

# OPTICAL/HEAT MULTISENSOR DETECTOR

## Part No. 58000-750IMC

The Context UL-PLUS Multisensor construction is similar to that of the optical detector but uses a different lid and optical mouldings to accommodate the thermistor (heat sensor).

The Context UL-PLUS Optical/Heat Multisensor Detector contains an optical smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analogue value. The way in which the signals from the two sensors are combined depends on the response mode selected. The five modes provide response behaviour which incorporates pure heat detection, pure smoke detection and a combination of both. The multisensor is therefore useful over the widest range of applications.

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 micro-controller processes the two signals according to the mode selected (see below). When the detector is operating as a multisensor (i.e. modes 1, 3 and 4) the temperature signal processing extracts only rate-of-rise information for combination with the optical signal. In these modes 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 modes 1 to 4 incorporate drift compensation

## TECHNICAL DATA

Context UL-PLUS Multisensor Detector

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Specifications are typical at 24V, 23°C and 50% relative humidity unless otherwise stated.

Detector principle:	Smoke: Photo-electric detection of light scattered by smoke particles Heat: Temperature-dependent resistance
Supply wiring:	Two-wire supply, polarity insensitive
Terminal functions:	L1 & L2 supply in and out connections +R remote indicator positive connection (internal 2.2kΩ resistance to positive) -R remote indicator negative connection (internal 2.2kΩ resistance to negative)
Operating voltage:	17–28V DC
Communication protocol:	Discovery, XP95 (5-9V peak to peak)
Quiescent current:	470μA
Power-up surge current:	1mA
Maximum power-up time:	10s
Alarm current, LED illuminated:	3.5mA
Remote output characteristics:	Connects to positive line through <u>4.5kΩ</u> (5mA maximum)
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
Temperature range:	-40°C to 70°C
Humidity:	0% to 95% RH (no condensation or icing)

Effect of temperature on Optical Sensor: None  
Effect of wind on optical sensor: None  
Vibration, impact & shock: EN 54-5 & EN 54-7  
Designed to IP Rating: IP44  
Standards & approvals: UL Certified  
Dimensions: 100mm diameter x 50mm height  
(58mm height with XPERT 7 Mounting Base)  
Weight: Detector 105g  
Detector with XPERT 7 Mounting Base 160g  
Materials: Housing White polycarbonate UL94-V0  
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: GaAlAs infra-red light emitting diode

Sampling frequency: 1 per second



**Context**  
Plus