

Rockwell Collins TSS-4100

See your way through congested airspace.



Open airspace is shrinking. That's why the capabilities of our surveillance systems keep expanding.

Our Traffic Surveillance System (TSS-4100) addresses the needs of the changing airspace environment while delivering reduced size, weight, power consumption and wiring. It is a highly integrated system combining the Traffic Alert Collision Avoidance System (TCAS II) and Mode S transponder functions, as well as emerging ADS-B applications, into a single Line Replaceable Unit (LRU) that is the same size as the existing 4 Modular Concept Unit (MCU) TCAS unit. The TSS-4100 utilizes a combined TCAS/Mode S antenna which allows for overall reduction of antenna count and the associated cable weight.

The system is designed with the processor hardware and memory needed to expand system capabilities in support of the Federal Aviation Administration's vision for the next generation air transportation system (NGATS) as well as global initiatives,

including those already under way in Europe and Australia. These capabilities will address Automatic Dependent Surveillance-Broadcast (ADS-B) applications such as Cockpit Display of Traffic Information (CDTI), Traffic Information Service – Broadcast (TIS-B), and decision support applications such as merging and sequencing, separation assurance and surface operations. A simple software upgrade is all that is required.

To ensure best value and mitigate risk, TSS-4100 is based on a core set of surveillance technology that we apply across the military, air transport and business jet market segments. An investment made in one area benefits all.

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Building trust every day

	ADVANCED TRANSPONDER CAPABILITIES	TCAS II FUNCTIONALITY
OVERVIEW	<i>The transponder function supports both the Elementary and Enhanced Surveillance requirements as well as extended squitter capability for Automatic Dependent Surveillance-Broadcast "Out" (ADS-B Transmit). The transponder functions include:</i>	<i>The TCAS II function of the TSS-4100 provides both traffic advisory as well as vertical resolution advisory capability. The TCAS function provides the following capabilities:</i>
TRANSMIT/RECEIVER	<i>Transmit on 1090 MHz; receive on 1030 MHz</i>	<i>Transmit on 1030 MHz; receive on 1090 MHz</i>
POWER	<i>Transmit peak power 125-500 W</i>	<i>Receive sensitivity: -74 dBm</i>
TSO	<i>TSO C112, TSO 166</i>	<i>TSO C119b</i>
INDUSTRY STANDARDS	<i>DO-181C compliant mode A, C, S/extended interface functions (Mark 4 ARINC 718A and ICAO Annex 10 Amendment 77) including mandated JAA/Eurocontrol elementary surveillance, enhanced surveillance and 1090 MHz extended squitter (ADS-B transmit) capabilities High precision position and velocity data in accordance with DO-260A</i>	<i>DO-185A Change 7 compliant and Reduced Vertical Separation Minimum (RVSM) compatible, which makes it ACAS (JAA/Eurocontrol) compatible</i>
FEATURES	<i>Responds in the correct mode dependent on the ground interrogation request Provides antenna diversity operation, allowing automatic use of the upper or lower aircraft antenna based on signal strength Control inputs for the operating mode and for the ID code to be set</i>	<i>Active surveillance of Air Traffic Control Radar Beacon System (ATCRBS) and Mode S Intruders Collision Avoidance tracking Threat detection and resolution Communication and coordination The TCAS function has the capability to track over 100 aircraft for best possible situation awareness and provides a maximum of 30 targets to the display system Traffic and Resolution Advisories (aural and visual) Modes: TA/RA, TA ONLY or STANDBY Altitude selection: RELATIVE or ABSOLUTE Altitude limit selection: ABOVE, BELOW, NORMAL TEST mode</i>

INTEGRATION BENEFITS

These two capabilities are integrated into a 4 MCU, rack mounted LRU, which is the same size as the current TCAS unit, with reduced weight and power consumption. The system utilizes a combined TCAS and Mode S antenna thus reducing antenna count and required cabling and wiring.

Growth is enabled by a traffic computer function that is embedded in the TSS-4100. Examples of advanced surveillance capabilities include:

- Correlation of radar detected objects including vehicles, cranes and construction equipment with the other traffic surveillance data (TCAS, ADS-B, TIS-B)
- Approach spacing
- Oceanic in-trail separation
- Runway incursion awareness
- Approaches to closely spaced parallel runways
- Airborne conflict management

PHYSICAL CHARACTERISTICS

Connector	ARINC 768
Size	4 MCU
Weight	19 lbs maximum
Power	28VDC @ 95 watts

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Rockwell Collins delivers smart communication and aviation electronics solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

For more information contact:

Rockwell Collins
 400 Collins Road NE
 Cedar Rapids, Iowa 52498
 319.295.4085
 email: csmarketing@rockwellcollins.com
 web site: www.rockwellcollins.com



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