

# 2-Wire Low-Flow Duct Smoke Detector

## Model

DH100LP 2-Wire Photoelectric  
Duct Smoke Detector  
with Low-Flow  
Technology



## Product Overview

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

**Patented telescopic sampling tube**

**12/24 VDC operation**

**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**

**Photoelectric models available**

**Easy to clean**

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

**Remote test station option**

**Remote annunciator option**

**Transparent cover for convenient  
visual inspection**

**UL 268A listed**

**3-year warranty**

The System Sensor Innovair™ DH100LP is a 2-wire photoelectric air duct smoke detector capable of sensing smoke in air velocities from 100 to 4,000 feet per minute (0.5 to 20.32 m/sec). This Innovair features Low-Flow technology enabling duct smoke detection throughout a broad range of airflow environments. Many difficult to solve HVAC applications occur in low airflow duct applications where reliable smoke detection is critical. Innovair with Low-Flow technology can detect smoke at air speed velocities of 100 feet per minute or greater, while continuing the same reliable performance to 4,000 feet per minute.

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.

**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 duct smoke detector application information.

## Architectural/Engineering Specifications

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The air duct smoke detector shall be a System Sensor Model DH100LP 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 100 feet per minute to 4000 feet per minute (0.5 to 20.32 m/sec.). 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 RTS451KEY. The duct 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 plastic or be easily installed after the housing is mounted to the duct by passing through the duct housing. 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.

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### Standard Specifications

#### Size

14<sup>3</sup>/<sub>8</sub>" (37 cm) Length

5<sup>1</sup>/<sub>2</sub>" (14 cm) Width

2<sup>3</sup>/<sub>4</sub>" (7 cm) Depth

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#### Shipping Weight

3<sup>1</sup>/<sub>4</sub> lbs. (1.5 kg.)

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#### Operating Temperature Range

32° to 131° F (0° to 55° C)

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#### Operating Humidity Range

10% to 93% relative humidity

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#### Air Duct Velocity

100 to 4000 ft./min.

(0.5 to 20.32 m/sec.)

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### Electrical Ratings

#### System Voltage

12/24 VDC

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#### Ripple Voltage

4 Volts peak to peak

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#### Start-up Capacitance

0.02 $\mu$ F maximum

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#### Standby Ratings

8.5 VDC minimum

35 VDC maximum

120 $\mu$ A maximum

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### Alarm Ratings

4.2 VDC minimum at 10mA

6.6 VDC maximum at 100mA

Alarm current must be limited to 100mA or less by the control panel. If used, the RA400Z remote lamp operates within the specified alarm currents.

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#### Reset Voltage:

2.50 VDC minimum

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#### Reset Time:

0.3 Sec. maximum

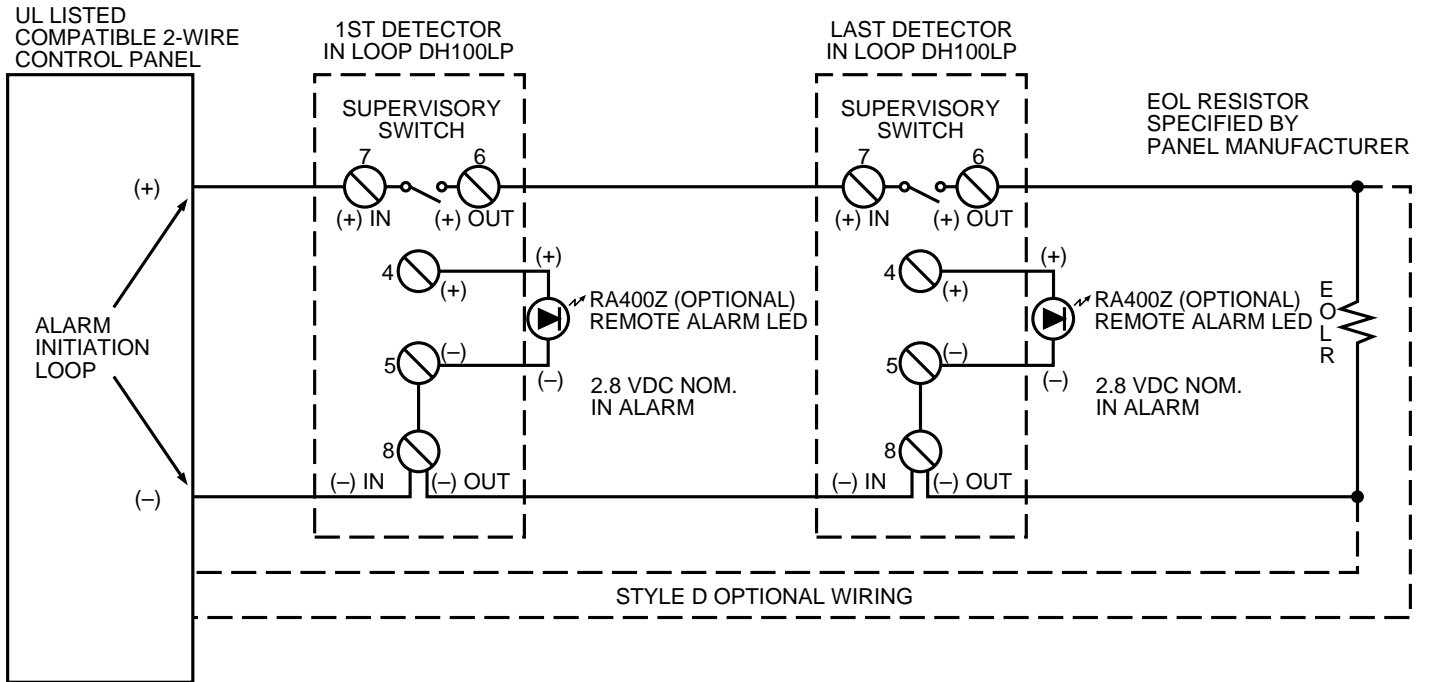
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#### Start-up Time

34.0 Sec. maximum

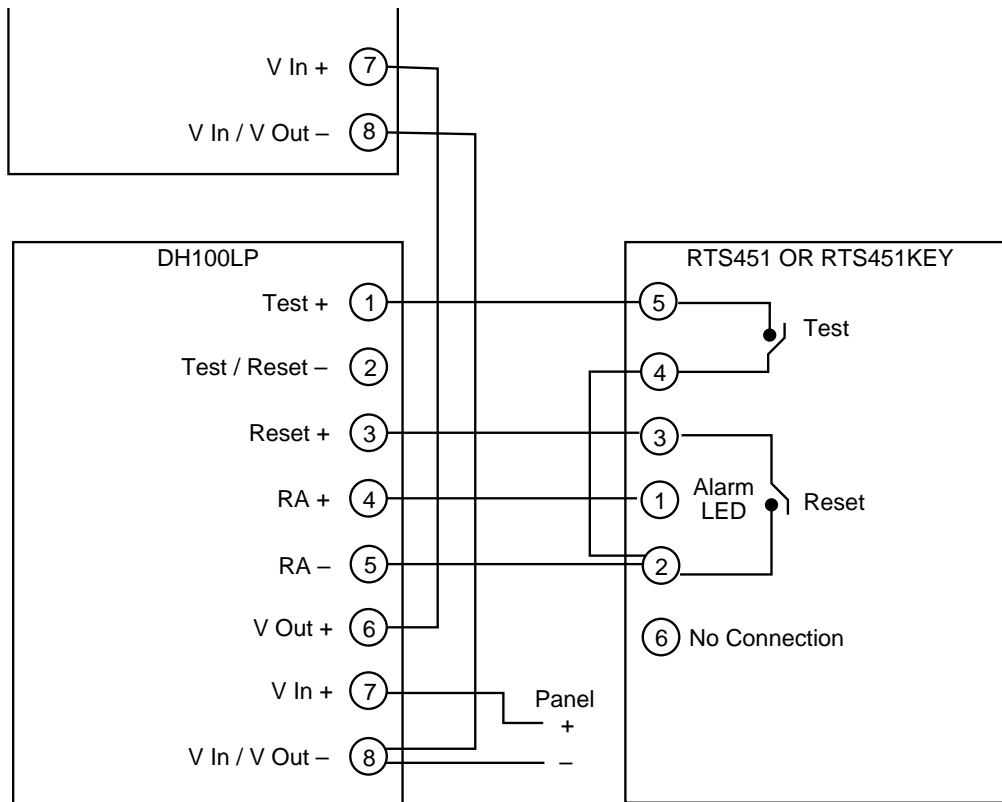
## DH100LP Wiring Guide

System wiring diagram for 2-wire duct smoke detectors (detectors powered from initiating device circuit)



A78-2350-07

Wiring diagram for RTS451KEY Remote Test Station to 2-wire duct smoke detectors



## Ordering Information

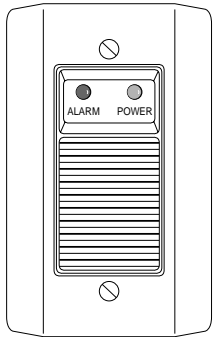
Part Number	Description
DH100LP	2-wire photoelectric duct smoke detector with low-flow technology
A5069	Replacement photoelectric detector board
A5061	Replacement 2-wire power board

### Accessories

ST-1.5	Metal sampling tube duct widths 1'-2' (0.3-0.6 m)	APA451	Remote annunciator with piezo alarm
ST-3	Metal sampling tube duct widths 2'-4' (0.6-1.2 m)	MOD400R	Sensitivity test module
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
RTS451KEY	Remote test station with key lock (see below)	PA400W	Mini-Alert sounder
RTS451	Remote test station	PS24LOW	Mini-Alert add-on strobe
RA400Z	Remote annunciator alarm LED (see below)	PS12/24SLENSW	Wall-mount "SMOKE" lens

## Accessories

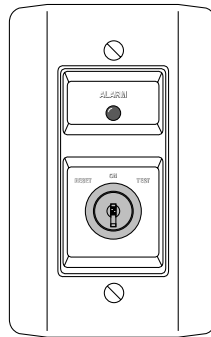
System Sensor provides system flexibility with a variety of accessories, including two remote test stations, and several different means of visible and audible system annunciation. As with our duct detectors, all duct smoke detector accessories are UL listed.



### APA451

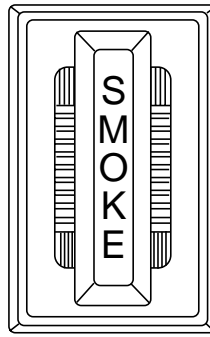
Piezo Annunciator (UL S4011)

*Device cannot be directly wired to 2-wire Innovair.*



### RTS451KEY

Remote Test Station with Key (UL S2522)

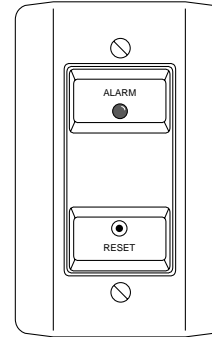


### PA400

Mini-Alert Sounder (UL S3593)

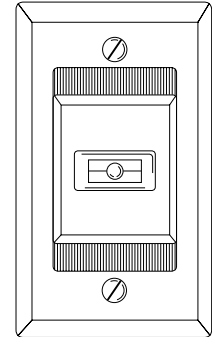
shown with PS24LOW add-on strobe (PS12/24SLENSW smoke lens option available)

*Device cannot be directly wired to 2-wire Innovair.*



### RTS451

Remote Test Station (UL S2522)



### RA400Z

Remote Annunciator (UL S2522)

## System Sensor Sales and Service

### System Sensor Headquarters

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St. Charles, IL 60174  
Ph: 800/SENSOR2  
Fx: 630/377-6495  
Documents-on-Demand  
800/736-7672 x3  
www.systemsensor.com

### System Sensor Canada

Ph: 905.812.0767  
Fx: 905.812.0771

### System Sensor Europe

Ph: 44.1403.276500  
Fx: 44.1403.276501

### System Sensor in China

Ph: 86.29.524.6253  
Fx: 86.29.524.6259

### System Sensor in Singapore

Ph: 65.273.2230  
Fx: 65.273.2610

### System Sensor – Far East

Ph: 85.22.191.9003  
Fx: 85.22.736.6580

### System Sensor – Australia

Ph: 613.54.281.142  
Fx: 613.54.281.172

### System Sensor – India

Ph: 91.11.558.2119  
Fx: 91.11.567.6815