Sierra Safety Technology, Inc.
RED 1 - ST
Radiant Energy Detector

Features
Wide Cone Of Vision
Multiple Spectrum Sensor Array
Microprocessor Based Design For Maximum Stability
FireScape™ Pre Fire Spectral Data Plot
DataScan™ Real Time Display and Recording of Fire TEST Data
Field Programmable Sensitivity Settings
Field Programmable Alarm Verification and
Separate Trouble Output for Lens Test Available
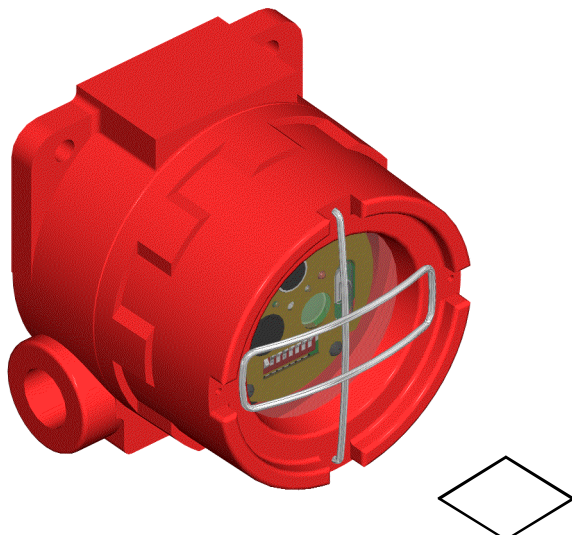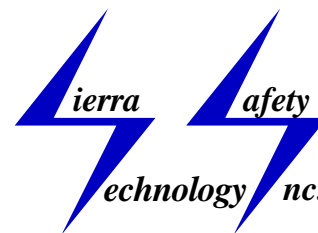
Operation

The RED 1-ST 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 RED 1-ST 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.
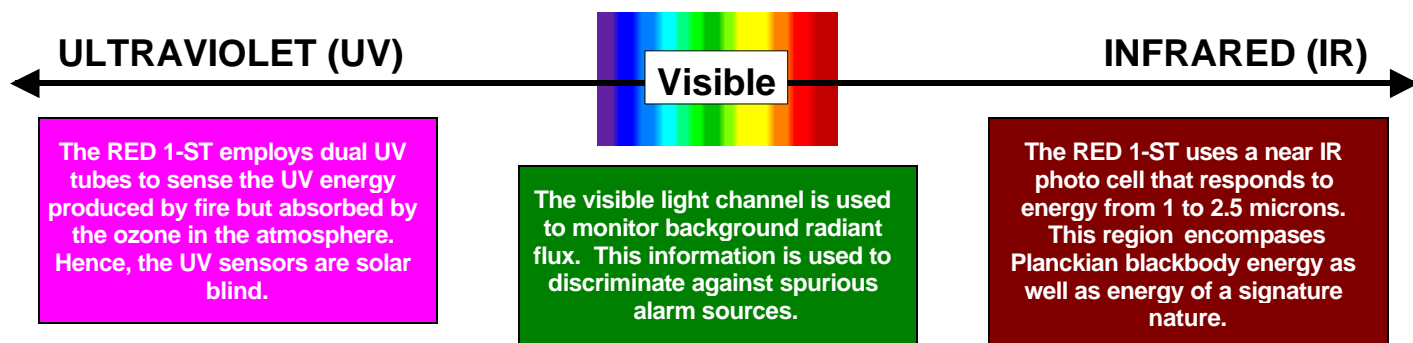
Besides looking at the radiant flux intensity values, the RED 1-ST performs an evaluation in order to analyze the distribution of the flux in the frequency domain.

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 in the form of a relay transition. A second alarm relay is available for alarm verification purposes. The verification level is field selectable.

ULTRAVIOLET (UV)

Visible

INFRARED (IR)

The RED 1-ST employs dual UV tubes to sense the UV energy produced by fire but absorbed by the ozone in the atmosphere. Hence, the UV sensors are solar blind.

The visible light channel is used to monitor background radiant flux. This information is used to discriminate against spurious alarm sources.

The RED 1-ST uses a near IR photo cell that responds to energy from 1 to 2.5 microns. This region encompasses Planckian blackbody energy as well as energy of a signature nature.

Speed Of Response:
5 seconds nominal to 1 sq. ft. pan fire of standard fuel on axis for levels 1-4.

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 are gasoline and kerosene.

Field Of View:
120 Degree Solid Cone

Weight: 3 Pounds

Dimensions:
4.5" X 4.8" X 3.7"

Temperature Range:

Hazardous Area Classification:

Explosion Proof:
Class I, Divisions I and II,
    Groups B, C, and D,
Class II, Divisions I and II,
    Groups E, F, and 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 epoxy finish for high corrosion resistance.

Relays:

Standard Configuration;
Alarm and Fault Relays.
0.5 Amp @ 120 VAC,
1.0 AMP @ 24 VDC resistive.

Enhanced Configuration ;
Alarm and Fault Relays, plus Verify and Lens Test Relays.
0.5 Amp @ 120 VAC,
1.0 AMP @ 24 VDC resistive.

Normally open and normally closed contacts are available. The detector may be operated in either a latching or fire following mode.

Electrical:
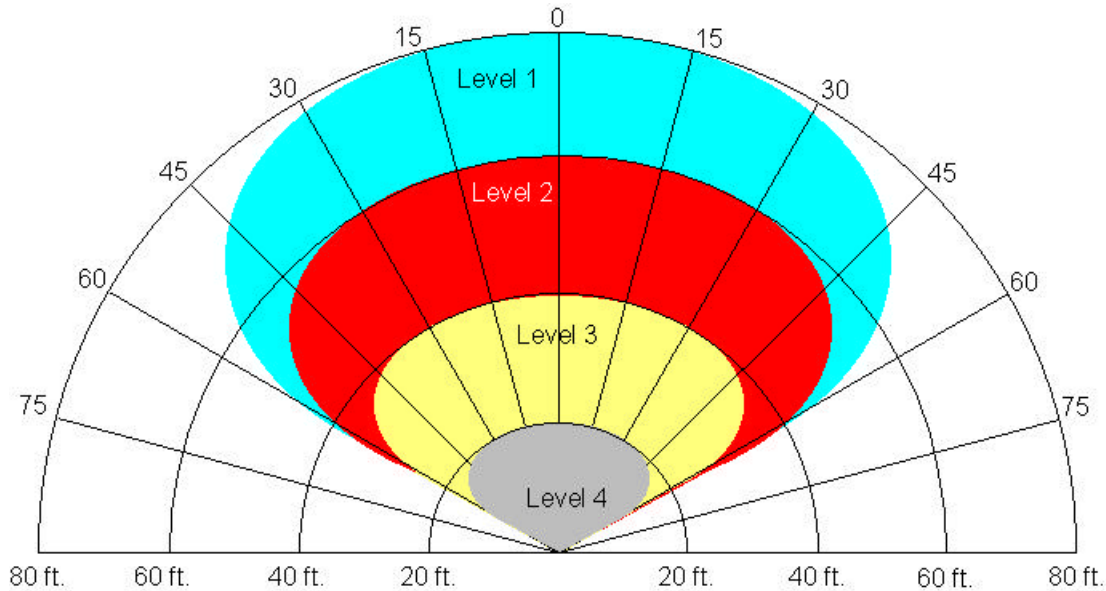24 volt @ 70 ma typical
15 - 32 volt input range

Figure 11 -The graph illustrates the wide field of vision as well as the range of the RED 1-ST for each of its field selectable sensitivity settings.

Post Office Box 816
Minden, Nevada 89423-0816

File: **D000C111**
Copyright 1999 - All rights reserved

Phone: (775) 782-7946
Fax: (775) 782-2490