Advanced

Axis AX

Intelligent Multi Sensor Detector

The low-profile Advanced 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. In addition, to provide the best protection possible, when utilized in the multi sensor mode of operation, the saturation of any one element (extreme heat or heavy smoke concentration) will result in device operation.

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 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 intelligent 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 Intelligent Multi Sensor has been carefully set to comply with the stringent requirements of UL and NFPA 72. Each 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.



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
- Dual-Alarm LEDs with 360° View
- 100% Digital Communication Protocol
- Integral XPerT Card Address Labeling Tab
- Automatic Drift Compensation
- Automatic Detector Testing w/Maintenance Alert
- Field Programmable Alarm Verification
- Sub-Addressable Thermal Sensor and Remote LED Output
- Optional Relay and Isolator Bases
- Superior Rejection of Transient Signals
- Detector to Base Locking Mechanism
- Plastic Dust Cover for Construction Protection

Listings and Approvals

- CAN/ULC-S527-11 & CAN/ULC-S559-04 Listed: 100780709NYM-001
- ULC Listed: UROXC.S24459
- ULC Listed: UQGSC.S24459

The Intelligent 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 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 Intelligent Multi Sensor Detector, in conjunction with the Axis AX Series Intelligent Fire Alarm Control Panel, is its ability to sub-address the detector thermal sensing element and detector base ancillary functions. Each detector is capable of being programmed as a single addressable input point (photo detector, heat detector or combo photo/heat detector) or as a dual addressable input point (photo detector, heat detector or combo photo/heat detector and a heat detector), this feature allows for unique apartment/dormitory monitoring of Intelligent Multi Sensor Detectors.

In addition, each detector is capable of incorporating, based on optional detector base utilization, a standard remote LED or a subaddressable remote LED and/or relay. When these options are utilized, the user is capable of programming these options (remote LED and/or relay) to activate independently of the 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 Intelligent Detector Bases and Intelligent Isolator data sheets).

Table 1

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	Programmable Assessment Time
1	1.7 %/ft w/Thermal	20 sec
2	2.3 %/ft Smoke Only	30 sec
3	2.7 %/ft w/Thermal	20 sec
4	3.3 %/ft w/Thermal	20 sec
5	135^{0}F Static Only	30 sec

Specification

Voltage	17-28 VDC
Modulation Voltage	5-9 VDC
Operating Current Quiescent Alarm With LED's	 0.4 mA 0.4 mA 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
Ambient Temperature	32-135ºF (0-57ºC)
Humidity	10-93% (Non-Condensing)
Dimensions	4” x 17/8”
Weight	3.7 oz
Housing	Polycarbonate, 94 V0

Order Codes and Options

58000-750AFC	Intelligent Multi Sensor Detector

* Refer to Intelligent Detector Bases and Intelligent Isolator data sheets for specific information

Advanced, The Bridges, Balliol Business Park, Newcastle upon Tyne, NE12 8EW, UK T: +44 (0)345 894 7000 E: enquiries@advancedco.com
W: www.advancedco.com

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