

Tables 1 and 2 for compatibility between panel, base, and sensor.
require 24VDC power for sounder or relay operation and are not to be used with the 2120 CDT. See
their sensors receive both power and data over MAPNET II wiring. The 4098-9786 and -9787 bases
and 4098-9787 CDT. The 4098-9784 and 4098-9785 bases are not to be used with 2120 CDT. The 4098-9784 and 4098-9785 bases and
Transponder (CDT), 4020, 4100+, or 4120 Panel by a single wire pair (MAPNET II). The 4098-9786
TrueAlarm smoke/heat sensor bases are connected to a 2120 Multiple Communicating Device
MAPNET II Communication Net is protected by U.S. Patent No. 4,796,025.

Be sure that the location of each smoke sensor and each heat sensor has
been planned per local and national fire codes (see NFPA 72, Chapter 5).

- The following TrueAlarm sensors mount in the above bases:
- 4098-9701 Photoelectric
 - 4098-9731 Heat
 - 4098-9716 Ion
 - 4098-9732 Heat
2. Refer to Publication PER-21-015 (574-663) when installing the 4098-9781, 4098-9782, and
the above bases.
- Notes: 1. See Part D Accessory Installation (page 5) for installing the 4098-9822 Relay Module with
the above bases.
- 4098-9785 (with remote LED)
 - 4098-9787 (with relay)
 - 4098-9784
 - 4098-9786 (with sounder)
- Use the following procedures to install the following TrueAlarm smoke/heat sensor bases:

INTRODUCTION

Simplex® TrueAlarm® Smoke/Heat Sensor Bases Installation Instructions
4098-9784, -9785, -9786, & -9787

PART F — HEAT SENSOR INFORMATION

Use the 4098-9731 or 4098-9732 heat sensors for property protection only.

Fixed Temperature/Rate-of-Rise Sensor Functions

Fixed temperature functions are software programmed and selectable from the following UL
temperature rating:

UL Temperature Rating	UL Maximum Ambient Ceiling Temperature	UL Maximum Coverage (Sq. Ft.)	FM Maximum Coverage (Sq. Ft.)
135°F (57°C)	100°F (38°C)	2500	900
155°F (68°C)	100°F (38°C)	1600	900

Maximum distance from any wall partition or ceiling projection (extending down more than 18 inches) is
25 feet.

Rate-of-rise functions are also software programmed and selectable from the following rates:

- 15°F per minute
- 20°F per minute

The 4098-9731 and 4098-9732 heat sensors also provide general temperature monitoring within their
specified range of 32-158°F (0-70°C).

WARNING: The 4098-9731 and 4098-9732 heat sensors do not protect life against fire
and smoke. In most fires, hazardous levels of smoke, heat, and toxic gases
can build up before a heat sensor initiates an alarm. Independent studies
indicate that heat sensors should only be used where property protection
alone is involved. In cases where life safety is a factor, the use of smoke
sensors is recommended. Under no circumstances should the heat
sensors be relied on as the sole measure for ensuring fire safety.

TABLE 1

CIRCUIT OR PANEL PID (MODEL NO.)
2120-7042 (CDT MAPNET II)
4020-010110 (4020 MAPNET II)
4020-7003 (4020 MAPNET II)
4100-0110 (4100 MAPNET II)
4120-0110 (4120 MAPNET II)

TABLE 2

SENSOR	COMPATIBLE BASE (CIRCUIT)	MAX. QTY. OF BASES PER CIRCUIT
4098-9701, 4098-9716, 4098-9731, or 4098-9732	4098-9784, 4098-9785, 4098-9786, or 4098-9787	127 (4020) 127 (4100+) 127 (4120)
	4098-9784 4098-9785	128 (CDT)

Notes

- Panel compatibility identification marker is the model number of the panel.
- Sensor compatibility identification marker is the model number found on the sensor label.
- For detailed interconnection data, see wiring diagrams in Document M-2120 CDT, 4020 Field Wiring Diagram (841-842), 4100 (includes 4120) Field Wiring Diagram (841-731), and MAPNET II Devices Wiring Diagram (841-804).
- The 4098-9786 base is also suitable for use as a notification appliance in accordance with the requirements of UL Standard 464.

PART A — SETTING THE BASE'S ADDRESS

Each sensor base has a unique address. This address is associated with a custom label which identifies
its physical location within a building. The base's address and location must match up with the address
listed in the specification sheets of the 2120 Job Configuration Report or the Programmer's Report for
the 4020, 4100+, or 4120 System.

Address Setting for the 2120 CDT System

- Using the 2120 Job Configuration Report, find the entry for the sensor base (4098-9784 and 4098-
9785 only) you are about to install. The CUSTOM LABEL column provides the location while the
DEVICE ADDRESS column provides the switch setting data.
 - Using the switch setting data for the base you're installing, set the base's address. Use a small
screwdriver or pen to set the switches.
- For the switch setting data in the DEVICE ADDRESS column, "0" is switch "ON" while "1" is switch
"OFF."
- Double-check the location of the sensor base and its address before proceeding to electrical
installation.

Address Setting for the 4020, 4100+, or 4120 System

- Using the Programmer's Report for the 4020, 4100+, or 4120, find the entry for the sensor base you
are about to install. The device ADDRESS and CUSTOM LABEL are located in the SYSTEM
POINT SUMMARY under "M."
- For example, Address M1-7 (for the 4100+ or 4120 system) is circled in Figure 1. M1 is the
addressable channel while -7 is the device address on the channel. For a base with Address M1-7,
Address 7 must be set on the base's DIP switches (SW1). Address 7 is circled in Table 3.

Note: For Address 4-7 circled in Figure 1, the "4" identifies the MAPNET® card address.

4020 System

-----DOCUMENTATION

SYSTEM POINT SUMMARY Page 4
9304100A node:1 rev:1 10:50:20, WED, 14-JUN-95

---System Point Summary (ascending by zone name): POINT SUMMARY

Zone Name	Custom Label	Device Type	Point Type	PNIS Code
MULTI IO CARD 1	POINT IO1	PULL	MONA	MONA
IO2	MULTI IO CARD 1	POINT IO2	PULL	MONA
IO3	MULTI IO CARD 1	POINT IO3	SSIGNAL	SIGA
IO4	MULTI IO CARD 1	POINT IO4	SSIGNAL	SIGA
M1-1	COMPUTER LAB BLDG 21	VSMOKE	ION	ION
M1-2	3RD FLOOR EAST WING ROOM 18	SMOKE	GENIAM	GENIAM
M2-1	2ND FLOOR WEST WING ROOM 12	SMOKE	ADDRDET	ADDRDET
IO9	BASEMENT EAST WING ROOM 3	IO9 SFPUMP	MONA	MONA

4100+ or 4120 System

-----DOCUMENTATION

SYSTEM POINT SUMMARY Page 2
9304100A node:1 rev:1 16:32:47, WED, 14-JUN-95

---System Point Summary (ascending by zone name): POINT SUMMARY

Zone Name	Custom Label	Device Type	Point Type	PNIS Code
FIRST FLOOR MICROWAVE ROOM	ADRPUL	PULL		
M1-2	FIRST FLOOR DINING ROOM	ADRPUL	PULL	
M1-3	FIRST FLOOR LOBBY	ADRPUL	PULL	
M1-4	FIRST FLOOR MECHANICAL ROOM 2	ADRPUL	PULL	
M1-5	FIRST FLOOR LOADING DOCK	ADRPUL	PULL	
M1-6	1ST FLR MECH RM 1	PHOTO	VSMOKE	
M1-7	1ST FLR MECH RM 1	M1-7	SMOKE	GENIAM

DEVICE ADDRESS

System Point Summaries with MAPNET II Addresses
Figure 1

TABLE 3
(4020, 4100+, OR 4120 USE ONLY)

SW 1-1	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	ADDRESS
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ADDRESS 1
OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	ADDRESS 2
ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ADDRESS 3
OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ADDRESS 4
ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ADDRESS 5
OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	ADDRESS 6
OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 7
OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ADDRESS 8
ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ADDRESS 9
OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	ADDRESS 10
ON	ON	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 11
OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 12
ON	OFF	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 13
OFF	ON	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 14
ON	ON	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 15
OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	ADDRESS 16
ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ADDRESS 17
OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	ADDRESS 18
ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ADDRESS 19
OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	ADDRESS 20
ON	OFF	ON	OFF	ON	OFF	OFF	OFF	ADDRESS 21
OFF	ON	ON	OFF	ON	OFF	OFF	OFF	ADDRESS 22
ON	ON	ON	ON	OFF	OFF	OFF	OFF	ADDRESS 23
OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 24
ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 25
OFF	ON	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 26
ON	ON	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 27
OFF	ON	ON	ON	ON	OFF	OFF	OFF	ADDRESS 28
ON	OFF	ON	ON	ON	OFF	OFF	OFF	ADDRESS 29
OFF	ON	ON	ON	ON	OFF	OFF	OFF	ADDRESS 30
ON	ON	ON	ON	ON	OFF	OFF	OFF	ADDRESS 31
OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 32
ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 33
OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 34
NO	ON	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 35
OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 36
ON	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 37
OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 38
ON	ON	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 39
OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 40
ON	OFF	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 41
OFF	ON	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 42
NO	ON	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 43
OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 44
ON	OFF	ON	ON	OFF	ON	OFF	OFF	ADDRESS 45
OFF	ON	ON	ON	OFF	ON	OFF	OFF	ADDRESS 46
ON	ON	ON	ON	ON	OFF	OFF	OFF	ADDRESS 47
OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 48
ON	OFF	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 49
OFF	ON	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 50
ON	ON	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 51
OFF	OFF	ON	OFF	ON	ON	OFF	OFF	ADDRESS 52
ON	OFF	ON	OFF	ON	ON	OFF	OFF	ADDRESS 53
OFF	ON	ON	OFF	ON	ON	OFF	OFF	ADDRESS 54
ON	ON	ON	OFF	ON	ON	OFF	OFF	ADDRESS 55
OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 56
ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 57
OFF	ON	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 58
ON	ON	OFF	ON	ON	OFF	OFF	OFF	ADDRESS 59
OFF	OFF	ON	ON	ON	OFF	OFF	OFF	ADDRESS 60
ON	OFF	ON	ON	ON	OFF	OFF	OFF	ADDRESS 61
OFF	ON	ON	ON	ON	OFF	OFF	OFF	ADDRESS 62
ON	OFF	ON	ON	ON	OFF	OFF	OFF	ADDRESS 63
OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 64
ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 65
OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 66
ON	ON	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 67
OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 68
ON	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 69
OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 70
OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 71
OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 72
ON	OFF	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 73
OFF	ON	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 74
ON	ON	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 75
OFF	OFF	ON	ON	OFF	ON	OFF	OFF	ADDRESS 76
ON	OFF	ON	ON	OFF	ON	OFF	OFF	ADDRESS 77
OFF	ON	ON	ON	OFF	ON	OFF	OFF	ADDRESS 78
ON	ON	ON	ON	OFF	ON	OFF	OFF	ADDRESS 79
OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	ADDRESS 80
ON	OFF	OFF	OFF	ON	OFF	ON	OFF	ADDRESS 81
OFF	ON	OFF	OFF	ON	OFF	ON	OFF	ADDRESS 82
ON	ON	OFF	OFF	ON	OFF	ON	OFF	ADDRESS 83
OFF	OFF	ON	OFF	ON	OFF	ON	OFF	ADDRESS 84
ON	OFF	ON	OFF	ON	OFF	ON	OFF	ADDRESS 85
OFF	ON	ON	OFF	ON	OFF	ON	OFF	ADDRESS 86
ON	ON	ON	OFF	ON	OFF	ON	OFF	ADDRESS 87
OFF	OFF	OFF	ON	ON	OFF	ON	OFF	ADDRESS 88
ON	OFF	OFF	ON	ON	OFF	ON	OFF	ADDRESS 89
OFF	ON	OFF	ON	ON	OFF	ON	OFF	ADDRESS 90
ON	ON	OFF	ON	ON	OFF	ON	OFF	ADDRESS 91
OFF	OFF	ON	ON	ON	OFF	ON	OFF	ADDRESS 92
ON	OFF	ON	ON	ON	OFF	ON	OFF	ADDRESS 93
OFF	ON	ON	ON	ON	OFF	ON	OFF	ADDRESS 94
ON	ON	ON	ON	ON	OFF	ON	OFF	ADDRESS 95
OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 96
ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 97
OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 98
ON	ON	OFF	OFF	OFF	ON	OFF	OFF	ADDRESS 99
OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 100
ON	OFF	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 101
OFF	ON	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 102
ON	ON	ON	OFF	OFF	ON	OFF	OFF	ADDRESS 103
OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 104
ON	OFF	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 105
OFF	ON	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 106
ON	ON	OFF	ON	OFF	ON	OFF	OFF	ADDRESS 107
OFF	OFF	ON	ON	OFF	ON	OFF	OFF	ADDRESS 108
ON	OFF	ON	ON	OFF	ON	OFF	OFF	ADDRESS 109
OFF	ON	ON	ON	OFF	ON	OFF	OFF	ADDRESS 110
ON	ON	ON	ON	OFF	ON	OFF	OFF	ADDRESS 111
OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 112
ON	OFF	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 113
OFF	ON	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 114
ON	ON	OFF	OFF	ON	ON	OFF	OFF	ADDRESS 115
OFF	OFF	ON	OFF	ON	ON	OFF	OFF	ADDRESS 116
ON	ON	ON	OFF	ON				

PART C — MECHANICAL INSTALLATION

Install the sensor base using Figure 4 as a reference. See WARNING below.

WARNING: READ THE INFORMATION BELOW BEFORE INSTALLING SENSOR TO ITS BASE.

Each sensor comes with a **dust cover** to protect it from contamination during completion of building construction.

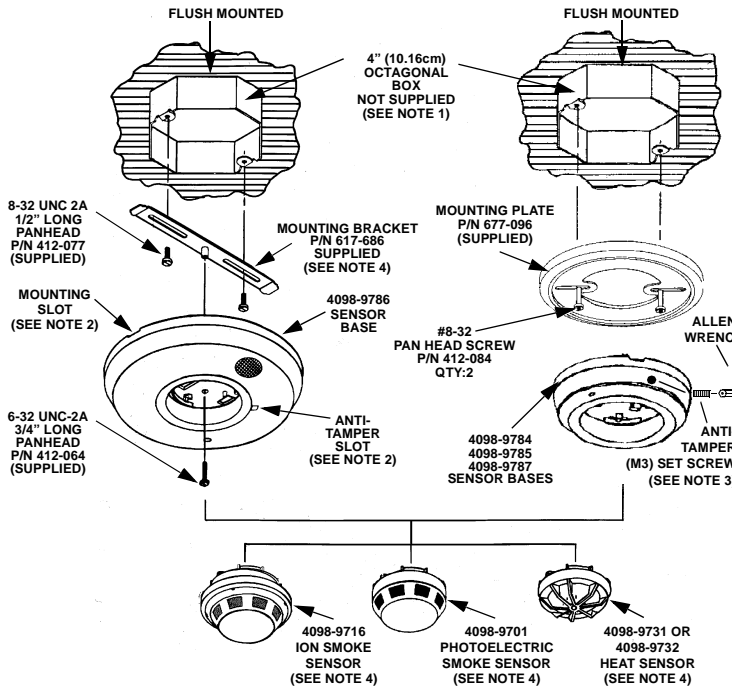
To properly install the sensor to its base:

1. Remove dust cover from sensor.
2. Install sensor by inserting sensor into its base opening, rotating sensor counterclockwise until it drops into the seated position, and rotating sensor clockwise to latch the contacts.

IMPORTANT: An audible “snap” indicates proper contact engagement.

3. Re-install dust cover over sensor until system is ready to use.

WARNING: System will not operate with dust cover in place.



- Notes:**
1. Base also fits the following boxes: 4" (10.16 cm) square, 3-1/2" (8.89 cm) octagonal, or single-gang. When using a single-gang box, use #6-32 screw and washer for mounting. The 4098-9784, -9785, and -9787 require the 4098-9821 trim plate to mount on a 4" square (recommended for retrofit only).
 2. To use the 4098-9786 sensor base anti-tamper feature, place a small screwdriver into the anti-tamper slot. Slide the lock up towards the sensor to lock the sensor to its base (an audible “snap” indicates a fully engaged lock); slide the lock away from the sensor to allow removal of the sensor from its base or anti-tamper set screw through plastic housing.
 3. To use the 4098-9784, -9785, or -9787 sensor base anti-tamper feature, screw the M3 metric anti-tamper set screw into the sensor base housing until anti-tamper set screw is flush with the outside of the sensor base housing and locks sensor into position.
 4. Each bent end of the mounting bracket fits into the base’s corresponding mounting slot.
 5. Contact your Simplex representative if you have trouble identifying the appropriate sensor.

Mechanical Installation – Sensor/Base
Figure 4

PART D — ACCESSORY INSTALLATION

Use the following procedures to install the 4098-9822 or 2098-9737 relay module with the 4098-9785, 4098-9786, or 4098-9787 sensor base.

The 4098-9822 relay module has two Form C outputs. The module is activated by the remote LED output of the sensor base. A separate 24VDC power source must be provided to the relay.

The 4098-9822 energizes whenever the LED output of the sensor base is turned ON steady (pulsing LED output is ignored). The base’s LED output is turned ON:

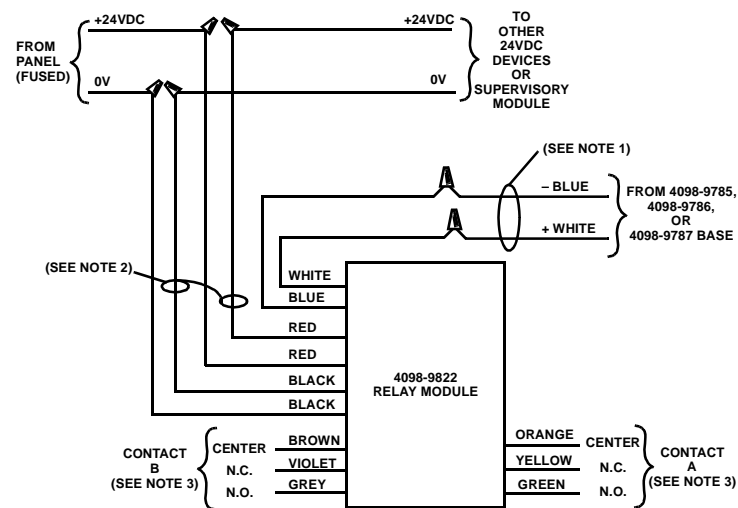
- When its sensor is in alarm or trouble
- When activated via the 4100+ keyboard

Note: Only 10 LED outputs can be activated at any one time.

Electrical Installation for Relay Module(s)

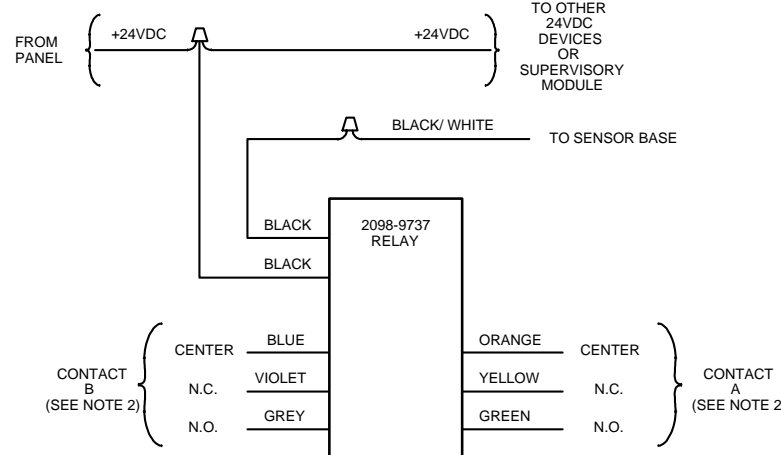
Install the relay module using Figure 5 or 6 as a reference.

IMPORTANT: Do not use a remote LED if wiring the 4098-9822 relay module to the remote LED output of the sensor base.



- Notes:**
1. Do not use remote LED.
 2. 18 to 32VDC, .008 amps, typical/.013 amps, max.
 3. Contact A or B: Dry, Form C - each rated 2 amps resistive at 24VDC or 0.5 amps resistive at 110VAC.

4098-9822 Relay Module Connections
Figure 5



- Notes:**
1. 18 TO 32VDC, 24mA typical/ 35mA MAX.
 2. Contact A or B: Dry, Form C-eachrated 2 amps at 28VDC

2098-9737 Relay Module Connections
Figure 6

Mechanical Installation for Relay Module(s)

Install the relay module(s) using the following steps:

1. Mount a 1-1/2 inch (3.81 cm) extension (not supplied) to an octagonal or square electrical box (not supplied). The extension ring is required to meet the minimum box volume requirement (32.3 cu. inch/529.4 cu. cm) for relay module installation.
2. Mount relay module inside extension ring directly behind base and sensor. Do not mount remotely. See Figure 5 or 6 for relay module connections.

Note: Use the exact configuration of electrical box (square or octagonal) with extension to mount detector base when installing the relay module.

PART E — SMOKE SENSOR INFORMATION

General Information

Before installing smoke sensors, make a survey of the area to be covered in accordance with information provided in NFPA 72, Chapter 5 (an overview of which is provided below). For specific applications, refer to Simplex publication “Common Code Requirements For Fire Alarm Systems” — Publication No. FA2-91-010. For additional information, refer to NFPA 72 and the NEMA Guide for Proper Use of System Smoke Detectors.

When connected to a 2120, 4020, 4100+, or 4120 control unit, the 4098-9701 photoelectric smoke sensor and the 4098-9716 ion smoke sensor may have their sensitivities adjusted within their listed and marked range. Sensitivity adjustment allows each sensor to be individually customized for the exact environment of where it is installed.

Special Considerations

- Is there human occupancy?
- Contents to be protected.
- Type of construction and use.
- Burning characteristics of contents.
- Air movement - stratification.
- Deflections and obstructions.
- Height of ceilings.
- Surface conditions of ceilings.
- Type of ceiling construction.
- Total area.
- Vent locations - velocities - dilution.

Applications

Each smoke sensor is capable of providing up to 900 square feet (84 square meters) of coverage, depending on:

1. Requirements of local codes.
 2. Results of engineering evaluation.
 3. Physical characteristics of protected area.
- Examples:
- a. Smooth, flat ceiling
 - Sensors may be spaced 30 feet (9 meters) apart.
 - b. Ceiling divided by beams of more than 18 in. (46 cm) depth
 - At least one sensor will be required in the space between every two beams.
 - c. Ceiling divided by beams of more than 8 in. (20 cm) but less than 18 in. (46 cm) depth
 - Reduce the coverage area for each sensor, and mount the sensor to the bottom of the beams.

Important

Smoke must enter the chamber of the sensor. Thus, air flow, air stratification, air velocity, air stagnation, and air migration will affect sensor efficiency. Therefore:

- Do not install sensors in areas where temperatures are likely to exceed 100°F (38°C) or fall below 32°F (0°C).
- Do not install sensors on a ceiling within 4 inches (10 cm) of a wall.
- Do not install sensors where forced air ventilation may dilute the smoke before it reaches the sensor.
- Do not install sensors in areas where smoke is normally present (kitchens, furnace rooms, laundry rooms, loading docks, rooms with fireplaces, rooms with candles, soldering rooms, etc.).
- Do not install sensors in areas where there is likely to be steam (in hospital patient rooms with vaporizers, near shower rooms, above large sinks, etc.).
- Do not install sensors above ashtrays in elevator lobbies.
- Wall-mounted sensors should be located 4 to 12 inches from the ceiling to sensor.
- Protect all sensors during construction to avoid infiltration of construction debris!

Maintenance

The minimal requirement for smoke sensor maintenance should consist of clearing surface dust by using a vacuum cleaner. Cleaning programs should comply with NFPA and local environments. Cleaning of the internal chamber should only be done by a Simplex technical representative.

For service, return to Simplex Time Recorder Co., Simplex Plaza, Gardner, MA 01441-0001.

Test Equipment Available

- 2098-9822 (553-394) Extendable Smoke Generator
- 553-406 Smoke Punk Sticks
- 553-761 Removal Tool Adapter (For 4098-9732 Heat Sensor Removal; requires 553-760)
- 553-673 Smoke Detector Aerosol Tester
- 553-760 Test and Removal Tool with Holder (see note)
- 553-684 Extension Pole, 4 Feet (use with 553-760)
- 553-685 Extension Pole, 6 Feet (use with 553-760)

Note: The 2098-9814 Test and Removal Tool and 2098-9815 Holder can be used in place of the 553-760 Test and Removal Tool with Holder. This unit is not compatible with the 4098-9732 Heat Sensor.

Testing

Smoke sensor sensitivities are set and continuously monitored by the control unit. Dirty or out-of-range sensors are annunciated by the control unit. This functionality complies with NFPA 72, Chapter 7. When functional testing of the sensors is required per NFPA 72, use the test methods listed below.

Caution: Before functionally testing the sensors, be sure to disconnect the city connection, releasing devices, and extinguishing systems (or for the 4020, 4100+, or 4120 panel, put the panel in the Walk Test™ mode).

Walk Test is protected by U.S. Patent No. 4,725,818.

Test Methods

(Preferred Method)

NFPA minimally requires annual testing of sensors at their installed location using smoke. To perform this annual test, use the 553-394 Extendable Smoke Generator.

(Alternate Method)

Note: The following test method is suitable for functional checks during installation; however, testing with smoke must be performed to comply with NFPA requirements.

Using the 553-760 Test and Removal Tool mounted in the 2098-9815 (553-553) Test and Removal Tool Holder, place the test ring around the sensor while positioning the magnet near the word “TEST” found on the sensor base. (Testing a sensor with a magnet will report a value of 255 for actual/peak. Since any future peak values are invalidated, clear peak value after test using P134.)

Note: After testing the sensors, reset the fire alarm panel to restore the fire alarm system to normal status.

TABLE 4

SPECIFICATIONS	SENSOR BASE DATA			
Sensor Base/ Compatibility Identifier	4098-9784	4098-9785	4098-9786	4098-9787
Working Voltage (MAPNET II)	18 – 39 VDC	18 – 39 VDC	18 – 39 VDC	18 – 39 VDC
Working Voltage (Sounder/Relay Power)	—	—	18 – 32 VDC	18 – 32 VDC
Current (MAPNET II)	1.0 mA	1.0 mA	1.0 mA	1.0 mA
Standby Current (Sounder/Relay)	—	—	280 µA	280 µA
Alarm Current (Sounder/Relay)	—	—	15 mA	28 mA
Sound Pressure at 10 Ft. (Sounder)	—	—	85 dB (minimum)	—
Test Procedure	Magnet or 553-760	Magnet or 553-760	Magnet or 553-760	Magnet or 553-760

* Compatibility identifier is the PID (model number) found on the sensor base.

Limitations of Smoke Sensors

The smoke sensors used with the 4098-9784, -9785, and -9786, and -9787 bases are designed to activate and initiate emergency action, but will do so only when used in conjunction with a 2120 CDT (4098-9784 and 4098-9785 only), 4020, 4100+, or 4120 system which includes proper hardware/software installed for this operation. They are designed for installation in accordance with NFPA 72.

Smoke sensors will not work without power. AC or DC-powered sensors will not work if the power supply is cut off for any reason.

Smoke sensors will not sense fires which start where smoke does not reach the sensors. Smoke from fires in chimneys, in walls, on roofs, or on the other side of closed doors may not reach the sensor.

A sensor may not detect a fire developing on another level of a building. For this reason, sensors should be located on every level of a building.

Smoke sensors have sensing limitations, too. Ionization sensors are better at detecting fast, flaming fires than slow, smoldering fires. Photoelectric sensors sense smoldering fires better than flaming fires. Because fires develop in different ways, and are often unpredictable in their growth, neither type of sensor is always best, and a given sensor may not always provide warning of a fire. In general, sensors cannot be expected to provide warning for fires resulting from inadequate fire protection practices, violent explosions, escaping gases, improper storage of flammable liquids like cleaning solvents, other safety hazards, or arson.

Smoke sensors cannot last forever. Smoke sensors contain electronic parts. Even though sensors are made to last for many years, any of these parts could fail at any time. Therefore, test your sensor system per NFPA 72 at least semi-annually. Clean and take care of your sensors regularly.

CAUTION

Smoke sensor sensitivities are set and continuously monitored by the control unit. The normal (UL) sensitivity range (setting) is from 0.5%/FT to 3.7%/FT of smoke obscuration.

However, you can set the 4098-9701 photoelectric sensor for a (UL) sensitivity of 0.2%/FT smoke obscuration. This is a very sensitive setting; **only use the 0.2%/FT setting when a sensor is located in a totally smoke-free environment**, such as a computer room or telephone switching exchange.

To determine if an area is suitable for the 0.2%/FT setting, set the sensitivity for the installed sensor at 1.5%/FT and monitor the peak values for **90 days**. If you record a peak value of 0.1%/FT or higher during the 90 days, **do not use the 0.2%/FT setting**.