



Integrated airport security cameras put terminal architecture on full display

Unusual design requirements like ultra-high ceilings saw the new Chengdu Tianfu International airport turn to panoramic security cameras.

Summary



Airport

Company: Chengdu Tianfu International Airport in China



Benefits

1000 cameras installed, ensuring building aesthetics through unobtrusive panoramic security cameras.

With the help of simulation software, the acoustic challenges were optimally solved and 9,000 loudspeakers were placed precisely for 700 transmission zones.



Product solutions

Panoramic cameras
Panoramic cameras of the product family FLEXIDOME

Public Address and Voice Alarm
PRAESIDEO to ensure speech clarity wherever in the airport

PRAESENSA for offices and airport hotels to send the right announcements to the right people.

Conference Solution
DICENTIS, the wifi-based wireless conferencing

Curved ceilings are a challenge for video surveillance and airport acoustics

When, in 2001, the Golden Sun Bird totem was recovered from the Jinsha Ruins in Chengdu City, Sichuan Province, China, it wasn't long before the newly booming megacity adopted the ancient artefact as its official logo. Now, the crest's glittering icons have been referenced in the terminal buildings of China's new Chengdu Tianfu International Airport, set to become a bustling transport hub – the second serving Sichuan Province's approximately 81 million residents, putting Chengdu in the company of Beijing and Shanghai as one of three locations in the country to have multiple international airports.



The curious design of the airport, however, led to a set of challenges in order to make Chengdu Tianfu operational. The swooping facade of the buildings were the first to present a unique design challenge. All airports rely on video surveillance to ensure passenger safety and airport security, but the height of the terminals' ceilings meant that due to their distance, traditional security cameras would have proved inadequate, providing poor image quality and installed at tricky viewing angles unable to capture full images. For an airport that eventually hopes to host 90 million passengers a year, clear image quality and precision tracking is required in order to monitor the huge numbers of people transiting the terminals – so a different solution to traditional cameras was required.

1,000

That's how many panoramic cameras were installed. Without losing the aesthetic look.

Best field of view with panoramic cameras

In fact, the innovative approach led to the airport installing just 1,000 panoramic cameras, 75% less than would have otherwise been required for a similar project of this scale – slashing costs thanks to the smaller overall number of the devices as well as associated expenditures for wiring, installation, and security personnel. Additionally, the cameras are built in such a way that only one lens is necessary for a reliable, clear, panoramic image. Panoramic cameras usually tend to feature four sensors, which can distort the quality of an image, so the superior detection capabilities, as well as the improved colour and brightness of the Bosch devices, were another selling point. And with its elegant exterior, the cameras were the perfect solution to provide an unparalleled security system while matching the aesthetic requirements of the buildings' interiors.



A custom solution would have to fit with the interior design qualities of the buildings as well as provide clear surveillance images, so the airport turned to Bosch's line of panoramic cameras, nesting these within information boards or concealing the devices on the terminal buildings' walls and high ceilings. With each camera able to monitor a semi-circle radius at 25 metres, and a matching 25-metre distance and 180-degree viewing angle, the new system meant that the airport could install far fewer cameras than a more traditional method would have entailed, while boosting the monitoring capabilities of the facility.

Public Address and Voice Alarm and Conference System



Another challenge of the airport's design was an acoustic one. Due to the interior design of the terminal buildings sporting many panes of glass, placing speakers within the facility without consideration of acoustics could easily lead to sound reflection, distortion, and inaudible passenger announcements. To solve this, the design team made use of acoustic simulation software to determine the precise placement of loudspeakers and audio arrays. Ultimately, the airport settled on installing 9,000 loudspeakers to cover 700 broadcasting zones, all integrated with the PRAESIDEO Digital Public Address and Voice Alarm System to ensure speech clarity no matter where passengers are within the complex.

Additionally, airports are exceptionally busy, noisy places with a great deal of traffic. For complexes as large as Chengdu Tianfu, which has a network of supporting offices for staff as well as an attached airport hotel, getting the right announcements to the right people is critical. But with the PRAESENSA Public Address and Voice Alarm System installed in the hotel, announcements are directed to the correct passengers as needed during their stay. In the case of the airport's offices, where confidential conference meetings are held, the DICENTIS Wireless Conference System secures audio data with encryption algorithms.

