

Detection and Control Components



LIFEalarm® Photoelectric Smoke Detectors with Smoke/Heat Detection (Z-10)

Features

LIFEalarm detection combines photoelectric detection with heat detection to provide a multi-mode detector with four detection mechanisms:*

- Stable and reliable photoelectric smoke detection with built-in LIFEalarm sensitivity drift compensation
- Resettable, thermistor-based fixed temperature detection
- Resettable, thermistor-based rate-of-rise temperature detection
- A built-in analysis of photoelectric and thermal activity trending that provides fire detection with higher accuracy than either detection means used separately

Functional chamber enclosure:

- Louvered design enhances smoke capture by directing flow to chamber
- Entrance areas are minimally visible when ceiling mounted

Multi-function LED indicator:

- Indicates normal and alarm conditions
- Provides status during magnetic functional test

Magnetically operated functional test:

- Initiates alarm and verifies performance
- Identifies general sensitivity status using detector LED pulses (normal, more sensitive, or less sensitive)
- With detectors categorized as normal or needing cleaning or other service, maintenance priorities can be more easily determined

Available base options:

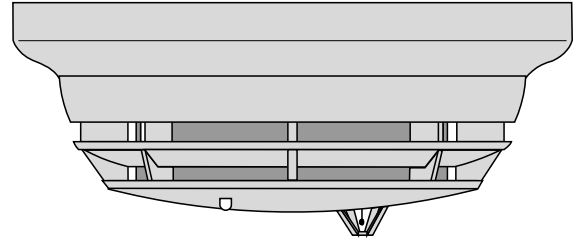
- Bases for 2-wire operation
- Auxiliary alarm relay output
- Remote alarm indicating LED output

Optional remote LED alarm indicator

Listings and Approvals

- UL Listed: S6648
- ULC Listed: S6648
- FM Approved: 3015976
- MEA (NYC): Approved
- CSFM: Approved

* LIFEalarm detectors are protected by one or more of the following U.S. Patents: 5,155,468; 5,173,683; 5,400,014; 5,543,777; 5,710,541; 5,818,326; 6,195,011; D383,407; D388,352; D392,573.



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Detector (Part No. 430560) Mounted in Base

Description

LIFEalarm photoelectric smoke detectors combine photoelectric smoke detection technology and quick response thermistor-based heat detection technology into a sophisticated, intelligent detector that analyzes each of these activities and their combination to determine whether alarm conditions are present.

An onboard microprocessor provides four independent detection modes: photoelectric detection with sensitivity drift compensation, fixed temperature heat detection, rate-of-rise temperature heat detection, and photoelectric/heat trending analysis and alarm detection. If any of these alarm conditions are experienced, an alarm is initiated.

Specifications

Voltage	15 to 32 VDC, from Control Panel IDC
Standby Current	100 μ A @ 24 VDC
Alarm Current, 2-Wire Operation	Up to 86 mA maximum, exact current is determined by alarm current limiting of connected IDC (initiating current device)
Auxiliary Relay Ratings	Refer to page 3 under Product Selection
Rate-of-Rise Temperature Alarm*	$\leq 20^\circ$ F/min (11° C/min), only effective at temperatures above 90° F (32° C)
Fixed Temperature Alarm	135° F (57° C)
UL Listed Temp. Range*	32° F to 100° F (0° C to 38° C)
Operating Temp. Range	15° F to 100° F (-9° C to 38° C)
Smoke Obscuration Sensitivity	2.8%/ft Nominal, per UL268
UL Listed Temp. Range	32° to 100° F (0° to 38° C)
Operating Temp. Range	15° to 122° F (-9° to $+50^\circ$ C)
Air Velocity Range	0-2000 ft/min (0-610 m/min)
Humidity Range	10% to 95% RH from 32° to 122° F (0° to 50° C)
Color	Frost White
Dimensions	4 7/8 in. Dia. x 2 in. H, mounted in base (124 mm x 51 mm)

* Always locate this and all rate-of-rise heat detection devices away from extremes of temperature fluctuation.

Description (Continued)

Intelligent Data Evaluation. Conventional smoke detectors will typically drift toward being too sensitive due to the accumulation of dust and dirt. With LIFEalarm analog detection, data from the photoelectric chamber is monitored and analyzed at the detector to provide a continuously shifting reference point.

Drift Compensation. The data evaluation and its shifting reference point provide a software filtering process that compensates for environmental factors (dust, dirt, etc.) and component aging, establishing an accurate reference for evaluating new activity. With this filtering, the resulting drift compensation provides a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity – either up or down.

Maintained Sensitivity and Dirty Status Indications. With its onboard software compensation, the detector maintains its sensitivity much longer in the presence of dust and dirt accumulation. Additionally, it will determine when the dirt accumulation is approaching the limit of compensation, and will indicate that condition via its status indicator LED (see diagnostic information).

Electronic Heat Detection

Fixed Temperature Heat Detection is provided with the addition of a fast response thermistor that causes an alarm at a fixed temperature of 135° F (57° C).

Rate-of-Rise Heat Detection occurs at $\geq 20^{\circ}$ F/min (11° C/min). To minimize the possibility of false alarms, rate-of-rise detection is correlated to the ambient temperature and is only in effect above 90° F (32° C).

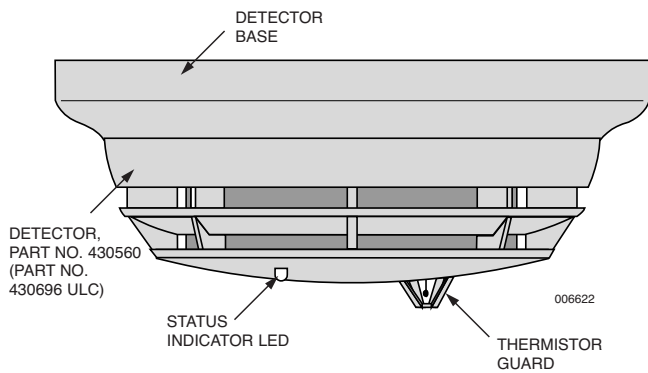
Diagnostic Information

Magnetic Test Information. Status information is available by performing the magnetic test and observing the detector LED pulses. The LED will normally go directly into alarm with the magnetic test. If there is an off-normal condition, the LED pulses first to indicate the condition and then goes into alarm.

Application Notes

Observe heat detector location guidelines. Ambient temperature operating range is 32° F to 100° F (0° C to 38° C). Temperature fluctuations should be below 6° F/min (3.3° C/min).

Detector locations should be determined only after careful consideration of the physical layout and contents of the area to be protected.

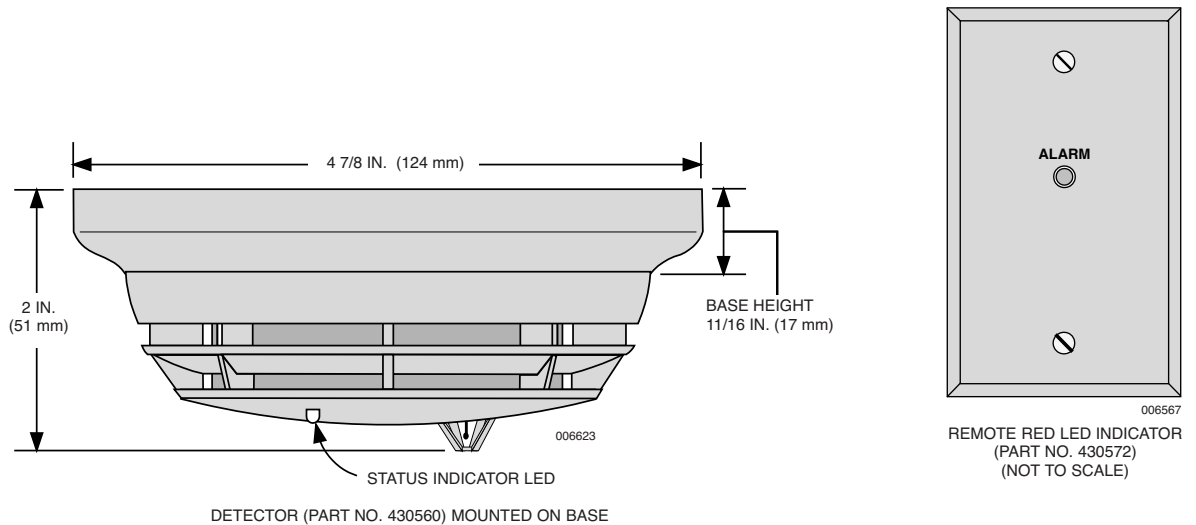


Smoke Detector Package

Product Selection

Smoke Detector		
Part No.	Description	Compatibility
430560	LIFEalarm photoelectric detector with photoelectric/thermal detection	Compatible with detector bases: Part Nos. 430567 and 430569
Detector Bases		
Part No.	Description	Details
430567	2-Wire Base with connections for Remote Alarm LED Indicator	<ul style="list-style-type: none"> • IDC and LED connections are screw terminals for in/out wiring, #18 to #14 AWG
430569	2-Wire Base with Auxiliary Alarm Relay and connections for Remote LED Indicator Note: Must be connected as the only device on the IDC to ensure relay operation.	Relay Ratings, Dual Form "C," For Suppressed Loads: <ul style="list-style-type: none"> • Power limited, 1 A @ 28 VDC • Non-power limited, 1/2 A @ 120 VAC Wiring Connections (In/Out where required): <ul style="list-style-type: none"> • Relay contacts and IDC (-), color coded #18 AWG leads • IDC (+) and LED wiring, screw terminals for #18 to #14 AWG
Detector Accessories		
Part No.	Description	Details
430572	Remote LED Indicator	<ul style="list-style-type: none"> • Mounted on single gang stainless steel plate

Dimensions and Reference Information



Visible LED Status Indications

LED Indication		Status	
Flashes every 4 seconds		Circuit is Normal , power is applied	
Steady On		Detector is in Alarm	
LED Response to Magnetic Test *			
LED Indication	Alarm Response	Detector Status	Action Required
LED turns ON	Alarm is initiated	Normal , sensitivity is within compensation range	None
Flashes quickly , 6 times in 3 seconds, then turns ON	Alarm is initiated	More sensitive , out of normal compensation range	Cleaning or other service is required
Flashes slowly , 4 times in 8 seconds, then turns ON	Alarm is initiated	Less sensitive , out of normal compensation range	
	Alarm is NOT initiated	Detector is malfunctioning	Service is required

* Testing requires placing a magnet at the designated location on the detector cover for 4 seconds.

Mounting Information

ELECTRICAL BOX REQUIREMENTS:

WITHOUT RELAY (BASES, PART NO. 430567):

4 IN. (102 mm) OCTAGONAL OR 4 IN. (102 mm) SQUARE, 1 1/2 IN. (38 mm) DEEP
SINGLE GANG, 2 IN. (51 mm) DEEP

WITH RELAY (BASES, PART NO. 430569):

4 IN. (102 mm) OCTAGONAL, 1 1/2 IN. (38 mm) DEEP, WITH 1 1/2 IN. (38 mm) EXTENSION RING
4 IN. (102 mm) SQUARE, 1 1/2 IN. (38 mm) DEEP, WITH 1 1/2 IN. (38 mm) EXTENSION RING

