

## MULTISENSOR DETECTOR WITH ISOLATOR



▲ **TEN-A8013**



### FEATURES

The Shield Multisensor Detector uses new optical sensing technology, PureLight, to detect smoke particles entering the chamber and is fitted with two thermistors for detecting heat. It can be switched to detect smoke, heat or a combination of both offering greater flexibility.

- Dual heat sensors.
- PureLight optical technology reduces false alarms and enhances smoke recognition.
- Utilises digital communications.
- Mechanically compatible with existing bases.
- Available with integrated switchable isolator.
- Drift compensation.
- Tri-coloured LED status indicator.
- Polycarbonate moulding for colour stability and strength.
- Tested to exceed EN 54-5 & EN 54-7 standards.
- FasTest for quicker testing of detectors.
- XPERT card addressing.

### DESCRIPTION

The low profile design of the Shield Multisensor Detector is sleek and evolutionary, with a 360° LED indicator which illuminates red when in alarm, yellow to indicate a fault and green to indicate protocol activity.

The Shield detector is designed to be connected to a two-wire loop circuit carrying both data and power. This device has a short circuit isolator integrated into the detector head.

At the heart of the detector is PureLight Sensing Technology which incorporates:

- Cone technology combined with a high-intensity infrared LED to provide stability accurate sensitivity to smoke.
- A photodiode and an amplifier integrated into an Application Specific Integrated Circuit (ASIC).
- 'Serpentine' pathway designed to provide a barrier against dust and insect ingress.

- A sophisticated dynamic algorithm, providing transient rejection and compensation for drift whilst maintaining accurate sensitivity.

In addition to the optical smoke sensor, the Shield Multisensor Detector uses dual temperature sensors for improved reliability and is responsive in all detector orientations.

The independent signals from the optical smoke and heat sensors are combined in the detector microprocessor to produce an alarm decision according to the response mode chosen. With reference to Table 1, the five modes provide response behaviour which incorporates pure smoke detection, pure heat detection or a combination of both. The mode of operation of this processing is selected at the fire control panel.

## TECHNICAL DATA

Specifications are typical at 24 V, 25 °C and 50% RH unless otherwise stated.

Detection principle	Smoke Heat	Photo-electric light scattering Thermistor
Sensor configuration	Smoke	Chamber with surfacemount infrared emitter and prism. Solid state integrated photodiode and amplifier.
	Heat	Dual exposed heat sensing elements
Sampling frequency	Once per second	
Terminal functions (note: L1 & L2 are polarity sensitive)	+L2	Loop in & out positive
	–L1 in	Loop (isolated) negative
	–L1 out	Loop (isolated) negative
	+R	Remote indicator positive connection (internal connection to positive)
	–R	Remote indicator negative connection (4.7mA maximum)
Sensitivity	Nominal response threshold value of 0.12 dB/m when measured in accordance with EN 54-7	
Coverage	112 Sq.m	
Supply voltage (Vmin-Vmax)	17-35 VDC	
Quiescent current	5-13 V peak to peak Isolated detector: 350 µA	
Power-up surge current	560 µA	
Maximum power-up time	10 s	
Alarm current, LED illuminated	3.5 mA	
Maximum loop current (I <sub>C</sub> max; L1 in/out)	1 A	
Maximum series resistance (Z <sub>C</sub> max; L1 in/out)	80 mΩ	
Maximum switch current (I <sub>S</sub> max; L1 in/out)	3 A	
Maximum leakage current (I <sub>L</sub> max; during isolation)	33 mA (100ms pulse every 2s)	
Isolation voltage (V <sub>SO</sub> min–V <sub>SO</sub> max)	12.5-15 VDC	
Reconnect voltage (V <sub>SC</sub> min–V <sub>SC</sub> max)	12.8-19.1 VDC	
Clean-air analogue value	23 +4/-0	
Alarm level analogue value	55	
Status indicator	Alarm	Red
	Fault	Flashing Yellow
	Isolate	Yellow
	Poll	Green
Operating temperature	-40 °C to 70 °C	
Humidity (no condensation or icing)	0-95% RH	
Vibration, impact and shock	EN 54-5	
IP Rating	IP54	
Standards & approvals	EN 54-5, EN 54-17 & LPCB	
Dimensions	100 mm diameter x 38.5 mm height (50.5 mm height with Shield Standard Mounting Base)	
Weight	83 g	
Materials	Housing: White polycarbonate UL94-V0 Terminals: Tin plated stainless steel	