Discovery

Heat Detector

Product overview

Product	**Heat Detector**
Part No.	**58000-400**
Digital Communication	**Discovery (XP95 and CoreProtocol® compatible)**

Compliance

CE, LPCB, VdS, BOSEC, SBSC INTYGAD PRODUKT, FG, GOST-R, KZ

Product information

The Discovery Heat Detector uses a single thermistor to sense the air temperature at the detector position. The thermistor is connected in a resistor network, which produces a voltage output dependent on temperature. The design of the resistor network, together with the processing algorithm in the micro-controller, gives an approximately linear characteristic from 10°C to 80°C. This linearised signal is further processed, depending upon the response mode selected, and converted to an analogue output.

- Unaffected by wind or atmospheric pressure
- Ideal for environments that are dirty or smoky under normal circumstances
- Well suited to kitchens and smoking rooms
- Five EN54 approved response modes
- Remote test feature

Note: *For system compatibility and feature support of this device, please refer to your chosen panel manufacturer.*

Technical data

All data is supplied subject to change without notice. Specifications are typical at 24V, 25°C and 50% RH unless otherwise stated.

Detection principle	*Heat sensitive resistance*	
Sensor	*Single NTC thermistor*	
Sampling frequency	*Once per second*	
Supply Wiring	*Two wire supply, polarity insensitive*	
Terminal functions	*L1 and L2*	*Supply in and out connections*
	+R	*Remote indicator positive connection (internal 2.2 kΩ resistance to positive)*
	–R	*Remote indicator negative connection (internal 2.2 kΩ resistance to negative)*
Operating voltage	*17 - 28 V dc*	
Communication protocol	*Discovery (XP95 and CoreProtocol compatible)*	
Modulation voltage	*5 V to 9 V peak to peak*	
Quiescent current	*400 µA*	
Power-up surge current	*1mA*	
Maximum power-up time	*10 seconds*	
Alarm indicator	*Two red light emitting diodes (LEDs) Optional remote LED*	
Alarm level analogue value	*55*	
Alarm LED current	*3.5 mA*	
Remote output characteristics	*Connects to positive line through 4.5 kΩ (5 mA maximum)*	
Storage temperature	*-40°C to +80°C*	
Operating temperature	*See table overleaf response mode temperatures*	
Humidity (no condensation or icing)	*0% to 95% RH*	
Effect of atmospheric pressure	*None*	
Effect of wind speed	*None in fixed temperature use*	
Vibration, impact and shock	*EN 54-5*	
IP Rating	*IP44*	
Standards and approvals	*EN 54-5, CPR, LPCB, VdS, BOSEC, SBSC, CCMG, Kazakhstan*	
Dimensions	*100 mm diameter x 42 mm height*	
Weight	*105 g*	
Materials	*Housing: White flame-retardant polycarbonate* *Terminals: Nickel plated stainless steel*	

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Operation

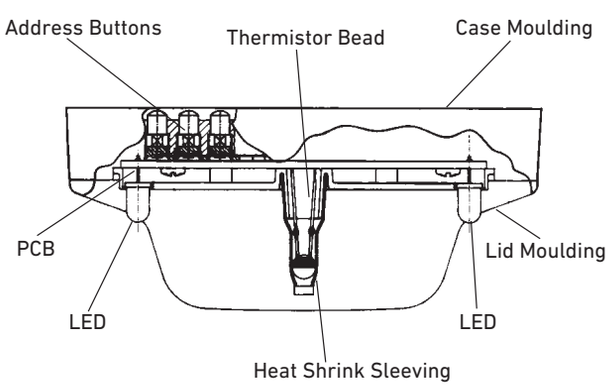
In the Discovery Heat Detector, the five response modes correspond to the five 'classes' as defined in EN 54-5. The classes in this standard correspond to different behaviour, each of which is designed to be suitable for a range of application temperatures. All modes incorporate 'fixed temperature' response, which is defined in the standard by the 'static response temperature'. The application temperatures and static response temperatures for all response modes are given in the table on the right.

In addition to the basic classification, each detector mode has an 'R' or 'S' suffix.

The 'R' suffix indicates that the detector has been shown to have a rate-of-rise characteristic. Such a detector will still give a rapid response even when starting from an ambient temperature well below its typical application temperature. This type of detector is therefore suitable for unheated areas in which the ambient temperature may be very low for long periods.

The 'S' suffix on the other hand indicates that the detector will not respond below its minimum static response temperature even when exposed to high rates of rise of air temperature. This type of detector is therefore suitable for areas such as gallies and engine rooms where large, rapid temperature changes are considered normal.

Discovery Heat Detector sectional view



Electrical description

The Discovery Heat Detector is designed to be connected to a two wire loop circuit carrying both data and a 17 V to 28 V dc supply. The detector is connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4 mA at 5 V may be connected between the +R and -R terminals. An earth connection terminal is also provided.

Features

Response modes

Discovery Heat Detectors can be operated in any one of five EN54 approved response modes, which can be selected through the fire control panel. Each mode corresponds to a unique response behaviour, which is related to sensitivity to fire. Mode 1 gives a higher sensitivity to fire than Mode 5.

Discovery Heat Detector response modes

Mode	Class EN54- 5	Application temperature		Static Response Temperature °C		
		Typ	Max	Min	Typ	Max
1	A1R	25°C	50°C	54°C	57°C	65°C
2	A2R	25°C	50°C	54°C	61°C	70°C
3	A2S	25°C	50°C	54°C	61°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

Flashing LEDs

Discovery Heat Detectors have two integral LED indicators, which can be illuminated at any time by the fire control panel to indicate detectors in alarm. A flashing LED mode can also be programmed to activate each time a detector is polled.

Remote test feature

The remote test feature is enabled from the fire control panel. On receipt of the command signal from the fire control panel, the detector is forced electrically into alarm. An analogue value of 85 is returned to the fire control panel to indicate that the detector is working correctly.

Rejection of transient signals

Discovery detectors are designed to give low sensitivity to very rapid changes in the sensor output, since these are unlikely to be caused by real fire conditions, resulting in fewer false alarms.

EMC Directive 2014/30/EU

The Discovery Heat Detector complies with the essential requirements of the EMC Directive 2014/30/EU provided that it is used as described in this data sheet.

A copy of the Declaration of Conformity is available from Apollo upon request.

Conformity of the Discovery Heat Detector with the EMC Directive, does not confer compliance with the directive on any apparatus or systems connected to it.

Construction Products Regulation 305/2011/EU

The Discovery Heat Detector complies with the essential requirements of the Construction Products Regulation 305/2011/EU.

A copy of the Declaration of Performance is available from Apollo upon request.