XP95 Multisensor Detector ▲ **Part Number 55000-885**

OPERATING PRINCIPLES

The XP95 multisensor detector contains an optical smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analogue value.

The multisensor construction is similar to that of the optical detector but uses a different lid and optical mouldings to accommodate the thermistor temperature sensor. The sectional view (Fig.15) shows the arrangement of the optical chamber and thermistor.

The signals from the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector. The detector's microcontroller processes the two signals. The temperature signal processing extracts only rate of rise information for combination with the optical signal. The detector will not respond to a slow temperature increase - even if the temperature reaches a high level. A large sudden change in temperature can, however, cause an alarm without the presence of smoke, if sustained for 20 seconds.

The processing algorithms in the multisensor incorporate drift compensation. The control panel must not have a drift compensation algorithm enabled.

The sensitivity of the detector is considered the optimum for most general applications since it offers good response to both smouldering and flaming fires.

Note: in situ testing of the multisensor should be carried out as for smoke detectors.
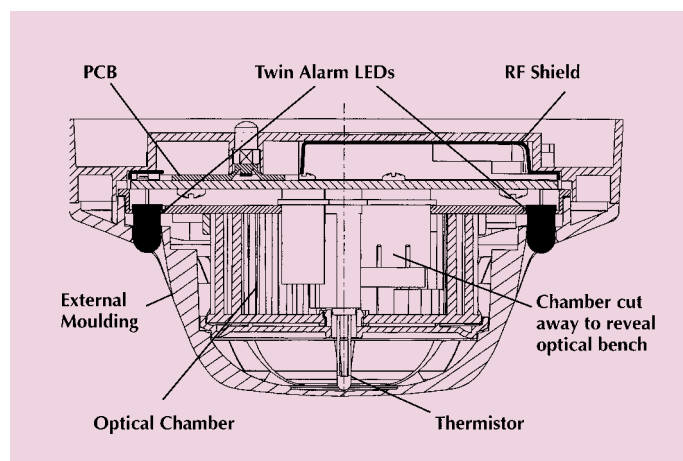

| **Fig.15** | Sectional view - XP95 Multisensor Detector |

TECHNICAL DATA

XP95 Multisensor Detector
Detector Part No 55000-885
Base Part No 45681-210

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise stated.

Detector Type:
Point type smoke detector for fire detection and fire alarm systems for buildings

Detector principle:
Smoke: Photoelectric detection of light scattered by smoke particles
Heat: Temperature-sensitive resistance

Supply wiring:
Two-wire supply, polarity insensitive

Terminal functions:
L1&L2 supply in and out connections (polarity insensitive)
+R remote indicator positive connection (internal 2.2kΩ resistance to positive remote indicator negative connection)

-R remote indicator negative connection (internal 2.2kΩ resistance to negative)

Operating voltage:
17-28V DC

Communications protocol:
Apollo XP95 5-9V peak to peak

Quiescent current:
500µA average 750µA peak

Power-up surge current:
1mA

Maximum power-up time:
10s

Alarm LED current:
3.5mA

Remote LED current:
4mA at 5V (measured across remote load)

Clean air analogue value:
23 +4/-0

Alarm level analogue value:
55

Alarm indicator:
2 colourless Light Emitting Diodes (LEDs); illuminated red in alarm
Optional remote LED

Electro-magnetic compatibility:
See page 22 for full details

Temperature range:
Max. continuous operating: +60°C
Min. continuous operating: 0°C
Min. operating (no condensation/icing): -20°C
Storage -30°C to +80°C

Humidity:
(No condensation)
0 to 95% relative humidity

Effect of temperature on optical detector:
Less than 15% change in sensitivity over rated range. Slow changes in ambient conditions will automatically be compensated and will not affect sensitivity

Effect of atmospheric pressure on optical sensor:
None

Effect of wind on optical sensor:
None

IP rating:
23D

Approvals & Regulatory Compliance:
See page 21 for full details

Vibration, Impact and Shock:
To EN54-5/7

Dimensions:
100mm diameter
50mm height
58mm (height in base)

Weight:
Detector: 105g
Detector in base: 160g

Materials:
Housing: White polycarbonate V-0 rated to UL94
Terminals: Nickel plated stainless steel

Smoke element only:

Chamber configuration:
Horizontal optical bench housing infra-red emitter and sensor, arranged radially to detect forward scattered light

Sensor:
Silicon PIN photo-diode

Emitter:
GaAs infra-red light emitting diode

Sampling frequency:
1 per second

CE
0832

technical data

WARNING: if the control panel incorporates a drift compensation algorithm, this should be disabled when polling the XP95 Multisensor detector.

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