

# Volumetric Object Surveillor VOS



Protection of paintings and sculptures from vandalism and theft:

- suitable for 2D and 3D objects
- offers configurable alarm zones
- allows for easy and aesthetic overhead mounting
- based on 3D MLI Sensor™ technology

## Reliable Protection of Art from Vandalism and Theft

Striking the balance between protecting valuable objects and encouraging the public to visit and come within touching distance of sculptures, paintings and other works of art, is a challenging task. With the help of increasingly precise and unobtrusive protective measures, this challenge can be met without compromising the object's safety.

IEE's Volumetric Object Surveillor (VOS) provides 3D protection around paintings and sculptures, and triggers an alarm when someone breaks through the "optical curtain" and, consequently, touches the work of art.

Any attempt to move the object or remove it altogether will result in the activation of a continuous alarm. As the sensor is calibrated to the exact dimensions of the object and its precise position within the surveillance area, any attempt to deceive the sensor by manipulating the object or the surveillance area will be immediately recognized, and security staff notified.

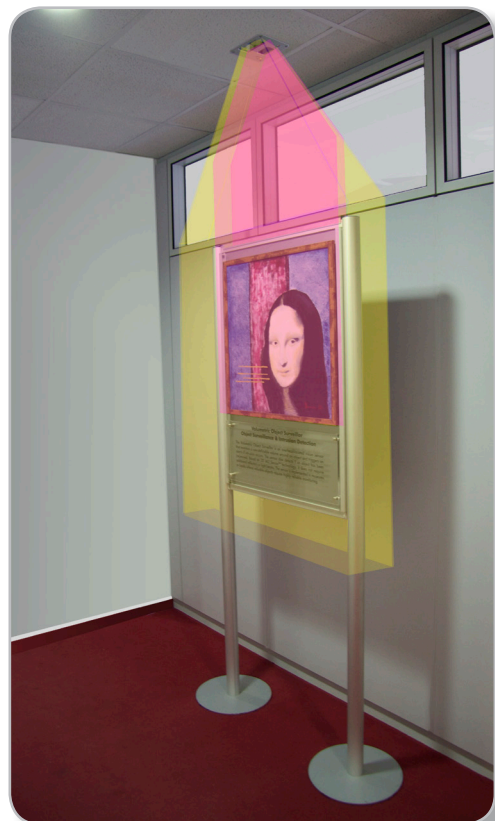
### Security Staff Optimization

The Volumetric Object Surveillor supports the existing security personnel by activating an integrated alarm as soon as intrusion occurs. The staff can take appropriate measures, whilst at the same time the visitors are alerted that they need to step back.

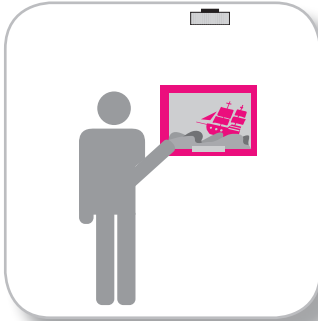
### Configurable Detection and Alarm Zones

Objects can be clipped sideways into two distinct and configurable alarm zones, as well as from the bottom, as illustrated in this picture.

- If the outermost layer of the surveillance area is compromised, a preliminary audible alarm can be activated - either near the object or delivered discretely to security personnel.
- If anyone ventures into the area closest to the object (the second layer), a second alarm can be triggered, alerting security personnel to the increased threat level.



Protects only where protection is required



### Suitable for 2D and 3D Objects

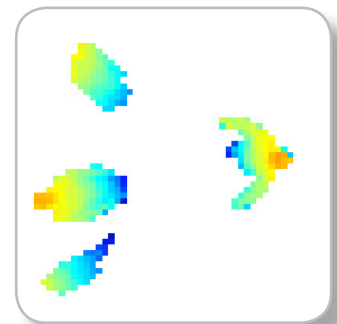
The Volumetric Object Surveillor can be configured and re-configured for use with all types of valuable objects, whether 2D objects such as paintings or 3D objects like sculptures or display cases.



## How VOS Works

### 3D MLI Sensor™ Technology

IEE has developed a 3D sensor using MLI (Modulated Light Intensity) technology. MLI technology is based on the optical time of flight (TOF) principle, whereby an active, non-scanning light source emits modulated near-infrared light. The phase shift between the light emitted by the source and the light reflected by the people and objects in the field of view is measured to create a real-time topographic image of the monitored area. Through sophisticated embedded algorithms, the overhead-located 3D MLI Sensor™ processes topographic or 3D data very effectively, and is able to monitor the volume around an object and recognize when the surveillance area is compromised.



*Topographic image*





## Advantages

### Easy Installation and Integration

The Volumetric Object Surveillor's optimized Design Housing can easily be installed without requiring invasive aesthetic changes to the existing architecture or design of the surveillance area. The Design Housing is available for in-, on- and under-ceiling mounting, providing installation flexibility for all kinds of ceiling structures.

After the installer has configured basic settings, such as detection width, length and monitoring height, the sensor calibrates itself within a few seconds.



*Flush mount*



*On-ceiling*



*Under-ceiling*

### Reliability in Changing Light Conditions

Since the sensor emits its own illumination, the performance is not influenced by artificial light and the sensor also works in the dark.

### Embedded Software

Due to its integrated VOS firmware, the sensor does not require any additional computers or servers to process the data it captures. The decision to trigger an alarm is made by the sensor, and can be immediately transferred to the alarm system in place.

### Integrated Audible Alarm

An integrated alarm signal can provide an acoustic confirmation that the surveillance area (either the outer or inner layer) has been compromised.

### Self-Diagnostics

A self-diagnostic routine runs at start-up and is regularly repeated to detect any sensor malfunction.



Core Housing



Design Housing

## Technical Data

Device Properties	VOS9696M2	VOS6464M2
Monitoring height	2.5 to 3 m	3.0 to 5.0 m
Detection area	1.5 m x 0.9 m to 2.5 m x 1.5 m	1.5 m x 0.8 m to 3.2 m x 1.6 m
Field of view/illumination	90° x 60°	60° x 40°
Type of illumination	Modulated near infrared light (NIR)	
Weight	1.3 kg (Core Housing) + 1.6 kg (Design Housing)	
Dimensions of the Core Housing	W 167 mm x H 133 mm x D 94 mm	
Dimensions of the Design Housing	206 mm (integration cutout diameter), 247 mm (outside rim diameter), 115 mm (height)	
Operational temperature range	-20°C to +50°C	
Core Housing ingress protection	IP 40	
Supply voltage range	24 V DC $\pm$ 15%	
Power consumption	max. 2.7 A at 24 V DC	
Housing material	Powder coated aluminum	
Technology	3D MLI Sensor™	

### Network Protocols

- IP address fixed or DHCP
- Application output: web interface HTTP or XML-RPC (optional)
- Firmware updates via Ethernet

### Logging

- Access to current status
- Configurable logging interval, e.g. 10 s -> minimum log history 2 days 9 hrs

### Web-Based User Interface

- Application outputs: early alarm, main alarm, combined alarm, system error
- Selection of different digital outputs with configurable polarity
- Real-time interactive graph for input and output testing of electrical installation (e.g. alarm)
- Password-protected configuration

### Optional Relay Module

The optional relay module allows you to connect directly to VOS via the data cable and switch a relay if any of the following events occur:

- violation of the early alarm zone

- violation of main alarm zone
- violation of any alarm zone
- System error

### Sensor Management Tool

The computer-based multi-language sensor management tool enables the management of several sensors and offers the following features:

- Fast software updates over the Ethernet network
- Sensor configuration and backup
- Copy a given configuration onto multiple sensor

### Languages

Language packs can be uploaded into the sensors and can be changed at any time in the Sensor Management Tool.

For a detailed overview of the accessories such as design housing, ceiling brackets, power supplies and cables, please ask an authorized dealer for a price list.

# Volumetric Object Surveillance VOS



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## Contact

Interested in learning more about our object and people sensing solutions?

- Contact your local dealer
- Send an e-mail to [infrastructure@iee.lu](mailto:infrastructure@iee.lu)
- Surf to [www.iee.lu/markets:public](http://www.iee.lu/markets:public)