

# OSID Reflective Imaging Smoke Beam Detector

## OSI-RIE-xx

### Features

- Combined transmitter and receiver unit, range 5-100r (16-328 ft)
- Addressable model for panels utilizing Advanced Protocol or CLIP mode SLC Communication
- Complies to EN54-12
- Wide 12° field of view
- Intuitive beam alignment indicated by directional arrows
- Highly resistant to building movement
- Resistant to strong light sources; does not alarm when saturated by sun
- Resistant to large solid intruding objects
- Automatic sensitivity threshold level setting
- 50° horizontal and 20° vertical beam alignment
- Built-in heater
- Electronic simulated smoke test from ground level
- Standby, fault and alarm LED indicators visible from the front and bottom
- Automatic drift compensation
- Paintable cover
- Removable plug-in terminal blocks
- Optional heater kit available for the reflector



CE – CPR &amp; EMC



NF-SSI (AFNOR) \*



VdS



BOSEC

SAI Global SMK40640-2, Fire Protection (FPA) New Zealand, CFE and Civil Defence (CD) (pending: UKCA)

\* For more information on the NF SSI mark (Fire Safety System), you can consult the AFNOR Certification website: [www.marque-nf.com](http://www.marque-nf.com).

### Description

The OSI-RIE-xx is an intelligent reflector- type linear optical beam smoke detector designed to operate as a component of fire alarm systems. The beam operates primarily on the principle of light obscuration utilising an Infra-Red beam. Optical beam smoke detectors are particularly appropriate for protecting buildings with large open spaces such as warehouses, atriums etc.

The OSI-RIE-xx detector is a combined transmitter/receiver unit that can be directly connected to an intelligent detector circuit.

#### InfraRed Transmitter and Receiver Imager

The Infra-Red transmitter and receiver Imager generates a beam of light towards a high efficiency reflector. The reflector returns the beam to the receiver where an analysis of the received signal is made. The change in the strength of the received signal is used to determine the alarm condition.

The receiver imager has a wide FOV of 12° and tracks automatically the reflector in case of building movement or movement of its support structure. It is virtually impossible for the receiver to lose the reflector out of its side of view without any structural damage being caused to the building. As a result of this operation the OSI-RIE-xx eliminates the number one cause of false alarms and/or faults with traditional beam detectors.

#### Resistance to Sunlight

Optical filtering, high-speed image acquisition and intelligent software algorithms provide the OSI-RIE-xx system with higher levels of stability and with greater resistance to high level lighting variability. As such the detector has a better resistance to sunlight and intruding objects in its FOV.

Its large FOV makes it ideal in narrow beaming spaces with a maximum of 40x40 cm of free space needed around the reflector, compared to a 1x1 meters of free space usually needed in a clear optical beam device.

The detector will not alarm when saturated by sunlight, reflected sunlight or any other very bright light sources. In worst case the detector will go in to trouble and hence solving another cause of false alarms with traditional basic photocell receiver beam detectors.

Thanks to the smoke imaging techniques, the detector will not alarm for partial and sudden blockage.

#### Alignment

The alignment of the detector is extremely intuitive, fast and accurate. Both the IR transmitter and the CMOS imager are contained in the eyeball that can turn freely in all directions. The eyeball moves +/- 20 ° in the vertical direction and 50° in the horizontal direction. Four arrows that indicate the direction to move the eyeball, will guide the user to find the imager's perfect alignment with the reflector.

To get started swiftly at long distances, a laser tool can be inserted in the eyeball to allow finding the reflector quickly and then fine-tuning the eyeball to the optimum alignment.

Once the optimum alignment is finalised, signalled by all green arrows and LED, the eyeball is locked by tightening the lever on its side. A paintable cover is then placed over the front to hide the alignment arrows, locking mechanism and secures the locking lever in locked position.

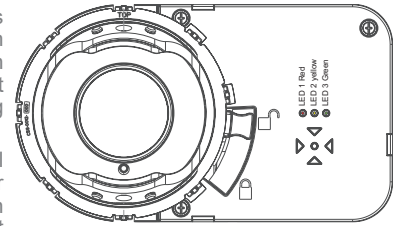
Unique in the market, the sensitivity of the detector is selected and set automatically at the optimum sensitivity based on the size of the reflector measured in the FOV.

The detector incorporates automatic drift compensation, whereby the detector will adjust its detection thresholds in line with any long term signal reduction of the beam caused by contamination of the optical surfaces. An internal heating option is also provided on the Imager to prevent condensation on the optical surface.

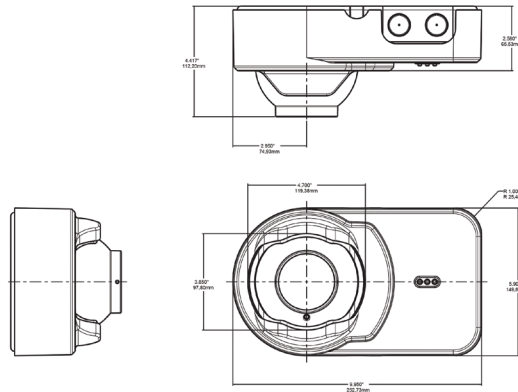
## Status LEDs

Status information (Fire Alarm, Trouble and Power) is communicated through the Imager via Status LEDs on the front of the detector. The OSI-RIE-xx detector comes with dedicated Trouble and Alarm relays and outputs for remote LED signalling. Specific Trouble (Fault) conditions are identified through coded flashes of the Trouble LED. Where greater angular adjustment is required, the multi-mount accessory enables the detector to move through 28° vertically and 360° horizontally when ceiling mounted or up to 23° vertically and 90° horizontally when wall mounted.

To assure the correct operation of the system, a test can be initiated at convenience from ground level using the RTS151KEY unit. By activating the key, the unit will reduce its IR transmitted power till under the automatically set alarm level resulting in an alarm condition at the detector. The alarm condition will remain for as long as the key is activated. To comply with local regulation and installation codes it may be required to use a test filter inside the beam path.



## Dimensions



## Installation Recommendations

Installation should be undertaken in accordance with recognised national or international standards and codes of practice. System Sensor also recommends that simulated fire tests are conducted to ensure that the desired response time for a given smoke test is achieved.

## Architect/Engineer Specifications

### General

Operating Voltage Range	Without isolator: 15 to 32 VDC (24VDC nominal) With Isolator: 15-28.5V
Maximum Standby Current	13 mA @ 32 VDC (polling device once per second) 20 mA @ 15 VDC (polling device once per second)
Maximum Alarm Current (LED on)	22 mA @ 32 VDC (polling device once per second) 22 mA @ 15 VDC (polling device once per second)

Note: OSID-R devices are limited by SLC loop current draw restrictions. To determine the maximum number of detectors by loop, divide the panel's normal operating current by 22mA, and round down.

Resistance to building movement	Horizontal: 0.8° Vertical: 1°
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### Environmental

Humidity	0 to 95% Relative Humidity (non- condensing)
Operating Temperature Range	-20°C to +55°C. UL-Listed for use from 0°C to 37.8°C

## System Sensor (Technical Services)

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### Mechanical

Weight OSI-RIE-xx	1.12 kg (2.48 lbs)
Shipping weight OSI-RIE-xx	1.77 kg (3.91 lbs)
Wire Gauge for Terminals	14 AWG (2.08 mm <sup>2</sup> )
Colour	Lyric White
Detector (WxHxD)	254 mm × 152.4 mm × 114.3 mm (10" x 6" x 4.5")
Reflector	200 x 230 mm (7.87" x 9.06")

### Ordering Information

Ordering Code	Description
OSI-RIE-xx	Addressable imaging smoke beam smoke detector including reflector
OSI-RWG	Wire guard for OSID-R range detectors
OSP-002	Laser Alignment tool
OSP-004	Test filter - 10 pack
RTS151KEY	Test and reset station for flush mount
RTS151 KIT	Test and reset station for surface mount
BEAMHKR	Heater kit for the reflector
6500-MMK	Multi-mount accessory for ceiling or wall mounting with additional mounting adjustment

## System Sensor Europe (Customer Services)

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