

# Series

## 016500

# CONVENTIONAL FLAMPROOF (Exd) IR<sup>3</sup> FLAME DETECTOR

### FUNCTION

The 016519 Conventional, Flameproof (Exd), Triple Infra-red (IR<sup>3</sup>) Flame Detector is designed to protect areas where open fires may be expected.

### FEATURES

The 016519 IR<sup>3</sup> Flame Detector is sensitive to low frequency, flickering infra-red radiation emitted by flames during combustion. Since it responds to flickering radiation the IR<sup>3</sup> Flame Detector can operate even if the lens is contaminated by a layer of oil, dust water-vapour or ice.

The IR<sup>3</sup> Flame Detector is set to respond to low-frequency flickering infra-red (0.75 to 2.7 $\mu$ m) radiation at 1 to 15Hz in order to detect almost all flames, including those invisible to the naked eye, e.g. hydrogen fires.

The IR<sup>3</sup> Flame Detector has three IR sensors that respond to different IR wavelengths in order to discriminate between flames and spurious sources of radiation. False alarms due to factors as flickering sunlight are avoided by a combination of filters and signal processing techniques.

### ELECTRICAL CONSIDERATIONS

The IR<sup>3</sup> Flame Detector signals an alarm state by switching an alarm latch on, increasing the current drawn from the supply from 8mA to 28mA and closing the contacts of a Fire relay RL1. These signals from the detector are recognised by the control panel as an alarm signal.



Part no: 016519

The alarm current also illuminates the detector integral red LED. A Fault relay RL2 closes its volt free contacts if the detector has no faults and the supply voltage to the detector is the correct value.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 30 volts DC and a minimum of 14 volts DC in normal operation.



Assessed to ISO 9001:2008  
Quality Systems Certificate numbers 729



Assessed to ISO 9001:2008  
Certificate numbers S805060

To restore the detector to quiescent condition after indicating a fire, it is necessary to extinguish any flames in view and interrupts the electrical supply to the detector for a minimum of one second.

Removing the detector front cover provides access to the detector terminals and configuration DIL switch. The detector is normally configured to latch into an alarm state when a flame is in view. The configuration DIL switch within the detector can be set to place the detector into a non-latching mode. The detector can then also produce proportional analogue current alarm signals i.e. 8-28mA or 4-20mA. In non-latching mode the detector only produces an alarm signal when a flame is in view resetting itself to normal a few seconds after the flame has gone.

#### ACCESSORIES

Stainless Steel Adjustable Mount, part number 007127.  
Stainless Steel Weather Shield, part number 007279.  
A portable Flame Detector Test unit is available, part number 016091.

Notes: When using the IR<sup>3</sup> Flame Detector, please avoid, directly or reflected sunlight on the optics, prolonged ambient temperatures above 55°C and obstructions to the field of view.

Represented By:

#### Technical Data

##### Terminal functions:

- 1 – 2 +IN and -IN: supply in connections
- 3 – 4 +R and -R: remote test input connections
- 5 – 6 Fire Relay RL1 connections
- 7 – 8 Fault Relay RL2 connections

**Supply voltage:** 14-30V DC

**Quiescent Current Options:** 8mA, RL2 energised  
4mA, current loop, RL2 off  
3mA, RL2 off

**Alarm Current Options:** 28mA, RL1 & RL2 energised  
20mA, current loop, RL1 & 2 off  
9mA, RL1 energised

**Remote Detector Test Input:** 14-30V DC

**Alarm Indicator:** Red, Light Emitting Diode (LED)

**Holding Voltage:** 12V (min)

**Minimum Voltage Required to Illuminate Indicators:** 12V

**Alarm Reset Voltage:** 6V

**Alarm Reset Time:** 1 second

**Power Up Time:** 2 second

**Range of view:** 0.1m<sup>2</sup> n-heptane at 25m

**Sensitivity:** Class 1 (EN54-10)

**Field of view:** 90° cone

**Spectral response:** IR<sup>3</sup> 0.75 to 2.7µm

**Operating temperature range:** -10° C to + 55° C  
(no condensation or icing)

**Relative humidity:** 95%, non-condensing


**IP rating:** IP66

**Housing Materials:** Copper Free Aluminium Alloy, Red

**Dimensions:** 150mm height  
146 mm wide  
137mm depth

**Weight:** Alloy Detector 2.5kg

##### Hazardous Area Approvals:

**ATEX**  II 2 G D

**IECEX** Ex d IIC T4 Gb

[Zones 1, 2, 21 & 22] Ex tb IIIC T135°C Db IP66 A21

Certificate No: Baseefa08ATEX0270

Certificate No: IECEX BAS 08.0073

**Performance Approvals:** Certified to EN54-10

LPCB certificate No: 729a/05

VdS certificate No: G212189

CPD certificate No: 0832-CPD-0599