

# Heat Detector Classifications

## EN54-5

### APPLICATION NOTE

#### General Specification

In May 2003, British standard BS5445-5:1977/EN54-7:1977 and BS5445-8:1984 for heat detectors were both withdrawn. These standards were superseded by BS EN54-5:2001/EN54-5:2000 incorporating amendment A1:2002.

#### Detector Classification and Selection

The new standard dictates heat detectors should conform to one of the following classifications:

**Table 1 - Classifications and temperatures**

Detector Classification	Typical Application Temperature °C	Maximum Application Temperature °C	Minimum Static Response Temperature °C	Maximum Static Response Temperature °C
A1	25	50	54	65
A2	25	50	54	70
B	40	65	69	85
C	55	80	84	100
D	70	95	99	115
E	85	110	114	130
F	100	125	129	145
G	115	140	144	160

The above classifications may be appended by the suffixes 'R' or 'S'.

The suffix 'S' indicates the detector will not respond below the minimum static response temperature applicable to the class of the detector (see table 1). The threshold is chosen to be higher than the maximum expected ambient temperature. This device will be particularly suited to environments where fast changes in ambient temperatures are expected, e.g. in a boiler room.

The suffix 'R' indicates that the detector has the ability to produce an alarm with the range of rates-of-rise of air temperature, from ambient temperatures considerably below the application temperature. A device with this suffix will respond to fast changes in ambient temperature as well as if the minimum static response temperature is exceeded. See table 2 for exact test response time limits.

**Table 2 – Rate-of-rise response time limits**

Rate of rise of air temperature K min <sup>-1</sup> (from typical application temperature)	Class A1 detectors				Class A2, B, C, D, E, F & G			
	Lower limit of response time		Upper limit of response time		Lower limit of response time		Upper limit of response time	
	min	s	min	s	min	s	min	s
1	29	0	40	20	29	0	46	0
3	7	13	13	40	7	13	16	0
5	4	9	8	20	4	9	10	0
10	1	0	4	20	2	0	5	30
20		30	2	20	1	0	3	13
30		20	1	40		40	2	25

Detectors having no suffix, i.e. A1, B etc, may still have an additional rate-of-rise function. The product manufacturer can decide whether or not to show the suffix 'R'.

## Hochiki EN54-5 Approved Detector Classifications

### Current Hochiki detectors approved to EN54-5.

Addressable Sensors	Conventional Detectors
ACA-E	DCD-AE3
ACB-E	DCD-CE3
ACB-EW	DCD-1E-IS
ATG-E	DFJ-AE3
ATG-E(NP)	DFJ-CE3

Hochiki's ACA-E multi-sensor can be operated in heat only mode, with fixed-temperature operation only.

The new analogue addressable heat sensor models ACB-E and ACB-EW combine both fixed temperature and rate of rise elements in one detector. These sensors can be configured to one of several different classifications of EN54-5 for a wide variety of applications. The classification can also be adjusted between day and night modes to ensure quick detection of fire whilst avoiding false alarms\*.

For conventional systems it is essential to choose a detector with a classification most suitable for each application. Hochiki's range of conventional and analogue addressable detectors and their corresponding classifications can be seen in table 3.

**Table 3 – Hochiki detector classifications.**

Model Code	Classification							
	A1R	A1S	A2R	A2S	BR	BS	CR	CS
ACA-E (heat mode only)		√				√		
ACB-E*	√	√			√	√	√	√
ACB-EW*	√	√			√	√	√	√
ATG-E		√				√		√
ATG-E(NP)		√				√		√
DCD-AE3	√							
DCD-CE3							√	
DCD-1E-IS				√				
DFG-60E				√				
DFJ-AE3		√						
DFJ-CE3								√

\* Panel compatibility is required for day/night and mode adjustment.



**Hochiki Europe (UK) Ltd**  
**Grosvenor Road, Gillingham Business Park,**  
**Gillingham, Kent, ME8 0SA, England**  
**Telephone: +44(0)1634 260133 Facsimile: +44(0)1634 260132**  
**Email: sales@hochikieurope.com**  
**Web: www.hochikieurope.com**

Hochiki Europe (UK) Ltd. reserves the right to alter the specification of its products from time to time without notice. Although every effort has been made to ensure the accuracy of the information contained within this document it is not warranted or represented by Hochiki Europe (UK) Ltd. to be a complete and up-to-date description. Please check our web site for the latest version of this document.