fireray® Reflective

Customized beam detection to suit your application

The Fireray Reflective system is a cleverly designed modular beam detection system that can be specified to suit a variety of demanding applications.

- The Fireray Reflective enables excellent accessibility and user-configurable settings for long-term ease of maintenance and ownership
- Connect up to three Fireray detectors of any type, on a single cable run
- FFE Reflective beam technology – Auto-Alignment™, Building Movement Tracking™ and Light Cancellation Technology™

Application	Challenge	The Fireray Reflective
Large public areas	Downtime for maintenance kept to a minimum	The Fireray Reflective allows you to monitor and test detectors without shutting down the area
Glass atria in hotels and retail complexes	Sunlight can cause nuisance alarms	Light Cancellation Technology™ actively cancels sunlight to prevent nuisance alarms
Very large spaces e.g. warehouse and aviation hangars	Installation and maintenance very time-consuming	Connect up to 3 detectors on a single cable run, each with 120m detection range, all controlled from a single Fireray Reflective Controller.

Technical specification

Detection performance	
Detection range	8 to 50m 50 to 120m (with Long Range Kit)
Alignment method	Laser assisted, Auto-Alignment™ from the Fireray Reflective. Manual alignment – optional setting
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 3R <5mW
Dynamic Beam Phasing	Beam detectors can be mounted facing each other with the reflectors in the middle
Signal output from the Fireray Reflective	Individual Alarm and Fault relays (VFCO) 100mA @ 36 VDC for each detector
Programmable user settings (from the Fireray Reflective)	
Alarm response threshold levels	10 to 60% (0.45 to 3.98dB) in 1% (0.05dB) increments. Default 35% (1.87dB)
Delay to Alarm	2 to 30 seconds in 1 second increments for momentary partial obstruction of the beam path. Default 5 seconds
Delay to Fault	2 to 30 seconds in 1 second increments for momentary partial obstruction of the beam path. Default 10 seconds
User features	
The Fireray Reflective Controller user interface	70 x 35mm LCD with yellow backlight; 6 navigation buttons
The Fireray Reflective Controller status indication	Normal operation – Green LED flashing every 10 seconds. Programmable on/off Alarm condition – Individual Red LED per detector flashing every 10 seconds Fault condition – Individual Yellow LED per detector flashing every 10 seconds
Reflective Detector 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
Cleaning	Flat front face with enclosed optics. Cleaning the optics does not affect alignment
Design parameters	
Separation distance between Reflective Detector and Reflector	8 to 50m 50 to 120m with Reflective Long Range Kit
Beam path clearance	1m radius from centre line between Reflective Detector and Reflector
Maximum number and type of Detectors per Fireray Reflective Controller	3 Reflective Fireray Detectors
The Fireray Reflective Controller dimensions	(W 274mm x H 170mm x D 73mm) (see diagram)
Reflective Detector dimensions	(W 134mm x H 131mm x D 131mm) (see diagram)

Reflector dimensions	Up to 50m separation distance - Single reflector 100mm x 100mm x 9mm Up to 120m separation distance - Four reflectors 200mm x 200mm x 9mm in square pattern
Product weight	The Fireray Reflective Controller 1.0kg; Detector – 0.6 kg; Reflector – 0.1 kg
Multi-reflector arrangement	3 detectors connected to a Fireray Reflective Controller; detectors can face each other without interference
Housing colors	White RAL9016, UV stable; Grey RAL7001, UV stable
Electrical specifications	
Operating voltage	14 to 36 VDC to the Fireray Reflective
Operating current (constant) all operational modes	5 –17.5 mA depending on number and type of detectors connected
Fast alignment mode current (constant)	34mA
Field wiring	
Wiring configurations (see diagram)	Parallel mode – up to 3 detectors individually connected to the Fireray Reflective Controller Network mode – up to 3 detectors connected to the Fireray Reflective Controller on a single channel
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
Maximum cable length between the Fireray Reflective Controller and Detector	100m maximum. Furthest detector when in Network mode
Cable entry – the Fireray Reflective Controller	10 knock-out locations for M20, ½" or ¾" glands 20 drill-out locations for glands up to 21mm diameter
Cable entry – Reflective Detector	3 knockout locations for M20, ½" or ¾" glands 5 drill-out locations for glands up to 21mm diameter
Test and maintenance	
Alarm test	Remote detector fire test from the Fireray Reflective. Compliant to UL268-5 Optical fire test using Commissioning and Maintenance Kit accessory
Event log with time and date stamps	150 event log, time and date stamped with event codes providing informed diagnostics of the system
Environmental specifications	**Optical specifications**
Operating temperature: -20 to +55°C	Fault level: signal dropping by >85% in <2 seconds
Storage temperature: -40 to +85°C	Maximum angular alignment of Reflective Detector: ±4.5° (±70° with adjustment bracket accessory)
Relative humidity (non-condensing or icing): 0 to 93%	Maximum angular misalignment of Reflective Detector: ±0.5°
IP rating: The Fireray Reflective Controller – IP65; Detector – IP55	Maximum angular misalignment of Reflector: ±5°
Housing flammability rating: UL94 V0 polycarbonate	

All figures are quoted for 77°F (25°C)

Ordering information	
Part number	Description
6020-100	The Fireray Reflective – 50m detection range
1010-000	Reflective Long Range Kit – 120m detection range
6030-100	Reflective Detector add-on – 50m detection range
6050-100	End-to-End Detector add-on
Accessories	
1150-000	Commissioning and Maintenance Kit
1170-000	Reflective Detector adjustment bracket
1110-000	The Fireray Reflective Controller Protective cage
1120-000	Reflective Detector Protective cage
1040-000	Single Reflector Adaptor plate
1050-000	4 Reflector Adaptor plate
1030-000	Reflector Wall bracket
1070-000	Reflective Detector Anti-condensation heater
1090-000	Reflector Anti-condensation heater
1140-000	Universal ceiling mount

Approvals pending

CE/ UL/ ULC/ VdS

Visit www.ffeuk.com for approvals information.

Patents:
Light Cancellation Technology™ Patent No. GB2513366
Dynamic Beam Phasing Patent pending
Auto-alignment™ Patent pending

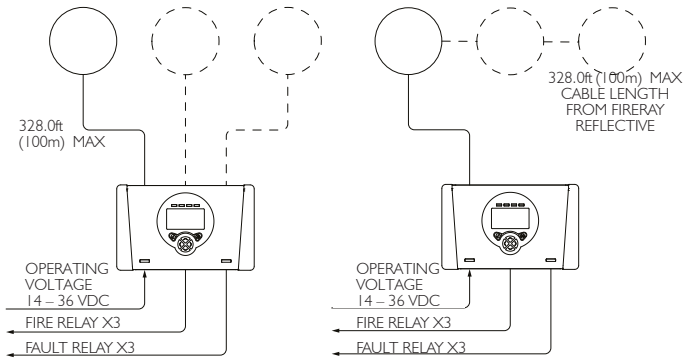
**When mounted according to manufactures guidelines.*

5 YEARS WARRANTY

Wiring configurations

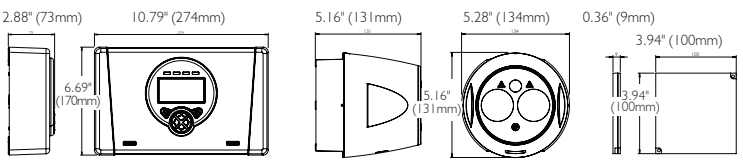
The Fireray Reflective Network & Parallel modes.

Parallel mode **Network mode**



Dimensions

The Fireray Reflective Controller **Reflective Detector**



w: www.ffeuk.com t: +44 (0) 1462 444 740 e: sales@ffeuk.com

Document No. 24-0152-05