FIRE
FIGHTING
ENTERPRISES

Fireray 2000 Projected Beam Smoke Detector

Features

- Separate Transmitter and Receiver Units
- Signal Strength indicating LED's
- Range 33ft. To 330ft. (10m to 100m)
- Easy set up and alignment
- Internal test switch
- Calibrated obscuration test filter included
- 3 selectable alarm thresholds: 25%, 35% or 50%
- Microprocessor controlled
- Alarm latching or auto reset
- Automatic gain control
- 12 VDC or 24 VDC operation
- Separate alarm and trouble contacts
- Ground Level Control Unit
- Alignment by Universal Bracket

Description

The system comprises of a transmitter which projects a modulated infrared light beam to a receiver. The received signal is analyzed by a controller usually located at ground level. If smoke is present in the beam path for more than 8—10 seconds, a fire relay is activated in the controller. The system is designed to be mounted so that the beam will project between 1ft. (0.305 m) and 2ft. (0.61m) below and parallel to the ceiling. Lateral detection may be up to 30ft. (9.144m) either side of the beam, providing a maximum total coverage area of up to 19,000 square feet (60ft. x 330ft. or 18.288m x 100m). The control unit must be located within 330ft. cable run of the receiver unit.

Smoke Detection

If smoke is present in the beams path, the received signal is reduced by a level determined by the density of the smoke. If the smoke reduces the signal strength to between the obscuration threshold and 93% for more than 8 to 10 seconds, the fire alarm relay is activated. The alarm threshold may be set to 25%, 35% or 50% to suit the installation.

Engineering Specification

The projected beam type smoke detector shall be a 4-wire 12/24 VDC device to be used with an U.L. Listed separately supplied 4-wire control panel. Unit shall be listed to U.L. 268 and shall consist of an integrated transmitter and receiver. The detector shall operate between a range of 33ft. to 330 ft. (10m to 100m). The temperature range of the beam shall be -4°F to 131°F (-30°C to +55°C). The beam detector shall feature automatic gain control which will compensate for gradual signal deterioration from dirt accumulation on the lenses. The unit shall include a wall mounting bracket. Testing shall be carried out by using a calibration test filter. The Projected beam type smoke detector shall be a Fire Fighting Enterprises Fireray 2000.

Beam Detector Spacing

On smooth ceilings, up to 60 ft. (18.288m) between projected beams and not more than one-half that spacing between a projected beam and a sidewall. Other spacing may be used depending on ceiling height, airflow characteristics and response requirements. See NFPA 72 for further information.

Construction Specification

Housing-Controller:
Double pressed sheet steel
Housing-Transmitter/Receiver:
Zinc Alloy
IP Rating:
IP50
Finish-Controller/Transmitter/Receiver:
White enamel
Weight-Controller:
4.00 lbs (1.8 kg)
Weight-Transmitter/Receiver:
12 oz. (650 gms.)
Dimensions-Controller:
8.5" W x 10.5" H x 3.5" D
(210mm W x 265mm H x 88mm D)
Dimensions-Transmitter/Receiver (including mounting brackets):
4" W x 3.25" H x 3.75" D
(83mm W x 95mm H x 101mm D)

Electrical Specification

Primary Input Power
10.2 to 30 VDC
Protection:
100ma Fuse in Control unit
Standby Current
8.5mA @ 24VDC
Alarm Current
16.5 mA @ 24 VDC
Relay Contacts
2A at 30 VDC, resistive
Reset Time
5 Seconds maximum
Start Up Time (Automatic)
45 Seconds
Optical Wavelength:
880nm.
Sensitivity:
25%, 35%, 50%
Fire Alarm Thresholds:
1.25dB (25%), 1.87dB (35%), 3dB (50%)
Beam toleramce to misalignment at 35%:
Transmitter +/- 1°
Receiver+/- 4°
Temperature Rating:
-4°F to 131°F (-20°C to +55°C)
For UL Listed Installations, 32°F to 100°F (0°C to 38°C).
Relative Humidity:
0% to 93% RH non-condensing
Operational Range:
33 ft.- 330 ft. (10m - 100m)
RFI Immunity:
10V/m @ KHz-1 GHz
Field wiring size:
14-24 AWG

Operation

The infrared signal is sent from the transmitter via an optical system. At 330 ft. (100m) the diameter of this infrared signal is approximately 10 ft. (3.05m). The wide angle beam arrangement simplifies alignment and increases stability.

It is important that the projected beam smoke detector is positioned correctly to minimize the detection time.

A fire alarm condition occurs when the smoke obscures the infrared beam. The time to detect a fire condition depends on the location of the smoke beam within the premises, the volume of smoke produced, the construction of the roof, and ventilation considerations.

Ordering Information

F2000	Projected beam smoke detector 33ft. to 330ft. (10m to 100m) (22310-08)
0201	Alignment Tool Aid
23901	Retro Prism
0209	Replacement Obscuration Filter

Listings

- UL Listed
- ULC Listed
- MEA 293-98-E
- CSFM 7260-1508:101

Specifications and wiring information are provided for information only and are believed to be accurate. Fire Fighting Enterprises assumes no responsibility for their use. Data and design are subject to change without notice. Installation and wiring instructions are shipped with the products and should always be used for actual installation. For more information, Contact your Sales Representative.

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