

Product Overview

MSS By era

Benefits

- Cost-effective solution compared to SSR
- No additional avionics required
- Enhanced safety
- No rotating mechanical parts
- Processes Mode A/C/S and ADS-B
- Improved low-visibility operation

Features

- High accuracy and high update rate
- High target processing capacity
- High reliability
- Low power consumption
- Low cost for installation, operation and maintenance
- Fully unattended operation of the system

Multilateration and ADS-B Surveillance System

Proven multilateration and ADS-B cooperative technologies deliver high performance, high availability surveillance solutions for surface movement, terminal area, and wide area en route control applications. The cost effectiveness, flexibility, accuracy and reliability of Era's technology are applicable to all surveillance requirements – from the most complex airport surface to the most remote en route region.

MSS by Era is based on the proven time difference of arrival (TDOA) multilateration principle to provide an accurate and reliable real-time location and identification of all aircraft, vehicles and other objects equipped with a Mode A/C/S transponder. The system also decodes ADS-B signals according to all applicable standards (such as RTCA DO-260A) and can be configured as a stand-alone network of redundant ADS-B ground stations, capable of independent ASTERIX output.

Besides offering complete and accurate information, MSS by Era features troublefree operation, with high MTBF, no rotating parts, few replaceable spares and a comprehensive control and monitoring system.

Era's unique ability to combine distributed timing architecture (based on GPS or reference transponders) with central timing architecture (ideally suited to complex airport layouts) ensures that each system can be optimized to the unique requirements and constraints of any solution, from wide area to surface.

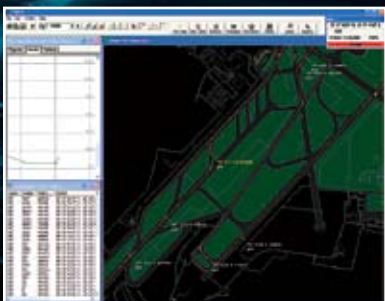


Terminal and Wide Area Surveillance

Applied Standards

- ICAO ANNEX 10 Volume IV- surveillance radar and collision avoidance systems
- ED-117 – MOPS for Mode S multilateration systems for use in A-SMGCS
- ED-142 draft – MOPS for Wide Area Multilateration systems
- RTCA DO-260/260A – MOPS for 1090 extended squitter ADS-B and TIS-B
- EUROCONTROL ASTERIX standards

Technical Display

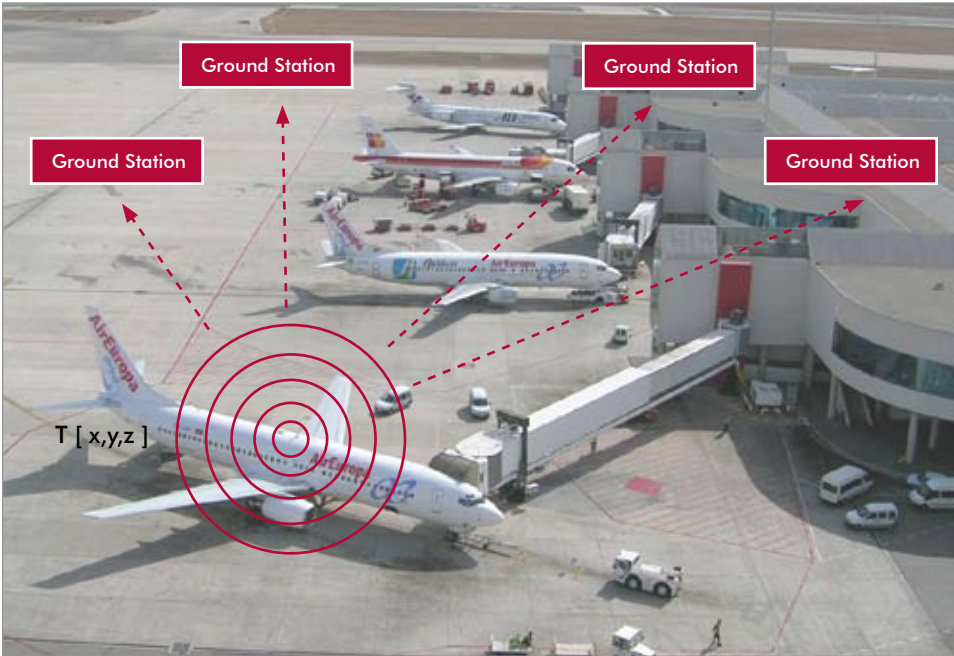


MSS by Era can be configured as a cooperative wide area surveillance system dedicated to air traffic control. The system is type certified in numerous countries against radar standards, such as ICAO ANNEX 10, and has been operationally certified for 3 NM approach separation. Thus, MSS by Era is a prime Secondary Surveillance Radar (SSR) replacement providing higher accuracy, greater update rates, better coverage and improved reliability at a much lower cost.

A typical wide area solution consists of 5 receiving stations, a central processing station (CPS), a combined interrogator and monitoring transponder (IMT), one or more terminals of the remote control and monitoring system (RCMS) and a controller working position. MSS by Era is a completely modular system, easily adaptable to any terminal and wide area requirements as well as all terrain challenges. For each deployment, the best architecture configuration and related data link technology are carefully selected to meet the requirements of the customer with optimal utilization of the available infrastructure (e.g. copper wires, optical fibers, wireless connections, etc.). MSS by Era is also designed to be enhanced for full 3-dimensional air surveillance within the entire TMA area.

In areas with sufficient Mode A/C/S interrogation provided by local SSR or in areas with transponder overloading problems, MSS by Era provides a fully passive solution and utilizes all available SSR replies to locate, identify and track aircraft. In this application, there is no need for additional transponder interrogation.





Surface Surveillance

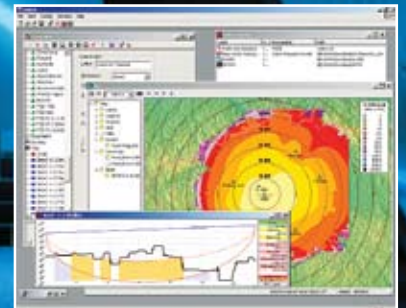
Advanced Surface Movement Guidance and Control Systems (A-SMGCS) utilize MSS by Era not only to increase safety but also to facilitate increased operations and more efficient control of airport resources. MSS by Era enables a clear single view of all aircraft and vehicles on the airport surface regardless of weather conditions. This allows for greater safety, as the possibility for ground incursions, especially those on the active runway, is greatly reduced.



Options

- Augmentation to other source of signals (e.g. DME, TACAN, UVD)
- Extension of surveillance capabilities through combination with VHF/UHF Direction Finding System
- Supply of Squid by Era to support unique identification and cooperative surveillance of vehicles, general aviation aircraft and other objects

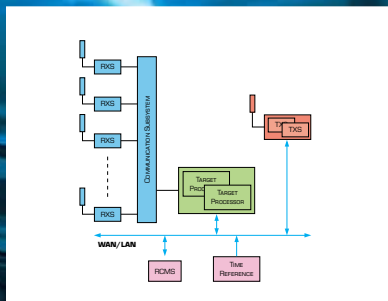
Siting Tool



Areas of Application

- En route
- Terminal
- Surface
- Gate-to-Gate 3D Surveillance
- Precision Runway Monitor (PRM)
- A-SMGCS
- ADS-B ground station
- RVSM Height Monitoring Unit (HMU)

Typical Structure



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System Performance Parameters

Processed signals	Mode A/C, Mode S, including ADS-B 1090ES
Range	from surface to extreme wide area
Position accuracy	3 to 300 m
Track capacity	500 targets
Update rate	configurable 1 - 12 s
Remote system management	SNMP
Message format	ASTERIX CAT 01, 02, 10, 19, 20, 21, 23, 34, 48

Ground Station Specification

Communication Formats	Proprietary protocol, ASTERIX, SNMP, NTP
Physical Dimensions	560 mm x 613 mm x 380 mm
Weight	35 kg (49 kg with UPS)
Power Supply	120/230 VAC ±10%, 50/60 Hz ±3%
Operating Temperature Range	-40 °C to +60 °C (open air)
Environment	Relative humidity: up to 100% (condensation involved) Ingress protection: IP67 - submersion up to 1 m Aggressive atmosphere resistance: category C4 according to ISO 9223 Dust resistant Icing: up to 15 mm
European Standards	EN 55022 (class B) on EM Emissions EN 61000-6-2 (EMC, industrial environment), EN 61000-6-3 (EMC, emissions, residential, commercial and light industry environment) ETSI 300 019 class 4.1E and EN 60068 on Environmental conditions
European Directives	Low-Voltage Directive (73/23/EEC) and EMC Directive (89/336/EEC)
Lightning protection	Lightning Suppression installed on AC and antenna inputs.
External Interfaces	Dual LAN
Options	UPS (>24 h backup) Site Monitor Dual Antenna, Dual Redundant Configuration

Era Corporation is a pioneer and leading supplier of next-generation surveillance and flight tracking solutions for the air traffic management, military, security and airport operations markets. With proven multilateration and ADS-B technologies delivering high-performance, high-reliability surveillance solutions, the company has over 100 airport, air traffic management and military customers throughout North America, Europe, the Middle East, Africa, South America and Asia. Era systems are providing high performance, high reliability surveillance with hundreds of operational sensors covering the airspace of over 35 different countries around the world. Era's investment in research and development and its track record of product innovation has resulted in a substantial patent portfolio. Era is headquartered in Reston, Virginia with leading product research and development centers of excellence in the U.S. and Czech Republic.

For more information,
please visit www.erabeyondradar.com.

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