

Section 6.1.2: Analogue Addressable – Detectors

The COPTIR device has been specifically designed to meet two critical life safety issues: Reducing False Alarms and Speed of Response.

This plug-in fire detector, available in TC800 protocol only, combines 4 separate sensing elements that work intelligently together as a single unit.

- Carbon Monoxide (CO) sensing – using EC cell technology – for monitoring partially combusted products from a smouldering fire, for example
- Infra Red (IR) sensing for measuring ambient light levels and flame signatures
- Optical smoke detection
- Heat detection

The intelligent monitoring of these four major elements of a fire enables the COPTIR to respond far more quickly to an actual fire and yet provide a very high immunity to nuisance alarms. The device normally operates at a high immunity level, changing to become very sensitive to fires when the appropriate characteristics are sensed. In this way transient nuisances are monitored and ignored, reducing the false alarm rate and genuine fires are communicated quicker.

Based upon the signals, the sensor is constantly adapting and is dynamically

changing in accordance with:

- Sensor thresholds
- Sensor gain
- Time delays
- Sensor combinations
- Sampling rates
- Averaging rates

In the case of a sensor failure, COPTIR will change the sensitivity of the remaining sensors as well as indicating a fault condition.

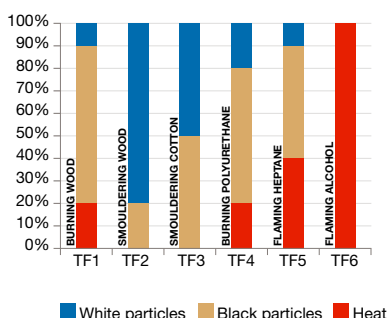
The IR light sensor helps the detector recognise specific situations such as welding and makes adjustments rapidly in order to further reduce the potential for false alarms.

The thermal detection function fuses thermistor technology with a software corrected linear temperature response. In areas where the normal daytime activities are likely to create unwanted alarms, the detector can be programmed to operate in a “Heat only” mode, automatically reverting to optical-thermal operation during the unoccupied period. The COPTIR is thus able to offer exceptional false alarm immunity and excellent fire detection.



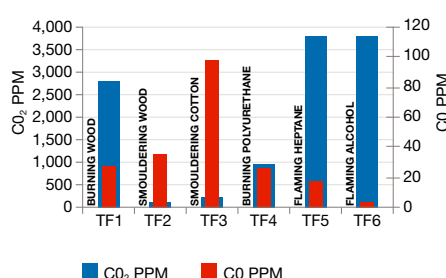
Elements of a fire

Every fire has different elements, (particulate and gaseous) to be sensed: a true multi-criteria device must be able to sense all elements.



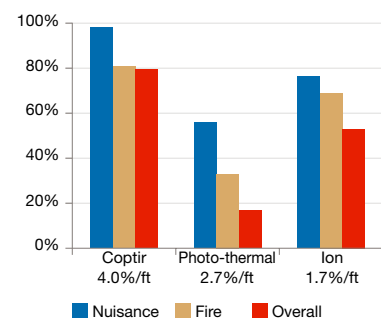
Gas in a fire

CO and CO₂ is also emitted.



Performance test summary

Summary of performance testing of COPTIR versus other technologies.



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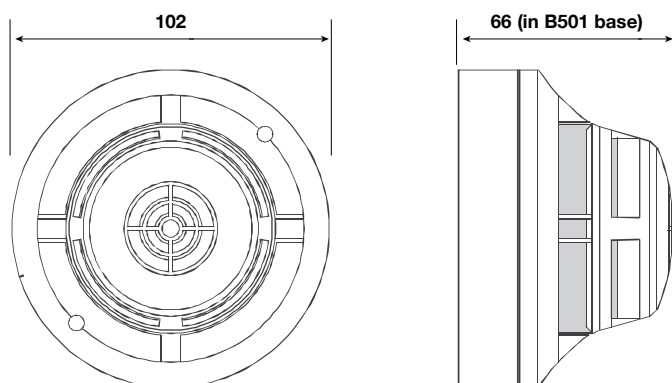
COPTIR

TECHNICAL SPECIFICATION

| Type | |
|------------------------------|-------------------------------------|
| Operating Voltage Range | 15 to 32V dc |
| Maximum Standby Current | 200µA at 24V dc (no communications) |
| Maximum Alarm Current | 7mA at 24V dc |
| Operating Temperature Range | -20°C to +55°C |
| Relative Humidity | 15 to 90% (non-condensing) |
| Max Wire Gauge for Terminals | 2.5mm ² |
| Weight | 176g (inc base) |
| Colour | Ivory |
| Material | Bayblend FR110 |
| IR Limits | 0-450 uW/cm ² |
| CO Limits | 0-500 PPM |
| Relevant Standards | EN 54 Parts 5 & 7, LPS1279 |
| Approvals | LPCB |

- Unique, true four sensor multi-criteria detector
- Fully integrated Infra Red Sensing to support the fire alarm decision
- CO gas sensing for fastest response to slow developing and smouldering fires
- Highest immunity to unwanted alarms
- Available in TC800 protocol
- Automatic drift compensation of smoke sensor and CO cell
- Twin LED indicators providing 360° visibility
- Wide temperature range
- Built-in test switch
- Stable communication with high noise immunity
- Compatible with TC800 Loop powered sounder beacons to provide one location for multi-criteria detection and alarm indication

Dimensions (mm)



ORDER CODES

TC800 Protocol only

COPTIR Multi-criteria sensor (IR, CO, Optical and Heat) TC850E1009

Standard Sensor Base 14506414-007

Standard Sensor Base with Built-in Isolator 14506414-006

Compatible with XLS80e only.