TECHNICAL DATA SHEET

SHIELD
TRUSTED WORLDWIDE

HEAT DETECTOR WITH ISOLATOR

▲ TEN-A8012

LPCB
Cert/LPCB ref. 010bd/01

FEATURES

The Shield Heat Detector features two heat sensors located laterally to ensure accurate heat detection in all orientations.

- Dual heat sensors.
- Utilises digital communications.
- Mechanically compatible with existing bases.
- Available with integrated switchable isolator.
- Tricoloured LED status indicator.
- Polycarbonate moulding for colour stability and strength.
- Comprehensively tested to exceed EN 54-5 standard.
- FasTest for quicker testing of detectors.
- XPERT card addressing.

DESCRIPTION

The low profile design of the Shield Heat Detector is sleek and evolutionary, with a 360° LED indicator which illuminates red when in alarm, yellow to indicate a fault and green to indicate protocol activity.

- Dual heat sensors to ensure an accurate response in all orientations.

- Seven operating modes.

Heat detector classifications are defined by EN 54-5 as shown in Table 1, each class specifies an application temperature and a static response temperature. Application temperatures define the environmental temperatures the detector can be expected to experience in non-fire conditions. Classes should be selected so that the maximum application temperature is not exceeded. The static response temperature indicates the temperature which the device will produce an alarm signal. In addition to the basic classification a detector may be given an “R” or “S” suffix.

The “R” suffix indicates that the detector has been designed to have a rate-of-rise characteristic. “R” suffix detectors will produce an alarm signal when exposed to a rapid temperature increase.

Slower temperature rises will not generate an alarm unless they exceed the static response temperature. A “R” suffix detector will therefore give a rapid fire response even when starting from an ambient temperature well below its typical application temperature.

The “S” suffix indicates that the detector will not produce an alarm signal below its minimum static response temperature even when exposed to high rates of rise of air temperature.

Shield Heat Detectors have seven available modes which correspond to seven “classes” as defined in EN54-5. To ensure backwards compatibility, Modes 1 to 5 inclusive are identical to the modes used in Shield Heat Detectors. Modes 6, and 7 provide additional heat detector classes and are exclusively available to Shield TEN-Series Systems enabled fire control panels. Each class corresponds to a different response behaviour and is designed to be suitable for a range of application temperatures and fire risks. The static response temperatures for all modes are given in Table 1.

SHIELD HEAT DETECTOR RESPONSE MODES - TABLE 1

Mode	Class EN 54-5	Application Temperature		Static Response Temperature		
		Typical	Maximum	Minimum	Typical	Maximum
1	A1R	25 °C	50 °C	54 °C	57 °C	65 °C
2	A2R	25 °C	50 °C	54 °C	60 °C	70 °C
3	A2S	25 °C	50 °C	54 °C	60 °C	70 °C
4	CR	55 °C	80 °C	84 °C	90 °C	100 °C
5	CS	55 °C	80 °C	84 °C	90 °C	100 °C
6*	BR	40 °C	65 °C	69 °C	74 °C	85 °C
7*	BS	40 °C	65 °C	69 °C	74 °C	85 °C

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TECHNICAL DATA

Specifications are typical at 24 V, 25 °C and 50% RH unless otherwise stated.		
Detection principle	Heat sensitive resistance	
Sensor configuration	Thermistor	
Sampling frequency	Once per second	
Terminal functions (note: L1 & L2 are polarity sensitive)	+L2	Loop in & out positive
	–L1 in	Loop (isolated) negative
	–L1 out	Loop (isolated) negative
	+R	Remote indicator positive connection (internal connection to positive)
	–R	Remote indicator negative connection (4.7mA maximum)
Sensitivity	90 °C: 55 counts	
Coverage	56.3 Sq.m	
Supply voltage (Vmin-Vmax)	17-35 VDC	
Quiescent current	350 µA	
Power-up surge current	560 µA	
Maximum power-up time	10 s	
Alarm current, LED illuminated	3.5 mA	
Maximum loop current ($I_C$max; L1 in/out)	1 A	
Maximum series resistance (Z_C max; L1 in/out)	80 mΩ	
Maximum switch current (I_S max; L1 in/out)	3 A	
Maximum leakage current ($I_L$max; during isolation)	33 mA (100ms pulse every 2s)	
Isolation voltage (V_{SO}min–V_{SO}max)	12.5-15 VDC	
Reconnect voltage (V_{SC}min–V_{SC} max)	12.8-19.1 VDC	
Clean-air analogue value	23 +4/-0	
Alarm level analogue value	55	
Status indicator	Alarm	Red
	Fault	Flashing Yellow
	Isolate	Yellow
	Poll	Green
Operating temperature	-40 °C to 70 °C	
Humidity (no condensation or icing)	0-95% RH	
Vibration, impact and shock	EN 54-5	
IP Rating	IP54	
Standards & approvals	EN 54-5, EN 54-17 & LPCB	
Dimensions	100 mm diameter x 38.5 mm height (50.5 mm height with Shield Standard Mounting Base)	
Weight	83 g	
Materials	Housing: White polycarbonate UL94-V0 Terminals: Tin plated stainless steel	

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