

# Volumetric Object Surveillor VOS



## Protection of art from damage and theft:

- Suitable for paintings and 3D objects
- Offers configurable detection and alarm zones
- Allows for aesthetic overhead mounting
- Based on 3D MLI Sensor™ technology

# Reliable Protection of Art from Vandalism and Theft

Striking the balance between protecting valuable art objects and encouraging the public to visit and come within touching distance of paintings, sculptures and other works of art, is a challenging task. Museum security professionals are responsible for safekeeping valuable collections from such threats, but they require technological solutions to ensure reliable protection at all times.

The Volumetric Object Surveillor provides increased protection by monitoring the volume around an object and triggering an immediate alarm to visitors and staff in case of intrusion.

## Security and Staff Optimization

IEE's Volumetric Object Surveillor significantly supports security staff as it provides an additional security layer, and triggers a direct and immediate warning to visitors and other personnel in the event the surveillance area has been breached. This direct response alerts onlookers who are too close to the object that they must step back immediately. It also alerts security personnel of the potential threat so that they are able to take the necessary action to prevent further intrusion.

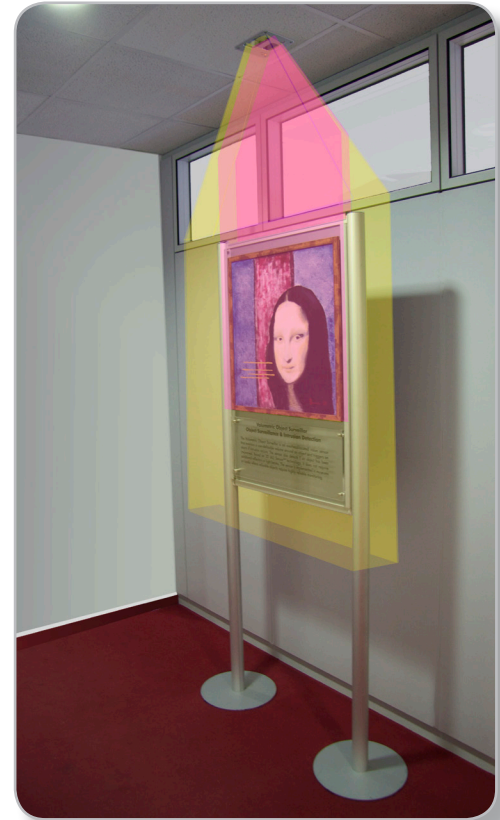
## Configurable Detection and Alarm Zones

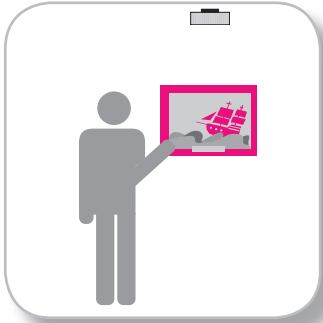
The monitored volume around the object can be clipped sideways into two configurable alarm zones, as well as from the bottom, as illustrated in this picture.

If the most outer layer of the surveillance area is compromised then a preliminary audio or visual alarm can be triggered either directly indicated near the object or delivered discretely to security personnel.

If the second layer, or rather the area closest to the object is intruded, then a second alarm level can be triggered to indicate the higher degree of severity and signal a potentially critical situation.

In the event the object is tampered with or removed, a continuous alarm is triggered indicating that the surveillance area has been permanently altered. Since 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 communicated to security staff.





### Suitable for 2D and 3D Objects

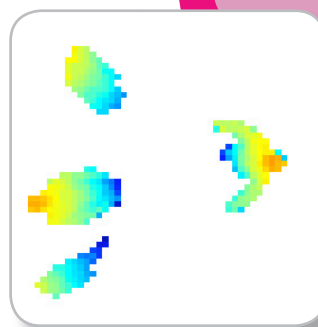
The Volumetric Object Surveillor can be configured and re-configured for use with all types of valuable objects, be it 2D objects such as paintings and documents, or 3D objects such as sculptures and other artifacts.



## How the 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 persons and objects in the field of view is measured to create a real-time topographic image of the monitored area. By means of time-of-flight measurement and sophisticated embedded algorithms, the overhead-located 3D MLI Sensor™ measures and processes topographic or 3D data very effectively, and is able to monitor the volume around an object in the surveillance area and recognize when the surveillance area is compromised.



*Topographic image*



## Advantages

### Easy Installation and Integration

Thanks to the optimized design housing, the Volumetric Object Surveillor can be easily installed on or integrated into the ceiling, without requiring invasive aesthetic changes to the existing architecture or design of the surveillance area.

### Embedded Software

The sensor does not require any additional controllers to process the data it captures. The decision to trigger an alarm is made by the sensor, and is immediately transferred to the alarm system in place (audio, visual or other) via Ethernet or an optional relay interface.

### Semi-Automatic Calibration

After configuring basic data such as detection width, length and mounting height, the sensor calibrates the detection area within a few seconds. During this calibration, the sensor captures the presence of all objects and walls in the detection zone.

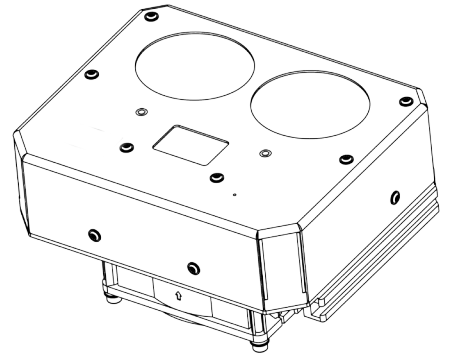
### Self-Diagnostics

A self-diagnostic routine runs at start-up and is regularly repeated to detect any sensor malfunction. The results are provided through a web interface, status LEDs and digital outputs.

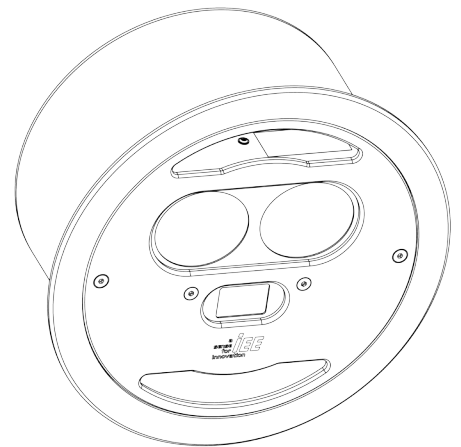
### Reliability in Changing Light Conditions

Since the sensor emits its own illumination, the detection area can be lit normally, or be pitch black without influencing its measurement.





Core housing



Design housing



## Technical Data

Device Properties	VOS 9696	VOS 6464
Mounting 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	
Enclosure rating	IP 30	
Supply voltage range	24 V DC ± 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
- Configuration/application output: web interface HTTP or XML-RPC (optional)
- Time synchronization via SNTP
- Firmware updates via Ethernet

### Data Logging

- Access to current status and history (number and timing of alarms)

### Web-Based User Interface

- Application outputs: early alarm, main alarm, local alarm status, error signal
- Selection of different digital outputs with configurable polarity
- Real-time interactive graph for input and output testing of electrical installation (device mode, alarm, etc.)
- Password-protected configuration

### Optional External Input/Output Box

- Inputs and outputs via relays
- Connection via RS485

### Computer Software

#### Sensor Management Tool

- Single and multi-sensor configuration via Ethernet
- Copy configuration to other sensors within a network
- Firmware update
- Sensor status monitoring

# Volumetric Object Surveillance VOS



## Contact

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

- 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)