



# Acclimate™ Intelligent Multi-criteria Fire Sensor

## Frequently Asked Questions/Answers

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### **What is Acclimate™?**

Acclimate is a multi-criteria fire sensor being offered by System Sensor, the world's leading manufacturer of smoke detectors and associated products. Acclimate utilizes both photoelectric and thermal sensing technologies, combined with an array of onboard software tools, to make a combined fire detection decision.

Acclimate means "to adapt" or "to acclimatize." Adaptation is this fire sensor's key feature as explained below.

### **What is a "multi-criteria" detector?**

"Multi-criteria" is a term used to describe a detector that senses two or more fire by-products in order to reach its alarm decision. By their very nature, these detectors tend to be more accurate and more resistant to false alarm sources and can't be as easily fooled by deceptive phenomena. A true multi-criteria detector is where the various sensing technologies interact to make a decision as distinct from a multi-sensor detector where there is no interaction between the various on board sensing technologies.

### **How does Acclimate work?**

Using advanced software, Acclimate continuously samples the air in an environment and adjusts its sensitivity and alarm thresholds accordingly. It does this automatically, without user intervention. There is no need for the installer to set the exact sensitivity levels at the control panel. Acclimate continually looks for evidence of both smoke and heat in order to make a combined decision.

If Acclimate senses smoke with no heat signal it will investigate further by tracking the photo signal and checking for a heat component. If an adequate smoke signal continues for an extended period of time the sensor will then send an alarm signal to the control panel. If Acclimate receives a smoke signal and also receives a heat signal it will respond more quickly.

### **Why should I use Acclimate instead of a normal spot type detector?**

Acclimate's design principle is based on the fact that change is constant. Micro-environments in buildings are continually changing. Offices, conference rooms, cinemas and theatres for example, are constantly changing from being empty to fully occupied.

Tenancies in high-rise buildings and shopping complexes are also continually changing.

By using Acclimate, the installer does not need to take an educated guess when setting the exact sensitivity level at the control panel. The sensor removes this guesswork by

automatically adjusting its sensitivity according to the amount of "noise" it senses in the area in which it is installed.

For example, Acclimate will automatically become more sensitive in an office building whenever it is unoccupied, thus being able to give an earlier warning of an emergency.

### **What is "noise"?**

Because Acclimate is constantly sampling the air in an environment, it will sense ambient dust levels and the like. We refer to this airborne dust and fiber as "noise". The sensor monitors the "noise" level and becomes more sensitive in a "quiet" location and less sensitive in a "noisy" location.

### **How does Acclimate compare with other multi-criteria detectors?**

All multi-criteria detectors should be similar in their response to a range of fires. Due to the fact that multi-criteria detectors are designed to meet the requirements of worldwide standards, they must respond to a specified range of test fires ranging from clean burning or flaming fires producing very little visible smoke, through to smoldering fires that produce large quantities of visible smoke.

As a result all multi-criteria detectors should respond in a similar fashion to this preset range of test fires. If they do not respond to this range of test fires they cannot gain approval or listing by an agency such as Underwriters Laboratories (UL) or Underwriters Laboratories Canada (ULC).

### **How does Acclimate help to reduce unwanted alarms?**

By automatically adjusting its sensitivity to suit the environment in which it is installed, Acclimate ensures that you always have the appropriate sensitivity setting for a particular environment. If the occupancy of the room or area changes so does the sensitivity of the detector.

Acclimate utilizes algorithms to process the photo signal and heat signal being received. These algorithms are used to minimize the effects of unwanted transient signals.

Acclimate achieves this by monitoring not only the current value of the sensor but also trends in the signal, such as increasing heat or decreasing photo-signal. For example, Acclimate will ignore the transient entry of cigarette smoke or steam. Acclimate also reduces maintenance frequency with dual stage drift compensation. The effects of gradual dust build-up are offset and the panel is notified before the compensation limit is reached.

### **What U.S. and Canadian Standards does Acclimate meet?**

All fire sensors are designed to meet the requirements of one or more of the various fire detection standards worldwide. Currently there is not a U.S. or Canadian standard for multi-criteria detectors. Until this occurs, multi-criteria detectors such as Acclimate must be classified as either a heat detector or a smoke detector. System Sensor has chosen to have Acclimate assessed and listed by UL and ULC as a spot type photoelectric smoke detector with supplementary 135°F heat detection. Acclimate is also approved by the California State Fire Marshal, the Maryland State Fire Marshal and Materials, Equipment and Acceptance (New York).

### **What are considered to be suitable applications/environments for Acclimate?**

- Office Buildings
- Hotels
- Hospitals
- Universities
- Nursing Homes
- Factories
- Shopping Centers

### **What are considered to be unsuitable applications/environments for Acclimate?**

- Hazardous areas
- Marine applications
- Extremely dirty environments
- Areas subject to extreme temperatures

### **How often does Acclimate adjust its sensitivity level?**

Acclimate adjusts its sensitivity, if needed, based on the changes in the environment over the previous hour.

### **What different sensitivity levels are available with Acclimate?**

Acclimate has six different sensitivity settings that can be selected at the control panel. These are:

- Level 1 – Fixed at 1% per foot
- Level 2 – Auto adjusting from 1-2% per foot
- Level 3 – Fixed at 2% per foot
- Level 4 – Auto adjusting from 2-4% per foot
- Level 5 – Fixed at 4% per foot
- Level 6 – Fixed temp 135°F Heat alarm only.

### **Can Acclimate be used in conjunction with other spot type smoke detectors such as Laser, Filtrex™, or a photoelectric smoke detector?**

Yes, system designers can seamlessly mix Acclimate with other detection technologies to achieve optimized fire protection in each area of a building.

### **Will steam set off Acclimate?**

### **Will cigarette smoke set off Acclimate?**

### **Will burning toast set off Acclimate?**

If enough airborne particulate is present in any photoelectric sensing chamber for enough time, an alarm signal will be generated. This is true for Acclimate and competitive products. The airborne particulate can be smoke, dust, steam or insects.

Acclimate has been designed to be more immune than most fire sensors when faced with false or nuisance alarm conditions. By looking for trends in smoke signals and characteristics typical of gradual smoke build-up, Acclimate can process out many common unwanted alarms.