VESDA® VLI by Xtralis®

VLI-880, VLI-885



The VESDA VLI by Xtralis is an industry first early warning aspirating smoke detection (ASD) system, designed to protect industrial applications and harsh environments of up to 2000 m^2 (21,520 sq. ft.).

Long life, intelligent, fail-safe technology

The VLI detector combines a fail-safe Intelligent Filter (patent pending) with an advanced clean-air barrier for optics protection allowing the use of absolute detection and a long detection chamber life without the need for re-calibration.

The Intelligent Filter:

- reduces the level of pollution in the air sample before it enters the detection chamber, which dramatically extends the operational life of the detector in harsh and polluted environments.
- is fully monitored, providing consistent sensitivity over the entire operational life of the detector.

Installation, Commissioning and Operation

The VLI detector features a robust IP66-rated enclosure which provides complete protection against dust ingress and strong water jets from all directions. In the majority of industrial applications, specifically in very harsh environments, this eliminates the need to use expensive external IP enclosures, thus simplifying and reducing the cost of installation.

The VLI detector is equipped with a powerful aspirator that provides a total pipe length of 360 m (1181 ft). It is fully supported by the Xtralis ASPIRE, VSC and VSM4 software applications which facilitate ease of pipe network design, system commissioning and maintenance together with compatibility with existing VESDA installations.

The AutoLearn™ commissioning assistant reduces setup time and ensures optimum alarm and flow thresholds in a range of environments.

The VLI detector is inherently less prone to nuisance alarms due to the intelligent filter, lint trap, sub-sampling probe and secondary filter. Coupled with its modular design, VLI offers a lower total cost of ownership over the life of the product.

Features

- Suitable for Class 1 Division 2 applications - Groups A,B,C & D
- Up to 2000 m^2 (21,520 sq. ft.) coverage
- Up to 4 inlet pipes
- Total pipe length up to 360 m (1181 ft)
- Five (5) high intensity status LEDs for greater visibility
- Robust absolute smoke detection
- Intelligent Filter (patent pending)
- Lint Trap to capture fibrous particulates
- Sub-sampling Probe (inertial separator)
- Secondary Filter
- Clean air barrier for optics protection
- Referencing
- AutoLearn™ Smoke and Flow
- Clean Air Zero™
- Air-path monitoring
- Five (5) relays (Fire, Fault and 3 configurable)
- Relays configurable as latching or non-latching
- Expandable GPI and relays
- Ultrasonic flow sensing
- Xtralis VSC, Xtralis VSM4 and ASPIRE software support
- IP66 Enclosure
- Easy mounting with steel support bracket
- Modular field replaceable parts for ease of servicing
- Local USB configuration port
- Easy cable termination access
- Imperial and metric pipe ports
- Rubberized finish to external housing

Listings / Approvals

- UL
- ULC
- FM
- ActivFire
- CE
- LPCB
- NF
- SIL 2 as per IEC 61508
- EN 54-20
  - Class A (24 holes / Alert = 0.06% obs/m)
  - Class B (28 holes / Fire-1 = 0.15% obs/m)
  - Class C (60 holes / Fire-1 = 0.15% obs/m)

  Classification of any configuration is determined using ASPIRE.

Regional approvals listings and regulatory compliance vary between VESDA product models. Refer to www.xtralis.com for the latest product approvals matrix.

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How it works

Air is continually drawn through the pipe network and into the VLI detector by a high efficiency aspirator. The air sample passes four (4) sets of ultrasonic flow sensors before being passed through the Intelligent Filter. The Intelligent Filter incorporates an innovative flow splitting arrangement where a smaller unfiltered portion is passed through another set of ultrasonic flow sensors and a larger portion of the sample passes through a HEPA filtration medium. This arrangement dramatically reduces the amount of contaminants entering the aspirator and the detection chamber, thus extending detector life.

Filter loading is constantly monitored which enables the detector to "intelligently" maintain the sensitivity, hence ensuring consistent and reliable operation over time. This is achieved by comparing the readings from the four (4) sets of ultrasonic flow sensors at the detector air inlets to the readings from that in the unfiltered path and measuring the split of the airflow ratio as the filter load changes.

The filtered and unfiltered portions are recombined as they exit the Intelligent Filter. A portion of the recombined air sample is then passed through the sub-sampling probe (inertial separator) and secondary filter. This ensures that larger dust particles are less likely to pass through the probe and filter arrangement, hence they are exhausted out of the detector. This configuration minimizes nuisance alarms caused by larger dust particles and extends detection chamber life. A third filter within the detection chamber assembly delivers a clean air barrier which protects the optical surfaces from contamination, further extending detector life and ensuring absolute calibration.

The detection chamber uses a stable, highly efficient laser light source and unique sensor configuration to achieve optimum response to a wide range of smoke types. The presence of smoke in the detection chamber creates light scattering which is detected by the very sensitive sensor circuitry and then converted to an alarm signal.

The status of the detector, all alarms, service and fault events, are monitored and logged with time and date stamps. Status reporting can be transmitted via relay outputs and across VESDAnet (VN version only).

Clean Air Zero

Clean Air Zero is a user-initiated VLI feature which compliments consistent absolute detection over time and also safeguards against nuisance alarms.

This is achieved by introducing clean air into the detection chamber and taking a reference reading of the chamber background. This reading is then offset against the actual environmental background to maintain consistent absolute smoke detection.

Ordering Information

VESDA VLI	VLI-880
VESDA VLI with VESDAnet[1]	VLI-885
VESDA VLI Remote Display 7 Relays	VRT-Q00
VESDA VLI Remote Display No Relays	VRT-T00

Notes:

1. Please contact your nearest Xtralis office for availability.

Spare Parts

VLI Intelligent Filter	VSP-030
VLI Secondary Foam Filter	VSP-031
VLI Aspirator	VSP-032
VLI Chamber Assembly	VSP-033
VLI VESDAnet Card	VSP-034
VLI Remote Display Module Spare	VSP-035
VLI Ultrasonic Flow Manifold Spare	VSP-036

Specification

Supply voltage:
18 to 30 VDC

Power consumption:
10 W quiescent, 10.5 W with alarm (max)

Current consumption:
415 mA quiescent, 440 mA with alarm (max)

Fuse rating:
1.6 A

Dimensions (WHD):
426.5 mm x 316.5 mm x 180 mm
(16.8 in x 12.5 in x 7.1 in)

Weight:
6.035 kg (13.3 lbs)

Operating conditions:
Tested to -10°C to 55°C (14°F to 131°F)
Recommended Detector Ambient: 0°C to 39°C
Sampled Air: -20°C to 60°C (-4°F to 140°F)
Humidity: 10% to 95% RH, non-condensing

Sampling network:
Maximum area of Coverage 2000 m^2 (21,520 sq.ft)
Minimum total airflow: 40 l/m
Minimum airflow per pipe: 20 l/m

Maximum pipe lengths:
Total Pipe Length: 360 m (1181 ft)
Maximum Single Pipe Length: 120 m (394 ft)

Computer design tool:
ASPIRE

Pipe:
Internal Diameter 15 mm - 21 mm (9/16"–7/8")
External Diameter 25 mm (1")

Relays:
5 Relays rated 2 A @ 30 VDC
Fire (NO), Fault (NC), Configurable (NO)

IP rating:
IP66

Cable access:
4 x 25 mm (1") cable entries

Cable termination:
Screw Terminal blocks 0.2–2.5 sq mm (30–12 AWG)

Sensitivity Range:
0.005% - 20.0% obs/m (0.0015% - 6.25% obs/ft)

Threshold setting range:
Alert: 0.05%-1.990% obs/m (0.016%-0.6218% obs/ft)
Action: 0.1%-1.995% obs/m (0.031%-0.6234% obs/ft)
Fire1: 0.15 %-2.0% obs/m (0.047% - 0.625% obs/ft)
Fire2: 0.155 % - 20.0% obs/m (0.05% - 6.25% obs/ft)*
*Limited to 4% obs/ft for UL

Software features:
Event log: Up to 18,000 events stored in FIFO format
Smoke level, user actions, alarms and faults with time and date stamp
AutoLearn: Min 15 minutes, Max 15 days.
Recommended minimum 14 days.
While AutoLearn is in progress, thresholds are NOT changed from pre-set values.

Configurable general input (5 - 30 VDC):
External Reset, Mains OK, Standby, Isolate, Use Night-time Threshold, Reset + Isolate, Inverted Reset

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