

Signature Series Intelligent Fire Detectors

SPECIFICATION DATA



FEATURES

- **Fast alarm response time**
- **Adjustable sensitivity**
- **Early warning of dangerous conditions through pre-alarm states**
- **Maintains performance despite aging or environmental variations**
- **On-board historical data including alarm states and maintenance information**
- **Reduced installation and operating costs**
- **Simple wiring requirements**
- **Duplicate addressing eliminated**
- **On-screen circuitry and placement deviations**

DESCRIPTION

The sensors in this series share the ability to reason and make decisions on their own, based upon real-time analog sensing, onboard historical data and decision algorithms which apply to known fire characteristics. This allows the sensors to accurately identify true fire signatures whilst filtering out false alarms, before transmitting an alarm.

Each sensor's non-volatile memory stores historical data that is continuously updated by self-diagnostic circuitry. Archival data includes the detector's identity and location, time and sensor reading at the last alarm, the date and time of the last maintenance and other information useful for alarm investigation, maintenance scheduling and system configuration control.

Detector sensitivity is adjustable, and a separate sensitivity can be selected for day and night operation. Pre-alarm levels can also be established to provide early warning of potentially dangerous conditions, allowing time to investigate before an actual threat to life safety occurs.

The sensors maintain the specified sensitivity threshold despite aging, dirt build-up, temperature or humidity changes. Frequent, automatic sensitivity adjustments are based upon environmental changes occurring over the last four to twenty-four hours. When a sensor reaches the limit of its adaptability, a trouble alarm alerts service personnel.

High-speed digital communications to and from sensors, in conjunction with reduced signal traffic on the alarm loop provide for very fast control panel response time; less than 0.5 seconds, no matter how many sensors are on the loop.

If communication with the loop controller CPU is lost, sensors revert to the stand-alone mode. They continue to collect and analyze information from their surroundings and transmit alarms over the alarm circuitry in a similar way to a conventional fire alarm system.

The sensors do not require twisted-pair or shielded wiring and existing alarm circuitry need not be replaced during installation. The simplified installation and maintenance requirements of these sensors make a substantial contribution to the overall system economy.

As each sensor can transmit its identity and location on request, accurate documentation of the alarm circuitry is readily available. 'As-built' wiring diagrams can be displayed and printed out at any time. The display will highlight any wiring faults, sensor placement errors or software programming deviations.

All sensors are software addressable. There are no binary DIP switches, rotary address switches or jumpers to set. Accidental duplicate addressing and the related trouble-shooting are eliminated. This represents savings in both hardware and personnel time.

The sensors store their own maintenance history and perform a constant self-check to verify operation and alarm readiness. Excessive build-up of dust or any defect initiates a trouble alarm so that maintenance can be scheduled.

Models:

ADT-IPHSI Multi-sensor

This intelligent detector incorporates three sensors in a single head: ionization, photoelectric and thermal. Because of this innovative combination, the sensor has three separate sources of analog data on which to base alarm decisions. The detectors microprocessor analyzes these signals separately with respect to a fourth element- time. It compares the information with historical data, time patterns and known fire characteristics before making a decision and generating an alarm. With the ADT-IPHSI in place, false alarms are

reduced to nearly zero, whilst the detection of all types of fire increases to nearly 100%. As a result the detector need not be replaced when the use of an area and the type of fire threat changes.

ADT-PHSI Multi-sensor

The ADT-PHSI intelligent sensor incorporates two sensors, photoelectric and thermal. It is similar in principle to the ADT-IPHSI and has many of the same time-compensated alarm verification features.

ADT-HRSI Single sensor

The ADT-HRSI is an intelligent thermal sensor combining fixed temperature and rate-of-rise detection. It generates an alarm at 135°F (57°C) ambient temperature and is also sensitive to temperature increases of more than 15°F (9°C) per minute.

ADT-ISI Single sensor

The ADT-ISI is an intelligent ionization smoke sensor.

ADT-PSI Single sensor

The ADT-PSI is an intelligent photoelectric smoke sensor.

Table 1: Test Fires

Test Fire	Type of Sensor				
	ADT-ISI Ion	ADT-PSI Photo	ADT-HRSI Rate-of Rise/ Fixed Temp.	ADT-PHSI Photo/ Heat 3D	ADT-IPHSI Ion/ Photo/ Heat 4D
Open Wood	Optimum	Unsuitable	Optimum	Very Suitable	Optimum
Wood Pyrolysis	Suitable	Optimum	Unsuitable	Optimum	Optimum
Smoldering Cotton	Very Suitable	Optimum	Unsuitable	Optimum	Optimum
Polyurethane Foam	Very Suitable	Very Suitable	Suitable	Very Suitable	Optimum
n-Heptane	Optimum	Very Suitable	Very Suitable	Optimum	Optimum
Liquid Fire without Smoke	Unsuitable	Unsuitable	Optimum	Very Suitable	Very Suitable



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