Frequently Asked Questions | VESDA-E VEA

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1. VESDA-E VEA General FAQs

Q 1: Is centralised maintenance allowed by local AJHs?

A: Yes it is. Xtralis has pioneered new technology before, look at ASD! VEA has full system and tube integrity monitoring that automatically checks tube blockage or breakage and also cleans the tubes periodically as well as performs leakage test. VEA raises appropriate faults when problems are found, hence the only aspect needs checking during maintenance is smoke detection as required by local codes and maintenance standards, which is performed with centralised smoke testing. VEA is currently UL / ULC approved and tested for NFPA requirements, which satisfy AJHs requirements in USA. For other local codes and standards similar requirements apply. The “manufacturer’s recommendation” is to conduct centralised smoke testing at the detector and the documentation shall clearly cover this aspect.

Q 2: VEA does not provide a local LED / buzzer at the sampling point so how can it be used in place of spot detectors?

A: The LED on the spot detector is used to communicate detector status. Detector status on VEA is communicated at the detector and FACP. Not all applications require local visual or audible annunciation and we have several non-addressable VESDA systems installed in those applications. We also have a relay per tube annunciation that we provide to the FACP which enables the panel to drive additional ancillary devices as needed.

Q 3: How can you save on cabling when we still have to install manual call points and other devices on the same SLC loop where now VEA is used instead of spot detectors?

A: Yes you will need these devices however the overall cabling requirement is vastly reduced as you do not need to run cables between the spot detectors. One VEA replaces up to 120 spot detectors hence there is considerable savings on the cabling cost. With VEA you will save a lot on cabling as you only have to connect a much smaller number of devices.

Q 4: Will laying out VEA tubing be very time consuming and costly?

A: No, actually tube layout is straight forward and installing tubes is very easy and quick, unlike cabling it does not require regular termination and use of junction boxes as well as gluing and need of conduits, and can be pulled for installation easily.

Q 5: Do we need to use same tube lengths for all tubes with excessive tubes coiled?

A: No, VEA allows variable tube lengths to suit typical applications. Application note and calculator tool will be made available to support VEA installations with varying tube lengths.

Q 6: How do we identify tubes?

A: Each tube has a unique ID, the installer needs to have logical approach to lay tubes one by one and label them.

Q 7: VEA tube layout may become too complex.

A: Tubes are flexible and mechanically strong and do not require conduit, they simply run end to end. We will also provide clear guidelines on tube installation and management.

Q 8: How tubes are installed?

A: Depending on the jurisdiction and local codes tubes may be laid out in the cable trays with cable tie support or support from ceiling in the void. We will also provide clear guidelines on tube installation and management.

Q 9: Are the sampling tubes rated for plenum use?

A: Yes, VEA tubes are compliant to UL1820 and approved for use under NFPA72 and NFPA90A Standards for the Installation of Air-Conditioning and Ventilating Systems.

Q 10: Can we lay the tubes through the HVAC ducts? (not sampling)?

A: No, it is not recommended.

Q 11: Who installs the sampling tubes?

A: Being a critical component of the electrical life safety fire system and directly connected to the VEA detector, tubes need to be installed by VESDA certified personnel, e.g., electrical / instrumentation contractor. If a mechanical contractor must be used then it would necessitate two-trade coordination to deploy. This should be as per the manufacturer's recommendations.

Q 12: How is VEA tube layout done using ASPIRE?

A: VEA has one sampling point per tube hence it does not need to be supported by ASPIRE. VEA is supported in AutoCAD. VEA sampling tube layout is straightforward, similar to laying out a cable for electrical connections. With the actual layout in AutoCAD we will provide support to generate the full bill of material. If you need Xtralis design services team can assist with the tube layout.

Q 13: How does VEA satisfy requirement of fluid dynamics calculations to suppler local codes to meet the transport time requirements?

A: You can print flow and pressure values for all pipes using VSC and compare with limits provided in the product documentation.

Q 14: How do you know which room is connected to which sampling tube at the detector?

A: Based on the sampling tube installation records and labelling we will know which serial number tube is connected to which room. This is confirmed at the commissioning stage by tube names and smoke testing each tube which is made easier with the use of iVESDA.

Q 15: Can we combine duct sampling with room sampling using one VEA detector?

A: While VEA can accommodate pressure differentials it is not recommend that one VEA protect both ducts and open areas because the smoke detected in the duct could be from a different fire zones.

Q 16: Can we set a different sensitivity on each sampling point? Many spot detectors provide this function?

A: While VEA is an alternative to spot detection its detection methodology is different. Like our mainline ASD products VEA has a Fire 1 threshold for the zone with advantage of multiple holes sampling to provide earlier warning in certain applications.

Q 17: Most of our installations need heat detectors in some areas, how does VEA cater for this?

A: Heat detectors are primarily used to minimize false alarms. VEA features a number of capabilities to safeguard against false alarms such as staged alarm thresholds, configurable delays, built-in filtration, and absolute detection underpinned by clean air barriers. Also, currently we are targeting applications where optical detectors are predominantly used, which form more than half the market compare to any other types of detectors. Also use of VEA does not prevent use of heat detectors if they must be used.

Q 18: A single failure could take up to 120 locations out of service.

A: VEA provides full system integrity monitoring and has the same reliability VESDA is known for. Also, one fire panel failure could take an entire building out of service! One or more wiring or spot detector faults could also take many spot detectors out of service depending on the wiring class used.

Q 19: There are handheld devices available to test spot detector sensitivity as required by NFPA72, how will VEA comply with this requirement?

A: Handheld smoke testers are used to test the smoke detector response. To test the smoke response of the VEA you have two smoke test ports located on the VEA unit itself. VEA has tube monitoring to ensure samples are being correctly transported to the detector from the sample point. VEA has absolute smoke detection and monitors sensitivity compliance within the detector raising appropriate faults as required, like other VESDA products.

Q 20: There are many moving parts in VEA, how does this impact its reliability?

A: VEA is designed with reliability in mind, it complies with UL268 reliability requirements. VEA uses custom made high spec items in its construction which are performance tested for wear and tear. Life expectancy of pump is 7+ years and the rotary valve is 10+ years.

Q 21: Wireless spot detectors may obsolete VEA.

A: Wireless spot detectors are still spot detectors hence suffer the same shortcomings in terms of standard sensitivity, drift compensation, lack of monitoring/supervision and being maintenance intensive. Should wireless notification devices become readily available they will only enhance the VEA offering.

Q 22: When purchasing the VEA can the additional two Stax modules of tubes be installed in a remote location or do they have to be part of the unit in a single location?

A: VEA Stax modules have to be in the same location as the base detector to maintain the system integrity. Also, the price difference between a Stax and VEA base is relatively small plus you get fully independent system.

Q 23: NFPA requires to report alarm in 120sec, how does it do it if it is scanning for other functions?

A: VEA is not offline more than allowed time, all scanning functions are not completed at a time for all tubes, i.e., VEA does one pair at a time and come back for the smoke sampling in the home position.

Q 24: VEA transport time (up to 70sec) + scan time (up to 120sec) is too long.

A: VEA is aspirated system with active sampling, it does not have smoke entry lag like spot detectors, our testing has shown that VEA detects smoke earlier than spot detectors.

Q 25: General fire is not good enough for a building manager, need to be able to ID hole at the Alert level.

A: That is available under manual scan option when VEA is in pre-alarm state, press Reset or provide Reset command to the detector under that state.

Q 26: What happens if the after raising the Fire Alarm the smoke has disappeared from the hole, how VEA will identify that hole?

A: After detecting the Fire Alarm VEA starts scanning, during the scanning IT DOES NOT draw air sample from the tube with smoke in it, so until the VEA rotary valve comes to the relevant tube, the smoke in the tube is physically latched (i.e. smoke remains in the tube), so when the rotary valve comes to the position of the relevant tube the smoke already in the tube is drawn in to identify the relevant tube as the one with the alarm condition.

Q 27: Tube breakage / sampling point detection within 24 to 48 hours is not good enough.

A: That is why we provide manual test through VSC to carry out this test manually. It is anticipated that tube breakage is only likely to happen during building maintenance / mechanical work, so we recommend carrying out sample point test for all tubes after such activity as a part of any maintenance routine.

Q 28: Potentially Fire1 alarm may take too long compared to a spot detector due to the transport time.

A: The cause of fires is very varied and in our experience reliable earlier warning combined with active sampling (rather than passive spot detection) provides Fire Alarm indication much earlier than spot detectors. It is also possible to determine the location of a fire during the Alert stage for someone responding on site by doing manual scanning.

Q 29: 100m / 330ft of tubing is not sufficient for all applications.

A: VEA can be used in distributed architecture where e.g. 3xVEA-40 cater for different spaces on a single story building rather than 1xVEA-120 used for the same space – there is minimal cost difference, distributed architecture provides flexibility in tube length.

Q 30: What is centralised testing?

A: VEA has test sampling points in the detector body where smoke can be introduced to verify that smoke detection is functioning properly, and as it is located centrally in the detector it is called centralised smoke testing. VEA implements pipe integrity monitoring from the detector itself, where it will report appropriate faults to indicate an issue with the sampling tube and/or the sampling point, which is also termed as centralised flow testing.

Q 31: What is sampling tube integrity monitoring?

A: VEA ensures that all its tubes and their respective sampling points are monitored for blockage or breakage, it is called tube integrity monitoring.