VESDA VLC-EX-US

Features

- Suitable for Class 1 Division 2 applications
  - Groups A,B,C & D
- Absolute smoke detection
- Wide sensitivity range
- Single pipe inlet
- Five (5) status LEDs
- Referencing
- VESDAnet communication (VN)
- Clean air barrier optics protection
- Three (3) Alarm Levels
- Three (3) Programmable Relays
- Air flow monitoring
- Optional remote display and relay capability
- Simple mounting design
- AutoLearn™
- IP54 rated stainless steel enclosure

Approvals/Listings

- UL
- ULC
- FM

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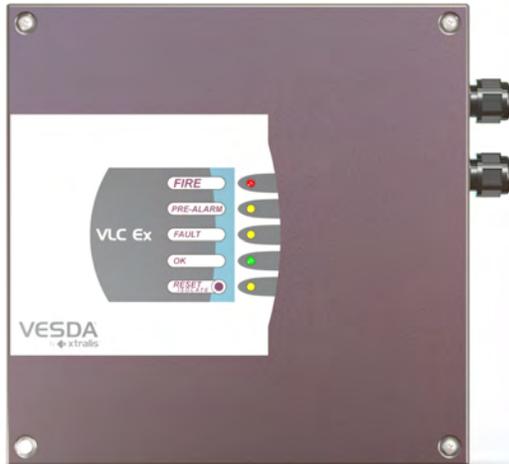
Introduction

The VESDA VLC-EX-US 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 a Class 1 Division 2 classification.

The VLC-EX-US combines the well-proven VESDA VLP detection technology with a modified aspirator design, and incorporates them into an IP54 rated stainless steel enclosure.

Four variants and a remote display option

The VLC-EX-US is available in a version that is suited for small area applications up to 2000sq.ft (200m²) and another that is suited for medium area applications up to 8000sq.ft (800m²). Each of which is available in two versions, one that interfaces via relays only (RO) and one that interfaces via relays and VESDAnet (VN).

The VN version is compatible with the remote Display Module, which allows the current status of the detector to be reported in the most convenient location. The remote Display Module has 7 remote relays to support any combination of signalling that may be demanded by the application. The VN version allows several detectors to be linked together on VESDAnet thereby allowing one to act as a reference detector for other VESDA detectors.

Description

The VLC-EX-US is enclosed in a stainless steel housing which is comprised of the main enclosure and the front cover.

The main enclosure houses all the key components of the detector. All non-serviceable items such as the main processor board and detector chamber are mounted away from the general access area, protecting them during the installation and servicing process.

The front cover includes:

- 5 LEDs: Fire, Pre-Alarm/Alert, Fault, OK, Reset/Isolate
- Reset/Isolate Push Button (press to reset, press and hold to isolate)

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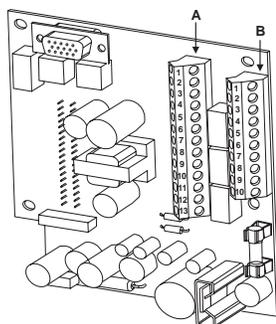# VESDA VLC-EX-US

How it works

Air is continually drawn through the pipe network to a central detector by a high efficiency aspirator. Air entering the unit passes a flow sensor before a sample is passed through a dual-stage dust filter. The first stage removes dust and dirt from the air sample before it enters the chamber for smoke detection. The second, ultra-fine stage provides a clean air supply to be used inside the detection chamber to form clean air barriers, which protect the optical surfaces from contamination.

The detection chamber uses a stable, highly efficient laser light source and unique sensor configuration to achieve the optimum response to a wide range of smoke types. When smoke passes through the detection chamber it creates light scatter which is detected by the very sensitive sensor circuitry.

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 simple relay connections or across the advanced VESDAnet communications network (VN version only).
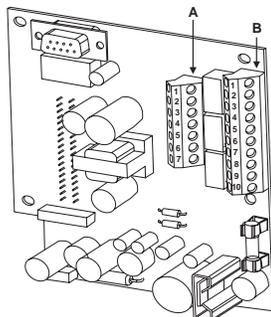
Installation Consideration

For a Class 1 Division 2 installation, the detector, sampling network and exhaust must be located within the same protected area. Detector accessories, VPS-100US-120 power supply, etc, are installed outside the classified area with interconnect wiring meeting NEC (NFPA 70) requirements for Class 1, Division 2 systems.

VLC Termination Card (VN)

Terminal A
1 Bias (-) (GND)
2 Reset (-)
3 Reset (+)
4 Bias (+)
5 LED (-) (GND)
6 LED (+)
7 FIRE (NO)
8 FIRE (C)
9 PRE-ALARM (NO)
10 PRE-ALARM (C)
11 FAULT (NO)
12 FAULT (C)
13 FAULT (NC)

Terminal B
1 Shield
2 VESDAnet-A (-)
3 VESDAnet-A (+)
4 Shield
5 VESDAnet-B (-)
6 VESDAnet-B (+)
7 Power (-)
8 Power (+)
9 Power (-)
10 Power (+)

VLC Termination Card (RO)

Terminal A
1 FIRE (NO)
2 FIRE (C)
3 PRE-ALARM (NO)
4 PRE-ALARM (C)
5 FAULT (NO)
6 FAULT (C)
7 FAULT (NC)

Terminal B
1 Bias (-) (GND)
2 Reset (-)
3 Reset (+)
4 Bias (+)
5 LED (-) (GND)
6 LED (+)
7 Power (-)
8 Power (+)
9 Power (-)
10 Power (+)

Ordering Information

Product	Part number
VLC-205 (VN) Class 1 Div 2 2000ft^2 (200m^2)	VLC-205-EX-US
VLC-200 (RO) Class 1 Div 2 2000ft^2 (200m^2)	VLC-200-EX-US
VLC-505 (VN) Class 1 Div 2 8000ft^2 (800m^2)	VLC-505-EX-US
VLC-500 (RO) Class 1 Div 2 8000ft^2 (800m^2)	VLC-500-EX-US
Remote Display (relays)*	VRT-J00
Remote Display (no relays)*	VRT-K00
Remote Relays (no display)*	VRT-500

Approvals Compliance

Please refer to the Product Guide for details regarding compliant design, installation and commissioning.

* for VLC-505-EX-US and VLC-205-EX-US only and to be installed in non-hazardous areas.

Specifications

Supply voltage:
18 to 30 VDC
Power consumption:
5.4 W quiescent, 5.9 W with alarm
Current consumption:
225 mA quiescent, 245 mA with alarm
Fuse rating:
1.6 A
Dimensions (WHD):
10 $^5/_8$" x 10 $^5/_8$" x 3 $^7/_8$" (270 mm x 270 mm x 97 mm)
Weight:
10.8 lbs. (4.9 kg)
Operating conditions:
Ambient: 32°F to 103°F (0°C to 39°C) *
Tested: 14°F to 131°F (-10°C to 55°C)
Sampled Air: -4°F to 140°F (-20°C to 60°C)
Humidity: 10% to 95% RH, non-condensing
Sampling network:
VLC-EX-US 200 Series
Maximum area of Coverage: 2000 sq.ft (200 sq.m)
Maximum pipe length: 1 x 65 ft (20 m), 2 x 50 ft (15 m)
Design: Pre-engineered
VLC-EX-US 500 Series
Maximum area of Coverage: 8000 sq.ft (800 sq.m)
Maximum pipe length: 1 x 260 ft (80 m), 2 x 164 ft (50 m)
Design: ASPIRE2™
Pipe:
Internal Diameter $^9/_{16}$"–$^7/_8$" (15 mm–21 mm)
External Diameter 1 inch. (25 mm)
Relays:
3 Relays rated 2 A @ 30 VDC
Fire (NO)
Pre-Alarm (NO)
Alert/Fault (Maintenance & Isolate) (NC/NO)
Configurable as latching or non-latching
Enclosure:
Material: Grade 304 stainless steel
Rating: IP54 **
Cable access:
2 x $^7/_8$" (23.2 mm) cable entries
Cable glands and blanking plugs NOT supplied
Cable termination:
Screw Terminal blocks 0.2–2.5 sq mm (30–12 AWG)
Alarm sensitivity range:
0.0015% to 6.25% obs/ft (0.005% to 20% obs/m)
Threshold setting range:

Alert:	0.0015%–0.6218% obs/ft (0.005%–1.990% obs/m)
Pre-Alarm:	0.0031%–0.6234% obs/ft (0.010%–1.995% obs/m)
Fire:	0.0046%–6.25% obs/ft*** (0.015%–20.00% obs/m)

*Limited to 4% obs/ft for UL
Software features:
Event log: Up to 12,000 events stored in FIFO format
Smoke level, user actions, alarms and faults with time and date stamp
AutoLearn: Minimum 15 minutes, maximum 15 days. Recommended minimum 14 days.
During AutoLearn thresholds are NOT changed from pre-set values.
Configurable general input (24 VDC):
Standby, Mains OK or Reset/Isolate

* Product UL listed for use from 32°F to 104°F (0°C to 38°C)
** Product Enclosure Rating has not been evaluated by UL.

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