

VESDA-E VEU

VEU-A00, VEU-A10



The VEU series of aspirating smoke detectors are the premium detector of the VESDA-E range. An Ultra-wide sensitivity range; 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. A range of revolutionary new features provide unsurpassed detection performance, flexibility, field programmability, connectivity and reduced total cost of ownership.

Flair Detection Technology

Flair is the revolutionary new detection chamber that forms the core of VESDA-E VEU, providing better detection, fewer nuisance alarms, higher stability, increased longevity and particle characterisation. Direct imaging of the sampled particles using a CMOS imager combined with multiple photo-diodes provides vastly more data that can be used to derive actionable information about the observed particles using analytics.

Installation, Commissioning and Operation

VESDA-E VEU features a robust IP40-rated enclosure and is equipped with a powerful aspirator that provides a total pipe length of 800 m (2,624 ft). Out of box operation is made possible with AutoConfig which allows airflow normalisation and AutoLearn Smoke and Flow to be initiated from within the detector. VEU is fully supported by the ASPIRE and Xtralis VSC software applications which facilitate ease of pipe network design, system commissioning and maintenance.

VESDAnet™

VESDA devices communicate on VESDAnet which provides a robust bi-directional communication network allowing continued redundant operation even during single point wiring failures. VESDAnet enables primary reporting, centralized configuration, control, maintenance and monitoring.

Ethernet and WiFi connectivity

VESDA-E detectors offer Ethernet and WiFi connectivity as standard features. The detector can be added to a corporate network, allowing WiFi enabled tablet devices and laptops installed with Xtralis configuration software to connect wirelessly to the detector via the network.

Backward Compatibility

VESDA-E VEU is fully compatible with existing VESDA installations. The detector occupies the same mounting footprint, pipe, conduit and electrical connector positioning as VESDA VLP. VEU is also compatible with existing VESDAnet installations allowing monitoring of both VESDA-E and legacy detectors via the latest iVESDA application.

Features

- Flair detection technology delivers reliable very early warning in a wide range of environments with minimal nuisance alarms
- Multi stage filtration and optical protection with clean air barriers ensures lifetime detection performance
- Four alarm levels and an ultra wide sensitivity range deliver optimum protection for the widest range of applications
- Intuitive LCD icon display provides instant status information for immediate response
- Flow fault thresholds per port accommodate varying airflow conditions
- Smart on-board filter retains dust count and remaining filter life for predictable maintenance
- Extensive event log (20,000 events) for event analysis and system diagnostics
- AutoLearn™ smoke and flow for reliable and rapid commissioning
- Referencing to accommodate external environmental conditions to minimise nuisance alarms
- Fully backward compatible with VLP and VESDAnet
- Remote monitoring with iVESDA for system review and proactive maintenance
- Ethernet for connectivity with Xtralis software for configuration, secondary monitoring and maintenance
- Industry first. Aspirating detector secondary monitoring and maintenance via WiFi
- USB for PC configuration, and firmware upgrade using a memory stick
- Two programmable GPIs (1 monitored) for flexible remote control
- Field replaceable sub-assemblies enable faster service and maximum uptime

Listings / Approvals

- UL
- ULC
- VdS
- CE
- ActivFire
- EN 54-20, ISO 7240-20
 - Class A (80 holes / Fire 1 = 0.015% obs/m)
 - Class B (80 holes / Fire 1 = 0.025% obs/m)
 - Class C (100 holes / Fire 1 = 0.062% obs/m)

Classification of any configuration is determined using ASPIRE.

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

VESDA-E VEU

VEU-A00, VEU-A10

Specifications

Supply voltage	16-24 VDC (24 V Nominal)					
Power consumption @ 24 VDC	VEU-A00			VEU-A10		
Aspirator Setting	1	5	10	1	5	10
Power (Quiescent)	7.0 W	8.8 W	14.7 W	8.2 W	10.0 W	15.8 W
Power (In Alarm)	7.8 W	9.6 W	15.5 W	10.4 W	11.6 W	16.6 W
Dimensions (WHD):	350 mm x 225 mm x 135 mm (13.8 in x 8.9 in x 5.3 in)					
Weight	VEU-A00 - 4.83 kg (10.6 lbs) VEU-A10 - 4.9 kg (10.8 lbs)					
Operating conditions	Ambient: 0°C to 39°C (32°F to 102°F) Sampled Air: -20°C to 60°C (-4°F to 140°F) Tested to: -20°C to 55°C (-4°F to 131°F) UL: -20°C to 50°C (-4°F to 122°F) Humidity: 10% to 95% RH, non-condensing					
Maximum area of coverage	6,500 m ² (69,065 sq.ft)					
Minimum airflow per pipe	15 l/m					
Pipe lengths depending on number of pipes in use	1 Pipe	2 Pipes	3 Pipes	4 Pipes		
	160 m (524 ft)	150 m (492 ft)	130 m (426 ft)	100 m (328 ft)		
Maximum pipe lengths	Total Pipe Length (with branches): 800 m (2624 ft)					
Analytics	DieselTrace™, DustTrace™, WireTrace™					
StaX	PSU, Auto Pipe Clean					
No. of holes (A/B/C)	80/80/100					
Computer design tool	ASPIRE					
Pipe	Inlet: External diameter 25 mm or 1.05 in (3/4 in IPS) Exhaust: External diameter 25mm or 1.05 in (3/4 in IPS) via adaptor					
Relays	7 programmable relays (latch or non-latch states) Contacts rated 2 A @ 30 VDC (Resistive)					
IP rating	IP40					
Cable access	4 x 26 mm (1.02 in) cable entries					
Cable termination	Screw Terminal blocks 0.2–2.5 sq mm ² (24–14 AWG)					
Dynamic Range	0.0002%/m (0.00006% obs/ft) to 20% obs/m (6.25% obs/ft)					
Sensitivity Range	0.001% - 20.0% obs/m (0.0003 to 6.25% obs/ft)					
Threshold setting range	Alert: 0.001%-2.0% obs/m (0.0003%-0.625% obs/ft) Action: 0.001%-2.0% obs/m (0.0003%-0.625% obs/ft) Fire1: 0.001%-2.0% obs/m (0.0003%-0.625% obs/ft) Fire2: 0.001%-20.0% obs/m (0.0003%-6.25% obs/ft)					
Software features:	Event log: Up to 20,000 events Smoke level, user actions, alarms and faults with time and date stamp AutoLearn: Detector learns Alarm Thresholds and Flow Fault thresholds by monitoring the environment.					

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

Ordering Information

VESDA-E VEU with LED*	VEU-A00
VESDA-E VEU with 3.5" Display	VEU-A10
Mounting Bracket	VSP-960

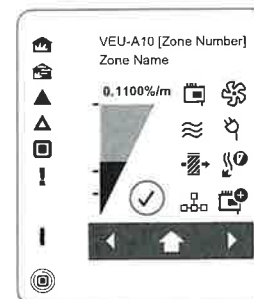
Spare Parts

VESDA-E Exhaust adaptor US	VSP-961
VESDA-E Filter	VSP-962
VESDA-E Filter - 20 pieces	VSP-962-20
VESDA-E Aspirator	VSP-963
VESDA-E Smoke Detection Chamber	VSP-964
VESDA-E Sampling Module	VSP-965

Approvals Compliance

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

3.5" Display



Symbol	LED
	Fire 2
	Fire 1
	Action
	Alert
	Disabled
	Fault
	Power
	Smoke and Alarm Threshold Levels
	Detector OK
	Detector Fault
	Aspirator Fault
	Airflow Fault
	Power Fault
	Filter Fault
	Smoke Chamber Fault
	VESDAnet Fault
	StaX Module Fault

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VESDA

VESDA-E VEU Installation Instructions

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

System Components

The detector is shipped with the following components:

- 1 aspirating smoke detector
- 1 mounting bracket
- 1 mounting template for directly mounting the detector to the mounting surface
- 1 End of Line Resistor for the monitored GPI
- 1 installation instruction sheet

Prerequisites

- A completed system design.
- A 24V DC Power Supply, compliant with local codes and standards.
- Screws and inserts that are appropriate for the mounting surface.
- Type A to Type B USB Interface Lead for initial configuration of the detector.
- Labels as specified in the system design, e.g. Sampling Point labels
- Cable glands that are compliant with the IP rating of the detector.
- Conduit, as specified in the system design.
- 0.2 mm² to 2.5 mm² (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 and ULC

For open area, open area high velocity and duct protection the fire alarm threshold (setting) that initiates an evacuation signal must be set such that the sensitivity of each sampling hole is more sensitive than 10%/m (3.2 %/ft) as determined by the ASPIRE software.

European Installations

EN 54-20

The product must use a power source conforming to EN 54-4 and EN60950-1 Section 2.5. The product is compliant with EN 54-20 sensitivity requirements provided the following conditions are met:

- For a Class A detector, hole sensitivity must be better than 1.5% obscuration/m and transport time less than 70 seconds
 - For a Class B detector, hole sensitivity must be better than 3% obscuration/m and transport time less than 90 seconds
 - For a Class C detector, hole sensitivity must be better than 10% obscuration/m and transport time less than 110 seconds
- These limits should be verified using ASPIRE during the design of the sampling pipe network.

The product is compliant with EN 54-20 flow monitoring requirements provided the

Installation Instructions

Notes

	Ensure the mounting surface is flat as this allows 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.
	• A: Minimum 50 mm (2 in.) below ceiling level • B: The detector can be mounted directly against a wall or obstruction.

Attach the detector to the wall using the mounting bracket

Position the mounting bracket as specified by the system designer

	• 3/4 inch IPS (1.05 inch OD) sampling pipe should align with the top depth line (E). • 25 mm OD sampling pipe should vertically align with the bottom depth line (F).

Secure the mounting bracket to the mounting surface

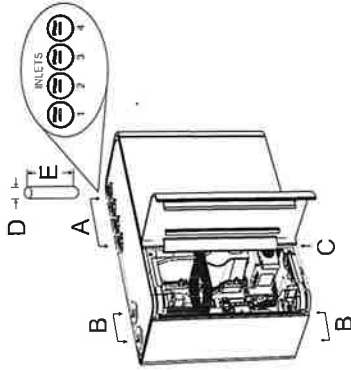
	• Insert and tighten two screws (B) in the key slots (C) followed by three screws (D) in the
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VESDA-E VEU Installation Instructions

Prepare Detector: Wiring, Pipe Inlet and Exhaust Ports

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

- Where the system design requires less than four air sampling pipe inlet ports, use ports 2 and 3 before using ports 1 and 4.
- Do not remove the plugs from inlet ports that will not be used.
- Ensure that pipes are clean and their ends are square and smooth.



	Inlet Port, Qty 4
A	Cable Entry Port, Qty 4, 26 mm (1")
B	Exhaust Port, OD 25 mm or 1.05" (3/4" IPS) via adaptor
C	Inlet Pipe Diameter: OD 25 mm or 1.05" (3/4" IPS)
D	Minimum Inlet Pipe Length: 500mm (19.6")

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.

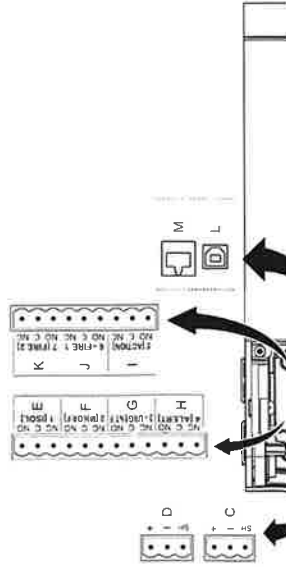
- Insert the inlet and exhaust pipes (if used) into the correct inlet ports (A) and exhaust port.
- Exhaust pipe should be as short as possible.
- Feed the electrical wiring connections through the cable entry ports.
- Use the correct cable gland size to fit into the 26 mm (1") cable entry port. Use 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, Standalone Detector

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.

Avertissement : Eteignez toujours détecteur avant de brancher/débrancher les relais électriques, ou de connexions réseau. Au cas contraire vous pouvez entraîner la défaillance corruption et/ou élément de données.



Power	
A	Power Out
B	Power In
VESDAnet	
C	VESDAnet B
D	VESDAnet A
Relays	
E	1 - Isolate (Disable)
F	2 - Minor Fault
G	3 - Inlet Fault

Unmonitored GPI

The Unmonitored GPI is a programmable input which can be configured to initiate a number of different actions, including, by default, a Remote Reset function.

Monitored GPI

The monitored GPI senses contact closure and is configurable to initiate the same action as the unmonitored GPI. "Mains OK" is the default setting. A closed contact signals G ON and open contact signals GPI OFF.

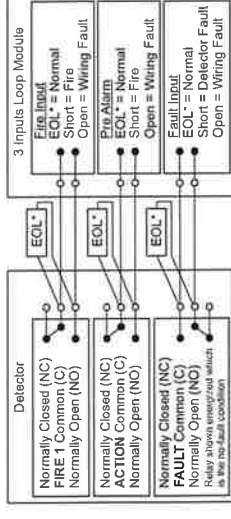
A 10K end of line resistor is used to allow the detector to monitor for open circuit fault the wiring from the detector to the contact.

Connection to Addressable Loop Module for Reporting Alarms and Fault

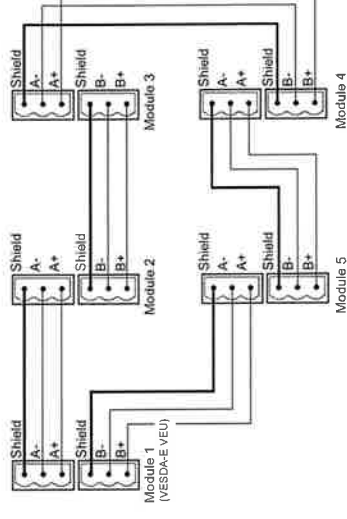
This wiring example is for wiring VESD detectors to a typical third party Input Module with three inputs.

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

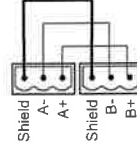


The diagram shows an example of the wiring for a closed VESDAnet loop, which is the recommended configuration. Refer to the factory default A and B links from the VESDAnet sockets (C and D) prior to connecting the detector to the VESDAnet. It is recommended that 120 Ohm twisted pair cables (e.g. Belden 9841) be used 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.

Standalone Detector

The diagram below shows the factory default wiring for VESDAnet sockets (C and D) as required for a detector that is not connected to VESDAnet.

- Leave as is, or replace if it has been removed.



Communications

- USB:** The USB port (L) is used for initial configuration and local maintenance or servicing of the detector using a PC or laptop installed with Xtralis VSC software. Xtralis VSC prior to connecting the detector to the computer. This ensures that the required USB drivers are present.
- Ethernet:** The Ethernet port (M) is used for permanent network connection to the

Note to User: Yellow highlighted cells require user input per system design

SERTA SIMMONS REPLACEMENT

DETECTOR VEU LED #4



Xtralis VESDA / VESDA-E Series Detector Battery Calculation sheet

	Model	Part Number	Quantity	Standby Current (mA)	Standby Current (mA)		Alarm Current (mA)	Alarm Current (mA)
VEx Detectors	VEA with LCD Display	VEA-040-A10		1120	0		1120	0
	VEA with LED Display	VEA-040-A00		1120	0		1120	0
	VEA-40 Stack	VEA-040-STX		1120	0		1120	0
	VEA-20 Stack	VEA-020-STX		1120	0		1120	0
	VEP 1 Pipe	VEP-A00-1P		360	0		390	0
	VEP LED, Aspirator 1	VEP-A00-P		290	0		320	0
	VEP LED, Aspirator 2	VEP-A00-P		310	0		340	0
	VEP LED, Aspirator 3	VEP-A00-P		330	0		360	0
	VEP LED, Aspirator 4	VEP-A00-P		350	0		380	0
	VEP LED, Aspirator 5	VEP-A00-P		370	0		400	0
	VEP LCD, Aspirator 1	VEP-A10-P		330	0		360	0
	VEP LCD, Aspirator 2	VEP-A10-P		350	0		380	0
	VEP LCD, Aspirator 3	VEP-A10-P		370	0		400	0
	VEP LCD, Aspirator 4	VEP-A10-P		390	0		430	0
	VEP LCD, Aspirator 5	VEP-A10-P		410	0		440	0
	VEU LED, Aspirator 1	VEU-A00		290	0		320	0
	VEU LED, Aspirator 2	VEU-A00		310	0		340	0
	VEU LED, Aspirator 3	VEU-A00		330	0		360	0
	VEU LED, Aspirator 4	VEU-A00		350	0		380	0
	VEU LED, Aspirator 5	VEU-A00	1	370	370		400	400
	VEU LED, Aspirator 6	VEU-A00		420	0		450	0
	VEU LED, Aspirator 7	VEU-A00		460	0		490	0
	VEU LED, Aspirator 8	VEU-A00		520	0		550	0
	VEU LED, Aspirator 9	VEU-A00		570	0		600	0
	VEU LED, Aspirator 10	VEU-A00		590	0		620	0
	VEU LCD, Aspirator 1	VEU-A10		330	0		360	0
	VEU LCD, Aspirator 2	VEU-A10		350	0		380	0
	VEU LCD, Aspirator 3	VEU-A10		370	0		400	0
	VEU LCD, Aspirator 4	VEU-A10		390	0		430	0
	VEU LCD, Aspirator 5	VEU-A10		410	0		440	0
	VEU LCD, Aspirator 6	VEU-A10		460	0		490	0
	VEU LCD, Aspirator 7	VEU-A10		500	0		530	0
	VEU LCD, Aspirator 8	VEU-A10		560	0		590	0
	VEU LCD, Aspirator 9	VEU-A10		610	0		640	0
	VEU LCD, Aspirator 10	VEU-A10		630	0		660	0
	VES LED, Aspirator 1	VES-A00		290	0		320	0
	VES LED, Aspirator 2	VES-A00		310	0		340	0
	VES LED, Aspirator 3	VES-A00		330	0		360	0
	VES LED, Aspirator 4	VES-A00		350	0		380	0
	VES LED, Aspirator 5	VES-A00		370	0		400	0
	VES LED, Aspirator 6	VES-A00		420	0		450	0
	VES LED, Aspirator 7	VES-A00		460	0		490	0
	VES LED, Aspirator 8	VES-A00		520	0		550	0
	VES LED, Aspirator 9	VES-A00		570	0		600	0
	VES LED, Aspirator 10	VES-A00		590	0		620	0
	VES LCD, Aspirator 1	VES-A10		330	0		360	0
	VES LCD, Aspirator 2	VES-A10		350	0		380	0
	VES LCD, Aspirator 3	VES-A10		370	0		400	0
	VES LCD, Aspirator 4	VES-A10		390	0		430	0
	VES LCD, Aspirator 5	VES-A10		410	0		440	0
	VES LCD, Aspirator 6	VES-A10		460	0		490	0
	VES LCD, Aspirator 7	VES-A10		500	0		530	0
	VES LCD, Aspirator 8	VES-A10		560	0		590	0
	VES LCD, Aspirator 9	VES-A10		610	0		640	0

	VES LCD, Aspirator 10	VES-A10		630	0		660	0
	#WiFi Ports Enabled	-		20	0		20	0
	#Ethernet Ports Used	-		10	0		10	0
VLx/VFx Detectors	VLP at 3000 rpm	VLP-xxx		240	0		290	0
	VLP at 3600 rpm	VLP-xxx		273	0		323	0
	VLP at 4000 rpm	VLP-xxx		306	0		356	0
	VLP at 4200 rpm	VLP-xxx		340	0		390	0
	VLS at 3000 rpm	VLS-xxx		240	0		260	0
	VLS at 4000 rpm	VLS-xxx		253	0		273	0
	VLS at 4000 rpm	VLS-xxx		266	0		286	0
	VLS at 4200 rpm	VLS-xxx		280	0		300	0
	VLC	VLC-500 / -505		225	0		245	0
	VLf - 250	VLf-250		220	0		295	0
	VLf-500	VLf-500		410	0		490	0
	VFT-15	VFT-15		1300	0		1330	0
	VLI	VLI-xxx		415	0		440	0
Option modules	VEA Local Relay Stack	VER-A40-40-STX		20	0		250	0
	Integral display	VSP-002		60	0		110	0
	Integral programmer	VSP-001		40	0		60	0
	VESDAnet Card	VIC-010		50	0		50	0
	Multi-Function card	VIC-020		42	0		42	0
	Multi Function card	VIC-030		42	0	**	100	0
	Remote Display	VRT-x00		60	0		110	0
	Remote programmer	VRT-100		50	0		80	0
	Remote Relay	VRT-x00		60	0		80	0
	HLI (with htc)	VHX-xxx		70	0		70	0
	Hand held Programmer	VHH-1000		70	0		70	0
	VFT Relay module	01-E606-01		2	0		31	0

** - VIC-030 alarm current is 100 ma + MPO output load (max 1.0 Amp).
User must add MPO current and 100 mA and insert value in highlighted cell when using VIC-030

Total Standby
Current (ma)

370

X

Total Alarm Current
(ma)

400

X

Insert Total Quiescent Time Period (in Hours)
NFPA 72 typical 4, 24, 60 or 90

24

=

Required Quiescent Capacity (AH)

8.9

Insert Total Alarm Period
(30 minutes typical - NFPA
72)

30

=

Required Alarm
Capacity (AH)

0.2000

Total AH Required

9.1

Battery Derating Factor (in percent)

20.00%

Battery Capacity Required (AH)

10.9

Reuse existing batteries, rated at 18.0 AH