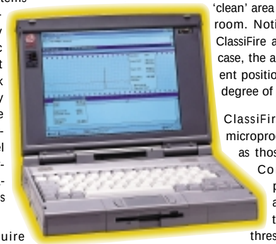
Classifire
Artificial Intelligence

What is ClassiFire™

ClassiFire is a patented 'artificial intelligence' system which continually adjusts the system to maximise sensitivity and performance for any environment.

Until the advent of ClassiFire, the setting of High Sensitivity Smoke Detection systems was usually undertaken manually. At best, other systems employ simple 'ratchet' type automatic learning principles. After a short 'learn' period these systems lock the detector to a fixed sensitivity setting. This is undesirable because, unlike Stratos, they cannot ensure that a constant level of protection is provided by varying the system operating parameters to suit normal fluctuations in the environment.

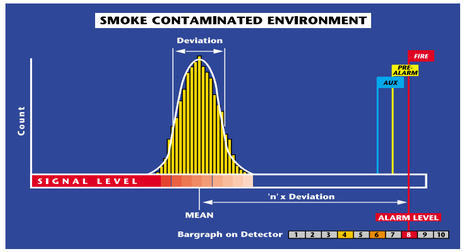


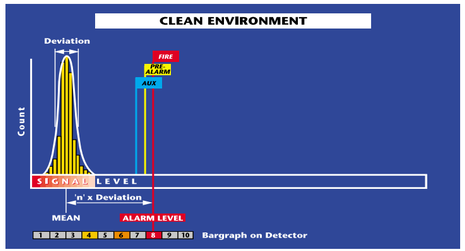
Stratos-HSSD does not require regular and costly calibration as the detection chamber is designed to be immune to dust or dirt build-up. The ClassiFire system continually calibrates the laser chamber, so that in the unlikely event of the detector becoming unacceptably contaminated, a fault warning is given long before system response is adversely effected.

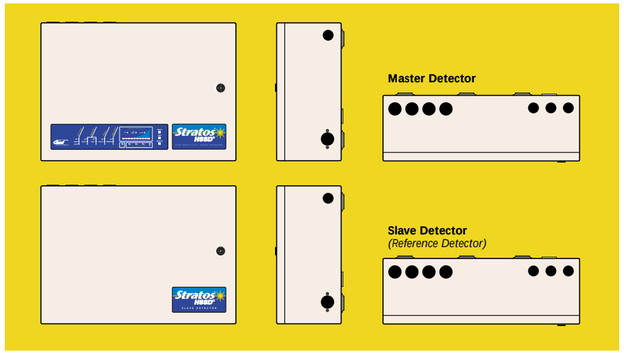
The illustration below shows how the smoke 'distribution pattern' or 'histogram' for a protected environment is built up over time. The upper distribution is from a typical 'smoky' environment such as a warehouse or office, while the lower is from 'clean' area such as a computer or clean room. Notice that although the same ClassiFire alarm factor is used in each case, the alarm thresholds are in different positions thus giving the optimum degree of protection for each area.

ClassiFire uses a powerful Intel microprocessor from the same family as those used in modern Personal Computers. It continually processes statistical formulae and calculates and adjusts the sensitivity and alarm thresholds for a pre-determined maximum acceptable nuisance alarm rate. This rate may be programmed for a theoretical value between 2 to 5,000 years. The system also discriminates between 'dirty' and 'clean' operating periods such as day and night, automatically substituting the appropriate sensitivity and alarm thresholds for the environment.

Stratos-HSSD master detectors are provided with a serial port which allows connection to a PC which, among other facilities may be used to display ClassiFire™ operating in 'real time' as shown.







Approved by internationally recognised organisations worldwide.

Quality system cert. no. 404
Assessed to ISO 9001

FM APPROVED
Ref. 0B4A3.AY

VdS G 298057

SCIENTIFIC SERVICES LABORATORY LISTED

LPCB LOSS PREVENTION CERTIFICATION BOARD
404.01

1999
QUEEN'S AWARD FOR TECHNOLOGICAL ACHEIVEMENT

SPECIFICATION

Mains supply voltage	195 - 265 V. AC. RMS.	Battery charge current	3 Amp. Maximum
Size (MASTER Stratos)	418 x 297 x 155	Standby period	Min. = 0 Hrs. Max. = 72 Hrs.
Size (SLAVE Stratos)	418 x 297 x 150	Maximum sampling pipe length	200 Metres total.
Weight (MASTER Stratos)	11.5 kg.	Sampling pipe internal diameter	15 - 25 mm.
Weight (SLAVE Stratos)	9.2 kg.	Chamber service intervals	greater than 5 Years
Operating temperature range	-10 to +60° C	Dust separator service intervals	greater than 5 Years (depending on environment)
Operating humidity range	0 - 90% Non Condensing	Theoretical laser life	greater than 1,000 YEARS
Sensitivity range (Obsc./Metre)	Min.= 4% Max.= 0.04% FSD	Programming of unit	On-board programmer or PC.
Maximum sensitivity resolution	0.004% Obsc./Metre	Data bus cable	4 core screened 1.5 mm²
Detection principle	Laser Light Scattering Mass Detection	Maximum data bus length	200 Metres
Particle sensitivity range	0.0003µ to 10µ	IP Ratings package option A	Master IP30 Slave IP50
Dust discrimination principle	Paired Pulse amplitude type	IP Ratings package option B	Master IP50 Slave IP50
Current consumption	100mA. @ 230V. RMS. 470mA. @ 24V. DC. 600mA. @ 12V. DC.		
Battery charge Voltage	13.6 V. @ 20° C.		

AirSense

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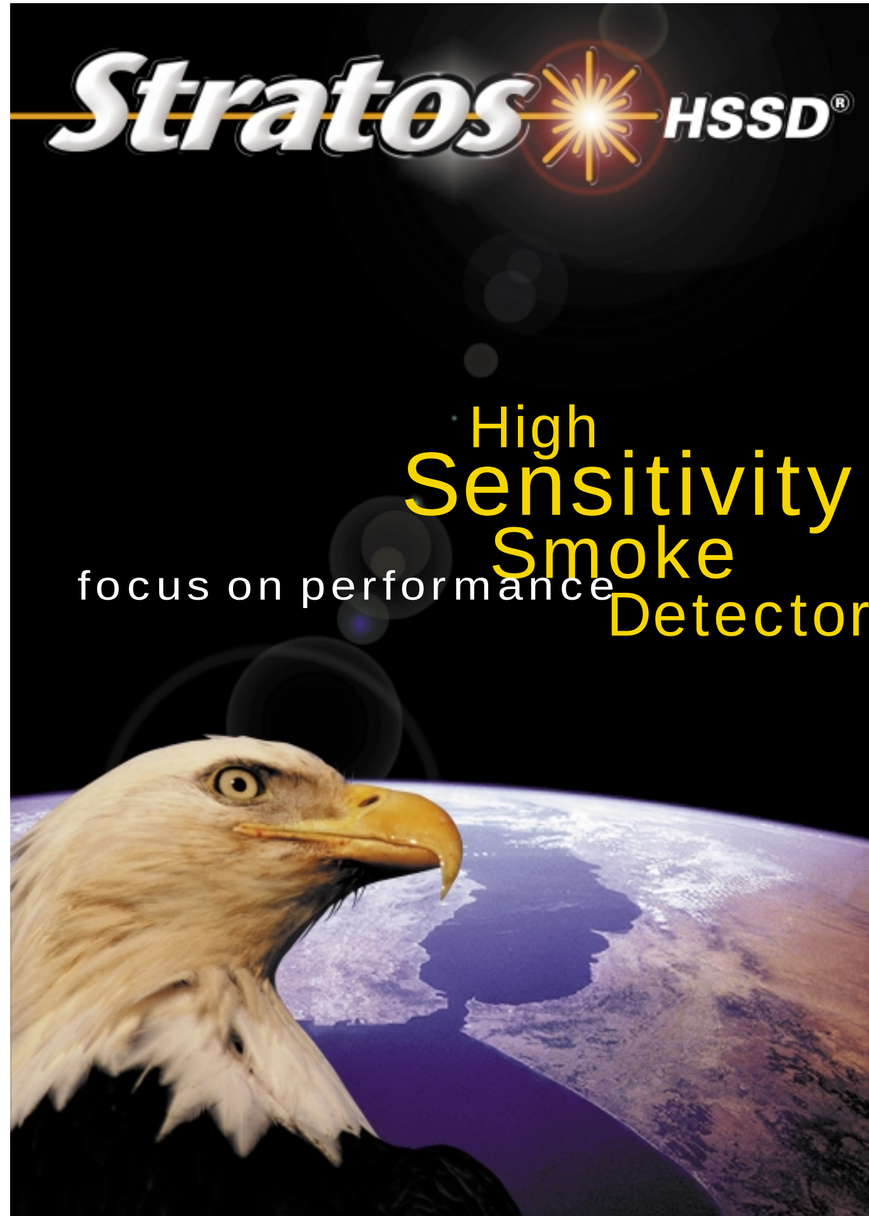
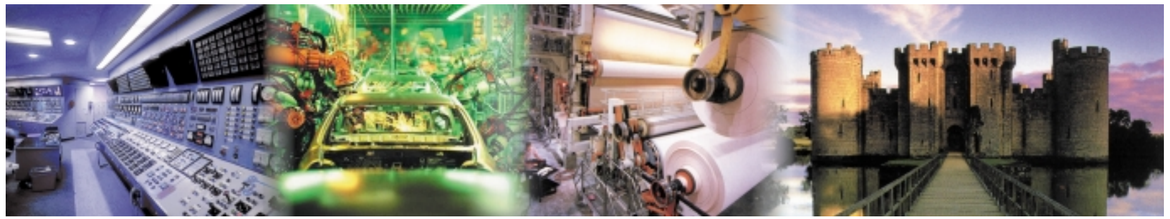
Stratos HSSD®

High Sensitivity Smoke Detector

focus on performance



The sensitive answer to aspirating smoke detection

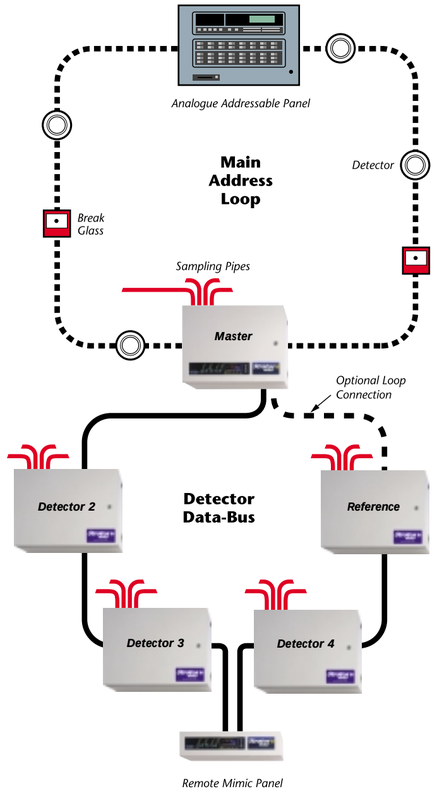


Master Stratos Detector

Slave Stratos Detector

Typical Alarm System Connection

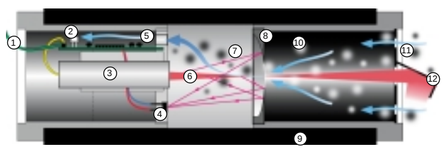
(Stratos can be connected to any conventional or addressable system)



- Applications Include:

Control rooms
Production areas
Paper mills
Historic buildings
Industrial areas
Dirty areas
Computer rooms
Telecom areas
Warehouses
Cold stores
Correctional institutions
Flight simulators
Power distribution areas
Archives
Atrium buildings
Museums
Places of worship

Laser Forward Scattering System



1. To Control System
2. Air Flow Monitor
3. Laser Assembly
4. Light Receiver array
5. Air Flow
6. Laser Beam
7. Forward Scattered Light
8. Reflective Plane
9. Detector Body
10. Smoke Particles
11. Vent Disc
12. Beam Dump

The detection principle used in Stratos is known as 'Forward Light Scattering' where the laser beam is diffracted at a small angle by smoke particles. This principle not only offers high sensitivity, but sensitivity to a wide range of particle sizes.

A patented feature of the system is that compensation is made for any contamination, ensuring a long and trouble free life. The laser assembly is guaranteed for a minimum of 5 years operation.

AirSense Technology has a team of product specialists with over 175 man-years experience in the field of air sampling High Sensitivity Smoke Detection. This unequalled experience was called upon to produce Stratos-HSSD®. The product embodies many unique features to maximise performance and increase reliability compared to other aspirating systems.

Stratos-HSSD embodies innovative features which depart from accepted techniques for detectors which operate at very high sensitivity. Perhaps the most important feature of the system is the adoption of a patented 'artificial intelligence' known as ClassiFire™. This controls all aspects of system operation. ClassiFire ensures that Stratos-HSSD operates at maximum SAFE sensitivity to give warning of problems earlier than previously considered possible.

ClassiFire is the most comprehensive intelligence found in any smoke detection system. Not only does it determine maximum reliable sensitivity for any environment, but ClassiFire also controls dust filter monitoring to stop partial clogging reducing system performance.

Stratos-HSSD is the only optical high sensitivity system which is routinely applied to the protection of very dirty and dusty environments. This is achieved by combining Laser Dust Discrimination (LDD™) with a patented dust management and separation system. These features have greatly extended separator life service intervals compared to alternative products. At the other extreme, Stratos is capable of providing the very highest levels of sensitivity in environments such as computer areas and clean rooms. In these applications it is able to give warning to the very slightest trace of smoke.

Stratos is supplied with comprehensive diagnostic and programming facilities as standard. Simply connecting a PC to the detector serial port gives access to diagnostic menus which provide fault finding down to individual component level. ClassiFire may be viewed working in real time, complete with the statistical probability of nuisance alarm. It is also possible to view detailed chart recordings of historical smoke levels showing: date, time and alarm thresholds.

Stratos uses the latest microelectronic components and semiconductor laser in its manufacture. This enables the system to be supplied at a significantly lower whole-life cost than alternative high sensitivity systems.

For multi-detector systems, Stratos offers the option of unique 'Slave' detectors which are controlled by the 'Master' unit. This offers further cost advantages, without compromising performance or reliability (see illustration opposite).

AirSense