

# Drone detection and incident handling Airport, ANSP and law enforcement

Full situational awareness based on ATM-grade data fusion Efficient cross-agency incident management Optimised workflows and flexible sensor integration



# Drones create a threat to the safety of air traffic

The rapidly growing number of UAVs also creates new challenges for the safety of air traffic. Uncooperative UAVs (i.e. rogue drones) can cause major disruption at airports, which leads to diversion of traffic, cancellation of flights and closure of airports. Past incidents have painfully revealed this gap in security and the need for a comprehensive solution for drone detection and incident handling to recognise and manage incidents while keeping control of the situation.

# Key challenges for airports and ANSPs

### Collision

Rogue drones are a major threat to safe air traffic. Even a small drone crashing into an airplane can cause major damage and poses a threat to safety of flight.

Drone-sightings at airports are increasing and have caused major disruption. Near-misses of drones have tripled in the last two years.

# Operational and technical requirements

The large variation of drones in terms of size and technology creates a challenge for detection. Due to interference and congested environments, sensors alone cannot reliably detect drones.

Therefore, a robust drone detection solution must be based on a common operational picture which includes:

- multi-sensor fusion and detection of conflicts between manned aviation and uncooperative drones,
- link to UTM systems to differentiate uncooperative vs cooperative drones, and
- reports and visual observations of ground staff,
- law enforcement units (blue force tracking).

# Attack

Drones are a threat to the security at an airport. The required technology to equip drones with lethal payload is easily accessible and drone attacks are already commonplace in conflict areas.

A small amount of explosives can bring down a civilian aircraft and cause mass casualties. This is a major security threat to airports.

Due to speed and flexibility of drones, reaction and resolution times are limited. A collaboration of airport security, air traffic management and security forces is a must for fast resolution of incidents. All agencies at all levels, including mobile staff, operation centres and decision makers, need to be connected through one cross-agency incident management system, which supports defined tasks, responsibilities and workflows.

Airports need to deal with a number of treat scenarios in day-to-day operations. Drone incidents are one of many threats, which needs to be addressed through a standardised tool and process.

# Reliable detection and minimised resolution time

The Frequentis solution delivers a comprehensive situational picture by fusing all available data feeds: cooperative drones, uncooperative drones (including visual observations), air traffic and blue forces. The cross-agency incident management system shares the situational picture with all stakeholders together with managing communications and incidents across hierarchies, operators and locations.



# **Enhanced situation awareness**

ATM-grade data fusion and correlation of cooperative and uncooperative air traffic creates an enhanced situation picture and allows detection of anomalies and potential incidents. The integration of blue force tracking allows direct interaction with security forces close to ongoing incidents.

#### Best use of sensors

A large selection of drone detection sensor systems with varying capabilities are available. Frequentis' independent experts will ensure customers receive the most suitable sensor systems depending on coverage, detection, environmental and pricing requirements.

# **Fast resolution**

The multi-airport capable incident management and communication system connects stakeholders across all hierarchies. Mobile devices allow coordination of security forces and reporting of observations. Enhanced air situation displays provide relevant information to ATC.

#### Ensured user acceptance

Frequentis' control room consulting ensures thorough understanding of customer needs, workflows and HMI requirements across all organisations involved. This ensures the solution is the best fit for its purpose, and maximises efficiency in incident handling procedures.

# Increased interoperability

The ATM-grade data fusion integrates new and existing surveillance sources to create a standardised data source, which is used in all downstream systems in a harmonised way. This leads to a reduction of cost and vendor lock-in through an increase in interoperability.

#### Seamless extendibility

The system is fully integrated with UTM feeds and is able to share sensor data to coordinate responses. It is build to respond to multi threat scenarios and supports full incident and crisis management by delivering a fully integrated common operational picture.

# Mature solution components used across industries

Frequentis drone detection and incident handling is based on mature solutions already in use operationally in the ATM industry. The integrated solution is tested and verified in trials with customers and research programs.

# Multi-sensor data fusion

Measurements provided by cooperative and noncooperative technologies are fused into one coherent air situation picture integrating manned and unmanned traffic. With more than 20 years of experience in tracker solutions Frequentis Comsoft ensures the use of a most reliable multi sensor data fusion solution.

# Operation centre and mobility

The drone detection operation centre and mobile solutions are based on the Frequentis Situational Awareness Framework. This framework enables complex incident management for National Air Policing, Search and Rescue and Railway Emergency Management. It is in use operationally worldwide.

# Air situation display

The Frequentis Comsoft Air Situation Display (ASD) is enhanced with drone sensor data, to provide situation awareness and SafetyNet functions to air traffic management. The highperformance, flexible and configurable HMI is one of the worldwide most trusted ASD providing seamless air/ground awareness.

#### PTZ tracking and visual link

Visual PTZ control and visual object tracking is done with Frequentis smartVision, which is the Remote Virtual Tower product. It is tested and used at airports with complex ATC operations. Solutions are already in use safely managing IFR and VFR operations from remote positions all over the world.

# **Drone Detection Framework**

#### Legal recording

Thorough documentation of all activities and events is a vital task for drone incidents. The market leading DIVOS logging system collects and archives phone and radio communication, while also capturing screens, giving operators and investigators easy access to securely stored information.

#### **Control Room Consulting**

With more than twenty years' experience, Frequentis Control Room consulting is ensuring best fit of purpose by using not only user-centric but also business process centric design. A rapidly growing number of customers appreciates this unique approach.

# FREQUENTIS

The information contained in this publication is for general information purposes only. The technical specifications and requirements are correct at the time of publication. Frequentis accepts no liability for any error or omission. Typing and printing errors reserved. The information in this publication may not be used without the express written permission of the copyright holder.

FREQUENTIS AG

Innovationsstraße 1 1100 Vienna, Austria Tel: +43-1-811 50-0

www.frequentis.com