VESDA®

LaserPLUS

EARLIEST SMOKE DETECTION WITH MAXIMUM FLEXIBILITY

Total Protection in Critical Applications...

...In areas that require zero or minimum downtime.

- Telecommunications
- Computer Rooms
- Clean Rooms
- Anechoic Chambers
- Television Stations
- Radio Stations
- Robotic Equipment

...Where aesthetics is important and preservation of priceless objects a must.

- Museums
- Archives
- Historic Buildings
- Scientific Projects
- Art Galleries
- Cathedrals

...When extra time is necessary for safe and orderly evacuation.

- Hospitals
- Theatres
- Churches
- Transportation Terminals
- Nursing Homes

NFPA 318 mandates Aspirating Smoke Detection for Cleanrooms

Winchester Cathedral – one of the many cultural sites protected by VESDA

Protects worldwide telecommunication sites

Protecting hospital equipment and lives

A Wider Window of Opportunity

Protecting Your Assets

People, data, computers, inventory and telecommunications systems drive almost every aspect of our economy. They have become cornerstones of everyday life. Which is why it's hard to imagine the potential chaos related to fire damage and business disruption.

Even without substantial fire damage, other serious consequences may be incurred such as lost time, equipment shutdown, loss of valuable data and even damage from unnecessary release of suppressants.

VESDA LaserPLUS, is a high sensitivity aspirating smoke detector. It provides very early detection, that could essentially turn a potential fire emergency into a simple maintenance task, thus helping to avoid fire damage, loss, and business disruption.

Working With Suppression

While existing aspirating smoke detection systems have been used in a number of halon replacement applications to complement or replace suppression systems, the very early alarm was often considered too sensitive to initiate automatic release. VESDA LaserPLUS, however, provides both:

- an early warning to facilitate early intervention, and
- a suppression (Fire 2) signal to initiate release at an appropriate level, eliminating the need for a separate detection system.

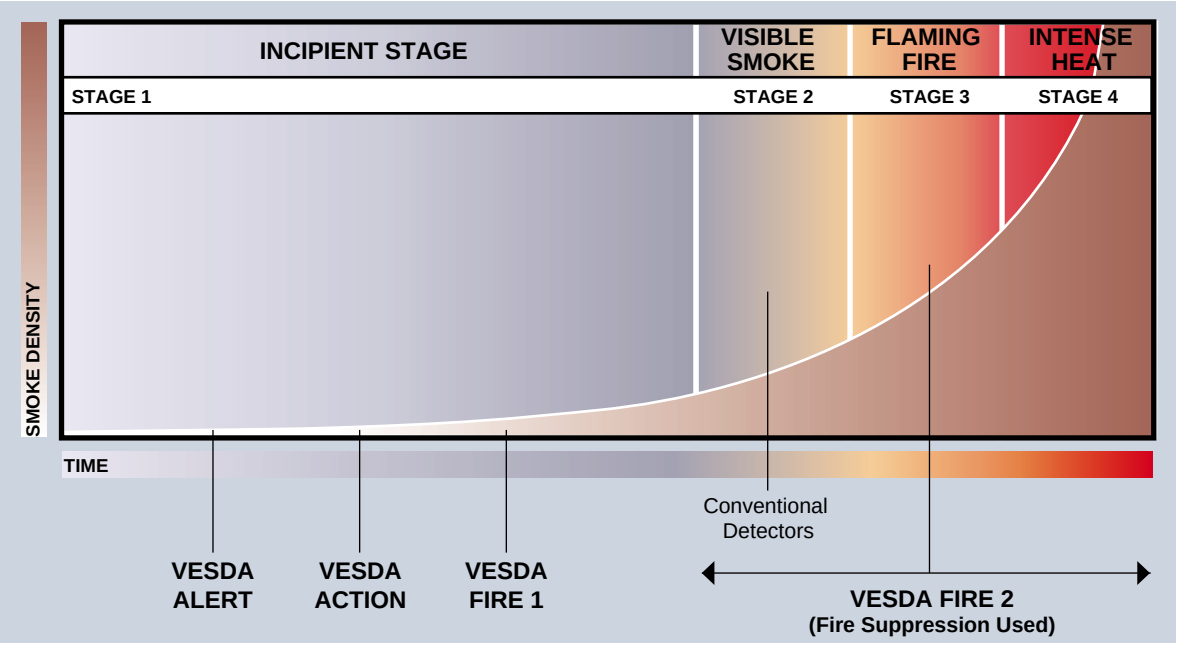
This arrangement exploits the full range of the VESDA LaserPLUS detector, without compromising the early warning of incipient fire growth.

The Best Investment

VESDA LaserPLUS is designed to be the best, high sensitivity aspirating smoke detection system with the lowest lifetime cost.

The system is modular. Displays and programmers can be installed only where needed. It uses high quality stable components and has several revolutionary features to achieve a minimum design life of ten years. Every detector is monitored and problems are intelligently reported to eliminate expensive troubleshooting. The product meets worldwide fire standards which are required by major insurers. Full 24-hour support is provided through local accredited VESDA distribution and international sales offices.

No other smoke detection investment can provide the flexibility, performance, quality, reliability, and low lifetime costs offered by VESDA LaserPLUS.



Time Available to Prevent Fire Loss

All escalating fires have four stages: Incipient (pre-combustion), Visible Smoke, Flaming Fire, and Intense Heat.

This chart shows the progression of fire over a time period. Note that the incipient stage of smoldering fires provides the widest window of opportunity to detect and control the spread of fire, before it develops into devastating stages.

VESDA LaserPLUS Modules

The Detector Assembly

The detector assembly contains the laser detection chamber, high efficiency aspirator, monitored filter cartridge, control electronics, and relay interface. The detector assembly can be used as a "distributed" system, with the display, programmer, and VESDA*net* socket modules mounted in a remote location. Alternatively, the detector assembly can be configured as a "self-contained" system by replacing the detector's blank panels with the display and/or programming modules.

Scanner Configuration

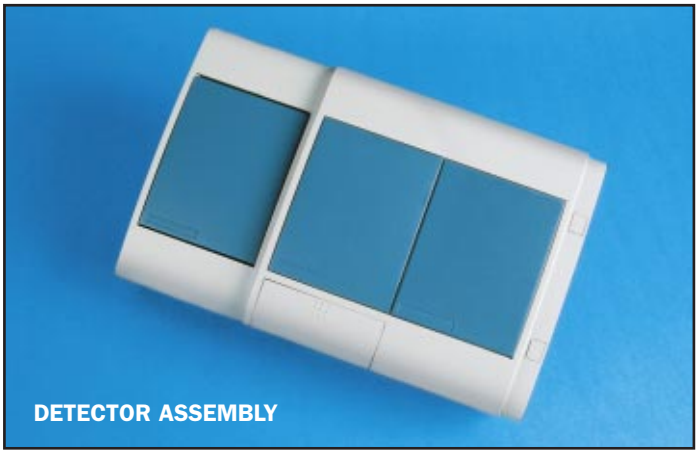
VESDA LaserPLUS is also available in a Scanner configuration, which allows the system to distinguish and identify the pipe carrying smoke, while sampling multiple sectors. The detection of smoke results in the system locating the first sector in Alert, indicating the origin of a fire.

The VESDA LaserPLUS detector will continue to sample from all sectors to monitor the fire growth and maintain full protection.

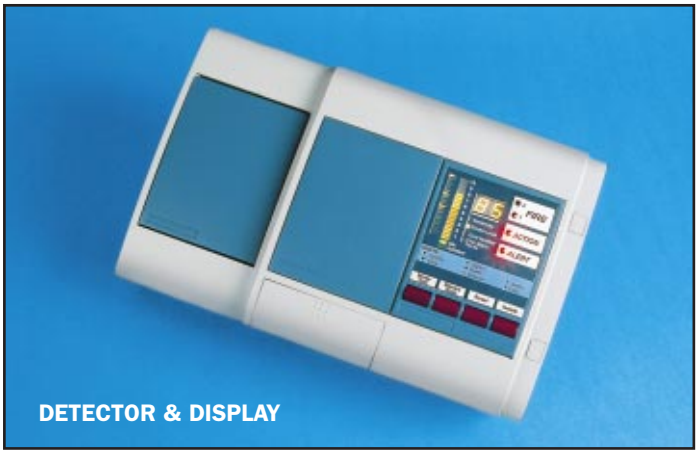
The Display Module

A display module monitors the VESDA LaserPLUS detector. It reports a visual representation of smoke levels, and all alarm and fault conditions. The internal sounder warns personnel in the local area that an alarm threshold has been reached, or a fault has occurred.

Displays can be located at a convenient location – either within the detector module, or remotely on the VESDA*net*. For monitoring convenience, multiple displays can be associated with a single detector.



DETECTOR ASSEMBLY



DETECTOR & DISPLAY

DETECTOR, DISPLAY

Monitored Dual Stage Filter

The *automatic* filter monitoring feature supervises filter performance and signals when replacement is due. In addition to the automatic monitor, a *user programmable* monitoring feature allows the user to prescribe filter changes to coincide with the date and time of scheduled facility maintenance cycles.

The filter is a dual stage cartridge. The first stage removes dust and dirt from the air sample but allows smoke to enter the laser detection chamber. The second, ultra-fine stage, provides an additional clean air wash which keeps the optical surfaces clean. This unique filter design, with easy access for service, allows extended, low cost maintenance, even in dirty environments.

The VESDA LaserPLUS Display

Display modules incorporate numerous system indicators and functions:

- Alarm level indicators
- Real-time smoke level indication on a 20-segment bargraph
- Push buttons to perform a general function test, silence function, reset and isolate functions
- Fault conditions, with specific information indicated

Another feature of the display is the 2-digit, digital readout that provides:

- Fire 1 alarm threshold
- Current numeric smoke level
- Zone indication
- Pipe identification (Scanner only)

Intelligent Power Distribution

VESDA LaserPLUS devices accept a wide range of DC power from 11 to 30 VDC. Intelligent power supply units are available which connect to the communication network called VESDA*net*. These monitor the AC input and alert the network to power failure. They also perform battery condition monitoring.

Each power supply can support a number of detectors, displays and programmers, allowing the system to be configured into power zones. The intelligent power supply will operate from a range of voltages, including 120 VAC, 240 VAC, and 48 VDC.

Versatile Mounting Options

The detector module can be mounted on the wall to allow sampling pipes to enter from the top or bottom of the detector.

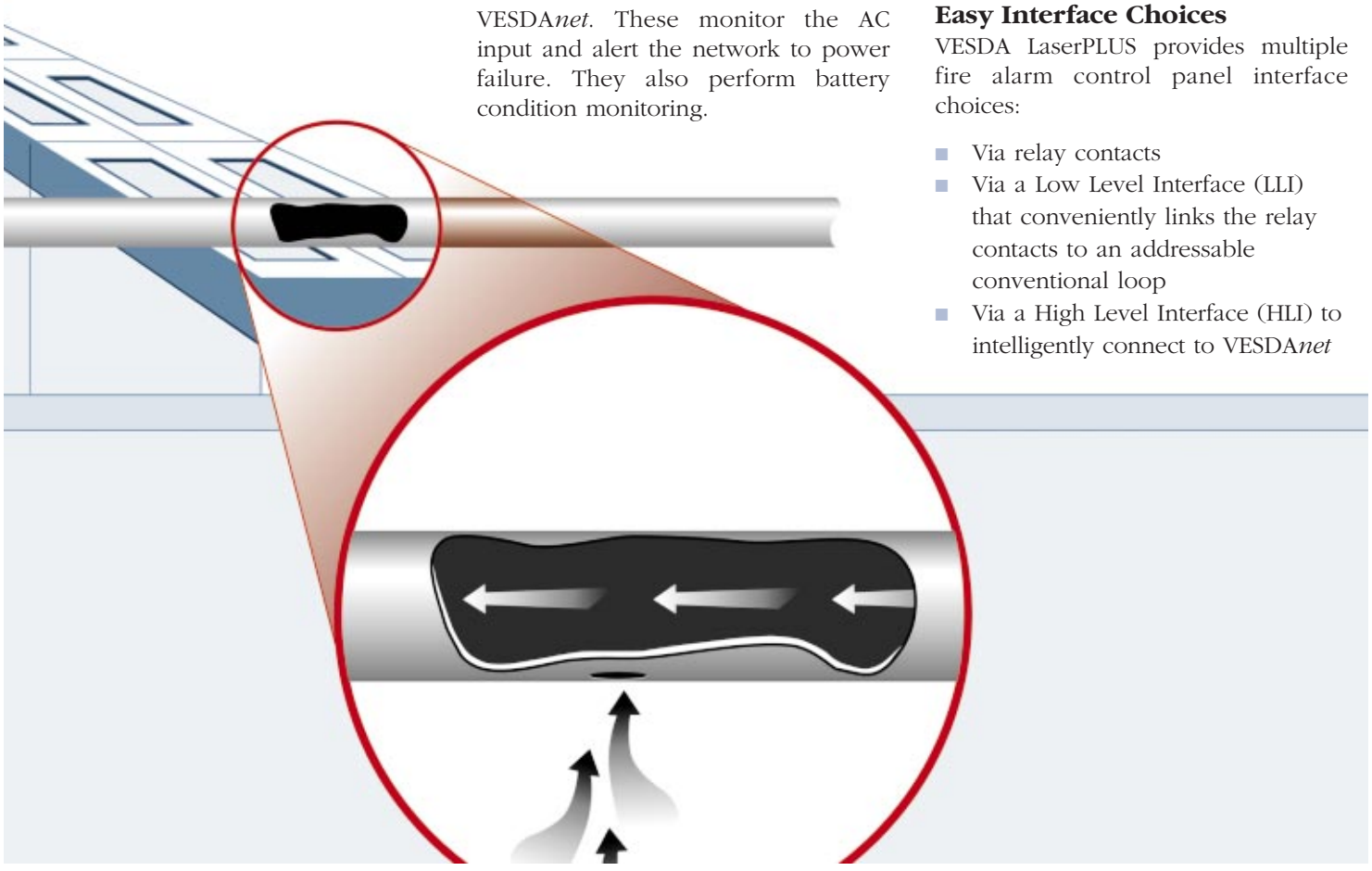
In addition, recess mounting kits are available to allow the mounting boxes and pipework to be recessed to enhance the aesthetic appearance of the product.

Remote mounting boxes and 19" rackmount modules complement the system to provide the mounting option you require.

Easy Interface Choices

VESDA LaserPLUS provides multiple fire alarm control panel interface choices:

- Via relay contacts
- Via a Low Level Interface (LLI) that conveniently links the relay contacts to an addressable conventional loop
- Via a High Level Interface (HLI) to intelligently connect to VESDA*net*



Superior Flexibility, Performance, and Reliability...

Cost-Effective Modular System

The VESDA LaserPLUS system is modular, and therefore highly flexible, making it possible to build the exact system required at minimum cost. Displays and programmers can be mounted within the detector or separately in a remote location.

VESDA LaserPLUS modules can form an intelligent network, based on an RS-485 protocol, which needs only a simple twisted pair of wires. At any point in the network there is full access to other networked devices. Programming and monitoring can be performed at the detector, the fire alarm control panel, or any other suitable location – even off site via modem.

Unique Design Solutions

VESDA LaserPLUS can be applied in a variety of ways to address design problems that conventional smoke detectors cannot.

High Air Flow

In telecommunications facilities, computer rooms and clean rooms, where air conditioning maintains positive pressure, smoke often becomes diluted and can be carried to the exhaust without ever reaching conventional detectors. High air flow can impair the sensitivity of conventional detectors, and in some cases, cause nuisance alarms. The sensitivity of VESDA LaserPLUS is not affected.

Pipe Network

Initial incipient smoke is low in density and below the detection range of "passive" conventional detectors. This smoke rarely contains the heat buoyancy necessary to lift it to the ceiling. In fact, incipient smoke is typically diffused into the atmosphere. By the time smoke in sufficient concentration finds its way into individual "passive" ceiling-mounted detectors, severe damage may already have occurred. VESDA aspirating detectors solve this problem with their network of interconnected "active" sampling points.

Pipes can be located below the ceiling, (pipe drop) to sample air directly above electronic equipment cabinets. Pipes can also be located in the air handling system to monitor return air.

Extended Coverage

A single VESDA LaserPLUS detector is designed and approved to monitor up to 20,000 sq. ft. (2000 sq. meters). Actual coverage may vary depending upon national standards, customer requirements, and risk assessments for specific applications. Each "active" sampling point along the pipe network can take the place of a "passive" conventional detector.

Highly Sensitive

VESDA LaserPLUS detects particles in the pre-combustion stage, with its highly sensitive receiving optics that allow for a wide range of particle recognition. As a result, VESDA LaserPLUS will provide an earlier warning to a wider range of fire scenarios.

Cost Effective Retrofit

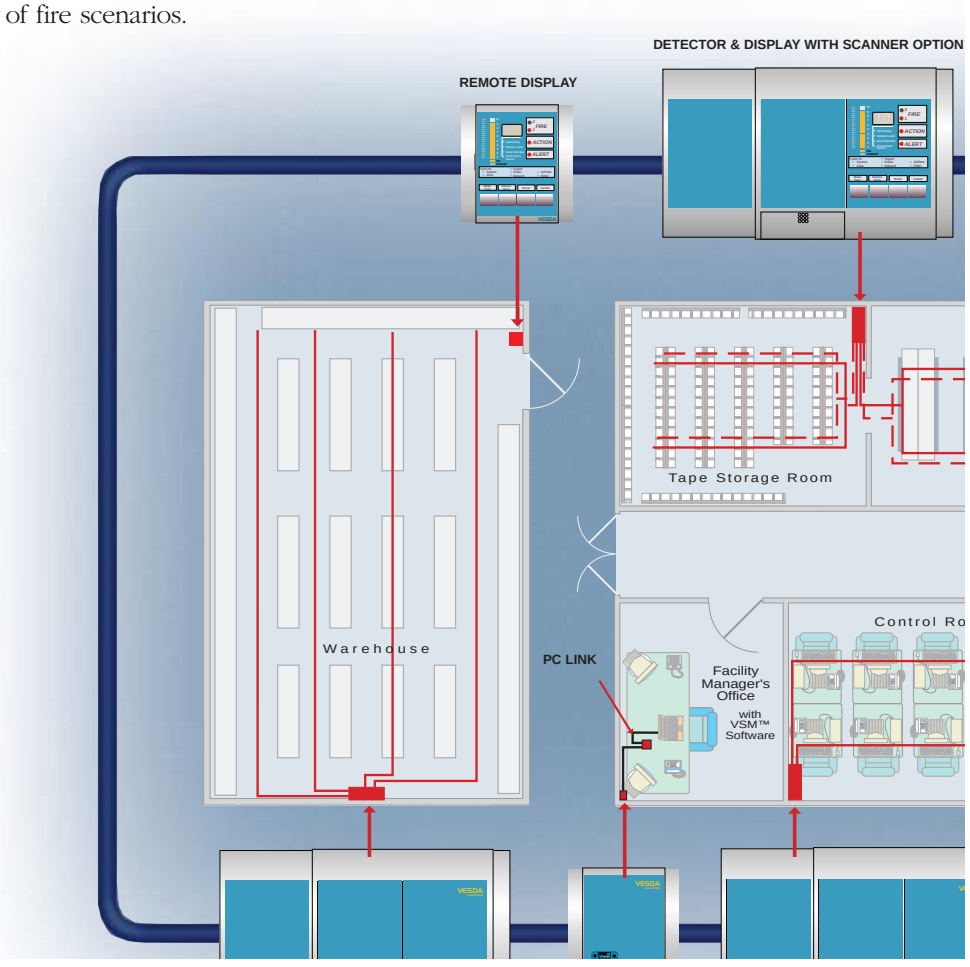
The VESDA LaserPLUS system is not dependent upon a particular brand of fire alarm control panel. It will interface to the building's existing panel, reducing new equipment cost, and business disruption.

Easy, Low-Cost Maintenance

While maintenance on conventional detectors is typically performed at the ceiling level, the VESDA LaserPLUS system can be maintained from one central location. The laser detection chamber has a minimum 10-year life expectancy. Periodic intensive maintenance is not required to maintain the optical integrity, or the unit's detection performance.

Event Logger

The built-in event logger stores up to 18,000 events, to provide local and remote downloading of important



information in a user friendly graphical format. All alarm and fault events are recorded as well as significant smoke level changes. The threshold for a smoke change that constitutes an event is user programmable. The event logger can be configured to record minute changes in environmental smoke levels over a period of days, or to maintain a long term record of alarm and fault events over a period of years.

The events can be accessed via PC and VESDA System Management (VSM™) software.

Avoids Nuisance Alarms

Unlike other high sensitivity smoke detection systems that can alarm in the presence of dust, or are recommended only for "clean" environments, VESDA LaserPLUS uses a simple but highly reliable filter to trap dust or dirt particles.

The detector and controls can be located remotely from the protected area and sampling points can be concealed to prevent nuisance alarms from vandalism.

The danger of nuisance alarms caused by electrical interference is virtually eliminated by careful design to meet EMC requirements.

VESDA LaserPLUS is the only aspirating smoke detection system that supports four configurable alarm levels: Alert, Action, Fire 1 and Fire 2. Alarm thresholds are user defined within the sensitivity range. The alarm levels are field programmable, allowing for fast on-site adjustments to accommodate a possible change in environmental conditions.

In areas subject to heavily polluted intake air from external sources, VESDA LaserPLUS can be programmed for "Air Referencing." This feature automatically discriminates between internal and external pollution, to ensure reliable detection in the monitored area.

The programmable time delay feature of up to 60 seconds provides alarm verification for each alarm level.

The AutoLearn™ feature saves time and effort by self-configuring the alarm thresholds, thus helping to prevent nuisance alarms. Learning periods can be set up to 14 days.

This flexibility allows VESDA LaserPLUS to perform in clean or dirty environments, from cleanrooms to coal conveyors and cable tunnels.

Discrimination & Reporting

The system discriminates between a maintenance fault and an urgent fault.

The first level of fault report is used to indicate conditions which do not significantly impair the fire detection performance. For example, a small drift in air flow or a single break in a fault tolerant VESDA*net*. If the fault impairs the performance of the detector, then the second level of fault is reported. For example, a large change in air flow, a total loss of power to one element in the system, or an indication that the system is not performing within design tolerance.

VESDA*net*™

VESDA*net* is a comprehensive fault tolerant communication network. It links VESDA LaserPLUS detectors and ancillary devices on an RS485 daisy-chained loop. Systems external to the network such as a building management system can use VESDA*net* via a high level interface, to communicate with individual devices in the VESDA LaserPLUS system.

If the wiring is damaged, or one device on the loop fails, information continues to pass around the bidirectional network. The devices on either side of the fault send a message back. This allows the faulty device or wiring link to

Introducing...

A New Benchmark

VESDA became the proven benchmark of aspirating smoke detection by providing the earliest possible response to incipient fires. For two decades, this ultra sensitive response was achieved by the use of a xenon broad band light source. Xenon technology allows for the detection of a very wide range of fire types. While a laser light source offers an extended lifetime advantage over xenon, smoke detectors that employ the laser principle were not able to detect across a wide range of fire types, until... VESDA LaserPLUS.

VESDA LaserPLUS is the result of extensive research and development by Vision Systems' world class engineers. Packaged into a fully integrated and modular range of products, VESDA LaserPLUS ensures detection across a wide range of fire types *and* employs a laser light source. In addition, VESDA LaserPLUS provides:

- The world's widest sensitivity range – *with one detector*
- Improved suppression interface
- Four levels of alarm
- The stability of a laser light source
- A detector which employs both light scattering and particle counting techniques
- Improved immunity from nuisance alarms
- The first clean air optical wash
- Lower maintenance costs
- Long-life filter and detector
- Maximum flexibility, and...
- Very early detection performance on which the VESDA reputation is based

This development not only represents a new benchmark, it represents a quantum leap for laser based smoke detection technology.

How VESDA LaserPLUS Works

Air is continuously drawn into the piping network by an internal aspirator. A sample of this air is transported through the filter to the detection chamber.

In the detection chamber, the air sample is exposed to a highly stable laser light source. Light scattered by smoke is detected by very sensitive receivers. The output signal is processed and presented on the bar graph display as one or more illuminated segments, depending upon smoke density. VESDA LaserPLUS communicates this information back to the fire alarm control panel or building management system via relay contacts or intelligent interfaces.

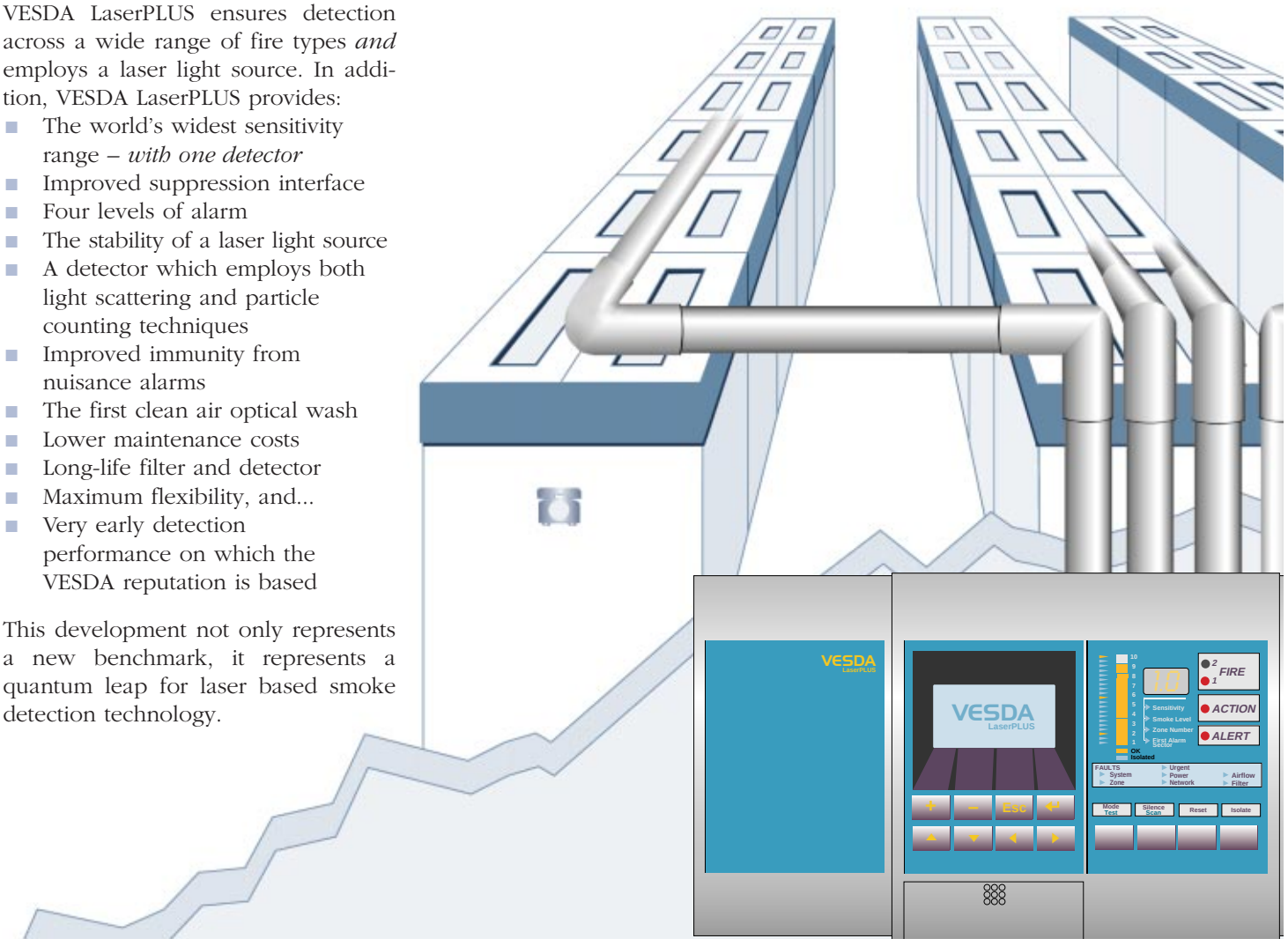
Unmatched Sensitivity Range

The VESDA LaserPLUS detector provides a sensitivity range of 0.0015% to 6% obscuration/ft. (0.005 to 20% obscuration/m).

The intensity of the laser light source is carefully monitored, maintained and controlled to achieve detection to a wide range of particle sizes and an unmatched sensitivity range.

High Efficiency Aspirator

The unique, purpose-built aspirator allows the sampling from multiple pipes per detector, with the fastest smoke transport time even for very small levels of smoke and in areas with high air flow.



Programmer Options

- *The Programmer Module*
  The menu driven programmer allows the VESDA LaserPLUS system to be configured, commissioned and maintained. Only one programmer is required to support the entire network. It can be located either with a particular detector, or remotely for easy access.

  It is recommended that at least one programmer be permanently connected to the VESDA*net*.

- *The Hand-held Programmer*
  The programmer is available in a hand-held version to plug into the VESDA*net* socket located on the detector, or located in a remote area. It is specifically designed for convenient on-site maintenance and service interrogation.

- *The PC Configurator*
  Available via a PC link into VESDA*net*, the PC configurator is Windows™ based and includes tool bar, pull down menus, drag & drop, and help screens. The PC configurator provides a more convenient commissioning interface for larger VESDA LaserPLUS installations.

ASPIRE™

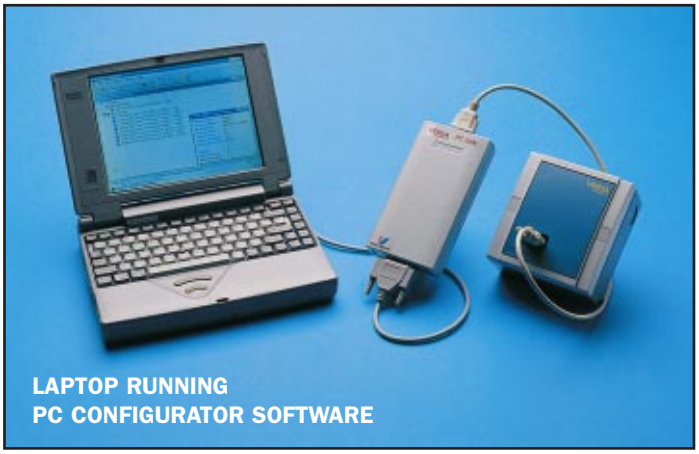
A computer software tool for designing and evaluating aspirated pipe system layouts.

VSM™

VESDA System Management (VSM) is an intelligent, Windows™ based graphics communication software. It is a monitoring and administration tool that supports custom floor plans. VSM allows the user to operate, maintain, program and commission all the VESDA LaserPLUS detectors on a single VESDA*net*.

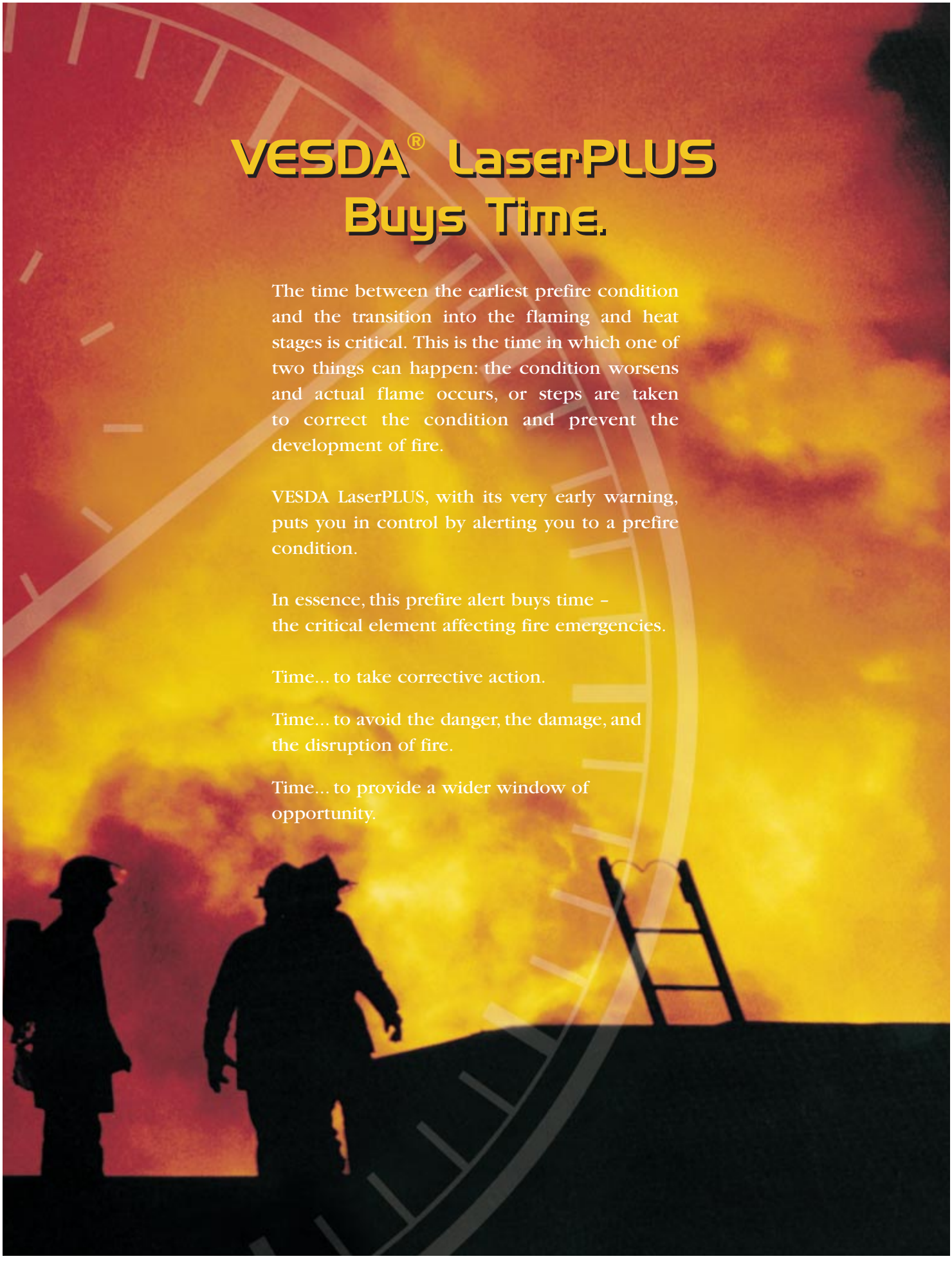
Real time and historic events for a single detector, an area, or the entire facility can be collected, processed, and presented in either report or 3-D graph format.

REMOTE PROGRAMMER MODULE


LAPTOP RUNNING
PC CONFIGURATOR SOFTWARE

HAND-HELD PROGRAMMER


VSM™



VESDA® LaserPLUS Buys Time.

The time between the earliest prefire condition and the transition into the flaming and heat stages is critical. This is the time in which one of two things can happen: the condition worsens and actual flame occurs, or steps are taken to correct the condition and prevent the development of fire.

VESDA LaserPLUS, with its very early warning, puts you in control by alerting you to a prefire condition.

In essence, this prefire alert buys time – the critical element affecting fire emergencies.

Time... to take corrective action.

Time... to avoid the danger, the damage, and the disruption of fire.

Time... to provide a wider window of opportunity.

Where Fire Loss and Downtime are Unacceptable.

...To avoid unnecessary suppression release and associated business disruption.

- Magnetic Media Libraries
- EDP Facilities
- Flight Simulators
- Electronic Medical
- Diagnostic Facilities
- CAD/CAM Facilities

...In areas with high ceilings or high air flow, where smoke is hard to detect.

- Warehouses
- Cold Storage
- Atriums
- Indoor Stadiums
- Gymnasiums
- Aircraft Hangars
- Large Function Rooms

...Where maintenance access is limited or smoke detection must be unnoticed.

- Prisons
- Schools
- Dormitories
- Locker Rooms
- Rest Rooms

VESDA can be used with suppression systems to facilitate early intervention and/or to initiate suppression release.

Where very early fire detection is critical to protect electronic control rooms

Protects high ceiling areas

Protecting prison facilities

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Vision Systems Products Division is a member of the worldwide Vision Systems Group.

The Vision Systems Group is a leader in high technology product manufacturing.

Key strengths are:

- **Diverse product ranges marketed worldwide for applications such as:**
  - **security for commercial and government facilities**
  - **smoke detection for areas requiring very early fire detection**
  - **surveillance , signal processing, imaging, and related technologies**
  - **pathology and clinical laboratory automation**
  - **laser airborne depth sounding for hydro graphic mapping purposes**
- **Offices in North America, Australia, Europe, New Zealand, and Asia**
- **Leading edge capabilities in the development of surveillance and imaging technologies**
- **A unique integration of commercial and strategic business consulting, technology development and application skills for industry**
- **Established alliances with a number of major companies in the USA, Australia, Europe and Asia**
- **Quality accreditation to ISO9001/2**

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