



July 22, 1992

DN-3855 • I-210

30-2054-24

Infrared Fire Detector

High-Speed Glowing-Ember Type

Section: Conventional Initiating Devices

GENERAL

The Pyrotector Model 30-2054-24 High Speed Glowing Ember Detector responds to infrared (IR) radiation in the one to three micron range (10,000 to 30,000 angstroms).

FEATURES

- Detection range of 9 to 24 inches for a 1/4-inch ember.
- Rugged LEXAN® lens.
- Rugged cast aluminum housing.
- Neoprene gasket is included.
- 90° cone of vision.

APPLICATIONS

Use to detect glowing embers and smoldering fires in solid hydrocarbon materials such as coal, cotton, and wood, passing on conveyor belts or airborne within conductor ducts, and moving at velocities from 25 to 10,000 feet per minute.

The detectors are intended for use in dark areas (less than 10 foot candles of light).

The detector is a non-discriminating device. Therefore, care must be taken to prevent sunlight or incandescent light from reaching the detector and causing a false actuation. Fluorescent lighting has minimum effect. For best results, the detectors should be used in dark or semi-dark areas of less than 10 footcandle ambient illumination.

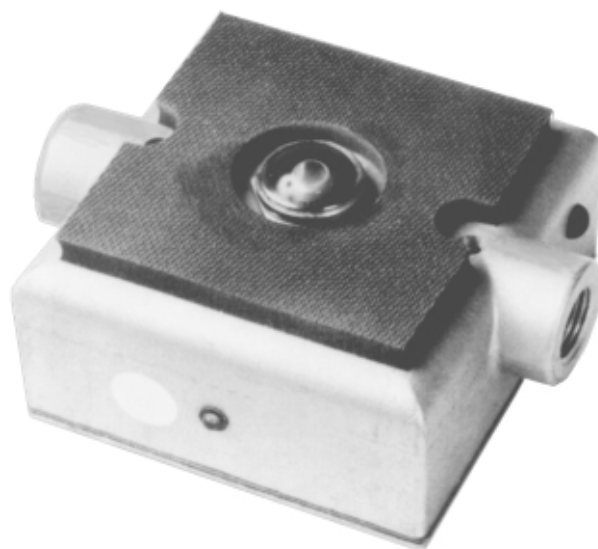
CONSTRUCTION

The detector is a compact, unitized package containing the detection cell, solid state electronics, and a dry contact Form-C (SPDT) alarm relay. The detection cell is a single-element infrared photoresistive cell and is contained within a LEXAN® lens end dome.

The unit is totally enclosed in a cast aluminum housing with a removable gasketed cover (Type FS electrical junction box).

SENSITIVITY

Detector sensitivity is a function of the size of the fire or ember, its proximity to the detector, and its velocity. Average response time for both detector models is 8 milliseconds for a 1/4 inch diameter glowing ember at a distance of 6 inches.



This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact **NOTIFIER**. Phone: (203) 484-7161 FAX: (203) 484-7118



NOTIFIER

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CONE OF VISION

The detector has a maximum cone of vision of 90 degrees, with the highest sensitivity along the central axis. As the angle increases, the sensitivity decreases. At an angle of 45 degrees from the central axis, the sensitivity is reduced to 75%. Figure 1 below illustrates the detector viewing pattern.

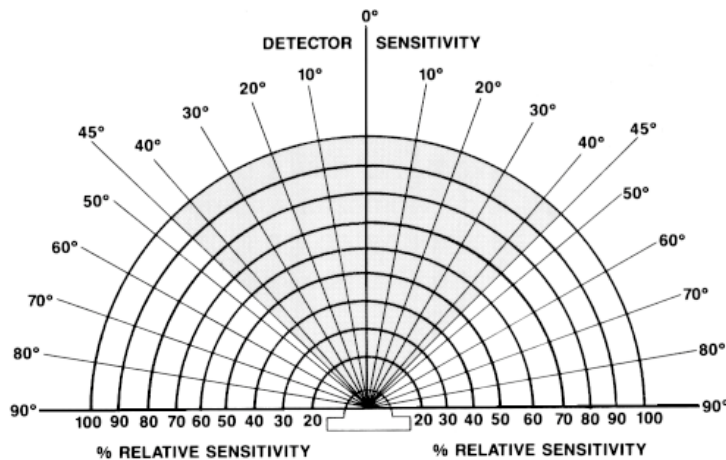


Figure 1—Detector Viewing Pattern

SPECIFICATIONS

Operating voltage: 20 to 27 VDC.

Operating current: *Standby:* 12 milliamperes maximum at 24 VDC. *Alarm:* 70 milliamperes maximum at 24 VDC.

Relay contact rating: 1 ampere at 26 VDC.

Spectral sensitivity range: 1.0 to 3.0 microns (10,000 to 30,000 angstroms), with peak response at 2.5 microns (25,000 angstroms).

Response time: 8 milliseconds average.

Response to ember: *Ember size:* 1/16 to 5/16 inch.

Movement: 25 to 10,000 feet per minute.

Detection distance (1/4-inch ember): typically up to 54 inches.

Temperature range: -13°F to +150° F (-25°C to +65° C).

Relative humidity range: up to 90%.

Enclosure type: Electrical junction box, Type FS cast aluminum with gasketed cover, straight-through (in-line) 1/2-inch female entries.

Dimensions: 4.5 inches long, 4.5 inches wide, 2.25 inches high.

Weight: 1.7 pounds.

INSTALLATION

The detector can be mounted to any flat surface, such as a duct sidewall. The detector is equipped with a full face neoprene gasket to prevent air leakage or external light infiltration and is intended for indoor use only.

Install the detector so that the lens is exposed only to darkened areas such as the inside of a duct (light levels of 10 foot candles or less). The lens should face the center of the area to be protected. The detector has a viewing angle of 90°. Additional detectors may be required for wider angles or larger areas.

DETECTION DISTANCES (1/4" Ember)

Ember Velocity (ft/min) <i>minimum</i>	Model 30-2054 (in.) <i>maximum</i>
25 ft/min	9 inches
75 ft/min	10 inches
100 ft/min	10 inches
200 ft/min	14 inches
400 ft/min	17 inches
600 ft/min	20 inches
800 ft/min	20 inches
1,200 ft/min	20 inches
1,600 ft/min	20 inches
2,000 ft/min	20 inches
2,500 ft/min	20 inches
3,500 ft/min	22 inches
4,500 ft/min	23 inches
5,500 ft/min	26 inches
6,500 ft/min	27 inches
7,500 ft/min	30 inches
9,500 ft/min	30 inches

Maximum detection distance is in inches head-on to the detector. Sensitivity decreases to 75% at 45 degrees.

Installation instructions are provided with each detector.

To assure maximum detector sensitivity, the lens should be kept free of dirt or other contaminants.

The detector should be tested periodically to assure proper functioning. A cigarette or 40-watt soldering iron can be used to simulate an ember. Move an ember, cigarette, or soldering iron rapidly about 6 inches in front of the lens. The red LED alarm indicator located on the side of the detector will be illuminated when the detector senses the ember, cigarette, or soldering iron.