

# FIRE RAY®

Optical Beam Smoke Detectors



Product Range

# OVERVIEW

## About Fire Fighting Enterprises Limited

Fire Fighting Enterprises Ltd (FFE) was acquired by Halma plc in November 2000, as part of its growth plans within the global Fire Protection market and is, today, the World's largest independent manufacturer of infrared Optical Beam Smoke Detectors.

Halma is an international group with over 40 companies in 20 countries and major operations in Europe, the USA and Asia. Its main business focus is protecting lives and improving the quality of life for people worldwide. The three main Business Sectors of Halma are Infrastructure Sensors (of which FFE is a part), Health and Analysis and Industrial Safety.

All FFE products are designed, engineered and manufactured to exacting standards and have attained product certifications across Europe, USA and China. The product range includes End-to-End and Reflective type as well as Explosion Proof Optical Beam Smoke Detectors, all provided with a comprehensive warranty. All FFE Optical Beam Smoke Detectors are available from stock either in Hitchin, UK or Erlanger, Kentucky, USA.

FFE is an ISO9001:2008 company and in 2009 was awarded The Queen's Award for Enterprise in the International Trade category as well as the Hertfordshire Business Award for Medium Business of the Year, followed by International Business of the Year in 2011.

The company is actively involved with the UK fire industry and is a proud member of both the Fire Industry Association (FIA) and the FIA Export Council. In the USA, FFE works closely with the NFPA (National Fire Protection Association) and the AFAA (Automatic Fire Alarm Association). FFE has also become a member of the Fire and Security Association of India (FSAI).



**FIRE**  
FIGHTING  
ENTERPRISES

A HALMA COMPANY



FM 01794



EMS 544780



OHS 580021



Fire Industry Association



Fire Industry Association  
Export Council





# OVERVIEW

## FIRERAY® Range of Optical Beam Smoke Detectors

FIRERAY® Optical Beam Smoke Detectors are an efficient and economical way of protecting lives, equipment and properties where:

- Ceilings are high
- Areas are wide
- Architecture aesthetics are important
- Ceilings are ornate

When it comes to Optical Beam Smoke Detectors no other company has the expertise or the product range of Fire Fighting Enterprises Ltd, with over 700,000 beam detectors installed, including installations at some of the World's most prestigious buildings:

- Dubai airport
- Neuschwanstein Palace
- Blenheim Palace
- Gateshead Metro Centre
- British Museum
- LongTan Hydropower Station
- MGM Grand Hotel
- Sofia National Theatre

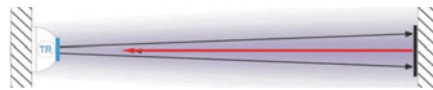


British Museum

It is clear that the FIRERAY® range is the product of choice, by installers and specifiers, for the protection of wide and open areas, but not all applications are the same; some suit the Reflective type and others are more suited to the End-to-End type.

### Reflective

The Reflective types are the most widely used and use less wiring, which offers reduced installation cost and time.



### End-to-End

The End-to-End type should typically be considered where there are reflective surfaces close to the beam's path, or where the beam path would be restricted due to fixed obstructions.



T = Transmitter, R = Receiver

### Approvals

FFE prides itself in complying with all the required international approvals in order to grow their worldwide sales. These include certifications by VdS to EN54 part 12, as well as UL Listing to UL268. For full up to date information please visit [www.ffeuk.com](http://www.ffeuk.com) where all the product certificates can be downloaded.



### Product Range

#### FIRERAY® 5000:

Reflective type, motorised, auto-aligning, infrared Beam Smoke Detector - see [Page 3](#).



#### FIRERAY® 50R/100R:

Reflective type, Infrared Beam Smoke Detector - see [Page 4](#).



#### FIRERAY® 3000:

End-to-End type, Infrared Beam Smoke Detector - see [Page 5](#).



#### FIRERAY® 2000 EExd:

End-to-End type, Explosion proof, Infrared Beam Smoke Detector - see [Page 6](#).



### Accessories

The FIRERAY® product range also includes an extensive range of accessories to aid the installation of the detector - visit [www.ffeuk.com](http://www.ffeuk.com) for more information.

### Training

In order to better understand the applications for each of the above detectors, FFE offer a complete Training Programme. This can be tailor-made to suit you and your company's needs and presented in the FFE facilities in Hitchin, where all products can be shown in situ in the 27m long demonstration room. Please contact FFE for further details.

# FIRERAY® 5000

## Motorised Auto Aligning Infrared Optical Beam Smoke Detector

The **FIRERAY®** 5000 motorised, auto aligning infrared optical beam smoke detector can be installed with up to two detector heads per system, thus saving on installation time and costs. In addition, each system controller houses 2 pairs of fire and fault relays, one per detector. This innovative system has been designed from the ground up to include pioneering technology that fully addresses the needs of the installer and user, both now and in the future.

### Features

- Up to 2 optical beam detectors per system controller
- Easifit Fix System
- Ground Level Controller
- Laser Assisted Alignment
- Automated Beam Alignment
- Contamination Compensation
- Building Shift Compensation
- Separate Fire and Fault relays per detector
- Programmable Sensitivity and Fire Thresholds

### Operation

The **FIRERAY®** 5000 combines an infrared transmitter and receiver in the same discrete detector head and operates by projecting a well-defined beam to a reflective prism, which returns the beam to the receiver for analysis. To protect distances from 50m to 100m, four prisms are required.

The beam automatically compensates for degradation of the beam signal, caused by contamination or gradual building shift by use of a combination of automatic contamination compensation and/or motorised realignment of the beam.



Getting the system operational is simplified by a number of groundbreaking features that combine to make the **FIRERAY®** 5000 the quickest and easiest detector of its type to install.

Once the detector head is connected, using the Easifit First Fix system, an integral LASER, which is aligned along the optical path of the beam, can be activated. This allows the reflective prism to be sited quickly and with confidence. Once the LASER has been used to coarsely align the beam, the automated beam alignment system takes over and automatically steers the beam into the optimum position. The system can be fully customised, according to local conditions; both alarm thresholds (sensitivity) and delay to Alarm/Fault can be set from the ground level System Controller.

### Approvals

World-wide approvals include EN54:12 and UL268. Visit [www.ffeu.com](http://www.ffeu.com) for up to date approvals information and to download the relevant certificate.



# FIRERAY® 50R/100R

## Reflective Infrared Optical Beam Smoke Detector

The **FIRERAY®** 50R/100R series of reflective infrared optical beam smoke detectors comprises of a single unit incorporating an infrared Transmitter and Receiver, with a Reflective Prism. The infrared signal is reflected by the prism back to the Receiver for analysis, by the detector, of smoke presence. The **FIRERAY®** 50R/100R is an easy to install beam smoke detector where the cost of installation and servicing needs to be low.

### Features

- Single Compact Housing
- Two models available, F50R and F100R
- 12-24Vdc Operation
- Low current Consumption
- Robust Construction
- Approved to EN54:12 and UL268

### Operation

The **FIRERAY®** F50R/100R optical beam smoke detectors can be connected to a zone of a conventional fire alarm control panel, or interfaced to an analogue-addressable system via an addressable interface module. The **FIRERAY®** F50R/100R has three selectable 'Alarm Thresholds' settings of 25%, 35% and 50%, which can be selected to suit the environment.

The **FIRERAY®** F50R/100R optical beam smoke detectors monitor long term degradation of beam signal strength caused by the build up of dirt on its optical surfaces; this operates by comparing the received infrared signal against a reference voltage every 15 minutes.



An optional Low Level Controller is available, for the UL version, to test the correct function of the beam detectors at ground level. Operation of a key switch will produce a periodic flash signal to the green LED on the Low Level Controller confirming the beam detector on test is "live"; after a set period the red LED on the Low Level Controller and the red LED on the beam detector illuminate simultaneously.

### Approvals

World-wide approvals include EN54:12 and UL268. Visit [www.ffeuk.com](http://www.ffeuk.com) for up to date approvals information and to download the relevant certificate.



# FIRE<sup>®</sup>RAY 3000

## End-to-End Infrared Optical Beam Smoke Detector

The **FIRE<sup>®</sup>RAY** 3000 End to End infrared Optical Beam Smoke Detector has been designed using the latest optical technology, incorporating modern industrial, electronic and software techniques. This detector offers cost effective protection of large, open area spaces with high ceilings. It is also very suited to applications where access to ceiling mounted smoke detectors presents practical difficulties.

It is ideal for applications where line of sight for the IR (infra-red) detection path is narrow and where the building structure uses reflective surfaces. It has also been designed to be aesthetically pleasing and thus can equally suit modern architectural buildings as well as heritage sites, particularly where ornate ceilings exist.

### Features

- Separate Transmitter and Receiver Heads
- Range 5 to 120 metres, configurable per set of Detectors
- Integral Laser Alignment in Receiver
- 2-wire Interface between Controller and Receiver
- Single and Twin Detector options
- Separate Fire and Fault Relays per Detector
- Low Level Controller with LCD display
- Programmable Sensitivity and Fire Threshold
- Automatic Gain Control (AGC) for drift compensation
- First Fix concept for Transmitter, Receiver and Controller
- Multiple cable gland knockouts for ease of wiring
- Optional Transmitter powering from Controller



Additional Detector Pack



Wide range of Accessories available.



### Operation

The system comprises a modern looking Transmitter head, which emits a narrow beam of infra-red light to an associated Receiver head, with a compact Low Level Controller. Once smoke crosses through and thus obscures the IR beam path, the signal strength at the Receiver drops below a preset level which in turn results in an alarm condition.

Both the detector heads, Transmitter and Receiver, have integral thumbwheels for ease of alignment. Using these thumbwheels provides a smooth and repeatable alignment process. The detector heads have up to 10 degrees of adjustment in both planes. For further adjustment, a bespoke Adjustment Bracket is available, which offers up to 180 degrees movement in both planes, as well as a full 360-degree rotation.

The **FIRE<sup>®</sup>RAY** 3000 has been designed so that it can be installed by one operator, with its laser assisted alignment method combined with easy to use alignment LED's offering a visual feedback.

Integrated laser alignment aid can be activated at the Controller or at the Receiver head.

The low level Controller incorporates a LCD display, which offers a full icon-based, easy-to-use interface unit. This Controller enables ease of commissioning, testing and maintenance of the beam detection system. During commissioning the detector sensitivity and fire thresholds can be selected, along with the user variable time to fire and time to fault settings.

### Approvals

World-wide approvals include EN54:12 and UL268. Visit [www.ffeuk.com](http://www.ffeuk.com) for up to date approvals information.





# FIRE RAY® 2000 EExd

## End-to-End Infrared Optical Beam Smoke Detector for Hazardous Areas

The **FIRE RAY®** 2000 EExd is a conventional infrared optical beam smoke detector, which is ideally suited for the protection of large areas with potentially explosive atmospheres.

### Features

- Separate Transmitter and Receiver units
- Range 10 to 100 metres
- Low current consumption
- Automatic drift compensation
- 3x Selectable sensitivity threshold levels
- Low Level Control Unit
- Optional Electronic Alignment Tool
- CPD Certified

**FIRE RAY®** 2000 EExd comprises an infrared transmitter and a receiver, both of which are ATEX-certified for use in Group 2 hazardous areas. There is a separate, safe area, wall-mounted remote/low level control unit to allow adjustment and testing from a convenient non-hazardous location.

The product is designed for large enclosures within oil rigs, refineries, ordnance stores and similar premises. It provides an early warning of smouldering or strongly smoke-generative fires, which may not be picked up by flame detectors installed in many hazardous areas.



The **FIRE RAY®** 2000 EExd is an End-to-End type beam detector and is thus less susceptible to stray reflection since any reflections go back towards the Transmitter. As a result, projected Optical Beams can operate within narrower gaps than a reflective type.

The **FIRE RAY®** 2000 EExd together with a battery backed power supply, can be connected to a zone of a conventional fire alarm control panel or interfaced to an analogue-addressable system via an addressable interface unit.

The detector has three 'Alarm Thresholds' settings, which can be selected to suit the environment. It also monitors long term degradation of signal beam strength caused by the build up of dirt on its optical surfaces.

The Alignment Aid Tool is a stand alone accessory that can be positioned either with the low level controller or remotely, to facilitate alignment and testing from a convenient low level location in the safe area.



Alignment Aid Tool

### Approvals

The **FIRE RAY®** 2000 EExd complies with the ATEX Directive.



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**FIRE RAY®** 2000 EExd also complies with the Construction Products Directive. Visit [www.ffeu.com](http://www.ffeu.com) for the up to date approvals information.



Optional Wall Mounting Bracket

# FIRERAY®

## Optical Beam Smoke Detectors

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**FIRERAY®** - The leading light in fire detectors



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OHS 580021

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In the interest of improving quality and design, Fire Fighting Enterprises Ltd reserve the right to amend specifications without prior notice.

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