

KONGSBERG Digital Towers



KONGSBERG

Features

- Low bandwidth requirements and reduced media leasing costs
- Low technical footprint and low maintenance cost
- Scalability and flexibility (number of airports, multimode capability and airport complexity)
- Day cameras and infrared sensors, with IR/day image fusion
- Seamless panoramic image (360° horizontal, 60° vertical field of view)
- Augmented reality
- Service-Oriented Architecture and DDS with modular, scalable system architecture



KONGSBERG Digital Towers – The unique solution

KONGSBERG Digital Towers The Unique Solution

The KONGSBERG Digital Towers (KDT) is the solution for all future digital tower related operations; virtual, contingency and remotely controlled towers.

The KONGSBERG Digital Towers is designed and engineered from the top down to provide exceptional performance; drawing on decades of operational excellence and research in cutting-edge camera technologies, real-time systems with high network security based on open international DDS standard, and sensor technologies.

KONGSBERG is an international high technology powerhouse – providing solutions ranging from the deep ocean to outer space. KONGSBERG provides robust and leading-edge electro-optical sensor technology as part of the KONGSBERG Digital Towers – technology that is a direct spin-off from the world's most advance military sensor technology.

The KONGSBERG Digital Towers contributes with real-time network technology that provides a true, open Service-Oriented

Architecture (SOA) and inherent safety logic, to guarantee safe and flexible digital tower operations. The international standard Data Distribution Service, or DDS, is used as the SOA middleware as it is designed to be used in mission critical real-time systems. SOA and DDS are keywords in the future ATM Interoperability Infrastructure SWIM (System Wide Information Management).

The KONGSBERG Digital Towers contributes to Avinor's NINOX program – the world's largest RTS program. More than 36 sites in Norway is designated for Digital Tower Systems, with currently 15 operative airports in one control centre.

Total Cost of Ownership – a system lifetime

KDT uses well-proven technical equipment with a low technical footprint and built-in redundancy, contributing to low maintenance costs.

KDT requires low network bandwidth without compromising image quality. For a digital tower centre located far from the airports, the cost of redundant leased networks with the required quality of service and latency can be significant. KDT reduces these costs.

The system is designed with an infrastructure supporting both single-mode and multi-mode capability, and is scalable to meet operational requirements. This enables the cost-efficient operation of several airports from a single controller position.

By leveraging KONGSBERG's team expertise, customers save both time and cost when implementing and operating digital towers.



Detect, Recognize, Identify - what do you need to see?

How effectively can you detect a flock of birds or drones over the runway?

How early can you detect an approaching aircraft, or observe an aircraft departing the aerodrome?

Can you detect animals on the runway in darkness?

Extreme-Performance Day Cameras and Infrared Sensors

The Electro-Optical Sensor Suite (EOSS) consists of a rotating platform housing visual and infrared 360° cameras, and a pan-tilt platform (PTP) housing a visual zoom camera, a fixed-lens IR camera, a laser range finder and a signal light gun. These sensors provide extremely high resolution, capable of capturing detail with human-eye accuracy.

KDT fuses infrared and day-camera sensor information into a single image, increasing the controller's ability to detect unwanted objects such as animals, birds or other hazards.

The integrated PTP display provides controllers with exceptionally clear views of airport operations. Aircraft markings and landing gear remain visible even in low light and adverse weather. Moving objects can also be tracked



Visual Overlays and Augmentation

To ensure complete situational awareness, KDT provides multiple visual overlays and augmentation options. A typical Out-The-Window presentation may include:

- Track labels
- Meteorological data
- PTZ picture-in-picture view
- 3D terrain overlays
- Runway and taxiway overlays
- Moving Target Indicators (MTI)
- IR hot-spot detection
- Environmental sound from the airport is also provided to the controller via loudspeaker to enhance situational awareness.

Flexible, adaptable and easily integrated – a key capability

KDT features an open architecture that is flexible and adaptable to future needs and enhancements.

The system can integrate and control airport lighting, environmental sensors, electronic flight-strip systems, airport and terminal sensors, radars and other components. Integration may be presented on a single heads-down display or across multiple displays.

Existing systems, such as flight-strip systems or radar displays, can be retained and incorporated into the KDT solution.

