500 Series™
Intelligent Sensors with Integral Communications

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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>2551HR</th>
<th>2551THR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height:</td>
<td>3.2” (8.1 cm), detector in base (add .5” [1.27 cm] for thermal)</td>
<td>4.0” (10.2 cm) installed in B501 base</td>
</tr>
<tr>
<td>Diameter:</td>
<td>6.1” (15.5 cm) installed in B501B base</td>
<td></td>
</tr>
<tr>
<td>Shipping Weight:</td>
<td>9.6 ounces (272 g)</td>
<td></td>
</tr>
<tr>
<td>Temperature Range:</td>
<td>32° to 120° F (0° to 49°C)</td>
<td>32° to 100° F (0° to 38°C)</td>
</tr>
<tr>
<td>Humidity Range:</td>
<td>10% to 93% RH noncondensing</td>
<td></td>
</tr>
<tr>
<td>Air Velocity Rating:</td>
<td>3,000 fpm</td>
<td></td>
</tr>
<tr>
<td>Operating Voltage:</td>
<td>15–32 VDC peak, 6.5 mA current for visible LEDs latched on</td>
<td></td>
</tr>
<tr>
<td>Standby Current:</td>
<td>230 µA</td>
<td></td>
</tr>
</tbody>
</table>

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.

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.

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 µA
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.

Specifications – 5551B, 5551R

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

Shipping Weight: 0.3 lbs. (150 g)

Temperature Range: 32°F to 100°F (0°C to 38°C)

Humidity Range: 10% to 93% RH noncondensing

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

Operating Voltage: 15–32 VDC peak, 6.5 mA current for visible LEDs latched on
Standby Current: 200 µA

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.

REMOTE ANNUNCIATOR

CAUTION: Do not loop wire under terminal 1 or 2. Break wire run to provide supervision of connections.

UL LISTED COMPATIBLE CONTROL PANEL

CLASS A OPTIONAL WIRING

500 Series Base Wiring Diagram
## 500 Series Junction Box Selection Guide*

<table>
<thead>
<tr>
<th>Single Gang</th>
<th>3¼&quot; Oct. Yes</th>
<th>4&quot; Oct. Yes</th>
<th>4&quot; Square Yes</th>
<th>50 mm Yes</th>
<th>60 mm No</th>
<th>70 mm No</th>
<th>75 mm No</th>
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<tbody>
<tr>
<td>B501</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>B501B</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>B524RB</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>B524BI</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>B501BH</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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

## Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL 1551B</td>
<td>Intelligent Ionization Sensor, Plug-in Head</td>
<td>MOD400R</td>
</tr>
<tr>
<td>ULC 1551AB</td>
<td>Intelligent Photoelectronic Sensor, Plug-in Head</td>
<td>SMB600</td>
</tr>
<tr>
<td>2551HR</td>
<td>Intelligent High Resolution Photoelectronic Sensor with Thermal, Plug-in Head</td>
<td>SMK400</td>
</tr>
<tr>
<td>2551THR</td>
<td>Intelligent Thermal Sensor, Fixed Temperature (135°F), Plug-in Head</td>
<td>RMK400</td>
</tr>
<tr>
<td>5551B</td>
<td>Intelligent 135°F Fixed Temperature/Rate-of-Rise Thermal Sensor, Plug-in Head</td>
<td>SM5B50</td>
</tr>
<tr>
<td>5551R</td>
<td>Intelligent Flanged Mounting Base, 6.1″ (15.5 cm)</td>
<td>XR5</td>
</tr>
<tr>
<td>B501B</td>
<td>Flangeless Mounting Base, 4&quot; (10.2 cm)</td>
<td>XP-4</td>
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<tr>
<td>B501</td>
<td>Sounder Base (includes B501 Base)</td>
<td>RS14</td>
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<tr>
<td>B524RB</td>
<td>Intelligent Relay Base, Flanged</td>
<td>RS24</td>
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<tr>
<td>B524BI</td>
<td>Intelligent Isolator Base, Flanged</td>
<td>RS24T</td>
</tr>
<tr>
<td>B501BH</td>
<td>Monitor Module, Interfaces with Mechanical Contact Devices</td>
<td>CRT400</td>
</tr>
<tr>
<td>M500MB</td>
<td>Mini-Monitor Module</td>
<td>DUST45</td>
</tr>
<tr>
<td>M500CH</td>
<td>Control Module, Controls Devices Requiring External Power</td>
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</tr>
<tr>
<td>M500X</td>
<td>Isolator Module, Isolates Groups of Devices Between Two Isolator Modules in the Event of a Short Circuit Across Communication Line</td>
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<tr>
<td>M501M</td>
<td>Mini-Monitor Module</td>
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<tr>
<td>DH500</td>
<td>Intelligent Duct Housing</td>
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<tr>
<td>DH500ACDC</td>
<td>Intelligent Duct Housing with Auxiliary Contacts</td>
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<tr>
<td>RA400Z</td>
<td>Remote Annunciator</td>
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</tbody>
</table>

## System Sensor Worldwide Manufacturing & Distribution

**In Canada:**
- Telephone: 905-812-0767
- Fax: 905-812-0771

**In China:**
- Telephone: 852-2191-9003
- Fax: 852-2736-6580

**In India:**
- Telefax: 91-022-8202564

**In the Far East:**
- Telephone: 852-2191-9003
- Fax: 852-2736-6580

**In Italy:**
- Telephone: 39-40-9490-111
- Fax: 39-40-382137

**In the United Kingdom:**
- Telephone: 44-1403-276500
- Fax: 44-1403-276501