



July 27, 2000

DN-1190 • I-115

## 2400 Series 2-Wire Photoelectric Smoke Detector with Optional Horn & Thermal

Section: Conventional Initiating Devices

### GENERAL

The System Sensor 2400 Series photoelectric detectors are specifically designed to meet the stringent performance requirements of industrial and municipal fire detection/alarm systems. The design of these detectors emphasizes ease of installation and field maintenance. The new AT/AIT models add built-in audible signaling and optional isolation of the thermal.

### FEATURES

- Unique optical sensing chamber:
  - Superior signal-to-noise ratio.
  - Built-in signal processing.
  - 3.0% nominal sensitivity.
- Removable cover for field cleaning.
- Visible LED "blinks" in standby.
- Sealed against dirt, insects, and back pressure.
- Built-in 135°F (57°C) thermal (models TH, AT, AIT only).
- Three-year limited warranty.
- Field metering of detector sensitivity (using MOD400R).
- Built-in test capability.
- Low standby current.
- Twist-on mounting bracket with tamper option.
- Designed for direct surface or electrical box mounting.
- Built-in 85 dBA piezoelectric horn (models AT and AIT only).
- Insect-resistant screening (0.020"/0.508 mm openings).
- Isolated or integrated operation of thermal available.
- SEMS screws for easy wiring.

### APPLICATIONS

Use to contribute to life safety, fire protection, and property conservation. Photoelectric detectors are recommended in areas where slow smoldering fires are likely to ignite. In areas where small combustion particles are usually present from fork-lift trucks, cooking stoves, etc., they are less likely than ionization detectors to produce false alarms.

### CONSTRUCTION AND OPERATION

All System Sensor 2400 Series photoelectric smoke detectors contain a unique optical sensing chamber designed to sense the presence of smoke particles produced by a wide range of combustion sources and meet performance criteria designated by UL 268. A new custom integrated circuit incorporates signal processing to reduce false alarms and sample/hold circuitry to provide easy field metering of sensitivity. Additional key features of AT/AIT models include available isolation of the thermal for separate monitoring, and a built-in horn.



CS308 (2400A,  
2400THA only)



California  
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Marshal

7272-1209:103  
(2400 & 2400TH)  
7272-1209:134  
(2400AT & 2400AIT)



**MEA**

427-91-E Vol. III



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The built-in piezoelectric horn produces an interrupted 85 dBA tone. The horn operates when the unit senses smoke, or when the thermal reaches its alarm point (integral thermal models only).

### INSTALLATION

Model 2400 detectors are designed for systems use with UL listed control panels. See panel Compatibility Chart to determine maximum number of detectors per zone. Easy to install and maintain, this detector is designed for direct surface mounting (mounting bracket included), or mounting to a 4" octagon or smaller box. Easy-to-wire screw terminals allow fast and simple field wiring of in, out and remote annunciator connections.

Consult control panel specifications for the maximum allowable loop resistance for the particular control panel to be used.

To prevent wiring mistakes, observe polarities and make certain that each conductor is identified. A copy of Installation and Maintenance Instructions is packaged with each detector. For further information, refer to NFPA 72 and to Local Authority Having Jurisdiction.

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact **NOTIFIER**. Phone: (203) 484-7161 FAX: (203) 484-7118



**NOTIFIER**

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**ISO 9001**  
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ENGINEERING & MANUFACTURING

## MAINTENANCE

The 2400 Series has been designed to seal the sensing chamber from back-pressure air flow, dust, dirt, and insects. The back of the detector is sealed. The chamber is protected by a fine mesh screen. **Testing** is accomplished by insertion of a 0.1" (2.54 mm) max. diameter tool. If **cleaning** is required, it is easy to remove the cover and obtain access to the screen and chamber to perform a thorough cleaning.

## ENGINEERING SPECIFICATIONS

Smoke detector shall be a photoelectronic type (model 2400) or a combination photoelectronic/thermal (model 2400TH) with thermal sensor rated at 135°F (57°C) as manufactured by System Sensor. Wiring connections shall be made by means of SEMS screws. The detector will have a visible LED which will blink in standby and latch on in alarm. The detector shall have a nominal sensitivity of 3% per foot as measured in the UL smoke box. The detector screen and cover should be easily removable for cleaning. It shall be possible to perform a sensitivity and functional test without the need of generating smoke. Detector circuitry shall perform a self test on the sensing chamber and internal electronics every 40 seconds. If circuitry fails, the detector LED shall stop blinking. The detector shall have a mounting bracket that allows for mounting to a 3-1/2" (88.9 mm) or 4" (101.6) octagonal or a 4" square electrical box.

## PRODUCT LINE INFORMATION

Model	Description
<b>2400</b>	Photoelectric smoke detector, two-wire, surface mount.
<b>2400TH</b>	Photoelectric smoke detector with built-in 135°F (57°C) fixed-temperature thermal, two-wire, surface mount.
<b>2400AT</b>	Photoelectric smoke detector with integral 135°F (57°C) fixed-temperature thermal, and 85 dBA horn, two-wire, surface mount.
<b>2400AIT</b>	Photoelectric smoke detector with isolated 135°F (57°C) fixed-temperature thermal, and 85 dBA horn, two-wire, surface mount.
<b>MOD400R</b>	Field-test module for all of the System Sensor 2400 Series smoke detectors.
<b>RA400Z</b>	Remote annunciator (LED). Mounts to single-gang box.

### NOTES for GENERAL SPECIFICATIONS:

- Control panels must limit current to 100 mA or less.
- Maximum air velocity for photoelectric sensor operation is 3,000 feet (914.4 m) per minute.
- Relative humidity range: 10 to 93% (non-condensing).

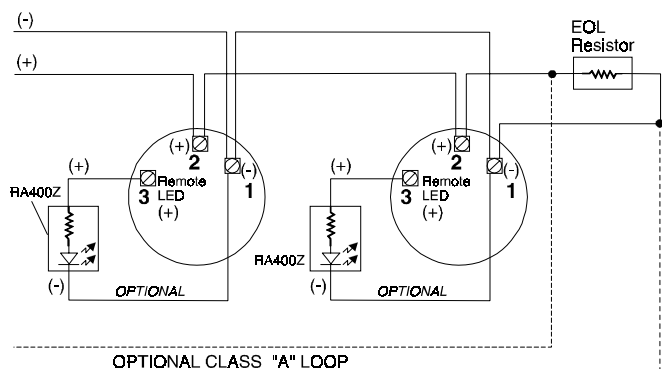
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## GENERAL SPECIFICATIONS

	Model 2400	Model 2400TH	Model 2400AT	Model 2400AIT
<b>Control Panel Applications</b>	2-wire	2-wire	2-wire	2-wire
<b>Built-in Thermal</b>	No	Yes	Yes	Yes (Isolated)
<b>Visual LED Local Alarm</b>	Yes	Yes	Yes	Yes
<b>Remote LED Annunciator Capability</b>	Yes	Yes	Yes	Yes
<b>Operating Voltage Range</b>	8.5 to 35 VDC	8.5 to 35 VDC	10 to 32 VDC	10 to 32 VDC
<b>Current Limit, Standby (maximum)</b>	120 µA	120 µA	120 µA	120 µA
<b>Current Limit, Alarm (typical)</b>	(see NOTE 1)	(see NOTE 1)	15 mA @ 10 V	15 mA @ 10 V
<b>Current Limit, Alarm (maximum)</b>	(see NOTE 1)	(see NOTE 1)	67 mA @ 32 V 48 mA @ 24 V	67 mA @ 32 V 48 mA @ 24 V
<b>Reversed Voltage (non-alarm)</b>	—	—	5 mA @ 10 V 15 mA @ 24 V 19 mA @ 32 V	5 mA @ 10 V 15 mA @ 24 V 19 mA @ 32 V
<b>Alarm Signal</b>	Shunt on power leads.	Shunt on power leads.	Shunt on power leads.	Shunt on power leads.

### Wiring Diagram: 2400, 2400TH, 2400AT

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### Wiring Diagram: 2400AIT

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