



# TAKING A UNIFIED APPROACH TO AIRPORT SECURITY

A brand new solution from OPTEX and Genetec is helping airports to detect intruders

Since the day in 1919 when Hounslow Heath Aerodrome became the first site to operate a scheduled commercial air service, airport operators have wrestled with a constant challenge: security.

Fast forward 100 years and the problem hasn't gone away. Far from it. It is now a greater threat than it has ever been before. A simple internet search will reveal any number of security breaches, from illegal immigrants being smuggled onto a cargo aircraft, to a drunk driver smashing through a perimeter fence and colliding with an airport vehicle. There are humorous incidents of a man arriving at a security checkpoint claiming he

was Jesus and with an ID to match, to the singularly unfunny risk of a terrorist attack using lasers and rocket-propelled grenades.

Five years ago, Associated Press commissioned a report into the most common security breaches reported at the 30 largest airports in the US. Some 268 serious incidents were reported in all, mostly relating to stowaways or individuals boarding aircraft without the necessary documentation. But a significant number – 44 in all – were of incidents where an intruder had made it onto the runway, the taxi-way, or airside where aircraft were being loaded or refueled, posing an extremely high risk. On one occasion, a man was found loitering by an aircraft and a subsequent investigation and review

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of CCTV failed to determine how he came to be there. Which, of course, is a big worry.

Part of the problem, of course, is the sheer size of the airports that need protecting. Hounslow Heath comprised a grass field and a hut, occupying a site of merely a few acres. Heathrow Airport occupies a site of more than 12 sq km, which is

dwarfed by JFK (21 sq km) which is itself dwarfed by Paris' Charles de Gaulle (Roissy) at a staggering 32 sq km. The scale of protecting such a perimeter cannot be overestimated.

## Unique environments

Although part of our critical national infrastructure, airports are unique environments in that they allow access to the public. Oil & Gas terminals, Nuclear Plants and other power generation facilities allow only limited public access and are therefore much easier to protect. Airports, however, are essential economic 'hubs', many of which position themselves as 'destinations' for retail and hospitality, in a way that mirrors many out-of-town shopping centres. The steady flow of passengers, staff and goods needs careful monitoring.

Airports are also multi-faceted environments in that they support not only passenger travel but also cargo transport and repair and maintenance operations. The presence of third-party operators and their facilities adds yet another level of complexity to an already complex security headache.

Security starts, however, at the perimeter, for it is airside that an intruder can arguably cause the most disruption or cause the most damage. Identify and prevent an intruder from making it onto an airfield and you are part of the way there to preventing a breach from becoming a major incident.

The key pain point that most airport operators share – beyond the size of the perimeter itself – is the multiplicity of equipment already installed or available to detect and prevent an intrusion. Multiple sensors are commonplace: long range passive infrareds (PIRs); active infrared beams; Laser scanners; Microwave Detectors; Fence intrusion detection sensors and now even Radar.

Many are installed as stand-alone systems, with little thought around integration or interoperability. Each technology has its weaknesses and when working in silos, it can generate multiple causes of false or nuisance alarms. It makes it extremely difficult for the security

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team to determine when a genuine intrusion is occurring/has occurred. So much information is now being presented that it ends up being a hindrance to the operator, rather than a help.

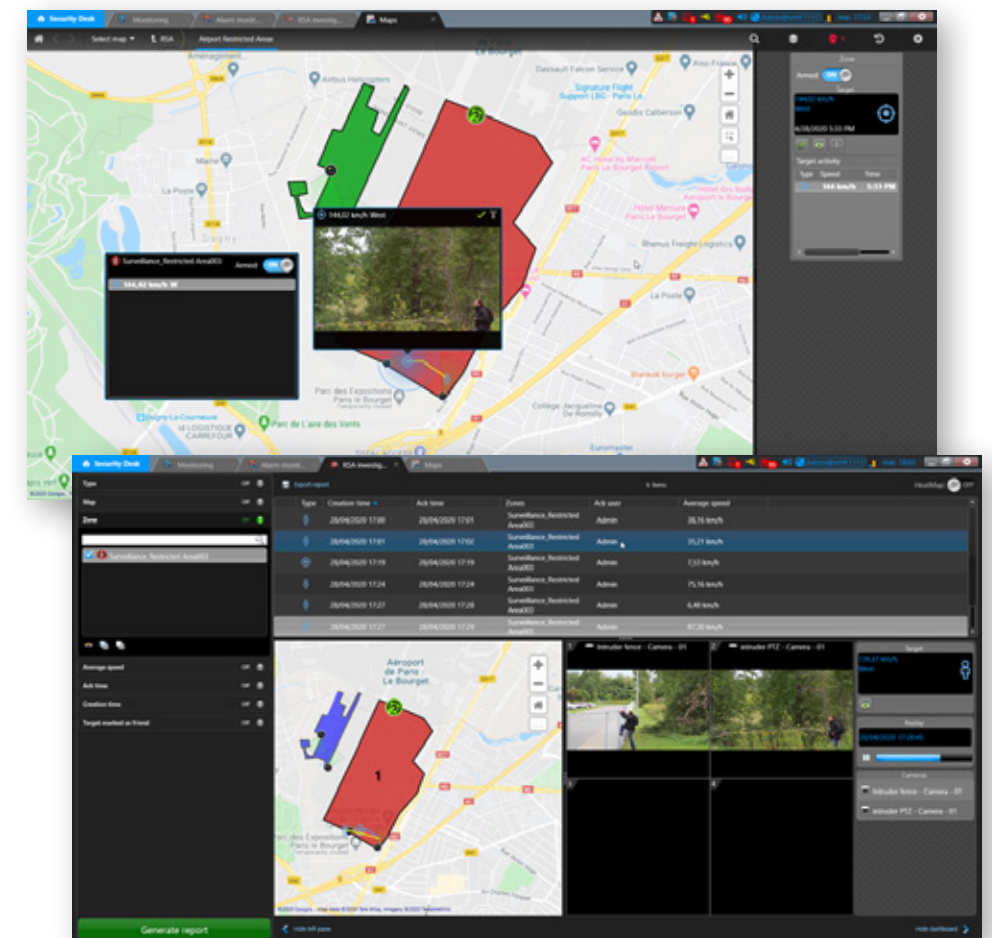
Tackling perimeter protection starts by using the right sensing technology at the right place, having double or even triple confirmation

of an alarm, what is referred to as "double" or even "triple knock". The technologies should be connected to a security platform which can make "sense" of the alarm information transmitted and interpret them as different levels of threats.

It was with this very thought in mind that Genetec developed its Restricted Security Area (RSA) Surveillance module as an extension of its Security Center platform. It has been designed specifically with a view to providing wide area protection and integrating with wide area surveillance technology, including radar and laser detection devices. How it works is simple.

## Synchronising events

Through the RSA module, the Security Center connects to a radar or laser detection system, for example, over the airport's security network. The RSA system then syncs events and alarms in real time with Security Center, instantly alerting operators of an activity or a threat.





By automatically synchronising RSA intrusion areas, operators can introduce a new layer of information and command and control capabilities on Security Center maps. Personnel can arm or disarm dedicated areas (this is especially important given the amount of building and maintenance work that is often ongoing in an airport environment), visually monitor activity and view live or recorded video associated with each target. They can acknowledge intrusion alarms on a map and use reporting tasks for focused investigations.

A particularly intelligent feature of the system is its ability to 'fuse' data (known as 'target fusion') coming from multiple sources and confirm an event as a single (i.e the same) activity rather than a multiple threat. This presents a more meaningful picture to the operator and serves to maximise the benefit of each sensor's performance characteristics, delivering a double and perhaps even a triple-knock confirmation.

It is also easy to add RSA Surveillance devices to the Genetec security system using the Security Center configuration interface. Multiple intrusion zones from the devices can be imported and added to the maps. All intrusion data is stored and available through a dedicated 'investigation task'. The operator can search per intrusion event (applying one or multiple filters) and replay the target trail on the map side by side with the camera view.

### Detection areas

In setting up a perimeter protection solution, 'areas' (as referred to above) can be created that start beyond the perimeter fence to warn, in advance, of a potential threat. This constitutes a first line of defence, detecting people, vehicles or an object that may be close by. The second line of defence is the actual perimeter fence, with areas created on either side as well as along, below or even above the fence line itself.



The security staff needs to locate quickly and precisely the point of intrusion and this can be achieved in two different ways : creating detection zones, for instance with Fibre optic fence sensor, zones can be 100 to 200m long and will identify people cutting through the fence, crawling under or climbing over, newer fibre technologies provide point location. Or this could be done by the exact X&Y coordinates as provided by OPTEX LiDAR technology or GPS location provided by Radar technologies.

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Detecting an intrusion is the utopia, preventing an activity from developing into a major incident. Thanks to the further integration of Genetec's RSA with OPTEX's LiDAR laser scanning detectors and Spotter radar sensors, an intruder can not only be detected, but also tracked precisely should they proceed beyond the perimeter before they can be intercepted.

OPTEX's LiDAR technology provides highly reliable outdoor detection whatever the lighting and weather conditions. Areas can be customised

to create virtual walls and virtual ceilings. The vertical detection can be used to protect perimeter lines but also specific areas such as the entrance to hangars, or access to restricted areas.

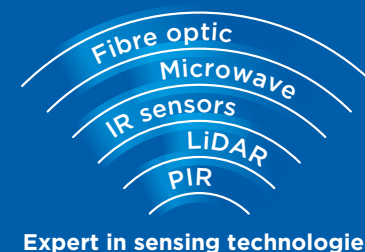
But perhaps the really clever part is the ability to feed the X and Y co-ordinates into the Genetec platform and track where the intruder is heading. The Genetec platform then has the ability to seamlessly 'switch' from one camera to the next, to ensure the intruder is never out of sight and direct an effective response.

The flexibility of the new unified solution is helping to transform the way airport operators manage and respond to security threats. Scenarios can be created within the platform and Standard Operating Procedures (SOPs) agreed to guide the operators into what to do with each alarm as it is presented. Investigation post-alarm is also much easier.

Reducing the volume of false alarms combined with the ability to take information from multiple sensing technologies and present it in a unified and intelligent way helps support the security team in making the right decisions. The ability to integrate X and Y co-ordinates through the same platform, with mapping and video to follow the path of an intruder, is also taking the concept of intruder detection to another level.



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