

A-SMGCS



With the increasing demand for higher levels of aircraft movements, pressure is growing for airport systems to safely handle greater capacity in all weather conditions, improve traffic distribution and management, and maximize use of existing infrastructure. Sensis A-SMGCS has emerged as the proven solution, with existing systems revealing significant improvements in safety, capacity and cost savings.

Sensis A-SMGCS utilizes multiple surveillance sources such as PSR, SSR, SMR, a transponder multilateration system, an Automatic Dependent Surveillance – Broadcast (ADS-B) vehicle tracking system and an advanced multi-sensor fusion processor to provide a comprehensive surveillance picture of the airport surface. This surveillance data is presented to the controller on an integrated display that features an interface developed in full consultation with air traffic controllers, enabling safety, efficiency and capacity improvements on the airport surface and throughout the system.

Sensis A-SMGCS is designed to be deployed as a turnkey or modular system – as an end-to-end system, an upgrade to an existing system or an extension of an existing partial system. The highly flexible design allows for the addition of other surveillance or tower automation functionality and future upgrades.

Sensis A-SMGCS is being deployed at more than 40 airports worldwide.

Components

Multiple Deployment Options – end-to-end, upgrade or extension of existing system

Solid-State X-Band Radar – lower maintenance, life cycle cost, and power consumption

Multilateration – higher accuracy through cooperative surveillance, once per second update rate; supports ADS-B

Multi-Sensor Data Processor – fusion tracker provides a smooth output free from false position reports

Conflict Detection and Alerting – superior target data quality driven by the fusion and data processor

Controller Working Positions – developed in consultation with Air Traffic Controllers



Air Traffic Controller ASDE-X display

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A-SMGCS Overview

Accurate surveillance data forms the basis of any integrated surface management system. Sensis A-SMGCS primary surveillance offering is a high reliability, low cost, **solid-state X-band radar** with digital control and improved performance in poor weather conditions through 16 channel frequency diversity. The fully solid-state X-band radar has much lower maintenance and life-cycle costs when compared to older generation X- or Ku-band radars.

Yet, primary surveillance data alone does not provide enough accuracy or information. Sensis **Multistatic Dependent Surveillance (MDS) multilateration** is a secondary surveillance system that provides accurate position reports for all Mode S, Mode A/C or ADS-B-equipped aircraft and vehicles in all weather conditions. Sensis MDS is the most field-proven multilateration system in the industry.

Sensis MDS has been the solution of choice for more than 20 locations throughout Europe, Canada and Asia. Additionally, it is a core component of the FAA's Airport Surface Detection Equipment, Model X (ASDE-X) system which Sensis is installing at 35 airports across the U.S. Further, Sensis MDS sensors support ADS-B.

Sensis' field-proven **Multi-Sensor Data Processor (MSDP)** is a critical element in providing reliable, accurate output that greatly reduces false alarm rates. Sensis MSDP performs

plot-level fusion and real-time sensor registration. Through fusing radar, multilateration and ADS-B data, the MSDP enables the strengths of each individual sensor to overcome the limitations of the other sensors for the most accurate indication of target location. The MSDP also incorporates conflict detection and alerting functionality, providing audible and visual alerts for more than 40 aircraft and surface vehicle situations.

The MSDP can fuse additional air traffic control data and be integrated with functions such as lighting control, data filtering and communication, and status monitoring.

Controller Working Positions were developed based on visual specifications provided by a working group of controllers. The full-color displays present the system's fused, multi-sensor surveillance data for accurate, reliable surveillance.



While every effort is made to ensure data accuracy, please note that data may be subject to change.

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