**TrueAlarm® analog sensing provides digital transmission of analog sensor values via MAPNET II® or IDNet™, two-wire communications.**

**Fire alarm control panel provides:**
- Individual sensitivity selection for each sensor
- Sensitivity monitoring that satisfies NFPA 72 sensitivity testing requirements
- Peak value logging allowing accurate analysis for sensitivity selection
- Automatic, once per minute individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation
- Display of sensitivity directly in percent per foot
- Multi-stage alarm operation
- Ability to display and print detailed sensor information in plain English language

**Photoelectric smoke sensors:**
- Seven levels of sensitivity from 0.2% to 3.7%

**Heat sensors:**
- Fixed temperature sensing
- Rate-of-rise temperature sensing
- Utility temperature sensing

**Ionization smoke sensors:**
- Three levels of sensitivity; 0.5%, 0.9% and 1.3%

**For use with Simplex:**
- 4010, 4020, 4100, and 4120 series control panels
- Universal Transponders and 2120 TrueAlarm CDTs equipped for MAPNET II operation

**Magnetic test feature**

**Functional and architecturally styled chamber enclosure:**
- Louvered design enhances smoke capture by directing flow to chamber
- Entrance areas are minimally visible when ceiling mounted

**Optional remote LED alarm indicator and base mounted relay**

**SSL Listed, UL, ULC Listed*, FM Approved**

**NYC, MEA Approved**

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**Digital Communication of Analog Sensing.**

TrueAlarm analog sensors provide an analog measurement that is digitally communicated to the host control panel using Simplex addressable communications. At the control panel, the data is analyzed and an average value is determined and stored. An alarm or other abnormal condition is determined by comparing the sensor’s present value against its average value and time.

**Intelligent Data Evaluation.**

Monitoring each sensor’s average value provides a continuously shifting reference point. This software filtering process compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. With this filtering, there is a significant reduction in the probability of false or nuisance alarms caused by shifts in sensitivity, either up or down.

**Control Panel Selection.**

Peak activity per sensor is stored to assist in evaluating specific locations. The alarm set point for each TrueAlarm sensor is determined at the host control panel, selectable as more or less sensitive as the individual application requires.

**Timed/Multi-Stage Selection.**

Sensor alarm set points can be programmed for timed automatic sensitivity selection (such as more sensitive at night, less sensitive during day). Control panel programming can also provide multi-stage operation per sensor. For example, a 0.2% level may cause a warning to prompt investigation while a 2.5% level may initiate an alarm.

**Sensor Alarm and Trouble LED Indication.**

The control panel determines when individual sensors need cleaning. Dirty sensors, or other sensor trouble, will automatically be annunciated at the control panel and that sensor’s base LED will light steadily. In an alarm condition, the alarmed sensor’s LED will light steadily. (LED operation is controlled by the panel. During a system alarm, a sensor LED that was on to indicate a trouble may return to pulsing to conserve communications power.)
**TrueAlarm Sensor Bases and Accessories**

**Sensor Base Features**

Base mounted address selection:
- Address remains with its programmed location
- Accessible from front (dipswitch under sensor)

Automatic identification provides default sensitivity when substituting sensor types

Integral red LED for power-on (pulsing), or alarm or trouble (steady on)

Locking anti-tamper design

Magnetically operated functional test

Mounts on standard outlet box

**Sensor Bases**

4098-9792, Standard sensor base

4098-9789, Sensor base with wired connections for:
- 2098-9808 Remote LED alarm indicator or 4098-9822 relay (unsupervised)

4098-9791, Sensor base with supervised relay driver output (not compatible with 2120 CDT):
- Relay operation is programmable and manually available at control panel
- Use with remote mount 2098-9737 relay
- Includes wired connections for remote LED alarm indicator or 4098-9822 relay

**Sensor Base Options**

2098-9737, Remote or local mount supervised relay, DPDT contacts:
- **Power limited rating**: 3 A @ 28 VDC for transient suppressed loads (requires external 24 VDC)
- **UL listed non-power limited rating**: 3 A @ 120 VAC, for transient suppressed loads

4098-9822, LED Annunciation Relay:
- Activates when base LED is on steady, indicating local alarm or trouble
- DPDT contacts, rated 2 A @ 28 VDC for transient suppressed loads (requires external 24 VDC)

4098-9832, Adapter plate:
- Required for surface or semi-flush mounting to 4” square electrical box and for surface mounting to 4” octagonal box
- Can be used for cosmetic retrofitting to existing 6 3/8” diameter base product

2098-9808, Remote red LED Alarm Indicator:
- Mounts on single gang box (shown in illustration to right)

**Description**

TrueAlarm sensor bases contain integral addressable electronics that constantly monitor the status of the detachable photoelectric, ionization, or heat sensors. Each sensor’s output is digitized and transmitted to the system fire alarm control panel every four seconds.

Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing them to be disabled), heat sensors may be installed without reprogramming the control panel. Although the control panel will indicate an incorrect sensor type, the heat sensor will operate at a default sensitivity providing heat detection for building protection at that location.

**Mounting Reference**

**Mounting Reference**

- **Electrical box without relay**: 4” octagonal, 1 1/2” deep; 4” square, 1 1/2” deep (requires 4098-9832 Adapter Plate); or single gang, 2” deep
  (for further details, see chart on page 4)

**Note:** Mounting relay in sensor base electrical box requires a 4” octagonal box, 2 1/8” deep with 1 1/2” extension ring minimum, or equal. Review total wire count, wire size, and accessories being wired to determine required box volume.
TrueAlarm Sensors

Features

Sealed against rear air flow entry
Interchangeable mounting
EMI/RFI shielded electronics

Heat sensors:
- Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
- SSL Listed to AS1603.1 – afp1202 / afp1203

Smoke Sensors:
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- SSL listed to AS1603.2 -1997
  - 4098-9714 Photo Sensor – afp1225
  - 4098-9717 Ion Sensor – afp-1246

4098-9733 Heat Sensor

TrueAlarm heat sensors are self-restoring and provide rate compensated, fixed temperature sensing, selectable with or without rate-of-rise temperature sensing. Due to its small thermal mass, the sensor accurately and quickly measures the local temperature for analysis at the fire alarm control panel.

Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature. However, an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

TrueAlarm heat sensors can be programmed as a utility device to monitor for temperature extremes in the range from 32° F to 155° F (0° C to 68° C). This feature can provide freeze warnings or alert to HVAC system problems. (Refer to specific panels for availability.)

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing. Seven levels of sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivity is selected and monitored at the fire alarm control panel.

The sensor head design provides 360° smoke entry for optimum response to smoke from any direction. A built-in screen keeps insects from entering the smoke chamber. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.

4098-9717 Ionization Sensor

TrueAlarm Ionization sensors use a single radioactive source with an outer sampling ionization chamber and an inner reference ionization chamber to provide stable operation under fluctuations in environmental conditions such as temperature and humidity. Smoke and invisible combustion gases can freely penetrate the outer chamber. With both chambers ionized by a small radioactive source [Am 241 (Americium)], a very small current flows in the circuit. The presence of particles of combustion will cause a change in the voltage ratio between chambers. This difference is measured by the electronics in the sensor base and digitally transmitted back to the control panel for processing.

Three levels of sensitivity are available for each ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.

Application Reference

Sensor locations should be determined only after careful consideration of the physical layout and contents of the area to be protected. Refer to NFPA 72, the National Fire Alarm Code. On smooth ceilings, smoke sensor spacing of 30 ft (9.1 m) may be used as a guide. For detailed application information, refer to 4098 Detectors, Sensors, and Bases Application Manual, part number 574-709.

WARNING: In most fires, hazardous levels of smoke and toxic gas can build up before a heat detection device would initiate an alarm. In cases where Life Safety is a factor, the use of smoke detection is highly recommended.
## TrueAlarm Analog Sensing Product Selection Chart

### TrueAlarm Sensor Bases

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Compatibility</th>
<th>Mounting Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>4098-9792</td>
<td>Standard Sensor Base, no options</td>
<td>Sensors 4098-9714, -9733, &amp; -9717</td>
<td>4” octagonal or 4” square box, 1 1/2” min. depth; or single gang box, 2” min. depth</td>
</tr>
</tbody>
</table>
| 4098-9789 | Sensor Base with connections for Remote LED Alarm Indicator or Unsupervised Relay | • Sensors 4098-9714, -9733, & -9717  
• 2098-9808 remote LED alarm indicator or 4098-9822 relay | 4” octagonal or 4” square box         |
| 4098-9791 | Sensor Base with connections for Supervised Remote Relay and connections for Remote Alarm Indicator or Unsupervised Relay | • Sensors 4098-9714, -9733, & -9717 
• 2098-9837 remote relay (supervised) 
• 2098-9808 remote alarm indicator or 4098-9822 relay (unsupervised) | Note: Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference. |

### TrueAlarm Sensors

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Compatibility</th>
<th>Mounting Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>4098-9714</td>
<td>Photoelectric Smoke Sensor</td>
<td>Bases 4098-9792, 4098-9789, and 4098-9791</td>
<td>Refer to base requirements</td>
</tr>
<tr>
<td>4098-9717</td>
<td>Ionization Smoke Sensor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4098-9733</td>
<td>Heat Sensor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TrueAlarm Sensor/Base Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Compatibility</th>
<th>Mounting Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>2098-9737</td>
<td>Supervised Relay, mounts remote or in base electrical box</td>
<td>For use with 4098-9791 base</td>
<td></td>
</tr>
<tr>
<td>2098-9808</td>
<td>Remote Red LED Alarm Indicator on single gang stainless steel plate</td>
<td>Bases 4098-9789 and 4098-9791</td>
<td>Single gang box, 1 1/2” minimum depth</td>
</tr>
<tr>
<td>4098-9822</td>
<td>Relay, tracks base LED status (unsupervised, mounts only in base electrical box)</td>
<td></td>
<td>4” octagonal box, 2 1/8” deep with 1 1/2” extension ring</td>
</tr>
<tr>
<td>4098-9832</td>
<td>Adapter Plate</td>
<td>Bases 4098-9792, -9789, &amp; -9791</td>
<td>• Required for surface or semi-flush mounting to 4” square box</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Required for surface mounting to 4” octagonal box</td>
</tr>
</tbody>
</table>

Refer to Simplex publication 574-709, 4098 Detectors, Sensors, and Bases Application Manual, for additional application information.

## Specifications

### General Operating Specifications

- Communications and Sensor Supervisory Power: MAPNET II or IDNet, auto-select, 24-40 VDC w/data, 400 µA typical, 1 address per base
- Communications Connections: Screw terminals for in/out wiring, #18 to #14 AWG
- Remote LED Alarm Indicator Current: 1 mA typical, no impact to alarm current
- Remote LED Alarm Indicator and Relay Connections: Color coded wire leads, #18 AWG
- SSL Listing No.: afp-1202/1203 – Heat, afp-1225 – Photo, afp-1246 - Ion
- Operating Temperature Range, Each Base: with 4098-9717 or 4098-9733 32° F to 122° F (0° C to 50° C) 
  with 4098-9714 15° F to 122° F (-9° C to 50° C)
- Humidity Range: 10 to 95% RH
- Air Velocity Range: 0-2000 ft/min (0-610 m/min)
- Housing Color: Frost White
- 4098-9791 Base With Supervised Remote Relay 2098-9737: Externally Supplied Relay Voltage 18-32 VDC (nominal 24 VDC)
  Supervisory Current 270 µA, from 24 VDC supply
  Alarm Current with 2098-9737 Relay 28 mA, from 24 VDC supply
- 4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789 and 4098-9791: Externally Supplied Relay Voltage 18-32 VDC (nominal 24 VDC)
  Supervisory Current Supplied from communications
  Alarm Current 13 mA from separate 24 VDC supply

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