

#### Features

##### E-Series heat sensors provide analog thermal information to the sensor base and feature:

- Epoxy encapsulated electronic thermal sensor design with gold plated contacts, high humidity thermistor, and stainless steel screws
- A fast response thermistor that is inherently rate compensated
- Operation for ceiling or wall mounting

##### E-Series sensor bases features:

- Digital transmission of analog sensor values via IDNet or MAPNET II, two-wire communications
- Base mounted address remains with its location
- Integral red LED for power-on (pulsing), or alarm or trouble (steady on)
- Locking anti-tamper design mounts on standard box
- Designed for EMI compatibility
- Magnetically operated functional test

##### Base options and accessories include:

- Control of supervised or unsupervised remote relay
- Remote LED alarm indicator output
- Relays and LED alarm indicators
- Communications isolator base or sounder base

##### Fire alarm control panel provides:

- Fixed temperature sensing, rate-of-rise temperature sensing, or both
- Utility temperature sensing
- Automatic, once per minute individual sensor calibration check that verifies sensor integrity
- Ability to display and print detailed sensor information in plain English language

##### For use with the following Simplex® products:

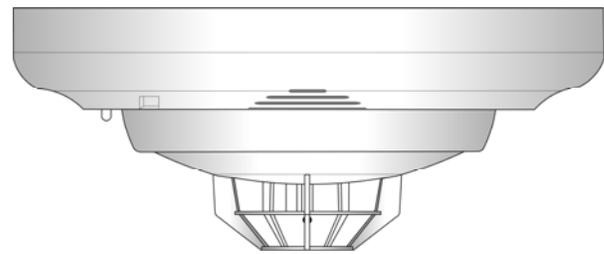
- 4007ES, 4010, 4010ES, and 4100ES Series control panels; and 4008 Series control panels with reduced feature set (refer to data sheet S4008-0001 for details) for IDNet operation
- 4020, 4100, and 4120 Series control panels, Universal Transponders, and 2120 TrueAlarm CDTs equipped for MAPNET II operation

##### UL listed to Standard 521 for:

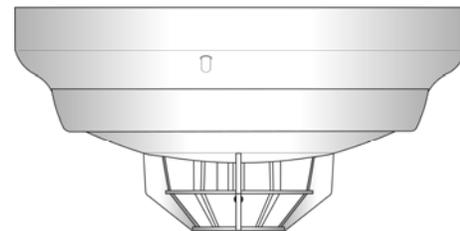
- 60 ft x 60 ft (18.3 m) spacing for 135° F (57.2° C) alarm
- 40 ft x 40 ft (12.2 m) spacing for 155° F (68° C) alarm
- Sounder operation is also listed to UL Standard 464 as an audible notification appliance

**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.

\* This product was not ULC listed or approved by CSFM or MEA (NYC) or as of document revision date. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.



4098-9733E Heat Sensor Mounted in Sounder Base



4098-9733E Heat Sensor Mounted in Standard Size Base

#### Description

**4098-9733 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's thermistor accurately and quickly measures the local temperature for analysis at the fire alarm control panel.

**Temperature Selection.** 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.

**Utility Device Temperature Monitoring** can be programmed 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.)

**Digital Communication of Analog Sensing.** Sensor bases contain integral addressable electronics that monitor analog information from the detachable heat sensors. Each sensor's information is digitized and transmitted to the system fire alarm control panel approximately every four seconds using Simplex addressable communications. The panel processes the information to evaluate for pre-selected alarm levels or other off-normal conditions.

**Sensor Alarm and Trouble LED Indication.** Each sensor base's LED pulses to indicate communications with the panel. If the control panel determines that a sensor is in alarm or has some other type of trouble, the details are annunciated at the control panel and that sensor base's LED will be turned on steadily. During a system alarm, the control panel will control the LEDs such that an LED indicating a trouble will return to pulsing to help identify the alarmed sensors.

## Application Reference

Heat 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 and Signaling Code*. For detailed application information, refer to *4098 Detectors, Sensors, and Bases Application Manual* (574-709).

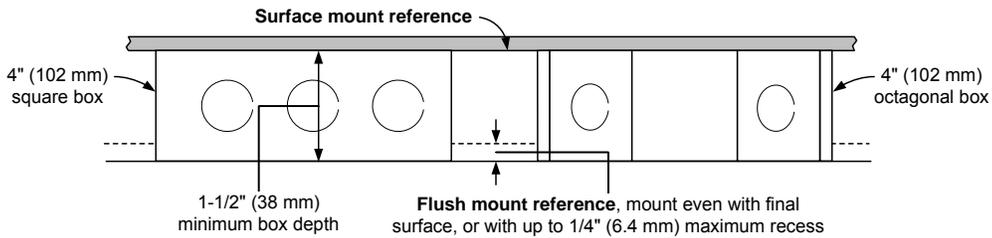
## Remote LED Alarm Indicator

For bases located out of easy viewing, the 2098-9808 remote red LED alarm indicator duplicates the base LED status indication. It is mounted on a single-gang stainless steel plate for mounting on a standard electrical box. (See illustration to the right.)

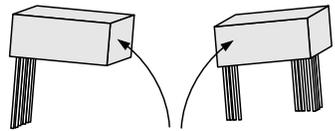


## Mounting Reference

Electrical boxes are supplied by others, refer to notes below for additional information

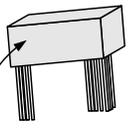


**2098-9737 Supervised Relay** (mounts in base electrical box or remotely)

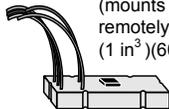


Relay Size: 2-1/2" X 1-1/2" X 1" (3.75 cubic inches) (64 mm X 38 mm X 25.4 mm)

**4098-9822 Relay** (mounts in base electrical box)

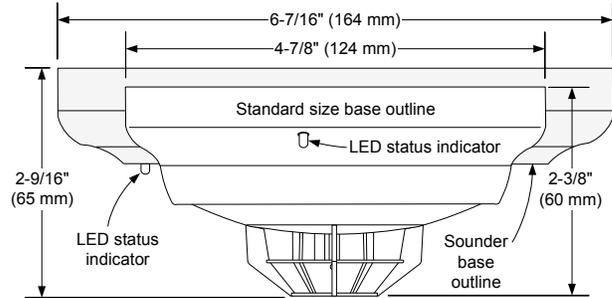


**4098-9860 Supervised Relay** (mounts in base electrical box or remotely; 2-3/8" X 1-1/4" X 11/32" (1 in<sup>3</sup>)) (60.4 mm X 31.8 mm X 8.6 mm)



## Sensor and Base Mechanical Reference

The 4098-9733E is sealed against rear air flow entry and the electronics are EMI/RFI shielded. Dimensions are shown in the illustrations below.

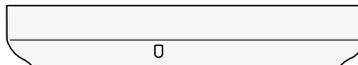


### 4098-9733E Standard Size Base Mounting

**4098-9832 Adapter Plate**, required for mounting to surface mounted boxes and 4" square flush box



Bases 4098-9789E, 4098-9791E, 4098-9792E, 4098-9793E, and 4098-9780E



### 4098-9794E Sounder Base Mounting

For 4098-9794E only, when using 4" square box flush mount, a single gang adapter plate (RACO No. 787 or equal, by others) is required

**4098-9832 Adapter Plate**, required for mounting to surface mounted boxes (mounts inverted)



4098-9794E Sounder Base

4098-9733E Heat Sensor

## NOTES:

1. Review wire size, wire count, box type, and whether a locally mounted relay is used before determining box size.
2. When a locally mounted relay is used, mount relay in electrical box and use 1-1/2" extension ring (by others) on 4" square or octagonal box of 1-1/2" or 2-1/8" depth as required.
3. Flush mounting also fits a single gang box, 2-1/8" (51 mm) deep if compatible with wiring requirements. (Not applicable if a locally mounted relay is used.)

## E-Series Heat Sensor Product Selection Chart

### Heat Sensors

Model	Description
4098-9733E	Heat Sensor

### Sensor Bases

Model	Description	Compatibility	Mounting Requirements
4098-9792E	<b>Standard Sensor Base</b>	No options available	4" octagonal or 4" square box, 1 1/2" minimum depth; or single gang box, 2" minimum depth
4098-9793E	<b>Isolator Base</b> ; for use with IDNet communications only; input is automatically separated from output when a communications short circuit occurs	No options available; for use only with Simplex models 4007ES, 4008, 4010, 4010ES, 4100ES, and 4100U fire alarm control panels	
4098-9789E	<b>Sensor Base with wire connections</b> for Remote LED Alarm Indicator <b>or</b> Unsupervised Relay	2098-9808 Remote LED Alarm Indicator <b>or</b> 4098-9822 Relay	4" octagonal or 4" square box <b>Note:</b> Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference.
4098-9791E	<b>4-Wire Sensor Relay Base</b> with connections for Supervised Remote Relay <b>and</b> connections for Remote Alarm Indicator <b>or</b> Unsupervised Relay; relay operation is programmable and can be manually operated from control panel	2098-9737 Remote Relay (supervised)	
		2098-9808 Remote Alarm Indicator <b>or</b> 4098-9822 Relay (unsupervised) <b>Note:</b> Not compatible with 2120 CDT	
4098-9780E	<b>2-Wire Sensor Relay Base</b> with connections for Supervised Remote Relay <b>and</b> connections for Remote Alarm Indicator <b>or</b> Unsupervised Relay; relay operation is programmable and can be manually operated from control panel	4098-9860 Supervised Remote Relay	
		2098-9808 Remote Alarm Indicator <b>or</b> 4098-9822 Unsupervised Relay <b>Note:</b> Not compatible with 2120 CDT	
4098-9794E	<b>Sounder Base</b> with built-in piezoelectric sounder; sounder power can be from 24 VDC or from a compatible NAC; sounder operation can be independently activated from the host control panel; sounder output can be synchronized via communications or by the NAC, if NAC powered	2098-9808 Remote LED Alarm Indicator <b>or</b> 4098-9822 Relay <b>Note:</b> Not compatible with 2120 CDT	
		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	

### Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remotely or in base electrical box; same size as 4098-9822	For use with 4098-9791E base	<b>Remote Mounting</b> requires 4" octagonal or 4" square box, 1 1/2" minimum depth
4098-9860	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9780E base	<b>Base Mounting</b> requires 4" octagonal box, 2 1/8" deep with 1 1/2" extension ring
2098-9808	Remote Red LED Alarm Indicator on single gang stainless steel plate	For use with bases 4098-9789E and 4098-9791E	Single gang box, 1 1/2" minimum depth
4098-9822	Relay, tracks base LED status, activates when base LED is on steady indicating local alarm or trouble; unsupervised, mounts only in base electrical box		4" octagonal box, 2 1/8" deep with 1 1/2" extension ring
4098-9832	Adapter Plate; required for some mounting applications; 6 3/8" (162 mm) diameter, 1/4" (6.4 mm) deep	Compatible with each base; can also be used for cosmetic retrofitting to existing 6 3/8" diameter base product	<b>Required</b> for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

Refer to publication *4098 Detectors, Sensors, and Bases Application Manual (574-709)* for additional information.

## Specifications

### Spacing Distance Between Sensors

Fixed Temperature Setting	UL Spacing	FM Spacing, Either Fixed Temperature Setting
135° F (57.2° C)	60 ft x 60 ft (18.3 m)	20 ft x 20 ft (6.1 m) for fixed temperature only; <b>RTI = Quick</b>
155° F (68° C)	40 ft x 40 ft (12.2 m)	50 ft x 50 ft (15.2 m) for fixed temperature with either rate-of-rise selection; <b>RTI = Ultra Fast</b>

### General Operating Specifications

Communications and Sensor Supervisory Power	IDNet or MAPNET II communications, auto-selected, 1 address per base
Communications Connections	Screw terminals for in/out wiring, 18 to 14 AWG (0.82 mm <sup>2</sup> to 2.08 mm <sup>2</sup> )
Remote LED Alarm Indicator and Relay Connections	Color coded wire leads, 18 AWG
Remote LED Alarm Indicator Current	1 mA typical, no impact to alarm current
UL Listed Temperature Range	32° to 100° F (0° to 38° C)
Operating Temperature Range	32° to 122° F (0° to 50° C)
Storage Temperature Range	0° F to 140° F (-18° C to 60° C)
Humidity Range	10 to 95% RH
Housing Color	Frost White

### 4098-9791E Base With Supervised Remote Relay 2098-9737

Externally Supplied Relay Coil 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
Relay Contacts	DPDT contacts for resistive/suppressed loads; power limited rating of 3 A @ 28 VDC; non-power limited rating of 3 A @ 120 VAC, requires external 24 VDC coil power

### 4098-9780E Base With Supervised Remote Relay 4098-9860

Power	Supplied from communications
Relay Contacts	SPDT contacts for resistive/suppressed loads; power limited rating of 2 A @ 30 VDC, resistive; non-power limited rating of 0.5 A @ 120 VAC, resistive

### 4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789E, 4098-9791E, and 4098-9794E

Externally Supplied Relay Coil Voltage	18-32 VDC (nominal 24 VDC)
Supervisory Current	Supplied from communications
Alarm Current	13 mA from separate 24 VDC supply
Relay Contacts	DPDT contacts for resistive/suppressed loads; power limited rating of 2 A @ 28 VDC; non-power limited rating of 0.5 A @ 120 VAC

### 4098-9794E Sounder Base, Sounder Operation

Sounder Voltage	18 to 32 VDC from steady external source or from NAC	
Alarm Current (sounder on)	20 mA @ 24 VDC, 24 mA maximum @ 32 VDC	
Sounder Output	88 dBA minimum @ 10 ft (3 m) per UL Standard 464, <i>Audible Signaling Appliances</i> and UL Standard 268, <i>Smoke Detectors for Fire Protective Signaling Systems</i>	
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 sounder is activated by control panel, sounder output tracks connected NAC to allow synchronized coding (Temporal or March Time, etc.)	

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