PRISMA as a backup and secondary ATM automation system for increased resilience



PRISMA – the ideal candidate for an ATM backup and secondary system:

- Ensures business continuity for ANSPs, providing resilience against system failures.
- Safeguards critical national infrastructure, ensuring uninterrupted air traffic services (ATS).
- Reduces the need for extensive ATCO training by mimicking the GUI of the primary system.
- Built on the Frequentis MosaiX platform, integrating ATM applications across control rooms and operational centres.
- Features virtual-centre capabilities in line with the SESAR Virtual Centre framework to ensure future readiness.



ATM automation systems are a vital part of ANSPs' infrastructure, providing essential support for the safe separation of aircraft in controlled sectors. To ensure uninterrupted ATC services, ANSPs need to be prepared for crises like cyber threats, software and hardware failures, or natural disasters. A robust contingency plan with a backup and secondary system is critical, and PRISMA meets ICAO guidelines by offering dissimilar systems that avoid shared vulnerabilities.

PRISMA ensures business continuity, increases resilience, and prevents ATC Zero with its scalable, fully functional ATM automation. Supporting all air navigation functions from pre-flight planning to real-time situational awareness, PRISMA's dissimilar system design ensures independence from the main ATM system.

The modular PRISMA system provides the aviation industry with flexible backup solutions, from basic Clear the Sky (CTS) systems to full-scale, high-performance backups. Its modularity allows ANSPs to scale PRISMA according to their needs, ensuring operational flexibility.

Identical backup systems pose a significant risk: software failures in the main system could replicate in the backup, leading to a double failure. PRISMA, as a dissimilar system, reduces these risks by safeguarding against shared vulnerabilities, ensuring greater resilience and protection from ATC Zero.

Whether choosing a simple CTS or a full-scale high-performance backup, Frequentis integrates customers from the start through agile development, ensuring the system evolves to meet their operational needs.





- Agile development process allowing continuous adaptation of the backup system features to align with the evolving needs of ANSPs. This ensures the backup system remains robust, scalable, and ready to handle new challenges.
- Customer involvement from the very beginning of every stage, from software development to testing and review. Frequentis collaborates closely with customers to tailor the system to their operational requirements, ensuring that the backup system integrates seamlessly and evolves alongside the main ATM system.

"Clear the Sky" backup system

For moderate capacity and performance requirements, the CTS configuration is the ideal starting point. The CTS backup system is designed for use in case of major failure of the main ATM system to swiftly remove aircraft from the controlled sector and close the airspace safely. This configuration consists of a PRISMA controller working position (CWP) with the air situation display (ASD), receiving all available surveillance data sources.

PRISMA receives the same data from surveillance sources as the main ATM system. In case of failure of the main ATM system, PRISMA takes over immediately, depicting the current air situation picture. The modularity of PRISMA allows customers to start with a simple CTS backup system and add components over time until a high-performance contingency backup system is in place.

Contingency backup system

For higher capacity and performance needs, PRISMA can be configured as a contingency backup system, including components similar to the main ATM automation system. PRISMA operates in hot stand-by mode and includes additional components like Flight Data Processing Systems (FDPS) and SafetyNets (SNET).

The FDPS correlates flight plans from the main ATM system with surveillance data from various sensors and sources. The latest tactical flight plan data, including ATCO clearances in the main ATM system, can be synchronised in real time with the PRISMA backup system to ensure a seamless switchover for ATCOs. In case of a failure, PRISMA becomes immediately active, displaying all targets and flight plan updates on its CWPs.



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