

OPERATING PRINCIPLES

The detector has a moulded self-extinguishing white polycarbonate case. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the case a printed circuit board holds the signal processing electronics. A pair of matched negative temperature co-efficient thermistors are mounted on the PCB in such a way that one thermistor is exposed to give good thermal contact with the surrounding air while the other thermistor is thermally insulated.

Under stable conditions both thermistors are in thermal equilibrium and have the same value of resistance. If air temperature increases rapidly the resistance of the exposed thermistor becomes less than that of the insulated thermistor. The ratio of the resistance of the thermistors is monitored electronically and an alarm is initiated if the ratio exceeds a factory preset level. This feature determines the 'rate of rise' response of the detector.

Air temperature increase slowly, no significant resistance difference develops between the thermistors, but at high temperatures a fixed value resistance connected in series with the insulated thermistor becomes significant.

When the sum of the resistance of the insulated thermistor and the fixed resistor compared to the resistance of the exposed thermistor reaches a preset value, an alarm is initiated. The value of the fixed resistor is selected to set the detector into alarm state at a specified fixed temperature.

The detector signals an alarm state by switching an alarm latch on, increasing the current drawn from the supply from about 50µA to a maximum of about 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

The alarm current also illuminates the detector integral LED. A remote indicator connected between the L1IN terminal and the -R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a maximum of 9 volts DC in normal operation. The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage.

To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12volts. To restore the detector to quiescent condition, it is necessary to restore a normal temperature level and interrupt the electrical supply to the detector for a minimum of one second.

FEATURES

- Can be used for applications where smoke detectors are unsuitable.
- Ideal environments that are dirty or smoky under normal conditions.
- Wide operating voltage.
- Flashing LED option.
- Flashing LED and magnet operated test switch option.



▲ S-C2013



OPTIONS

1. Flashing LED: The integral LED flashes when the detector is in a quiescent state.
2. Magnetic test switch and Flashing LED: A magnetic test switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for and commissioning purpose. A flashing LED, as outlined above, is also included.

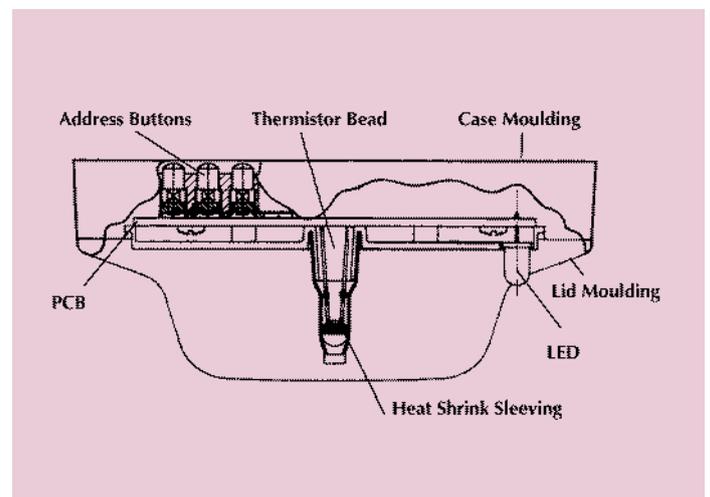


Fig.1 Heat Detector

TECHNICAL DATA

Smoke Detector Part No	S-C2013
Base Part No	S-C2001
Supply Wiring	Two wire monitored supply, polarity insensitive
Terminal Functions	
L1 IN and L2	supply in connections (polarity insensitive)
L1 OUT and L2	supply out connections (polarity insensitive)
-R	remote indicator negative connection
Supply Voltage	9 to 33 VDC
Ripple Voltage	2 V (peak to peak) maximum at 0.1 Hz to 100 kHz
Switch on Surge Current	As per quiescent current
Alarm voltage	6 to 28 V
Alarm indicator	Red light emitting diode
Design Alarm load	420 μ A in series with 2 V drop
Holding voltage	6 V
Holding current	100 mA
Storage temperature	-22°F to 248°F
Operating temperature	-4°F to 194°F (no condensation/icing)
Humidity	0 to 95% relative humidity
IP Rating	23
Detector weight	80 g
Detector with base weight	131 g
Dimensions	
(diameter x height)	100 mm x 42 mm
(height in base)	50 mm

Supply Voltage	24 V	9 V
	Quiescent	Alarm
A1R Standard	45 μ A	52 mA
	40 μ A	17 mA
A1R Flashing LED	55 μ A	52 mA
	50 μ A	17 mA
A1R Flashing LED/ Magnetic test switch	55 μ A	52 mA
	50 μ A	17 mA

Typical current against voltage characteristics for quiescent and alarm states