



Model FB-7254G
Optical Smoke Detector
Addressable FB-AP Series®
Product Overview



Overview

The FB-AP Series® Optical smoke detector is a good choice for areas where slow burning or smoldering fires might occur.

The optical detector uses the same outer case as the ionization smoke detector and is distinguished by the indicator LED's which are clear when the detector is in quiescent state and red in alarm.

Within the case is a printed circuit board which, on one side, has the light-proof chamber with integral gauze surrounding the optical measuring system and, on the other, the signal processing and communications electronics.

An infra-red 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 (Fig.1).

The IR LED emits a burst of collimated light every second. In clear air the photo-diode receives no light directly from the IR LED, because of the angular arrangement and the chamber baffles.

When smoke enters the chamber it scatters light from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density.

The photo-diode signal is processed to provide an analog value for transmission when the detector is interrogated.

| Mode | Alarm threshold %/m | Minimum time to alarm (sec) |
|------|---------------------|-----------------------------|
| 1 | 1.4 | 5 |
| 2 | 1.4 | 30 |
| 3 | 2.1 | 5 |
| 4 | 2.1 | 30 |
| 5 | 2.8 | 5 |

Table 1 - Optical detector operating modes

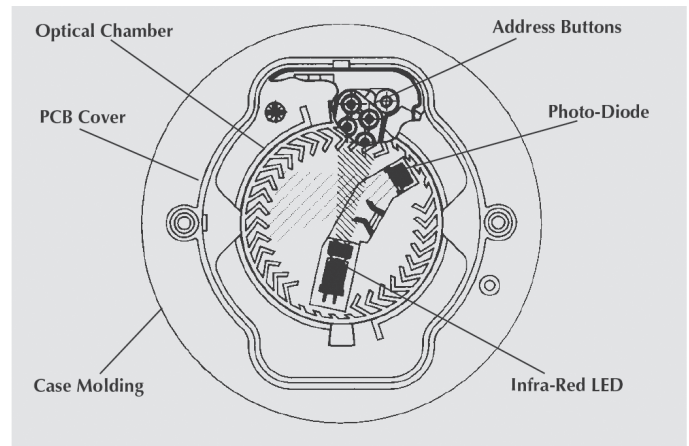


Figure 1 - Top section Optical Smoke Detector

| | | | |
|--|--|---|---|
| <p>FB-AP Series® Optical Smoke Detector Part No 7254-FBD-8650</p> <p>Specifications are typical at 24V, 72°F (23°C) and 50% relative humidity unless otherwise stated.</p> <p>Detection principle: Photo-electric detection of light scattered in a forward direction by smoke particles</p> <p>Chamber configuration: Horizontal optical bench housing infra-red emitter and sensor, arranged radially to detect forward scattered light.</p> <p>Sensor: Silicon PIN photo-diode</p> <p>Sampling frequency: 1 per second</p> <p>Type code: Bits 2 1 0 4 3 7 6 5 1 0 1 0 0 0 0 0</p> <p>Supply wiring: Two-wire supply, polarity insensitive</p> | <p>Terminal functions: L1 & L2 supply in and out connections.</p> <p>+R Remote indicator positive connection (internal 2.2kΩ resistance to positive)</p> <p>-R remote indicator negative connection (internal 2.2kΩ resistance to negative)</p> <p>Operating voltage: 17–28V DC</p> <p>Communication protocol: FireBus-AP™ 5–9V peak to peak</p> <p>Quiescent current: 400μA average 650μA peak</p> <p>Power-up surge current: 1mA</p> <p>Maximum power-up time: 10s</p> <p>Alarm current: LED illuminated: 3.5mA</p> <p>Remote output characteristics: Connects to positive line through 4.5kΩ (5mA maximum).</p> | <p>Clean-air analog value: 23 +4/–0</p> <p>Alarm level analog value: 55</p> <p>Alarm indicator: 2 colorless Light Emitting Diodes (LEDs); illuminating red in alarm.</p> <p>Optional remote LED</p> <p>EMI/RFI compatibility: CE marked, A copy of the relevant declaration is available on request.</p> <p>Temperature range: Max. continuous operating 140°F (60°C) Min. continuous operating 32°F (0° C) Min. operating -4°F (-20°C) (no condensation/icing)</p> <p>Storage -22°F to +176°F (-30°C to +80°C)</p> <p>Humidity: 0 to 95% relative humidity (no condensation)</p> <p>Effect of temperature: Less than 10% change in sensitivity over rated range.</p> | <p>Effect of atmospheric pressure: None</p> <p>Effect of wind: None</p> <p>Vibration, Impact and Shock: To EN54–7:2000</p> <p>IP rating: 43</p> <p>Dimensions: 4in (100mm) diameter; 1.6in (42mm) height 2in (50mm) (in base)</p> <p>Weight: Detector 3.7oz (105g) Detector in base 5.6oz (160g)</p> <p>Materials: Housing: White polycarbonate V-0 rated to UL94</p> <p>Terminals: Nickel plated stainless steel</p> |
|--|--|---|---|

Ordering Information

Detector:

7254-FBD-8650 Ionization Smoke Detector

Compatible Bases

7254-FBD-4210 Detector Base, 4"

7254-FBD-4225 Detector Base, 6"

7254-FBD-4234 Detector Base, Low Profile, 6"

7254-FBD-4242 Detector Base, Low Power Relay, 4"

7254-FBD-4250 Detector Base, E-Z Fit, 6"

Accessories:

7254-FBD-4400 Blank XPert Card.

