



COPTIR



*The ultimate in false alarm immunity*



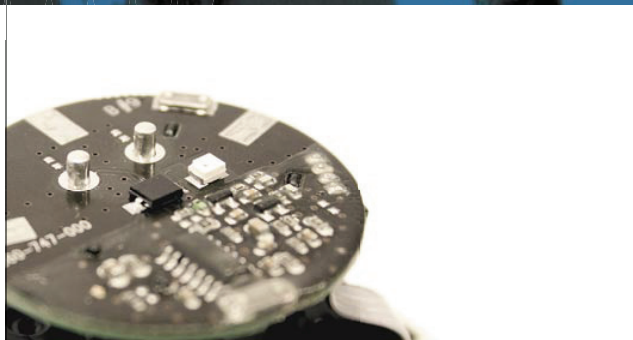


*The world's finest  
manufacturing facility*

- System Sensor's European products are researched, designed and manufactured at our 10,000m<sup>2</sup> state-of-the-art facility in Trieste, Italy. Quite simply, it's the best of its kind. Advanced technology and manufacturing processes coupled with dedicated staff ensure precision manufacturing and incomparable quality control. And 100% testing ensures that nothing leaves our doors unless it's in perfect working order and capable of providing years of trouble-free protection.

We complement this unique offering with a global network of fire systems integration and distribution partners who serve end-users, consulting engineers and specifiers in more than forty countries. All share in our business expertise and, of course, our passion for perfection.



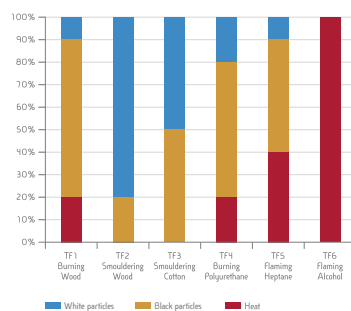


# Detection at every stage of a fire's development

- All fires have three elements in common: they produce carbon monoxide, heat and particulate matter (smoke). The proportions change from one fire to another, as does the time for each element to be released, but in every case, each of these elements will be present. Light is also emitted once flames have developed. In most cases, a fire will also produce a changing light signature, primarily as the result of flame development.

## Elements of a fire

Every fire gives different elements, (particulate and gaseous) to be sensed; so a true multicriteria must be able to sense all elements.



Source: European EN54-9 Standards

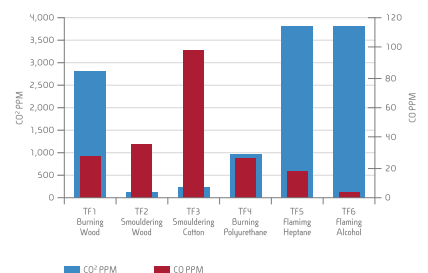
Sensing for all elements in a multicriteria device offers the opportunity to detect different types of fire faster and to provide better protection against false alarms.

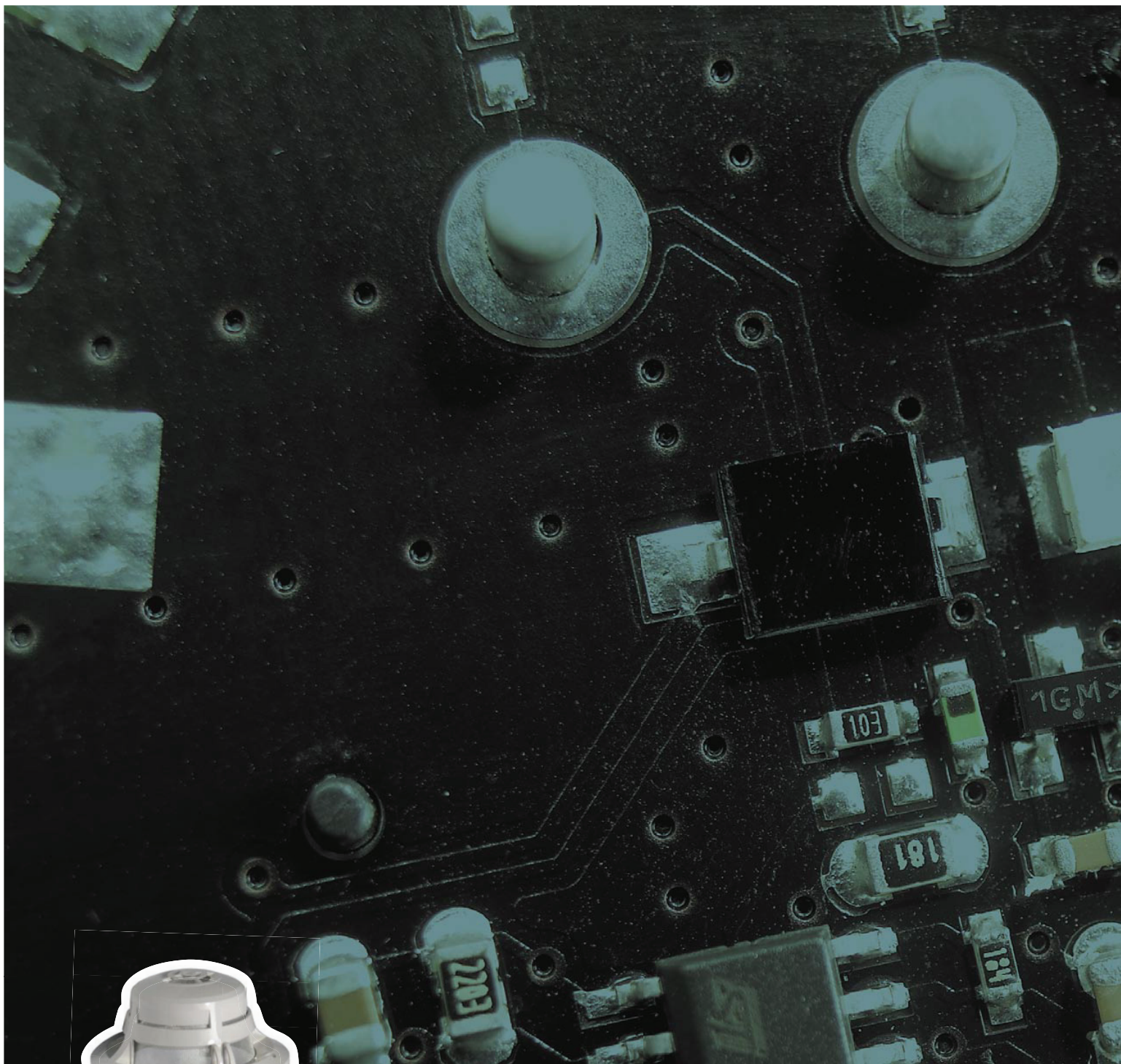
Our unique COPTIR multi-sensor combines independent carbon monoxide, photoelectric smoke, thermal heat and infra-red light sensors working together, managed by highly sophisticated and responsive algorithms. By measuring and processing the individual sensor outputs in conjunction with intelligent algorithms, the detector is both ultra-immune to nuisance sources that are incorrectly identified as a real fire, by one sensing element and is yet very sensitive to fires.

Smoke detection is the most effective method of providing early warning of a fire however, due to the principle of operation, it is also prone to false alarms, particularly if installed in unsuitable environments. COPTIR senses the four elements of a fire (CO, particulate matter, heat and light) and uses the information gathered in from all sensors to determine the response of the smoke detector. For example, if it senses CO and smoke it will detect a fire, but if it senses smoke without CO it will protect against this potential false alarm and not go into alarm.

## Gas in a fire

CO and CO<sup>2</sup> is also emitted.





### *The best false alarm immunity*

It is this fundamental difference that sets COPTIR apart from any other product on the market, moving the science of early fire detection, coupled with outstanding false alarm immunity onto a far higher level.

The continual monitoring for all four elements has enabled us to create a detector that has the best immunity to nuisances and by configuring the relative weightings of each element in the decision making process from the panel, allows the fire detection system to be profiled to changes in the use and occupation levels of the protected building.

### *The technology*

The operating philosophy behind COPTIR is to provide a detector that normally operates at a high immunity level, changing to become very sensitive to fires as soon as fire characteristics are sensed. In this way, nuisances are monitored and ignored, minimising the false alarm rate.

COPTIR's four sensors are managed by advanced algorithms, which dynamically adjust the detection profile of the device in response to the sensing inputs, enabling it to adjust itself as the ambient conditions change. Based upon the sensor signals, the algorithm continually changes the sensor thresholds, time delays,

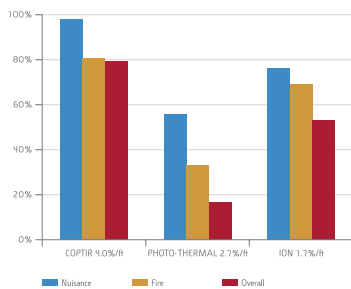
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### The 'real world' results

21 false alarm tests and 29 fire alarm tests have assessed the performance of COPTIR. This included a special small room that was constructed within the fire test room to represent typical 'real world' situations where detectors are actually installed. In a more confined area, toxic particles and gases can build up much faster than in a large fire test room, so the fire needs to be detected as early as possible. As an additional test, known nuisances were introduced. Approval to the relevant EN54 standard defines the performance baseline but it is the 'real world' performance that sets COPTIR apart from any other detector currently available.

### Performance test summary



Summary of performance testing of COPTIR vs. other technologies

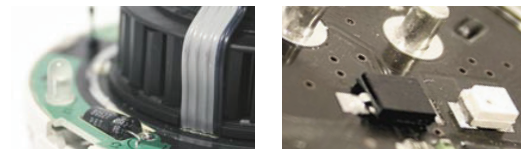
sensor combinations and sampling rates so as to detect fires faster and improved false alarm immunity.

Similar to COPTIR's overall performance is the IR light detector. The IR detector is a light detector, not a flame detector. While IR (and UV) detectors have been used for considerable time as flame detectors, the IR element in COPTIR is not set up to detect the well defined characteristics of a hydrocarbon or petrochemical fire, which radiates across the IR, visible and UV spectra to sense the environment and provide improved detection of fast flaming fires and improved false alarm immunity through sensing ambient conditions.

### Specification



Operating voltage:	15 – 32 vDC
Typical stand-by current @ 25°C:	200µA at 24 vDC
Maximum alarm current:	7mA at 24 vDC
Operating temperature range:	-20°C to 55°C
Compatible bases:	All 500 Series bases
Diameter:	102mm (inc. B501 Base)
Detector height (including base):	66mm (inc. B501 Base)
Weight:	176g (inc. B501 Base)
IR sensing limits:	0-450 uW/cm <sup>2</sup>
CO limits:	0-500 PPM
Sensitivity settings:	
Alarm 1 – COPTIR	Low false alarm resistance, high photoelectric only sensitivity or CO warning
Alarm 2 – COPTIR	Medium false alarm resistance, medium photoelectric only sensitivity
Alarm 3 – COPTIR	Standard false alarm resistance, low photoelectric only sensitivity
Alarm 4 – COPTIR	High false alarm resistance, low photoelectric only sensitivity
Alarm 5 – COPTIR	Very high false alarm resistance, low photoelectric only sensitivity
Alarm 6 – Thermal Only Class A1R	Thermal Only



COPTIR is a member of the Series 200 *plus* family of addressable detectors. Its high immunity to nuisance alarms will enable the fire system to be extended into areas where other detector technologies are inappropriate.

- Independent carbon monoxide, photoelectric smoke, thermal heat and infra-red light detectors working together as a multicriteria
- Ultra low false alarms
- Outperforms all other types of detector in immunity to nuisance sources
- Embedded processing provides dynamic configuration
- Automatic CO cell monitoring

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