> Military Air Base Perimeter Monitoring with SPYNEL 360 IR Passive Sensors

Military air bases are the hub to deploy air forces of the country. They are critical assets which need to be fully secured, outside and inside the perimeter site.

Such critical site can be the target of potential attacks by terrorists or professional criminal organizations.

Long-range optronics sensors such as the HGH SPYNEL 360 thermal imaging cameras ensure high end detection, tracking and classification of any threats, from intruders to small animals. UAV intrusion is also a growing concern.

SPYNEL is the eye of the base to proactively react in case of a symmetrical or asymmetrical attack. Keep your base safe is the first mission of SPYNEL.
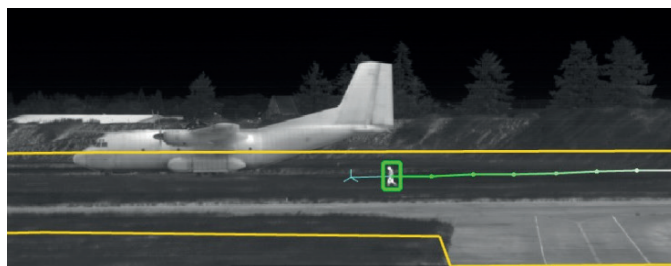
> Background

Protected by perimetric fences, military air bases consist of **large outdoor areas presenting an important activity** on runways, around hangars and other critical zones.

Usually surrounded by simple wire mesh-based fences, the air base can have security breaches due to open areas or removed parts of the fence.

Air surveillance radars are common equipment of the base used for air traffic monitoring. Military radar technologies for air surveillance are based on specific emissions of electromagnetic waves to

detect objects, such radars are especially **sensitive to interferences** which can be generated by high perimeter fences or other active detection systems.

Passive technology for intrusion detection sensors is hence paramount to avoid radar disturbance. With their **automatic multiple threat detection at long-range and fast deployment capabilities**, SPYNEL thermal imaging cameras bring significant advantages to ensure the 24/7 surveillance of military air bases.

> Benefits

- Passive detection solution
- Detection, tracking and classification of multiple threats simultaneously
- Long-range thermal surveillance for proactive decisions related to approaching threats
- Limited infrastructure required for installation

- Full surveillance of the entire site, before and after the fence
- Real-time 360° situational awareness with automatic classification for effective decision making
- Seamless integration of SPYNEL data into third party VMS software or Command and Control systems

HGH
Enlighten the Unseen

> Solution

A SPYNEL-S 6000 IR panoramic camera was installed on the control tower of the air base. SPYNEL-S provides real-time detection, tracking and classification of many types of threats, such as intruders, wildlife or even drones. The panoramic HD imaging technology is used to scan the site at 360° in real-time. Combined with the advanced Cyclope intrusion detection software, SPYNEL provides unique capabilities to detect and track **multiple threats simultaneously before and after the fence.**

Real-time visualization coupled with classification feature facilitate the understanding of the situation. It makes it easy to **distinguish wildlife from intruders with a very low false alarm rate guaranteed.** The other aspect of IR technology is being able to see at night. With the SPYNEL installed on the tower, **infrastructure costs are reduced**, with no need of additional masts and cabling. One note that the sensor installation height on the tower can be also precisely selected if the Spynel sensor is not installed on top of the control tower. In this configuration, Spynel can monitor over 180° the most critical part of the asset while reducing the blind zone.

Remote operations and Cybersecurity

ONVIF compliant, SPYNEL panoramic thermal sensors are seamlessy integrated into the existing security system, automatically sending alert streams to the VMS.
Cyber compliant, Cyclope appliance can be successfully implemented to follow the latest cyber defence rules, including network and data protection guaranteeing the highest level of cybersecurity

Cost effective solutions Pan Tilt Cameras vs SPYNEL optronic detection sensor

Pan Tilt Zoom (PTZ) cameras were alternative solutions considered for the military air base surveillance project. Main drawback identified was that the whole perimetric fence cannot be monitored continuously against potential attacks by one PTZ camera. A **PTZ camera watches in a certain direction,** limited by its field of view. Alternatively several tens of PTZ cameras could be necessary to fully secure the perimeter, which drastically increase number of security cameras, infrastructure costs and add complexity of surveillance system.

Another drawback compared to SPYNEL is the multiple threat tracking capability. If intruders entered the base, one **PTZ camera can only track one target** across the site. With SPYNEL and its panoramic stream, one single sensor can detect and track simultaneous targets. It gives valuable information on the location of the target and potential caused damages. **All tracks are recorded and can be used as evidence.**

Unlike PTZ, only one SPYNEL IR sensor is used to fully secure the air base, providing real-time panoramic video stream of full site with **automated alarms** in case of intruder detection.

"HGH SPYNEL 360 IR camera provides improved security to the smart air base and allow airforces to allocate their time to more valuable missions.", said Edouard Campana, Wide Area Surveillance BU Director.

> Conclusion

Passive technology combined with long range panoramic surveillance is the perfect match to protect military air base against a variety of threats. As a standalone system or being part of a complete surveillance solution, HGH SPYNEL thermal sensors **enhance situational awareness** of the military air base **far beyond the perimeter**. The scalability of the solution makes it possible to interconnect the surveillance of several military bases protected by SPYNEL.