The World’s No. 1 Brand of Aspirating Smoke Detection

www.xtralis.com/vesda
The Seven Reasons for VESDA

1. **When business continuity is paramount**

   Is uptime a key business goal? Is service provision critical?

   VESDA very early warning smoke detectors provide the earliest warning of a potential fire which buys time to investigate, intervene and avoid business disruption in addition to damage, downtime and the cost of a suppression release. Such early warning is critical for:
   - Telecommunications facilities
   - Server rooms
   - Financial data centers
   - Utilities
   - Clean rooms
   - Power generation facilities

2. **When smoke is difficult to detect**

   Is high airflow diluting smoke, preventing it from reaching the ceiling so it can be detected? Is the smoke being trapped in ducts, pockets or voids? Is smoke stratifying into a mushroom cloud below a high ceiling, making it difficult to detect?

   VESDA sampling points can be placed at the return air grille or in equipment cabinets to detect smoke as it is carried by the air. In large, open spaces, sampling points can be placed where the smoke goes — often some distance below the ceiling level. Suitable for:
   - Server rooms
   - Clean rooms
   - Telecommunications facilities
   - Warehouses
   - Atria
   - Indoor stadiums
   - Theaters
   - Convention centers

3. **When maintenance access is difficult**

   Is the area to be protected inaccessible? Does maintenance on traditional fire detection systems cause disruptions and inconvenience your business?

   VESDA detectors can be mounted in accessible locations to enable easy maintenance. Only the sampling pipe network is placed in the inaccessible area. Ideal for:
   - Ceiling voids and sub-floor spaces
   - Prisons and detention facilities
   - Elevator shafts
   - Ducts
   - Production areas

4. **When unobtrusive detection is required**

   Is it important to preserve the internal design/decoration of the building? Is vandalism a problem with the current smoke detection system?

   A VESDA system can be installed with capillary sampling tubes, which are barely discernible to the human eye. The detectors can be placed in a cupboard or utility area. Great for:
   - Modern offices
   - Heritage buildings
   - Cathedrals
   - Prisons and detention centers
   - Art galleries and museums
   - Prestigious residences
Will the building be open to the general public? Will it house people who need extra help during an evacuation? Is evacuation difficult due to crowds or limited exits? What is the business impact of an evacuation?

The very early warning that VESDA systems provide allows the maximum time for evacuation. This is critical for:

- Shopping centers
- Hospitals
- Stadiums
- Underground tunnels
- Heritage buildings
- Facilities for children and the elderly

Is suppression release costly and disruptive?

The very early warning provided by VESDA systems allows early intervention to prevent suppression releases. The multiple alarm levels of VESDA systems can be used to trigger different responses at different stages of a fire — from controlling air conditioning to initiating a suppression release. Applicable for:

- Communications hubs
- Server rooms
- Command stations
- Switch rooms

Are high background levels or industrial activities present in the area to be protected?

VESDA VLI detector, with its ruggedized enclosure and patented long-life, fail-safe intelligent filter technology, is specifically designed for industrial applications with harsh and difficult environments. The VLI detectors can be installed within the sampling area or remote from the detection area with only the sampling pipes located in the protected area. The sampled air can be filtered, warmed or cooled before reaching the detector. Ideal for:

- Mines
- Water treatment plants
- Manufacturing and processing plants
- Fertilizer plants
- Power generation facilities
- Textile plants
- Timber, pulp and paper plants
- Transportation
VESDA 

Aspirating Smoke Detection (ASD)

The world’s no. 1 ASD brand

VESDA very early warning smoke detection solutions provide the earliest possible warning of an impending fire hazard. VESDA buys time to investigate an alarm and initiate an appropriate response to prevent injury, property damage or business disruption. And because VESDA has the industry’s widest sensitivity range and multi-level alarms, even minute levels of smoke can be detected before a fire has time to escalate.

As the No. 1 ASD brand specified by fire professionals around the world, VESDA is synonymous with reliable, high-performance fire detection.

How VESDA works

VESDA works by continuously drawing air into a distributed pipe network via a high-efficiency aspirator. The air sample then passes through a dual-stage filter. The first stage removes dust and dirt from the air sample before it enters the laser detection chamber. The second, ultra-fine stage provides an additional clean-air supply to keep the detector’s optical surfaces free from contamination, ensuring consistent absolute detection and long detector life as well as minimizing nuisance alarms.

From the filter, the air sample goes through the detection chamber where it is exposed to a laser light source. When smoke is present, light is scattered within the detection chamber and is instantly identified by the highly sensitive receiver system. The signal is then processed and presented via a bar-graph display, alarm threshold indicators and/or graphic display. VESDA detectors are able to communicate this information to a fire alarm control panel, a software management system, or a building management system via relays or a High Level Interface (HLI).

This diagram shows the progression of a fire over time. Note that the incipient stage of a fire provides the widest window of opportunity to detect and control the spread. VESDA detectors can be configured to generate multiple alarms within the incipient stage. They also can be configured to generate an additional alarm (Fire 2) at the advanced stages of a fire. This feature is unique to VESDA and takes advantage of its wide sensitivity range that enables one detector to monitor the entire progression of a fire.
VESDA VLS
The VESDA VLS locates the origin of smoke by identifying the sector (pipe) with the highest level of smoke and then continues to sample air from all sectors to monitor fire growth. The VESDA VLS also provides four alarm levels for each individual pipe (Alert, Action, Fire 1 and Fire 2) and provides individual pipe addressability and settings. It protects areas up to 2,000 m² (21,520 sq. ft.).

VESDA VLP
The VESDA VLP is the flagship in the VESDA product range. Like all VESDA detectors, it detects fire at the earliest possible stage and reliably measures very low to high concentrations of smoke. It has the world’s widest sensitivity range of 0.005 to 20% obs/m (0.0016 - 6.25% obs/ft). VESDA VLP supports four configurable alarm levels (Alert, Action, Fire 1 and Fire 2) and protects areas up to 2,000 m² (21,520 sq. ft.).

VESDA VLC
VESDA VLC offers protection for small to medium areas that require cost-effective very early warning. It offers the same wide sensitivity range as the VESDA VLP and VESDA VLS — 0.005 to 20% obs/m (0.0016 - 6.25% obs/ft). The VESDA VLC supports three configurable alarm levels (Alert, Pre-Alarm and Fire) and comes in two versions. One version interfaces via relays only (RO) and the other across either relays or VESDAnet (VN).

VESDA VLF
The VESDA VLF delivers advanced and cost-effective very early warning for small environments. The VESDA VLF-250 model protects areas up to 250 m² (2,690 sq. ft.), and the VESDA VLF-500 model covers up to 500 m² (5,380 sq. ft.). In addition to world leading and well-established VESDA features VESDA VLF provides a new range of features and built-in intelligence for quick installation, commissioning and servicing.

VESDA VFT
The VESDA VFT is a unique and versatile high-sensitivity ASD that is capable of pinpointing the source of incipient smoke to speed response, enhance investigation, and minimize business disruption and downtime. This advanced detector provides intelligent addressability to identify up to 15 protected areas via microbore tubes.

VESDA VLI
The VESDA VLI is an industry first early warning aspirating smoke detection system, designed to protect industrial applications including mining, manufacturing, power generation facilities, waste treatment plants and more up to 2,000 m² (21,520 sq. ft.). The VLI detector combines a patented fail-safe Intelligent Filter with Clean Air Zero and clean-air barrier for optics protection complementing absolute detection and providing longer detection chamber life all enclosed in a robust IP66-rated enclosure.

VESDA VLC-EX
The VESDA VLC-EX detector has been specifically designed to provide all the benefits of aspirating smoke detection, including very early warning, for the protection of hazardous applications with Zone 2 classification. It offers the same wide sensitivity range as the VESDA VLP and VESDA VLS — 0.005 to 20% obs/m (0.0016 - 6.25% obs/ft). The VESDA VLC-EX supports three configurable alarm levels (Alert, Pre-Alarm and Fire) and comes in two versions. One version interfaces via relays only (RO) and the other across either relays or VESDAnet (VN). The VLC-EX incorporates the well-proven VESDA VLP detection technology into an IP54 rated stainless steel enclosure.
Remote Displays and Programmers

The VESDA display module monitors and reports the status of a detector, providing visual representation of smoke levels along with all alarm and fault conditions. The menu-driven VESDA Programmer allows the user to conveniently configure, commission and maintain the VESDA system, as well as program each individual detector.

VESDAnet™

VESDAnet is a comprehensive, fault-tolerant, “closed,” two-wire communications loop that links VESDA detectors, displays, programmers and remote relay modules on a daisy-chained loop. VESDAnet enables a number of units to be programmed together from one or more locations and automatically detects communication failures. It also easily interfaces with systems external to the network, such as intelligent fire alarm panels and building management systems.

VESDA Pipe

A key element in the performance of a VESDA ASD system is the sampling pipe network that actively transports air from the protected area to the detector. VESDA offers an extensive range of pipe and fittings to suit all application needs, ensuring a quality system is installed every time.

Some pipes and fittings are not available in certain countries. Please check with your local Xtralis office prior to ordering.

Xtralis VSM4™

The VSM software package allows the user to monitor, configure and control a VESDA system from a central location via a VESDAnet communication loop or directly to VESDA detectors. Real-time and historical events for a single detector or multiple networks of detectors can be collected over a local- or wide-area network. The data then can be processed and presented in either report or graphical format — even graphically on site floor plans.

Xtralis VSC™

The VSC software package can be used to configure, commission and maintain VESDA detectors. The software provides high-level programming flexibility through its on-line and off-line configuration capabilities. Rapid diagnostic abilities, concurrent configuration views, compare/merge functionality, and simultaneous smoke-trend graphing of multiple detectors are other standard features designed to simplify operation and installation setup.

VESDA ASPIRE2™

VESDA ASPIRE2 is the latest version of VESDA sampling pipe network design and modeling software. It aids in the design and evaluation process for basic to very complex pipe-network layouts. Key features, such as design wizards, 3-D isometric views, an automated design verification process, and a new AutoBalance capability, ensure that a tailored pipe layout is easily achieved. The Installation Data Pack (IDP) generates a series of reports with parameters, required materials and expected system performance so installation and commissioning engineers receive this information clearly.
### VESDA Detector Configurations

#### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>VLP</th>
<th>VLS</th>
<th>VLC VESDAnet (VN)</th>
<th>VLC Relays Only (RO)</th>
<th>VLF 250/500</th>
<th>VFT-15</th>
<th>Industrial VESDA VLI</th>
<th>VLC-EX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worldwide Certificates</td>
<td>LPCB, VdS, AFNOR, UL, ULC, UL268A (in-duct application), FM, NY-MEA, CSFM, ActivFire, CCF, VNIPO, CPR</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Hazardous Area Approval (FM Class 1, Div 2, Groups A, B, C, D)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Min Fire 1 Threshold</td>
<td>0.015% obs/m (0.0046% obs/ft)</td>
<td>0.025% obs/m (0.0086% obs/ft)</td>
<td>0.01% obs/m (0.0031% obs/ft)</td>
<td>0.15% m (0.046%/ft)</td>
<td>0.015% obs/m (0.0046% obs/ft)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Detection Range</td>
<td>0.005 - 20% obs/m (0.0016 - 6.25% obs/ft)</td>
<td>0.056 - 20% obs/m (0.0016 - 6.25% obs/ft)</td>
<td>0.001 - 20% obs/m (0.0003 - 6.25% obs/ft)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Two Stage Filter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Area Coverage (Maximum)</td>
<td>2,000 m² (21,520 sq. ft)</td>
<td>2,000 m² (21,520 sq. ft) across 4 sectors</td>
<td>800 m² (8,610 sq. ft)</td>
<td>250/500 m² (2,690/5,380 sq. ft) across 4 sectors</td>
<td>1,500 m² (16,140 sq. ft) across 15 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pipe Length (Linear)</td>
<td>200 m (656 ft)</td>
<td>200 m (656 ft)</td>
<td>80 m (262 ft)</td>
<td>25/50 m (82/197 ft)</td>
<td>15 x 50 m (45 x 164 ft)</td>
<td>360 m (1,181 ft)</td>
<td>80 m (262 ft)</td>
<td>N/A</td>
</tr>
<tr>
<td>Pipe Length (Branched)</td>
<td>400 m (1,312 ft)</td>
<td>400 m (1,312 ft)</td>
<td>100 m (328 ft)</td>
<td>30/60 m (98/197 ft)</td>
<td>N/A</td>
<td>445 m (1,460 ft)</td>
<td>100 m (328 ft)</td>
<td>N/A</td>
</tr>
<tr>
<td>Multiple Pipe Addressability</td>
<td>No</td>
<td>Up to 4</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Up to 15</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Total Number of Alarm Thresholds</td>
<td>4 (Day/Night)</td>
<td>16 (Day/Night)</td>
<td>3</td>
<td>3</td>
<td>4 (Day/Night)</td>
<td>60 (Day/Night)</td>
<td>4 (Day/Night)</td>
<td>3</td>
</tr>
<tr>
<td>Relay Outputs</td>
<td>7</td>
<td>7 or 12 relays</td>
<td>3</td>
<td>3</td>
<td>(Expandable to 6)</td>
<td>5 (Expandable to 21)</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>On-board Memory (Max. Events)</td>
<td>18,000</td>
<td>18,000</td>
<td>12,000</td>
<td>12,000</td>
<td>18,000</td>
<td>Up to 20,000</td>
<td>18,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Flow Sensor Circuit (one per pipe inlet)</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>15</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP30</td>
<td>IP66</td>
<td>IP54</td>
</tr>
<tr>
<td>AutoLearn™ (Smoke/Flow)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>AutoLearn Smoke™ AutoLearn Flow™</td>
<td>No</td>
<td>AutoLearn Smoke™ AutoLearn Flow™</td>
<td>Yes</td>
</tr>
<tr>
<td>EN54-20 Max. no of Holes (Class A / B / C)</td>
<td>30 / 60 / 100</td>
<td>40 / 40 / 60</td>
<td>30 / 36 / 40</td>
<td>30 / 36 / 40</td>
<td>VLF 250 / 12 / 12; VLF 500</td>
<td>30 / 30 / 30</td>
<td>VLF 250 / 12 / 12; VLF 500</td>
<td>15 / 15 / 15</td>
</tr>
<tr>
<td>Bar Graph/Indicator LED</td>
<td>Local or Remote (20 segment bargraph display)</td>
<td>Local or Remote (20 segment bargraph display)</td>
<td>Local (5 on-board LEDs); Remote (20 segment bargraph display)</td>
<td>Local (5 on-board LEDs)</td>
<td>(7 on-board LEDs 10 Segment Circular Display) Remote display when fitted with VESDAnet card</td>
<td>Yes</td>
<td>Local (5 on-board LEDs) Remote display for VLF-885</td>
<td>VESDAnet VLI (VN) &amp; VLC (RO)</td>
</tr>
<tr>
<td>Programming Tools - On-board Programming module</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Programmed via RS232 direct connection to PC using VSC™</td>
<td>Programmed via RS232 direct connection to PC using VSC™ or Programmer when VN card is fitted</td>
<td>On-board programmer and PC Software (VSC/ VSM)</td>
<td>Local USB configuration port Connection to PC using VSC/ VSM4 Programmer for VLF-885</td>
</tr>
<tr>
<td>VESDAnet™</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Specifications

- **Max. No. of devices/ detectors per loop**: 200 / 100
- **Max. Distance between Devices**: 1,300 m (4,265 ft)
- **Computer-based Management via VSM**: Yes
- **Remote Relay Modules**: VRT-500 N/A, VRT-800, VRT-900 N/A
- **Compatible Remote Bargraph Displays**: VRT-200 N/A, VRT-400, VRT-800, VRT-700 N/A
- **Flow Sensor Circuit**: Up to 4 sectors
- **Flow Sensor**: 30 / 60 / 100
- **On-board Memory**: 18,000
- **Relay Outputs**: 7
- **Relay Outputs Expandable**: No
- **Total Number of Alarm Thresholds**: 4 (Day/Night)

#### Notes

- **VSM**: Patented intelligent filter
- **Secondary Foam Filter**: Sub-sampling probe
- **Flow Sensor Circuit**: One per pipe inlet
- **AutoLearn™**: AutoLearn Smoke™ AutoLearn Flow™
- **Programming Tools**: On-board Programmer
- **VESDAnet™**: Local USB configuration port
- **Programmed via**: RS232 direct connection to PC using VSC™ or Programmer when VN card is fitted
- **On-board programmer and PC Software**: VSC/ VSM4
- **Local USB configuration port**: Connection to PC using VSC/ VSM4
- **Programmer for**: VSM4
- **Remote display for**: VLF-885
- **AutoLearn™ (Smoke/Flow)**: Yes
- **AutoLearn Smoke™**: Yes
- **AutoLearn Flow™**: Yes

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*Note: The table above provides a comprehensive view of the detector configurations and specifications. Additional details and specifications may be found on the VESDA website or in their product brochures.*
About Xtralis

Xtralis® is the leading global provider of converged solutions for the early detection and remote visual verification of fire, gas and perimeter threats.

Our technologies prevent disasters by giving users time to respond before life, critical infrastructure or business continuity is compromised. We protect high-value and irreplaceable assets belonging to the world’s top governments and businesses. Our brands include the VESDA-E – the next generation of aspirating smoke detection technology; VESDA® – the world’s No.1 very early warning aspirating smoke detection (ASD) systems; ICAM™ for flexible ASD; ECO™ – Gas detection & environmental monitoring modules for VESDA & ICAM systems; OSID™ – easy to use smoke detection for open areas; ADPRO® –passive infrared sensors, perimeter, multi-site, and enterprise security; HeiTel™ – digital video remote monitoring; and, ASIM® – intelligent traffic detection.

To learn more, please visit us at www.xtralis.com.

Learn more: www.xtralis.com/vesda