NISCAYAH

S131 SOLAR BLIND FLAME DETECTOR

GENERAL

To meet the demands of arduous environments, such as chemical plants and off-shore oil and gas platforms, the S131 detector has been specially packaged in a tough, GRP anti-static housing with abrasion resistant sapphire windows and a protection rating of IP67 to give a high level of protection against water ingress under sustained, high wind driven conditions.

Operation in the Infra-Red spectrum around 4.4 microns, ensures that the detector will not be blinded by thick smoke and will be tolerant to dirty environments.

Two 20mm cable entries and two 4 way terminal blocks are provided, which eliminates the need for a local junction box, reducing installation costs.

The S131 Infra-Red Flame Detector uses the same optical and electronic module as the S111 and S121 detectors, which have been installed worldwide with universal success. It therefore has identical performance characteristics making it completely blind to solar radiation whether direct, reflected or modulated.

S131 Detector

USE IN HAZARDOUS AREAS

The S131 detector meets the requirements of EN 50-020 Part 7 and is BASEEFA certified EEx ia IIC T5. As part of an intrinsically safe circuit, it is suitable for Zones 0, 1 and 2, where Group IIC gases or lesser hazards can be CONTINUOUSLY present in explosive concentrations.

BENEFITS

- No false alarms from welding, sunlight or high intensity lights.
- Low maintenance costs.
- Quick response to hydrocarbon fires.
- Long range performance.

FEATURES

- Completely solar blind for use outdoors.
- Tough G.R.P. anti static housing to IP67.
- Rugged stainless steel 316 mounting bracket.
- High sensitivity to hydrocarbon fires in dirty environments.
- Not affected by smoke, dust and grime.
- Single sensor and unique optical filtering system.
- Two 20mm cable entries for internal connections.
- High immunity to external interference from RFI/EMI fields.
- The use of micropower electronics allows the detectors to operate in conventional 2 wire detection circuits.
- Built in response indicator.
- BASEEFA approved EEx ia IIC T5.
- 4 spare terminals for connecting spare cores.

BRACKET

The bracket is manufactured from stainless steel 316 and provides a degree of horizontal and vertical adjustment which allows the detector to be positioned to give an accurate cone of vision of the specific risk area.

Axial rotation 50°

Azimuth elevation 70°

A location template is provided to ensure correct installation of mounting bolts and the mounting surface must be flat and free from vibration.

Once adjusted, it is locked in position using two locking bolts ensuring a high degree of positional stability.

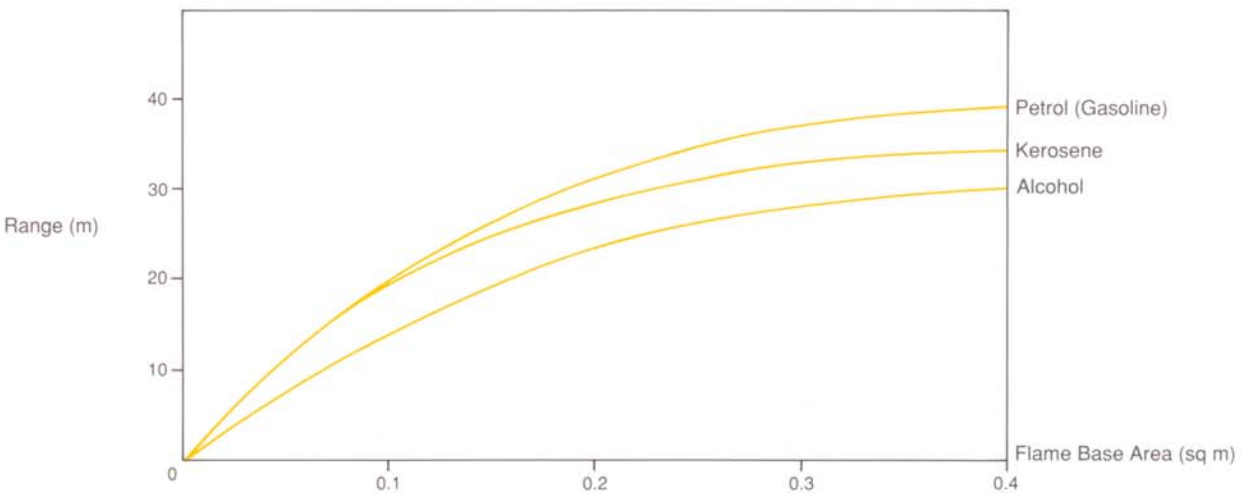
The S131 mounting bracket is supplied as a separate component as detectors are sometimes installed directly onto bulkheads.

APPLICATIONS

- Oil and Gas Platforms.
- Oil Refineries.
- Fuel Storage and Transfer Bays.
- Military and Commercial Aircraft Hangars.
- Chemical Works and Storage.
- Nuclear and Coal Fired Power Stations.
- Gas Turbine Enclosures.
- Printing Presses and Paper Works..

PERFORMANCE

The detector is designed to respond in a minimum time of three seconds, this being the signal processing time constant of the circuitry. Varying sizes of fire will be detected at given distances in the same time and the graph shows the typical ranges for the detection of the flames, above given areas of various liquid fuels.



NOTE:

These results are based upon the test fires reaching equilibrium rates of combustion in a still atmosphere.

TYPICAL RESPONSE

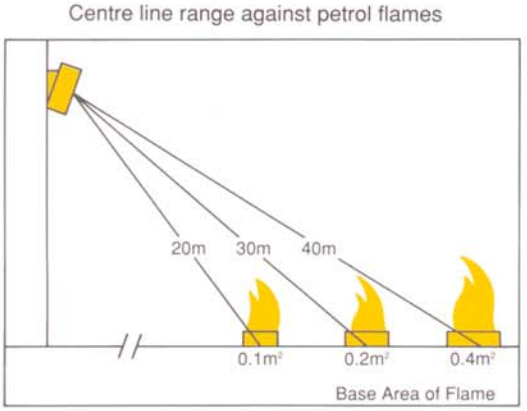
The S131 detector, by virtue of its construction and rejection of spurious radiation, is suitable for use both indoors and outdoors in a wide range of applications. It will detect a 0.1m² petrol fire at 20m on the centre line, within approximately 10 seconds. A 0.4m² fire is detected at 40m. Installation arrangements are specific for the environment and risk situation.

DIRECTIONAL SENSITIVITY AND RANGE

The polar diagram shows that the maximum detector sensitivity lies on the detector central axes. The variation of relative ranges with angle of incidence up to the maximum is shown

The range of the detector will vary with the type of fuel as indicated above.

Centre line range against petrol flames



Relative range as function of angle of incidence