



Success Story

Quadrant

Next generation surveillance at Gdańsk for PANSA

First surveillance system in Poland to detect and locate aircraft using multilateration technology.

About PANSA

The Polish Air Navigation Services Agency, PANSA, guarantees a safe, orderly and expeditious flow of air traffic in 334,000 km² of controlled airspace. With approximately 500 air traffic controllers PANSA provides high quality air navigation services to around 700,000 aircraft per year. In addition to its Warsaw ACC/APP/TWR premises, PANSA provides APP/TWR services in the regional control centres of Katowice, Krakow, Poznan, Gdańsk, Zielona Gora, Rzeszow, Bydgoszcz, Szczecin, Wrocław, Łódź, Modlin and Lublin.

About Quadrant

Frequentis Comsoft's multilateration systems, especially in combination with ADS-B, provide important operational improvements by resolving some of the limitations of traditional radar surveillance. Quadrant helps to create redundancies and sustain benefits in the areas of safety, capacity, efficiency and environmental impact, thus contributing to the overall CNS/ATM objectives.

WAM and ADS-B capabilities are provided by Frequentis Comsoft through its ultra-compact remote sensors and interrogators linked to a software-centric central processor.

Project Highlights

- Detection and localisation of aircraft equipped with Mode 3/A, C, S transponders
- Providing additional source of surveillance data for Gdańsk TMA for redundancy
- Deployment of nine ADS-B/WAM sensors and four transmitter units serving as interrogator, site-monitor and reference transponder
- Centralised monitoring of sensors and transmitters from Gdańsk ACC
- Customer specific surveillance data conversion for smooth integration

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The Challenge

PANSA requested a multilateration system as a supplement for the existing ASR-10 / IRS20 radar to provide full Mode A/C/S surveillance data for the Gdańsk TMA. An additional surveillance layer was requested to cover the area below FL150 around Gdańsk. The aim was to prevent a significant impairment of capacity resulting in enormous traffic limitations during a radar failure or technical review. Key requirements were a flexible and expandable system design considering a future-proven surveillance network concept to secure infrastructure investments and ensure a high and reliable traffic throughput. The integrated ADS-B functionality supports PANSA's initiative to provide a surveillance layer for the Warszawa FIR in the future.

"After certification and final audit the WAM system in Gdańsk is fully operational and we are wholly satisfied with the system in terms of communication, as well functionality, and look forward to working together on further developments for the system in the coming months"

Dariusz Jasinski,
Acting Director
Technical Department,
PANSA



The Solution

PANSA selected Frequentis Comsoft for the supply and installation of an ADS-B and wide area multilateration (WAM) system consisting of nine Quadrant sensors and four transmitters to provide full Mode S surveillance, while also continuing to support air traffic with Mode A/C. In addition, all sensors can receive ADS-B information enabling the replacement of radar as the primary surveillance method for controlling civil aircraft in the future.

The Quadrant system provides N-1 redundancy to prevent PANSA from decreased capacity during technical limitations and therefore ensures maximum throughput 24/7 - also during maintenance.

The new ADS-B/WAM system provides PANSA with one of the most technologically advanced surveillance systems available which will enable Polish airspace capacity to be fully optimised.



Benefits at a glance

- Increased safety through additional surveillance sources creating redundancy
- Cost-efficient extension of Gdańsk TMA surveillance coverage especially for low altitudes leading to more efficient use of airspace
- Modular system design allowing the customer to scale their surveillance infrastructure overtime, supporting buy as you grow

