

FREQUENTIS

MissionX: A Synergistic Future for Railways and Drones

In the fast-paced world of railway operations, safety and efficiency are paramount. With the advent of innovative technologies, the industry is on the verge of a transformative era.

Enter MissionX: Frequentis' standardised solution for mission-critical services (MCX). It supports the integration of 3GPP standard-based for voice, video and data to significantly enhance emergency response capabilities for railway operators.

MissionX reliably ensures mission-critical multimedia communication over public, dedicated (private) and hybrid standardised 4G/5G mobile networks, satellite or Wi-Fi provided by various network operators. This allows secure multimedia communication exchange meaning that communication about railway events or issues can be more detailed, enhancing the ability for resolution. Previously, railway communication channels were fragmented, relying on a mix of radios, TETRA networks and manual coordination between operators. This inefficiency slowed down response times. As a leader in control room solutions, Frequentis uses the GSM-R technology for voice and data operations. As railway communication evolves towards the Future Railway Mobile Communication System (FRMCS), the Frequentis Fixed Terminal System (FTS 3020) provides seamless integration with various networks, including TETRA, LTE and FRMCS/MCX. This integration streamlines communication, speeding up response times in critical situations.

Frequentis introduced a bearer-independent communication solution (BIC) to separate applications

and services from specific communication platforms. This allows railways to operate new communication technologies alongside GSM-R during a controlled transition period, further enhancing efficiency and responsiveness.

As a bridging platform, MissionX seamlessly integrates legacy communication networks like GSM-R and TETRA with newer technologies. This makes it suitable for both pre-FRMCS and fully compliant FRMCS solutions. MissionX enhances emergency response with robust, field-tested technology designed for critical situations. It's a powerful communication platform that bridges legacy and newer technologies, offering the best of both worlds.

MissionX also enables secure multimedia exchange and supports the integration of drone technology. This integration promises to elevate capabilities by providing intelligent data for improved decision-making and operational efficiency. Drones equipped with high-resolution cameras and advanced sensors can monitor railway infrastructure, offering real-time video feeds and data directly to the control centre. This represents a significant leap forward in situational awareness.

Operational Efficiency through Advanced Data Acquisition

Drones offer a unique advantage in their ability to cover vast areas quickly and efficiently. By utilising drones, railway operators can conduct regular inspections of tracks, tunnels and bridges, ensuring that any maintenance needs are promptly addressed. The data collected by drones, when analysed through the



MissionX platform, can lead to predictive maintenance strategies, reducing downtime and enhancing the overall reliability of railway services.

One example of this would be within public transport, and in particular, railways. Frequentis is working with the Austrian Federal Railways (ÖBB) to develop a hangar-based drone operation system, which will be used to inspect and maintain rail infrastructure, such as bridges, tunnels and tracks. The ÖBB rail network consists of around 10,000km of track and 1,000 stations – so the rapid deployment of drones to hazardous or inaccessible areas will enable the remote inspection of tracks whilst avoiding placing staff into dangerous environments.

The hangar-based system will include a fully automated drone charging station and control centre, which is key to facilitating remote drone operations. Having been designed to optimise drone utilisation, it will allow multiple drones to be managed from a single location, therefore reducing the need for manual drone maintenance and management.

Transforming Emergency Response with Rapid Deployment

In emergency situations, every second counts. Drones can be dispatched as first responders to assess the scene, providing critical information to the control

centre via MissionX. Whether it's a derailment, a natural disaster or a security threat, drones can offer a bird's-eye view of the incident, helping to coordinate rescue efforts and ensure the safety of passengers and personnel. Additionally, drones can deliver emergency supplies or establish temporary communication links in areas where the network may be compromised. Despite the promising potential of drones in public transport, regulatory hurdles pose challenges. Stringent rules in most countries address airspace, privacy and safety concerns. Frequentis collaborates with entities including European Airspace Safety Agency EASA to shape drone regulations, aiding in navigating these challenges for drones in public transport.

A Synergistic Future for Railways

The synergy between MissionX and drone technology heralds a new era for the railway industry. By harnessing the power of these technologies, railway operators can achieve unprecedented levels of safety, efficiency and responsiveness. As the industry continues to evolve, the integration of MissionX and drones will undoubtedly play a pivotal role in shaping the future of railway operations, ensuring that the railways remain a vital and reliable mode of transportation for generations to come.

Find out more about Frequentis by visiting www.frequentis.com



Meet us at Innotrans
24 – 27 September
Expo City Berlin, hall 4.1, booth #740

Transforming railway communication with MissionX

For seamless communication and safer and more efficient journeys, meet MissionX, the cutting-edge solution transforming railway operations. This innovative platform bridges the gap between old and new communication technologies, supporting everything from GSM-R and TETRA to 4G/5G, satellite, and WiFi. MissionX guarantees reliable, mission-critical communication across various networks, making it perfect for today's digital railway era.

MissionX goes beyond voice, enabling data and video transmission to provide detailed insights for quicker resolutions. Moreover, it opens doors to the use of further multimedia, like drones, to get video transmission from hard-to-reach locations. Its advanced features allow operators to work smarter, reduce complexity, cut costs, and enhance network management.

[MissionX will transform railway operations.](#)



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