

Deployable Digital ATC Tower

Maximising security, quality
and efficiency

Defence

FREQUENTIS
FOR A SAFER WORLD

Maximum flexibility in supporting a vast range of operational requirements









Military operations rely on both centralised and decentralised command-and-control structures. Military forces may stage from a Main Operating Base (MOB) in the rear while supporting one or more Forward Operating Bases (FOBs).

In this environment, a deployable air traffic control tower can operate as a centralised control centre, controlling single or multiple airfields from one location in a hub-and-spoke configuration.

Additionally, a deployable digital ATC tower can be transported to an FOB to operate as an independent facility serving that specific base or airfield. This decentralised approach provides flexibility and resilience, helping military forces maximise the reliability of operations and tactical communications.

In addition, a deployable digital ATC tower can serve as a contingency system when the main ATC tower is out of service. Beyond pure ATC operations, it can also support emergency response to natural disasters, crises or hostile environments. Conventional mobile and deployable ATC tower solutions are already in place – but with limitations.

Solutions for the challenges for conventional mobile and deployable ATC towers

<p>Augmented crew safety and strategic command advantages achieved by separation of mast and working position</p> 	<p>Improved field of view based on high resolution stitched and harmonised videos without overlaps or duplication of targets</p> 	<p>Improved vision in adverse weather and at night with advanced visual and thermal sensors, augmented with AI</p> 	<p>Improved alertness achieved by object detection and tracking for people on ground, vehicles, aircraft, UAVs and wildlife</p> 
<p>Reduced heads-down time and advanced training provision achieved by information overlays and augmented reality</p> 	<p>Enhanced training and simulation by integrating the live situation and the simulation system</p> 	<p>Shared situational awareness through distribution of video, information and other data with personnel of interest in the field</p> 	<p>Improved after-action review and investigation, based on comprehensive video streams, data and voice recording</p> 

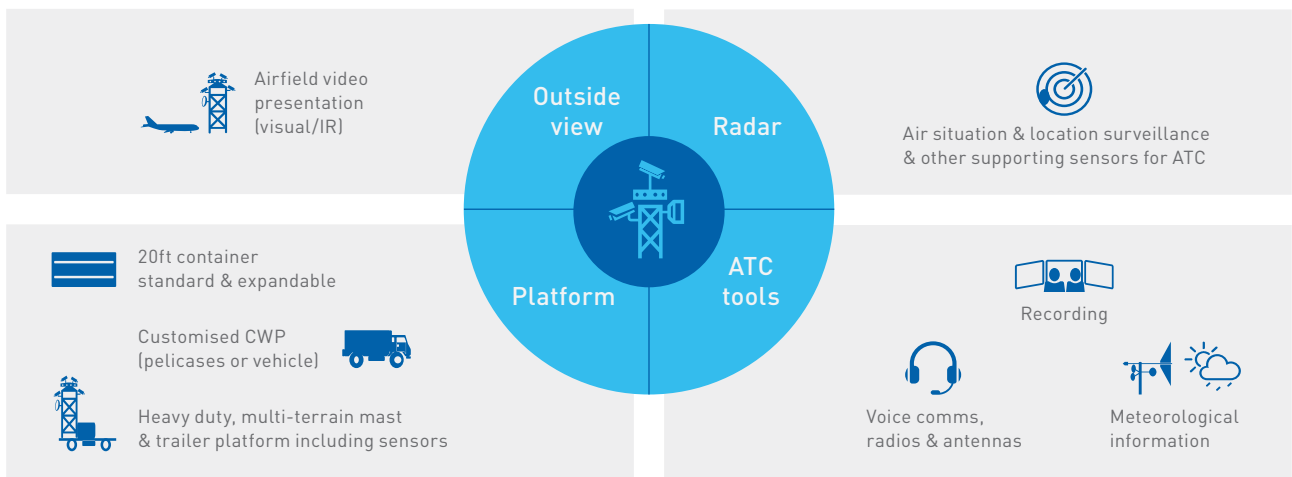
Frequentis deployable remote digital towers for military ATC

The Frequentis deployable remote digital tower solution has three main components: a trailer and mast system with cameras and optical sensors, a secure communication network and a control cabin hosting the working positions and the entire data centre. A movable camera mast will naturally be placed close to the runway – however, the control unit (sheltered container) can be located anywhere. Separating sensor mast and working position in this way augments crew safety and improves strategic command-and-control advantages through increased location flexibility.



Frequentis deployable remote digital towers can be rapidly set up and have the resilience to work with minimal maintenance demands, even in the harshest environments. Configuration is simple – all key functions are redundant. Our scalable solution can be adapted to individual use cases and mission requirements. Mounted on a flexible platform, the solution allows easy integration with third-party ATC equipment and other security solutions. Digitalisation improves situational awareness, reduces workload, and improves safety for air traffic.

It enables the combination of training, simulation, recording and playback within a single solution, as well as the sharing of mission-critical information – such as 360° visual views, or other surveillance data supporting C2 elements or other field personnel in such as security forces. Frequentis offers numerous options. The system differentiates with state-of-the-art touch-based controls, video stitching, picture harmonisation, object detection and tracking based on camera views. It allows for information augmentation with static overlays or surveillance data.



Mature and proven solution

Frequentis is a global leader in deployable digital tower solutions for military ATC. Built around leading armed forces' requirements and diverse operational use cases, the mature, field-proven solution draws on more than seven decades of ATC experience. It helps military customers ensure mission success, create tactical command-and-control advantages

and keep ATC crews out of harm's way. The system meets relevant ATC standards, is transportable by air, land, rail and sea, and can be deployed in standard shipping containers. Resilient equipment supports low-maintenance operations in all weather conditions, enabling safe, orderly and expeditious service.

Our references

US Department of Defense (DoD), first military remote tower

Frequentis will install two fixed-base systems and two deployable systems for the US Airforce and other DoD agencies. By enabling the provision of military ATC services on demand and remotely, Remote Deployable Tower (RDT) will cut the risk to controllers and infrastructure, while reducing capital investment and allowing for the optimisation of available resources. RDT technology provides military ATC with the resilient situational awareness that the DoD demands, while keeping controllers out of harm's way in safe and secure environments.

Brazilian Air Force, Santa Cruz Air Base

Frequentis installed the smartVISION solution at Santa Cruz airbase in Brazil to enhance the way air traffic is monitored and managed. The project is the first of its kind in South America to provide remote military air traffic control services using digital tower technology. The solution is made up of high-resolution 360° panorama video and high-performance pan-tilt-zoom (PTZ) cameras located around the airbase. Camera images are fed back to a video wall in the remote tower facility, specially designed to house the smartVISION system and its two integrated controller working positions.

Deutsche Flugsicherung (DFS), various German airports

Saarbrücken airport is equipped with remote tower technology, managing approximately 15,000 air traffic movements per year. 360° visual and IR cameras provide a seamless panorama view, supported by high-performance PTZ cameras with visual and IR sensors. Advanced video tracking allows the detection and tagging of IFR and VFR flights and vehicles, which improves situational awareness. The airports of Saarbrücken, Dresden and Erfurt will be controlled from the remote tower centre in Leipzig.

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