S.Simplex

True*Alarm*® Analog Sensing

Sounder Base 4098-9794 for use with
TrueAlarm Photoelectric, Ionization, and Heat Sensors

Features

Modular TrueAlarm sensor base with built-in electronic alarm sounder:

- Piezoelectric sounder provides high output (90 dBA) with low current requirements (17 mA)
- For use with interchangeable TrueAlarm sensors; photoelectric, heat, or ionization
- Sounder can be powered from 24 VDC or from a compatible Notification Appliance Circuit (NAC)
- Sounder can be synchronized coded/temporal coded by communications* or by the NAC
- Sounder can be manually activated from the control panel
- Built-in magnetic test feature

TrueAlarm analog sensing operation:

- Analog sensor information is digitally communicated to the control panel via MAPNET II® or IDNet™, two-wire communications**
- Sensor information is processed by the control panel to determine sensor status

For use with Simplex control panels model 4010, 4020, 4100, 4120, and Universal Transponders

Functional and architecturally styled enclosure for ceiling or wall mounting:

- Sound louvers exit both front and side for high output sound
- Smoke sensor louver design directs air flow to chamber, enhancing smoke capture

Optional accessories:

- Remote alarm LED indicator on single gang plate
- Alarm LED tracking relay

SSL listing status:

- Sensor and sounder operation is listed to AS1603.1 & AS1603.2
- Sounder SPL operation is also listed as meeting the requirements of clause 3.5 of AS3786.

* Total quantity of sounder bases available for coding on the same communications channel may vary with panel application and availability of NAC power. Refer to specific control panel requirements.

** TrueAlarm analog sensors and MAPNET and IDNet communications are protected by one or more of the following U.S. Patents: 5,155,468; 5,173,683; 5,543,777; 5,400,014; 5,552,765; 5,552,763; 4,796,025; DES. 377,460.
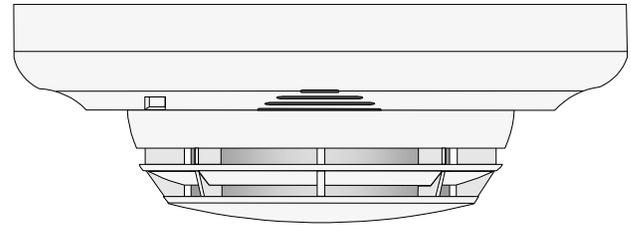
TrueAlarm Photoelectric Sensor Mounted in
Sounder Base 4098-9794

TrueAlarm Analog Sensing Description

Sounder bases combine an audible notification appliance and a TrueAlarm analog sensor to provide:

Digital Communication of Analog Sensing.
Sensors provide an analog measurement that is digitally communicated to the control panel where it 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.

Intelligent Data Evaluation. Monitoring each sensor's average value provides a software filtering averaging process that compensates for environmental factors (dust, dirt, etc.) and component aging, providing an accurate reference for evaluating new activity. The result 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 control panel, selectable as more or less sensitive as the individual application requires.

Timed/Multi-Stage Selection. 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 steady on to indicate a trouble may return to pulsing to conserve communications power.)

Additional Sounder Base Features

Base mounted address selection allows the address to remain with its programmed location when the sensor is removed for service or type change. Access is from the front under the removable sensor.

Automatic sensor type identification provides default sensitivity when substituting sensor types. 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.

Integral red LED indicates power-on by pulsing, or alarm or trouble when steady on. The exact status is annunciated at the fire alarm control panel.

Fire alarm control panel operation features include:

- 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

Accessories

4098-9822, LED Annunciation Relay activates when base LED is on steady, indicating a local alarm or trouble. Contacts are DPDT, rated 2 A @ 30 VDC; 1/2 A @ 120 VAC for transient suppressed loads (requires external 24 VDC coil power).

2098-9808, Remote red LED Alarm Indicator mounts on a single gang box to provide status indications where the sensor location may not be readily visible.
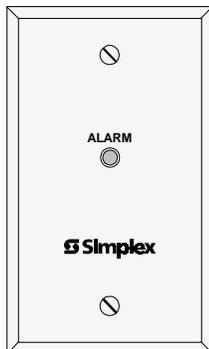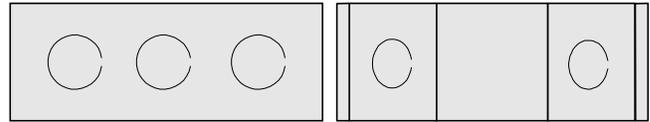

2098-9808 Remote LED Alarm Indicator

Mounting Reference

Electrical box reference for 4098-9794 Sounder base (boxes are by others) see notes below.
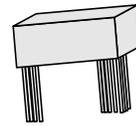
Without 4098-9822 relay:

Surface or semi-flush mount: 4" (102 mm) square, 1 1/2" min. (38 mm) deep

Semi-flush mount only: 4" octagonal, 1 1/2" min. deep

Note: Single gang adapter plate (RACO No. 787 or equal) is **required** when using 4" square box (by others)
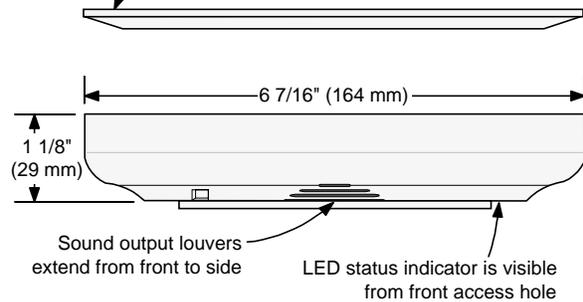
Optional 4098-9822 Relay (Mounts in base electrical box)

Relay Size: 2 1/2" X 1 1/2" X 1" (3.75 cubic inches) (64 mm X 38 mm X 25.4 mm)

Mounting relay in electrical box requires additional volume, refer to notes below.

4098-9832 Adapter Plate, required for mounting to surface mounted octagonal box

6 7/16" (164 mm)

1 1/8" (29 mm)

Sound output louvers extend from front to side

LED status indicator is visible from front access hole

(Photoelectric sensor shown for reference)

Notes:

1. Review actual wire size, wire count, box type, and whether 4098-9822 relay is used before determining box size.
2. Semi-flush mounting also fits single gang handy box, 2 1/8" (51 mm) deep if wiring allows.
3. For surface mounted boxes, use 4" square box with single gang adapter plate (RACO No. 787 or equal, by others) or 4" octagonal box with 4098-9832 Adapter Plate.
4. When 4098-9822 LED tracking relay is mounted in electrical box, use 4" square or octagonal box with 1 1/2" extension ring, size box depth according to box fill.

TrueAlarm Analog Sensor Features

Sealed against rear air flow entry

Electronics are EMI/RFI shielded

Heat sensors:

- Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation
- Listed to UL Standard 521 for 60 ft (18.3 m) spacing for 135° F (57.2° C) alarm, and 40 ft (12.2 m) spacing for 155° F (68° C) alarm

Smoke sensors:

- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

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.*)
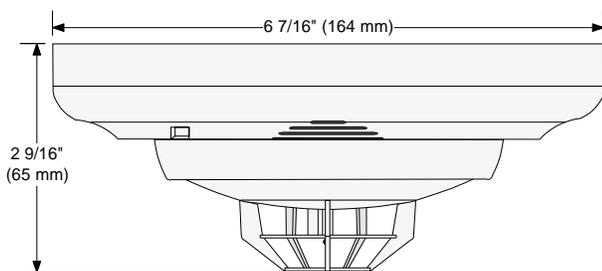

4098-9733 Heat Sensor with 4098-9794 Sounder Base

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.

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 smoke response. Due to its photoelectric operation, air velocity is not normally a factor, except for impact on area smoke flow.
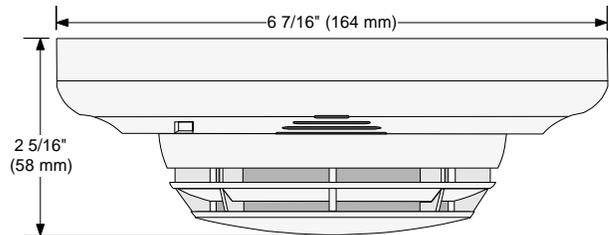

4098-9714 Photoelectric Sensor with Sounder Base

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 sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.
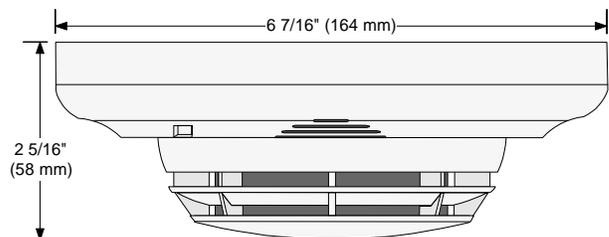
4098-9717 Ionization Sensor with Sounder Base

Application Reference

Sensor locations should be determined 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.

TrueAlarm Analog Sensing Product Selection Chart

TrueAlarm Sounder Base*

Model	Description	Compatibility	Mounting Requirements
4098-9794	Sounder Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	• Sensors 4098-9714, -9717, & -9733 • 2098-9808 remote LED alarm indicator **or** 4098-9822 relay	Refer to page 2, mounting reference

TrueAlarm Sensors (ordered separately)

Model	Description	Mounting Requirements
4098-9714	Photoelectric Smoke Sensor	
4098-9717	Ionization Smoke Sensor	Refer to page 2, mounting reference
4098-9733	Heat Sensor	

Sounder Base Accessories (ordered separately if required)

Model	Description		Mounting Requirements
4098-9832	Adapter Plate, **required** for surface mounted 4" octagonal box		Refer to page 2, mounting reference
2098-9808	Choose **one** if required	Remote red LED Alarm Indicator on single gang stainless steel plate	Single gang box, 1 1/2" minimum depth
4098-9822		Relay, tracks base LED status (unsupervised, to be mounted only in base electrical box)	Mounts in base electrical box (requires 1 1/2" extension on 4" square or octagonal box)

* Refer to Simplex data sheet S4098-0019 for other compatible bases. Refer to Installation Instructions 574-707 for additional 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, supplied by control panel
Communications and Sounder Power Connections		Screw terminals for in/out wiring, #18 to #14 AWG
Remote LED Alarm Indicator	Current	1 mA typical supplied from communications, no impact to alarm current
	LED Connections	Color coded wire leads, #18 AWG
Listed Temperature Range		UL - 0° C to 38° C SSL - 0° C to 50° C
Operating Temperature Range	With 4098-9717 or 4098 -9733	0° C to 50° C
	With 4098-9714	15° F to 122° F (-9° C to 50° C)
Humidity Range		10 to 95% RH
Smoke Sensor Air Velocity Range	4098-9714, Photoelectric Sensor	0-2000 ft/min (0-610 m/min)
	4098-9717, Ionization Sensor	0-200 ft/min (0-61 m/min)
Housing Color		Frost White

Sounder Operation

Sounder Voltage		18 to 32 VDC from steady external source or from NAC
Alarm Current (Sounder On)		17 mA @ 24 VDC, 20 mA maximum @ 32 VDC
Sounder Output		90 dBA minimum @ 3 m per Clause 3.5 of AS3786-1993 and 88dBA @ 10 feet as per UL Standard 268, *Smoke Detectors for Fire Protective Signaling Systems*
Sounder Power Supervision (Selectable)	Supervised	Select for continuous 24 VDC power, loss of power is communicated to panel
	Unsupervised	Select when connected to NAC for sounder power, NAC provides supervision
NAC Powered Operation		When in alarm, will sound when NAC is in alarm, allowing synchronized coding (Temporal or March Time, etc.) controlled by the NAC

SSL Listing Approvals

4098-9733 Heat Sensor with 4098-9794 Sounders Base	AS1603.1 -1997, Type A -afp-1202 , Type B –afp1203
4098-9714 Photo Sensor with 4098-9794 Sounder Base	AS1603.2 –1997 – afp1225
4098-9717 Ion Sensor with 4098-9794 Sounder Base	AS1603.2 –1997 – afp1246