

# Multi-Criteria Sensor - CO, COHb, Smoke, Heat

VF2014-00



## Standard Features

- 16 Programmable Modes of Operation, based upon 9 different detection factors allow extreme application flexibility
- Compatible with VF7005 Low Frequency Sounder base to provide a prioritized Temporal 3 Signal in case of Fire or Temporal 4 Signal in case of CO
- Simple and reliable device addressing method
- Automatic compensation for sensor contamination
- Built-in fire test feature
- Uses the noise immune Digital Communication Protocol (DCP), which utilizes interrupts for fast response to fires
- Dual programmable LEDs provide visual alarm / power indications
- Non-directional smoke chamber
- Pre-Alarm Function
- 10 year life span on CO sensor

## Ordering Codes

VF2014-00	Multi-Criteria Sensor
VF7001-00	4" Mounting Base
VF7002-00	6" Mounting Base
VF7005-00	6" Low Frequency Sounder Base

## Operation

The VF2014 smoke detection chamber consists of a light-emitting diode (LED) and photodiode arrangement. The chamber is designed such that light emitted by the LED cannot normally reach the photodiode. In the event of fire, particles of smoke enter the chamber and scatter the light. As the smoke level increases, the scattering effect increases, causing more light to hit the photodiode. The chamber contains a unique design which allows smoke to enter the chamber while preventing external light from affecting the photodiode. The photodiode input level is sampled to sense smoke density. When the smoke density exceeds a pre-set threshold the sensor transmits an interrupt to the fire control panel indicating a fire condition. The fire alarm control panel can adjust the sensor threshold to compensate for contamination.

The VF2014 heat portion incorporates a highly linear thermistor circuit, with two thermistors mounted externally. The specially designed cover protects the thermistor while allowing maximum air flow. The thermistor circuit produces a voltage proportional to temperature which is scaled, and transmitted as a digitally encoded value to the control panel. When the ambient temperature exceeds a preprogrammed threshold (fixed temperature), the sensor transmits an interrupt to the control panel indicating a fire alarm. The fire alarm control panel can adjust the sensor threshold for different requirements.

The VF2014 CO sensing cell serves a dual purpose of supplementing smoke detection in combination with the photodiode arrangement and monitoring colorless, odorless, and deadly CO levels. When the carbon monoxide exceeds the poisonous levels, the sensor transmits an interrupt to the control panel indicating a CO alarm.



## Application

The VF2014 Multi-Criteria Sensor is particularly suited for detecting smoke produced by a wide range of combustibles found in various applications. Temperature monitoring is achieved by a thermistor placed for optimum sensitivity. The sensor is also suited for detecting deadly levels of CO.

The sensors unique design allows fast response to flaming/smoldering fires and carbon monoxide levels while minimizing nuisance alarms.

## Engineering Specification

The contractor shall furnish and install VF2014 (Multi-Criteria Sensor) and VF7005 (Low Frequency Sounder Base) as indicated on the plans. The Multi-Criteria Sensor head and Low Frequency Sounder Base shall be UL listed and compatible with the UL listed fire alarm control panel. The Sensor and Base shall be UL listed as compatible with the fire alarm control panel.

The base shall permit direct interchange with the VF2002, VF2005, and VF2011 photoelectric smoke sensors, VF2001 ionization type smoke sensors, VF2003 and VF2010 heat sensors, and the VF2008, VF2012, and VF2014 Multi-Criteria sensors.

The sensitivity of the sensor shall be capable of being measured by the control panel.

## Technical Specifications

Operating Voltage	17-41 VDC
Standby Current	600mA
Alarm Current	30 mA max
Transmission Method	DCP—Digital Communication Protocol
Maximum Humidity	up to 95% non-condensing
UL Temperature Range	32° F to 120° F
Operating Temperature Range	14° F to 122° F
Sensitivity Range	3.89%/ft. @ 1000 FPM (Duct application) 3.56%/ft. @ 2000 FPM (Duct application) 3.63%/ft @ 3000 FPM (Duct application) 4.00%/ft @ 4000 FPM (Duct application)
Heat Sensor Temperature Range	135° F to 150° F
Rate of Rise	15° F / min
CO Sensor	70 ppm Response Time 60 - 240 min
Smoke Sensitivity	0.77%/ft. - 3.47%/ft.
Dimensions	3.94" D x 1.56" H
Color and Case Material	Bone / White - ABS Blend
Weight	4.2 oz