

# 500 Series™ Intelligent Sensors with Integral Communications



A Division of Pittway  
3825 Ohio Avenue, St. Charles, IL 60174  
1-800-SENSOR2 (736-7672), Fax 630-377-6495  
<http://www.systemsensor.com>



## Models Available

- 1551B Ionization Sensor
- 2551HR Photoelectronic Sensor
- 5551B Fixed Temperature Thermal Sensor
- 2551THR High Resolution Photo Sensor with Thermal
- 5551R Rate-of-Rise/Fixed Temperature Thermal Sensor

## Features

- Low standby current
- Shielded electronics
- Noise immunity provides stable communications
- Compact, stylish design
- Sensor plugs easily into base

- Built-in tamper-resist feature
- Sealed against dirt, insects, and back pressure
- SEMS screws for easy wiring
- Easy to use decade address switches
- Built-in type ID

System Sensor Intelligent Sensors offer features and performance that surpass conventional sensors. The sensitivity of models 1551B, 2551HR, and 2551THR can be “set” individually in the panel software. The sensors may be continuously monitored for changes in sensitivity and

compensate for dirt, temperature, or humidity to maintain the set sensitivity. Model 5551R offers a rate-of-rise temperature response while the 5551B offers a fixed temperature response.

## Specifications – 2551HR, 2551THR

### Dimensions

Height: 3.2" (8.1 cm), detector in base  
(add .5" [1.27 cm] for thermal)

Diameter: 4.0" (10.2 cm) installed in  
B501 base  
6.1" (15.5 cm) installed in  
B501B base

Shipping Weight: 9.6 ounces (272 g)

### Temperature Range

2551HR: 32° to 120° F (0° to 49° C)

2551THR: 32° to 100° F (0° to 38° C)

Humidity Range: 10% to 93% RH noncondensing

Air Velocity Rating: 3,000 fpm

Operating Voltage: 15–32 VDC peak, 6.5 mA  
current for visible LEDs  
latched on

Standby Current: 230 µA

Sensor (2551HR):

Photoelectronic  
(scattering principle)

Thermal Sensor  
(2551THR):

135° F fixed temperature alarm

Smoke Detector Spacing:

On smooth ceilings (as defined in NFPA 72) spacing of  
30 feet (900 sq. ft.) may be used as a guide. See NFPA  
72 for more details on spacing requirements.



## General Description

All 500 Series sensors are simple to install, service, and maintain. Using a specially designed tool (XR5), maintenance personnel can easily remove and replace the plug-in detectors without using a ladder. 500 Series sensors incorporate built-in identification allowing the

system to identify the type of sensor. They also have a built-in magnetic reed switch for local testing, and the 1551B, 2551HR, and 2551THR can be sensitivity tested with the MOD400R Field Sensitivity Test Tool.

## 2551HR/2551THR

The 2551HR Intelligent Photoelectronic Sensor represents the state of the art in smoke sensor technology. It features fully coated circuit boards, special insect and dirt protection and superior RF/transient protection. The sensor will transmit an analog value representative of the sensitivity that can be used by the system to determine when maintenance is required. Signal processing for alarm verification can be built into the system to provide immunity to false alarms.

The 2551THR Intelligent Photoelectronic Sensor adds a thermal heat collector that will alarm at a fixed temperature of 135°F.



2551THR with 4" base

## 1551B

The 1551B Intelligent Ionization Smoke Sensor's unique unipolar chamber responds quickly and uniformly to the broadest range of fires and can withstand wind gusts up to 1500 feet-per-minute without outputting an alarm level signal. Because of the unipolar chamber, the 1551B is more responsive than most ionization sensors. This makes it a more stable detector.



1551B with 6" base

## Specifications – 1551B

### Dimensions

Height: 2.3" (5.8 cm), detector in base

Diameter: 4.0" (10.2 cm)  
installed in B501 base  
6.1" (15.5 cm)  
installed in B501B base

Shipping Weight: 9.5 ounces (269 g)

Temperature Range: 32° to 120° F (0° to 49° C)

Humidity Range: 10% to 93% RH noncondensing

Air Velocity Rating: 1,500 fpm

Operating Voltage: 15–32 VDC peak, 6.5 mA  
current for visible LEDs  
latched on

Standby Current: 200  $\mu$ A  
Sensor: Unipolar, dual chamber

Smoke Detector Spacing:  
On smooth ceilings (as defined in NFPA 72) spacing of 30 feet (900 sq. ft.) may be used as a guide. See NFPA 72 for more details on spacing requirements.

# 5551B/5551R

The 5551B Intelligent Thermal Sensor's unique dual thermistor sensor will alarm at a fixed temperature of 135° F.

The 5551R Intelligent Thermal Sensor will alarm at 135° F and at an increase in excess of 15° per minute. This enables the heat detector to communicate an alarm to the central control panel prior to reaching the static set point, providing a timely response to rapid temperature increases.



5551R with 6" base

## Specifications – 5551B, 5551R

### Dimensions

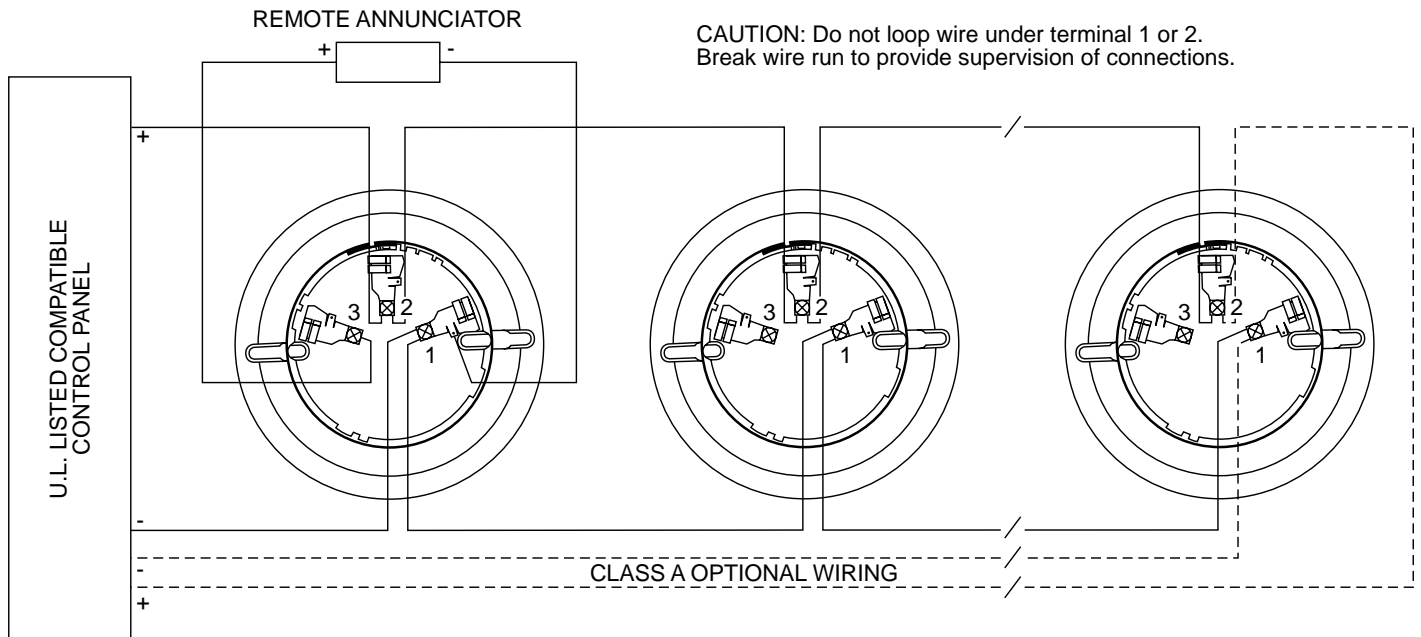
Height: 2.1" (5.3 cm) detector in base  
 Diameter: 4.0" (10.2 cm) installed in B501 base  
 6.1" (15.5 cm) installed in B501B base

Shipping Weight: 0.3 lbs. (150 g)  
 Temperature Range: 32° to 100° F (0° to 38° C)  
 Humidity Range: 10% to 93% RH noncondensing

### Sensitivity

5551B: 135° F fixed temperature alarm  
 5551R: 135° F fixed temperature or 15° rise per minute

Operating Voltage: 15–32 VDC peak, 6.5 mA current for visible LEDs latched on  
 Standby Current: 200  $\mu$ A  
 Sensor: Electronic, dual thermistors  
 Thermal Sensor Spacing: UL listed to 50 ft. spacing. Other spacing may be used depending on ceiling height and other conditions. See NFPA 72 for more details on spacing requirements.



500 Series Base Wiring Diagram

## 500 Series Junction Box Selection Guide\*

	Single Gang	3 1/2" Oct.	4" Oct.	4" Sq.	50 mm	60 mm	70 mm	75 mm
B501	Yes	No	No	No	Yes	Yes	Yes	No
B501B	Yes	Yes	Yes	Yes	No	No	No	No
B524RB	No	Yes	Yes	Yes	No	Yes	Yes	Yes
B524BI	No	Yes	Yes	Yes	No	No	Yes	Yes
B501BH	No	No	No	Yes	No	No	No	No

\* Box depth contingent on base and wire size. Refer to National Electrical Code or applicable local codes for appropriate recommendations.

## Ordering Information

Part No.	UL	Description	Accessories	
1551B	1551AB	Intelligent Ionization Sensor, Plug-in Head	MOD400R	Field Sensitivity Test Tool
2551HR	2551AHR	Intelligent Photoelectronic Sensor, Plug-in Head	SMB600	Surface Mounting Kit for Flanged Base (B501B)
2551THR	2551TAHR	Intelligent High Resolution Photoelectronic Sensor with Thermal, Plug-in Head	SMK400	Surface Mounting Kit for Flangeless Base (B501)
5551B	5551AB	Intelligent Thermal Sensor, Fixed Temperature (135°F), Plug-in Head	RMK400	Recessed Mounting Kit for Flangeless Base (B501)
5551R	5551RA	Intelligent 135°F Fixed Temperature/Rate-of-Rise Thermal Sensor, Plug-in Head	SMB500	Surface Mount Box for 500 Series Modules
B501B	B501B	Flanged Mounting Base, 6.1" (15.5 cm)	XR5	Detector Head Removal Tool
B501	B501	Flangeless Mounting Base, 4" (10.2 cm)	XP-4	Extension Poles for XR5 Detector Removal Tool
B524RB	B524RBA	Intelligent Relay Base, Flanged	RS14	Replacement Screen for 1551B
B524BI	B524BIA	Intelligent Isolator Base, Flanged	RS24	Replacement Screen for 2551HR
B501BH	B501BHA	Sounder Base (includes B501 Base)	RS24T	Replacement Screen for 2551THR
M500MB	M500MAB	Monitor Module, Interfaces with Mechanical Contact Devices	CRT400	Cover Removal Tool for 1551B
M500CH	M500CHA	Control Module, Controls Devices Requiring External Power	DUST45	Replacement Dust Cover for 500 Series Smoke Sensors
M500X	M500X	Isolator Module, Isolates Groups of Devices Between Two Isolator Modules in the Event of a Short Circuit Across Communication Line		
M501M	M501MA	Mini-Monitor Module		
DH500	DH500A	Intelligent Duct Housing		
DH500ACDC	DH500ACDCA	Intelligent Duct Housing with Auxiliary Contacts		
RA400Z	RA400ZA	Remote Annunciator		

## System Sensor Worldwide Manufacturing & Distribution

### In Canada:

Telephone: 905-812-0767  
Fax: 905-812-0771

### In the Far East:

Telephone: 852-2191-9003  
Fax: 852-2736-6580

### In Italy:

Telephone: 39-40-9490-111  
Fax: 39-40-382137

### In China:

Telephone: 852-2191-9003  
Fax: 852-2736-6580

### In India:

Telefax: 91-022-8202564

### In the United Kingdom:

Telephone: 44-1403-276500  
Fax: 44-1403-276501