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INITIATING/ADDRESSABLE DEVICES

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## Multi-Application Peripherals

UL, ULC, CSFM Listed; FM Approved;  
MEA (NYC) Acceptance\*

IDNet™ and MAPNET II® Communicating Devices,  
Individual Addressable Modules (IAMs)

### Features

IDNet or MAPNET II addressable communications supply both data and power over a single wire pair to provide\*\*:

- Supervised Class B monitoring of normally open, dry contacts
- Total wiring distance from IAM to supervision resistor(s) of up to 500 ft (152 m)
- Monitored connection is compatible with Simplex® 2081-9044 Overvoltage Protectors for outdoor wiring or electrically noisy applications
- For use in indoor locations up to 158° F (70° C) such as attic spaces or similar applications

For use with following Simplex control panels:

- Model Series 4008, 4010, 4010ES, 4100U and 4100ES fire alarm control panels for IDNet communications
- Model Series 4100/4100U/4100ES, 4120, 4020, and 2120 Communicating Device Transponders (CDTs) equipped with MAPNET II communications

**Model 4090-9001:**

- Enclosed design minimizes dust infiltration
- Mounts in standard single gang electrical box
- Screw terminals for wiring connections
- Visible LED flashes to indicate communications
- Optional covers are available to allow LED to be viewed after installation (requires mounting bracket, ordered separately)

**Model 4090-9051:**

- Encapsulated design for extended exposure to high humidity (LED is not present on this model)
- Color coded 18 AWG leads for wiring

**IDNet communications provides current limited monitoring:**

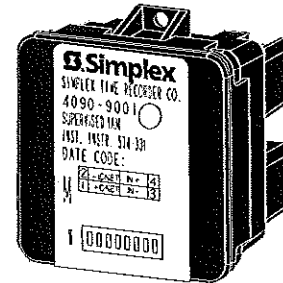
- Provides monitoring of tamper switch (supervisory) and waterflow switch (alarm) on same circuit using one point
- Available with IDNet communications only

**Multiple operation modes are available and are selectable at the control panel:**

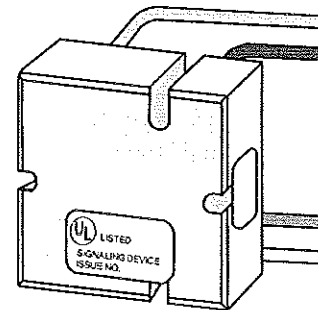
- Contact closure status can be tracked
- Momentary contact closure conditions can be selected at the panel to be latched or tracked (not available with the 2120 CDT)

**UL listed to Standard 864**

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→ 4090-9001 Supervised IAM  
(shown approximately 3/4 size)



4090-9051 Supervised IAM  
(shown approximately 3/4 size)

### Description

**Individual addressable modules (IAMs)** receive both power and communications from a two-wire MAPNET II or IDNet circuit. They provide location specific addressability to a single initiating device (such as single station smoke detector alarm contacts or heat detector contacts) or multiple devices at the same location by monitoring normally open dry contacts and the wiring to an end-of-line resistor.

**Model 4090-9001** is packaged in a thermoplastic housing and provides screw terminal connections and a status indicating LED.

**Model 4090-9051** is an encapsulated package with wire leads. It does not provide a status indicating LED.

## Operation

**Contact Closure.** Closure of the monitored contact(s) initiates an alarm or other response as programmed at the fire alarm control panel. An open in the monitored circuit wiring will cause a trouble to be reported.

**Panel Selections.** Selections can be made at the control panel to maintain the alarm condition if the initiating device contacts are momentary, such as from a rate-of-rise heat detector, or to track the device contact status (not available with the 2120 CDT).

## Current Limited Operation Applications

For use with IDNet communications only, these IAMs can provide quad-state sensing of normal, open circuit, short circuit, and current limited conditions. (Program type is "T-sense.") With the proper end-of-line and current limiting resistors, dual functions such as tamper switch and waterflow switch monitoring can be determined and communicated by a single addressable point.

## IAM Product Selection

Model	Description
4090-9001	Supervised IAM, mounted in thermoplastic housing with screw terminals; see applicable options below
4090-9051	Supervised IAM, encapsulated with wire leads

### Optional Trim Plates and Mounting Bracket for Model 4090-9001

Model	Description
4090-9806	For semi-flush mounted box Trim plate with LED viewing window, requires 4090-9810 mounting bracket, includes mounting screws; galvanized steel
4090-9807	For surface mounted box
4090-9810	Mounting bracket, mounts IAM to electrical box and provides screw holes for trim plate, required for optional trim plates

### End-of-Line Resistor Harnesses (ordered separately as required)

Model	Reference No.	Description
4081-9004	733-886	6.8 k $\Omega$ , 1/2 W; Standard end-of-line resistor harness for N.O. contact supervision
4081-9003	733-896	4.7 k $\Omega$ , 1/2 W
4081-9005	733-984	1.8 k $\Omega$ , 1/2 W

Use for current limited monitoring applications

## Specifications

### Electrical

Power and Communications	MAPNET II or IDNet, auto selected, 1 address per IAM
Input Requirements	Normally open, dry contacts
Wire Connections	4090-9001 Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 mm <sup>2</sup> to 2.08 mm <sup>2</sup> )
	4090-9051 Color coded wire leads, 18 AWG (0.82 mm <sup>2</sup> ), 8" long (203 mm)
Reference Documents	Installation Instructions 574-331 for 4090-9001; 579-572 for 4090-9151
	Field Wiring Diagrams 842-073 for IDNet operation; 841-804 for MAPNET II operation

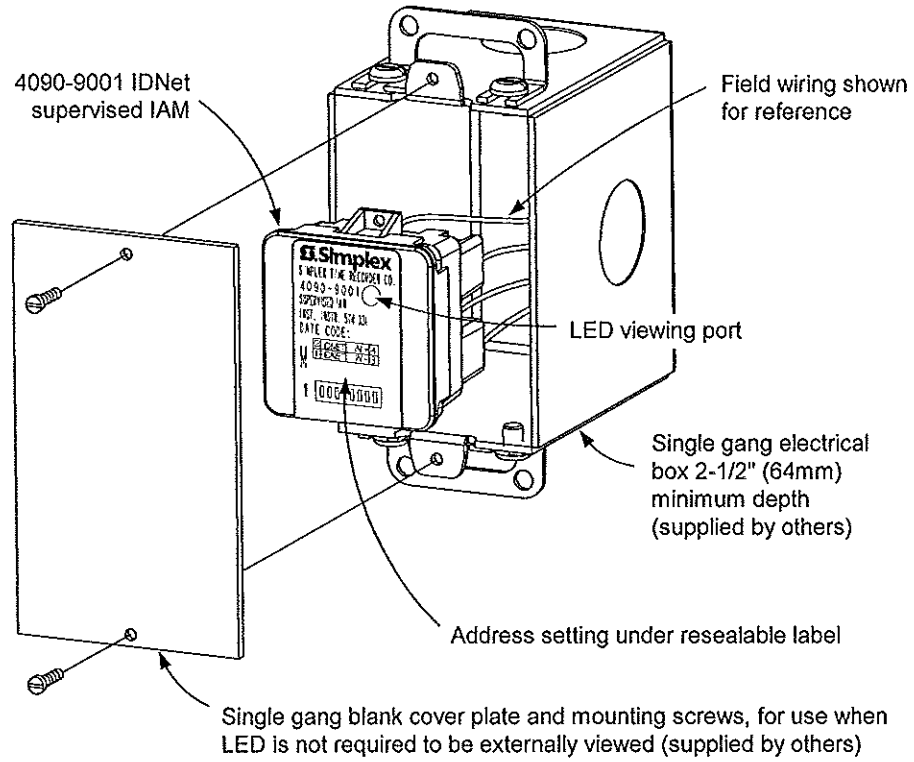
### Wiring Distances

Distance from IAM to Contacts	500 ft (152 m) maximum without protectors
	400 ft (122 m) maximum with 2081-9044 Overvoltage Protectors
Wiring Distance Reference per channel, MAPNET II or IDNet Communications	2500 ft (762 m) maximum from fire alarm control panel
	10,000 ft (3048 m) maximum total wiring distance (including T-Taps)

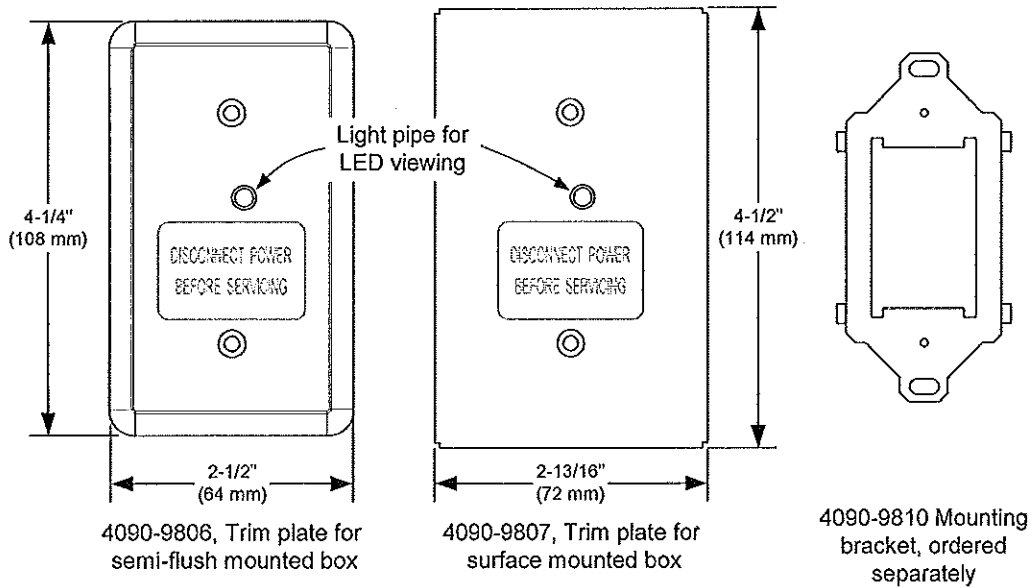
### Mechanical

Dimensions	4090-9001 1-9/16" W x 1-3/4" H x 1-1/4" D (40 mm x 44 mm x 32 mm)
	4090-9051 1-9/16" W x 1-9/16" H x 9/16" D (40 mm x 40 mm x 14 mm)
Housing Material, 4090-9001	Black thermoplastic
Encapsulation Material, 4090-9051	Epoxy, beige
Temperature Range	32° to 158° F (0° to 70° C); intended for indoor operation
Humidity Range	Up to 93% RH at 100° F (38° C)

## Mounting Information



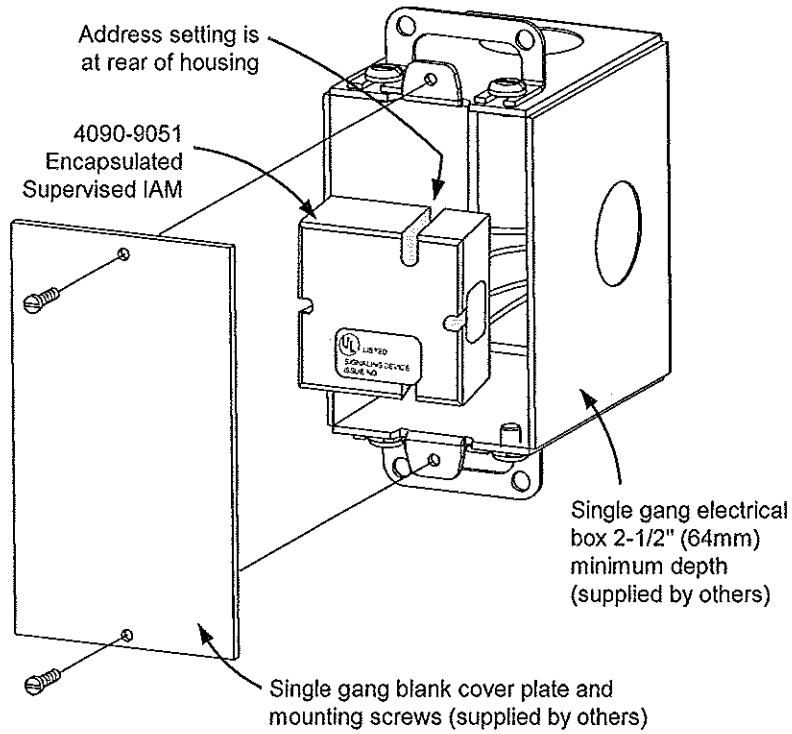
### Mounting Reference, Single Gang Blank Cover Plate



NOTE: These mounting plates require mounting bracket 4090-9810.

### Optional Trim Plates and Mounting Bracket for Visible LED

## 4090-9051 Mounting Information



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## Multi-Application Peripherals

IDNet™ Communicating Devices  
Model 4090-9002 Relay IAM

### Features

#### Individual Addressable Relay Module (Relay IAM):

- IDNet addressable control for use with Simplex® fire alarm control panel models 4100ES, 4100U, 4010ES and 4010
- A single addressable point provides control and status tracking of a Form “C” contact
- Low power latching relay design allows IDNet communications to supply both data and module power

#### Compact, sealed construction:

- Enclosed design minimizes dust infiltration
- Mounts in standard 4” (102 mm) square electrical box
- Screw terminals for wiring connections
- Visible LED flashes to indicate communications
- Optional covers are available to allow LED to be viewed after installation

UL listed to Standard 864

### Description

IDNet Relay IAMs allow fire alarm control panels to control a remotely located Form “C” contact using IDNet addressable communications for both data and module power. Typical applications would be for switching local power for control functions such as elevator capture, or control of HVAC components, pressurization fans, dampers, etc. Relay status is also communicated requiring only one device address.

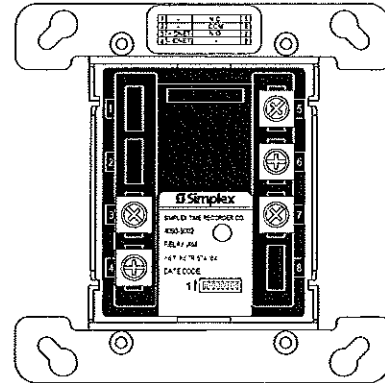
### Product Selection

Model	Description
4090-9002	Relay IAM

#### Optional Trim Plates

Model	Description	Notes
4090-9801	For semi-flush mounted box	Trim plate, galvanized steel, with LED viewing window; includes mounting screws
4090-9802	For surface mounted box	

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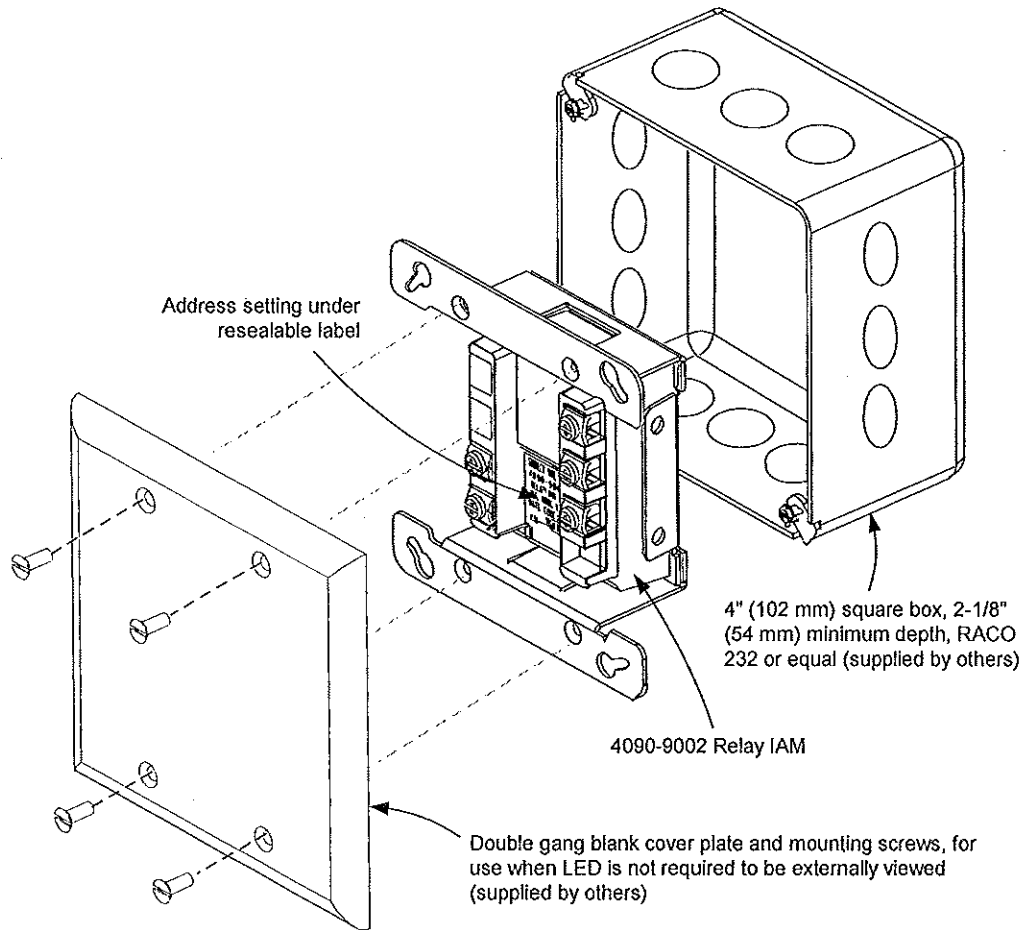


4090 Series IDNet Relay IAM Package  
(shown approximately 1/2 size)

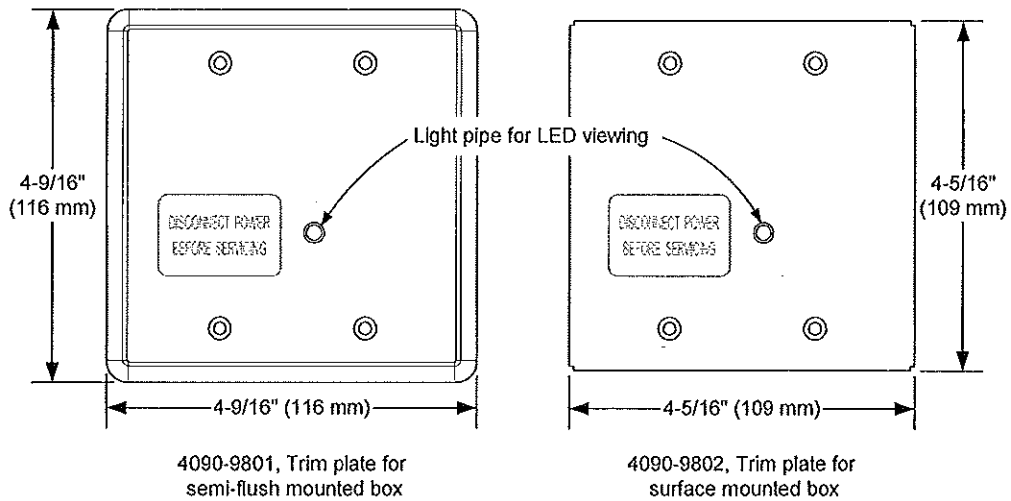
### Specifications

Communications	4100ES, 4100U, 4010ES or 4010 IDNet communications, 1 address per device	
Relay IAM Power	Supplied by IDNet communications	
Contact Ratings* (not rated for incandescent switching)		
Type	Form C, SPDT	
Power-Limited	2 A @ 24 VDC, resistive	from listed fire alarm supply
	1 A @ 24 VDC, inductive	
Nonpower-Limited	0.5 A @ 120 VAC, resistive	
* Provide circuit fusing and transient suppression as required per application. DC inductive loads can typically be diode suppressed; 120 VAC loads may require RC networks or varistors, depending on device type. Refer to Installation Instructions 574-184 for additional information.		
Wire Connections	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 to 2.08 mm <sup>2</sup> )	
IDNet Wiring Reference	Up to 2500 ft ( 762 m) from control panel	
	Up to 10,000 ft ( 3048 m) total wiring distance (including T-Taps) Compatible with Simplex 2081-9044 Overvoltage Protectors	
Dimensions	4-1/8" H x 4-1/8" W x 1-3/8" D (105 mm x 105 mm x 35 mm)	
Housing Material	Black thermoplastic	
Mounting Plate	Sheet metal, galvanized	
Temperature Range	32° to 120° F (0° to 49° C), intended for indoor operation	
Humidity Range	Up to 93% RH at 100° F (38° C)	

## Relay IAM Mounting Information



**Mounting Reference, Double Gang Blank Cover Plate**



**Optional Trim Plates for Visible LED**

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MEA (NYC) Acceptance\*

## TrueAlarm Analog Sensing

TrueAlarm Analog Sensors – Photoelectric,  
Ionization, and Heat; Standard Bases and Accessories

### Features

#### TrueAlarm analog sensing provides:

- Digital transmission of analog sensor values via IDNet or MAPNET II two-wire communications

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

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

#### Fire alarm control panel provides:

- Peak value logging allowing accurate analysis of each sensor for individual sensitivity selection
- Sensitivity monitoring satisfying NFPA 72 sensitivity testing requirements; automatic individual sensor calibration check verifies sensor integrity
- Automatic environmental compensation, multi-stage alarm operation, and display of sensitivity directly in percent per foot
- Ability to display and print detailed sensor information in plain English language

#### Photoelectric smoke sensors provide:

- Seven levels of sensitivity from 0.2% to 3.7%

#### Heat sensors provide:

- Fixed temperature sensing
- Rate-of-rise temperature sensing
- Utility temperature sensing

#### Ionization smoke sensors provide:

- Three levels of sensitivity; 0.5%, 0.9%, and 1.3%

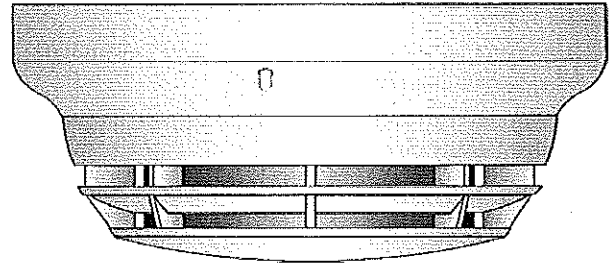
#### General features:

- UL listed to Standard 268
- Louvered smoke sensor design enhances smoke capture by directing flow to chamber; entrance areas are minimally visible when ceiling mounted
- Designed for EMI compatibility
- Magnetic test feature is provided
- Optional accessories include remote LED alarm indicator and output relays

#### Additional base reference:

- For isolator bases, refer to data sheet S4098-0025
- For sounder bases, refer to data sheet S4098-0028
- For photo/heat sensors, refer to data sheet S4098-0024 (single address) and S4098-0033 (dual address)

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4098-9714 TrueAlarm Photoelectric  
Sensor Mounted in Base

### Description

#### Digital Communication of Analog Sensing.

TrueAlarm analog sensors provide an analog measurement 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.** Each sensor base's LED pulses to indicate communications with the panel. If the control panel determines a sensor is in alarm, or is dirty 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.

# TrueAlarm Sensor Bases and Accessories

## Sensor Base Features

### Base mounted address selection:

- Address remains with its programmed location
- Accessible from front (DIP switch under sensor)

### General features:

- 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 mounts on standard outlet box
- Magnetically operated functional test

## 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 can be manually operated from control panel
- Use with remote mount 2098-9737 relay
- Also 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 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)

4098-9822, LED Annunciation Relay:

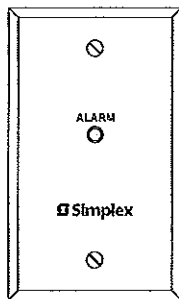
- Activates when base LED is on steady, indicating local alarm or trouble
- DPDT contacts for resistive/suppressed loads, power limited rating of 2 A @ 28 VDC; non-power limited rating of 1/2 A @ 120 VAC, (requires external 24 VDC coil power)

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.

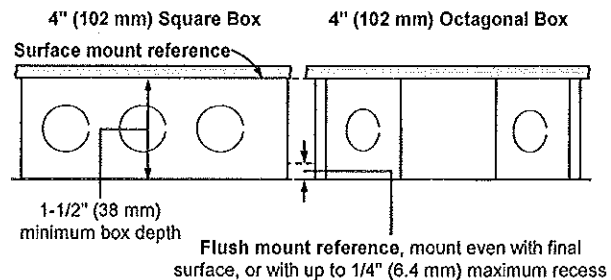
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing 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

Electrical Box Requirements: (boxes are by others)

**Without relay:** 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

**With relay:** 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring

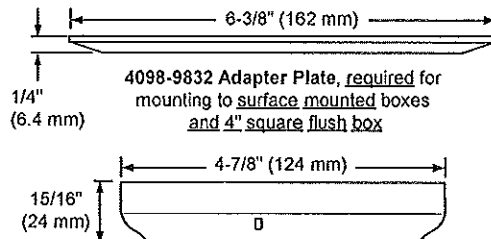


2098-9737 Relay (mounts in base electrical box or remotely)      4098-9822 Relay (mounts in base electrical box)



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

NOTE: Review total wire count, wire size, and accessories being wired to determine required box volume.



TrueAlarm Bases  
4098-9789, -9791, & -9792

## 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
- Rated spacing distance between sensors:

Fixed Temp. Setting	UL & ULC 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; RTI = Quick
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; RTI = Ultra Fast

Smoke Sensors:

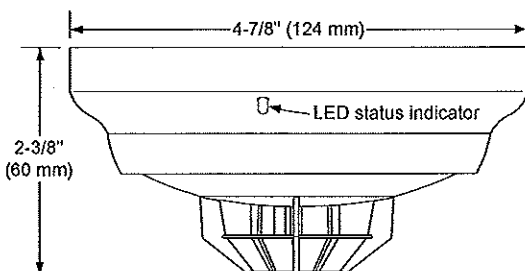
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

### 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.*



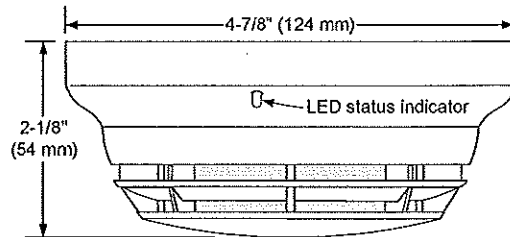
4098-9733 Heat Sensor with Base

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

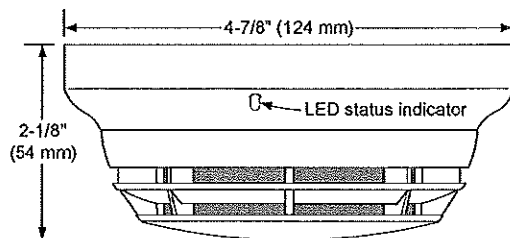


4098-9714 Photoelectric Sensor with Base

### 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 ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.



4098-9717 Ionization Sensor with Base

### 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 and Signaling 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* (574-709).

## TrueAlarm Analog Sensing Product Selection Chart

### TrueAlarm Sensor Bases

(Refer to Application Manual 574-709 and Installation Instructions 574-707 for additional information)

Model	Description	Compatibility	Mounting Requirements
4098-9792	Standard Sensor Base, no options	Sensors 4098-9714, -9733, & -9717	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" min. depth
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 <b>Note:</b> Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference.
4098-9791**	Sensor Base with connections for Supervised Remote Relay and connections for Remote Alarm Indicator or Unsupervised Relay	Sensors 4098-9714, -9733, & -9717 2098-9737 remote relay (supervised) 2098-9808 remote alarm indicator or 4098-9822 relay (unsupervised)	<b>** NOTE:</b> 4098-9791 is NOT compatible with the 2120 CDT

### TrueAlarm Sensors

Model	Description	Compatibility	Mounting Requirements
4098-9714	Photoelectric Smoke Sensor	Bases 4098-9792, 4098-9789, and 4098-9791	Refer to base requirements
4098-9717	Ionization Smoke Sensor		
4098-9733	Heat Sensor		

### TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	<b>Remote Mounting</b> requires 4" octagonal or 4" square box, 1-1/2" minimum depth <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	Bases 4098-9789 and 4098-9791	Single gang box, 1-1/2" minimum depth
4098-9822	Relay, tracks base LED status (unsupervised, mounts only in base electrical box)		4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, -9789, & -9791	<b>Required</b> for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

## Specifications

### General Operating Specifications

Communications and Sensor Supervisory Power	MAPNET II or IDNet, auto-select, 24-40 VDC w/data, 400 $\mu$ A typical, 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 Current	1 mA typical, no impact to alarm current	
Remote LED Alarm Indicator and Relay Connections	Color coded wire leads, 18 AWG (0.82 mm <sup>2</sup> )	
UL Listed Temperature Range	32° to 100° F (0° to 38° C)	
Operating Temperature Range	with 4098-9717 or 4098-9733	32° to 122° F (0° to 50° C)
	with 4098-9714	15° to 122° F (-9° to 50° C)
Humidity Range	10 to 95% RH	
Smoke Sensor Ambient Ratings	4098-9714, Photoelectric Sensor	Air velocity = 0-4000 ft/min (0-1220 m/min)
	4098-9717, Ionization Sensor	Air velocity = 0-200 ft/min (0-61 m/min); Altitude is up to 8000 ft (2.4 km)
Housing Color	Frost White	
<b>4098-9791 Base With Supervised Remote Relay 2098-9737</b> (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage	18-32 VDC (nominal 24 VDC)	
Supervisory Current	270 $\mu$ A, from 24 VDC supply	
Alarm Current with 2098-9737 Relay	28 mA, from 24 VDC supply	
<b>4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789 and 4098-9791</b> (see page 2 for contact ratings)		
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	

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S4098-0019-13 10/2011

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#### Features

TrueAlarm® addressable CO sensor bases contain a carbon monoxide (CO) sensing module providing both CO toxic gas monitoring and enhanced fire detection:

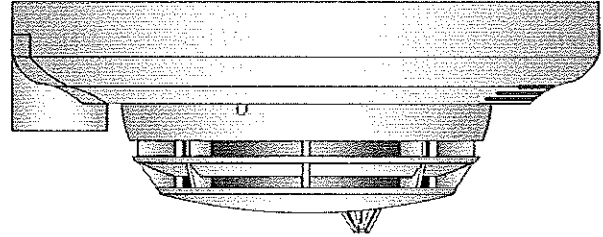
- For use with 4100ES, 4100U or 4010ES fire alarm control panels (4100U requires software revision 12.05 or higher)
- CO sensor bases support (and require) a TrueAlarm photoelectric, photo/heat, heat, or ionization sensor (ordered separately)
- Model 4098-9797 provides standard features, model 4098-9798 also provides a piezoelectric sounder
- CO sensor bases are multi-point devices, consume only one IDNet address, and receive both communications and sensor power from the IDNet channel (the sounder base requires separate 24 VDC system power or NAC connection)
- Listed to UL 268, *Smoke Detectors for Fire Alarm Signaling Systems* and UL 2075, *Gas and Vapor Detectors and Sensors*; allowing systems to be listed to Standard 2034, *Single and Multiple Station Carbon Monoxide Alarms*
- Listed by ULC to CSA 6.19-01 *Residential Carbon Monoxide Alarming Devices*
- Three types of CO influenced operation are available; UL 2034 CO alarm detection; UL 2075 CO (OSHA) level monitoring for ventilation control; and multi-criteria fire sensor analysis with algorithms that combines optical and CO gas monitoring information

#### Operation of a CO sensor base with a photoelectric or a photo/heat sensor allows:

- Independent sensor operation *or* selectable multi-sensor modes of *False Alarm Reduction or Faster Detection*
- **False Alarm Reduction** analyzes CO and photoelectric sensor information together to provide a sophisticated rejection of non-fire conditions normally troublesome as false alarms (steam, dust, aerosols, etc.)
- **Faster Detection** (increased sensitivity) algorithm analyzes CO and photoelectric sensor information to allow the presence of CO to implement an increased photoelectric sensitivity for high value locations (museums, electrical equipment rooms, etc.)

#### Sounder base operation details:

- When connected to a panel NAC through the 4905-9835 Temporal Code Module, the sounder base can provide temporal code 3 (TC3) for fire, or temporal code 4 (TC4) for toxic carbon monoxide alarms
- 4905-9835 module may also be used to code other (non-fire) dedicated carbon monoxide notification appliances (refer to data sheet S4905-0006)
- Sounder can be manually activated from the panel
- Sounder operation is also listed to UL 464 as an audible notification appliance



TrueAlarm CO Sensor Base with Sounder  
(shown with 4098-9754 Photo/Heat Sensor)

#### Features (Continued)

##### 4100ES/4100U/4010ES Control Panel operation summary:

- CO sensor data is stored and analyzed at the panel; a new CO Service Report provides easy information access (see sample on page 3)
- Five (5) year end of life status indication with CO sensor expiration notices occurring within 12 months and within 6 months, allowing service replacement planning
- Analog sensor information is digitally transmitted to the host control panel via IDNet communications for processing to evaluate and track status
- Carbon monoxide concentration in ppm (parts per million) is available for viewing from the panel user interface
- For OSHA compliant CO gas sensing, CO condition level may be programmed by concentration (must be above 30 ppm)

##### General features:

- Operation of a CO sensor base with ionization or heat sensor provides dual independent sensor operation
- New CO test mode allows functional testing of each sensor technology including the CO sensor
- Optional accessories include remote alarm LED, alarm relay, and mounting adapter plate
- Designed for EMI compatibility
- Provides magnetic test

##### CO sensor element is easily replaced when end of service life is reached:

- Access to CO sensor replacement cartridge (CORC, 4098-9746) requires removal of interchangeable sensor head providing tamper monitoring (sensor removal causes a trouble condition)

\* This product has been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 7300-0026:330 for allowable values and/or conditions concerning material presented in this document. Listings and approvals under Simplex Time Recorder Co. are the property of SimplexGrinnell LP, Westminster.

## CO Sensor Base Description

**Carbon monoxide (CO)** is an odorless, colorless, tasteless gas produced by the incomplete combustion of heating fuels such as wood, coal, heating oil, and natural gas. CO is also a byproduct of many materials experiencing unintentional fire or even incipient fire conditions.

Monitoring of CO levels can warn of physically harmful concentrations, however, sensing of CO levels below the harmful level can also provide improved understanding of incipient fire conditions when evaluated in combination with photoelectric fire sensor information from the same location.

**Simplex® CO sensor bases** combine an electrolytic CO sensing module with a TrueAlarm analog sensor to provide a single multiple sensing assembly using one system address. The CO sensor can be enabled/disabled, used in LED/Switch modes and custom control, and can be made public for communication across a fire alarm Network.

**CO sensor operation** is similar to other TrueAlarm sensors (photoelectric, heat, or ionization). It provides current analog values, average analog value, “No Answer” troubles, “Wrong Device” troubles, over threshold, concentration in ppm, and monitors for the presence of the CO sensor. Base mounted address selection allows the address to remain with its location when the sensor is removed for service or type change. Address access is from the front, under the removable sensor. An integral red LED indicates power-on by pulsing, or alarm or trouble when steady on, and also provides test mode status (see page 3). Detailed status is available at the fire alarm control panel.

## CO Sensing, Detailed Operation

**Toxic Gas Sensing, UL 2034/UL 2075.** For CO toxic gas detection, the bases provide toxic gas sensing to the UL 2034 and UL 2075 standards. Toxic gas sensing may be selected at the same time as any of the combined CO photo fire detection modes are selected.

**Toxic Gas Sensing, OSHA Compliant.** For OSHA compliant gas sensing, the desired threshold level (above 30 ppm) is selected at the control panel as required for the application, typically for ventilation control. Refer to page 3 for additional OSHA CO monitoring information.

**Enhanced Fire Sensing.** Each sensor provides an analog measurement digitally communicated to the control panel for analysis. At the panel, these analog values are used separately, or combined, to evaluate for conditions indicative of fire, incipient fire, excessive heat, and freeze warning. For fire, the addition of a CO sensor provides two new selectable modes of operation: *Nuisance Alarm Reduction Mode* and *Faster Fire Detection*. These two modes were developed using the results of extensive testing of actual fires performed under a wide variety of conditions. (Refer to page 4 for additional operation mode options.)

**Nuisance Alarm Reduction Mode** allows the host control panel to combine photoelectric sensor input and CO sensor level input to reduce false alarms caused by non-fire conditions. Non-fire conditions can be steam from bathroom showers, particles from dusty environments, aerosols from personal care products, tobacco smoke, cooking smoke, or other similar conditions.

## CO Sensing, Detailed Operation (Continued)

**Nuisance Alarm Reduction Details.** For applications of anticipated nuisance alarm conditions, photoelectric sensitivity is normally selected for 3.7%/ft smoke obscuration. However, the addition of CO sensing allows the host control panel to apply software verification similar to the timed alarm verification feature often used with conventional smoke detection.

**Faster Fire Detection.** For applications where faster response to incipient or slow building fires is desired and environment appropriate, the Faster Fire Detection mode correlates the outputs of the CO sensor and the photoelectric sensor to provide increased sensitivity. This mode provides earlier detection compared to a standard sensitive photoelectric sensor setting, and also provides more false alarm reduction compared to using a sensitive setting in an area not normally considered appropriate.

**Faster Fire Detection Details.** TrueAlarm photoelectric sensors can be selected to be as sensitive as 0.2%/ft obscuration for applications evaluated as appropriate to that level. However, if the environment is not suitable for that sensitivity level, the Faster Fire Detection mode allows the photoelectric sensor to be selected as a “standard” 2.5%/ft obscuration, but with the presence of a significant level of CO, the combination of CO and photo sensing input can allow an equivalent sensitivity approaching 0.5%/ft obscuration. The host control panel tracks two photoelectric sensitivities, the one selected for photoelectric operation only (typically 2.5%), and the CO correlation sensitivity that it adjusts depending on the amount of CO present.

## Control Panel 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 panel. If a sensor is in alarm, or has a trouble condition, the status is annunciated at the control panel and that base LED will turn on steady. During a system alarm, the panel will control LEDs such that a trouble indication will return to pulsing to help identify the sensors in alarm.

**Reported CO Sensor troubles** are: Disabled, Almost Expired 12 Months, Almost Expired 6 Months, Expired (End of Life), Short, and Sensor Missing/Failed.

**Trouble Details.** “Almost Expired” is similar to the “Almost Dirty” trouble for a photoelectric sensor. “Expired” trouble is similar to the “Dirty” trouble for a TrueAlarm photoelectric sensor. CO sensor technology does not support automatic sensitivity testing and drift compensation as is available with a photoelectric sensor. End of useful CO sensor life is based upon a set 5 year operational lifetime, tracked by date code built into the CO sensor module electronics. Although the CO sensor will continue to function after the 5 year expired trouble is indicated, replacement is required to ensure proper detection accuracy.

## Control Panel Operations (Continued)

**Panel Test Mode.** To facilitate functional testing of the CO sensor, a new test mode is available in the host control panel. In this mode, the CO sensor, and installed heat or smoke sensor can be easily *functionally* tested.

**Panel Test Mode Details.** When in the CO test mode, the internal multiple sensor analysis algorithms are disabled allowing each sensor to be quickly tested either individually or simultaneously, depending on the test equipment used. CO testing can be performed using a Solo™ Model 332 aerosol dispenser (or equal). (Testing is available through your local authorized Simplex product supplier.) The base LED will display steady ON when individual sensors are activated during test. Refer to the Application Reference section for more information.

**OSHA CO monitoring.** For OSHA compliant gas sensing (i.e. parking garages and workplace spaces with combustion type equipment) control panel software supports the internal programming command “ANALOG COMPARE” to provide comparisons of CO points. For example, in a custom control equation to turn on a fan or vent. “If the CO toxic gas is 50 ppm (or is greater or less than X ppm)” then turn on control point. *The valid concentration range for the opcode is 30 to 563 ppm.*

**Multi-Point Allocation.** The host panel requires three (3) points per CO sensor base with the 4098-9754 multi-sensor, and two (2) points for the other sensors. Depending on CO sensor base and sensor choice, up to seven (7) points can be made public to a connected Simplex Fire Alarm Network. Each CO sensor base uses a single address with each of the individual points appearing as “sub-points” layered underneath (such as 1-1-0, 1-1-1, 1-1-2, ...1-1-6). (Additional multi-point allocation detail is described in reference data sheet S4090-0011.)

**CO Sensor Base Power Requirements.** Power for the standard CO sensor base is provided by IDNet communications. *No additional wiring is required for upgrading of existing installed TrueAlarm sensor bases.* CO sensor sounder bases do require system supplied separate 24 VDC (or NAC) wiring, the same as the standard sounder base.

## TrueAlarm CO Service Reports

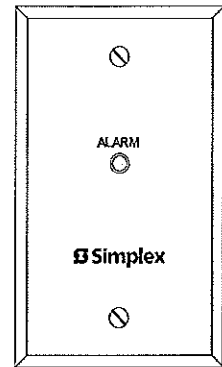
**TrueAlarm CO Service Reports** (sample below) contain information on the CO sensors programmed in the panel displaying pertinent data such as current concentration value in ppm, End of Life date, and current state. This report allows determination of which sensors will require attention.

Service Port				Page 1
REPORT 6 : TrueAlarm CO Report		12:34:56am	WED	8-SEP-10
Channel 1 (M1)				
Zone		Current	End of	
Name	CUSTOM LABEL	Value	Life Date	State
M1-1-2	Conference Room 17 CO Toxic Gas	457PPM	01-SEP-15	PRI
M1-2-2	Boiler Room CO Toxic Gas	0PPM	01-SEP-15	NOR
TRUE ALARM CO REPORT COMPLETED				
Press RETURN for next Screen OR CTRL-X to abort				

## 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. (See illustration to right.)

**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).



## 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 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.

### For toxic gas sensor placement and mounting:

- Refer to NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units*
- Sensors may be either wall or ceiling mounted
- Per NFPA 720, Section 5.1 (2005 edition):
  - 5.1.1 A carbon monoxide alarm or detector shall be centrally located outside of each separate sleeping area in the immediate vicinity of the bedrooms.
  - 5.1.2 Each alarm or detector shall be located on the wall, ceiling, or other location as specified in the installation instructions that accompany the unit.

## TrueAlarm Analog Sensing Product Selection Chart

### TrueAlarm CO Sensor Base

Model	Description	
4098-9797	CO Base, Standard operation	Select TrueAlarm sensor from list below
4098-9798	CO Base with Sounder	

### TrueAlarm Sensors, select one per CO Sensor Base

Model	Description	
4098-9714	Photoelectric Smoke Sensor	Refer to selection table below for available operation modes
4098-9754	Multi-Sensor Photoelectric and Heat Sensing	
4098-9733	Heat Sensor	
4098-9717	Ionization Smoke Sensor	

### CO Base Replacement CO Cartridge and Accessories (ordered separately as required)

Model	Description	
4098-9746	CO Replacement Cartridge (CORC)	
Solo 332	Aerosol Dispenser, suitable for larger diameter detectors; can be used for CO or smoke testing	
Solo C3	CO Aerosol Canister (case of 12)	
Model	Description	Mounting Requirements
4098-9832	Adapter Plate, required for surface mounted 4" electrical boxes	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)

## CO Sensor Base Operation Options with Sensor Choice

Sensor Choice	M o d e	Operational Mode Choices* (✓ = operation selected)								
		False Alarm Reduction	Faster Detection	TrueSense Photo/Heat	Photo Fire	Heat Fire**	Utility Temp.	Ion Fire	CO Toxic Gas†	CO Fire††
Photoelectric Smoke Sensor 4098-9714	1	✓	—	—	—	—	—	—	option	option
	2	—	✓	—	option	—	—	—	option	option
Photo/Heat Multi-Sensor 4098-9754	3	✓	—	—	—	option	option	—	option	option
	4	—	✓	—	option	option	option	—	option	option
	5	—	—	✓	option	option	option	—	option	option
Heat Sensor 4098-9733	6	—	—	—	—	✓	option	—	option	—
	7	—	—	—	—	option	✓	—	option	—
Ionization Smoke Sensor 4098-9717	8	—	—	—	—	—	—	✓	option	—

\* NOTE: Duct detection modes are not applicable and are not available. Each CO base and sensor counts as multiple points against panel point capacity depending on the operations selected at the 4100ES/4100U/4010ES control panel, refer to data sheet S4090-0011 for additional multi-point allocation detail.

\*\* Heat Fire Mode is 135° F or 155° F, fixed or rate-of-rise.

† CO Toxic Gas operation is selectable as: Supervisory (which is NOT recommended if communicated off-site), Priority 2 (preferred if communicated off-site), or Utility.

†† CO fire detection mode can be selected only when used with a photoelectric smoke detection sensor set for fire detection mode.



## 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
- Rated spacing distance between sensors:

Fixed Temp. Setting	UL& ULC 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; RTI = Quick
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; RTI = Ultra Fast

Smoke Sensors:

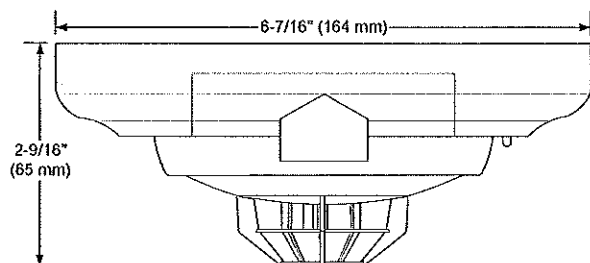
- Photoelectric or ionization technology sensing
- 360° smoke entry for optimum response
- Built-in insect screens

## 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.



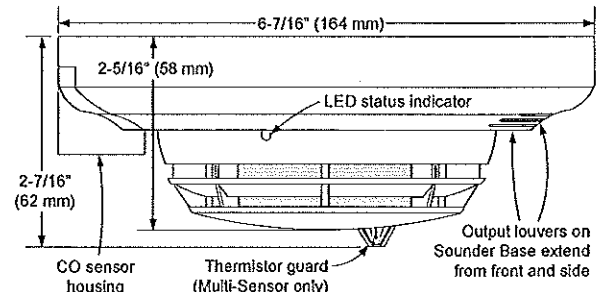
4098-9733 Heat Sensor with CO Sensor Base (with CO Sensor Housing facing forward)

**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.



Dimension and Feature Reference, Photoelectric, Ionization, and Multi-Sensor on CO Sensor 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 ionization sensor: 0.5, 0.9, and 1.3% per foot of smoke obscuration.

## 4098-9754 Multi-Sensor

TrueAlarm multi-sensors combines the performances 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 panel 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

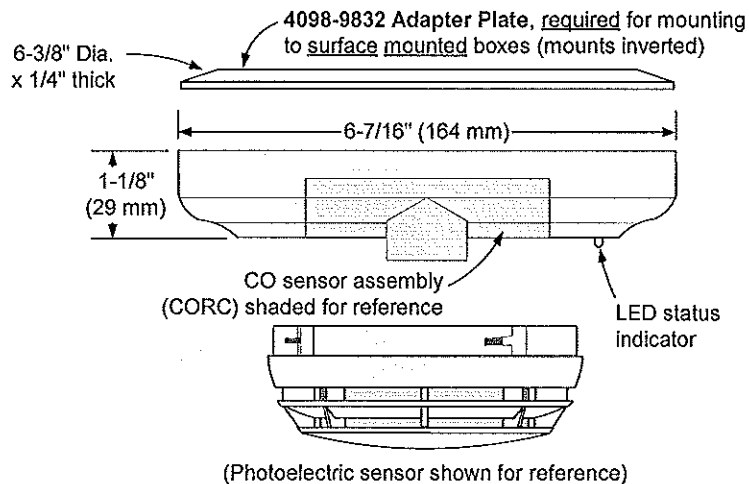
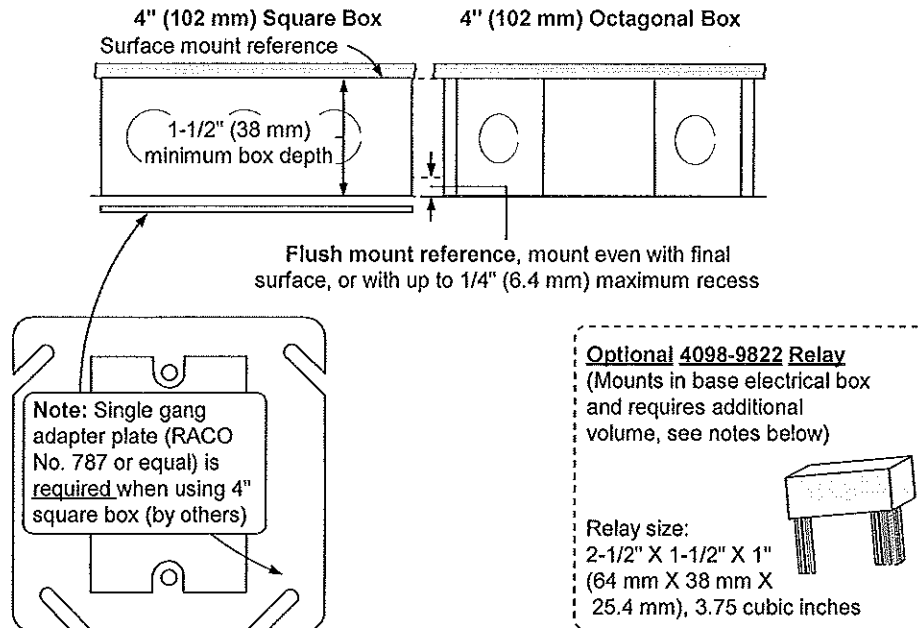
TrueSense analysis correlates both thermal activity and smoke activity at a single multi-sensor location using an extensively tested covariance relationship. As a result, TrueSense detection improves response to conditions indicative of faster acting, hot flaming fires when compared to the response of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

## Installation Reference

Electrical Box Requirements: (boxes are by others)

**Without relay:** 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

**With relay:** 4" octagonal or 4" square, 1-1/2" deep, with 1-1/2" extension ring



### NOTES:

1. Review actual wire size, wire count, box type, and whether 4098-9822 relay is used before determining box size.
2. Mounting to flush mounted box also fits single gang handy box, 2-1/8" (51 mm) deep if wiring allows. (Not applicable if 4098-9822 relay is used.)
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, both require 4098-9832 Adapter Plate.
4. When 4098-9822 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.
5. Refer to sensor base Installation Instructions 574-707 for additional information.
6. Refer to CORC Replacement Instructions 579-791 for CO cartridge installation and replacement.

## Specifications

### General Operating Specifications

IDNet Communications and Sensor Supervisory Power	24-40 VDC w/data, 400 $\mu$ A typical, 1 address per base, supplied by control panel	
Communications and Sounder Power 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	Current	1 mA typical supplied from communications, no impact to alarm current
	LED Connections	Color coded wire leads, 18 AWG (0.82 mm <sup>2</sup> )
UL Listed Temperature Range	32° F to 100° F (0° C to 38° C)	
Operating Temperature Range	with 4098-9733 or 4098-9717	32° F to 122° F (0° C to 50° C)
	with 4098-9714 or 4098-9754	15° F to 122° F (-9° C to 50° C)
Humidity Range	15 to 95% RH	
CO Sensor Base Air Velocity Ratings per Sensor	Photoelectric Sensor 4098-9714 and Multi-Sensor 4098-9754	Air velocity = 0-1000 ft/min (0-305 m/min)
	Ionization Sensor 4098-9717	Air velocity = 0-200 ft/min (0-61 m/min); Altitude is up to 8000 ft (2.4 km)
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, 24 mA maximum @ 32 VDC	
Sounder Output	88 dBA minimum @ 10 ft (3 m) per UL Standard 464, <i>Audible Signaling Appliance</i> ; UL Standard 268, <i>Smoke Detectors for Fire Protective Signaling Systems</i> and CSA 6.19-01	
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 pattern (Temporal or March Time, etc.) controlled by the NAC control	

### Standards Reference for CO Monitoring

		Concentration	Alarm Window
Requirements Reference for UL 2034 and CSA 6.19-01	Response Time	70 $\pm$ 5 ppm	60 to 240 minutes
		150 $\pm$ 5 ppm	10 to 50 minutes
		400 $\pm$ 10 ppm	4 to 15 minutes
	False Alarm Resistance	30 $\pm$ 3 ppm	No Alarm for 30 days
		70 $\pm$ 5 ppm	No Alarm for 60 minutes
UL 2075 Reference, Commercial OSHA Type Operation	For operations required at lower concentrations than those of UL 2034, such as start ventilation after 5 minutes at 25 to 35 ppm and to alarm at a reading higher than that range, but lower than UL 2034 allows		

### 4098-9822 Unsupervised Relay Option

Externally Supplied Relay Voltage	18-32 VDC, steady source recommended (wires to remote LED leads)
Alarm Current	13 mA from separate 24 VDC supply
Contact Ratings, DPDT contacts for resistive/suppressed loads	Power limited rating: 2 A @ 30 VDC
	Non-power limited rating: 1/2 A @ 120 VAC
Relay Operation	Tracks base LED status, relay is on with trouble or alarm at the base

### Additional Information Reference

Product	Data Sheet
Temporal Code 4 Module	S4905-0006
Standard Bases	S4098-0019
Isolator Bases	S4098-0025
Standard Sounder Base	S4098-0028
TrueSense Multi-Sensor	S4098-9024
Dual Address Multi-Sensor	S4098-0033

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S4098-0041-6

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UL, ULC, CSFM Listed; FM Approved;  
MEA (NYC) Acceptance\*

Addressable Duct Sensor Housings with TrueAlarm  
Photoelectric Sensor; Available with Multiple Relay Control

## Features

Compact air duct sensor housing with clear cover to monitor for the presence of smoke\*\*

Includes factory installed TrueAlarm photoelectric smoke sensor and features:

- Individual sensor information processed by the host control panel to determine sensor status
- Digital transmission of analog sensor values via IDNet™ or MAPNET II®, 2-wire communications†
- Programmable sensitivity, consistent accuracy, environmental compensation, status testing, and monitoring of sensor dirt accumulation

### Model 4098-9755:

- Basic duct sensor housing (no relay output) powered by IDNet/MAPNET II communications

### Model 4098-9756:

- Duct sensor housing with supervised output for multiple remote relays; requires separate 24 VDC; includes one relay
- Relay output is under panel control
- At the panel, relay output can be activated manually or in response to a separate alarm or other input

### General features:

- UL listed to Standard 268A
- Clear cover allows visual inspection
- Test ports provide functional smoke testing access with cover in place
- Mounts to rectangular ducts or round ducts; minimum size is 8" (203 mm) square or 18" (457 mm) diameter
- Magnetic test feature for alarm initiation at housing
- Optional weatherproof enclosure is available separately (refer to data sheet S4098-0032)

### Diagnostic LEDs (on interface board):

- Red Alarm/Trouble LED for sensor status and communications polling display
- Yellow LED for open or shorted trouble indication of supervised relay control (4098-9756 only)

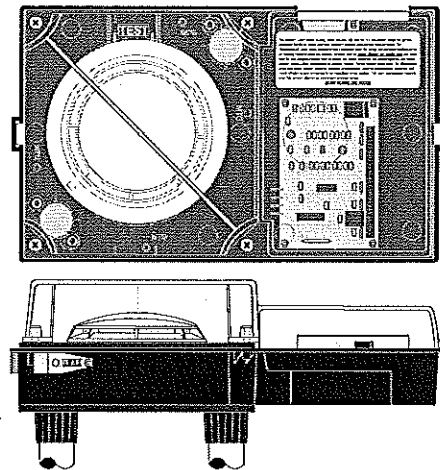
### Sampling tubes (ordered separately):

- Available in multiple lengths to match duct size
- Installed and serviced with housing in place

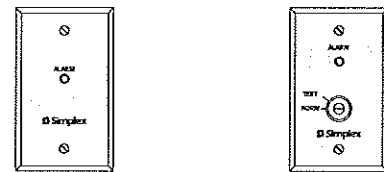
### Remote module options (ordered separately):

- Remote red status/alarm LED (2098-9808)
- Remote test station with LED (2098-9806)
- 4098-9843 remote relays (refer to page 2 for details)

\* These products have been approved by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 3240-0028.241 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. Accepted for use – City of New York Department of Buildings – MEA35-93E. 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 Safety Products Westminster.



Duct Sensor Housing, Front and Bottom View



2098-9808

2098-9806

Remote Status/Alarm Indicator and Test Station

## Introduction

**Operation.** Simplex® compact air duct smoke sensor housings provide TrueAlarm operation for the detection of smoke in air conditioning or ventilating ducts. Sampling tubes are installed into the duct allowing air to be directed to the smoke sensor mounted in the housing.

## TrueAlarm Sensor Operation

### Digital Communication of Analog Sensing.

Analog information from the sensor is digitally communicated to the control panel where it is analyzed. Sensor input is stored and tracked as an average value with an alarm or abnormal condition being determined by comparing the sensor's present value against its average.

**Intelligent Data Evaluation.** Monitoring each photoelectric sensor's average value provides a software filtering 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.

\*\* Please note that smoke detection in air ducts is intended to provide notification of the presence of smoke *in the duct*. It is not intended to, and will not, replace smoke detection requirements for open areas or other non-duct applications.

† TrueAlarm sensors and IDNet and MAPNET II 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; 5,543,777; 5,710,541; D383,407; D388,352; D392,573; 4,796,025.