When every second counts
Crash alarm system for aviation emergency response

Challenges

In aviation, the moments following an emergency are critical. Delays in alerting and mobilising rescue and firefighting teams can have life-threatening consequences. Airports face challenges such as:

- Ensuring immediate, reliable notification to all relevant responders
- Preventing false alarms while guaranteeing rapid activation
- Coordinating multi-channel communication across diverse systems: PA (Public Address) system, radio, SMS, digital platforms
- Maintaining operational resilience, even during network outages or disaster scenarios

Immediate alerting for aviation emergencies and critical incidents

The Frequentis crash alarm system is engineered to address these challenges for airport environments, aviation rescue services, and other critical infrastructure entities. It empowers air traffic control, first responders, and operational teams with a robust, fast-acting, and resilient alerting solution.

The system covers a wide range of use cases – from full-scale crash events to technical anomalies or precautionary situations where rapid preparedness is critical. It ensures that alarms are delivered across all relevant channels, and that response coordination begins within seconds.

One trigger, instant multi-channel notification

When an aircraft reports a technical issue, the tower activates the crash alarm, triggering an automated multi-channel alert. Within seconds, teams are notified via PA, radio, control room signals, SMS, and digital platforms like 3020 LifeX™ and OnSite.

This seamless, automated workflow ensures that all relevant teams – air traffic control, rescue services, and operations teams – are informed and mobilised within seconds, supporting a coordinated and effective response.

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Overview of the crash alarm system from the operator's perspective
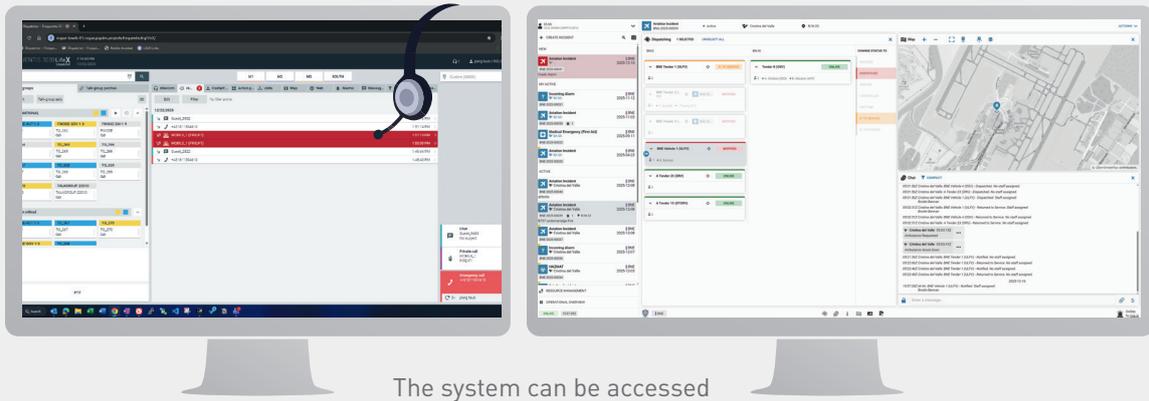
The system can be accessed
via a web browser on Windows PCs directly from the operator station.

Web App (PC) – Communication component	LifeX	OnSite	Web App (PC) – Incident Management component

Key benefits

- **Faster reaction times:** Instant, multi-channel alerts replace manual coordination and reduce delays.
- **Shared awareness:** Responders get real-time updates and status confirmations.
- **Audit-proof records:** All actions and communications are logged for compliance.
- **Lower stress:** Clear workflows and notifications minimise confusion.
- **Seamless coordination:** Air traffic control, rescue, and operations teams connect immediately.
- **Operational resilience:** System stays functional during network failures or disasters.

System architecture

The crash alarm system combines local reliability, resilient communication infrastructure, and digital coordination tools. It consists of three integrated layers.

Trigger and control layer
Local hardware, including Programmable Logic Controllers (PLC) and guarded push buttons, ensures immediate, fail-safe activation – even offline.

Communication and collaboration layer with LifeX
It integrates with PA, UHF (Ultra High Frequency)/VHF (Very High Frequency) radios for voice alerts and digital platforms for multi-channel alerts, and interfaces with other airport infrastructure systems. LifeX is a communication and collaboration platform for critical infrastructure. Acting as middleware between physical trigger layers and downstream systems, such as digital coordination platforms, it enables the seamless integration of new and existing infrastructure.

Incident management layer with OnSite
It automatically creates and manages incidents, sends push and SMS notifications, and enables multimedia chat, live feeds, resource tracking and audit-proof documentation. Designed for mission-centric communication and documentation, OnSite is a modern platform that ensures everyone involved in the response is aligned and that post-incident review is supported by complete, time-stamped records. By combining mobile solutions with cloud-based services, OnSite enhances efficiency and security while streamlining communication.

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