CASE STUDY
Airport

Dallmeier

Zero tolerance when it comes to security

ISTANBUL GRAND AIRPORT TRUSTS CAMERA TECHNOLOGY BY DALLMEIER

Requirement

- Capture long distances and wide expanses
- Recognising aircraft's tail numbers at distance
- Air Traffic Control via "Virtual Tower"
- Confidence in the planning during construction

6
Runways

76 Mio. m²
Overall area

200 Mio.
Passengers per year

Solution

- Panomera® multifocal sensor system
- Precisely adapted minimum resolution
- SeMSy® video management system
- Comprehensive 3D project plan

Result

- Fewer cameras needed for wide areas
- Safety during the takeoff and landing process
- Everything in view on almost 40 monitors
- Fast and flexible adjustments possible

„In a camera comparison exercise, only the Panomera® multifocal sensor system was able to deliver the required image quality and image resolution."

Orhan Yorukoglu, Sales Manager Dallmeier Turkey

October 2018 marks a historic milestone for air travel: the opening of the huge new Istanbul Grand Airport (IGA). And the responsibility for providing "the eyes" for big parts of the airport security management at IGA rests with the patented Panomera® multifocal sensor systems and SeMSy® video management software produced by the German-based manufacturer Dallmeier. The result: significant savings on infrastructure and uninterrupted monitoring, from landing to take-off.

An airport of superlatives

Cutting edge technologies, remarkable architecture and exceptional capacities are the distinguishing features of the new Istanbul Grand Airport (IGA). Occupying an area of 76 million square metres, IGA will have a final annual capacity of 200 million passengers, five terminals and six runways, making it one of the most important aviation hubs in the world. The award-winning airport also makes no compromises in respect of security. For comprehensive visual monitoring and management of aircraft movements, IGA has found the ideal products for full coverage ground control in the Panomera® camera equipment and the "SeMSy®" video management software from Dallmeier. The project was planned, executed, and implemented in cooperation with the Dallmeier Sales Office Turkey and the systems integrator Proline.

Aircraft movements under control

When an airport's size is almost equal to that of 11,000 football pitches, security during daily operations has the very highest priority. Operators rely on camera equipment to track all aircraft movements. The Panomera® runway systems begin watching over the aeroplanes during the landing approach and continue to follow them as they move from runway to the taxiway. In the apron area, other Panomera® systems take over, as well as in the de-icing zones. The terminal gates and take-off are also captured just as comprehensively with surveillance cameras. The most important consideration is that the security managers at IGA must be able to rapidly identify, analyse and verify not only hazardous situations but also incidents. For this, a minimum resolution which is adapted to precisely reflect the respective purpose is indispensable. This is one of the characteristic advantages of the patented Panomera® multifocal sensor technology, which combines up to eight lenses and sensors within one optical system. This allows the largest areas to be captured with a minimum number of cameras and reduces infrastructure and operating effort to a minimum.

Recognising an aircraft's tail number at distance

The aircraft tail number is crucial for enabling the assignment of incidents that occur during take-off and landing procedures. Therefore, airport personnel need to capture the tail number of each aeroplane as it lands and takes off. If something unexpected happens, the time of occurrence can be precisely determined in conjunction with the tail number and the claim can be investigated. The special challenge at IGA resided in the fact that the surveillance camera must deliver high-resolution image material even from a great distance so that the tail number can be read out unmistakeably.

In a camera comparison exercise, only the Panomera® multifocal sensor system was able to perform this task effectively over the long distance and deliver the required

With the patented multifocal sensor systems Panomera® from Dallmeier, IGA monitors runways, the apron, taxiways as well as de-icing zones.

The "Virtual Tower" concept allows aircraft movements on the IGA to be tracked remotely.

image quality and image resolution. Mr. Hamza Aybey, Security Systems Solution Manager at Proline recounts, "We were searching for the best possible technology. The problem to be solved was defined as follows: Despite a small number of installation points and long distances, the aircraft's tail number must be unambiguously readable. The only satisfactory results with optimum image quality we obtained were with Panomera®."

> *„The preliminary **planning and testing** gave us **100% confidence**."*
>
> **Kamuran Kocak,** Security Systems Chief of the IGA

Panomera® proves its capabilities over wide expanses and long distances

Dallmeier specially developed the Panomera® multifocal sensor system to capture long distances and wide expanses: By combining lenses and sensors with different focal lengths in a single optical unit, the camera delivers high resolution in all areas of the image in one large spatial context – using only very few camera systems. In this way, the airport saves a substantial portion of the infrastructure costs compared with conventional solutions.

Air traffic control with the Virtual Tower concept

The award-winning tulip-shaped Air Traffic Control tower – the tulip is the "national flower" of Turkey – has also been described as the most elegant control tower in the world. The actual control centre, however, is positioned many metres distant from the tip of the tower – without direct line of sight to the airfield. As a modern airport, IGA thus implements the principle of the "Virtual Tower". Instead of monitoring aircraft movements via the tower, the operators receive an image of the actual outside world from video cameras, on an imposing monitor wall. With almost 40 monitors, the operators follow events from various surveillance areas delivered by the cameras.

Video Management with SeMSy®

For analyses and user control, Istanbul airport uses the SeMSy® video management system. The operators in the virtual tower have access to the live streams or they can filter the recorded sequences quickly and efficiently using a wide range of search capabilities ("Comfort Search"). Access to the systems for the many users and operators with various access privileges is governed by SeMSy® with a comprehensive user rights management function.

3D planning saves time and costs: What you plan is what you get

The Istanbul airport is already one of the largest airports in the world. The enormous building project was subject to a demanding schedule. The airport was built on an area of 76.5 million square metres in just three years. Changes during the construction phase did not pose any extra obstacles for the planners of the surveillance solution, because Dallmeier supported the planning phase with a comprehensive 3D project plan from the very outset. Within this "digital twin", the 3D planning team was able to adapt the implementation according to new building phases and modifications quickly and flexibly. "The planning tool was the perfect assistant. With the aid of the 3D planning, there were no surprises in the final plan or during installation and commissioning," recalls Orhan Yorukoglu, Sales Manager Dallmeier Turkey.

"This engenders enormous confidence in the planning on the part of the customer" Another important advantage originates from the camera itself: because of its remarkable sensor concept, far fewer cameras are needed and correspondingly fewer installation points, in turn reducing the amount of associated planning.

Green light in the Regensburg FAT Centre

Before the project was finally commissioned, Mr. Kamuran Kocak, Security Systems Chief, IGA and Mr. Hamza Aybey, Security Systems Solution Manager Proline visited the FAT (Factory Acceptance Test) Centre in Regensburg together to convince themselves of the full functional quality of the systems. In the FAT, the entire systems undergo thorough testing in simulated real-time operation prior to commissioning. In addition to the 3D planning, this step before the final execution also saves time and money, and the customer is not confronted with any "nasty" surprises at the end. Mr. Kamuran Kocak, Security Systems Chief, IGA summarises, "I am absolutely delighted with the 'What you plan is what you get' principle. The professional preliminary planning and testing gave us 100% confidence in the planning."

Future-proof products

The installed Dallmeier systems – from the camera to the recording system up to and including the video management system – are all adaptable and upgradable for the long term due to their open system architecture and scalability. This ensures a high compatibility and sustainability. The system does not "age", the airport can integrate new components and systems at any time.

- Case Study on YouTube
- Dallmeier Solutions for Airports
- Multifocal Sensor Technology Panomera®

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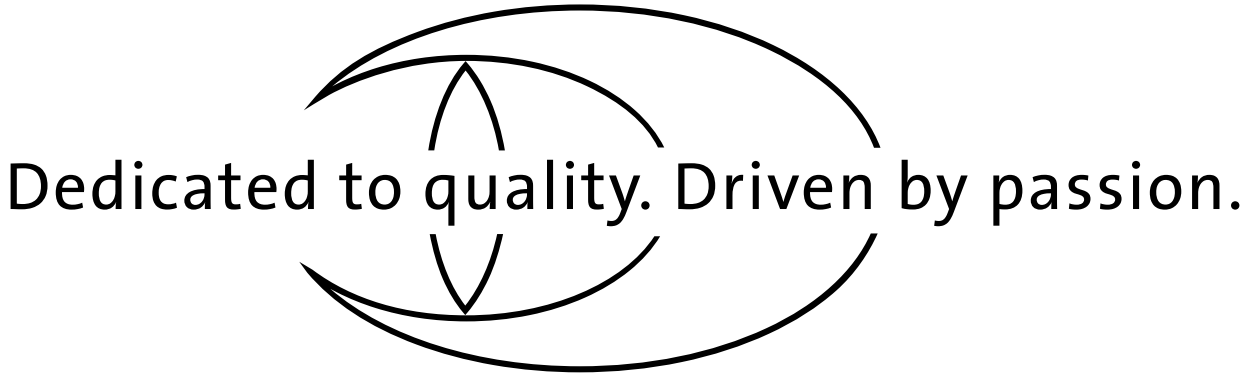

Dallmeier electronic GmbH & Co.KG
Bahnhofstr. 16
93047 Regensburg
Germany

Tel: +49 941 8700-0
Fax: +49 941 8700-180

info@dallmeier.com
www.dallmeier.com

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