

Fireray One Reflective Beam Smoke Detector

EC1-50, EC1-120



Description

The Fireray One is a reflective beam smoke detector comprised of a transmitter and receiver in a single housing. The unit uses an infrared light source pointed at a reflector mounted on the opposing surface to measure light at the receiver. Smoke will impact the amount of reflected light allowing the beam detector to analyze this obscuration according to preprogrammed limits. The single supplied reflector will monitor up to 164 ft (50M) and a separately supplied long range reflector kit will allow for distances up to 394 ft (120m).

Standard Features

- Coverage: 0-164 ft with single reflector, 0-394 ft with long range kit
- Integrated microprocessor algorithms discriminate solid objects from smoke
- Laser assisted one minute auto alignment
- False alarm mitigation features:
 - Self-corrects for building movement using motorized detector heads
 - Light cancellation technology makes it unaffected against sunlight and artificial light
 - Dynamic mean phasing reduces cross-talk between beams

Application

Beam smoke detectors are ideal for large open areas such as warehouses, hotel atrium, industrial plants and school gymnasiums. There are two types: reflective and end-to-end. Reflective beam detector is commonly applicable for most use-cases. End-to-end beam smoke detectors are particularly useful where line of sight for the infrared detection path is narrow and where the building structure employs reflective surfaces.

The Fireray One is a reflective type beam detector designed to be simple to install, and false alarm resistant.

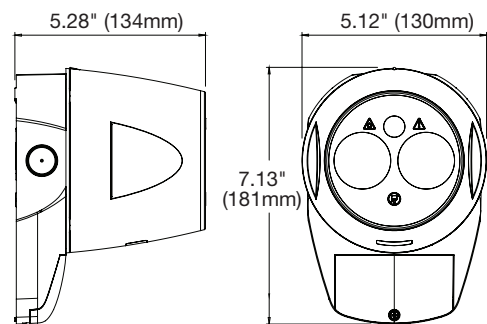
Smoke stratification may be overcome by mounting Fireray One at different heights, one of which will project an infrared beam below the heat layer and into the smoke layer.

Detection time will be longer in a building with a peaked roof if a fire occurs at the fringes of the protected area. If in doubt conduct appropriate smoke tests.

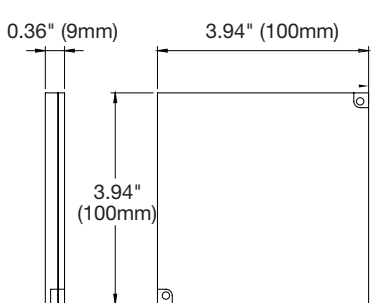
The ideal location and spacing of the detector is critical in a properly installed and operating fire alarm system. It is recommended that the detectors be located and spaced in accordance with NFPA 72, which allows for lateral spacing of up to 60 ft (18.3 m). Refer NFPA 92 for guidance where smoke stratification may occur.

Dimensions

Fireray One



Reflector



Technical Specifications

Detection performance	
Detection range	0 to 164ft (0 to 50m) 0 to 394ft (0 to 120m) with Reflective Long Range Kit (PN:1010-000)
Alignment method	Laser assisted, Auto-Alignment™. Manual alignment – optional setting
Auto-Alignment™ protocol	Background check, Box search, Adjust and Center
Building Movement Tracking™	Compensates for natural shifts in alignment from building movement*
Contamination Compensation	Compensates for gradual build-up of contamination on the optical surfaces
Light Cancellation Technology™	Compensates for high levels of sunlight and artificial lighting
Optical wavelength – smoke detection	850nm near infrared (invisible)
Integrated laser – laser alignment	650nm visible. Class IIIa <5mW
Dynamic Beam Phasing	Allows beam detectors to be mounted facing each other with the reflectors in the middle. Eliminates false alarms caused by crosstalk between beams
Signal output	Individual Alarm and Fault relays (VFCO) 0.5A @ 30 VDC
Programmable user settings	
Alarm response threshold levels	25% (1.25dB) – Fastest response to smoke
	35% (1.87dB) – Default value
	55% (3.46dB) – High immunity to false alarms, slow response to smoke
	85% (8.23dB) – Highest immunity to false alarms, slowest response to smoke
Configured via the integrated user interface	
Delay to Alarm	10 seconds, for momentary partial obstruction of the beam path
Delay to Fault	10 seconds, for momentary obstruction of the beam path
User features	
Integrated user interface	Alignment mode switch, alignment directional buttons and configuration switches for alarm response threshold
Alignment status indication	2 Green LEDs and 1 Yellow LED
System status indication	Normal operation – Green LED flashing every 10 seconds
	Alarm condition – Red LED flashing every 10 seconds
	Fault condition – Yellow LED flashing every 10 seconds for obscuration or every 5 seconds for contamination
Cleaning	Flat front face with enclosed optics. Cleaning the optics does not affect alignment

Technical Specifications (cont.)

Design parameters

Separation distance between Detector and Reflector	16 to 164ft (5 to 50m) 164 to 394ft (50 to 120m) with Reflective Long Range Kit
Beam path clearance	3.3ft (1m) in diameter from center line between Detector and Reflector
Lateral spacing between detectors	60ft (18.3m) maximum as per NFPA 72
Detector location	Within the ceiling jet flow (top 10% of the floor to ceiling height) unless otherwise stipulated
Detector dimensions	Width 5.12" x Height 7.13" x Depth 5.28" (W 130mm x H 181mm x D 134mm) (see diagram)
Reflector dimensions	Up to 164.0ft (50m) separation distance – 3.94" x 3.94" x 0.36" (100mm x 100mm x 9mm) Up to 393.6ft (120m) separation distance - Four reflectors 7.88" x 7.88" x 0.36" (200mm x 200mm x 9mm) in square pattern
Product weight	Detector – 1.55lbs (0.7 kg); Reflector – 0.22lbs (0.1 kg)
Multi-detector arrangement	Dynamic Beam Phasing allows for Detectors to face each other with the reflectors in the middle
Housing color	White RAL9016, UV stable

Electrical specifications

Operating voltage	14 to 36 VDC
Operating current (constant) all operational modes	All operational modes – 5mA; Fast alignment mode – 33mA

Field wiring

Cable gauge and type	2 core, dedicated, 24 to 14 AWG (0.5 to 1.6mm) System compatible with fireproof and non-fireproof cable meeting local installation standards
Cable entry	3 knock-out locations capable of accepting M20, ½" or ¾" glands 4 drill-out locations capable of accepting glands up to 0.82" (21mm) diameter

Test and maintenance

Alarm test	Optical alarm test using Commissioning and Maintenance Kit accessory
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Environmental specifications

Operating temperature	-4 to 131°F (-20 to +55°C)
Storage temperature	-40 to 185°F (-40 to +85°C)
Relative humidity (non-condensing or icing)	0 to 93%
IP rating	IP55
Housing flammability rating	UL94 V0 polycarbonate

Optical specifications

Fault level / Rapid obscuration ($\Delta \leq 2$ seconds)	$\geq 85\%$
Maximum angular alignment of Reflective Detector	$\pm 4.5^\circ$ ($\pm 70^\circ$ with adjustment bracket accessory)
Maximum angular misalignment of Reflective Detector	$\pm 0.5^\circ$
Maximum angular misalignment of Reflector	$\pm 5^\circ$

Ordering Information

EC1-50	Fireray One – 164ft (50m) detection range
EC1-120	Fireray One long range package, includes EC1-50 and 1010-000.
1010-000	Reflective Long Range Kit – 394ft (120m) detection range
1170-000	Reflective Detector adjustment bracket
1100-000	The Fireray One Protective cage
1060-000	Fireray One Anti-condensation heater
1260-000	Fireray One Back Box
5000-012	Double Gang Electrical Box Cover Plate
1140-000	Reflective detector ceiling mount - white
1142-000	Reflective detector ceiling mount - beige



Contact us

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