

PINNACLE™

*Ultra High Sensitivity **Laser** Smoke Detector*



The Smoke Detector for **Critical** Applications

In a high tech facility such as a telecommunications center, computer room or clean room, even a small fire can be devastating to its operation. In situations like these, the smoke causes most of the damage to electronic equipment, not the heat. In many cases, the fire itself is contained to a small physical area and extinguished relatively quickly, but the entire facility is still negatively affected.

In a recent study, over the course of a year, a total of 189 fires occurred in telecommunications facilities, with service disruptions ranging from several minutes to several weeks. In the 1990s, cities like Los Angeles, California, Scarborough, England and Hinsdale, Illinois, suffered major disruptions in telephone communications due to fire. Altogether, these fires cost tens of millions of dollars in damaged equipment and business interruption.

Pinnacle™, from System Sensor, is the highest sensitivity spot-type smoke detector available today. Pinnacle is a laser-based and microprocessor controlled detector, achieving the highest sensitivity and stability possible.

Pinnacle is an intelligent, addressable smoke detector. Pinnacle is able to provide the exact location of the fire by identifying the address of the detector sensing the smoke. This can greatly reduce response time in a real fire situation since smoke at such low levels is not visible to the human eye. In addition, each detector in a Pinnacle smoke detection system is fully supervised. Any trouble with the detectors on the loop will be immediately annunciated at the fire alarm control panel. The detectors will also indicate the need and urgency of maintenance.



Systems employing Pinnacle can be extremely flexible and cost effective. One fire alarm control panel loop can have a variety of different types of smoke detectors all on one pair of wires. Only critical areas that actually require ultra high sensitivity smoke detection will use Pinnacle. Non-critical areas can simply use standard photoelectric or ionization smoke detectors. But, regardless of type, all of the detectors install in the same mounting bases. No special equipment is needed in order to install Pinnacle.

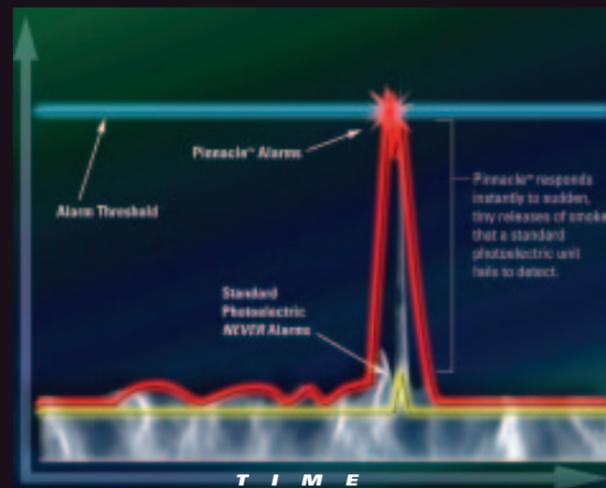
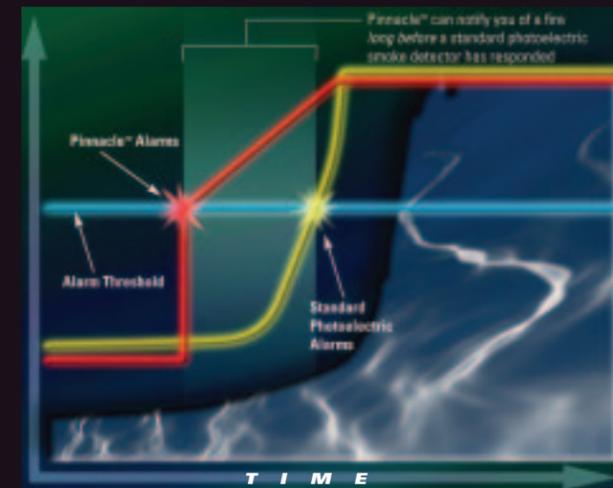
In many ways, **Pinnacle supercedes the performance of aspirated smoke detection systems**, traditionally the only way to achieve high sensitivity smoke detection. Aspirated systems operate by drawing air and smoke through a network of pipe or tubing that is routed throughout the protected space. Because of the nature of detecting smoke in this way, aspirated systems are subject to the effects of dilution. During an actual fire, smoke is drawn into the pipe through one of its sampling ports. Unfortunately, the other sampling ports continue to draw clean air into the pipe from areas that the smoke has not reached. This means that the smoke sensor in an aspirated system must be set more sensitive to offset the effects of dilution. Because Pinnacle is a spot-type smoke detector, it is not susceptible to dilution.

Pinnacle is the detector for critical applications.

Pinnacle vs. Standard Photoelectric Smoke Detector

Smoldering Fire Test

Pinnacle senses the presence of smoke and triggers an alarm up to 20 minutes earlier than an ordinary smoke detector.



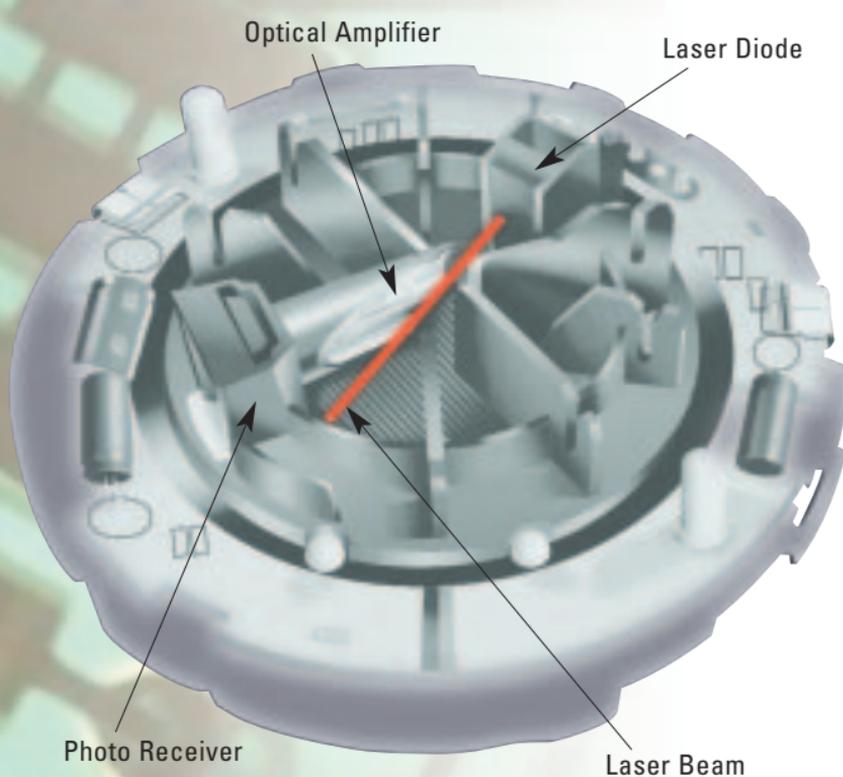
Overheated Wire Test

While an ordinary smoke detector fails to trigger an alarm, Pinnacle senses even the tiniest amounts of smoke, responding in situations where other detectors cannot.

How Pinnacle Works

The principles of laser detection are similar to those of photoelectric technology. In a photoelectric smoke detector, a Light Emitting Diode (LED) emits light into a sensing chamber that is designed to completely restrict ambient light while allowing smoke to enter. Any particles of smoke entering the chamber will scatter the light and trigger the photodiode sensor.

Pinnacle works on the same light-scattering principle, but with 100× greater sensitivity. This ultra-sensitivity is due to the laser itself, which is literally amplified light (the word “laser” is an acronym for Light Amplification by Stimulated Emission of Radiation). Using an extremely bright, controlled laser diode, the laser beam is transmitted through the chamber to a light trap that eliminates any reflection. If a particle of smoke (or dust) enters the chamber, light from the laser is scattered and the detector, using patented algorithms, verifies the nature of the scattered light to determine whether the source is dust or smoke. If a determination of smoke is made, the alarm is signaled. Smoke particles, especially those by-products of an early fire, are extremely small, hence the need for the high sensitivity of the laser.



Pinnacle Specifications

Voltage Range:

15 – 32 volts DC peak

Standby Current (max. avg.):

230 μ A @ 24 VDC (without communication)

330 μ A @ 24 VDC (one communication every 5 sec.)

LED Current (max.):

6.5 mA @ 24 VDC (on)

Height:

1.66" (4.2 cm)

Diameter:

4.0" (10.2 cm)

Shipping Weight:

5.6 oz. (159 g)

Operating Temperature Range:

32° to 100°F (0° to 38°C)

Velocity Range:

0 – 4000 fpm (0 to 20.3 m/s)

Relative Humidity:

10% – 93% noncondensing

Self Diagnostics:

Initiated by control panel

Activated by test magnet

Smoke Sensitivity (9 levels):

0.02, 0.03, 0.05, 0.10, 0.20, 0.50, 1.00, 1.50, 2.00%/ft. obscuration
(0.06, 0.10, 0.16, 0.33, 0.66, 1.65, 3.24, 4.85, 6.41%/m obscuration)

Drift Compensation:

High sensitivity maintenance alert signal

Low sensitivity maintenance alert signal

Maintenance urgent signal

At System Sensor, innovation is more than an ideal – innovation is our way of life. Every day we work to design new products that utilize the most innovative technologies in the most inventive ways, products that are more convenient to install and more efficient to operate, products that provide our customers with the highest level of reliability. In other words, we make it our business to develop advanced ideas that deliver advanced solutions.

System Sensor is a global manufacturer of fire detection and notification devices, specializing in smoke detection and notification technology. System Sensor places a premium on research and development, resulting in products that are reliable, sophisticated and designed for real-world applications. With sales, service and manufacturing facilities throughout the Americas, Europe and Asia, System Sensor's high quality, innovative products are the most comprehensive in the industry.



advanced ideas. advanced solutions.™

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