



# FIRE RAY® 2000

## End to End Infrared Optical Beam Smoke Detector

### Features

- Range 10-100 metres
- Low current consumption
- Automatic self check drift compensation
- Selectable sensitivity/threshold levels
- Ground level control unit
- Small, unobtrusive transmitter and receiver heads
- World-Wide approvals including EN54:12 and UL268

### General Descriptions

The **FIRE RAY® 2000** series conventional infrared optical beam smoke detectors are very economical and effective for the protection of large, open plan spaces with high ceilings, particularly if access to 'point type' smoke detectors, for routine maintenance purposes, presents practical difficulties.

Optical beam smoke detectors are ideally suited for protecting warehouses, factories, atria, shopping malls, leisure centres, churches, museums, power stations and industrial plants. The **FIRE RAY® 2000** optical beam smoke detectors, 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 input module or a zone monitor module. The **FIRE RAY® 2000** optical beam smoke detectors have three selectable 'Alarm Thresholds' settings of 25%, 35% and 50% which can

be selected to suit the environment; if the received infrared signal reduces to below the selected threshold and is present for approximately 10 seconds, the fire relay is activated.

There are two modes to the operation of the fire relay. 'Auto Reset Mode' will reset the fire relay approximately 5 seconds after the received infrared signal has recovered to a level above the alarm threshold.

'Latching Mode' holds the fire relay active indefinitely after an alarm condition has occurred. If the infrared beam is obscured rapidly to a level of 93% or greater for approximately 10 seconds the fault relay is activated. This condition can be achieved in a number of ways, for example, an object being placed in the beam path, transmitter failure or sudden misalignment of the detector. The fault relay will reset within approximately 4 seconds of the condition being rectified. The **FIRE RAY® 2000** optical beam smoke detectors monitor long term

degradation of signal beam strength caused by the build up of dirt on it's optical surfaces; this operates by comparing the received infrared signal against a voltage reference every 1.5 hours.

An optional electronic Alignment Aid is available for use with the **FIRE RAY® 2000** optical beam smoke detectors. The Alignment Aid 'assists' the installer to correctly align the **FIRE RAY® 2000** optical beam smoke detector.



Unit 9 Hunting Gate  
 Wilbury Way, Hitchin  
 Hertfordshire SG4 0TJ England  
 T. +44 (0)1462 444740  
 F. +44 (0)1462 444789  
 E. sales@ffeuk.com  
 W. www.ffeuk.com



# FIRERAY<sup>®</sup> 2000

End to End Infrared Optical Beam Smoke Detectors

## Installation Recommendations

The installation of the **FIRERAY<sup>®</sup> 2000** infrared optical beam smoke detector should be undertaken in accordance with recognised national or international standards and codes of practice. Please refer to our **FIRERAY<sup>®</sup> 2000** installation guide. We also recommend that simulated tests are conducted to ensure the desired response time is met for a given installation.

## Technical Specification

Operating Range:	10 to 100 Metres.
Operating Voltage Range:	11.5V DC to 28V DC.
Transmitter Current:	<1.6 to 5.6mA.
Quiescent Current (Controller includes receiver):	<8mA @24V DC.
Alarm Current (Controller includes receiver):	<16.5mA @24V DC.
Fault Current (Controller includes receiver):	<16.5mA @24V DC.
Power Down Reset Time:	>5 seconds.
Fire Relay Contacts:	Normally Open, VFCO 2A @ 30 Volts DC, resistive.
Fault Relay Contacts:	Normally Closed, VFCO 2A @ 30 Volts DC, resistive.
Operating Temperature:	-20°C. to +55°C. (non-condensing).
Receiver Tolerance to Beam Misalignment at 35%:	±4°.
Transmitter Tolerance to Beam Misalignment at 35%:	±1°.
Fire Alarm Thresholds:	1.25dB (25%), 1.87dB (35%), 3dB (50%).
Optical Wavelength:	880nm.
Control Unit Dimensions (Single Channel):	Width 210mm, Height 265mm, Depth 88mm.
Control Unit Dimensions (3/4 Channel):	Width 415mm, Height 395mm, Depth 88mm.
Transmitter & Receiver Dimensions (inc. brackets):	Width 83mm, Height 95mm, Depth 101mm.
Weight (Control Unit, Single Channel):	1.8Kgs.
Weight (Control Unit, 3 Channel):	8Kgs.
Weight (Control Unit, 4 Channel):	8.1Kgs.
Weight (Transmitter & Receiver inc. brackets):	650 gms.
LED Indications (Control Unit):	Red LED (Located on the door): Indicates FIRE. Continuous Yellow (Located inside unit): Indicates FAULT. Alarm Condition: Indicated by fire relay operating. Alarm may be latching or non-latching (default).
Signal High/Signal Low Alignment LEDs:	LED 1 Green and LED 2 Green.
Fuse Protection:	100mA per channel.
IP Rating:	IP50.
Relative Humidity:	RH 0% to 90%, (non-condensing).
CPD Reference:	0786-CPD-20196
UL File:	S3417
Parts List: (Single channel):	1 x Transmitter (clear lens), 1 x Receiver (dark lens), 1 x Control Unit, 2 x Right Angle Bracket, 4 x Bolts & Washers and 1 x Test Filter.
(Three channel):	3 x Transmitters (clear lens), 3 x Receivers (dark lens), 1 x Three Channel Control Unit, 6 x Right Angle Bracket, 12 x Bolts & Washers and 1 x Test Filter.
(Four channel):	4 x Transmitters (clear lens), 4 x Receivers (dark lens), 1 x Four Channel Control Unit, 8 x Right Angle Bracket, 16 x Bolts & Washers and 1 x Test Filter.
Housing Construction (Controller):	Double pressed sheet steel, colour white RAL9010.
Housing Construction (Transmitter/Receiver):	Zinc Alloy, colour white RAL9010.

## Dimensions

