

Features

- Suitable for either Indoor or Outdoor Installation
- Wide Cone Of Vision
- Multiple Spectrum Sensor Array
- A Microprocessor Based Design for Maximum Stability
- **FireScape™**- A Pre Fire Spectral Data Plot
- **DataScan™** - A Real Time Display of Spectral Data
- Field Programmable Sensitivity Settings
- An optional Field Programmable Alarm Verification Relay is available
- An optional separate Trouble Output for the Lens Test is available

Operation

The RED1 employs a multiple spectrum sensor array to feed a continuous stream of data to the host microprocessor. The microprocessor analyzes the data from the sensor array for individual intensity values, change of intensity values, relationship of intensity values, and frequency signature correlations.

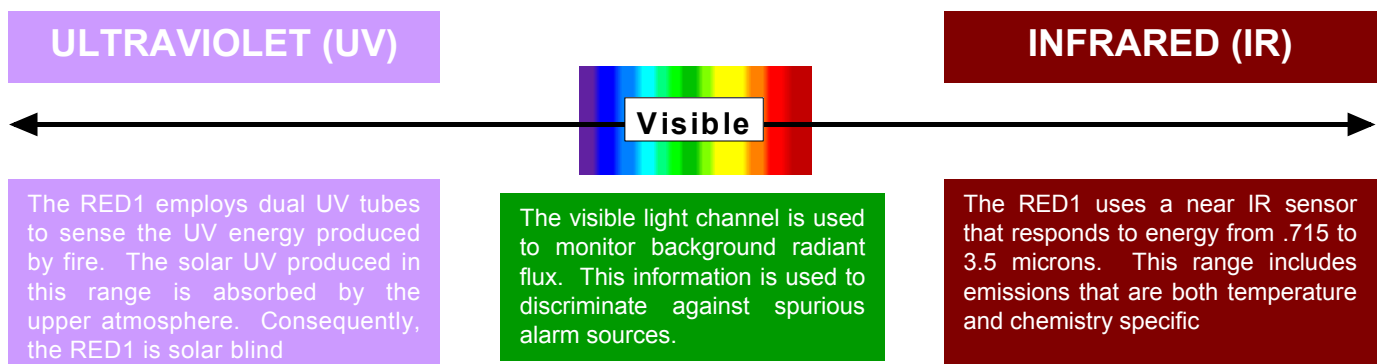
The RED1 employs a variety of detection algorithms that respond to different fire scenarios. The detection algorithms are based on radiant flux intensity levels for differing fire sizes at normalized distances from the detector.

Besides looking at the radiant flux intensity values, the RED1 performs an evaluation in order to analyze the distribution of the flux in the frequency domain.

When one of the flame detection algorithms is satisfied that the input spectral data falls within its parameters for the requisite time period, the detector declares an alarm.

When the alarm decision is made, the detector stores the pre-fire spectral data in nonvolatile memory and outputs an alarm signal.

FireScape™ stores data that is retrievable for analysis at a later time. A second alarm relay is available for alarm verification purposes. The verification level is field selectable.



Speed Of Response:

5 seconds nominal to 1 sq. ft. pan fire of gasoline (heptane) on axis for the selected sensitivity.

Sensitivity:

- Level 1: 1 sq. ft. at 80 feet
- Level 2: 1 sq. ft. at 60 feet
- Level 3: 1 sq. ft. at 40 feet
- Level 4: 1 sq. ft. at 20 feet

Standard Test Fuels

Gasoline (heptane) and Alcohol (Isopropyl – 70%)

Other Fuels Tested:

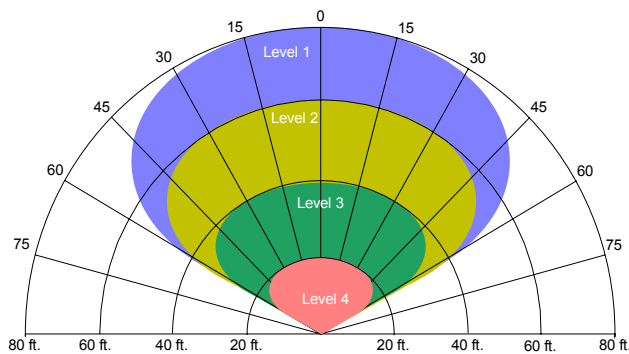
Hydrogen, Silane, Kerosene

Field Of View:

120-Degree Solid Cone

Dimensions:

4.5" X 4.8" X 3.7"



The graph illustrates the wide field of view as well as the range of the RED1 for each of its field selectable sensitivity settings.

Temperature Range:

- 40° C to 85° C Operating
- 55° C to 110° C Storage

Hazardous Area

Classification:

NEMA 4X Explosion Proof:
 Class I, Divisions I & II Groups B, C, D
 Class II, Divisions I & II Groups E, F, G
 Class III

Note: Maintenance of hazardous area approval requires a conduit seal at the conduit hub.

Enclosure:

Copper free cast Aluminum with F.D.A. approved red or white epoxy finish for high corrosion resistance.

Weight: 3 Pounds

Relays:

Standard Configuration;

Alarm and Fault Relays
 0.5 Amp @ 120 VAC,
 1.0 AMP @ 30 VDC resistive.

Enhanced Configuration;

Alarm, Fault, Verified Alarm and Lens Test Relays

0.5 Amp @ 120 VAC,
 1.0 AMP @ 30 VDC resistive.

Note: Latching or Non-Latching operation is set via the dipswitches on the detector module front

4-20 ma Configuration:

Normal mode draws 4 ma
 Fault mode draws 0 ma
 Alarm mode draws 12 ma
 Verify mode draws 20 ma

Electrical:

24 volt @ 62 ma typical
 15 - 32 volt input range

Detector Response To Various Fuels			
Fuels	Distance	Fire Size	Response Time
Heptane	80 feet	1 square foot	Less than 3 Seconds
Silane	50 feet	18 inch jet	Less than 3 Seconds
Hydrogen	15 Feet	18 inch jet	Less than 5 Seconds
Kerosene	75 feet	1 square foot	Less than 5 seconds

False Alarm And Fire Response

This table shows the detectors ability to tolerate both modulated and unmodulated false alarm stimuli and still to detect a fire in the presence of the false alarm source (all fire tests used a 1.75" diameter alcohol pan fire at 6 feet).

False Alarm Source	Distance	Unmodulated	Modulated	Response Time To Fire
Resistive Electric Heater 1320 Watt	6 Feet	No Response	No Response	Less than 5 Seconds
Fluorescent Lights 2 40 Watt Bulbs	6 Feet	No Response	No Response	Less than 5 Seconds
Halogen Light 500 Watt	10 Feet	No Response	No Response	Less than 5 Seconds
Incandescent Light 100 Watt	6 Feet	No Response	No Response	Less than 5 Seconds
Arc Welder 50 Watt	25 feet	No Response	No Response	Less than 5 Seconds

Ordering Information

Model	Verified Alarm	Lens Test	Standard Alarm and Trouble Output
RED1-ST	N/A	N/A	These Devices Have Both Normally Open And Normally Closed Relay Contacts
RED1-E1	Open Contacts	Closed Contacts	
RED1-E2	Closed Contacts	Open Contacts	
RED1-E3	Open Contacts	Open Contacts	
RED1-E4	Closed Contact	Closed Contacts	
RED1-420	20 ma	N/A	Alarm 12 ma Trouble 0 ma