OPERATING PRINCIPLES

The S-C2011 Photoelectric Smoke Detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the case a printed circuit board has the optical system mounted on one side and the signal processing electronics on the other. The sensing chamber is a black moulding configured as a labyrinth which prevents penetration of ambient light.

The Shield Photoelectric Smoke Detector has insect-resistant cover. The chamber houses an infrared light emitting diode (LED) and a photo-diode which has an integral visible-light filter as extra protection against ambient light.

Every three seconds the LED emits a burst of collimated light, modulated at 4kHz. In clear air, light from the LED does not fall directly on the diode because the LED is positioned at an obtuse angle to the diode.

The alarm current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the –R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation. The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effecitve illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts.

To restore the detector to quiescent condition, it is necessary to expel any smoke and interrupt the electrical supply to the detector for a minimum of one second.

FEATURES

- Responds well to slow-burning, smouldering fires.
- Well suited for bedrooms and escape routes.
- Unaffected by wind or atmospheric pressure.
- Wide operating voltage.
- Flashing LED option.
- Flashing LED and magnet operated test switch option.

▲ S-C2011

SIGNALING
UL LISTED
ULC LISTED

OPTIONS

1. Flashing LED: The integral LED flashes when the detector is in a quiescent state.

2. Magnetic test switch and Flashing LED: A magnetic test switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for and commissioning purpose. A flashing LED, as outlined above, is also included.

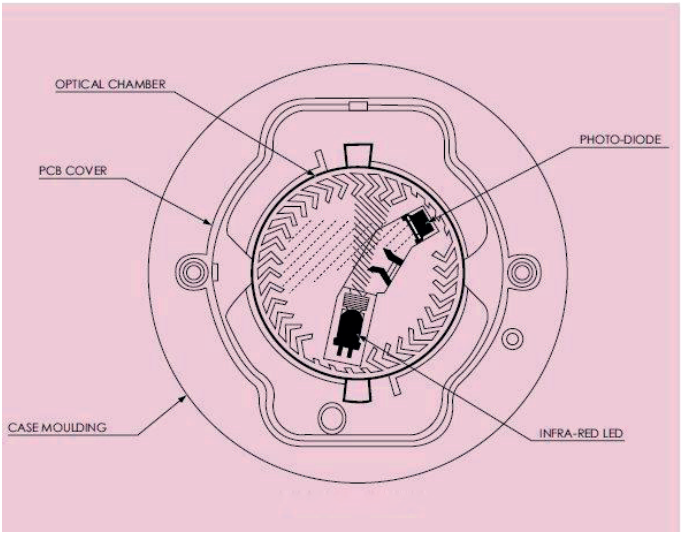

Fig.1 Top Section -smoke Detector

TECHNICAL DATA

Smoke Detector Part No	S-C2011
Base Part No	S-C2001
Detection Principle	Photoelectric detection of light scattered in a forward direction by smoke particles
Chamber Configuration	Horizontal photoelectric bench housing an infra-red emitter and sensor arranged radially to detect forward scattered light
Sensor	Silicon PIN photo-diode
Emitter	GaAs Infra-red light emitting diode
Sampling Frequency	Once every 3 seconds
Supply Wiring	Two wire monitored supply, polarity insensitive
Terminal Functions	
L1 IN and L2	Red light emmiting diode
L1 OUT and L2	supply out connections (polarity insensitive)
-R	remote indicator negative connection
Supply Voltage	9 to 33 VDC
Ripple Voltage	2 V (peak to peak) maximum at 0.1 Hz to 100 kHz
Quiescent Current	50 - 30 A at 24 V
Switch on Surge Current	115 µA at 24 V
Alarm voltage	6 to 28 V
Normal Alarm Current	60 mA at 28 V, 52 mA at 24 V, 18 mA at 10 V
Design Alarm load	420 µA in series with 2 V drop
Alarm Reset Voltage	12 V
Alarm Reset Time	1 second
Temperature range	5°F to +140°F
Humidity	0 - 95%
Wind Speed	Insensitive to wind
Atmospheric Pres sure	Insensitive to atmospheric pressure
IP Rating	23
Detector weight	99 g
Detector with base weight	150 g
Dimensions	
(diameter x height)	100 mm x 42 mm
(height in base)	50 mm
Material	Detector Housing: White polycarbonate V0- rated to UL 94 Terminals: Nickel plated stainless steel

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