



November 7, 2000

DN-6753 • I-355

DH100ACDC

Four-Wire, Low-Profile, Ion & Photo Duct Smoke Detectors

Section: Conventional Initiating Devices

GENERAL

The System Sensor DH100ACDC four-wire duct smoke detectors are available as either an ionization or a photoelectric model. This new design allows for simplified cleaning and maintenance, or a change in application without removing the duct housing. The DH100ACDC samples air currents passing through a duct and gives dependable performance for management of fans, blowers, and air-conditioning systems, preventing the spread of toxic smoke and fire gases through the protected area.

WARNING!

Duct smoke detectors have specific limitations.

DUCT DETECTORS ARE:

- **NOT** a substitute for an open-area smoke detector.
- **NOT** a substitute for early warning detection.
- **NOT** a substitute for a building's regular fire detection system.

REFER TO NFPA 72 and 90A for additional duct smoke detector application information.

FEATURES

- Outside mounting tabs.
- Telescoping sampling tube (*patent pending*).
- Built-in reset button.
- Interconnectability (*patent pending*) for multi-fan shutdown (up to ten air handlers).
- Cover tamper trouble signal (*patent pending*).
- Easy to clean.
- 24 VAC/DC or 120/240 VAC operation.
- High-Low voltage barrier.
- Ion or photo models available.
- Remote test station option.
- Remote sounder option.
- Air velocity rating from 500 to 4,000 ft/min (152.4 to 1219.2 m/min).
- Equipped with two DPDT Form-C relay contacts.
- Easy and quick mounting to round or rectangular ducts from 1 to 12 feet (2.54 to 30.48 cm) wide.
- Textured cover for convenient visual inspection.
- UL 268A listed.

SPECIFICATIONS

Dimensions: 14.375" (36.513 cm) wide x 5.500" (13.970 cm) high x 2.750" (6.985 cm) deep.

Shipping weight: 3.75 lbs. (1.7 kg).

Operating temperature range: 32° to 131°F (0° to 55°C).

Operating humidity range: 10% to 93% relative humidity.



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RR8281

MEA

369-98-E (DH100ACDCP)
178-99-E (DH100ACDCI)



Air duct velocity range: 500 to 4,000 ft/min (152.4 to 1219.2 m/min).

ARCHITECTURAL/ENGINEERING SPECIFICATIONS

The air-duct smoke detector shall be a System Sensor model DH100ACDC 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 to 4,000 feet per minute (152.4 to 1219.2 meters per minute). 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 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 special separ-

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



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ration of no less than 1/4" and/or a physical barrier between the high- and low-voltage terminals. The enclosure shall meet all applicable NEC and NFPA standard regarding electrical junction boxes. Terminal connections shall be of the strip-and-clamp method suitable for 12 to 18 AWG (3.25 to 0.75 mm²) wiring.

PRODUCT LINE INFORMATION

DH100ACDCI Four-wire ionization duct smoke detector.

DH100ACDCP Four-wire photoelectronic duct detector.

A5052-00 Replacement ionization detector board.

A5069-00 Replacement photoelectronic detector board.

A5064-00 Replacement four-wire power board.

ACCESSORIES:

ST-1.5 Metal sampling tube, duct widths 1' to 2'.

ST-3 Metal sampling tube, duct widths 2' to 4'.

ST-5 Metal sampling tube, duct widths 4' to 8'.

ST-10 Metal sampling tube, duct widths 8' to 12'.

RTS451 Remote test station.

RTS451KEY Remote test station with key lock.

RA400Z Remote annunciator alarm LED.

APA451 Remote annunciator with piezo alarm.

MOD400R Sensitivity test module.

M02-04-00 Test magnet.

PA400B Mini-Alert sounder.

PS24LOB Mini-Alert add-on strobe.

ELECTRICAL RATINGS

for DH100ACDC (including 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 µF maximum	270 µF maximum	N/A	N/A
Reset voltage:	3.0 VDC minimum	2.0 VAC minimum	10 VAC minimum	20 VAC minimum
Reset time (with RTS451):	0.03 to 0.30 seconds			
Reset time (by power-down):	0.6 seconds max.	0.6 seconds max.	0.6 seconds max.	0.6 seconds max.
Power-up time:	34 seconds max.	34 seconds max.	34 seconds max.	34 seconds max.
Alarm response time:	2 to 17 seconds			
Sensitivity test:	See detector label.	See detector label.	See detector label.	See detector label.
CURRENT LIMITATIONS (using no accessories):				
Maximum standby current:	15 mA	35 mA RMS	25 mA RMS*	15 mA RMS*
Maximum alarm current:	70 mA	125 mA RMS	35 mA RMS*	25 mA RMS*

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ACCESSORY CURRENT LOADS at 24 VDC		
DEVICE	STANDBY	ALARM
APA451	12.5 mA maximum	30 mA maximum
PA400	0 mA	15 mA maximum
RA400Z	0 mA	10 mA maximum
RTS451	12 mA*	7.5 mA maximum
RTS451KEY	12 mA*	7.5 mA maximum

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***NOTE:** When a unit is powered at the 120 VAC or 220/240 VAC 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.

Contact Ratings

Alarm initiation contacts (SPST): 2.0 A @ 30 VAC/DC (0.6 power factor).

Alarm auxiliary contacts (DPDT): 10 A @ 30 VDC; 10 A @ 250 VDC.

NOTE: Alarm auxiliary contacts must switch 100 mA minimum at 5 VDC.

Alarm auxiliary contacts shall not be connected to initiating circuits of control panels. Use the alarm initiation contact for this purpose.

Trouble contacts (SPDT): 2.0 A @ 30 VDC (resistive).

SYSTEM WIRING DIAGRAM

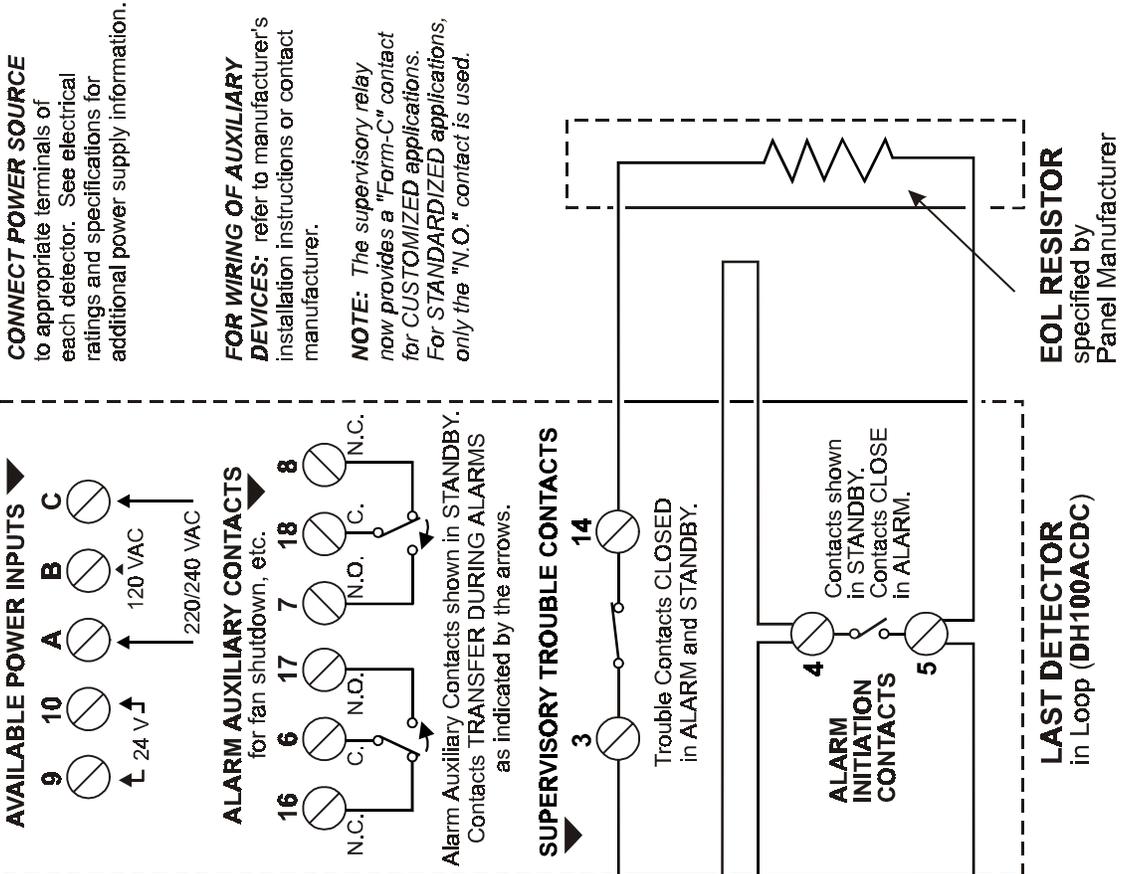
Four-Wire Duct Smoke Detectors powered from Initiating Circuit

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.

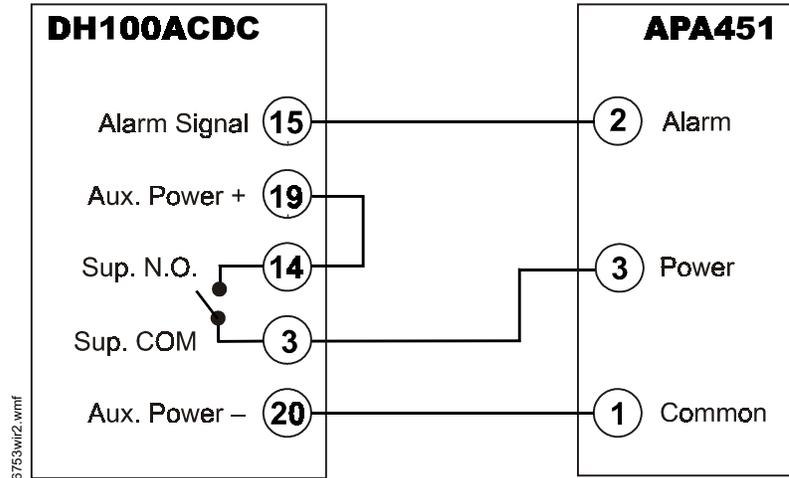
AUX. CONTACT RATINGS: 10 A @ 30 VDC resistive. 10 A @ 250 VAC. 100 mA minimum @ 5 VDC. **NOT INTENDED FOR CONNECTION TO CONTROL PANELS.**

TROUBLE CONTACT RATINGS: 2.0 A @ 30 VDC resistive.

Trouble Contacts OPEN while detector head or power is removed; or when Tamper Feature times out. Open contacts signal TROUBLE condition to panel.

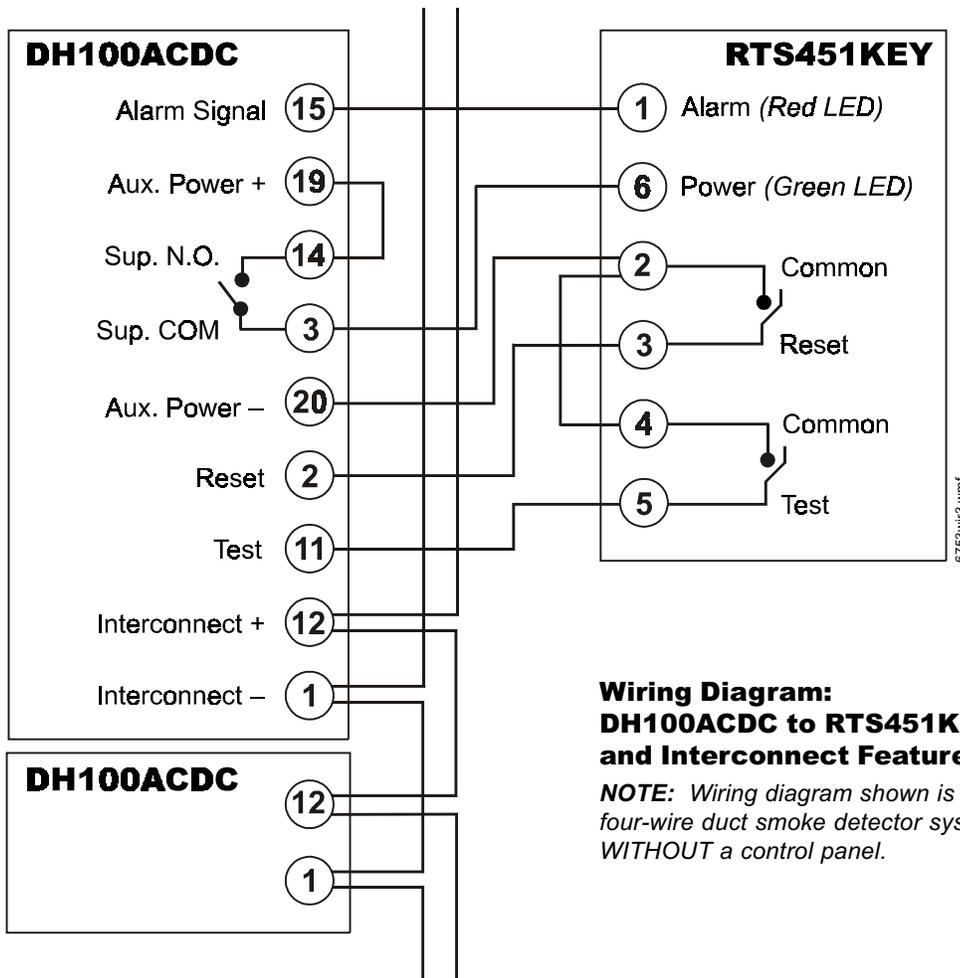


OTHER WIRING DIAGRAMS



Wiring Diagram: DH100ACDC to APA451

NOTE: Wiring diagram shown is for DH100ACDC four-wire duct smoke detector system equipped *WITHOUT* a control panel.



**Wiring Diagram:
DH100ACDC to RTS451KEY
and Interconnect Feature**

NOTE: Wiring diagram shown is for DH100ACDC four-wire duct smoke detector system equipped *WITHOUT* a control panel.