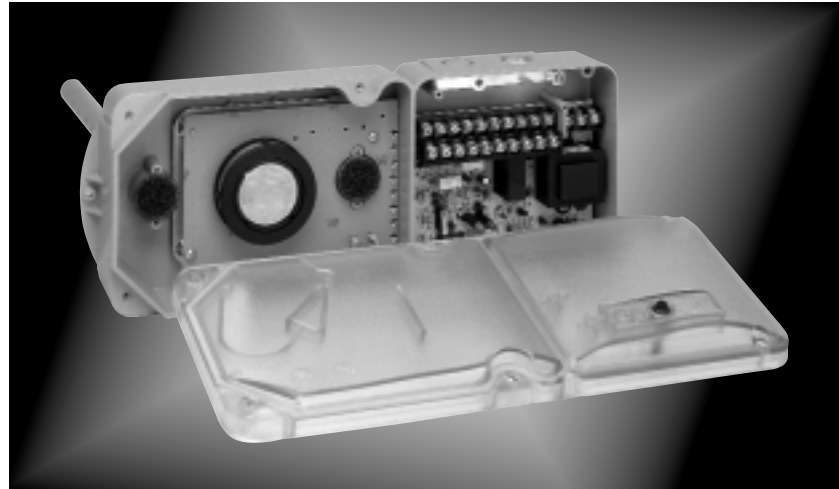


4-Wire Duct Smoke Detector

Model

DH100ACDCI 4-Wire Ionization
Duct Smoke Detector



Product Overview

**Air velocity rating from
500 to 4000 feet per minute
(2.54 to 20.32 m/sec.)**

**Patented interconnectability for multi-
fan shutdown (up to ten air handlers)**

Patented telescopic sampling tube

Patented cover tamper trouble signal

24 VAC/DC or 120/240 VAC operation

High-Low voltage barrier

**Equipped with two DPDT Form C relay
contacts**

Built-in reset button

Outside mounting tabs

**Easy and quick mounting to round
or rectangular ducts from 1'-12'
(0.3-3.7 meters) wide**

Easy to clean

**UL recognized field-replaceable
power and sensor boards**

Remote test station option

Remote sounder option

**Transparent cover for convenient
visual inspection**

UL 268A listed

3-year warranty

Photoelectric model available

The System Sensor Innovair™ DH100ACDCI is a 4-wire ionization air duct smoke detector capable of sensing smoke in air velocities from 500 to 4,000 feet per minute (2.54 to 20.32 m/sec). This detector was developed to constantly monitor the air within a duct and to detect the presence of smoke.

The two available form C relay contacts provide reliable performance for the management of fans, blowers and air conditioning systems. These HVAC devices can be configured to prevent the spread of toxic smoke and fire gasses through a protected area

The Innovair family is designed for simplified installation and easy maintenance. The modular construction allows for easy cleaning and uncomplicated field replacement of the UL recognized power and sensor boards. The patented cover missing feature insures the cover is securely tightened following routine cleaning and maintenance. The patented interconnectability feature allows multiple Innovairs to communicate with each other. In the event smoke is detected, the Innovair will signal the remaining interconnected detectors to initiate their relays for smoke control.

WARNING: Duct smoke detectors have specific limitations.

DUCT SMOKE DETECTORS ARE:

NOT a substitute for an open area smoke detector,
NOT a substitute for early warning detection, and
NOT a replacement for a building's regular fire
detection system.

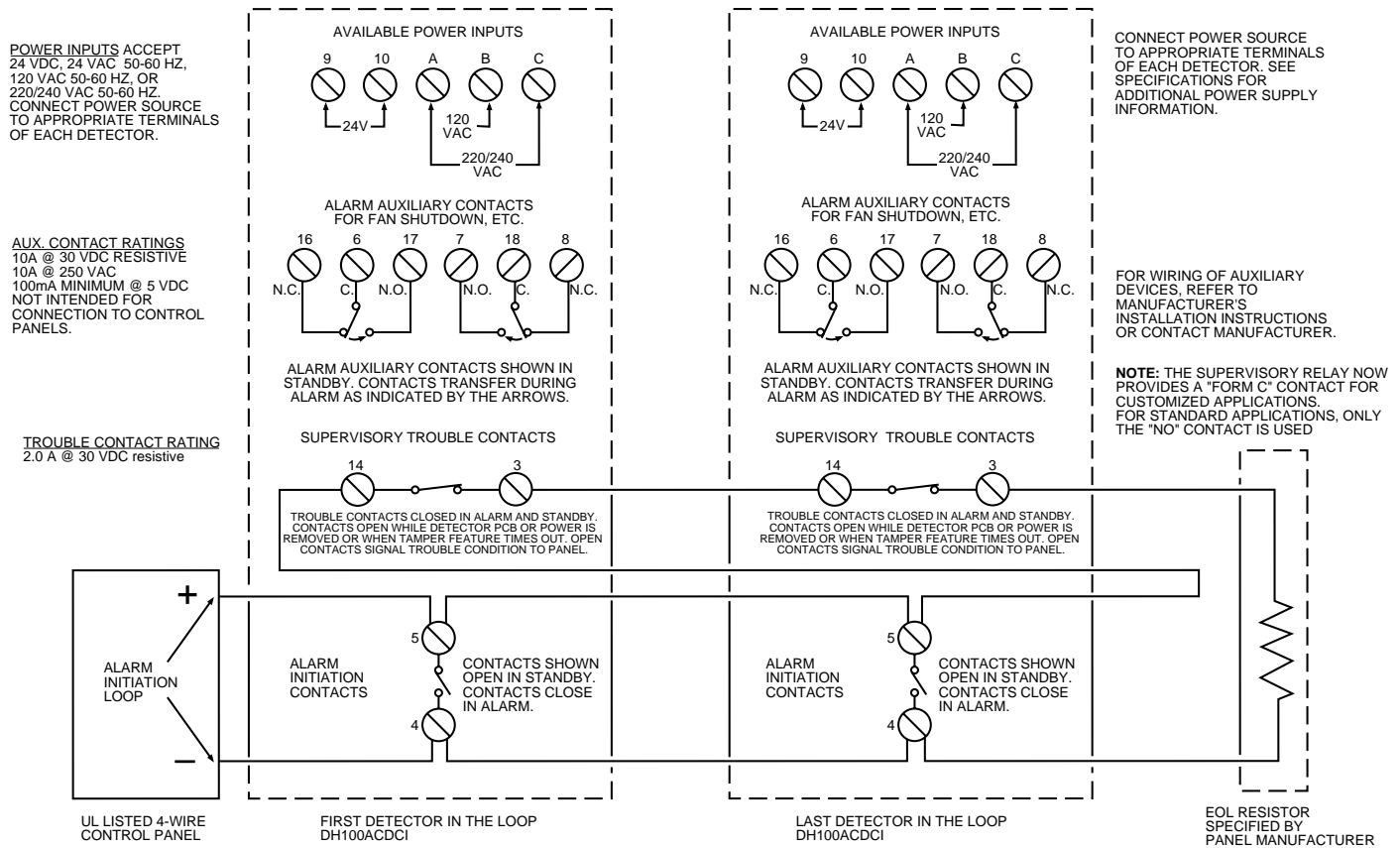
Refer to NFPA 72 and 90A for additional information about the proper application of duct smoke detectors.

Architectural/Engineering Specifications

The air duct smoke detector shall be a System Sensor Model DH100ACDCI Series Duct Smoke Detector. The detector housing shall be UL listed per UL 268A specifically for use in air handling systems. The detector shall operate at air velocities of 500 feet per minute to 4000 feet per minute (2.54 to 20.32 meters/second). The unit shall be capable of controlling up to ten (10) air handling systems when interconnected with other detectors. The detector shall be capable of providing a trouble signal in the event that the front cover is removed. It shall be capable of local testing via magnetic switch or remote testing using the SSK451 Multi-Signaling Accessory or the RTS451KEY Remote Test Station. The unit shall be reset by local reset button or remote test station. The duct smoke detector housing shall incorporate an airtight smoke chamber in compliance with UL 268A, Standard for Smoke Detectors for Duct Applications. The housing shall be capable of mounting to either rectangular or round ducts without adapter brackets. An integral filter system shall be included to reduce dust and residue effects on detector and housing, thereby reducing maintenance and servicing. Sampling tubes shall either be telescoping or be easily installed by passing through the duct housing after the housing is mounted to the duct. The unit shall provide a spacial separation of no less than 1/4" (6.4 mm) and/or a physical barrier between the high and low voltage terminals. The enclosure shall meet all applicable NEC and NFPA standards regarding electrical junction boxes. Terminal connections shall be of the strip and clamp method suitable for 12-18 AWG wiring.

Wiring Guide

System wiring diagram for 4-wire duct smoke detectors



Specifications

Size

14³/₈" (37 cm.) Length
 5¹/₂" (14 cm.) Width
 2³/₄" (7 cm.) Depth

Shipping Weight

3¹/₂ lbs. (1.7 kg.)

Operating Temperature Range

32° to 120° F (0° to 49° C)

Operating Humidity Range

10% to 93% relative humidity non-condensing

Air Duct Velocity

500 to 4000 ft./min. (2.54 to 20.32 m/sec.)

A78-2352-12

Electrical Ratings – DH100ACDCI (Includes Detector)

| | | | | |
|-----------------------------|--------------------|--------------------|--------------------|----------------------|
| 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 μ F max. | 270 μ F max. | N/A | N/A |
| Reset voltage: | 3.0 VDC min. | 2.0 VAC min. | 10 VAC min. | 20 VAC min. |
| Reset time (with RTS451): | .03 to 0.3 sec. | .03 to 0.3 sec. | .03 to 0.3 sec. | .03 to 0.3 sec. |
| 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. |
| Sensitivity Test: | See detector label | See detector label | See detector label | See detector label |

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

CURRENT REQUIREMENTS (USING NO ACCESSORIES)

| | | | | |
|----------------------|-------|------------|------------|------------|
| Max. standby current | 15 mA | 35 mA RMS | 25 mA RMS* | 15 mA RMS* |
| Max. alarm current | 70 mA | 125 mA RMS | 35 mA RMS* | 25 mA RMS* |

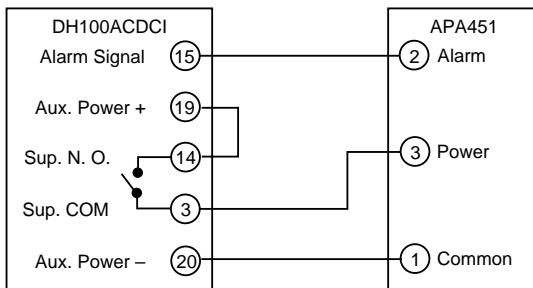
CONTACT RATINGS

| | |
|--|-------------------------------------|
| Alarm initiation contacts (SPST) | 2.0A @ 30 VAC/DC (0.6 power factor) |
| Alarm auxiliary contacts (DPDT) | 10A @ 30 VDC 10A @ 250 VAC |
| Note: Alarm auxiliary contacts must switch 100mA minimum at 5VDC. Alarm auxiliary contacts shall not be connected to initiating circuits of control panels. Use the alarm initiation contact for this purpose. | |
| Trouble contacts (SPDT) | 2.0A @ 30 VDC (resistive) |

| ACCESSORY CURRENT LOADS AT 24 VDC | | | |
|-----------------------------------|-------------|----------|------------|
| DEVICE | STANDBY | TROUBLE | ALARM |
| APA451 | 12.5mA Max. | n/a | 30mA Max. |
| PA400 | 0mA | n/a | 15mA Max. |
| RA400Z | 0mA | n/a | 10mA Max. |
| RTS451/RTS451KEY | 12mA* | n/a | 7.5mA Max. |
| SSK451 | 5mA Max. | 9mA Max. | 30mA Max. |

*NOTE: When a unit is powered at the 120VAC or 220/240VAC input, any combination of accessories may be used such that the given accessory loads are: 60 mA or less in the standby state; 110 mA or less in the alarm state.

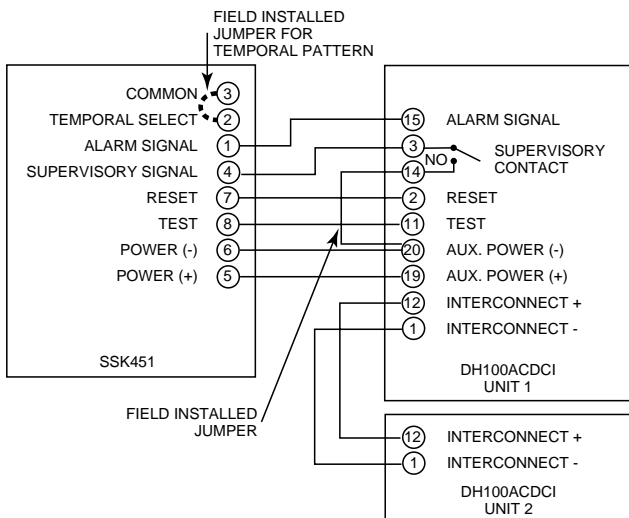
Wiring diagram for DH100ACDCI to APA451



NOTE: Wiring diagram shown is for DH100ACDCI 4-wire duct smoke detector system equipped without a control panel.

NOTE: A trouble condition is indicated when the green LED is not illuminated.

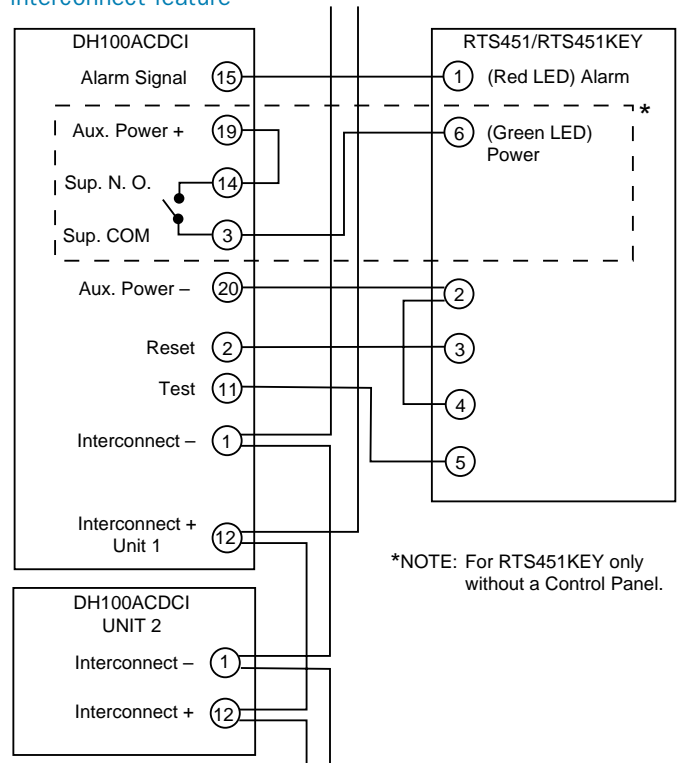
Wiring diagram for DH100ACDCI to SSK451 and interconnect feature



Important Interconnect Notes

- When using the interconnect feature, all interconnected units must be powered with the same, independent supply.
- Polarity must be maintained throughout the interconnect wiring. Connect terminal 12 on unit 1 to terminal 12 on unit 2 and so on. Similarly, connect terminal 1 on unit 1 to terminal 1 on unit 2 and so on.

Wiring diagram for the RTS451/RTS451KEY and interconnect feature



Ordering Information

Part No. Description

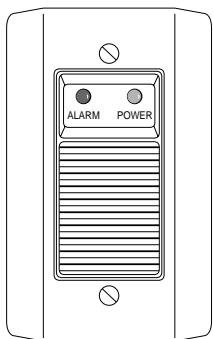
| | |
|------------|---------------------------------------|
| DH100ACDCI | 4-wire ionization duct detector |
| A5052 | Replacement ionization detector board |
| A5064 | Replacement 4-wire power board |

Accessories

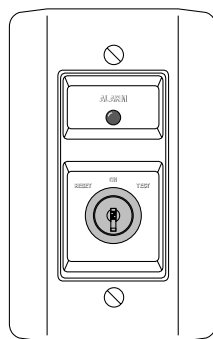
| | | | |
|-----------|--|--------------|---|
| ST-1.5 | Metal sampling tube duct widths 1'-2' (0.3-0.6 m) | MOD400R | Sensitivity test module |
| ST-3 | Metal sampling tube duct widths 2'-4' (0.6-1.2 m) | RA400Z | Remote annunciator alarm LED (see below) |
| ST-5 | Metal sampling tube duct widths 4'-8' (1.2-2.4 m) | F36-09-11 | Replacement air filters (two per package) |
| ST-10 | Metal sampling tube duct widths 8'-12' (2.4-3.7 m) | M02-04-00 | Test magnet |
| T80-71-00 | Replacement telescoping sampling tube | P48-21-00 | End cap for metal sampling tubes |
| P48-55-00 | Replacement end cap for T80-71-00 | S08-39-01 | Photo replacement screen |
| SSK451 | Multi-Signaling accessory | PA400W | Mini-Alert sounder |
| RTS451KEY | Remote test station with key lock (see below) | PS24LOW | Mini-Alert add-on strobe |
| RTS451 | Remote test station | PS12/24LENSW | Wall-mount "SMOKE" lens |
| APA451 | Remote annunciator with piezo alarm | | |

Accessories

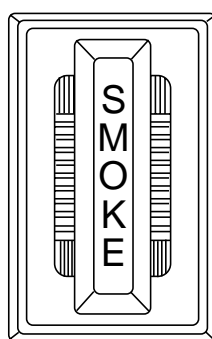
System Sensor provides system flexibility with a variety of accessories, including two remote test stations, and several different means of visible and audible system annunciation. As with our duct detectors, all duct smoke detector accessories are UL listed.



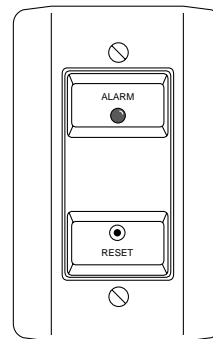
APA451
Piezo Annunciator
(UL S4011)



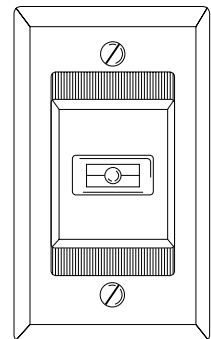
RTS451KEY
Remote Test Station
with Key (UL S2522)



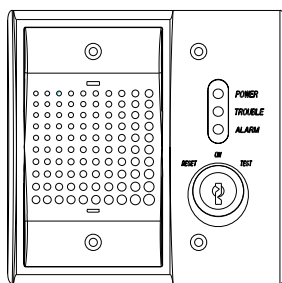
PA400
Mini-Alert Sounder
(UL S3593)
shown with PS24LOW add-on strobe (PS12/24SLENSW smoke lens option available)



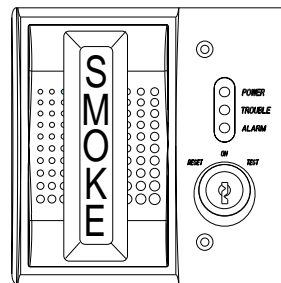
RTS451
Remote Test Station
(UL S2522)



RA400Z
Remote Annunciator
(UL S2522)



SSK451
Multi-Signaling
Accessory
(UL 268A)



SSK451
Multi-Signaling Accessory
(UL 268A)
shown with PS24LOW add-on strobe (PS12/24SLENSW smoke lens option available)

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