Stratos®

ClassiFire® Perceptive Artificial Intelligence

The AirSense Technology Ltd Stratos ranges of aspirating smoke detectors use a patented system of Perceptive Artificial Intelligence to continually adjust the detector sensitivity to maintain a consistent level of performance.

Traditionally, aspirating detectors are adjusted to a sensitivity that is a set level above the highest peak in the normal environmental smoke density.

With the traditional method it is very easy to set systems too sensitive and suffer from an unacceptable rate of nuisance alarms, neither does this method permit particularly early warning. As the normal environment changes, the system is unable to adapt and needs more (or less) smoke to generate an alarm.Although with this method the detector has 'fixed' sensitivity, the amount of smoke needed to generate an alarm is not constant, as depicted in Figure 1 below:

Fig. 1
Traditional fixed sensitivity

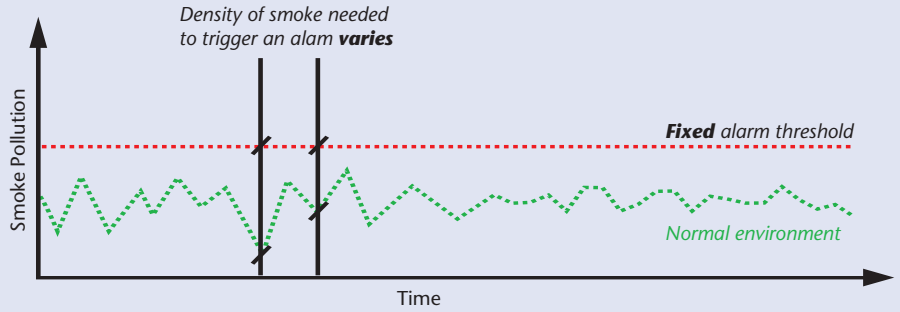
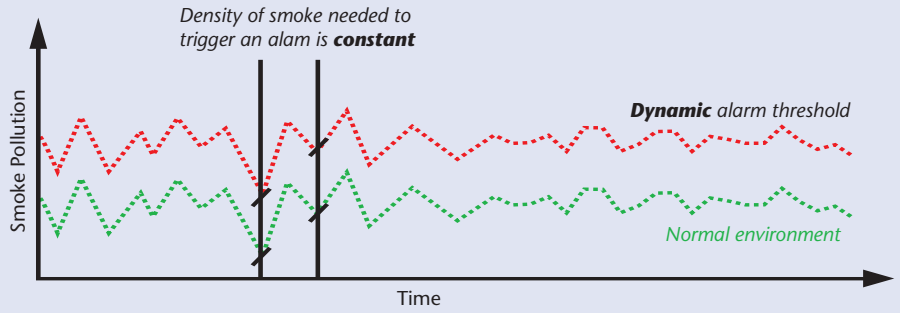


Fig. 2
Perceptive artificial intelligence



ClassiFire® dynamically adjusts the detector sensitivity to match changes in the normal environmental smoke density, thus the amount of smoke needed to generate an alarm remains constant, irrespective of environmental conditions.

ClassiFire® works as follows:

- The detector output produces a histogram of 64 classes of potential pollution density.
- The laser is pulsed twice per second and each pulse output is allocated to a pollution density class. Over a period of 24 hours the smoke pollution distribution in the protected environment is compiled and a data bank created.
- The data bank is used to predict the probability that a particular pollution level will be achieved using statistical analysis.
- Alarm thresholds are based on an acceptable probability of nuisance alarm (for example 1 alarm per year or 1 alarm every 1,000 years).
- Because the smoke pollution data bank is continually updated, the detector continually adjusts its sensitivity to match any changes in the normal ambient smoke density, ensuring that the detector provides a consistent response.
- The histogram represents a record covering several days. This gives optimum stability and ensures that slow growing fires are not 'learned'.

Benefits

- High sensitivity can be provided reliably.
- Alarm rates can be predicted.
- Seasonal time changes are automatically adapted to.
- Contaminated dust filters that normally reduce effective sensitivity are adapted to.
- Changes in air filtration efficiency do not affect smoke detection performance.
- Provides extremely simple set-up.

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Quality system cert. no. 404
Assessed to ISO 9001:2000