



# FIRE RAY

## F2000 EExd Flameproof Infrared Optical Beam Smoke Detector

### Features

- Separate transmitter and receiver unit certified to EExd
- Range 10-100 metres
- 11.5-28V d.c. Operating Voltage
- Low current consumption
- Automatic self check drift compensation
- 3 x Selectable sensitivity/threshold levels
- Remote/low level control equipment (Safe Area)
- Complies with BS5839 part 5
- ATEX Certified
- $\text{Ex}$  II 2 G EEx d IIB T6 Tamb = -20°C to + 55°C

### General Descriptions

The Fireray EExd F2000 is ideally suited for the protection of large areas, with potentially explosive atmospheres, against smoking fires. Fireray EExd F2000 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 oilrigs, refineries, ordnance stores and similar premises. It provides an early warning of smoldering or strongly smoke-generative fires, which may not be picked up by flame detectors installed in many hazardous areas.

The Fireray EExd F2000 optical beam smoke detector, 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 Fireray EExd F2000 optical beam smoke detector has three selectable "Alarm Threshold"

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 Fireray EExd F2000 Optical Beam Smoke Detectors monitor long-term degradation of signal beam strength caused by the build up of dirt on its optical surfaces; this operates by comparing the received infrared signal against a voltage reference every 1.5 hours.

# data



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### Installation Recommendations

The installation of the FIRERAY infrared optical beam smoke detector should be undertaken in accordance with recognized national or international standards and codes of practice. Please refer to our installation guide number/reference 23989. We also recommend simulated fire tests are conducted to ensure the desired response time, for a given installation, is met.

### Technical Specification

<b>Operating Range:</b>	10 to 100 Metres.
<b>Operating Voltage Range:</b>	11.5V DC to 28V DC.
<b>Transmitter Current:</b>	<1.6 to 5.6mA.
<b>Quiescent Current (Controller includes receiver):</b>	<8mA @ 24V DC.
<b>Alarm Current (Controller includes receiver):</b>	<16.5mA @ 24V DC.
<b>Fault Current (Controller includes receiver):</b>	<16.5mA @ 24V DC.
<b>Power Down Reset Time:</b>	5 seconds.
<b>Fire Relay Contacts:</b>	Normally Open, VFCO 2A @ 30 Volts DC, resistive.
<b>Fault Relay Contacts:</b>	Normally Closed, VFCO 2A @ 30 Volts DC, resistive.
<b>Operating Temperature:</b>	20°C. to +55°C. (non-condensing).
<b>Rx Tolerance to Beam Misalignment at 35%:</b>	±4°.
<b>Tx Tolerance to Beam Misalignment at 35%:</b>	±1°.
<b>Fire Alarm Thresholds:</b>	1.25dB (25%), 1.87dB (35%), 3dB (50%).
<b>Optical Wavelength:</b>	880nm.
<b>Control Unit Dimensions (Single Channel):</b>	Width 210mm, Height 260mm, Depth 88mm.
<b>Control Unit Dimensions (3/4 Channel):</b>	Width 415mm, Height 395mm, Depth 88mm.
<b>Tx &amp; Rx Dimensions (excl. bracket):</b>	Width 124mm, Height 124mm, Depth 121mm.
<b>Weight (Control Unit, Single Channel):</b>	1.1 Kgs.
<b>Weight (Control Unit, 3 Channel):</b>	8 Kgs.
<b>Weight (Control Unit, 4 Channel):</b>	8.25 Kgs.
<b>Weight (Transmitter &amp; Receiver inc. brackets):</b>	4 Kgs.
<b>LED Indications (Control Unit):</b>	<b>Red LED (Located on the door):</b> Indicates FIRE. <b>Continuous Yellow (Located inside unit):</b> Indicates FAULT. <b>Alarm Condition:</b> Indicated by fire relay operating. <b>Fault Condition:</b> Indicated by fault relay operating. Alarm may be latching or non-latching (default).
<b>Signal High/Signal Low Alignment LEDs:</b>	<b>Led 1 Green and LED 2 Green.</b>
<b>Fuse Protection:</b>	100mA per channel.
<b>IP Rating (Controller):</b>	IP50.
<b>IP Rating (Transmitter/Receiver):</b>	IP67.
<b>Relative Humidity:</b>	RH 0% to 90%, (non-condensing).
<b>Approvals/Certification:</b>	Designed, manufactured and certified to BS5839 Part 5, Use 25% and 35% (default) thresholds. The 50% threshold is recommended for hostile and extreme environments.
<b>Certificate No:</b>	Sira 03ATEX I504.
<b>Certification Code:</b>	⊕⊗ II 2 G EEx d IIB T6 Tamb = -20°C to + 55°C.
<b>Parts List: Single channel:</b>	1 x Transmitter (clear lens), 1 x Receiver (dark lens), 1 x Control Unit, 4 x Bolts & Washers, 1 x Test Filter and Bracket.
<b>Housing Construction (Controller):</b>	Steel, colour white RAL9010.
<b>Housing Construction (Transmitter/Receiver):</b>	Marine grade aluminium alloy, colour red RAL2002.
<b>Bracket Construction:</b>	Steel, colour red RAL2002.

### Dimensions

