Ampac

Fire detection and evacuation solutions that save lives.

Soteria Optical Smoke Detector

Features

- PureLight Optical Technology
- Integrated Short Circuit Isolator
- Drift Compensation
- Tri-coloured LED status indicator
- Universal XPERT card addressing
- Locking mechanism (grub screw)
- Comprehensively tested to exceed EN 54-7
- Approved to AS7240-7 and FPANZ4512 listed

Description

The Soteria Optical Smoke Detector uses new optical sensing technology, PureLight®, to detect smoke particles entering the chamber. PureLight marks a new stage in the development of optical technology and aims to reduce the possibility of false alarms whilst increasing the reliability of detection of a real fire.

Operations

The low profile design of the Soteria Optical Smoke 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.

At the heart of the Soteria detector is PureLight Sensing Technology which incorporates:

- Cone technology combined with a high-intensity infra-red LED to provide stability and accurate sensitivity to smoke
- A photo-diode and an amplifier integrated into an Application-Specific Integrated Circuit (ASIC)
- 'Serpentine' pathway designed to provide a barrier against dust and insect ingress
- A sophisticated dynamic algorithm, providing transient rejection and compensation for drift whilst maintaining accurate sensitivity

The sensitivity mode of operation of this processing is selected at the fire control panel (see Table 1).

Table 1: Soteria Optical Smoke Detector Operating modes

Mode	Response Value	Minimum Time to Alarm
	dB/m*	Seconds
1	0.10	5
2	0.10	30
3	0.14	5
4	0.14	30
5	0.16	5

* Tested in oil mist to EN 54-7 standard

Item Numbers

Description	Item No (AS/NZ)	Part No (EN)
Optical Smoke Detector	4106-2102	SA5100-600

Electrical Considerations

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 in the head.

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.

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 systems.

Specifications

Dimensions	100 mm diameter x 36 mm height (48 mm height with XPERT 8 Intelligent Mounting Base)
Weight	96 g (+/- 10 %)
Materials	Housing: White flame retardant polycarbonate Terminals: Nickel plated stainless steel

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Specifications		
Detection Principle	Photo-electric light scattering	
Sensor configuration	Chamber with surface-mount infrared emitter and prism. Solid state integrated photo-diode and amplifier.	
Sample frequency	Once per second	
Terminal Functions (Note: L1 and L2 are polarity sensitive)	-L1 in	Loop (isolated) negative
	-L1 out	Loop (isolated) negative
	+L2	Loop in and out positive
	+R	Remote indicator positive connection (internal connection to positive)
	-R	Remote indicator negative connection (4.7 mA maximum)
Supply voltage (Vmin–Vmax)	17 - 35 V dc	
Digital Communication	XP95, Discovery and CoreProtocol compatible	
Modulation voltage	5 - 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	
Clean-air analogue value	23 +4/–0	
Alarm level analogue value	55	
Status Indicator	Alarm - Red Fault - Flashing Yellow Isolate - Yellow* Poll - Green* (* configurable by panel)	
Operating temperature	–40°C to 70°C	
Humidity	0% to 95% RH (no condensation or icing)	
Effect of atmospheric pressure	None	
Effect of wind speed	None, tested up to 10 m/s	
Vibration, impact and shock	EN 54-7:2018	
IP rating	IP44	
Standards & Approvals	EN 54-7:2018, EN 54-17:2005, CPR, LPCB, VdS, BOSEC, FG, SBSC AS7240-7 and FPANZ listed	

EMC Directive 2014/30/EU

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

Construction Products Regulations (EU) 305/2011

The Soteria Optical Smoke Detector complies with the essential requirements of the Construction Products Regulation (EU) 305/2011.
A copy of the Declaration of Performance is available on request.

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