

# The RIAS Concept

Taking runway safety to a new level with the Runway Incursion Alerting System (RIAS)

## Overview

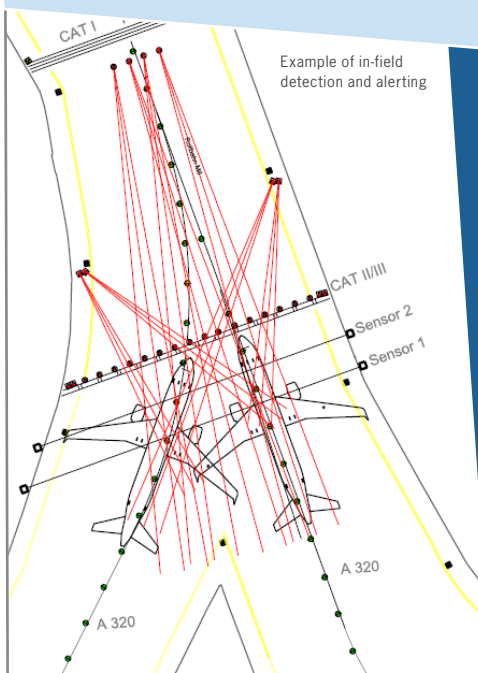
According to the ICAO and EASA, runway safety should remain a high priority for airport stakeholders, as runway incursions continue to be a major reason for incidents and accidents at airports worldwide. The main contributing factors are poor visibility, the complexity of runway as well as taxiway layouts, and in particular, the impact of human factors.

At most airports, the air navigation service provider (ANSP) has operational responsibility for the runways, whereas responsibility for the infrastructure lies with the airport operator. Close cooperation is therefore essential for safe and efficient operations.

Thus, DFS and Fraport have actively joined forces to enhance runway safety with the mutual development of the “Runway Incursion Alerting System” (RIAS) at Frankfurt Airport, one of the major hubs in global air transportation. This common, integrated, and preventive end-to-end solution is specifically designed to avoid the unintended entry or crossing of an active runway, and to protect all safety-critical areas of the airfield.

Combining the expertise of the ANSP and the airport operator, together with the modular set-up of the RIAS, allows this concept to be easily adapted to other airports by integrating RIAS into the existing infrastructure and system environment.

The RIAS concept fully complies with ICAO and EASA international aviation regulations, SESAR implementation guidelines – as well as the European Action Plan for the Prevention of Runway Incursions (EAPPRI) by Eurocontrol.



“The main advantage of the Frankfurt RIAS concept is the automated “safety net” – an intelligent set of sensors positioned in key areas of the airfield to detect critical situations that could lead to an actual incursion. When an event is detected, the system simultaneously alerts the responsible air traffic controller and the pilot/driver of the respective aircraft or vehicle.”

Thorsten Astheimer, Fraport AG

## Our services for you

Following successful implementation of RIAS at the Frankfurt Airport (FRA) global hub, DFS Group and Fraport AG have partnered to offer a modular consultancy and technology-transfer service focused on preventing runway incursions and on safety management. We can provide you with an independent Runway Safety Study and a customised Runway Incursion Prevention Plan consisting of the following components:

### 1) Safety Study & Gap Analysis

- Identification of bottlenecks and hot spots critical for runway safety
- Review of the current status of local procedures and infrastructure compared to international best practices
- Determining the measures needed to further improve runway safety

### 2) Operational and technical concept for the tower integration

- Development of an alerting and incident prevention concept
- Recommendation of a suitable technology to implement the new functionality
- Integration of the alerting function into the tower working position – for airports with surveillance technology (RADAR/MLAT)

### 3) Operational and technical concept for the field sensors

- Development of a concept to improve the local surveillance and protection of all hot spots identified in the Gap Analysis/Safety Study
- Recommendation for the set-up and integration of additional sensors (mini radars, inductive loops, magnetic field sensors) at hot spots such as stop bars or runway entries to detect any aircraft/vehicle approaching the location
- System for directly alerting the driver/pilot, e.g. in the form of flashing lights or sound transmissions to the cockpit

The service is modular and adaptable. All steps will be conducted in collaboration with your local stakeholders and partners.

## Your benefits

- Prevention of runway incursions and other critical encounters, and therefore increased operational safety at your airport
- Pilots and air traffic controllers can react and intervene immediately thanks to simultaneous alerts via the sensors
- Arrival separation buffers can be reduced, enabling an increase in capacity (where runway crossings are frequent) through better control of the runway entries together with other measures
- Increased capacity during Low Visibility Procedures by moving from a “one-at-a-time” operation to runway/taxiway block management

## Reference

- Frankfurt Airport, Germany  
RIAS Implementation (2020)



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