AIR TRAFFIC MANAGEMENT

MULTILATERATION SYSTEM

Supplying ATM systems around the world for more than 30 years

indracompany.com
MLAT is based on multilateration technology. It determines an aircraft's position by referencing the time difference of arrival of a signal at a collection of sensors. MLAT has a distributed synchronization with centralized correction. This revolutionary technique allows achieving higher 3D accuracy with the low update cycle needed in the surface surveillance applications.

Having sophisticated and accurate positioning technology is only part of the story. Other factors to consider when planning a multilateration system include:

- Receiver siting
- Terrain modelling and coverage
- Installation requirements

Investing in a MLAT system will provide a cost-effective surveillance product that is low maintenance, scaleable and flexible, meeting current and future air traffic management needs.

- Highest system reliability and availability
- Flexible, simple receiver siting and installation
- Minimal maintenance
Applications

MLAT is a scalable solution that is designed to cost-effectively meet your specific requirements
Applications range from small airport installations, for low cost operations monitoring, to the biggest airport, with hundred operations per day and plenty of buildings which give out undesired shadows to other systems.

Indra’s MLAT is ideal for noise and operations monitoring applications as well as surveillance for terminal area, precision approach and parallel runway monitoring.

MLAT complements all existing secondary surveillance radar techniques.

MLAT

What is it?

The highest performance with the lowest through-life cost airline passenger traffic continues to increase yearly
Making effective surveillance that improves the safety, capacity and efficiency of airspace imperative.

Indra’s MLAT multilateration product, helps solve these issues therefore enabling increased aviation revenue.

MLAT reliably tracks and calculates the position of an aircraft using passive surveillance techniques
MLAT and SMR together are the basis of any A-SMGCS system.

As it work with Modes A, C, S and extended squitter provides surveillance to aircrafts and all equipped transponder vehicles on the airport.

Barcelona Coverage Study

Barajas Airport
## MLAT Technology Benefits

**Features**
- Surveillance specifically designed to work on surface and approach operations
- Uses all existing avionics: Mode A/C, Mode S and ES
- The most accuracy system on surface surveillance
- Field proven modelling suite
- Engineered for high reliability and availability
- Smallest form-factor
- Low power consumption and flexible power sources
- Flexible receiver siting
- Advanced data-integrity techniques
  Scalable and flexible platform upgrade
- Easy local and remote fault finding and diagnostics

**Benefits**
- No additional avionics required
- Very high redundancy
- Lower life cycle cost and rapid deployment
- Higher availability and reliability
- Guaranteed performance
- Ease of installation
- Reduced system costs and ease of siting
- Greatest coverage, accuracy and best price-performance
- Simple coverage expansion
- Confidence in coverage, performance and siting prior to installation
- Right first time approach helps avoid cost escalation
- Ease and low cost of installation and operation
- ADS-B full integration
Surface Multilateration

**Choosing the right technology means**
- Wider geographic coverage as needed around the airport
- Flexibility in receiver siting
- Reduced time and cost of site acquisition including: land leasing, power, communications and maintenance
- Higher accuracy with improved performance
- Lower through-life cost due to simple maintenance at remote sites

**Key advantages of Indra MLAT over other multilateration systems:**
- Lower total life cycle cost
- Higher reliability with minimum maintenance and downtime
- Safety ensured due to high integrity and availability
- Greatest accuracy with unlimited coverage
- Own interrogator
- Responses generate by other interrogators are used too

**Designed for simple and cost-effective maintenance:**
- Minimal number of components
- Can be sited on existing infrastructure reducing total costs
- Rapid fault finding and diagnostics ensures maximum availability

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### Technical characteristics

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Input data</strong></td>
<td>Mode A/C, Mode S (DF 0, 4, 5, 11, 16, 17, 20, 21)</td>
</tr>
<tr>
<td><strong>Output data</strong></td>
<td>ASTERIX Cat 19/20/21</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>500 targets (Mode S)</td>
</tr>
<tr>
<td><strong>Maximum latency</strong></td>
<td>500ms</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>Up to 5m horizontal/10m vertical</td>
</tr>
<tr>
<td><strong>Coverage</strong></td>
<td>Extendable to Required Coverage</td>
</tr>
<tr>
<td><strong>Update rate</strong></td>
<td>Configurable between 1 and X seconds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECEIVER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong></td>
<td>-40°C to +55°C, plus 15°C sun loading</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>5% to 100% (non-condensing)</td>
</tr>
<tr>
<td><strong>Ingress protection</strong></td>
<td>IP66</td>
</tr>
<tr>
<td><strong>Lightning protection</strong></td>
<td>All interfaces</td>
</tr>
<tr>
<td><strong>Input voltage</strong></td>
<td>12-24V AC</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>&lt;50W</td>
</tr>
</tbody>
</table>

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<th>TRANSMITTER</th>
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<td>All interfaces</td>
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<tr>
<td><strong>Input voltage</strong></td>
<td>12-48V AC</td>
</tr>
<tr>
<td><strong>Interrogation Modes</strong></td>
<td>A, C and Mode S</td>
</tr>
</tbody>
</table>