI is achieved by using the existing Multi-function Control and Display Units (MCDU) and the Navigation Displays (ND) with the new AGD.

Currently, SafeRoute+ offers five applications, each focused on specific phase of flight; for total flight efficacy. All applications will provide better situational awareness in the cockpit; however, operators can choose the applications which best align with their specific operations to help them reduce the amount of missed approaches, increase runway throughput, optimize spacing buffers and reduce fuel burn and carbon emissions.

KEY FEATURES

- Software upgrade to existing T³CAS or TCAS 3000SP computers
- Uses existing displays:
  - Multi-function Control and Display Units (MCDU)
  - Navigation Displays (ND)
- New Economical ADS-B Guidance Display (AGD) enables advanced applications
- Provides Enhanced Airborne Traffic Situational Awareness
- Enables higher runway throughput and maximizes runway capacity
- Reduces fuel burn and carbon emissions
- Enables less delay vectoring
- Facilitates better block-time predictability
- Decreases spacing buffers
**ENHANCED AIRBORNE TRAFFIC SITUATIONAL AWARENESS (AIRB)**

**ENABLING PILOTS TO SEE VITAL INFORMATION ABOUT SURROUNDING AIRCRAFT**

AIRB is the standard SafeRoute+ application, providing flight identification, position, altitude, speed and direction for aircraft up to 100 nautical miles away. This information creates an environment of shared situational awareness and aids the crew in visual acquisition of traffic.

**CDTI-ASSISTED VISUAL SEPARATION (CAVS)**

**ENABLING OPTIMUM SPACING AND HIGHER RUNWAY THROUGHOUT**

CAVS enables a continual visual approach in reduced visibility conditions. With CAVS, flight crews are able to optimize spacing by using the data shown through SafeRoute+ on the display. This technology can reduce go-arounds, keeping flights and airports, running on time during reduced visibility conditions.

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84% of pilots surveyed reported that ADS-B In enhances their situational awareness.

14% The CAVS application has shown to reduce aircraft final approach time by as much as 14% in reduced visibility conditions.
INTERVAL MANAGEMENT SPACING (IMS)

REDUCING INTER-ARRIVAL TIME AND MAXIMIZING RUNWAY CAPACITY

During the arrival phase of a flight, the Interval Management Spacing (IMS) application maintains time-based spacing during instrument meteorological conditions, enabling flight crews to maintain consistent and well-spaced arrival flow to an airport. IMS reduces the distance and time flown, lowers the probability of vectoring and reduces low-variance aircraft Inter-Arrival spacing. These key features enable block time predictability and maximizes runway capacity.

IM can help reduce variance in the delivery of airplanes by 7 seconds, IMPROVING RUNWAY THROUGHPUT up to 23%.

IN-TRAIL PROCEDURES (ITP)

INCREASING FUEL SAVINGS WHILE REDUCING CARBON DIOXIDE EMISSIONS

The In-Trail Procedures (ITP) application provides the flight crew with a vertical profile view of surrounding traffic over 100NM away, which is useful during oceanic routes to determine if an ITP maneuver is possible. The Federal Aviation Administration (FAA) has released studies reporting transatlantic ITP-equipped flights have saved an average of 670 pounds of fuel and likewise, transpacific flights have saved an average 521 pounds per flight. This fuel savings also results in a significant reduction in carbon emissions.

Aircraft equipped with ITP have SAVED AN AVERAGE OF 670 POUNDS OF FUEL on transatlantic flights.
Host Computer Platforms

With this new, patented architecture, selectable SafeRoute+ ADS-B In applications hosted in the TCAS 3000SP™ or T³CAS® computers utilize the existing Navigation Displays (ND) and Multipurpose Control and Display Units (MCDU). Advanced applications require the installation of the newly developed AGD from L3Harris.

ADS-B Out Transponders and NextGen Operations

ACSS is leading the industry in ADS-B technology and the implementation of NextGen/SESAR capabilities by developing ADS-B avionics. ADS-B is the transmission of an aircraft’s position, speed, and intent to other aircraft and to Air Traffic Control. ACSS’s Mode S transponders are certified to DO-260B, the highest level of ADS-B Out meeting global ADS-B mandates.