SERIES 27 HEAT DETECTOR

Series 27 Heat Class A1R	Part.Number
Detector with flashing LED	2000-300
Series 27 Heat Class BR	
Detector with flashing LED	2000-301
Series 27 Heat Class CS	
Detector with flashing LED	2000-302

The detector has a molded 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 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 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 recognized 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 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.

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 activate from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

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RESPONSE TIME

European Standard EN54–5:2000 classifies heat dete-ctors according to the alarm temperature and ambient operating temperature.

Each heat detector class-ification has a static response (changing to alarm at a preset temperature) and may also have a rate of rise response (changing to alarm at or above a preset increase of temperature). The heat detector classes available in Series 27 are A1R, BR, CS.

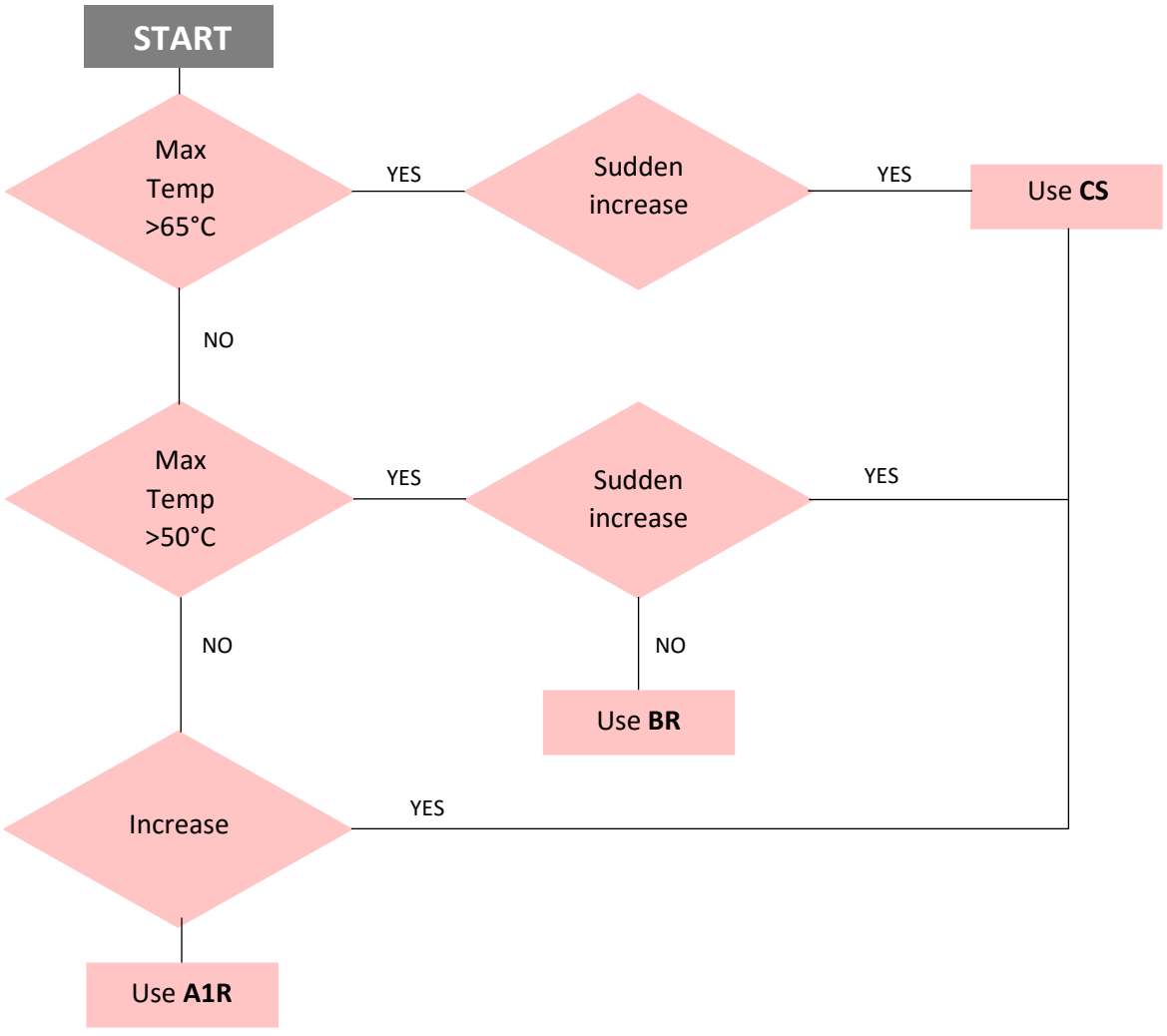
The suffix R indicates that the detector has been tested and approved as a 'rate-of-rise' detector. The suffix 'S' indicates thatthe detector has been tested and approved as a 'static' detector.

Supply Voltage (V)	A1R Flashing LED	
	Quiescent	Alarm
24	55 µA	52mA
9	50µA	17mA

Table 1 Typical current against voltage characteristics for quiescent and alarm states

Class	Max application temperature ˚C	Max static response temperature ˚C	Part number
			LED Flashing
A1R	50	65	2000-300
BR	65	85	2000-301
CS	80	100	2000-302

Table 2 Series 27 Heat Detector temperatures and part numbers



TECHNICAL DATA

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise specified.

Detector Type:
Point type heat detector for fire detection and alarm systems for buildings

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 33V

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

Quiescent Current:
See table 1

Switch-on Surge Current:
As per Quiescent Current

Alarm Voltage:
6 to 28V

Alarm Current:
See table 1

Alarm Indicator:
Red light emitting diode

Design Alarm Load:
420Ω in series with a 2V dr-op

Holding Voltage:
6V

Holding Current:
10mA

Minimum Voltage Required to Light Alarm Indicator:
12V

Remote Output Characteristics:
Remote is a current sink to the negative line limited to 17mA

Storage Temperature Range:
–30°C to 120°C. Operating Temperature:
–20°C to +90°C (no icing)

Humidity:
0% to 95% relative humidity

Atmospheric Pressure:
Unaffected

IP Rating:
23D in accordance with BS EN 60529

EMC, approvals and regulatory compliance:
Refer to Page 18 of this document

Dimensions: (dia. x height)

Detector:	100x42mm
Detector in Base:	100x50mm

Weights:

Detector:	80g
Detector in Base:	131g

Materials:
Detector housing: White polycarbonate rated V-0 in accordance with UL 94.
Terminals: Nickel plated stainless steel

CE 0832