VESDA VLF-500-UL Installation Instructions

These installation instructions provide essential information for installing VESDA VLF Aspirating Smoke Detectors in accordance with the system design. Additional installation and product documentation is listed below in the Reference Documents section.

System Components

The detector is shipped with the following components:

- 1 VESDA VLF detector with fitted exhaust deflector
- 1 mounting bracket
- 1 End of Line resistor for the monitored GPI
- 12 M4 x 20 mm locking screws
- 1 installation instruction sheet
- 1 product guide

Prerequisites

- A completed system design documents.
- A 24V DC Power Supply, compliant with local codes and standards.
- Screws and inserts that are appropriate for the mounting suface.
- 9 Pin DB9 PC COM Serial extension cable (male) for initial configuration of the detector.
- Labels as specified in the system design.
- Cable glands that are compliant with the IP rating of the detector.
- Conduit, as specified in the system design.
- 0.2 mm^2 to 2.5 mm^2 (24 - 14 AWG) wiring for relays.
- A PC or laptop installed with Xtralis VSC for initial configuration.
- Standard connection instructions for where the detectors are to be added to a corporate network.

Standards Compliance

UL

For open area installations, ASPIRE should be used to confirm the correct performance of the sampling network; all sampling point sensitivities must be less than 7%/m (2.13%/ft). All pipework designs must be modeled in ASPIRE to confirm that the rules for transport time and sensitivity are met for all sampling points in the sytem.

Note that the maximum pipe length is dependent on pipe layouts and fittings used. Ensure that the correct setting for UL7 mode in the Smoke Thresholds setting screen of Xtralis VSC is set correctly for the application, special application modes permit higher sensitivities and must only be used where cooking will not occur.

Specification Value

	%obs/m		%obs/ft	
Value	Min	Max	Min	Max
Sensitivity Range	0.025	20.0	0.08	6.25
Threshold Setting Range				
Alert	0.025	10.0	0.08	3.05
Action	0.025	10.0	0.08	3.05
Fire 1	0.050	10.0	0.16	3.05
Fire 2	0.100	20.0	0.32	6.10

Power Consumption (24 VDC Supply)

VLF-500-UL: 410 mA nominal, 490 mA in alarm

Environmental Requirements

- **Temperature**
  - **Ambient:** 0°C to 39°C (32°F to 103°F)
  - **Sampled Air:** -20°C to 60°C (-4°F to 140°F)
  - **Tested to:** -10°C to 55°C (14°F to 131°F)
- **Humidity:** 5% to 95% RH, non-condensing

Note: Please consult your Xtralis representative for information on operation outside these parameters or where sampled air is continually above 0.05% obs/m (0.015% obs/ft) under normal operating conditions.

Reference Documents

Additional installation and product information is contained in the following document, which is available for download at www.xtralis.com.

- 36286 - VESDA VLF-500-UL Product Guide

Installation Instructions

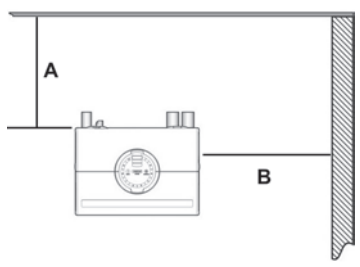
Notes



The VESDA-detector can be mounted in an upright or inverted position. Do not mount the detector with a sideways orientation.

Ensure the mounting surface is flat as this allows an air tight seal to be achieved between the sampling pipe and the tapered air inlet pipes on the detector.

Refer to the detector Product Guide for information on inverted mounting.

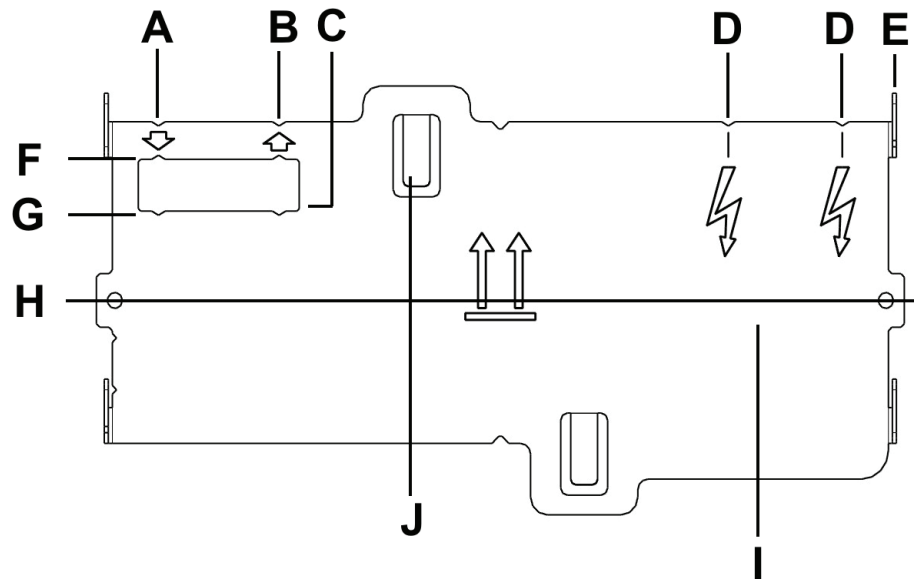


Ensure that there is sufficient clearance to mount the detector, noting the location of air sampling pipes and cable entry points. Due to the rigid nature of the plastic pipe, installation must provide for sufficient movement in all pipework (air inlet, air exhaust and cable pipes) to allow pipe ends to be easily fitted and removed.

- **A:** Minimum 200 mm (8 in.) below ceiling level.
- **B:** Min. 500 mm (20 in.) from a wall or obstruction to allow access to the security tab

Installation Procedure

A. Position the air inlet centerline mark (A) of the mounting bracket against the end of the air inlet pipe.
B. In the cut out section of the mounting bracket mark a line across the top of the cut out if metric size pipe is used or mark a line across the bottom of the cut out if Imperial size pipe is used
C. Slide the mounting bracket down (up for inverted mounting) until the top of the bracket aligns with the marked line
D. Mark off and drill the 2 bracket mounting holes (H).
E. Screw the bracket to the wall.
F. Hook the smoke detector onto the mounting bracket tabs and pull it down into place
G. Use the two M4 x 20 mm locking screws provided and screw them into the screw holes on the left andright side of the detector. See the items marked (F) in below figure.
H. The air sampling pipe can now be attached and power connected.



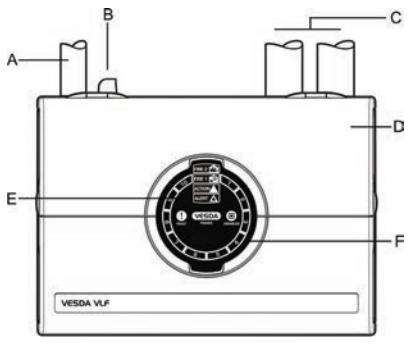
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VESDA VLF-500-UL Installation Instructions

Prepare Detector: Wiring, Pipe Inlet and Exhaust Ports (if used)

Remove the appropriate plugs for electrical cable installation (C), air sampling pipe inlet ports (A), and exhaust port (B).

- Ensure that pipes are clean and their ends are square and smooth.



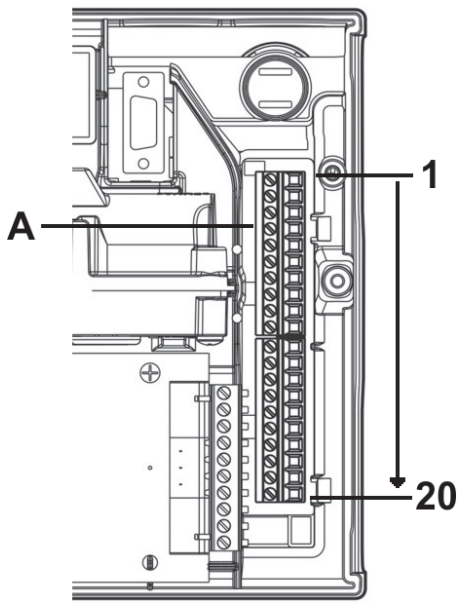
A	Air inlet port
B	Exhaust deflector
C	Cable entry ports (x2)
D	Rear cable entry (not shown)
E	Instant Recognition Display
F	Smoke Dial (includes Instant Fault Finder)

- Insert the inlet and exhaust pipes (if used) into the correct inlet port (A) and exhaust port.
- Feed the electrical wiring connections through the cable entry ports.
- Use the correct cable gland size to fit into the 26 mm (1”) cable entry port. Use correctly rated cable glands to maintain the required IP rating.

Note: Do not glue the inlet and exhaust pipe into the detector ports. The product warranty will be void if the pipes are glued.

Wiring: Power, Relays, GPI, Loop Module, VESDAnet

Warning: Always switch detector power OFF before plugging/unplugging electrical, relay or network connections. Failure to do so may cause data corruption and/or component failure.



Power	
1	GPI (+)
2	GPI (-)
3	Disp Tx
4	Disp Rx
5	Disp C G
6	Disp (-)
7	Disp (+)
8	OV in
9	24V in
10	OV out
11	24V out
12	NC
13	Com
14	No
15	NC
16	Com
17	No
18	NC
19	Com
20	No

Power and Relay Wiring

Power: There are two sets of power terminals on the main board. Connect a 24 VDC power supply to the PWR IN socket (B). If required, connect to another detector via the PWR OUT socket (A).

Relays: The relays interface to the Fire Alarm Control Panel (FACP) to communicate faults, alarms and disabled states. Relay contacts are rated 2 A @ 30 VDC, resistive. Connect as required by the system design. Use electrical wire sizes from 0.2 mm² to 2.5 mm² (24 -14 AWG). Refer to the Addressable Loop Module example.

Warning: Ensure that all wiring complies with manufacturer’s instructions and local and national fire detection code requirements. Refer to Codes and Standards Information for Air Sampling Smoke Detection section of the detector product guide for further information on wiring compliance.

Caution: DO NOT LOOP WIRE UNDER TERMINALS WHEN WIRING DETECTORS. BREAK WIRE RUNS TO PROVIDE SYSTEM SUPERVISION OF CONNECTIVITY.

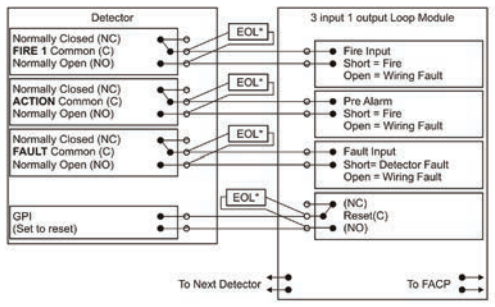
Note: For information on wiring for other types of devices that may be required by the system design, refer to the detector Product Guide and documentation accompanying the device.

GPI – General Purpose Input (Terminals 1 & 2)

The General Purpose Input (GPI) is a programmable input. When the GPI function parameter is set to external, the detector shall indicate an external equipment fault condition by monitoring the line impedance.

The EOL resistor provides a known termination to the external equipment, this allows the VESDA VLF todetect open or short circuits. The detector monitors the EOL resistor

Connection to Addressable Loop Module for Reporting Alarms and Faults

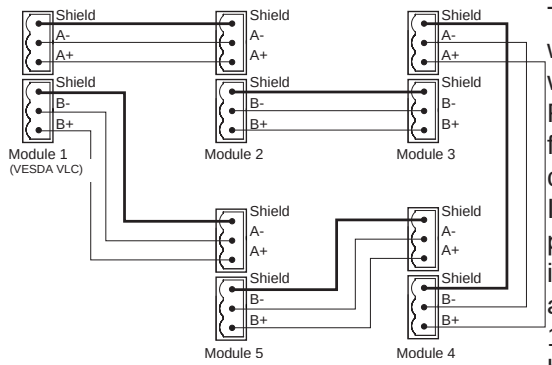


This wiring example is for wiring VESDA detectors to a typical third party Input Loop Module with three inputs.

This is an example drawing. Refer to the appropriate product manual for the exact wiring details of the third party equipment.

* EOL = End of Line Resistor

Connection to VESDAnet



The diagram shows an example of the wiring for a closed VESDAnet loop, which is the recommended configuration. Remove the factory default A and B links from the VESDAnet sockets prior to connecting the detector to the VESDAnet. It is recommended that 120 Ohm twisted pair cables (e.g. Belden 9841) be used for including the devices in the network, with a maximum length between devices of 1.2 km The polarity of the data wires must be maintained throughout the network. Refer to VESDAnet Interface Card Product Guide (document no. 10672) for more information.

Communications

The RS232 serial port requires a standard 9-pin DB9 PC COM serial extension cable to for configuring the detector using a PC with Xtralis VSC software installed, for status monitoring and command input, and for event log extraction and software upgrades.

Sampling Pipe Network

Complete the pipe network installation in accordance with the system design. Refer to the detector Product Guide and the VESDA Pipe Network Installation Guide for general information regarding pipe network installation.

- Ensure that the exhaust is open, the pipes are clear and all sampling holes have been drilled.

Power Up

Connect 24 VDC power to the Power In terminals.

Configuration

For initial configuration, use a 9 Pin DB9 PC COM Serial cable and the Xtralis VSC software.

- Perform the configuration steps mentioned in the product guide and commissioning guide then proceed with the normalization instructions below
- Let the detector run for approximately 2 minutes
- Normalize the airflow. This takes approximately 10 minutes, after which the pipe flow rates (%) should be close to 100%.
- Reset the detector. It should now be running without faults.

Commissioning

- Carry out a smoke test. Refer to the product guide for further information.

Note: To remove the pipe inlet and cable entry port plugs, place a large screwdriver in the large slot and twist, or use a small screwdriver in the side slots to lever the plug out.

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