AVENGER

AS2012-00

ADDRESSABLE MULTI-CRITERIA SENSOR - SMOKE / HEAT

Standard Features

- Low Profile - Only 2.0" high, including base
- Simple and reliable device addressing
- 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
- Removable smoke labyrinth for cleaning or replacement

NOTE: Bases are not included with detectors, please order separately.

UL | FM APPROVED | MADE IN JAPAN

Application

The AS2012 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. Avenger's unique design allows fast response to flaming fires as well as smoldering fires while minimizing false alarms.

Operation

The AS2012 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 preset 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 AS2012 Heat portion incorporates a highly linear thermistor circuit, with two thermistors mounted externally. The specially designed cover protects the thermistors 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 standard's requirements.

Up to 127 devices are permitted on each SLC loop. A sensor address can be set by a hand-held programming unit. The sensor mounts to an electronics-free base and incorporates a locking mechanism for secure installation. The base provides mounting slots, terminals for field wiring and a third contact for a remote indicator / LED. The sensor incorporates dual LEDs for easy viewing of sensor status.

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 AS2012 (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 / AS2014 Multi-Criteria sensors.

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 AS7001 and the AS7002 mounting bases are electronics free and are a simple rugged design with screw terminals for wiring connections. 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 screw driver.

Technical Specifications

Operating Voltage	17 - 41 VDC
Standby Current	450µA
Alarm Current	540µA
Transmission Method	DCP (Digital Communication Protocol)
Maximum Humidity	Up to 93% non-condensing
UL Temperature Range	135°F to 150°F (57.2°C to 65°C)
Operating Temperature	14°F to 122°F (-10°C to 50°C)
Sensitivity Range	0.7 - 4.00 %/FT @ 300 FPM 0.7 - 3.86 %/FT @ 2000 FPM 0.7 - 2.65 %/FT @ 4000 FPM
Air Velocity Range	0 - 4000 FPM
Color and Case Material	Bone / White - ABS Blend
Weight	4.2 oz. (5.9 oz with 4" base)

Ordering Codes

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