OSID Smoke Detection

Open-area Smoke Imaging Detection (OSID) by Xtralis is new innovation in projected beam smoke detection technology. By using advanced dual wavelength projected beam and optical array imaging technology for early warning smoke detection, OSID provides a low-cost, reliable and easy-to-install solution that overcomes typical beam detection issues such as false alarm incidents and alignment difficulties.

Unique Detection Technology

The OSID system measures the level of smoke entering beams of light projected over an area of protection. Up to seven Emitters each project a wide-angled beam toward a single Imager. Two innovations in smoke detection technology have been developed and used for the revolutionary OSID smoke detector.

Dual Wavelength Particle Detection

The beam projected from each Emitter contains a unique sequence of ultraviolet (UV) and infrared (IR) pulses that are synchronised with the Imager and enable the rejection of any unwanted light sources.

By using two wavelengths of light to detect particles, the system is able to distinguish between particle sizes. The shorter UV wavelength interacts strongly with both small and large particles while the longer IR wavelength is affected only by larger particles. Dual wavelength path loss measurements therefore enable the detector to provide repeatable absolute smoke obscuration values, while rejecting the presence of dust particles or solid intruding objects.

Optical Imaging with Photo-cell Arrays

An optical imaging array in the Imager provides the detector with a wider viewing angle to locate and capture images. Consequently, the system can tolerate a much less precise installation and can compensate for the drift caused by natural shifts in the building structure.

Optical filtering, high-speed image acquisition and intelligent software algorithms also enable the Imager to process the image and provide new levels in stability and sensitivity while providing greater immunity to high level lighting variability.

Operation

Status information (Fire Alarm, Trouble and Power) is communicated through the Imager via Status LEDs, dedicated Trouble and Alarm relays, and Remote Indicator interface. Specific Trouble (Fault) conditions are identified through different activation sequences of the Trouble LED.

An internal heating option is also provided to prevent condensation in the optical surfaces, and a reset input enables an external signal to reset the device.

Features

- Maximum detection range up to 150 m (492 ft)
- Status LEDs for Fire, Trouble and Power
- High false alarm immunity
- Dust and intrusive solid object rejection
- Easy alignment with large adjustment and viewing angles
- High alignment tolerances
- Simple DIP switch configuration
- Dual wavelength LED-based smoke detection
- Limited maintenance requirements
- Conventional alarm interface for straightforward fire system integration
- Configurable alarm thresholds

Listings/Approvals

- Major Agency Approvals pending

OSID by xtralis™

OSID Smoke Detection

Simple Installation and Maintenance

The detector system consists of up to seven Emitters placed along the perimeter of the protected area, and an Imager mounted opposite. Each component can be mounted directly to the surface or can be secured via supplied mounting brackets.

On the Imager, a termination card provides all field wiring terminals, and DIP switches enable the user to configure the detector for particular applications.

Alignment of the Emitter is simply achieved by using a laser alignment tool to rotate the optical spheres until the laser beam from the alignment tool is within proximity to the Imager.

The Imager field of view (FOV) can be aligned in a similar way to encompass all Emitters. A Trouble or Fault will be indicated when a Emitter is missing from the field of view.

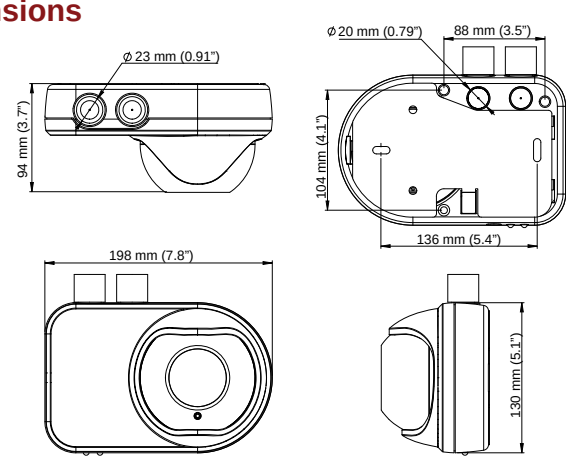
The OSID system is highly tolerant to dust and dirt and requires little maintenance in practice. Preventative maintenance is limited to occasionally cleaning the optical faces of the components.

Configuration Options

OSID systems may be configured to suit a range of detection spaces by selecting the number of Emitters and type of Imager. Each type of Imager differs by the lens used in the unit, which determines the field of view and range of the system.

Imagers		Emitters	
Field of View		Maximum Detection Range	
Horizontal	Vertical	Standard Power	High Power
10°	5°	150 m (492 ft)	-
45°	22.5°	68 m (223 ft)	136 m (446 ft)
80°	40°	34 m (112 ft)	68 m (223 ft)

Dimensions



Emitter / Imager

Ordering Codes

OSI-10	Imager - 10º coverage	**OSE-HP**	Emitter - High Power
OSI-45	Imager - 45º coverage	**OSE-HPW**	Emitter - High Power, Wired
OSI-90	Imager - 90º coverage	**OAT-10**	OSID Alignment Tool for OSI-10
OSE-SP	Emitter - Standard Power	**OAT-45**	OSID Alignment Tool for OSI-45
OSE-SPW	Emitter - Standard Power, Wired	**OAT-90**	OSID Alignment Tool for OSI-90
		OTF-60	Test Filter

Specifications

Supply Voltage
15 to 32 VDC (24 VDC nominal)

Imager Power Consumption
Nominal at 24 VDC:
80 mW (1 Emitter),
400 mW (7 Emitters)
Maximum at 32 VDC:
105 mW (1 Emitter)
530 mW (7 Emitters)

Emitter Power Consumption
Loop/Circuit Powered:
6 mW max. (200 µA at 32 VDC)
Built-in Lithium Battery:
5 year-plus lifetime battery expectancy

Field Wiring
12-way screw terminal
Maximum: 2.5 mm^2 (13 AWG)

Alarm Settings
Alarm levels: Low, Medium, High

Adjustment Angle
±60° (horizontal)
±15° (vertical)

Dimensions (WHD)
Emitter / Imager:
198 mm x 130 mm x 94 mm
(7.80 in. x 5.12 in. x 3.74 in.)

Operating Conditions
Temperature:
-10 to 55 °C (14 to 131 °F)
Humidity:
10 to 95% RH (non-condensing)

Please consult your Xtralis office for operation outside these parameters.

IP Rating
IP 44 for Electronics
IP 66 for Optics Enclosure

Emitter LED Wavelengths
IR: 850 nm (typical)
UV: 405 nm (typical)

Status LEDs
Fire Alarm (Red)
Trouble / Power (Bi-color Yellow / Green)

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