

SMART⁴ -

IRX-751CTEM

Multi-Criteria Fire Sensor

Section: Intelligent/Addressable
Devices

FEATURES

- **Unique, true four sensor Multi-criteria detector**
- **Fully integrated Infra Red sensor to support the fire alarm decision**
- **CO gas sensing for fastest response to slow developing and smouldering fires**
- **Highest possible immunity to unwanted alarms**
- **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**

GENERAL

The SMART⁴ combines 4 separate sensing elements to act as a single unit. CO sensing (using EC technology) for monitoring CO products from a smouldering fire, IR sensing for measuring ambient light levels and flame signatures, optical smoke detection and heat detection.

The integration of continual monitoring for all four major elements of a fire has enabled us to create a detector that responds far more quickly to an actual fire and has the highest immunity to nuisances. The operating philosophy behind SMART⁴ was to configure it so that it normally operates at a high immunity level, changing to become very sensitive to fires when fire characteristics are sensed. In this way transient nuisances are monitored and ignored, reducing the false alarm rate.

SMART⁴ is managed by on-board intelligence running some very advanced algorithms, which dynamically adjust the detection profile of the device in response to the input from the sensors, enabling it to be re-characterised on the fly as the ambient conditions change. Based upon the sensor signals, the program is dynamically changing sensor thresholds, changing sensor gain, changing time delays, changing combination, changing



sampling rates, changing averaging rates and, if any sensor fails, changing 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 caused by nuisances.

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 on a "Heat only" mode, automatically reverting to multi sensor operation during the unoccupied period. The SMART⁴ is thus able to offer exceptional false alarm immunity and excellent fire detection.

This document is not intended to be used for installation purposes. Every care has been taken in the preparation of this document but no liability can be accepted for the use of the information therein. Design features may be changed or amended without prior notice. For more information, contact NOTIFIER. Charles Avenue, Burgess Hill, West Sussex, RH15 9UF. United Kingdom
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ISO9001
Design, Manufacture and Supply
to Quality Management Systems
Certified to ISO9001:1994



The SMART⁴ has two integral LEDs which provide local visual indication of the sensor status. These LEDs provide a dual function. In the event of an alarm, they are switched ON continuously and can also be programmed to either blink when polled by the panel or remain off during normal conditions. In addition to its integral LEDs the SMART⁴ can be connected to a Remote LED indicator.

Fires take many forms, from a slow smouldering fire that produces large amounts of smoke and Carbon Monoxide but little heat through to alcohol fires that produce high temperatures very quickly without any evidence of smoke. This variability is recognised by many agencies around the world and have defined a series of standard test fires to ensure that any sensor will respond within the specified parameters. Recent developments has provided SMART⁴ with a sophisticated 'brain' capable of intelligently combining the data from the four sensing elements to provide a fast response to real fires while remaining extremely resilient to false alarm incidents. Using a combination of Carbon Monoxide, Heat, Optical smoke sensing and Infrared flame sensing elements enables SMART⁴ to detect the broadest range of fire conditions providing the earliest warning.

INSTALLATION

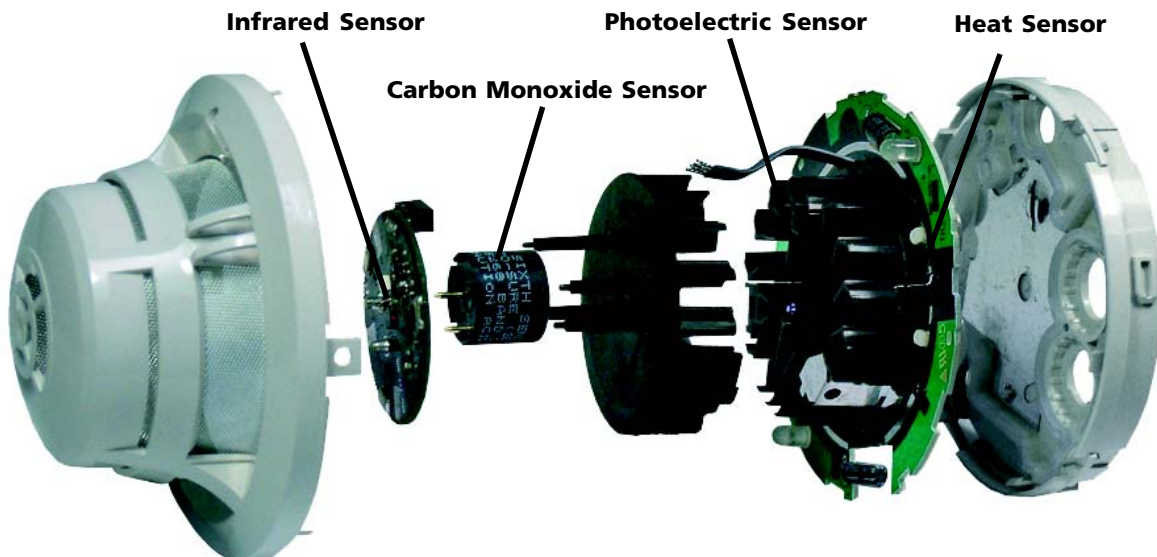
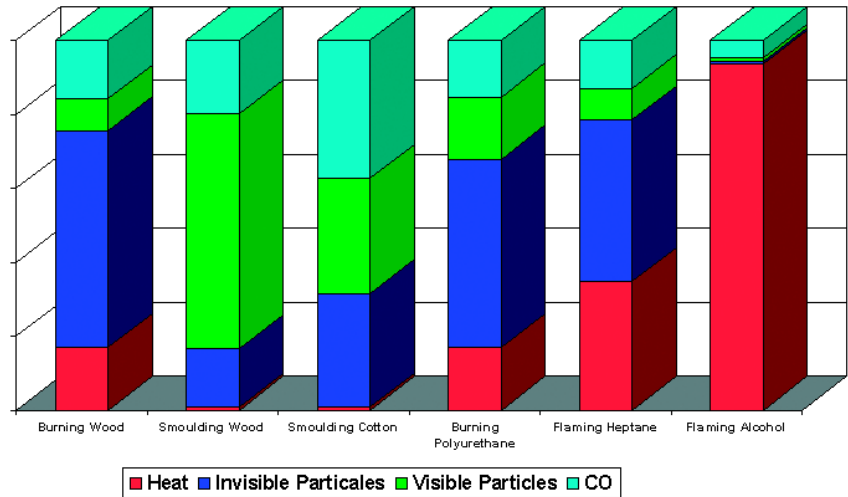
The IRX-751CTEM plug-in Optical, Thermal, CO, IR Multi sensor uses a common base to simplify installation, service, and maintenance.

A special tool allows maintenance personnel to plug-in and remove detectors without using a ladder.

Mounting hardware and installation instructions are provided with each device.

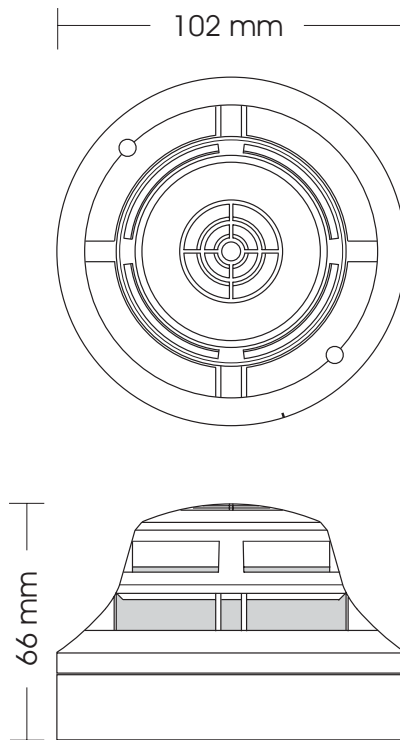
SPECIFICATIONS

- **Operating Voltage Range**
 - ✓ 15 to 32 Vdc
- **Maximum Standby Current**
 - ✓ 220µA @ 24 Vdc (no communications)
- **Maximum Alarm Current**
 - ✓ 7mA @ 24 Vdc



SPECIFICATIONS Cont.

- **Temperature Range**
 - ✓ -20°C to 55°C
- **Humidity**
 - ✓ 15 to 90% relative humidity (non-condensing)
- **Height**
 - ✓ 66mm installed in B501 base
- **Diameter**
 - ✓ 102mm installed in B501 base
- **Weight**
 - ✓ 176g (inc base)
- **Max Wire Gauge for Terminals**
 - ✓ 2.5mm²
- **Colour**
 - ✓ Ivory
- **Material**
 - ✓ Bayblend FR110
- **IR Limits**
 - ✓ 0-450uW/cm²
- **CO Limits**
 - ✓ 0-500PPM



ORDERING INFORMATION

Part No.	Description
IRX-751CTEM	Low Profile Multi Criteria Analogue Addressable Fire Sensor
Base:	
B501	Standard Sensor Base.
B524IE	Isolator Base.
B524IEFT-1	FET Isolator Base.
B524RE	Relay Base.

A range of sounder bases also available.

Accessories:

SMK400	Surface mounting kit provides for entry of surface wiring conduit. For use with B501 base only.
RMK400	Recess mounting kit. For use with B501 base only.

Wiring Diagram (Standard Base)

