Sensis Solutions at Work

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The FAA's ASDE-X program improves upon earlier ground air traffic control systems by not relying on traditional surface movement radar (SMR) alone, but by combining it with data from two other technologies: transponder multilateration and Automatic Dependent Surveillance – Broadcast (ADS-B). The result is a system that provides seamless coverage and aircraft identification (tags) to air traffic controllers.

At the core of the Sensis ASDE-X solution is our Multi-Sensor Data Processor (MSDP). Evolved over a decade of product development and operational use, our MSDP combines data collected from multilateration, surface movement radar, ADS-B and terminal radar into a single track that is correlated with flight plan information. The integration of these components results in data with an accuracy, update rate and reliability that will improve airport safety and efficiency. The MSDP also incorporates advanced conflict detection and alerting, Safety Logic, providing audible and visual alerts for more than 40 aircraft and vehicle situations.

Under the ASDE-X program, Sensis is deploying ASDE-X at 35 of the nation's airports.

Benefits

- Positive identification and location information – directly interacts with all transponder equipped aircraft and vehicles
- Reduced blind spots and coverage gaps – sensors are strategically placed on the airport surface
- Simple installation – surface movement radar does not require a radome, and small transceivers are lightweight yet rugged
- Clear viewing – high contrast, high brightness control tower display with an interface based on FAA developed visual specification, and multi-window displays with record/playback capability
- Easy upgrade and addition of system enhancements – open architecture to integrate additional transceivers, cockpit data link via Traffic Information Service – Broadcast, noise abatement and airport billing applications
- High availability – distributed architecture; solid-state surface movement radar; full redundancy
- Collaborative decision making – data distribution function provides data to a variety of non-traditional users (e.g., airports, airlines) for functions such as gate management

ASDE-X

Sensis

ASDE-X Solution Overview and Specifications

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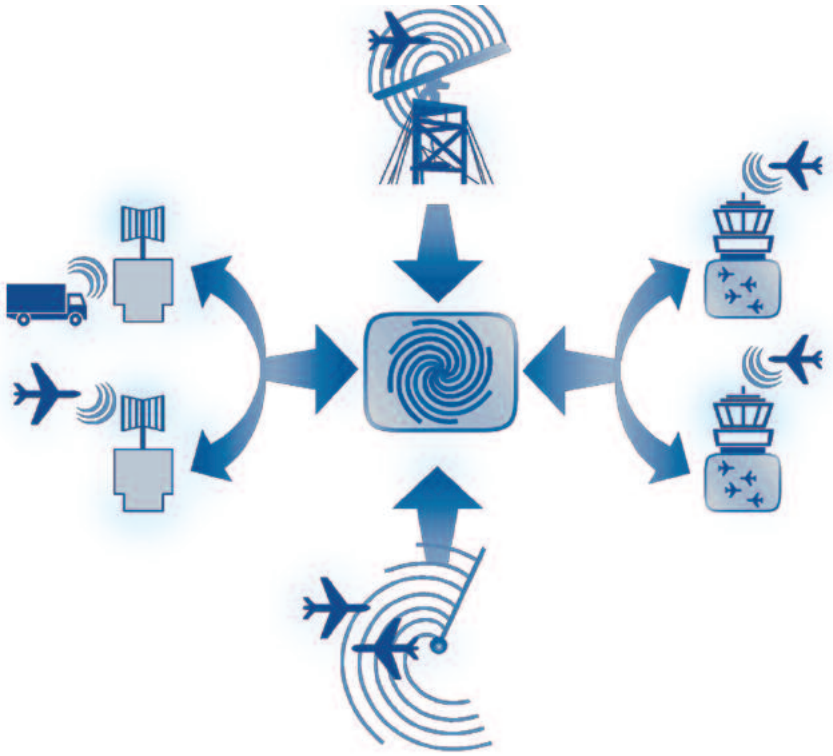

ASDE-X System Specifications

Coverage:

Entire movement area (taxiway and runway) up to 200 feet above ground level

Approach corridor for each runway from five miles out to the runway threshold up to 5,000 feet above ground level

System Update Rate:

One update per second

Track continuity of 99.5% over all tracks

System Target Capacity:

200 real targets

Mean Time Between Critical Failure:

2190 hours with a Mean Time to Repair of 30 minutes

Operating Temperature (outdoor equipment):

-35 to +66° C

Multilateration Specifications

Probability of Detection:

0.93 for all targets with transponders

Target Report Accuracy:

20 feet one sigma throughout the surface coverage area

Surface Movement Radar Specifications

Probability of Detection:

0.90 for all targets >3m2 RCS with a 10-6 probability of false alarm in all conditions up to 16 mm/hr rain

Target Report Accuracy:

Range accuracy of 6.6 feet RMS

Azimuth accuracy - 0.05° RMS

ATC Tower Display Specifications

Hardware:

21 inch color monitor

Contrast ratio:	>1.7:1 at 6,000 feet
Viewing angle:	+/- 80°
Luminance:	>1000 cd/m2 at display surface

Software:

Configurable color and icons

Data recording and playback feature

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

Sensis Global Headquarters 85 Collamer Crossings East Syracuse, NY 13057 USA

Phone: +1315 445 0550 Fax: +1315 446 2209 www.sensis.com email: info@sensis.com