

# Conventional Photoelectric Smoke Detector

## VF2042-00, VF2043-00, VF2044-00



### Technical Specifications

**Light Source:** GaAlAs Infrared Emitting Diode

**Nominal Rated Voltage:** 12 or 24 VDC

**Working Voltage:** 8-35 VDC

**Maximum Voltage:** 42 VDC

**Standby Current:** 59µA @ 24 VDC

**Surge Current:** 160µA max. @ 24 VDC

**Alarm Current:** 150mA max. @ 24 VDC

**Air Velocity Range:** 0-4000 fpm

**Maximum Humidity:** 95% RH Non-Condensing

**Ambient Temperature:** 32°F(0°C) - 120°F(49°C)

**Case Material:** PC/ABS Blend

### Application

The VF2042, 43 & 44 are a reliable, high quality Photoelectric Smoke Detector(s). These detectors can be used in all application areas where Photoelectric Smoke Detectors are required. The computer-designed smoke chamber makes the VF2042, 43 & 44 well suited for detecting smoldering fires as well as fast-flaming fires.

VF2050-00 and VF2051-00 bases may be used with the VF2042, 43 & 44.

### Standard Features

- UL Listed
- Computer-designed non-directional smoke chamber
- 360° view of detector status LED
- Low profile, 2" high (with base) 2 wire base compatibility.
- Highly stable operation, RF/Transient protection
- Low standby current, 59µA at 24VDC
- One built-in power/sensitivity supervision/alarm LED
- Automatic Sensitivity window verification function meets outlined requirements in NFPA 72, Chapter 2 & 7, Inspection, Testing and Maintenance

### Operation

The VF2042, 43 & 44 photoelectric smoke detector(s) utilizes one bi-colored LED for indication of status. In a normal standby condition the LED flash Green every 3 seconds. When the detector senses that its sensitivity has drifted outside the UL listed sensitivity window the LED will flash Red every 3 seconds. When the detector senses smoke and goes into alarm the status LED will latch on Red.

The detector utilizes an infrared LED light source and silicon photo diode receiving element in the smoke chamber. In a normal standby condition, the receiving element receives no light from the pulsing LED light source. In the event of a fire, smoke enters the detector smoke chamber and light is reflected from the smoke particles to the receiving element. The light received is converted into an electronic signal.

Fire Judgment signals are processed and compared to a reference level, and when five consecutive signals exceeding the reference level are received within a specified period of time, the time delay circuit triggers the SCR switch to activate the alarm signal. The status LED light continuously during the alarm period.

### Ordering Codes

Part number	Description
VF2042-00	Detector Ivory Color
VF2043-00	Detector White Color
VF2044-00	Detector Ivory Color <i>with-out magnetic test feature</i>



## VF2042, VF2043 & VF2044 PHOTOELECTRIC SMOKE DETECTOR

### ENGINEERING SPECIFICATIONS

The contractor shall furnish and install where indicated on the plans, VES Fire Detection Systems Model VF2042, VF2043 & VF2044 photoelectric smoke detectors. The combination detector head and twist-lock base shall be UL listed compatible with a UL listed fire alarm panel. The base shall permit direct interchange with VES Fire Detection Systems VF2042, VF2043 & VF2044 photoelectric smoke detector. The base shall be appropriate twist-lock base NS-4 Series, NS-6 Series, HSC-4R, or HSC-R. In the event of partial or complete retrofit, the VF2042, VF2043 & VF2044 maybe used in conjunction with, or as a replacement for, VES Fire Detection Systems detectors (VF5026 and the VF2041) on most VF2050 and VF2051 base applications.

The smoke detector shall have two flashing status LEDs for visual supervision. When the detector is in standby condition the LEDs will flash Green. When the detector is outside the UL listed sensitivity window the LEDs will flash Red. When the detector is actuated, the flashing LEDs will latch on Red. The detector may be reset by actuating the control panel reset switch. The sensitivity of the detector shall be capable of being measured. The sensitivity of the detector shall be monitored automatically and continuously to verify that it is operating within the listed sensitivity range.

To facilitate installation, the detector shall be non-polarized. Voltage and RF transient suppression techniques shall be employed to minimize false alarm potential.

### VF2042, VF2043 & VF2044 SENSITIVITY TEST FEATURE

The VF2042, VF2043 & VF2044 Photoelectric Smoke Detector has a built-in automatic sensitivity test feature.

1. In normal condition, both LED's flash green.
2. When the sensitivity drifts outside of its sensitivity limits, both LED's flash red.
3. In the alarm state both LED's are red continuously.
4. When the sensitivity drifts outside of its sensitivity limits and both LED's flash red, the device needs to be cleaned or returned to the factory for cleaning or calibration.

