

Copenhagen Airport installs thermal security cameras

FLIR Systems' SR-100 cameras make the airport safer than ever.



With the growing threat of intruders or terrorist attacks, ensuring passenger safety is of the utmost importance to commercial airlines and airport authorities alike. These authorities have the responsibility to safeguard passengers to be sure, but they watch over airport personnel and valuable equipment as well. FLIR Systems' SR-100 thermal security cameras are helping to make Copenhagen Airport even safer than ever.

Founded in 1925, Copenhagen Airport was one of the first civil airports in the world. Today, Copenhagen Airport is the biggest airport in Scandinavia – more than 20.9 million passengers passed through the airport in 2006. Copenhagen Airport leads the region in international flights, direct long-haul routes and total number of destinations served. Copenhagen Airport is centrally located in Scandinavia and has the most extensive route network of any of the region's airports. As its passenger traffic numbers show, it is the first choice for passengers traveling into, around, or out of Scandinavia.

Befitting its top-tier status, Copenhagen International encloses 12.4 square kilometers of real estate within its 30-kilometers of perimeter fence. Coordinating an effective surveillance and security presence for such a large area is an enormous task. Besides surveillance cameras, more than 700 specially trained security staff members patrol the airport, on foot and in vehicles, all hours of the day and night.

Patrolling the Critical part of the Security Restricted Area (CSRA)

"Although we are meticulously monitoring the entire airport, we are especially concentrating on the Critical part of the Security Restricted Area (CSRA)", explains Mr. Frank Christensen, head of the Copenhagen Airport Security Operations Center. Nothing can enter or leave the CSRA without the Security Operations Center knowing about it. "We have 108 airplane stands," says Christensen. "It is a huge area to monitor."

Complicating things even more, this high-security area borders active runways. Aircraft going between the terminals and the active runways, or airplanes that have just landed and are going to the gate areas, are coming from an "unsecured" area into the CSRA. This is not counting vehicles and people from other areas within the airport that could enter the CSRA. Therefore, security operators use multiple sensors, including ground radar, to monitor all CSRA access points. Christensen explained, "Although ground radar and sensors warn us when something is happening, we cannot see what it is. Therefore, everyone and everything entering or leaving the CSRA is also followed with cameras so that we know what is happening."

During the daytime this is easy, but at night the Airport's daylight cameras were of little value. "It is impossible to light up the entire CSRA," says Christensen. "We cannot put lighting poles everywhere. This would obstruct the airplane traffic from and to the runways. In order to solve the problem we thought of thermal imaging."

Thermal imaging: the solution for seeing at night

The potential benefits of thermal cameras were easily apparent to Christensen. "It became immediately clear that they would be a huge asset to our security infrastructure." That thermal cameras could produce clear images without extra lighting was a benefit that



SR-100 installation at Copenhagen Airport



An example of the SR-100's thermal imagery at Copenhagen Airport



Christensen could enthusiastically support. "We were amazed to see them produce a clear image in the darkest of nights. Being able to see in total darkness is great for security people. Definitely in Scandinavia where there is not that much daylight in wintertime."

Copenhagen Airport officials chose to install the FLIR Systems SR-100 thermal security camera. "We chose for the SR-100 because they give us a great range performance. Equipped with a 100 mm lens, they allow us to detect objects from more than 1.5 km away." Mr. Christensen explains. "Another advantage is that the cameras contain an uncooled infrared detector. This reduces downtime to an absolute minimum. We need to be sure that the cameras are working 24 hours per day, 365 days per year."

To ensure maximum flexibility and utility, the SR-100s were mounted on Pan/Tilt mechanisms supplied by Praecisionsteknik, the FLIR Systems distributor for Security and Surveillance products in Denmark. Security operators need the ability to look around; constraining this high-technology camera with the limitations of a fixed-position camera was not an acceptable alternative. Christensen elaborates, "Once an alarm...goes off, we immediately need to be able to turn the camera to the right direction. This way we can see what has triggered the alarm and we can follow the object with the thermal imaging camera if necessary."

Easy integration is essential

During the early demonstrations, the SR-100's performance spoke for itself, but airport personnel remained concerned about integration. "Although we were very enthusiastic when we saw the first demonstration of the FLIR thermal imaging cameras, one of the key elements in the decision process was the integration of the cameras in our existing security network.", says Mr. Claus Hulstrom, Software Developer at Copenhagen Airport. "We are operating more than 200 CCTV cameras at the airport and the thermal imaging cameras needed to be installed in the same network." These concerns were easily allayed. The SR-100, like all FLIR thermal security cameras, is compatible with the standard Pelco D protocol and integrates easily into existing Pelco D networks. "In order to install them we just removed some of our normal cameras and installed the thermal imaging cameras," said Hulstrom. "All together this only took us about 2 hours."

Thermal imaging: exceeding expectations!

Airport security operators had specific plans for the FLIR thermal cameras. They saw themselves using the SR-100 to look into unlit areas at night, building on their existing 24/7 capabilities. They soon realized that thermal imaging could do more – much more – than just see in the dark. The bright lights found on and around airport ramp areas do not blind thermal cameras, making the cameras useful during the day or at night. What's more, thermal cameras have proven themselves in bad weather, looking through the light fog that can leave visible-light cameras useless.

Christensen has seen the benefit of thermal imaging firsthand. "The cameras sometimes give us even more information [than visible-light cameras]," he said. "After all, they are infrared cameras that are making temperature differences visible. ...looking at a car with the SR-100 cameras, we can immediately see if it has been there a long time or just arrived. A car with a hot motor generates an entirely different image from a car with a cold motor.

"Thermal imaging has proven its value here at Copenhagen Airport," said Christensen. "Thanks to thermal imaging, Copenhagen Airport has become even safer than it was before."



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