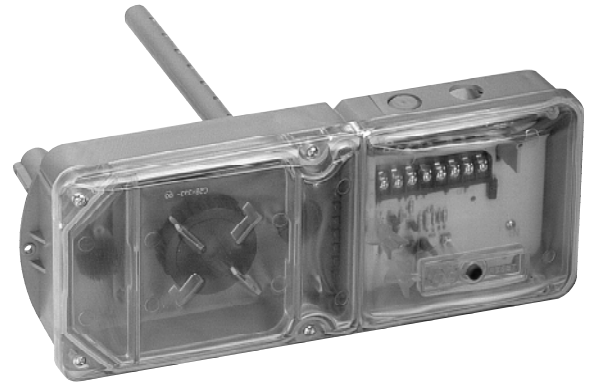


Available Models

DH100ACDCIA 4-wire Ionization Detector
DH100ACDCPA 4-wire Photoelectric Detector



Features

- Outside mounting tabs**
- Patented telescoping sampling tube**
- Built-in reset button**
- Interconnectability* for multi-fan shutdown (up to ten air handlers)**
- Patented cover tamper trouble signal 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 4000 FPM**
- Equipped with two DPDT Form C relay contacts**
- Easy and quick mounting to round or rectangular ducts from 1'-12' wide**
- Textured cover for convenient visual inspection**
- 3-year warranty**

System Sensor DH100ACDC 4-wire duct smoke detector is available as either an ionization or 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, and
NOT a replacement for a building's regular fire detection system.

Specifications

Length:	14 ³ / ₈ inches (37 cm)	Operating	
Width:	5 ¹ / ₂ inches (14 cm)	Humidity Range:	10% to 93% relative humidity noncondensing
Depth:	2 ³ / ₄ inches (7 cm)	Air Duct Velocity:	500 to 4000 ft./min.
Shipping Weight:	3.75 lbs. (1.7 kg)		
Operating Temperature Range:			
Photoelectric:	32° to 131° F (0° to 55° C)		
Ionization:	32° to 120° F (0° to 49° C)		

* Patent pending

Duct smoke detectors shall be installed in accordance with CAN/ULC-S524-M91 and CEC Section 32.

Refer to NFPA 72 and 90A for additional duct smoke detector application information.

Architectural/Engineering Specifications

The air duct smoke detector shall be a System Sensor Model DH100ACDC Series Duct Smoke Detector. The detector housing shall be ULC listed. The detector shall operate at air velocities of 500 feet per minute to 4000 feet 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 SSK451A Multi-Signaling Accessory or the RTS451KEYA 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 ULC. 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" and/or a physical barrier between the high and low voltage terminals. The enclosure shall meet applicable ULC standards regarding electrical junction boxes. Terminal connections shall be of the strip and clamp method suitable for 12–18 AWG wiring.

Electrical Ratings – DH100ACDC (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 RTS451A):	.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
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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.

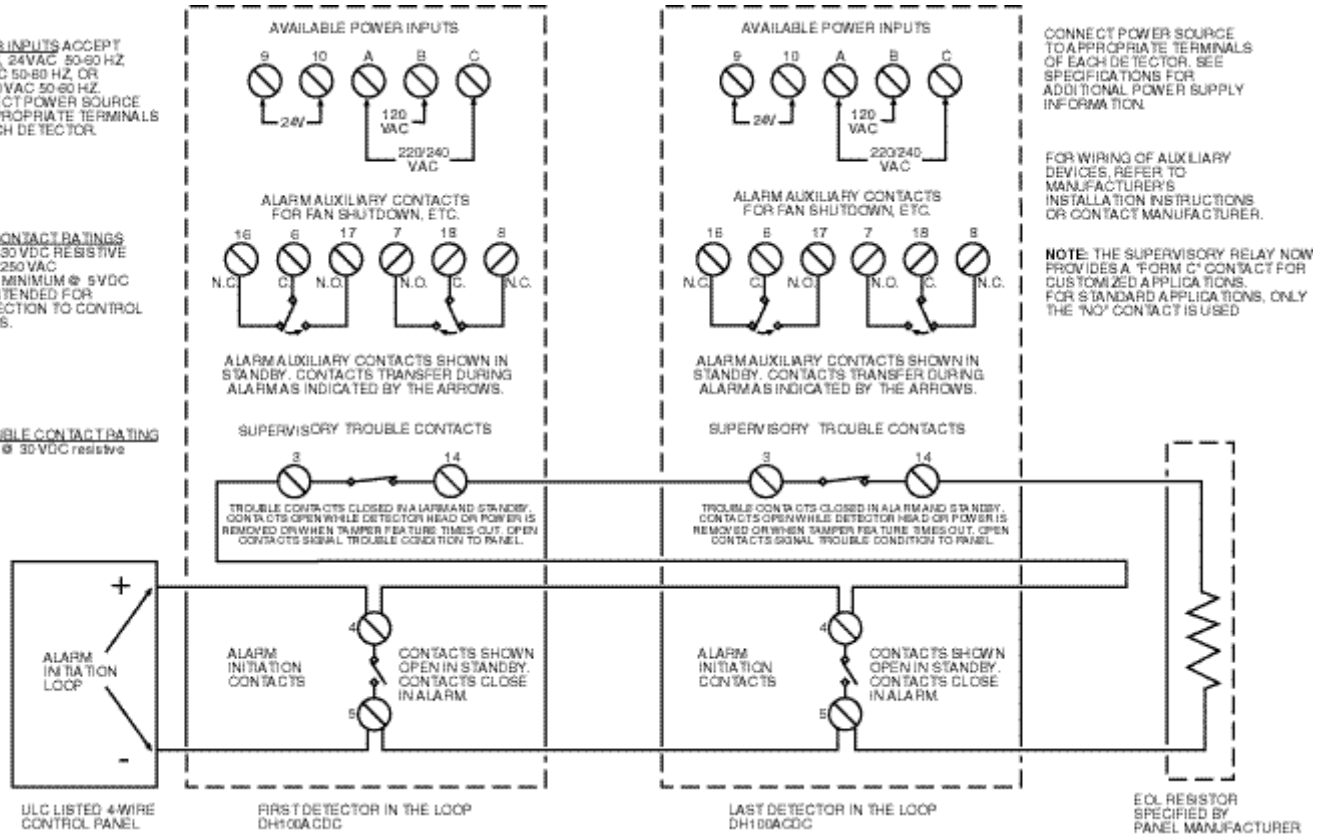
*NOTE: When a unit is powered at the 120VAC or 220/240VAC input, any combination of accessories may be used such that the given accessory loads are: 60 mA or less in the standby state; 110 mA or less in the alarm state.

DH100ACDC Wiring Guide

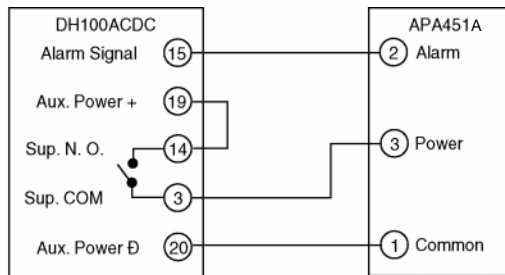
POWER INPUTS ACCEPT
 24VDC, 24VAC 50-60 HZ,
 120VAC 50-60 HZ, OR
 220/240VAC 50-60 HZ.
 CONNECT POWER SOURCE
 TO APPROPRIATE TERMINALS
 OF EACH DETECTOR.

AUX. CONTACT RATINGS
 10A @ 30VDC RESISTIVE
 10A @ 250VAC
 100mA MINIMUM @ 5VDC
 NOT INTENDED FOR
 CONNECTION TO CONTROL
 PANELS.

TROUBLE CONTACT RATING
 2.0A @ 30VDC resistive



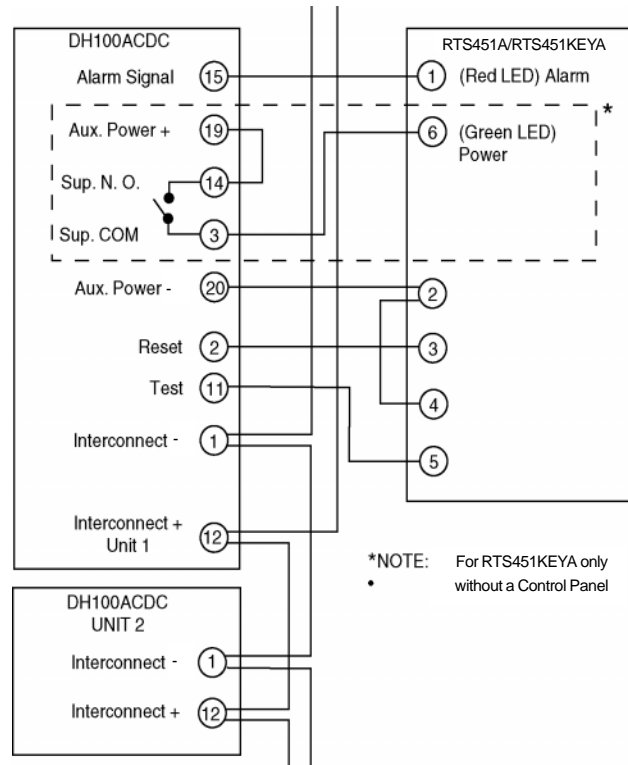
System Wiring diagram for 4-wire duct smoke detectors (detectors powered from initiating circuit)



NOTE: • Wiring diagram shown is for DH100ACDC 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 DH100ACDC to APA451A



*NOTE: For RTS451KEYA only without a Control Panel

Wiring diagram for the RTS451A/RTS451KEYA and interconnect feature

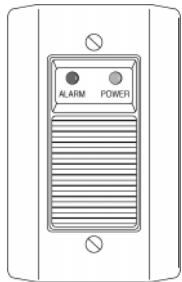
Ordering Information

Part No.	Description	Part No.	Description
DH100ACDCIA	4-wire ionization duct detector	RTS451KEYA	Remote test station with key lock (see below)
DH100ACDCPA	4-wire photoelectronic duct detector	RTS451A	Remote test station
A5052	Replacement ionization detector board	APA451A	Remote annunciator with piezo alarm
A5069	Replacement photoelectronic detector board	MOD400R	Sensitivity test module
A5064	Replacement 4-wire power board	RA400ZA	Remote annunciator alarm LED (see below)
Accessories		F36-09-00	Replacement air filters (two per package)
ST-1.5	Metal sampling tube duct widths 1½-2½	M02-04-00	Test magnet
ST-3	Metal sampling tube duct widths 2½-4½	P48-21-00	End cap for metal sampling tubes
ST-5	Metal sampling tube duct widths 4½-8½	S08-39-01	Photo replacement screen
ST-10	Metal sampling tube duct widths 8½-12½	PA400WA	Mini-Alert sounder
T80-71-00	Replacement telescoping sampling tube	PS24LOA	Mini-Alert add-on strobe
P48-55-00	Replacement end cap for T80-71-00	PS12/24LENSC	Ceiling-mount "SMOKE" lens
SSK451A	Multi-Signaling accessory	PS12/24LENSW	Wall-mount "SMOKE" lens

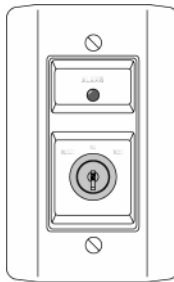
Accessories

System Sensor provides system flexibility with a variety of accessories, including two remote test stations, and several different means of visible and audible system

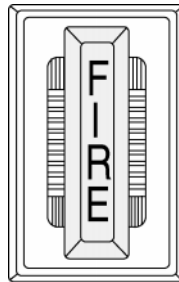
annunciation. As with our duct detectors, all duct detector accessories are ULC listed.



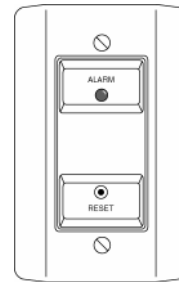
APA451A
Piezo
Annunciator



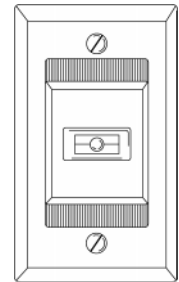
RTS451KEYA
Remote Test
Station with Key



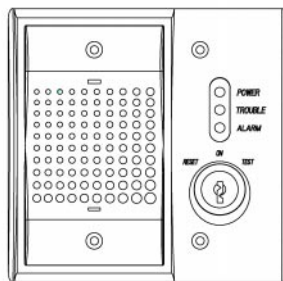
PA400A with
PS12/24SLENSW
(PS12/24SLENSW
smoke lens option available)



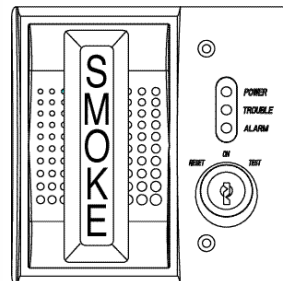
RTS451A
Remote Test
Station



RA400ZA
Remote
Annunciator



SSK451A



SSK451A with
PS24LOWA Strobe
and PS12/
24SLENSWA
"SMOKE" Lens

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