



VIGILATE

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# V-FOX AORS



The technological evolution of intrusion detection that goes beyond the thermal camera  
Security Camera & Radar Doppler  
FMCW 4D

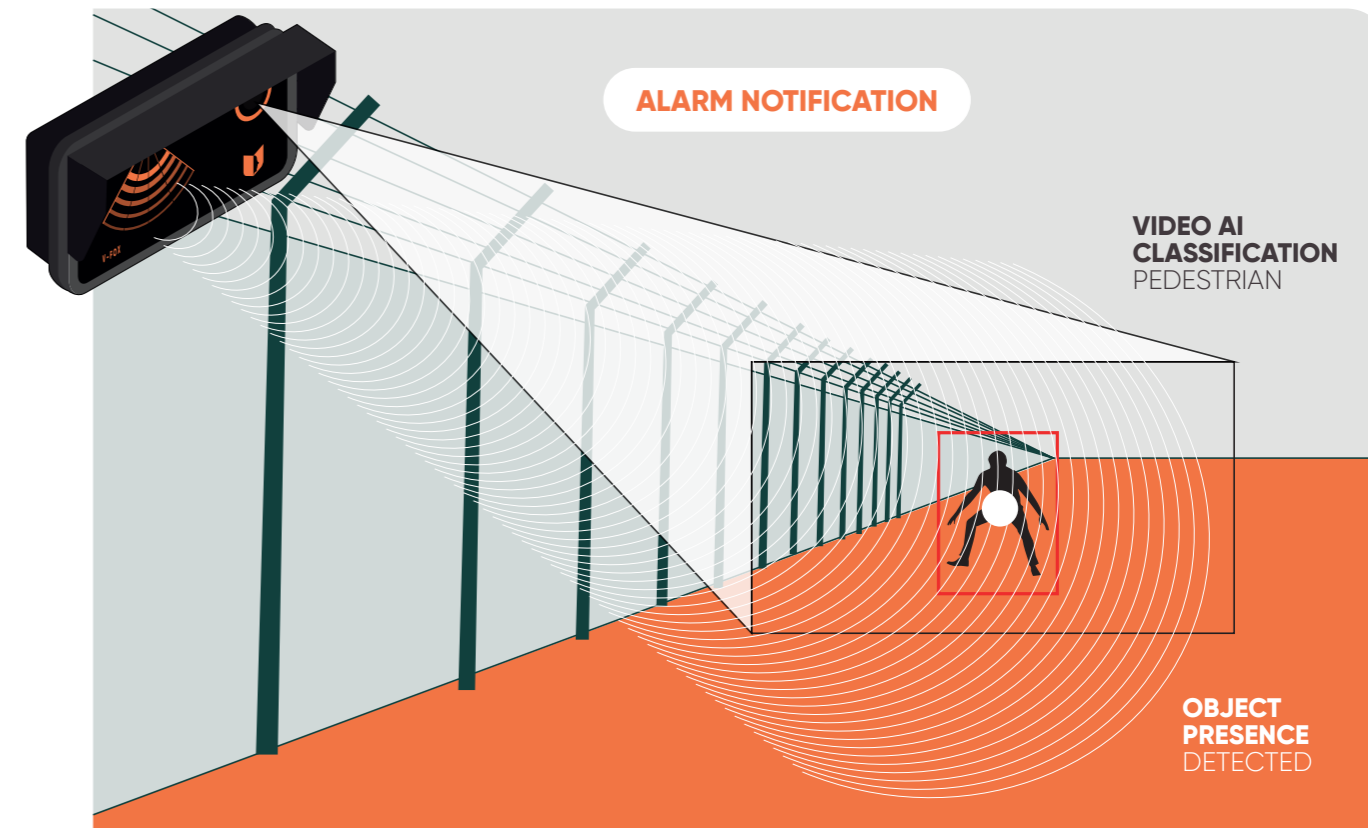


# v-FOX AORS

v-FOX AORS is a next-generation device, belonging to a more recent family of multi-technology products dedicated to applications in the world of outdoor physical security. It combines the technological capabilities of the latest-generation MFCW doppler radar, with those of digital cameras high resolution, to produce a 4D aggregate scenario, analyzed directly on board, in real time by artificial intelligence algorithms.

v-FOX AORS enables reliable recognition operations in simplicity, with performance superior to that guaranteed today with standard security products.

- 4D Advanced Doppler Radar MFCW 66-77 GHz
- Integrated multi-technology radar-video tracking
- 2/8 Mpx Color camera @ 30fps integrated for vehicle-people tracking support in the scene
- Integrated image processing software and radar signal in neural technology
- Object classification with recognition of animals, people, cars, heavy vehicles
- Operating distance 15-80 mt
- Synthetic orientation of the radar beam to adapt it to the installation geometry
- Horizontal synthetic aperture up to 70°
- Vertical synthetic aperture up to 70°
- Web user interface for configuration of the integrated product
- Max number of objects detected simultaneously: 64
- 128GB SSD internal storage option
- Day-night recognition of people, vehicles, heavy vehicles, animals
- PoE power supply
- Ability to operate multiple products simultaneously in the same areas or in areas adjacent



**v-FOX AORS allows you to carry out installations of automatic and extremely reliable, drastically reducing the phenomenon of false alarms and protecting the installation from intrusion attempts with disguises operated with any type of material.**

All phenomena are analyzed simultaneously in 2 distinct technological domains (radar and video) each of which is capable of producing its own analysis outcomes. A higher-level logic supported by algorithms neural artificial intelligence correlates the information produced by the two technological processes and consolidates it into a secure and reliable outcome. With a frequency of analysis of 60 processing operations per second, the product is capable of detecting fast phenomena and observing over the time the evolution of the same within the scene.

**v-Fox is a component fundamental of early warning dedicated to large security systems perimeter.**

v-Fox is a compact radar-camera product, used to detect and report timely intrusions as part of a broader video surveillance system. The radars are capable of monitoring targets in all weather and lighting, and dynamically map them in real time to obtain information on their location. With simultaneous monitoring of up to 64 targets, and geolocation capability, v-Fox AORS can trigger visual verification alerts to maximize security coverage and increase the time available to respond to a threat.

# Complete, accurate, 24-hour protection

Using the combination of the two technologies, v-FOX AORS is able to detect the shape, position, speed of an object in an area by operating accurate detection day&night, under various weather conditions. Thanks to the analysis integrated analysis developed using machine learning and deep learning, it can detect, classify and accurately track people and vehicles with a very low false alarm rate.



Radar technology by its own characteristics of operation detects events independently of their optical visibility and, consequently, its proper operation is not affected by phenomena that typically disturb video analysis such as shadows, light beams, sudden changes in the general brightness of the scene, spider webs, etc. The radar keeps false alarms to a minimum and provides fundamental information about detected objects that cameras are not to appreciate such as, e.g. example, the exact location, speed and direction of movement.

It is perfect for outdoor and very large areas. For example, a fenced area for warehouses or industrial sites. A motion detector based on radar technology is the perfect complement to an advanced video analytics system.

The on-board security radar circuitry of the v-FOX AORS uses state-of-the-art technology to detect with accurately the location and movement track of up to maximum of 64 potential intruders simultaneously, even in the harshest weather conditions, and offers the same operation during both day and night.



Video technology enables it to generate events of both daytime and nighttime motion if, in the latter case, a brightness minimum of 15 Lux in the scene. Video detection of intrusion events is somewhat less accurate and effective than radar detection, but it has the great advantage of being able to show intrusion events to an operator in charge. In addition to this, video technology can also classify the intruder subject by recognizing it as a person, vehicle, animal, etc. in order to be able to certify automatically those intrusion events operated by disallowed categories.

Another advantage of video technology is to provide continuous recordings of the scene for analysis post-investigation, alarm clip recordings, snapshots of the moment that generated the alarm event; all this as decision support for the operators in charge in the operations room.

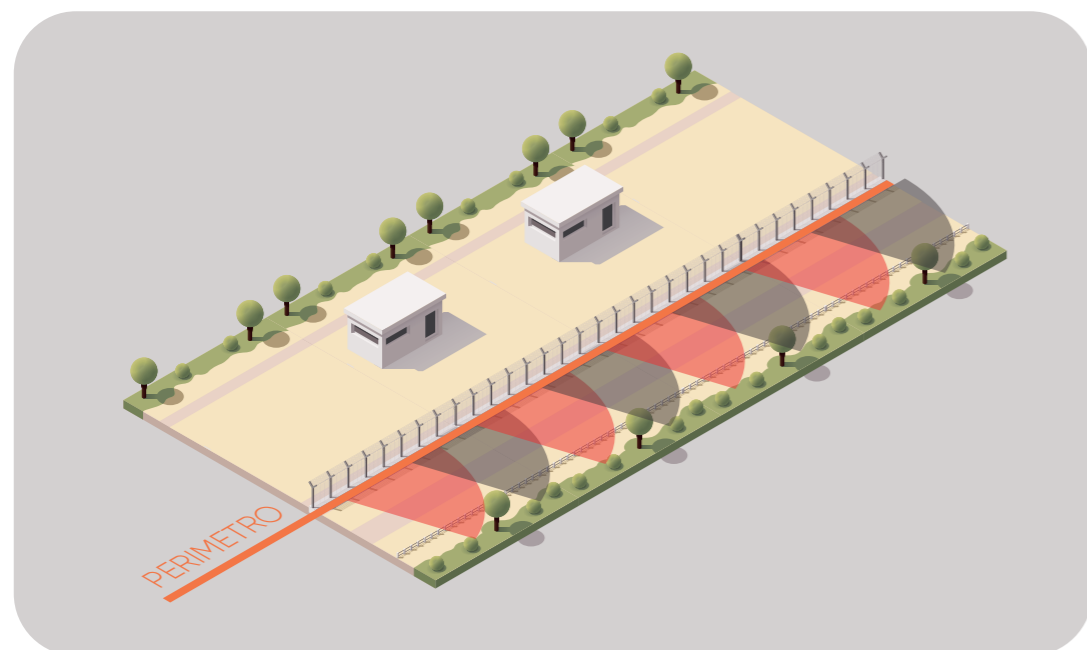


# Perimeter Security

This intelligent device based on specially trained neural network with datasets produced and implemented directly by Vigilante oriented for the purpose, has preset layouts that allow for a variety of installation solutions dedicated to perimeter intrusion prevention. These range from the installation profile of "tracking" sensors, rather than the outdoor area control profile or the control indoor areas or, again, wall installation with control of areas adjacent to buildings.

## Why add a Radar-Camera for perimeter protection?

**Radars give security managers more time to react to intrusion activities. The radar-camera v-FOX adds a fundamental layer of security within an intrusion-detection system perimeter by integrating a security camera with visible light with radar technology.**

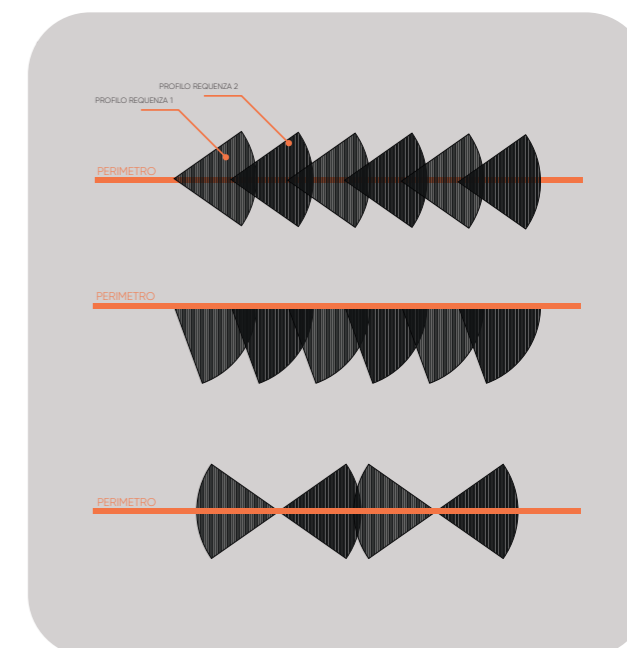


# Coverage and Security

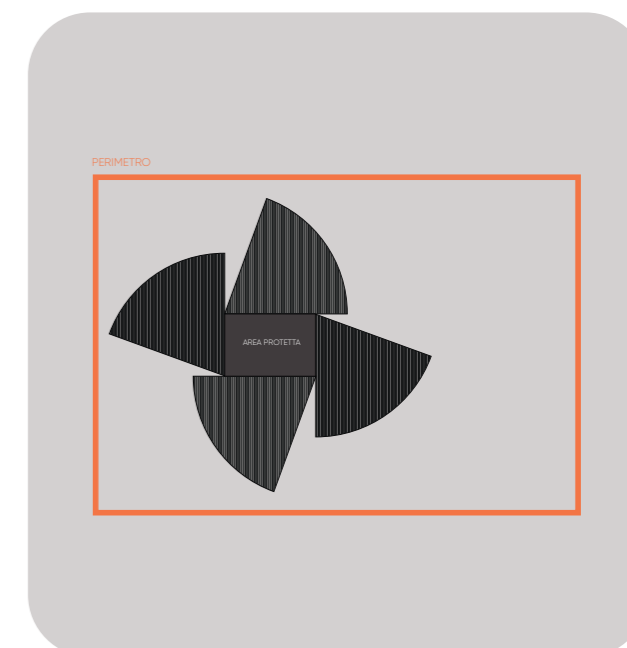
With 70° horizontal coverage, v-FOX AORS enables wide area protection. It can detect people at a distance of up to 50 meters and vehicles up to 80 meters. v-FOX AORS features intelligent coexistence functionality that exploits among different devices different radar frequency profiles and allows, depending on installation requirements, either the use of multiple radars in each other's queue or back-to-back modes.



External building coverage



Perimeter layouts



External building coverage

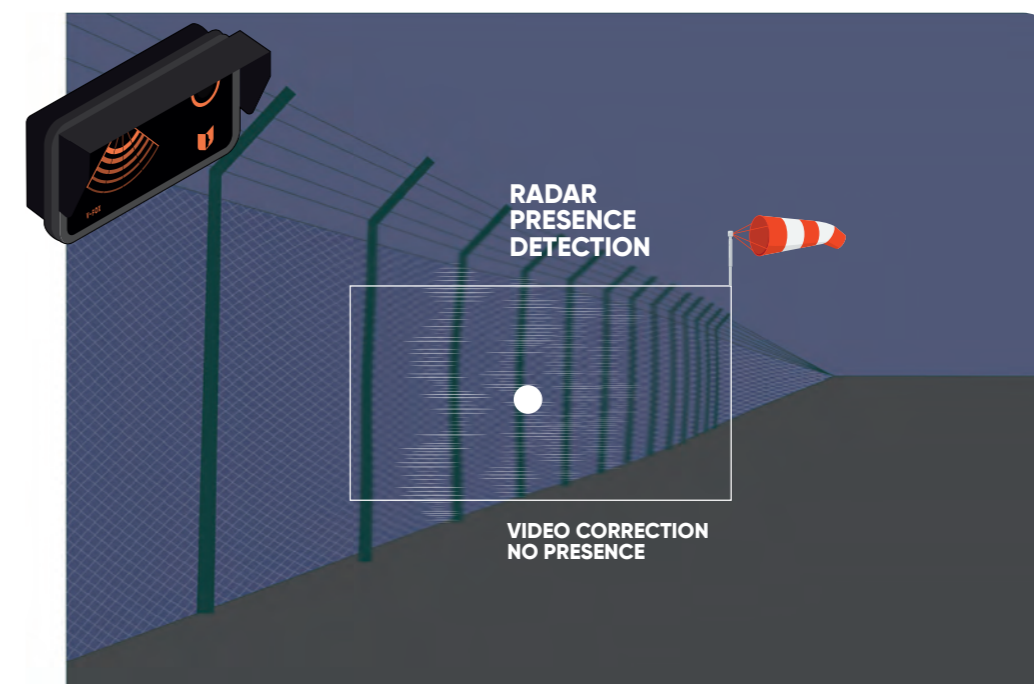
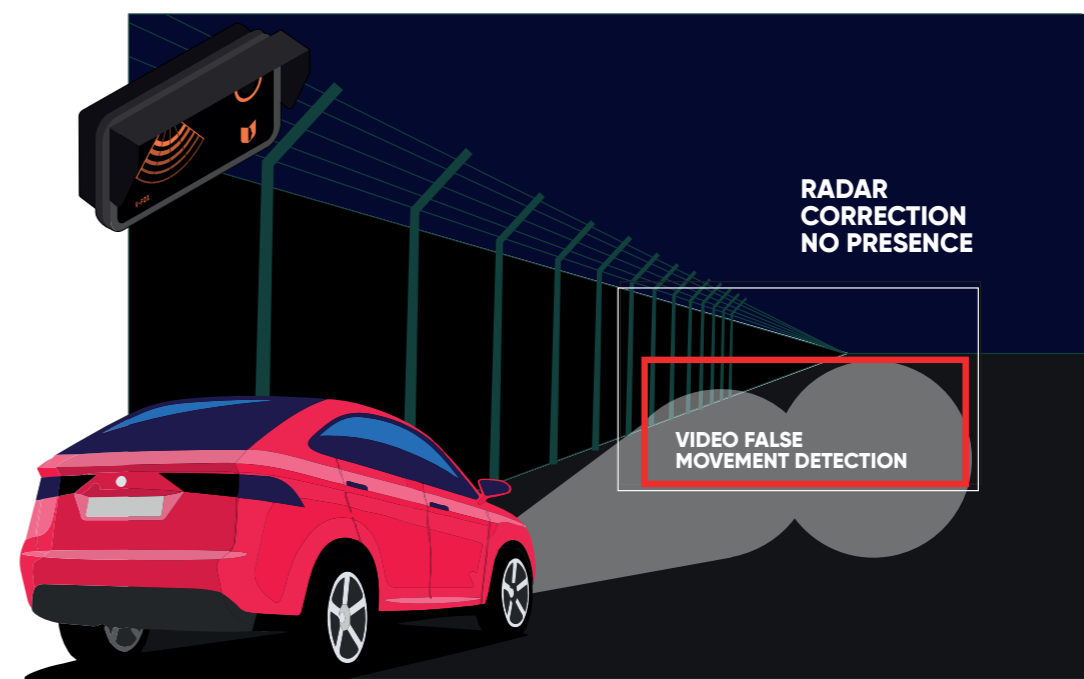


# Maximization of security and reduction of false alarms

Minimize false alarms with radar detection, classification and video monitoring.

The most effective security solutions rely on a strategic combination of technologies (cross-technology approach) to achieve the best results. Each technology plays its own specific role and offers advantages that can offset the disadvantages of the other and vice versa. Adding together the features of radar and those of video analytics, we obtain a hybrid device capable of detecting intrusions both by day and by night that can be able to provide automatic images and classifications of intruders by day and night as long as the scene is illuminated with at least 15 Lux. Subjects moving in the scene are detected even with camouflage of any shape and material, subjects covered by aluminum sheeting, etc. All this, however, with zero false alarms; lights, shadows, radar ghost signals, swaying vegetation, swaying fences, etc. are filtered out by the lack of simultaneous double confirmation of the two technologies.

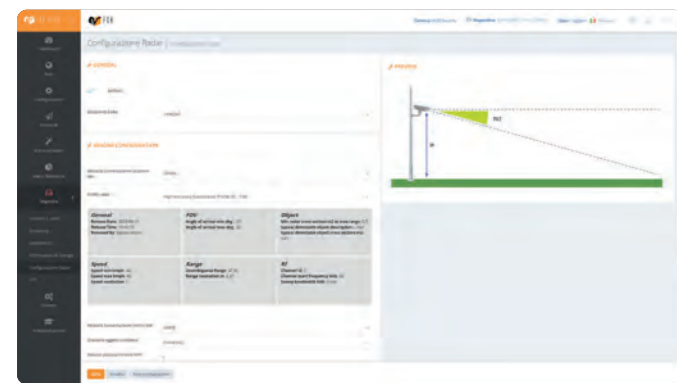
**v-FOX AORS** The ultimate in security, the minimum of false alarms.





## Configuration

v-FOX AORS includes a web-based interface for the complete configuration of the apparatus, with the possibility of performing calibration operations even remotely. The interface displays values in real time and provides a self-adapting configuration for maximum ease of commissioning.

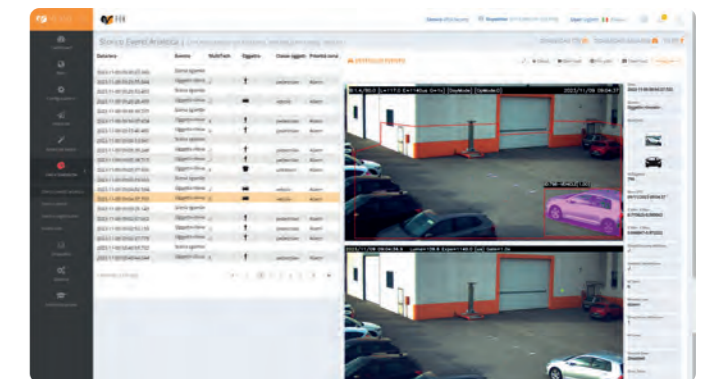
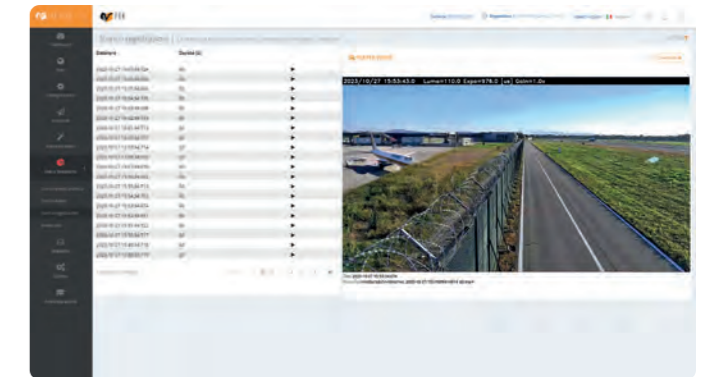
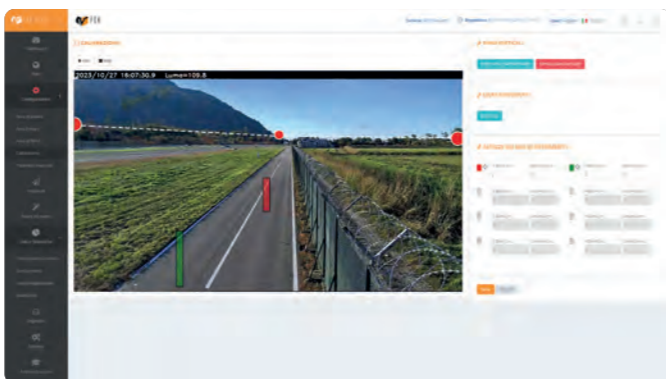


## Integration

v-FOX AORS can be integrated with the most popular VMS (Video Management Software) on the market because it has an open interfacing protocol and is documented that supports several standards.

The device meets the Onvif Profile S standards and has a message editor to configure standard protocols as well.

The product enables greater value to security installations by intercepting situations critical situations even in low light or unfavorable weather conditions.

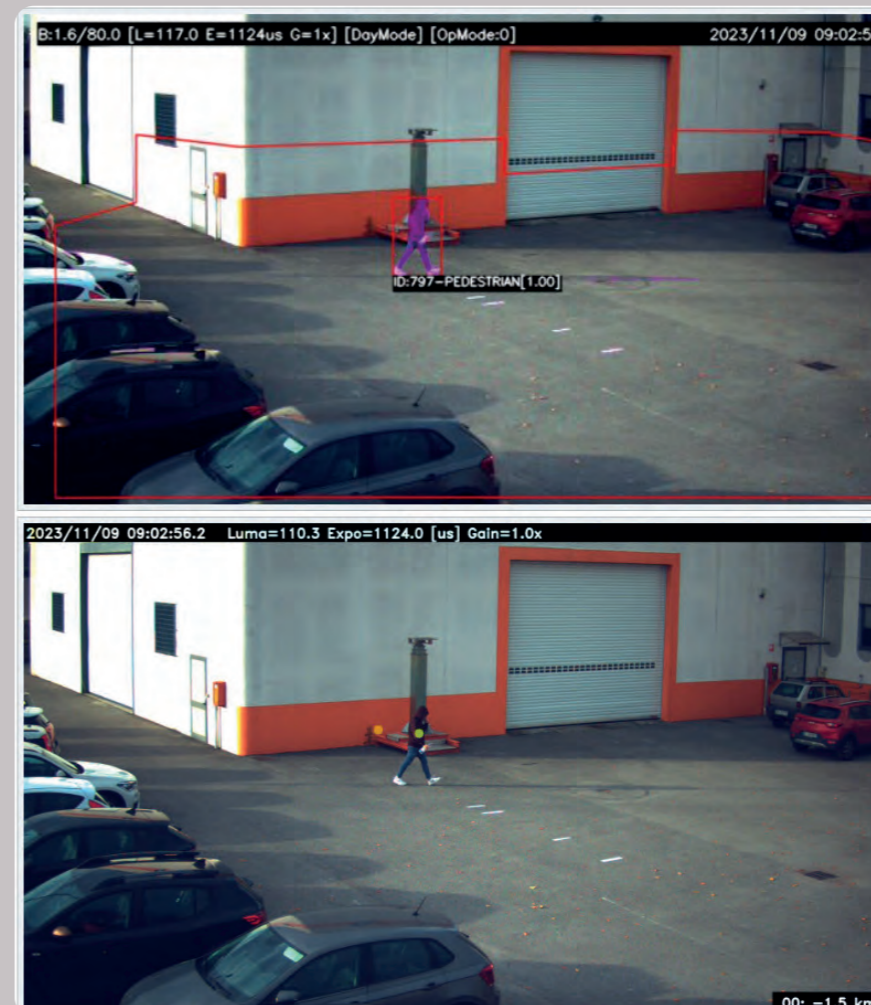


## Maximum flexibility for an installation economical

The all in one camera + radar system reduces the time installation time that would occur with two devices different devices connected to each other, the use of a multifunction optimizes performance and limits the possibility of installation errors.

## High reliability

High reliability because the accuracy of the radar is not is affected by weather conditions, and therefore complements the traditional CCTV system even in difficult conditions, such as rain, snow, or dense fog



## Radar technology

### PRO

- Day&night detection guaranteed
- Any material
- Position
- Trajectory
- Speed
- Simultaneous multi-target

### AGAINST

- Ghost signals with wire mesh
- Degradation in case of heavy rain
- No recognition
- No images for investigations

## Video Technology

### PRO

- Detection Day&night
- Threat assessment
- Subject recognition
- Event recording
- Possibility of investigations

### AGAINST

- False alarms at night
- Night detection
- Camouflage

## Cross-technological synergy

### Radar pros that avoid vision cons

- Day&night detection guaranteed
- Any material
- Trajectory
- Speed
- Simultaneous multi-target
- False alarms at night
- Night detection
- Camouflage

### Pros of vision avoiding disadvantages of radar

- Detection Day&Night
- Subject recognition
- Event recording
- Threat assessment
- Possibility of investigations
- False alarms at night
- Night detection
- No recognition
- No images for investigations



### Day

Classified video alarm  
+ radar confirmation



**Alarm confirmed**



Unclassified video alarm  
+ radar confirmation



**Alarm confirmed**



Unclassified video alarm  
+ non-radar confirmation



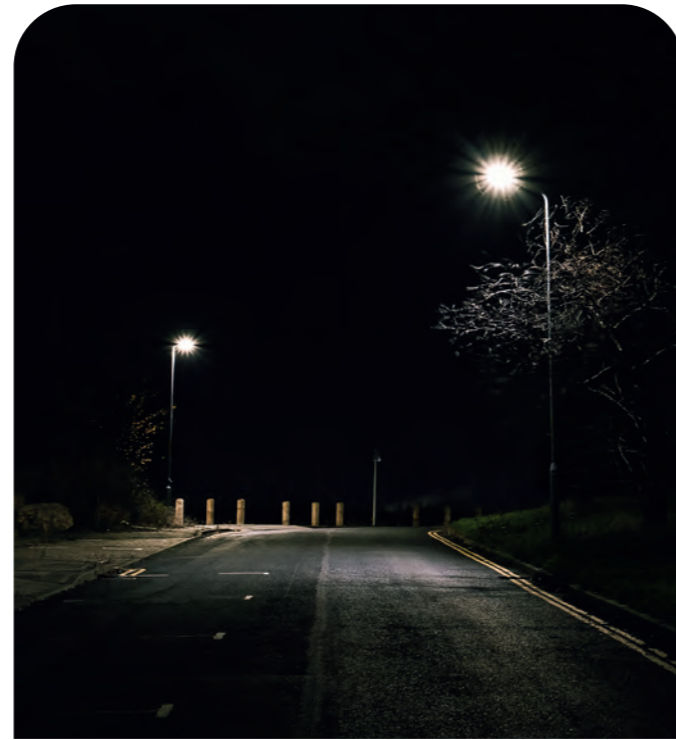
**Unconfirmed alarm**



No video alarm  
+ radar alarm



**Unconfirmed alarm**



### Night with lighting

Radar alarm  
+ classified video confirmation



**Alarm confirmed**



Radar alert  
+ unclassified video confirmation



**Alarm confirmed**



Radar alarm  
+ no video confirmation



**Unconfirmed alarm**



No radar alarm  
+ video alarm



**Unconfirmed alarm**



### Night without lighting

Radar alarm  
+ classified video confirmation



**Alarm confirmed**



Radar alert  
+ unclassified video confirmation



**Alarm confirmed**



Radar alarm  
+ no video confirmation



**Alarm confirmed**



No radar alarm  
+ video alarm



**Unconfirmed alarm**



### Night with fog

Radar alarm  
+ classified video confirmation



**Alarm confirmed**



Radar alert  
+ unclassified video confirmation



**Alarm confirmed**



Radar alarm  
+ no video confirmation



**Alarm confirmed**

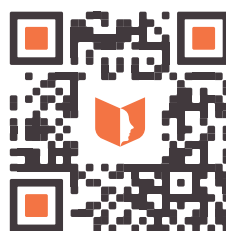


No radar alarm  
+ video alarm



**Unconfirmed alarm**





**Vigilate S.r.l.**

**Sede Legale e operativa:  
Via Napoleonica, 6,  
25086 Rezzato BS Italy**

**Partita IVA: IT01598660056  
Tel: +39.0308081000  
Pec: vigilatesrl@pec.it  
Codice SDI: W7YVJK9**