VF5671-00

XP95A Multisensor Sensor

Standard Features

- Sleek, non-fading white polycarbonate enclosure
- Zero insertion force base- For easier installation and maintenance
- Alarm flag for accelerated alarm reporting.·
- Evaluates combined signals from ROR heat sensing element and smoke sensing chamber
- Dual LED's for 360 degree
- Visibility Sensitive to a wide range of fires
- Well suited for environments such as hotel bedrooms or warehouse loading bays
- Unaffected by wind or atmospheric pressure

Overview

The XP95A VF5603 multisensor is basically an optical smoke Sensor and will therefore respond well to smoke from smouldering fires. The multisensor Sensor also senses air temperature. This temperature sensitivity allows the multisensor to give a response to fast burning (flame) fires, which is similar to that of an ionization Sensor. The multisensor can therefore be used as an alternative to an ionization Sensor.

Operation

The VF5671 Multisensor Sensor contains an optical smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analog value.

The Multisensor construction is similar to that of the photoelectric Sensor but uses a different lid and optical mouldings to accommodate the thermistor temperature sensor. The sectional view shows the arrangement of the optical chamber and thermistor.

The signals from the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector. The Sensor's microcontroller processes the two signals. The temperature signal processing extracts only rate of rise information for combination with the optical signal. The Sensor will not respond to a slow temperature increase - even if the temperature reaches a high level. A large sudden change in temperature can, however, cause an alarm without the presence of smoke, if sustained for 20 seconds.

The processing algorithms in the multisensor incorporate drift compensation. The sensitivity of the Sensor is considered the optimum for most general applications since it offers good response to both smouldering and flaming fires.

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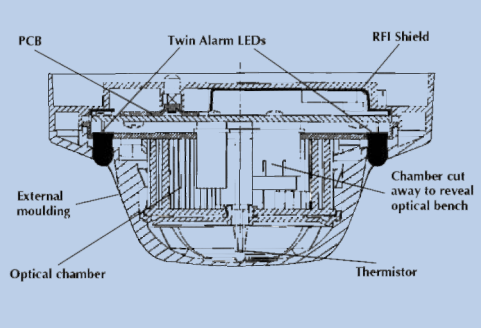
Technical Specifications Smoke element only:

Chamber configuration: Horizontal optical bench housing infra-red emitter and sensor, arranged radially to detect forward scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAs infra-red light emitting diode

Sampling frequency: 1 per second



Sectional view - Multisensor Sensor

	Multisensor Detector
Overheating/thermal combustion	Very Good
Smouldering/ glowing combustion	Good
Flaming combustion	Good
Flaming with high heat output	Very Good
Flaming - clean burning	Moderate/ Good

Response characteristics of the VF5671 Multisensor Sensor

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Detection Principle: Smoke: Photoelectric detection of light scattered by smoke particles
Heat: Temperature-sensitive resistance

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:
L1&L2 supply in and out connections (polarity insensitive)
+R remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
-R remote indicator negative connection (internal 2.2kΩ resistance to supply - ve)

Operating voltage: 17-28V DC

Communications protocol: Apollo XP95 5-9V peak to peak

Quiescent current: 500µA average 750µA peak

Power-up surge current: 1mA

Maximum power-up time: 10s

Alarm LED current: 3.5mA

Remote LED current: 4mA at 5V (measured across remote load)

Clean air analog value: 23 +4/-0

Alarm level analog value: 55

Alarm indicator: 2 colorless Light Emitting Diodes (LEDs); illuminated red in alarm
Optional remote LED

Temperature range:
Max. continuous operating: +140°F
Min. continuous operating: 32°F
Min. operating (no condensation/icing): -4°F
Storage -22°F to +176°F

Humidity: (No condensation) 0 to 95% relative humidity

Effect of temperature on optical detector: Less than 15% change in sensitivity over rated range. Slow changes in ambient conditions will automatically be compensated and will not affect sensitivity

Effect of atmospheric pressure on optical sensor: None

Effect of wind on optical sensor: None

IP rating: 23D

Detector weight: 3.7 oz

Detector with base weight: 5.64 oz

Dimensions: Diameter: 3.93", Height: 1.96", Height in base: 2.28"

Materials: **Detector Housing:** White polycarbonate V-0 rated to UL 94
Terminals: Nickel plated stainless steel

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