

FSL-751E

Very Intelligent Early Warning (VIEW™) High Sensitivity Analogue Addressable Sensor

Section: Intelligent/Addressable Devices

FEATURES

- **Very Intelligent Early Warning (VIEW™) smoke detection**
- **Alternative to Aspiration Systems**
- **Advanced laser light source and patented optical design**
- **Sleek low profile design**
- **Analogue addressable communications**
- **Stable communication technique with high noise immunity**
- **Pre-Alarm sensitivity to 0.07%/m & alarm sensitivity to 0.1%/m**
- **Low standby current**
- **Rotary decade 01 to 99 address switches**
- **Dual LED design provides 360° viewing angle.**
- **Visible Two-colour LEDs blink green when the sensor is addressed (optional), steady red for alarm**

- **Built-in functional test switch activated by external magnet**
- **Optional relay, isolator, or sounder bases**
- **LPCB approved**

GENERAL

The FSL-751E is an analogue, addressable, low profile high sensitivity smoke sensor designed for use with NOTIFIER intelligent fire alarm control panels.

The unique design of this sensor uses an extremely bright, tightly focused laser diode, with special lens and mirror optics, combined with enhanced AWACSTM algorithms in the NOTIFIER fire control panel, to achieve a signal-to-noise ratio allowing smoke detection sensitivity up to 50 times greater than traditional photoelectric technology.

In addition, the light beam and algorithms, allow the system to differentiate between dust and smoke particles. Using these algorithms, the VIEW™ system provides drift compensation, three levels of maintenance alert, selection of nine alarm levels and nine pre-alarm levels. The system includes a self-learn sensitivity adjustment to set the pre-alarm level just above the peak levels sensed over extended periods for each sensor's actual environment. Multiple sensor algorithms permit the control equipment to consider readings from up to six sensors in an

area to provide faster detection of incipient fires. The AWACSTM algorithm also includes the ability to add reference sensors, such that smoke particles in the incoming air supply to an area can be compensated for, further reducing the possibility of unwanted alarm.



Using a point type analogue addressable sensor, the VIEW™ system inherently does not have transit times from sensing points to a detector, delaying the sensing of a fire condition and since it does not rely on a single sensor for the room, no dilution can occur. A point sensor also enables the control panel to provide the operator with a pinpoint description of where the fire is located rather than a room alarm.

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 Phone: +44 (0) 1444 230 300 Fax: +44 (0) 1444 230 888

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INSTALLATION

The FSL-751E plug-in High Sensitivity smoke sensor uses a common base to simplify installation, service, and maintenance. A special tool allows maintenance personnel to plug in and remove sensors without using a ladder.

In order to support sophisticated smoke/dust discrimination algorithms (cooperating multiple sensor), it is recommended that at least two FSL-751E sensors be installed in each room or enclosed area.

SPECIFICATIONS

• Dimensions

- ✓ Height : 43 mm installed in B501 Base.
- ✓ Diameter : 104 mm installed in B501 Base.
- ✓ Weight : 102 g.

• Current Consumption

- ✓ 230 μ A @ 24 VDC (without communication); 255 μ A @ 24 VDC (one communication every 5 sec. with LED enabled).
- ✓ Maximum Alarm Current: 6.5 mA @ 24VDC (with LED enabled).

• Operating Voltage

- ✓ 15 to 32 volts DC peak.

• Environmental Limits

- ✓ -10°C to 60°C. Operating Temperature.
- ✓ 10% to 93%, non-condensing Relative Humidity.

ORDERING INFORMATION

Part No.	Description
FSL-751E	Intelligent LASER Smoke Sensor. Mounts to the bases specified below.

Base:

B501	Standard Sensor Base.
B524IE	Isolator Base.
B524IEFT-1	FET Isolator Base.
B524RE	Relay Base.

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.

A range of sounder bases also available.

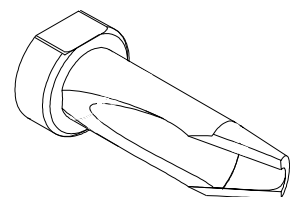
FSL-751E DESIGN

The FSL-751E incorporates an extremely bright laser diode and integral lens that focuses the light beam to a very small volume in the centre of the smoke sensing chamber. Light continues through the chamber and passes in to, and is absorbed by, a light trap. This light, at the focal point, may be reflected, by smoke particulate, in to a unique cylindrical mirror that gathers this light and passes it on to a photo receiver.

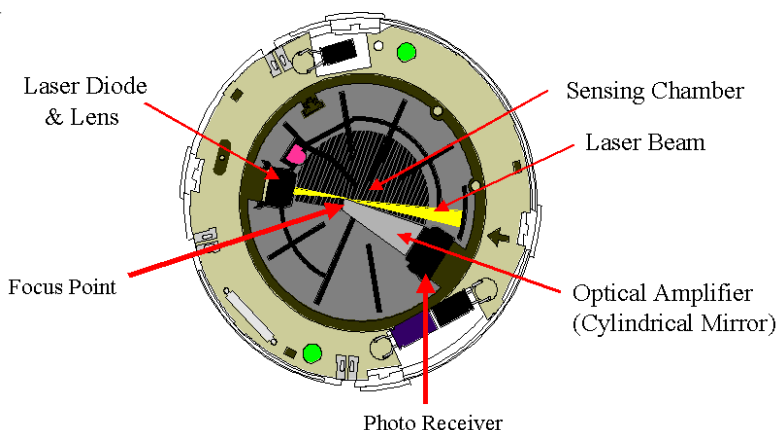
In a typical optical smoke sensor the light from an infra-red diode has a very wide beam and can reflect off the smoke chamber walls into the photo receivers. This reflection is typically due to dust accumulation that changes the walls from matt black to grey. As the FSL-751E light beam does not touch the chamber walls it is far less susceptible to dust accumulation and therefore false alarms cause by settled dust.

Smoke scatters light in all directions and, in a typical optical smoke sensor, only a small proportion of this scattered light reaches the photo receiver. This effectively limits the sensor capability to be very sensitive whilst remaining stable and not prone to false alarm. The FSL-751E uses a cylindrical mirror to gather the light and focus this light on to the photo receivers, effectively providing an optical amplifier.

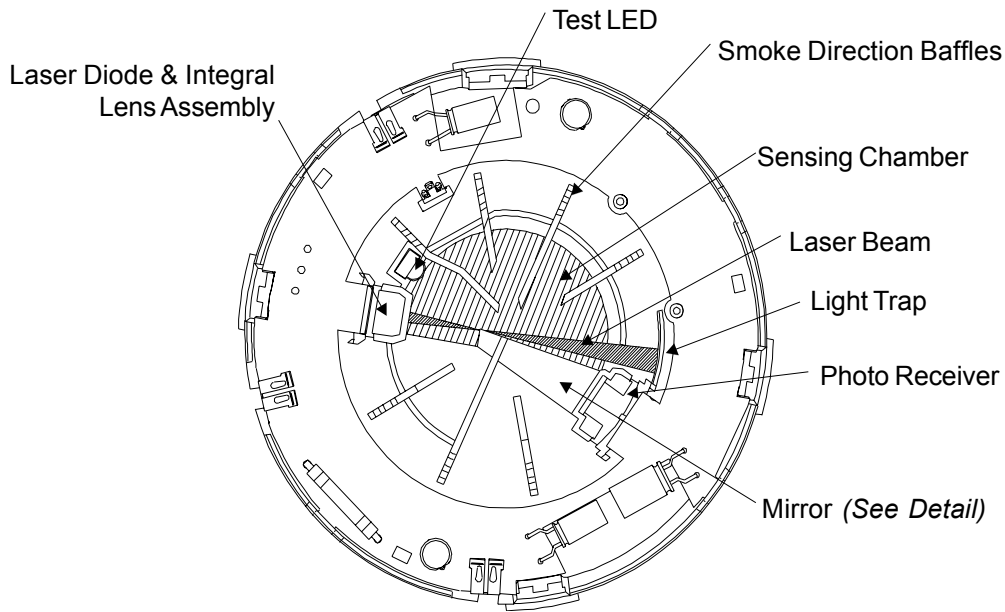
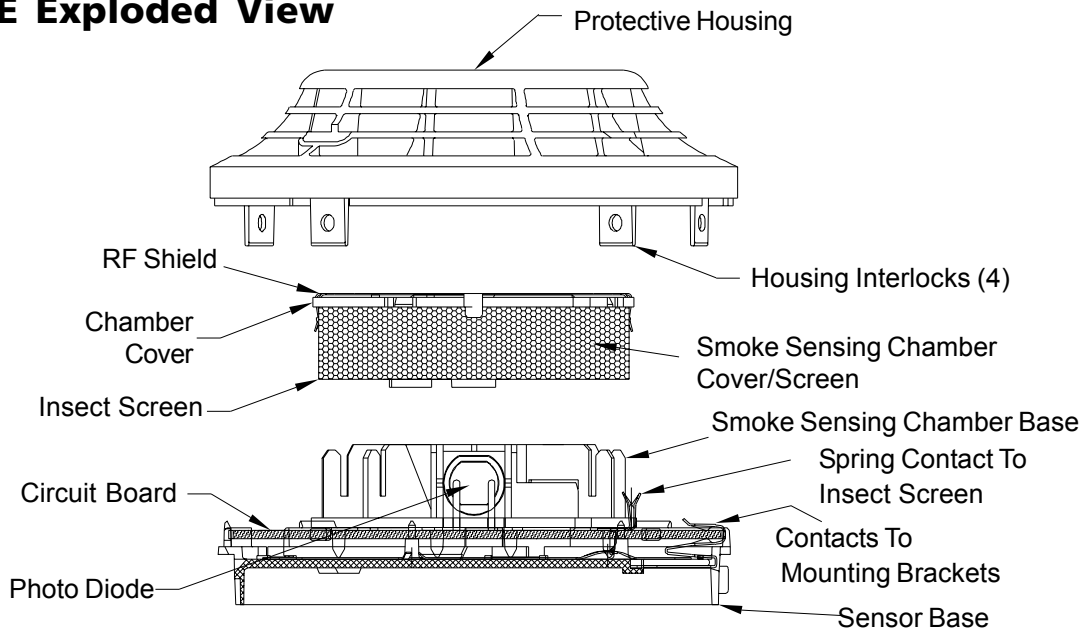
Compared to smoke, dust particles are very large but well spaced. Since the dust in air is in constant motion though the concentrated sampling volume, coupled with the fact that samples are taken periodically, the dust particle produces large pulses for only a couple of samples. Using the VIEW™ algorithms in the control equipment, these dust spikes are easily distinguishable from smoke and are therefore treated accordingly.



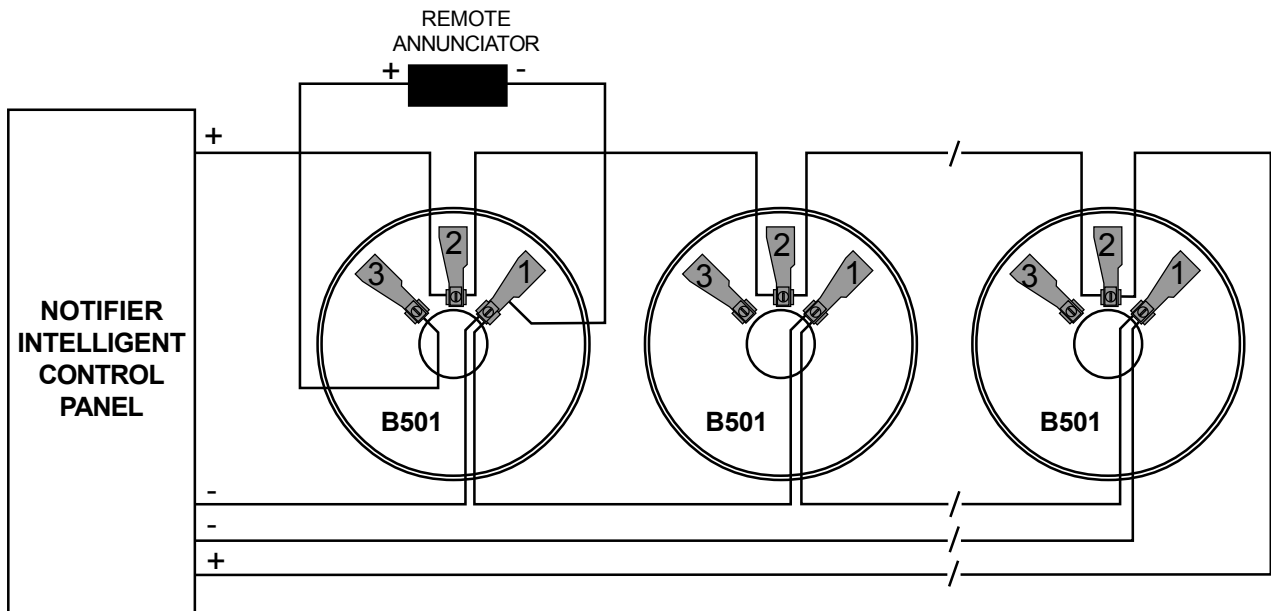
Mirror Detail



FSL-751E Exploded View



Wiring Diagram (Standard Base)



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