

Frequently Asked Questions | VESDA-E



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1. VESDA-E General FAQs

Q 1: What is the technical specification of VESDA-E VEU, VEP, VES and VEA?

A: The table below lists some technical specifications of VESDA-E detectors:

Features	VESDA-E VEU	VESDA-E VEP		VESDA-E VES	VESDA-E VEA
		VEP-A00-1P	VEP-A00-P		
Worldwide Approvals	FM, VdS, NF, CE, UKCA, ActivFire, CCC, EN 54-20	FM, VdS, NF, CE, UKCA, ActivFire, CCC, EN 54-20		FM, ActivFire, VdS, NF, CE, UKCA, EN 54-20, CCC	CE, UKCA, VdS, ActivFire, FM, EN 54-20
Hazardous Area Approval FM Class 1, Div 2, Groups (A, B, C, D)	No	Yes		No	No
Min Fire 1 Threshold	0.001% obs/m (0.0003% obs/ft)	0.01% obs/m (0.0030% obs/ft)	0.01% obs/m (0.0030% obs/ft)	0.01% obs/m (0.0030% obs/ft)	1.6% obs/m (0.5% obs/ft)
Sensitivity Range	0.001 - 20.0% obs/m (0.0003 - 6.575% obs/ft)	0.005 - 20% obs/m (0.0015 - 6.575% obs/ft)	0.005 - 20% obs/m (0.0015 - 6.575% obs/ft)	0.005 to 20% obs/m (0.0015% to 6.575% obs/ft)	0.020 - 16% obs/m (0.006 - 5.17% obs/ft)
No. of Inlets	4 pipes	1 pipe	4 pipes	4 pipes	40 micro-bore tubes
Two Stage Filtration	Yes	Yes	Yes	Yes	Yes
Area Coverage	6,500 m ² (69,956 sq. ft)*	1,000 m ² (10,760 sq. ft)	2,000 m ² (21,520 sq. ft)	2,000 m ² (21,520 sq. ft)	3,345 m ² (36,005 sq. ft)* across 40 sample holes
Pipe Length (Linear)	400 m (1,312 ft)	100 m (328 ft)	280 m (919 ft)	280 m (919 ft)	40 x 100 m (40 x 328 ft)
Pipe Length (Branched)	800 m (2,625 ft)	130 m (427 ft)	560 m (1,837 ft)	560 m (1,837 ft)	N/A
Addressability	No	No	No	Up to 4 sectors	Up to 40 sampling holes
Total Number of Alarm Thresholds	8 (Day/Night)	8 (Day/Night)	8 (Day/Night)	32 (Day/Night)	8 (Day/Night)
Relay Outputs	7	7	7	12	7 (Expandable to 47)
On-board Memory (Max. Events)	20,000	20,000	20,000	20,000	20,000
Flow Sensing Per Inlet	Yes	Yes	Yes	Yes	Yes
IP Rating	IP40	IP40	IP40	IP40	IP40
AutoLearn™ (Smoke/Flow)	AutoLearn Smoke™ AutoLearn Flow™	AutoLearn Smoke™ AutoLearn Flow™	AutoLearn Smoke™ AutoLearn Flow™	AutoLearn Smoke™ AutoLearn Flow™	No
EN54-20 Max. no. of Holes (Class A / B / C)	80 / 80 / 100	30 / 40 / 45	40 / 80 / 100	40 / 80 / 100***	40 – 40**
Bar Graph / Indicator LED	LEDs or 3.5" Color Touch Screen	LEDs	LEDs or 3.5" Color Touch Screen	LEDs or 3.5" Color Touch Screen	LEDs or 3.5" Color Touch Screen
Programming Tools	<ul style="list-style-type: none"> - On-board Programming module - Handheld Programmer - PC Software (VSC, VSM) 	<ul style="list-style-type: none"> - USB/Ethernet connection to PC using VSC/VSM4 	<ul style="list-style-type: none"> - USB/Ethernet connection to PC using VSC/VSM4 	<ul style="list-style-type: none"> - USB/Ethernet connection to PC using VSC/VSM4 	<ul style="list-style-type: none"> - USB/Ethernet connection to PC using VSC/VSM4
StaX Expandability	PSU StaX	PSU StaX	PSU StaX	PSU StaX	VEA 40-Relay Local StaX

* System design and regulatory requirements may restrict the monitoring area to a lesser amount.

** Check local codes for the required transport times determined by the tube lengths.

*** Subject to agency testing.

For more specifications, please refer to the technical data sheets on Xtralis website (VEU doc. no. [22065](#), VEP doc. no. [22063](#), VEA doc. no. [22210](#), VES doc. no. [33728](#)).

Q 2: How much does a VESDA-E detector cost?

A: Please refer to your Regional Sales Director for pricing information.

Q 3: How large are the StaX modules?

A: The StaX modules have the same width and depth as the VESDA-E detector, so they fit perfectly on top or below the VESDA-E detector. StaX have varying heights depending on their functionality.

Q 4: Does VESDA-E have filters? If so, how many and can they be cleaned?

A: Each VESDA-E detector has one field replaceable filter: VEU/VEP/VES filter part no. is VSP-962, and VEA filter part no. is VSP-972. The VESDA-E filter cartridge cannot be cleaned and must be replaced with a new one.

The Flair detection chamber incorporates a clean air filter to form a clean air barrier around the chamber optics; key for maintaining absolute calibration and consistent performance over time. This filter is not field replaceable and designed to operate for the life of the detection chamber.

Q 5: Can VESDA-E be mounted without a mounting bracket?

A. Yes, VESDA-E can be mounted directly on a surface via key holes on the back of the enclosure. The mounting bracket will facilitate faster mounting especially on uneven surfaces.

Q 6: Other ASD products appear to have some form of particle characterization already. Is VESDA-E any different?

A: It is common for other technologies to use multiple wavelengths of light and the variance in individual signal response to determine if the particles are smoke or dust (their version of “characterisation”). Xtralis research has proven that this approach has its limitations in balancing between higher sensitivity for very early warning and dust “rejection” to minimise nuisance alarm. The result is either a less sensitive detector (compromising very early warning capability) or sensitive detector which is prone to nuisance alarms. Neither is an acceptable solution. VESDA-E provides very high sensitivity with an extremely high level of dust tolerance to deliver the most reliable very early warning detection.

Q 7: How good is VESDA-E’s dust rejection?

A. Through Xtralis’ internal testing, VESDA-E is up to 18 times better than other ASD systems at rejecting dust to avoid nuisance alarms. Compared to VLP, VESDA-E provides at least 3 times better dust rejection, which can be up to 6 times.

Q 8: Can VESDA-E’s dust rejection capability be configured in the field?

A. No, dust rejection is a standard feature which is independent of the type of dust in the environment. This is available in all VEU, VEP and VES models.

Q 9: Would VESDA-E be able to give an indication if there is a blockage in a single hole on a pipe?

A: VESDA-E uses the latest Xtralis ultrasonic flow sensing technology which sets the benchmark for flow monitoring in the market. Individual hole blockage detection depends on the total pipe length, number of holes and balance of the pipe network. VESDA-E VEA detector, which provides pinpoint addressability, allows single hole blockage detection.

Q 10: How is remote diagnostics achieved and what’s its benefit?

A. Remote diagnostics is achieved via VESDA-E IP (Ethernet) capability, which allows VESDA-E to connect to a network with its own IP address. The ability to diagnose the VESDA-E system remotely allows immediate review of system status and undertaking system wide diagnostics including event log download without having to attend the site. This level of access is demanded by end-users and channel partners to ensure timely response to enquiries and reduce the number of site visits (and associated costs).

Q 11: What's the difference between VESDA-E USB and other ASD's that support USB connectivity?

A: VESDA-E USB is a host-mode USB which not only enables connection to a PC but also firmware upgrade, which simplifies commissioning and on-going maintenance.

Q 12: Can I use my existing VSC tool to program VESDA-E detectors?

A: Yes, VSC is the tool to gain access to the VESDA-E detector range. Always refer to the latest VSC release available on Xtralis website for the latest compatible version.

Q 13: I have an old 4-pipe ASD unit on the wall (non-VESDA); what do I need to do to replace it?

A: The existing pipe network design shall be verified using ASPIRE with an appropriate VESDA-E detector.

Q 14: Will the remote VESDAnet socket be upgraded to a USB connection? If there is a VESDAnet network entirely of all VESDA-E detectors.

A: VESDA-E platform will provide remote modules as well. Connecting to VESDA-E via USB or Ethernet will also provide access to the other VESDA devices on the same VESDAnet network.

Q 15: Does VESDA-E support SMS notification? If so, how is it configured?

A: No. This feature is available through Xtralis VSM.

Q 16: Do I still require an HLI to connect to a PC for Xtralis VSM4 monitoring on a network entirely of VESDA-E detectors?

A: No. You can connect the PC with VSM to VESDA-E using Ethernet. You can also use USB for configuration.

Q 17: How does AutoConfig work? What is the time required to perform?

A: AutoConfig allows the user to normalise the airflow, run AutoLearn Smoke/Flow. Please refer to the product guide for details.

Q 18: Will software tools encompass all detectors, past and present (Xtralis VSC and ASPIRE)?

A: This is already the case.

Q 19: Sampling module, (VSP-965), what does it do?

A: Ensures a representative sample is taken before the aspirator. This provides the Flair chamber with a true sample of particles present in the sampled air unaffected by scrubbing effect that may otherwise be caused by the aspirator. It is important for Flair to get a representative sample for particle characterisation.

Q 20: What is the algorithm used for AutoLearn™?

A: The AutoLearn™ algorithm monitors activity over a pre-defined period to set alarm thresholds that offer early warning while minimising nuisance alarms and have been developed based on real life experience. The algorithms themselves are proprietary information.

2. VESDA-E VEU and VESDA-E VEP



Q 1: What are the differences between VESDA-E VEU and VESDA-E VEP?

A: VEU is the premium detector of the VESDA-E range. An ultra-high sensitivity alarm threshold; 15 times greater than VESDA VLP, and provision for more sampling holes provide an increased coverage in high airflow applications by at least 40%. Considerably longer linear pipe runs and extended branched pipe network configurations cater perfectly to applications with higher ceilings, providing an increased coverage by up to 80% whilst allowing convenient detector mounting for ease of service and maintenance.

VESDA-E VEP also uses the Flair detection technology to establish a new benchmark in the industry. Improved detection performance, reliability, usability and connectivity ensure all users benefit from the new generation of VESDA detectors. The table below shows the main differences between VEU, VEP and VLP detectors:

Parameter	VESDA	VESDA-E		
	VLP	VEP-A00-1P	VEP-A00-P	VEU
Fire 1 Lowest Threshold	0.015%/m (0.0046%/ft)	0.01%/m (0.0030%/ft)	0.01%/m (0.0030%/ft)	0.001%/m (0.0003%/ft)
No. Class A Holes	30	30	40	80
Linear Pipe Length	200 m (656 ft)	100m (328ft)	280 m (919 ft)	400 m (1,312 ft)
Branched Pipe Length	400m (1,312ft)	130m (427ft)	560m (1,837ft)	800m (2,624ft)
StaX	No	PSU	PSU	PSU

PSU = Power Supply Unit

Q 2: What is the detection principle of VESDA-E?

A: The Flair detection chamber is a completely new and unique generation of technology in the fire detection market. Drawing upon more than 30 years of research and development experience in the very early warning detection sector, the Flair chamber uses a short wavelength laser in conjunction with optical imaging technology and multiple photos diodes strategically placed inside the chamber to look at light scattering in different angles and directions. Combined with sophisticated algorithms this delivers up to 15 times higher sensitivity, at least three times better dust rejection and greater stability and consistency over time.

Q 3: How noisy are the VEU and VEP? Do they require a muffler?

A: Through their design the VEU and VEP detectors are quieter than VLP. VEU and VEP do not require a muffler for everyday quiet applications.

Q 4: How do the “Design-Less” pipe networks operate when designing a system?

VESDA-E VEU supports many pre-engineered pipe network designs to simplify field installations in cases where building layout is straightforward. The Design-less Pipe Network Application Note (Doc. No. 27852) provides simple lookup tables for linear installations and follows EN54 configurations.

Q 5: It is mentioned that VESDA-E VEU has up to twice the longevity of VESDA VLP, does this mean the product's life is 20 years?

A: No. Twice the longevity relates to operational performance in areas with high ambient background levels or those environments that experience periodic smoke or dust exposures.

Q 6: Can VESDA-E VEP be upgraded to VEU?

A: No. While the base technology is the same platform it is not possible to upgrade a VEP to a VEU.

Q 7: Is there a physical feature that indicates differentiation between VEP-4 and VEP-1?

The approvals and ratings label inside the box will clearly indicate the detector's model. VEP-1 will only be available with LEDs.

Q 8: Is the 3.5" touch screen, resistive or capacitive?

It is resistive.

Q 9: Is the Pezzo sounder going ahead on the VESDA-E VEP/VEU?

This is currently being planned. Details will be provided in due course.

Q 10: What micron size can the single stage filter, filter down to?

VESDA-E deploys a two stage filtration technology where the first stage removes large particles and the second removes all particles to provides a clean air barrier that maintains the integrity of the chamber optics. Same filter material as VSP-005.

3. VESDA-E VEP and VESDA VLP



Q 1: Why should I upgrade an old VLP to VEP?

A: VEP is the next generation of VESDA VLP, provides 1.5X higher sensitivity, up to twice the longevity, at least 3 times better dust rejection, and up to 8% reduced power consumption per unit area.

The VLP has a design life of 10 years and at some point will need replacing. Please contact your local sales representative for support to upgrade your VLP to VEP. As the VESDA-E VEP is backward compatible, the replacement process is extremely quick and delivers improved detection and dust rejection performance and lower ongoing maintenance.

Q2: Does the introduction of VESDA-E VEP mean the retirement of VESDA VLP?

A: The retirement of VLP was announced in June 2019 in accordance with Xtralis End of Life (EOL) policy.

Q 3: I have a VLP which is mapped to a remote VESDA display. When I replace my VLP with VEP or VEU, will they work with the existing VESDA Display?

A: Yes, VESDA-E VEU and VEP detectors are backward compatible with existing VESDA ancillary modules including displays and remote relays.

Q 4: I used to buy a VESDA VLP. What do I buy now?

A: For a direct replacement for VLP you may purchase a four-pipe VEP. For considerably improved pipe length and/or sensitivity you may purchase VEU.

Q 5: I have an old VESDA VLP on the wall what do I need to do to replace it?

A: VESDA-E VEP and VEU are backwards compatible with VLP in terms of detector footprint, pipe arrangement, relays order and VESDAnet.

Existing VLP power supply should be able to support VEP without the need to upgrade. In case of upgrading from VLP to VEU you will need to consider the power consumption if affected by higher aspirator speed.

Q 6: I have an old ASPIRE file for a VLP; how can I import the data into the new ASPIRE?

A: Simply open the old file in the new ASPIRE software and select VEP.

Q 7: Can I use the VLP dual stage filter on a VEP?

A: No, VEP and VEU use a smart filter which retains dust count and filter remaining life.

Q 8: Does the hand-held programmer (VHH-100) work with VEP?

A: The VESDA programmer will recognise VEU and VEP as VLP with limited functionality. VSC shall be used for configuration. Please note that the VHH-100 is only available in specific regions.

Q 9: Can I use the existing VLP pipework with a VEP?

A: Yes, four pipes VEP provides a direct replacement for VLP with improved pipe length.

Q 10: Why is there a difference in filter life between the VLP and that of VEU/VEP?

A: We should not compare the two filter reporting methods because they use completely different technologies. Remember, the Flair technology and associated smart filter have been developed based on 20+ years of VLP experience. The Flair technology characterizes dust more accurately and uses an embedded chip to ensure filters are correctly replaced and to keep dust loading historic data. While we might expect both filter technologies to operate for similar periods in the same environment, the Flair technology has a superior filter monitoring capability and can see changes in dust presence and filter loading. In summary, the latest VESDA-E technology has an improved and more accurate filter loading reporting method than previous technology.

4. VESDA-E VES and VESDA VLS



Q 1: What is the principle of operation of VESDA-E VES?

A: The VES detector draws air from all sectors in use and if the smoke level reaches the Adaptive Scan Threshold, it initiates a Fast Scan of each sector to identify which sector is carrying smoke. The first sector to reach the Alert Level is designated as the First Alarm Sector (FAS) and this sector is signalled to the User (and can be connected to FACP as pre-alarm). If two or more sectors reach the Alert level then, the sector with the highest smoke concentration is designated as the FAS. Once FAS is identified, the VES continues to monitor all sectors to track fire growth and ultimately report Sector Fire Alarm to the pane.

Q 2: How is the VES design different from VLS?

A: The VLS design incorporates a gear mechanism to transfer the DC motor rotation to a valve shaft through 90 degrees (rack and pinion) with optical sensors to achieve “open” and “closed” position. This design requires enough force via spring compression through the shaft onto the pinion to provide friction drive. The VLS design requires precise manufacturing and assembly.

The VES design uses a stepper motor to move valves between two positions only. It uses a spring mechanism to toggle between “open” and “closed” position (spring does not apply continuous force). The new design is more robust and requires less stringent production control.

Q 3: How does the VES 3.5" display work?

A: The VES display Home page has a bar graph to indicate the smoke level and adaptive scan threshold. Fault icons are also included to indicate various fault conditions. When the adaptive scan threshold is exceeded the VES display automatically transitions to the Sector status page to indicate the smoke level and alarm level per sector. If alarms are configured as latched, then alarm indication per sector will be retained until Reset is applied. The VES display can only return to the Home page under user control.

Q 4: Why should I upgrade an old VLS to VES?

A: The VLS has a design life of 10 years and at some point, will need replacing. Please contact your local sales representative for support to upgrade your VLS to VES. As the VESDA-E VES is backward compatible, the replacement process is extremely quick and delivers improved detection and dust rejection performance and lower ongoing maintenance. The VES showcases a completely new scanner valve design for robust and reliable operation over time.

Q 5: I have a VLS which is mapped to a remote display. When I replace my VLS with VES, will it work with the existing Display?

A: Yes, VESDA-E VES is backward compatible with existing VESDA ancillary modules including displays and remote relays.