VES FIRE DETECTION SYSTEMS

Product Guide 2018 - 2019

VES was founded with one mission: to give dealers a comprehensive, cost-effective means of providing fire detection networks for corporate, educational, government and retail campuses of any size using 21st century technologies.

Building on our success in the Engineered Systems Market we continue to expand our Elite range of fire detection products including the all new Elite RS and XT control panel. With Elite, VES enables Dealers to compete in the small and medium systems market, without compromising on features or expandability. Rest easy, knowing that our systems will grow with you, from a simple 32 point system to a 32,000 point system. No matter what the scope of your installation, all of the VES panels program with easy-to-use software.

Our state-of-the-art line of sensors and modules are easy to install. Our panels have been designed with the ability to apply company specific professional branding plates. Your installation will be with state-of-the-art products both in performance and appearance. Whether you need a single product line to satisfy small installations or the ability to offer larger system solutions including multi-panel networking, VES has the product range. Remember all VES panels program with easy-to-use, easy-to-learn configuration software.

Analog Addressable Fire Control Panels

Releasing Fire Control Panels

Conventional Fire Control Panels

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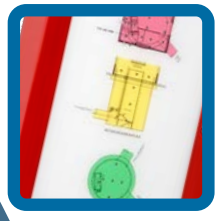

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Elite RS

Analog Addressable
Fire Control Panels
(1 or 2 Loops)
Apollo Protocol

VF0850-xx (1 Loop)

VF0860-xx (2 Loops)

where xx = 10 for Red & 40 for Gray

Standard Features

- One full SLC circuit expandable to two
- 3 programmable relays
- 5.25A power supply
- Large graphic display
- Real time clock
- Compatible with eMATRIX graphics annunciator
- Powerful, network wide cause and effects (500 total). Fully user programmable by point or zone.
- Can be networked with additional RS and/ or Elite control panels
- Compatible with eVIEW Annunciator
- Programmable through a PC connection to the panel
- Same look and feel as Elite range
- Stores 1000 last events in history log
- Model ranges include with or without a Dual-Line internal DACT
- Compact, stylish enclosure
- Available in Red or Gray
- 2 Programmable NAC circuits with internal synchronization support.

Product Overview

- Elite RS is a versatile range of open protocol fire alarm control panels compatible with existing Elite fire alarm panel technology.
- Available with one or two detection loops for a total of 250 primary SLC points or up to 400 points using addresses and subaddresses. Elite RS uses leading edge microprocessor based electronics to provide a flexible control system with high reliability and integrity.
- Suitable for all small to medium sized fire detection systems, Elite RS control panels can be expanded and networked to become part of much larger systems if the need arises, therefore providing a future proof solution for any installation.
- With its large graphical display and ergonomic button and indicator layout, the Elite RS control panel is simple and straightforward to understand for installers, commissioning engineers and end users alike.

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Dartford, DA11JQ, United Kingdom

Added Features:

Elite RS with Internal Modem/ DACT (VF0856-xx/VF0866-xx)

- Dual line digital communicator and modem
- Central Station reporting; SIA and Contact ID
- On-board loop start terminal connections for both primary and secondary Telco lines

Also available:

eNET Networking Card - VF1170-00
1 loop expansion board - VF1054-00
Trim ring - VF1071-xx

Technical Specifications

Construction: 16AWG sheet steel
Dimensions: 14.5"W x 18.9"H x 4.25" D
Weight (without batteries): 20lb
Finish (lid & box): RAL3002 (Red) or BS 00 A 05 (Gray)
Finish (product labels): BS 00 A 05 (Gray)
Mains voltage supply: 115 or 230V AC 50 or 60 Hz. (specify when ordering, default is 115V)
Mains supply fuse: 1.6A 250V
Power supply DC rating: 24V 5.25 Amps
Aux 24V supply: Fused at 500 milliamps
Battery (24 hour standby): 9Ah 12V (2 per panel) (non-networked)
Fault contact rating: 30V DC 1 Amp
Fire contact rating: 30V DC 1 Amp
Alarm contact rating: 30V DC 1 Amp
NAC output rating: 3.1V across both channels, 2.3V across any one
Detection loop: 250 milliamp output
Serial expansion port: Serial RS485
PC port: Serial RS232
Network connection: Optional network Cards allow the use of e-Net networking or VESnet networking
NAC Synchronization: Internal Support
NAC Protocols: System Sensor, Wheelock, Gentex, Amseco

Elite Demo Case

VF1062-10 (Red)
VF1062-40 (Gray)

Standard Features

- Portable Sales Demonstration Case
  - Permanently mounted in a bi-fold case on wheels
- Case incorporates
  - Elite RS
  - eView Serial Annunciator
  - Addressable Pull Station
  - Addressable Heat Detector
  - Addressable Optical Detector
  - Addressable IO Module
  - Strobe
- Elite RS panel has a selectable voltage, 110V or 230V
- Allows full demo of features

Elite

Analog Addressable Fire Control Panels (2 or 4 Loops)

VF1460-xx (1 Loop)

VF1480-xx (2 Loops)

where xx = 10 for Red & 40 for Gray

Standard Features

- UL 864 9th Edition listed
- Multi-Loop 2 Analog Addressable Loops Field upgradable to 4
- 126 primary points per loop
- Powerful, network wide cause and effects (500 total). Fully user programmable by point or zone.
- 800 points per panel when using devices with sub-points
- Up to 10,000 ft. wiring length on SLC loop
- 64 Panels on a network
- Programmable through a PC connection to the panel, or through keypad
- Programmable relays – 5
- Supervised Powered Outputs – 3
- Programmable Notification Appliance Circuits: 4
- Power per NAC: 1.6 Amps Max
- Programmable outputs on SLC loop
- Programmable Function button on front display
- Fire Drill button on front display
- Day and night sensitivity settings (user programmable)
- Power Supply: 5.25 Amp, regulated & integrated
- LCD Display: 8x40
- Zonal Mode: Annunciation by zone w/o individual relationships
- Panel Ring Modes: Common, Zonal, Stage 2
- NAC Outputs programmable as Continuous, March, Temporal
- Program Cause and Effects AND, OR, or Any Two (Cross Zone)
- Battery size: Up to 17 Ah in standard enclosure; up to 52 Ah with external cabinet
- Access levels: 3
- Access key switch: Yes
- Recognized for use in High Rise
- One man walk test – Fire Test Mode
- Available with semi flush trim ring
- Available in Red or Gray

Product Overview

- The VF1420 and VF1440 analog addressable FACP with networked releasing, supports 2 or 4 SLC loops for a total of 500 primary points and up to 800 points using subpoints.
  SLC loop communications uses standard twisted pair cabling, shielded cable is not necessary.
- The panel may be configured with various communication cards; Communications options support remote programming, central station monitoring, Virtual Panel and networking.
- The Panel can be configured as a stand-alone panel with just a few devices for a small building; it can also operate as the building system and can be part of a network with a total of 64 nodes serving a multiple building campus or a very large facility.
- Auto Learn capability provides a convenient method to troubleshoot new installations before final programming is loaded.

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Added Features:

Elite with eNET (VF1465-xx/VF1485-xx)

- Network uses standard RS485 cabling
- Up to 2,000 ft. between adjacent panels
- 115 Kbps constant network speed
- Secure, fault tolerant communication
- Up to 64 nodes

Elite with DACT (VF1464-xx/VF1484-xx)

- Dual line digital communicator and modem
- Contact ID and SIA reporting
- UL 864 9th edition listed
- Zone or point reporting
- Backup and duplicate reporting

Also available:

2 loop expansion board - VF1053-00

Trim ring - VF1070-xx

Elite-A Panel with internal printer

- All Parts Number Available in Red or Gray with or without an internal printer.

When ordering specify -CP

where c = 1 for Red or 4 for Gray

where p = 0 for No internal printer or 3 for Internal printer

Technical Specifications

Primary AC: 120VAC @ 2 Amps 60hz (Optional 240 VAC 50hz)
Output DC: 24VDC @ 4 Amps
Power Supply: 5.25 Amp regulated and integrated
Charger Current: 1.25 Amps max.
Dimensions: 14.5"W x 24"H x 5"D
Weight: 25 lbs. (without batteries)
Color: Red (optional gray)
Display: 8 line x 40 character LCD (320 characters total)
Zones: 500 Zones per network
SLC loops: 2 or 4 (class A or B)
Devices per loop: 126 sensors & modules (800 addresses + sub-addresses max. per panel)
NAC Outputs: (4) 1.6 Amp @ 24VDC (class B)
Relay Outputs: (5) Form C 1 Amp @ 30VDC
Voltage Outputs: (3) 500mA @ 24VDC, reverse polarity supervised
Aux. Power: 500mA @ 24VDC
Aux. Inputs: (3) digital pull downs

Current Consumption	
VF1460	355 mA Standby 650 mA Alarm
VF1480	455 mA Standby 765 mA Alarm
VF1465	430 mA Standby 745 mA Alarm
VF1464	430 mA Standby 730 mA Alarm

eNET

Elite Networking

VF1170-00

Standard Features

- Up to 64 nodes
- High integrity protocol when wired Class A
- Fully secure against short or open circuit faults
- Simple 2-wire loop connection
- Supports open ended networks for retrofit applications
- Network wide test and disablement functions
- Network wide cause and effect logic
- Flexible configuration options
- Panels configurable to act on network events or not as required

Product Overview

- The flexibility of the Elite system can be further enhanced by connecting control panels and repeaters together using a high integrity network.
- A simple 2-wire connection between each panel allows events to be transmitted to other parts of the system to provide indication or control on a system wide basis.
- Using the Loop Explorer configuration software, up to 64 nodes can be programmed to respond in a variety of ways to any system events as required.
- This flexibility extends the comprehensive cause and effect programming capability of Elite control panels to the entire network allowing actions, test modes or disablements to be started from any point.
- The fault tolerance of the network is such that any single open or short circuit fault will not result in any loss of information. Multiple faults are isolated and the network breaks into smaller networks which continue to work autonomously.

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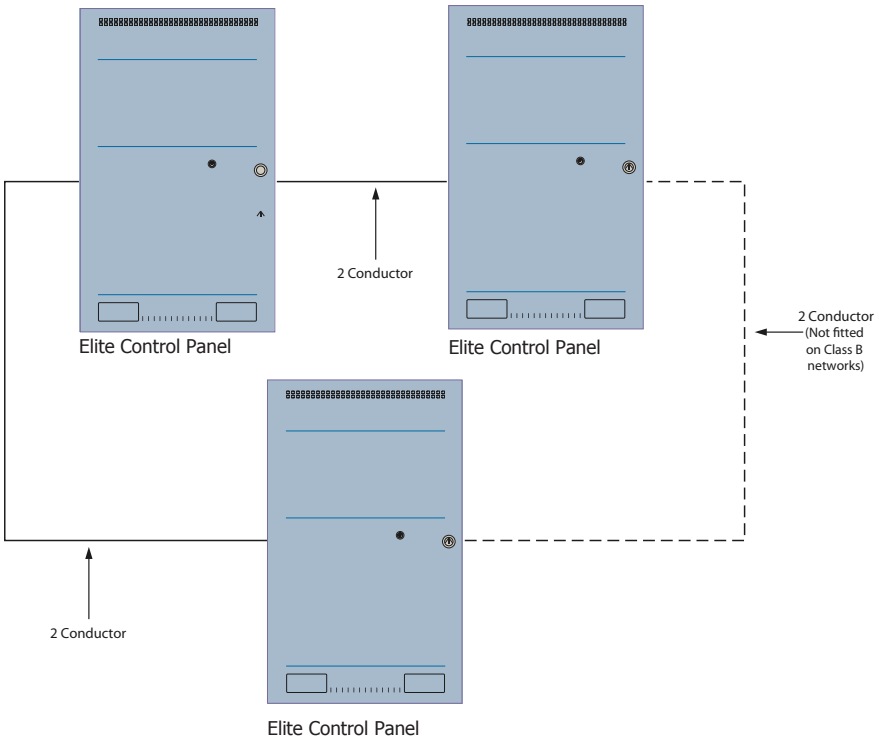
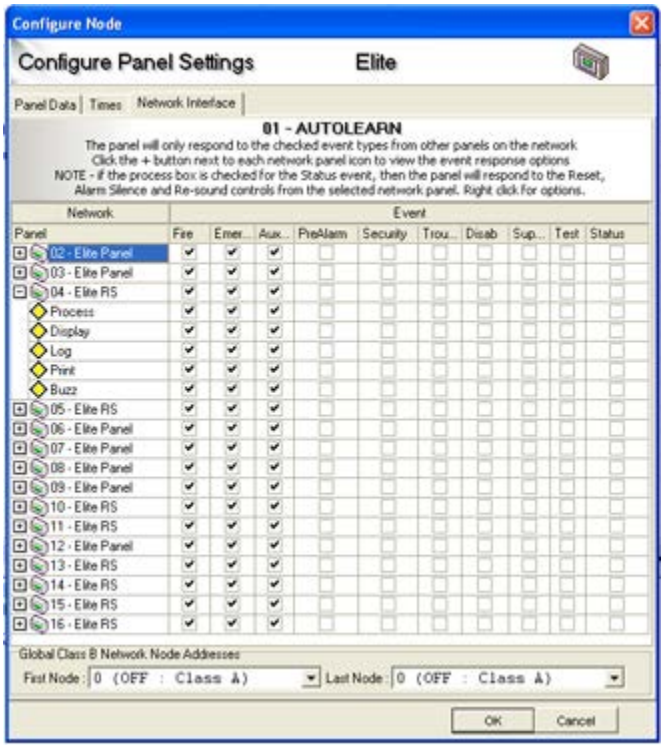
Two conductor loop wiring ensures network integrity by providing full isolation of faulty wiring segments.





Flexible network configuration options using simple to follow PC configuration software

Technical Specifications

Protocol: RS485

Connection: Two wire loop

Current Consumption: 40mA

Integrity: Full isolation of faulty nodes or wiring segments

Indicators: Data In and Data Out communications status

Cable length: 3900ft to adjacent nodes
(subject to cable type) (see technical manual)

Cable type: Belden 9271, Belden 9860, FP200 Gold

Compatible panels: Elite/ Elite RS (required for networking)

eVIEW

Analog Addressable Serial Annunciator

VF1172-xx

where xx = 10 for Red & 40 for Gray

Red version

Gray version

Standard Features

- Available in Red or Gray
- Up to 15 annunciators can be connected to each Elite or Elite RS fire control panel
- Large liquid crystal display (240 x 64 pixels)
- High brightness LED indications
- Internal sounder
- Replicates all panel controls (Elite)
- Simple, two-wire serial connection
- Small, Elite style enclosure
- Removable electronics for easy installation
- 24V DC powered
- Low power consumption
- Multi language options
- Connection supervised by Elite fire control panel
- Recess mounting using optional VF1173 kit

Product Overview

- Designed and manufactured to the highest standards in a quality controlled environment the eVIEW fire alarm annunciator provides a simple and convenient method of extending the controls and indications of the Elite fire alarm control panel to other locations.
- The large, graphic liquid crystal display and high brightness LED indicators duplicate the indications on the Elite fire alarm control panel at up to 15 additional locations via a simple, two-wire serial data connection.
- The eVIEW is powered by 24V DC (which can be via an additional 2 conductors from the control panel or local 24V DC listed supply).
- eVIEW is housed in a small enclosure which is styled similarly to the Elite control panel and is ideal for installations where a large control panel would be detrimental to décor such as entrance halls.
- Up to 15 eVIEW annunciators can be connected to each control panel on the Elite network making eVIEW ideal where multiple points of indication and/or control are required such as nurses stations or shop units.

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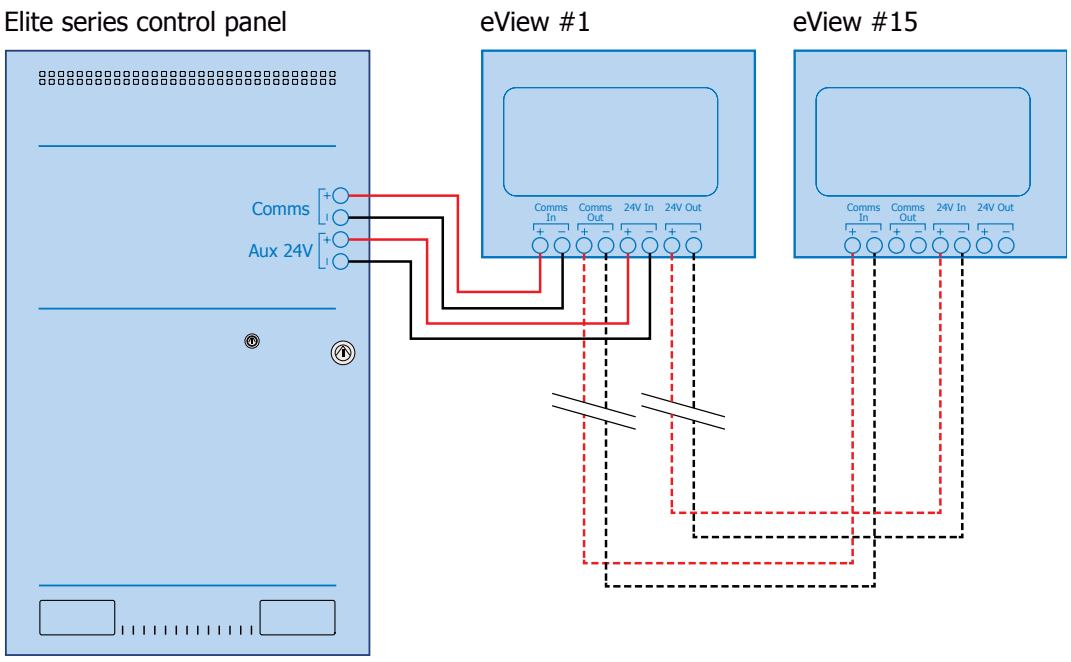


The VES trim ring allows the eVIEW annunciator to easily be recess mounted. VES trim rings provides placement tabs that fold behind dry wall. Traditional screw mounting is available by 2 openings in each of the vertical frames. Conduit entry is not blocked by trim ring.

Technical Specifications

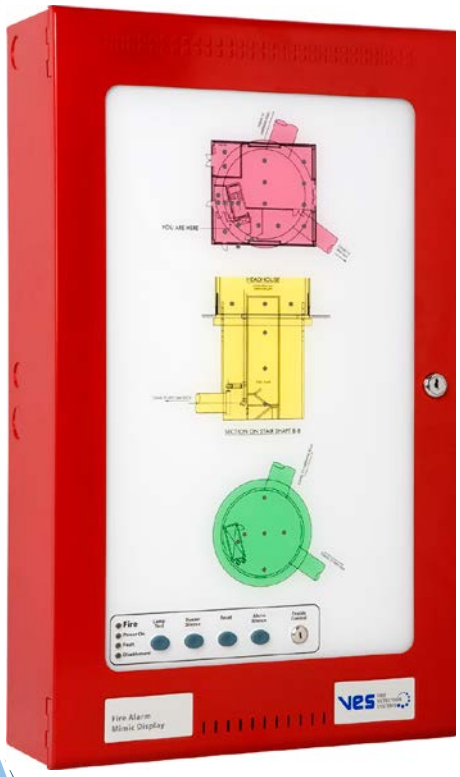
Construction: 18AWG sheet steel
Cable entry: 4 knockouts in back of box and 1 in left and right sides
Dimensions: 10.4"W x 7.5"H x 1.6"D
Weight: 3.5 lbs.
Finish : RAL3002 (Red) or BS 00 A 05 (Gray)
24V supply: 21 to 30V DC
Maximum ripple current: 200 millivolts
Quiescent current of panel in mains fail: 0.03 Amps
Serial data connection: 2 core RS485 (Up to 1200 metres total cable length)
Maximum terminal capacity: 12AWG

Trim Ring Technical Specifications

Part number: VF1173-xx
Outer Dimensions: 11.3"W x 8.6"H x 1.3"D
Inner Dimensions: 10.3"W x 7.4"
Color: Available in Red (VF1173-10) or Gray (VF1173-40)

eMATRIX

Configurable Floor Plan Mimic Annunciator



Standard Features

- Available in Red or Gray
- Up to 504 LED's can be controlled from any Elite panel
- Select up to 12 printed colors (not including background and building outline)
- Available in a range of standard enclosures to suit any application
- Custom sized units can be made upon request
- Choice of Red, Green or Yellow LED's
- eMATRIX can easily be upgraded on site with minimal cost and effort
- UL 864 9th edition listed

Product Overview

- The eMATRIX system uses flexible, optic light guides to illuminate areas on a floor plan, laid over a high resolution grid. This unique system dispenses completely with wiring and enables indicators to be moved, removed or added on site without the need for any wiring.
- All indicators can be configured to operate upon any event type and at point, zone or group level via the powerful and intuitive Loop Explorer configuration. eMATRIX can be supplied with or without LEDs and controls. Optional LEDs indicate Power on, Fire, Trouble and Disablement and optional controls are for Alarm silence, Buzzer silence, Lamp test and Reset.
- Housed in attractive, slimline enclosures to match Elite fire alarm panels and with high quality, full color floor plans, eMATRIX provides a clear, geographical indication of fire alarm activation enabling speedy identification of the source of an alarm.

View showing mimic mounted on inner door

View showing LED grid

View showing internal layout

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Technical Specifications

Current Draw: See Table 1

Supply voltage: 21 to 30V DC

Supply current: See above

Terminal capacity: 22 AWG to 12 AWG solid or stranded wire

Enclosure Size & mimic area: see 'Enclosure Size Options'

Construction: 16 gauge mild steel

Finish: epoxy powder coat

Mimic: 3mm Clear Anti-Glare Acrylic

Cabinet locks: CAT30 key

Communications interface: RS485 – Elite serial I/O bus protocol

Maximum distance from control panel: 4000 feet using RS485 data cable

IP rating: IP30

Operating temperature: 20F to 120F

Number of indicators (standard models): AM2 size - up to 40 LED's, AM3 size - up to 72 LED's, AM4 size - up to 88 LED's

No. of LED's	Standby Current	Full Alarm Current	Batteries for 24 hours	Batteries for 48 hours
40	0.026	0.09	0.88Ah	1.76Ah
72	0.052	0.18	1.75Ah	3.5Ah
88	0.078	0.36	2.8Ah	5.2Ah

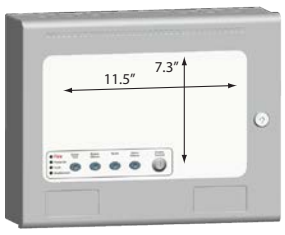
Table 1 - Current Draw

Model Numbers:

eMatrix Mimic Display, Model VF130X-YYY, -132X-YYY, -133X-YYY, where X can be the number 1 or 2 denotes color of enclosure, and YYY denotes the number of LED extension boards, which can be either 1, 3, or 5 boards.
Please contact VES for assistance with any configuration options

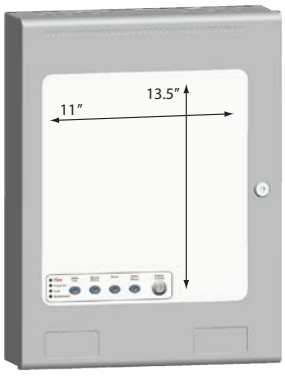
Enclosure Size Options
(Available in Red or Gray)

AM2



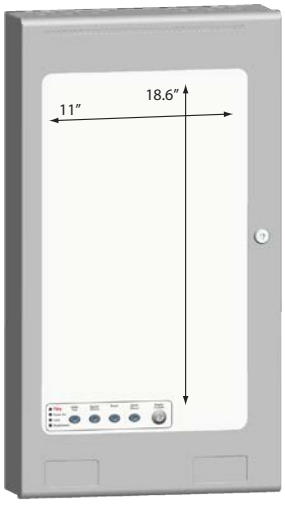
14.5″ Wide x 12.2″ High x 3.5″ Deep
Max. number of LED's = 40
Will house 1 x 8 Red LED driver PCB
and 2 x 16 LED extension PCB's
(Red, Green or Yellow)

AM3



14.5″ Wide x 18.9″ High x 4.25″ Deep
Max. number of LED's = 72
Will house 1 x 8 Red LED driver PCB
and 4 x 16 LED extension PCB's
(Red, Green or Yellow)

AM4



14.5″ Wide x 24″ High x 5″ Deep
Max. number of LED's = 88
Will house 1 x 8 Red LED driver PCB
and 5 x 16 LED extension PCB's
(Red, Green or Yellow)

VF1171-00

16 Channel Input/ Output Board

VF1171 16 Channel Input/Output Board
A powerful addition to the Elite or Elite RS system.
For LED mimics, plant alarms, plant control, voice evacuation and many other applications.

Standard Features

- UL approved
- 16 channels
- Each channel configurable as input or output
- Inputs opto-isolated
- Outputs open collector transistor
- Simple 2 wire connection to control panel
- Up to 32 boards supported per panel (512 Input/Output Channels)
- Inputs and outputs configurable as per field devices
- Full cause and effects on all inputs and outputs
- Multi drop RS485 communications
- Can be used with other Elite I/O modules on the same panel
- Compatible with Elite RS panels

Product Overview

- To add more I/O capability to the extensive options already offered by the Elite control panel, up to thirty-two, sixteen channel I/O boards may be connected.
- When using a simple two-wire RS485 communications protocol, these boards may be mounted locally to the control panel or distributed on a bus up to 3,900 feet long by using a suitable cable.
- The flexibility of these boards is further enhanced by the fact that each of the channels is configurable as either an input or an output.
- Each channel may also be configured to produce a variety of input actions or respond to a variety of output types.
- All channels can contribute to, or respond to, system-wide cause and effects logic.
- Typical uses for I/O boards include geographical LED mimic displays and plant alarm inputs.
- Standard Elite control panels contain fixings for one I/O board, which can easily be connected using four small signal wires to the power and comms bus within the panel.
- Consideration must be taken as to the loading on the main panel.

Technical Specifications

Supply voltage: 21 - 30V DC
Quiescent current consumption: 20mA
Current per input: 3mA (maximum)
Current per output: 100mA (maximum)
Communications: RS485 two wire
Max. distance from panel: 3900 feet (using correct type of cable)
PCB size: 7.5" H x 2.4" W
Cable capacity: 2.5mm per terminal
Operating temperature: 14º F to 122º F (-10º C to 50º C)
Operating humidity: to 95% (non condensing)

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GUIDE

VF1593-1x

Graphical PC User Interface for Fire Detection Systems

Standard Features

- Choice of text, graphic, event list display when an event occurs
- Versatile event analysis
- Total history archive
- Easy to program
- Secure system
- Cost effective compared to other systems
- Simple to use
- Unlimited map linking & zoom capability
- Support for 100's of graphics
- Display and control for multiple panels
- Event history explore and export to text or HTML documents

Product Overview

- Elite fire control panels can send data to, and be controlled by, the Guide system providing a single point of control for all alarms.
- The powerful 32 bit program features a standard Windows look and feel and runs under Windows® XP, Vista or Windows® 7.
- The system is highly configurable in terms of the style of presentation so that the end user can be presented with maps, text, photographs, audio or a combination of all as required.
- User profiles allow the system manager to control the options available to each individual system user.
- A comprehensive history logging and reporting system allows analysis of events and trends to be identified to reduce unwanted alarms.
- Easy to program and simple to use, Guide provides a cost-effective solution for fire alarm management at many levels.

Ordering Codes

Part number	Description
VF1593-10	GUIDE software - 1 node
VF1593-11	GUIDE software - 2-4 nodes
VF1593-12	GUIDE software - 5-8 nodes
VF1593-13	GUIDE software - 9-16 nodes
VF1593-14	GUIDE software - 17-32 nodes
VF1593-15	GUIDE software - 33-64 nodes

Note: Guide For use with Elite & Elite RS Panels.

Technical Specifications

	Recommended Minimum
Processor	Intel Pentium 1Ghz - The faster the better, 2Ghz will provide future proofing
Operating system	Windows® XP/Vista/ Windows 7 Professional - Will operate under Windows® 2000
Memory	256MB minimum - The larger the better
Hard disk	10GB minimum - >20GB would be better
Graphics	1024 x 768 16M colors - The driver must allow this mode with large fonts. Separate Graphics card with 256MB graphics memory recommended
Sound card	Any PC sound card
Loudspeaker	Any PC speakers - More convenient if built into PC
Monitor	Any that supports above graphics driver - 17 inch minimum recommended, the larger the better. (1024 x 768)
Pointing device	Mouse essential - Third button and wheels are supported. Touch screen option supported
Printer	Optional - Any type
Parallel port	Optional - Required if parallel printer to be used
USB ports	One per network - Isolated converter supplied for connection to fire alarm system
CDROM drive	Any - Required for installation of software and updates
Backup drive	CD Writer - To back up history

Note: Guide will be operating 24 hours a day for many years. It may be desirable to include on site PC maintenance as part of the package.

VF3033-10

Single Action
Addressable Pull Station

VF3034-10

Dual Action
Addressable Pull Station

Standard Features

- Single or Dual Action
- Wire head Connections
- Gold Plated Alarm Contacts
- Surface or Weatherproof Backbox
- Optional Auxiliary Alarm Contacts
- Optional Station Colors
- Combined with the VF5663-00 or VF5608-00 to provide an addressable interface to the Elite SLC loop

Product Overview

- The VF3033 and VF3034 pull stations are operated by pulling the handle marked "PULL" on the front of the station as far down as it will go. At that point, the station will lock in place and is easily visible from up to 50 feet. The activation handle is reset by opening the station with the key, placing the handle in the normal upright position and relocking the station.

- On the dual action, the push bar rotates inward allowing the "PULL" handle to be grasped and operated by a single hand. When used with the VF5608-00 Fast Response Contact Module, each addressable contact monitoring module is programmed with its own unique Signaling Line Circuit (SLC) loop address.

- Up to 126 devices can be placed on the Elite SLC loop. The module supervises the wiring to the contact with an End Of Line (EOL) resistor. If a fault condition occurs in the wiring, the module sends a trouble status signal to the fire alarm control panel. When a change of status is sensed by the fast response contact module, it sends an interrupt to the control panel indicating that an alarm has occurred.

- After addressing, Manual Pull Stations are fully configurable through Loop Explorer programming software.

Application

- The VF3033 and VF3034 are versatile, high-quality, metal Fire Alarm Pull Stations designed to meet any installation demand.
- Available in both single (VF3033) and dual action (VF3034) configurations. VF3033 and VF3034 pull stations are integrated with the VF6024-00 contact module to provide a simple-to-install addressable pull station. The normally open contact of each station, which closes when the pull station is activated, is rated for 1 Amp, 30VDC. The contacts are gold plated to avoid risk of corrosion.
- All models have been listed by UL and found in compliance to the latest requirements of the Americans With Disabilities Act (ADA). VF3033 / VF3034 stations from VES are equipped with key reset. All models mount on a standard, single gang backbox, VES VF3007-10 interior surface metal backbox or model VF3008-10 weatherproof interior surface metal backbox.

Technical Specifications

Rated voltage DCP powered loop: 17-41 VDC
Average consumption: 3.5mA
Alarm current: 17-28 VDC
Transmission: DCP - Digital Communication Protocol
Maximum humidity: 90% RH non-condensing
UL ambient installation temperature range: 32°F to 100°F
Operating temperature range: 14°F to 122°F
Color: Red

Ordering Codes

Part number	Description
VF3033-10	Single action addressable pull station
VF3034-10	Dual action addressable pull station
VF3007-10	Interior surface sheet metal backbox - red
VF3008-10	Weatherproof surface die cast metal backbox and gasket assembly - red
VF3009-00	Scored plastic (acrylic) breakrods (1 dozen per pack)
VF5608-00	Fast response contact module

Note: All models are supplied with one scored, acrylic breakrod & one key

VF5688-10

Addressable Polycarbonate Pull Station

The Addressable Polycarbonate Pull Station is dual action and features translucent plastic at the center, allowing visibility of an internal LED that indicates alarm condition and polling status. The unit is addressable using a DIP switch protected within the Pull Station. The Polycarbonate Pull Station may be flush mounted on a single gang work box or use an optional back cover (VF5689-10).

- Control panel compatibility
- Key lock
- Easily resettable
- LED visible even when Pull Station is closed

VF5600-00

Discovery Ionization Smoke Sensor

Standard Features

- Compatible with Elite and Elite RS control panels
- 5 operating modes
- Drift compensation
- Address is set by X-Pert card and is stored in base
- User memory
- Alarm flag for fast alarm reporting
- Conventional false safe mode
- Polarity insensitive
- Fits 4" & 6" low profile base
- 6" audible base
- 4" wire relay base

Note:

Bases and cards are not included with Sensors, please order separately.

Mode	Pre-Alarm (%/fT)	Alarm (%/fT)	30 Second Alarm Delay
1	0.5	0.7	No
2	0.5	0.7	Yes
3	0.7	1.0	No
4	0.7	1.0	Yes
5	1.0	1.5	No

Ionization Sensor operating modes

Overview

The VF5600 Discovery Ionization Smoke Sensor has a molded white polycarbonate case with windresistant smoke inlets. Inside the case is a printed circuit board which has the ionization chamber mounted on one side and the signal processing and communications electronics on the other. The ionization chamber consists of a reference chamber contained inside a smoke chamber. The outer smoke chamber has inlet apertures fitted with insect resistant mesh.

Operation

The radioactive source holder and the smoke chamber form positive and negative electrodes respectively. An Americium 241 radioactive source mounted within the reference chamber irradiates the air in both chambers, producing positive and negative ions.

A voltage across the electrodes produces an electric field. Ions are attracted to the Electrode of the opposite sign to their own charge; many recombine but a small electric current flows between the electrodes. At the junction between reference and smoke chambers, the sensing electrode converts variations in chamber current into voltage hanges.

When smoke particles enter the ionization chamber, ions become attached to them with the result that the current flowing through the chamber decreases. This effect is greater in the chamber decreases.

Operation - continued

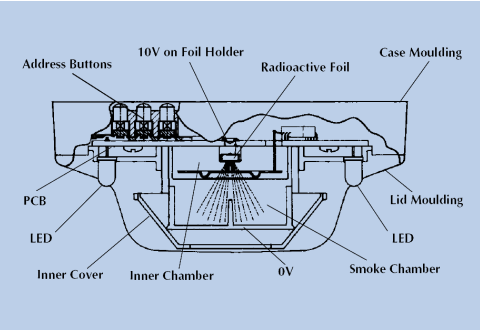
This effect is greater in the smoke chamber than in the reference chamber, and the imbalance causes the sensing electrode to become more positive. The analog voltage at the sensor electrode is converted to a digital format which is processed to provide on analog value or transmission to the control panel when the device is polled.

The VF5600 Discovery Ionization Sensor, like all Ionization Sensors, has some sensitivity to air movement (wind). The extent to which the analog value will change depends on the wind speed and on the orientation of the detector relative to the wind direction. Relatively small changes in wind direction can cause significant changes in analog value. For wind speeds up to 200 ft/min the change in analog value will not exceed 5 counts. Continuous operation in wind speeds greater than 400 ft/min is not however recommended. It will not under any conditions increase the probability of false alarms. Ionization smoke detectors are supplied in individual packing with a red lid serving as a dust cover which can be left in place after fitting to prevent ingress of foreign material until commissioning of the system takes place. At this point, the covers must be removed.

Engineering Specification

The Ionization smoke Sensor shall be VF5600, where indicated on the plans, with one of the several addressable mounting base options available. The Ionization smoke Sensor shall include compensation for sensor drift as part of the internal signal-processing algorithm. The ionization sensor head and twist-lock mounting base shall be UL Listed and UL Listed as compatible with the Elite Addressable Fire Alarm Control Panels.

The base shall permit free interchange of sensor heads without requiring any additional wiring or additional programming of the head or base. The smoke sensor shall contain an integral LED that shall latch in when the unit goes into alarm. RF suppression techniques shall be employed to minimize false alarms. The ionization smoke sensor shall have automatic conventional false safe mode if the detectors polling mechanism fails.



Sectional view - Ionization Smoke Sensor

Technical Specifications

Stand current: 500µA
Alarm current: LED Illuminated 3.4mA
Radioactive isotope: Americium 241
Operating voltage: 17-28 VDC
Max. continuous operating temp: 140°F
Min. continuous operating temp: 32°F
Min. Operating temp: -4°F (no condensation/icing)
Storage: -22°F to 176°F
Detector weight: 3.68 oz
Detector with base weight: 5.62 oz
Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

Ordering Codes

Part number	Description
VF5600-00	Ionization Smoke Sensor
VF5630-00	4" Mounting Base
VF5632-00	6" Low Profile Relay Base
VF5633-00	Isolator Base
VF5636-00	6" E-Z Fit Low Profile Base
VF5631-00	6" Sounder Base
VF5640-00	Blank XPERT Cards
VF5641-00	Pre-addressed XPERT Cards

VF5601-00

Discovery Photoelectric Smoke Sensor

Standard Features

- Compatible with Elite and Elite RS control panels
- 5 operating modes
- Drift compensation
- Two status LEDs
- Address is set by X-Pert card and is stored in base
- User memory
- Alarm flag for fast alarm reporting
- Conventional false safe mode
- Polarity insensitive

Note:

Bases and cards are not included with Sensors, please order separately.

Mode	Pre-Alarm (%/fT)	Alarm (%/fT)	30 Second Alarm Delay
1	1.1	1.7	No
2	1.1	1.7	Yes
3	1.5	2.3	No
4	1.5	2.3	Yes
5	2.0	3.0	No

Photoelectric Sensor operating modes

Overview

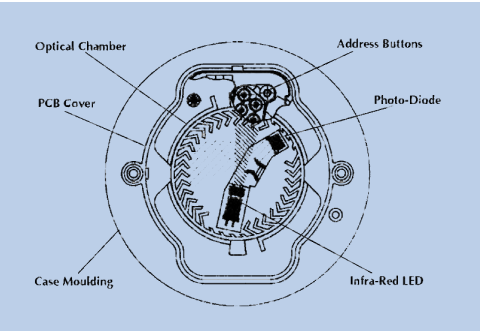
The VF5601 Discovery Photoelectric Sensor uses the same outer case as the Ionization smoke Sensor and is distinguished by the indicator LEDs which will flash when the Sensor is in standby state and steady red in alarm. The housing is white polycarbonate and will not fade. Terminals are nickel plated stainless steel.

Operation

Within the case is a printed circuit board which, on one side, has the light-proof chamber with integral gauze surrounding the optical measuring system and, on the other, the signal processing and communications electronics. An infra-red light emitting diode is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight-blocking filter. The IR LED emits a burst of light every second. In clear air the photodiode receives no light directly from the IR LED, because of the angular arrangement and the chamber Baffles. When smoke enters the chamber it scatters light from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed to provide an analog value for transmission when the Sensor is interrogated.

Engineering Specification

The Photoelectric Smoke Sensor shall be VF5601, where indicated on the plans, with one of the several addressable mounting base options available. The Photoelectric Smoke Sensor shall include compensation for sensor drift as part of the internal signal-processing algorithm. The Photoelectric Sensor head and twist-lock mounting base shall be UL Listed and UL Listed as compatible with the Elite addressable fire alarm control panels. The base shall permit free interchange of sensor heads without requiring any additional wiring or additional programming of the head or base. The smoke sensor shall contain an integral LED that shall latch in when the unit goes into alarm. RF suppression techniques shall be employed to minimize false alarms. The Photoelectric Smoke Sensor shall have automatic conventional false safe mode if the detectors polling mechanism fails.



Top view - Photoelectric Smoke Sensor

Technical Specifications

Stand current: 400µA
Alarm current: 3.4mA
Operating voltage: 17-28 VDC
Max. continuous operating temp: 140°F
Min. continuous operating temp: 32°F
Min. Operating temp: -4°F (no condensation/icing)
Storage: -22°F to 176°F
Detector weight: 3.68 oz
Detector with base weight: 5.62 oz
Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

Ordering Codes

Part number	Description
VF5601-00	Photoelectric Smoke Sensor
VF5630-00	4" Mounting Base
VF5632-00	6" Low Profile Relay Base
VF5633-00	Isolator Base
VF5636-00	6" E-Z Fit Low Profile Base
VF5631-00	6" Sounder Base
VF5640-00	Blank XPERT Cards
VF5641-00	Pre-addressed XPERT Cards

VF5602-00

Discovery Heat Sensor

Standard Features

- Compatible with Elite and Elite RS control panels
- 5 operating modes
- Fits into addressable 4" bases or 6" E-Z Fit bases
- Addressable sounder alarm base
- Address is set by X-Pert card and stored in base
- User memory
- Alarm flag for fast alarm reporting
- Fixed point or rate of rise function

Note:

Bases and cards are not included with Sensors, please order separately.

Mode	Pre-Alarm (%/fT)	Alarm (° F)	Fixed/ ROR Profile
1	N/A	135°	FT & ROR
2	N/A	150°	FT & ROR
3	N/A	150°	FT
4	N/A	200°	FT & ROR
5	N/A	200°	FT

Heat Sensor response modes

Overview

The VF5602 Discovery Heat Sensor has a common profile with the ionization and photo smoke Sensor, but has a low air flow resistance case made of self extinguishing white polycarbonate.

The VF5602 Analog Addressable Thermal Sensors are designed to provide the highest effectiveness by utilizing the latest technology. The sensor is designed for operation with the Elite addressable fire alarm control panels.

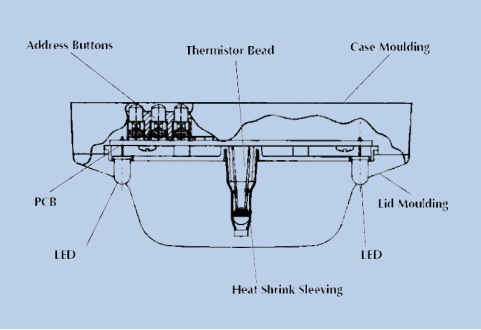
Operation

The VF5602 Heat Sensor uses a single thermistor to sense the air temperature at the detector position. The thermistor is connected in a resistor network, which produces a voltage output dependent on the temperature. The design of the resistor network, together with processing algorithm in the micro-controller, gives an approximately linear characteristic from 50°F to 176°F. This line-arised signal is further processed, depending on the response mode selected, and converted to an analog output. A detector may be given an "R" or "S" suffix. The "R" suffix indicated that the Sensor has been shown to have a rate of rise characteristic. Such a Sensor will still give a rapid response even when starting from an ambient temperature well below its typical application temperature.

This type of Sensor is therefore suitable for areas such as unheated warehouses in which ambient temperature may be very low for long periods. The "S" suffix indicates that the Sensor will not respond below its minimum static response temperature even when exposed to high rates of rise of air temperature. This type is therefore suitable for areas such as kitchens and boiler rooms where large, rapid temperature changes are considered normal.

Engineering Specification

The thermal sensor shall be VF5602, where indicated on the plans, with one of the several addressable mounting base options available. The combination sensor head and twist-lock mounting base shall be UL listed and UL Listed as compatible with the Elite addressable fire alarm control panels. The base shall permit free interchange of sensor heads without requiring any additional wiring or additional programming of the head or base. The sensor shall contain an integral LED that shall latch in when the unit goes into alarm.



Sectional view - Heat Sensor

Technical Specifications

Alarm current: LED Illuminated 3.4mA
Radioactive isotope: Americium 241
Operating voltage: 17-28 VDC
Max. continuous operating temp: 140°F
Min. continuous operating temp: 32°F
Min. Operating temp: -4°F (no condensation/icing)
Storage: -22°F to 176°F
Detector weight: 2.3 oz
Detector with base weight: 3.5 oz
Dimensions: Diameter: 3.94", Height: 1.65", Height in base: 1.96"

Ordering Codes

Part number	Description
VF5602-00	Heat Sensor
VF5630-00	4" Mounting Base
VF5632-00	6" Low Profile Relay Base
VF5633-00	Isolator Base
VF5636-00	6" E-Z Fit Low Profile Base
VF5631-00	6" Sounder Base
VF5640-00	Blank XPERT Cards
VF5641-00	Pre-addressed XPERT Cards

VF5603-00

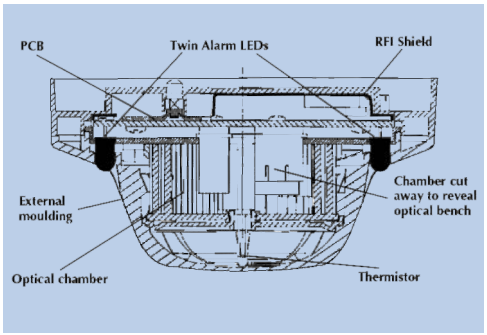
Discovery Multisensor Sensor

Standard Features

- Compatible with Elite and Elite RS control panels
- 5 operating modes
- Combines photo, smoke, and thermal sensor value for enhanced detection performance and false alarm reduction
- Address is set by X-Pert addressing and is stored in the sensor base
- Rate of rise heat signals
- Drift compensation
- Polarity insensitive
- Fits 4", 6", or 6" low profile bases
- 6" audible base
- 4" relay base

Note:

Bases and cards are not included with Sensors, please order separately.



Sectional view - Multisensor Sensor

Overview

The VF5603 Discovery Multisensor Sensor contains a photo smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analog value. The way in which the signals from the two sensor are combined depends on the response mode selected. The five modes provide response behavior which incorporated pure heat detection, pure smoke detection, and a combination of both. The multisensor is therefore useful over the widest range of applications. The outer smoke chamber has inlet apertures fitted with insect resistant mesh.

The Multisensor construction is similar to that of the Photo Sensor but uses a different lid and optical moldings to accommodate the thermistor temperature sensor. The sectional view shows the arrangement of the optical chamber and the thermistor.

Operation

The signals form the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector. The Sensor's micro-controller processes the two signals according to the mode selected. When the sensor is operating as a multisensor (i.e. Modes 1, 3, and 4) the temperature signal processing extracts only rate-of-rise information for combination with the optical signal.

In these modes the Sensors will not respond to a slow temperature increase- even if the temperature reaches a high level. A large sudden change in temperature can, however, cause an alarm without the presence of smoke, if sustained for 20 seconds. The process algorithms in modes 1 to 4 incorporate drift compensation.

Modes

The characteristics of the five response modes are summarized below.

Mode 1 has a very high smoke sensitivity combined with high temperature sensitivity. This gives a high overall sensitivity to both smoldering and flaming fires.

Mode 2 has smoke sensitivity similar to that of a normal Photoelectric Sensor, but has no response to temperature. This mode is therefore equivalent to a standard Photo Sensor. This mode is suitable for applications in which wide temperature changes occur under normal conditions.

Mode 3 has moderate smoke sensitivity combined with moderate sensitivity to heat. This combination is considered the optimum for most general applications since it offers good response to both smoldering and flaming fires.

Mode 4 has lower than normal smoke sensitivity combined with high heat sensitivity. This makes it suitable for applications in which a certain amount of fumes or smoke is considered normal.

Mode 5 has no smoke sensitivity at all, but give a pure Heat Sensor response. In this mode the Sensor will respond to slowly changing temperature and has a "fixed temperature" alarm threshold at 135°F. The analog value in this mode will give the approximate air temperature over the range of 59°F to 131°F. In Mode 5, the smoke sensor is still active though it does not contribute to the analog signal. As a consequence, if the detector is used in a dirty or smoky environment the optical sensor drift flag may be activated in the heat-only mode.

Engineering Specification

The photo/heat multisensor Sensor shall be VF5603, where indicated on the plans, with one of the several addressable mounting base options available. The combination sensor head and twist-lock mounting base shall be UL Listed and UL Listed as compatible with the Elite addressable fire alarm control panels. The photo/heat multisensor Sensor shell have 5 programmable sensitivity modes. The base shall permit free interchange of sensor heads without requiring any additional wring or additional programming of the head or base. The smoke sensor shall contain an integral LED that shall latch in then the unit goes Into alarm.

Note: *In testing of the multisensor sensor should be carried out as for smoke sensor in response modes 1-4, and for heat detection in response mode 5.*

Design Note: *If the multi-sensor is to be used in mode 5, heat sensor spacing/coverage should be applied.*

Technical Specifications

Stand current: 500µA

Alarm current: 3.5mA

Operating voltage: 17-28 VDC

Max. continuous operating temp: 140°F

Min. continuous operating temp: 32°F

Min. Operating temp: -4°F (no condensation/icing)

Storage: -22°F to 176°F

Detector weight: 3.68 oz

Detector with base weight: 5.62 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

Ordering Codes

Part number	Description
VF5603-00	Multisensor Sensor
VF5630-00	4" Mounting Base
VF5632-00	6" Low Profile Relay Base
VF5633-00	Isolator Base
VF5636-00	6" E-Z Fit Low Profile Base
VF5631-00	6" Sounder Base
VF5640-00	Blank XPERT Cards
VF5641-00	Pre-addressed XPERT Cards

Mode	Pre-Alarm (%/fT)	Alarm (%/fT)	Heat Classification	20 Second Alarm Delay
1	0.9	1.3	140° ROR	Yes
2	1.3	1.9	140° ROR	Yes
3	1.7	2.6	140° ROR	Yes
4	2.2	3.3	140° ROR	Yes
5	No Response	No Response	135° FT & ROR	No

Multisensor Sensor operating modes

VF5669-00

XP95A Ionization Smoke Sensor

Standard Features

- Responds well to fast burning, flaming fires
- Designed to operate in a variety of environments
- Minimal effects from temperature, humiditty, atmospheric pressure

Overview

The XP95A Ionization Sensor uses a low activity radioactive foil to detect fires by irradiating the air in smoke chambers and causing a current flow. If smoke enters the chamber, the current flow if reduced leading to an alarm.

Operation

The XP95A Ionization Smoke Sensor has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Stainless steel wiper contacts connect the detector to the terminals in the mounting base. Inside the detector case is a printed circuit board that has the Ionization chamber mounted on one side and the address capture, signal processing and communications electronics on the other.

The ionization chamber system is an inner reference chamber contained inside an outer smoke chamber. The outer smoke chamber has smoke inlet apertures that are fitted with an insect resistant mesh.

The radioactive source holder and the outer smoke chamber are the positive and negative electrodes respectively. An Americium 241 radioactive source mounted within the inner reference chamber irradiates the air in both chambers to produce positive and negative ions. On applying a voltage across these electrodes an electric field is formed as shown in the diagram.

The ions are attracted to the electrode of the opposite sign, some ions collide and recombine, but the net result is that a small electric current flows between the electrodes. At the junction between the reference and smoke chambers is the sensing electrode that is used to convert variations in the chamber currents into a voltage.

When smoke particles enter the Ionization chamber, ions become attached to them with the result that the current flowing through the Ionization chamber decreases. This effect is greater in the smoke chamber than in the reference chamber and the imbalance causes the sensing electrode to go more positive.

The voltage on the sensing electrode is monitored by the sensor electronics and is processed to produce a signal that is translated by the A/D converter in the communications ASIC ready for transmission when the device is interrogated.

Electrical Description

The Sensor is designed to be connected to a two wire loop circuit carrying both data and a 17V to 28V dc supply. The detector is connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4mA at 5V may be connected between +R and -R terminals. An earth connection terminal is also provided, although this is not required for the functioning of the detector.

The Sensor is calibrated to give an analog value of 25±7 counts in clean air. This value increases with smoke density. A count of 55 corresponds to the UL alarm sensitivity level. See graph overleaf. Counts of 8 or less indicate fault conditions. Count levels between 45 counts and 55 counts can be used to provide an early warning of fire.

Electrical Characteristics

The VF5669 Ionization Smoke Sensors are designed to operate in a wide variety of environments. There are only small effects from temperature, humidity, atmospheric pressure and wind. Sensors are well protected against electromagnetic interference over a wide frequency range.

The VF5669 Ionization Sensor, like all Ionization Sensor's, has some sensitivity to air movement (wind). The extent to which the analog value will change depends on the wind speed and on the orientation of the detector relative to the wind direction. Relatively small changes in wind direction can cause significant changes in analog value.

For wind speeds up to 1m/s (200ft/min) the change in analog value will not exceed 5 counts. Continuous operation in wind speeds greater than 2m/s (400ft/ min) is not recommended. However, wind speeds up to 10m/s (2000ft/min) can be tolerated for short periods and will not under any conditions increase the probability of false alarms.

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Detection Principle: Ionization Chamber

Chamber Configuration: Twin compensating chambers using one single sided ionising radiation source

Radioactive Isotope: Americium 241

Activity: 33.3kBq, 0.9µCi

Sampling Frequency: Continuous

Sensitivity: Nominal threshold y value of 0.7 to UL

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

L1&L2	supply in and out connections (polarity insensitive)
+R	remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
-R	remote indicator negative connection (internal 2.2kΩ resistance to supply - ve)

Supply Voltage: 17 to 28 Volts dc

Modulation Voltage at Detector: 5 to 9 Volts peak to peak

Quiescent Current: 280µA average, 500µA peak

Power-up Surge Current: 1mA

Alarm Indicator: Red light emitting diode (LED)

Alarm LED Current: 2mA

Remote LED Current: 4mA at 5V (measured across remote load)

Storage Temperature: -22°F to +176°F

Operating Temperature: -4°F to +158°F

Humidity: (No condensation or icing) 0% to 95% relative humidity

Wind Speed: 10m/s maximum

Atmospheric Pressure: Automatic compensation by dual chambers to maintain sensitivity up to a height of 6561m above sea level

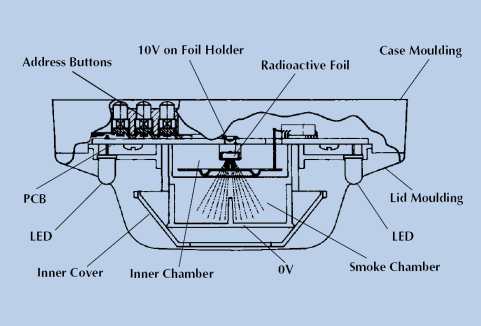
IP Rating: 23D

Detector weight: 3.7 oz

Detector with base weight: 5.68 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

Materials:	**Detector Housing:**	White polycarbonate V-0 rated to UL 94
	Terminals:	Nickel plated stainless steel



Sectional view - XP95A Ionization Smoke Sensor

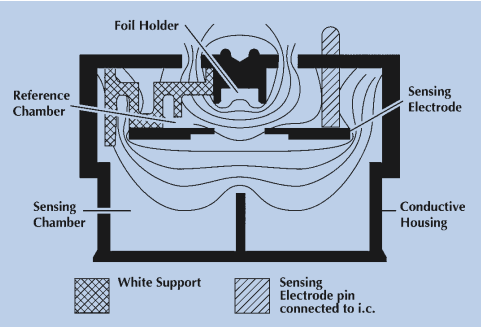


Diagram showing lines of equipotential for the XP95A Ionization Smoke Sensor

VF5670-00

XP95A Photoelectric Smoke Sensor

Standard Features

- UL Listed and FM Approved
- Wind resistant smoke inlets
- Insect resistant screen
- Alarm flag for fast alarm reporting
- Automatic addressing with the XPERT card
- Electronics free 4" or 6" bases
- Ease of installation
- Elegant design
- Responds well to slow burning, smouldering fires
- Well suited for bedrooms and escape routes
- Unaffected by atmospheric pressure

Overview

The VF5670 Photoelectric Smoke Sensor works on the light scatter principle and is ideal for applications where slow burning or smouldering fires are likely.

Operation

The VF5670 Photoelectric Sensor uses the same outer case as the ionization smoke Sensor and is distinguished by the indicator LED which is clear in standby and red in alarm. Within the case is a printed circuit board which on one side has the light proof labyrinth chamber with integral gauze surrounding the optical measuring system and on the other the address capture, signal processing and communications electronics.

An infrared light emitting diode within its collimator is arranged at an obtuse angle to the photo-diode. The photodiode has an integral daylightblocking filter.

The IR LED emits a burst of collimated light every second. In clear air the photo-diode receives no light directly from the IR LED because of the angular arrangement and the dual mask. When smoke enters the chamber it scatters photons from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed by the optical ASIC and passed to the A/D converter on the communications ASIC ready for transmission when the device is interrogated.

Electrical Description

The VF5670 Sensor is designed to be connected to a two wire loop circuit carrying both data and a 17V to 28V dc supply. The Sensor is connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4mA at 5V may be connected between the +R and -R terminals. An earth connection terminal is also provided.

The Sensor is calibrated to give an analog value of 25±7 counts in clean air. This value increases with smoke density. A count of 55 corresponds to the UL alarm sensitivity level.

Environmental Characteristics

The VF5670 Photoelectric smoke Sensor is unaffected by wind or atmospheric pressure and operates over the temperature range -4°F to +140°F.

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Detection Principle: Photo-electric detection of light scattered in a forward direction by smoke particles

Chamber Configuration: Horizontal optical bench housing an infrared emitter and sensor arranged radially to detect scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAs infra-red light emitting diode

Sampling Frequency: 1 second

Sensitivity: Nominal response threshold value of 0.12 dB/m when measured in accordance with UL

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

L1&L2	supply in and out connections (polarity insensitive)
+R	remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
-R	remote indicator negative connection (internal 2.2kΩ resistance to supply - ve)

Quiescent Current: 340µA average, 600µA peak

Power-up Surge Current: 1mA

Alarm Indicator: Clear light emitting diode (LED) emitting red light

Alarm LED Current: 4mA

Remote LED Current: 4mA at 5V (measured across remote load)

Storage Temperature: -22°F to +176°F

Operating Temperature: -4°F to +140°F

Humidity: (No condensation or icing) 0% to 95% relative humidity

Wind Speed: Unaffected by wind

Atmospheric Pressure: Unaffected

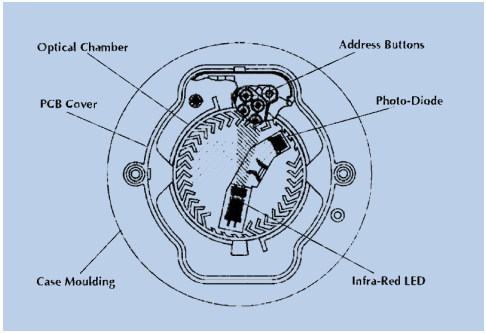
IP Rating: 23D

Detector weight: 3.7 oz

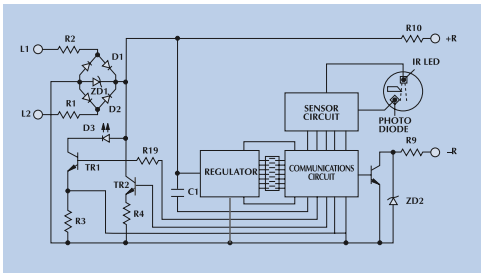
Detector with base weight: 5.54 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

Materials:	**Detector Housing:**	White polycarbonate V-0 rated to UL 94
	Terminals:	Nickel plated stainless steel



Top section - XP95A Photoelectric Smoke Sensor



Schematic Diagram - XP95A Photoelectric Smoke Sensor

	Photoelectric Detector
Overheating/thermal combustion	Very Good
Smouldering/ glowing combustion	Moderate/ Good
Flaming combustion	Very Good
Flaming with high heat output	Very Good
Flaming - clean burning	Poor

Response characteristics of the VF5670 Photoelectric Sensor

VF5668-00

XP95A Heat Sensor

Standard Features

- UL Listed and FM Approved
- Electronic temperature sensing
- Style 4, 6, or 7 communication wiring
- LED indicator
- Alarm flag for fast alarm reporting
- Alarm address for fast location of alarm
- Automatic addressing with the XPERT card
- Electronics free 4" or 6" bases
- Slide-easy bases
- Ease of installation
- Elegant design
- Ideal for environments that are dirty or smoky under normal circumstances
- Well suited for warehouses, loading bays and parking areas
- Unaffected by wind or atmospheric pressure

Overview

The XP95A series analog addressable heat Sensor head, model VF5668, is molded from white polycarbonate material with a low air flow resistance design. Stainless steel wiper contacts connect the sensor to the terminals, which are polarity insensitive, in the mounting base. Inside the sensor case is a circuit board with the sensing system on one side and the address capture, signal processing, and communication electronics on the other side.

The Sensor monitors temperature by using a single thermistor network, which provides a voltage output proportional to the external air temperature. This analog voltage is converted to a digital signal, which is transmitted to the Elite Fire Alarm Control Panel for interpretation. The alarm threshold is programmed into the Elite Fire Alarm Control Panel.

Operation

The XP95A heat Sensors have a common profile with ionization and photoelectric smoke Sensors, but have a low air flow resistance case made of self extinguishing white polycarbonate. The devices monitor heat by using a single thermistor network which provides a voltage output proportional to the external air temperature. The standard heat Sensors respond to increasing air temperature in such a way that they are classified as an A2S device. See graph overleaf. Both devices will give 55 counts at 131°F.

A high temperature CS heat Sensor which can be installed in a typical ambient temperature of 131°f is available. This device will give 55 counts at 194°F.

Electrical Description

The Sensors are designed to be connected to a two wire loop circuit carrying both data and a 17V to 28V dc supply. The Sensors are connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4mA at 5V may be connected between +R and -R terminals. An earth connection terminal is also provided.

The Sensor is calibrated to give an analog value of 25±5 counts at 77°F.

Environmental Characteristics

XP95A Standard Heat Sensors operate over the range -4°F to +158°F, the High Temperature Heat Sensors operate over the range –4°F to +248°F. The Sensors are unaffected by atmospheric pressure.

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Detection Principle: Linear approximation over temperature range 77°F to 194°F

Sensor: Single NTC Thermistor

Sampling Frequency: Continuous

Sensitivity: 77°F to 194°F: 38°F/count
-4°F returns 8 counts

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

L1&L2	supply in and out connections (polarity insensitive)
+R	remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
-R	remote indicator negative connection (internal 2.2kΩ resistance to supply - ve)

Supply Voltage: 16-28VDC

Modulation Voltage at Detector: 5 to 9 Volts peak to peak

Quiescent Current: 250µA average, 500µA peak

Power-up Surge Current: 1mA

Alarm Indicator: Red light emitting diode (LED)

Alarm LED Current: 2mA

Remote LED Current: 4mA at 5V (measured across remote load)

Alarm Temperature: 135°F (57°C) (55 counts in 7 bits or 110 counts in 8 bits) UL class "Ordinary"

Style: Styles 4, 6, and 7

Terminations: (Detector Head) Stainless steel wiper contacts

End-of-Line resistor: None

Address Setting: XPERT Card

Mounting: 4" or 6" round base

Termination: Field Wiring/Base Stainless Steel, Nickel Plated

Storage Temperature: -22°F to +176°F

Operating Temperature: -4°F to +158°F

Humidity: (No condensation or icing) 0% to 95% relative humidity

Wind Speed: Unaffected in fixed temperature use

Atmospheric Pressure: Unaffected

IP Rating: 53

Detector weight: 3.7 oz

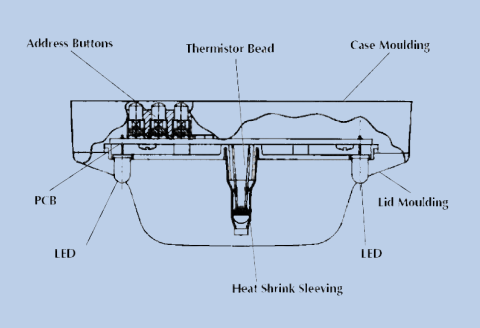
Detector with base weight: 5.54 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

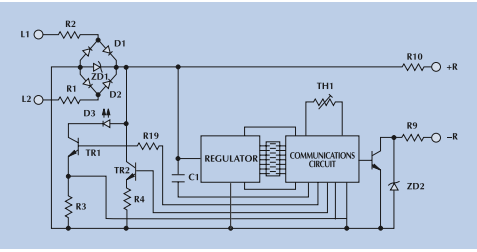
Materials: **Detector Housing:** White polycarbonate V-0 rated to UL 94
Terminals: Nickel plated stainless steel

	Heat Detector
Overheating/thermal combustion	Very Poor
Smouldering/ glowing combustion	Very Poor
Flaming combustion	Poor
Flaming with high heat output	Moderate/ Good
Flaming - clean burning	Moderate/ Good

Response characteristics of the VF5668 Heat Sensor



Sectional view - XP95A Heat Sensor



Schematic Diagram - XP95A Heat Sensor

VF5671-00

XP95A Multisensor Sensor

Standard Features

- Sleek, non-fading white polycarbonate enclosure
- Zero insertion force base- For easier installation and maintenance
- Alarm flag for accelerated alarm reporting.·
- Evaluates combined signals from ROR heat sensing element and smoke sensing chamber
- Dual LED's for 360 degree
- Visibility Sensitive to a wide range of fires
- Well suited for environments such as hotel bedrooms or warehouse loading bays
- Unaffected by wind or atmospheric pressure

Overview

The XP95A VF5603 multisensor is basically an optical smoke Sensor and will therefore respond well to smoke from smouldering fires. The multisensor Sensor also senses air temperature. This temperature sensitivity allows the multisensor to give a response to fast burning (flame) fires, which is similar to that of an ionization Sensor. The multisensor can therefore be used as an alternative to an ionization Sensor.

Operation

The VF5671 Multisensor Sensor contains an optical smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analog value.

The Multisensor construction is similar to that of the photoelectric Sensor but uses a different lid and optical mouldings to accommodate the thermistor temperature sensor. The sectional view shows the arrangement of the optical chamber and thermistor.

The signals from the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector. The Sensor's microcontroller processes the two signals. The temperature signal processing extracts only rate of rise information for combination with the optical signal. The Sensor will not respond to a slow temperature increase - even if the temperature reaches a high level. A large sudden change in temperature can, however, cause an alarm without the presence of smoke, if sustained for 20 seconds.

The processing algorithms in the multisensor incorporate drift compensation. The sensitivity of the Sensor is considered the optimum for most general applications since it offers good response to both smouldering and flaming fires.

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Detection Principle: Smoke: Photoelectric detection of light scattered by smoke particles
Heat: Temperature-sensitive resistance

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

L1&L2	supply in and out connections (polarity insensitive)
+R	remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
-R	remote indicator negative connection (internal 2.2kΩ resistance to supply - ve)

Operating voltage: 17-28V DC

Communications protocol: Apollo XP95 5-9V peak to peak

Quiescent current: 500µA average 750µA peak

Power-up surge current: 1mA

Maximum power-up time: 10s

Alarm LED current: 3.5mA

Remote LED current: 4mA at 5V (measured across remote load)

Clean air analog value: 23 +4/-0

Alarm level analog value: 55

Alarm indicator: 2 colorless Light Emitting Diodes (LEDs); illuminated red in alarm
Optional remote LED

Temperature range:
Max. continuous operating: +140°F
Min. continuous operating: 32°F
Min. operating (no condensation/icing): -4°F
Storage -22°F to +176°F

Humidity: (No condensation) 0 to 95% relative humidity

Effect of temperature on optical detector: Less than 15% change in sensitivity over rated range. Slow changes in ambient conditions will automatically be compensated and will not affect sensitivity

Effect of atmospheric pressure on optical sensor: None

Effect of wind on optical sensor: None

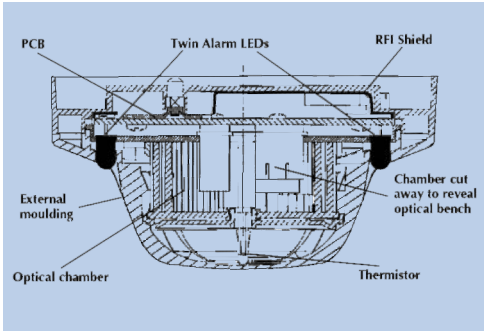
IP rating: 23D

Detector weight: 3.7 oz

Detector with base weight: 5.64 oz

Dimensions: Diameter: 3.93", Height: 1.96", Height in base: 2.28"

Materials: **Detector Housing:** White polycarbonate V-0 rated to UL 94
Terminals: Nickel plated stainless steel



Sectional view - Multisensor Sensor

Technical Specifications Smoke element only:

Chamber configuration: Horizontal optical bench housing infra-red emitter and sensor, arranged radially to detect forward scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAs infra-red light emitting diode

Sampling frequency: 1 per second

	Multisensor Detector
Overheating/thermal combustion	Very Good
Smouldering/ glowing combustion	Good
Flaming combustion	Good
Flaming with high heat output	Very Good
Flaming - clean burning	Moderate/ Good

Response characteristics of the VF5671 Multisensor Sensor

VF5635-00 Low Power Relay Base

The VF5635 Low Power Relay Base incorporates a low power relay to control field equipment such as automatic door closers.

- Gives a set of voltage free contacts controlled by the remote output of a detector
- Draws negligible current

VF5630-00 Mounting Base 4”
VF5636-00 Mounting Base 6”

All Sensors fit the VF5630 and VF5636 Mounting Bases which are low insertion force bases with stainless steel contacts for the detector terminals. XPERT cards are supplied with all bases.

- XPERT addressing
- One way fit
- Locking feature to prevent unauthorized removal

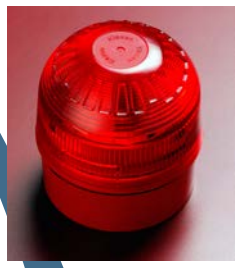
VF5632-00 E-Z Fit Base

- The E-Z fit base is a low profile 6” mounting base for ACC Sensors.
- High degree of protection against unauthorized removal

VF5650-10 Red Lens Open Area Sounder
VF5650-30 White Lens Open Area Sounder

The VF5650 sounder is connected to control panels which use the XP95 protocol.The sounder is supplied with a yellow Isolator LED located at the top of the base that is illuminated if a loop short circuit is detected.

- For use with XP95A and Discovery UL Systems
- Self-test fault monitoring
- Two volume settings 92dB(A) and 100dB(a)
- Synchronization of tones
- Individual addressing
- Loop powered



Open Area Sounder Beacon
VF5652-10 Red Lens
VF5652-30 White Lens

The Discovery® Open Area Sounder Beacon is an alarm device comprising a sounder, a beacon and a short-circuit isolator for use with Discovery detection systems. It is supplied with a mounting base which incorporates a short-circuit isolator.

- 15 evacuation tones + 15 secondary or alert tones
- Alarm switching by individual device, of all devices on loop
- Independent control of sounder and beacon
- Set-up and testing of devices at point of installation
- Isolator status information

VF5651-00 Sounder Beacon Base

The VF5651 Sounder Beacon Base is a loop powered sounder and beacon combined with a standard Intelligent Mounting Base. It is used to signal a fire in enclosed areas. The Sounder Beacon Base can be used either with a Sensor fitted or with a cap for operation as a stand alone alarm device.

- Two volume ranges 55-75dB(A) and 75-91dB(A)
- Beacon flash rate of once per second
- Available with Red or Yellow LEDs
- Built in Isolator
- Synchronization of 'alert' and 'evacuate' tones

VF5640-00 Blank XPERT Card

A Universal address card supplied with all bases. Using a coding guide, pips are removed to set the address of the inserted Sensor.

- Simplifies and speeds up installation and commissioning
- Uses patented, proven technology
- Address remains the same, no matter how often Sensors are replaced
- Flexibility to create any address

VF5633-00 Isolating Base

The VF5633 Isolating Base senses and detects short circuit faults on SLC loops.

- Up to 20 devices may be installed between isolating bases
- XPERT addressing

VF5605-00 Isolator

The VF5605 Isolator is placed at intervals on the loop and ensures that, in the case of a short circuit, only the section between the isolators will be affected. When the short circuit is removed, the isolators automatically restore power and data to the isolated section.

- Detects wiring short-circuits using patented technology
- Minimizes disruption from short-circuits
- Automatic de-isolation on short-circuit removal
- Up to 20 devices may be installed between isolators

VF5634-00 Isolator Base

The VF5634 Isolator Base is unique and designed to only accept the Isolator.

- Only accepts isolators

VF4990-00 Aux Powered Sounder Base

- Compatible panel silence functions
- Sync network "self tests" to ensure synchronized output if "upstream" sync signal is lost
- Sounders will operate in "failsafe" mode if the sync network is compromised
- Continuous or Temporal output with Sync module available to sync multiple temporal units

VF5608-00 Mini Input Module

- Designed for use where space is limited
- LED status indication (Yellow - Fault, Green - Polling, Red - Alarm)
- DIN Rail Mountable

VF5660-00 Mini Priority Switch Monitor Module

The Mini Priority Switch Monitor is designed to monitor the state of one or more single pole, volt free contacts and to report the status to VES compatible analog control equipment. It can also place a signal on the loop to provide early warning if a device such as a pull station is operated.

- Three input states – "normal", "fault" and "alarm"
- Visible LED with remote LED connection option
- Loop powered
- Designed to fit into equipment with limited space
- Easy to install
- Monitors equipment where a fast response is required
- Interrupt facility
- Class A or B input capability

VF5661-00 Mini Switch Monitor Module

The VF5661 Mini Switch Monitor Module is designed to monitor the state of one or more single pole, volt free contacts and to report the status to VES compatible analog control equipment.

- Three input states – "normal", "fault" and "alarm"
- Visible LED with remote LED connection option
- Loop powered
- Designed to fit into equipment with limited space
- Easy to install

VF4992-00 Duct Smoke Detector

- Patent pending "Test Port Valve" allows for aerosol smoke testing without cover removal
- Clear cover fitted with four captive "No-Tools Required" thumbscrews
- In-line terminal block for easier wiring
- More wiring space than competitive models
- Built in alarm relay test switch Unit includes green pilot and red alarm visual indicators
- External mounting tabs do not require cover removal to install
- One set of 15A form "C" alarm contacts

VF5663-00 Input Module

- Three input states - "normal", "fault" and "alarm"
- One visible LED
- Fast response time
- Mounts on 2-gang or 4x4 box
- Class A or Class B input configuration

VF5664-00 Dual Input Module

- Three input states per input - "normal", "fault" and "alarm"
- Two visible LEDs
- Fast response time
- Mounts on 2-gang or 4x4 box
- 2 Individual inputs on one module
- Class A or Class B input configuration

VF5665-00 Input/ Output Module

- Provides a single-pole output, supervised input and a non-supervised input
- Visible LED
- Fast response time
- Mounts on 2-gang or 4x4 box
- Class A or Class B input configuration

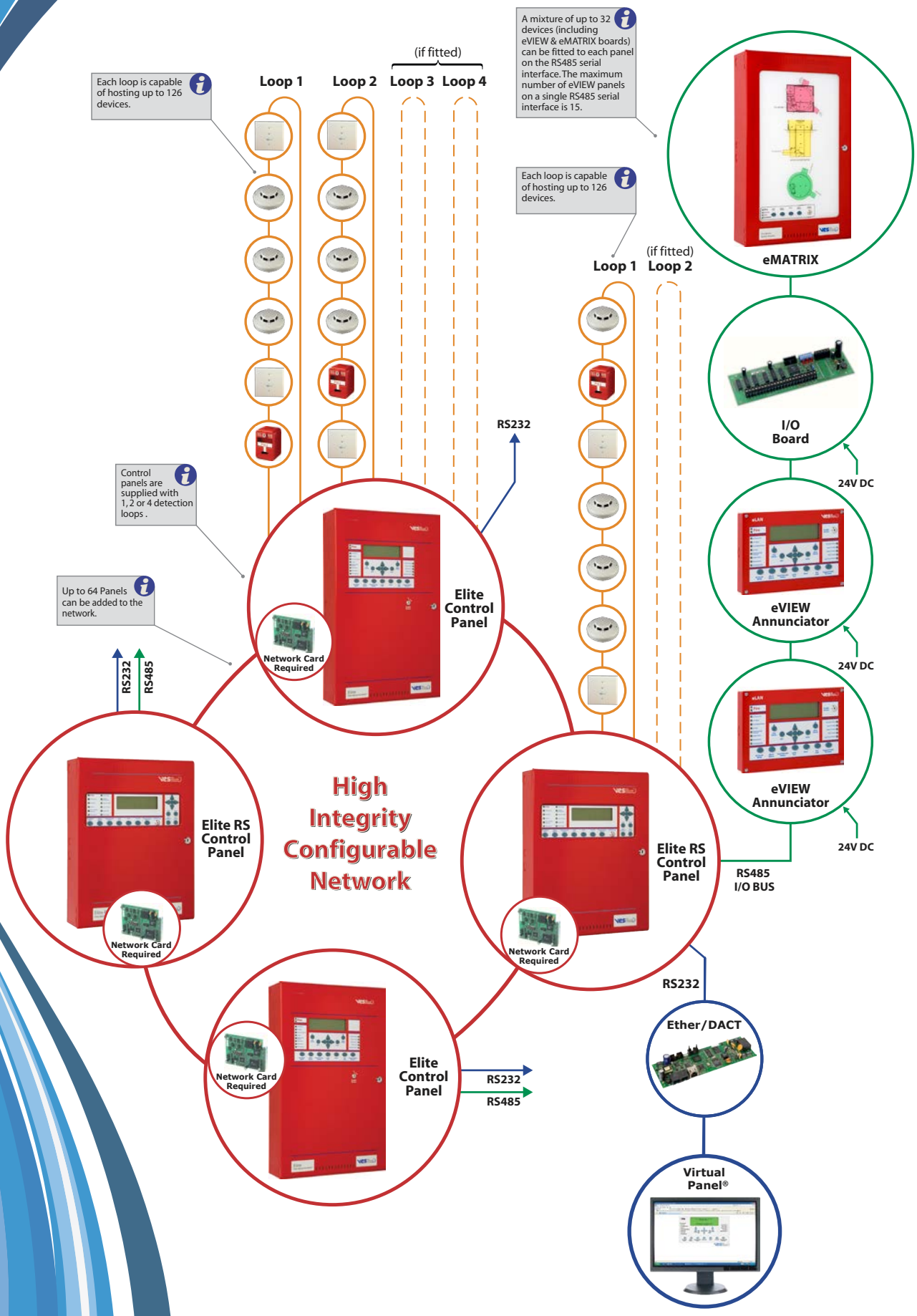
VF5666-00 Supervised Output Module

- Allows sounders to be operated continuously or be pulsed, 1 second on, 1 second off
- Can also be used for public address speakers
- Visible LED
- Can be used for remote NAC circuits or boosters.

VF5667-00 Relay Output Module

- The Relay Output Module provides a single 2-pole changeover relay
- Can be placed anywhere on loop
- Visible LED

Elite - Network System Schematic



Releasing Fire Control Panels

Elite XT
Releasing Fire Control Panels

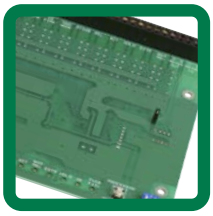
Pages 42-43

Elite Si
Status Indicators

Pages 44-45

Elite Abort Switch

Pages 44-45



Elite XT

Ancillary PCB

Pages 44-45

Elite XT

Releasing
Fire Control Panels

Standard Features

- UL 864 and FM approved
- Three detection zones as standard
- Any single zone or any combinations of zones can be configured to release
- Configurable first stage NAC delays
- Configurable detection delays
- Zero time delay upon manual release option
- Non-latching zone input option to receive signals from other systems such as aspirating equipment
- Configurable releasing delays up to 60 seconds in 5 second steps
- Configurable releasing duration up to 5 minutes in 5 second steps
- Countdown timer shows time remaining until release
- Supports up to seven, four wire status indicators
- Built in Extract Fan control
- Compatible with conventional detectors from Apollo, Hochiki America and System Sensor

Product Overview

- Designed and manufactured to the highest standards in a quality controlled environment and with UL and FM approvals, the Elite XT releasing panel offers outstanding value and performance for all small to medium fixed firefighting installations.
- With three detection zones as standard, release can be configured to activate from any combination of detection zone inputs to allow (among other combinations) any two from three type activations such as would be required for detection in ceiling void, room and floor void applications.
- The extensive configuration options of the Elite XT allow the functionality of the system to be extensively modified.
- The panel contains a large LED display to enable easy configuration and control which also displays the time remaining until release for added user safety.
- The countdown timer is duplicated on up to seven remote status units to provide local indication of the system status.
- With all of the electronics mounted on a single, easily removable, steel plate Elite XT panels are both robust and easy to install.
- Elite XT is supplied in an enclosure that matches the design and color of the Elite CP range and is available in standard red or optional gray.

Programmable Functions

Access Level 2

- Test Zones 1 to 3
- Disable Zones 1 to 3
- Disable 1st Stage Alarms
- Disable Pre-activated 1st Stage Relay
- Disable Pre-activated 2nd Stage Relay
- Disable Extract Fan Output
- Disable Manual Release Input
- Disable Releasing Sub System
- Activate Extract Fan Output
- Activate Alarm Delays

Access Level 3

- Sounder Delay
- Coincidence Detection
- Disable Panel Features
- Zone Alarm Delays (Detectors)
- Zone Alarm Delay (Call stations)
- Configure Zone for I.S Barrier Use
- Zone Short Circuit Alarm
- Zone Non Latching
- Zone Inputs Delay
- Extinguishant Release Time Delay
- Extinguishant Release Duration Timer
- Extinguishant Reset Delay Timer

FM APPROVED

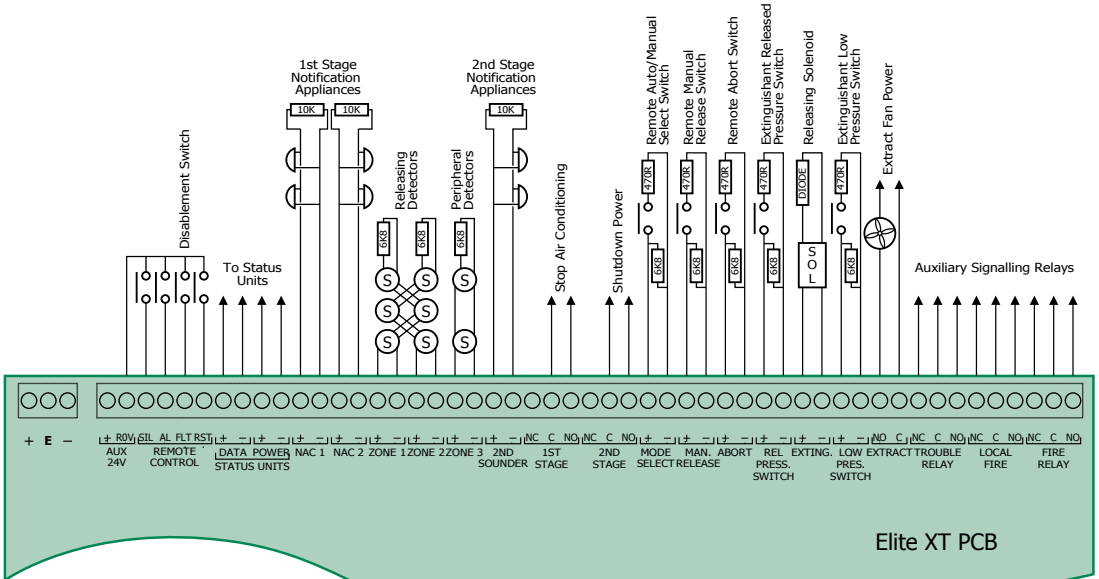
Manufactured by Kentec Electronics Ltd. Dartford, DA11JQ, United Kingdom

Technical Specifications

Mains supply: 115V AC or 230V AC	**Terminal capacity:** 12 AWG
Mains supply fuse: 3.15 Amp (F3.15A L250V)	**No. of detectors per zone:** Dependent on type (maximum 32)
Finish: Epoxy powder coated	**Detection circuit end of line:** 6K8 5% ½ Watt resistor
Color: Red (optional gray)	**Supervised input end of line:** 6K8 5% ½ Watt resistor
Power supply rating: 3 Amps total including battery charge 28V +/- 2V	**Sounder circuit end of line:** 10K 5% ¼ Watt resistor
Maximum ripple voltage: 200 millivolts	**Extinguishant output EOL:** 1N4004 Diode
Battery type: Two 12 Volt 7Ah sealed lead acid in series	**No. of detection circuits:** 3
Battery charge voltage: 27.6VDC nominal (temperature compensated)	**No. of sounder circuits:** 2 x 1st Stage, 1 x 2nd Stage
Battery charge current: 0.7A maximum	**Extinguishant release output:** Rated at 1 Amp
Battery fuse: 20mm, 3.15A glass Sloblow	**Extinguishant release delay:** Adjustable 0 to 60 seconds (in 5 second steps)
Maximum current draw from batteries: 3 Amps	**Extinguishant release duration:** Adjustable 60 to 300 seconds (in 5 second steps)
Quiescent current of panel in mains fail: 0.095A	**Normal Zone Impedance (EOL):** 6.8K
Aux 24V output: Fused at 500mA with electronic fuse	**Detector Alarm Impedance:** 470 Ohm
NAC outputs: 24V Fused at 500mA with electronic fuse	**Pull Station Alarm Impedance:** 270 Ohm
Trouble relay contact rating: 30VDC 1A Amp maximum	**Short circuit threshold:** Short circuit Impedance 99 Ohms
Fire relay contact rating: 30VDC 1A Amp maximum	**Supervised Inputs Normal Impedance (EOL):** 6.8K
Local fire relay contact rating: 30VDC 1A Amp maximum	**Supervised Inputs Alarm Impedance:** 470 Ohm
First stage contact rating: 30VDC 1A Amp maximum	**Supervised inputs Short circuit threshold:** 99 Ohms
Second stage contact rating: 30VDC 1A Amp maximum	**Status unit/Ancillary board connection:** Two wire RS485 connection
Extract contact rating: 30VDC 1A Amp maximum	**Status unit power output:** Rated at 500mA with electronic fuse
Zone quiescent current: 2mA maximum	

Ordering Codes

Part number	Description
VF1810-10	Elite XT - Red 115V
VF1810-11	Elite XT - Red 230V
VF1810-40	Elite XT - Gray 115V
VF1810-41	Elite XT - Gray 230V



Elite XT PCB

Elite Status Indicators & Ancillary PCB
Elite Abort Switch

Releasing System Status Indicators

Part No. VF1821-13

Elite Abort Switch
Part No. VF1823-10

Part No. VF1890

Disablement Switch
Part No. VF1832-10

Elite Status Indicators Features

- UL 864 and FM approved
- High brightness LEDs
- Detailed indication of the status of the control panel
- Supervised data connection
- Countdown timer shows time remaining until release
- Manual only and Automatic & Manual mode select keyswitch option
- Four wire connection (data and power)
- Robust, high quality enclosure
- Easy access to terminals
- Remote Abort input (supervised)
- Internal trouble diagnosis indicators

Ancillary PCB Features

- Two wire serial connection
- Up to 7 per system
- Volt free relay outputs for fire and releasing system status
- Relay operated LED indicators

Disablement Switch Features

- Key removable in either position
- Both sides of solenoid circuit are mechanically disabled during activation
- Disablement illuminated at panel when active

Elite Status Indicators Product Overview

- The Elite Status indicators range of status indicators provide detailed status information for Elite XT releasing control equipment.
- All models provide high brightness, LED indication of Manual Only, Automatic and Manual, Abort operated, Disabled, Imminent and Released conditions.
- For systems where local control of the Automatic/Manual mode control are required, units are available with these controls fitted.
- All models have supervised inputs for the remote connection of abort switches.
- All units contain a large, LED display which shows a countdown of the time remaining until release in seconds.

Ancillary PCB Product Overview

- The Elite XT Ancillary Board is compatible with all Elite XT control panels.
- The board provides volt free normally open contacts allowing control of sub-systems and plant remotely from the main panel over a two wire data bus.
- Ancillary boards require only a two core data cable from the main control panel and a two core power cable from the main panel.
- Up to 7 Ancillary boards can be connected to a control panel and each is allocated an address from 1 to 7 using a binary coded DIL switch. The total length of the data cable from the main panel to the last Ancillary board must not exceed 4000 feet.
- A mixture of status units and Ancillary boards, up to a maximum of 7 of each type, can be connected to the serial data bus.

Abort Switch Product Overview

- The Elite Abort switch connects to the Abort terminals of the Elite XT releasing panel. Any number of Elite Abort switches may be connected to the circuit. The last switch must have the end of line device from the Abort circuit terminals of the Elite XT releasing panel fitted across its connections to provide open and short circuit supervision.
- The unit is supplied mounted to a rugged steel enclosure but may also be flush mounted to a single gang electrical box.

FM APPROVED

Manufactured by Kentec Electronics Ltd.
Dartford, DA11JQ, United Kingdom

Elite Status Indicators Technical Specifications

Size: 7.3" (W) x 5.2" (H) x 1.9" (D)

Power Supply: 21 to 30 V DC

Maximum current draw: 0.07A

Max. number of status units: 7

Quiescent current: 0.033A

Cable capacity: 12 AWG

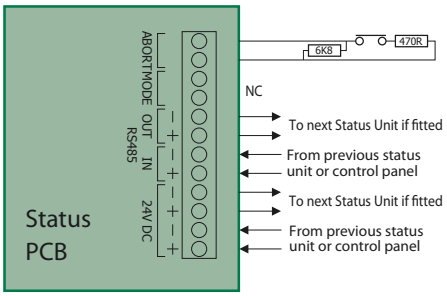
Supervised inputs end of line resistor: 6K8 0.5W Resistor

Supervised inputs normal impedance: 6.8K

Supervised inputs trigger impedance: 470 Ohms

Supervised inputs short circuit threshold: 99 ohms to 0 ohms

Data connection: Two wire RS485 connection (max 4000 feet)



Ancillary PCB Technical Specifications

Size (PCB only): 6.1" (W) x 5.35" (H)

Size (Boxed PCB): 15.1" (W) x 12.2" (H) x 3.54" (D)

Construction (Boxed): 18 AWG mild steel

Supply voltage: 20-30V DC

Contact ratings: 30V DC 1 Amp

Cable capacity: 12 AWG

Operating temperature: 23°F to 122°F

Operating humidity: <95% (non condensing)

Abort Switch Technical Specifications

Size: 3.81" (W) x 3.81" (H) x 2.32" (D)

Color : Standard red or gray

Switch rating: 1A at 30V DC

Trigger resistor: 470R 1W

End of line resistor: 6K8 1/2 W

Ordering Codes

Part number	Description
VF1821-11	6 lamp status indicator surface mount - red
VF1821-41	6 lamp status indicator surface mount - gray
VF1821-12	6 lamp status indicator flush mount - red
VF1821-42	6 lamp status indicator flush mount - gray
VF1821-13	6 lamp status indicator with mode select keyswitch surface mount - red
VF1821-43	6 lamp status indicator with mode select keyswitch surface mount - gray
VF1821-14	6 lamp status indicator with mode select keyswitch flush mount - red
VF1821-44	6 lamp status indicator with mode select keyswitch flush mount - gray
VF1822-00	Elite Ancillary Board
VF1822-10	Elite Ancillary Board with cabinet - red
VF1822-40	Elite Ancillary Board with cabinet - gray
VF1823-10	Elite Extinguishing Abort switch surface mount - red
VF1823-40	Elite Extinguishing Abort switch surface mount - gray
VF1832-10/ -40	Disablement Switch (red/ gray)

Elite XT Schematic

Abort Switch

2nd Stage Sounders

1st Stage Sounders

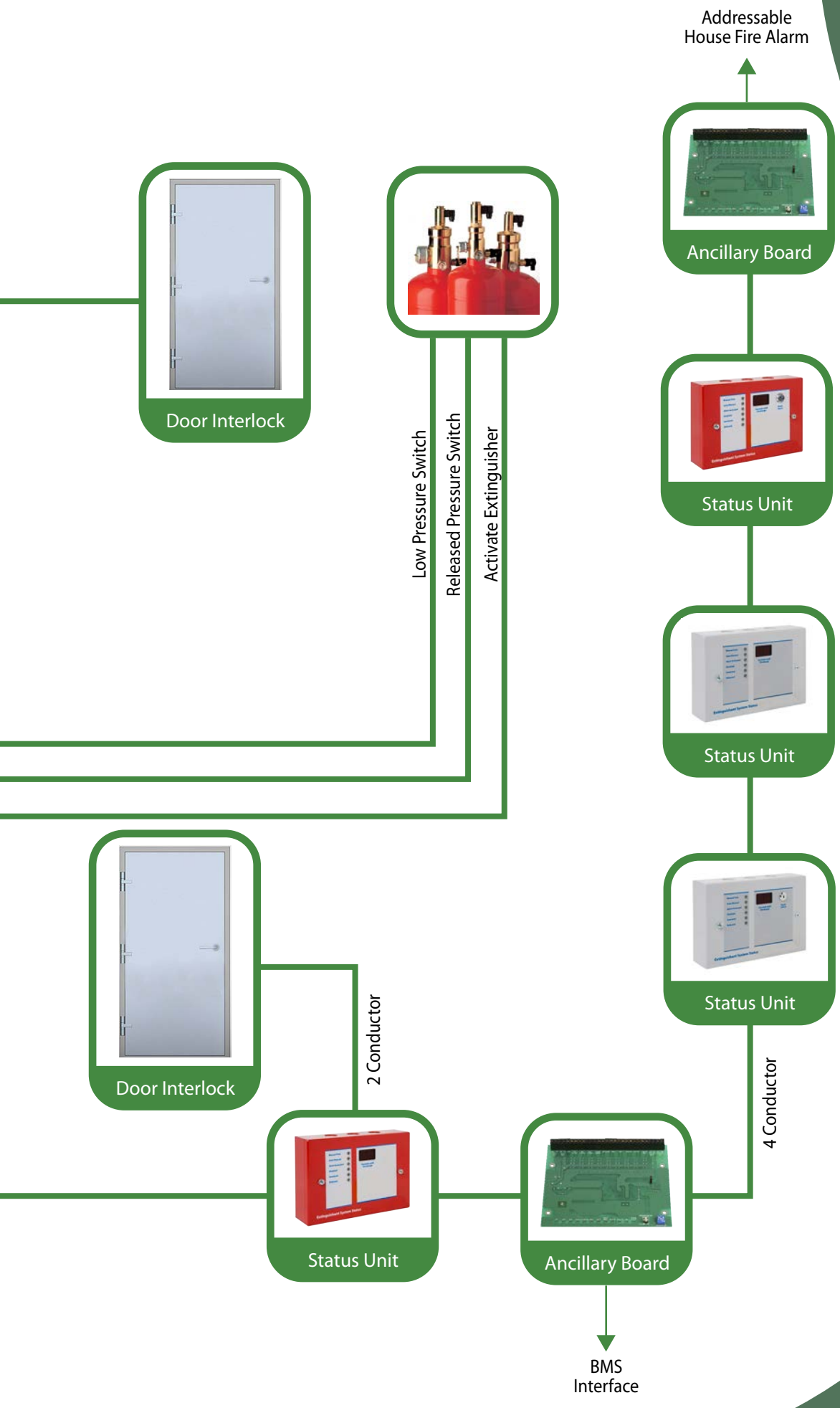
Detection Zone 3

Detection Zone 2

Detection Zone 1

Elite XT UL & FM approved Fire and Releasing Panel

4 Conductor
(max. length 3937 Ft)


Addressable
House Fire Alarm
Ancillary Board
Status Unit
Status Unit
Status Unit
4 Conductor
Door Interlock
Low Pressure Switch
Released Pressure Switch
Activate Extinguisher
Door Interlock
2 Conductor
Status Unit
Ancillary Board
BMS
Interface

Conventional Fire Control Panels

Elite CP
Conventional Fire Control Panels

Pages 50-51

Series 65A Photoelectric Smoke Detector

Pages 52-53

Series 65A Heat Detector

Pages 54-55

Series 65A Ionization Detector

Pages 56-57

Series 65A Bases

Pages 58

Elite CP

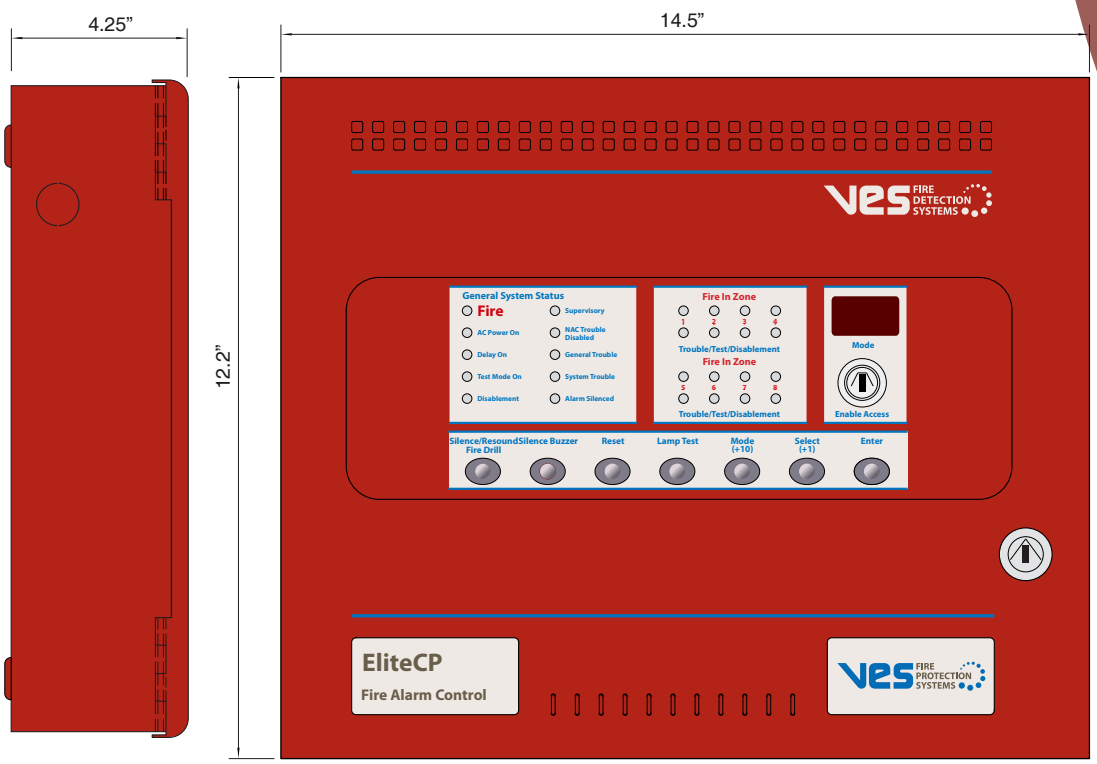
Conventional
Fire Control Panels

Standard Features

- UL864 approved
- Two, four or eight initiating circuits
- Initiating circuits individually configurable as Fire, or Supervisory
- Two 2.5A Notification Appliance Circuits
- 4.0 Amps total NAC power available
- Selectable NAC sync protocols
- 5 Amp power supply
- Alarm verification selectable by zone
- Resettable Aux power output rated at 0.3A
- Aux power configurable to power off on Fire condition
- Fire, Trouble and Supervisory relays
- Single person walk test function
- Many advanced configuration options
- 24 hour standby with 7Ah batteries
- Maximum battery size 12Ah
- Optional DACT (SIA or Contact ID allowing user definable reporting codes)

Product Overview

- The Elite CP range of conventional fire control panels with optional built in communicator are available with 2, 4 or 8 initiating circuits which may be extensively configured via a simple front panel operated programming method
- The low standby power requirements and cost effective small batteries allow the panel to be mounted in a small discrete enclosure which is available in standard red or optionally in an attractive gray color.
- A simple programming method using just 3 front panel buttons allows an extensive list of configuration options to be set and reviewed.
- Single board construction which allows easy removal of all electronic parts and ample provision of cable entry knockouts simplify installation.
- 4 Amp notification appliance power and built in selectable sync protocols provide ample power and control for a wide range of standard notification appliances.
- The optional DACT allows dual line reporting to central stations and provides a 500 event history buffer.



Ordering Codes

Part number	Description
VF1842-10/11	2 Zone Panel - Red 115V/ 230V
VF1842-40/41	2 Zone Panel - Gray 115V/ 230V
VF1844-10/11	4 Zone Panel - Red 115V/ 230V
VF1844-40/41	4 Zone Panel - Gray 115V/ 230V
VF1848-10/11	8 Zone Panel - Red 115V/ 230V
VF1848-40/41	8 Zone Panel - Gray 115V/ 230V
VF1852-10/11	2 Zone Panel with Dialer - Red 115V/ 230V
VF1852-40/41	2 Zone Panel with Dialer - Gray 115V/ 230V
VF1854-10/11	4 Zone Panel with Dialer - Red 115V/ 230V
VF1854-40/41	4 Zone Panel with Dialer - Gray 115V/ 230V
VF1858-10/11	8 Zone Panel with Dialer - Red 115V/ 230V
VF1858-40/41	8 Zone Panel with Dialer - Gray 115V/ 230V
VF1850-00	8 reporting zone DACT
VF1841-00	DACT Configuration Software

Technical Specifications

- **Size:** 14.5”W x 12.2”H x 4.25”D
- **Construction:** 18AWG mild steel
- **Finish:** Epoxy powder coated
- **Color :** Red (optional gray)
- **Supply Voltage:** 115V AC or 230V AC
- **Mains Supply fuse:** 5 Amp 250V 20mm
- **Power supply DC rating:** 24V 5 Amps
- **Maximum battery size:** 12Ah 12V (2 per panel)
- **Trouble contact rating:** 30V DC 1 Amp
- **Supervisory contact rating:** 30V DC 1 Amp
- **Fire contact rating:** 30V DC 1 Amp
- **NAC rating:** 2.5A per circuit 4A Total
- **Detection zone current:** 1.6 milliamps
- **Detection zone EOL resistor:** 6k8 5%
- **NAC EOL resistor:** 10k 5%
- **Cable capacity:** 14 AWG
- **Operating temperature:** 23°F to 122°F
- **Operating humidity:** <95% (non condensing)

VF5691-00

Series 65A Photoelectric Smoke Detector

Standard Features

- Responds well to slow-burning, smouldering fires
- Well suited for bedrooms and escape routes
- Unaffected by wind or atmospheric pressure
- Wide operating voltage
- Flashing LED option
- Flashing LED and magnet operated test switch option

Operation

The Series 65A Photoelectric Smoke Detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the case a printed circuit board has the optical system mounted on one side and the signal processing electronics on the other. The sensing chamber is a black moulding configured as a labyrinth which prevents penetration of ambient light.

The labyrinth has a fine gauze Top section, Series 65A Photoelectric Smoke Detector insect-resistant cover. The chamber houses an infrared light emitting diode (LED) and a photo-diode which has an integral visible-light filter as extra protection against ambient light.

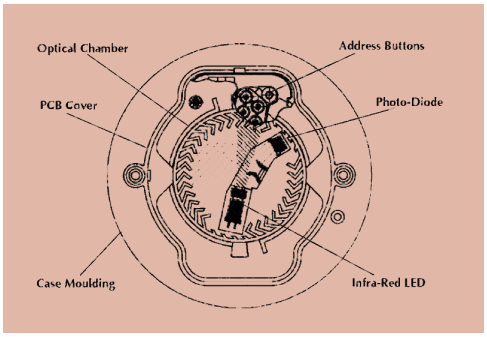
Every three seconds the LED emits a burst of collimated light, modulated at 4kHz. In clear air, light from the LED does not fall directly on the diode because the LED is positioned at an obtuse angle to the diode.

When smoke enters the chamber, a fraction of the collimated light is scattered onto the photo-diode. If the resulting signal from the photo-diode is above a preset threshold, the LED emits two more bursts of light, this time at two-second intervals. If light is scattered onto the photo-diode by both these pulses – due to the presence of smoke – the detector signals an alarm state by switching the alarm latch on, increasing the current drawn from the supply from about 40µA to a maximum of 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

The alarm current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the –R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation. The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts.

To restore the detector to quiescent condition, it is necessary to expel any smoke and interrupt the electrical supply to the detector for a minimum of one second.



Options

1. Flashing LED: The integral LED flashes when the detector is in a quiescent state.

2. Magnetic test switch and Flashing LED: A magnetic test switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

Ordering Codes

Part number	Description
VF5691-01	Photoelectric Smoke Detector with flashing LED
VF5691-02	Photoelectric Smoke Detector with flashing LED and Magnetic Test Switch
VF5695-00	4" Standard Base
VF5696-00	6" Standard Base
VF5698-00	4" Standard Relay Base

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Detection Principle: Photoelectric detection of light scattered in a forward direction by smoke particles

Chamber Configuration: Horizontal photoelectric bench housing an infra-red emitter and sensor arranged radially to detect forward scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAs infra-red light emitting diode

Sampling Frequency: Once every 3 seconds

Supply Wiring: Two wire monitored supply, polarity insensitive

Terminal Functions:

L1 IN and L2	supply in connections (polarity insensitive)
L1 OUT and L2	supply out connections (polarity insensitive)
-R	remote indicator negative connection

Supply Voltage: 9 to 33 V DC

Ripple Voltage: 2V peak to peak maximum at 0.1Hz to 100kHz

Quiescent Current: 30-50µA at 24V

Switch on Surge Current: 115µA at 24V

Alarm voltage: 6 to 28V

Normal Alarm Current: 61mA at 28V, 52mA at 24V, 18mA at 10V

Design Alarm load: 420µA in series with 2V drop

Alarm Reset Voltage: 12V

Alarm Reset Time: 1 second

Temperature range: -4°F to +140°F (No condensation or icing)

Humidity: (No condensation or icing) 0% to 95% relative humidity

Wind Speed: Insensitive to wind

Atmospheric Pressure: Insensitive to atmospheric pressure

IP Rating: 23D

Detector weight: 3.49 oz

Detector with base weight: 5.29 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

Materials:	**Detector Housing:**	White polycarbonate V-0 rated to UL 94
	Terminals:	Nickel plated stainless steel

VF5692-00

Series 65A Heat Detector

Standard Features

- Can be used for applications where smoke detectors are unsuitable
- Ideal environments that are dirty or smoky under normal conditions
- Wide operating voltage
- Flashing LED option
- Flashing LED and magnet operated test switch option

Operation

The detector has a moulded self-extinguishing white polycarbonate case. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the case a printed circuit board holds the signal processing electronics. A pair of matched negative temperature co-efficient thermistors are mounted on the PCB in such a way that one thermistor is exposed to give good thermal contact with the surrounding air while the other thermistor is thermally insulated.

Under stable conditions both thermistors are in thermal equilibrium and have the same value of resistance. If air temperature increases rapidly the resistance of the exposed thermistor becomes less than that of the insulated thermistor. The ratio of the resistance of the thermistors is monitored electronically and an alarm is initiated if the ratio exceeds a factory preset level. This feature determines the 'rate of rise' response of the detector.

If air temperature increases slowly, no significant resistance difference develops between the thermistors, but at high temperatures a fixed value resistance connected in series with the insulated thermistor becomes significant.

When the sum of the resistance of the insulated thermistor and the fixed resistor compared to the resistance of the exposed thermistor reaches a preset value, an alarm is initiated. The value of the fixed resistor is selected to set the detector into alarm state at a specified fixed temperature.

The detector signals an alarm state by switching an alarm latch on, increasing the current drawn from the supply from about 50µA to a maximum of about 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

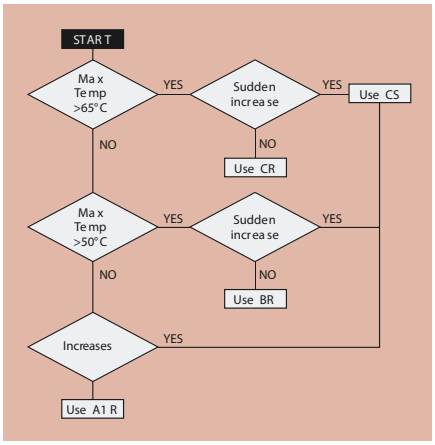
The alarm current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the –R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation. The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage.

To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts. To restore the detector to quiescent condition, it is necessary to restore a normal temperature level and interrupt the electrical supply to the detector for a minimum of one second.

Supply Voltage (v)	A1R Standard		A1R Flashing LED		A1R Flashing LED/ Magnetic test switch	
	Quiescent	Alarm	Quiescent	Alarm	Quiescent	Alarm
24	45µA	52mA	55µA	52mA	55µA	52mA
9	40µA	17mA	50µA	17mA	50µA	17mA

Typical current against voltage characteristics for quiescent and alarm states



Choosing a heat detector

Options

1. Flashing LED: The integral LED flashes when the detector is in a quiescent state.

2. Magnetic test switch and Flashing LED: A magnetic test switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

Ordering Codes

Part number	Description
VF5692-01	Heat Detector 135°F with flashing LED
VF5692-02	Heat Detector 135°F with flashing LED and Magnetic Test Switch
VF5693-01	Heat Detector 170°F with flashing LED
VF5693-02	Heat Detector 170°F with flashing LED and Magnetic Test Switch
VF5694-01	Heat Detector 200°F with flashing LED
VF5694-02	Heat Detector 200°F with flashing LED and Magnetic Test Switch
VF5695-00	4" Standard Base
VF5696-00	6" Standard Base
VF5698-00	4" Standard Relay Base

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:
L1 IN and L2 supply in connections (polarity insensitive)
L1 OUT and L2 supply out connections (polarity insensitive)
-R remote indicator negative connection

Supply voltage: 9-33V

Ripple voltage: 2V peak to peak maximum at 0.1Hz to 100kHz

Quiescent current: see table

Switch on surge current: As per quiescent current

Alarm voltage: 6 to 28V

Alarm indicator: Red light emmiting diode

Design Alarm load: 420Ω in series with a 2V drop

Holding voltage: 6V

Holding current: 100mA

Storage temperature: -22°F to 248°F
Operating temperature: -4°F to 194°F (no condensation/icing)

Humidity: 0 to 95% relative humidity

IP rating: 23D

Detector weight: 2.82 oz

Detector with base weight: 4.62 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

VF5690-00

Series 65A Ionization Detector

Standard Features

- Responds well to fast burning, flaming fires
- Designed to operate in a variety of environments
- Wide operating voltage
- Flashing LED option
- Flashing LED and magnet operated test switch option
- Requires base

Operation

The detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Nickel plated stainless steel wiper contacts connect the detector to the base.

Inside the detector case a printed circuit board has the ionization chamber mounted on one side and the signal processing electronics on the other.

The ionization chamber consists of a reference chamber contained inside a smoke chamber (Fig. 1). The outer smoke chamber has inlet apertures fitted with insect resistant mesh. The radioactive source holder and smoke chamber form positive and negative electrodes respectively.

An Americium 241 radioactive source mounted within the reference chamber irradiates the air in both chambers, producing positive and negative ions. A voltage across the electrodes produces an electric field.

Ions are attracted to the electrode of the opposite sign to their own charge. Many recombine but a small electric current flows between the electrodes. At the junction between reference and smoke chambers the sensing electrode converts variations in chamber current into voltage changes.

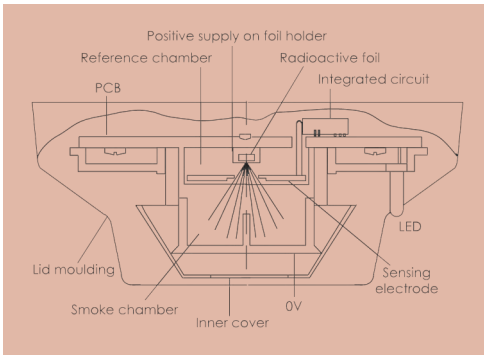
When smoke particles enter the ionization chamber ions become attached to them with the result that the current flowing through the chambers decreases. This effect is greater in the smoke chamber than in the reference chamber, and the imbalance causes the sensing electrode to become more positive.

The voltage at the sensing electrode is fed to a comparator where it is compared with a factory-set clean air reference voltage. If the monitored voltage exceeds the reference voltage, the comparator switches the alarm latch on, increasing the current drawn from the supply from about 40µA to a maximum of 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

The alarm latch current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the –R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate. To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation.

The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts.

To restore the detector to quiescent condition, it is necessary to expel any smoke and interrupt the electrical supply to the detector for a minimum of one second.



Options

1. Flashing LED: The alarm indicating LED flashes when the detector is in a quiescent state.

2. Magnetic test switch and Flashing LED: A magnetic test switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

Ordering Codes

Part number	Description
VF5690-01	Ionization Smoke Detector with flashing LED
VF5695-00	4" Standard Base
VF5696-00	6" Standard Base
VF5698-00	4" Standard Relay Base

Technical Specifications

Specifications are typical and given at 73°F and 50% relative humidity unless otherwise stated.

Supply Wiring: Two wire monitored supply, polarity insensitive

Terminal Functions:

L1 IN and L2	supply in connections (polarity insensitive)
L1 OUT and L2	supply out connections (polarity insensitive)
-R	remote indicator negative connection

Supply voltage: 9-33V DC

Ripple voltage: 2V peak to peak maximum at 0.1Hz to 100kHz

Quiescent current: 20–45µA at 24V

Switch on surge current: 110µA

Alarm voltage: 6 to 33V

Alarm indicator: Red light emmiting diode

Design Alarm load: 420Ω in series with a 2V drop

Holding voltage: 6V (min)

Holding current: 100mA (min)

Temperature range:
Maximum continuous operating temperature: 140°F
Minimum continuous operating temperature: 32°F
Minimum operating temperature: –4°F (no condensation or icing)
Storage: –22°C to +176°F

Humidity: 0 to 95% relative humidity

IP rating: 23D

Detector weight: 3.59 oz

Detector with base weight: 5.39 oz

Dimensions: Diameter: 3.93", Height: 1.65", Height in base: 1.96"

VF5695-00 Standard Base 4”
VF5696-00 Standard Base 6”

The Series 65A standard Base has been designed to enable detectors to be fitted without the need of force - particularly useful when fitting to suspended ceilings. All Series 65A Bases have a ‘one way only’ fit.

- 2 Wire Base
- Detector Locking mechanism
- One way fit
- Easy to wire
- Contains a ground wire terminal
- Contains no electrical parts

VF5698-00 Standard Relay Base 4”

The Series 65A Standard Relay Base provides one set of volt-free, changeover (form c) contacts that change state when the detector signals an alarm.

- 4 Wire Base
- Detector Locking mechanism
- One way fit
- Easy to wire
- Contains a ground wire terminal
- Contains no electrical parts

VoiceAlert
Voice Evacuation System

VoiceAlert
Master and Distributed Voice Evacuation System

Pages 60-61

VoiceAlert
50W and 100W Voice Evacuation System

Pages 62

VoiceAlert
150W and 200W Voice Evacuation System

Pages 63

VoiceAlert
Voice Evacuation System Schematic

Pages 64

VoiceAlert

Voice Evacuation System

VF97XX-X0 Master Panel
VF97XX-X0 Distributed Panel

VF9700 Master Panel

Standard Features

- True Multiplex 6 Channel Distributed Audio
- Integrated Fire Phone, Area of Rescue and Fan & Damper Control capability
- Modular System - components added as needed
- Integrated 2 Channel Digital Message Repeater
- Live Microphone Page to any zone
- Fast RS-485 Communication Protocol
- Easy Installation and Operation
- Natural Sound Voice Recordings
- Built in Alarm and Alert Signals
- Up to 4 Minute Message Capacity
- Works with 12VDC or 24VDC Fire Alarm Panel
- Listed with for use with the Elite FACP
- 3 Minute Message Restart on Microphone Key
- Fully Supervised

Operation
- Basic System includes

Master Panel (VF97XX)

- Master Mic Control
- 16 switch control points
- Dual Channel DMR
- High speed communication loop

Distributed Panel (VF97XX*

- 4 Output Zones (may be configured for 8)
- Dual Channel Audio Interface
- Dual Channel Amplification

Optional

- Integrated Fire Phone
- Area-of-Rescue
- Fan and Damper system control

Maximum System Configuration

- Up to 256 Distributed Panels (VF97XX)
- Up to 2028 monitor and control points

*Number of distributed panels to be determined by building specifications

Product Overview

- The VES VoiceAlert High Rise Evacuation System operates in conjunction with the Elite Fire Alarm Control Panel (FACP) in a building to provide automatic response to life safety emergencies. The VoiceAlert system includes all necessary features to provide an effective voice evacuation system. The VoiceAlert can be custom configured to satisfy the needs of any high rise application.
- Fire department authorities can easily take command of evacuation or relocation procedures and emergencies. Building management and fire brigades can monitor and control emergency response even before the professionals arrive. The VoiceAlert system includes capacity for 6 Channels of simultaneous audio. This provides for evacuation, stay-in-place, or other public address announcements and automatic messages.
- Fire Fighter Phones or Warden Stations may be included as required. Area-of-Rescue stations can reassure handicapped occupants that help is on the way. Smoke control, stair pressurization, and HVAC shutdown can be completely automatic, unless controlled manually by management or fire authorities.

Military Emergency VoiceAlert Systems - DOD Compliant

- The U.S. Department of Defense is requiring mass notification systems in inhabited buildings.
- The ability to quickly broadcast pre-recorded and live warnings to all personnel is considered essential in reducing casualties in the event of attack on DOD facilities.
- The VoiceAlert VMX supervised emergency voice alert system meets or exceeds DOD Minimum Anti-terrorism Standards for Buildings, UFC 4-010-01. It is also compliant with UFC 4-021-01, Design and O & M Mass Notification Systems.

VF97XX Distributed Panel

Fire Phone accessories give the VMX system two-way communication capability. Fire Phone jacks are mounted on a single gang plate. Fixed telephone and warden stations are available in surface/ semi-flush mount cabinet with a thumb-turn-latch.

Voice Alert Panel Options

VF9520-00	Mother Board
VF9521-00	Fire Phone Input Card
VF9522-00	Fire Phone Output Card
VF9535-00	Extended Input Interface
VF9558-00	Class A Return Module
VF9720-10	Master Panel, 16 Zone, Red
VF9722-10	Master Panel, 32 Zone, Red
VF9724-10	Master Panel, 48 Zone, Red
VF9726-10	Master Panel, 64 Zone, Red
VF9728-10	Master Panel, 80 Zone, Red
VF9730-10	Master Panel, 96 Zone, Red
VF9740-10	Master Panel, 16 Zone, w/Phone, Red
VF9742-10	Master Panel, 32 Zone, w/Phone, Red
VF9744-10	Master Panel, 48 Zone, w/Phone, Red
VF9746-10	Master Panel, 64 Zone, w/Phone, Red
VF9748-10	Master Panel, 80 Zone, w/Phone, Red
VF9750-10	Master Panel, 96 Zone, w/Phone, Red
VF9760-10	Distributed Panel, Single, 25W, Red
VF9762-10	Distributed Panel, Single, 50W, Red
VF9764-10	Distributed Panel, Single, 100W, Red
VF9768-10	Distributed Panel, Single, 50W, w/Phone, Red
VF9770-10	Distributed Panel, Single, 100W, w/Phone, Red
VF9774-10	Distributed Panel, Dual, 50W, Red
VF9776-10	Distributed Panel, Dual, 100W, Red
VF9778-10	Distributed Panel, Single, 25W, w/Phone, Red
VF9780-10	Distributed Panel, Dual, 50W, w/Phone, Red
VF9782-10	Distributed Panel, Dual, 100W, w/Phone, Red
VF9793-10	Distributed Panel, Dual, 200W, w/Phone, Red
VF4020-10	Speaker, Wall or Ceiling 4 Watt Red
VF4022-10	Speaker / Strobe, Wall or Ceiling 4 Watt Red
VF9512-00	Telephone Jack
VF9511-10	Portable Handset, Red
VF9514-10	Fire Phone Station, Red
VF9524-10	Warden Station, Red
VF9510-10	Telephone Cabinet, Red

VF9512
Telephone Jack

- Brushed Stainless Steel
- Single Gang Plate

VF9511
Portable Handset

- Color - Red
- 6 mount in VF9510 cabinet
- Can be used with telephone jack plate (VF9512)

VF9510
Telephone Cabinet

- Holds 6 VF9511
- Available in Red or Gray
- Size: Surface / Semi-Flush Mount / Key Lock 27 x 14-1/2 x 4" h-w-d

VF9514
Fire Phone Station

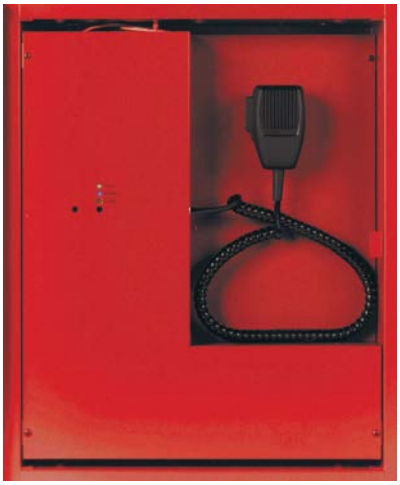
- Coil cord / Thumb Turn Latch
- Available in Red or Gray
- Size: Surface / Semi-Flush Mount 12-3/4 x 7-1/4 x 3-3/4" h-w-d

VF9524
Warden Station

- Armored cable / Thumb Turn Latch
- Available in Red or Gray
- Size: Surface / Semi-Flush Mount 12-3/4 x 7-1/4 x 3-3/4" h-w-d

VoiceAlert

Voice Evacuation System



VF922x*/ VF924x*

The VF922x and VF924x range in the Voice Evacuation System provides 50Watts and 100Watts of speaker power respectively.

The VF922x and VF924x range includes all necessary features to provide an effective voice evacuation system. With the addition of zone splitters, remote microphone panels and expander modules, both ranges can be custom configured to satisfy the needs of most applications.

- Clean Dead-front Construction
- Digitally Recorded Automatic Evacuation Message (Up to 4 Minutes of Message Capacity)
- 50/ 100 Watt High Efficiency Digital Amplifier (VF922x/ VF924x)
- 25 or 70 VRMS Field Selectable
- 120 VAC Power Supply and Battery Charger
- Live Microphone Override of Message and Tone
- Analog Addressable Compatible
- High Reliability, No Maintenance
- Fully Supervised
- Easy Installation and Operation
- Natural Sound Recordings
- Built in Alarm and Alert Signals
- Works with 12VDC or 24VDC Fire Alarm Panels
- Works with Analog/Addressable and Microprocessor based Fire Alarm Panels
- 3 Minute Message Restart on Microphone Key
- 24 Hour Backup with two 12V 7AHr Batteries

Ordering Codes

Part number	Description
VF9220	50W Voice Evacuation System with Power Supply / Battery Charger Paging Microphone
VF9221	50W Voice Evacuation System with 4 Speaker Zones
VF9222	50W Voice Evacuation System with 8 Speaker Zones
VF9223	50W Voice Evacuation System with 12 Speaker Zones
VF9224	50W Voice Evacuation System with 16 Speaker Zones

Color - VFXXXX-10 for Red, VFXXXX-20 for Charcoal

Ordering Codes

Part number	Description
VF9240	100W Voice Evacuation System with Power Supply / Battery Charger Paging Microphone
VF9241	100W Voice Evacuation System with 4 Speaker Zones
VF9242	100W Voice Evacuation System with 8 Speaker Zones
VF9243	100W Voice Evacuation System with 12 Speaker Zones
VF9244	100W Voice Evacuation System with 16 Speaker Zones

Color - VFXXXX-10 for Red, VFXXXX-20 for Charcoal

VoiceAlert

Voice Evacuation System

VF926x*/ VF928x*

The VF926x and VF928x range of panels provide 150Watts and 200Watts of speaker power respectively. Speaker zones can be configured for general alarm or alarm by zone operation as required.

- Dead-front Construction
- Digitally Recorded Automatic Evacuation Message (Up to 4 Minutes of Message Capacity)
- 150/ 200 Watt Amplifier (VF926x/ VF928x)
- 25 or 70 VRMS Field Selectable
- 120 VAC Power Supply and Battery Charger
- Live Microphone Override of Message and Tone
- Analog Addressable Compatible
- High Reliability
- Fully Supervised
- Easy Installation and Operation
- Natural Sound Recordings
- Built in Alarm and Alert Signals
- Works with 12VDC or 24VDC Fire Alarm Panel
- Works with Analog/Addressable and Microprocessor based Fire Alarm Panels.

Ordering Codes

Part number	Description
VF9260	150W Voice Evacuation System with 2 Speaker Circuits 1 - 100W 1 – 50W, Power Supply / Battery Charger, Paging Microphone, Digital Message Repeater
VF9261	150W Voice Evacuation System with 8 Speaker Zones 100W/ 4Z 50W / 4Z
VF9262	150W Voice Evacuation System with 12 Speaker Zones 100W/ 8Z 50W / 4Z
VF9263	150W Voice Evacuation System with 16 Speaker Zones 100W/8Z 50W/8Z

Color - VFXXXX-10 for Red, VFXXXX-20 for Charcoal

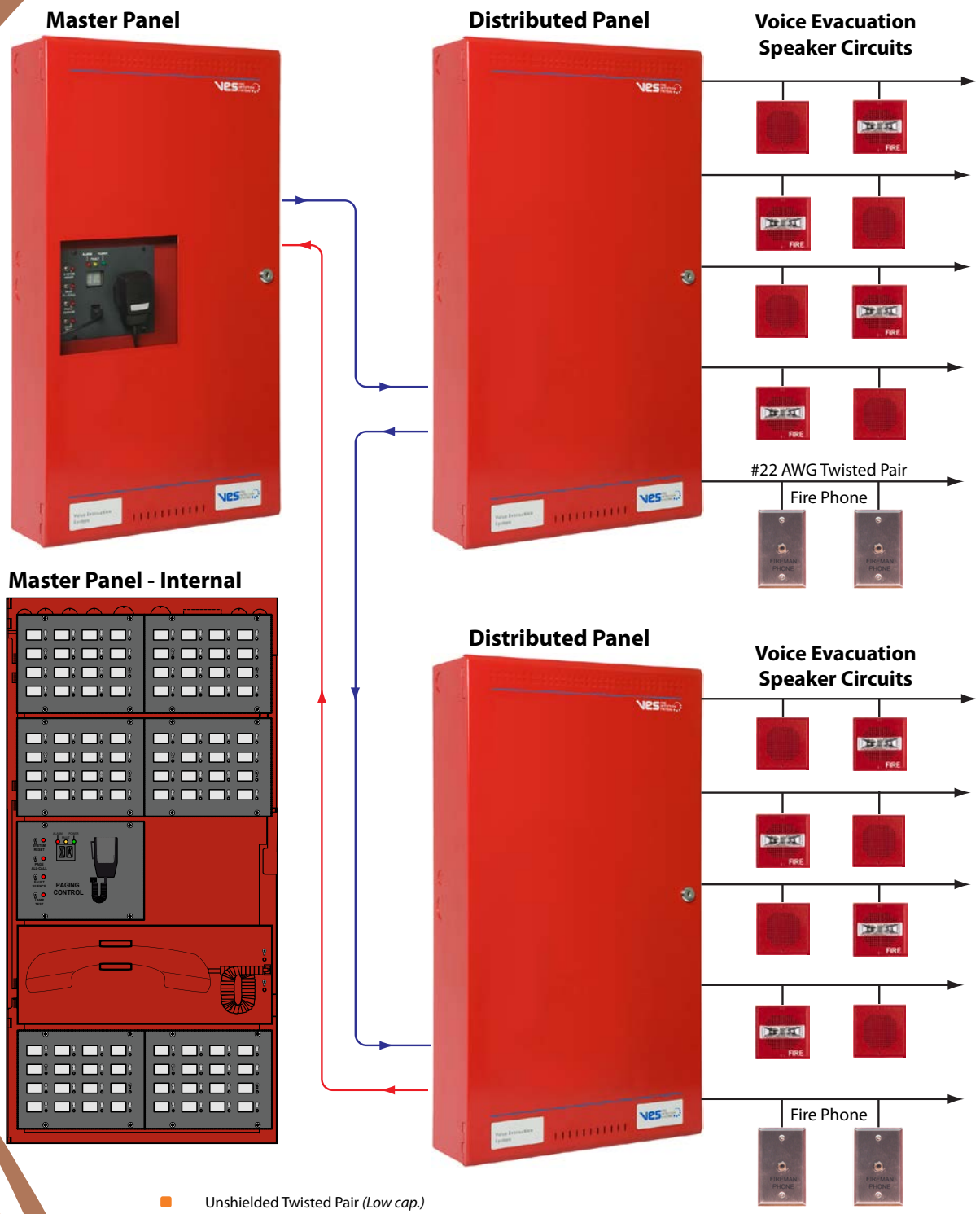
Ordering Codes

Part number	Description
VF9280	200W Voice Evacuation System with 2 Speaker Circuits 1 - 100W 1 – 50W, Power Supply / Battery Charger, Paging Microphone, Digital Message Repeater
VF9281	200W Voice Evacuation System with 8 Speaker Zones 100W/ 4Z 50W/ 4Z
VF9282	200W Voice Evacuation System with 12 Speaker Zones 100W/ 8Z 50W/ 4Z
VF9283	200W Voice Evacuation System with 16 Speaker Zones 100W/8Z 50W/8Z

Color - VFXXXX-10 for Red, VFXXXX-20 for Charcoal

* for full product listings please see our price guide

VoiceAlert- Voice Evacuation System Schematic



- Unshielded Twisted Pair *(Low cap.)*
- 4,000 Feet max. between panels
- Data and 6 Audio Channels simultaneously
- High Speed RS-485 Communications
- Switch plates can be added or removed in banks of 16
- Giving up to 128 switches (or 96, if telephone is used)
- Telephone can be added or removed. This takes up two plate areas

Notification Appliances

VF4027-X0 24V Low Current Mini-Horn Temporal Tone with Terminal Blocks

Standard Features

- UL 464 Listed
- Unit Dimensions: 4.48"High x 2.84" Wide x 0.5" Deep
- Jumper Selectable Temporal 3 or Continuous Tone on the VF4027
- Horn Frequency is 3100Hz
- Terminal Blocks (12 AWG to 18 AWG)
- Low Current Consumption
- Variety of Mounting Options for New Construction and Retrofit Applications
- To Synchronize the VF4027 use the VES VF4009 Series Control Module
- Textured Finish High Impact Plastic
- Faceplate available in Red or Off-White

Product Overview

- The VF4027 Series mini-horn is a high quality remote signaling appliance that offers dependable remote annunciation. The VF4027 is listed for use with both filtered and unfiltered power.
- With the VF4027 a jumper is provided to select either the continuous tone or the temporal 3 evacuation tone.
- The VF4027 can be used on the same sync circuit (VF4009 Series Control Module) as other VES signals. The VF4027 appliances are UL 464 listed for use with fire protective systems and are warranted for three years from the date of purchase.

  Notes: Operating temperature - Indoor Use Only. Indoor: 32° to 120°F (0° to 49°C).
- The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.

VF4027 Current Ratings	
24 VDC	22mA
24 VDC UL Max [1]	18mA

Horn Mode	Minimum dBA @ 10ft. per UL464 @ 24V	Reverberant dBA @ 10ft per UL464	In Anechoic Room dBA @ 10ft.
Temporal	81	78-86	90
Continuous	86	78-86	90

[1] RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range 16-33VDC for 24VDC units. For strobes the UL max current is usually at the minimum listed voltage 16VDC for 24VDC units. For audibles the max current is usually at the maximum listed voltage.

Ordering Codes

Part number	Description
VF4027-10	24V Low Current Mini Horn, Temporal Tone - Red Faceplate
VF4027-30	24V Low Current Mini Horn, Temporal Tone - Off-White Faceplate

Architects and Engineers Specifications

The alarm horns shall be VES Model VF4027. The appliance shall be listed with Underwriters Laboratories for use with Fire Protective Signaling Systems and produce a peak sound output of 90dBA or greater as measured in an anechoic chamber. The appliance shall be of solid-state construction and be polarized to operate from 8-33VDC with a 22mA current drain at 24VDC. The appliance shall be provided with 2 terminals, and mount to a variety of single-gang back boxes.

Wall Mount Horn, Horn/ Strobes

VF4000-X0 Low Profile Evacuation Horn
VF4001-X0 Low Profile Evacuation Strobe
VF4002-X0 Low Profile Evacuation Horn/ Strobe

Standard Features

- FM Approved, UL 464, UL 1971 Listed
- Nominal voltage 24VDC
- Units have field selectable candela options of 15, 30, 60, 75, and 110 candela
- Super-Slide™ Bracket - Ease of Supervision Testing
- Checkmate™ - Instant Voltage Verification
- Unit Dimensions: 5" high x 4.5" wide x 2.5" deep
- Synchronize strobe and/or horn with VES Series Control Module
- Prewire entire system, then install signals
- Lower installation and operating costs
- Input terminals 12 to 18 AWG
- Switch selection for high or low dBA
- Switch for chime, whoop, mechanical and 2400Hz tone
- Tamperproof re-entrant grill
- Switch for continuous or temporal 3 (not available on whoop tone)
- Surface mount with the VF4005 (VES Surface Mount Box)
- Silence horn while strobes remain flashing
- Wide voltage range 16-33VDC or FWR

Product Overview

- The VES Signal Series is a low profile strobe and horn/strobe combination that offers dependable audible and visual alarms and the lowest current available.
- The VES Series 24VDC offers tamperproof field selectable candela options of 15, 30, 60, 75, and 110 candela.
- The VES Series horn offers a continuous or synchable temporal three in 2400Hz and mechanical tone, a chime and whoop tone. All tones are easy for the professional to change in the field by using switches.
- The VES Series has a minimal operation current and has a minimum flash rate of 1Hz regardless of input voltage.
- The VES Series is shipped with the standard 4" metal mounting plate which incorporates the popular Super-Slide™ feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.
- The appliance also features the Checkmate™ - Instant Voltage Verification feature which allows the installer to check the voltage drop draw and match it to the blueprint.
- The VES Series appliances are UL 464 and UL 1971, listed for use with fire protective systems and are warranted for three years from date of purchase.

Ordering Codes

Part number	Description	Reverberant dBA @ 10ft. Per UL 464 [1]	In Anechoic Room dBA @ 10ft.
VF4000-10	24V Low Profile Evacuation Horn - Red Faceplate	62-82	100
VF4000-30	24V Low Profile Evacuation Horn - Off-White Faceplate	62-82	100
VF4001-10	24V Selectable Candela Low Profile Evacuation Strobe - Wall Mount, Red Faceplate	62-82	100
VF4001-30	24V Selectable Candela Low Profile Evacuation Strobe - Wall Mount, Off-White Faceplate	62-82	100
VF4002-10	24V Selectable Candela Low Profile Evacuation Horn/ Strobe - Wall Mount, Red Faceplate	62-82	100
VF4002-30	24V Selectable Candela Low Profile Evacuation Horn/ Strobe - Wall Mount, Off-White Faceplate	62-82	100

VF4000/ VF4001/VF4002 Product Strobe Current Ratings

Candela	15cd	30cd	60cd	75cd	110cd
24 VDC	30mA	35mA	66mA	80mA	103mA
UL Max [1]	42mA	60mA	97mA	116mA	157mA

[1] RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range 16-33VDC for 24VDC units. For strobes the UL max current is usually at the minimum listed voltage 16VDC for 24VDC units. For audibles the max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

Horn Mode	Minimum dBA @ 10ft. per UL464 (HIGH)	Minimum dBA @ 10ft. per UL464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	78	71*	28
Temp 3 Mechanical	76	70*	25
Temp 3 Chime	70*	66*	15
Continuous 2400Hz	81	74*	28
Continuous Mechanical	80	72*	25
Continuous Chime	70*	66*	15
Whoop	82	69*	56

*Operating the horn in this mode at this voltage will result in not meeting the minimum UL reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application (not applicable when using the chime tone. The chime tone is always private mode.

Notes:

To obtain the horn/strobe current draw, add the strobe current draw and the horn current draw.

Operating temperature: 32°to 120°F (0° to 49° C). The VES Series is not listed for outdoor use.

The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.

For nominal and peak current across UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual.

VES does not recommend using a coded or pulsing signaling circuit with any of our strobe products.

Ceiling Mount Horn, Horn/ Strobes

VF4003-X0 24V Strobe
VF4004-X0 24V Horn/ Strobe

Standard Features

- FM Approved, UL 464, UL 1971 Listed
- Nominal Voltage 24 VDC
- Tamperproof Field Selectable Candela options of 15, 30, 75, 95,115 & 150
- Super-SlideTM Bracket - Ease of Supervision Testing
- CheckmateTM - Instant Voltage Verification
- Unit Dimensions: 6" x 2.6"
- Synchronize VF4003 Series by using VES Series Control Module
- Prewire Entire System, then Install Your Signals
- Input Terminals 12 to 18 AWG
- Switch Selection for High or Low dBA
- Switch Selection for 2400Hz or Mechanical Tone
- Switch Selection for Continuous or Temporal 3
- Tamperproof Re-entrant Grill
- Surface Mount with the Ceiling Surface Mount Box
- Silence Horn While Strobes Remain Flashing
- Wide Voltage Range 16-33 VDC or FWR
- Faceplate available in Red or Off-White

Product Overview

- The VF4003/VF4004 Series is a ceiling mount strobe or horn/strobe combination that offers dependable audible and visual alarms and the lowest current available.
- The VF4003/VF4004 offers tamperproof field selectable candela options of 15, 30, 75, 95, 115 and 150 candela.
- The VF4004 horn offers a continuous or synchable temporal three in 2400Hz or mechanical tone. These tones are easy for the professional to change in the field by using switches. The models are shipped from the factory in the temporal three alarm mode.
- The VES Series has a minimal operating current and has a minimum flash rate of 1Hz regardless of input voltage.
- This Series comes standard with the 4" mounting plate which incorporates the popular Super-Slide™ feature that allows the installer to easily test for supervision.
- The VF4003/VF4004 Series also features the Checkmate™ - Instant Voltage Verification feature which allows the installer to check the voltage without removing the signal.
- The VES Series appliances are UL 464 and UL 1971 listed for use with fire protective systems and are warranted for three years from the date of purchase.

VF4003 Ordering Codes

Part number	Description
VF4003-10	24V Ceiling Mount Selectable Strobe - Red Faceplate
VF4003-30	24V Ceiling Mount Selectable Strobe - Off-White Faceplate

VF4004 Ordering Codes

Part number	Description	Reverberant dBA @ 10ft. Per UL 464 [1]	In Anechoic Room dBA @ 10ft.
VF4004-10	24V Ceiling Mount Selectable Horn/ Strobe - Red Faceplate	81-86	90
VF4004-30	24V Ceiling Mount Selectable Horn/ Strobe - Off-White Faceplate	81-86	90

Notes:

The VES Series is not listed for outdoor use.

Operating temperature: 32°to 120°F (0° to 49° C)

For nominal and peak current across UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power.

VES does not recommend using a coded or pulsing signaling circuit with any of our strobe products.

VF4003/ VF4004 Product Strobe Current Ratings

Candela	15cd	30cd	75cd	95cd	115cd	150cd
24 VDC	72mA	101mA	167mA	200mA	214mA	286mA
UL Max [2]	120mA	130mA	247mA	318mA	360mA	454mA

Horn Mode	Minimum dBA @ 10ft. per UL464 (HIGH)	Minimum dBA @ 10ft. per UL464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	83	75	23
Temp 3 Mechanical	81	73*	22
Continuous 2400Hz	86	78	23
Continuous Mechanical	84	76	22

*Operating the horn in this mode at this voltage will result in not meeting the minimum UL reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application.

Notes: The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating.

While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.

To obtain the horn/strobe current draw, add the strobe current draw and the horn current draw.

[1] The listed horn current draws are for the Continuous Tone mode. The Temporal 3 Tone has a reverberant dBA @ 10ft. per UL 464 is 77-83 with a horn current draw of 34mA.

[2] RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range 16-33VDC for 24VDC units. For strobes the UL max current is usually at the minimum listed voltage 16VDC for 24VDC units. For audibles the max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

Weather-proof Devices

VF4029-X0 24V Low Profile Evacuation Horn

VF4006-X0 24V Low Profile Evacuation Outdoor Strobe

VF4007-X0 24V Low Profile Evacuation Outdoor Horn/ Strobe

Standard Features

- UL 464, UL 1638 Listed
- Nominal Voltage 24VDC
- Unit is Shipped with UL1638 listed VF4006 Candela Strobe or VF4007 Candela Horn/ Strobe
- Unit Dimensions: VF4008 5.75" High x 4.75" Wide x 4.18" Deep
- To Obtain Outdoor Horn, Must Order VF4029 and VF4008 Separately
- Super-Slide™ - Ease of Supervision Testing
- Checkmate™ - Instant Voltage Verification
- Lower Installation and Operating Costs
- Switch Selection for High dBA
- Switch for Mechanical and 2400Hz Tone
- Switch for Continuous Tone
- Tamperproof Re-entrant Grill
- Wide Voltage Range 16-33 VDC or FWR
- Separate Horn and Strobe Functions
- Synchronize Strobe and/or Horn by Using VES Synchronization Control Module
- Listed for UL1638 when used with the VF4008 enclosure
- VF4008 Made of Clear Lexan - Provides Maximum Visibility and Reliability for effective Visible Signaling - Allowing Full 75cd Output
- Input Terminals 12 to 18 AWG
- Faceplate available in Red or Off-White

Product Overview

- The Outdoor VES Series offers dependable visible and/or audible alarms for all outdoor needs.
- Included with the VES Series is the VF4008 outdoor enclosure. The enclosure is made of high quality Lexan material, providing protection from weather related conditions and allowing the necessary full candela output. This highly constructed enclosure meets various installation requirements including deterring moisture from entering the enclosures.
- The Outdoor Series is equipped with the 4" mounting plate which incorporates the Super-Slide™ feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.
- The VES Series also features the Checkmate™ - Instant Voltage Verification feature which allows the installer to check the voltage without removing the signal.
- The VES Series strobe has a minimal operation current and has a minimum flash rate of 1Hz and can vary up to 2Hz regardless of input voltage.
- The VES Series appliances are UL 464 and UL 1638 listed for use with fire protective systems and are warranted for three years from date of purchase.

Ordering Codes

Part number	Description	Reverberant dBA @ 10ft. Per UL 464	In Anechoic Room dBA @ 10ft.
VF4029-10	24V Low Profile Evacuation Horn - Red Faceplate	70-82	100
VF4029-30	24V Low Profile Evacuation Horn - Off-White Faceplate	70-82	100
VF4006-10	24V Low Profile Evacuation Outdoor Strobe - Wall Mount, Red Faceplate	N/A	N/A
VF4006-30	24V Low Profile Evacuation Outdoor Strobe - Wall Mount, Off-White Faceplate	N/A	N/A
VF4007-10	24V Low Profile Evacuation Outdoor Horn/ Strobe - Wall Mount, Red Faceplate	70-82	100
VF4007-30	24V Low Profile Evacuation Outdoor Horn/ Strobe - Wall Mount, Off-White Faceplate	70-82	100
VF4008-00	Outdoor Enclosure	N/A	N/A

Notes: The VES Outdoor Series is listed for outdoor use. Indoor Operating Temperature: 32°to 120°F (0° to 49°C). Outdoor Operating Temperature: -31°to 150°F (-35° to 66°C).

For nominal and peak current across UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual.

VES does not recommend using a coded or pulsing signaling circuit with any of our strobe products

Horn Mode	Minimum dBA @ 10ft. per UL464 (HIGH)	Minimum dBA @ 10ft. per UL464 (LOW)	Regulated 24VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	78	71*	28
Temp 3 Mechanical	76	70*	25
Temp 3 Chime	70*	66*	15
Continuous 2400Hz	81	74*	28
Continuous Mechanical	80	72*	25
Continuous Chime	70*	66*	15
Whoop	82	69*	56

*Operating the horn in this mode at this voltage will result in not meeting the minimum UL reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application (not applicable when using the chime tone. The chime tone is always private mode).

Notes: The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.

To obtain the horn/strobe current draw, add the strobe current draw and the horn current draw.

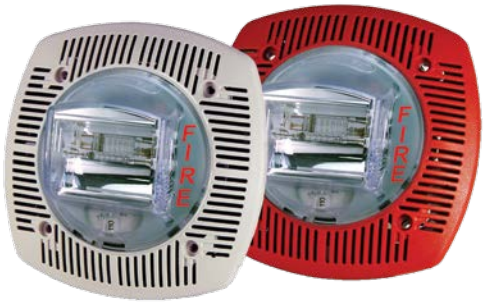
VES Outdoor Product Strobe Current Ratings	
Candela	75cd
24 VDC	112mA
UL Max [1]	180mA

[1] RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range 16-33VDC for 24VDC units. For strobes the UL max current is usually at the minimum listed voltage 16VDC for 24VDC units. For audibles the max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

Wall Mount Speaker/ Strobes

VF4022-X0 Low Profile Selectable Candela Speaker/ Strobe

VF4032-X0 Low Profile Fixed Candela Speaker/ Strobe



Standard Features

- FM Approved, UL 1480/UL 1971/UL 2043 Listed
- 24VDC Tamperproof Selectable Candela Selections of 15, 30, 60, 75 and 110.
- 24VDC Fixed 15/75 Candela.
- Unit Dimension: 6.1" Square X 1.88" Deep
- Wall Mounting to a standard 4" Square X 2-1/8" Deep Back Box
- High Quality dBA Output (Intelligible)
- Frequency Range 400-4000Hz
- Screw Terminals, Separate In/Out Wiring (12-18 Gauge)
- Field Selectable Power Taps: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W
- Speaker Voltage 25 or 70.7 VRMS Standard, Field Selectable
- To Synchronize Use the VES Synchronization Control Module
- Tamperproof Grill
- Xenon Strobe Maintains Constant Flash Rate (1Hz) Regardless of Input Voltage1
- Faceplate available in Red or Off-White

Product Overview

- The VES VF4022 and VF4032 Series are wall mount, selectable candela speaker/strobes designed to meet code requirements for audio, visual and voice communications. The VF4022 and VF4032 Series are quality speaker products that offer both dependable evacuation signaling and visual alarms, or a combination of both. The high output tamperproof candela selections are 15, 30, 60, 75, 110. A fixed 15/75 candela unit is also available.
- The VES series can be mounted in a 4" square x 2-1/8" deep back box, an extension ring is not needed.
- The VF4022 and VF4032 Series provides a 25 or 70.7 VRMS speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W or 4W. The VES strobes can be synchronized by using the VES Synchronization Control Module, FACP's or power supplies that include the VES Synchronization Protocol.
- The VF4022 and VF4032 Series grills are constructed of high impact textured plastic. The VF4022 and VF4032 are warranted for 3 years from the date of purchase. The VES devices are UL listed for fire protective services per UL 1480, the selectable candela strobe unit is listed to UL 1971 and the 15/75 unit is listed to UL 1638 and UL 1971.

Speaker dBA @ 10ft.		
Input Watts	25 Volts	70.7 Volts
1/8	74.6 dBA	73.7 dBA
1/4	77.7 dBA	76.7 dBA
1/2	80.5 dBA	79.6 dBA
1	83.1 dBA	82.5 dBA
2	85.6 dBA	85.4 dBA
4	87.9 dBA	87.9 dBA

VF4024 Ceiling Mount Strobe Current Ratings						
Candela	15cd	30cd	60cd	75cd	110cd	15/75cd
24 VDC	55mA	63mA	88mA	112mA	136mA	63mA
UL Max [1]	78mA	96mA	137mA	180mA	224mA	96mA

[1] RMS current ratings are per UL average RMS method. UL maximum current rating is the maximum RMS current within the listed voltage range 16-33VDC for 24VDC units. For strobes the UL max current is usually at the minimum listed voltage 16VDC for 24VDC units. For audibles the maximum current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

Ordering Codes

Part number	Description
VF4022-10	Low Profile Selectable Candela Wall Mount Speaker/ Strobe - Red Faceplate
VF4022-30	Low Profile Selectable Candela Wall Mount Speaker/ Strobe - Off-White Faceplate
VF4032-10	Low Profile Fixed Candela (15/75) Wall Mount Speaker/ Strobe - Red Faceplate
VF4032-30	Low Profile Fixed Candela (15/75) Wall Mount Speaker/ Strobe - Off-White Faceplate

Notes:

The VF4022 and VF4032 Series is not listed for outdoor use.

Operating temperature: 32°to 120°F (0° to 49° C).

VES does not recommend using a coded or pulsing signaling circuit with any of our strobe products.

Architects and Engineers Specifications

The fire alarm speaker shall be VES VF4022/ VF4032 or equivalent. The speaker shall be capable of producing alarm tones or voice on all 25 or 70.7 VRMS audio systems. The speaker shall provide incremental tap settings of 1/8, 1/4, 1/2, 1, 2 or 4 watts. Minimum dBA ratings at 1/4 watt shall be 76.7dBA and at 4 watts 87.9dBA. Tap settings shall be adjustable with field selectable jumper pins. The speaker shall also have an optional visual signal capability. The visual signal shall have a 1Hz flash rate regardless of input voltage. All field wiring connections shall be made via separate in-out terminal connections and the speaker or speaker strobe shall be UL, CSFM and BS&A/MEA listed and comply with all local, state and federal fire alarm codes/standards.

Ceiling Mount Speaker/ Strobes

VF4020-X0 Low Profile Speaker
VF4024-X0 Low Profile Speaker/ Strobe

Standard Features

- UL 1480/UL 1971/UL 2043 Listed
- 24VDC Tamperproof Selectable Candela Selections of 15, 30, 75, 95 and 115.
- Unit Dimension: 6.1" Square X 1.88" Deep
- VF4024 Ceiling Mounting to a standard 4" X 2-1/8" Deep Back Box
- VF4020 Ceiling or Wall Mounting to a standard 4" X 2-1/8" Deep Back Box
- High Quality dBA Output (Intelligible)
- Frequency Range 400-4000Hz
- Screw Terminals, Separate In/Out Wiring (12-18 Gauge)
- Field Selectable Power Taps: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W
- Speaker Voltage 25 or 70.7 VRMS Standard, Field Selectable
- To Synchronize Use the VES Synchronization Control Module
- Tamperproof Grill
- Xenon Strobe Maintains Constant Flash Rate (1Hz) Regardless of Input Voltage[1]
- Faceplate available in Red or Off-White

Product Overview

- The VES VF4024 is a ceiling mount, selectable candela speaker/strobe and the VF4020 is a ceiling or wall mount speaker designed to meet code requirements for audio, visual and voice communications. The VF4020 and VF4024 Series are quality speaker products that offer both dependable evacuation signaling and visual alarms, or a combination of both. The VF4024 has high output tamperproof candela selections are 15, 30, 75, 95 and 115.
- The VF4020 and VF4024 Series can be mounted in a 4" square x 2-1/8" deep back box, an extension ring is not needed.
- The VF4020 and VF4024 Series provides a 25 or 70.7 VRMS speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W or 4W. The VF4024 strobes can be synchronized by using the VES Synchronization Control Module, FACP's or power supplies that include the VES Synchronization Protocol.
- The VF4020 and VF4024 Series grills are constructed of high impact textured plastic. The VF4020 and VF4024 are warranted for 3 years from the date of purchase. The VF4020 and VF4024 devices are UL 1971 listed for use with fire protective signaling systems.

Speaker dBA @ 10ft.		
Input Watts	25 Volts	70.7 Volts
1/8	74.6 dBA	73.7 dBA
1/4	77.7 dBA	76.7 dBA
1/2	80.5 dBA	79.6 dBA
1	83.1 dBA	82.5 dBA
2	85.6 dBA	85.4 dBA
4	87.9 dBA	87.9 dBA

VF4024 Ceiling Mount Strobe Current Ratings					
Candela	15cd	30cd	75cd	95cd	115cd
24 VDC	72mA	88mA	176mA	200mA	214mA
UL Max [1]	120mA	130mA	272mA	318mA	360mA

[1] RMS current ratings are per UL average RMS method. UL maximum current rating is the maximum RMS current within the listed voltage range 16-33VDC for 24VDC units. For strobes the UL max current is usually at the minimum listed voltage 16VDC for 24VDC units. For audibles the maximum current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual

Ordering Codes

Part number	Description
VF4020-10	Low Profile Ceiling and Wall Mount Speaker - Red Faceplate
VF4020-30	Low Profile Ceiling and Wall Mount Speaker - Off-White Faceplate
VF4024-10	Low Profile Ceiling Mount Speaker/ Strobe - Red Faceplate
VF4024-30	Low Profile Ceiling Mount Speaker/ Strobe - Off-White Faceplate

Notes:

The VF4020/ VF4024 Series is not listed for outdoor use.

Operating temperature: 32°to 120°F (0° to 49° C).

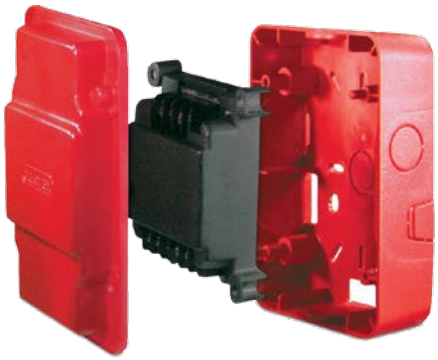
VES does not recommend using a coded or pulsing signaling circuit with any of our strobe products.

Architects and Engineers Specifications

The fire alarm speaker shall be VES VF4020/ VF4024 or equivalent. The speaker shall be capable of producing alarm tones or voice on all 25 or 70.7 VRMS audio systems. The speaker shall provide incremental tap settings of 1/8, 1/4, 1/2, 1, 2 or 4 watts. Minimum dBA ratings at 1/4 watt shall be 76.7dBA and at 4 watts 87.9dBA. Tap settings shall be adjustable with field selectable jumper pins. The speaker shall also have an optional visual signal capability.

The visual signal shall have a 1Hz flash rate regardless of input voltage. All field wiring connections shall be made via separate in-out terminal connections and the speaker or speaker strobe shall be UL, CSFM and BS&A/MEA listed and comply with all local, state and federal fire alarm codes/standards.

VF4009-X0 Gangable Synchronization Control Module



Standard Features

- UL 464 and UL 1971 Listed
- Synchronize Horn and Strobe With the Use of Only Two Wires
- Easy to Install
- Module is Rated for 3 Amps
- Continuous Current and 5 Amps Surge or Inrush Current
- Synchronizes to 1Hz Flash Rate
- Operates 1 Class 'A' Circuit or 2 Class 'B' Circuits at 3 Amps per Circuit.
- Dual Synchronization Module Only When Using the 2 Class 'B' Circuits.
- A Green LED Status Indicator to Signal Operation of Module.
- Option to Silence the Horn While Strobes Continue to Flash When Using Temporal 3 Mode.
- VF4009 Operates the VF4003/ VF4004, VF4000/ VF4001/VF4002, VF4022/ VF3032, VF4020/ VF4024 and VF4027 Series.
- Three Year Warranty From Date of Purchase.

Product Overview

- The VES VF4009 control modules are designed to provide an easy way to synchronize multiple horns as well as strobe light flashes using only two wires in instances where a synchronized flash is required.
- When the module is in temporal 3 mode, it has the capability to synchronize multiple horn signals and the ability to silence the horn while allowing the strobes to continue to flash. In unison mode, the horn cannot be silenced while maintaining strobe operation.
- By incorporating the control module, the control module will control the power to the horns to produce the synchronized operation. The VF4009 Control Modules are warranted for three years from date of purchase.

Ordering Codes

Part number	Description
VF4009-10	Gangable Synchronization Control Module - Red
VF4009-30	Gangable Synchronization Control Module - Off-White

Notes:

The VF4009 Modules come with own back box and cover plate.

Dimensions of Module: 3.85"H x 3.82"W x 1.32"D

Dimensions of Box: 5.57"H x 4.55"W x 2.39"D

A green LED status indicator will flash once every four seconds if zone 1 is operational. The LED will flash twice every four seconds if zones 1 and 2 are operational.

Miscellaneous

VF071X-X0

Fire Document Enclosure

Available in Gray

Standard Features

- Matches design & color scheme for standard Elite control panel ranges
- Easy to install
- Key Lockable
- Designed for versatility
- Choice of small or large capacity enclosure

Product Overview

- Another addition to the VES range, the document box is designed to complement the design & color of the Elite range of control panels. The standard version Document Box will hold up to 50 A4 sheets of information on the Fire Detection or other security systems within a premises. The deep version will hold up to 100 sheets.
- The "Doc Box" also doubles up as a Key Box providing 7 easily accessible formed key hooks inside the enclosure.

Technical Specifications

Construction: 18AWG sheet steel
Dimensions:
VF0711 / VF0713: 14.5"W x 12.2"H x 3.4" D
VF0710 / VF0712: 14.5"W x 12.2"H x 2.5" D
Weight: 6.6lb
Finish (lid & box): RAL3002 (Red) or BS 00 A 05 (Gray)
Finish (product labels): BS 00 A 05 (Gray)

Panel Options

VF0710-xx: Standard
VF0711-xx: Deep
VF0712-xx: Standard w/ Tamper
VF0713-xx: Deep w/ Tamper
xx = 10 (Red) or 40 (Gray)

VF073X-X0

Ancillary Enclosure

Standard Features

- Matches design & color scheme for standard Elite control panel ranges
- Easy to install
- Key Lockable
- Designed for versatility
- Three sizes of enclosure to choose from

Product Overview

- The Ancillary enclosure is designed to provide an organized and secure mounting enclosure for I/O cards and SLC devices. The Ancillary enclosure is manufactured in three different sizes, two different colors and with a tamper option.
- The Ancillary Enclosure is customized with mounting requirements and multiple conduit entries to fit module configurations depicted in the table below.

Panel Options (Modules must be purchased separately)

Part No.	Enclosure Size	I/O Modules	SLC Modules
VF0730-xx*	14.5"W x 12.2"H x 3.4" D	0	2
	14.5"W x 12.2"H x 3.4" D	1	2
	14.5"W x 12.2"H x 3.4" D	2	0
VF0731-xx*	14.5"W x 18.9"H x 4.25" D	0	6
	14.5"W x 18.9"H x 4.25" D	1	4
	14.5"W x 18.9"H x 4.25" D	2	2
	14.5"W x 18.9"H x 4.25" D	3	0
VF0732-xx*	14.5"W x 24"H x 5" D	0	8
	14.5"W x 24"H x 5" D	1	6
	14.5"W x 24"H x 5" D	2	4
	14.5"W x 24"H x 5" D	3	2
	14.5"W x 24"H x 5" D	4	0

* xx = 10 (Red) or 40 (Gray)

Technical Specifications

Construction:

VF073x: 18AWG sheet steel

VF073x: 16AWG sheet steel

VF073x: 16AWG sheet steel

Dimensions:

VF0730: 14.5"W x 12.2"H x 3.4" D

VF0731: 14.5"W x 18.9"H x 4.25" D

VF0732: 14.5"W x 24"H x 5" D

Finish (lid & box): RAL3002 (Red) or BS 00 A 05 (Gray)

Finish (product labels): BS 00 A 05 (Gray)

VF0716-X0

Disablement Switch Enclosure

Standard Features

- Matches design & color scheme for standard Elite control panel ranges
- Easy to install
- Key Lockable
- Designed for versatility
- 5-Individual Key switches for activation of pre-programmed disablements

Product Overview

- Another addition to the VES range, the disablement switch enclosure provides a controlled and organized method for the activation of the pre-programmed disablements or other functions. A terminal strip behind each key switch provides for easy connections.

Panel Options

VF0716-xx: Standard
xx = 10 (Red) or 40 (Gray)

Technical Specifications

Construction: 18AWG sheet steel
Dimensions: 14.5"W x 12.2"H x 3.4" D
Weight: 6.6lb
Finish (lid & box): RAL3002 (Red) or BS 00 A 05 (Gray)
Finish (product labels): BS 00 A 05 (Gray)

VF191X-40
Audio Visual Indicator Units

Audible and visual indicator units Providing remote indication of the status of the fire alarm system

Standard Features

- Available with red or yellow high brightness, flashing LED indicators
- Can be used for Fire alarm warning, activated by a sounder circuit or to indicate and initiate an active isolation
- Optional silence buzzer keyswitch
- Disable buzzer option via internal jumper link
- Optional keyswitch to perform isolation
- Terminations for incoming and outgoing wiring
- Surface mounting box supplied

Technical Specifications

Construction: 18AWG sheet steel
Dimensions: 3.8"W x 3.8"H x 1.9" D
Color (lid & box): BS 00 A 05 (Gray)
Voltage: 18 to 30 V DC
Power Consumption: 25 milliamps at 24V
Operating temperature: 23°F to 122°F
Operating humidity: To 95% non-condensing

Product Overview

- A range of indicator units with either red or yellow indicators to provide audible and visual status of alarms, isolations or other functions associated with the fire alarm or other systems.
- These units are available with a keyswitch to silence the internal buzzer or a keyswitch to illuminate the indicator and buzzer and provide a volt free contact for ancillary control functions when the keyswitch is operated.
- All units can mount to standard surface or flush single gang mounting boxes.

Ordering Codes

Part number	Description
VF1910-40	Red Fire alarm indicator
VF1911-40	Red Fire alarm indicator with buzzer silence keyswitch
VF1912-40	Yellow alarm indicator
VF1913-40	Yellow alarm indicator with control keyswitch
VF1914-00	Flush Mounting Collar (will fit single gang deep flush back box)

Marine

United States Coast Guard approved Analog Fire Alarm and system components.

Coast Guard Approval Number 161.002/58/0


US Coast Guard

Marine

Elite RSM
Marine Fire Control Panel

Pages 88-89

eView
Marine Serial Annunciator

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Marine Devices

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Elite RSM

Analog Addressable
2 Loop Marine Fire Control Panel
Apollo Protocol

VF0860-1M (Red)
VF0860-4M (Gray)

Standard Features

- Two full SLC loops allowing 256 primary addresses
- 3 programmable relays
- 5.25A power supply
- Large graphic display
- Real time clock
- Compatible with eMATRIX graphics annunciator
- Powerful, network wide cause and effects (500 total). Fully user programmable by point or zone.
- Can be networked with additional RSM and/ or Elite control panels
- Compatible with eVIEW Annunciator
- Programmable through a PC connection to the panel
- Same look and feel as Elite range
- Stores 1000 last events in history log
- Compact, stylish enclosure
- Available in Red or Gray
- 2 Programmable NAC circuits with internal synchronization support.

Product Overview

- Elite RSM is a special edition of our Elite Analog fire alarm control panels built specifically for the United States Coast Guard market.
- Available with one or two detection loops for a total of 250 primary points or 400 points using subpoints. Elite RS uses leading edge microprocessor based electronics to provide a flexible control system with high reliability and integrity.
- Suitable for the small to medium sized marine fire detection systems, Elite RSM control panels can be expanded and networked to become part of much larger systems if the need arises, therefore providing a future proof solution for any installation.
- With its large graphical display and ergonomic button and indicator layout, the Elite RSM control panel is simple and straightforward to understand for installers, commissioning engineers and end users alike.

US Coast Guard

FM APPROVED
Manufactured by Kentec Electronics Ltd. Dartford, DA11JQ, United Kingdom

Added Features:

Elite RSM with Network Interface Card (VF0862-xM)

- Network uses standard RS 485 cabling
- Up to 2,000 ft. between adjacent panels
- Mapped Network; Display messages for Any or All nodes

Also available:

eNET Networking Card - VF1170-xx

Trim ring - VF1071-xx

Technical Specifications

Construction: 16AWG sheet steel
Dimensions: 14.5"W x 18.9"H x 4.25" D
Weight (without batteries): 20lb
Finish (lid & box): RAL3002 (Red) or BS 00 A 05 (Gray)
Finish (product labels): BS 00 A 05 (Gray)
Mains voltage supply: 110 or 230V AC 50 or 60 Hz. (specify when ordering, default is 110V)
Mains supply fuse: 1.6A 250V
Power supply DC rating: 24V 5.25 Amps
Aux 24V supply: Fused at 500 milliamps
Battery (24 hour standby): 9Ah 12V (2 per panel) (non-networked)
Fault contact rating: 30V DC 1 Amp
Fire contact rating: 30V DC 1 Amp
Alarm contact rating: 30V DC 1 Amp
NAC output rating: 3.1V across both channels, 2.3V across any one
Detection loop: 250 milliamp output
Serial expansion port: Serial RS485
PC port: Serial RS232
Network connection: Optional network Cards allow the use of e-Net networking
NAC Synchronization: Internal Support
NAC Protocols: System Sensor, Wheelock, Gentex, Amseco
SLC Loop Cabling: 3100 feet 16 AWG, Shielded

eVIEW - VF1172-4M

Marine Analog Addressable Serial Annunciator

US Coast Guard

FM APPROVED
Manufactured by Kentec Electronics Ltd. Dartford, DA11JQ, United Kingdom

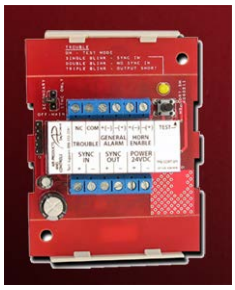
Standard Features

- Available in Red or Gray
- Up to 15 annunciators can be connected to each Elite or Elite RSM fire control panel
- Large liquid crystal display (240 x 64 pixels)
- High brightness LED indications
- Internal sounder
- Replicates all panel controls (Elite)
- Simple, two-wire serial connection
- Small, Elite style enclosure
- Removable electronics for easy installation
- 24V DC powered
- Low power consumption
- Multi language options
- Connection supervised by Elite fire control panel
- Recess mounting using optional VF1173 kit

VF3033-1M Single Action Addressable Pull Station
VF3034-1M Dual Action Addressable Pull Station

The VF3033-1M and VF3034-1M are versatile, high quality, metal Fire Alarm Pull Stations designed to meet any installation demand.

- Single or Dual Action
- Wire head Connections
- Gold Plated Alarm Contacts
- Surface or Weatherproof Backbox
- Optional Auxiliary Alarm Contacts
- Optional Station Colors
- Combined with the VF5608-0M to provide an addressable interface to the Elite SLC loop



VF4990 Aux Powered Sounder Base
VF4990 Aux Powered Synchronization Module

- Compatible panel silence functions
- Sync network "self tests" to ensure synchronized output if "upstream" sync signal is lost
- Sounders will operate in "failsafe" mode if the sync network is compromised
- Continuous or Temporal output with Sync module available to sync multiple temporal units

VF5600-0M
Discovery Ionization Smoke Sensor

The Discovery Marine Ionization Smoke Detector uses a low activity radioactive foil to detect fires by irradiating the air in the smoke chamber and causing a current flow. If smoke enters the chamber, the current flow is reduced leading to an alarm.

- Responds well to fast burning, flaming fires
- Designed to operate in a variety of environments
- Remote test feature
- Rejection of transient signals

US Coast Guard

VF5601-0M
Discovery Photoelectric Smoke Sensor

The Discovery Marine Optical Smoke Detector works using the light scatter principle and is ideal for applications where slow burning or smouldering fires are likely.

- Responds well to slow burning, smouldering fires
- Suitable for bedrooms and escape routes
- Unaffected by wind or atmospheric pressure
- Remote test feature
- Rejection of transient signals

VF5602-0M Discovery Heat Sensor

The Discovery Marine Heat Detector, distinguishable by the low airflow resistant case, uses a single thermistor to sense the air temperature around the detector.

- Ideal in environments that are dirty or smoky
- Unaffected by wind or atmospheric pressure
- Remote test feature

VF5603-0M Discovery Multisensor Sensor

The Discovery Marine Multisensor Detector comprises optical smoke and thermistor temperature sensors which give both a combined signal as well as a seperate heat signal for improved false alarm management.

- Ideal for a wide range of applications
- High immunity to false alarms
- Unaffected by wind or atmospheric pressure
- Remote test feature
- Rejection of transient signals

VF5630-0M Mounting Base 4”

All detectors fit the VF5630 Mounting Base which is a low insertion force base with stainless steel contacts for the detector terminals. XPERT cards are supplied with all bases.

- XPERT addressing
- One way fit
- Locking feature to prevent unauthorized removal

VF5635-0M Low Power Relay Base

The Marine Low Power Relay Base incorporates a low power relay to control field equipment such as automatic door closers.

- Gives a set of voltage free contacts controlled by the remote output of a detector
- Draws negligible current

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VF5605-0M Isolator

The Marine Isolator is placed at regular intervals on the loop and ensures that in the case of a short circuit, only the section between the isolators will be affected. When the short-circuit is removed, the isolators automatically restore power in the isolated section.

- Detects when short-circuits using patented technology
- Minimises disruption from short-circuits
- Automatic re-isolation on short-circuit removal
- Up to 20 detectors or equivalent load may be installed between isolators

VF5633-0M Isolating Base

The Marine Isolating Base senses and detects short circuit faults on Discovery loops and spurs.

- Up to 20 devices may be installed between isolating bases
- XPERT addressing

VF5634 Isolator Base

The Marine Isolator Base is unique and designed to only accept the Isolator.

- Only accepts isolators

VF5608-0M Mini Input Module

The VES Mini Monitor Module, part no VF5608-0M, is a loop-powered device, which incorporates a monitored input circuit for connection to switches. The module is supplied in a small housing designed to fit into an electrical box, or to be DIN Rail mounted.

- Designed for use where space is limited
- Features a short circuit isolator as standard
- LED status indication (Yellow - Fault, Green - Polling, Red - Alarm)
- DIN Rail Mountable

VF5666 Sounder Control Module

The Sounder Control Module monitors and controls a circuit of alarm notification appliances or speakers.

- Allows sounders to be operated continuously or be pulsed, 1 second on, 1 second off
- May be synchronized when in pulsed operation
- Can also be used for public address speakers
- Visible LED

VF5667 Relay Output Module

The Relay Output Module is a loop powered device which incorporates a dual form C, volt free relay output.

- The Relay Output Module provides a single 2-pole changeover relay
- Can be placed anywhere on loop
- Visible LED

VF5651-1M (Red LED)
VF5651-5M (Yellow LED)
XP95A Sounder Beacon Base

The Sounder Beacon Base is a loop-powered sounder and beacon combined with a standard Intelligent Mounting Base. It is used to signal a fire alarm in enclosed areas.

- Two volume ranges 55-75dB(A) and 75-91dB(A)
- Beacon flash rate of once per second
- Synchronization of 'alert' and 'evacuate' tones
- Synchronization of beacon flash
- Individual addressing
- Unique acoustic and beacon self test

VF5652-1M
Discovery Open Area Sounder Beacon

The Discovery Open Area Sounder Beacon is an alarm device comprising a sounder, a beacon and a short-circuit isolator for use with Discovery detection systems. It is supplied with a mounting base which incorporates a short-circuit isolator.

- 15 evacuation tones + 15 secondary or alert tones
- Features a short circuit isolator as standard
- Alarm switching by individual device, or of all devices on loop
- Independent control of sounder and beacon
- Set-up and testing of devices at point of installation
- Isolator status information
- Sounder automatically silences after 20 minutes
- Class change bell tone

VF4006 (24V Low Profile Evacuation Outdoor Strobe)
VF4007 (24V Low Profile Evacuation Outdoor Horn/ Strobe)

The Outdoor VES Series offers dependable visible and/or audible alarms for all outdoor Marine needs.

- Nominal Voltage 24VDC
- Unit is Shipped with UL1638 listed VF4006 Candela Strobe or VF4007 Candela Horn/Strobe
- Super-SlideTM - Ease of Supervision Testing
- CheckmateTM - Instant Voltage Verification
- Lower Installation and Operating Costs
- Switch Selection for High dBA
- Switch for Mechanical and 2400Hz Tone
- Switch for Continuous Tone
- Tamperproof Re-entrant Grill
- Separate Horn and Strobe Functions
- Faceplate available in Red or Off-White

US Coast Guard

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Version 3.30 - April/2018