VF5692-00

Series 65A Heat Detector

Standard 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

Operation

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.

If air temperature increases 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 L1 IN 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 minimum 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 12 volts. 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.

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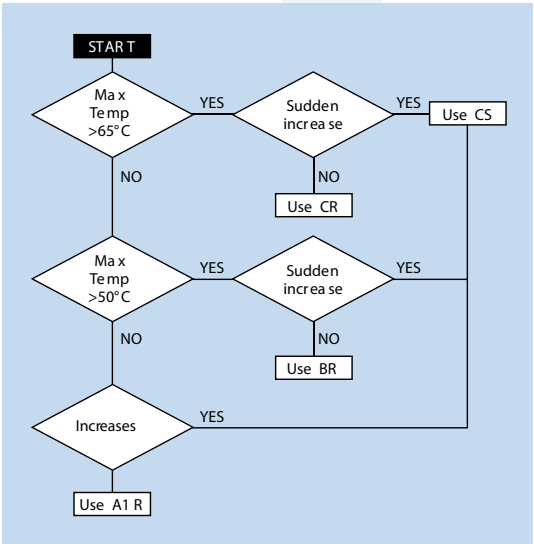
Ordering Codes

Part number	Description
VF5692-01	Heat Detector 135°F with flashing LED
VF5692-02	Heat Detector 135°F with flashing LED and Magnetic Test Switch
VF5693-01	Heat Detector 170°F with flashing LED
VF5693-02	Heat Detector 170°F with flashing LED and Magnetic Test Switch
VF5694-01	Heat Detector 200°F with flashing LED
VF5694-02	Heat Detector 200°F with flashing LED and Magnetic Test Switch
VF5695-00	4" Standard Base
VF5696-00	6" Standard Base
VF5698-00	4" Standard Relay Base



Choosing a heat detector

Technical Specifications

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

Supply Wiring: Two wire 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: 9-33V

Ripple voltage: 2V peak to peak maximum at 0.1Hz to 100kHz

Quiescent current: see table

Switch on surge current: As per quiescent current

Alarm voltage: 6 to 28V

Alarm indicator: Red light emmiting diode

Design Alarm load: 420Ω in series with a 2V drop

Holding voltage: 6V

Holding current: 100mA

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: 23D

Detector weight: 2.82 oz

Detector with base weight: 4.62 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

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 test and commissioning purposes. A flashing LED, as outlined above, is also included.

Supply Voltage (v)	A1R Standard		A1R Flashing LED		A1R Flashing LED/ Magnetic test switch	
	Quiescent	Alarm	Quiescent	Alarm	Quiescent	Alarm
24	45µA	52mA	55µA	52mA	55µA	52mA
9	40µA	17mA	50µA	17mA	50µA	17mA

Typical current against voltage characteristics for quiescent and alarm states

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