SYSTEM SENSOR®

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DH400ACDCIHT Air Duct Smoke Detector

Before Installing

Please thoroughly read the System Sensor *Guide for Proper Use of Smoke Detectors in Duct Applications* (A05-1004), which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this manual are available online at www.systemsensor.com or via System Sensor's toll free fax-back service, Documents on Demand at 800/736-7672. NFPA Standards 72 and 90A should also be referenced for detailed information.

NOTICE: This manual should be left with the owner/user of this equipment.

IMPORTANT: This detector must be tested and maintained regularly following NFPA 72 requirements. The detector should be cleaned at least once a year.

⚠ **WARNING**

This detector is intended for use only with the 1451DHHT detector head (supplied).

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List of Tables and Figures

[1] General Description

An HVAC system supplies conditioned air to virtually every area of a building. Smoke introduced into this air duct system will be distributed to the entire building. Smoke detectors designed for use in air duct systems are used to sense the presence of smoke in the duct.

Model DH400ACDCIHT Air Duct Smoke Detectors are supplied with the model 1451DHHT ionization detector head. This smoke detection method is combined with an efficient housing design that samples air passing through a duct and allows detection of a developing hazardous condition. When sufficient smoke is sensed, an alarm signal is initiated at the fire control panel monitoring the detector, and appropriate action can be taken to shut off fans and blowers, change over air handling systems, etc. These actions can facilitate the management of toxic smoke and fire gases throughout the areas served by the duct system.
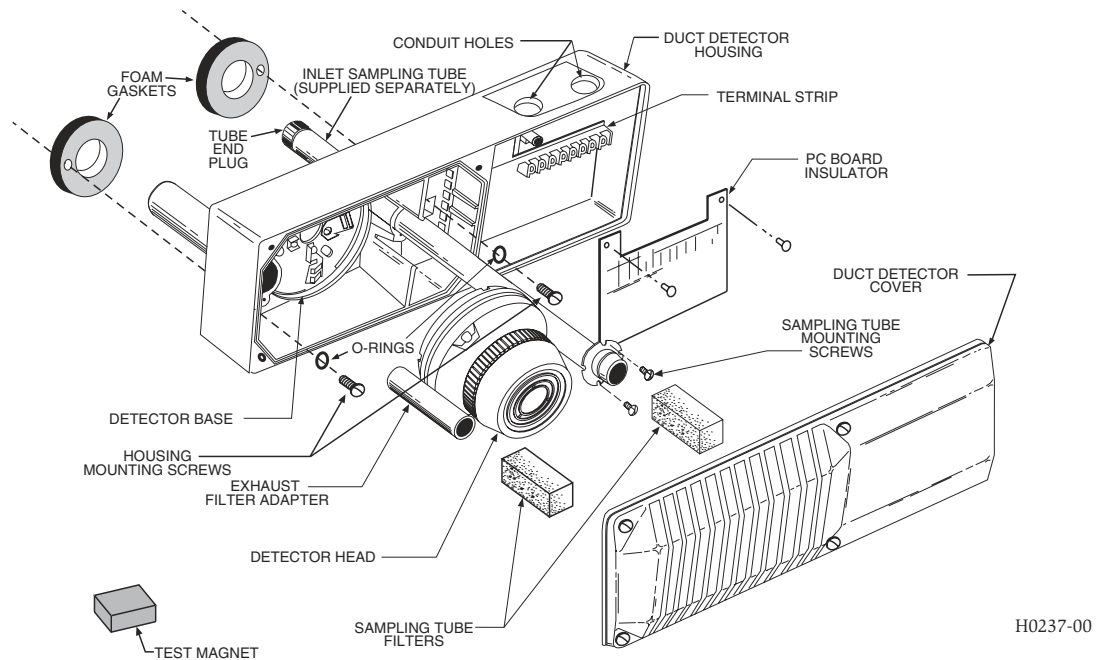
The DH400ACDCIHT air duct smoke detector is designed to operate from 24 VDC, 24 VAC, 120 VAC, or 240 VAC. Alarm and supervisory relay contacts are available for control panel interface (alarm initiation), HVAC control, and other auxiliary functions. This detector is not designed for 2-wire applications.

For testing, the alarm can be enabled by a magnet activated test switch or by the optional remote test station. The duct smoke detectors latch into alarm state when alarm occurs. LEDs on each detector illuminate to provide local alarm indication, and optional accessories offer a variety of annunciation capabilities.

The detector can be reset by a momentary power interruption, by the magnet activated reset switch, or by the optional remote test station.

NOTICE: The DH400ACDCIHT can be installed outdoors using the optional accessory DH400 OE-1. Please refer to section 9 for a description and installation instructions.

[2] Figure 1. Exploded View Of Duct Detector Components:

FOAM GASKETS

INLET SAMPLING TUBE (SUPPLIED SEPARATELY)

TUBE END PLUG

CONDUIT HOLES

DUCT DETECTOR HOUSING

TERMINAL STRIP

PC BOARD INSULATOR

DUCT DETECTOR COVER

SAMPLING TUBE MOUNTING SCREWS

O-RINGS

DETECTOR BASE

HOUSING MOUNTING SCREWS

EXHAUST FILTER ADAPTER

DETECTOR HEAD

TEST MAGNET

SAMPLING TUBE FILTERS

H0237-00

[3] Contents Of The Duct Detector Kit

1. Complete housing base and cover assembly
2. Two #10 sheet metal mounting screws
3. Two sampling tube filters
4. One test magnet
5. Drilling template
6. Two 5/16 O-rings
7. Two rubber tube bushing seals
8. Four #6 self-tapping mounting screws for the sampling and optional exhaust tube extension
9. One filter adapter
10. One inlet tube end plug
11. Two #10 speed nuts
12. One test coil and parts bag

NOTE: The inlet sampling tube must be ordered separately. It must be the correct length for the width of the duct where it will be installed. See Table 1 on page 4 to determine the inlet tube required for different duct widths.

[4] Installation Sequence

Step	Page
[4.1] Verify duct air flow direction and velocity	2
[4.2] Drill the mounting holes	3
[4.3] Secure the detector housing to the duct	3
[4.4] Install the sampling tube	3
[4.5] Complete the field wiring	5
[4.6] Install the filters and check pressure differential	5
[4.7] Perform detector check	5
[4.8] Install the cover	8

[4.1] Verify Duct Air Flow Direction And Velocity

Model DH400ACDCIHT detectors are designed to be used in air handling systems having air velocities of 500 to 4000 feet per minute. Be sure to check engineering specifications to ensure that the air velocity in the duct falls within these parameters. If necessary, use a velocity meter to check the air velocity in the duct.

[4.2] Drill The Mounting Holes

Remove the paper backing from the mounting template supplied. Affix the template to the duct at the desired mounting location. Make sure the template lies flat and smooth on the duct. Center punch holes A and B. Drill the holes as indicated on the template. Slide the two speed nuts over the two small holes (hole A) next to the sampling tube bushing holes (hole B) previously drilled in the duct. (See Figure 3.)

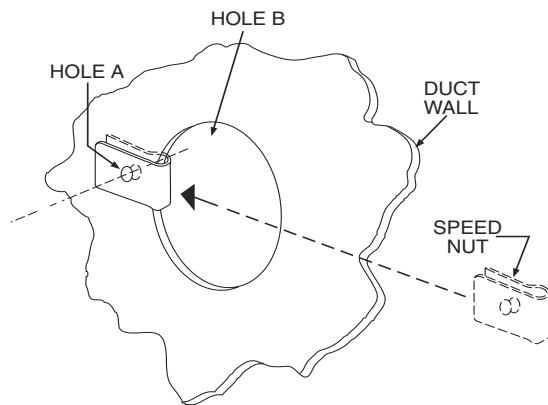### [4.3] Secure The Detector Housing To The Duct

Remove the duct housing cover. Slide the foam gaskets over the tube bushings as shown in Figure 2. Make sure the two small holes in the gaskets line up with the two base mounting holes. Put one 5/16-inch O-ring over each of the two #10 sheet metal screws. Use the two sheet metal screws to screw the detector housing to the duct. CAUTION: Do not overtighten the screws.

Figure 2. Installation of foam gaskets over sampling tube bushings:

H0238-00

Figure 3. Speed nut mounting location:

H0116-00

[4.4] Install The Inlet

The inlet tube (shown in Figure 4) is identified by a series of air inlet holes on the tube. This tube must be purchased separately. Order the correct length, as specified in Table 1, for width of the duct where it will be installed. The exhaust tube is molded into the base of the duct housing, and the A2440-00 Exhaust Tube Extension is available as an accessory in those cases where the molded exhaust port does not extend at least 2 inches into the duct.

The inlet tube is always installed in the centermost housing bushing, with air inlet holes facing into the air flow. To assist proper installation, the tube's mounting flange is marked with arrows. Make sure the inlet tube is mounted so that the arrows point into the air flow. Figure 5 shows the various combinations of tube mounting configurations with respect to air flow.

Mounting the detector housing in a vertical orientation is acceptable, provided that the air flows directly into the sampling tube holes as indicated in Figure 4.

Table 1. Inlet tubes required for different duct widths:

Outside Duct Width	Inlet Tube Required
1 to 2 ft.	ST-1.5
2 to 4 ft.	ST-3
4 to 8 ft.	ST-5
8 to 12 ft.	ST-10

[4.4.1] Installation For Ducts Less Than 8 Feet Wide

1. *If the tube is longer than the width of the air duct,* drill a 3/4-inch hole in the duct directly opposite the hole already cut for the inlet tube. *If the tube is shorter than the width of the air duct,* install the end plug into the inlet tube as shown in Figure 4. Sampling tubes over 3 ft. long must be supported at the end opposite the duct detector.
2. Slide the tube into the centermost housing bushing. Position the tube so that the arrows point into the air flow.
3. Secure the tube flange to the housing bushing with two #6 self-tapping screws.
4. For tubes longer than the width of the air duct, the tube should extend out of the opposite side of the duct. If there are more than 2 holes in the section of the tube extending out of the duct, select a different length using Table 1. Otherwise, trim the end of the tube protruding through the duct so that 1 to 2 inches of the tube extend outside the duct. Plug this end with the end plug and tape closed any holes in the protruding section of the tube. Be sure to seal the duct when the tube protrudes.

⚠WARNING

In no case should more than 2 air inlet holes be cut off the tube. There must be a minimum of 10 holes in the tube exposed to the air stream.

[4.4.2] Installation For Ducts More Than 8 Feet Wide

NOTE: To install inlet tubes in ducts more than 8 feet wide, work must be performed inside the air duct. Sampling of air in ducts wider than 8 feet is accomplished by using the ST-10 inlet sampling tube. If the tube is shorter than the width of the air duct, install the end plug into the inlet tube as shown in Figure 4 and support the end opposite the duct detector.

Figure 4. Air duct detector inlet sampling tube:

FLANGE — AIR HOLES

SAMPLING TUBE END CAP

ARROW MUST FACE INTO AIR FLOW

AIR FLOW DIRECTION

H0108-02

Figure 5. Tube mounting configurations with varying air flow direction:

DOTS INDICATE POSITION OF SAMPLING TUBE HOLES

AIR FLOW DIRECTION
DETECTOR HOUSING
A.
SAMPLING TUBE
EXHAUST TUBE

AIR FLOW DIRECTION
DETECTOR HOUSING
B.
EXHAUST TUBE
SAMPLING TUBE

HORIZONTAL MOUNTING OF HOUSING

EXHAUST TUBE
AIR FLOW DIRECTION
DETECTOR HOUSING
SAMPLING TUBE
C.

DETECTOR HOUSING
AIR FLOW DIRECTION
D.

VERTICAL MOUNTING OF HOUSING

H0109-01

Install the inlet tube as follows:

1. Drill a 3/4-inch hole in the duct directly opposite the hole already drilled for the inlet tube.
2. Slide the inlet tube with the flange into the centermost housing bushing. Position the tube so that the arrows point into the air flow. Secure the tube flange to the housing bushing with two #6 self-tapping screws.
3. From inside the duct, couple the other section of the inlet tube to the section already installed using the 1/2-inch conduit fitting supplied. Make sure that the holes on both of the air inlet tubes are lined up and facing into the air flow.
4. Trim the end of the tube protruding through the duct so that 1 to 2 inches of the tube extend outside the duct. Plug this end with the end plug and tape closed any holes in the protruding section of the tube. Be sure to seal the duct when the tube protrudes.
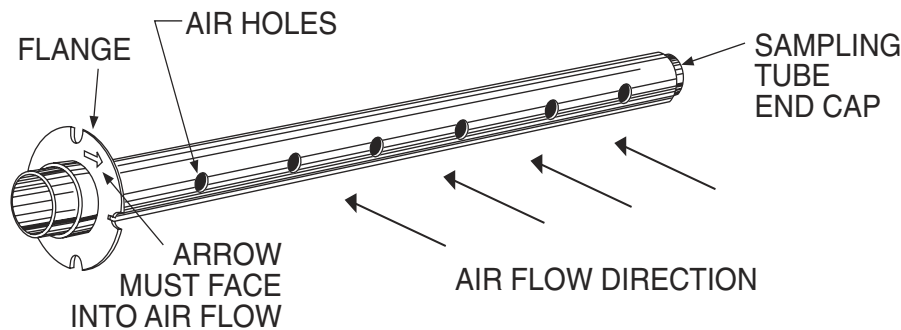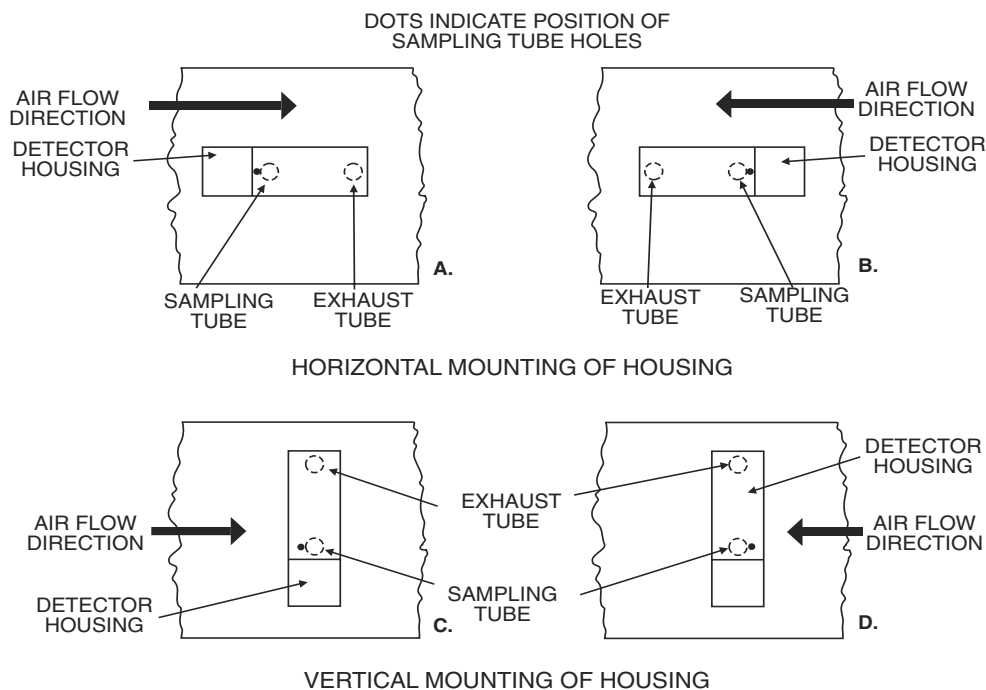
NOTE: An alternate method to using the ST-10 is to use two ST-5 inlet tubes. Remove the flange from one of the tubes and install as described above. After the installation, use electrical tape to close off some of the sampling holes so that there is a total of 10 to 12 holes spaced as evenly as possible across the width of the duct.

Air currents inside the duct may cause excessive vibration, especially when the longer sampling tubes are used. In these cases a 3 inch floor flange (available at most plumbing supply stores) may be used to fasten the sampling tube to the other side of the duct. When using the flange/connector mounting technique, drill a 1 inch to 1-1/4-inch hole where the flange will be used.

[5.4.3] Modifications Of Inlet Sampling Tubes

There may be applications where duct widths are not what is specified for the installation. In such cases, it is permissible to modify an inlet sampling tube that is longer than necessary to span the duct width.

Use a 0.193-inch diameter (#11) drill and add the appropriate number of holes so that the total number of holes exposed to the air flow in the duct is 10 to 12. Space the additional holes as evenly as possible over the length of the tube.

[5.5] Field Wiring
Wiring Installation Guidelines

All wiring must be installed in compliance with the National Electrical Code and the local codes having jurisdiction. Proper wire gauges should be used. The conductors used to connect smoke detectors to control panels and accessory devices should be color-coded to reduce the likelihood of wiring errors. Improper connections can prevent a system from responding properly in the event of a fire.

For signal wiring, (the wiring between interconnected detectors or from detectors to auxiliary devices), it is usually recommended that single-conductor wire be no smaller than 18 gauge. The duct detector terminals accommodate wire sizes up to 14 gauge. The last foot of conduit should be flexible steel conduit (available in electrical supply houses), which facilitates installation and puts less strain on the conduit holes in the housing. Solid conduit connections may be used, if desired.

Smoke detectors and alarm system control panels have specifications for allowable loop resistance. Consult the control panel manufacturer's specifications for the total loop resistance allowed for the particular model control panel being used before wiring the detector loop.
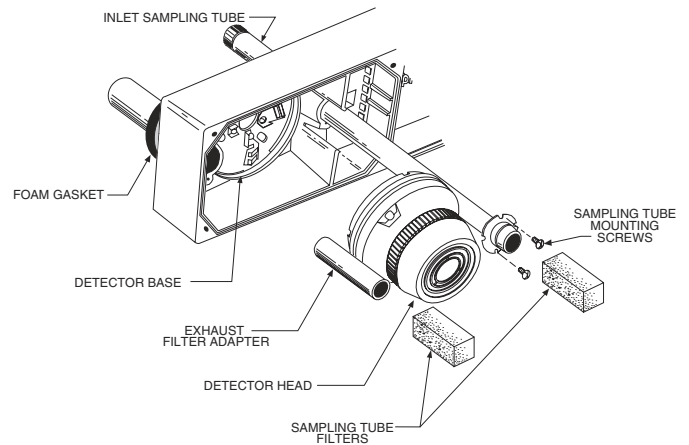
Wiring Instructions

The DH400ACDCIHT duct detector is designed for easy wiring. The housing provides a terminal strip with clamping plates. Wiring connections are made by stripping about 3/8-inch of insulation from the end of the wire, sliding the bare end under the plate, and tightening the clamping plate screw.

The detector may be wired for interconnection to UL listed control panels, or for stand alone service per NFPA 90A. Refer to the wiring diagrams of Figures 6, 7, and 8 to select the appropriate circuit for your application.

[5.6] Install The Filters

To install the sampling tube filters, simply push the filter adapter into the exhaust tube, and push the filter onto the adapter tube on the left, as shown in Figure 9. Install the other filter over the end of the inlet sampling tube.

Figure 6. Sampling tube filter installation:

H0239-00

⚠CAUTION

Filters require periodic cleaning or replacement, depending on the amount of dust and dirt accumulated. Visually inspect the filters at least quarterly; inspect them more often if the dust accumulation warrants it. See Section [6] for more information. Replacement filters can be ordered from System Sensor, 3825 Ohio Ave., St. Charles, IL 60174. (Exhaust tube/intake tube filter P/N F36-05-00).

[5.7] Perform Detector Check

1. Perform the STANDBY AND TROUBLE TEST per Section [6.2.1].
2. Perform the MAGNET TEST per Section [6.2.2.1]. The RTS451 test of Section [6.2.2.2] may substitute for this requirement.
3. Perform the AIR FLOW TEST per Section [6.1.1].
4. Perform the SMOKE RESPONSE TEST per Section [6.1.2].
5. Perform the SENSITIVITY TEST per Section [6.2.3].
6. Record all test results in the Detector Test Log at the end of this manual.

[5.8] Install The Cover

Install the cover using the four screws that are fixed in the housing cover. Be certain filters are installed as specified in Section [5.6]. Make sure that the cover fits into the base groove and that all gaskets are in their proper positions. Tighten the four screws to 10 in-lbs.

Figure 7. System wiring diagram for duct detectors using a UL listed control panel (see Figure 8 for wiring of optional accessories):

⚠CAUTION

Do not loop wire under terminals when wiring detectors. Break wire runs to provide system supervision of connections.

H0240-00

Figure 8. Wiring diagram for duct detector systems equipped without a control panel (see Figure 8 for wiring of additional optional accessories):

SEE SPECIFICATIONS FOR ADDITIONAL POWER SUPPLY INFORMATION.

AVAILABLE POWER INPUTS

1   2   12   13   14

24V

120 VAC

220/240 VAC

POWER INPUTS ACCEPT 24 VDC, 24 VAC 50-60 HZ, 120 VAC 50-60 HZ, OR 220/240 VAC 50-60 HZ. CONNECT POWER SOURCE TO APPROPRIATE TERMINALS OF EACH DETECTOR.

ALARM AUXILIARY CONTACTS FOR FAN SHUTDOWN, ETC.

FOR WIRING OF AUXILIARY DEVICES, REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS OR CONTACT MANUFACTURER.

15   16   17   18   19   20

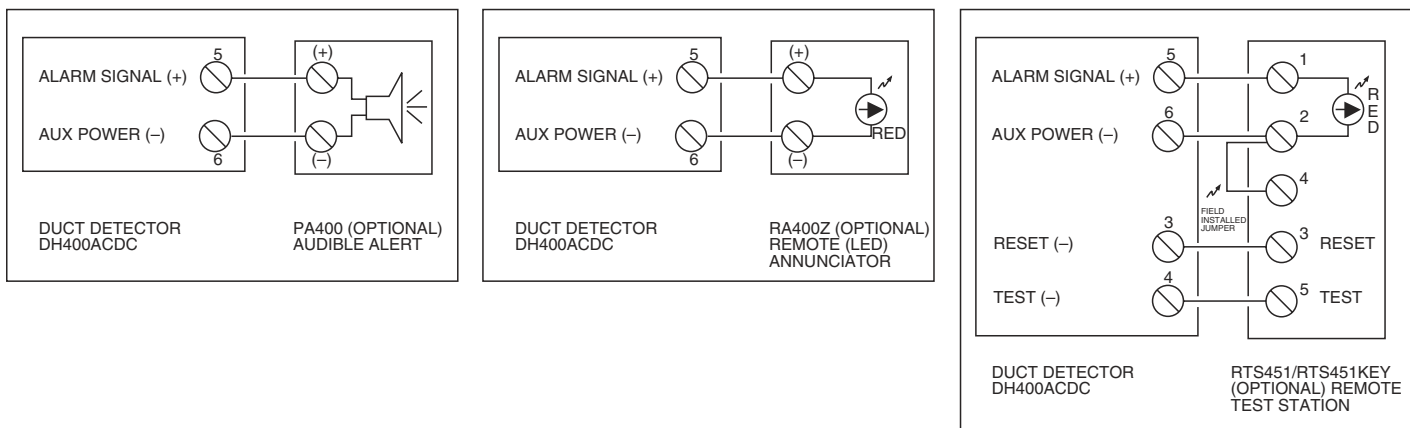N.C.   C.   N.O.   N.O.   C.   N.C.

ALARM AUXILIARY CONTACT RATINGS 10A @ 30 VDC RESISTIVE 10A @ 250 VAC 500mA MINIMUM @ 24 VDC NOT INTENDED FOR CONNECTION TO CONTROL PANELS.

ALARM AUXILIARY CONTACTS SHOWN IN STANDBY. CONTACTS TRANSFER DURING ALARM AS INDICATED BY THE ARROWS.

ALARM INITIATION CONTACTS

8   N.O.   9

ALARM INITIATION CONTACT RATING 2.0A @ 30 VAC/DC (0.6 POWER FACTOR)

TROUBLE CONTACTS CLOSED IN ALARM AND STANDBY. CONTACTS OPEN WHILE DETECTOR HEAD OR POWER IS REMOVED, AND DURING RESET. OPEN CONTACTS SIGNAL TROUBLE CONDITION TO PANEL.

2   ALARM   5   (+) ALARM SIGNAL

RED

1   COMMON   6   (–) AUX POWER

FIELD INSTALLED JUMPER

7   (+) AUX POWER

GRN.

10   TROUBLE CONTACTS

3   POWER   11

TROUBLE CONTACT RATING 0.3A @ 32 VAC/DC

TROUBLE CONTACTS CLOSED IN STANDBY AND ALARM. CONTACTS OPEN WHILE DETECTOR HEAD OR POWER IS REMOVED, AND DURING RESET. OPEN CONTACTS EXTINGUISH OPTIONAL APA451 GREEN "POWER" LED TO INDICATE TROUBLE CONDITION.

APA451
AUDIBLE PIEZO ALERT WITH ALARM AND POWER (TROUBLE) LEDS. FOR STAND ALONE APPLICATIONS ONLY. APA451 RECOMMENDED FOR COMPLIANCE TO NFPA 90A. LOCATE IN NORMALLY OCCUPIED AREA OF PREMISES.

DH400ACDCIHT
DUCT DETECTOR

H0241-00

Figure 9. Wiring diagrams for optional accessories (see Figure 7 for APA451 wiring diagram):

H0242-00

[5] Duct Detector Maintenance And Test Procedures

Test and maintain duct detectors as recommended in NFPA 72. The tests contained in this manual were devised to assist maintenance personnel in verification of proper detector operation.

Before conducting these tests, notify the proper authorities that the smoke detection system will be temporarily out of service. Disable the zone or system under test to prevent unwanted alarms.

After conducting these tests, record the appropriate information in the Detector Test Log at the end of this manual.

[5.1] Smoke Entry Tests
[5.1.1] Air Flow

To verify sufficient sampling of ducted air, use a manometer to measure the differential pressure created from air flow across the sampling tubes. The pressure should measure no less than 0.01 inches of water and no greater than 1.20 inches of water.

[6.1.2] Smoke Response

To determine if smoke is capable of entering the sensing chamber, visually identify any obstructions. Plug the exhaust and inlet tube holes to prevent ducted air from carrying smoke away from the detector head, then blow smoke such as cigarette, cotton wick, or punk directly at the head to cause an alarm. REMOVE THE PLUGS AFTER TESTING OR THE DETECTOR WILL NOT FUNCTION PROPERLY.

[6.1.3] Filter Replacement

The filters do not substantially affect smoke behavior even when they are up to 90% clogged. Quarterly visual inspection is usually often enough to determine if filters should be replace because only a high percentage of contamination affects duct detector performance.

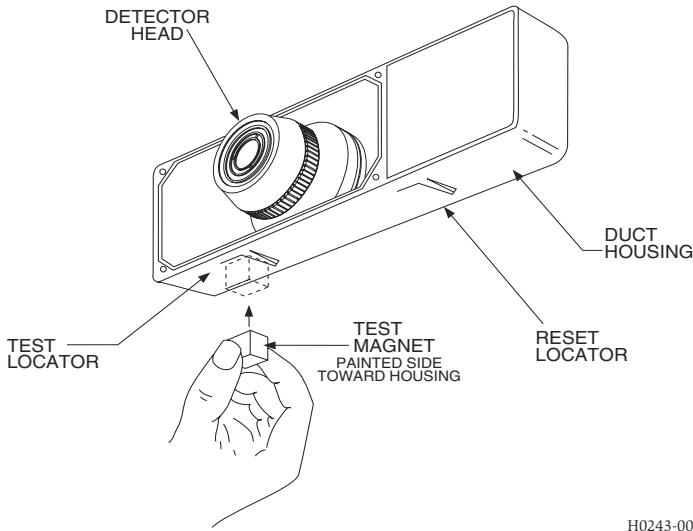## [6.2] Standby, Alarm, And Sensitivity Tests
[6.2.1] Standby And Trouble

Standby- Check for the presence of the blinking red LEDs (blinks about every 10 seconds) through the housing cover. If the APA451 accessory is used, its green Power LED should be illuminated continuously.

Trouble- If the detector LEDs do not blink or if the APA451 Power LED is not illuminated, the detector lacks power (check wiring, panel, or power supply), the head is missing (install), or the unit is defective (return for repair).

Test- The trouble condition can be caused intentionally to verify correct operation of the system. Remove power to the unit, remove the detector head (see Figure 11), or place the M02-04-01 magnet into the Reset locator, as shown in Figure 10. These actions should cause a trouble condition locally and at the system control panel.

Figure 10. Testing detector alarm:

H0243-00

Figure 11. Detector head removal:

H0244-00

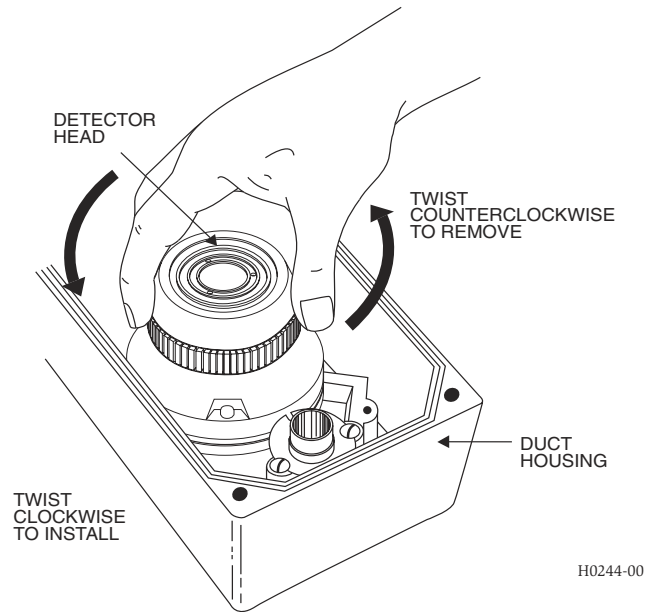### [5.2.2] Alarm Tests
[5.2.2.1] M02-04-01 Magnet Test

1. Place the painted surface of the magnet into the Test locator molded into the side of the housing (see Figure 10).
2. The red alarm LEDs on the detector should latch on, as should any accessories (PA400, RA400Z, RTS451, APA451). Verify auxiliary functions (such as fan shutdown) and system control panel alarm status.
3. Place the painted surface of the magnet into the Reset locator molded into the side of the housing (see Figure 10). This should clear the latched alarm condition at the detector. If a system control panel is used, the panel may also require resetting.

[5.2.2.2] RTS451/RTS451KEY Remote Test Station

The RTS451/RTS451KEY Remote Test Station facilitates test of the alarm capability of the duct detector as indicated in the RTS451/RTS451KEY manual. The DH400ACDCIHT duct detector can be reset by the RTS451/RTS451KEY. If a system control panel is used, the panel itself may also require resetting.

To install the RTS451/RTS451KEY, connect the device as shown in Figure 8; wire runs must be limited to 25 ohms or less per interconnecting wire. Place the coil in the detector housing with the arrow facing up and pointing toward the detector as in Figure 12. Attach the coil leads to the housing terminals as shown; polarity is not important. Firmly screw the bracket in place over the test coil.

[5.2.3] Sensitivity Tests
[5.2.3.1] MOD400R Sensitivity Test

After verification of alarm capability, use the MOD400R test module with a voltmeter to check detector sensitivity as described in the test module's manual. The housing cover must be removed to perform this test.

If test module readings indicate that the detector head is outside of the acceptable range that is printed on the back of the detector head, the detector head requires cleaning per Section [7].

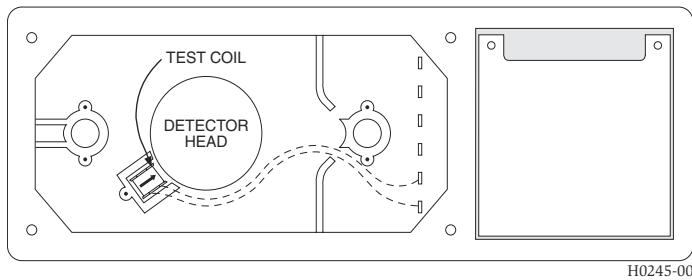### [6] Detector Cleaning Procedures

Notify the proper authorities that the smoke detector system is undergoing maintenance, and that the system will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms and possible dispatch of the fire department.

[6.1] Air Filters

1. Turn off power to the system.
2. Remove and inspect the sampling tube filters.
3. If the filters are heavily coated with dirt, replace them with new filters. If they are not heavily coated, use a vacuum cleaner or compressed air nozzle to remove dust, then reinstall the filters.
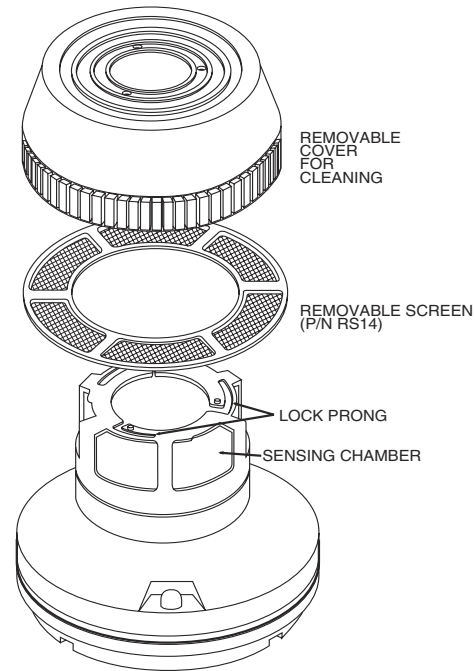
[6.2] Ion Heads

1. Remove the detector cover by depressing the three lock prongs on the top of the cover and rotating the cover counterclockwise to remove the cover and screen assembly (see Figure 14). The optional CRT400 Cover Removal Tool makes cover removal easier.
2. Carefully pull the screen out of the cover.

Figure 12. RTS451/RTS451KEY test coil installation: **Figure 13. Ion head exploded view:**

TEST COIL

DETECTOR HEAD

H0245-00

REMOVABLE COVER FOR CLEANING

REMOVABLE SCREEN (P/N RS14)

LOCK PRONG

SENSING CHAMBER

H0246-00

3. Clean the screen thoroughly with a soft brush or vacuum. Replacement screens (RS14) are available.
4. Brush or vacuum the inside of the cover. The cover may then be blown out with clean, compressed air.
5. Vacuum the sensing chamber before using clean, compressed air to loosen and blow out any remaining debris.
6. Press the screen back into the cover.
7. Replace the detector cover onto the sensing chamber. Rotate it clockwise to lock it into place.

[7.3] Reinstallation

1. Reinstall the detector in its housing.
2. Restore system power.
3. Perform Detector Check, Section [5.7].
4. Notify the proper authorities testing has been completed and the smoke detector system is back in operation.

[8] Model DH400ACDCIHT Air Duct Smoke Detector Specifications

Description

HVAC air duct mounted ionization smoke detector for separately powered systems or stand alone systems. Auxiliary alarm relay contacts provide fan contactor shutdown to prevent HVAC circulation of smoke.

Environmental Limits

Operating Temperature:	+32° to +158°F (0° to +70°C)
Storage Temperature:	−22° to +158°F (−30° to +70°C)
Humidity:	10% to 93% R.H. non-condensing
Air Velocity:	500 to 4000 Ft/min.
	1.5 to 20.3 m/sec.

Test Features

Magnetic test switch, magnetic reset switch, MOD400R test module (optional), RTS451 Remote Test Station (optional).

Mechanical Specifications

Length:	14.5 inches	37 cm
Width:	5 inches	13 cm
Depth (installed):	4 inches	10 cm
Weight:	4 pounds	1.8 kg

Terminals

Captive universal terminal screws with sems plates accept wire sizes of 14 gauge or smaller. The screws can withstand 10 in-lbs of tightening torque without damage.

Accessories

MOD400R	Sensitivity Test Module
RA400Z	Remote Annunciator
RTS451/RTS451KEY	Remote Test Station, test & reset switch with alarm LED
PA400	Piezo Sounder
APA451	Annunciator with piezo, alarm & power LEDs
CRT400	Cover Removal Tool

F36-05-00	Replacement Air Filter (two per package)
M02-04-01	Replacement Test Magnet
P48-21-00	Replacement End Plug for inlet sampling tube
RS14	Replacement Screen, Ion
A2650-01	Replacement Installation Kit (mounting hardware)
DH400 OE-1	Enclosure for outdoor applications

Sampling (Inlet) Tubes

TUBE	OUTSIDE DUCT WIDTH	
ST-1.5	1 to 2 feet	(0.3 to 0.6 m)
ST-3	2 to 4 feet	(0.6 to 1.2 m)
ST-5	4 to 8 feet	(1.2 to 2.4 m)
ST-10	8 to 12 feet	(2.4 to 3.7 m)

Exhaust Tube Extension

| A2440-00 | 5.75 in. (14.6 cm.) additional |

Electrical Specifications

Power supply voltage:	20-29 VDC	24 VAC 50-60-Hz	120 VAC 50-60 Hz	220/240 VAC 50-60 Hz
Input capacitance:	270 µF max.	270 µF max.	N/A	N/A
Reset voltage:	3.0 VDC or less	2.0 VAC or less	10 VAC or less	20 VAC or less
Reset time (by power down):	0.6 sec. max.	0.6 sec. max.	0.6 sec. max.	0.6 sec. max.
Power up time:	34 sec.max.	34 sec. max.	34 sec. max.	34 sec. max.
Alarm response time:	2 to 17 sec.	2 to 17 sec.	2 to 17 sec.	2 to 17 sec.

Electrical Ratings

Power Supply Voltage	20-29 VDC	24VAC 50-60 Hz	120 VAC 50-60 Hz	220/240 VAC 50-60 Hz

CURRENT REQUIREMENTS (USING NO ACCESSORIES)*

Max. standby current	25 mA	35 mA AC avg.	20mA AC avg.	20mA AC avg.
Max. alarm current	95 mA	55 mA AC avg.	55 mA AC avg.	30 mA AC avg.

*NOTE: Accessories require extra current. Refer to accessory device manual.

CONTACT RATINGS

Alarm initiation contacts (SPST) 2.0A @ 30 VAC/DC (0.6 power factor)
Alarm auxiliary contacts (DPDT) 10A @ 30 VDC Resistive
10A @ 250 VAC
NOTE: Alarm auxiliary contacts must switch 500 mA minimum at 24 VDC. Alarm auxiliary contacts shall not be connected to initiating circuits of control panels. Use the alarm initiation contact for this purpose.
Trouble contacts (SPST) 0.3A @ 32 VDC (resistive)

[8] DH400 OE-1 Optional Accessory
General Description

The DH400 OE-1 all-weather enclosure is specifically designed to house and protect the System Sensor model DH400ACDCIHT high temperature duct detector from the elements. This enclosure provides protection in outdoor installations against rain, sleet, and snow or in indoor installations against dripping water.

NOTE: The DH400 OE-1 is designed solely for the use with System Sensor model DH400ACDCIHT high temperature duct smoke detector.

Preparation

Locate the two adhesive backed gaskets packaged with the enclosure.

NOTE: In order to provide effective sealing, these gaskets must be placed on the outside of the enclosure around the two large openings.

Remove the protective paper. Place the gaskets around the large openings, aligning the screw holes of the gaskets with the screw holes of the enclosure. Press firmly to insure complete adhesion.

Mounting

Remove the front cover of the enclosure and place it against the duct at the desired mounting location. Make sure the four mounting holes on the enclosure rest squarely on the duct work.

Using the enclosure as a template, mark the location of all eight openings (the four corner holes, the two sampling tube openings, and the two duct mounting holes) on the duct using a pencil or a permanent marker.

Cut the two sampling tube openings using a 1-3/8″ hole saw or hole punch. Drill the remaining six holes (0.17″ diameter) using a #21 drill bit. Using the screws provided, secure the enclosure at the four corners.

Please refer to insert for the Limitations of Fire Alarm Systems

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Three-Year Limited Warranty

System Sensor warrants its enclosed air duct smoke detector to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this air duct smoke detector. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the repair or replacement of any part of the air duct smoke detector which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Repair Department, RA #_____, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.