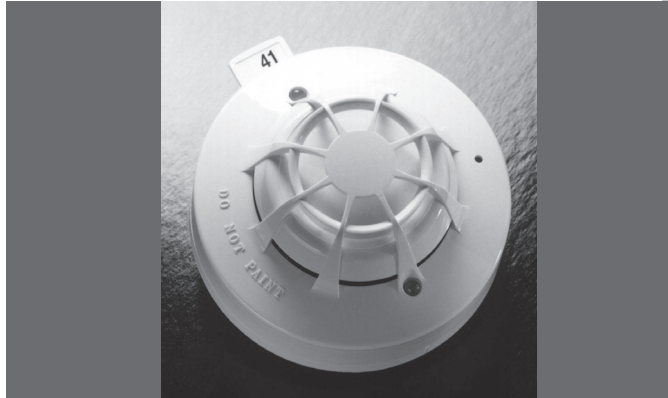




# AX Series

# INTELLIGENT MULTI SENSOR DETECTOR



### Unique Features:

- Patented XPerT Detector Base Addressing
- Built-in Dedicated Microprocessor
- Combination Photoelectric and Thermal Technology
- Five Selectable Response/Sensitivity Modes
- Ten 7-Day Response/Sensitivity Mode Timers
- Built-in Manufactured Date Look-up
- Dual-Alarm LEDs with 360° View

### Description:

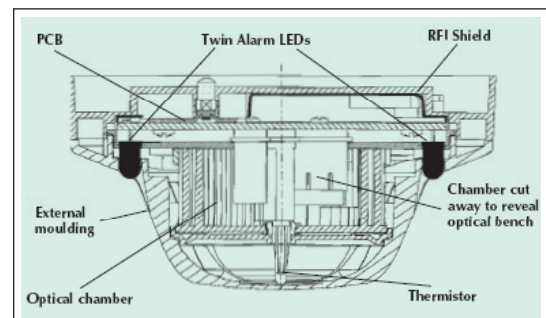
The low-profile Advanced Fire Systems **AX Series** Intelligent Multi Sensor Detector, utilizes a combination of photoelectric and thermal sensing technologies to monitor two types of fire signatures (smoke and heat), offering increased immunity to potential false alarms. The signals from the photoelectric sensing element and the temperature sensor are completely independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector. The built-in dedicated microprocessor processes the two signals according to the response/sensitivity mode selection of the device.

Distinguished by clear dual-alarm LEDs which illuminate red during alarm, the detector provides a complete 360° view of device status. The detector's dual-alarm LEDs can also be programmed for flashing during quiescent mode.

The **AX Series** Intelligent Multi Sensor Detector incorporates a unique industry method of addressing the detector. Each detector is individually addressed through it's associated base by a patented address ("XPerT") card. The address is quickly and easily set by removing "pips" on the XPerT card according to a chart supplied with each base. Once the address is set on the XPerT card, it can be slid into place and locked into the detector base. By addressing the **AX Series** detector at the base rather than internally to the detector, the all-too-common errors associated with detector removal and maintenance are eliminated.



The response characteristics of the **AX Series** Multi Sensors have been carefully set to comply with the stringent requirements of UL and NFPA 72. Each **AX Series** Multi Sensor is continuously monitored and tested for proper sensitivity and thermistor operation. If a problem is detected with the device's sensitivity or thermistor monitoring capability, a trouble or maintenance signal is reported back to the fire alarm control panel. In addition to the monitoring of the detectors operation, the Multi Sensor photoelectric chamber will compensate for any sensitivity drift of the initial programmed response/sensitivity value due to environmental contamination and/or dust buildup. Initial device sensitivity settings will be maintained at a constant level even when the chamber is severely contaminated. When compensation levels exceed normal values, a maintenance signal will be generated.



The **AX Series** Intelligent Multi Sensor Detector offers a precisely engineered infrared (IR) LED smoke chamber and a thermistor temperature sensor. The analog values of these two fire detection devices can be combined to give area detection an increased immunity to false alarm compared to regular smoke detector. The way in which the two signals are combined depends on the response/sensitivity mode selection of the specific device. There are five response/sensitivity mode settings for the Multi Sensor Detector; fixed temperature only, photoelectric smoke detection only, or a combination of both. Due to the flexibility of the Multi Sensor detector it is useful over the widest range of applications.

### Features:

- UL 268 Listed
- Low-Profile Design
- Automatic Drift Compensation
- Automatic Detector Testing w/Maintenance Alert
- Certified Detector Sensitivity Testing
- Field Programmable Alarm Verification
- Sub-Addressable Remote LED Output \*
- Optional Relay and Isolator Bases \*
- Superior Rejection of Transient Signals
- Detector to Base Locking Mechanism
- Plastic Dust Cover for Construction Protection
- 100% Digital Communication Protocol



\* Refer to **AX Series** Intelligent Detector Bases and Intelligent Isolator data sheets.

Product Data Sheet

**Description Cont'd:**

The Multi Sensor Detector response/sensitivity modes (see Table 2) relate to different combinations of smoke sensitivity characteristics with or without thermal sensing and transient rejection/stabilization times. When operating in mode settings 1, 3 or 4 the temperature signal processing extracts rate-of-rise information and combines it with the photoelectric signal to evaluate for potential fire signatures. In this configuration the detector responds to the smoke characteristics and to a large sudden change in temperature indicative of a flaming fire. The response/sensitivity modes correspond to unique response behaviors of the detector and the type of environment it is protecting, which can be broadly related to the characteristics of a fire (see Table 1). Response mode 1 is more sensitive than response mode 4. Detectors set to response mode 1 would be more suitable for environments in which sources of unwanted alarms are rare (i.e.: clean rooms and computer rooms). Response mode 4 set detectors would be suitable for more dusty or smoky environments (i.e.: laundry rooms, loading dock areas). Response mode 3 (default programmed) would be the mid-sensitivity level used for most normal applications. Response mode setting and hysteresis of the individual detectors are stored within the detector's memory. The advantage of storing this critical information in the detector rather than in the fire alarm control panel software is that the detector will maintain the programmed response settings and compensated values even when power is removed from the detector. If the detector is powered down or inadvertently replaced in another location, the detector response mode and clean values are not lost, thereby minimizing the errors associated with inferior products; false alarms due to a dirty detector and non-calibrated response/sensitivity mode parameters.

Equally beneficial as the response mode settings, the detectors are each capable of being programmed for different response/sensitivity mode settings based on the time of day and day of week. Detectors can be set to one of ten 7-day response mode/sensitivity timers, allowing the detector to be more or less sensitive due to installation changing environments based on time of day and day of week. The detector can also be programmed to have thermal only or smoke only operation during specific times. Such changing environments can be industrial, manufacturing, or assembly processes that produce smoke, fumes, or excessive dust during normal working hours.

Another unique industry feature of Advanced Fire Systems AX Series Multi Sensor Detector, in conjunction with the AX Series Intelligent Fire Alarm Control Panel, is its ability to sub-address detector base ancillary functions. Each detector is capable of incorporating, based on optional AX Series base utilization, a remote LED and/or relay. When these options are utilized, the user is capable of sub-addressing each of these options (remote LED and/or relay) to activate independently of the AX Series detector. This provides 100% free programmability of the detector base outputs to meet the demanding flexibility requirements of today's installations. (For further explanation, refer to AX Series Intelligent Detector Bases and Intelligent Isolator data sheets).

**Table 1 - Recommended Response Mode Settings**

Clean Rm Computer Rm					Hotel Rm Apartment					Office Hospital Ward Factory Light Industry					Warehouse Restaurant					Loading Dock Parking Garage					Kitchen Laundry (enclosed & ventilated)					Boiler Rm									
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					
✓							✓	✓				✓	✓		✓	✓	✓	✓		✓	✓	✓	✓				✓	✓				✓							
1, 2, 3, 4, 5 = Response/Sensitivity Modes ✓ = Mode Suitable for Installation																																							

**Table 2**

Response Mode	Sensitivity Characteristics	Stabilization Time
1	1.7 %/ft with Thermal	20 sec
2	2.3 %/ft Smoke ONLY	30 sec
3	2.7 %/ft with Thermal	20 sec
4	3.3 %/ft with Thermal	20 sec
5	Ordinary 135°F Static ONLY	30 sec

**Ordering Information**

AX-58000-700ADV | AX-MULTI Intelligent Multi Sensor Detector

\* Refer to AX Series Intelligent Detector Bases and Intelligent Isolator data sheets for specific information.

**Intelligent Multi Sensor Detector Specifications**

Voltage	17-28 VDC
Modulation Voltage	5-9 VDC
Operating Current	
Quiescent	0.4 mA
Alarm	0.4 mA
w/LED's	5.4 mA
Surge Current	1.0 mA
Air Flow	0-300 ft/min
Sensitivity - Smoke & Heat	1.7 - 3.3 %/ft & Rate-of-Rise / Fixed Temp. 135°F
Environment	Indoor, Dry
Operating Temperature	32-120° F (0-48° C)
Humidity	10-93% (non-condensing)
Dimensions	4" x 1 7/8"
Weight	3.7 oz
Housing	Polycarbonate, 94 V0



100 South Street, Hopkinton, Massachusetts, USA MA 01748  
Tel: 1.508.453.9995 ■ Fax: 1.508.453.9996 ■ www.afsi.us.com