

Image capture difficult for airport security cameras

Choosing the right security camera for an airport is not easy. Pixim's Digital Pixel System[®] technology is able to deliver the following capabilities:

- › Excellent image detail in high-contrast and backlight conditions, under fluorescent lights, or outdoors
- › Image clarity in shadows
- › No image wash-out due to glare and reflections from glass and metal
- › Accurate color in varying lighting conditions, such as near terminal windows or inside airport shops
- › Highly compressed, artifact-free image files, which enable even inexpensive DVRs to store and replay high-quality video, cost-effectively

Pixim's Image Technology

Pixim's Digital Pixel System ultra-wide dynamic range technology, a true breakthrough in imaging technology, delivers unprecedented image quality in all lighting conditions. Cameras powered by Pixim's specialized image processing chipsets can significantly enhance security in airports through the following capabilities:

- › **Widest dynamic range:** Captures up to 1000 times more data (dynamic range) than standard CCD cameras, to capture highlight and shadow detail in the same scene. In a Pixim-powered camera, the dynamic range is 17 bits, >100 dB (typical)
- › **Highest total resolution:** Pixim-powered cameras deliver the highest total resolution, making it easy to distinguish image features and details, even in variable lighting conditions. No other cameras offer 540 HTVL x 460VTVL, from a progressive scan imager.
- › **Superior color rendering:** Analog cameras, because they generalize pixel settings, can not capture true color. They often deliver saturated highlights or muddy shadows. In contrast, Pixim-powered cameras deliver accurate white balance and color that is true, even in difficult lighting such as backlight, high-contrast scenes, glare and reflection.
- › **High signal-to-noise ratio (SNR) of >53 dB (max):** Minimizes the vertical smear, pixel blooming, and other image artifacts commonly encountered in high-contrast scenes, and leads to smaller files that take the load off DVR storage requirements.
- › **Excellent sensitivity:** <0.5 lux (CMY) minimum illumination at f/1.2, 50 IRE

Wide dynamic range cameras help improve security capabilities at China's busy Kunming International Airport



Glass-filled airports present challenges for security cameras

Airports present a number of technical challenges to security cameras, including:

- › Large windows, skylights, and abundant metal create glare, reflections, and areas of strong backlighting that can diminish image quality in traditional cameras.
- › Fluorescent and other artificial light sources add to the challenges of capturing images that are consistently clear, correctly exposed, and color-accurate.
- › Most airports rely on inexpensive, low-quality digital video recorders (DVRs), which struggle to store high-quality images economically.

Security cameras are an integral part of modern-day airport security, participating in passenger security checks and recording and monitoring the passage of people, luggage, and cargo outside and within the terminals, in transit to planes, and in final exit from the carriers. The cameras are only as effective, however, as the quality of the images they can capture and store.

Kunming Wujiaaba International Airport (KMG), located in the southeastern outskirts of Kunming City, China, handles some six million passengers annually. Kunming City, the capital of Yunnan Province, enjoys a pleasant climate with little temperature change throughout the year, making it a favorite destination for holidays.

Originally built in 1923, the Kunming Airport is one of five Chinese airports that opened early to foreign airlines. It was also one of the airports used by participants and spectators attending the Beijing Olympic Games.

Kunming Airport has been renovated numerous times into a modern facility that ranks as China's seventh-largest civilian airport. It currently handles more than 100 international, domestic and regional air routes. Its newly built international passenger terminal spans 14,000 square meters, able to accommodate 580,000 passengers and 35,000 tons of cargo each year.

As with all busy commercial airports, a major goal of Kunming Airport is the security of the airport facilities and the safety of passengers, employees, and airport visitors. The airport's aging CCD-based security cameras were in need of updating, to provide clearer and more consistent images of people and activities throughout the airport, in all lighting conditions.

Pixim®-Powered Sunell cameras handle challenging lighting

The Kunming Airport replaced its old CCD-based security cameras with approximately 200 Pixim-powered cameras from Sunell Group. The Sunell SN-586C/B box cameras and SN-586DCBW and SN-586DCXW dome cameras, powered by Pixim's Digital Pixel System® technology, were installed in locations including the airport hall, arrival and departure gates, passenger check-in, passenger screening, baggage handling, public areas (including shops and restaurants), and employee areas.

With their wide dynamic range, high resolution, accurate color, minimal image artifacts, and excellent compression capabilities, the Pixim-powered Sunell cameras help security officials at Kunming Airport to clearly capture details of people and objects, in all lighting conditions, both indoors and outdoors.

Pixim's patented Digital Pixel System technology revolutionizes the way video cameras capture and process images. Pixim's is the only video image capture technology that employs hundreds of thousands of pixels, each of which acts like an individual self-adjusting camera. Using this all-digital system, Pixim-powered cameras can efficiently capture the whole picture with precision and accurate color, including highlights and lowlights in the same scene.

In addition, the Pixim images are free of the artifacts (e.g., vertical smearing, blooming, under- or over-exposure) that plague so many other image processing technologies. By capturing more of the desired image features and less of the visual noise, Pixim's Digital Pixel System technology provides improved image compression – which means smaller image files to be stored on DVRs.

The right cameras can improve airport security

As in other world-class airports, security cameras are important for Kunming Airport as part of its overall goal to keep passengers and employees safe, and to prevent problems before they occur. The Pixim-powered Sunell cameras make it easier for the airport security staff to accurately assess what they see on the video, including clearly identifiable facial features – even in conditions of strong backlight or glare.

The Sunell cameras include motion detection, alarms, and automatic zoom functions, allowing the Kunming Airport security team to instantly focus on a scene of interest or concern, whether it's a suspicious person walking through the airport hall or a suspicious piece of luggage in baggage claim or in one of the airport's restaurants.

Kunming Airport relies on the Pixim-powered Sunell cameras to act as partners in the prevention of trouble and the apprehension of criminals. Because it is impossible for security personnel to continuously monitor every corner of the airport's facilities, the camera system helps extend

the security staff's reach and effectiveness. It also enables fewer security people to effectively monitor the entire airport.

In one recent example, policemen from the Kunming Public Security Bureau were able to successfully arrest a foreign drug dealer in the Kunming Airport, based on live observation of the suspect using the Sunell security cameras. In addition, cameras at the main entrance to the airport routinely record the faces of all passengers passing through on their way to the departure gates. Since installing the Pixim-powered Sunell cameras, the airport security staff finds that it can accurately identify passengers at all times of day or night, even with sunlight streaming through the entrance door.

In the case of a security incident, theft, or other situation of concern, the accurate images made possible by Pixim's Digital Pixel System technology help Kunming Airport officials to identify people or objects of interest, including suspected perpetrators.

The cameras also help thwart potential threats, such as identifying people going the wrong direction in a terminal, behaving suspiciously, or stealing. Additionally, the cameras can recognize luggage left unattended for too long.

Kunming Airport can use the images captured by the Pixim-powered Sunell cameras to reconstruct the flow of people and cargo before, during, and after an incident, helping both to prevent problems and to prosecute criminals.

