Introduction

With no specialist tools or knowledge needed for installation and operation, the Fireray One is a standalone beam detector that prioritises ease of installation.

Using the Fireray One, it could not be easier to bring the benefits of beam detection to your application.

- One Minute Auto-Alignment™ – Just steer the laser onto the reflector, then at the flick of a switch, it aligns itself; eight times faster than previous detectors.
- One person installation – Everything can be done by one person.
- One standalone product – No specialist tools required; minimal prior knowledge and training needed.
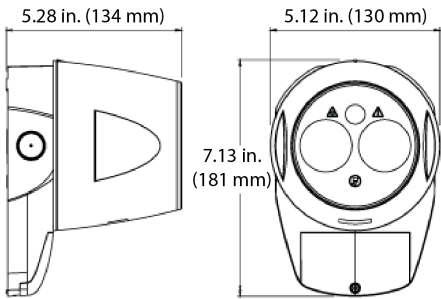

Figure 1: Fireray One

Features

Table 1: Fireray One features

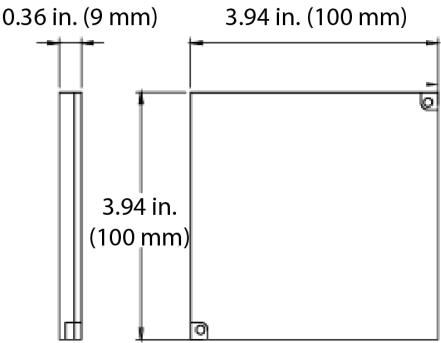| Application	Challenge	Fireray One
Small warehouses	Cost effective protection	A standalone beam detector with all the benefits of Fireray Reflective beam detection
	Simple installation	Single point of wiring and commissioning
New buildings	Settling of the building can cause other beam detectors to misalign and result in nuisance alarms	Building Movement Tracking™ automatically compensates for natural building movement to continuously maintain alignment, when mounted according to manufacturer's guidelines

Dimensions

5.28 in. (134 mm)   5.12 in. (130 mm)

7.13 in. (181 mm)

Figure 2: Fireray One

0.36 in. (9 mm)   3.94 in. (100 mm)

3.94 in. (100 mm)

Figure 3: Reflector

Technical specification

Table 2: Detection performance

Specification	Rating
Detection range	0 ft to 164 ft (0 m to 50 m) 0 ft to 394 ft (0 m to 120 m) with Reflective Long Range Kit
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 when mounted according to manufacturer's guidelines
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	850 nm near infrared (invisible)
Integrated laser, laser alignment	650 nm visible; Class IIIa <5 mW
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) 2 A at 30 VDC

Table 3: Programmable user settings

Specification	Rating
Alarm response threshold levels	25% (1.25 dB) – Fastest response to smoke 35% (1.87 dB) – Default value 55% (3.46 dB) – High immunity to false alarms, slow response to smoke 85% (8.23 dB) – Highest immunity to false alarms, slowest response to smoke Configured through 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

Table 4: User features

Specification	Rating
Integrated user interface	Alignment mode switch, alignment directional buttons, and configuration switches for alarm response threshold
Alignment status indication	Two green LEDs and one yellow LED
System status indication	Normal operation: green LED flashing every 10 seconds Alarm condition: red LED flashing every 5 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.

Table 5: Design parameters

Specification	Rating
Separation distance between Detector and Reflector	16 ft to 164 ft (5 m to 50 m) 164 ft to 394 ft (50 m to 120 m) with Reflective Long Range Kit
Beam path clearance	3.3 ft (1 m) in diameter from center line between detector and reflector
Lateral spacing between detectors	60 ft (18.3 m) 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 (W x H x D)	5.12 in. x 7.13 in. x 5.28 in. (130 mm x 181 mm x 134 mm), see Figure 2
Reflector dimensions	Up to 164.0 ft (50 m) separation distance – 3.94 in. x 3.94 in. x 0.36 in (100 mm x 100 mm x 9 mm) Up to 393.6 ft (120 m) separation distance - Four reflectors 7.88 in x 7.88 in. x 0.36 in. (200 mm x 200 mm x 9 mm) in square pattern
Product weight	Detector – 1.55 lbs (0.7 kg) Reflector – 0.22 lbs (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

Table 6: Electrical specifications

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

Table 7: Field wiring

Specification	Rating
Cable gauge and type	Two core, dedicated, 24 AWG to 14 AWG (0.5 mm to 1.6 mm)
	System compatible with fireproof and non-fireproof cable meeting local installation standards
Cable entry	Three knock-out locations capable of accepting M20, 1/2 in. or 3/4 in. glands
	Four drill-out locations capable of accepting glands up to 0.82 in. (21 mm) diameter

Table 8: Test and maintenance

Specification	Rating
Alarm test	Optical alarm test using Commissioning and Maintenance Kit accessory

Table 9: Environmental specifications

Specification	Rating
Operating temperature	-4°F to 131°F (-20°C to 55°C)
Storage temperature	-40°F to 185°F (-40°C to 85°C)
Relative humidity, non-condensing or icing	0% to 93%
IP rating	IP55
Housing flammability rating	UL94 V0 polycarbonate
Note: All figures are quoted for 77°F (25°C)	

Table 10: Optical specifications

Specification	Rating
Fault level / rapid obscuration ($\Delta \leq 2$ seconds)	≥85%
Maximum angular alignment of Reflective Detector	±4.5° (±70° with adjustment bracket accessory)
Maximum angular misalignment of Reflective Detector	±0.5°
Maximum angular misalignment of Reflector	±5°

Table 11: Ordering information

Part number	Description
6010-300	Fireray One – 164 ft (50 m) detection range
1010-000	Reflective Long Range Kit – 394 ft (120 m) detection range
Accessories	
1150-000	Commissioning and Maintenance Kit
5000-201	Reflective Detector Adjustment Bracket
1100-000	Fireray One Protective Cage
1040-000	Single Reflector Adjustment Bracket
1050-000	4 Reflector Adjustment Bracket
1030-000	Reflector Wall Bracket - White
1031-000	Reflector Wall Bracket - Black
1060-000	Fireray One Anti-condensation Heater
1090-000	Reflector Anti-condensation Heater
1260-000	Fireray One Back Box

Accessories

Figure 4: Reflector
Wall Bracket -
Black 1031-000

Figure 5: Fireray One
Back Box 1260-000

Figure 6: Protective
Cage 1100-000

Figure 7: Single
Reflector Adjustment
Bracket 1040-000

Figure 8: Long
Range Kit 1010-000