



## AS2014-00

### ADDRESSABLE MULTI-CRITERIA SENSOR - SMOKE / HEAT / CO / COHB



#### Application

The AS2014 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.

#### Ordering Codes

<b>AS2012-00</b>	Addressable Multi-criteria Detector
<b>AS7001-00</b>	4" Addressable Base
<b>AS7002-00</b>	6" Addressable Base
<b>AS7003-00</b>	4" Addressable Base with built-in Isolator
<b>AS7004-00</b>	6" Addressable Base with built-in Isolator
<b>AS7005-00</b>	Low Frequency Sounder Base
<b>AS7008-00</b>	Sounder Base
<b>AS8201-00</b>	Round Shape Remote LED Indicator
<b>AS8202-00</b>	Square Shape Remote LED Indicator

#### Standard Features

- Low Profile - Only 2.0" high, including base
- Simple and reliable device addressing
- 16 Programmable Modes of Operation, based upon 9 different detection factors allow extreme application flexibility
- Compatible with AS7005 Low Frequency Sounder base to provide a prioritized Temporal 3 Signal in case of Fire or Temporal 4 Signal in case of CO
- 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
- Two built-in power/alarm LEDs
- Programmable non-polling LEDs
- Non directional smoke chamber
- Vandal resistant security locking feature
- Pre-Alarm Function
- 10 year life span on CO sensor

#### Technical Specifications

<b>Operating Voltage</b>	17 - 41 VDC
<b>Standby Current</b>	450µA
<b>Alarm Current</b>	7.2mA
<b>Recommended Base</b>	AS7005-00
<b>Transmission Method</b>	DCP (Digital Communication Protocol)
<b>Maximum Humidity</b>	Up to 95% non-condensing
<b>Operating Temperature</b>	14°F to 122°F (-10°C to 50°C)
<b>Sensitivity Range</b>	0.7 - 4.00 %/FT @ 300 FPM 0.7 - 3.86 %/FT @ 2000 FPM 0.7 - 2.65 %/FT @ 4000 FPM
<b>Air Velocity Range</b>	0 - 4000 FPM
<b>Color and Case Material</b>	Bone / White - ABS Blend
<b>Weight</b>	4.2 oz. (5.9 oz with 4" base)



## Operation

The AS2014 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 AS2014 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 AS2014 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.

## Sensor Spacing

Smoke sensor spacing shall be in compliance with NFPA 72. For smooth ceilings and in the absence of specific performance-based design criteria, the distance between smoke sensors shall not exceed a nominal spacing of 30 ft. (9.1m) or all points on the ceiling shall have a sensor within a distance equal to or less than 0.7 times the nominal 30 ft. (9.1m) spacing. Sensors shall be located within a distance of one-half the nominal spacing, measured at right angles from all walls or partitions extending upward to within the top 15 percent of the ceiling height. For additional instructions see NFPA 72.

## Engineering Specification

The contractor shall furnish and install AS2014 (Multi-Criteria Sensor) as indicated on the plans. The Multi-Criteria Sensor head and twist lock 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 (FACP).

The base shall permit direct interchange with the Avenger AS2011 photoelectric smoke sensor, AS2010 heat sensor, and the AS2012 Multi-Criteria sensor.

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

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when required.

## Bases

The AS2014 supports the AS7001-00, AS7002-00, AS7003-00, AS7004-00 and AS7008-00 bases as well as the recommended AS7005-00 base when used for life safety CO sensing. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can be removed using a small diameter screwdriver.