

## PHOTOELECTRIC SMOKE DETECTOR



### Technical Data

All data is supplied subject to change without notice. Specifications are typical at 24 V, 73°F and 50% RH unless otherwise stated.

Detection principle	Photo-electric light scattering
Sampling frequency	Once per second
Sensitivity	3.0 + 1.0 - 1.98 %/ft
Operating voltage	17 - 28 V dc
Modulation voltage	5 - 9 V peak to peak
Digital communication	Discovery & CoreProtocol compatible
Supervisory current	340 µA
Power-up surge current	1mA
Alarm indicator	Clear light emitting diode (LED) emitting red light
Alarm LED current	4.5 mA
Operating temperature range	32 °F to 100 °F
Humidity	0% to 95% RH (no condensation or icing)
Air velocity	0 - 300 fpm
Application	Open-area protection
Standards & approvals	UL, ULC, FM, CSFM, MSFM
Dimensions	3.93" diameter x 1.65" height
Weight	3.70 oz
Materials	Housing: White flame-retardant polycarbonate Terminals: Nickel plated stainless steel
Test method	Home safeguard Gemini 501

All information in this document is given in good faith but Discovery Fire Detectors Ltd cannot be held responsible for any omissions or errors. The company reserves the right to change the specifications of products at any time and without prior notice.

### Product Overview

Product	Photoelectric Smoke Detector
Part No.	DS-OD02
Digital Communication Protocol	Discovery & CoreProtocol® compatible

### Compliance



### Product Information

The DS-OD02 Photoelectric Smoke Detector works on the light scatter principle and is ideal for applications where slow burning or smouldering fires are likely.

- Wind resistant smoke inlets
- Insect resistant screen
- Alarm flag for fast alarm response
- Automatic addressing with the addressing card
- Electronic free 4" or 6" bases
- Easy installation
- Elegant design
- Responds well to slow burning, smouldering fires
- Well suited for bedrooms and escape routes

## Operation

The DS-0D02 Photoelectric Smoke Detector is distinguished by the indicator LED which is clear in standby and red in alarm. Within the case is a printed circuit board which on one side has the light proof labyrinth chamber with integral gauze surrounding the optical measuring system and on the other the address capture, signal processing and communications electronics.

An infrared light emitting diode within its collimator is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight blocking filter.

The infrared LED emits a burst of collimated light every second. In clear air the photo-diode receives no light directly from the infrared LED because of the angular arrangement and the dual mask. When smoke enters the chamber it scatters photons from the emitter infrared LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed by the optical ASIC and passed to the A/D converter on the communications ASIC ready for transmission when the device is interrogated.

## Electrical description

The DS-0D02 Photoelectric Smoke Detector is designed to be connected to a two wire loop circuit carrying both data and a 14 V to 22 V dc supply. The detector is connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 1 mA may be connected between the +R and L2 terminals. An earth connection terminal is also provided. The detector is calibrated to give an analogue value of  $25 \pm 7$  counts in clean air. This value increases with smoke density. A count of 55 corresponds to the UL alarm sensitivity level.

## Environmental characteristics

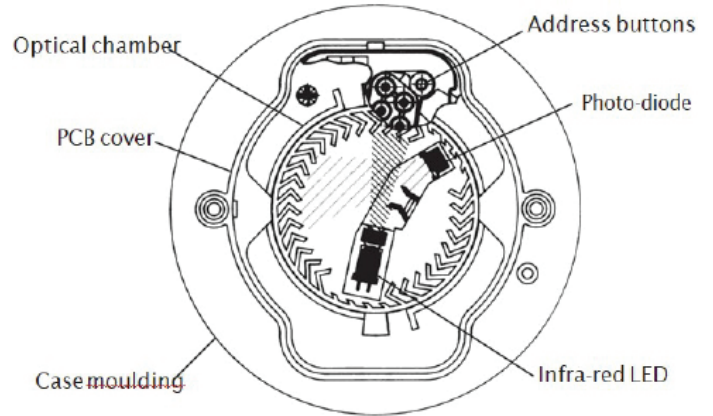
The DS-0D02 Photoelectric Smoke Detector is unaffected by wind or atmospheric pressure and operates over the temperature range  $-4^{\circ}\text{F}$  to  $+140^{\circ}\text{F}$ .

## Remote LED connection

A drive point is provided on the DS-0D02 Photoelectric Smoke Detector for a remote LED indicator.

The Discovery MiniDisc Remote Indicator, Part No. 53832-070, is suitable.

DS-0D02 Photoelectric Smoke Detector diagram



Top Section - DS-0D02 Optical smoke detector

Response characteristics of DS-0D02 Photoelectric Smoke Detector

Type of fire	Photoelectric Detector
Overheating/thermal combustion	Very Good
Smouldering/glowing combustion	Moderate/Good
Flaming combustion	Very Good
Flaming with high heat output	Very Good
Flaming - clean burning	Poor