Soteria®

Heat Detector



Product overview

Product	**Heat Detector**
Part No.	**SA5100-400 (isolated)**
Native Protocol	**XP95, Discovery and CoreProtocol®**

Product information

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

- Dual heat sensors
- Available with integrated switchable isolator
- Tricoloured LED status indicator
- Comprehensively tested to exceed EN 54-5 standard
- FasTest® for quicker testing of detectors
- Universal XPERT card addressing
- Locking mechanism (grub screw)

Manufacturer's Specification

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 configuration	*Thermistor*	
Sampling frequency	*Once per second*	
Terminal functions (note: L1 and L2 are polarity sensitive)	*+L2*	*Loop in and 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 (4.7 mA maximum)*
Supply voltage (Vmin–Vmax)	*17 V – 35 V dc*	
Digital communication protocol	*XP95, Discovery and CoreProtocol compatible*	
Modulation voltage	*5 V – 13 V peak to peak*	
Quiescent current	*Isolated detector: 350 µA*	
Power-up surge current	*560 µA*	
Maximum power-up time	*10 seconds*	
Alarm current, LED illuminated	*3.5 mA*	
Alarm level analogue value	*55*	
Status indicator	*Alarm*	*Red*
	Fault	*Flashing Yellow*
	Isolate	*Yellow*
	Poll	*Green*
Operating temperature	*–40°C to 70°C*	
Humidity	*0% to 95% RH (no condensation or icing)*	
IP Rating	*IP44*	
Dimensions	*100 mm diameter x 38.5 mm height*	
Weight	*90 g*	
Materials	*Housing: White flame-retardent polycarbonate* *Terminals: Tin plated stainless steel*	

For specifications associated with isolator performance, please refer to PP2090.

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Electrical description

The Soteria detector is designed to be connected to a two-wire loop circuit carrying both data and power. All Soteria Detectors feature a short-circuit isolator integrated into the head.

Operation

The low profile design of the Soteria 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 (Mode 8 not used)

Heat detector categorisations are defined by EN 54-5 as shown in Table 1, each category 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. Categories 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 categorisation 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.

Soteria Heat Detectors have seven available modes which correspond to seven "categories" as defined in EN 54-5. To ensure backwards compatibility, Modes 1 to 5 inclusive are identical to the modes used in Discovery Heat Detectors. Modes 6, and 7 provide additional heat detector categories and are exclusively available to CoreProtocol enabled fire control panels. Each category 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. Although present in the software Mode 8 is not currently used.

Application

Fire detectors should always be installed in accordance with all local and national laws and codes of practice.

A "R" suffix detector is suitable for areas such as unheated warehouses in which the ambient temperature may be very low for long periods.

A "S" suffix detector is suitable for areas such as kitchens and boiler rooms, where large rapid temperature changes are considered normal.

Device Addressing

A universal XPERT 8 card is supplied with all XPERT 8 Intelligent Mounting Bases. Using a coding guide, pips on the card are removed to set the address of the detector. This simplifies and speeds up installation, commissioning and maintenance. The address location remains the same no matter how often detectors are replaced.

When Soteria devices are used with CoreProtocol, device auto-addressing can be enabled by fire control panels that have been designed to incorporate this feature.

Communication

Soteria uses the new digital CoreProtocol to allow more advanced control and configuration, whilst maintaining backwards compatibility with previous generations of Apollo products – XP95 and Discovery. Discovery and CoreProtocol make use of the Normal, Read and Write modes with additional non-volatile data fields made available to the fire control panel.

Table 1: Soteria Heat Detector response modes

Mode	Category 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
8		This mode is not used				

Note: * *CoreProtocol enabled fire control panels only*

Backward Compatibility

Soteria detectors have been designed to operate on XP95 and Discovery loops. This allows for Soteria detectors and bases to operate on existing systems and for Soteria detectors to operate on XP95 and Discovery bases (XPERT 7 Intelligent Mounting Base).

It should be noted that not all features of Soteria will be available when used with XP95 or Discovery fire control panels. If Soteria detectors are used with XP95 fire control panels incorporating drift compensation algorithms, these must be disabled when communicating with Soteria devices.

When Soteria detectors are used with an XPERT 7 Intelligent Mounting Base on a CoreProtocol system, Soteria devices will have a +128 address offset due to only seven address pips being available on the XPERT 7 card. For example, an XPERT 7 card set at 32 will address as 160 on CoreProtocol with Soteria detectors.

Maintenance and Service

Soteria detectors have been designed with a comprehensive set of features to support maintenance and service, from self test capabilities to drift compensation warnings on dirty detectors.

The new FasTest® mode facility on Soteria can be enabled within a fire control panel that incorporates this feature. This facilitates quicker testing of detectors with appropriate test equipment. FasTest disables the transient rejection algorithms to allow a faster detector response, whilst ensuring the detectors absolute sensitivity remains identical to Mode 3. A visual pass/fail indication is provided by the detector and overall, FasTest reduces commissioning and maintenance time.

Maintenance has to done in accordance with all applicable standards. Clean the detector externally using a soft damp cloth. For full cleaning and recalibration detectors should be returned to Apollo Fire Detectors.

EMC Directive 2014/30/EU

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

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

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

Construction Products Regulation (EU) 305/2011

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

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