Features

TrueAlarm addressable sensor base with 520 Hz sounder

- TrueAlarm sensor bases with 520 Hz tone require a TrueAlarm photoelectric, photo/heat or heat sensor, ordered separately
- TrueAlarm sensor bases with 520 Hz tone are multi-point devices, use a single IDNet address, and receive communications and sensor power from the IDNet channel. The sounder base requires separate 24 VDC system power or NAC connection
- IDNet circuit allows the sounder to be supervised and coded by compatible NACs, allowing synchronized temporal, march time, or other channel coding
- Sensor and sounder operation is listed to UL Standard 268, UL Standard 464, and ULC Standard S529
- Sounder operation is also listed to UL Standard 464 as an audible notification appliance

Sensor base with photoelectric or photo/heat sensor operation

- Independent sensor operation or selectable multi-sensor modes for false alarm reduction or faster detection
- Photoelectric, photo/heat, or heat sensors can be analyzed to reject non-fire conditions that can trigger false alarms, such as steam or dust

520 Hz Sounder base operation

- Low Frequency sound output: 520 Hz at 85 dBA
- The base can supervise the sounder drive circuit when an AUX 24 V power line is used for sounder power. Alternatively, you can disable base supervision if you need a supervised NAC to power the sounder for coded outputs.
- Sounder can be manually activated from the control unit.
- 520 Hz Sounder bases are listed for **Special Application** when used with a compatible NAC circuit.

Control unit operation summary

Analog sensor information is digitally transmitted to the host control unit via IDNet communicationsfor processing to evaluate and track status.

General features

- Ceiling mount operation
- Optional accessories include remote alarm LED and mounting adapter plate
- Designed for EMI compatibility
- Magnetic test feature

520 Hz 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.

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. Instead of covering the smoke sensors when conditions are temporarily dusty, heat sensors may be installed without reprogramming the control unit.

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 unit.
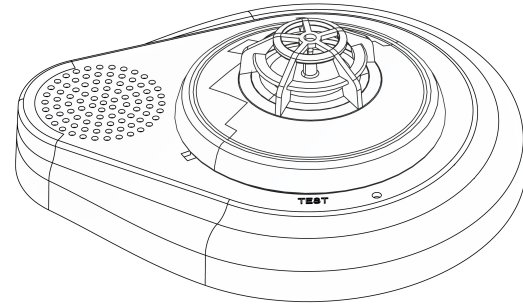

Figure 1: TrueAlarm sensor base with 520 Hz sounder 4098-9772 with heat sensor installed

Application reference

Determine sensor locations after careful consideration of the physical layout and contents of the area to be protected.

For fire alarm applications:

- Refer to NFPA 72, *the National Fire Alarm and Signaling Code*
- On smooth ceilings, use smoke sensor spacing of 30 ft or 9.1 m as a guide.

For detailed application information:

Refer to *4098 Detectors, Sensors, and Bases Application Manual,* Part Number 574-709.

Control unit operations

Smoke sensor features include: sensitivity monitoring satisfying NFPA 72 sensitivity testing requirements, automatic individual sensor calibration checking to verify sensor integrity, automatic environmental compensation, available multi-stage alarm operation, display of sensitivity directly in percent per foot, monitoring of peak activity per sensor, alarm set point, and time of day or multi-stage alarm selection.

Sensor Alarm and Trouble LED Indications

The sensor base LED pulses to indicate communications with the control unit. If a sensor is in alarm, or has a trouble condition, the status is annunciated at the control unit and that base LED will turn on steady. During a system alarm, the control unit will control LEDs such that a trouble indication will return to pulsing to help identify the sensors in alarm.

Multi-Point Allocation 4007ES, 4010ES, and 4100ES control units require only one point at the host unit for each sensor base. Depending on sensor base and sensor choice, up to seven points can be made public to a connected Simplex Fire Alarm Network. Each sensor base uses a single address with "sub-points" layered underneath (such as 1-1-0, 1-1-1, 1-1-2, ...1-1-6).

For 4100U control units, the requirement is three points at the host unit for each sensor base with the 4098-9754 multi-sensor, and two points for the other sensors. Additional multi-point allocation detail is described in reference data sheet *S4090-0011*.

Sensor base with 520 Hz power requirements Power for the sensor base is provided by IDNet communications. No additional wiring is required for upgrading of existing installed TrueAlarm sensor bases. Sensor sounder bases do require system supplied separate VDC or NAC wiring, the same as the standard sounder base.

Accessories

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.

TrueAlarm analog sensor features

Sealed against rear air flow entry Electronics are EMI/RFI shielded Heat sensing:
Selectable rate compensated, fixed temperature sensing with or without rate-of-rise operation.

Table 1: Rated spacing distance between sensors

| Fixed Temp. Setting	UL & ULC spacing	FM spacing, either Fixed Temperature Setting
135°F or 57.2°C	60 ft x 60 ft or 18.3 m	20 ft x 20 ft or 6.1 m for fixed temperature only; **RTI = Quick**
155°F or 68°C	40 ft x 40 ft or 12.2 m	50 ft x 50 ft or 15.2 m for fixed temperature with either rate-of-rise selection; **RTI = Ultra Fast**

Smoke Sensors:

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

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. Sensitivities of 0.2%, 0.5%, and 1% are for special applications in clean areas. Standard sensitivities are 1.5%, 2.0%, 2.5%, 3.0%, and 3.7%. Application type and sensitivity are selected and then monitored at the fire alarm control unit. For detailed application information about sensitivity selection, refer to Installation Instructions 574-709.

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.
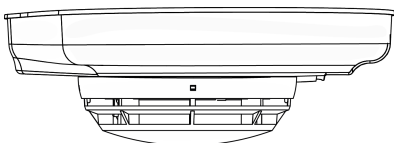

Figure 2: 4098-9714 Photoelectric Sensor on sensor base

4098-9754 Multi-Sensor

TrueAlarm multi-sensors combine the performance of TrueAlarm photoelectric smoke sensing with TrueAlarm thermal sensing to provide both features in a single assembly. Each sensing element provides data for evaluation at the fire alarm control unit where the following four independent detection modes are evaluated:

· Fixed temperature heat detection
· Rate-of-rise heat detection
· TrueAlarm photoelectric smoke detection
· And TrueSense correlation detection
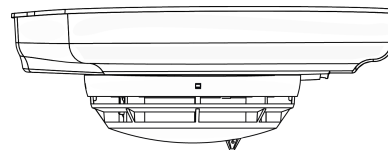
Figure 3: Multi-Sensor on sensor base

**TrueSense analysis correlates thermal activity and smoke activity** at a single multi-sensor location using an extensively tested covariance relationship. As a result, TrueSense detection improves response to conditions indicative of faster acting, hot flaming fires when compared to the response of either photoelectric smoke activity or thermal activity alone.

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 unit.

Rate-of-rise temperature detection is selectable at the control unit 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 or 0°C to 68°C. This feature can provide freeze warnings or alert to HVAC system problems.
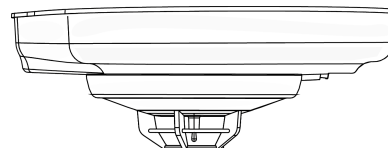
Figure 4: 4098-9733 Heat sensor on sensor base

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.

Install reference

4" (102 mm) Square Box
Surface mount reference

4" (102 mm) Octagonal Box

1-1/2" (38 mm) minimum box depth

Flush mount reference, mount even with final surface, or with up to 1/4" (6.4 mm) maximum recess

Note: adapter plate is required when using 4" square box

Adapter Plate

6-7/16" (164 mm)

1-1/4" (31 mm)

Sounder base assembly

LED status indicator

(Photoelectric sensor shown for reference)
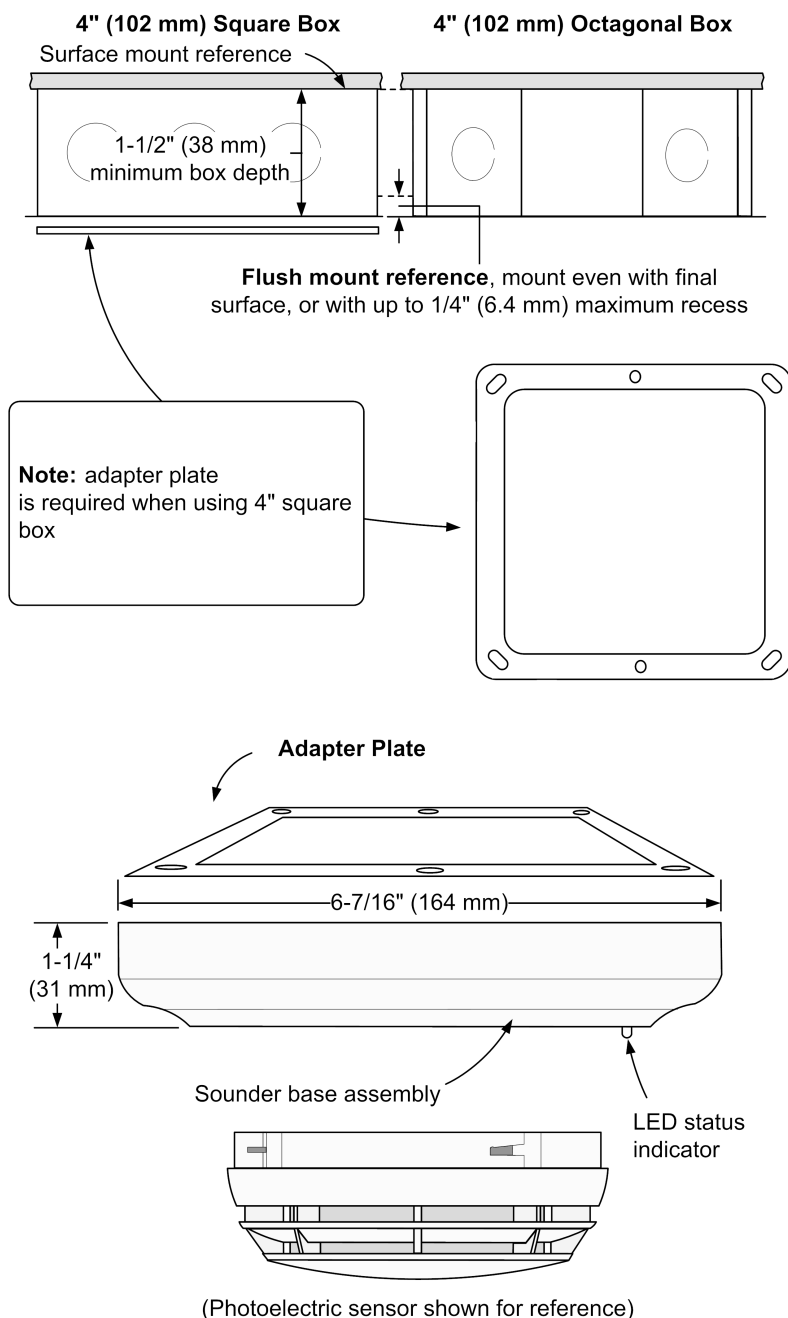
Figure 5: Install Reference

Note:

· Use the 4098-9863 adapter plate when using the 4 in. square box.
· The Sounder base 4098-9772 requires flush mounting.
· Review actual wire size, wire count and box type before determining box size.
· Mounting to flush mounted box also fits single gang handy box, 2 1/8 in. or 51 mm deep if wiring allows.
· You can mount the 4098-9772 Sounder base at 90 degrees rotation using a single gang box, consult your local Simplex contact for further information.
· Refer to Installation Instructions 574-707 for additional information.

Sensors and accessories product selection

Table 2: TrueAlarm sensor base

Model	Description
4098-9772	Sensor base with 520 Hz Sounder

Table 3: TrueAlarm Sensors (select one per Sensor Base with 520 Hz Sounder)

Model	Description	
4098-9714	Photoelectric Smoke Sensor	
4098-9754	Multi-Sensor Photoelectric and Heat Sensing	See Table 5 for available operation modes
4098-9733	Heat Sensor	

Table 4: Accessories (ordered separately as required)

Model	Description	Mounting Requirements
4098-9863	Adapter Plate required for surface flush 4 in. square electrical boxes.	See Figure 5
2098-9808	Remote red LED Alarm Indicator on single gang stainless steel plate.	Single gang box, 1 1/2 in. minimum depth

Note: Refer to Installation Instructions 574-707 and Application Manual 574-709 for additional information.

Sensor base operation options with sensor choice

Table 5: Sensor base operational mode choices

Sensor choice	Mode	Operational mode choices (see note)						
		False alarm reduction	Faster detection	TrueSense Photo/Heat	Photo Fire	Heat Fire (see note)	Utility Temp.	Ion Fire
Photoelectric Smoke Sensor 4098-9714	1	Yes	—	—	—	—	—	—
	2	—	Yes	—	Optional	—	—	—
Photo/Heat Multi-Sensor 4098-9754	3	Yes	—	—	—	Optional	Optional	—
	4	—	Yes	—	Optional	Optional	Optional	—
	5		—	Yes	Optional	Optional	Optional	
Heat Sensor 4098-9733	6	—	—	—	—	Yes	Optional	—
	7	—	—	—	—	Optional	Yes	—

Note:
- Duct detection modes are not applicable and are not available.
- Heat Fire Mode is 135°F or 155°F (57.2°C or 68°C), fixed or rate-of-rise.

Specifications

Table 6: General operating specifications

Specification		Rating
Communications and Sensor Supervisory Power		IDNet communications, 1 address for each base
Communications and Sounder Power Connections		Screw terminals for in/out wiring, 18 to 14 AWG or 0.82 mm^2 to 2.08 mm^2
Remote LED Alarm Indicator	Current	1 mA typical supplied from communications, no impact to alarm current
	LED Connections	Color coded wire leads, 18 AWG or 0.82 mm^2
UL Listed Temperature Range		32°F to 100°F or 0°C to 38°C
Operating Temperature Range	with 4098-9733, 4098-9714 or 4098-9754	32°F to 122°F or 0°C to 50°C
Humidity Range		10% to 95% RH
Smoke Sensor Ambient Ratings	4098-9714, Photoelectric Sensor	Air velocity is 0 to 4000 ft/min or 0 to 1220 m/min
Housing Color		Frost White
Installation Instructions		574-707

Table 7: Sounder operation

Specification		Rating
Sounder Voltage		24 VDC nominal, 16 to 32 VDC from NAC
Alarm Current (Sounder On)	520 Hz signal	129 mA at 16 V, 115 mA at 18 V
	Broadband signal	139 mA at 16 V, 125 mA at 18 V

Table 7: Sounder operation

Specification		Rating	
Sounder Output		Minimum sound output at 10 ft (3 m) per UL Standard 464, Audible Signaling Appliance	Minimum sound output at 10 ft or 3 m per UL Standard 268, Smoke Detectors for Fire Protective Signaling Systems and CSA 6.19-01
	520 Hz signal	80 dBA	86 dBA
	Broadband signal	81 dBA	87 dBA
Base Supervision of Sounder Power Input (Selectable)	Supervised	Select for continuous 24 VDC power, loss of power is communicated to the control unit	
	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 pattern, such as Temporal or March Time, controlled by the NAC control	

Additional information reference

Product	Data Sheet	Product	Data Sheet
Temporal Code 4 Module	S4905-0006	4100ES Control Panels with EPS Power Supplies	S4100-0100
Standard Bases	S4098-0019	4100ES Standard Control Panels	S4100-0031
Isolator Bases	S4098-0025	4100ES Audio Control Reference	S4100-0034
Standard Sounder Base	S4098-0028	4010ES Control Panels	S4010-0004
TrueSense Multi-Sensor	S4098-0024	4007ES Hybrid Control Panels	S4007-0001
TrueAlarm 4098-9773 CO Sensor Base with 520 Hz Sounder	S4098-0053		