



Odyssey Conventional Optical Smoke Detector (200-404)

The Odyssey Conventional Optical 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 labyrinth has a fine gauze insect-resistant cover. The chamber houses an infrared 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. When smoke enters the chamber, a fraction of the collimated light is scattered onto the photo-diode. If the resulting signal from the photodiode is above a pre-set threshold, the LED emits two more bursts of light, this time at two second intervals. If light is scattered onto the photo-diode by both these pulses (due to the presence of smoke) the detector signals an alarm state by switching the alarm latch on, increasing the current drawn from the supply from about 40µA to a maximum of 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

The alarm current also illuminates the detector integral LED. A remote indicator connected between the LI 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 Vdc and a minimum of 9 Vdc normal operation. The supply may fall to 6 Vdc in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective 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.

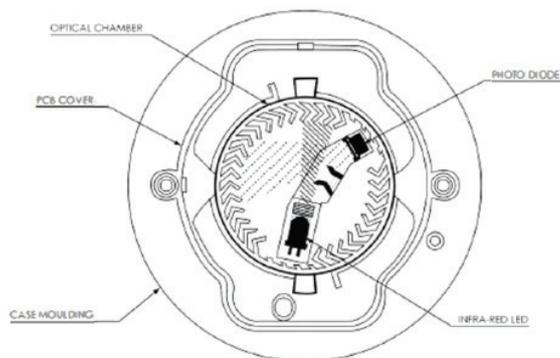


Fig.2 Top Section, Odyssey Conventional Optical Smoke

TECHNICAL SPECIFICATION

Detector Type	Point Type Smoke Detector
Detector Principle	Photo-electric detection of light scattered
Chamber Configuration	Horizontal optical bench, housing an emitter
Sensor	Silicon PIN photo-diode
Emitter	GaAs Infrared LED
Sampling Frequency	Once every three secs
Confirmation Frequency	Once every two secs
Supply Wiring	Two wire monitored supply, polarity insensitive
TERMINAL FUNCTIONS	
L1 IN and L2	Supply in connections
L1 OUT and L2	Supply out connections
R	Remote Indicator Negative Connection
Supply Voltage	9 to 33 Vdc
Ripple Voltage	2 V peak to peak, max at 0.1 Hz to 100 KHz
Quiescent Voltage	30 to 50 uA at 24 V
Switch-on surge	115 uA at 24 V
Alarm Voltage	6 to 28 V
Normal Alarm Current	61 mA @ 28 V 52 mA @ 24 V 18 mA @ 10 V
Alarm Indicator	Clear LED emitting red light
Design Alarm Load	420 Ohms in series with 2 V drop
Holding voltage	6 V (min)
Holding Current	10 mA (min)
Min voltage required	12 V
Alarm Reset Voltage	1 V
Alarm Reset Time	1 sec
Remote Output Characteristics	Sink to the negative line limited to 17 mA
Sensitivity	Alarm threshold of 0.15 dB/m obscuration
Temp Range	- 20 C to 60 C
Humidity	95% RH
Wind Speed	Insensitive to wind
Atmospheric Pressure	Insensitive to atmospheric pressure
IP Rating	23D in accordance with BS EN 60529
Dimensions	100 mm x 42 mm
Weight	99 g
Materials	White polycarbonate housing