VESDA-E

VEA

Product Guide, UL268 7th Edition

Overview

The intelligent VESDA-E VEA detectors VEA-040-A00-GW-UL and VEA-040-A10-GW-UL have an integrated Signaling Line Circuit (SLC) module to communicate with a Fire Alarm Control Panel (FACP) directly over the SLC loop. The intelligent VEA detectors are variants of the conventional VESDA-E VEA detectors with built-in SLC interface module.

The VEA-040-A00-GW-UL and VEA-040-A10-GW-UL are compliant with UL268, 7th Edition and CAN/ULC-S529, 4th Edition.

This guide provides information on installation, commissioning and configuration of the SLC-enabled VEA-040-A00-GW-UL and VEA-040-A10-GW-UL, SLC wiring and specifications, and deviations from the base detector models (VEA-040-A00-GW-UL and VEA-040-A10-GW-UL). This guide must be used in conjunction with the respective base detector product guide. Refer to "Related Product Documents" on page 5.

Note:
For readability, the following terms are used as defined by the product's Installation Instructions:

- "VEA-GW-UL" refers to VEA-040-A00-GW-UL and VEA-040-A10-GW-UL.
- "VEA-UL" refers to VEA-040-A00-UL and VEA-040-A10-UL.

In the case of exceptions, individual models will be specified.

It is essential that anyone using VESDA-E SLC detectors is trained in VESDA-E products and has the knowledge and appropriate certification from the local fire and electrical authorities.

Codes and standards information for Air sampling smoke detection

We strongly recommend that this document is read in conjunction with the appropriate local codes and standards for smoke detection and electrical connections. This document contains generic product information and some sections may not comply with all local codes and standards. In these cases, the local codes and standards take precedence. The information below was correct at the time of printing and may be out of date, check with your local codes, standards and listings for current restriction.

FCC Compliance Statement

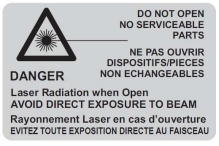
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designated to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures: re-orientate or relocate the receiving antenna, increase the separation between the equipment and receiver, connect the equipment to a power outlet which is on a different power circuit to the receiver or consult the dealer or an experienced radio/television technician for help.

FDA

The Xtralis product incorporates a laser device and is classified as a Class 1 laser product that complies with FDA regulations 21 CFR 1040.010. The laser is housed in a sealed detector chamber and contains no serviceable parts. The laser emits light which can be hazardous to the eye. Under no circumstances should the detector chamber be opened.

The laser chamber is identified by the labels shown below:





Regional Regulatory Requirements and Notices

UL/ULC

Open Area Applications: Covers the applications where users expect nuisance alarm sources such as cooking. Under UL268 7th edition Open Area Applications, it is specified that a detector is not permitted to signal an alarm in UL-defined “nuisance alarm” conditions.

Special Applications: Covers the applications where very early warning is paramount and users do not expect nuisance alarm sources such as cooking. Under UL268 7th edition Special Applications, it is specified that a detector is permitted to use higher sensitivity settings, and Open Area Applications limitations do not apply.

Use of Software Tools (VSC/VSM4)

VSC/VSM4 configuration / monitoring tools from Xtralis are used to configure / monitor detectors. For UL 268 7th edition compliance, all detectors are factory shipped in Open Area Applications configuration.

For continuous compliance under UL 268 7th edition, ensure that under detector Smoke Thresholds configuration screen on VSC/VSM4:

- The correct UL7 Mode option is selected under the required application. Special Applications mode permits higher sensitivities and can only be applied where cooking will not occur.

	Detector Setting		Tube Length (m)		Transport Time (s)		Tube Sensitivity Balance	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
Open Area Velocity: 0 to 4000 fpm	Standard	Standard	50	30	51	37	100	81
Special Application High Sensitivity Velocity: 0 to 4000 fpm	High	Enhanced	100	30	79	37		
Special Application Low Sensitivity Velocity: 0 to 4000 fpm	High	Standard	50	30	51	37		
DUCT Applications 50m Velocity: 0 to 4000 fpm	High	Standard	50	50	51	51		
DUCT Applications 100m Velocity: 0 to 4000 fpm	High	Enhanced	100	50	79	51		

Product Listings

- UL
- CSFM
- FDA

- FCC
- FM

Related Product Documents

Document Number	Description
36402*	VESDA-E VEA-040-A00-UL Product Guide
36401*	VESDA-E VEA-040-A10-UL Product Guide
36519	VEA-GW-UL Installation Instructions

*Documents available on xtralis.com.

Introduction

The VEA-GW-UL models have implemented an interface to the fire alarm control panel (FACP) over the SLC loop. An interface module mounted to the inside of the VEA door provides the SLC interface for the detector.

The SLC detector does not have VESDAnet capability as the networking is provided by the SLC loop.

Caution:
Vesdanet Port

Do not connect any other device to the spare Vesdanet Port on the VEA-GW-UL.

Specifications Specific to SLC Detectors

- Power drawn from the SLC loop: 0.03A
- Event reporting is achieved via event logs

Note: This model does not support the expansion STAX.

Ordering Information

VESDA-E VEA-UL detectors capable of interfacing to GAMEWELL-FCI panels:

- VEA-040-A00-GW-UL: GAMEWELL-FCI Intelligent VESDA-E VEA-40 point with LEDs, UL 268 7th edition
- VEA-040-A10-GW-UL: GAMEWELL-FCI Intelligent VESDA-E VEA-40 point with 3.5" Display, UL 268 7th edition

Compatibility with FACP

VEA-GW-UL devices are compatible with the following GAMEWELL-FCI fire panels:

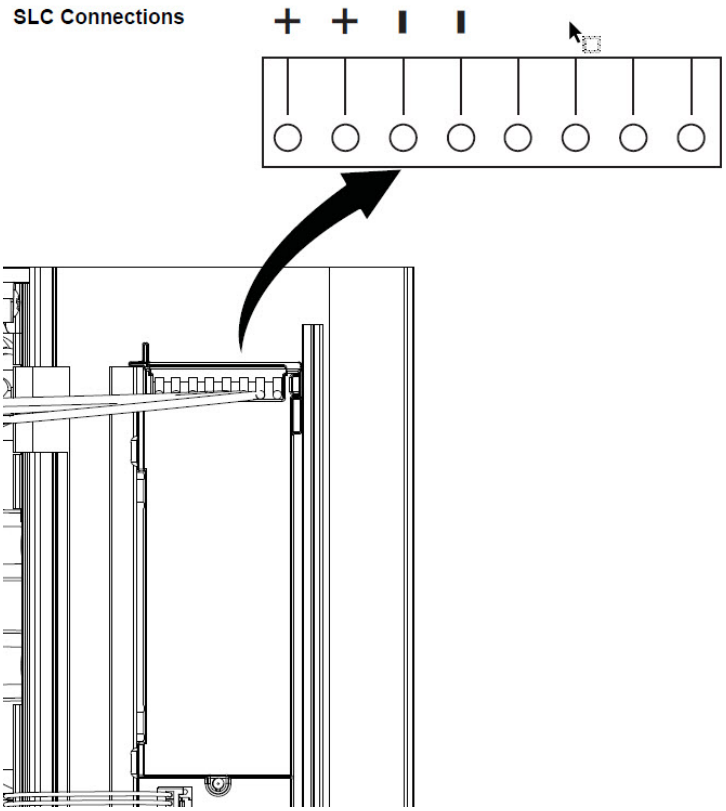
- E3 Series
- S3 Series

Installation

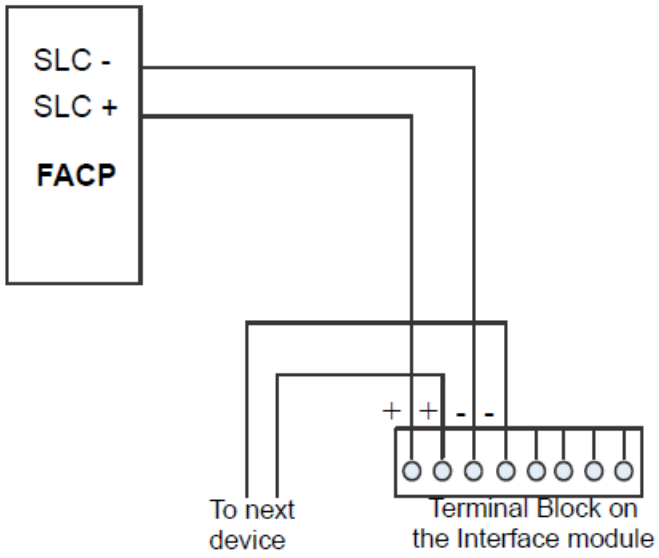
VEA is an addressable Aspirating Smoke Detector (ASD) with 40 addressable microbore tubes. VEA is configured as an ASD in a 1-address space providing the Alert and Action pre-alarms; and the Fire-1 and Fire-2 alarm conditions. Each of the 40 microbore tube air sampling points are to be con- figured as a photo detector on the SLC loop. Each VEA will occupy 41 consecutive addresses on the SLC loop.

Wiring

The terminal block for SLC wiring will accept wire sizes from 24 AWG – 12 AWG. Route the SLC wiring through the cabling inlets located on the upper and lower sides of the detector base and terminate the wiring on to the respective terminals on the SLC terminal block, as shown in figure below.



Refer to the diagram below to wire the SLC detector to the FACP.



Communication Ports

All of the standard ports of VEA-UL are available except for VESDAnet. VESDAnet is not available to the user in these models of the detectors. However, Gateway function is still applicable to this detector model to connect to Xtralis VSC. For Ethernet connection, it is recommended to use a Cat.6 cable or higher.

Installation checklist

Ensure that the SLC wiring has been completed as part of the installation check list.

Site Name	
Address	
Detector Serial Number and Date of Manufacture	
Name of Installer	
Signature	
Date	

Perform the following checks listed below to ensure that all of the necessary items are completed before handing over to a commissioning engineer.

Installation Checks	Done (Y/N)
The detector is intact in the box	
The detector is securely locked onto the mounting bracket (if in use).	
The sampling air pipes are firmly connected to the air inlet ports. Ensure that the tubes are NOT glued	
The tube network is setup according to the information provided in the respective detector product guide.	
The un-used tube inlet ports are blocked with a blanking plug.	
The power supply wiring has been connected to the detector	
SLC wiring to the FACP has been completed	
The adhesive tape has been removed from the exhaust port. Ensure that the exhaust pipe (if fitted) is NOT glued.	
The protective film has been removed from the display	
The sampling pipework has been installed and checked as per the site plans	
If required, the end of line resistor for the monitored GPI has been connected. Refer to the respective base detector product guide for additional information	

Functions Specific to VEA-GW-UL

- The RESET/DISABLE Button has no function associated with it.
- The seven (7) relays available are pre-configured with default settings and can not be changed on the SLC enabled detectors. For default configuration and wiring information, refer to the associated VEA-UL product guide.
- Unmonitored and Monitored General Purpose Input (GPI) are available in the VEA-GW-UL, which are only assigned the Remote Reset function and are not user configurable.
- When in Pre-alarm condition, a reset is required to enable scanning to indicate which tube is reporting the condition. A GPI can be used to initiate this scan on the VEA.
- When under a flow fault condition, a reset is required to enable scanning to indicate which tube is reporting the condition. A GPI can be used to initiate this scan on the VEA.
- The AutoLearn™ Flow function is not available.

Power

The Aspiration device requires 24V DC. The SLC interface is powered from the SLC loop. SLC wiring must be completed to fully power and configure the detector.

Device DC Power		
Supply voltage: 18-30 VDC (24 V Nominal)		
Maximum current consumption –Normal Operation: 2.10 A –In Alarm: 2.35 A		
Peak current (scan mode): 3.5 A		
	VEA-040-A00-GW-UL	VEA-040-A10-GW-UL
Tubes	40 tubes	40 tubes
Current Consumption @ 24 VDC		
–Normal operation	1.0 A	1.6 A
–In alarm	1.0 A	1.6 A
Peak current (scan mode)	3.5 A	3.5 A

SLC Current Consumption
Current drawn from the SLC loop: 0.008A

Table 1 VEA Power Consumption

Configuration

To fully configure the SLC interfaced detector, both the Xtralis VSC software and an FACP connection (via the SLC interface) are required. Ensure that the SLC wiring has been completed on the detector.

A PC loaded with Xtralis VSC software is directly connected to the detector using the USB port for initial configuration of the detector.

FACP Programing

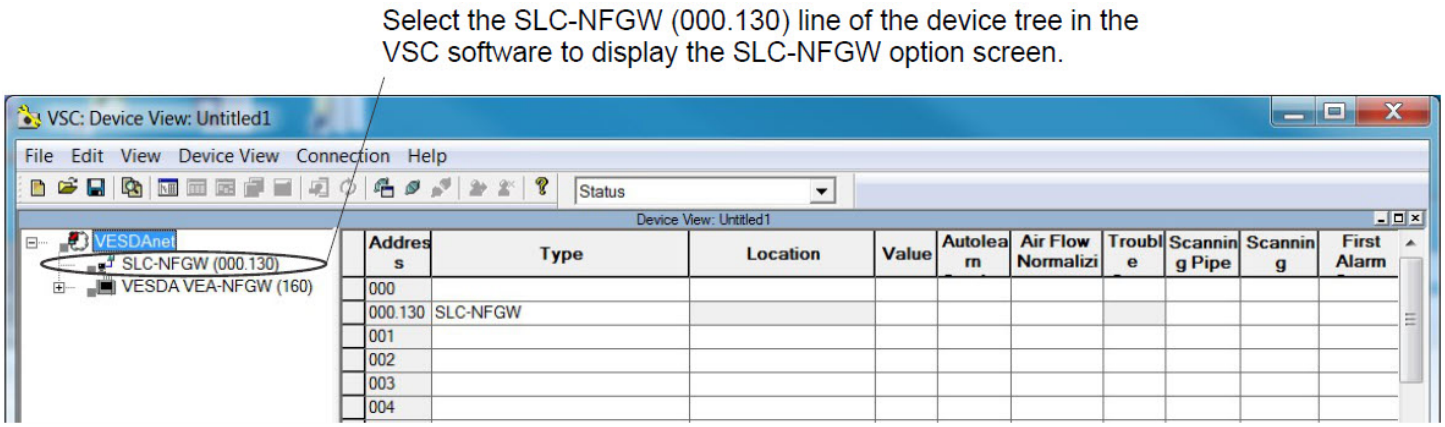
For FACP programing use the Velociti ID FAASTX and Type Code ASPIRATION or ASPIR (SUP).

For the 40 addressable tubes, use the Velociti ID PHOTO and Type Code Smoke (Photo).

SLC Address Assignment

The SLC addressing for the SLC enabled VEA-GW-UL is set using the VSC software. Refer to the graphics below.

Note: Each SLC enabled VEA-UL unit consumes forty-one (41) SLC addresses. (1 for ASD, 40 for the tubes).



Note:
Each SLC enabled VEA-A10 unit occupies 41 consecutive addresses on the SLC.

- Valid SLC address for the VEA-A10: 1 to a maximum of 115
- Each SLC loop can support a maximum of 3 SLC enabled VEA-UL devices.

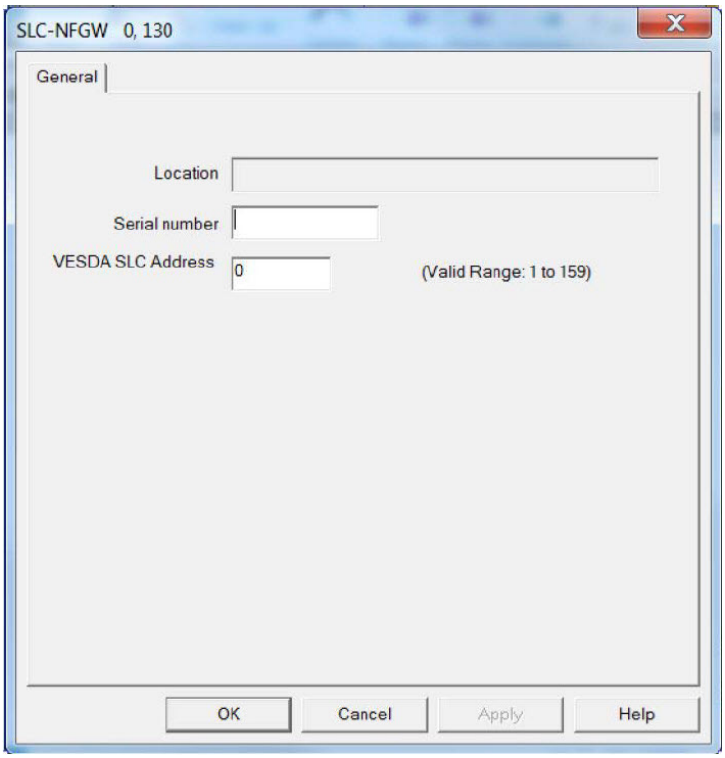
Addressing Examples:

VESDA SLC Address: 01

VEA occupies SLC addresses 01 through 41

VESDA SLC Address: 115

VEA occupies SLC addresses 115 through 155



Configuration Commands

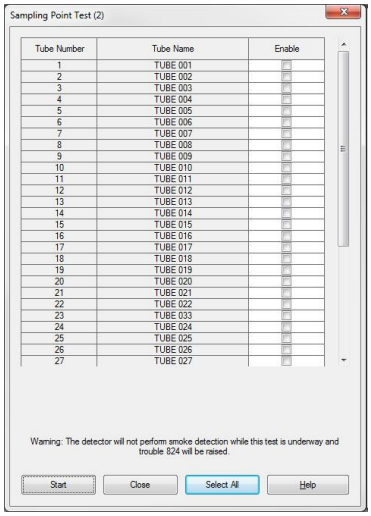
Refer to the VEA-UL Product Guide for configuration steps on the detector side.

Not all configuration commands defined in VEA-UL product guide can be issued using VSC in an SLC interfaced detectors. The following are the commands that are able to be issued to the SLC capable detector using VSC.

Command	Description
Reset	The Reset command resets the alarm generation logic and clears the active event list. Reset does not enable a disabled detector. To assist in determining the location of a fire, when the system is reset and if the system is in Pre-Alarm, the detector will initiate a smoke scan of all sampling locations. When the system is reset and there is no alarm condition, but there are one or more flow faults, the detector will perform a flow scan to ensure that there are no remaining flow fault conditions. Flow scan progress can be observed using the detailed status screen of Xtralis VSC and, if required, the flow scan can be canceled using Xtralis VSC.
Start Normalize Air Flow	Starts the air flow normalization process for the selected detector. The normalization process determines the reference flow rate. Normalization should be performed after changing pipe or monitoring pump settings. The process takes approximately 30 minutes. The detector must have been powered up for 5 minutes before the Normalization process can be initiated. The detector can be in normal or disabled mode. The pump remains on throughout the normalization process and no fault is reported unless the process fails to successfully complete. The normalizing status may be observed on the “detailed status” tab in the Xtralis VSC software. To normalize the detector using the internal AutoConfig button, press and hold the button until the AutoConfig LED illuminates, then release the button. To cancel the normalization process, press and hold the button for 5 seconds. The LED will turn off.
Stop Flow Scan	End an in-progress flow scan test.

Command	Description
Start Local Smoke Test	Perform a local smoke test to confirm correct operation of detector internal components. The test is manually initiated from within the Xtralis VSC software. The detector will not perform normal smoke detection from the sampling tubes while this test is in progress, and Fault 826 is generated. To test: Spray smoke into test ports with red plugs, located on the left side of the detector, and initiate the Start Local Smoke Test command. To open the smoke test ports, push the black release button around the red plug with a screwdriver while pulling the plug out. Ensure that the plugs are replaced when testing is complete. While the Local Smoke Test is running: the Scanning State indicator on the Detail Status tab will show that the test is being performed. The Tube Start / End indicator on the Detail Status tab will show “Home”. To complete testing: Execute the Stop Local Smoke Test command to complete the test.
Stop Local Smoke Test	End an in-progress local smoke test. Fault 826 will cleared.
Start Leak Test	Test for air leaks within the detector. ■ Test is performed automatically every 24 hours at a specified time ■ Can be manually initiated from within the Xtralis VSC software. ■ Generates Fault 829 if leaks are detected.
Stop Leak Test	End an in-progress leak test.

Command	Description
Sampling Point Test	Test for the correct presence of a sampling point at the end of the tube.



- The test is performed automatically every 24 hours at a specified time
- Can be manually initiated from within the Xtralis VSC software.
- Fault 824 will be generated if no Sampling Point is fitted or the tube is fractured. If the Sampling Point is present, no fault will be generated.

While the Sampling Point Test is running:

- The Scanning State indicator on the Detail Status tab will show that the test is being performed.

Procedure:

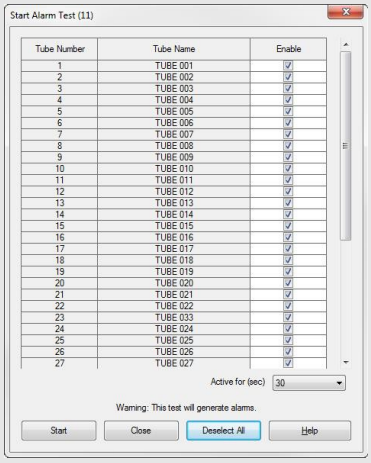
01. Initiate the Sampling Point Test command from the Device menu.
02. Select the tubes to be tested by editing the check boxes in the Enable column. (See example to the right.)
03. Select Start.
04. End the test early by selecting Stop.

Clean the sampling points.

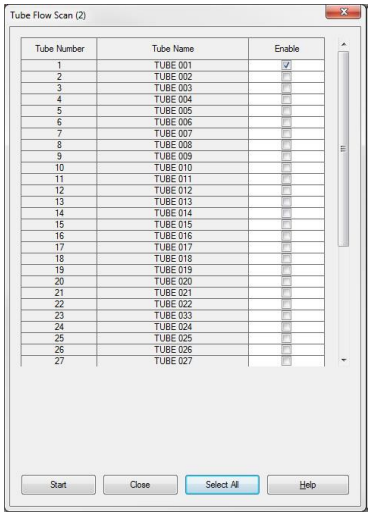
- The operation is performed automatically at specified intervals
- Can be manually initiated from within the Xtralis VSC software.

While the Sampling Point Cleaning function is running:

- Fault 825 is generated.

Command	Description
	■ The Scanning State indicator on the Detail Status tab will show that the operation is being performed. ■ The Tube Start / End indicator on the Detail Status tab will show which tubes are being cleaned. ■ The Percentage completed indicator on the Detail Status tab will show progress of the operation. Procedure 01. Initiate the Sampling Point Cleaning command from the Device menu. 02. Select the tubes to be cleared by editing the check boxes in the Enable column. 03. Select Start. 04. End the procedure early by selecting Stop.
Start Alarm Test	 Simulate full scale smoke level and initiates all alarm activity. - Alarm relays will energize unless the detector is disabled. Procedure 01. Initiate the Start Alarm Test command from the Device menu. 02. Select the tubes to be tested by editing the check boxes in the Enable column. 03. Set the test duration (default 30 seconds). 04. Select Start. 05. End the test early by selecting Stop.

Command	Description
Start Air Flow Fault Test	Tests the air flow sensing system by shutting down the aspirator.
Return to Factory Defaults	Restores the configuration of the detector to the initial factory default values. This setting will overwrite the SLC defaults. For SLC operation, the “Set SLC defaults” command needs to be performed following this command.
Set SLC defaults	Sets the SLC Mode to their defaults settings.
Set System Date and Time	Sets the detector date and time
SLC Address	Sets the SLC loop address for the detector. Range is 1 to 159. Default is 0. Refer to SLC Address Assignment section above.
Walk Test	Refer to the Walk Test Command section in the relevant VEA Product Guide.

Command	Description
Tube Flow Scan	The Tube Flow Scan function allows the user to measure the air flow rate for a selected set of tubes.  - The Flow rate can be viewed in the event log. Procedure: 01. Select Tube Flow Scan from the Device Menu. 02. Select the tubes for which the flow scan is to be performed. 03. Select Start. “Testing In Progress” will be displayed. The detector will move the rotary valve to each tube and measure the flow rate. 04. To stop the flow scan select “Stop”. The event log will have an event showing the flow rate for each selected tube.

Configuration Options

All of the configuration options described in the VEA-UL Product Guide are available with the following deviations:

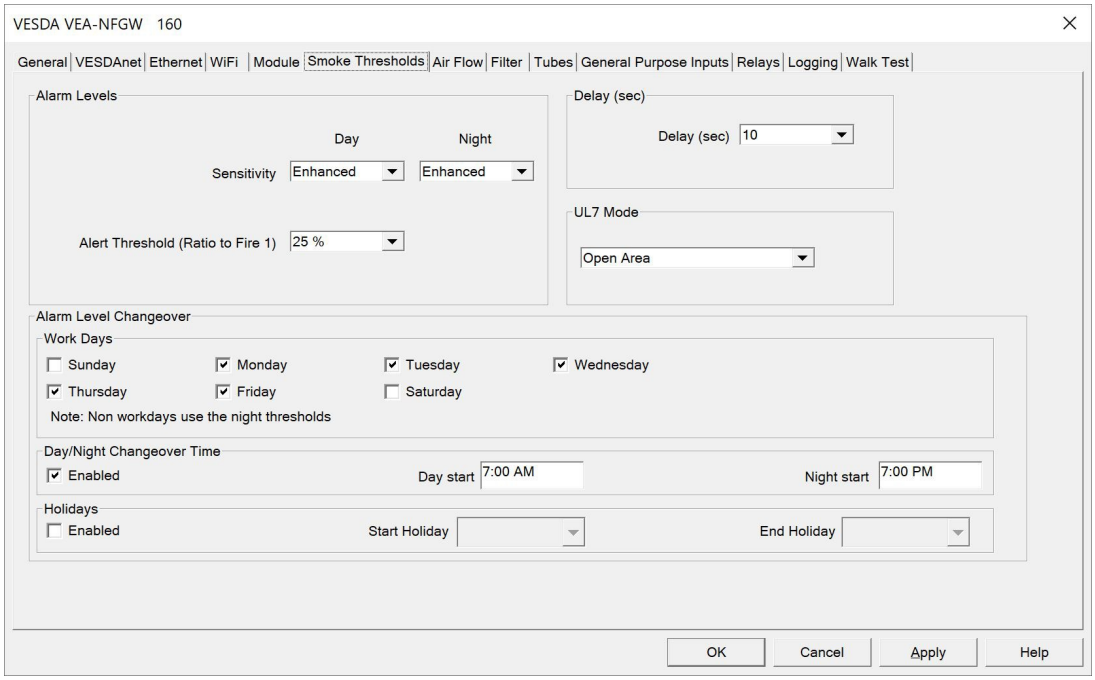
- VESDAnet options are not applicable as VESDAnet is not user accessible for the SLC enabled detectors.
- Module options are not applicable to SLC enabled VEA detectors as it doesn’t support Expansion StaX and Local Relay StaX.
- Flow thresholds (Fault Sensitivity) and Flow Fault delay parameters can only be set by the fire panel. These settings are not available in the VSC software.

Refer to the respective panel guide to set the air flow parameters. The remaining flow parameters defined in the VEA-UL product guide can be set using the VSC software. Follow the VEA-UL product guide for information on setting up the remaining parameters.

Smoke Thresholds Configuration

The SLC enabled VEA-UL has two smoke threshold configuration options under the “UL7 Mode” drop-down menu:

- Open Area
- Special Application

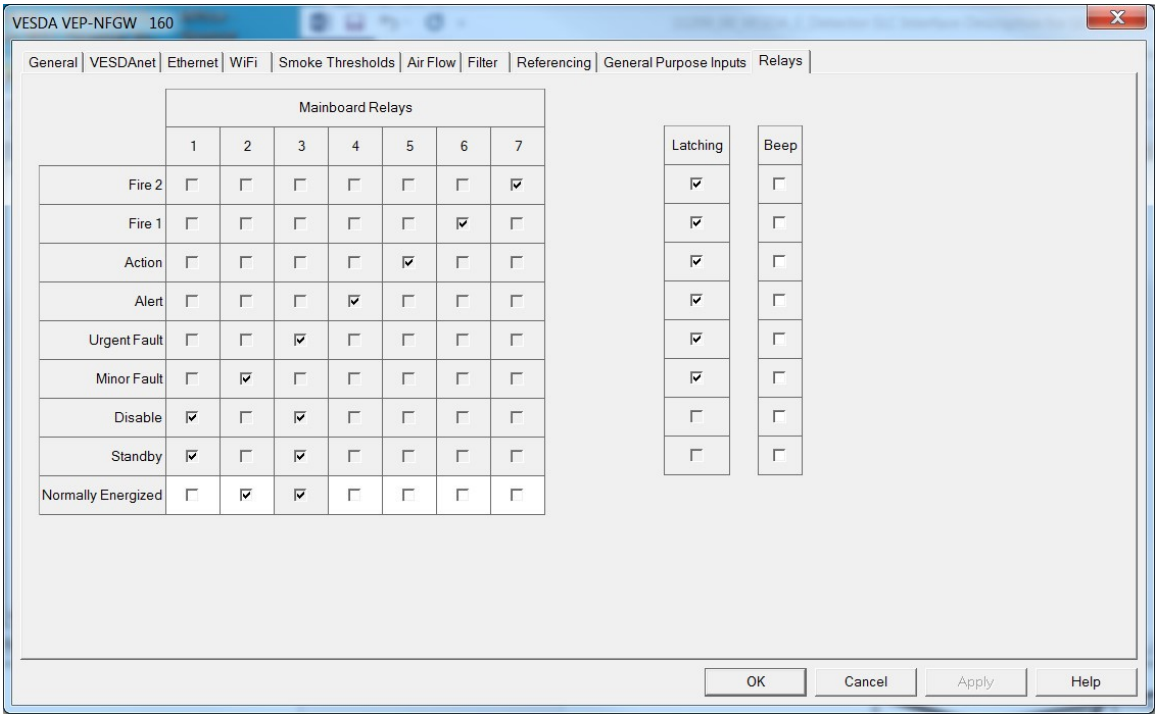


For more information, refer to the “Regional Regulatory Requirements and Notices” section in this document and to the VEA-UL product guides.

GPIs and Relays

General purpose inputs are not available to be configured via VSC.

Relay options are not available to be configured via VSC. The following screen shot shows relay assignments for the SLC instance.



Button Lockout Options

Button Lockout Options is also not available for the SLC capable VEA. The front panel button does not have any function associated with it.

Commissioning

Once the detector is configured appropriately, ensure that the detector could communicate with the FACP without any faults. Refer to respective FACP product guides for configuring the detector over the SLC loop.

Disconnect power to the VEA-UL and verify that communication fault is triggered at the FACP. Once the above is verified, follow the commissioning process described in VEA-UL product guide. Make copies of the completed commissioning forms and attachments and forward these to:

- Appropriate GAMEWELL-FCI sales office
- Installing contractor
- Designer of the system
- End user of the system

Troubleshooting

Faults are reported to FACP via SLC interface in SLC enabled detectors. All of the detector faults are mapped to the following categories at the FACP. Use the Xtralis VSC software to further investigate the following faults:

- Sensor fault
- Aspirator fault
- Communication fault
- Configuration fault
- Low flow fault
- High flow fault
- Filter fault – clogged
- Low voltage fault

Refer to the troubleshooting section of the VEA-UL Product Guide for additional fault information.

Commissioning Forms

Customer Name	
Site Address	
Installer (Name & Contact)	
Commissioner (Name & Contact)	

Commissioning Checks	Done (Y/N)	Notes
SLC wiring checks		
Correct maximum tube length configured		
Periodic airflow testing configured		
Filter service interval days configured Filter replacement due date:		
Tube names and correct group factors configured		
GPI connected and tested (if used)		
SLC address set correctly		
SLC detector setup on the SLC loop with no errors at the FACP		
Communication fault reported to the FACP when the detector power was removed		
Detector normalised and running without faults		
Sampling points tested using Xtralis VSC Sampling		
Smoke test done Smoke type used:		
Transport time (TT) tests done Detector longest even and odd pipes TT		
Walk test done and report generated and printed		

Handover

Commissioning engineer, commissioner / AHJ and customer representative should be satisfied on all aspects of commissioning and agree that the commissioning has met the required codes and standards. The detector must be ready for day to day operation prior to hand over. To hand over the system to the client obtain the relevant signatures and ensure that all required documents are included.

Hand Over Documents	
Copy of this form	☐
Configuration printout or record	☐
(if done) Specific performance test report	☐
Forms required for compliance with local codes and standards	☐

Customer's Signature	Date:
Commissioner's Signature	Date:

VEA-GW-UL Detector Configuration Record

Use the Xtralis VSC application to print a record of the detector's configuration. Select the detector on the Xtralis VSC tree view at the left and choose the Print command on the File menu.

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