



SafeRoute software can be hosted on the ACSS TCAS 3000SP or Traffic Management Computer (TMC™)

Physical Size

Dimensions	4 or 6MCU
Weight	13.85 lb. (6.28 kg) (4 MCU 28Vdc Only) 15.35 lb. (6.97 kg) (4 MCU 115 VAC & 28 Vdc) 16.08 lb. (7.30 kg) (6 MCU 115 VAC & 28 Vdc)
Mounting	ARINC 600 6 OR 4 MCU Mount
Cooling	No forced air required for 4 MCU (internal fan) Per ARINC 600/404 for 6 MCU

Certification

Environmental Specifications	DO-160C
Software	DO-178B Level B
ADS-B Capability	RTCA/DO-260A 1090 MOPS extended range operations
ADS-B Receiver	Availability > 95%
Operating Altitude	Sea Level to 55,000 feet
Operating Temperature	-55 to 70 degrees C
Storage Temperature	-55 to 85 degrees C
Power	28 VDC or 115 VAC
Power Consumption	Nominal power consumption 85 watts
Maintenance	Supports OEM Maintenance Computer Interfaces
Portable Data Loader	ARINC 615
Processor Unit	RT-950 or RT-951
Mode S Transponder	RCZ-852 (Business & Regional Transponder) XS-950 (Air Transport Data Link Transponder) XS-950SI (Military Mode S/IFF Transponder)
Antenna	AT 910
Displays	Various
Controls	Various

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This technical data and software is considered as Technology Software Publicly Available (TSPA) as defined in Export Administration Regulations (EAR) Part 734.7-11.

Automatic Dependent Surveillance-Broadcast

ADS-B is the technology in which the NextGen air traffic management system is being based. It is a cooperative surveillance technique for air traffic control and aircraft.

ADS-B provides accurate information and frequent updates to airspace users and controllers, and supports improved use of airspace, reduced ceiling/visibility restrictions, improved surface surveillance, and enhanced safety through conflict management.

With ADS-B an aircraft broadcasts its own state vector and other information without knowing what other vehicles or entities might be receiving it and without expectation of an acknowledgment or reply. ADS-B is automatic in that no pilot or controller action is required for the information to be transmitted. It is dependent surveillance in that the surveillance-type information so obtained depends on the suitable navigation and broadcast capability in the source vehicle.

Option 1: Class II EFB without Surveillance Processor	Traffic plus own-ship position with airport surface moving map display and CDTI Runway Guidance
Option 2: Class II EFB with Surveillance Processor	Traffic plus own-ship position with airport surface moving map display and CDTI Runway Guidance
Option 3: Class II EFB & ADS-B Guidance display (AGD) with Surveillance Processor	All current and future ADS-B SafeRoute Applications including SAMM, M&S, CAVS & ITP.
Option 4: Integrated displays & Multifunction Control Display Unit (MCDU) with Surveillance Processor	All current and future ADS-B SafeRoute Applications including SAMM, Merging & Spacing, CAVS & ITP.

Aviation Communication & Surveillance Systems
Phoenix-based Aviation Communication & Surveillance Systems (ACSS), 70% owned by L-3 Communications and 30% owned by Thales, is a leader in safety avionics systems that increase safety, situational awareness and efficiency for aircraft operators in all phases of flight. More than 60,000 units of ACSS product are operating in commercial, corporate and military aircraft. To learn more about ACSS, please visit the company's web site at www.acss.com.



Worldwide Customer Service and Support

ACSS products are based on proven technology to provide you exceptionally high reliability and simplified maintenance. Support for engineering, logistics, commercial and repair support are available through our worldwide network of Customer Service Managers and Support Centers.

Customer Services are provided to aircraft manufacturers and operators. On-site assistance is available to support system integration, troubleshooting, analysis, rework, retrofit and repair of ACSS equipment.

Services include AOG/Emergency Services, Repairs, Maintenance Agreements, Technical Support, Publications, Training, and Database Service.



SafeRoute

Saves fuel by flying more direct routes with less chance of deviation

Reduces noise, emissions and flight delays

Enhances safety both in the air and on the ground.

Combats runway incursion through improved situational awareness

Works with Next generation Air Traffic Control System (NextGen)

Platform-independent software

FAA and state funding opportunities available for early adopters

Less Fuel, Less Noise, Less Emissions... and Less Risk

SafeRoute™ is a suite of software applications using Automatic Dependent Surveillance-Broadcast (ADS-B) technology to increase safety, efficiency and throughput for flight operators.

SafeRoute uses the Universal Cockpit Display of Traffic Information (U-CDTI), developed in an alliance with Astronautics Corporation of America, to display own-ship and traffic information for the SafeRoute applications. Other unique capabilities of SafeRoute are Merging & Spacing (M&S), In-Trail Procedures, CAVS (CDTI Assisted Visual Separation) and Surface Area Movement Management (SAMM).

These functions offer many benefits to the operator: from fuel savings that result from flying more predictable routes with fewer vectors, to safety that comes from a moving map display with own-ship position in the air and on the ground. During taxi, pilots use SafeRoute to enhance their situational awareness and avoid potential runway incursions.

All applications are available as independent modules or as a software bundle that can be hosted on an ACSS computer unit or third party avionics computer.

Regional, Business & Military Customers

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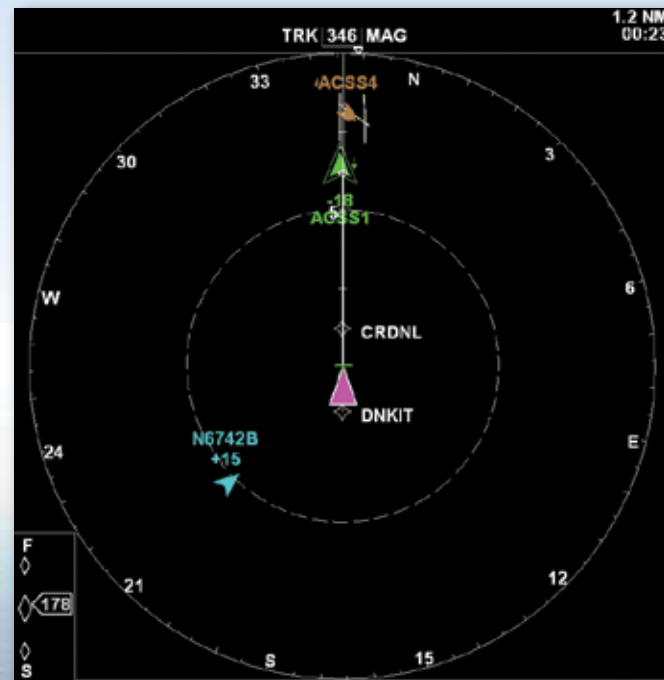
SafeRoute™ Suite of Software Applications



Surface Area Movement Management (SAMM)

The SAMM application is a significant advancement in airport surface safety delivering critical situational awareness information to the pilot. SAMM provides a moving map display of the airport surface in the cockpit, showing own ship and traffic operating in the terminal, taxi and runway areas. The SAMM module uses ADS-B and TIS-B (Traffic Information Service-Broadcast) to track vehicles operating on the operators area. New airport surface developments include surface indicating and alerting.

Improving runway safety is on the NTSB's "most wanted list" of transportation safety improvements. Installation of SAMM addresses this issue of runway incursion. Over 1,500 runway incursions have occurred at controlled airports in the U.S. in just the past few years. The SAMM application would dramatically reduce the number of incursions.



CDTI Assisted Visual Separation (CAVS)

CDTI Assisted Visual Separation (CAVS) allows the flight crew to continue a visual approach procedures using the electronic display to maintain separation if visual contact with Traffic-to-Follow is lost due to hazy or night conditions. CAVS is an important safety enhancement as the electronic information displayed to the crew contains data about the flight they are following such as speed, altitude and closure rate with the traffic. The flight crew can use that information to properly time the deceleration to final approach speed, configure for landing and avoid overtakes and resultant go-arounds.

In-Trail Procedures (ITP)

In-Trail Procedures use ADS-B to improve situational awareness and enable flight crews to perform desired flight level changes on a more frequent basis in oceanic or non-radar airspace. The benefits of ITP include:

- Improved efficiency – More effective flight level changes that allow for more efficient operation.
- Improved flexibility – Enhanced pilot-controller collaboration that enables more flexible operation.
- Improved safety – More effective flight level changes to avoid turbulent conditions.

With SafeRoute ITP, operators spend more time flying at optimum altitude and realize significant results in time savings, fuel savings, and reduced emissions.

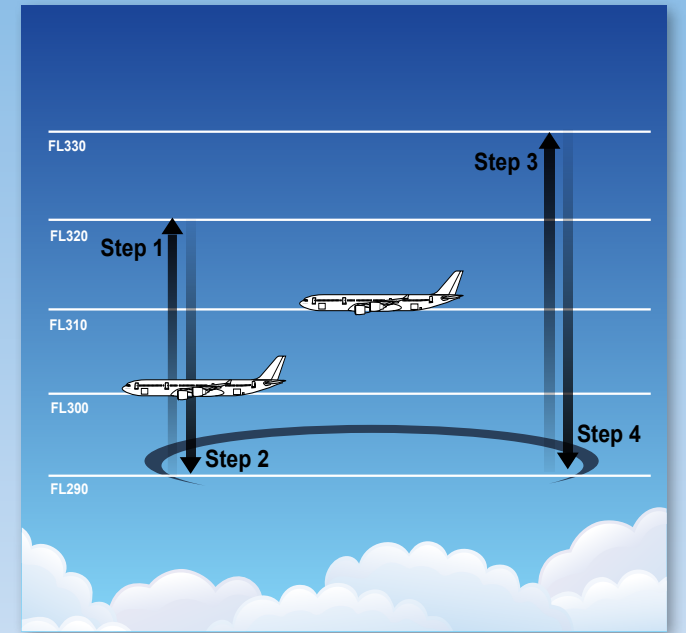
Merging & Spacing (M&S)

The Merging & Spacing function makes use of onboard aircraft surveillance to provide flight deck spacing commands that enable aircraft to follow one another at the safest, most efficient interval possible from cruise altitude to the runway. M&S ensures more consistent aircraft spacing while increasing capacity and efficiency in the terminal airspace.

M&S aids Continuous Descent Arrival (CDA) procedures. This capability allows the controller to delegate the task of maintaining accurate in-trail spacing to the flight crew throughout the entire descent profile, all the way from enroute airspace to the runway. Performing CDAs with SafeRoute can reduce:

- Noise footprint of an operator by 30%
- Emissions by 34%
- Fuel burn by 40-70 gallons per arrival

M&S can virtually eliminate low-level vectoring and increases arrival performance to nearly 100% of available capacity in most all weather conditions.



The world's first demonstration of IPT was completed in March 2008 using an Airbus A340 test aircraft fitted with an ACSS TCAS 3000SP computer unit and a SAS A330 in Icelandic airspace.

U-CDTI/Moving Map

The U-CDTI was developed in an alliance with Astronautics Corporation of America. It enables the display of a moving map of the airport surface with own-ship position on a Class 2 EFB and is available as a stand alone product. When coupled with the SafeRoute-SAMM application, the U-CDTI will also display the position of other traffic operating in the terminal area up to 1,500 feet above ground level. This unique combination of functions addresses the increasing safety concern of runway incursion and is only available as part of SafeRoute.



SafeRoute Merging & Spacing provides speed cues that enable pilots to reach their approach fix at precisely the right time, virtually eliminating low altitude vectoring.