Simplex

Addressable Smoke Detector Bases
MAPNET I®
2098-9641 and 2098-9643
MAPNET II®
2098-9651 and 2098-9652
Installation Instructions

NTRODUCTION

Jse these procedures to install the following addressable smoke detector bases:

- 2098-9641
- 2098-9643 (with alarm LED)
- 2098-9651
- 2098-9652 (with alarm LED)

The following photoelectric, ionization, or heat detector heads mount in the above bases per Tables 1 and 2 below:

- 2098-9201
- 2098-9202
- 2098-9203
- 2098-9438
- 2098-9478
- 2098-9576

> Be sure that the location of each smoke detector has been planned per local and national fire codes (see NFPA 72E, Sections 3-1 through 3-5 and Sections 4-1 through 4-6).

Addressable smoke detector bases are connected to a 2120 Multiplex Communicating Device Transponder (CDT), 4020 Fire Alarm Control Panel, or 4100+ Fire Alarm Control Panel by a single wire pair (MAPNET I®). The detector base and head obtain both power and data over MAPNET®. See Tables 1 and 2 for compatibility between panel, base, and heads.

TABLE 1

Circuit or Panel PID (Model No.)
2120-7040 (CDT MAPNET I®)
2120-7041 (CDT MAPNET II®)
4020-0110 (4020 MAPNET II®)
4020-7003 (4020 MAPNET II®)
4100-0110 (4100+ MAPNET II®)

TABLE 2

Detector Heads	Compatible Base (Circuit)	Max. Qty. of Bases per Circuit
2098-9201, 2098-9202, 2098-9203, 2098-9438, 2098-9478, or 2098-9576	2098-9641, or 2098-9643 (MAPNET I®)	127 (4020) 127 (4100+) 128 (CDT)
	2098-9651, or 2098-9652 (MAPNET II®)	

Notes:

1. Panel compatibility identification marker is the model number of the panel.
2. Detector compatibility identification marker is the model number found on the detector label.
3. For detailed interconnection data, see wiring diagrams in Document M-2120 CDT, 4020 Field Wiring Diagram (841-842), 4100 Field Wiring Diagram (841-731), and MAPNET II® Devices Wiring Diagram (841-804).

Suffix "C" following an 8-digit Product ID number denotes ULC-listed product.

PER-21-020 (575-599)
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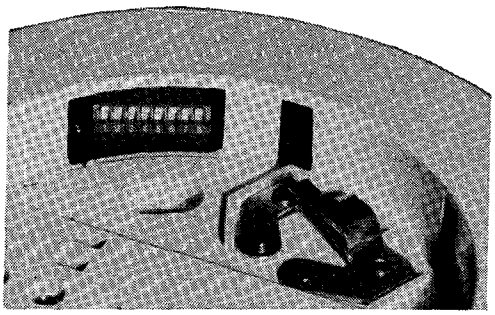
PART A — SETTING THE BASE'S ADDRESS

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

Address Setting for the 2120 CDT System (MAPNET I & II®)

1. Using the 2120 Job Configuration Report, find the entry for the detector base you are about to install. T CUSTOM LABEL column provides the location while the DEVICE ADDRESS column provides the switch setti data.
2. Using the switch setting data for the base you're installing, set the base's address. See Figure 1 for locatio switches. 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."
3. Double-check the location of the detector base and its address before proceeding to Part B.



Location of DIP Switches on the Detector Base FIGURE 1

Address Setting for the 4020 or 4100+ System

1. Using the 4020 or 4100+ Programmer's Report, find the entry for the detector base you are about to install. T DEVICE ADDRESS (with a "M" prefix) and CUSTOM LABEL are located in the SYSTEM POINT SUMMARY

   For example, Address M1-7 (for the 4100+ system) is circled in Figure 2. M1 is the addressable channel whil 7 is the device address on the channel. For a base with Address M1-7, Address 7 (circled in Table 3) must b set on the base's DIP switches. (Similarly, a base with Address M1-117 must have Address 117 set on its DI switches.)

Note: For Address 4-7 circled in Figure 2, the "4" identifies the MAPNET® card address.

2. Using the example given in Step 1 as a guideline, set the base's address using Table 3. See Figure 1 for locati of switches. Use a small screwdriver or pen to set the switches.
3. Mark an address label with the appropriate address for your base by shading a corresponding label box for ea base DIP switch in the ON position. (Address label marked Address 7 is shown in Figure 3.) Then apply the la to the base near the base's DIP switches.
4. Double-check the location of the detector base and its address before proceeding to Part B.

4020 SYSTEM

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245001A rev: 1                    SYSTEM POINT SUMMARY                    Page   4
OCUMENTATION                                                  15:40:02, TUE, 05-MAY-92

                                                                          POINT SUMMARY
ystem Point Summary (ascending by zone name):                                ZONE

                                                          Point    Device  PNIS
one Name Custom Label                                     Type     Type    Code
-------- ---------------------------------------- ------- ------- -----------
IO1      MULTI IO CARD 1  POINT IO1                       PULL     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
M1-2     3RD FLOOR EAST WING  ROOM 18                     SMOKE    GENIAM
M2-1     2ND FLOOR WEST WING  ROOM 12                     SMOKE    ADRDET
IO9      BASEMENT EAST WING  ROOM 3  IO9                  SFPUMP   MONA
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)EVICE ADDRESS

4100+ SYSTEM

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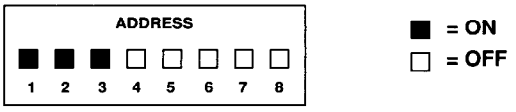
                                                                          Page 3
                          SYSTEM POINT SUMMARY                 11:16:53, THU, 05-MAY-89

                                                                          POINT SUMMARY
:ystem Point Summary (ascending by zone name):                               ZONE
```

one !ame	Address	Custom Label	Point Type	Device Type
M1-1	4-1	3RD FLOOR EAST WING ROOM 12	HEAT	MBZAM
M1-2	4-2	3RD FLOOR EAST WING ROOM 13	ALARM	MBZAM
M1-3	4-3	3RD FLOOR EAST WING ROOM 14	HEAT	MBZAM
M1-4	4-4	3RD FLOOR EAST WING ROOM 15	HMONITOR	ADRDE
M1-5	4-5	3RD FLOOR EAST WING ROOM 16	PULL	ADRPU
M1-6	4-6	3RD FLOOR EAST WING ROOM 17	SMOKE	MAZAM
M1-7	4-7	3RD FLOOR EAST WING ROOM 18	SMOKE	ADRDE
M1-8	4-8	3RD FLOOR EAST WING ROOM 19	TROUBLE	PSMON

EVICE ADDRESS

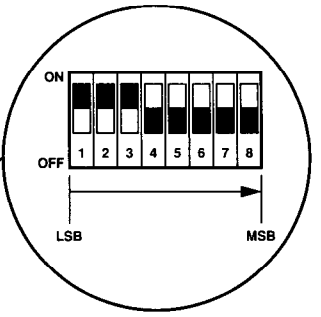
System Point Summaries with MAPNET II® Addresses
FIGURE 2

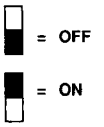


MAPNET II® Address Label
FIGURE 3

TABLE 3
(4020 OR 4100+ USE ONLY)

1	2	3	4	5	6	7	8
LSB							MSB





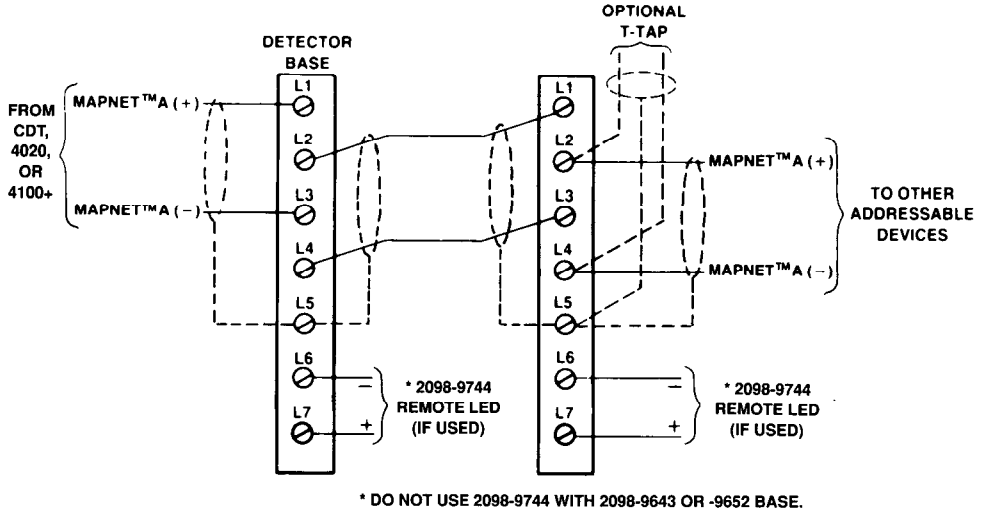
SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8		
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 1
OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 2
ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 3
OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 4
ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 5
OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 6
ON	ON	ON	OFF	OFF	OFF	OFF	OFF	=	ADDRESS 7
OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	=	ADDRESS 8
ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	=	ADDRESS 9
OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	=	ADDRESS 10
ON	ON	OFF	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	OFF	ON	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	OFF	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
ON	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
ON	ON	OFF	ON	OFF	ON	OFF	OFF	=	ADDRESS 43
OFF	OFF	ON	ON	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	OFF	ON	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	ON	OFF	OFF	=	ADDRESS 56
ON	OFF	OFF	ON	ON	ON	OFF	OFF	=	ADDRESS 57
OFF	ON	OFF	ON	ON	ON	OFF	OFF	=	ADDRESS 58
ON	ON	OFF	ON	ON	ON	OFF	OFF	=	ADDRESS 59
OFF	OFF	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 60
ON	OFF	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 61
OFF	ON	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 62
ON	ON	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 63
OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	=	ADDRESS 64
ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	=	ADDRESS 65
OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	=	ADDRESS 66
ON	ON	OFF	OFF	OFF	OFF	ON	OFF	=	ADDRESS 67
OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	=	ADDRESS 68
ON	OFF	ON	OFF	OFF	OFF	ON	OFF	=	ADDRESS 69
OFF	ON	ON	OFF	OFF	OFF	ON	OFF	=	ADDRESS 70

SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8		
ON	ON	ON	OFF	OFF	OFF	ON	OFF	=	ADDRESS .
OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	=	ADDRESS .
ON	OFF	OFF	ON	OFF	OFF	ON	OFF	=	ADDRESS .
OFF	ON	OFF	ON	OFF	OFF	ON	OFF	=	ADDRESS .
ON	ON	OFF	ON	OFF	OFF	ON	OFF	=	ADDRESS .
OFF	OFF	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS .
ON	OFF	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS .
OFF	ON	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS .
ON	ON	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS .
OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	=	ADDRESS
ON	OFF	OFF	OFF	ON	OFF	ON	OFF	=	ADDRESS
OFF	ON	OFF	OFF	ON	OFF	ON	OFF	=	ADDRESS
ON	ON	OFF	OFF	ON	OFF	ON	OFF	=	ADDRESS
OFF	OFF	ON	OFF	ON	OFF	ON	OFF	=	ADDRESS
ON	OFF	ON	OFF	ON	OFF	ON	OFF	=	ADDRESS
OFF	ON	ON	OFF	ON	OFF	ON	OFF	=	ADDRESS
ON	ON	ON	OFF	ON	OFF	ON	OFF	=	ADDRESS
OFF	OFF	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	OFF	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	ON	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	ON	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	OFF	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	OFF	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	ON	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	ON	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	OFF	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	OFF	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	ON	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	ON	OFF	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	OFF	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	OFF	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	ON	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
ON	ON	ON	ON	ON	OFF	ON	OFF	=	ADDRESS
OFF	OFF	OFF	ON	ON	ON	ON	OFF	=	ADDRESS
ON	OFF	OFF	ON	ON	ON	ON	OFF	=	ADDRESS
OFF	ON	OFF	ON	ON	ON	ON	OFF	=	ADDRESS
ON	ON	OFF	ON	ON	ON	ON	OFF	=	ADDRESS
OFF	OFF	ON	ON	ON	ON	ON	OFF	=	ADDRESS
ON	OFF	ON	ON	ON	ON	ON	OFF	=	ADDRESS
OFF	ON	ON	ON	ON	ON	ON	OFF	=	ADDRESS
ON	ON	ON	ON	ON	ON	ON	OFF	=	ADDRESS

PART B — ELECTRICAL INSTALLATION

Addressable devices are connected to the CDT, 4020, or 4100+ panel via a single wire pair. Connect the base to the MAPNET® wire pair using Figure 4 as a reference.

Note: If this is an addition to an existing installation, remove power from the CDT, 4020, or 4100+ panel before wiring the device.



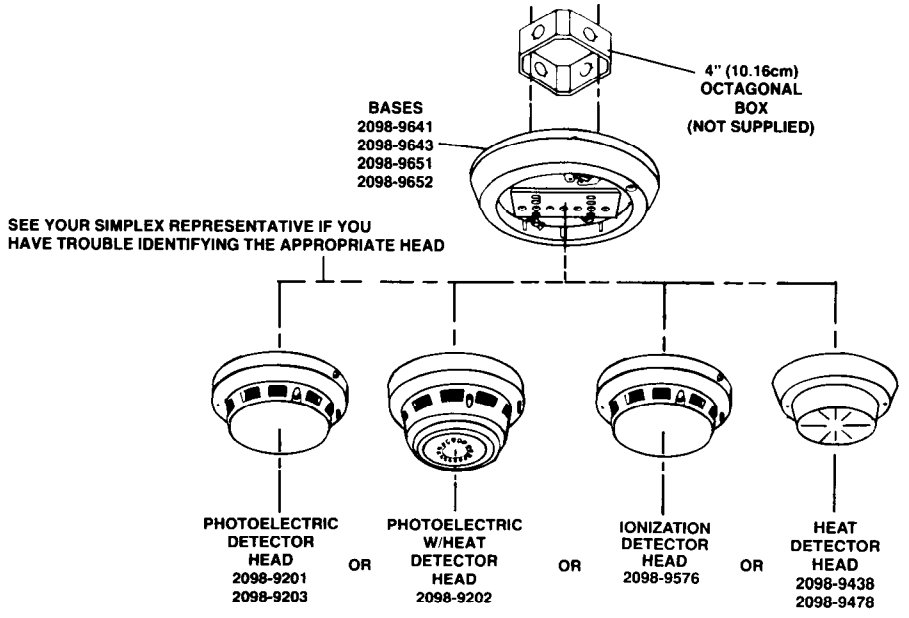
CAUTION: Ensure that cable shields do not ground when closing the box. Use shrink tubing or high grade electrical tape to cover bare shield.

Addressable Base Connections
FIGURE 4

PART C — MECHANICAL INSTALLATION

Install the detector base and head using Figure 5 as a reference.

Note: To avoid false alarm problems caused by dirty heads, do not install photoelectric detector heads until all construction debris has been removed from the area unless suitable protection, i.e., a cover, is provided with each detector head.



Mechanical Installation
FIGURE 5

PART D — DETECTOR INFORMATION

General Information

Before installing these detectors, make a survey of the area to be covered in accordance with information provided in NFPA 72E, Sections 4-1 through 4-5 (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 72E and the NEMA Guide for Proper Use of System Smoke Detectors.

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 detector is capable of providing from 450 to 900 square feet (42 to 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
      - Detectors may be spaced 30 feet (9 meters) apart.
   b. Ceiling divided by beams of more than 18 in. (46 cm) depth
      - At least one detector 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 detector, and mount the detector to the bottom of the beams.

Important

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

- Do not install detectors in areas where temperatures are likely to exceed 100°F (38°C) or fall below 32°F (0°C).
- Do not install detectors within 4 inches (10 cm) of a wall.
- Do not install detectors where forced air ventilation may dilute the smoke before it reaches the detector.
- Do not install detectors 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 detectors 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 detectors above ashtrays in elevator lobbies.
- Wall-mounted detectors should be located 4 to 12 inches (10-30.5 cm) from the ceiling to detector head.
- Protect all detector heads during construction to avoid infiltration of construction debris!

Maintenance

The minimal requirement for detector 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 Simplex technical representative.

Test Equipment Available

2098-9822 (553-394) Extendable Smoke Generator
2098-9809 (553-533) Sensitivity Tester
2098-9814 (553-536) Test and Removal Tool (for 2098-9201, -9202, -9203, & -9576)
2098-9815 (553-553) Test and Removal Tool Holder (for 553-536 & 553-574)

Testing

Caution: Before testing the smoke detectors, be sure to disconnect the city connection, release devices, and extinguish systems (or for the 4020 or 4100+ panel, put the panel in the Walk Test™ mode). When testing is complete, clear smoke from the detector (or remove test tool ring) and reset fire alarm panel.

(Preferred Method)

NFPA minimally requires annual testing of smoke detectors 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, perform testing with smoke to comply with NFPA requirements.

Using the 553-536 Test and Removal Tool mounted in the 553-553 Holder, place the test ring around the detector body to alarm the detector.

TABLE 4

SPECIFICATIONS	SMOKE DETECTOR DATA			
Detector	2098-9576	2098-9201	2098-9202	2098-9203
Type of Detector	Ionization	Photoelectric	Photoelectric with Heat	Photoelectric
Working Voltage	15-36.3 VDC	15-36.3 VDC	15-36.3 VDC	15-36.3 VDC
Voltage Waveform	Filtered DC 18V Ripple Max.	Filtered DC 18V Ripple Max.	Filtered DC 18V Ripple Max.	Filtered DC 18V Ripple Max.
Max. Alarm Current	86 mA	86 mA	86 mA	86 mA
Surge Current	200 uA	200 uA	200 uA	200 uA
Standby Current	40 uA	40 uA	40 uA	40 uA
Heat Element Rating	N/A	N/A	135° F	N/A
* Compatibility Identifier	2098-9576	2098-9201	2098-9202	2098-9203
Test Procedure	Magnet or 553-536	Magnet or 553-536	Magnet or 553-536	Magnet or 553-536
Max. Qty. Per Initiating Circuit	See Table 2	See Table 2	See Table 2	See Table 2

* Compatibility identifier is the PID (model number) found on the panel or module and detector base.

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

LIMITATIONS OF SMOKE DETECTORS

The smoke detectors used with these bases are designed to activate and initiate emergency action, but will do so only when used in conjunction with other equipment. They are designed for installation in accordance with NFPA standards 72-1990 and 72E.

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

Smoke detectors will not sense fires which start where smoke does not reach the detectors. Smoke from fires in chimneys, in walls, on roofs or on the other side of closed doors may not reach the smoke detector and alarm it.

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

Smoke detectors have sensing limitations, too. Ionization detectors are better at detecting fast, flaming fires than slow, smoldering fires. Photoelectric detectors sense smoldering fires better than flaming fires. Because fires develop in different ways, and are often unpredictable in their growth, neither type of detector is always best, and a given detector may not always provide warning of a fire. In general, detectors 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 detectors cannot last forever. Smoke detectors contain electronic parts. Even though detectors are made to last for many years, any of these parts could fail at any time. Therefore, test your smoke detector system per NFPA 72E and 72H at least semi-annually. Clean and take care of your detectors regularly.