



LOW PROFILE FIRE DETECTORS - INTELLIGENT SOTERIA® DIMENSION INDUSTRIAL/SPECIALIST



SOTERIA DIMENSION
INDUSTRIAL/SPECIALIST
DETECTOR

DESCRIPTION

SOTERIA® Dimension is a range of sleek, flat optical fire detectors for flush mounting, using chamberless fire detection technology. The range offers a low profile Optical Detector designed for commercial environments with high aesthetic requirements and a low profile Industrial/Specialist Optical Detector, designed for custodial and care environments. Both detectors are flush mounted with a Mounting Box.

The Soteria Dimension Industrial/Specialist Optical Detector contains two daylight filtered photo-diodes and three IR emitters in different positions and angles. Different combinations of these are used to act as smoke sensors and proximity sensors, to measure the smoke level at the detector and to detect any physical obstruction or interference of the detector. Since this detector is chamberless, an IR LED emits light outside the detector. The light is scattered by smoke back towards the detector and registered by a photo-diode.

A pair of microprocessors control these sensors, setting the sensor timings and using a digital phase-sensitive detection algorithm to reduce noise and the effect of background light. They then provide digital filtering for transient rejection, compensation for drift and temperature, and ultimately make an alarm decision.

The mode of operation may be selected at the fire control panel – see Table 1.

Anti-abrasion coated windows make the detector more resistant to physical damage.

The device has a metal front plate which can be locked into place using four anti-tamper screws. This enables the device to be installed in rugged environments where the devices may be susceptible to tampering.

Three LEDs provide status indication as detailed in the Technical Specifications overleaf.

The new FasTest mode facility on the Soteria Dimension Industrial/Specialist Optical Detector, which can only be enabled on compatible fire control panels, facilitates quicker testing of detectors with appropriate test equipment. The FasTest disables a portion of the signal processing algorithm and also the built-in proximity sensor to allow for a faster detector response, whilst ensuring that the detectors absolute sensitivity remains identical to that of Mode 3 (refer to Table 1). This helps to reduce commissioning time.

FEATURES

- Low profile design
- Utilises digital CoreProtocol® communications
- Compatible with Discovery® and XP95® systems*
- Integrated switchable isolator as standard
- 8-way DIL switch addressing
- Drift compensation
- FasTest® for quicker testing
- Tricoloured LED status indicator
- Comprehensively tested to exceed EN54-7 and EN54-17 standards
- Ruggedized metal face plate which is secured with anti-tamper screws

Note: **Not all features may be available when Soteria devices are connected to an XP95 or Discovery fire control panel. Please check with Technoswitch for compatibility.*

APPROVALS

- EN54-7, EN54-17, CPR, LPCB, FG, SBSC and DHF TS001 (anti-ligature)
- Designed and tested to meet the requirements of the UK Ministry of Justice specification STD/E/SPEC/038
- Independently certified to DHF TS001 for anti-ligature use in specialist areas

SOTERIA Dimension Optical Detector
Operating Modes

| Mode | Response Value | | Minimum Time to Alarm | Minimum Time to Proximity Fault |
|------|----------------|--------|-----------------------|---------------------------------|
| | %/m* | dB/m** | Seconds | Seconds |
| 1 | 4.8 | 0.27 | 15 | 10 |
| 2 | 4.8 | 0.27 | 30 | 10 |
| 3 | 4.8 | 0.27 | 15 | 20 |
| 4 | 4.8 | 0.27 | 30 | 20 |
| 5 | 4.8 | 0.27 | 30 | 30 |

Table 1: Operating Modes

* Tested in grey smoke

** Tested in oil mist to EN54-7 standard





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SPECIFICATIONS

Typical at 24 V, +25 °C and 50% RH unless otherwise stated

| | | |
|--|---|-------------------------------------|
| Detection Principle | Photo-electric light scattering | |
| Sensor Configuration | Chamberless detector with two photo- diodes. Microcontroller provides sensor timings, digital signal processing and alarm decision. | |
| Sampling Frequency | Once per second | |
| Terminal Functions | -L1 in Loop in negative | |
| (Note: L1 & L2 are polarity sensitive) | -L1 out Loop out negative | |
| | +L2 Loop in and out positive | |
| | +R Remote indicator positive connection (internal connection to positive) | |
| | -R Remote indicator negative connection (4.7 mA Max) | |
| Supply Voltage | (Vmin-Vmax) 17 – 35 V DC | |
| Digital Communication Protocol | XP95, Discovery compatible and CoreProtocol ready | |
| | 5 - 13 V peak to peak | |
| Quiescent Current | 1 mA | |
| Power-up Surge Current | 1 mA | |
| Max Power-up Time | 15 s | |
| Alarm Current, LED Illuminated | 4.5 mA | |
| Max Loop Current through Isolator | 2 A | |
| Clean-air Analogue Value | 23 +4/-0 | |
| Alarm Level Analogue Value | 55 | |
| Status indicator | Alarm | Red |
| | Fault | Flashing Yellow |
| | Isolated | Yellow |
| | Poll | Flashing Green |
| Operating Temperature | -40 °C to +55 °C | |
| Humidity | 0% to 95% RH (no condensation or icing) | |
| Effect of Atmospheric Pressure | None | |
| Effect of Wind Speed | None | |
| Vibration, impact and Shock | EN54-7 | |
| IP Rating | IP55 – rating not EN54 approved | |
| Dimensions (mm) | Detector Only | 170 Ø x 36.45 depth |
| | Detector with Mounting Box | 170 Ø x 71 depth |
| Weight (g) | Detector Only | 321 g |
| | Detector with Mounting Box | 445 g |
| Materials | Housing | White flame-retardant polycarbonate |
| | Terminals | Nickel plated stainless steel |
| | Front Plate | Stainless steel (painted) |

ORDERING INFORMATION

| Product Code | Product Description |
|--------------|---------------------------------------|
| AP-DIM-IN | Soteria Dimension Industrial Detector |
| AP-DIM-SD | Soteria Dimension Commercial Detector |
| AP-DIM-MB | Soteria Dimension Mounting Box |

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