

Introduction

The Simplex VESDA-E VES IDNet series of smoke detectors are similar to the VESDA-E VEP aspirating smoke detectors, but include a valve mechanism in the inlet manifold and software to control the airflow from the four sectors or pipes. Using this configuration, you can divide a single zone into four separate sectors, for example, distinguishing between separate aisles within a data room. With the VES, the user can locate the source of smoke by identifying the first sector to reach the Alert level. The detector then continues to sample from all sectors to monitor fire growth and report separate alarm levels for each sector. In addition, the VES delivers a range of revolutionary features that provide user value.

How it works

The VES draws air from all sectors in use. If the smoke level reaches the Adaptive Scan Threshold, the VES quickly scans each sector to identify which sector is carrying smoke. The first sector to reach the Alert level is designated as the First Alarm Sector (FAS) and is signalled to the user. If two or more sectors reach the Alert level, the sector with the highest smoke concentration is designated as the FAS. When the Fast Scan completes and identifies the FAS, the VES continues to monitor all four sectors to track fire growth and maintain full protection of the area.

VESDA-E VES aspirating smoke detector with on-board IDNet addressable communications

- Compatible with Simplex 4007ES, 4010ES, and 4100ES fire alarm control units (FACU).
- Adds IDNet communications to the VESDA-E VES aspirating smoke detectors.
- Communicates status information, and receives commands from the host FACU.

Flair detection technology

Flair is the revolutionary detection chamber that forms the core of the VESDA-E VES, providing higher stability and increased longevity. It provides better detection and fewer nuisance alarms with direct imaging of the sampled particles using a CMOS imager, combined with multiple photodiodes.

Installation, commissioning, and operation

VESDA-E VES aspirator provides a total pipe length of 1,706 ft (520 m). Out-of-the-box operation is possible with AutoConfig which initiates airflow normalization. Xtralis ASPIRE and VSC software applications fully support the VES, for easy pipe network design, system commissioning, and maintenance. You can initiate the AutoLearn Smoke and Flow from the VSC.

The host FACU operations include the following:

- Initiate detector reset
- Request standby mode
- Request disable mode
- Airflow normalization
- Silence detector

The host FACU information received includes the following:

- Four alarm states: alert pre-alarm, action pre-alarm, fire 1, fire 2
- Urgent fault status, minor fault status, and standby status
- Analog values for smoke obscuration percentage and detector fault code

VESDAnet™

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

Features



Figure 1: Simplex VESDA-E VES IDNet detector with LEDs, addressable four-pipe: 4098-VES-A00-P



Figure 2: Simplex VESDA-E VES IDNet detector with 3.5 in. display, addressable four-pipe: 4098-VES-A10-P

The Simplex VESDA-E VES IDNet series of aspirating smoke detectors deliver a range of features that provide user value, including the following:

- Sector addressability for up to four sectors
- Adaptive scan threshold
- Flair detection technology, for reliable early warning in a wide range of environments with minimal nuisance alarms
- Multi stage filtration and optical protection with clean air barriers, for lifetime detection performance
- Four configurable alarm levels for each sector and a wide sensitivity range, for optimum protection for the widest range of applications
- An intuitive LCD display, providing instant status information for immediate response
- Flow fault thresholds for each port, accommodating varying airflow conditions
- A smart onboard filter tracks dust count and remaining filter life for predictable maintenance
- An extensive log of up to 20,000 events for analysis and system diagnostics
- AutoLearn™ smoke and flow for reliable and rapid commissioning
- Ethernet for connectivity with Xtralis software for configuration, secondary monitoring, and maintenance
- Secondary monitoring and maintenance through Wi-Fi
- USB for PC configuration, and firmware upgrade using a memory stick
- Two pre-configured GPIs, one monitored, for flexible remote control
- Field-replaceable sub-assemblies for faster service and maximum uptime

* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listings 7259-0026:0508, for allowable values and/or conditions concerning material presented in this document. Additional listings may be applicable, contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.

Listings reference

- UL
- FDA
- FCC
- CSFM

VESDA-E VES 3.5 in. display and sector status reference

The VES display home page has a bar graph to indicate the smoke level and adaptive scan threshold. Fault icons indicate various fault conditions. When the adaptive scan threshold is exceeded, the VES display automatically transitions to the sector status page to indicate the smoke level and alarm level for each sector. If you configure alarms as latched, alarm indications for each sector are retained until you apply a reset. The VES display only returns to the home page by user control.



Figure 3: VESDA-E 4098-VES-A10-P 3.5 in display





Table 1: LED symbol reference

Symbol	Description
	Fire 2
	Fire 1
	Action
	Alert
	Disabled
	Fault
	Power

Table 2: Home page symbol reference

Symbol	Description
	Smoke level and adaptive scan threshold
	Detector OK
	Detector fault
	Aspirator fault
	Airflow fault
	Power fault

Table 2: Home page symbol reference

Symbol	Description
	Filter fault
	Smoke chamber fault
	VESDAnet fault
	StaX module fault

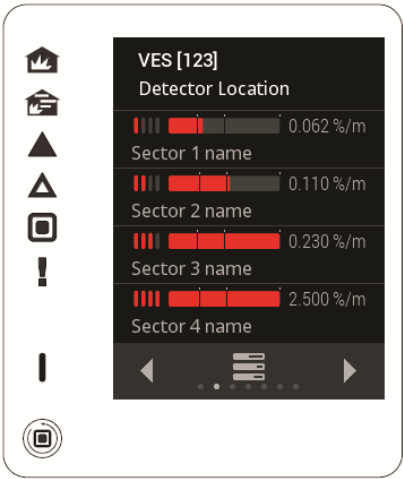





Figure 4: VESDA-E VES sector status display

Table 3: Sector status page display reference

Display element	Description
	Sector alarm level
	Sector smoke level bar graph including alarm threshold indicators
	User-configured sector name

Specifications

Table 4: VESDA-E 4098-VES specifications

Specification	Rating					
Supply voltage	18 VDC to 30 VDC (24 V nominal)					
Peak current	1.5 A					
Maximum current consumption	Quiescent: 0.82 A In alarm: 0.89 A					
Power consumption at 24 VDC	4098-VES-A00-P			4098-VES-A10-P		
Aspirator setting	1	5	10	1	5	10
Power (quiescent)	0.29 A	0.37 A	0.60 A	0.32 A	0.39 A	0.63 A
Power (in alarm)	0.33 A	0.41 A	0.64 A	0.36 A	0.44 A	0.67 A
Weight	10.56 lbs (4.79 kg)			10.78 lbs (4.89 kg)		
Dimensions (W x H x D)	13.8 in. x 8.9 in. x 5.3 in. (350 mm x 225 mm x 135 mm)					
Ethernet Active Add	0.01 A					
Operating conditions	Ambient: 32°F to 100°F (0°C to 38°C) Sampled air: -4°F to 140°F (-20°C to 60°C), see note 1 Humidity: 5% to 95% RH, non-condensing					
Area coverage	21,527.8 sq. ft. (2,000 m ²)					
Minimum airflow for each pipe	20 l/m					
Pipe length (linear)	919 ft (280 m), see note 2					
Pipe length (branched)	1,706 ft (520 m), see note 2					
Pipe lengths depending on number of pipes in use	Two pipes 328 ft (100 m)		Three pipes 262.5 ft (80 m)		Four pipes 230 ft (70 m)	
Number of holes	98, see note 2					
Computer design tool	ASPIRE					
Pipe	Inlet: External diameter 1 in. or 25 mm (3/4 in. IPS) Exhaust: External diameter 1 in. or 25 mm (3/4 in. IPS) through adaptor					
Relays	12 pre-configured relays (non-latching states) Contacts rated 2 A at 30 VDC (resistive)					
Connection to the FACU	Direct connection to the IDNet loop through recommended wiring					
IP rating	IP40					
Cable access	Four 1.02 in. (26 mm) cable entries					
Cable termination	Screw terminal blocks 24 AWG to 14 AWG (0.2 mm ² to 2.1 mm ²)					
IDNet connection from IFC card terminal block	18 AWG to 14 AWG (0.75 mm ² to 2.5 mm ²)					
Dynamic range	0.0000% obs/ft to 10% obs/ft (0.000% obs/m to 32% obs/m)					
Sensitivity range	0.0016% obs/ft to 6.25% obs/ft (0.005% obs/m to 20% obs/m)					
Threshold setting range	Alert: 0.0016% obs/ft to 0.625% obs/ft (0.005% obs/m to 2.0% obs/m) Action: 0.0016% obs/ft to 0.625% obs/ft (0.005% obs/m to 2.0% obs/m) Fire1: 0.0031% obs/ft to 0.625% obs/ft (0.010% obs/m to 2.0% obs/m) Fire2: 0.0063% obs/ft to 6.25% obs/ft (0.020% obs/m to 20.0% obs/m)					
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					

Note:

1. The sampled air temperature reaches detector ambient temperature upon entry into the detector. Refer to Xtralis design guides and application notes for sampled air pre-conditioning.
2. Subject to agency confirmation.

Table 5: IDNet communications compatibility reference

Specification		Rating	
Communications reference	Details	IDNet addressable communications, with communications circuit isolated from input power, and controller-to-head communications	
	Compatibility reference, review for addition to installed systems	IDNet communications source	Firmware or revision
		4100ES and 4010ES FACUs	System firmware 6.02.02 or higher
		4007ES FACU	
		4010ES Main System Subordinate 2 w/IDNet2 (MSS2)	All revisions of firmware
		4010ES Extended System Subordinate (ESS)	
		4007ES NAC Power Supply (NACPS)	
		4007ES IDNAC Power Supply (IDNAC)	
		IDNet 2+2	
Addressing		IDNet base address is set via Xtralis VSC Software. For 4 pipe systems, the next sequential addresses are automatically assigned.	

Product selection and ordering information

Table 6: VESDA-E VES product selection

PID	Description
4098-VES-A00-P	VESDA-E VES with LEDs - Simplex
4098-VES-A10-P	VESDA-E VES with 3.5 in. display - Simplex

Table 7: Spare parts

PID	Description
VSP-955-04	VESDA-E VES scanner manifold spare
VSP-960	VESDA-E mounting bracket
VSP-961	VESDA-E exhaust adaptor US
VSP-962	VESDA-E filter
VSP-962-20	VESDA-E filter, 20 pieces
VSP-963	VESDA-E aspirator
VSP-964-04	VESDA-E smoke detection chamber, MK4
VSP-965	VESDA-E sampling module

